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ROSETON AND DANSKAMMER POINT GENERATING STATIONS IMPINGEMENT MONITORING PROGRAM 1996 ANNUAL PROGRESS REPORT

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ROSETON AND DANSKAMMER POINT GENERATING STATIONS IMPINGEMENT MONITORING PROGRAM 1996 ANNUAL PROGRESS REPORT

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ROSETON AND DANSKAMMER POINT GENERATING STATIONS IMPINGEMENT MONITORING PROGRAM 1996 ANNUAL PROGRESS REPORT

Permit (Facility) Numbers:

NY 000 6262 (Danskammer Point)

NY 000 8231 (Roseton)

This annual report is submitted as partial fulfillment of SPDES permit conditions as stipulated within the section entitled Additional Requirements: Number 9 (Biological Monitoring and Reporting) of the Danskammer Point permit; and Number 7 (Biological Monitoring and Reporting) which is embodied in a Memorandum of Agreement (MOA) for Roseton Generating Station.

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1.0 EXECUTIVE SUMMARY

1.0 EXECUTIVE SUMMARY

The 1996 impingement abundance monitoring program conducted at Central Hudson Gas & Electric Corporation's Roseton and Danskammer Point Generating Stations represents a continuation of year-round intake monitoring programs begun in January of 1972 at Danskammer Point and in July of 1973 at Roseton. Weekly sampling consisting of four successive 6-hour diel periods was conducted to quantify the numbers, types, and biomass of Hudson River fish and major invertebrates impinged on the cooling water intake screening system of each station. Based on observed impingement rates on sampling days and recorded plant flow for the entire year, the total impingement for the year was estimated. This report provides the results of studies conducted during 1996 and compares those results with historical patterns of impingement.

Temperature and dissolved oxygen in 1996 exhibited the typical seasonal patterns seen in previous years, with temperature highest from mid-June to mid-September in the 23-26°C range, and dissolved oxygen at its lowest levels during that same period (about 5-8 mg/l). Weekly averages of specific conductance were below 300 μmhos/cm for the entire year for all depths sampled. Freshwater flow entering the Hudson River estuary at Troy, New York, was higher than average for the year in 1996, with its peak in May and the highest average December flow observed in the 51-year period of record. Turbidity and total suspended solids concentrations were at fairly constant levels throughout 1996. Total organic carbon and pH were at normal levels in 1996. Metals were monitored in the nearfield area in a continuation of expanded water quality analysis begun in 1989. Most values for nine of the 14 metals were at or below detection limits in 1996, and the data for the other five were similar to previous years' data.

On the 52 sampling dates in 1996, 9,117 fish representing 37 species in 16 families were collected at Roseton. At Danskammer Point the collections totaled 41,691 fish in 44 species and 17 families. At Roseton in 1996, the estimated annual total impingement of 57,676 fish and the annual rate of impingement of 0.3834 fish per million gallons (MG) were near the much lower than the long-term average. The estimated annual total impingement at Danskammer Point of 301,615 fish in 1996 and the annual impingement rate of 3.7041 fish/MG were near the average for the 1974-1996 period. Blue crab impingement, which has been monitored during 1986-1996, was lower than in all but one of the previous 10 years at Roseton and lower than in all but two of the previous 10 years at Danskammer Point. White perch was the numerically dominant fish species impinged

during 1996 at Roseton, contributing 40.8% of the estimated annual total impingement. Spottail shiner was second, accounting for 15.0% of the estimated total at Roseton, followed by blueback herring (9.0%). White perch was numerically dominant at Danskammer Point in 1996 (50.8% of the estimated annual total impingement), with gizzard shad second (10.8%), and spottail shiner third (9.3%). Biomass at both Roseton and Danskammer Point in 1996 was dominated by gizzard shad, primarily due to their abundance in January and February, when large adult gizzard shad were abundant in the impingement samples. Abundances of marine species were lower than usual, consistent with the low salinities that persisted throughout the entire year. Overall, the 1996 impingement monitoring program at the two generating stations showed abundances, seasonal and diel impingement patterns, and species composition similar to those of the previous 22 years, with only minor shifts in the dominant fish species.

2.0 INTRODUCTION

2.0 INTRODUCTION

2.1 PROGRAM BACKGROUND, DESCRIPTION AND OBJECTIVES

Central Hudson Gas & Electric Corporation operates two fossil-fueled electric generating plants in Newburgh, New York: Roseton Generating Station at river kilometer 106, and Danskammer Point Generating Station at river kilometer 107 upstream from Battery Park in New York City (river kilometer 0). These two power stations, sited on the estuarine portion of the Hudson River, use once-through cooling. The numbers of fish impinged on the intake screens have been monitored continually since January 1972 at Danskammer Point and since July 1973 at Roseton. This report presents the results of the January-December 1996 impingement sampling conducted by Normandeau Associates Inc.. The sampling design, gear, and methods were consistent with those of previous years. Earlier years' impingement programs were presented in a series of annual reports (LMS 1978a, 1978b, 1979a, 1979b, 1980a, 1980b, 1981, 1982, 1983, 1984, 1987, 1988, 1989, 1993, 1994; EA 1985, 1986; NAI 1990, 1992, 1996a, 1996b, 1997).

Impingement sampling in 1996 consisted of weekly 24-hour collections (Thursday morning to Friday morning) from the traveling screen washwater sluiceway discharges at each plant. Water quality data were collected weekly at the two plant intakes and, during open-water periods, at a midchannel river reference station. Key study objectives of the 1996 impingement program included the following:

- Estimate (collectively, by species, and by age/length categories) the total number and biomass of fish impinged weekly, monthly, and annually.
- Monitor and record the diel distribution of selected impinged taxa/life stages.
- Monitor and record pertinent biological data relative to the impingement of invertebrates.
- Provide specific water quality data from predetermined intake and river reference sites.
- Monitor and record specific plant operational data (cooling water pumps/traveling screens in operation during all impingement collections, etc.).

2.2 REPORT FORMAT

Section 3 describes the two plants and general characteristics of the Hudson River in the vicinity of the study site. Section 4 summarizes the field, laboratory, and analytical procedures used. Section 5 presents the water quality results for both in-plant and river reference station data, and also characterizes the patterns of freshwater flow into the estuary. Section 6 provides the biological data from the 1996 program and discusses these results with respect to previous years' data. Section 7 presents a review of the literature cited. Detailed data tables are provided in five appendices:

A - Annual Impingement Abundance by Species
B - Length-Frequency Information for Major Taxa
C - Estimated Impingement Abundance
D - Estimated Impingement Biomass
E - Impingement Collection Efficiency Program Results

3.0 STUDY SITE DESCRIPTION

3.0 STUDY SITE DESCRIPTION

3.1 LOWER HUDSON RIVER ESTUARY - PLANT VICINITY

The lower Hudson River estuary is approximately 247 km (154 miles) long. With its mouth at the southern tip of Manhattan (the Battery), the estuary extends in a northerly direction to the Federal Dam at Troy, New York. The Federal Dam, constructed in 1832 as part of the New York State canal system, forms the boundary between the tidal estuarine lower Hudson River and the riverine upper Hudson River. The lower Hudson River is defined as a drowned river valley or "coastal plain estuary" (Pritchard 1967), with saltwater intrusion generally restricted to the more southerly portion, although it is occasionally reported as far north as Poughkeepsie at km 122 (mile 76) upriver from the Battery in New York City. During extreme drought years the salt front has been reported as far north as Kingston at km 170 (mile 106) (Buckley 1971). Mean freshwater flow measured at the Federal Dam has averaged approximately 387 m^3/sec (13,660 cfs) over a 50-year period.

The northern Newburgh Bay area of the Hudson River, in which Roseton Generating Station and Danskammer Point Generating Station are found, is bounded on the south by the Newburgh-Beacon Bridge (km 100.4) and on the north by New Hamburg (km 109.5). Newburgh Bay south of the bridge is wide with extensive shoals, especially along the eastern shore. The city of Newburgh dominates the western shore of the bay. North of Newburgh Bay the Hudson River flows through a comparatively deep, narrow channel extending upstream past the Mid-Hudson Bridge at Poughkeepsie (km 121) to Esopus Meadows (km 140). The northern Newburgh Bay region of the Hudson River is widest (about 1.5 km) just south of Roseton Generating Station and narrows slightly in the area of the Newburgh-Beacon Bridge. Wappinger Creek is the only major tributary in northern Newburgh Bay, entering on the eastern side of the Hudson River just south of New Hamburg; the area near the confluence is a wide, shallow shelf. Central Hudson Gas & Electric Corporation operates two fossil-fueled steam electric generating stations with once-through cooling on the west shore of northern Newburgh Bay: the Roseton plant at km 106 and the Danskammer Point plant at km 107. Plant locations are illustrated in Figure 3-1. Hydrodynamic and physiographic characteristics of northern Newburgh Bay are presented in Table 3-1.

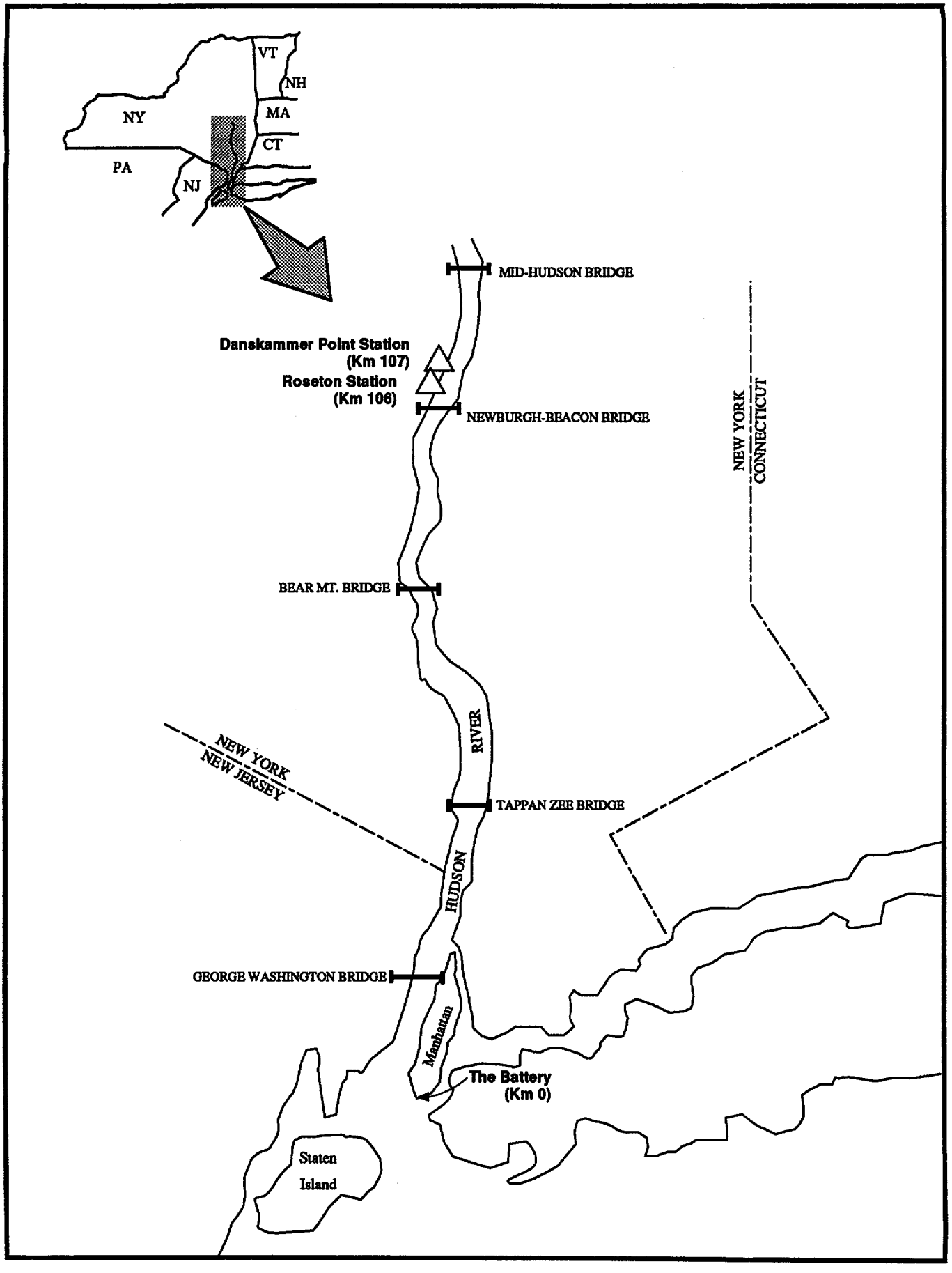


Figure 3-1. Location of the Roseton and Danskammer Point generating stations.

TABLE 3-1. HYDRODYNAMIC AND PHYSIOGRAPHIC CHARACTERISTICS OF NORTHERN NEWBURGH BAY IN THE VICINITY OF ROSETON AND DANSKAMMER POINT GENERATING STATIONS.

PARAMETER	VALUE
Average maximum ebb current velocity	56.64 cm/sec
Average maximum flood current velocity	51.49 cm/sec
Mean high water	0.98 m above mean sea level
Mean low water	0.06 m above mean sea level
Mean tidal level	0.46 m above mean sea level
Mean tidal range	0.88 m
Spring tidal range	1.01 m
Maximum depth	25.0 m
Mean depth	14.8 m
Maximum width	1555 m
Mean width	1335 m
River width at Danskammer Point discharge	1045 m
River width at Roseton discharge	1198 m

(Source: LMS 1989)

3.2 ROSETON GENERATING STATION

Roseton Generating Station is located on the west bank of the Hudson River approximately 106 km north of the New York Battery and 6 km north of the Newburgh-Beacon Bridge. Roseton Station is a fossil-fueled steam electric generating station whose two independent units have a total maximum net generating capacity of 1,200 MWe. Steam is cooled by means of a once-through cooling system that withdraws water from the Hudson River at a shoreline intake structure. The intake consists of four cooling water pumps with a combined rated capacity of 2,426.2 m^3/min, eight vertical traveling screens equipped with 0.95-cm square mesh (six screens) or 0.32-cm x 1.27-cm rectangular mesh (two screens), and 10 vertical trash rack arrays with 7.6-cm spacing between the bars (center to center). Heated effluent is discharged to the river through a single submerged discharge pipe with a multiport diffuser.

Units 1 and 2 of Roseton Generating Station were placed in commercial service on 31 December and 14 September 1974, respectively. Table 3-2 presents plant-specific information related to flow and pump operation.

3.3 DANSKAMMER POINT GENERATING STATION

Danskammer Point Generating Station is located on the west side of the Hudson River, 0.9 km north of the Roseton plant. Danskammer Point Station is a fossil-fueled steam electric generating station. The total maximum net generating capability of its four steam turbine generators ranges from 480 to 491 MWe.

Each of the four generating units at Danskammer Point Station has a separate once-through cooling water system. The cooling water is drawn from a common intake canal, passes through the condensers, and is discharged to the Hudson River through three separate shoreline subsurface pipes on the south side of the plant. The intake, located on the north side of the plant, consists of a debris boom and trash bar racks located at the river shoreline, an intake canal, and a common intake bay from which river water is diverted into the individual cooling systems

TABLE 3-2. COOLING WATER PUMP FLOW RATES FOR ROSETON AND DANSKAMMER POINT GENERATING STATIONS.

PLANT AND UNIT(S)	NUMBER OF PUMPS	NUMBER OF PUMPS OPERATING	COOLING WATER FLOW[a] THOUSANDS OF GALLONS PER MINUTE	CUBIC METERS PER MINUTE	MILLIONS OF GALLONS PER HOUR
Roseton 1 & 2	4	1	213-228	806-863	12.8-13.7
		2	362-418	1370-1580	21.7-25.1
		3	526-561	1990-2120	31.6-33.7
		4	641	2430	38.5
Danskammer Point 1	2	1	21	80	1.3
		2	42	160	2.5
Danskammer Point 2	2	1	21	80	1.3
		2	42	160	2.5
Danskammer Point 3	2	1	41	160	2.5
		2	82	310	4.9
Danskammer Point 4	3	1	50	190	3.0
		2	100	380	6.0
		3	150	570	9.0

[a]Flow rate at Roseton with fewer than four pumps operating varies within the range shown depending on the operating status of the condensers.

through a series of vertical traveling screens. The intake canal is 137 m long and 10.4 m wide. Nine cooling water pumps (Table 3-2) supply a total cooling water flow of 1,196 m^3/min, which results in a mean maximum intake canal velocity at low water of 0.6 m/sec.

Traveling screens for Units 1 and 2 (six traveling screens) and for Unit 4 (three traveling screens) are equipped with 0.95-cm square mesh. The three Unit 3 traveling screens are equipped with interwoven stainless steel wire with a 0.32-cm square mesh.

4.0 MATERIALS AND METHODS

4.0 MATERIALS AND METHODS

4.1 SAMPLE COLLECTION

4.1.1 Schedule

Impingement sampling was conducted once per week throughout 1996. On each sampling date simultaneous 24-hr collections were made at three sites (unless there was no cooling water withdrawal, eliminating the need for sampling at a site): Roseton, Danskammer Point Units 1 and 2, and Danskammer Point Units 3 and 4. Collection typically began at 0900 hrs each Thursday and ended at 0900 hrs the following day (Friday). Each 24-hr sampling effort was subdivided into four consecutive 6-hr periods. In years prior to 1989, additional sampling days were scheduled if fish abundance reached 1,000 at either plant on a regularly scheduled sample date, but this procedure was approved for modification. Additional sampling days were not scheduled after 1988 because the data obtained did not substantially improve the accuracy or precision of impingement estimates (LMS 1989). Furthermore, deleting additional impingement collections provided the opportunity to return impinged fish immediately to the river thus increasing the opportunity for fish survival. Table 4-1 lists the sampling dates and number of samples (6-hr diel periods) collected in 1996.

4.1.2 General Sampling Procedures

All operable traveling screens were prewashed immediately prior to initiation of each 24-hr sampling effort to remove any entrapped organisms accumulated before the sample start time. Screens were inspected and screen housings and sluiceways were cleaned prior to each 24-hr sampling period and, if plant operation permitted, between successive 6-hr samples. The status of pumps and traveling screens and the screenwash duration and pressure were recorded during sampling. Samples were collected over the following time intervals each week: 0900-1500 hrs, 1500-2100 hrs, 2100-0300 hrs, and 0300-0900 hrs.

Impingement samples were collected by intercepting the screenwash discharge with nets, collection baskets, or a 0.6-cm mesh conveyor belt, depending on the site of collection.

TABLE 4-1. SAMPLING DATES AND NUMBER OF SAMPLES COLLECTED, ROSETON AND DANSKAMMER POINT IMPINGEMENT MONITORING PROGRAM, 1996.[a]

	NUMBER OF SAMPLES COLLECTED			NUMBER OF SAMPLES COLLECTED	
SAMPLE DATE	ROSETON	DANSKAMMER POINT	SAMPLE DATE	ROSETON	DANSKAMMER POINT
4 Jan	4	4	2 Jul	4	4
11 Jan	4	4	11 Jul	4	4
18 Jan	4	4	18 Jul	4	4
25 Jan	4	4	25 Jul	4	8
1 Feb	4	4	1 Aug	4	8
8 Feb	4	4	8 Aug	4	8
15 Feb	4	4	15 Aug	4	4
22 Feb	4	4	22 Aug	4	8
29 Feb	4	4	29 Aug	4	4
7 Mar	4	4	5 Sep	4	8
14 Mar	4	4	12 Sep	4	8
21 Mar	4	4	19 Sep	4	8
28 Mar	4	4	26 Sep	4	4
4 Apr	4	4	3 Oct	4	4
11 Apr	4	4	10 Oct	4	4
18 Apr	4	4	17 Oct	4	4
25 Apr	4	4	24 Oct	4	4
			31 Oct	4	4
2 May	4	4			
9 May	4	4	7 Nov	4	4
16 May	4	4	14 Nov	4	4
23 May	4	4	21 Nov	4	4
30 May	4	4	26 Nov	4	4
6 Jun	4	4	5 Dec	4	4
13 Jun	4	4	12 Dec	4	4
20 Jun	4	4	19 Dec	4	4
27 Jun	4	4	26 Dec	4	4
			1996 TOTAL	208	236

[a]Sampling dates listed as beginning date of 24-hr collection interval, which ended at 0900 hrs on the following date. Each 6-hr collection at an outfall within the 24 hours is counted as a separate sample.

When possible, organisms alive at the time of sample collection were analyzed immediately and returned to the river alive before completing other sample processing tasks. Fish and invertebrates were separated from the debris for identification, enumeration, and measurements. The volume and weight of the debris were determined, and the debris was categorized as to its major components (leaves, fresh vegetation, decayed vegetation, algae, sticks, plastic, or other).

Any dead sturgeon collected are typically frozen and held for the New York State Department of Environmental Conservation. All striped bass were checked for presence of a magnetic nose or cheek tag, the presence of which would indicate that the specimen was a hatchery-released fish. All striped bass and Atlantic tomcod were checked for tags and fin clips.

The following water quality data were collected at the prewash and near the end of each 6-hr period (five times during each 24-hr weekly sampling effort) at the Roseton intake and the Danskammer intake: surface and bottom temperature, surface and bottom conductivity, surface and bottom dissolved oxygen, tide height, and tide stage. Two additional parameters, pH and total suspended solids, were sampled at surface and bottom once per sampling date at both intakes, at approximately 1500 hrs. Locations of the in-plant water quality sampling locations are shown in Figures 4-1 and 4-2.

Additional water quality sampling was conducted weekly at a reference station located midchannel in the Hudson River directly out from the Roseton plant (Figure 4-3) during the daytime low slack tide on each sampling date (Table 4-2). Temperature and conductivity were measured at 2-m depth intervals. Dissolved oxygen, pH, total suspended solids, turbidity, and total organic carbon were measured or sampled at three depths (surface, mid-depth, and bottom). Once per month an additional sample was collected and analyzed for the following metals: aluminum, arsenic, cadmium, total chromium, hexavalent chromium, copper, iron, lead, manganese, mercury, nickel, selenium, vanadium, and zinc.

Collection efficiency tests were conducted at both Roseton and Danskammer Point at approximately monthly intervals to measure the efficiency of both the gear and the sampling crew (Appendix E). A known number of marked fish were released into the screenwash discharge, and the number found in the sample were counted to determine the percent recovered.

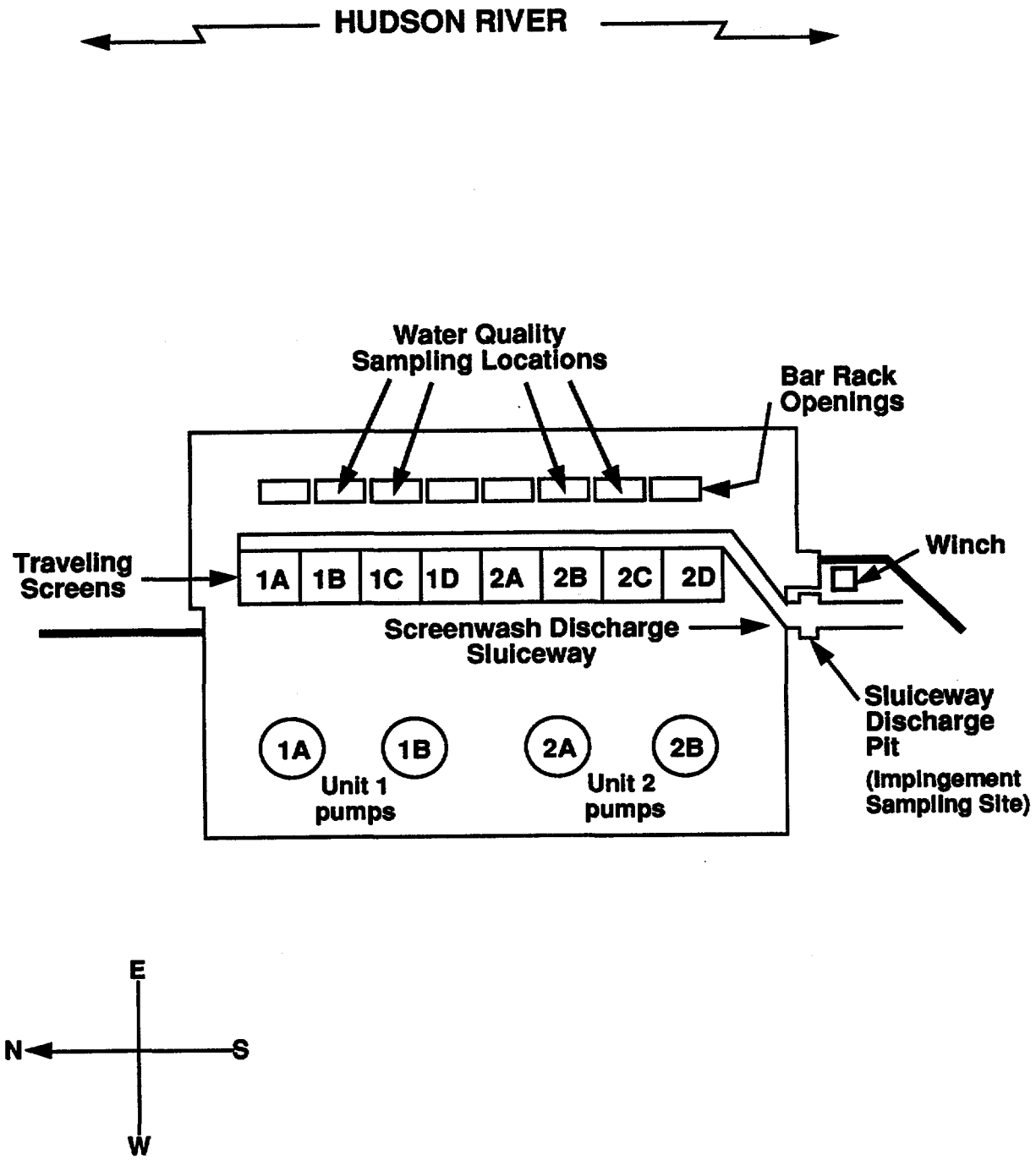


Figure 4-1. Roseton impingement and water quality sampling locations.

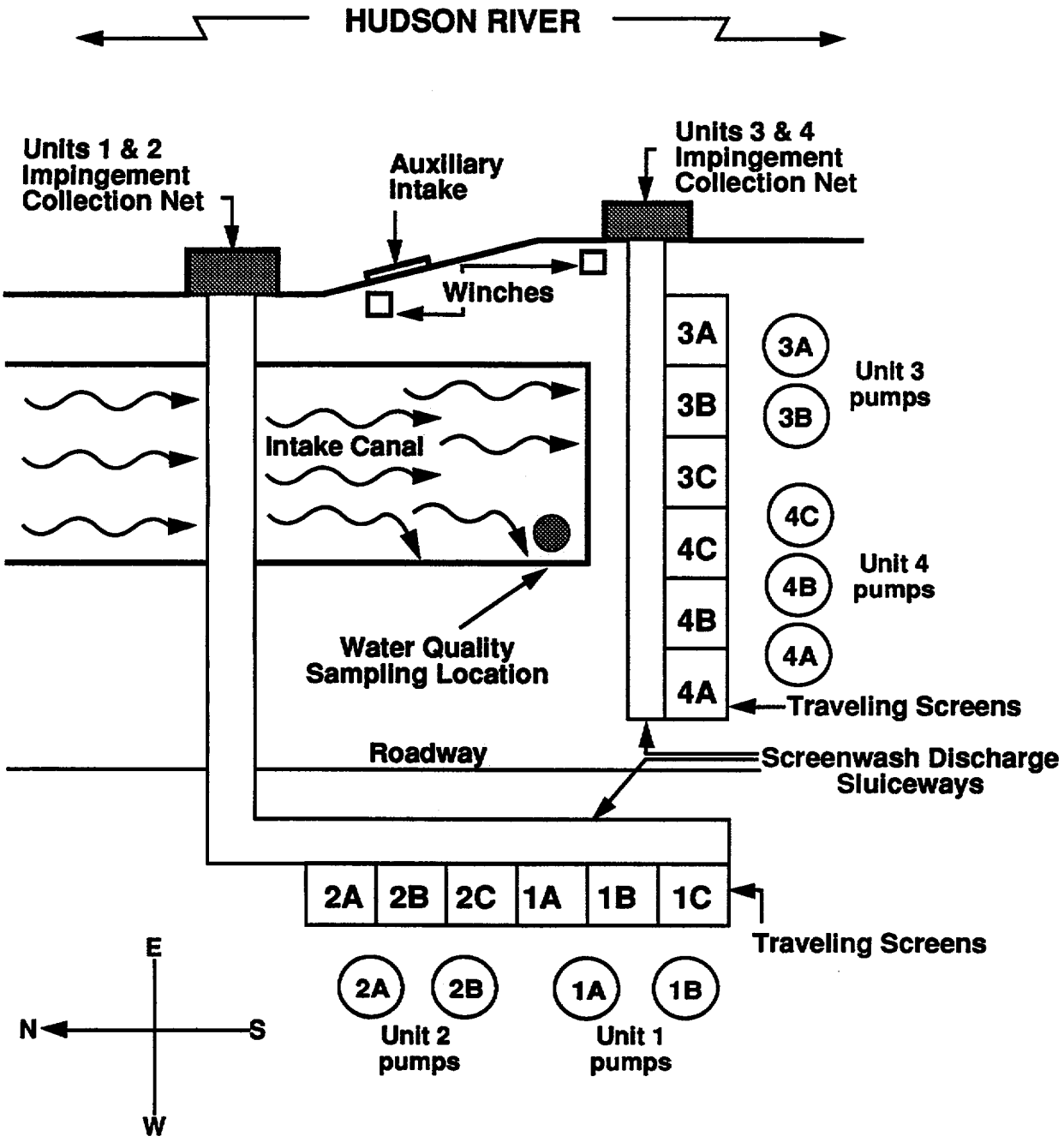


Figure 4-2. Danskammer Point impingement and water quality sampling locations.

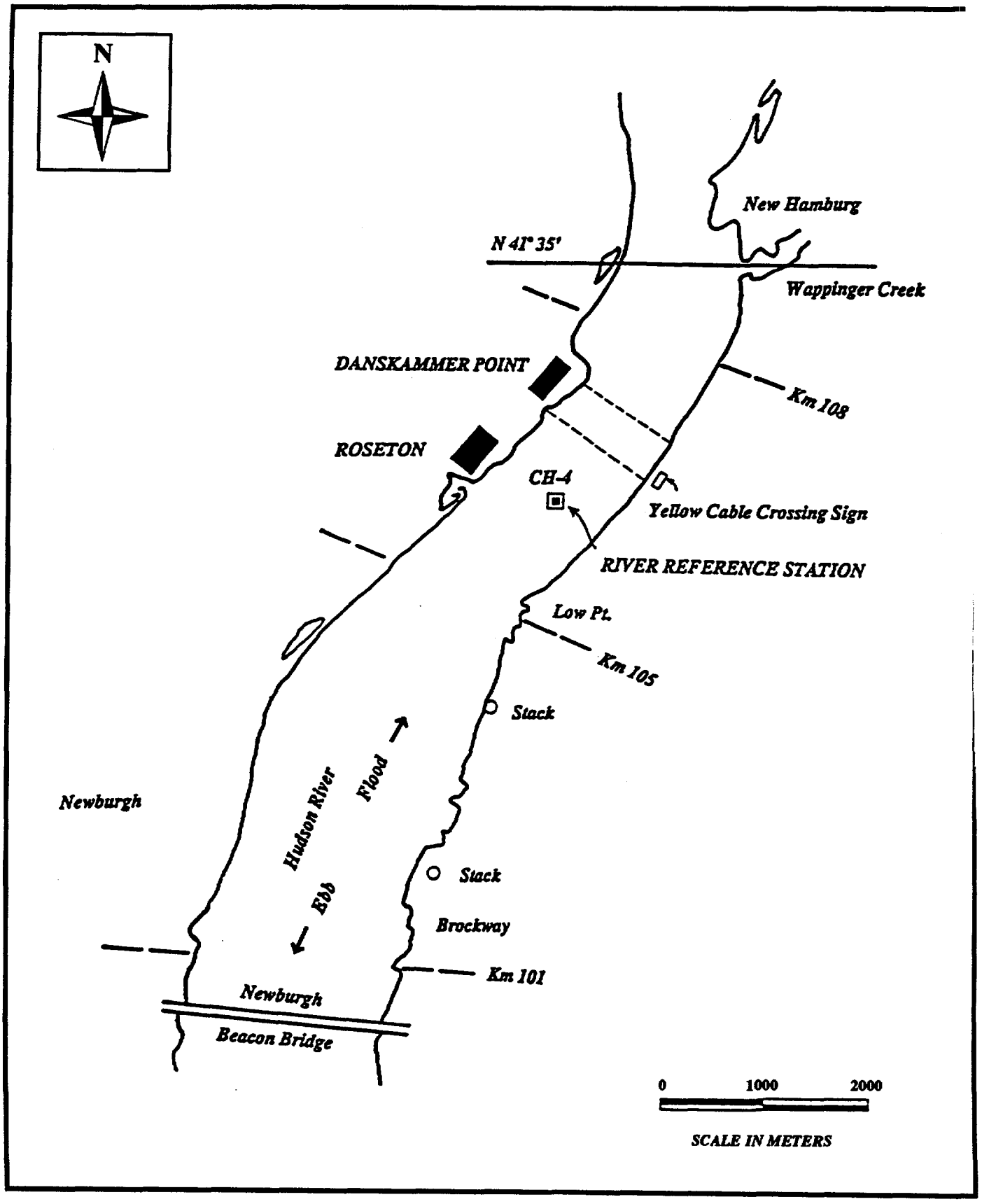


Figure 4-3. River Reference Station CH-4 for water quality sampling in the vicinity of Roseton and Danskammer Point generating stations.

TABLE 4-2. DATES OF WATER QUALITY SAMPLING AT THE RIVER REFERENCE STATION FOR THE 1996 ROSETON AND DANSKAMMER POINT GENERATING STATIONS IMPINGEMENT MONITORING PROGRAM

1 Mar[b]	2 Aug[b]
14 Mar	9 Aug
21 Mar	15 Aug
28 Mar	22 Aug
4 Apr[b]	29 Aug
11 Apr	5 Sep[b]
18 Apr	12 Sep
25 Apr	19 Sep
2 May[b]	27 Sep
9 May`	3 Oct[b]
16 May	11 Oct
23 May	17 Oct
30 May	25 Oct
6 Jun[b]	31 Oct
14 Jun	14 Nov[b]
20 Jun	22 Nov
28 Jun	26 Nov
2 Jul[b]	5 Dec
12 Jul	12 Dec
18 Jul	19 Dec
26 Jul	26 Dec

[a]No sampling was conducted on ten sampling dates due to ice or weather conditions: 4 January, 11 January, 18 January, 25 January, 1 February, 8 February, 15 February, 22 February, 7 March, and 7 November.

[b]Dates on which monthly samples were collected for analysis of metals.

4.1.3 Procedures Specific to Roseton

The collection apparatus used in 1996 at Roseton was a portable, motorized, conveyor belt positioned to intercept the screenwash discharge as it entered the sluiceway discharge pit. The 0.6-cm mesh belt screened organisms and debris from the discharge flow and dropped them onto a sorting table. Location of the sampling site is shown in Figure 4-1.

4.1.4 Procedures Specific to Danskammer Point

Units 1 and 2 were sampled separately from Units 3 and 4 at Danskammer Point. Sampling nets were hoisted into position by winches to catch the screenwash discharges where they empty into the river (Figure 4-2). Nets with 0.6-cm mesh were used for the Unit 1 and 2 discharge, and 0.3-cm mesh nets were used at Units 3 and 4, corresponding to the mesh size on the respective units' traveling screens.

4.2 SAMPLE PROCESSING PROCEDURES

Total count and weight of each species of fish and of major invertebrate species were determined for each 6-hr sample. For fish, these data were recorded separately by age/length groups (young-of-the-year, yearling, and older) on the basis of cutoff lengths revised weekly for each species. For individual fish and blue crabs, length (carapace width point-to-point for crabs) and weight were recorded to the nearest 1 mm and 0.1 g, respectively. Also, the sex of individual blue crabs was determined. If there were over 25 crabs or over 25 of any age/length group in a 6-hr sample of a fish species at either plant, then that species and group was randomly subsampled for individual length and weight measurements. Subsample sizes were 25 for blue crabs and 25 per length class for fish.

Counts and measurements were subjected to a quality control inspection designed to assure an Average Outgoing Quality Limit of 10% (i.e. ≥90% of the data are within specified accuracy ranges).

Samples for pH were analyzed using a pHTestr 2 pH meter to the nearest 0.1 pH unit. Turbidity analysis was performed with a model 2100A nephelometric turbidimeter, manufactured by Hach Instrument Corporation. Values were recorded to the nearest 0.1 Nephelometric Turbidity Unit (NTU).

All analyses of metals, total suspended solids, and total organic carbon were performed by EnviroTest Laboratories Inc., Newburgh, New York, a New York State certified laboratory. Aluminum, cadmium, total chromium, copper, iron, manganese, nickel, vanadium, and zinc were analyzed by EPA method 200.7. Arsenic was analyzed by EPA method 206.2, lead by EPA method 239.2, mercury by EPA method 245.1, selenium by EPA method 270.2, total suspended solids by EPA method 160.2, and total organic carbon by American Public Health Association standard method 5310-C. Hexavalent chromium was analyzed by American Public Health Association standard method 3500-CRD.

Water quality parameters measured *in situ* included temperature and conductivity (Yellow Springs Instruments model 33 salinity - conductivity - temperature meter) and dissolved oxygen (Yellow Springs Instruments model 57 dissolved oxygen meter).

4.3 ANALYTICAL PROCEDURES

Impingement rates observed on sampling days were used to estimate rates and totals (of both numbers and biomass) of fish and invertebrates impinged on a weekly, monthly, and annual basis by the following procedure. Each month was divided into four approximately weekly intervals: week 1 = dates 1-7, week 2 = dates 8-14, week 3 = dates 15-21, and week 4 = dates above 21. The weekly impingement rate was estimated as the total count (or biomass) for all samples collected during that week (units combined at Danskammer Point) divided by the total plant flow during the minutes of sample collection. The impingement rate for each month was estimated as the average of the four weekly rates for that month. The estimate of the total number (or biomass) impinged for each month was calculated as the monthly impingement rate multiplied by the total plant flow for the month.

The variance of each monthly estimate was calculated as

$$VAR\ (F_j\ M_j) = F_j^2 \left(\frac{S_j^2}{n_j} \right) \left(\frac{N_j - d_j}{N_j} \right)$$

where F_j = plant flow in month j in millions of gallons,
S_j = standard deviation of the weekly impingement rates in month j,
n_j = number of weeks averaged for month j,
N_j = number of days in month j, and
d_j = number of sampling days in month j.

The annual impingement rate was calculated as the mean of the 12 monthly impingement rates. The estimate of the total number (or biomass) impinged for the year was the sum of the 12 monthly estimates. The variance for the annual estimate was calculated as the sum of the 12 monthly variances. The 95% confidence interval for the annual estimate, assuming normally distributed data, was calculated as 1.96 multiplied by the square root of the variance for the annual estimate (where 1.96 is the Student's t value at $\alpha = 0.05$).

No rounding of data was done prior to the final step in each analysis. This prevented introduction of rounding error in the final result, and may present the appearance in a table that a column of data does not sum exactly to the total shown in the last row. This is because the intermediate values (e.g. estimated numbers of individual species impinged) are rounded for display in the table but the sum (e.g. all species combined) was calculated from the exact (unrounded) values.

On one sampling date, 11 April 1996, large amounts of filamentous algae clogged the conveyor mesh at Roseton, preventing proper drainage and causing some sample loss as water overflowed the sides of the conveyor. The proportion of sample loss was estimated by releasing marked fish into the sluiceway in front of the conveyor and observing the number recovered in the sample. Based on the observed percent recovery of 64%, counts from this sampling date were adjusted by dividing the original counts by 0.64. This approach was considered valid because the degree of conveyor clogging and overflow was observed to be consistent throughout the 24 hours of sampling, including the period of time during which the marked fish were released and recovered. This estimation method was used rather than rescheduling the week's sample because the algae problem appeared likely to continue for the next few days.

5.0 RESULTS OF WATER QUALITY MONITORING PROGRAM

5.0 RESULTS OF WATER QUALITY MONITORING PROGRAM

5.1 HUDSON RIVER FRESHWATER FLOW

During 1996, the average monthly flow rate for fresh water entering the estuarine portion of the Hudson River at Green Island (river kilometer 247) reached a maximum in May at 38,200 cubic feet per second (cfs) and the month with the lowest average (6,553 cfs) was September (Table 5-1). (Data for October-December are provisional.) In relation to the seasonal pattern observed over the past 51 years, the 1996 freshwater flow was at normal levels for most of the year (Figure 5-1). The freshwater flow for December was the highest average for that month during the 51-year period of record. Flow in May was also high compared with most historical data. The overall mean freshwater flow rate for 1996 was 41.8% higher than the long-term average.

5.2 REFERENCE STATION WATER QUALITY

Water temperature (°C), specific conductance (μmhos/cm at 25°C), pH, dissolved oxygen (mg/l), total suspended solids (mg/l), turbidity (NTU), and total organic carbon (mg/l) were recorded weekly during the open-water period, at the Hudson River reference station (CH-4) from surface, middle, and bottom depths. Concentrations of 14 metals (mg/l) were determined approximately once per month from mid-depth water samples at the same sampling station on nine dates. Due to the rough weather and extensive ice formations that existed during the coldest months, river water quality sampling was not conducted on four scheduled dates in January, four in February, one in March, and one in November.

Mean water temperature in the river ranged from -0.1 to 25.9°C during 1996 (Table 5-2). The highest mean temperature for 1996 was recorded on 5 September; the lowest was on 29 February. The highest temperatures in 1996 were from late June to mid-September. Water temperature measurements from the three depths were similar, with the surface temperature frequently the highest of the three during the summer (Figure 5-2).

TABLE 5-1. MEAN MONTHLY FRESHWATER FLOW FOR THE LOWER HUDSON RIVER FOR 1987-1996 AND THE LONG-TERM SUMMARY FOR 1946-1996.[a]

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MEAN[b]	MAX	MIN
1987	9274	7104	21380	34720	5505	6170	5728	4178	12040	17860	16050	15710	12978	34720	4178
1988	9468	12340	16280	16830	12620	4340	4627	4910	5779	7437	19970	11630	10496	19970	4340
1989	6870	9030	12060	23890	27060	18490	7985	6853	8831	14470	21390	10600	13955	27060	6853
1990	13530	24850	35110	31590	34980	8839	5553	8746	5604	16990	23100	24330	19414	35110	5553
1991	18130	17560	24620	23200	12270	5154	4027	4448	4908	7629	10660	12850	12089	24620	4027
1992	10730	8340	14430	22910	17720	12180	8968	7181	7680	10140	18780	15490	12876	22910	7181
1993	19110	9746	16010	61820	13250	7157	4706	4935	5573	6787	12110	14230	14582	61820	4706
1994	8194	11920	19850	50060	20130	8223	8777	9361	6720	6268	8853	14010	14339	50060	6268
1995	17320	9279	18170	9073	5577	4590	3339	3426	3587	12750	24500	11580	10272	24500	3339
1996	26010	17810	16270	33190	38200	12470	13570	6766	6553	10040	19790	33690	19556	38200	6553

LONG-TERM SUMMARY (FEBRUARY 1946-DECEMBER 1996)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MEAN[b]
MAX	33970	31260	44240	61820	40520	29630	18380	14630	17030	30140	26150	33690	
MEAN	13486	14026	22064	30788	19014	10117	6756	5846	6497	9014	13090	15050	13796
MIN	4177	4528	9116	9073	5500	3567	3074	2903	2873	2965	3257	6084	
N	50	51	51	51	51	51	51	51	51	51	51	51	

[a]Flows are in ft^3/s (cfs); data for October-December 1996 are provisional.
[b]Mean of monthly means weighted by number of days/month.
N=Number of years.
Source of data: U.S. Geological Survey, Water Resources Div., Troy, N.Y.

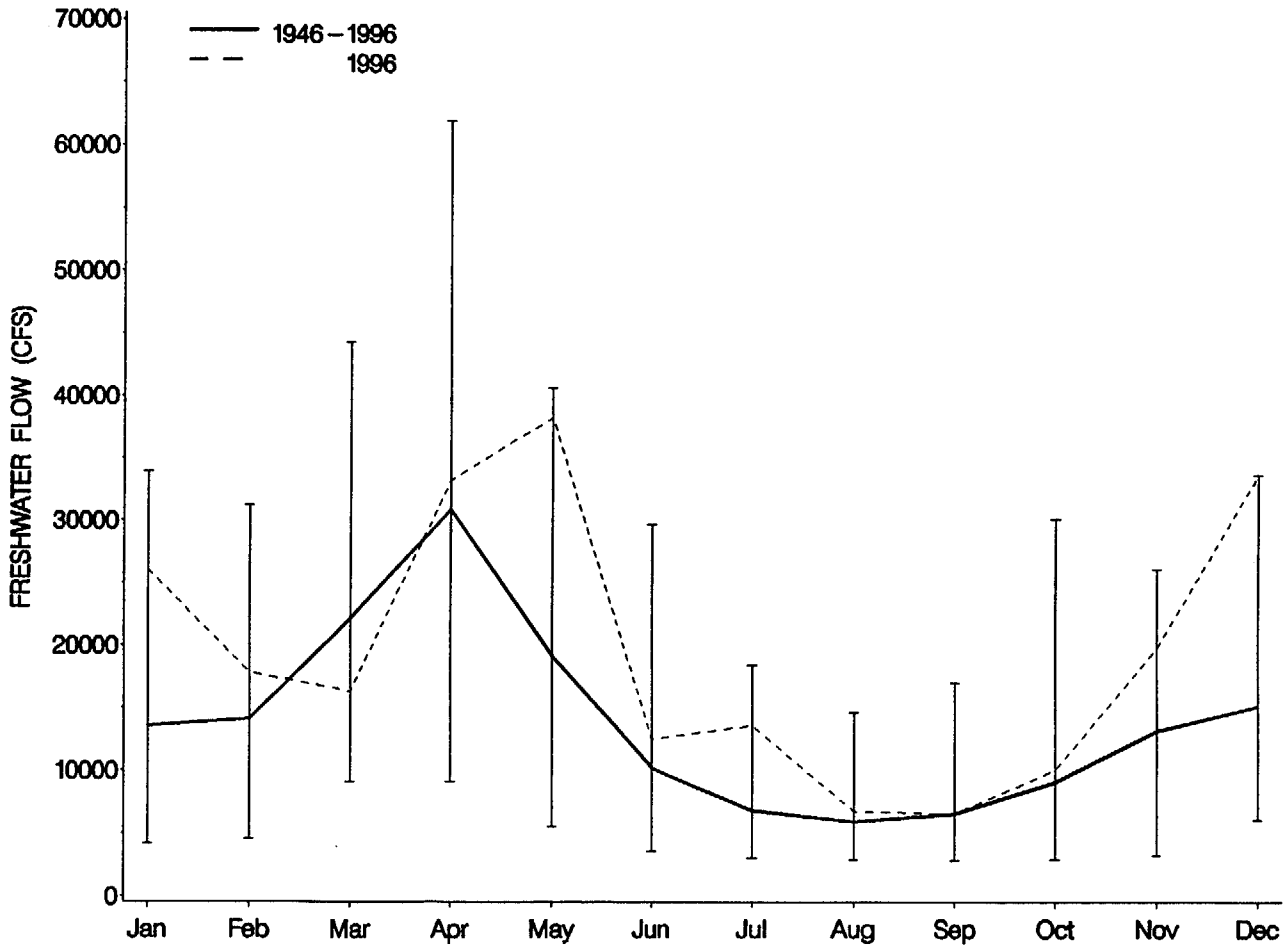


Figure 5-1. Monthly average freshwater flow rate for the lower Hudson River in 1996 and the long-term monthly average and range for 1946-1996. (October-December data for 1996 are provisional.)

TABLE 5-2. AVERAGE VALUES OF SELECTED WATER QUALITY PARAMETERS AT THE RIVER CHANNEL SAMPLING STATION, 1996.[a]

SAMPLED DATE	MEAN TEMPERATURE (°C)	MEAN D.O. (MG/L)	MEAN CONDUCTIVITY (μMHOS/CM AT 25°C)	MEAN TSS (MG/L)	MEAN pH	MEAN TURB (NTU)	MEAN TOT.ORG.C (MG/L)
03/01/96	-0.1	13.6	234	26.3	7.4	17.7	5.0
03/14/96	0.9	13.4	218	44.7	7.7	30.7	3.3
03/21/96	1.5	13.3	239	51.7	7.1	23.0	2.9
03/28/96	3.9	13.5	243	18.0	6.9	14.0	3.7
04/04/96	5.3	12.8	245	19.7	7.1	14.8	3.4
04/11/96	6.2	11.9	244	10.3	7.7	10.3	3.1
04/18/96	7.1	11.7	219	27.0	7.8	17.3	3.5
04/25/96	10.0	11.5	177	21.0	7.7	23.2	4.1
05/02/96	10.3	11.1	161	26.0	7.6	15.3	3.2
05/09/96	10.9	9.3	167	38.0	7.8	23.7	3.2
05/16/96	12.1	9.8	199	30.3	7.8	28.8	4.0
05/23/96	13.3	10.6	163	26.3	7.6	17.3	3.7
05/30/96	15.7	9.2	165	23.0	7.6	15.8	3.4
06/06/96	18.3	8.3	178	12.7	7.3	13.8	2.9
06/14/96	21.9	7.7	203	50.0	7.9	24.0	3.8
06/20/96	23.3	7.4	203	15.0	7.6	11.0	3.6
06/28/96	23.9	6.1	225	17.0	7.7	10.7	3.7
07/02/96	23.9	7.0	228	25.7	7.6	12.8	3.5
07/12/96	23.6	7.0	242	24.3	7.6	5.9	3.5
07/18/96	22.4	7.5	216	19.3	7.7	18.3	4.6
07/26/96	24.1	6.7	219	23.3	7.5	12.7	4.9
08/02/96	23.4	6.5	216	24.0	7.6	14.2	4.9
08/09/96	24.5	6.1	225	6.0	7.5	13.5	4.9
08/15/96	24.4	5.2	224	10.0	7.6	12.3	4.6
08/22/96	25.4	6.9	255	12.3	7.3	11.9	4.8
08/29/96	25.0	6.7	251	17.3	7.4	13.3	5.2
09/05/96	25.9	6.8	271	10.7	7.4	8.1	3.5
09/12/96	25.2	6.8	258	11.7	7.4	7.4	3.8
09/19/96	23.3	7.5	269	9.7	7.3	7.9	4.2
09/27/96	20.9	7.3	274	28.0	7.6	10.2	5.0
10/03/96	19.1	8.1	262	13.7	7.1	7.8	4.3
10/11/96	16.8	8.4	278	19.0	7.8	7.2	4.5
10/17/96	15.6	9.4	255	14.3	7.6	2.3	4.2
10/25/96	12.1	8.7	243	24.0	7.1	3.0	4.9
10/31/96	12.0	9.8	223	18.3	7.2	2.6	5.0
11/14/96	9.0	11.5	220	25.0	6.7	5.2	4.5
11/22/96	5.4	11.1	208	58.3	7.6	15.0	5.1
11/26/96	4.9	11.1	176	40.7	7.1	17.0	5.2
12/05/96	2.9	11.7	176	42.7	7.3	15.3	3.8
12/12/96	3.2	14.1	167	66.0	7.1	18.7	4.1
12/19/96	4.0	12.9	200	34.0	7.1	3.7	3.4
12/26/96	3.1	11.2	206	19.3	7.2	13.7	3.6

[a]Means are averages of all depths sampled for each parameter.

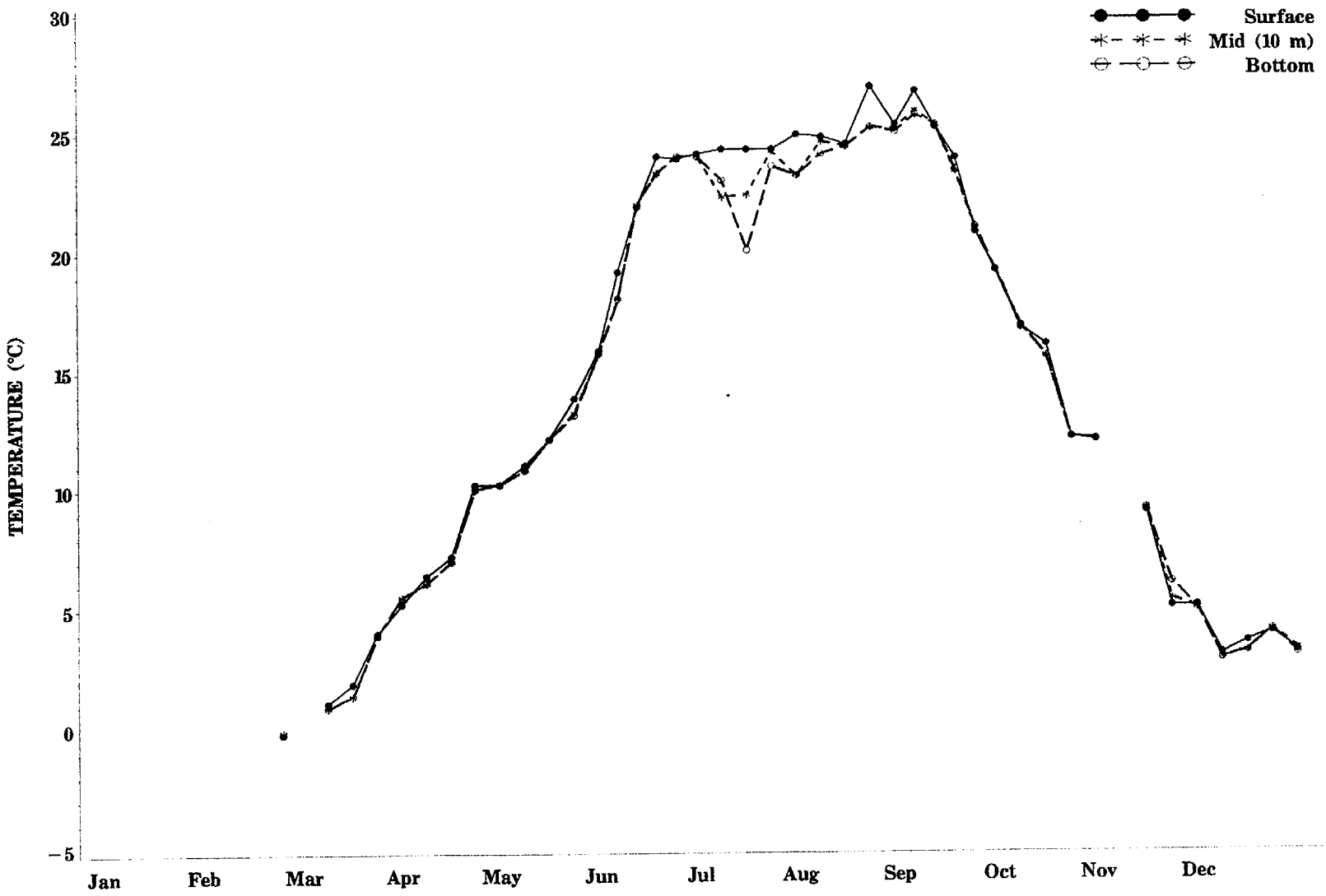


Figure 5 – 2. Weekly water temperature at river reference station CH – 4, Roseton and Danskammer Point vicinity, 1996.

Mean specific conductance ranged from 161 to 278 μmhos/cm (corrected to 25°C) throughout the open-water sampling period (Table 5-2). Values were lowest during the spring (May - June) and late fall (November - December). The influence of marine waters on northern Newburgh Bay, which is typically characterized by an increase in specific conductivity, was barely evident in 1996. Specific conductance peaked from late August through mid-October (Figure 5-3). The higher conductivity values reflected the relatively low freshwater flows that are typically characteristic for that time of year (Figure 5-1). The surface value was consistently lowest and the bottom value was consistently highest, reflecting the higher density of the more saline water (Figure 5-3).

The mean pH during 1996 ranged between 6.7 and 7.9 throughout the study period without any particular seasonal pattern (Table 5-2). The highest mean pH value (7.9) was observed on 13 June, and the lowest mean value (6.7) was recorded on 14 November. The pH values recorded during 1996 were similar among the three depths for each date (Figure 5-4).

Mean dissolved oxygen ranged from 5.2 to 14.1 mg/l and exhibited the typical inverse relationship to water temperature, with the highest values recorded during March and December and the lowest values occurring in August (Table 5-2). Dissolved oxygen levels usually varied little with depth but generally the surface value tended to be the highest among the three depths (Figure 5-5).

In 1996 the mean concentrations of total suspended solids (TSS) ranged from a low of 6.0 mg/l on 8 August to a high of 66.0 mg/l on 12 December (Table 5-2, Figure 5-6). In 1996 the TSS values were generally highest in November-December. The seasonality was less distinct for the TSS data than it was for conductivity, suggesting the influence of factors other than freshwater flow, such as storm events. In general, the TSS levels were highest at the bottom depth and lowest in surface samples.

Turbidity values recorded at the river reference station (Figure 5-7) exhibited a generally decreasing trend from March through early November, increasing to average levels in late November. The average turbidity level (depths combined) ranged from 2.3 NTU on 17 October to 30.7 NTU on 14 March. Throughout much of the year turbidity was usually highest at the bottom and lowest at the surface.

Total organic carbon (TOC) concentrations tended to be slightly higher in the colder months of the year than during the warmer months (Figure 5-8). Mean TOC levels ranged from 2.9 mg/l measured on 21 March and 6 June to 5.2 mg/l on 29 August and 26 November. Although TOC levels generally were highest in the summer and fall, seasonal differences were relatively small. Differences in TOC levels among the three sampling depths were typically minor, with none of the three depths tending to be consistently highest or lowest.

Samples from the river reference station CH-4 were also tested for 14 different metals on a monthly basis, except during unfavorable weather or ice conditions. Five metals, including aluminum, iron, lead, manganese, and zinc were at detectable levels on all nine of the sampling dates (Table 5-3 and Figures 5-9 through 5-13). Several of the metals tested were below detection limits during all of the sampling events, including arsenic, cadmium, hexavalent chromium, copper, nickel, selenium, and vanadium. Mercury was slightly above its detection limit on four dates and total chromium was above its detection limit on one of the nine sampling dates. Highest concentrations were observed on the May sampling date for aluminum and zinc, in February for iron, June for lead, and July and November for manganese. Highest values for some of these metals were observed in the spring during weekly sampling in previous years, but seasonal patterns have not been particularly consistent or distinct.

5.3 IN-PLANT WATER QUALITY

5.3.1 Roseton Generating Station

Mean water temperature, dissolved oxygen, specific conductance, pH, and total suspended solids recorded at the Roseton intake for each impingement monitoring date are presented in Table 5-4. Mean weekly water temperature ranged from 1.1°C, recorded on 22-23 February to 26.4°C, recorded during 22-23 August. Dissolved oxygen values displayed a typical inverse relationship with water temperature; the lowest values were recorded during summer and the highest values were recorded during the cold-water periods of winter and late fall. The highest mean dissolved oxygen value was 15.9 mg/l on 22-23 February. The lowest mean dissolved oxygen value was 6.3 mg/l on 1-2 August. Specific conductance (μmhos/cm at

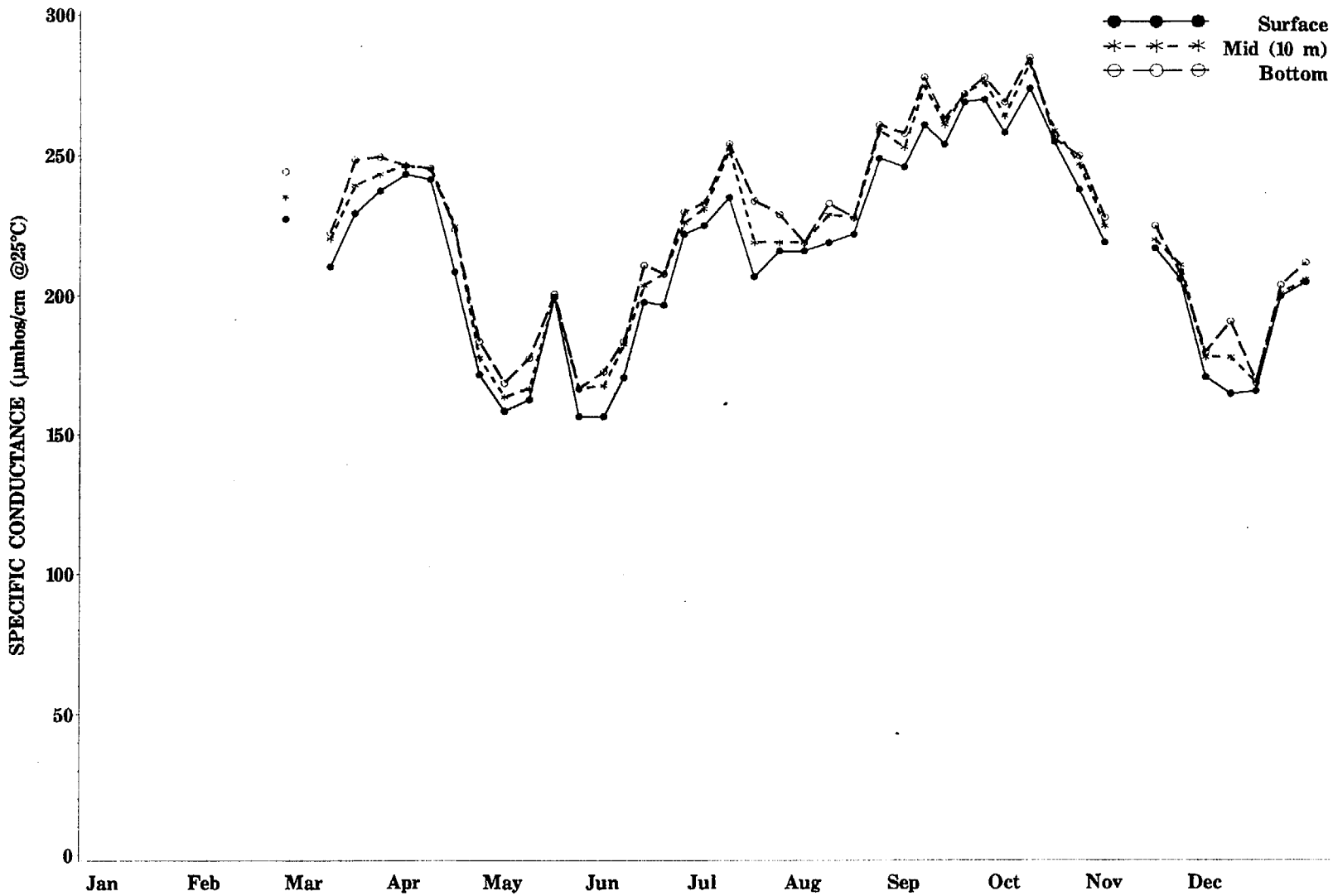


Figure 5-3. Weekly specific conductance at river reference station CH-4, Roseton and Danskammer Point vicinity, 1996.

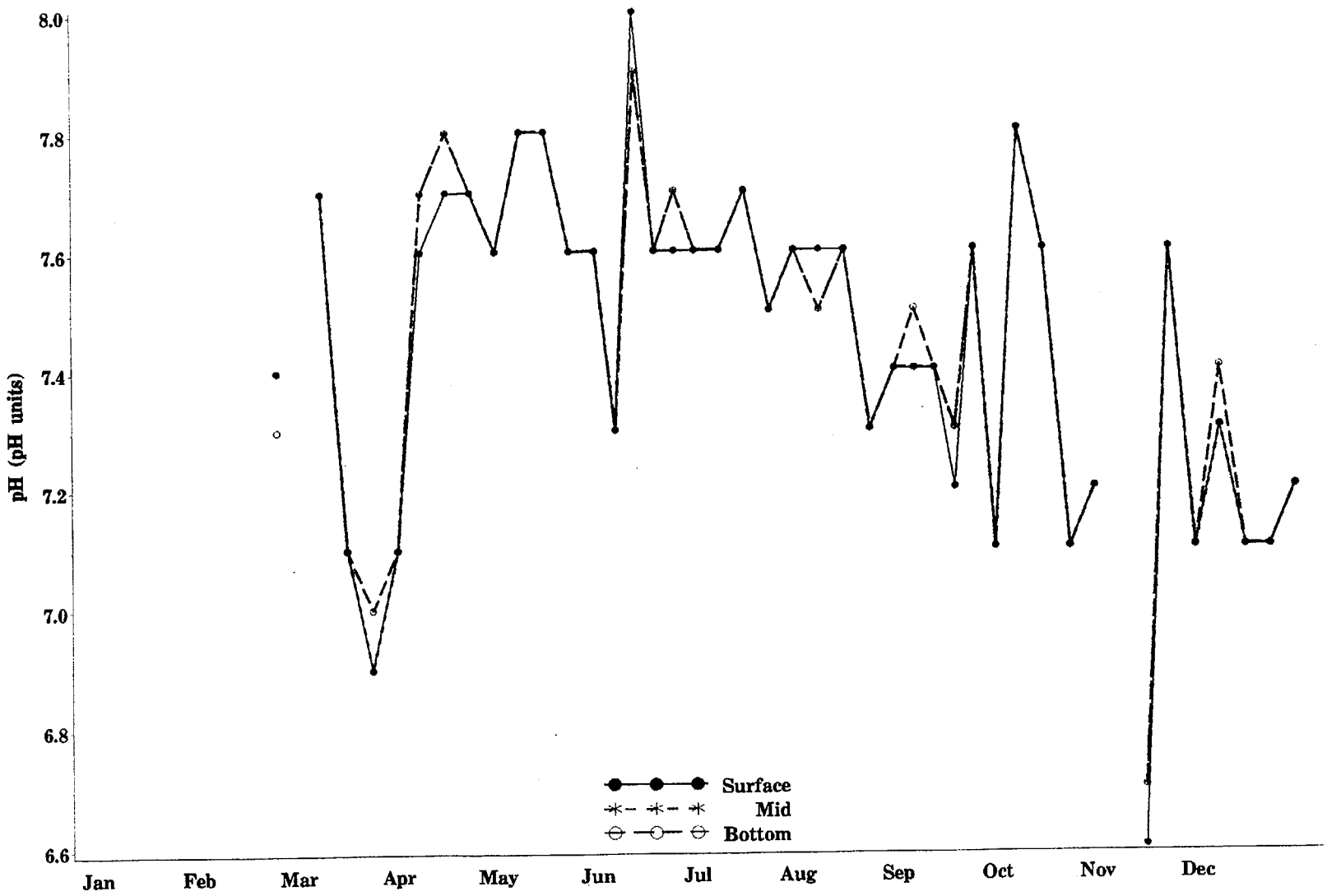


Figure 5-4. Weekly pH at river reference station CH-4, Roseton and Danskammer Point vicinity, 1996.

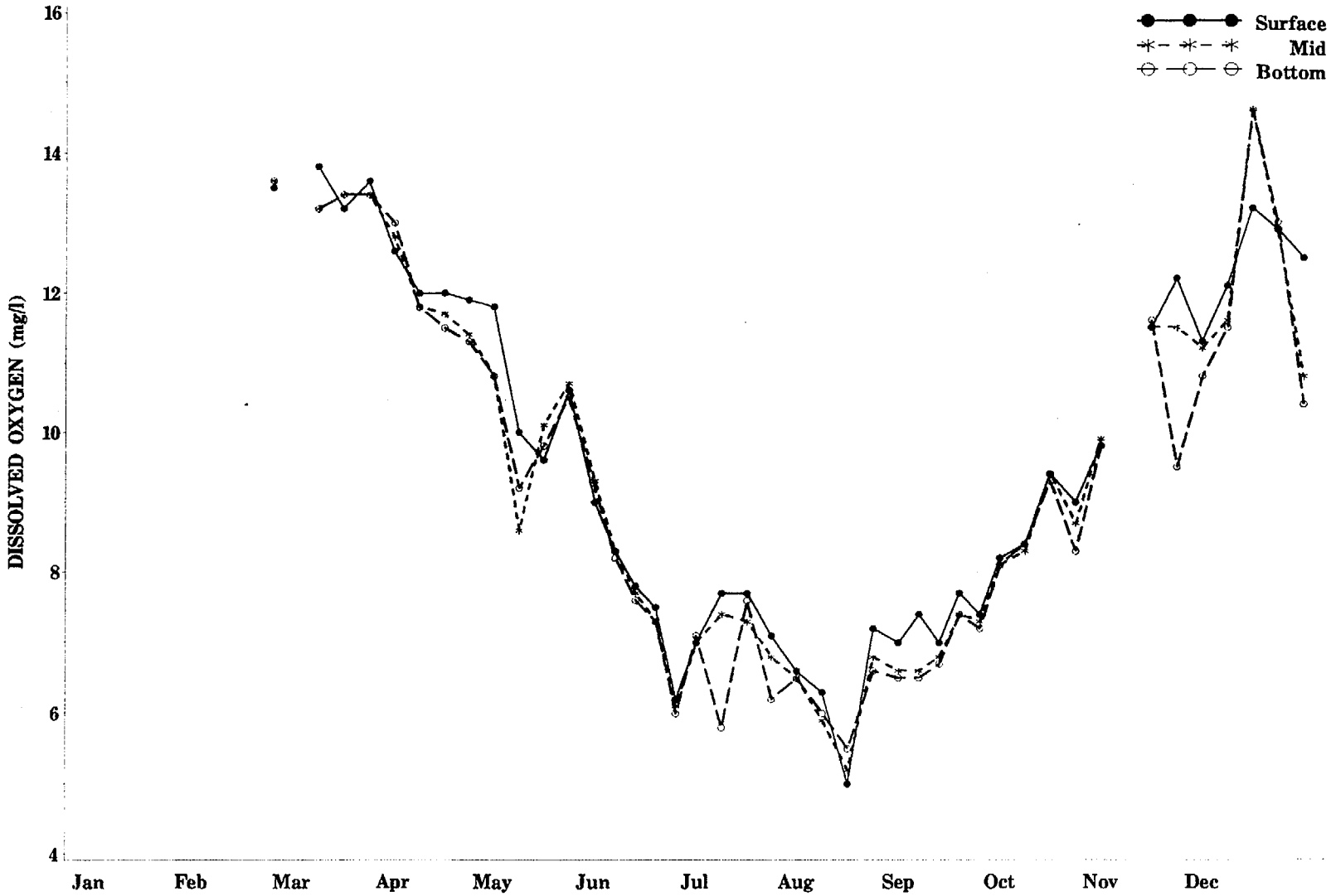


Figure 5-5. Weekly dissolved oxygen at river reference station CH-4, Roseton and Danskammer Point vicinity, 1996.

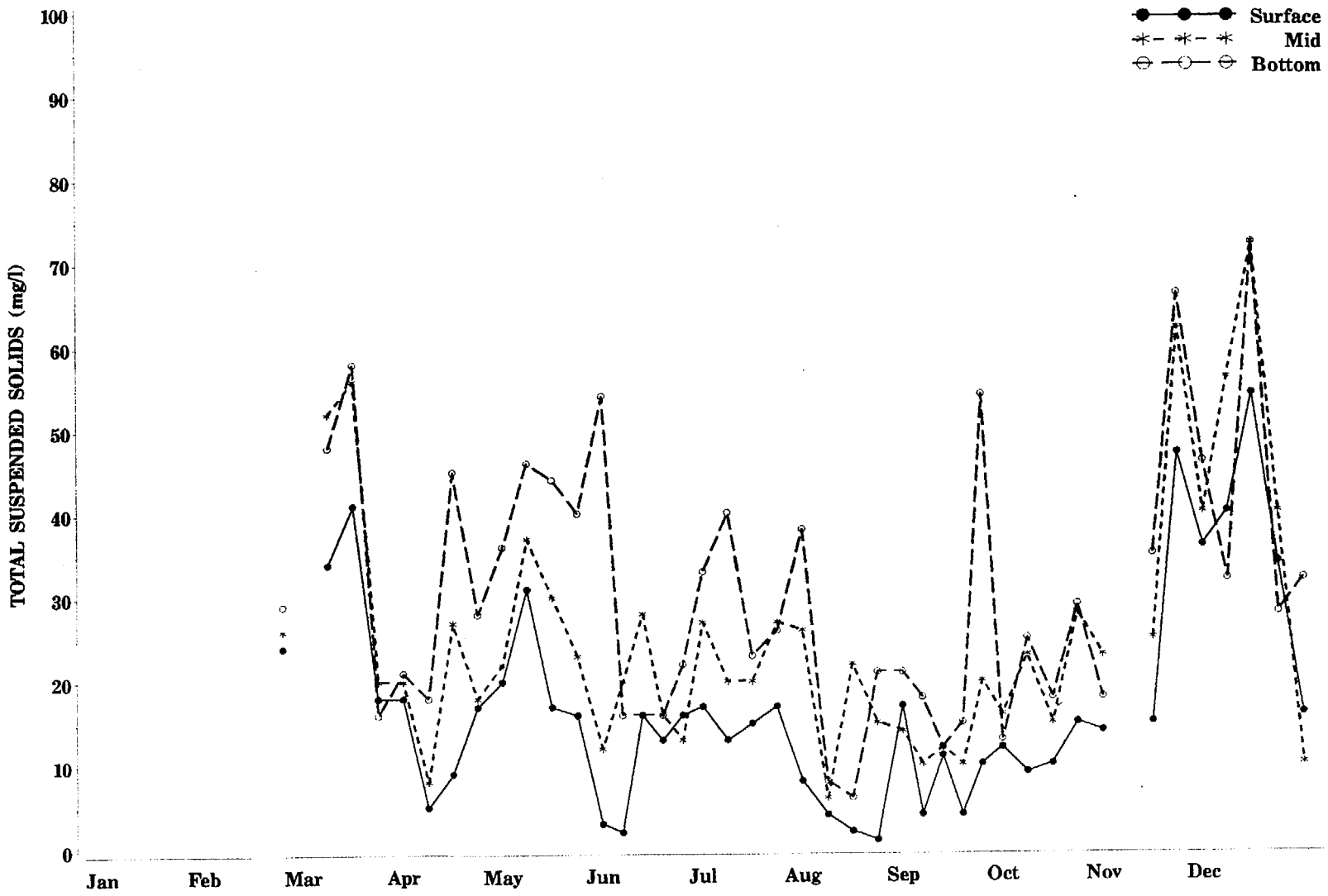


Figure 5-6. Weekly total suspended solids at river reference station CH-4, Roseton and Danskammer Point vicinity, 1996.

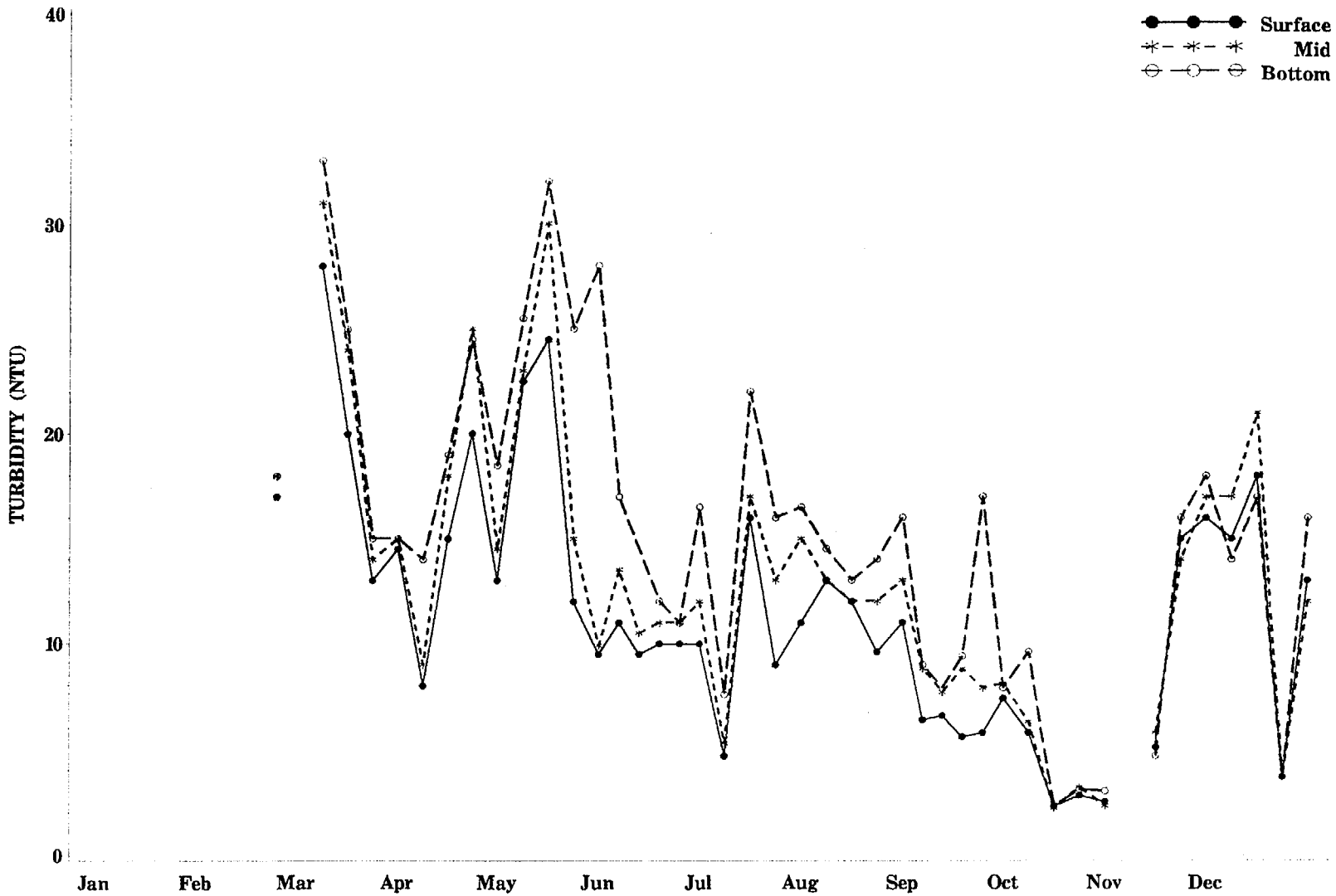


Figure 5-7. Weekly turbidity at river reference station CH-4, Roseton and Danskammer Point vicinity, 1996.

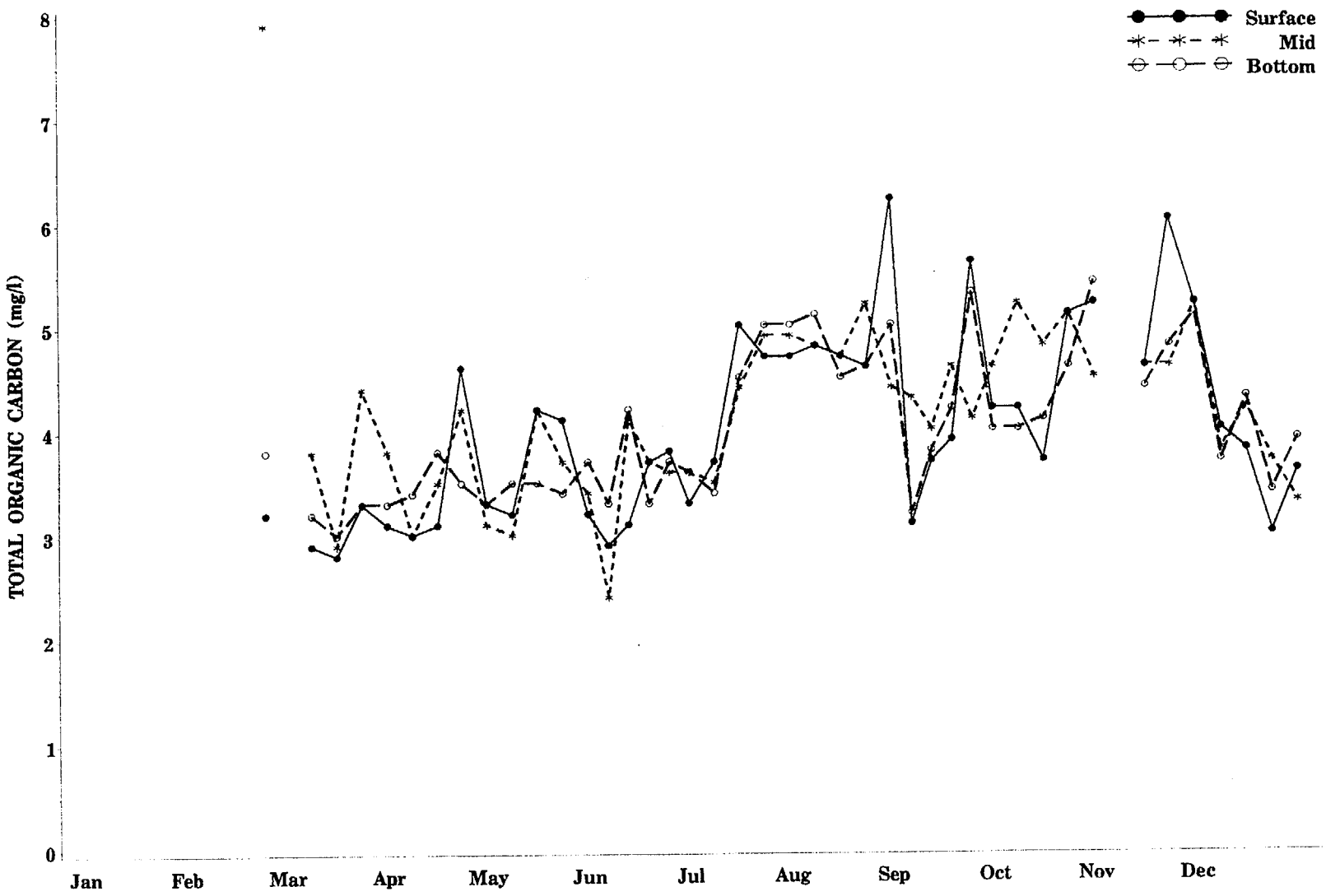


Figure 5-8. Weekly total organic carbon at river reference station CH-4, Roseton and Danskammer Point vicinity, 1996.

TABLE 5-3. CONCENTRATIONS OF METALS AT THE RIVER REFERENCE STATION CH-4, ROSETON AND DANSKAMMER POINT VICINITY, 1996.

METAL	MEAN[a,b] CONCENTRATION (mg/L)	MIN[a] (mg/L)	MAX[a] (mg/L)	NUMBER OF DATES CONCENTRATION WAS MEASURABLE[c]
Aluminum	0.57	0.28	0.96	9
Arsenic	<0.0056	<0.0056	<0.0056	0
Cadmium	<0.01	<0.01	<0.01	0
Hexavalent Chromium	<0.01	<0.01	<0.01	0
Total Chromium	<0.01	<0.01	0.02	1
Copper	<0.01	<0.01	<0.01	0
Iron	0.89	0.41	1.20	9
Lead	0.0028	0.0013	0.0050	9
Manganese	0.052	0.04	0.07	9
Mercury	<0.0002	<0.0002	0.00022	4
Nickel	<0.04	<0.04	<0.04	0
Selenium	<0.0056	<0.0056	<0.0278	0
Vanadium	<0.06	<0.06	<0.06	0
Zinc	0.11	0.03	0.40	9

[a] < is below the detection limit.

[b] When concentrations were below the detection limit, one-half of the detection limit was used to calculate a mean concentration.

[c] Total number of sampling dates = 9.

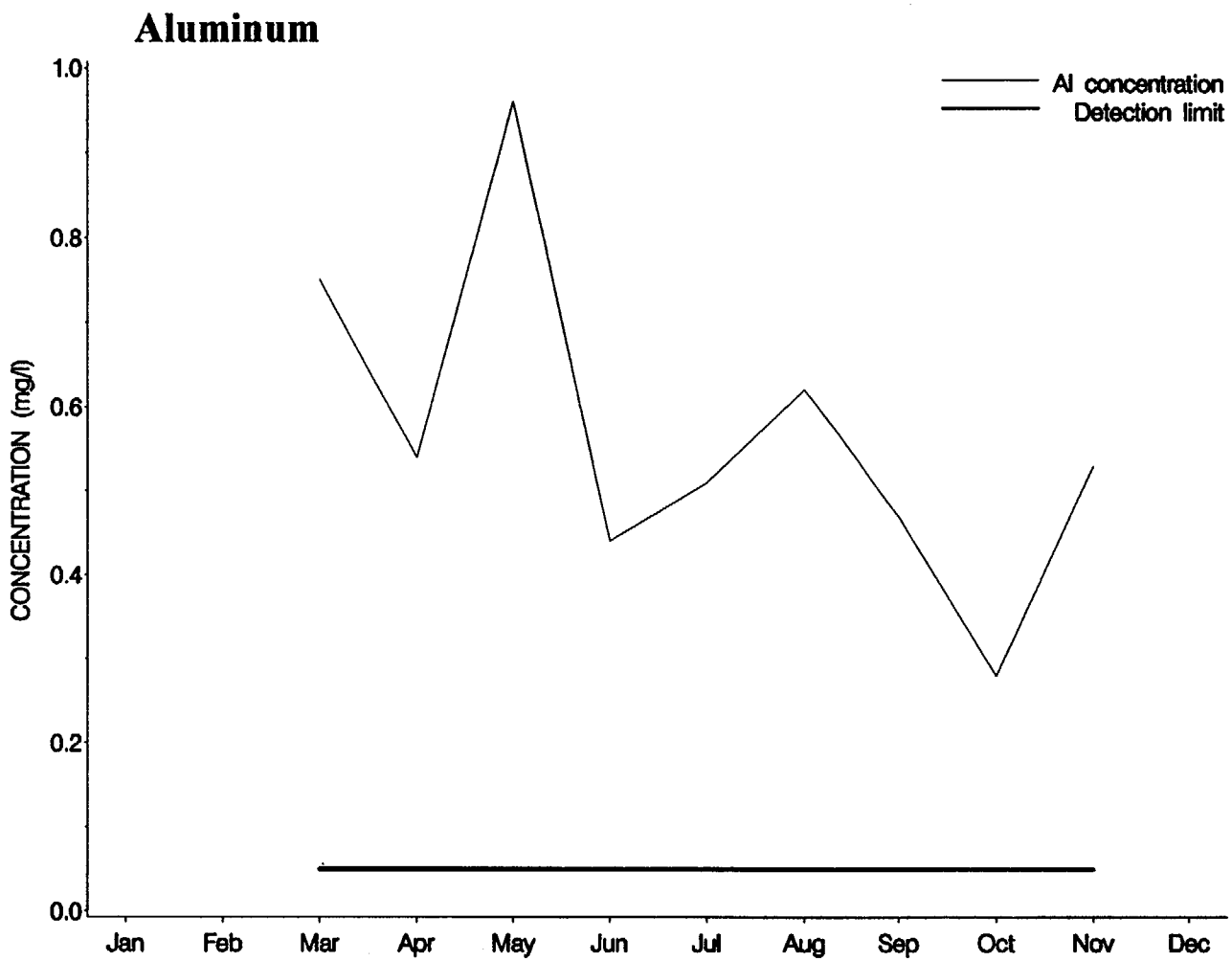


Figure 5-9. Monthly concentration of aluminum at the river reference station CH-4, Roseton and Danskammer Point vicinity, 1996.

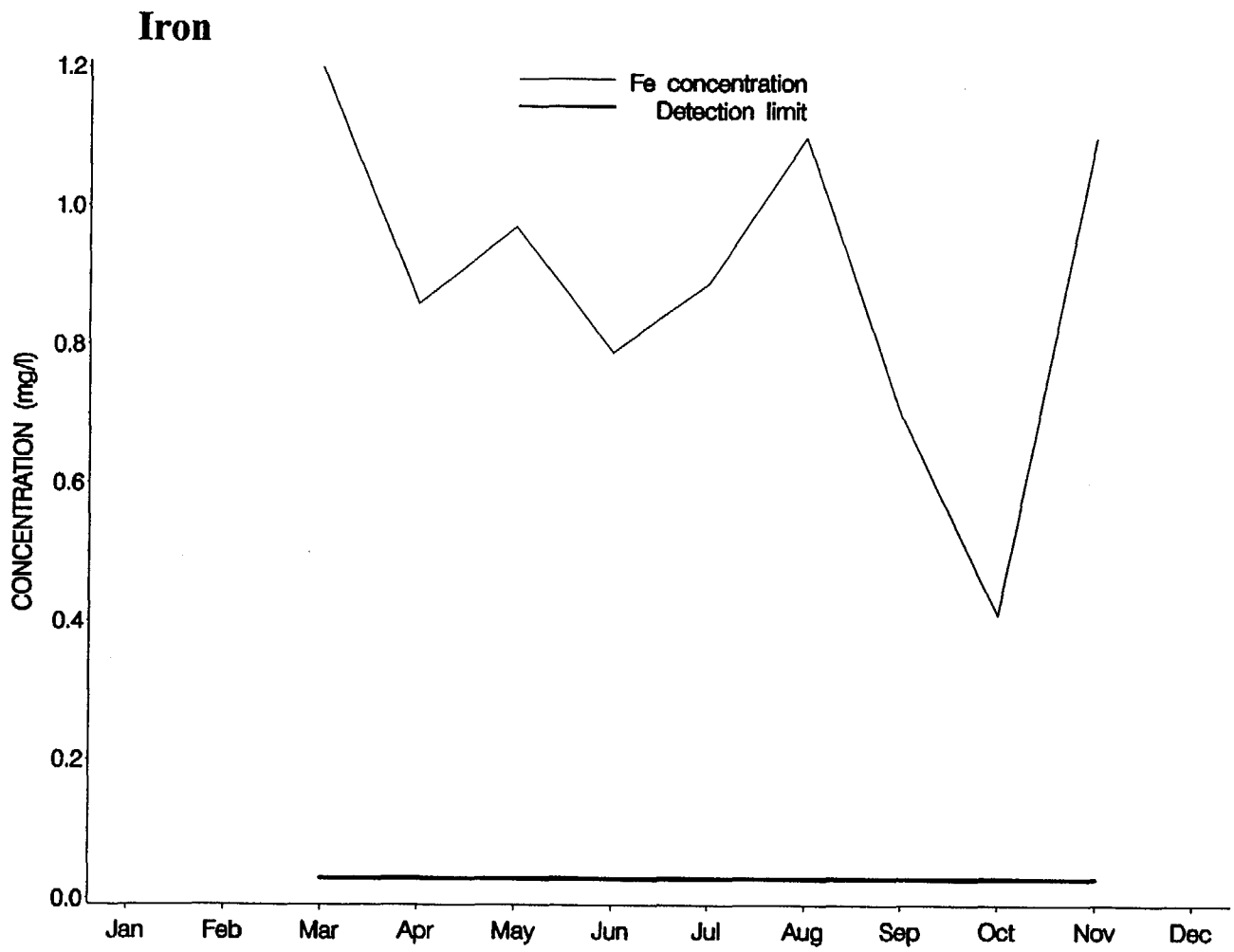


Figure 5-10. Monthly concentration of iron at the river reference station CH-4, Roseton and Danskammer Point vicinity, 1996.

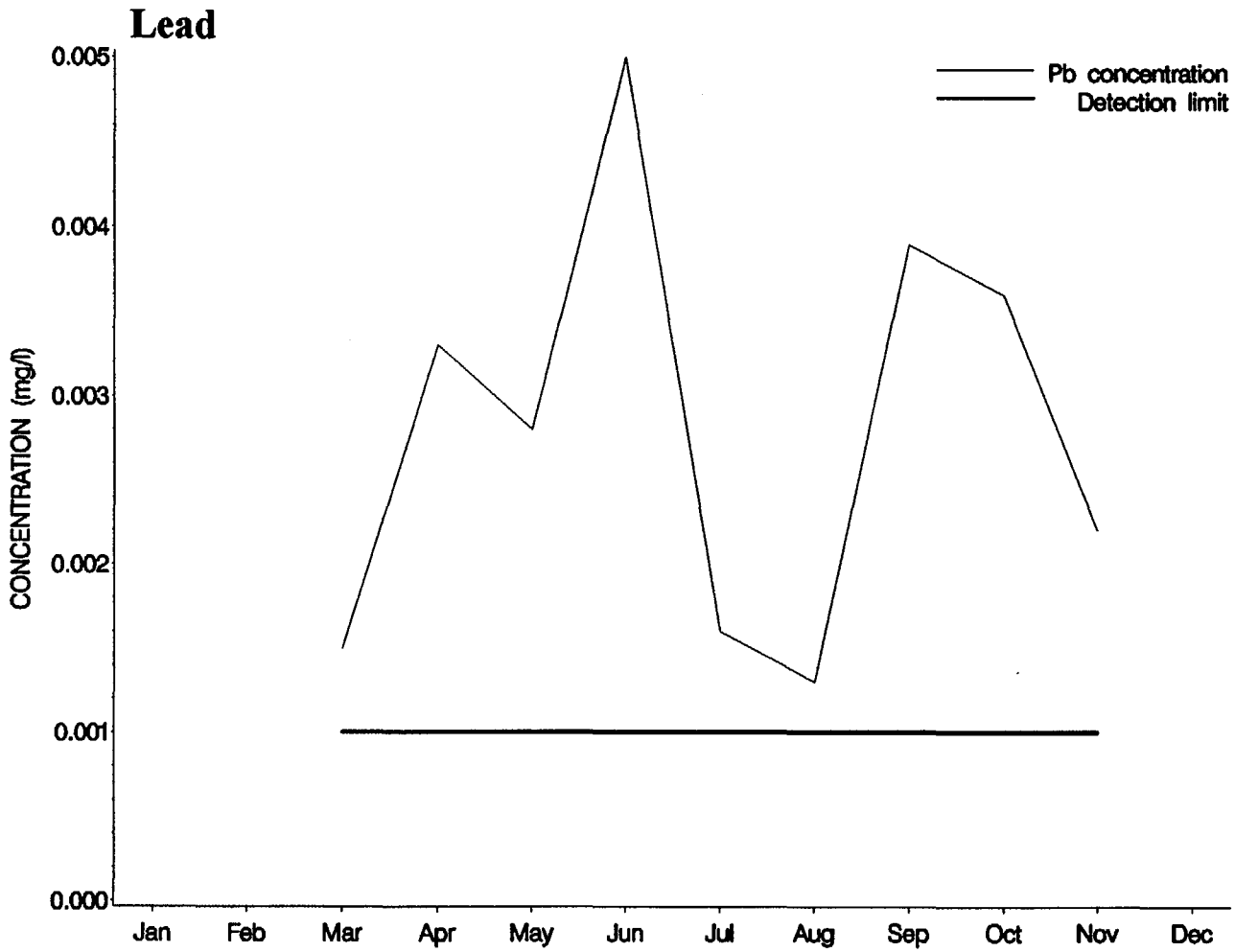


Figure 5-11. Monthly concentration of lead at the river reference station CH-4, Roseton and Danskammer Point vicinity, 1996.

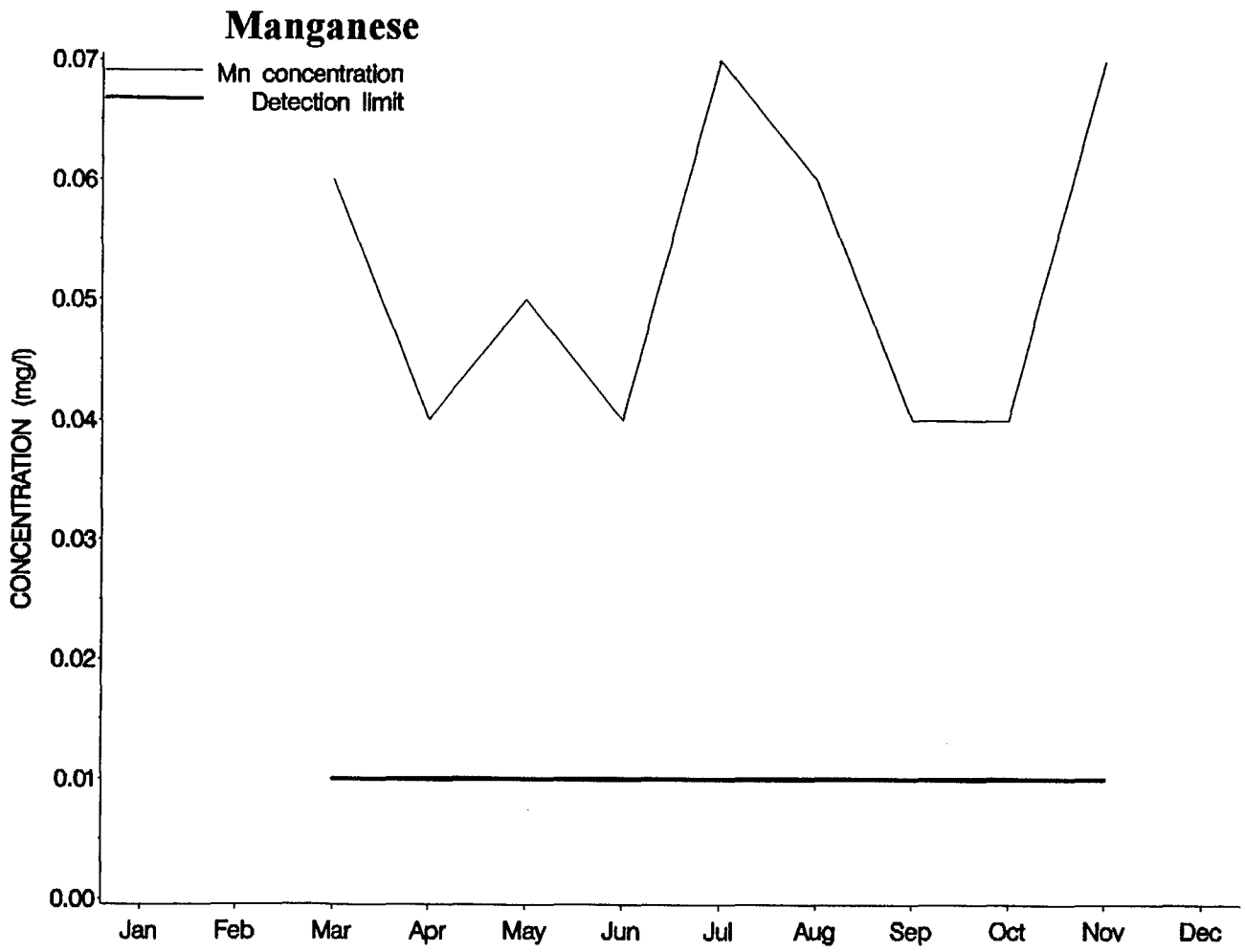


Figure 5-12. Monthly concentration of manganese at the river reference station CH-4, Roseton and Danskammer Point vicinity, 1996.

Figure 5-13. Monthly concentration of zinc at the river reference station CH-4, Roseton and Danskammer Point vicinity, 1996.

TABLE 5-4. AVERAGE VALUES OF SELECTED WATER QUALITY PARAMETERS AT THE INTAKE OF ROSETON GENERATING STATION, 1996.[a]

SAMPLE START DATE	SAMPLE END DATE	MEAN TEMPERATURE (°C)	MEAN D.O. (MG/L)	MEAN CONDUCTIVITY (µMHOS/CM AT 25°C)	MEAN TSS (MG/L)	MEAN pH
04JAN96	05JAN96	1.2	13.9	227	12.0	7.4
11JAN96	12JAN96	2.3	14.6	231	5.5	7.4
18JAN96	19JAN96	2.0	13.9	246	9.5	7.8
25JAN96	26JAN96	2.3	15.6	202	168.0	7.9
01FEB96	02FEB96	1.7	13.7	190	73.5	7.2
08FEB96	09FEB96	1.5	14.0	194	41.0	7.5
15FEB96	16FEB96	1.8	13.6	201	38.5	7.6
22FEB96	23FEB96	1.1	15.9	226	17.0	7.4
29FEB96	01MAR96	2.6	13.3	222	53.5	7.4
07MAR96	08MAR96	1.6	12.7	224	37.5	7.4
14MAR96	15MAR96	1.9	12.9	248	43.0	7.6
21MAR96	22MAR96	2.3	13.2	245	35.5	7.1
28MAR96	29MAR96	4.8	13.0	248	15.0	.[b]
04APR96	05APR96	6.0	12.4	252	27.0	7.9
11APR96	12APR96	7.3	11.7	245	25.0	7.6
18APR96	19APR96	7.8	11.5	223	20.0	7.6
25APR96	26APR96	11.2	11.4	180	20.5	7.8
02MAY96	03MAY96	11.3	10.5	168	36.0	7.7
09MAY96	10MAY96	11.6	9.2	174	48.0	7.8
16MAY96	17MAY96	12.4	10.1	204	21.0	7.2
23MAY96	24MAY96	14.1	10.4	168	47.0	7.6
30MAY96	31MAY96	15.7	9.2	170	54.5	7.8
06JUN96	07JUN96	18.8	8.3	180	53.0	.[b]
13JUN96	14JUN96	21.7	8.0	192	33.5	7.6
20JUN96	21JUN96	23.3	7.5	200	34.0	7.6
27JUN96	28JUN96	24.0	6.6	216	26.0	7.6
02JUL96	03JUL96	24.8	6.9	228	26.5	7.7
11JUL96	12JUL96	25.0	6.9	236	22.0	7.6
18JUL96	19JUL96	25.0	8.0	212	18.5	7.5
25JUL96	26JUL96	24.5	7.2	213	19.0	7.6
01AUG96	02AUG96	24.0	6.3	215	23.0	7.5
08AUG96	09AUG96	25.2	6.4	218	28.0	7.4
15AUG96	16AUG96	25.0	6.4	224	9.0	7.5
22AUG96	23AUG96	26.4	6.9	251	24.0	7.3
29AUG96	30AUG96	25.5	6.8	246	28.5	7.4
05SEP96	06SEP96	25.7	6.9	251	17.5	7.4
12SEP96	13SEP96	25.0	7.1	255	9.5	7.3
19SEP96	20SEP96	23.2	7.5	260	11.0	7.4
26SEP96	27SEP96	20.9	7.6	267	27.5	7.6
03OCT96	04OCT96	19.1	7.8	259	11.5	7.3
10OCT96	11OCT96	16.9	8.9	267	14.5	7.6
17OCT96	18OCT96	15.9	9.2	255	35.5	.[b]
24OCT96	25OCT96	12.7	7.5	245	25.0	7.2
31OCT96	01NOV96	12.6	9.9	219	31.0	7.4
07NOV96	08NOV96	12.5	10.4	218	23.5	7.3
14NOV96	15NOV96	9.5	11.0	216	22.0	7.5
21NOV96	22NOV96	7.1	11.2	204	55.0	7.6
26NOV96	27NOV96	5.0	11.6	179	38.0	7.1
05DEC96	06DEC96	3.4	11.0	243	31.0	7.4
12DEC96	13DEC96	4.3	12.3	170	63.0	7.3
19DEC96	20DEC96	4.7	12.5	242	28.0	7.1
26DEC96	27DEC96	3.7	12.2	201	20.0	7.3

[a]Means are averages of surface and bottom values for all time periods sampled for each parameter.
[b]Missing pH data for three dates resulted from instrument problems.

25°C) was generally highest in the summer, indicating a higher influx of salt water during that period of low freshwater flow. Weekly averages ranged from 168 μmhos/cm on 2-3 May and 23-24 May to 267 μmhos/cm on 26-27 September and 10-11 October. Mean total suspended solids ranged from a low of 5.5 mg/l (11-12 January) to a high of 168.0 mg/l (25-26 January). The extremely high value for 25-26 January can be attributed to rapid snow melt and flooding following heavy snowfall in early January. The weekly mean pH values were consistent throughout 1996, ranging from 7.1 on three separate dates to 7.9 on 25-26 January and 4-5 April.

5.3.2 Danskammer Point Generating Station

Water quality values recorded in the Danskammer Point intake canal for each impingement sampling date in 1996 are reported in Table 5-5. Mean water temperature ranged from 0.7°C (4-5 January) to the year's high of 25.7°C (22-23 August). Danskammer Point generally had slightly lower mean temperatures recorded for the same date compared to Roseton. Slightly warmer temperatures at Roseton, particularly during the cold winter months, may be due to the use of a de-icer system which recirculated a small portion of the heated discharge water back into the intake. Danskammer Point dissolved oxygen values were similar to the Roseton values in both the range and seasonal patterns, with values ranging from 6.1 mg/l (15-16 August) to 15.9 mg/l (22-23 February). Weekly average specific conductance (μmhos/cm at 25°C) ranged from a low of 166 μmhos/cm (23-24 May) to a high of 283 μmhos/cm (11-12 April and 5-6 December). Total suspended solids from the Danskammer Point intake exhibited the same general trend noted for Roseton. Values ranged from a low of 3.0 mg/l on 11-12 January to a high of 206.0 mg/l on 25-26 January. The extremely high value for 25-26 January can be attributed to rapid snow melt and flooding following heavy snowfall in early January. The pH range at Danskammer Point was the same as at Roseton, 7.1 to 7.9.

TABLE 5-5. AVERAGE VALUES OF SELECTED WATER QUALITY PARAMETERS AT THE INTAKE OF DANSKAMMER POINT GENERATING STATION, 1996.[a]

SAMPLE START DATE	SAMPLE END DATE	MEAN TEMPERATURE (°C)	MEAN D.O. (MG/L)	MEAN CONDUCTIVITY (µMHOS/CM AT 25°C)	MEAN TSS (MG/L)	MEAN pH
04JAN96	05JAN96	0.7	13.1	240	5.5	7.4
11JAN96	12JAN96	1.4	14.4	238	3.0	7.3
18JAN96	19JAN96	1.9	13.8	244	6.5	7.7
25JAN96	26JAN96	1.1	15.0	210	206.0	7.9
01FEB96	02FEB96	1.2	13.7	187	64.5	7.2
08FEB96	09FEB96	1.3	14.0	197	49.0	7.5
15FEB96	16FEB96	2.3	14.0	191	29.0	7.6
22FEB96	23FEB96	1.6	15.9	223	34.0	7.4
29FEB96	01MAR96	2.5	13.6	219	51.5	7.4
07MAR96	08MAR96	1.3	13.4	225	38.0	7.4
14MAR96	15MAR96	2.6	13.1	219	46.0	7.5
21MAR96	22MAR96	2.8	13.8	241	40.5	7.1
28MAR96	29MAR96	4.9	13.6	240	21.0	.[b]
04APR96	05APR96	5.9	12.8	248	32.5	7.9
11APR96	12APR96	7.0	12.6	283	66.0	7.5
18APR96	19APR96	7.6	11.8	223	21.5	7.7
25APR96	26APR96	11.0	10.9	179	68.0	7.8
02MAY96	03MAY96	10.7	11.2	170	32.0	7.7
09MAY96	10MAY96	11.5	9.6	174	37.5	7.8
16MAY96	17MAY96	12.4	10.1	203	20.5	7.1
23MAY96	24MAY96	13.7	10.4	166	21.5	7.6
30MAY96	31MAY96	16.1	9.2	168	122.0	7.7
06JUN96	07JUN96	18.6	8.4	179	38.5	.[b]
13JUN96	14JUN96	21.7	8.1	192	56.0	7.7
20JUN96	21JUN96	23.1	7.6	201	57.0	7.6
27JUN96	28JUN96	23.9	6.6	223	35.5	7.6
02JUL96	03JUL96	24.5	6.8	224	34.0	7.7
11JUL96	12JUL96	24.6	7.3	239	35.5	7.7
18JUL96	19JUL96	24.1	8.0	211	47.0	7.4
25JUL96	26JUL96	24.3	7.3	211	24.0	7.6
01AUG96	02AUG96	23.8	6.4	212	64.0	7.6
08AUG96	09AUG96	24.8	6.3	217	34.5	7.4
15AUG96	16AUG96	24.6	6.1	223	55.0	7.4
22AUG96	23AUG96	25.7	7.0	248	22.5	7.3
29AUG96	30AUG96	25.3	6.7	244	25.5	7.4
05SEP96	06SEP96	25.6	6.8	248	103.0	7.4
12SEP96	13SEP96	25.0	7.0	256	8.0	7.3
19SEP96	20SEP96	22.7	7.2	264	26.5	7.4
26SEP96	27SEP96	20.9	7.9	269	15.0	7.6
03OCT96	04OCT96	18.6	7.8	260	12.0	7.3
10OCT96	11OCT96	16.4	8.9	271	19.5	7.6
17OCT96	18OCT96	15.5	9.3	256	44.0	.[b]
24OCT96	25OCT96	12.8	7.5	241	27.0	7.1
31OCT96	01NOV96	12.2	10.0	217	34.5	7.4
07NOV96	08NOV96	12.2	10.0	218	24.0	7.2
14NOV96	15NOV96	9.4	12.2	216	35.0	7.5
21NOV96	22NOV96	8.1	10.3	220	84.0	7.6
26NOV96	27NOV96	5.0	12.1	176	52.0	7.1
05DEC96	06DEC96	3.4	11.8	283	24.0	7.3
12DEC96	13DEC96	4.3	12.4	174	71.0	7.4
19DEC96	20DEC96	5.2	12.9	215	44.0	7.1
26DEC96	27DEC96	4.0	12.9	200	19.0	7.3

[a]Means are averages of surface and bottom values for all time periods sampled for each parameter.
[b]Missing pH data for three dates resulted from instrument problems.

6.0 RESULTS OF IMPINGEMENT MONITORING PROGRAM

6.0 RESULTS OF IMPINGEMENT MONITORING PROGRAM

6.1 PROPORTION OF PLANT FLOW SAMPLED

Impingement sampling was conducted on 52 dates in 1996 at Roseton and on 52 dates at Danskammer Point (Section 4.1.1). At Roseton, 14.4% of the total plant flow in 1996 was sampled for impinged organisms. The percentage of plant flow sampled on a monthly basis ranged from 12.7% in January to 17.2% in February (Table 6-1). The variation was primarily due to the number of weekly sampling events that occurred in each month. All the 208 scheduled 6-hr samples were successfully collected during 1996 at Roseton.

At Danskammer Point 14.1% of the total flow for all units combined was sampled in 1996. On a monthly basis the percentage of plant flow sampled ranged from 12.2% in three different months to 18.4% in May (Table 6-1). A higher proportion of plant flow was sampled in months with five sampling dates than in months with only four. A total of 416 samples (6-hr each) were scheduled to be collected in 1996, with equal numbers at the two sluiceway discharges (Unit 1 and 2 screenwash and Unit 3 and 4 screenwash). However, for much of 1996, Units 1 and 2 did not operate; thus, a total of 236 of the 416 scheduled samples were collected (56.7%)

6.2 SPECIES INVENTORY

Thirty-seven fish species were collected at Roseton in 1996 (Table 6-2), which is comparable to findings in past years (Appendix Table A-1). Sixteen families of fishes were collected, with Centrarchidae being represented by the most species (seven). One species that was not previously identified at Roseton (brook stickleback) was impinged in 1996 (Appendix Table A-1). No Atlantic sturgeon or shortnose sturgeon were collected in 1996. Species that had been collected frequently in the past that were absent in 1996 included rainbow smelt, weakfish, and bluefish. Channel catfish, which were not present at all during the first 12 years of sampling and were only present in low numbers from 1985 to 1994, were much more abundant in 1996 (196 individuals, compared to the previous highs of 14 in 1994 and 51 in

TABLE 6-1. MONTHLY TOTAL PLANT FLOW AND FLOW SAMPLED AT ROSETON AND DANSKAMMER POINT GENERATING STATIONS, 1996.[a]

	ROSETON GENERATING STATION				DANSKAMMER POINT GENERATING STATION			
MONTH	TOTAL PLANT FLOW	FLOW SAMPLED	PERCENT OF FLOW SAMPLED	NUMBER OF DAYS SAMPLED	TOTAL PLANT FLOW	FLOW SAMPLED	PERCENT OF FLOW SAMPLED	NUMBER OF DAYS SAMPLED
Jan	16,965.6	2,149.40	12.7	4	6,003.26	781.43	13.0	4
Feb	15,919.2	2,734.30	17.2	5	5,717.76	983.96	17.2	5
Mar	14,995.2	1,936.80	12.9	4	6,396.41	783.35	12.2	4
Apr	9,252.0	1,197.92	12.9	4	5,855.57	714.44	12.2	4
May	10,483.2	1,746.00	16.7	5	3,306.89	607.28	18.4	5
Jun	11,546.4	1,624.20	14.1	4	8,716.73	1,064.24	12.2	4
Jul	11,287.2	1,454.89	12.9	4	10,342.68	1,316.52	12.7	4
Aug	12,470.4	1,974.33	15.8	5	11,270.93	1,851.66	16.4	5
Sep	9,429.6	1,256.40	13.3	4	9,324.36	1,303.11	14.0	4
Oct	9,746.4	1,567.63	16.1	5	6,365.76	1,074.83	16.9	5
Nov	11,400.0	1,496.23	13.1	4	6,057.96	812.16	13.4	4
Dec	15,220.8	2,205.26	14.5	4	6,259.08	778.59	12.4	4
TOTAL	148,716.0	21,343.36	14.4	52	85,617.39	12,071.57	14.1	52

[a]Flow is in millions of gallons.

TABLE 6-2. SPECIES COMPOSITION OF FISH IN IMPINGEMENT COLLECTIONS AT ROSETON GENERATING STATION IN 1996.

SCIENTIFIC NAME	COMMON NAME	OCCUR-RENCE	TOTAL COUNT
Petromyzontidae	lampreys		
Petromyzon marinus	sea lamprey	E	2
Anguillidae	freshwater eels		
Anguilla rostrata	American eel	E	22
Clupeidae	herrings		
Alosa aestivalis	blueback herring	E	1,283
Alosa pseudoharengus	alewife	E	384
Alosa sapidissima	American shad	E	56
Brevoortia tyrannus	Atlantic menhaden	M	6
Dorosoma cepedianum	gizzard shad	E	441
Clupeidae	unidentified clupeid		121
Engraulidae	anchovies		
Anchoa mitchilli	bay anchovy	E	16
Cyprinidae	carps and minnows		
Carassius auratus	goldfish	F	27
Cyprinus carpio	common carp	F	16
Notemigonus crysoleucas	golden shiner	F	446
Notropis hudsonius	spottail shiner	F	1,293
Ictaluridae	bullhead catfishes		
Ameiurus catus	white catfish	F	252
Ameiurus nebulosus	brown bullhead	F	103
Ictalurus punctatus	channel catfish	F	196
Salmonidae	trouts		
Salmo trutta	brown trout	E	2
Gadidae	cods		
Microgadus tomcod	Atlantic tomcod	E	57
Cyprinodontidae	killifishes		
Fundulus diaphanus	banded killifish	F	134
Fundulus heteroclitus	mummichog	E	4
Atherinidae	silversides		
Labidesthes sicculus	brook silverside	F	10
Gasterosteidae	sticklebacks		
Apeltes quadracus	fourspine stickleback	E	10
Culea inconstans	brook stickleback	F	1
Gasterosteus aculeatus	threespine stickleback	E	8
Percichthyidae	temperate basses		
Morone americana	white perch	E	3,409
Morone chrysops	white bass	F	1
Morone saxatilis	striped bass	E	63
Centrarchidae	sunfishes		
Ambloplites rupestris	rock bass	F	1
Lepomis auritus	redbreast sunfish	F	4
Lepomis gibbosus	pumpkinseed	F	305
Lepomis macrochirus	bluegill	F	91
Micropterus dolomieu	smallmouth bass	F	1
Micropterus salmoides	largemouth bass	F	9
Pomoxis nigromaculatus	black crappie	F	39
Centrarchidae	unidentified centrarchid		9
Percidae	perches		
Etheostoma olmstedi	tessellated darter	F	41
Perca flavescens	yellow perch	F	84
Sciaenidae	drums		
Aplodinotus grunniens	freshwater drum	F	1
Soleidae	soles		
Trinectes maculatus	hogchoker	E	169

Species are grouped by family. Scientific names, common names, and occurrence are according to Robins et al. (1991). Occurrence: F=freshwater, M=marine, E=euryhaline (occurring in both fresh and salt waters).

1995). Three invertebrate taxa were collected at Roseton: two crab species (blue crab and mud crab) and crayfish.

Forty-four fish species representing 17 families were collected at Danskammer Point during 1996 (Table 6-3). The family Centrarchidae (sunfishes) was represented by nine species, which represents the greatest diversity within a family. One species collected in 1996 was not previously collected from impingement sampling at Danskammer Point: cutlips minnow (Appendix Table A-2). Atlantic sturgeon (present in 18 of 22 previous years) and shortnose sturgeon (present in eight previous years) were both absent in the 1996 collections at Danskammer Point. Species that had frequently been collected in the past but were absent in 1996 included rainbow smelt and bluefish. Weakfish, which were well represented in past years, were only represented by a single specimen in 1996. Channel catfish, a species that was rarely collected in the early years of sampling (nine individuals over the first 14 years), was relatively abundant in 1996, with 439 individuals collected. Its previous highest annual totals were 44 in 1994 and 115 in 1995. A similar increase in channel catfish was observed at Roseton. Three invertebrate taxa were collected: blue crab, mud crab and crayfish.

6.3 ABUNDANCE, BIOMASS, AND PERCENT COMPOSITION

6.3.1 Fish

6.3.1.1 Roseton Generating Station

Fifty-two 24-hr impingement sampling events at Roseton in 1996 resulted in the collection of 9,117 fish, which is the lowest total in the 24 years since sampling began in 1973 (Appendix Table A-1). Roseton impingement counts decreased by 74.4% from 1995 to 1996. The species with the largest percentage decrease was bay anchovy (99.8%). The most numerous fish in 1996, white perch, made up 37.4% of the total abundance, followed by spottail shiner (14.2%) and blueback herring (14.1%) (Figure 6-1, Table 6-4). The top ten species (in terms of numerical abundance) accounted for 89.7% of the total collected at Roseton in 1996.

TABLE 6-3. SPECIES COMPOSITION OF FISH IN IMPINGEMENT COLLECTIONS AT DANSKAMMER POINT GENERATING STATION IN 1996.

SCIENTIFIC NAME	COMMON NAME	OCCUR-RENCE	TOTAL COUNT
Anguillidae	freshwater eels		
Anguilla rostrata	American eel	E	49
Clupeidae	herrings		
Alosa aestivalis	blueback herring	E	1,151
Alosa mediocris	hickory shad	E	1
Alosa pseudoharengus	alewife	E	1,076
Alosa sapidissima	American shad	E	780
Brevoortia tyrannus	Atlantic menhaden	M	39
Dorosoma cepedianum	gizzard shad	E	4,268
Clupeidae	unidentified clupeid		815
Engraulidae	anchovies		
Anchoa mitchilli	bay anchovy	E	59
Cyprinidae	carps and minnows		
Carassius auratus	goldfish	F	53
Cyprinus carpio	common carp	F	34
Exoglossum maxillingua	cutlips minnow	F	1
Notemigonus crysoleucas	golden shiner	F	676
Notropis atherinoides	emerald shiner	F	4
Notropis hudsonius	spottail shiner	F	3,768
Pimephales promelas	fathead minnow	F	1
Catostomidae	suckers		
Catostomus commersoni	white sucker	F	2
Ictaluridae	bullhead catfishes		
Ameiurus catus	white catfish	F	2,552
Ameiurus nebulosus	brown bullhead	F	585
Ictalurus punctatus	channel catfish	F	439
Esocidae	pikes		
Esox americanus americanus	redfin pickerel	F	1
Esox niger	chain pickerel	F	1
Salmonidae	trouts		
Salmo trutta	brown trout	E	2
Gadidae	cods		
Microgadus tomcod	Atlantic tomcod	E	1,370
Cyprinodontidae	killifishes		
Fundulus diaphanus	banded killifish	F	54
Atherinidae	silversides		
Labidesthes sicculus	brook silverside	F	6
Gasterosteidae	sticklebacks		
Apeltes quadracus	fourspine stickleback	E	4
Gasterosteus aculeatus	threespine stickleback	E	1
Percichthyidae	temperate basses		
Morone americana	white perch	E	20,649
Morone chrysops	white bass	F	3
Morone saxatilis	striped bass	E	1,702

(Continued)

TABLE 6-3 (CONTINUED)

SCIENTIFIC NAME	COMMON NAME	OCCUR-RENCE	TOTAL COUNT
Centrarchidae	sunfishes		
Ambloplites rupestris	rock bass	F	9
Lepomis auritus	redbreast sunfish	F	15
Lepomis gibbosus	pumpkinseed	F	791
Lepomis gulosus	warmouth	F	1
Lepomis macrochirus	bluegill	F	207
Micropterus dolomieu	smallmouth bass	F	1
Micropterus salmoides	largemouth bass	F	23
Pomoxis annularis	white crappie	F	1
Pomoxis nigromaculatus	black crappie	F	24
Centrarchidae	unidentified centrarchid		4
Percidae	perches		
Etheostoma olmstedi	tessellated darter	F	66
Perca flavescens	yellow perch	F	175
Sciaenidae	drums		
Aplodinotus grunniens	freshwater drum	F	12
Cynoscion regalis	weakfish	M	1
Soleidae	soles		
Trinectes maculatus	hogchoker	E	215

Species are grouped by family. Scientific names, common names, and occurrence are according to Robins et al. (1991). Occurrence: F=freshwater, M=marine, E=euryhaline (occurring in both fresh and salt waters).

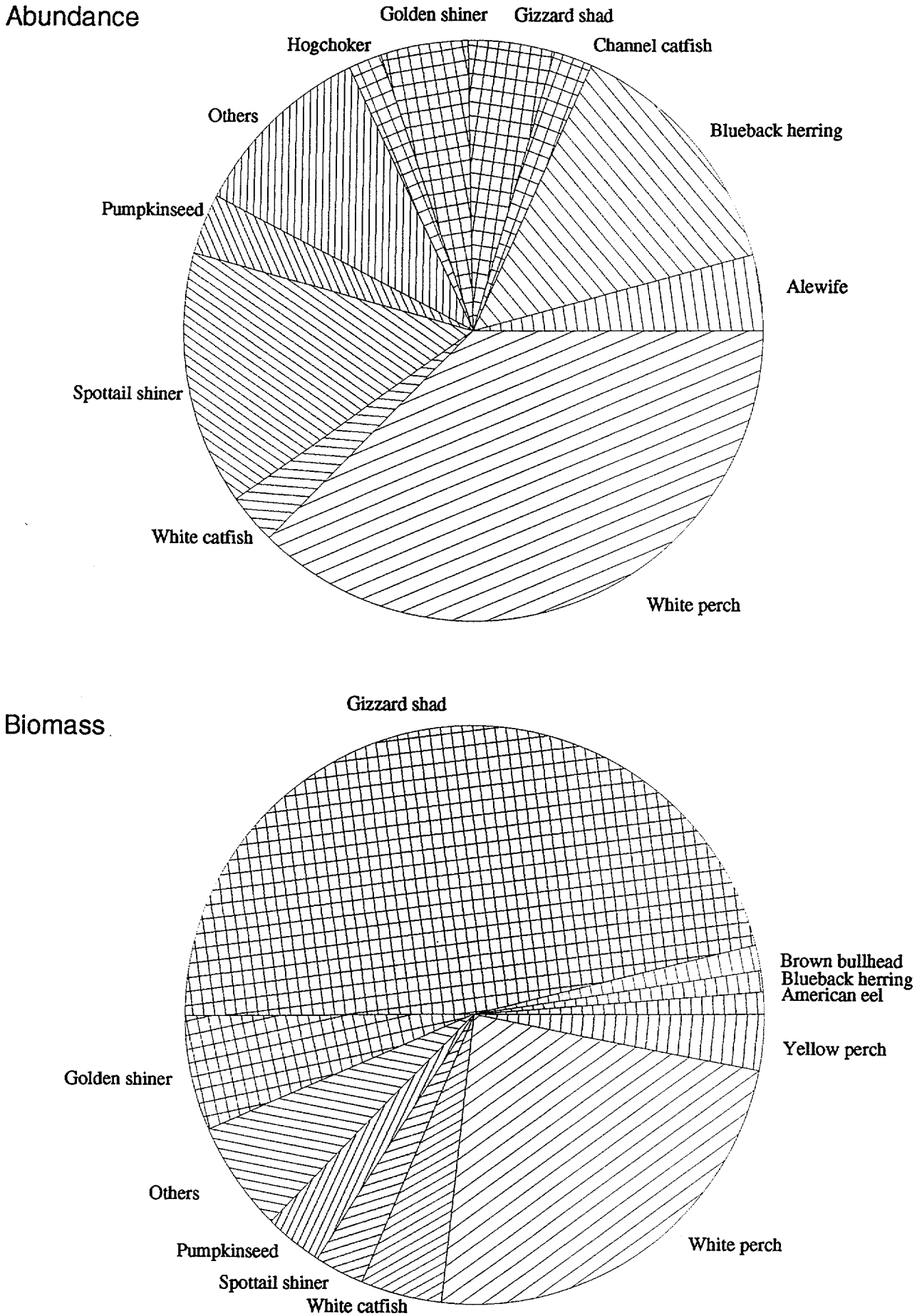


Figure 6-1. Relative species abundance and relative biomass of fish collected during impingement monitoring, Roseton Generating Station, 1996.

TABLE 6-4. ABUNDANCE, BIOMASS, AND PERCENT COMPOSITION OF THE TOP TEN FISH SPECIES AT ROSETON GENERATING STATION, 1996.

	ABUNDANCE	PERCENT OF TOTAL
White perch	3409	37.4
Spottail shiner	1293	14.2
Blueback herring	1283	14.1
Golden shiner	446	4.9
Gizzard shad	441	4.8
Alewife	384	4.2
Pumpkinseed	305	3.3
White catfish	252	2.8
Channel catfish	196	2.2
Hogchoker	169	1.9
Others	938	10.3
TOTAL	9117	100.0

	BIOMASS (KG)	PERCENT OF TOTAL
Gizzard shad	102.29	46.2
White perch	52.49	23.7
Golden shiner	14.25	6.4
White catfish	10.05	4.5
Pumpkinseed	7.25	3.3
Yellow perch	6.88	3.1
Spottail shiner	6.21	2.8
Brown bullhead	3.18	1.4
American eel	2.75	1.2
Blueback herring	2.57	1.2
Others	13.59	6.1
TOTAL	221.52	100.0

Monthly abundance for fish impinged on collection days at Roseton in 1996 (Table 6-5, Figure 6-2) was similar to the patterns of previous years in that the month of highest abundance was in the second half of the year. In some past years there was also a secondary peak in abundance in the spring, but in 1996 the highest counts were in November and August. The usual summer-fall increase in abundance occurred in August of 1996, mainly due to abrupt increases of blueback herring and alewife. Abundances decreased greatly in September, then increased again in November. White perch and spottail shiner were the most important contributors to the November totals, with a combined total abundance of 2,092 individuals for the month. July had the lowest abundance for the year with 26 individuals collected.

The highest monthly biomass totals for 1996 at Roseton were in the coldest months (January to March and November to December), mainly due to gizzard shad and white perch (Table 6-6, Figure 6-2). The overall biomass pattern differed markedly from the numerical abundance pattern due to the presence of the relatively large adult gizzard shad and white perch impinged in the winter. The August abundance peak of blueback herring and alewife had little impact on biomass because those fish were almost entirely young-of-the-year fish. The top three species in terms of biomass were, in decreasing order, gizzard shad, white perch, and golden shiner. These species made up 76.3% (169.0 kg) of the total biomass measured (221.5 kg) in 1996 (Table 6-4, Figure 6-1).

White perch was the dominant species in terms of biomass for four of the twelve months. The species with the greatest biomass in the remaining months were gizzard shad (January and February), golden shiner (March), pumpkinseed (May), white catfish (July and September), blueback herring (August), and bluegill (October). For the year, February collections yielded the greatest fish biomass (72.8 kg) and October the least (0.7 kg) (Table 6-6).

White perch, the most abundant species at Roseton in 1996, reached its peak abundance in November and its greatest biomass during January. It was also the most abundant species impinged during seven other months (Tables 6-5 and 6-6). Young-of-the-year white perch were first impinged on collection days in July and were the most abundant life stage of this species collected during 1996 (Table 6-7, Appendix Table B-1.11). white perch ranked second in total biomass (23.7%) during 1996 (Table 6-4).

\BLE 6-5. MONTHLY COUNT AND PERCENT COMPOSITION OF FISH SPECIES IN IMPINGEMENT COLLECTIONS, ROSETON GENERATING STATION, 1996.

	JAN		FEB		MAR		APR		MAY		JUN	
SPECIES	NO.	PCNT	NO.	PCNT	NO.	PCNT	NO.	PCNT	NO.	PCNT	NO.	PCNT
Alewife	3	0.5	108	12.3	5	1.0	1	0.2	2	0.4	1	0.6
American eel	1	0.2	1	0.1	2	0.4	2	0.3	1	0.2		
American shad												
Atlantic menhaden												
Atlantic tomcod	1	0.2	1	0.1							2	1.3
Banded killifish	27	4.9	42	4.8	31	5.9	5	0.8			1	0.6
Bay anchovy									1	0.2		
Black crappie			10	1.1					3	0.7		
Blueback herring									7	1.5	8	5.1
Bluegill			2	0.2			2	0.3	10	2.2		
Brook silverside			4	0.5	6	1.1						
Brook stickleback			1	0.1								
Brown bullhead	4	0.7	6	0.7	4	0.8	12	2.0	9	2.0	3	1.9
Brown trout												
Channel catfish	4	0.7	3	0.3	7	1.3	10	1.7			1	0.6
Common carp	2	0.4	9	1.0	3	0.6	1	0.2				
Fourspine stickleback			6	0.7	3	0.6						
Freshwater drum												
Gizzard shad	64	11.7	40	4.6	3	0.6			1	0.2		
Golden shiner	19	3.5	94	10.7	109	20.9	7	1.2	2	0.4		
Goldfish	2	0.4	12	1.4	8	1.5						
Herring family												
Hogchoker							5	0.8	134	29.6	2	1.3
Largemouth bass	1	0.2									1	0.6
Mummichog	1	0.2					1	0.2	1	0.2		
Pumpkinseed	33	6.0	101	11.5	34	6.5	50	8.5	46	10.2	12	7.7
Redbreast sunfish	4	0.7										
Rock bass					1	0.2						
Sea lamprey	1	0.2										
Smallmouth bass			1	0.1								
Spottail shiner	70	12.8	177	20.2	156	29.9	121	20.6	25	5.5	22	14.1
Striped bass	2	0.4	1	0.1	2	0.4						
Sunfish family	1	0.2	1	0.1								
Tessellated darter			3	0.3	9	1.7	8	1.3	9	2.0		
Threespine stickleback					7	1.3	1	0.2				
White bass	1	0.2										
White catfish	2	0.4	37	4.2	18	3.4	28	4.7	15	3.3		
White perch	302	55.1	197	22.4	83	15.9	318	54.0	184	40.7	103	66.0
Yellow perch	3	0.5	21	2.4	31	5.9	18	3.0	2	0.4		
TOTAL	548	100.0	878	100.0	522	100.0	590	100.0	452	100.0	156	100.0

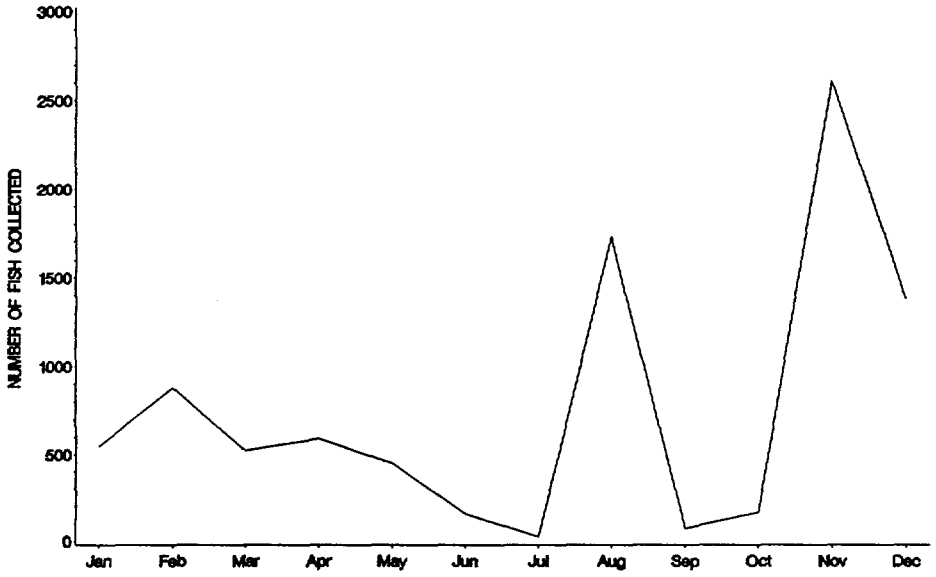
(CONTINUED)

TABLE 6-5. (CONTINUED)

SPECIES	JUL NO.	JUL PCNT	AUG NO.	AUG PCNT	SEP NO.	SEP PCNT	OCT NO.	OCT PCNT	NOV NO.	NOV PCNT	DEC NO.	DEC P
Alewife			132	7.6	11	15.3	22	13.5	39	1.5	60	
American eel	2	7.7	1	0.1					7	0.3	5	
American shad	2	7.7	38	2.2	2	2.8	8	4.9	6	0.2		
Atlantic menhaden			6	0.3								
Atlantic tomcod			5	0.3	3	4.2			1	<0.1	44	
Banded killifish			2	0.1	1	1.4	1	0.6	18	0.7	6	
Bay anchovy			15	0.9								
Black crappie			1	0.1			7	4.3	9	0.3	9	
Blueback herring			1183	68.5	3	4.2	25	15.3	56	2.2	1	
Bluegill					2	2.8	30	18.4	19	0.7	26	
Brook silverside												
Brook stickleback												
Brown bullhead			29	1.7	1	1.4	10	6.1	17	0.7	8	
Brown trout	1	3.8	1	0.1								
Channel catfish			13	0.8	9	12.5	1	0.6	43	1.7	105	
Common carp											1	
Fourspine stickleback									1	<0.1		
Freshwater drum									1	<0.1		
Gizzard shad									120	4.6	213	1
Golden shiner			1	0.1					57	2.2	157	1
Goldfish											5	
Herring family	1	3.8	120	6.9								
Hogchoker	2	7.7	4	0.2	13	18.1	4	2.5	5	0.2		
Largemouth bass							3	1.8	1	<0.1	3	
Mummichog											1	
Pumpkinseed	4	15.4	1	0.1	2	2.8	6	3.7	11	0.4	5	
Redbreast sunfish												
Rock bass												
Sea lamprey											1	
Smallmouth bass												
Spottail shiner	2	7.7	41	2.4	2	2.8	8	4.9	483	18.5	186	1
Striped bass	4	15.4	25	1.4	3	4.2	1	0.6	24	0.9	1	
Sunfish family							2	1.2	1	<0.1	4	
Tessellated darter			4	0.2	1	1.4	3	1.8	1	<0.1	3	
Threespine stickleback												
White bass												
White catfish	2	7.7	47	2.7	15	20.8	3	1.8	75	2.9	10	
White perch	6	23.1	59	3.4	4	5.6	29	17.8	1609	61.8	515	37
Yellow perch											9	0
TOTAL	26	100.0	1728	100.0	72	100.0	163	100.0	2604	100.0	1378	100

Total Fish

Abundance



Biomass

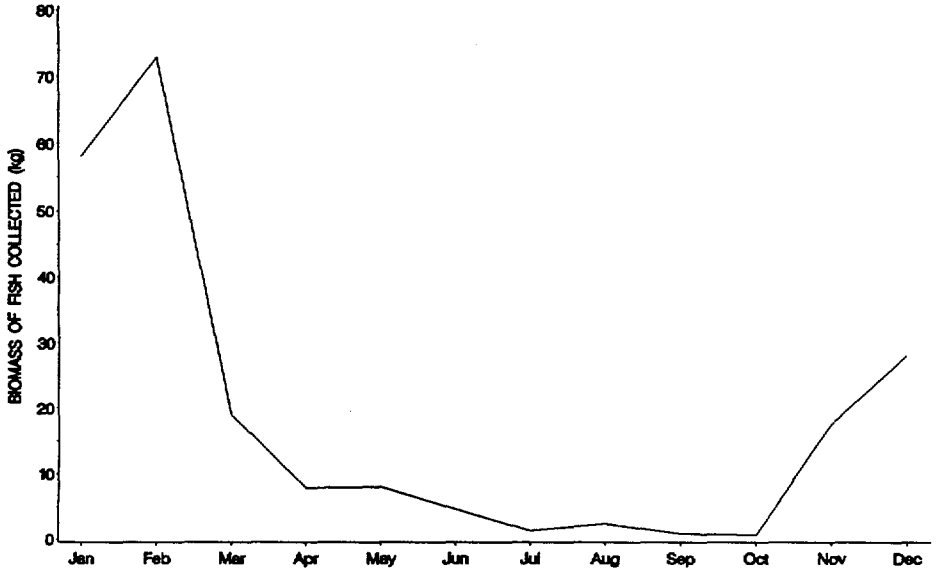


Figure 6-2. Monthly impingement abundance and biomass, Roseton Generating Station, 1996.

TABLE 6-6. MONTHLY BIOMASS AND PERCENT COMPOSITION OF FISH SPECIES IN IMPINGEMENT COLLECTIONS, ROSETON GENERATING STATION 1996.

	JAN		FEB		MAR		APR		MAY		JUN	
SPECIES	GM.	PCNT	GM.	PCNT	GM.	PCNT	GM.	PCNT	GM.	PCNT	GM.	
Alewife	15	<0.1	751	1.0	26	0.1	150	1.9	184	2.3	15	
American eel	84	0.1	185	0.3	135	0.7	249	3.2	61	0.8		
American shad												
Atlantic menhaden												
Atlantic tomcod	55	0.1	20	<0.1							10	
Banded killifish	81	0.1	114	0.2	108	0.6	31	0.4			6	
Bay anchovy									143	1.8		
Black crappie			420	0.6					12	0.2		
Blueback herring									1075	13.4	833	
Bluegill			5	<0.1			110	1.4	359	4.5		
Brook silverside			5	<0.1	7	<0.1						
Brook stickleback			1	<0.1								
Brown bullhead	544	0.9	546	0.8	482	2.5	438	5.5	66	0.8	340	
Brown trout												
Channel catfish	205	0.4	10	<0.1	85	0.4	211	2.7			10	
Common carp	331	0.6	1237	1.7	274	1.4	33	0.4				
Fourspine stickleback			2	<0.1	2	<0.1						
Freshwater drum												
Gizzard shad	41155	70.7	46763	64.2	2657	14.0			1180	14.7		
Golden shiner	796	1.4	3574	4.9	5380	28.4	83	1.1	10	0.1		
Goldfish	82	0.1	362	0.5	186	1.0						
Herring family												
Hogchoker							72	0.9	1211	15.1	2	
Largemouth bass	44	0.1									448	
Mummichog	1	<0.1					4	0.1	3	<0.1		
Pumpkinseed	898	1.5	2086	2.9	616	3.3	1365	17.3	1502	18.7	385	
Redbreast sunfish	66	0.1										
Rock bass					78	0.4						
Sea lamprey	5	<0.1										
Smallmouth bass			28	<0.1								
Spottail shiner	503	0.9	1040	1.4	1159	6.1	865	10.9	83	1.0	112	
Striped bass	28	<0.1	3	<0.1	34	0.2						
Sunfish family	6	<0.1	2	<0.1								
Tessellated darter			11	<0.1	34	0.2	26	0.3	28	0.3		
Threespine stickleback					17	0.1	2	<0.1				
White bass	29	0.1										
White catfish	464	0.8	3982	5.5	2132	11.2	227	2.9	965	12.0		
White perch	12733	21.9	9565	13.1	2534	13.4	2923	37.0	1060	13.2	2544	5
Yellow perch	106	0.2	2137	2.9	3005	15.9	1112	14.1	96	1.2		
TOTAL (KG)	58.2	100.0	72.8	100.0	19.0	100.0	7.9	100.0	8.0	100.0	4.7	10

(CONTINUE

TABLE 6-6. (CONTINUED)

SPECIES	JUL		AUG		SEP		OCT		NOV		DEC	
	GM.	PCNT	GM.	PCNT	GM.	PCNT	GM.	PCNT	GM.	PCNT	GM.	PCNT
Alewife			164	7.0	19	2.1	56	8.5	118	0.7	436	1.6
American eel	297	23.2	3	0.1					1171	6.7	569	2.0
American shad	4	0.3	36	1.5	4	0.5	19	2.9	13	0.1		
Atlantic menhaden			6	0.3								
Atlantic tomcod			28	1.2	14	1.5			9	0.1	1221	4.3
Banded killifish			1	<0.1	9	1.0	2	0.4	109	0.6	23	0.1
Bay anchovy			13	0.6								
Black crappie			1	0.1			27	4.1	55	0.3	130	0.5
Blueback herring			537	23.0	2	0.2	47	7.1	77	0.4	3	<0.1
Bluegill					14	1.5	246	37.6	218	1.2	622	2.2
Brook silverside												
Brook stickleback												
Brown bullhead			192	8.2	7	0.7	44	6.7	113	0.6	406	1.4
Brown trout	132	10.3	4	0.2								
Channel catfish			126	5.4	21	2.3	4	0.6	361	2.1	838	3.0
Common carp											15	0.1
Fourspine stickleback									<1	<0.1		
Freshwater drum									9	0.1		
Gizzard shad									1652	9.4	8887	31.6
Golden shiner			36	1.5					569	3.2	3804	13.5
Goldfish											38	0.1
Herring family	<1	<0.1	31	1.3								
Hogchoker	26	2.1	41	1.8	114	12.5	27	4.1	77	0.4		
Largemouth bass							25	3.8	1	<0.1	35	0.1
Mummichog											3	<0.1
Pumpkinseed	135	10.5	79	3.4	44	4.9	26	4.0	97	0.6	15	0.1
Redbreast sunfish												
Rock bass												
Sea lamprey											8	<0.1
Smallmouth bass												
Spottail shiner	11	0.8	49	2.1	8	0.9	18	2.7	1443	8.2	921	3.3
Striped bass	43	3.4	53	2.3	3	0.3	4	0.6	63	0.4	4	<0.1
Sunfish family							3	0.5	1	<0.1	3	<0.1
Tessellated darter			9	0.4	1	0.1	7	1.1	2	<0.1	7	<0.1
Threespine stickleback												
White bass												
White catfish	551	43.1	522	22.4	592	65.0	14	2.2	535	3.0	65	0.2
White perch	81	6.3	400	17.2	60	6.6	87	13.2	10883	61.9	9617	34.2
Yellow perch											428	1.5
TOTAL (KG)	1.3	100.0	2.3	100.0	0.9	100.0	0.7	100.0	17.6	100.0	28.1	100.0

TABLE 6-7. MONTHLY SUMMARY OF LENGTH DATA FOR SELECTED IMPINGED SPECIES, ROSETON GENERATING STATION, 1996.[a]

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Alewife	TOTAL ANAL.	3	75	5	1	2	1	0	97	11	22	39	60
	MEAN LENGTH	8.6	10.0	9.1	25.4	21.1	12.4	0	5.3	5.9	6.8	7.2	9.9
	MIN. LENGTH	8.1	7.4	8.4	25.4	15.1	12.4	0	3.4	5.0	5.4	4.6	8.0
	MAX. LENGTH	9.2	13.3	11.1	25.4	27.1	12.4	0	7.6	9.9	8.2	9.7	16.8
Atlantic tomcod	TOTAL ANAL.	1	1	0	0	0	2	0	5	3	0	1	44
	MEAN LENGTH	17.0	13.4	0	0	0	8.1	0	8.4	8.8	0	9.8	14.5
	MIN. LENGTH	17.0	13.4	0	0	0	7.8	0	6.4	8.5	0	9.8	10.9
	MAX. LENGTH	17.0	13.4	0	0	0	8.4	0	10.3	9.1	0	9.8	19.9
Blueback herring	TOTAL ANAL.	0	0	0	0	7	8	0	125	3	24	44	1
	MEAN LENGTH	0	0	0	0	27.5	24.4	0	3.9	4.1	6.4	5.8	7.8
	MIN. LENGTH	0	0	0	0	26.2	9.8	0	3.0	3.5	5.4	4.4	7.8
	MAX. LENGTH	0	0	0	0	28.6	28.6	0	4.9	4.9	8.4	8.5	7.8
Channel catfish	TOTAL ANAL.	4	2	7	9	0	1	0	13	9	1	43	104
	MEAN LENGTH	13.4	7.7	11.0	12.8	0	10.8	0	7.8	6.8	7.8	9.8	9.6
	MIN. LENGTH	7.1	7.7	7.8	7.7	0	10.8	0	3.1	5.0	7.8	5.8	5.0
	MAX. LENGTH	27.5	7.7	14.1	21.1	0	10.8	0	21.4	8.1	7.8	14.8	24.7
Gizzard shad	TOTAL ANAL.	58	40	3	0	1	0	0	0	0	0	120	212
	MEAN LENGTH	34.1	46.0	43.4	0	46.4	0	0	0	0	0	11.4	15.0
	MIN. LENGTH	11.7	41.2	35.6	0	46.4	0	0	0	0	0	6.8	8.3
	MAX. LENGTH	49.5	51.4	49.6	0	46.4	0	0	0	0	0	19.7	52.1
Golden shiner	TOTAL ANAL.	15	92	101	7	2	0	0	1	0	0	57	157
	MEAN LENGTH	15.5	13.9	16.1	10.3	9.0	0	0	14.9	0	0	9.6	12.9
	MIN. LENGTH	7.4	5.4	6.4	7.6	8.4	0	0	14.9	0	0	5.6	6.3
	MAX. LENGTH	22.2	22.5	23.3	14.2	9.5	0	0	14.9	0	0	17.1	22.1
Hogchoker	TOTAL ANAL.	0	0	0	5	134	2	2	4	13	4	5	0
	MEAN LENGTH	0	0	0	9.1	7.6	4.4	9.0	8.5	7.9	7.0	9.3	0
	MIN. LENGTH	0	0	0	8.4	4.0	4.2	8.9	6.9	6.5	5.9	8.5	0
	MAX. LENGTH	0	0	0	10.2	13.3	4.6	9.0	9.6	10.2	7.6	10.8	0
Pumpkinseed	TOTAL ANAL.	33	98	33	49	46	12	4	1	2	6	11	5
	MEAN LENGTH	9.9	8.8	8.6	10.2	11.6	11.3	12.0	16.5	10.7	6.1	5.8	5.6
	MIN. LENGTH	5.6	3.1	4.1	4.2	4.3	5.6	8.4	16.5	9.3	4.3	3.3	4.5
	MAX. LENGTH	18.2	18.0	15.1	17.3	17.5	18.7	15.1	16.5	12.1	7.6	15.1	6.5
Spottail shiner	TOTAL ANAL.	56	170	150	110	25	20	2	40	2	8	265	184
	MEAN LENGTH	9.3	8.7	9.4	9.2	7.1	8.2	8.4	4.9	7.3	6.4	7.3	8.3
	MIN. LENGTH	5.5	4.6	5.7	5.8	5.4	5.9	7.9	3.4	4.7	5.0	4.1	5.3
	MAX. LENGTH	11.4	12.3	12.3	12.8	10.9	11.2	8.8	11.1	9.8	7.8	11.9	12.5
White catfish	TOTAL ANAL.	2	37	18	24	15	0	2	47	15	3	75	10
	MEAN LENGTH	25.4	18.1	17.7	9.1	15.4	0	24.1	6.5	9.4	7.6	8.4	8.5
	MIN. LENGTH	19.3	5.4	6.9	6.8	7.9	0	11.7	3.9	5.4	5.5	5.8	7.0
	MAX. LENGTH	31.5	34.6	38.5	17.8	37.4	0	36.4	29.7	34.3	9.5	19.9	9.9
White perch	TOTAL ANAL.	148	173	82	151	163	101	6	59	4	29	447	397
	MEAN LENGTH	12.7	14.0	12.6	9.7	7.9	11.3	9.5	6.3	8.5	5.7	8.6	10.8
	MIN. LENGTH	5.8	6.1	6.9	6.5	5.6	5.3	4.2	2.7	3.8	4.6	3.4	5.0
	MAX. LENGTH	23.0	31.5	20.5	19.3	16.4	21.5	16.2	20.4	14.9	14.4	20.6	20.7
Blue crab	TOTAL ANAL.	0	0	0	0	0	11	64	128	37	62	37	1
	MEAN LENGTH	0	0	0	0	0	3.1	5.3	7.7	8.8	10.3	8.2	2.0
	MIN. LENGTH	0	0	0	0	0	1.4	2.9	3.6	1.7	1.5	1.7	2.0
	MAX. LENGTH	0	0	0	0	0	6.3	10.3	15.4	15.7	16.4	15.3	2.0

[a]Lengths are in centimeters.

Spottail shiner, the second most abundant species at Roseton during 1996, with a total of 1,293 fish collected, was the most abundant species in March collections (Table 6-5). Young-of-the-year fish were first collected in August and were the most abundant age group of spottail shiner collected in 1996 (Table 6-7, Appendix Table B-1.9). Spottail shiner ranked seventh in total biomass with 6.2 kg (Table 6-4, Figure 6-1).

Blueback herring, the third most abundant species collected at Roseton in 1996, was the most abundant species in August, when 1,183 of the year's total of 1,283 were collected (Table 6-5). Young-of-the-year blueback herring were first impinged on collection days in August, and this was by far the most abundant age group impinged during the year (Table 6-7, Appendix Table B-1.3).

6.3.1.2 Danskammer Point Generating Station

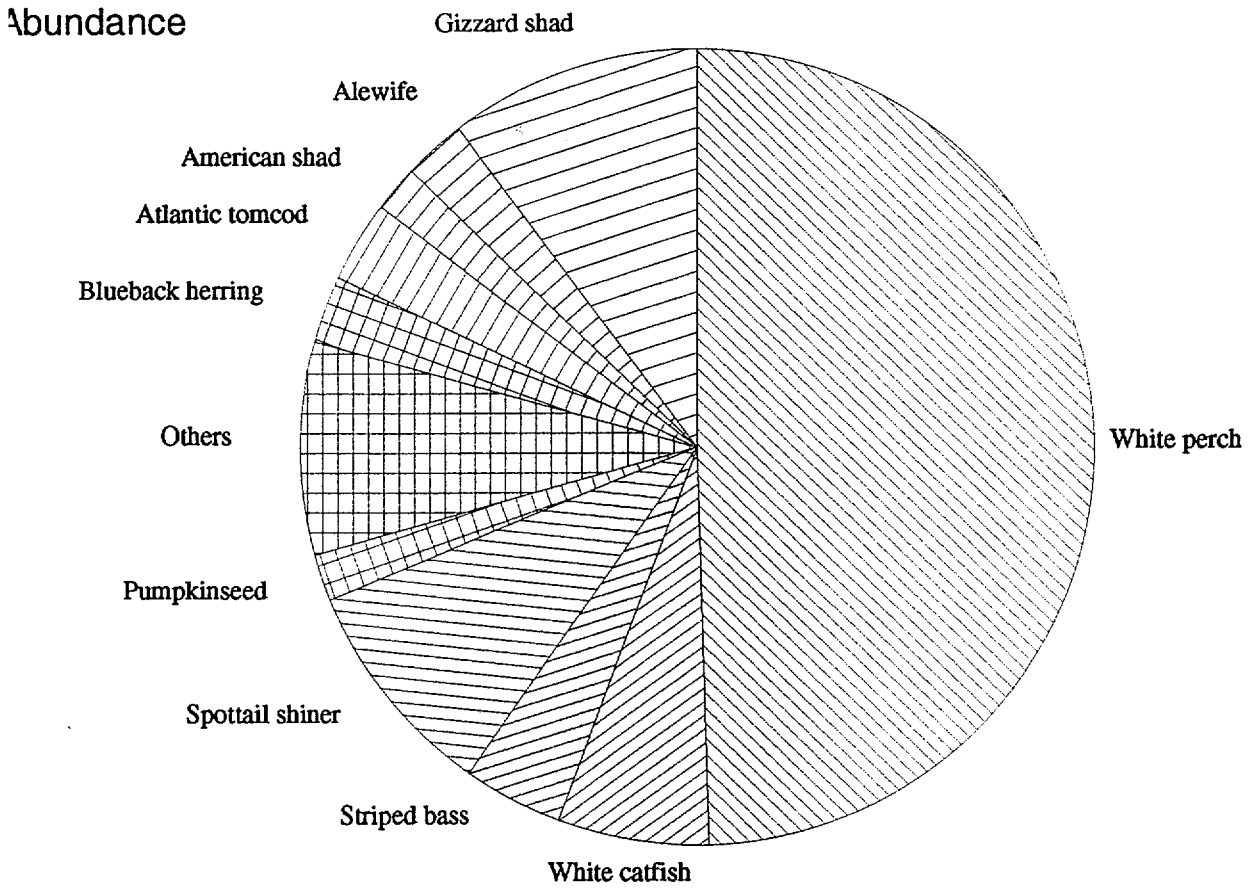
Fifty-two 24-hr impingement sampling events in 1996 at Danskammer Point resulted in the collection of 41,691 fish (Table 6-8). This total count was 8.2% lower than the number of fish collected in 1995 and was the fifteenth highest in the 23-year study (Appendix Table A-2).

The most abundant fish species collected at Danskammer Point in 1996 was white perch, with 20,649 individuals representing 49.5% of the total abundance (Table 6-8, Figure 6-3). The second most abundant species was gizzard shad (4,268 or 10.2%) and third was spottail shiner (3,768 or 9.0%). The total for gizzard shad was 28.0% lower than in 1995 and the total for spottail shiner was 23.6% higher than in 1995. The ten most abundant species collected at Danskammer Point represented 91.4% of the total abundance in 1996.

TABLE 6-8. ABUNDANCE, BIOMASS, AND PERCENT COMPOSITION OF THE TOP TEN FISH SPECIES AT DANSKAMMER POINT GENERATING STATION, 1996.

	ABUNDANCE	PERCENT OF TOTAL
White perch	20649	49.5
Gizzard shad	4268	10.2
Spottail shiner	3768	9.0
White catfish	2552	6.1
Striped bass	1702	4.1
Atlantic tomcod	1370	3.3
Blueback herring	1151	2.8
Alewife	1076	2.6
Pumpkinseed	791	1.9
American shad	780	1.9
Others	3584	8.6
TOTAL	41691	100.0

	BIOMASS (KG)	PERCENT OF TOTAL
Gizzard shad	3679.49	82.2
White perch	527.26	11.8
White catfish	79.68	1.8
Golden shiner	34.56	0.8
Spottail shiner	24.78	0.6
Pumpkinseed	23.70	0.5
Atlantic tomcod	19.04	0.4
Yellow perch	15.21	0.3
Striped bass	14.86	0.3
Alewife	8.38	0.2
Others	48.66	1.1
TOTAL	4475.63	100.0



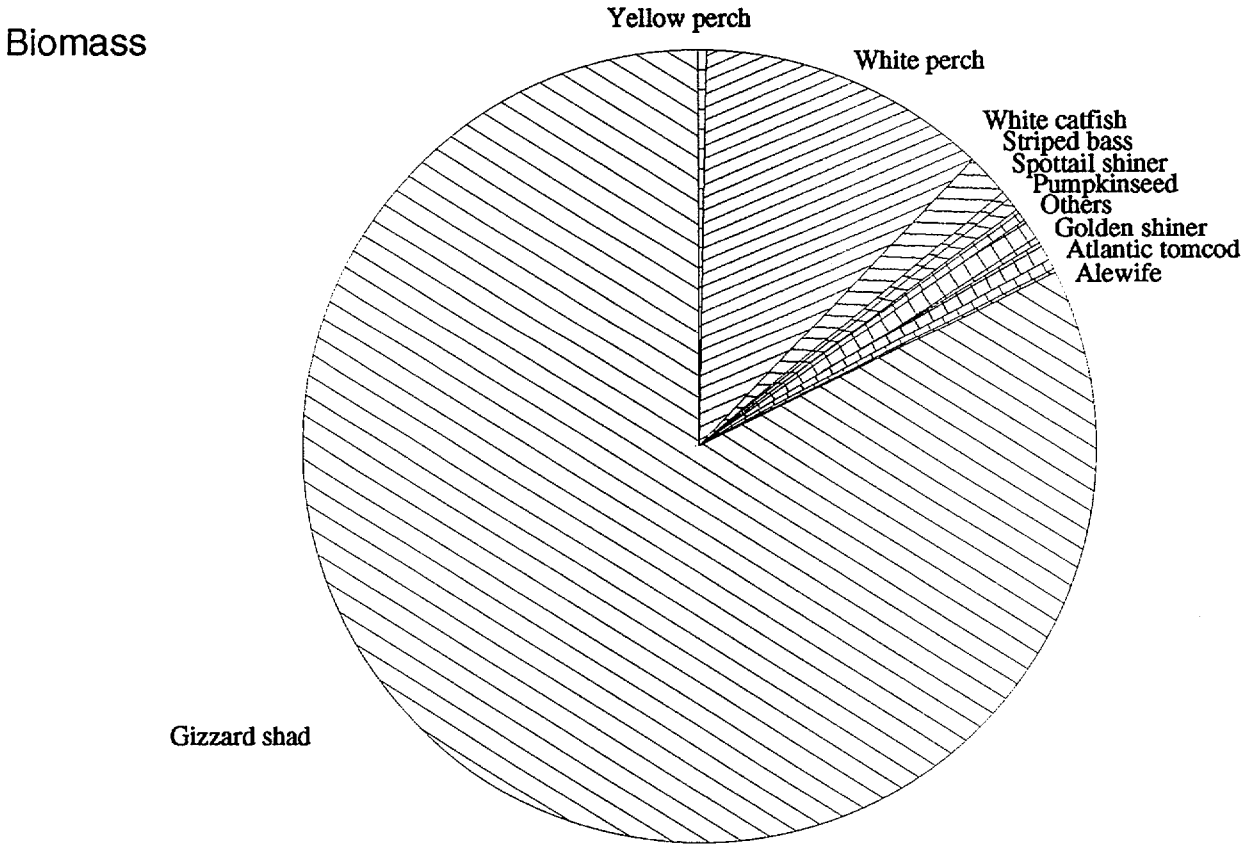


Figure 6-3. Relative species abundance and relative biomass of fish collected during impingement monitoring, Danskammer Point Generating Station, 1996.

The 1996 monthly impingement count at Danskammer Point was highest in November (Table 6-9, Figure 6-4). The month with the lowest total was March, and there was a general upward trend as the year progressed. White perch was numerically dominant in eight of the twelve months, gizzard shad was dominant in January and February, striped bass was dominant in September, and blueback herring was dominant in October (Table 6-9).

Gizzard shad (at least two year classes, including large numbers of adults) exhibited the highest biomass impinged on collection days at Danskammer Point in 1996, contributing 82.2% of the total biomass of 4,476 kg collected for the year (Table 6-8, Figure 6-3). The next four dominant fish in decreasing order of contribution to the total biomass collected at Danskammer Point in 1996 were white perch (11.8%), white catfish (1.8%), golden shiner (0.8%) and spottail shiner (0.6%) (Table 6-8, Figure 6-3). The monthly biomass trends for 1996 exhibited a very strong peak in January and February and much lower totals in all other months (Figure 6-4). This peak reflects the dominance of large gizzard shad in these two months, when 83.6% of the year's biomass was collected (Table 6-10). The month with the lowest biomass in impingement collections was October, with 18.6 kg (0.4% of the 1996 total).

White perch, the most abundant species at Danskammer Point in 1996, was present in impingement collections during every month of the year, with its highest abundance occurring in November and December (Table 6-9). White perch was the species accounting for the most biomass in every month from April through December (Table 6-10). Young-of-the-year white perch were first impinged on collection days in July, and were the dominant age group in September and October (Table 6-11, Appendix Table B-2.10).

Gizzard shad, the second most abundant species collected in 1996 at Danskammer Point, was present in impingement collections during ten months of 1996. This species was most abundant during January and February and had the greatest biomass of any species in January, February, and March (Tables 6-9, 6-10). Adult gizzard shad were primarily collected during January and February, and young-of-the-year were first impinged on collection days in July, becoming abundant in November and December (Table 6-11, Appendix Table B-2.5).

Spottail shiner, the species ranking third in abundance in 1996 at Danskammer Point, were impinged during every month. They were the most abundant in November, but

were fairly abundant throughout most of the year. Yearlings were the most abundant life stage, and were present all year. Young-of-the-year first appeared in July and adults were only present from January through May (Table 6-11, Appendix Table B-2.7).

6.3.2 Invertebrates

6.3.2.1 Roseton Generating Station

Three invertebrate taxa (blue crab, mud crab, and crayfish) were identified and counted during the 1996 impingement collections at Roseton (Table 6-12). The total number of invertebrates collected at Roseton in 1996 was 416. In 1996, at least one of the three invertebrate taxa appeared in the impingement collections at Roseton in all months except January and March. The highest monthly impingement count for invertebrates occurred during August with 137 individuals, or 32.9% of the total collected in 1996. In 1996 at Roseton, blue crab ranked first among invertebrates in overall abundance with 343 individuals (82.5%); mud crabs followed with 57 individuals and crayfish were third, with only 16 individuals collected (Table 6-12).

Abundance of blue crab in 1996 ranked tenth among the 11 years of invertebrate collections (Table 6-13). At Roseton there was a trend of increasing blue crab counts in four of the five years from 1987-1991. This was followed by declines in both 1992 and 1993, and then increases in 1994 and 1995 before an abrupt decrease in 1996.

The blue crab impingement collections at Roseton were dominated by males in a ratio of 3:1 (75.0% males, 25.0% females; Table 6-14), which is to be expected due to the tendency for males to be more abundant than females in higher reaches of estuaries where salinity is lower (Hamer 1955, Williams 1984).

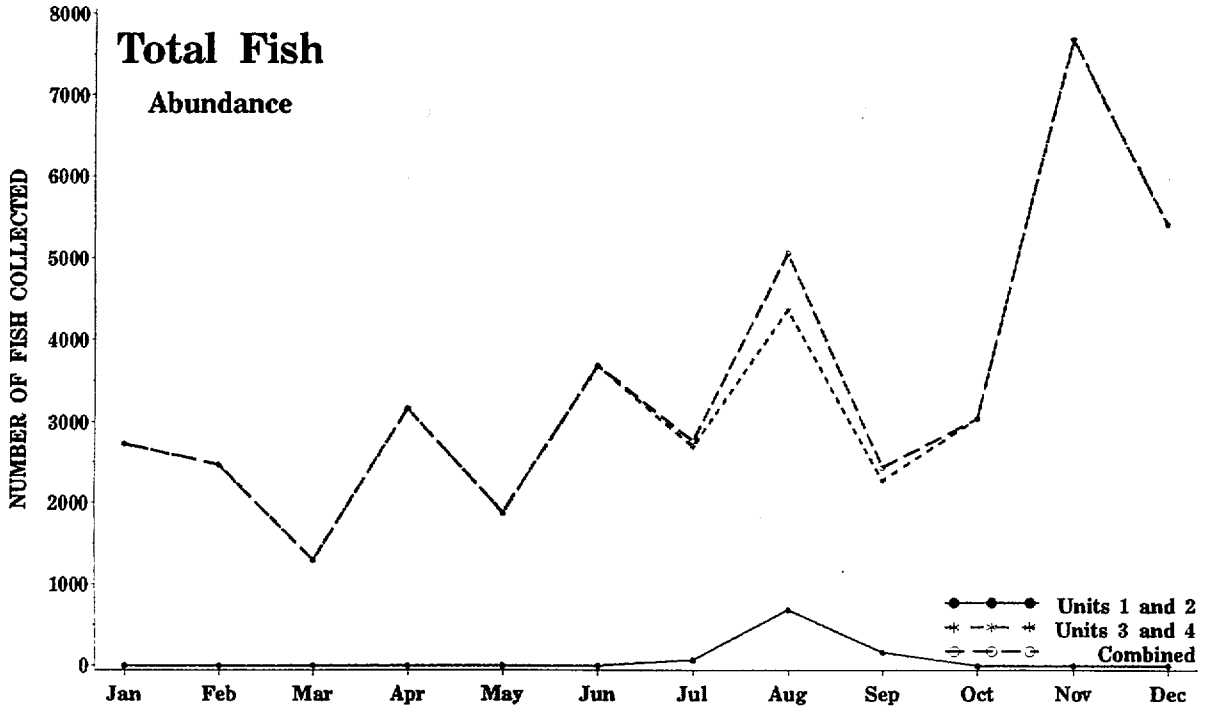
\BLE 6-9. MONTHLY COUNT AND PERCENT COMPOSITION OF FISH SPECIES IN IMPINGEMENT COLLECTIONS, DANSKAMMER POINT GENERATING STATION, 1996.

SPECIES	JAN		FEB		MAR		APR		MAY		JUN	
	NO.	PCNT	NO.	PCNT	NO.	PCNT	NO.	PCNT	NO.	PCNT	NO.	PCNT
Alewife			29	1.2	10	0.8	3	0.1	4	0.2	13	0.4
American eel							5	0.2	9	0.5	12	0.3
American shad												
Atlantic menhaden												
Atlantic tomcod	3	0.1	4	0.2	1	0.1			3	0.2	255	6.9
Banded killifish	11	0.4	11	0.4	17	1.3	5	0.2			1	<0.1
Bay anchovy												
Black crappie	1	<0.1	4	0.2	1	0.1	1	<0.1	1	0.1		
Blueback herring									8	0.4	46	1.2
Bluegill							7	0.2	7	0.4	5	0.1
Brook silverside	2	0.1	3	0.1	1	0.1						
Brown bullhead	1	<0.1	6	0.2	5	0.4	33	1.0	29	1.5	18	0.5
Brown trout												
Chain pickerel			1	<0.1								
Channel catfish	16	0.6	19	0.8	20	1.5	13	0.4	4	0.2	1	<0.1
Common carp	9	0.3	14	0.6	5	0.4	3	0.1				
Cutlips minnow												
Emerald shiner												
Fathead minnow							1	<0.1				
Fourspine stickleback	1	<0.1					1	<0.1	1	0.1		
Freshwater drum			1	<0.1					1	0.1		
Gizzard shad	1886	69.1	1236	50.1	24	1.9	1	<0.1				
Golden shiner	78	2.9	168	6.8	161	12.4	55	1.7	9	0.5	3	0.1
Goldfish	8	0.3	26	1.1	7	0.5	4	0.1			1	<0.1
Herring family											1	<0.1
Hickory shad												
Hogchoker							4	0.1	58	3.1	9	0.2
Largemouth bass	1	<0.1	2	0.1	1	0.1						
Pumpkinseed	30	1.1	97	3.9	27	2.1	107	3.4	139	7.4	145	3.9
Redbreast sunfish			1	<0.1							2	0.1
Redfin pickerel					1	0.1						
Rock bass	1	<0.1	5	0.2			1	<0.1	1	0.1		
Smallmouth bass	1	<0.1										
Spottail shiner	141	5.2	307	12.4	455	35.1	392	12.4	152	8.1	524	14.2
Striped bass	7	0.3	3	0.1			2	0.1	3	0.2	29	0.8
Sunfish family							1	<0.1				
Tessellated darter					1	0.1	29	0.9	21	1.1	3	0.1
Threespine stickleback							1	<0.1				
Warmouth												
Weakfish												
White bass			2	0.1								
White catfish	31	1.1	86	3.5	38	2.9	72	2.3	34	1.8	50	1.4
White crappie												
White perch	486	17.8	425	17.2	468	36.1	2391	75.5	1385	73.8	2561	69.4
White sucker					2	0.2						
Yellow perch	15	0.5	19	0.8	50	3.9	34	1.1	7	0.4	11	0.3
TOTAL	2729	100.0	2469	100.0	1295	100.0	3166	100.0	1876	100.0	3690	100.0

(CONTINUED)

TABLE 6-9. (CONTINUED)

SPECIES	JUL NO.	JUL PCNT	AUG NO.	AUG PCNT	SEP NO.	SEP PCNT	OCT NO.	OCT PCNT	NOV NO.	NOV PCNT	DEC NO.	DEC PCNT
Alewife	27	1.0	333	6.6	295	12.1	292	9.6	40	0.5	30	[illegible]
American eel	5	0.2	7	0.1	2	0.1	1	<0.1	5	0.1	3	[illegible]
American shad	73	2.6	231	4.6	203	8.3	242	7.9	31	0.4		
Atlantic menhaden			20	0.4	18	0.7	1	<0.1				
Atlantic tomcod	145	5.2	336	6.6	117	4.8	19	0.6	85	1.1	402	[illegible]
Banded killifish							3	0.1	2	<0.1	4	[illegible]
Bay anchovy	2	0.1	26	0.5	31	1.3						
Black crappie			1	<0.1	1	<0.1	5	0.2	4	0.1	5	[illegible]
Blueback herring	21	0.8	167	3.3	90	3.7	734	24.1	85	1.1		
Bluegill	8	0.3	15	0.3	12	0.5	109	3.6	25	0.3	19	[illegible]
Brook silverside												
Brown bullhead	11	0.4	231	4.6	67	2.8	128	4.2	46	0.6	10	[illegible]
Brown trout			2	<0.1								
Chain pickerel												
Channel catfish			99	2.0	54	2.2	33	1.1	87	1.1	93	1
Common carp	2	0.1							1	<0.1		
Cutlips minnow	1	<0.1										
Emerald shiner			1	<0.1					1	<0.1	2	<[illegible]
Fathead minnow												
Fourspine stickleback											1	<[illegible]
Freshwater drum							5	0.2	5	0.1		
Gizzard shad	1	<0.1	2	<0.1	1	<0.1	66	2.2	614	8.0	437	[illegible]
Golden shiner	6	0.2	14	0.3	2	0.1	11	0.4	96	1.2	73	1
Goldfish									3	<0.1	4	[illegible]
Herring family	583	21.1	231	4.6								
Hickory shad							1	<0.1				
Hogchoker	4	0.1	26	0.5	104	4.3	6	0.2	3	<0.1	1	<[illegible]
Largemouth bass							10	0.3	5	0.1	4	[illegible]
Pumpkinseed	56	2.0	16	0.3	53	2.2	107	3.5	10	0.1	4	[illegible]
Redbreast sunfish	1	<0.1	5	0.1	3	0.1	2	0.1			1	<[illegible]
Redfin pickerel												
Rock bass	1	<0.1										
Smallmouth bass												
Spottail shiner	276	10.0	309	6.1	44	1.8	163	5.3	812	10.5	193	3
Striped bass	327	11.8	684	13.5	481	19.7	79	2.6	69	0.9	18	[illegible]
Sunfish family							1	<0.1	2	<0.1		
Tessellated darter	7	0.3	1	<0.1	2	0.1	1	<0.1			1	<[illegible]
Threespine stickleback												
Warmouth							1	<0.1				
Weakfish					1	<0.1						
White bass											1	<[illegible]
White catfish	91	3.3	582	11.5	438	18.0	320	10.5	766	9.9	44	[illegible]
White crappie	1	<0.1										
White perch	1118	40.4	1727	34.1	417	17.1	705	23.1	4910	63.7	4056	74
White sucker												
Yellow perch			1	<0.1			5	0.2	2	<0.1	31	[illegible]
TOTAL	2767	100.0	5067	100.0	2436	100.0	3050	100.0	7709	100.0	5437	100



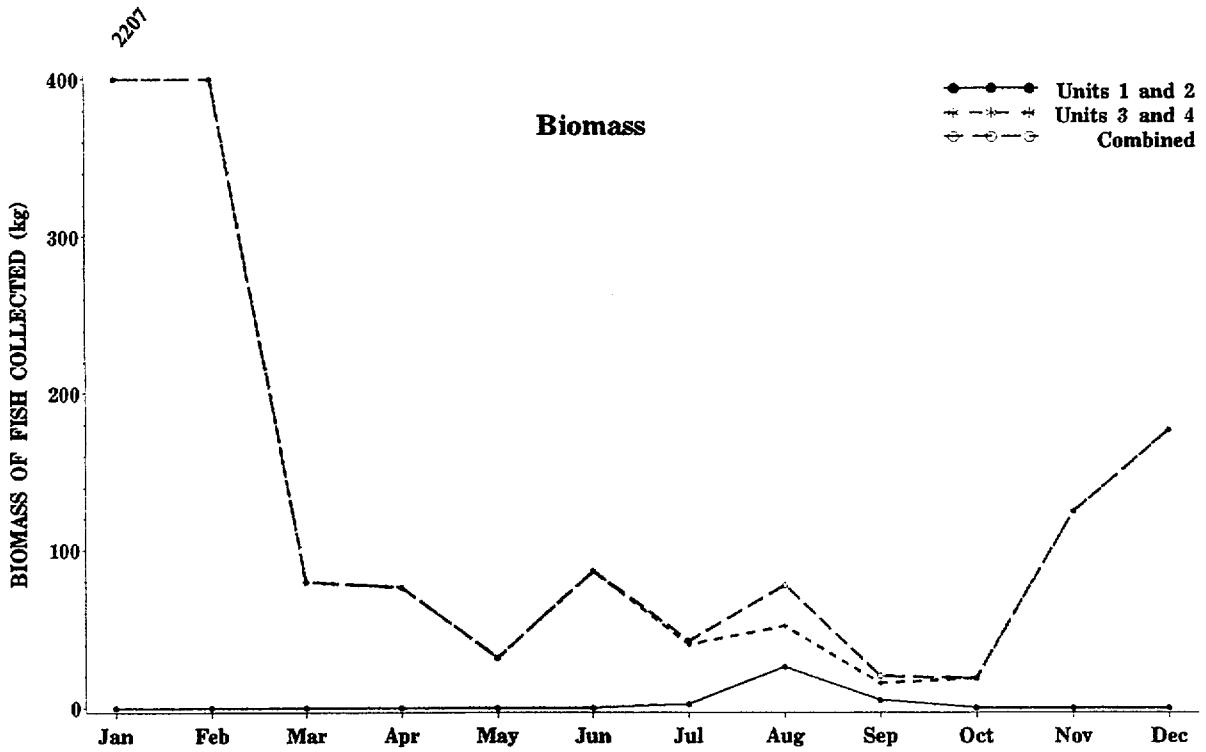


Figure 6-4. Monthly impingement abundance and biomass, Danskammer Point Generating Station, 1996.

ABLE 6-10. MONTHLY BIOMASS AND PERCENT COMPOSITION OF FISH SPECIES IN IMPINGEMENT COLLECTIONS, DANKSAMMER POINT GENERATING STATION, 1996.

	JAN		FEB		MAR		APR		MAY		JUN	
PECIES	GM.	PCNT	GM.	PCNT	GM.	PCNT	GM.	PCNT	GM.	PCNT	GM.	PCNT
Alewife			208	<0.1	1657	2.1	543	0.7	662	2.1	1291	1.5
American eel							68	0.1	251	0.8	1223	1.4
American shad												
Atlantic menhaden												
Atlantic tomcod	119	<0.1	166	<0.1	60	0.1			6	<0.1	926	1.1
Banded killifish	46	<0.1	41	<0.1	55	0.1	23	<0.1			4	<0.1
Bay anchovy												
Black crappie	4	<0.1	442	<0.1	179	0.2	5	<0.1	3	<0.1		
Blueback herring									1077	3.4	4859	5.6
Bluegill							608	0.8	459	1.5	374	0.4
Brook silverside	3	<0.1	3	<0.1	1	<0.1						
Brown bullhead	46	<0.1	233	<0.1	691	0.9	1379	1.8	513	1.6	1099	1.3
Brown trout												
Chain pickerel			135	<0.1								
Channel catfish	193	<0.1	320	<0.1	217	0.3	218	0.3	104	0.3	7	<0.1
Common carp	2536	0.1	1273	0.1	348	0.4	145	0.2				
Cutlips minnow												
Emerald shiner												
Fathead minnow							2	<0.1				
Fourspine stickleback	<1	<0.1					<1	<0.1	<1	<0.1		
Freshwater drum			49	<0.1					49	0.2		
Gizzard shad	2165729	98.1	1452979	94.6	27113	34.0	1000	1.3				
Golden shiner	4005	0.2	11385	0.7	10356	13.0	2435	3.2	237	0.7	44	0.1
Goldfish	529	<0.1	1314	0.1	216	0.3	78	0.1			83	0.1
Herring family											<1	<0.1
Hickory shad												
Hogchoker							99	0.1	765	2.4	24	<0.1
Largemouth bass	41	<0.1	759	<0.1	19	<0.1						
Pumpkinseed	473	<0.1	2424	0.2	661	0.8	3328	4.4	5937	18.8	5927	6.9
Redbreast sunfish			21	<0.1							70	0.1
Redfin pickerel					54	0.1						
Rock bass	5	<0.1	247	<0.1			71	0.1	27	0.1		
Smallmouth bass	305	<0.1										
Spottail shiner	1122	0.1	2268	0.1	3366	4.2	2794	3.7	888	2.8	3443	4.0
Striped bass	1478	0.1	1292	0.1			65	0.1	106	0.3	377	0.4
Sunfish family							1	<0.1				
Tessellated darter					5	<0.1	96	0.1	54	0.2	10	<0.1
Threespine stickleback							2	<0.1				
Warmouth												
Weakfish												
White bass			657	<0.1								
White catfish	4318	0.2	30750	2.0	8856	11.1	8987	11.8	1473	4.7	969	1.1
White crappie												
White perch	24780	1.1	26145	1.7	20615	25.8	50815	66.6	18450	58.3	64610	74.8
White sucker					240	0.3						
Yellow perch	1345	0.1	2114	0.1	5106	6.4	3489	4.6	583	1.8	1075	1.2
TOTAL (KG)	2207.1	100.0	1535.2	100.0	79.8	100.0	76.2	100.0	31.6	100.0	86.4	100.0

(CONTINUED)

TABLE 6-10. (CONTINUED)

	JUL		AUG		SEP		OCT		NOV		DEC	
SPECIES	GM.	PCNT	GM.	PCNT	GM.	PCNT	GM.	PCNT	GM.	PCNT	GM.	
Alewife	283	0.7	1369	1.8	866	4.3	964	5.2	231	0.2	302	
American eel	540	1.3	262	0.3	88	0.4	593	3.2	817	0.7	487	
American shad	51	0.1	338	0.4	440	2.2	629	3.4	85	0.1		
Atlantic menhaden			47	0.1	69	0.3	8	<0.1				
Atlantic tomcod	920	2.2	2272	2.9	657	3.3	167	0.9	2032	1.6	11720	
Banded killifish							19	0.1	19	<0.1	28	
Bay anchovy	7	<0.1	40	0.1	29	0.1						
Black crappie			19	<0.1	196	1.0	126	0.7	418	0.3	118	
Blueback herring	205	0.5	135	0.2	55	0.3	1530	8.2	156	0.1		
Bluegill	375	0.9	507	0.7	101	0.5	993	5.3	650	0.5	1066	
Brook silverside												
Brown bullhead	207	0.5	1293	1.7	409	2.0	786	4.2	682	0.5	807	
Brown trout			242	0.3								
Chain pickerel												
Channel catfish			400	0.5	482	2.4	211	1.1	616	0.5	639	
Common carp	5	<0.1							611	0.5		
Cutlips minnow	5	<0.1										
Emerald shiner			6	<0.1					9	<0.1	13	
Fathead minnow												
Fourspine stickleback											<1	
Freshwater drum							74	0.4	162	0.1		
Gizzard shad	4	<0.1	18	<0.1	684	3.4	645	3.5	11374	9.1	19960	
Golden shiner	177	0.4	336	0.4	63	0.3	73	0.4	2666	2.1	2785	
Goldfish									42	<0.1	259	
Herring family	109	0.3	54	0.1								
Hickory shad							3	<0.1				
Hogchoker	17	<0.1	281	0.4	1095	5.5	102	0.6	52	<0.1	8	
Largemouth bass							1167	6.3	291	0.2	236	
Pumpkinseed	1874	4.4	666	0.9	681	3.4	1458	7.8	83	0.1	192	
Redbreast sunfish	67	0.2	181	0.2	102	0.5	69	0.4			22	
Redfin pickerel												
Rock bass	107	0.3										
Smallmouth bass												
Spottail shiner	1707	4.0	2043	2.6	309	1.5	956	5.1	4632	3.7	1251	
Striped bass	623	1.5	3567	4.6	1877	9.3	536	2.9	2440	2.0	2501	
Sunfish family							2	<0.1	2	<0.1		
Tessellated darter	14	<0.1	1	<0.1	2	<0.1	4	<0.1			1	
Threespine stickleback												
Warmouth							50	0.3				
Weakfish					5	<0.1						
White bass											34	
White catfish	4717	11.1	5133	6.6	5357	26.7	1919	10.3	6645	5.3	561	
White crappie	300	0.7										
White perch	30053	70.9	58395	75.2	6515	32.4	5446	29.3	89854	72.1	131584	7
White sucker												
Yellow perch			47	0.1			60	0.3	64	0.1	1325	
TOTAL (KG)	42.4	100.0	77.7	100.0	20.1	100.0	18.6	100.0	124.6	100.0	175.9	10

TABLE 6-11. MONTHLY SUMMARY OF LENGTH DATA FOR SELECTED IMPINGED SPECIES, DANSKAMMER POINT GENERATING STATION, 1996.[a]

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Alewife	TOTAL ANAL.	0	29	10	3	4	13	26	287	238	210	40	30
	MEAN LENGTH	0	10.1	23.1	27.3	27.5	22.2	8.9	7.0	6.7	7.5	8.1	10.6
	MIN. LENGTH	0	7.9	8.2	25.9	26.6	9.8	3.5	3.8	4.4	5.3	5.9	7.6
	MAX. LENGTH	0	11.9	31.5	28.0	29.0	31.3	16.1	20.8	17.1	16.3	23.0	16.8
American shad	TOTAL ANAL.	0	0	0	0	0	0	73	188	199	203	31	0
	MEAN LENGTH	0	0	0	0	0	0	4.3	5.7	6.5	7.2	7.4	0
	MIN. LENGTH	0	0	0	0	0	0	2.4	2.8	4.8	5.6	6.4	0
	MAX. LENGTH	0	0	0	0	0	0	7.6	8.5	11.1	11.3	8.9	0
Atlantic tomcod	TOTAL ANAL.	3	4	1	0	3	136	120	226	87	19	74	207
	MEAN LENGTH	16.0	17.7	19.9	0	6.0	7.6	8.7	9.0	9.1	10.3	13.3	14.6
	MIN. LENGTH	14.7	16.5	19.9	0	5.9	5.6	7.0	6.5	7.2	7.8	10.5	11.1
	MAX. LENGTH	18.2	19.6	19.9	0	6.2	9.3	10.4	11.0	14.2	12.7	16.7	28.1
Blueback herring	TOTAL ANAL.	0	0	0	0	8	44	21	88	73	205	74	0
	MEAN LENGTH	0	0	0	0	25.9	25.5	6.6	4.1	4.4	7.0	6.6	0
	MIN. LENGTH	0	0	0	0	22.9	12.9	3.1	3.0	3.0	4.1	4.6	0
	MAX. LENGTH	0	0	0	0	27.7	28.7	26.0	25.1	7.0	10.6	10.2	0
Gizzard shad	TOTAL ANAL.	246	375	24	1	0	0	1	2	1	65	442	391
	MEAN LENGTH	43.1	46.2	46.2	45.1	0	0	7.2	10.0	48.6	10.6	12.6	15.8
	MIN. LENGTH	11.6	36.5	40.5	45.1	0	0	7.2	9.6	48.6	7.2	6.6	8.4
	MAX. LENGTH	53.7	52.9	51.9	45.1	0	0	7.2	10.3	48.6	12.8	27.3	45.7
Pumpkinseed	TOTAL ANAL.	30	97	27	107	139	137	56	16	53	107	10	4
	MEAN LENGTH	8.8	9.6	9.3	10.9	12.8	12.9	11.8	12.7	7.5	7.8	7.0	12.8
	MIN. LENGTH	4.5	4.7	4.4	4.5	5.6	6.0	7.1	8.1	4.4	3.9	4.1	6.8
	MAX. LENGTH	14.5	18.0	19.2	19.5	19.9	20.0	17.5	17.5	19.0	16.4	11.6	16.4
Spottail shiner	TOTAL ANAL.	133	307	339	349	126	190	193	234	43	160	457	188
	MEAN LENGTH	9.7	9.6	9.5	9.4	8.5	9.3	8.9	9.1	9.3	8.8	8.5	9.2
	MIN. LENGTH	5.6	5.8	5.0	5.1	5.4	6.8	2.4	3.2	4.6	5.1	4.6	5.4
	MAX. LENGTH	12.0	12.4	12.2	12.2	12.2	12.2	11.7	12.0	11.8	12.4	12.6	12.2
Striped bass	TOTAL ANAL.	7	3	0	2	3	29	247	446	308	79	69	18
	MEAN LENGTH	24.7	33.8	0	15.1	16.0	10.7	4.3	7.6	7.5	8.1	11.6	15.2
	MIN. LENGTH	12.6	30.2	0	11.0	13.4	1.9	1.4	2.4	2.3	4.8	4.4	5.6
	MAX. LENGTH	39.4	40.2	0	19.2	18.0	16.3	19.9	32.5	17.4	20.4	34.6	45.7
White catfish	TOTAL ANAL.	31	86	38	72	34	50	91	245	282	235	311	44
	MEAN LENGTH	17.9	25.0	19.9	13.9	10.7	10.3	11.8	7.8	8.1	8.5	9.1	9.3
	MIN. LENGTH	7.1	7.8	6.9	5.3	6.5	6.7	2.5	2.8	5.2	5.8	5.4	5.8
	MAX. LENGTH	45.5	53.9	50.9	44.1	45.8	32.2	49.1	44.4	42.6	15.9	32.5	23.6
White perch	TOTAL ANAL.	146	282	263	556	433	712	659	964	364	448	905	761
	MEAN LENGTH	14.1	15.6	13.9	11.4	10.4	12.2	12.1	12.2	9.9	8.4	11.1	12.4
	MIN. LENGTH	5.7	6.4	6.2	4.7	6.3	6.1	1.6	2.0	2.0	4.0	3.9	4.6
	MAX. LENGTH	28.6	32.8	27.4	28.4	24.2	24.9	32.1	26.1	25.1	24.1	24.1	23.4
Blue crab	TOTAL ANAL.	0	0	0	0	0	7	78	118	123	132	60	0
	MEAN LENGTH	0	0	0	0	0	3.4	5.8	7.7	10.2	9.9	7.8	0
	MIN. LENGTH	0	0	0	0	0	1.6	2.8	4.4	1.1	0.9	0.7	0
	MAX. LENGTH	0	0	0	0	0	5.2	9.5	11.4	16.2	15.6	15.4	0

[a]Lengths are in centimeters.

TABLE 6-12. INVERTEBRATE ABUNDANCE AND PERCENT COMPOSITION, ROSETON AND DANSKAMMER POINT GENERATING STATIONS, 1996.

		BLUE CRAB		CRAYFISH		MUD CRAB		TOTAL	
PLANT	MONTH	NO.	%	NO.	%	NO.	%	NO.	%
ROSETON	JAN								
	FEB					1	100.0	1	100.0
	MAR								
	APR			3	100.0			3	100.0
	MAY			5	20.8	19	79.2	24	100.0
	JUN	11	47.8	3	13.0	9	39.1	23	100.0
	JUL	64	97.0	2	3.0			66	100.0
	AUG	129	94.2	3	2.2	5	3.6	137	100.0
	SEP	38	100.0					38	100.0
	OCT	63	95.5			3	4.5	66	100.0
	NOV	37	66.1			19	33.9	56	100.0
	DEC	1	50.0			1	50.0	2	100.0
	TOTAL	343	82.5	16	3.8	57	13.7	416	100.0
DANSKAMMER	JAN								
	FEB								
	MAR								
	APR			5	25.0	15	75.0	20	100.0
	MAY			4	3.2	121	96.8	125	100.0
	JUN	7	9.9	10	14.1	54	76.1	71	100.0
	JUL	78	83.9	6	6.5	9	9.7	93	100.0
	AUG	118	88.1	11	8.2	5	3.7	134	100.0
	SEP	125	96.2	3	2.3	2	1.5	130	100.0
	OCT	132	83.0			27	17.0	159	100.0
	NOV	60	57.1			45	42.9	105	100.0
	DEC					1	100.0	1	100.0
	TOTAL	520	62.1	39	4.7	279	33.3	838	100.0

TABLE 6-13. MONTHLY BLUE CRAB IMPINGEMENT COUNTS, ROSETON AND DANSKAMMER POINT GENERATING STATIONS, 1986-1996.

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
ROSETON													
1986	0	0	0	0	0	0	0	9	3	3	0	0	15
1987	0	0	0	0	1	0	2	62	119	157	11	0	352
1988	0	0	0	0	2	57	129	388	862	464	69	1	1,972
1989	0	1	0	0	2	783	490	999	1,615	845	196	0	4,931
1990	0	0	0	0	0	31	214	257	235	198	76	2	1,013
1991	0	0	0	0	28	624	1,084	19,180	40,522	4,072	929	0	66,439
1992	0	0	1	0	947	5,147	7,402	6,348	4,758	1,193	111	3	25,910
1993	0	0	0	0	0	5	409	229	374	111	74	2	1,204
1994	0	0	0	0	1	4	40	2,221	1,006	394	337	26	4,029
1995	0	1	0	0	1,617	1,406	4,509	2,926	195	579	92	0	11,325
1996	0	0	0	0	0	11	64	129	38	63	37	1	343
DANSKAMMER POINT													
1986	0	0	0	0	1	0	1	17	15	2	2	0	38
1987	0	0	0	0	2	3	5	40	64	91	29	0	234
1988	0	0	0	0	0	37	287	415	383	783	500	1	2,406
1989	0	0	0	0	1	238	272	640	706	422	312	1	2,592
1990	0	0	0	0	0	7	58	152	123	167	28	0	535
1991	0	0	0	0	0	155	309	2,976	8,361	3,326	810	7	15,944
1992	0	0	0	1	64	871	4,071	2,239	946	791	52	1	9,036
1993	0	2	0	0	0	4	276	297	306	138	73	0	1,096
1994	1	1	0	0	0	6	37	1,442	1,436	213	164	31	3,331
1995	0	0	1	0	287	1,004	2,547	1,571	969	603	361	0	7,343
1996	0	0	0	0	0	7	78	118	125	132	60	0	520

TABLE 6-14. MONTHLY BLUE CRAB IMPINGEMENT COUNTS BY SEX, ROSETON AND DANSKAMMER POINT GENERATING STATIONS, 1996.[a]

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
ROSETON	MALE						8	45	93	27	52	29	1	255
	FEMALE						3	19	35	10	10	8		85
	TOTAL						11	64	128	37	62	37	1	340
DANSKAMMER POINT	MALE						5	57	99	103	114	55		433
	FEMALE						2	21	19	20	18	5		85
	TOTAL						7	78	118	123	132	60		518

[a]Sex determinations were done on a subsample of the total impingement count.

6.3.2.2 Danskammer Point Generating Station

A total of 838 invertebrates representing three taxa were collected at Danskammer Point in 1996. Blue crab accounted for 520 individuals or 62.1% of the total, followed by mud crab (279, 33.3%) and crayfish with 39 individuals (Table 6-12). Blue crab was the dominant species from July through November.

At least one of the three invertebrate taxa appeared in the Danskammer Point impingement collections in every month from April through December in 1996 and were most abundant in October (159 or 19.0% of the annual total). Mud crab reached peaks in May (121) and November (45) and crayfish were collected from April through September (Table 6-12).

The number of blue crabs impinged at Danskammer Point followed a similar pattern among years to the Roseton counts, peaking at 15,944 individuals in 1991 and 9,036 individuals in 1992 (Table 6-13). The blue crab abundance approximately doubled from 1994 to 1995, then decreased by 92.9% from 1995 to 1996.

The 1996 blue crab population at Danskammer Point was dominated by males (83.6%) in a 5.1:1 ratio (Table 6-14).

6.4 DIEL IMPINGEMENT PATTERNS

The 6-hr impingement sampling intervals during each 24-hr collection period at Roseton and Danskammer Point Generating Stations permitted the data to be grouped into periods characterized as day (0900-1500 hrs), dusk (1500-2100 hrs), night (2100-0300 hrs) and dawn (0300-0900 hrs). Annual impingement counts for two age groups, young-of-the-year and older (yearling through adult), were examined in impingement collections for the four most abundant fish species at each plant to describe diel impingement patterns. Specimens that could not be measured due to damage were excluded from this analysis, because age categories were based on length.

6.4.1 Roseton Generating Station

The four most abundant species in impingement collections at Roseton Station in 1996 were examined for diel impingement patterns. White perch, spottail shiner, blueback herring, and golden shiner accounted for 70.5% of the total abundance in 1996. Diel impingement collection information for Roseton is presented in Figure 6-5.

White perch was the most abundant species in impingement collections at Roseton in 1996. Slightly over 40% of the young-of-the-year bay anchovy were collected during the night diel period, and a similar proportion were collected during dusk samples. The remainder were roughly equally divided between dawn and day. Nearly 40% of the yearlings and adults were collected during the night, with successively smaller numbers impinged during dusk, dawn, and day collections.

Spottail shiner ranked second in impingement collections at Roseton in 1996. Young-of-the-year and yearling/adult spottail shiners were present in roughly equal abundance. Both age groups were most commonly collected in dusk impingement samples, and least commonly collected in day samples..

Blueback herring was the third most abundant species in impingement collections at Roseton in 1996. Young-of-the-year were most abundant in the dusk diel period, with most of the rest collected in the night samples (Figure 6-5). A very small proportion of young-of-the-year blueback herring were collected during the day diel period. Relatively few yearling and adult blueback herring were collected in 1996 impingement collections, (a total of 15), with some collected during each of the four diel periods.

Golden shiner was the fourth most abundant species in impingement collections at Roseton in 1996. The majority of them were nearly equally split between dusk and night collections. Yearlings and adults accounted for a larger proportion of golden shiner in impingement samples, and those were collected most often at night and least often during the day, with dusk and dawn periods each accounting for roughly a quarter of the golden shiner yearling and adult impingement.

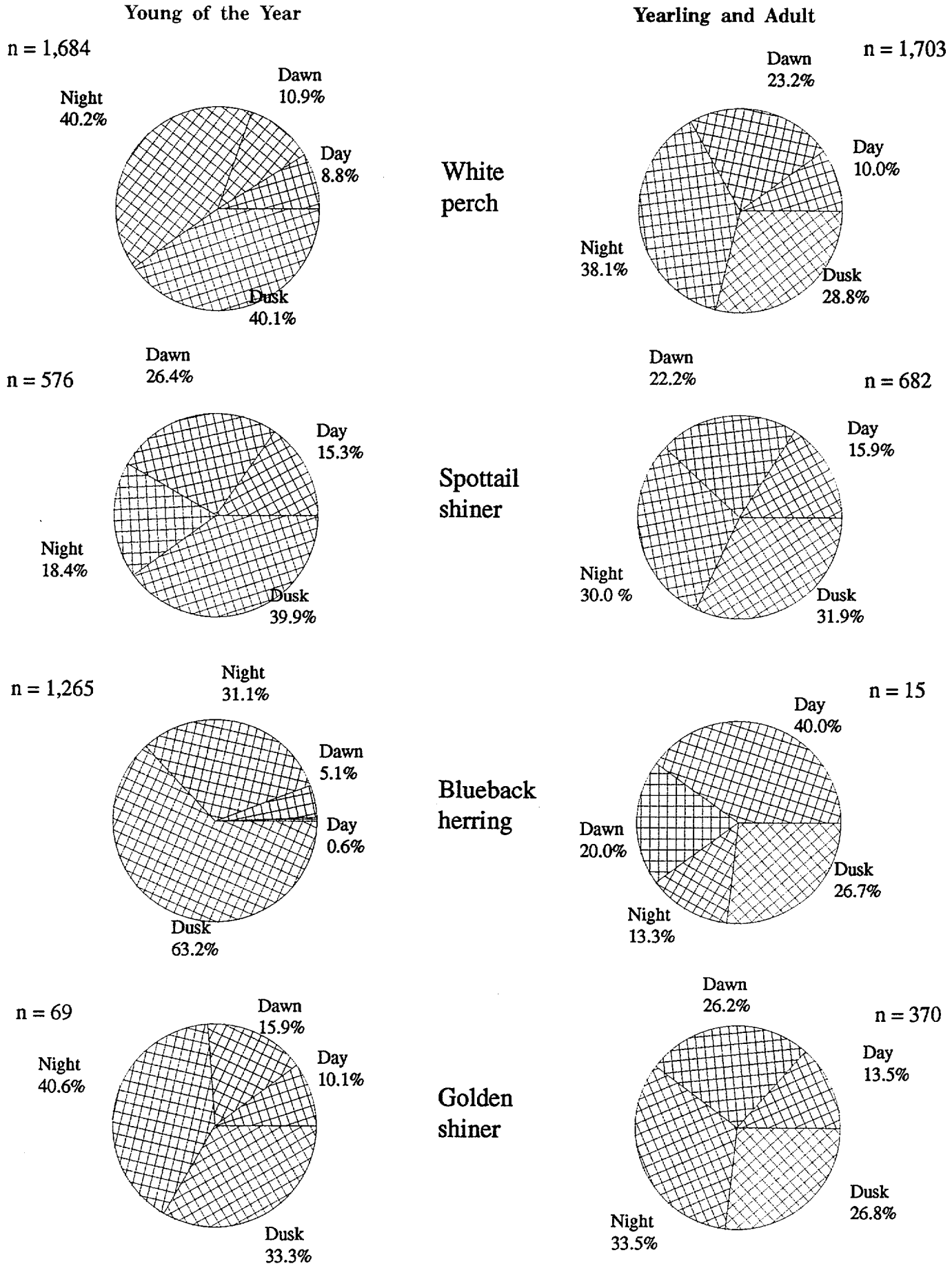


Figure 6–5. Diel collection for the four most abundant species by age class, Roseton Generating Station, 1996.

6.4.2 Danskammer Point Generating Station

The four most abundant species in impingement collections at Danskammer Point Station in 1996 were examined for diel abundance patterns. At Danksammer, white perch, gizzard shad, spottail shiner, and white catfish represented 74.9% of the total abundance in 1996 (Table 6-8, Figure 6-2). Diel impingement collection information for these four species at Danskammer Point is presented by age group in Figure 6-6.

White perch was the most abundant species in impingement collections at Danskammer Point in 1996. The two age classes (young-of-the-year and yearling/adult) were similar in their diel impingement patterns. Between 35 and 40% were collected at night, and most of the others were in dusk or dawn samples (Figure 6-6). During the day diel sampling period, the lowest numbers were collected, between 10 and 12%.

Gizzard shad was the second most abundant species in impingement collections at Danskammer Point in 1996. Young-of-the-year were most abundant in the night diel period and least abundant in the day period. Yearling and adult gizzard shad were impinged in approximately equal numbers in dusk and night samples, with fewer collected during the day and dawn collections.

Spottail shiner was the third most abundant species in impingement collections at Danskammer Point in 1996. The young-of-the-year were most abundant in night collections, and less than 10% were collected in day samples. Over 40% of the yearlings and adults were collected at night, with day accounting for the smallest numbers collected.

White catfish ranked fourth in impingement collections at Danskammer Point in 1996. Young-of-the-year, which represented the majority of the year's catch, were most numerous at night (nearly 50%) and least numerous in the day (below 10%). The yearlings and adults showed a similar pattern.

6.5 IMPINGEMENT PATTERNS FOR SELECTED TAXA

Impingement data for total fish and for selected individual species extrapolated from collection dates to include all dates ("estimated impingement") are used for comparisons among age classes and among years in Section 6.5.1 and for analysis of seasonal patterns in Section 6.5.2. Estimated impingement abundance and biomass are presented in Appendices C and D, respectively, for total fish, selected fish species, and blue crabs on a weekly and monthly basis by plant. Selected fish species included in Appendices C and D for both plants include eight species that have historically been considered key species for this program: alewife, American shad, Atlantic tomcod, bay anchovy, blueback herring, rainbow smelt, striped bass, and white perch. Any fish species that ranked in the top 10 in abundance or biomass collected in 1996 at one of the two plants is included in Appendices C and D for that plant.

6.5.1 Estimated Impingement by Age Class and Comparison to Historical Impingement Rates

Estimated numbers of fish impinged during each month in 1996 are shown for the historically abundant species alewife, American shad, Atlantic tomcod, bay anchovy, blueback herring, spottail shiner, striped bass, and white perch by age class in Table 6-15 (Roseton) and Table 6-16 (Danskammer Point). The monthly totals for all age classes combined (including any that could not be assigned to length class due to damage) are shown in Appendix C. In the following sections, percentages by age class refer to the percentages among the total number of those fish that could be assigned to an age class, as presented in Tables 6-15 and 6-16. Annual impingement rates presented graphically for the same eight historically abundant species are for all age classes combined.

6.5.1.1 Alewife

An estimated total number of 2,287 alewife were impinged at Roseton in 1996, and 7,143 at Danskammer Point, of which 2,276 were classified by life stage at Roseton (Table 6-

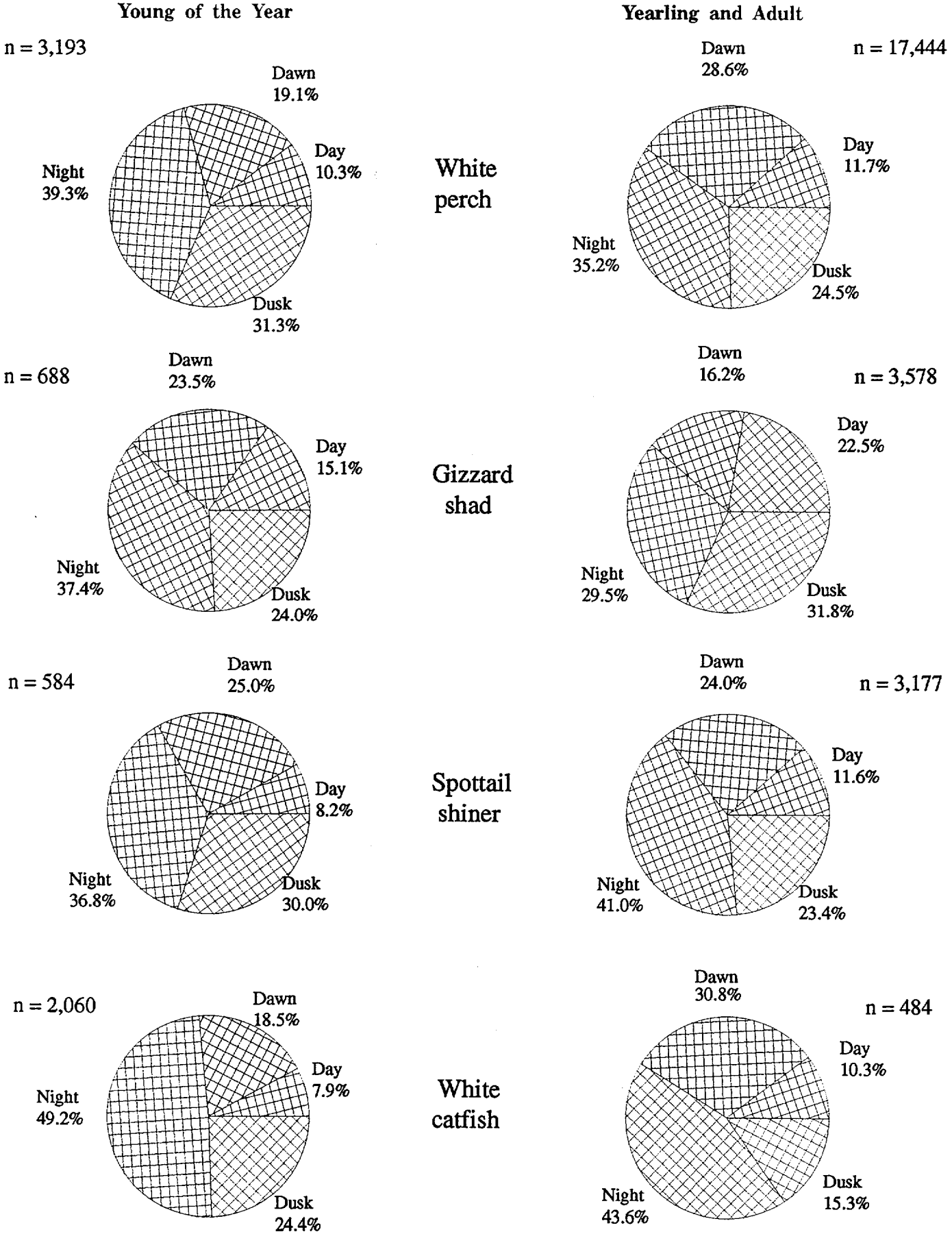


Figure 6 – 6. Diel collection for the four most abundant species by age class, Danskammer Point Generating Station, 1996.

TABLE 6-15. ESTIMATED MONTHLY IMPINGEMENT BY AGE CLASS FOR SELECTED SPECIES AT ROSETON GENERATING STATION, 1996.

	Alewife			American shad			Atlantic tomcod			Bay anchovy		
	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT
JAN	0	23	0	0	0	0	0	8	0	0	0	0
FEB	0	744	0	0	0	0	0	4	0	0	0	0
MAR	0	50	0	0	0	0	0	0	0	0	0	0
APR	0	0	8	0	0	0	0	0	0	0	0	0
MAY	0	3	3	0	0	0	0	0	0	0	0	3
JUN	0	5	0	0	0	0	11	0	0	0	0	0
JUL	0	0	0	10	0	0	0	0	0	0	0	0
AUG	577	0	0	143	0	0	25	0	0	50	11	0
SEP	83	0	0	15	0	0	22	0	0	0	0	0
OCT	117	0	0	35	0	0	0	0	0	0	0	0
NOV	261	0	0	39	0	0	6	0	0	0	0	0
DEC	395	7	0	0	0	0	306	0	0	0	0	0
TOTAL	1433	832	11	242	0	0	370	12	0	50	11	3

	Blueback herring			Spottail shiner			Striped bass			White perch		
	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT
JAN	0	0	0	0	181	260	0	16	0	0	431	1815
FEB	0	0	0	0	505	340	0	0	0	0	227	1107
MAR	0	0	0	0	418	717	0	14	0	0	152	420
APR	0	0	0	0	440	467	0	0	0	0	1988	444
MAY	0	0	33	0	141	3	0	0	0	0	1183	61
JUN	0	9	43	0	121	0	0	0	0	0	321	300
JUL	0	0	0	0	18	0	16	0	9	10	32	9
AUG	4557	0	0	143	15	0	104	0	0	245	29	17
SEP	23	0	0	8	7	0	23	0	0	15	7	7
OCT	117	0	0	35	0	0	4	0	0	121	4	0
NOV	374	0	0	2831	491	0	184	0	0	9170	1585	157
DEC	7	0	0	794	476	0	7	0	0	1679	1339	490
TOTAL	5077	9	76	3810	2812	1787	337	30	9	11239	7298	4827

YOY - YOUNG-OF-THE-YEAR

TABLE 6-16. ESTIMATED MONTHLY IMPINGEMENT BY AGE CLASS FOR SELECTED SPECIES AT DANSKAMMER POINT GENERATING STATION, 1996.

	Alewife			American shad			Atlantic tomcod			Bay anchovy		
	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT
JAN	0	0	0	0	0	0	0	23	0	0	0	0
FEB	0	210	0	0	0	0	0	26	0	0	0	0
MAR	0	25	58	0	0	0	0	8	0	0	0	0
APR	0	0	22	0	0	0	0	0	0	0	0	0
MAY	0	0	18	0	0	0	11	0	0	0	0	0
JUN	0	23	91	0	0	0	2324	0	0	0	0	0
JUL	117	86	0	578	0	0	1116	0	0	0	15	0
AUG	2025	137	4	1413	0	0	2179	0	0	67	60	0
SEP	2067	33	0	1438	0	0	813	0	0	196	22	0
OCT	1621	8	0	1315	0	0	99	0	0	0	0	0
NOV	291	0	7	231	0	0	612	22	0	0	0	0
DEC	214	24	0	0	0	0	3125	31	0	0	0	0
TOTAL	6335	546	200	4976	0	0	10278	110	0	264	97	0

	Blueback herring			Spottail shiner			Striped bass			White perch		
	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT
JAN	0	0	0	0	267	812	0	15	39	0	301	3410
FEB	0	0	0	0	598	1111	0	0	18	0	176	2739
MAR	0	0	0	0	1384	2305	0	0	0	0	313	3454
APR	0	0	0	0	1201	1939	0	7	7	0	9941	8360
MAY	0	0	40	0	425	260	0	4	8	0	4925	1819
JUN	0	7	376	0	4759	0	15	225	7	0	11674	10622
JUL	149	0	16	31	2157	0	2455	80	16	183	4225	4479
AUG	1013	0	4	119	2052	0	3730	52	25	766	3425	6617
SEP	698	0	0	70	236	0	3419	7	0	1618	960	524
OCT	3762	0	0	369	411	0	444	25	0	2904	589	196
NOV	634	0	0	2946	3103	0	380	82	52	14217	19252	3155
DEC	0	0	0	631	895	0	95	24	24	2936	18780	10492
TOTAL	6255	7	436	4166	17488	6428	10538	522	196	22623	74560	55867

YOY - YOUNG-OF-THE-YEAR

15) and 7, 081 were classified by life stage at Danskammer Point (Table 6-16). During August to December, 99.5% of the estimated alewife impinged were young-of-the-year. During January to June, 98.7% were yearlings. Adult alewife accounted for only 0.5% of the alewife impinged over the entire year.

At Danskammer Point the seasonal occurrence of yearlings and of adults was spread over a greater number of months than their occurrence at Roseton but otherwise the seasonal patterns were similar, with young-of-the-year dominating the second half of the year. Yearlings accounted for a larger proportion of the alewife impingement (7.7%) than did adults, which accounted for 2.8%. Adults were impinged in larger numbers at Danskammer Point than at Roseton.

The annual impingement rate for alewife in 1996 at Roseton was the sixth lowest compared to the entire 1975-1996 period of record (Figure 6-7). The Danskammer Point annual alewife impingement rate in 1996 was the fourth lowest for the 23-year period of record.

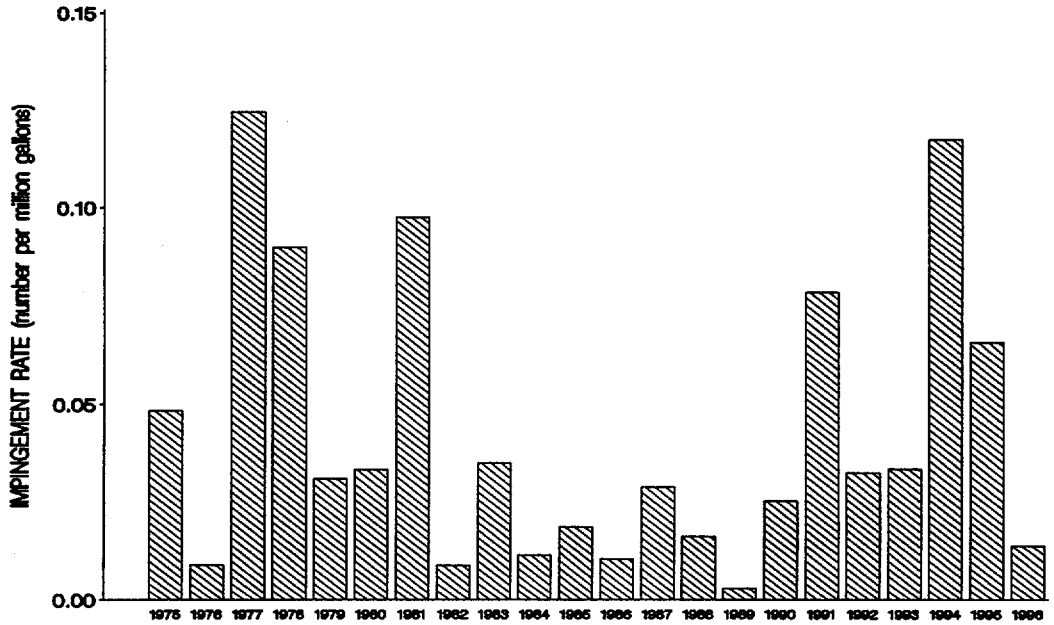
6.5.1.2 American Shad

The estimated total numbers of American shad impinged in 1996 were 250 at Roseton and 5,021 at Danskammer Point, of which 242 were classified by life stage at Roseton (Table 6-15) and 4,976 were classified by life stage at Danskammer Point (Table 6-16). All American shad impinged in 1996 at both plants were young-of-the-year. The young-of-the-year shad first were impinged during July and were present through November at both Roseton and Danskammer Point. The greatest numbers were impinged in August at Roseton and in August to October at Danskammer Point.

Compared with previous years' annual impingement rates of American shad, the 1996 rate was the second lowest in 22 years at Roseton, and the ninth highest for the entire 23-year period at Danskammer Point (Figure 6-8).

Alewife

Roseton



Danskammer Point

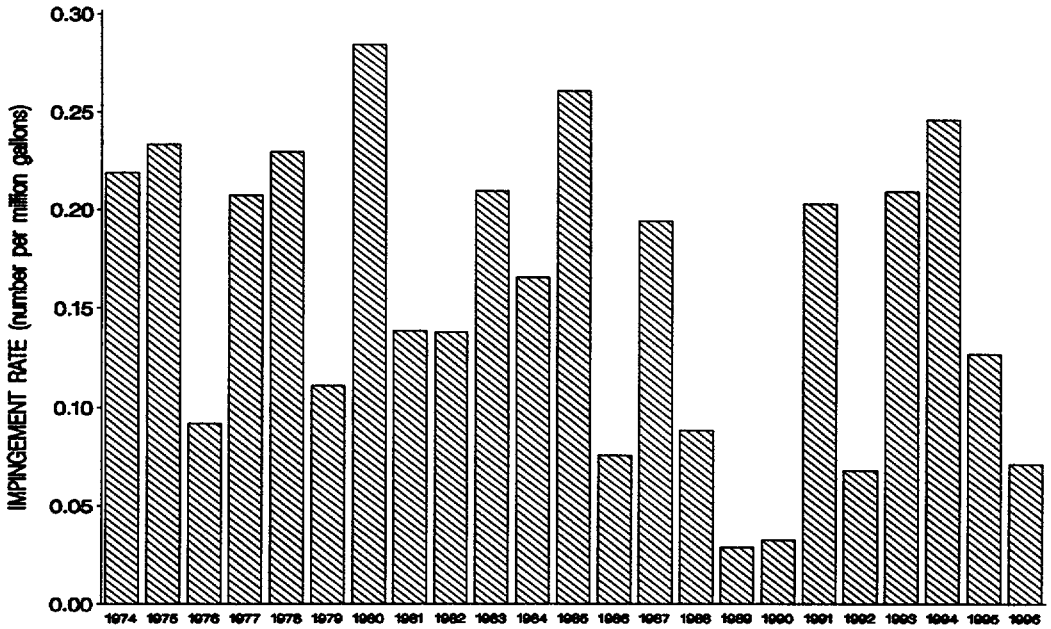


Figure 6-7. Annual impingement rate for alewife at Roseton and Danskammer Point generating stations, 1974-1996.

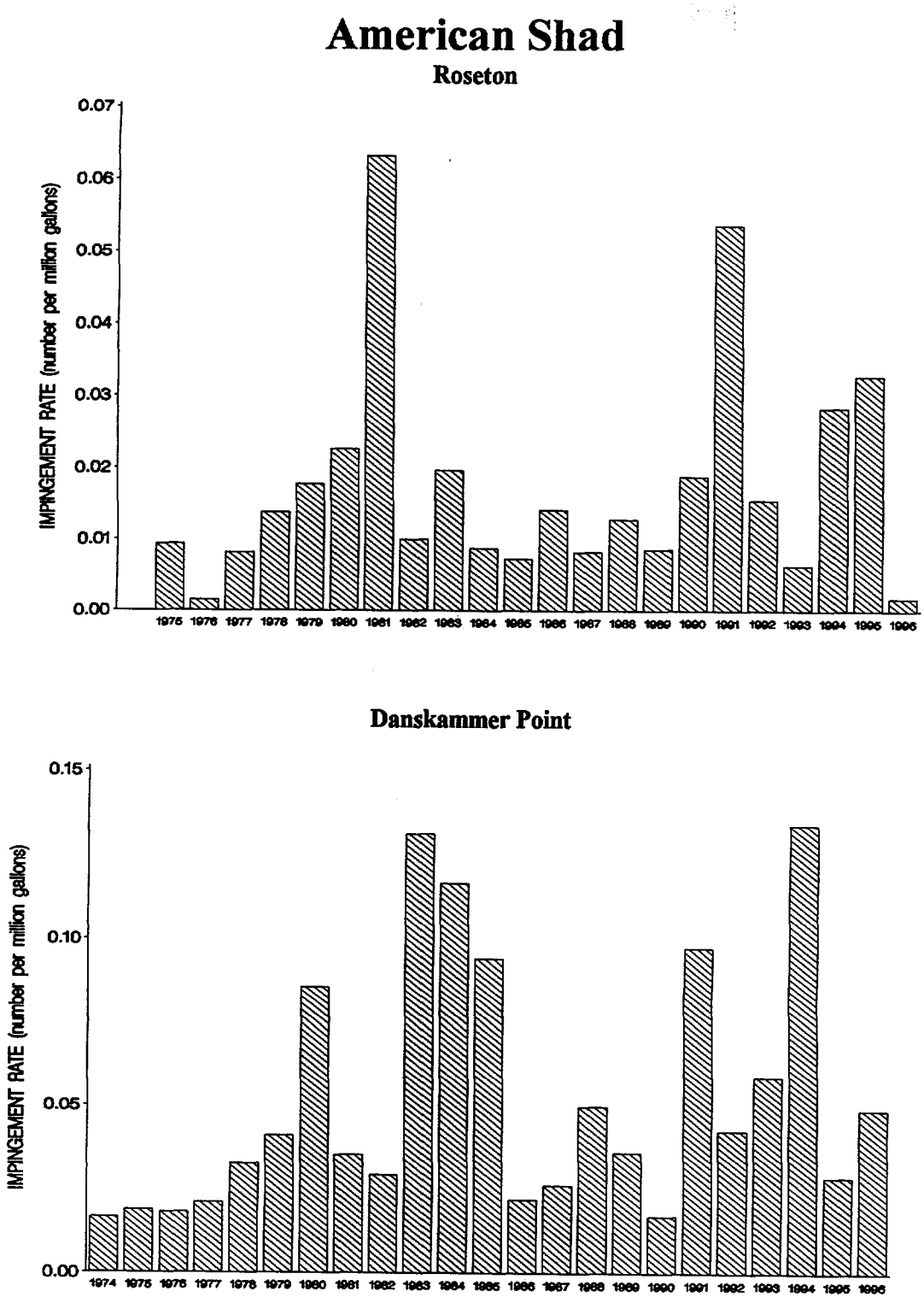


Figure 6-8. Annual impingement rate for American shad at Roseton and Danskammer Point generating stations, 1974-1996.

6.5.1.3 Atlantic Tomcod

Total impingement of Atlantic tomcod during 1996 was estimated at 382 fish at Roseton and 10,409 at Danskammer Point, of which all 382 were classified by life stage at Roseton and 10,388 were classified by life stage at Danskammer Point (Tables 6-15 and 6-16). The predominant life stage was young-of-the-year (96.9% at Roseton and 98.9% at Danskammer Point). Yearlings were only occasionally impinged and there were no Atlantic tomcod older than yearlings that were impinged in 1996 at either plant. The young-of-the-year Atlantic tomcod first appeared in June at Roseton and May at Danskammer Point. The highest young-of-the-year impingement occurred in December at each plant. Yearling Atlantic tomcod, which are sexually mature, were impinged in January and February at Roseton and in January to March and November to December at Danskammer Point.

Annual mean impingement rate of Atlantic tomcod in 1996 was low compared to all but four previous years at Roseton and the ninth lowest in 23 years at Danskammer Point (Figure 6-9). The highest rates were generally in the mid- to late 1970s except for a relatively high impingement rate at Roseton in 1991.

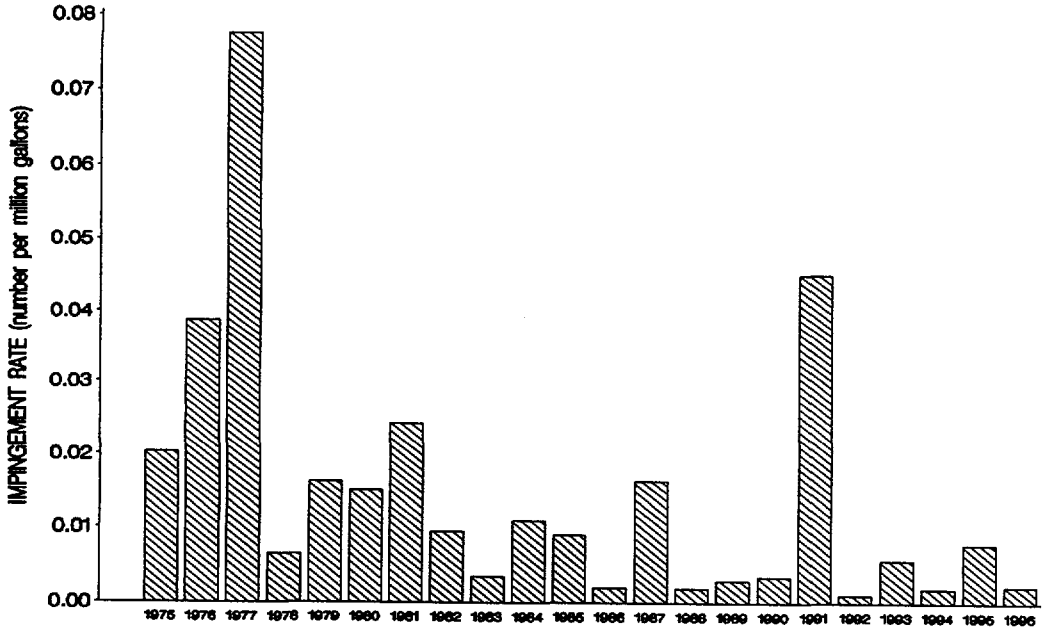
6.5.1.4 Bay Anchovy

The estimated total numbers of bay anchovy impinged during 1996 were 65 at Roseton and 361 at Danskammer Point, of which all 65 were classified by life stage at Roseton (Table 6-15) and all 361 were classified by life stage at Danskammer Point (Table 6-16). At Roseton about 77% were young-of-the-year and most of the rest were yearlings, and at Danskammer Point 73.1% were young-of-the-year and the remaining 26.9% were yearlings. All of the young-of-the-year bay anchovy impingement was observed during August through September, and yearling bay anchovies (which are sexually mature) were also impinged during the warmer months.

The annual impingement rates for bay anchovy at Roseton (Figure 6-10) indicate two low years (1975-1976) followed by several moderate years (1977-1984), and then a declining trend through 1989. In 1991 the highest annual impingement rate recorded over the

Atlantic Tomcod

Roseton



Danskammer Point

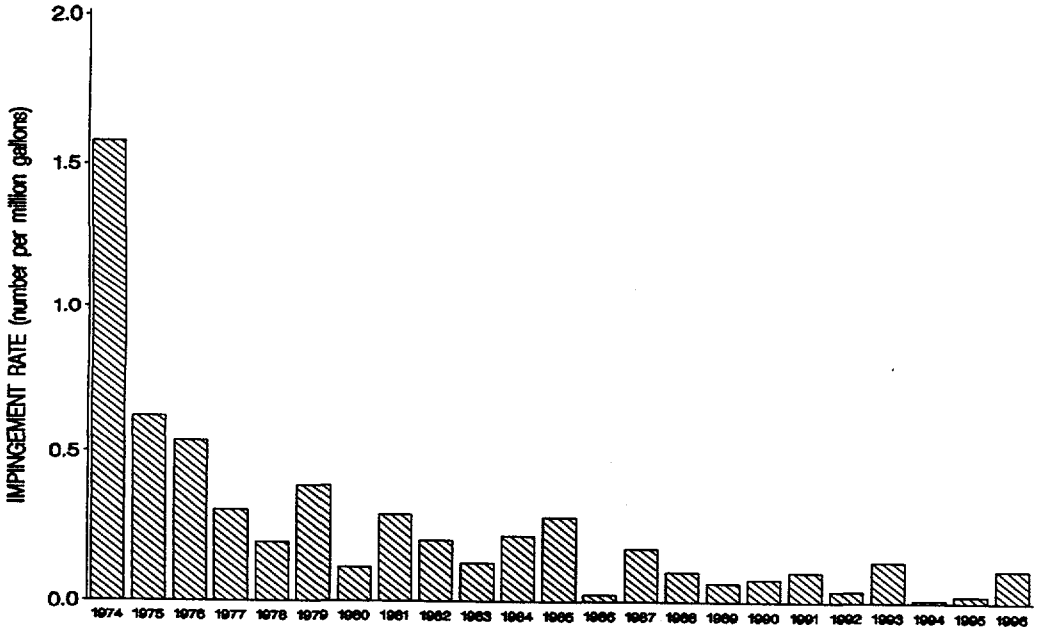
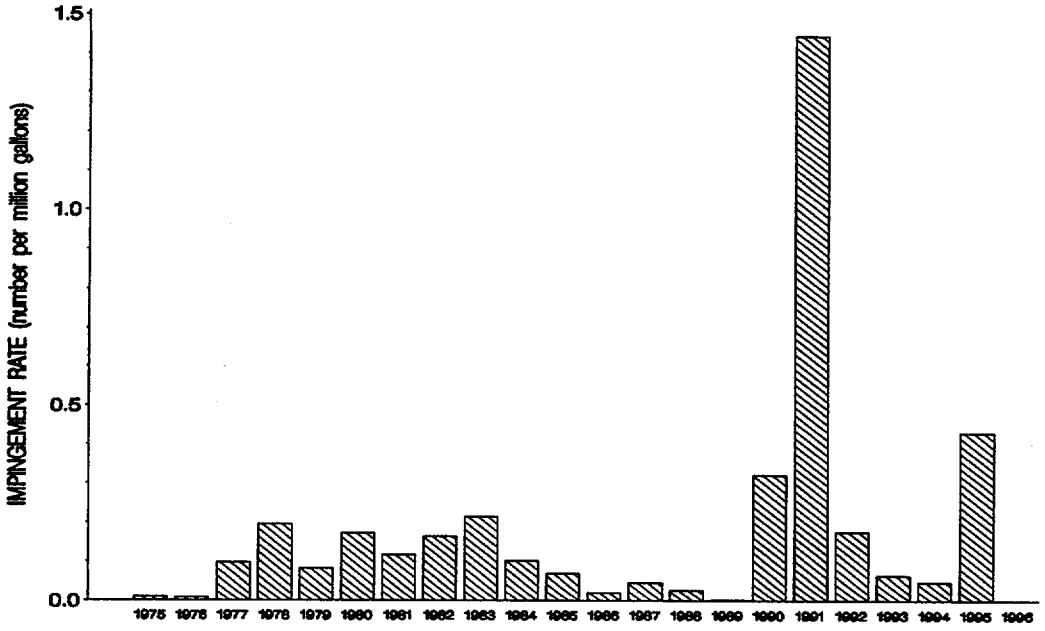


Figure 6-9. Annual impingement rate for Atlantic tomcod at Roseton and Danskammer Point generating stations, 1974-1996.

Bay Anchovy

Roseton



Danskammer Point

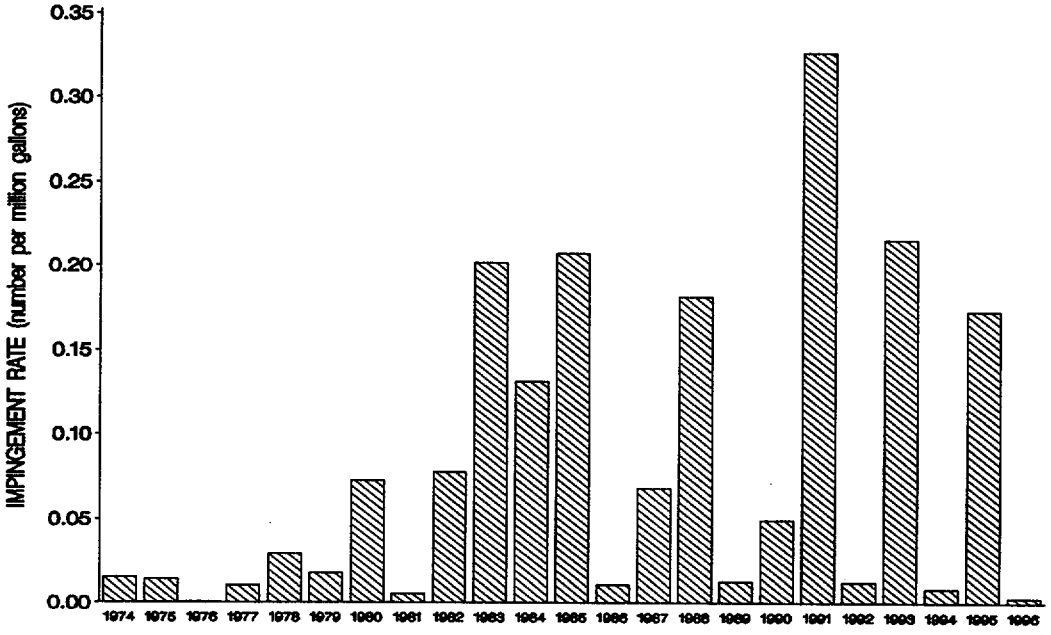


Figure 6-10. Annual impingement rate for bay anchovy at Roseton and Danskammer Point generating stations, 1974-1996.

19-year data base occurred. The annual impingement in 1996 was the lowest for the period of record.

The historical pattern of bay anchovy impingement rates at Danskammer Point also exhibited a general cycle of increasing then decreasing values from year-to-year (Figure 6-10). The years of highest abundances at Danskammer Point were 1983-1985, 1988, 1991, 1993, and 1995. The 1996 annual impingement rate for bay anchovy was the second lowest recorded at Danskammer Point since 1974.

6.5.1.5 Blueback Herring

The total numbers of blueback herring estimated to have been impinged during 1996 were 5,175 at Roseton and 6,740 at Danskammer Point, of which 5,162 were classified by life stage at Roseton (Table 6-15) and 6,698 were classified by life stage at Danskammer Point (Table 6-16). Of these, young-of-the-year fish made up the vast majority: 98.4% at Roseton and 93.4% at Danskammer Point. This 1996 year class first appeared in impingement collections in July at Danskammer Point and in August at Roseton. The greatest numbers impinged were in August at Roseton and October at Danskammer Point. Both yearlings and adults were also impinged at both plants, although yearlings occurred in very low numbers. Adults were a somewhat greater component at Danskammer Point (6.5% for the whole year) than at Roseton (1.5%). Most impingement of yearlings and adults occurred in spring and summer.

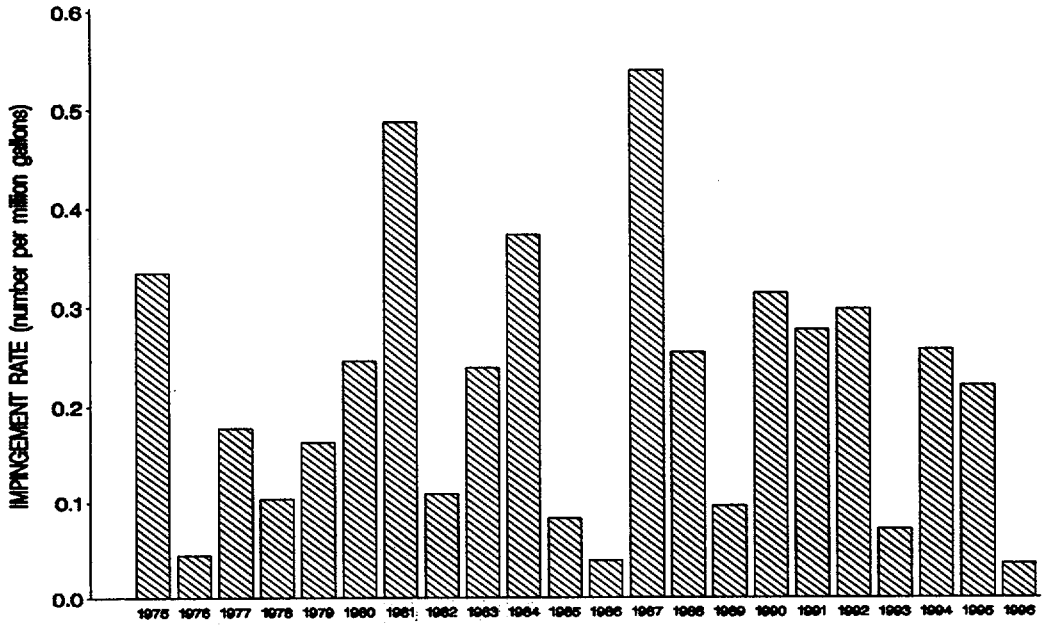
Compared to the previous 21-22 years, the annual blueback herring impingement rate during 1996 was the lowest on record at Roseton and the third lowest at Danskammer Point (Figure 6-11). Rates have varied considerably among years and between the two plants.

6.5.1.6 Spottail Shiner

At Roseton an estimated total of 8,645 spottail shiner were impinged and at Danskammer Point the estimate was 28,140 of which 8,409 were classified by life stage at

Blueback Herring

Roseton



Danskammer Point

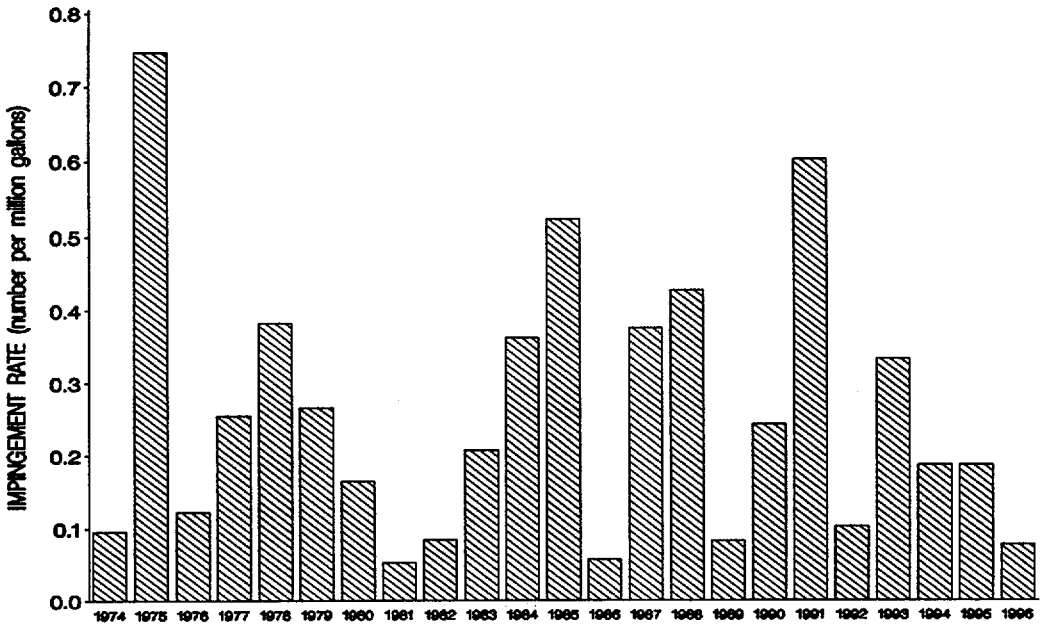


Figure 6-11. Annual impingement rate for blueback herring at Roseton and Danskammer Point generating stations, 1974-1996.

Roseton (Table 6-15) and 28,082 were classified by life stage at Danskammer Point (Table 6-16). Each of the three life stages was abundant for at least part of the year. Young-of-the-year were the most abundant life stage impinged at Roseton and the least abundant at Danskammer Point. Adults were impinged only during January-May, and young-of-the-year were impinged only during the July through December period. Yearlings were present most of the year.

Annual impingement rates for spottail shiner (Figure 6-12) have not been characterized by such wide fluctuations among years as were those of clupeids and bay anchovy. The 1996 impingement rates were higher than in most past years, except for the rates in 1977 and 1995 at Roseton, and in 1987 at Danskammer Point.

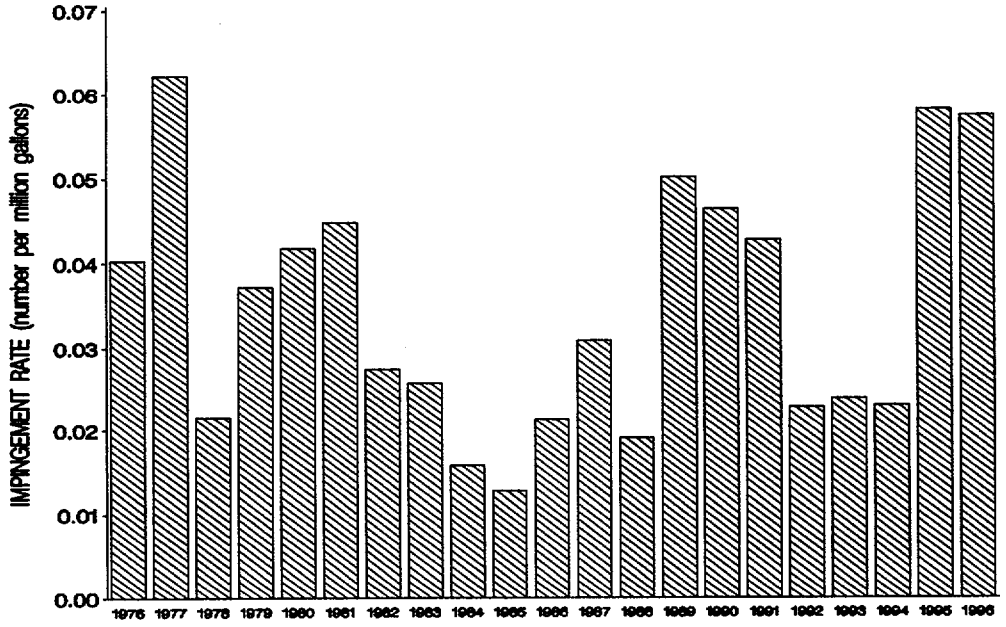
6.5.1.7 Striped Bass

The estimated total numbers of striped bass impinged in 1996 were 387 at Roseton and 11,305 at Danskammer Point, of which 376 were classified by life stage at Roseton (Table 6-15) and 11,256 were classified by life stage at Danskammer Point (Table 6-16). The age composition at Roseton was dominated by young-of-the-year (89.6%), with yearlings making up most of the remaining impingement. The same was true at Danskammer Point: 93.6% young-of-the-year, 4.6% yearlings, and 1.7% adults. Young-of-the-year striped bass were first impinged in July at Roseton and June at Danskammer Point, and impingement of this early life stage reached a maximum later at Roseton (November) than at Danskammer Point (August). The highest percentage of striped bass impinged during the first half of the year were yearlings, until the more abundant young-of-the year fish became large enough to be retained on the traveling screens. Striped bass older than yearlings were present in impingement collections mainly during the second half of the year.

Annual impingement rates for striped bass in 1996 were low compared to most of the 1974-1995 data for Roseton but high for Danskammer Point (Figure 6-13). The striped bass annual impingement rate for 1996 was lower than in all but three previous years at Roseton and higher than in all but four previous years at Danskammer Point.

Spottail Shiner

Roseton



Danskammer Point

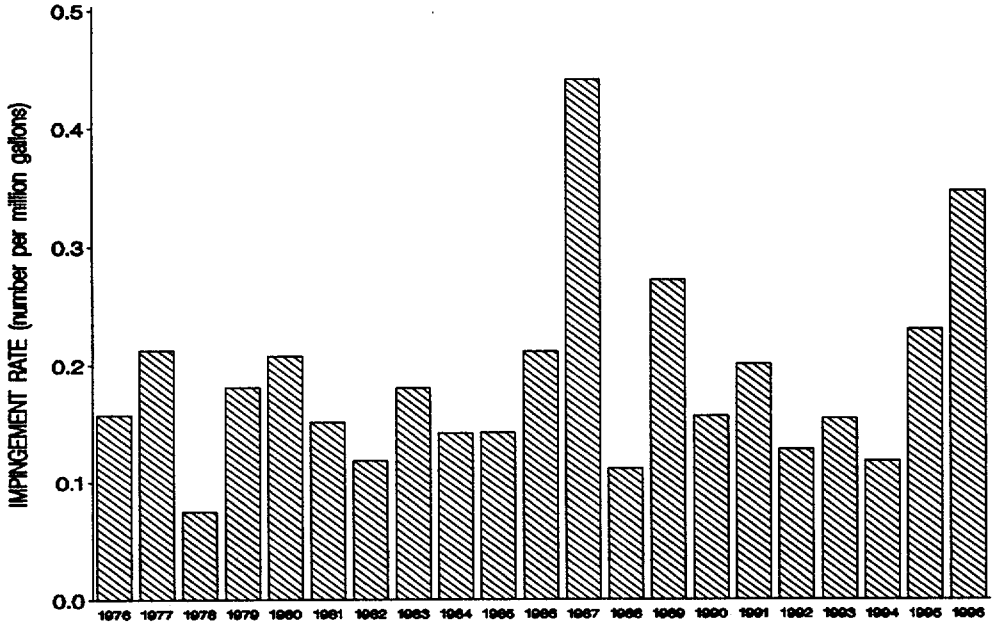
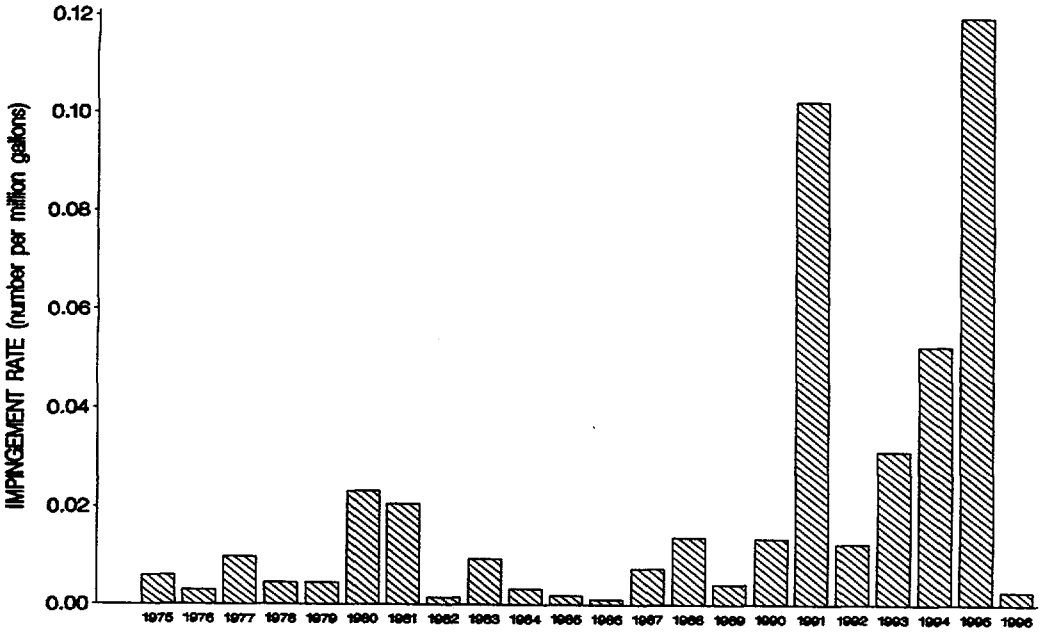


Figure 6-12. Annual impingement rate for spottail shiner at Roseton and Danskammer Point generating stations, 1976-1996.

Striped Bass

Roseton



Danskammer Point

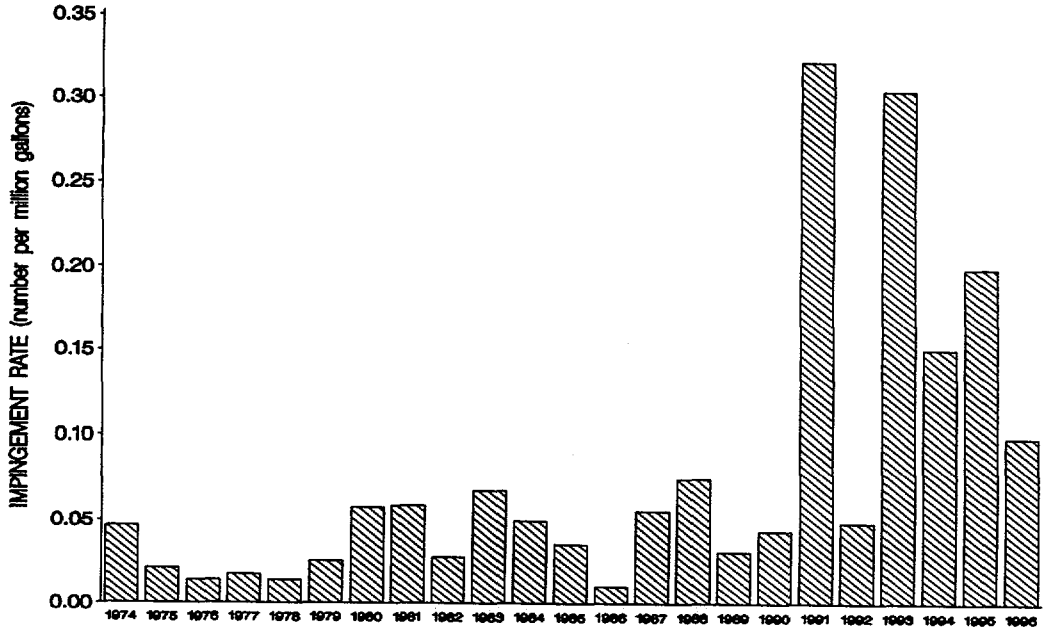


Figure 6-13. Annual impingement rate for striped bass at Roseton and Danskammer Point generating stations, 1974-1996.

6.5.1.8 White Perch

Total numbers of white perch estimated to have been impinged in 1996 were 23,528 at Roseton and 153,146 at Danskammer Point, of which 23,364 were classified by life stage at Roseton (Table 6-15) and 153,050 were classified by life stage at Danskammer Point (Table 6-16). Young-of-the-year white perch represented 48.1% of the estimated total impinged at Roseton and 14.8% at Danskammer Point. At both plants they first appeared in July, reaching a maximum in November. Yearling fish constituted 31.2% of the Roseton impingement and 48.7% at Danskammer Point. Yearling white perch were present in impingement collections in every month at both plants. Yearlings reached peaks in April at Roseton and November at Danskammer Point. Adults were 20.7% of estimated impingement at Roseton and 36.5% at Danskammer Point. Their seasonal abundance pattern at both plants was similar to that of the yearlings. In comparison with the previous 22 years, the 1996 white perch impingement rates were lower than average at Roseton and higher than average at Danskammer Point (Figure 6-14).

6.5.2 Seasonal Impingement Patterns

6.5.2.1 Total Fish

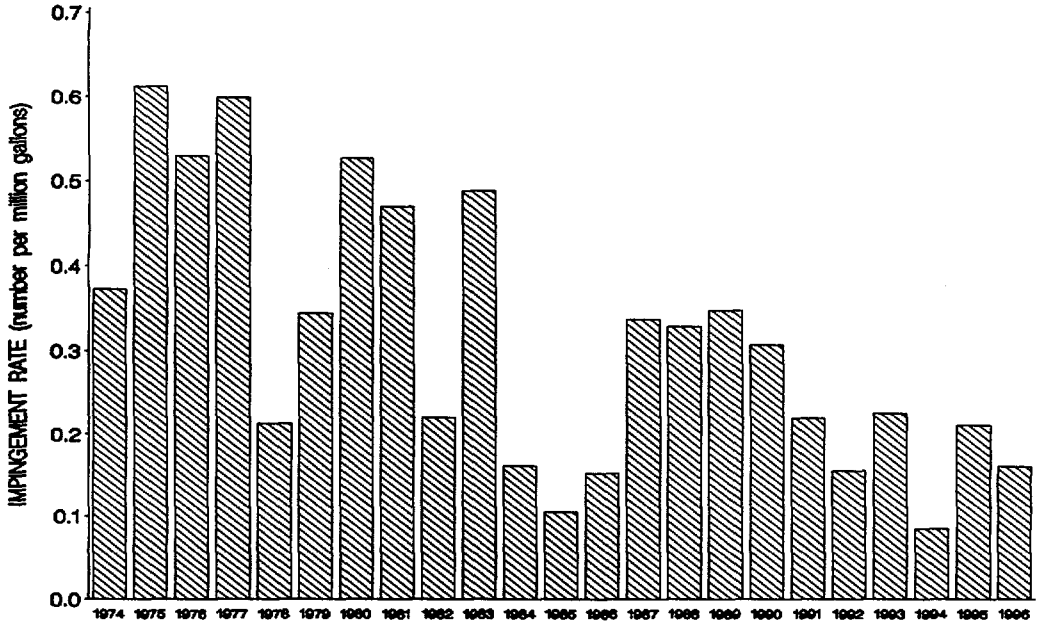
Roseton Generating Station

The monthly estimated total impingement of all fish species combined is shown in Figure 6-15 (abundance and biomass) and Table 6-17 (abundance and percent composition) for Roseton in 1996. The months of highest estimated impingement abundance were August (6,894), November (17,937), and December (9,439). The lowest monthly total impingement estimate was for July (197). An abundance of blueback herring was primarily responsible for the high estimated impingement in August, and the high impingement in November and December was largely due to abundant white perch, spottail shiner, and gizzard shad.

The seasonal trend of estimated biomass at Roseton was characterized by 59.8% of the total for the year being impinged in January and February (Figure 6-15). The peak in those

White Perch

Roseton



Danskammer Point

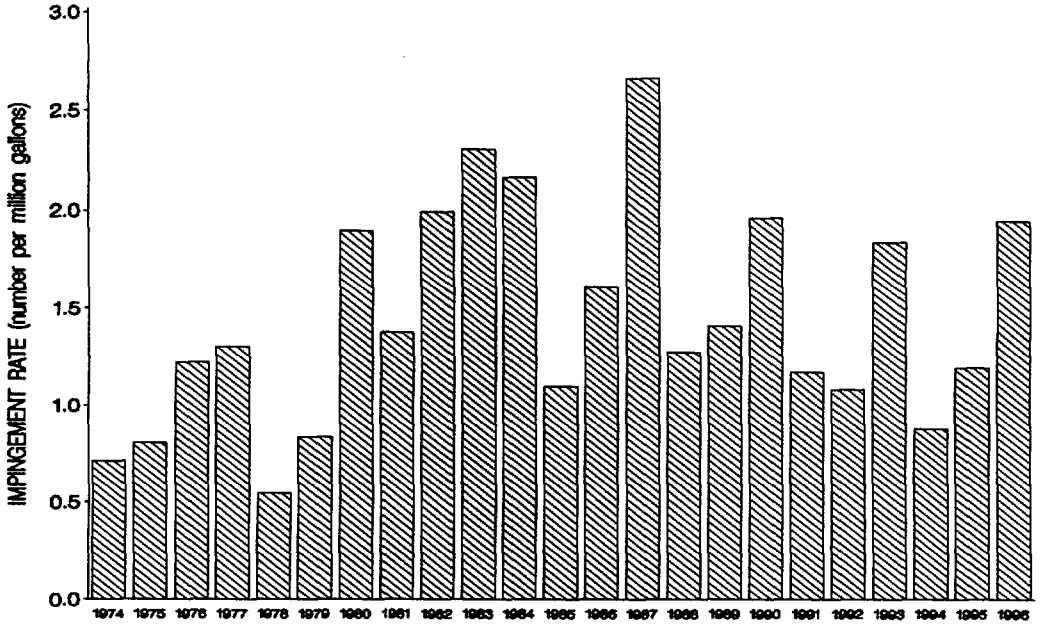
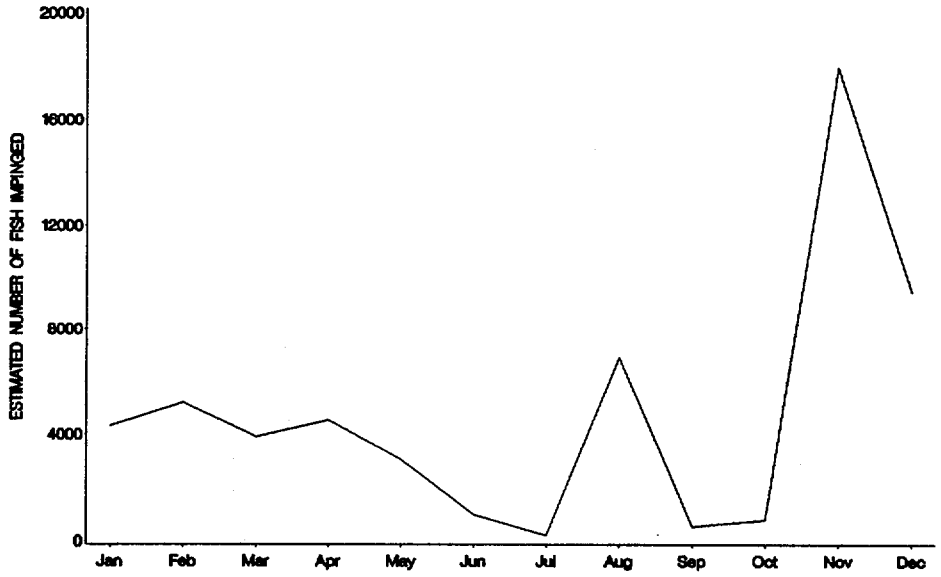


Figure 6-14. Annual impingement rate for white perch at Roseton and Danskammer Point generating stations, 1974-1996.

Total Fish

Estimated Abundance



Estimated Biomass

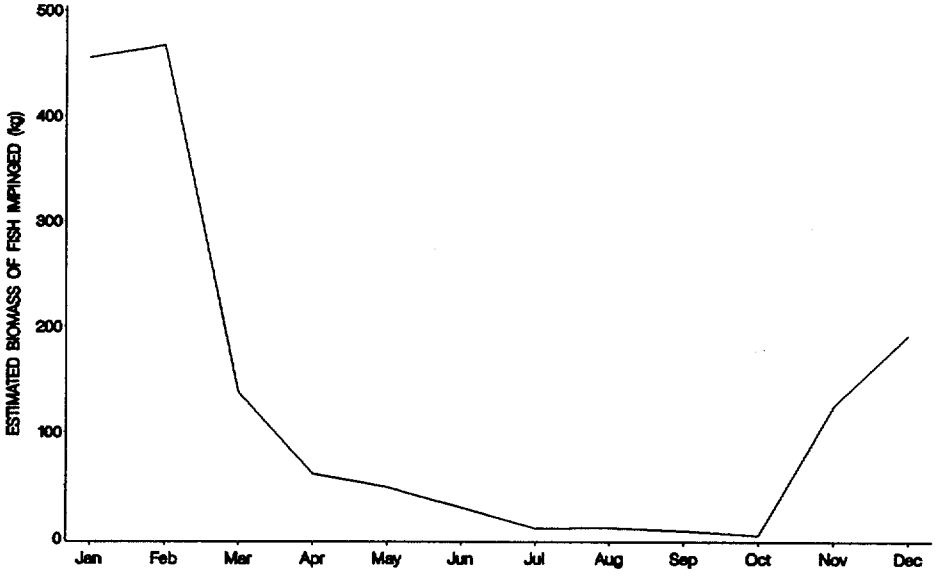


Figure 6-15. Monthly estimated impingement of all fish species combined, Roseton Generating Station, 1996.

TABLE 6-17. ESTIMATED MONTHLY ABUNDANCE AND PERCENT COMPOSITION OF THE TEN MOST ABUNDANT SPECIES COLLECTED IN IMPINGEMENT SAMPLES, ROSETON GENERATING STATION, 1996.

	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE	
	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%
Alewife	23	0.5	751	14.5	50	1.3	8	0.2	6	0.2	5	0.6
Blueback herring	0	0.0	0	0.0	0	0.0	0	0.0	33	1.1	53	5.5
Channel catfish	31	0.7	14	0.3	74	1.9	78	1.7	0	0.0	6	0.7
Gizzard shad	501	11.7	268	5.2	21	0.5	0	0.0	3	0.1	0	0.0
Golden shiner	149	3.5	426	8.2	779	20.0	56	1.2	17	0.6	0	0.0
Hogchoker	0	0.0	0	0.0	0	0.0	39	0.9	913	30.1	11	1.1
Pumpkinseed	260	6.0	577	11.1	245	6.3	384	8.5	334	11.0	86	9.0
Spottail shiner	550	12.8	877	16.9	1177	30.3	932	20.6	144	4.7	131	13.6
White catfish	16	0.4	219	4.2	135	3.5	216	4.8	101	3.3	0	0.0
White perch	2364	55.0	1356	26.2	579	14.9	2431	53.8	1243	40.9	631	65.6
Others	402	9.4	691	13.3	828	21.3	379	8.4	243	8.0	39	4.1
TOTAL	4296	100.0	5179	100.0	3888	100.0	4523	100.0	3037	100.0	962	100.0

	JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%
Alewife	0	0.0	581	8.4	83	15.3	117	14.9	261	1.5	402	4.3
Blueback herring	0	0.0	4565	66.2	23	4.2	121	15.4	374	2.1	7	0.1
Channel catfish	0	0.0	52	0.8	68	12.5	8	1.0	351	2.0	728	7.7
Gizzard shad	0	0.0	0	0.0	0	0.0	0	0.0	904	5.0	1448	15.3
Golden shiner	0	0.0	10	0.1	0	0.0	0	0.0	390	2.2	1078	11.4
Hogchoker	10	5.3	23	0.3	98	18.1	16	2.0	37	0.2	0	0.0
Pumpkinseed	36	18.2	6	0.1	15	2.8	43	5.5	90	0.5	35	0.4
Spottail shiner	18	9.2	162	2.3	15	2.8	35	4.5	3321	18.5	1283	13.6
White catfish	14	7.2	183	2.7	113	20.8	12	1.5	523	2.9	70	0.7
White perch	51	25.8	291	4.2	30	5.5	125	15.9	10912	60.8	3516	37.2
Others	68	34.2	1021	14.8	98	18.0	308	39.3	773	4.3	872	9.2
TOTAL	197	100.0	6894	100.0	540	100.0	782	100.0	17937	100.0	9439	100.0

	ANNUAL TOTAL	
	ESTIM. NUMBER	%
Alewife	2287	4.0
Blueback herring	5175	9.0
Channel catfish	1411	2.4
Gizzard shad	3145	5.5
Golden shiner	2906	5.0
Hogchoker	1147	2.0
Pumpkinseed	2110	3.7
Spottail shiner	8645	15.0
White catfish	1602	2.8
White perch	23528	40.8
Others	5720	9.9
TOTAL	57676	100.0

first two months in estimated biomass was mainly due to gizzard shad, which accounted for 68.5% of the total during that period (Table 6-18). The next highest monthly estimated biomass impinged was in December, when white perch and gizzard shad combined accounted for 65.5% of the total biomass. White perch accounted for the greatest percentage of biomass impinged in April, June, November, and December; gizzard shad ranked first in January and in February; golden shiner ranked first in March; pumpkinseed ranked first in May; white catfish ranked first in July and September; and blueback herring ranked first in August in estimated biomass impinged at Roseton.

Danskammer Point Generating Station

At Danskammer Point, the highest monthly estimated total fish impingement in 1996 occurred in November and December (Table 6-19 and Figure 6-16). The highest total numbers impinged for all units combined were estimated at 57,502 in November and 43,132 in December. June and August also had high totals (above 30,000), while the lowest total was in May, at 9,190 fish. The peak impingement in November and December of 1996 was mainly due to white perch (63.7% of the estimated impingement in November and 74.7% in December).

The seasonal trend of estimated biomass followed a different pattern to that of the estimated numerical abundance in 1996 at Danskammer Point. January and February were by far the months when the greatest biomass was impinged, accounting for 83.8% of the biomass impinged for the year (Figure 6-16). Gizzard shad was responsible for 97.1% of that two-month peak (Table 6-20). Gizzard or white perch had the greatest biomass impinged in every month.

6.5.2.2 Selected Species

The typical seasonal patterns of impingement for key species can be seen by examining the mean and range of impingement rates for each month over a period of several

TABLE 6-18. ESTIMATED MONTHLY BIOMASS (KILOGRAMS) AND PERCENT COMPOSITION OF THE TEN MOST ABUNDANT SPECIES COLLECTED IN IMPINGEMENT SAMPLES, ROSETON GENERATING STATION, 1996.

	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE	
	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%
American eel	0.7	0.1	1.4	0.3	1.6	1.2	1.8	3.0	0.5	1.1	0.0	0.0
Blueback herring	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.3	10.8	5.2	17.8
Brown bullhead	4.3	0.9	4.0	0.9	4.7	3.5	3.4	5.5	0.5	1.0	2.0	6.8
Gizzard shad	322.2	70.7	310.2	66.3	18.4	13.4	0.0	0.0	3.8	7.7	0.0	0.0
Golden shiner	6.2	1.4	16.3	3.5	37.6	27.5	0.7	1.1	0.1	0.2	0.0	0.0
Pumpkinseed	7.1	1.5	11.1	2.4	4.6	3.4	10.5	17.2	10.5	21.4	2.9	9.8
Spottail shiner	3.9	0.9	5.0	1.1	8.8	6.5	6.7	11.0	0.4	0.9	0.7	2.4
White catfish	3.7	0.8	23.3	5.0	14.8	10.8	1.7	2.8	7.5	15.4	0.0	0.0
White perch	99.6	21.9	67.1	14.3	17.7	12.9	22.6	37.1	6.7	13.8	15.9	54.3
Yellow perch	0.8	0.2	11.6	2.5	21.4	15.6	8.7	14.2	0.5	1.0	0.0	0.0
Others	7.4	1.6	17.7	3.8	7.3	5.3	4.8	8.0	13.0	26.7	2.6	9.0
TOTAL	455.9	100.0	467.7	100.0	136.9	100.0	60.9	100.0	48.8	100.0	29.3	100.0

	JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%
American eel	2.7	28.5	0.0	0.1	0.0	0.0	0.0	0.0	9.3	7.4	3.9	2.0
Blueback herring	0.0	0.0	2.1	20.5	0.0	0.2	0.2	7.1	0.5	0.4	0.0	0.0
Brown bullhead	0.0	0.0	0.8	8.0	0.0	0.7	0.2	6.6	0.8	0.6	2.8	1.5
Gizzard shad	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.3	9.9	60.2	31.4
Golden shiner	0.0	0.0	0.4	3.6	0.0	0.0	0.0	0.0	4.2	3.3	26.1	13.6
Pumpkinseed	1.2	12.9	0.5	4.5	0.3	4.9	0.2	6.2	0.7	0.6	0.1	0.1
Spottail shiner	0.1	1.0	0.2	2.1	0.1	0.9	0.1	2.8	10.1	8.1	6.4	3.3
White catfish	2.9	31.6	2.0	20.0	4.4	64.9	0.1	1.9	3.9	3.1	0.5	0.2
White perch	0.7	7.5	1.9	18.5	0.5	6.6	0.4	12.1	74.8	60.0	65.6	34.2
Yellow perch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	1.5
Others	1.7	18.5	2.3	22.7	1.5	21.8	1.9	63.2	8.1	6.5	23.4	12.2
TOTAL	9.3	100.0	10.1	100.0	6.8	100.0	3.0	100.0	124.6	100.0	192.0	100.0

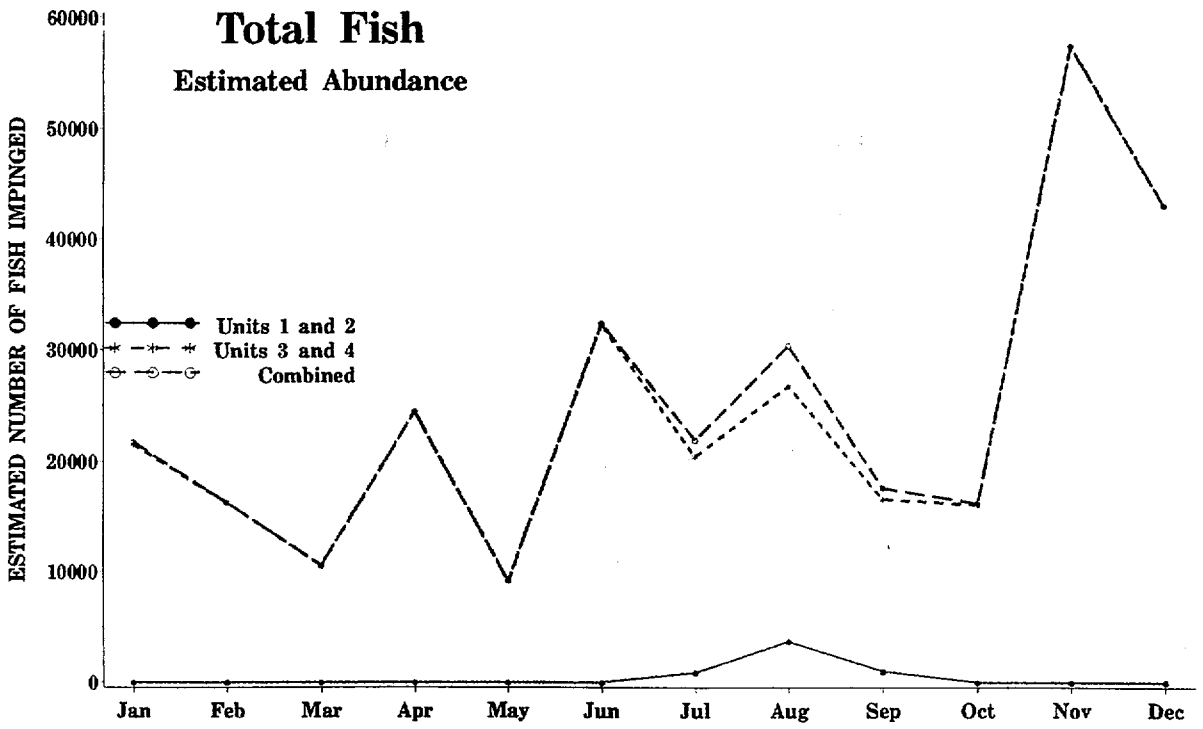
	ANNUAL TOTAL	
	ESTIM. BIOMASS	%
American eel	21.8	1.4
Blueback herring	13.3	0.9
Brown bullhead	23.5	1.5
Gizzard shad	727.0	47.0
Golden shiner	91.6	5.9
Pumpkinseed	49.6	3.2
Spottail shiner	42.6	2.8
White catfish	64.8	4.2
White perch	373.4	24.2
Yellow perch	45.9	3.0
Others	91.7	5.9
TOTAL	1545.3	100.0

TABLE 6-19. ESTIMATED MONTHLY ABUNDANCE AND PERCENT COMPOSITION OF THE TEN MOST ABUNDANT SPECIES COLLECTED IN IMPINGEMENT SAMPLES, DANSKAMMER POINT GENERATING STATION, 1996.

	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE	
	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%
Alewife	0	0.0	210	1.3	82	0.8	22	0.1	18	0.2	114	0.4
American shad	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Atlantic tomcod	23	0.1	26	0.2	8	0.1	0	0.0	11	0.1	2324	7.2
Blueback herring	0	0.0	0	0.0	0	0.0	0	0.0	40	0.4	402	1.2
Gizzard shad	15303	70.4	8750	53.8	209	2.0	7	0.0	0	0.0	0	0.0
Pumpkinseed	229	1.1	585	3.6	222	2.1	819	3.3	644	7.0	1283	4.0
Spottail shiner	1079	5.0	1709	10.5	3698	35.1	3140	12.8	685	7.5	4768	14.7
Striped bass	54	0.2	18	0.1	0	0.0	15	0.1	12	0.1	247	0.8
White catfish	237	1.1	516	3.2	318	3.0	590	2.4	168	1.8	429	1.3
White perch	3712	17.1	2915	17.9	3767	35.7	18301	74.8	6757	73.5	22312	68.7
Others	1107	5.1	1539	9.5	2240	21.2	1568	6.4	855	9.3	585	1.8
TOTAL	21743	100.0	16267	100.0	10545	100.0	24463	100.0	9190	100.0	32463	100.0

	JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%
Alewife	211	1.0	2186	7.2	2122	12.0	1641	10.1	298	0.5	239	0.6
American shad	578	2.6	1429	4.7	1456	8.2	1327	8.2	231	0.4	0	0.0
Atlantic tomcod	1116	5.1	2193	7.2	820	4.6	99	0.6	634	1.1	3156	7.3
Blueback herring	165	0.8	1016	3.3	698	4.0	3785	23.3	634	1.1	0	0.0
Gizzard shad	7	0.0	13	0.0	6	0.0	342	2.1	4580	8.0	3460	8.0
Pumpkinseed	451	2.1	98	0.3	434	2.5	637	3.9	75	0.1	32	0.1
Spottail shiner	2204	10.0	2181	7.2	313	1.8	780	4.8	6057	10.5	1526	3.5
Striped bass	2567	11.7	3819	12.5	3446	19.5	469	2.9	515	0.9	143	0.3
White catfish	740	3.4	2453	8.1	3100	17.6	1562	9.6	5714	9.9	351	0.8
White perch	8888	40.5	10830	35.6	3130	17.7	3703	22.8	36624	63.7	32208	74.7
Others	5036	22.9	4234	13.9	2134	12.1	1892	11.7	2141	3.7	2017	4.7
TOTAL	21961	100.0	30453	100.0	17659	100.0	16236	100.0	57502	100.0	43132	100.0

	ANNUAL TOTAL	
	ESTIM. NUMBER	%
Alewife	7143	2.4
American shad	5021	1.7
Atlantic tomcod	10409	3.5
Blueback herring	6740	2.2
Gizzard shad	32679	10.8
Pumpkinseed	5509	1.8
Spottail shiner	28140	9.3
Striped bass	11305	3.7
White catfish	16177	5.4
White perch	153146	50.8
Others	25348	8.4
TOTAL	301615	100.0



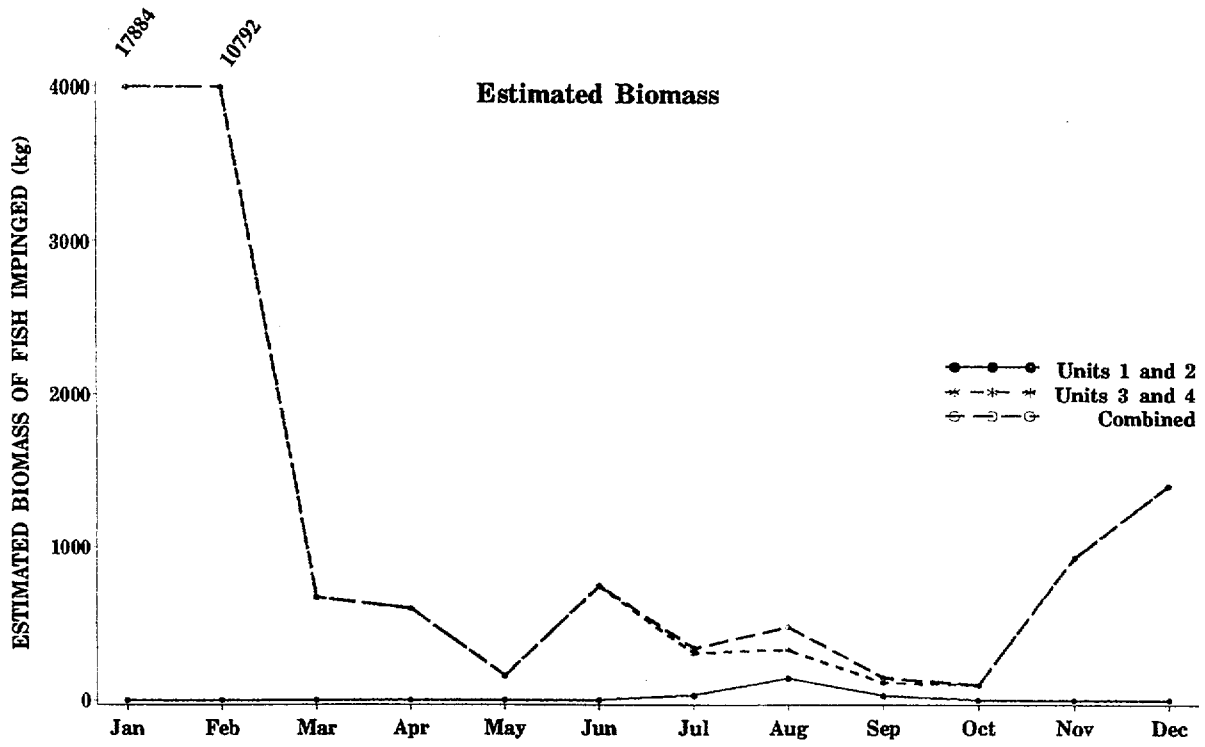


Figure 6–16. Monthly estimated impingement of all fish species combined, Danskammer Point Generating Station, 1996.

TABLE 6-20. ESTIMATED MONTHLY BIOMASS (KILOGRAMS) AND PERCENT COMPOSITION OF THE TEN MOST ABUNDANT SPECIES COLLECTED IN IMPINGEMENT SAMPLES, DANSKAMMER POINT GENERATING STATION, 1996.

	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE	
	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%
Alewife	0.0	0.0	1.5	0.0	13.8	2.1	4.0	0.7	3.1	2.0	11.8	1.6
Atlantic tomcod	0.9	0.0	1.1	0.0	0.5	0.1	0.0	0.0	0.0	0.0	8.3	1.1
Gizzard shad	17567.8	98.2	10274.3	95.2	236.4	35.4	7.4	1.2	0.0	0.0	0.0	0.0
Golden shiner	30.7	0.2	58.8	0.5	85.5	12.8	18.9	3.2	1.0	0.6	0.4	0.1
Pumpkinseed	3.6	0.0	14.8	0.1	5.4	0.8	25.4	4.3	27.4	17.5	53.0	7.2
Spottail shiner	8.6	0.0	12.7	0.1	27.3	4.1	22.5	3.8	3.8	2.4	31.3	4.2
Striped bass	11.3	0.1	6.9	0.1	0.0	0.0	0.5	0.1	0.4	0.3	3.2	0.4
White catfish	33.4	0.2	193.7	1.8	74.8	11.2	73.0	12.3	6.3	4.0	7.6	1.0
White perch	189.2	1.1	179.0	1.7	166.3	24.9	392.4	66.1	92.5	58.8	549.7	74.2
Yellow perch	10.2	0.1	12.8	0.1	41.0	6.1	26.9	4.5	2.2	1.4	9.5	1.3
Others	28.3	0.2	35.9	0.3	16.9	2.5	23.0	3.9	20.3	12.9	66.5	9.0
TOTAL	17884.1	100.0	10791.5	100.0	667.9	100.0	593.9	100.0	157.2	100.0	741.2	100.0

	JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%
Alewife	2.2	0.6	8.2	1.7	6.2	4.3	5.2	5.4	1.7	0.2	2.4	0.2
Atlantic tomcod	7.1	2.1	14.9	3.1	4.7	3.2	0.8	0.9	15.2	1.6	92.1	6.6
Gizzard shad	0.0	0.0	0.1	0.0	4.4	3.0	3.4	3.6	84.8	9.1	158.1	11.3
Golden shiner	1.4	0.4	2.2	0.5	0.4	0.3	0.3	0.3	19.9	2.1	22.1	1.6
Pumpkinseed	15.0	4.5	4.2	0.9	5.0	3.5	8.0	8.3	0.6	0.1	1.6	0.1
Spottail shiner	13.6	4.1	14.2	3.0	2.2	1.5	4.5	4.7	34.5	3.7	9.9	0.7
Striped bass	4.9	1.5	18.9	4.0	13.4	9.3	3.3	3.4	18.2	2.0	20.0	1.4
White catfish	37.8	11.2	26.8	5.6	39.8	27.5	9.3	9.6	49.6	5.3	4.5	0.3
White perch	237.9	70.8	363.8	76.5	46.9	32.4	28.5	29.5	670.2	72.1	1044.2	74.8
Yellow perch	0.0	0.0	0.2	0.0	0.0	0.0	0.3	0.3	0.5	0.1	10.6	0.8
Others	16.1	4.8	21.9	4.6	21.8	15.1	32.6	33.9	34.4	3.7	29.7	2.1
TOTAL	336.0	100.0	475.4	100.0	144.8	100.0	96.4	100.0	929.6	100.0	1395.1	100.0

	ANNUAL TOTAL	
	ESTIM. BIOMASS	%
Alewife	60.3	0.2
Atlantic tomcod	145.5	0.4
Gizzard shad	28336.8	82.8
Golden shiner	241.5	0.7
Pumpkinseed	164.1	0.5
Spottail shiner	185.3	0.5
Striped bass	100.9	0.3
White catfish	556.3	1.6
White perch	3960.6	11.6
Yellow perch	114.3	0.3
Others	347.4	1.0
TOTAL	34213.0	100.0

years. Alewife impingement rates were historically highest in the summer and fall when young-of-the-year predominate (Figure 6-17). A secondary peak in the historical means can be clearly seen in the spring at Danskammer Point, but this peak was not evident in the means at Roseton. The earlier spring peak primarily represents adults. The season of abundance tends to be longer at Danskammer Point than at Roseton. In 1996 the alewife impingement followed a seasonal pattern similar to that observed in past years, except that there was no spring peak at Danskammer Point.

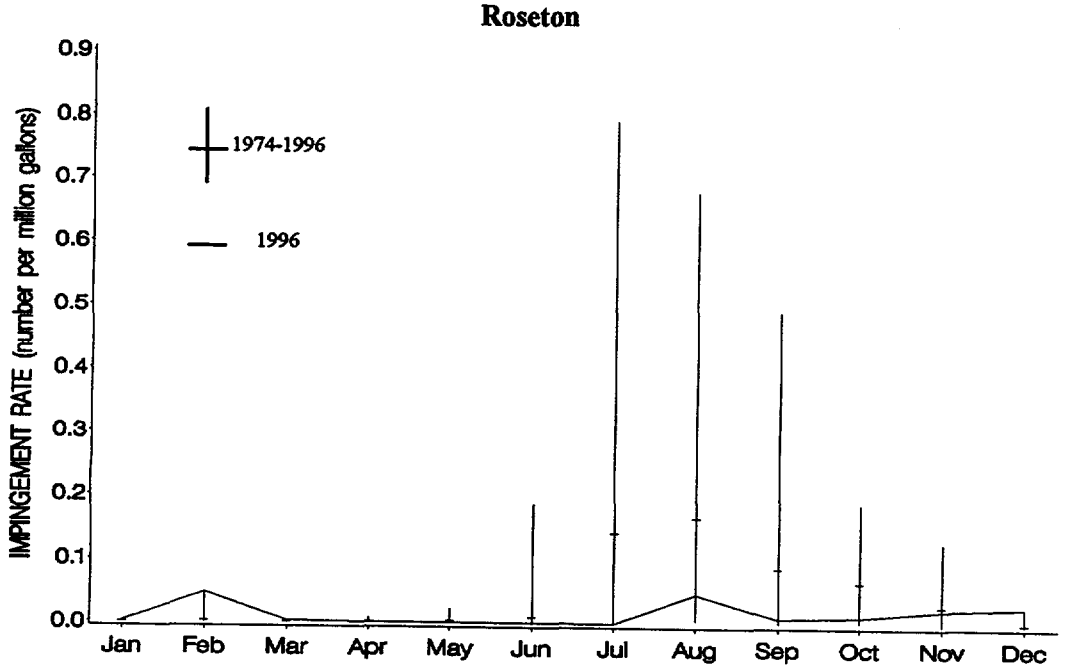
American shad impingement has generally been restricted to summer and fall (Figure 6-18), and has consisted almost entirely of young-of-the-year fish. Peaks have usually occurred either in summer or fall at Roseton or Danskammer Point, resulting in an average with a bimodal pattern at both plants. In 1996 the peaks were in August at Roseton and in October at Danskammer Point.

Atlantic tomcod impingement has usually been at its highest levels in December and January, which is during the spawning season, and normally higher at Danskammer Point than at Roseton (Figure 6-19, Table 6-21). These are primarily one-year-old fish (classified as young-of-the-year fish in December and yearlings in January), with some impingement of two-year-olds occurring at the same time (classified as yearlings in December and adults in January, though tomcod are sexually mature at one year of age) (Tables 6-22, 6-23, 6-24, and 6-25). There has often been another peak in impingement in the spring or summer consisting of young-of-the-year. The 1996 tomcod data indicated low impingement at both plants in January, with impingement rates near the average in December at both plants (Figure 6-19).

Bay anchovy impingement has been restricted almost entirely to the period June - October in each year (Figure 6-20), with the peak occurring in late summer or fall. Generally, the peak has occurred earlier at Roseton than at Danskammer Point. Danskammer abundance typically increases gradually through the summer months, peaks in the fall, and then declines rapidly. In 1996, the numbers were so low it is difficult to discern any seasonal peak.

Blueback herring seasonal impingement patterns have been similar at the two stations, with a well defined peak occurring in the fall of each year, typically in October (Figure 6-21). The October peak represents the seaward migration of young-of-the-year fish

Alewife



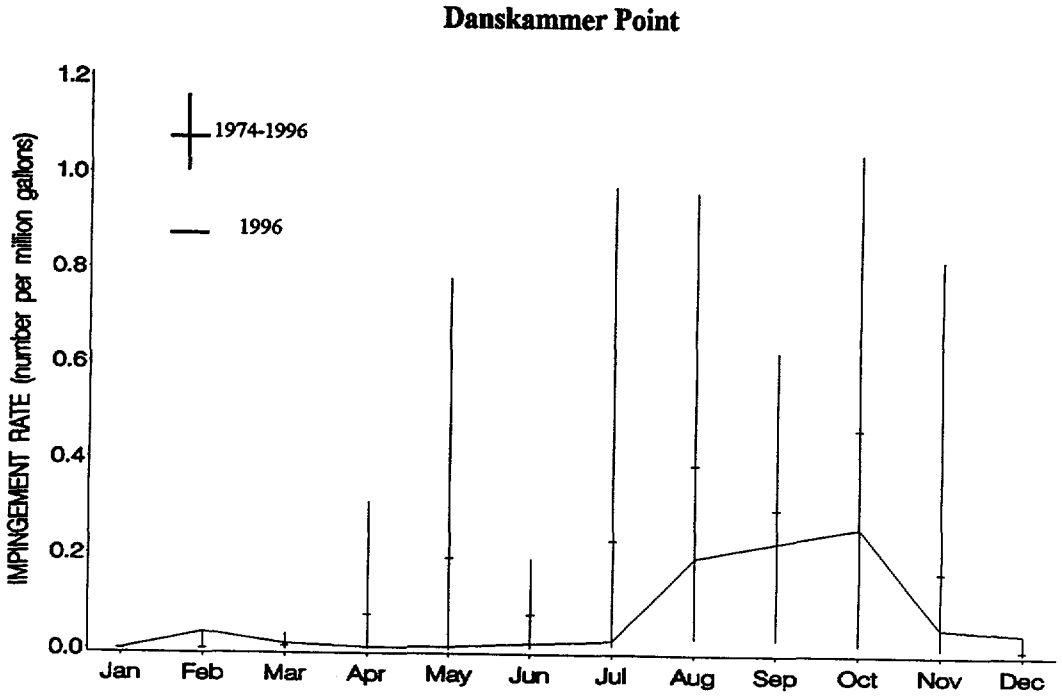
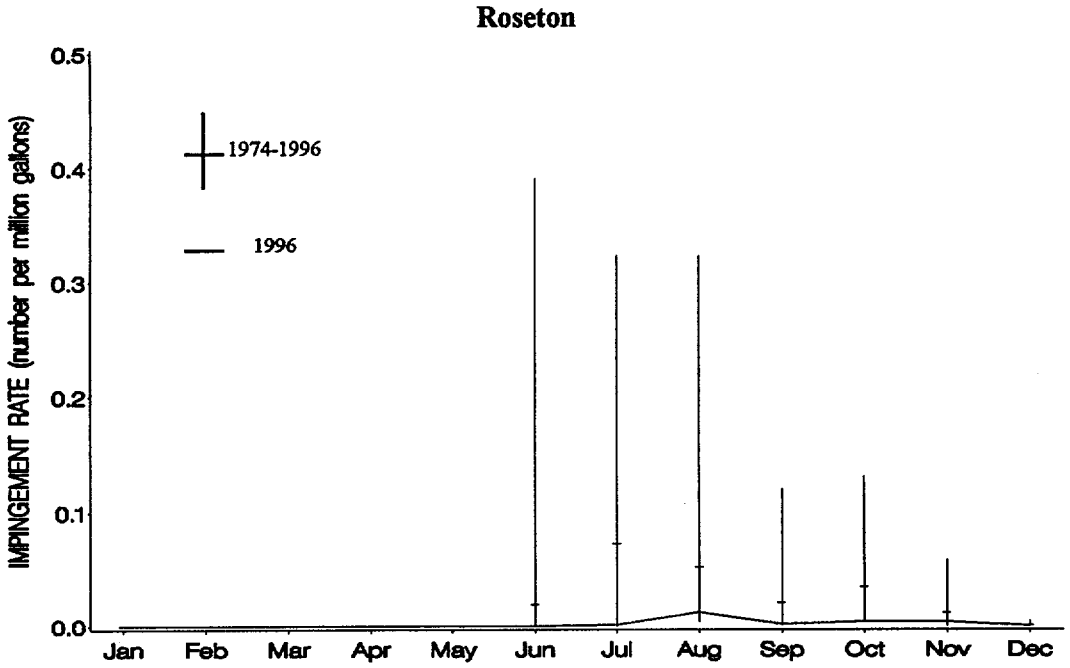


Figure 6-17. Monthly average impingement rate in 1996 for alewife at Roseton and Danskammer Point generating stations and the long-term monthly average and range for 1974-1996.

American Shad



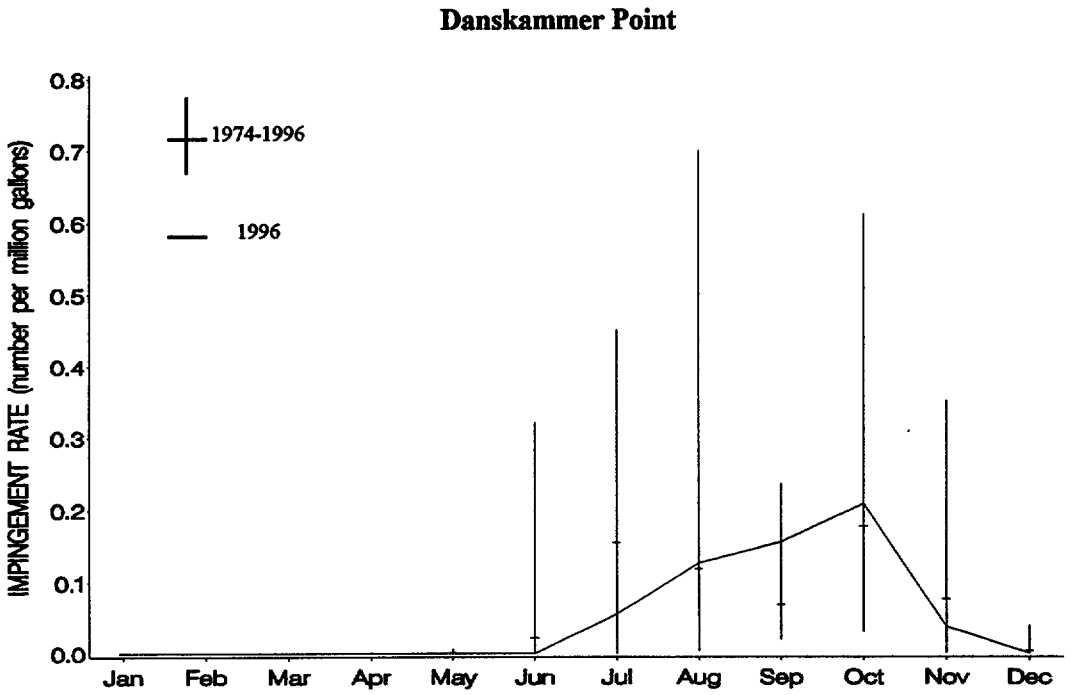
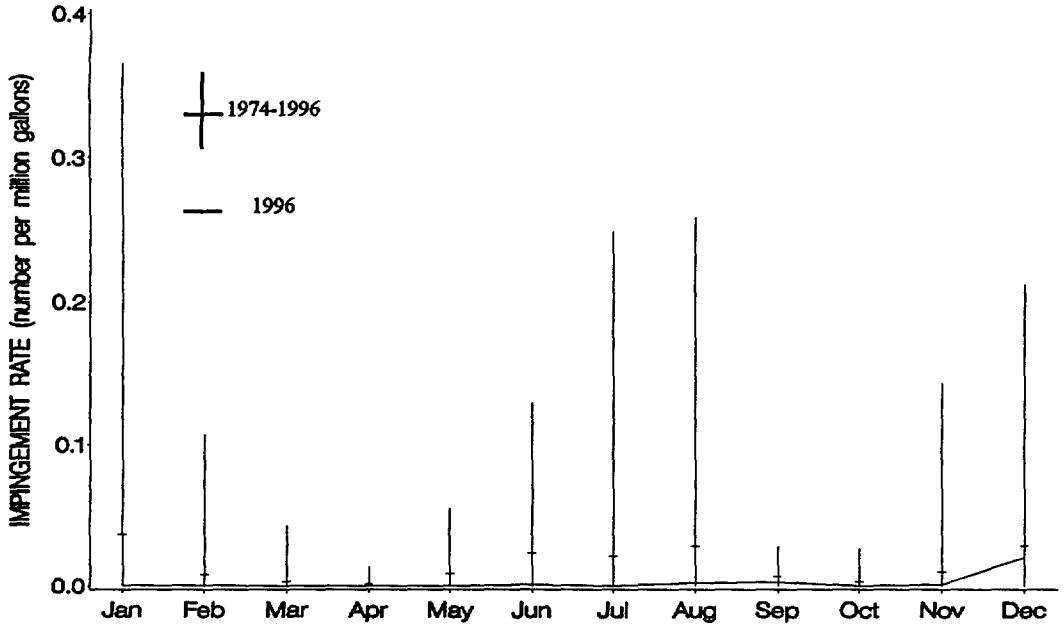


Figure 6-18. Monthly average impingement rate in 1996 for American shad at Roseton and Danskammer Point generating stations and the long-term monthly average and range for 1974-1996.

Atlantic Tomcod

Roseton



Danskammer Point

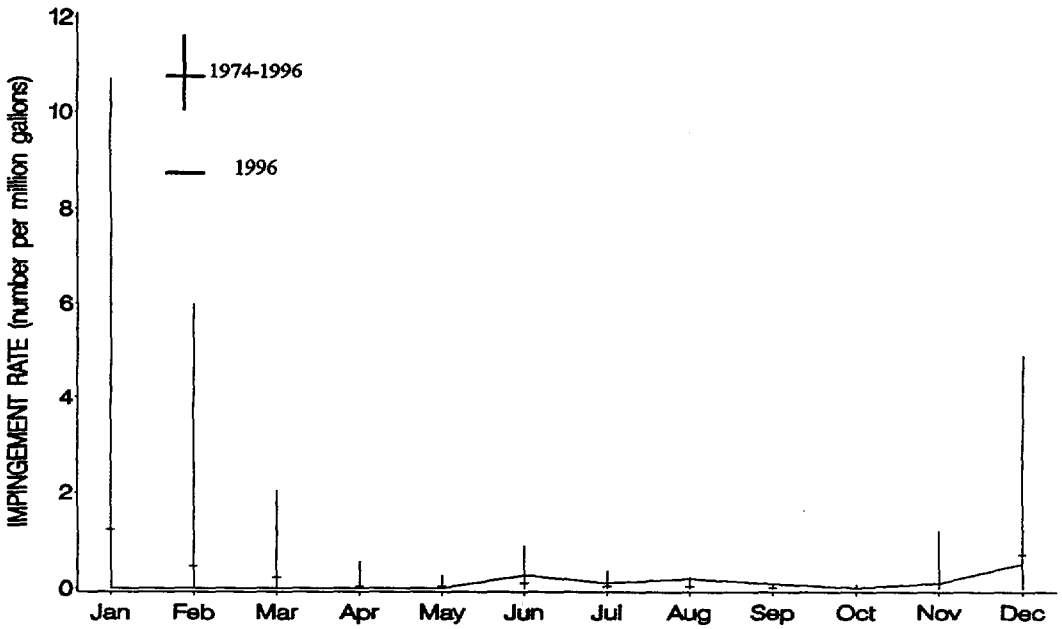


Figure 6-19. Monthly average impingement rate in 1996 for Atlantic tomcod at Roseton and Danskammer Point generating stations and the long-term monthly average and range for 1974-1996.

TABLE 6-21. MONTHLY ABUNDANCE AND BIOMASS OF ATLANTIC TOMCOD, ROSETON AND DANSKAMMER POINT GENERATING STATIONS, MAY 1995 - APRIL 1996.

			ABUNDANCE		BIOMASS	
		MONTHLY FLOW SAMPLED (10^6 gal)	NUMBER COLLECTED	PERCENT OF ANNUAL TOTAL	BIOMASS COLLECTED (g)	PERCENT OF ANNUAL TOTAL
ROSETON						
1995	May	2,194.20	27	10.4	136	14.2
	Jun	2,699.40	69	26.6	168	17.6
	Jul	2,874.60	157	60.6	559	58.5
	Aug	3,010.20	4	1.5	17	1.8
	Sep	1,257.60	0	0.0	0	0.0
	Oct	1,257.60	0	0.0	0	0.0
	Nov	1,800.00	0	0.0	0	0.0
	Dec	2,234.67	0	0.0	0	0.0
1996	Jan	2,149.40	1	0.4	55	5.8
	Feb	2,734.30	1	0.4	20	2.1
	Mar	1,936.80	0	0.0	0	0.0
	Apr	1,197.92	0	0.0	0	0.0
TOTAL		25,346.69	259	100.0	955	100.0
DANSKAMMER POINT						
1995	May	561.76	1	0.3	1	0.1
	Jun	1,379.91	149	39.5	412	20.9
	Jul	1,473.02	211	56.0	965	48.9
	Aug	2,011.54	3	0.8	12	0.6
	Sep	1,599.47	1	0.3	5	0.3
	Oct	1,111.15	0	0.0	0	0.0
	Nov	1,137.18	1	0.3	24	1.2
	Dec	767.13	3	0.8	209	10.6
1996	Jan	781.43	3	0.8	119	6.0
	Feb	983.96	4	1.1	166	8.4
	Mar	783.35	1	0.3	60	3.0
	Apr	714.44	0	0.0	0	0.0
TOTAL		13,304.34	377	100.0	1,973	100.0

TABLE 6-22. LENGTH FREQUENCY OF ATLANTIC TOMCOD, ROSETON GENERATING STATION, MAY 1995 - APRIL 1996.

INTERVAL (cm)	1995								1996			
	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR
2.1-3.0	2											
3.1-4.0	14	3										
4.1-5.0	7	15										
5.1-6.0	1	25	4									
6.1-7.0		18	40									
7.1-8.0		5	54	3								
8.1-9.0		1	5									
9.1-10.0			2	1								
13.1-14.0										1		
15.1-16.0	1		1									
16.1-17.0	1		1						1			
17.1-18.0	1											
18.1-19.0		1										
Total Analyzed	27	68	107	4	0	0	0	0	1	1	0	0
Mean Length	5.3	5.9	7.4	8.1					17.0	13.4		
Minimum Length	2.9	3.5	5.6	7.3					17.0	13.4		
Maximum Length	18.0	18.1	16.2	9.4					17.0	13.4		

TABLE 6-23. LENGTH FREQUENCY OF ATLANTIC TOMCOD, DANSKAMMER POINT GENERATING STATION, MAY 1995 - APRIL 1996.

	1995								1996			
INTERVAL (cm)	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR
4.1- 4.0		1										
4.1- 5.0	1	4										
5.1- 6.0		13	7									
6.1- 7.0		59	42									
7.1- 8.0		42	54	2								
8.1-9.0		4	29	1	1							
9.1-10.0			9									
10.1-11.0			2									
13.1-14.0			1									
14.1-15.0							1		2			
16.1-17.0			1					1		1		
17.1-18.0			1					1		2		
18.1-19.0									1			
19.1-20.0			1							1	1	
20.1-21.0								1				
Total Analyzed	1	123	147	3	1	0	1	3	3	4	1	0
Mean Length	4.4	6.8	7.8	7.7	8.9		14.5	18.5	16.0	17.7	19.9	
Minimum Length	4.4	3.8	5.1	7.2	8.9		14.5	17.0	14.7	16.5	19.9	
Maximum Length	4.4	8.8	19.1	8.5	8.9		14.5	21.0	18.2	19.6	19.9	

TABLE 6-24. ESTIMATED MONTHLY IMPINGEMENT OF ATLANTIC TOMCOD BY AGE CLASS, ROSETON AND DANSKAMMER POINT GENERATING STATIONS, MAY 1995-APRIL 1996.

DATE		ROSETON				DANSKAMMER POINT			
		YOY[a]	YEARLING	ADULT	TOTAL[b]	YOY[a]	YEARLING	ADULT	TOTAL[b]
1995	May	178	22	0	201	6	0	0	6
	Jun	399	3	0	406	700	0	0	745
	Jul	998	12	0	1022	1208	27	0	1462
	Aug	22	0	0	22	21	0	0	21
	Sep	0	0	0	0	7	0	0	7
	Oct	0	0	0	0	0	0	0	0
	Nov	0	0	0	0	8	0	0	8
	Dec	0	0	0	0	23	0	0	23
1996	Jan	0	8	0	8	0	23	0	23
	Feb	0	4	0	4	0	26	0	26
	Mar	0	0	0	0	0	8	0	8
	Apr	0	0	0	0	0	0	0	0
TOTAL		1597	49	0	1663	1973	84	0	2329

[a]YOY = Young-of-the-year.

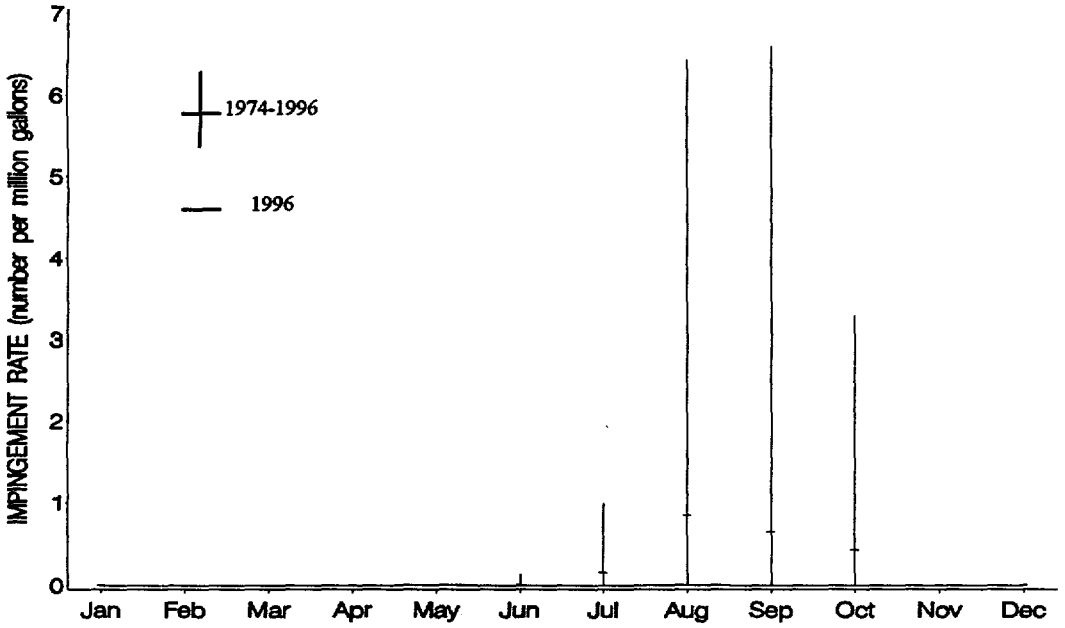
[b]Totals in some cases may exceed sum of age groups due to damaged specimens that could not be assigned to age groups.

TABLE 6-25. MONTHLY IMPINGEMENT RATE AND ESTIMATED TOTAL IMPINGEMENT ABUNDANCE AND BIOMASS OF ATLANTIC TOMCOD, ROSETON AND DANSKAMMER POINT GENERATING STATIONS, MAY 1995-APRIL 1996.

		ESTIMATED NUMBER		ESTIMATED BIOMASS	
		RATE (No./10^6 Gal)	ESTIMATED NUMBER	RATE (g/10^6 Gal)	ESTIMATED GRAMS
ROSETON					
1995	May	0.0123	201	0.0617	1,007
	Jun	0.0270	406	0.0532	797
	Jul	0.0521	1,022	0.1843	3,614
	Aug	0.0012	22	0.0053	95
	Sep	0.0000	0	0.0000	0
	Oct	0.0000	0	0.0000	0
	Nov	0.0000	0	0.0000	0
	Dec	0.0000	0	0.0000	0
1996	Jan	0.0005	8	0.0259	440
	Feb	0.0002	4	0.0004	69
	Mar	0.0000	0	0.0000	0
	Apr	0.0000	0	0.0000	0
TOTAL			1,663		6,022
DANSKAMMER POINT					
1995	May	0.0014	6	0.0011	5
	Jun	0.0840	745	0.2292	2,032
	Jul	0.1352	1,462	0.6142	6,641
	Aug	0.0018	21	0.0072	81
	Sep	0.0006	7	0.0033	37
	Oct	0.0000	0	0.0000	0
	Nov	0.0011	8	0.0260	188
	Dec	0.0038	23	0.2695	1,663
1996	Jan	0.0038	23	0.1507	905
	Feb	0.0045	26	0.1930	1,103
	Mar	0.0013	8	0.0763	488
	Apr	0.0000	0	0.0000	0
TOTAL			2,329		13,143

Bay Anchovy

Roseton



Danskammer Point

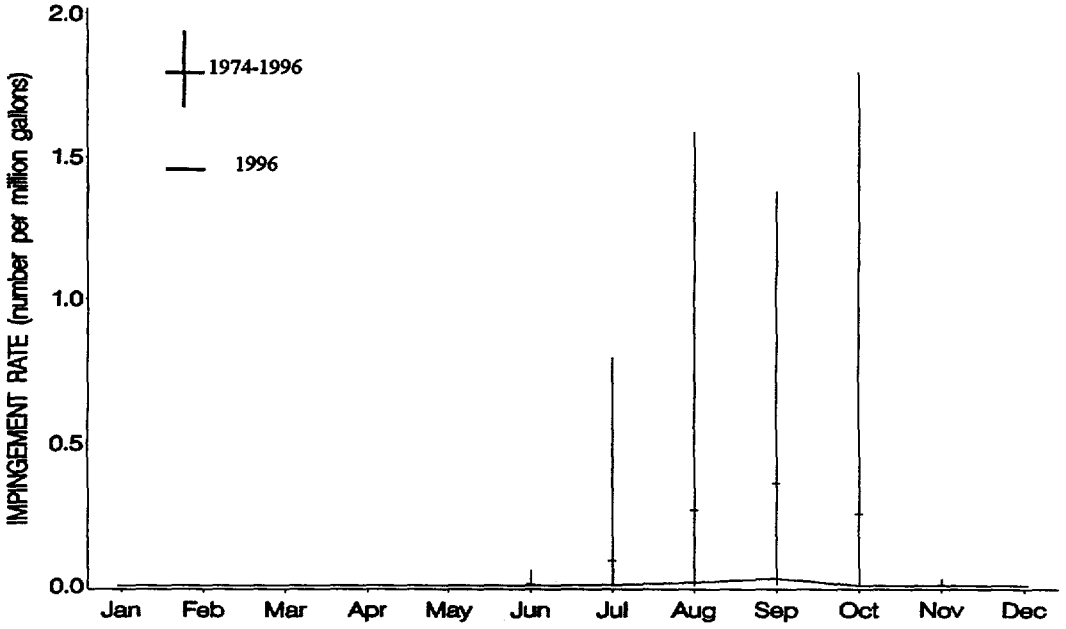
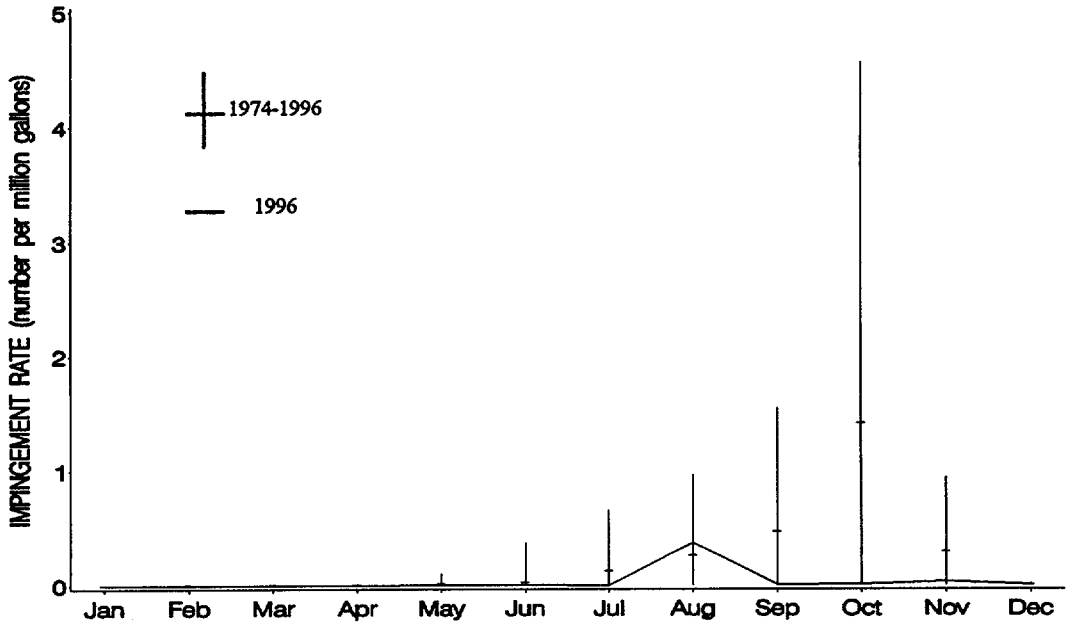


Figure 6-20. Monthly average impingement rate in 1996 for bay anchovy at Roseton and Danskammer Point generating stations and the long-term monthly average and range for 1974-1996.

Blueback Herring

Roseton



Danskammer Point

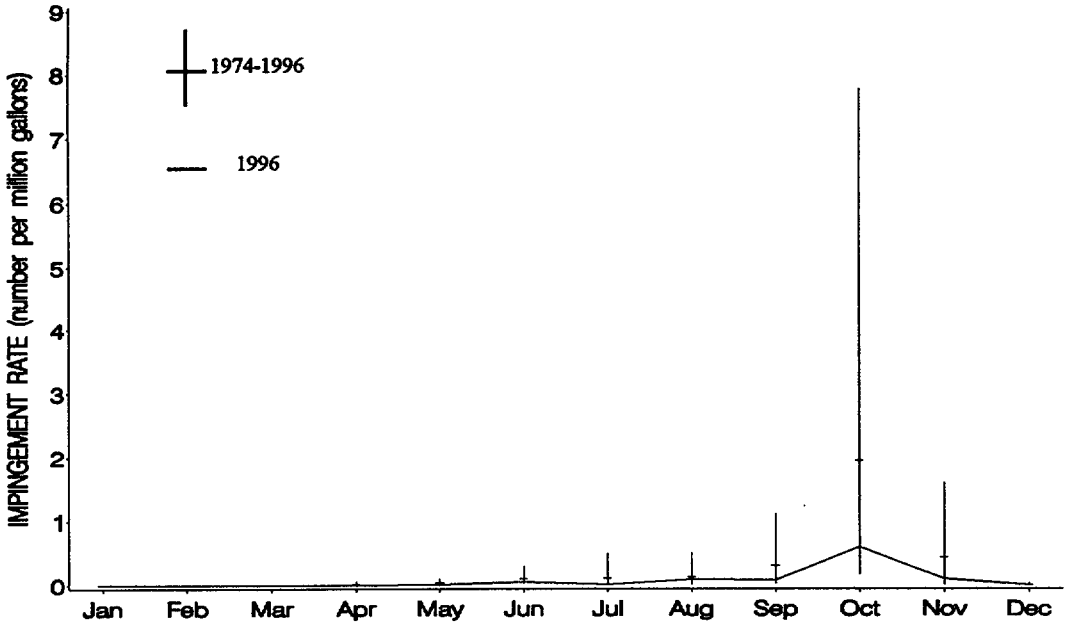


Figure 6-21. Monthly average impingement rate in 1996 for blueback herring at Roseton and Danskammer Point generating stations and the long-term monthly average and range for 1974-1996.

from inland waters and the upper estuary. The 1996 data were generally consistent with this pattern at Danskammer Point with the peak occurring in October, but blueback herring peaked in August at Roseton.

The seasonal patterns of spottail shiner impingement rates have been similar at the two stations, with generally higher rates at Danskammer Point (Figure 6-22). The greatest numbers of spottail shiner are typically impinged in the winter and spring. Although spottail shiners are usually impinged in every month, July through September represents the period of lowest impingement rates. There is usually a significant contribution by multiple age classes of spottail shiner to the impingement totals at Roseton and Danskammer Point Stations, with yearling and adults contributing in the early part of the year, and young-of-the-year and yearlings in the later months. The 1996 data were generally consistent with this long-term seasonal pattern.

Striped bass impingement can be characterized as lowest in the spring and highest in the summer and fall (Figure 6-23). Multi-year means for all months are higher at Danskammer Point than at Roseton. Yearlings have typically predominated during the first half of the year, and young-of-the-year in the second half of the year. The 1996 impingement levels generally followed a similar seasonal pattern, with high numbers of young-of-the-year in July-September at Danskammer Point, but at Roseton the estimated impingement rate was lower than usual except for November.

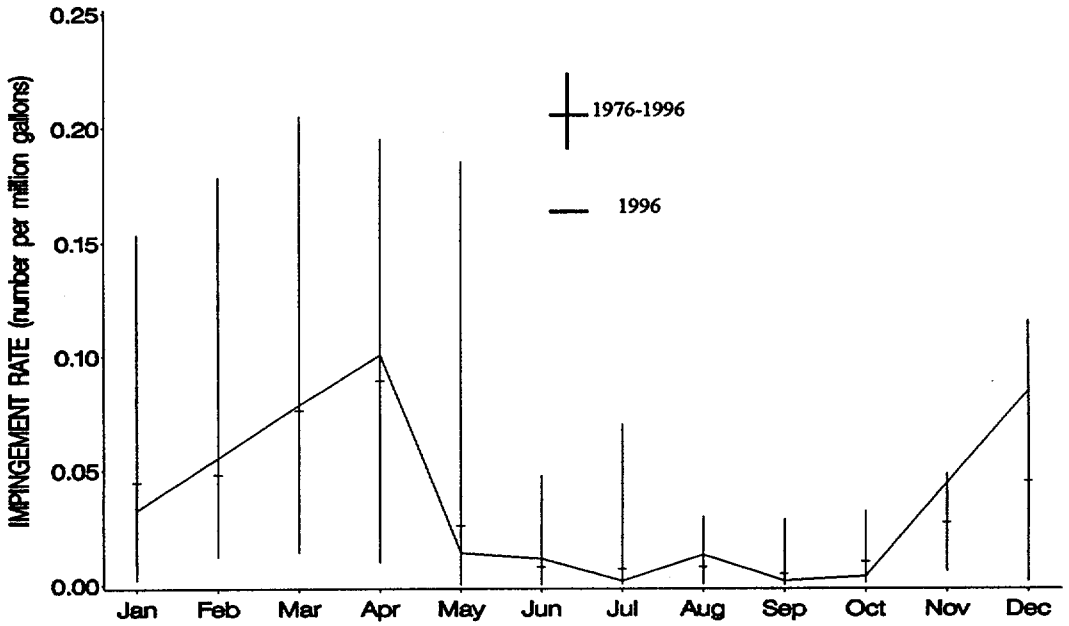
White perch have generally exhibited a bimodal seasonal impingement pattern (Figure 6-24). The spring peak consists of yearlings and adults, whereas the fall peak is dominated by young-of-the-year with significant contributions of yearlings and adults as well. The spring peak coincides with spawning activity, and there is usually a distinct low period in the summer. In 1996, white perch impingement was generally consistent with the historical pattern. Impingement rates were higher than usual at Danskammer Point in November and December.

6.6 IMPINGEMENT RELATED TO ABIOTIC FACTORS

During 1996 the influence of marine waters in the northern Newburgh Bay area of the Hudson River, characterized by an increase in specific conductance, was minimal compared to

Spottail Shiner

Roseton



Danskammer Point

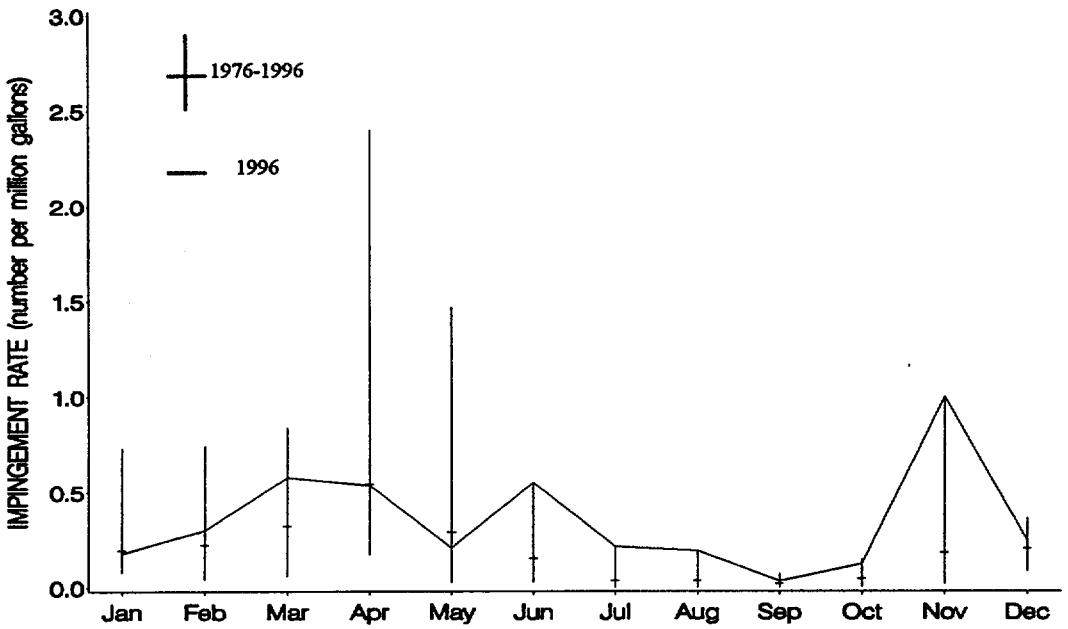
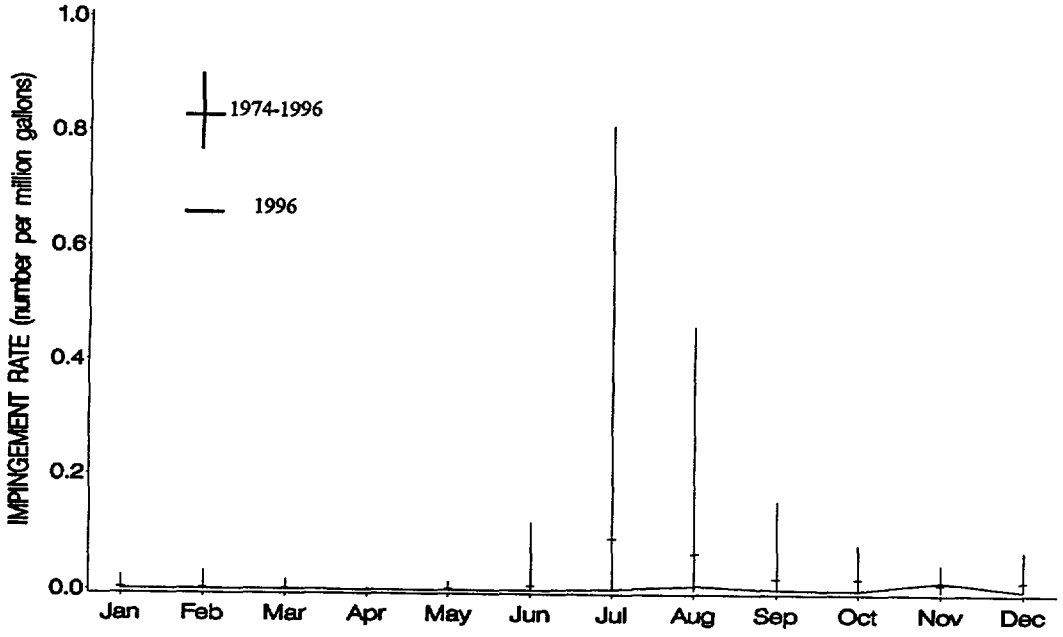


Figure 6-22. Monthly average impingement rate in 1996 for spottail shiner at Roseton and Danskammer Point generating stations and the long-term monthly average and range for 1976-1996.

Striped Bass

Roseton



Danskammer Point

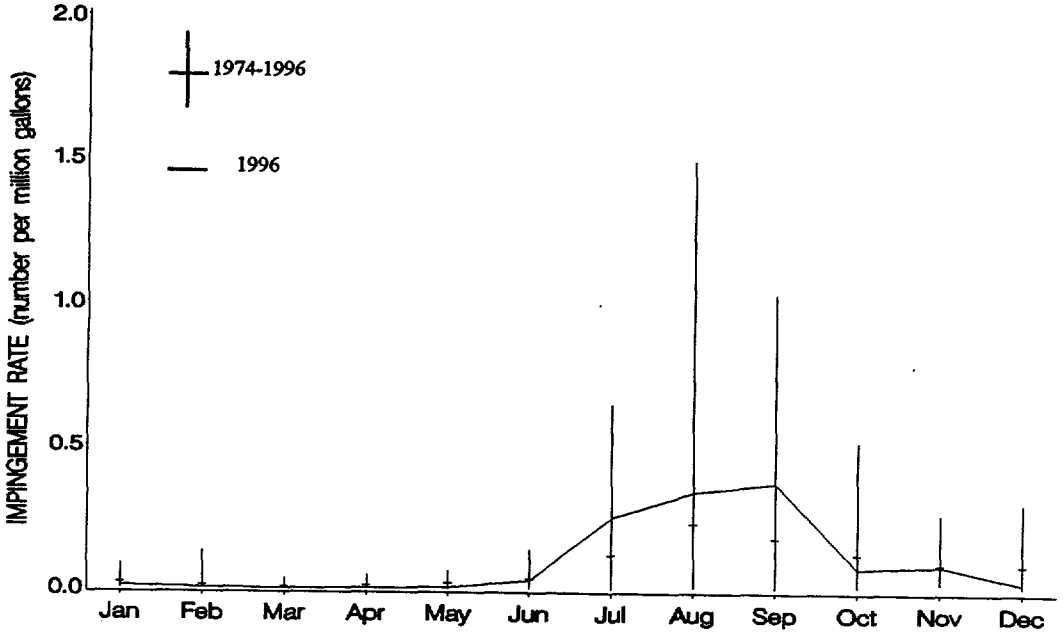
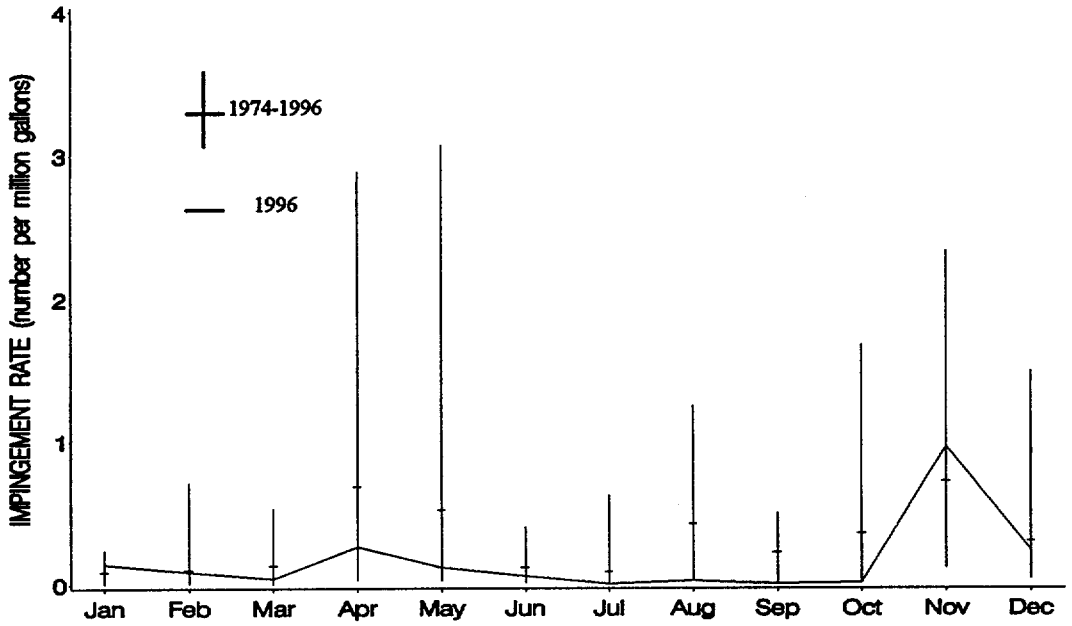


Figure 6-23. Monthly average impingement rate in 1996 for striped bass at Roseton and Danskammer Point generating stations and the long-term monthly average and range for 1974-1996.

White Perch

Roseton



Danskammer Point

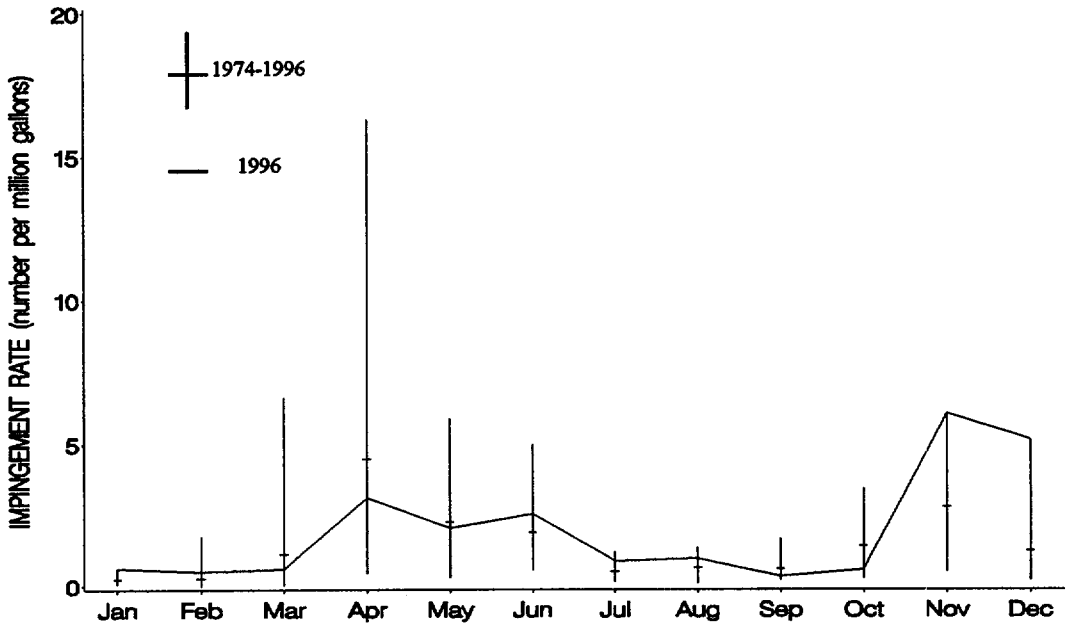


Figure 6-24. Monthly average impingement rate in 1996 for white perch at Roseton and Danskammer Point generating stations and the long-term monthly average and range for 1974-1996.

past years. Normally during the summer and fall a number of species typically associated with marine waters are impinged, such as weakfish and bluefish, but those two species were conspicuously absent in 1996 except for a single weakfish collected at Danskammer Point. As in some previous years (for example, 1994) there was very little intrusion of saline water upriver as far as Roseton and Danskammer Point, resulting in fewer marine species in the 1996 impingement collections than in most previous years.

Unusually low salinity in 1996 may have been responsible for the shifts in abundance of two other species, bay anchovy and channel catfish. Bay anchovy are primarily marine and channel catfish are primarily freshwater in their distribution, but both also commonly occur in brackish water. Reduced abundance of bay anchovy and increased abundance of channel catfish were consistent with the low salinities observed in 1996.

6.7 COMPARISON BETWEEN PLANTS

The cooling water flow, sampling effort, and a summary of impingement results for 1996 at Roseton and Danskammer Point are compared in Table 6-26. The annual mean rates of impingement were 0.3834 fish per million gallons (MG) at Roseton and 3.7041 fish/MG at Danskammer Point. The total number of fish estimated to have been impinged at Roseton (57,676±18,531) was less than the estimated number for Danskammer Point (301,615±68,028), despite the plant flow at Roseton being nearly 75% greater than the flow at Danskammer Point.

Seasonal patterns in 1996 were generally similar at the two plants, with the highest abundances occurring in November and December. Estimated total impingement at Roseton was lowest in June, July, September and October. Impingement at Danskammer Point in 1996 was lowest in March and May.

There was a substantial difference between the two plants in the average weight of fish impinged. Impinged fish at Roseton weighed an average of about 25 g compared to over 100 g at Danskammer Point. Much of that difference was because the proportion of gizzard shad in the samples was higher at Danskammer Point than at Roseton. Excluding gizzard shad, the average

TABLE 6-26. SUMMARY OF IMPINGEMENT SAMPLING RESULTS, ROSETON AND DANSKAMMER POINT GENERATING STATIONS, 1996.

	ROSETON	DANSKAMMER POINT[a]
Number of dates sampled	52	52
Percent of dates sampled	14.2%	14.2%
Total plant cooling water flow	148,716.0 MG	85,617.4 MG
Volume of flow sampled	21,343.36 MG	12,071.57 MG
Percent of total plant flow sampled	14.4%	14.1%
Annual rate of impingement	0.03834/MG	3.7041/MG
Total number of fish collected (A)	9,117	41,691
Number of fish species identified[b]	37	44
Number of fish families represented	16	17
Estimated annual number of fish impinged (B)	57,676 ±18,531[c]	301,615 ±68,028[c]
Total fish biomass collected (C)	221.5 kg	4,475.6 kg
Estimated annual fish biomass impinged (D)	1,545.3 kg	34,213.0 kg
C/A = average weight of fish impinged	24.3 g	107.4 g
D/B = average weight of estimated number of fish	26.8 g	113.4 g

[a]Danskammer Point data for 1996 represent only Unit 3 and Unit 4 for most of the year, because Unit 1 and Unit 2 were off line for 45 of 52 sampling dates.
[b]Excluding the taxa unidentified clupeids and unidentified centrarchids.
[c]95% confidence interval
MG = million gallons
kg = kilograms
g = grams

weight per fish was 13.7 g at Roseton and 21.3 g at Danskammer Point, based on total counts and biomass on sampling days (or 15.0 g at Roseton and 21.8 g at Danskammer Point based on total estimated impingement abundance and biomass for the year). Thus, even when gizzard shad are excluded, impinged fish weighed more, on average, at Danskammer Point than at Roseton. Danskammer Point average fish weights have also been noted as being heavier in previous years, for example 1988 (LMS 1989), 1989 (NAI 1990), 1990 (NAI 1992), 1991 (LMS 1993), 1992 (LMS 1994), 1993 (NAI 1996a), 1994 (NAI 1996b), and 1995 (NAI 1997). Differences in relative abundance of other species between the two plants also accounted for some of the difference in average weight. At Roseton the relatively small spottail shiner and blueback herring accounted for a larger percentage of the total number of fish collected than at Danskammer Point, whereas larger species such as white perch and white catfish were a larger proportion of the catch at Danskammer Point than at Roseton. The difference between the plants was also partly due to differences in average weight for the same species. White perch, gizzard shad, and spottail shiner were all heavier on average at Danskammer Point than at Roseton.

The number of species and families present at the two plants was similar, and the species composition was also similar. Two species new to the Roseton/Danskammer impingement program were collected in 1996: brook stickleback, which was collected at Roseton, and cutlips minnow, which was collected at Danskammer Point (Appendix Tables A-1 and A-2). Both are freshwater species and their presence in impingement samples reflects the lower than average salinities that occurred in this section of the river in late summer and early fall of 1996. Their presence has previously been recorded in the Hudson River estuary (Smith 1985).

6.8 LONG-TERM IMPINGEMENT PATTERNS

Annual impingement rates and estimates of the total number impinged each year during 1973-1996 are presented in Table 6-27 (Roseton) and Table 6-28 (Danskammer Point).

TABLE 6-27. ANNUAL MEAN IMPINGEMENT RATE,[a] ESTIMATED TOTAL NUMBER,[b] AND PERCENTAGE OF THE TOTAL ESTIMATED NUMBER IMPINGED FOR SELECTED SPECIES, ROSETON GENERATING STATION, 1973-1996.

	WHITE PERCH			STRIPED BASS			ATLANTIC TOMCOD			ALEWIFE		
YEAR	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED
1973[c]	0.898	9,157	41.4	0.039	490	2.2	0.014	259	1.2	1.187	1,873	8.5
1974	0.3733	37,330	64.6	0.0051	642	1.1	0.0445	4,296	7.4	0.0125	1,464	2.5
1975	0.6123	139,400	48.4	0.0058	1,388	0.5	0.0203	4,755	1.7	0.0484	12,214	4.2
1976	0.5290	104,183	69.4	0.0030	607	0.4	0.0388	7,208	4.8	0.0093	2,424	1.6
1977	0.5988	131,747	43.1	0.0098	2,730	0.9	0.0775	19,424	6.3	0.1248	37,251	12.2
1978	0.2135	57,980	28.2	0.0045	1,220	0.6	0.0065	1,670	0.8	0.0896	25,971	12.6
1979	0.3443	93,391	45.5	0.0044	1,187	0.6	0.0163	3,770	1.8	0.0314	9,578	4.7
1980	0.5259	131,259	41.2	0.0230	5,657	1.8	0.0151	3,637	1.1	0.0335	9,300	2.9
1981	0.4689	111,693	30.8	0.0205	5,091	1.4	0.0242	5,662	1.6	0.0975	27,611	7.6
1982	0.2195	47,252	31.7	0.0014	332	0.2	0.0094	2,044	1.4	0.0092	2,307	1.5
1983	0.4876	109,723	42.1	0.0092	2,181	0.8	0.0035	884	0.3	0.0351	10,101	3.9
1984	0.1614	38,362	21.4	0.0036	848	0.5	0.0114	2,698	1.5	0.0133	3,164	1.8
1985	0.1727	26,219	29.3	0.0020	427	0.5	0.0164	2,298	2.6	0.0300	5,144	5.8
1986	0.1525	35,833	49.3	0.0011	259	0.4	0.0020	439	0.6	0.0108	2,828	3.9
1987	0.3367	82,723	29.1	0.0073	2,019	0.7	0.0164	3,926	1.4	0.0292	8,951	3.2
1988	0.3285	80,358	44.9	0.0136	3,264	1.8	0.0020	478	0.3	0.0167	5,148	2.9
1989	0.3476	78,608	50.9	0.0042	1,030	0.7	0.0029	726	0.5	0.0032	946	0.6
1990	0.3069	68,224	24.3	0.0133	4,070	1.5	0.0035	804	0.3	0.0257	7,580	2.7
1991	0.2189	61,223	8.1	0.1021	33,159	4.4	0.0451	15,201	2.0	0.0782	25,320	3.4
1992	0.1560	40,328	19.0	0.0124	3,580	1.7	0.0011	290	0.1	0.0327	9,454	4.5
1993	0.2247	45,435	39.1	0.0311	6,226	5.4	0.0057	1,152	1.0	0.0338	6,743	5.8
1994	0.0845	17,441	11.5	0.0525	13,420	8.9	0.0019	411	0.3	0.1174	28,668	19.0
1995	0.2112	39,441	16.3	0.1194	26,126	10.8	0.0078	1,657	0.7	0.0656	14,664	6.1
1996	0.1609	23,528	40.8	0.0027	387	0.7	0.0022	382	0.7	0.0142	2,287	4.0

(Continued)

TABLE 6-27. (CONTINUED)

YEAR	AMERICAN SHAD			BAY ANCHOVY			BLUEBACK HERRING			SPOTTAIL SHINER			TOTAL SPECIES	
	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER
1973[c]	0.0016	21	0.1	0.176	1,107	5.0	0.599	6,377	28.8	0.064	1,515	6.9	2.062	22,105
1974	0.0025	337	0.6	0.0211	3,414	5.9	0.0257	2,764	4.8	0.0543	3,661	6.3	0.5944	57,775
1975	0.0094	2,348	0.8	0.0097	2,348	0.8	0.3338	78,854	27.4	0.0698	14,999	5.2	1.2518	288,149
1976	0.0015	367	0.2	0.0085	2,380	1.6	0.0444	10,447	7.0	0.0403	8,502	5.7	0.7449	150,069
1977	0.0082	2,426	0.8	0.0970	31,184	10.2	0.1777	46,066	15.1	0.0623	13,205	4.3	1.2578	305,956
1978	0.0137	4,138	2.0	0.1947	59,265	28.9	0.1081	28,984	14.1	0.0215	5,464	2.7	0.7297	205,341
1979	0.0177	5,397	2.6	0.0829	28,120	13.7	0.1629	40,936	19.9	0.0372	8,537	4.2	0.7541	205,320
1980	0.0226	6,435	2.0	0.1714	44,937	14.1	0.2461	62,909	19.8	0.0417	9,873	3.1	1.2690	318,528
1981	0.0632	17,543	4.8	0.1168	33,756	9.3	0.4874	125,914	34.7	0.0448	9,793	2.7	1.4366	362,734
1982	0.0100	2,649	1.8	0.1631	46,964	31.5	0.1082	23,703	15.9	0.0274	5,553	3.7	0.6336	148,904
1983	0.0197	5,209	2.0	0.2147	63,188	24.3	0.2390	43,554	16.7	0.0257	5,741	2.2	1.1280	260,513
1984	0.0090	2,131	1.2	0.1286	30,576	17.0	0.3778	89,792	50.0	0.0147	3,502	2.0	0.7554	179,544
1985	0.0118	1,927	2.2	0.1194	19,124	21.4	0.1031	18,740	20.0	0.0105	2,757	3.1	0.5338	89,343
1986	0.0141	4,008	5.5	0.0214	6,101	8.4	0.0384	9,707	13.4	0.0213	4,651	6.4	0.3004	72,627
1987	0.082	2,407	0.8	0.0470	15,884	5.6	0.5389	138,756	48.9	0.0308	6,802	2.4	1.1109	284,038
1988	0.0128	3,748.	2.1	0.0272	6,706	3.7	0.2546	52,530	29.4	0.0190	4,131	2.3	0.7728	178,900
1989	0.0087	2,496	1.6	0.0027	800	0.5	0.0951	24,755	16.0	0.0500	10,861	7.0	0.6681	154,515
1990	0.0188	5,476	2.0	0.3207	86,700	30.9	0.3135	79,660	28.4	0.0463	10,264	3.7	1.1275	280,478
1991	0.0536	17,107	2.3	1.4419	446,100	59.1	0.2774	74,417	9.9	0.0427	9,889	1.3	2.5101	754,486
1992	0.0155	4,596	2.2	0.1743	45,735	21.6	0.2975	82,680	30.0	0.0227	5,060	2.4	0.7975	212,089
1993	0.0063	1,271	1.1	0.0658	13,062	11.2	0.0706	14,056	12.1	0.0237	3,762	3.2	0.6007	116,325
1994	0.0283	7,404	4.9	0.0491	7,400	4.9	0.2569	48,175	31.9	0.0229	4,580	3.0	0.7273	151,080
1995	0.0327	7,458	3.1	0.4292	66,146	27.4	0.2206	34,721	14.4	0.0580	9,459	3.9	1.3899	241,724
1996	0.0018	250	0.4	0.0004	65	0.1	0.0351	5,175	9.0	0.0573	8,645	15.0	0.3834	57,676

[a]Mean of the monthly rates (number of fish per million gallons).
[b]Computed from the sum of the monthly estimates.
[c]Impingement samples began July 1973.

Source of 1973-1988 and 1991-1992 data: LMS (1989) and LMS (1994)
Source of 1989-1990 and 1993-1995 data: NAI (1992) and NAI (1997)

TABLE 6-28. ANNUAL MEAN IMPINGEMENT RATE,[a] ESTIMATED TOTAL NUMBER,[b] AND PERCENTAGE OF THE TOTAL ESTIMATED NUMBER IMPINGED FOR SELECTED SPECIES, DANSKAMMER POINT GENERATING STATION, 1973-1996.

	WHITE PERCH			STRIPED BASS			ATLANTIC TOMCOD			ALEWIFE		
YEAR	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED
1973[c]	0.8015	110,545	10.8	0.1451	18,992	1.8	6.9843	647,076	63.0	1.0048	148,912	14.5
1974	0.7105	84,253	25.5	0.0464	6,293	1.9	1.5781	155,908	47.1	0.2190	31,379	9.5
1975	0.8054	98,230	30.3	0.0214	2,588	0.8	0.6212	46,926	14.5	0.2338	29,755	9.2
1976	1.2230	117,738	47.8	0.0142	1,421	0.6	0.5373	54,637	22.2	0.0921	9,920	4.0
1977	1.3002	140,835	47.4	0.0175	1,859	0.6	0.3041	26,879	9.1	0.2076	24,633	8.3
1978	0.5456	52,240	29.3	0.0141	1,495	0.8	0.1976	18,395	10.3	0.2298	24,343	13.7
1979	0.8349	79,089	40.6	0.0257	2,087	1.1	0.3874	32,174	16.5	0.1112	10,841	5.6
1980	1.8991	175,055	51.1	0.0575	6,401	1.9	0.1125	8,498	2.5	0.2845	33,740	9.9
1981	1.3767	139,865	54.6	0.0586	5,443	2.1	0.2914	27,649	10.8	0.1387	18,086	7.1
1982	1.9937	221,359	65.5	0.0281	2,982	0.9	0.2034	19,453	5.6	0.1379	16,085	4.8
1983	2.3047	226,752	51.3	0.0677	7,576	1.7	0.1273	12,945	2.9	0.2097	26,205	5.9
1984	2.1701	243,465	56.2	0.0522	5,858	1.4	0.2132	23,916	5.5	0.1884	21,132	4.9
1985	1.2503	117,662	34.2	0.0437	4,145	1.2	0.2541	25,622	7.5	0.3980	32,812	9.5
1986	1.6122	157,880	70.0	0.0103	933	0.4	0.0211	1,774	0.8	0.0761	8,460	3.7
1987	2.6613	233,444	55.9	0.0558	6,091	1.5	0.1765	16,319	3.9	0.1942	22,393	5.4
1988	1.2841	148,803	42.9	0.0752	9,780	2.8	0.0984	10,868	3.1	0.0886	12,643	3.6
1989	1.4074	157,697	54.6	0.0315	3,808	1.3	0.0622	6,617	2.3	0.0289	3,693	1.3
1990	1.9640	187,977	62.8	0.0438	5,338	1.8	0.0758	6,832	2.3	0.0325	4,530	1.5
1991	1.1710	138,101	30.2	0.3212	43,482	9.5	0.0989	12,232	2.7	0.2030	27,570	6.0
1992	1.0800	112,707	57.9	0.0489	5,760	3.0	0.0371	3,187	1.6	0.0684	8,010	4.1
1993	1.8431	135,887	41.1	0.3040	29,498	8.9	0.1371	10,637	3.2	0.2095	18,561	5.6
1994	0.8807	66,688	33.3	0.1504	14,994	7.5	0.0084	722	0.4	0.2458	23,864	11.9
1995	1.1950	116,059	38.1	0.1987	23,084	7.6	0.0219	2,480	0.8	0.1270	14,775	4.8
1996	1.9479	153,146	50.8	0.0987	11,305	3.7	0.1079	10,409	3.5	0.0716	7,143	2.4

(Continued)

TABLE 6-28. (CONTINUED)

YEAR	AMERICAN SHAD			BAY ANCHOVY			BLUEBACK HERRING			SPOTTAIL SHINER			TOTAL SPECIES	
	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER
1973[c]	0.0089	1,266	0.1	0.1540	1,852	0.2	0.2230	29,234	2.8	0.1499	16,137	1.6	9.7541	1,027,304
1974	0.0164	2,444	0.7	0.0148	2,252	0.7	0.0959	13,339	4.0	0.0886	9,672	2.9	3.0032	330,788
1975	0.0186	2,456	0.8	0.0138	2,047	0.6	0.7473	100,111	30.9	0.0967	9,855	3.0	2.8647	323,874
1976	0.0180	2,011	0.8	0.0005	69	<0.1	0.1224	14,176	5.8	0.1584	14,279	5.8	2.4985	246,258
1977	0.0209	2,600	0.9	0.0102	1,253	0.4	0.2546	30,096	10.1	0.2127	21,547	7.3	2.8116	296,947
1978	0.0325	3,624	2.0	0.0292	2,829	1.6	0.3826	40,526	22.7	0.0743	6,856	3.8	1.7946	178,155
1979	0.0409	4,201	2.2	0.0174	1,962	1.0	0.2662	26,397	13.6	0.1814	15,170	7.8	2.1290	194,879
1980	0.0857	11,502	3.4	0.0730	9,833	2.9	0.1648	19,615	5.7	0.2080	15,756	4.6	3.4804	342,353
1981	0.0351	4,628	1.8	0.0052	620	0.2	0.0527	6,563	2.6	0.1521	13,783	5.4	2.5185	256,371
1982	0.0291	3,305	1.0	0.0780	9,456	2.8	0.0850	9,980	3.0	0.1186	12,566	3.7	3.0828	337,976
1983	0.1310	16,814	3.8	0.2016	25,128	5.7	0.2071	23,288	5.3	0.1810	17,688	4.0	4.2397	442,392
1984	0.1286	14,426	3.3	0.1315	16,601	3.8	0.3600	40,390	9.3	0.1401	15,715	3.6	3.8611	433,174
1985	0.1256	11,632	3.4	0.2072	26,310	7.7	0.7605	62,182	18.1	0.1227	13,689	4.0	3.7039	343,824
1986	0.0216	2,179	1.0	0.0107	1,350	0.6	0.0571	6,217	2.8	0.2114	19,642	8.7	2.3160	225,685
1987	0.0260	2,911	0.7	0.0684	8,928	2.1	0.3750	42,879	10.3	0.4409	37,702	9.0	4.5056	417,367
1988	0.0498	7,094	2.0	0.1811	25,115	7.2	0.4292	58,149	16.8	0.1124	12,035	3.5	2.8443	346,490
1989	0.0359	4,648	1.6	0.0126	1,400	0.5	0.0832	9,586	3.3	0.2717	28,595	9.9	2.5984	288,595
1990	0.0169	2,212	0.7	0.0497	7,320	2.4	0.2427	30,743	10.3	0.1572	14,522	4.9	2.9967	299,126
1991	0.0974	13,646	3.0	0.3265	45,938	10.1	0.6018	69,471	15.2	0.2007	20,655	4.5	3.7839	456,672
1992	0.0426	5,198	2.7	0.0121	1,452	0.7	0.1033	12,334	6.3	0.1286	11,973	6.1	1.8891	194,771
1993	0.0587	5,756	1.7	0.2156	22,359	6.8	0.3329	26,355	8.0	0.1550	11,149	3.4	4.2743	330,259
1994	0.1338	12,056	6.0	0.0084	918	0.5	0.1868	14,799	7.4	0.1181	8,884	4.4	2.4302	200,390
1995	0.0284	3,195	1.0	0.1728	22,187	7.3	0.1867	18,277	6.0	0.2296	20,234	6.6	3.1546	304,842
1996	0.0488	5,021	1.7	0.0030	361	0.1	0.0782	6,740	2.2	0.3461	28,140	9.3	3.7041	301,615

[a]Mean of the monthly rates (number of fish per million gallons).
[b]Computed from the sum of the monthly estimates.
[c]Impingement samples began July 1973.

Source of 1973-1988 and 1991-1992 data: LMS (1989) and LMS (1994)
Source of 1989-1990 and 1993-1995 data: NAI (1992) and NAI (1997)

6.8.1 Roseton Generating Station

The estimated total impingement at Roseton in 1996 for all species combined was 57,676 This total was the lowest estimate in the 23-year period of record (excluding 1973 when impingement sampling was only conducted for six months). The numerically dominant species, white perch, was impinged in lower numbers in only one previous year. In most of the 22 previous years at Roseton, white perch was the dominant species, except for five years in which blueback herring predominated, and four years when bay anchovy was the most abundant species impinged. American shad and bay anchovy impingement were both at the lowest level since 1973 (which was only a partial year of sampling). Striped bass and alewife were impinged in lower numbers in only two of the previous 22 years. Blueback herring and Atlantic tomcod were impinged in lower numbers in 1996 than in all but one previous year.

6.8.2 Danskammer Point Generating Station

The 1996 total estimated impingement at Danskammer Point of 301,615 fish was average compared to the previous 22 years. Striped bass and spottail shiner were impinged in higher numbers than usual at Danskammer Point. The total number estimated to have been impinged during 1996 was the fifth highest in 23 years for striped bass and the third highest for spottail shiner. Bay anchovy impingement was lower than in all but one of the 22 previous years. Blueback herring and alewife were each impinged in lower numbers in only two of the previous 22 years. The dominant species in 1996 was white perch, as it has been in all but two of the previous 22 years. In 1974 unusually high numbers of Atlantic tomcod were impinged, and in 1975 blueback herring were particularly abundant.

6.9 RELEASED FISH AND INVERTEBRATES

Efforts were made at both plants to return living fish and invertebrates to the Hudson River following analysis. Living organisms were placed in a container of river water as soon as possible after the sample was collected. Following analysis, living organisms were returned to the

river south of the Roseton seal well. During times when access or lack of water prevented release at this location, organisms were released at a nearby shoreline location.

At Roseton 652 fish (7.2% of the total collected during the year) and 372 invertebrates (89.4% of the total collected) were released alive (Table 6-29). Predominant fish species released alive were hogchoker, white catfish, channel catfish, pumpkinseed, brown bullhead, representing 22.7% (148), 14.6% (95), 14.4% (94), 7.7% (50), and 7.2% (47) of the total released, respectively. Blue crabs accounted for most of the invertebrates, representing 83.3% (310) of the invertebrates released.

At Danskammer Point in 1996, 3,504 fish (8.4% of the total collected in 1996) were released alive and 766 invertebrates (91.4% of the total collected) were released alive (Table 6-30). Predominant fish species released alive were white catfish, brown bullhead, Atlantic tomcod, channel catfish, and pumpkinseed, representing 40.6% (1,422), 10.9% (381), 10.8% (380), 6.0% (211), and 5.9% (206) of the total released, respectively. Blue crab was the predominant invertebrate released alive, representing 65.9% (505) of the total released.

Overall, the number of fish released alive was generally highest in March-May and in September-December at both plants. At Roseton, the greatest number of fish released alive in one month was 183, in May (28.1% of the total released during the year), and the lowest number of fish released alive in one month was zero, in July. At Danskammer Point, the most fish released alive in a month was 1,025, in November (29.3% of the year's total), and the lowest number of fish released alive in one month was 28, in January (0.8% of the year's total). The greatest number of invertebrates were released in August at Roseton and August-October at Danskammer Point. Overall, the seasonal pattern of numbers of fish and invertebrates released alive corresponded with the seasonal pattern of abundances impinged, and with cooler water temperatures and higher dissolved oxygen content.

TABLE 6-29. NUMBER OF FISH AND INVERTEBRATES RELEASED ALIVE FOLLOWING ANALYSIS, ROSETON GENERATING STATION, 1996.

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
Fish													
American eel				1							6	2	9
Atlantic tomcod												20	20
Banded killifish		2	15	2							4	4	27
Black crappie					1					1		2	4
Bluegill				2	3					4	2	1	12
Brown bullhead			2	11	8			1		8	13	4	47
Channel catfish			3	4						1	29	57	94
Common carp			3										3
Fourspine stickleback			1								1		2
Golden shiner			3								3	20	26
Goldfish			3									3	6
Hogchoker				4	125	1		1	9	4	4		148
Mummichog					1								1
Pumpkinseed	3	1	5	16	21	2				1		1	50
Rock bass			1										1
Sea lamprey												1	1
Spottail shiner	4	1	7	8	1						6	8	35
Striped bass													
Tessellated darter		1	5	2	2					1		1	12
Threespine stickleback			2	1									3
White catfish		2	9	17	7				1	3	48	8	95
White perch				5	14						8		27
Yellow perch			13	12								4	29
TOTAL	7	7	72	85	183	3		2	10	23	124	136	652
Invertebrates													
Blue crab						11	56	123	32	59	29		310
Crayfish				2	4	2	2	3					13
Mud crab		1			16	9		5		3	15		49
TOTAL		1		2	20	22	58	131	32	62	44		372

TABLE 6-30. NUMBER OF FISH AND INVERTEBRATES RELEASED ALIVE FOLLOWING ANALYSIS, DANSKAMMER POINT GENERATING STATION, 1996.

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
Fish													
American eel				4	9	5	2	3	1		4	2	30
Atlantic tomcod	1		1						1	1	21	355	380
Banded killifish	3	3	9	4						1	2	3	25
Black crappie			1	1						2	3	1	8
Bluegill				5	2				3	69	15	9	103
Brown bullhead	1	3	5	27	29	11	4	70	54	124	44	9	381
Chain pickerel		1											1
Channel catfish	4	2	9	2	4	1		3	14	24	73	75	211
Common carp	1	6	2	3									12
Fathead minnow				1									1
Fourspine stickleback				1	1							1	3
Freshwater drum										1	2		3
Gizzard shad												3	3
Golden shiner	1	29	71	10						1	2	13	127
Goldfish		8	3	3							3	4	21
Hogchoker				4	46	7	2	21	84	5	3		172
Largemouth bass			1							4	2	1	8
Pumpkinseed	3	15	14	23	55	18	5	3	23	41	4	2	206
Redbreast sunfish		1				1		1				1	4
Redfin pickerel			1										1
Rock bass		1		1									2
Smallmouth bass	1												1
Spottail shiner	1	4	52	7		1		1		1	1	2	70
Striped bass	2				1				3		5	1	12
Sunfish family				1									1
Tessellated darter				4	9							1	14
Threespine stickleback				1									1
Warmouth										1			1
White bass												1	1
White catfish	6	25	33	55	20	24	46	57	196	192	733	35	1422
White perch		1	18	2	16		1	1		8	107	10	164
White sucker			2										2
Yellow perch	4	11	48	18	3	1				1	1	26	113
TOTAL	28	110	270	177	195	69	60	160	379	476	1025	555	3504
Invertebrates													
Blue crab						7	75	112	122	129	60		505
Crayfish				4	4	9	6	10	3				36
Mud crab				11	100	54	8	4		8	39	1	225
TOTAL				15	104	70	89	126	125	137	99	1	766

7.0 LITERATURE CITED

7.0 LITERATURE CITED

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APPENDIX A

ANNUAL IMPINGEMENT ABUNDANCE BY SPECIES

LIST OF APPENDIX A TABLES

A-1. Species representation and abundance in the impingement monitoring program, Roseton Generating Station, 1973-1996.

A-2. Species representation and abundance in the impingement monitoring program, Danskammer Point Generating Station, 1974-1996.

APPENDIX TABLE A-1. SPECIES REPRESENTATION AND ABUNDANCE IN THE IMPINGEMENT MONITORING PROGRAM, ROSETON GENERATING STATION, 1973-1996.

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
ite perch	8798	5654	18411	15136	24616	12566	22212	28112	26824	8731
ıeback herring	7676	485	9549	1404	11022	5421	8422	18094	33590	4761
/ anchovy	1248	515	408	333	9007	14199	6406	11675	9260	7124
ɜwife	1435	254	1967	329	9201	5711	2208	2125	7719	455
ɔttail shiner	334	700	1902	1107	1934	873	1453	1652	1816	742
ɜrican shad	19	28	342	51	551	843	1097	1372	4662	502
·iped bass	416	86	207	89	604	242	207	1128	1174	60
ɲpkinseed	16	77	267	273	336	231	607	5146	864	1397
:zard shad	15	25	736	333	395	444	191	714	2497	144
.antic tomcod	78	860	613	1126	3484	293	542	601	1102	282
ɟchoker	74	40	243	129	233	198	151	719	177	206
inbow smelt	97	14	445	74	630	1920	400	572	53	58
'te catfish	190	234	1059	406	679	214	140	149	101	251
ɔwn bullhead	3	16	35	32	25	14	74	159	309	96
.den shiner	29	38	57	35	111	64	57	78	84	64
ıkfish					3			641	19	26
ıded killifish	3	6	31	34	24	39	103	582	228	90
ıegill	118	20	729	53	204	33	79	302	81	142
antic menhaden						1	2	5	25	2
sellated darter	6	19	101	153	69	309	450	246	54	54
low perch		11	52	31	65	86	83	105	273	126
·ring family					332	5	5	62	547	22
dfish	12	23	51	47	126	266	206	63	135	17
ıefish		1	109		9	8	1	30	12	5
:rican eel	5	27	134	85	150	57	59	59	54	22
·gemouth bass		2	14	6	5	2	11	53	44	10
nnel catfish										
ıck crappie	3	2		3	8	3	2	4	8	1
ırspine stickleback				1	2	1	9	52	27	18
·eespine stickleback		2	4	1	4	1	8	7	2	5
mon carp			4		1	9	11	13	6	
ıfish family							1		1	
breast sunfish		4	6	4	7	17	8	16	21	10
te crappie					41	2			1	
te bass			1	4	32	12				
antic sturgeon	3	4	9	2	11	5		1	3	1
·shwater drum										
·t				2	24					
·k bass	1		3	2	1		6		4	
michog				1		3		4	1	1
·valle jack								3	4	1
antic silverside										
ıtral mudminnow				1	9	1		4		

(CONTINUED)

APPENDIX TABLE A-1. (CONTINUED)

	1973	1974	1975	1976	1977	1978	1979	1980	1981	19
Naked goby										
Smallmouth bass					1					
Atlantic croaker										
Black bullhead					2	10	1	2		
Brook silverside										
Fathead minnow						1	1			
Yellow bullhead			3		2		4		1	
Atlantic needlefish								1		
White sucker		2			1	1	1		2	
Summer flounder								2		
Hickory shad							2	1		
Northern pipefish								1		
Spanish mackerel										
Shortnose sturgeon		1								
Bluntnose minnow										
Sea lamprey										
Brown trout							1			
Chain pickerel									2	
Morone species										
White mullet								1		
Winter flounder										
Eastern silvery minnow					1					
Ictalurus species								1		
Striped searobin										
Brook stickleback										
Butterfish										
Carp and minnow family					1					
Conger eel										
Creek chub										
Eastern mudminnow										
Emerald shiner				1						
Fat sleeper										
Kokanee										
Lepomis species										
Longnose gar										
Northern pike										
Northern stargazer								1		
Pimephales species										
Redfin pickerel										
Silver perch										
Spotfin shiner			1							
Warmouth			1							
TOTAL	20579	9150	37494	21288	63963	44105	45221	74558	91787	2
SPECIES	23	29	32	33	40	37	36	41	38	

(CONT

PENDIX TABLE A-1. (CONTINUED)

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
ite perch	22141	7934	6308	5172	16351	14423	11506	11596	8742	5497
ueback herring	7041	23083	3764	1500	40512	9849	3670	11248	10725	11479
/ anchovy	14367	7255	4360	1009	2763	1413	113	13129	68080	5740
ewife	2138	617	1097	430	1913	793	137	1051	3509	1322
ottail shiner	1102	492	383	659	1040	659	1547	1717	1457	681
erican shad	1031	525	430	601	521	569	353	728	2369	616
riped bass	422	196	74	36	462	635	145	553	4584	504
npkinseed	731	667	464	322	639	1025	554	452	484	267
izard shad	616	52	208	249	423	658	2392	571	959	303
antic tomcod	168	524	598	65	585	68	97	117	1993	42
ychoker	589	193	855	75	1018	703	860	467	2234	572
nbow smelt	94	56	105	124	1444	125	14	59	393	540
te catfish	499	270	85	65	170	177	173	244	59	75
own bullhead	305	85	106	144	93	272	74	120	160	335
den shiner	73	58	31	94	120	137	389	158	372	206
ikfish	46	1	352			68	10		1946	
ided killifish	70	25	52	63	64	96	24	62	106	78
iegill	59	81	20	8	80	244	100	107	87	23
antic menhaden	1		4	5	6		3	46	2684	52
sellated darter	128	22	43	24	46	58	66	20	195	184
low perch	118	54	34	45	47	36	71	93	89	76
ring family			2	8	10	7	5	55		
dfish	10	8	9	5	8	22	34	15	23	19
efish	42	2	62		67	9	9	2	609	3
rican eel	39	17	16	5	31	36	15	35	44	27
gemouth bass	9	4	3	19	18	34	14	24	16	20
nnel catfish			1		1	4	5	4	3	11
ck crappie	8	4	2	6	6	2	7	14	15	11
rspine stickleback	15	1		5	12	2	2	2	3	10
eespine stickleback	2	4	15	2	10	13	20	3	13	16
mon carp	1		2	8	8	3	2	4	15	26
fish family				1		2	27	61		
breast sunfish	3			2	6	1	6	8	1	6
te crappie	2	3	4	3	2	4	2	2	4	5
te bass					1		1	2	2	
antic sturgeon	3	2		1	1				1	
shwater drum							10	6	1	
t										
k bass				2	1					
michog	1						1	3		
valle jack	2				2	3		4		
antic silverside				1					7	
tral mudminnow								1		

(CONTINUED)

APPENDIX TABLE A-1. (CONTINUED)

	1983	1984	1985	1986	1987	1988	1989	1990	1991	19
Naked goby									15	
Smallmouth bass	3	3	1	2			1		2	
Atlantic croaker										
Black bullhead					1					
Brook silverside										
Fathead minnow	1				4	1	1	2		
Yellow bullhead		3			1	1				
Atlantic needlefish				1	3		1	3	2	
White sucker	2		1							
Summer flounder				2					5	
Hickory shad					3	1			1	
Northern pipefish									3	
Spanish mackerel									7	
Shortnose sturgeon		1	1			1				
Bluntnose minnow	5									
Sea lamprey						1		2		
Brown trout										
Chain pickerel									1	
Morone species										
White mullet			1							
Winter flounder										
Eastern silvery minnow	1									
Ictalurus species				1						
Striped searobin										
Brook stickleback										
Butterfish										
Carp and minnow family										
Conger eel										
Creek chub		1								
Eastern mudminnow	1									
Emerald shiner										
Fat sleeper										
Kokanee				1						
Lepomis species									1	
Longnose gar							1			
Northern pike									1	
Northern stargazer										
Pimephales species	1									
Redfin pickerel								1		
Silver perch										
Spotfin shiner										
Warmouth										
TOTAL	51890	42243	19493	10765	68493	32155	22462	42791	112022	28
SPECIES	40	33	34	36	40	37	39	40	45	

(CONT

APPENDIX TABLE A-1. (CONTINUED)

	1993	1994	1995	1996
White perch	6540	2435	6051	3409
Blueback herring	2245	7458	4698	1283
Bay anchovy	2028	1232	9539	16
Alewife	1049	4177	2239	384
Spottail shiner	536	689	1424	1293
American shad	223	1107	1136	56
Striped bass	1092	1849	3891	63
Pumpkinseed	503	346	760	305
Gizzard shad	986	509	1622	441
Atlantic tomcod	160	55	258	57
Hogchoker	384	315	462	169
Rainbow smelt	924	599	209	
White catfish	289	159	131	252
Brown bullhead	109	921	407	103
Golden shiner	128	163	376	446
Weakfish	178		9	
Banded killifish	14	169	969	134
Bluegill	217	67	117	91
Atlantic menhaden		4	79	6
Tessellated darter	12	76	245	41
Yellow perch	50	38	39	84
Herring family	1		464	121
Goldfish	10	4	42	27
Bluefish	31		54	
American eel	11	20	83	22
Largemouth bass	20	4	23	9
Channel catfish	9	14	51	196
Black crappie	13	13	67	39
Fourspine stickleback		14	31	10
Threespine stickleback	7	49	17	8
Common carp	17	12	15	16
Sunfish family	2	13	36	9
Redbreast sunfish	3	7	9	4
White crappie				
White bass			2	1
Atlantic sturgeon				
Freshwater drum	4	5		1
Spot			1	
Rock bass	4		1	1
Mummichog		1	2	4
Crevalle jack	1		1	
Atlantic silverside			11	
Central mudminnow		1	1	

(CONTINUED)

APPENDIX TABLE A-1. (CONTINUED)

	1993	1994	1995	1996
Naked goby			1	
Smallmouth bass				1
Atlantic croaker			16	
Black bullhead				
Brook silverside			5	10
Fathead minnow	2	1		
Yellow bullhead				
Atlantic needlefish		1		
White sucker		1		
Summer flounder	1			
Hickory shad				
Northern pipefish	1		2	
Spanish mackerel				
Shortnose sturgeon		1	1	
Bluntnose minnow				
Sea lamprey				2
Brown trout	1			2
Chain pickerel				
Morone species	1		3	
White mullet	1			
Winter flounder	2	1		
Eastern silvery minnow				
Ictalurus species				
Striped searobin				
Brook stickleback				1
Butterfish			1	
Carp and minnow family				
Conger eel				
Creek chub				
Eastern mudminnow				
Emerald shiner				
Fat sleeper		1		
Kokanee				
Lepomis species				
Longnose gar				
Northern pike				
Northern stargazer				
Pimephales species				
Redfin pickerel				
Silver perch			1	
Spotfin shiner				
Warmouth				
TOTAL	17809	22531	35602	9117
SPECIES	38	38	45	37

Source of 1973-1995 data: NAI (1997)

A higher taxon was not counted as an additional species unless no species from that taxon was recorded that year.

APPENDIX TABLE A-2. SPECIES REPRESENTATION AND ABUNDANCE IN THE IMPINGEMENT MONITORING PROGRAM, DANSKAMMER POINT GENERATING STATION, 1974-1996.

	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
'te perch	10396	14152	18875	28415	11106	16095	42961	34019	57323	62672
ıeback herring	1869	9711	1997	5633	10298	6241	5089	1318	2369	5919
.antic tomcod	12629	5849	9830	3784	3312	5282	1999	10545	3890	3623
ɜwife	4519	4314	1478	4294	6333	2474	8543	3751	4215	6528
ɔttail shiner	948	1457	2318	4151	1248	2636	3608	2624	3312	5370
:zard shad	205	2997	1231	3580	953	234	4981	2903	1857	8637
/ anchovy	301	278	10	200	589	278	2095	107	2580	7082
ıpkinseed	384	380	600	1009	548	767	3227	1922	4097	3881
·iped bass	908	362	228	342	270	341	1364	1164	665	1982
ɜrican shad	359	342	359	408	922	889	2938	827	738	3968
'te catfish	595	678	826	1079	293	201	687	432	533	4599
.den shiner	599	197	398	531	344	565	288	412	435	672
ıchoker	33	60	74	88	46	40	390	159	409	580
ɔwn bullhead	92	62	43	46	38	63	336	306	429	1759
nbow smelt	46	44	493	277	1074	727	135	21	39	125
.low perch	40	34	73	134	115	147	306	353	642	965
ıegill	117	274	105	317	80	130	273	457	285	409
ıkfish							1162	2	22	151
.dfish	191	127	173	557	749	758	198	308	108	75
·ring family	63	11	6	147	30	53	111	88	20	96
ɜrican eel	117	88	229	245	123	97	184	135	168	222
ıefish	5	6		2			390	22	27	457
·sellated darter	24	18	26	28	56	116	98	35	129	152
antic menhaden		1	5				6	2	2	1
ıded killifish	14	10	25	45	37	121	146	175	112	82
·gemouth bass	9	16	27	20	7	54	351	82	47	51
lbreast sunfish	23	14	18	48	17	28	57	97	65	107
ınnel catfish						3	1			
ıck crappie	15	10	26	32	20	21	13	13	35	34
ɯon carp	8	2	1	11	7	29	28	28	11	15
ırspine stickleback		1	2	2		7	10	7	25	78
te bass	1	8	2	129	12			2		
·eespine stickleback				1	1	2	2	2		
ɔt			20	120	20				2	
te sucker	25		1	12	3	10	5	12	9	14
te crappie	4			51	2	4		1	2	8
·one species				1						
:k bass	2		4	11	2	2	6	7	6	7
ıfish family	4	2	3	2		3	1		1	
ıllmouth bass	9		1	1				2		
ɜvalle jack					1		3	4	7	11
.ver perch										
:kory shad					4		1		1	7
ɜshwater drum										1
ıck bullhead			4	17	15	4				

(CONTINUED)

APPENDIX TABLE A-2. (CONTINUED)

	1974	1975	1976	1977	1978	1979	1980	1981	1982	1
Fathead minnow				1						
Atlantic sturgeon	5	1	1	6	1	1		1	1	
Atlantic needlefish							1	5	1	
Yellow bullhead				1				4		
Chain pickerel	1		2	1		1	2	2		
Eastern silvery minnow	5		6	4	3					
Unidentified	13		2						1	
Central mudminnow	1			4						
Brown trout	2			3		2	1			
Emerald shiner	1		2		1					
Shortnose sturgeon				1					3	
Longear sunfish			3	7						
Mummichog					1		1	2		
Sea lamprey						1		3		
Brook silverside										
Summer flounder							2			
Warmouth		1								
Naked goby										
Northern pike						2				
White mullet		1					3	1		
Atlantic silverside										
Bluntnose minnow										
Conger eel										
Redfin pickerel				1			1			
Inland silverside							1			
Pomoxis species		1		2						
Winter flounder										
Brook trout				1						
Gray snapper										
Ictalurus species	1									
Northern hog sucker				1	1					
Notropis species		1		1						
Rainbow trout								1		
Silver lamprey								1		
Spanish mackerel										
Atlantic croaker										
Brindled madtom						1				
Butterfish										
Carp and minnow family										
Common shiner						1				
Creek chub										
Cutlips minnow										
Eastern mudminnow				1						
Fallfish				1						
Kokanee										

(CONT

ᴾENDIX TABLE A-2. (CONTINUED)

	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
ɴprey family										
ɪidia species										
:orhynchus species	1									
·iped searobin									1	
ɪrgeon family		1								
:ker family				1						
)TAL	34584	41511	39527	55807	38682	38431	82005	62364	84624	120359
ᴾECIES	38	32	38	49	39	39	43	45	39	41

(CONTINUED)

APPENDIX TABLE A-2. (CONTINUED)

	1984	1985	1986	1987	1988	1989	1990	1991	1992	19
White perch	61361	26597	36583	59487	31907	21898	33849	19458	15775	19
Blueback herring	9112	16178	1142	10128	11971	1412	3882	10878	1744	[illegible]
Atlantic tomcod	4678	5405	309	2970	3179	830	1333	1643	607	[illegible]
Alewife	4789	8466	1503	4581	2608	554	664	3807	1184	[illegible]
Spottail shiner	3641	2610	3955	8502	2422	3885	2382	3038	1753	[illegible]
Gizzard shad	1280	3445	411	2581	4382	4769	1903	3288	1873	[illegible]
Bay anchovy	4172	6358	219	1869	4489	211	1033	7050	204	[illegible]
Pumpkinseed	3385	1436	1437	1437	1396	904	689	1447	588	[illegible]
Striped bass	1448	930	168	1211	2117	555	786	6008	820	[illegible]
American shad	4021	2672	355	602	1691	672	296	1933	800	
White catfish	2346	552	174	620	855	748	913	210	186	[illegible]
Golden shiner	866	718	636	911	1048	1284	608	861	480	
Hogchoker	860	1477	323	625	939	588	373	912	561	
Brown bullhead	429	229	189	416	1125	253	253	268	344	
Rainbow smelt	259	121	628	1404	309	20	432	251	255	
Yellow perch	669	345	376	510	161	217	167	175	171	
Bluegill	555	181	45	199	380	286	122	159	68	
Weakfish	1	259			59	1	1	1606		
Goldfish	52	71	43	46	158	134	29	47	50	
Herring family	13	11	36	79	1701	53	18			
American eel	145	131	91	183	98	65	82	78	55	
Bluefish	23	178		70	7	33	3	734	1	
Tessellated darter	80	67	67	203	97	68	26	89	45	
Atlantic menhaden		76	18	7		7	16	1487	8	
Banded killifish	74	77	86	108	99	40	16	42	16	
Largemouth bass	28	42	20	87	151	33	28	28	29	
Redbreast sunfish	96	21	12	35	12	14	18	14	15	
Channel catfish	1	3		1	15	6	4	6	14	
Black crappie	51	9	10	12	26	22	29	30	20	
Common carp	5	33	15	18	54	54	14	28	51	
Fourspine stickleback	2	4	15	189	7	6		3	2	
White bass				6	1	1	5	10		
Threespine stickleback	10	20	9	14	22	13	2	5	8	
Spot					1					
White sucker	15	5	3	12	1	5	9	1		
White crappie	3	8	12	7	9	2	3	4	1	
Morone species					89	6				
Rock bass	4	2	3	11	2	1	2	1	1	
Sunfish family			1	5		23	9			
Smallmouth bass	18	23		1	3	2		3	1	
Crevalle jack	5		1	1	11		11			
Silver perch										
Hickory shad	8		8	8	4		2	5		
Freshwater drum		1				14	5	1	2	
Black bullhead		3	1	2						

(CONT

ᵖENDIX TABLE A-2. (CONTINUED)

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
:head minnow				25	2					5
.antic sturgeon	3	1	1	1	1		2		1	
antic needlefish	1	10		1			2			
.low bullhead	10	6		3					1	2
ıin pickerel	3	3			1			1		
;tern silvery minnow										
dentified	2									
ıtral mudminnow			1	2			1			7
ıwn trout				1				1	1	
:rald shiner				3	2				1	1
ırtnose sturgeon	3	2					1		1	
ıgear sunfish										
michog		1					1		2	
lamprey				1	1	1				
ok silverside								1		
mer flounder	2	1						2		
mouth								1	3	
ed goby					1	1		3		
thern pike						1		1		
te mullet										
antic silverside										
ntnose minnow			2					2		
ger eel									4	
fin pickerel				1						
and silverside					1				1	
oxis species										
ter flounder		2						1		
ok trout										
y snapper										
alurus species	1									
thern hog sucker										
ropis species										
ıbow trout										
ver lamprey		1								
ıish mackerel								2		
antic croaker										
ıdled madtom										
terfish										
ɔ and minnow family										
ıon shiner										
ek chub	1									
lips minnow										
tern mudminnow										
lfish										
anee			1							

(CONTINUED)

APPENDIX TABLE A-2. (CONTINUED)

	1984	1985	1986	1987	1988	1989	1990	1991	1992	19
Lamprey family				1						
Menidia species					1					
Oncorhynchus species										
Striped searobin										
Sturgeon family										
Sucker family										
TOTAL	104531	78791	48909	99197	73616	39692	50024	65623	27747	48
SPECIES	43	46	38	47	45	41	42	48	43	

(CONT

APPENDIX TABLE A-2. (CONTINUED)

	1994	1995	1996
White perch	10280	17445	20649
Blueback herring	2106	2168	1151
Atlantic tomcod	122	398	1370
Alewife	3344	2169	1076
Spottail shiner	1424	3049	3768
Gizzard shad	2086	5927	4268
Bay anchovy	131	3807	59
Pumpkinseed	1091	1941	791
Striped bass	2227	3632	1702
American shad	1750	458	780
White catfish	563	510	2552
Golden shiner	393	819	676
Hogchoker	302	435	215
Brown bullhead	1791	513	585
Rainbow smelt	1867	55	
Yellow perch	73	122	175
Bluegill	102	184	207
Weakfish		643	1
Goldfish	7	61	53
Herring family	46	97	815
American eel	33	87	49
Bluefish		223	
Tessellated darter	71	145	66
Atlantic menhaden	3	23	39
Banded killifish	38	73	54
Largemouth bass	17	38	23
Redbreast sunfish	16	17	15
Channel catfish	44	115	439
Black crappie	20	70	24
Common carp	18	33	34
Fourspine stickleback	8	3	4
White bass		3	3
Threespine stickleback	29	16	1
Spot			
White sucker	2	2	2
White crappie			1
Morone species		8	
Rock bass	3	4	9
Sunfish family	9	21	4
Smallmouth bass	2	2	1
Crevalle jack	1	6	
Silver perch		61	
Hickory shad			1
Freshwater drum	3	2	12
Black bullhead			

(CONTINUED)

APPENDIX TABLE A-2. (CONTINUED)

	1994	1995	1996
Fathead minnow	2		1
Atlantic sturgeon	1	3	
Atlantic needlefish			
Yellow bullhead			
Chain pickerel			1
Eastern silvery minnow			
Unidentified			
Central mudminnow	1		
Brown trout			2
Emerald shiner			4
Shortnose sturgeon		1	
Longear sunfish			
Mummichog	1		
Sea lamprey			
Brook silverside			6
Summer flounder			
Warmouth	1		1
Naked goby			
Northern pike	1		
White mullet			
Atlantic silverside		4	
Bluntnose minnow			
Conger eel			
Redfin pickerel			1
Inland silverside			
Pomoxis species			
Winter flounder			
Brook trout	1		
Gray snapper	2		
Ictalurus species			
Northern hog sucker			
Notropis species			
Rainbow trout		1	
Silver lamprey			
Spanish mackerel			
Atlantic croaker		1	
Brindled madtom			
Butterfish		1	
Carp and minnow family			
Common shiner			
Creek chub			
Cutlips minnow			1
Eastern mudminnow			
Fallfish			
Kokanee			

(CONTINUED)

APPENDIX TABLE A-2. (CONTINUED)

	1994	1995	1996
Lamprey family			
Menidia species			
Oncorhynchus species			
Striped searobin			
Sturgeon family			
Sucker family			
TOTAL	30032	45396	41691
SPECIES	42	44	44

Source of 1973-1995 data: NAI (1997)

A higher taxon was not counted as an additional species unless no species from that taxon was recorded that year.

APPENDIX B

LENGTH-FREQUENCY INFORMATION FOR MAJOR TAXA

LIST OF APPENDIX B TABLES

B-1.1. Length-frequency of alewife, Roseton Generating Station, 1996.

B-1.2. Length-frequency of Atlantic tomcod, Roseton Generating Station, 1996.

B-1.3. Length-frequency of blueback herring, Roseton Generating Station, 1996.

B-1.4. Length-frequency of channel catfish, Roseton Generating Station, 1996.

B-1.5. Length-frequency of gizzard shad, Roseton Generating Station, 1996.

B-1.6. Length-frequency of golden shiner, Roseton Generating Station, 1996.

B-1.7. Length-frequency of hogchoker, Roseton Generating Station, 1996.

B-1.8. Length-frequency of pumpkinseed, Roseton Generating Station, 1996.

B-1.9. Length-frequency of spottail shiner, Roseton Generating Station, 1996.

B-1.10. Length-frequency of white catfish, Roseton Generating Station, 1996.

B-1.11. Length-frequency of white perch, Roseton Generating Station, 1996.

B-1.12. Frequency distribution of carapace width for blue crab, Roseton Generating Station, 1996.

B-2.1. Length-frequency of alewife, Danskammer Point Generating Station, 1996.

B-2.2. Length-frequency of American shad, Danskammer Point Generating Station, 1996.

B-2.3. Length-frequency of Atlantic tomcod, Danskammer Point Generating Station, 1996.

B-2.4. Length-frequency of blueback herring, Danskammer Point Generating Station, 1996.

B-2.5. Length-frequency of gizzard shad, Danskammer Point Generating Station, 1996.

B-2.6. Length-frequency of pumpkinseed, Danskammer Point Generating Station, 1996.

B-2.7. Length-frequency of spottail shiner, Danskammer Point Generating Station, 1996.

B-2.8. Length-frequency of striped bass, Danskammer Point Generating Station, 1996.

B-2.9. Length-frequency of white catfish, Danskammer Point Generating Station, 1996.

B-2.10. Length-frequency of white perch, Danskammer Point Generating Station, 1996.

B-2.11. Frequency distribution of carapace width for blue crab, Danskammer Point Generating Station, 1996.

TABLE B-1.1. LENGTH-FREQUENCY OF ALEWIFE, ROSETON GENERATING STATION, 1996.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
3.1 - 4.0	0	0	0	0	0	0	0	3	0	0	0	0
4.1 - 5.0	0	0	0	0	0	0	0	21	2	0	1	0
5.1 - 6.0	0	0	0	0	0	0	0	63	8	4	3	0
6.1 - 7.0	0	0	0	0	0	0	0	7	0	10	11	0
7.1 - 8.0	0	6	0	0	0	0	0	3	0	7	19	1
8.1 - 9.0	2	23	4	0	0	0	0	0	0	1	4	3
9.1 - 10.0	1	1	0	0	0	0	0	0	1	0	1	34
10.1- 11.0	0	23	0	0	0	0	0	0	0	0	0	21
11.1- 12.0	0	21	1	0	0	0	0	0	0	0	0	0
12.1- 13.0	0	0	0	0	0	1	0	0	0	0	0	0
13.1- 14.0	0	1	0	0	0	0	0	0	0	0	0	0
14.1- 15.0	0	0	0	0	0	0	0	0	0	0	0	0
15.1- 16.0	0	0	0	0	1	0	0	0	0	0	0	0
16.1- 17.0	0	0	0	0	0	0	0	0	0	0	0	1
17.1- 18.0	0	0	0	0	0	0	0	0	0	0	0	0
18.1- 19.0	0	0	0	0	0	0	0	0	0	0	0	0
19.1- 20.0	0	0	0	0	0	0	0	0	0	0	0	0
20.1- 21.0	0	0	0	0	0	0	0	0	0	0	0	0
21.1- 22.0	0	0	0	0	0	0	0	0	0	0	0	0
22.1- 23.0	0	0	0	0	0	0	0	0	0	0	0	0
23.1- 24.0	0	0	0	0	0	0	0	0	0	0	0	0
24.1- 25.0	0	0	0	0	0	0	0	0	0	0	0	0
25.1- 26.0	0	0	0	1	0	0	0	0	0	0	0	0
26.1- 27.0	0	0	0	0	0	0	0	0	0	0	0	0
27.1- 28.0	0	0	0	0	1	0	0	0	0	0	0	0
TOTAL ANAL.	3	75	5	1	2	1	0	97	11	22	39	60
MEAN LENGTH	8.6	10.0	9.1	25.4	21.1	12.4	0	5.3	5.9	6.8	7.2	9.9
MIN. LENGTH	8.1	7.4	8.4	25.4	15.1	12.4	0	3.4	5.0	5.4	4.6	8.0
MAX. LENGTH	9.2	13.3	11.1	25.4	27.1	12.4	0	7.6	9.9	8.2	9.7	16.8

TABLE B-1.2. LENGTH-FREQUENCY OF ATLANTIC TOMCOD, ROSETON GENERATING STATION, 1996.

INTERVAL (CM)		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
6.1 - 7.0		0	0	0	0	0	0	0	1	0	0	0	0
7.1 - 8.0		0	0	0	0	0	1	0	1	0	0	0	0
8.1 - 9.0		0	0	0	0	0	1	0	1	2	0	0	0
9.1 - 10.0		0	0	0	0	0	0	0	1	1	0	1	0
10.1- 11.0		0	0	0	0	0	0	0	1	0	0	0	1
11.1- 12.0		0	0	0	0	0	0	0	0	0	0	0	0
12.1- 13.0		0	0	0	0	0	0	0	0	0	0	0	6
13.1- 14.0		0	1	0	0	0	0	0	0	0	0	0	13
14.1- 15.0		0	0	0	0	0	0	0	0	0	0	0	9
15.1- 16.0		0	0	0	0	0	0	0	0	0	0	0	9
16.1- 17.0		1	0	0	0	0	0	0	0	0	0	0	2
17.1- 18.0		0	0	0	0	0	0	0	0	0	0	0	1
18.1- 19.0		0	0	0	0	0	0	0	0	0	0	0	1
19.1- 20.0		0	0	0	0	0	0	0	0	0	0	0	2
	TOTAL ANAL.	1	1	0	0	0	2	0	5	3	0	1	44
	MEAN LENGTH	17.0	13.4	0	0	0	8.1	0	8.4	8.8	0	9.8	14.5
	MIN. LENGTH	17.0	13.4	0	0	0	7.8	0	6.4	8.5	0	9.8	10.9
	MAX. LENGTH	17.0	13.4	0	0	0	8.4	0	10.3	9.1	0	9.8	19.9

TABLE B-1.3. LENGTH-FREQUENCY OF BLUEBACK HERRING, ROSETON GENERATING STATION, 1996.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2.1 - 3.0	0	0	0	0	0	0	0	1	0	0	0	0
3.1 - 4.0	0	0	0	0	0	0	0	82	2	0	0	0
4.1 - 5.0	0	0	0	0	0	0	0	42	1	0	10	0
5.1 - 6.0	0	0	0	0	0	0	0	0	0	11	18	0
6.1 - 7.0	0	0	0	0	0	0	0	0	0	7	10	0
7.1 - 8.0	0	0	0	0	0	0	0	0	0	4	4	1
8.1 - 9.0	0	0	0	0	0	0	0	0	0	2	2	0
9.1 - 10.0	0	0	0	0	0	1	0	0	0	0	0	0
10.1- 11.0	0	0	0	0	0	0	0	0	0	0	0	0
11.1- 12.0	0	0	0	0	0	0	0	0	0	0	0	0
12.1- 13.0	0	0	0	0	0	0	0	0	0	0	0	0
13.1- 14.0	0	0	0	0	0	0	0	0	0	0	0	0
14.1- 15.0	0	0	0	0	0	0	0	0	0	0	0	0
15.1- 16.0	0	0	0	0	0	0	0	0	0	0	0	0
16.1- 17.0	0	0	0	0	0	0	0	0	0	0	0	0
17.1- 18.0	0	0	0	0	0	0	0	0	0	0	0	0
18.1- 19.0	0	0	0	0	0	0	0	0	0	0	0	0
19.1- 20.0	0	0	0	0	0	0	0	0	0	0	0	0
20.1- 21.0	0	0	0	0	0	0	0	0	0	0	0	0
21.1- 22.0	0	0	0	0	0	0	0	0	0	0	0	0
22.1- 23.0	0	0	0	0	0	0	0	0	0	0	0	0
23.1- 24.0	0	0	0	0	0	0	0	0	0	0	0	0
24.1- 25.0	0	0	0	0	0	1	0	0	0	0	0	0
25.1- 26.0	0	0	0	0	0	3	0	0	0	0	0	0
26.1- 27.0	0	0	0	0	2	1	0	0	0	0	0	0
27.1- 28.0	0	0	0	0	2	0	0	0	0	0	0	0
28.1- 29.0	0	0	0	0	3	2	0	0	0	0	0	0
TOTAL ANAL.	0	0	0	0	7	8	0	125	3	24	44	1
MEAN LENGTH	0	0	0	0	27.5	24.4	0	3.9	4.1	6.4	5.8	7.8
MIN. LENGTH	0	0	0	0	26.2	9.8	0	3.0	3.5	5.4	4.4	7.8
MAX. LENGTH	0	0	0	0	28.6	28.6	0	4.9	4.9	8.4	8.5	7.8

TABLE B-1.4. LENGTH-FREQUENCY OF CHANNEL CATFISH, ROSETON GENERATING STATION, 1996.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
3.1 - 4.0	0	0	0	0	0	0	0	1	0	0	0	0
4.1 - 5.0	0	0	0	0	0	0	0	2	1	0	0	2
5.1 - 6.0	0	0	0	0	0	0	0	2	1	0	1	2
6.1 - 7.0	0	0	0	0	0	0	0	5	2	0	0	5
7.1 - 8.0	1	2	2	1	0	0	0	1	4	1	3	10
8.1 - 9.0	0	0	1	0	0	0	0	0	1	0	11	24
9.1 - 10.0	2	0	0	0	0	0	0	0	0	0	11	26
10.1- 11.0	0	0	0	0	0	1	0	0	0	0	7	19
11.1- 12.0	0	0	0	2	0	0	0	0	0	0	6	10
12.1- 13.0	0	0	2	4	0	0	0	0	0	0	3	4
13.1- 14.0	0	0	1	1	0	0	0	0	0	0	0	0
14.1- 15.0	0	0	1	0	0	0	0	0	0	0	1	1
15.1- 16.0	0	0	0	0	0	0	0	0	0	0	0	0
16.1- 17.0	0	0	0	0	0	0	0	0	0	0	0	0
17.1- 18.0	0	0	0	0	0	0	0	1	0	0	0	0
18.1- 19.0	0	0	0	0	0	0	0	0	0	0	0	0
19.1- 20.0	0	0	0	0	0	0	0	0	0	0	0	0
20.1- 21.0	0	0	0	0	0	0	0	0	0	0	0	0
21.1- 22.0	0	0	0	1	0	0	0	1	0	0	0	0
22.1- 23.0	0	0	0	0	0	0	0	0	0	0	0	0
23.1- 24.0	0	0	0	0	0	0	0	0	0	0	0	0
24.1- 25.0	0	0	0	0	0	0	0	0	0	0	0	1
25.1- 26.0	0	0	0	0	0	0	0	0	0	0	0	0
26.1- 27.0	0	0	0	0	0	0	0	0	0	0	0	0
27.1- 28.0	1	0	0	0	0	0	0	0	0	0	0	0
TOTAL ANAL.	4	2	7	9	0	1	0	13	9	1	43	104
MEAN LENGTH	13.4	7.7	11.0	12.8	0	10.8	0	7.8	6.8	7.8	9.8	9.6
MIN. LENGTH	7.1	7.7	7.8	7.7	0	10.8	0	3.1	5.0	7.8	5.8	5.0
MAX. LENGTH	27.5	7.7	14.1	21.1	0	10.8	0	21.4	8.1	7.8	14.8	24.7

TABLE B-1.5. LENGTH-FREQUENCY OF GIZZARD SHAD, ROSETON GENERATING STATION, 1996.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
6.1 - 7.0	0	0	0	0	0	0	0	0	0	0	2	0
7.1 - 8.0	0	0	0	0	0	0	0	0	0	0	4	0
8.1 - 9.0	0	0	0	0	0	0	0	0	0	0	13	1
9.1 - 10.0	0	0	0	0	0	0	0	0	0	0	6	2
10.1- 11.0	0	0	0	0	0	0	0	0	0	0	25	9
11.1- 12.0	2	0	0	0	0	0	0	0	0	0	29	33
12.1- 13.0	2	0	0	0	0	0	0	0	0	0	24	42
13.1- 14.0	1	0	0	0	0	0	0	0	0	0	9	35
14.1- 15.0	1	0	0	0	0	0	0	0	0	0	3	12
15.1- 16.0	1	0	0	0	0	0	0	0	0	0	1	7
16.1- 17.0	1	0	0	0	0	0	0	0	0	0	1	9
17.1- 18.0	1	0	0	0	0	0	0	0	0	0	1	18
18.1- 19.0	3	0	0	0	0	0	0	0	0	0	1	12
19.1- 20.0	3	0	0	0	0	0	0	0	0	0	1	17
20.1- 21.0	4	0	0	0	0	0	0	0	0	0	0	6
21.1- 22.0	3	0	0	0	0	0	0	0	0	0	0	1
22.1- 23.0	2	0	0	0	0	0	0	0	0	0	0	1
23.1- 24.0	0	0	0	0	0	0	0	0	0	0	0	5
24.1- 25.0	0	0	0	0	0	0	0	0	0	0	0	0
25.1- 26.0	0	0	0	0	0	0	0	0	0	0	0	0
26.1- 27.0	0	0	0	0	0	0	0	0	0	0	0	1
27.1- 28.0	0	0	0	0	0	0	0	0	0	0	0	0
28.1- 29.0	0	0	0	0	0	0	0	0	0	0	0	0
29.1- 30.0	0	0	0	0	0	0	0	0	0	0	0	0
30.1- 31.0	0	0	0	0	0	0	0	0	0	0	0	0
31.1- 32.0	0	0	0	0	0	0	0	0	0	0	0	0
32.1- 33.0	0	0	0	0	0	0	0	0	0	0	0	0
33.1- 34.0	0	0	0	0	0	0	0	0	0	0	0	0
34.1- 35.0	0	0	0	0	0	0	0	0	0	0	0	0
35.1- 36.0	0	0	1	0	0	0	0	0	0	0	0	0
36.1- 37.0	0	0	0	0	0	0	0	0	0	0	0	0
37.1- 38.0	0	0	0	0	0	0	0	0	0	0	0	0
38.1- 39.0	1	0	0	0	0	0	0	0	0	0	0	0
39.1- 40.0	1	0	0	0	0	0	0	0	0	0	0	0
40.1- 41.0	0	0	0	0	0	0	0	0	0	0	0	0
41.1- 42.0	3	4	0	0	0	0	0	0	0	0	0	0
42.1- 43.0	0	2	0	0	0	0	0	0	0	0	0	0
43.1- 44.0	1	6	0	0	0	0	0	0	0	0	0	0
44.1- 45.0	8	5	1	0	0	0	0	0	0	0	0	0
45.1- 46.0	4	4	0	0	0	0	0	0	0	0	0	0
46.1- 47.0	9	3	0	0	1	0	0	0	0	0	0	0
47.1- 48.0	2	6	0	0	0	0	0	0	0	0	0	0
48.1- 49.0	4	4	0	0	0	0	0	0	0	0	0	0
49.1- 50.0	1	2	1	0	0	0	0	0	0	0	0	0
50.1- 51.0	0	3	0	0	0	0	0	0	0	0	0	0
51.1- 52.0	0	1	0	0	0	0	0	0	0	0	0	0
52.1- 53.0	0	0	0	0	0	0	0	0	0	0	0	1
TOTAL ANAL.	58	40	3	0	1	0	0	0	0	0	120	212
MEAN LENGTH	34.1	46.0	43.4	0	46.4	0	0	0	0	0	11.4	15.0
MIN. LENGTH	11.7	41.2	35.6	0	46.4	0	0	0	0	0	6.8	8.3
MAX. LENGTH	49.5	51.4	49.6	0	46.4	0	0	0	0	0	19.7	52.1

TABLE B-1.6. LENGTH-FREQUENCY OF GOLDEN SHINER, ROSETON GENERATING STATION, 1996.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
5.1 - 6.0	0	3	0	0	0	0	0	0	0	0	1	0
6.1 - 7.0	0	10	2	0	0	0	0	0	0	0	9	3
7.1 - 8.0	1	6	4	2	0	0	0	0	0	0	12	18
8.1 - 9.0	2	8	5	2	1	0	0	0	0	0	12	10
9.1 - 10.0	0	7	4	0	1	0	0	0	0	0	7	6
10.1- 11.0	0	1	0	0	0	0	0	0	0	0	1	11
11.1- 12.0	1	1	0	0	0	0	0	0	0	0	0	15
12.1- 13.0	0	2	2	1	0	0	0	0	0	0	4	23
13.1- 14.0	0	1	7	1	0	0	0	0	0	0	4	20
14.1- 15.0	1	7	8	1	0	0	0	1	0	0	3	14
15.1- 16.0	2	7	15	0	0	0	0	0	0	0	2	9
16.1- 17.0	0	6	6	0	0	0	0	0	0	0	1	3
17.1- 18.0	3	7	13	0	0	0	0	0	0	0	1	6
18.1- 19.0	3	8	11	0	0	0	0	0	0	0	0	6
19.1- 20.0	0	7	10	0	0	0	0	0	0	0	0	6
20.1- 21.0	1	6	9	0	0	0	0	0	0	0	0	3
21.1- 22.0	0	3	2	0	0	0	0	0	0	0	0	3
22.1- 23.0	1	2	2	0	0	0	0	0	0	0	0	1
23.1- 24.0	0	0	1	0	0	0	0	0	0	0	0	0
TOTAL ANAL.	15	92	101	7	2	0	0	1	0	0	57	157
MEAN LENGTH	15.5	13.9	16.1	10.3	9.0	0	0	14.9	0	0	9.6	12.9
MIN. LENGTH	7.4	5.4	6.4	7.6	8.4	0	0	14.9	0	0	5.6	6.3
MAX. LENGTH	22.2	22.5	23.3	14.2	9.5	0	0	14.9	0	0	17.1	22.1

TABLE B-1.7. LENGTH-FREQUENCY OF HOGCHOKER, ROSETON GENERATING STATION, 1996.

INTERVAL (CM)		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
3.1 - 4.0		0	0	0	0	1	0	0	0	0	0	0	0
4.1 - 5.0		0	0	0	0	9	2	0	0	0	0	0	0
5.1 - 6.0		0	0	0	0	13	0	0	0	0	1	0	0
6.1 - 7.0		0	0	0	0	31	0	0	1	4	1	0	0
7.1 - 8.0		0	0	0	0	30	0	0	1	4	2	0	0
8.1 - 9.0		0	0	0	3	24	0	2	0	2	0	2	0
9.1 - 10.0		0	0	0	1	12	0	0	2	2	0	2	0
10.1- 11.0		0	0	0	1	8	0	0	0	1	0	1	0
11.1- 12.0		0	0	0	0	5	0	0	0	0	0	0	0
12.1- 13.0		0	0	0	0	0	0	0	0	0	0	0	0
13.1- 14.0		0	0	0	0	1	0	0	0	0	0	0	0
	TOTAL ANAL.	0	0	0	5	134	2	2	4	13	4	5	0
	MEAN LENGTH	0	0	0	9.1	7.6	4.4	9.0	8.5	7.9	7.0	9.3	0
	MIN. LENGTH	0	0	0	8.4	4.0	4.2	8.9	6.9	6.5	5.9	8.5	0
	MAX. LENGTH	0	0	0	10.2	13.3	4.6	9.0	9.6	10.2	7.6	10.8	0

TABLE B-1.8. LENGTH-FREQUENCY OF PUMPKINSEED, ROSETON GENERATING STATION, 1996.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
3.1 - 4.0	0	1	0	0	0	0	0	0	0	0	5	0
4.1 - 5.0	0	8	3	3	1	0	0	0	0	1	2	1
5.1 - 6.0	6	15	3	6	1	1	0	0	0	1	1	2
6.1 - 7.0	6	26	11	7	4	0	0	0	0	3	1	2
7.1 - 8.0	5	14	3	5	3	3	0	0	0	1	0	0
8.1 - 9.0	1	2	3	3	2	1	1	0	0	0	0	0
9.1 - 10.0	1	0	0	1	0	1	0	0	1	0	1	0
10.1- 11.0	0	1	1	1	3	0	0	0	0	0	0	0
11.1- 12.0	1	10	1	2	9	1	1	0	0	0	0	0
12.1- 13.0	5	5	2	7	8	1	1	0	1	0	0	0
13.1- 14.0	4	3	3	5	5	1	0	0	0	0	0	0
14.1- 15.0	1	3	2	5	6	1	0	0	0	0	0	0
15.1- 16.0	0	2	1	0	2	0	1	0	0	0	1	0
16.1- 17.0	0	2	0	1	0	0	0	1	0	0	0	0
17.1- 18.0	2	6	0	3	2	0	0	0	0	0	0	0
18.1- 19.0	1	0	0	0	0	2	0	0	0	0	0	0
TOTAL ANAL.	33	98	33	49	46	12	4	1	2	6	11	5
MEAN LENGTH	9.9	8.8	8.6	10.2	11.6	11.3	12.0	16.5	10.7	6.1	5.8	5.6
MIN. LENGTH	5.6	3.1	4.1	4.2	4.3	5.6	8.4	16.5	9.3	4.3	3.3	4.5
MAX. LENGTH	18.2	18.0	15.1	17.3	17.5	18.7	15.1	16.5	12.1	7.6	15.1	6.5

TABLE B-1.9. LENGTH-FREQUENCY OF SPOTTAIL SHINER, ROSETON GENERATING STATION, 1996.

INTERVAL (CM)		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
3.1 - 4.0		0	0	0	0	0	0	0	11	0	0	0	0
4.1 - 5.0		0	1	0	0	0	0	0	20	1	1	13	0
5.1 - 6.0		3	12	3	3	4	1	0	6	0	2	72	11
6.1 - 7.0		6	24	16	15	11	6	0	0	0	2	83	53
7.1 - 8.0		4	29	18	11	5	4	1	0	0	3	24	36
8.1 - 9.0		7	22	17	23	2	4	1	2	0	0	5	12
9.1 - 10.0		8	29	26	12	2	0	0	0	1	0	21	24
10.1- 11.0		24	45	50	39	1	4	0	0	0	0	34	34
11.1- 12.0		4	6	18	6	0	1	0	1	0	0	13	12
12.1- 13.0		0	2	2	1	0	0	0	0	0	0	0	2
	TOTAL ANAL.	56	170	150	110	25	20	2	40	2	8	265	184
	MEAN LENGTH	9.3	8.7	9.4	9.2	7.1	8.2	8.4	4.9	7.3	6.4	7.3	8.3
	MIN. LENGTH	5.5	4.6	5.7	5.8	5.4	5.9	7.9	3.4	4.7	5.0	4.1	5.3
	MAX. LENGTH	11.4	12.3	12.3	12.8	10.9	11.2	8.8	11.1	9.8	7.8	11.9	12.5

TABLE B-1.10. LENGTH-FREQUENCY OF WHITE CATFISH, ROSETON GENERATING STATION, 1996.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
3.1 - 4.0	0	0	0	0	0	0	0	2	0	0	0	0
4.1 - 5.0	0	0	0	0	0	0	0	6	0	0	0	0
5.1 - 6.0	0	1	0	0	0	0	0	24	3	1	2	0
6.1 - 7.0	0	0	1	2	0	0	0	11	5	0	8	2
7.1 - 8.0	0	1	1	4	1	0	0	0	2	1	19	1
8.1 - 9.0	0	1	2	10	0	0	0	0	2	0	33	4
9.1 - 10.0	0	2	3	3	4	0	0	0	0	1	10	3
10.1- 11.0	0	5	0	3	0	0	0	0	0	0	1	0
11.1- 12.0	0	0	0	0	2	0	1	0	0	0	0	0
12.1- 13.0	0	0	0	1	0	0	0	1	1	0	0	0
13.1- 14.0	0	0	0	0	0	0	0	1	1	0	0	0
14.1- 15.0	0	1	1	0	0	0	0	1	0	0	1	0
15.1- 16.0	0	5	1	0	0	0	0	0	0	0	0	0
16.1- 17.0	0	5	2	0	2	0	0	0	0	0	0	0
17.1- 18.0	0	4	1	1	3	0	0	0	0	0	0	0
18.1- 19.0	0	1	0	0	1	0	0	0	0	0	0	0
19.1- 20.0	1	1	0	0	0	0	0	0	0	0	1	0
20.1- 21.0	0	0	0	0	0	0	0	0	0	0	0	0
21.1- 22.0	0	1	0	0	1	0	0	0	0	0	0	0
22.1- 23.0	0	0	1	0	0	0	0	0	0	0	0	0
23.1- 24.0	0	1	0	0	0	0	0	0	0	0	0	0
24.1- 25.0	0	1	0	0	0	0	0	0	0	0	0	0
25.1- 26.0	0	1	1	0	0	0	0	0	0	0	0	0
26.1- 27.0	0	0	1	0	0	0	0	0	0	0	0	0
27.1- 28.0	0	0	0	0	0	0	0	0	0	0	0	0
28.1- 29.0	0	1	0	0	0	0	0	0	0	0	0	0
29.1- 30.0	0	1	0	0	0	0	0	1	0	0	0	0
30.1- 31.0	0	0	1	0	0	0	0	0	0	0	0	0
31.1- 32.0	1	0	0	0	0	0	0	0	0	0	0	0
32.1- 33.0	0	0	0	0	0	0	0	0	0	0	0	0
33.1- 34.0	0	2	1	0	0	0	0	0	0	0	0	0
34.1- 35.0	0	2	0	0	0	0	0	0	1	0	0	0
35.1- 36.0	0	0	0	0	0	0	0	0	0	0	0	0
36.1- 37.0	0	0	0	0	0	0	1	0	0	0	0	0
37.1- 38.0	0	0	0	0	1	0	0	0	0	0	0	0
38.1- 39.0	0	0	1	0	0	0	0	0	0	0	0	0
TOTAL ANAL.	2	37	18	24	15	0	2	47	15	3	75	10
MEAN LENGTH	25.4	18.1	17.7	9.1	15.4	0	24.1	6.5	9.4	7.6	8.4	8.5
MIN. LENGTH	19.3	5.4	6.9	6.8	7.9	0	11.7	3.9	5.4	5.5	5.8	7.0
MAX. LENGTH	31.5	34.6	38.5	17.8	37.4	0	36.4	29.7	34.3	9.5	19.9	9.9

TABLE B-1.11. LENGTH-FREQUENCY OF WHITE PERCH, ROSETON GENERATING STATION, 1996.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2.1 - 3.0	0	0	0	0	0	0	0	1	0	0	0	0
3.1 - 4.0	0	0	0	0	0	0	0	9	1	0	1	0
4.1 - 5.0	0	0	0	0	0	0	1	11	1	12	22	1
5.1 - 6.0	3	0	0	0	4	3	0	19	0	11	66	13
6.1 - 7.0	11	7	1	9	29	8	0	9	0	5	89	38
7.1 - 8.0	23	11	9	59	80	23	0	1	0	0	93	86
8.1 - 9.0	13	14	8	22	35	15	1	0	0	0	17	38
9.1 - 10.0	5	5	4	2	6	4	3	2	0	0	4	5
10.1- 11.0	2	10	7	10	3	0	0	2	0	0	58	34
11.1- 12.0	9	20	7	18	2	3	0	1	1	0	37	34
12.1- 13.0	4	7	7	11	1	2	0	1	0	0	18	19
13.1- 14.0	7	6	6	4	0	4	0	0	0	0	14	45
14.1- 15.0	11	12	15	8	0	17	0	0	1	1	11	24
15.1- 16.0	19	16	4	2	1	8	0	1	0	0	6	30
16.1- 17.0	14	23	4	4	2	3	1	0	0	0	3	18
17.1- 18.0	11	16	6	0	0	7	0	0	0	0	5	7
18.1- 19.0	8	11	2	1	0	3	0	1	0	0	1	4
19.1- 20.0	3	5	1	1	0	0	0	0	0	0	0	0
20.1- 21.0	3	3	1	0	0	0	0	1	0	0	2	1
21.1- 22.0	1	2	0	0	0	1	0	0	0	0	0	0
22.1- 23.0	1	1	0	0	0	0	0	0	0	0	0	0
23.1- 24.0	0	1	0	0	0	0	0	0	0	0	0	0
24.1- 25.0	0	1	0	0	0	0	0	0	0	0	0	0
25.1- 26.0	0	0	0	0	0	0	0	0	0	0	0	0
26.1- 27.0	0	0	0	0	0	0	0	0	0	0	0	0
27.1- 28.0	0	1	0	0	0	0	0	0	0	0	0	0
28.1- 29.0	0	0	0	0	0	0	0	0	0	0	0	0
29.1- 30.0	0	0	0	0	0	0	0	0	0	0	0	0
30.1- 31.0	0	0	0	0	0	0	0	0	0	0	0	0
31.1- 32.0	0	1	0	0	0	0	0	0	0	0	0	0
TOTAL ANAL.	148	173	82	151	163	101	6	59	4	29	447	397
MEAN LENGTH	12.7	14.0	12.6	9.7	7.9	11.3	9.5	6.3	8.5	5.7	8.6	10.8
MIN. LENGTH	5.8	6.1	6.9	6.5	5.6	5.3	4.2	2.7	3.8	4.6	3.4	5.0
MAX. LENGTH	23.0	31.5	20.5	19.3	16.4	21.5	16.2	20.4	14.9	14.4	20.6	20.7

TABLE B-1.12. FREQUENCY DISTRIBUTION OF CARAPACE WIDTH FOR BLUE CRAB, ROSETON GENERATING STATION, 1996.

INTERVAL (CM)		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1.1 - 2.0		0	0	0	0	0	1	0	0	1	1	4	1
2.1 - 3.0		0	0	0	0	0	6	3	0	1	3	6	0
3.1 - 4.0		0	0	0	0	0	3	7	1	0	0	1	0
4.1 - 5.0		0	0	0	0	0	0	21	2	0	0	0	0
5.1 - 6.0		0	0	0	0	0	0	15	20	0	1	0	0
6.1 - 7.0		0	0	0	0	0	1	12	35	8	1	1	0
7.1 - 8.0		0	0	0	0	0	0	5	22	3	4	1	0
8.1 - 9.0		0	0	0	0	0	0	0	19	8	5	3	0
9.1 - 10.0		0	0	0	0	0	0	0	15	6	10	7	0
10.1- 11.0		0	0	0	0	0	0	1	7	5	10	4	0
11.1- 12.0		0	0	0	0	0	0	0	3	0	12	1	0
12.1- 13.0		0	0	0	0	0	0	0	3	3	6	5	0
13.1- 14.0		0	0	0	0	0	0	0	0	0	3	2	0
14.1- 15.0		0	0	0	0	0	0	0	0	1	3	0	0
15.1- 16.0		0	0	0	0	0	0	0	1	1	2	2	0
16.1- 17.0		0	0	0	0	0	0	0	0	0	1	0	0
	TOTAL ANAL.	0	0	0	0	0	11	64	128	37	62	37	1
	MEAN LENGTH	0	0	0	0	0	3.1	5.3	7.7	8.8	10.3	8.2	2.0
	MIN. LENGTH	0	0	0	0	0	1.4	2.9	3.6	1.7	1.5	1.7	2.0
	MAX. LENGTH	0	0	0	0	0	6.3	10.3	15.4	15.7	16.4	15.3	2.0

TABLE B-2.1. LENGTH-FREQUENCY OF ALEWIFE, DANSKAMMER POINT GENERATING STATION, 1996.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
3.1 - 4.0	0	0	0	0	0	0	1	3	0	0	0	0
4.1 - 5.0	0	0	0	0	0	0	7	29	3	0	0	0
5.1 - 6.0	0	0	0	0	0	0	5	131	97	28	2	0
6.1 - 7.0	0	0	0	0	0	0	1	61	87	53	5	0
7.1 - 8.0	0	1	0	0	0	0	0	11	30	66	22	1
8.1 - 9.0	0	10	1	0	0	0	0	5	3	51	7	1
9.1 - 10.0	0	1	0	0	0	1	1	10	6	5	1	20
10.1- 11.0	0	6	2	0	0	0	0	6	3	4	1	4
11.1- 12.0	0	11	0	0	0	0	1	2	3	1	1	0
12.1- 13.0	0	0	0	0	0	0	4	5	1	0	0	0
13.1- 14.0	0	0	0	0	0	2	2	8	1	0	0	0
14.1- 15.0	0	0	0	0	0	0	1	5	2	0	0	1
15.1- 16.0	0	0	0	0	0	0	2	5	1	0	0	2
16.1- 17.0	0	0	0	0	0	0	1	4	0	2	0	1
17.1- 18.0	0	0	0	0	0	1	0	1	1	0	0	0
18.1- 19.0	0	0	0	0	0	1	0	0	0	0	0	0
19.1- 20.0	0	0	0	0	0	0	0	0	0	0	0	0
20.1- 21.0	0	0	0	0	0	0	0	1	0	0	0	0
21.1- 22.0	0	0	0	0	0	0	0	0	0	0	0	0
22.1- 23.0	0	0	0	0	0	0	0	0	0	0	1	0
23.1- 24.0	0	0	0	0	0	0	0	0	0	0	0	0
24.1- 25.0	0	0	0	0	0	0	0	0	0	0	0	0
25.1- 26.0	0	0	0	1	0	3	0	0	0	0	0	0
26.1- 27.0	0	0	2	0	2	2	0	0	0	0	0	0
27.1- 28.0	0	0	1	2	1	2	0	0	0	0	0	0
28.1- 29.0	0	0	2	0	1	0	0	0	0	0	0	0
29.1- 30.0	0	0	0	0	0	0	0	0	0	0	0	0
30.1- 31.0	0	0	1	0	0	0	0	0	0	0	0	0
31.1- 32.0	0	0	1	0	0	1	0	0	0	0	0	0
TOTAL ANAL.	0	29	10	3	4	13	26	287	238	210	40	30
MEAN LENGTH	0	10.1	23.1	27.3	27.5	22.2	8.9	7.0	6.7	7.5	8.1	10.6
MIN. LENGTH	0	7.9	8.2	25.9	26.6	9.8	3.5	3.8	4.4	5.3	5.9	7.6
MAX. LENGTH	0	11.9	31.5	28.0	29.0	31.3	16.1	20.8	17.1	16.3	23.0	16.8

TABLE B-2.2. LENGTH-FREQUENCY OF AMERICAN SHAD, DANSKAMMER POINT GENERATING STATION, 1996.

INTERVAL (CM)		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2.1 - 3.0		0	0	0	0	0	0	8	1	0	0	0	0
3.1 - 4.0		0	0	0	0	0	0	27	13	0	0	0	0
4.1 - 5.0		0	0	0	0	0	0	19	36	5	0	0	0
5.1 - 6.0		0	0	0	0	0	0	14	69	65	8	0	0
6.1 - 7.0		0	0	0	0	0	0	4	47	77	88	8	0
7.1 - 8.0		0	0	0	0	0	0	1	20	34	81	20	0
8.1 - 9.0		0	0	0	0	0	0	0	2	17	21	3	0
9.1 - 10.0		0	0	0	0	0	0	0	0	0	3	0	0
10.1- 11.0		0	0	0	0	0	0	0	0	0	1	0	0
11.1- 12.0		0	0	0	0	0	0	0	0	1	1	0	0
	TOTAL ANAL.	0	0	0	0	0	0	73	188	199	203	31	0
	MEAN LENGTH	0	0	0	0	0	0	4.3	5.7	6.5	7.2	7.4	0
	MIN. LENGTH	0	0	0	0	0	0	2.4	2.8	4.8	5.6	6.4	0
	MAX. LENGTH	0	0	0	0	0	0	7.6	8.5	11.1	11.3	8.9	0

TABLE B-2.3. LENGTH-FREQUENCY OF ATLANTIC TOMCOD, DANSKAMMER POINT GENERATING STATION, 1996.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
5.1 - 6.0	0	0	0	0	2	1	0	0	0	0	0	0
6.1 - 7.0	0	0	0	0	1	26	2	3	0	0	0	0
7.1 - 8.0	0	0	0	0	0	76	25	22	14	1	0	0
8.1 - 9.0	0	0	0	0	0	29	55	85	29	2	0	0
9.1 - 10.0	0	0	0	0	0	4	33	96	35	5	0	0
10.1- 11.0	0	0	0	0	0	0	5	20	8	6	7	0
11.1- 12.0	0	0	0	0	0	0	0	0	0	4	5	6
12.1- 13.0	0	0	0	0	0	0	0	0	0	1	21	33
13.1- 14.0	0	0	0	0	0	0	0	0	0	0	21	53
14.1- 15.0	2	0	0	0	0	0	0	0	1	0	12	58
15.1- 16.0	0	0	0	0	0	0	0	0	0	0	5	24
16.1- 17.0	0	1	0	0	0	0	0	0	0	0	3	9
17.1- 18.0	0	2	0	0	0	0	0	0	0	0	0	14
18.1- 19.0	1	0	0	0	0	0	0	0	0	0	0	3
19.1- 20.0	0	1	1	0	0	0	0	0	0	0	0	2
20.1- 21.0	0	0	0	0	0	0	0	0	0	0	0	1
21.1- 22.0	0	0	0	0	0	0	0	0	0	0	0	0
22.1- 23.0	0	0	0	0	0	0	0	0	0	0	0	1
23.1- 24.0	0	0	0	0	0	0	0	0	0	0	0	1
24.1- 25.0	0	0	0	0	0	0	0	0	0	0	0	0
25.1- 26.0	0	0	0	0	0	0	0	0	0	0	0	0
26.1- 27.0	0	0	0	0	0	0	0	0	0	0	0	1
27.1- 28.0	0	0	0	0	0	0	0	0	0	0	0	0
28.1- 29.0	0	0	0	0	0	0	0	0	0	0	0	1
TOTAL ANAL.	3	4	1	0	3	136	120	226	87	19	74	207
MEAN LENGTH	16.0	17.7	19.9	0	6.0	7.6	8.7	9.0	9.1	10.3	13.3	14.6
MIN. LENGTH	14.7	16.5	19.9	0	5.9	5.6	7.0	6.5	7.2	7.8	10.5	11.1
MAX. LENGTH	18.2	19.6	19.9	0	6.2	9.3	10.4	11.0	14.2	12.7	16.7	28.1

TABLE B-2.4. LENGTH-FREQUENCY OF BLUEBACK HERRING, DANSKAMMER POINT GENERATING STATION, 1996.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2.1 - 3.0	0	0	0	0	0	0	0	1	1	0	0	0
3.1 - 4.0	0	0	0	0	0	0	3	53	27	0	0	0
4.1 - 5.0	0	0	0	0	0	0	12	30	32	11	2	0
5.1 - 6.0	0	0	0	0	0	0	4	3	11	28	19	0
6.1 - 7.0	0	0	0	0	0	0	0	0	2	53	36	0
7.1 - 8.0	0	0	0	0	0	0	0	0	0	86	10	0
8.1 - 9.0	0	0	0	0	0	0	0	0	0	22	6	0
9.1 - 10.0	0	0	0	0	0	0	0	0	0	3	0	0
10.1- 11.0	0	0	0	0	0	0	0	0	0	2	1	0
11.1- 12.0	0	0	0	0	0	0	0	0	0	0	0	0
12.1- 13.0	0	0	0	0	0	1	0	0	0	0	0	0
13.1- 14.0	0	0	0	0	0	0	0	0	0	0	0	0
14.1- 15.0	0	0	0	0	0	0	0	0	0	0	0	0
15.1- 16.0	0	0	0	0	0	0	0	0	0	0	0	0
16.1- 17.0	0	0	0	0	0	0	0	0	0	0	0	0
17.1- 18.0	0	0	0	0	0	0	0	0	0	0	0	0
18.1- 19.0	0	0	0	0	0	0	0	0	0	0	0	0
19.1- 20.0	0	0	0	0	0	0	0	0	0	0	0	0
20.1- 21.0	0	0	0	0	0	0	0	0	0	0	0	0
21.1- 22.0	0	0	0	0	0	0	0	0	0	0	0	0
22.1- 23.0	0	0	0	0	1	1	0	0	0	0	0	0
23.1- 24.0	0	0	0	0	0	2	0	0	0	0	0	0
24.1- 25.0	0	0	0	0	0	10	0	0	0	0	0	0
25.1- 26.0	0	0	0	0	4	12	2	1	0	0	0	0
26.1- 27.0	0	0	0	0	2	10	0	0	0	0	0	0
27.1- 28.0	0	0	0	0	1	6	0	0	0	0	0	0
28.1- 29.0	0	0	0	0	0	2	0	0	0	0	0	0
TOTAL ANAL.	0	0	0	0	8	44	21	88	73	205	74	0
MEAN LENGTH	0	0	0	0	25.9	25.5	6.6	4.1	4.4	7.0	6.6	0
MIN. LENGTH	0	0	0	0	22.9	12.9	3.1	3.0	3.0	4.1	4.6	0
MAX. LENGTH	0	0	0	0	27.7	28.7	26.0	25.1	7.0	10.6	10.2	0

TABLE B-2.5. LENGTH-FREQUENCY OF GIZZARD SHAD, DANSKAMMER POINT GENERATING STATION, 1996.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
6.1 - 7.0	0	0	0	0	0	0	0	0	0	0	1	0
7.1 - 8.0	0	0	0	0	0	0	1	0	0	4	8	0
8.1 - 9.0	0	0	0	0	0	0	0	0	0	4	16	2
9.1 - 10.0	0	0	0	0	0	0	0	1	0	7	12	2
10.1- 11.0	0	0	0	0	0	0	0	1	0	27	73	7
11.1- 12.0	4	0	0	0	0	0	0	0	0	19	131	45
12.1- 13.0	5	0	0	0	0	0	0	0	0	4	87	85
13.1- 14.0	4	0	0	0	0	0	0	0	0	0	37	42
14.1- 15.0	4	0	0	0	0	0	0	0	0	0	19	27
15.1- 16.0	0	0	0	0	0	0	0	0	0	0	13	25
16.1- 17.0	0	0	0	0	0	0	0	0	0	0	9	28
17.1- 18.0	1	0	0	0	0	0	0	0	0	0	6	19
18.1- 19.0	2	0	0	0	0	0	0	0	0	0	8	23
19.1- 20.0	1	0	0	0	0	0	0	0	0	0	4	25
20.1- 21.0	0	0	0	0	0	0	0	0	0	0	7	19
21.1- 22.0	1	0	0	0	0	0	0	0	0	0	4	12
22.1- 23.0	1	0	0	0	0	0	0	0	0	0	5	13
23.1- 24.0	0	0	0	0	0	0	0	0	0	0	0	6
24.1- 25.0	0	0	0	0	0	0	0	0	0	0	0	5
25.1- 26.0	0	0	0	0	0	0	0	0	0	0	1	2
26.1- 27.0	0	0	0	0	0	0	0	0	0	0	0	2
27.1- 28.0	0	0	0	0	0	0	0	0	0	0	1	0
28.1- 29.0	0	0	0	0	0	0	0	0	0	0	0	0
29.1- 30.0	0	0	0	0	0	0	0	0	0	0	0	0
30.1- 31.0	0	0	0	0	0	0	0	0	0	0	0	0
31.1- 32.0	0	0	0	0	0	0	0	0	0	0	0	0
32.1- 33.0	0	0	0	0	0	0	0	0	0	0	0	0
33.1- 34.0	0	0	0	0	0	0	0	0	0	0	0	0
34.1- 35.0	0	0	0	0	0	0	0	0	0	0	0	0
35.1- 36.0	0	0	0	0	0	0	0	0	0	0	0	0
36.1- 37.0	0	1	0	0	0	0	0	0	0	0	0	0
37.1- 38.0	0	2	0	0	0	0	0	0	0	0	0	0
38.1- 39.0	1	4	0	0	0	0	0	0	0	0	0	0
39.1- 40.0	1	2	0	0	0	0	0	0	0	0	0	0
40.1- 41.0	3	4	1	0	0	0	0	0	0	0	0	0
41.1- 42.0	12	15	0	0	0	0	0	0	0	0	0	0
42.1- 43.0	15	25	3	0	0	0	0	0	0	0	0	0
43.1- 44.0	23	29	4	0	0	0	0	0	0	0	0	1
44.1- 45.0	26	46	3	0	0	0	0	0	0	0	0	0
45.1- 46.0	29	32	0	1	0	0	0	0	0	0	0	1
46.1- 47.0	26	59	3	0	0	0	0	0	0	0	0	0
47.1- 48.0	36	55	4	0	0	0	0	0	0	0	0	0
48.1- 49.0	26	45	1	0	0	0	0	0	1	0	0	0
49.1- 50.0	9	25	0	0	0	0	0	0	0	0	0	0
50.1- 51.0	8	20	3	0	0	0	0	0	0	0	0	0
51.1- 52.0	5	6	2	0	0	0	0	0	0	0	0	0
52.1- 53.0	2	5	0	0	0	0	0	0	0	0	0	0
53.1- 54.0	1	0	0	0	0	0	0	0	0	0	0	0
TOTAL ANAL.	246	375	24	1	0	0	1	2	1	65	442	391
MEAN LENGTH	43.1	46.2	46.2	45.1	0	0	7.2	10.0	48.6	10.6	12.6	15.8
MIN. LENGTH	11.6	36.5	40.5	45.1	0	0	7.2	9.6	48.6	7.2	6.6	8.4
MAX. LENGTH	53.7	52.9	51.9	45.1	0	0	7.2	10.3	48.6	12.8	27.3	45.7

TABLE B-2.6. LENGTH-FREQUENCY OF PUMPKINSEED, DANSKAMMER POINT GENERATING STATION, 1996.

INTERVAL (CM)		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
3.1 - 4.0		0	0	0	0	0	0	0	0	0	2	0	0
4.1 - 5.0		1	2	2	1	0	0	0	0	3	4	2	0
5.1 - 6.0		3	10	2	8	2	2	0	0	12	28	2	0
6.1 - 7.0		7	23	8	16	4	1	0	0	22	33	2	1
7.1 - 8.0		6	21	5	11	10	5	5	0	6	13	2	0
8.1 - 9.0		3	5	0	6	4	9	6	2	1	2	0	0
9.1 - 10.0		0	1	1	1	0	3	6	0	1	4	0	0
10.1- 11.0		1	0	0	6	9	7	2	2	4	3	1	0
11.1- 12.0		2	6	1	11	16	18	7	2	0	4	1	0
12.1- 13.0		3	3	0	12	32	23	9	4	0	0	0	0
13.1- 14.0		3	4	4	12	15	19	10	2	1	4	0	1
14.1- 15.0		1	11	1	9	16	23	7	1	0	5	0	1
15.1- 16.0		0	7	2	6	14	15	1	1	0	3	0	0
16.1- 17.0		0	2	0	4	9	6	2	1	1	2	0	1
17.1- 18.0		0	2	0	2	4	4	1	1	1	0	0	0
18.1- 19.0		0	0	0	1	3	0	0	0	1	0	0	0
19.1- 20.0		0	0	1	1	1	2	0	0	0	0	0	0
	TOTAL ANAL.	30	97	27	107	139	137	56	16	53	107	10	4
	MEAN LENGTH	8.8	9.6	9.3	10.9	12.8	12.9	11.8	12.7	7.5	7.8	7.0	12.8
	MIN. LENGTH	4.5	4.7	4.4	4.5	5.6	6.0	7.1	8.1	4.4	3.9	4.1	6.8
	MAX. LENGTH	14.5	18.0	19.2	19.5	19.9	20.0	17.5	17.5	19.0	16.4	11.6	16.4

TABLE B-2.7. LENGTH-FREQUENCY OF SPOTTAIL SHINER, DANSKAMMER POINT GENERATING STATION, 1996.

INTERVAL (CM)		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2.1 - 3.0		0	0	0	0	0	0	4	0	0	0	0	0
3.1 - 4.0		0	0	0	0	0	0	0	5	0	0	0	0
4.1 - 5.0		0	0	1	0	0	0	0	7	2	0	2	0
5.1 - 6.0		3	1	7	5	5	0	1	5	4	5	36	10
6.1 - 7.0		8	28	31	23	32	4	0	0	1	31	96	24
7.1 - 8.0		15	43	48	53	28	36	24	9	1	35	86	26
8.1 - 9.0		7	28	32	41	9	53	97	73	6	5	17	14
9.1 - 10.0		23	45	47	71	9	30	29	83	9	25	84	25
10.1- 11.0		59	109	118	136	30	50	30	41	14	48	105	73
11.1- 12.0		18	50	53	19	12	15	8	11	6	10	29	15
12.1- 13.0		0	3	2	1	1	2	0	0	0	1	2	1
	TOTAL ANAL.	133	307	339	349	126	190	193	234	43	160	457	188
	MEAN LENGTH	9.7	9.6	9.5	9.4	8.5	9.3	8.9	9.1	9.3	8.8	8.5	9.2
	MIN. LENGTH	5.6	5.8	5.0	5.1	5.4	6.8	2.4	3.2	4.6	5.1	4.6	5.4
	MAX. LENGTH	12.0	12.4	12.2	12.2	12.2	12.2	11.7	12.0	11.8	12.4	12.6	12.2

TABLE B-2.8. LENGTH-FREQUENCY OF STRIPED BASS, DANSKAMMER POINT GENERATING STATION, 1996.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1.1 - 2.0	0	0	0	0	0	1	22	0	0	0	0	0
2.1 - 3.0	0	0	0	0	0	1	84	2	2	0	0	0
3.1 - 4.0	0	0	0	0	0	0	31	1	1	0	0	0
4.1 - 5.0	0	0	0	0	0	0	37	15	4	1	3	0
5.1 - 6.0	0	0	0	0	0	0	36	57	13	7	1	3
6.1 - 7.0	0	0	0	0	0	0	19	138	91	23	16	3
7.1 - 8.0	0	0	0	0	0	2	6	99	119	30	21	4
8.1 - 9.0	0	0	0	0	0	5	0	70	56	5	5	0
9.1 - 10.0	0	0	0	0	0	3	0	46	12	5	0	1
10.1- 11.0	0	0	0	1	0	4	2	5	7	1	0	0
11.1- 12.0	0	0	0	0	0	2	2	0	2	2	3	0
12.1- 13.0	2	0	0	0	0	3	2	1	0	0	1	0
13.1- 14.0	0	0	0	0	1	5	1	1	0	1	1	1
14.1- 15.0	0	0	0	0	0	2	2	3	0	0	0	0
15.1- 16.0	0	0	0	0	0	0	0	3	0	0	1	1
16.1- 17.0	0	0	0	0	1	1	0	0	0	0	0	0
17.1- 18.0	0	0	0	0	1	0	2	1	1	2	0	0
18.1- 19.0	0	0	0	0	0	0	0	1	0	0	2	0
19.1- 20.0	0	0	0	1	0	0	1	0	0	1	1	2
20.1- 21.0	0	0	0	0	0	0	0	1	0	1	1	0
21.1- 22.0	1	0	0	0	0	0	0	0	0	0	3	0
22.1- 23.0	1	0	0	0	0	0	0	0	0	0	2	0
23.1- 24.0	0	0	0	0	0	0	0	0	0	0	2	0
24.1- 25.0	0	0	0	0	0	0	0	1	0	0	2	0
25.1- 26.0	0	0	0	0	0	0	0	0	0	0	1	0
26.1- 27.0	0	0	0	0	0	0	0	0	0	0	1	0
27.1- 28.0	0	0	0	0	0	0	0	0	0	0	1	0
28.1- 29.0	0	0	0	0	0	0	0	0	0	0	0	0
29.1- 30.0	1	0	0	0	0	0	0	0	0	0	0	0
30.1- 31.0	0	1	0	0	0	0	0	0	0	0	0	0
31.1- 32.0	0	1	0	0	0	0	0	0	0	0	0	0
32.1- 33.0	0	0	0	0	0	0	0	1	0	0	0	0
33.1- 34.0	0	0	0	0	0	0	0	0	0	0	0	0
34.1- 35.0	0	0	0	0	0	0	0	0	0	0	1	0
35.1- 36.0	1	0	0	0	0	0	0	0	0	0	0	0
36.1- 37.0	0	0	0	0	0	0	0	0	0	0	0	0
37.1- 38.0	0	0	0	0	0	0	0	0	0	0	0	1
38.1- 39.0	0	0	0	0	0	0	0	0	0	0	0	0
39.1- 40.0	1	0	0	0	0	0	0	0	0	0	0	0
40.1- 41.0	0	1	0	0	0	0	0	0	0	0	0	0
41.1- 42.0	0	0	0	0	0	0	0	0	0	0	0	0
42.1- 43.0	0	0	0	0	0	0	0	0	0	0	0	0
43.1- 44.0	0	0	0	0	0	0	0	0	0	0	0	0
44.1- 45.0	0	0	0	0	0	0	0	0	0	0	0	0
45.1- 46.0	0	0	0	0	0	0	0	0	0	0	0	2
TOTAL ANAL.	7	3	0	2	3	29	247	446	308	79	69	18
MEAN LENGTH	24.7	33.8	0	15.1	16.0	10.7	4.3	7.6	7.5	8.1	11.6	15.2
MIN. LENGTH	12.6	30.2	0	11.0	13.4	1.9	1.4	2.4	2.3	4.8	4.4	5.6
MAX. LENGTH	39.4	40.2	0	19.2	18.0	16.3	19.9	32.5	17.4	20.4	34.6	45.7

TABLE B-2.9. LENGTH-FREQUENCY OF WHITE CATFISH, DANSKAMMER POINT GENERATING STATION, 1996.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2.1 - 3.0	0	0	0	0	0	0	2	1	0	0	0	0
3.1 - 4.0	0	0	0	0	0	0	0	2	0	0	0	0
4.1 - 5.0	0	0	0	0	0	0	0	14	0	0	0	0
5.1 - 6.0	0	0	0	3	0	0	0	91	21	3	5	1
6.1 - 7.0	0	0	1	8	3	2	1	83	83	10	12	5
7.1 - 8.0	2	2	2	5	5	9	2	9	118	71	62	8
8.1 - 9.0	5	5	3	12	8	6	12	0	37	94	124	17
9.1 - 10.0	3	6	5	18	10	17	15	2	6	50	78	9
10.1- 11.0	2	4	3	7	2	5	11	0	0	4	14	0
11.1- 12.0	1	0	0	1	1	5	24	9	0	0	1	0
12.1- 13.0	0	0	0	1	0	2	13	14	1	0	0	0
13.1- 14.0	0	2	1	0	0	0	4	6	2	0	0	0
14.1- 15.0	0	2	0	0	1	0	1	2	2	1	0	0
15.1- 16.0	2	2	1	1	1	0	1	3	1	2	3	1
16.1- 17.0	1	4	4	2	2	2	1	1	1	0	5	1
17.1- 18.0	1	7	3	1	0	0	1	0	1	0	1	0
18.1- 19.0	0	4	1	1	0	0	0	0	0	0	1	0
19.1- 20.0	2	1	2	1	0	1	0	0	1	0	0	0
20.1- 21.0	1	2	1	0	0	0	0	3	1	0	1	1
21.1- 22.0	1	0	0	0	0	0	0	0	3	0	2	0
22.1- 23.0	1	3	1	0	0	0	0	0	0	0	0	0
23.1- 24.0	1	1	0	0	0	0	0	0	0	0	0	1
24.1- 25.0	1	2	1	0	0	0	0	0	0	0	0	0
25.1- 26.0	1	0	0	0	0	0	0	0	0	0	0	0
26.1- 27.0	2	0	0	0	0	0	0	0	0	0	0	0
27.1- 28.0	0	3	0	0	0	0	0	0	0	0	0	0
28.1- 29.0	0	1	0	0	0	0	0	0	0	0	0	0
29.1- 30.0	1	1	2	0	0	0	0	0	0	0	0	0
30.1- 31.0	1	5	0	0	0	0	0	0	0	0	0	0
31.1- 32.0	0	2	0	0	0	0	0	0	0	0	1	0
32.1- 33.0	0	2	0	2	0	1	0	2	1	0	1	0
33.1- 34.0	0	2	0	1	0	0	0	1	0	0	0	0
34.1- 35.0	0	1	0	1	0	0	0	1	1	0	0	0
35.1- 36.0	0	1	1	0	0	0	0	0	1	0	0	0
36.1- 37.0	1	2	1	0	0	0	0	0	0	0	0	0
37.1- 38.0	0	2	0	2	0	0	0	0	0	0	0	0
38.1- 39.0	0	3	0	0	0	0	0	0	0	0	0	0
39.1- 40.0	0	1	0	0	0	0	1	0	0	0	0	0
40.1- 41.0	0	3	1	1	0	0	0	0	0	0	0	0
41.1- 42.0	0	1	1	2	0	0	0	0	0	0	0	0
42.1- 43.0	0	0	1	0	0	0	1	0	1	0	0	0
43.1- 44.0	0	2	0	1	0	0	0	0	0	0	0	0
44.1- 45.0	0	5	0	1	0	0	0	1	0	0	0	0
45.1- 46.0	1	0	0	0	1	0	0	0	0	0	0	0
46.1- 47.0	0	0	0	0	0	0	0	0	0	0	0	0
47.1- 48.0	0	0	0	0	0	0	0	0	0	0	0	0
48.1- 49.0	0	1	1	0	0	0	0	0	0	0	0	0
49.1- 50.0	0	0	0	0	0	0	1	0	0	0	0	0
50.1- 51.0	0	0	1	0	0	0	0	0	0	0	0	0
51.1- 52.0	0	0	0	0	0	0	0	0	0	0	0	0
52.1- 53.0	0	0	0	0	0	0	0	0	0	0	0	0
53.1- 54.0	0	1	0	0	0	0	0	0	0	0	0	0
TOTAL ANAL.	31	86	38	72	34	50	91	245	282	235	311	44
MEAN LENGTH	17.9	25.0	19.9	13.9	10.7	10.3	11.8	7.8	8.1	8.5	9.1	9.3
MIN. LENGTH	7.1	7.8	6.9	5.3	6.5	6.7	2.5	2.8	5.2	5.8	5.4	5.8
MAX. LENGTH	45.5	53.9	50.9	44.1	45.8	32.2	49.1	44.4	42.6	15.9	32.5	23.6

TABLE B-2.10. LENGTH-FREQUENCY OF WHITE PERCH, DANSKAMMER POINT GENERATING STATION, 1996.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1.1 - 2.0	0	0	0	0	0	0	2	1	1	0	0	0
2.1 - 3.0	0	0	0	0	0	0	6	6	0	0	0	0
3.1 - 4.0	0	0	0	0	0	0	8	7	1	1	1	0
4.1 - 5.0	0	0	0	1	0	0	7	21	22	33	15	1
5.1 - 6.0	3	0	0	3	0	0	1	68	55	95	44	7
6.1 - 7.0	7	1	2	26	27	20	2	19	53	84	101	32
7.1 - 8.0	17	7	14	147	130	105	26	0	22	65	133	98
8.1 - 9.0	8	16	16	64	94	141	96	29	6	15	50	76
9.1 - 10.0	4	6	6	10	10	43	115	146	24	12	17	6
10.1- 11.0	1	5	8	28	14	16	30	134	47	47	103	42
11.1- 12.0	6	29	29	59	50	40	45	66	25	37	87	58
12.1- 13.0	4	9	27	41	24	41	50	69	23	13	53	52
13.1- 14.0	9	22	27	29	17	44	55	66	15	13	54	105
14.1- 15.0	14	25	35	36	12	58	74	91	22	13	81	86
15.1- 16.0	20	32	40	27	9	65	46	73	22	9	84	88
16.1- 17.0	17	34	18	28	12	39	39	60	16	5	43	59
17.1- 18.0	12	31	12	18	10	43	18	48	3	4	23	30
18.1- 19.0	7	20	13	14	7	27	20	22	4	1	6	9
19.1- 20.0	6	11	5	11	4	14	5	13	1	0	2	4
20.1- 21.0	4	6	2	9	4	7	8	11	0	0	3	3
21.1- 22.0	1	7	2	4	3	4	1	7	1	0	1	3
22.1- 23.0	1	7	2	0	3	4	3	0	0	0	3	1
23.1- 24.0	2	6	2	0	1	0	1	5	0	0	0	1
24.1- 25.0	0	2	1	0	2	1	0	0	0	1	1	0
25.1- 26.0	1	1	1	0	0	0	0	1	1	0	0	0
26.1- 27.0	0	2	0	0	0	0	0	1	0	0	0	0
27.1- 28.0	1	1	1	0	0	0	0	0	0	0	0	0
28.1- 29.0	1	0	0	1	0	0	0	0	0	0	0	0
29.1- 30.0	0	0	0	0	0	0	0	0	0	0	0	0
30.1- 31.0	0	0	0	0	0	0	0	0	0	0	0	0
31.1- 32.0	0	1	0	0	0	0	0	0	0	0	0	0
32.1- 33.0	0	1	0	0	0	0	1	0	0	0	0	0
TOTAL ANAL.	146	282	263	556	433	712	659	964	364	448	905	761
MEAN LENGTH	14.1	15.6	13.9	11.4	10.4	12.2	12.1	12.2	9.9	8.4	11.1	12.4
MIN. LENGTH	5.7	6.4	6.2	4.7	6.3	6.1	1.6	2.0	2.0	4.0	3.9	4.6
MAX. LENGTH	28.6	32.8	27.4	28.4	24.2	24.9	32.1	26.1	25.1	24.1	24.1	23.4

TABLE B-2.11. FREQUENCY DISTRIBUTION OF CARAPACE WIDTH FOR BLUE CRAB, DANSKAMMER POINT GENERATING STATION, 1996.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0.1 - 1.0	0	0	0	0	0	0	0	0	0	3	2	0
1.1 - 2.0	0	0	0	0	0	1	0	0	6	6	4	0
2.1 - 3.0	0	0	0	0	0	3	2	0	3	12	12	0
3.1 - 4.0	0	0	0	0	0	1	6	0	0	0	1	0
4.1 - 5.0	0	0	0	0	0	1	12	4	0	0	1	0
5.1 - 6.0	0	0	0	0	0	1	22	11	2	0	1	0
6.1 - 7.0	0	0	0	0	0	0	24	29	5	2	2	0
7.1 - 8.0	0	0	0	0	0	0	8	25	10	2	5	0
8.1 - 9.0	0	0	0	0	0	0	2	25	14	12	6	0
9.1 - 10.0	0	0	0	0	0	0	2	15	15	16	4	0
10.1- 11.0	0	0	0	0	0	0	0	6	15	21	3	0
11.1- 12.0	0	0	0	0	0	0	0	3	12	13	6	0
12.1- 13.0	0	0	0	0	0	0	0	0	17	15	4	0
13.1- 14.0	0	0	0	0	0	0	0	0	12	14	5	0
14.1- 15.0	0	0	0	0	0	0	0	0	5	9	2	0
15.1- 16.0	0	0	0	0	0	0	0	0	5	7	2	0
16.1- 17.0	0	0	0	0	0	0	0	0	2	0	0	0
TOTAL ANAL.	0	0	0	0	0	7	78	118	123	132	60	0
MEAN LENGTH	0	0	0	0	0	3.4	5.8	7.7	10.2	9.9	7.8	0
MIN. LENGTH	0	0	0	0	0	1.6	2.8	4.4	1.1	0.9	0.7	0
MAX. LENGTH	0	0	0	0	0	5.2	9.5	11.4	16.2	15.6	15.4	0

APPENDIX C

ESTIMATED IMPINGEMENT ABUNDANCE

LIST OF APPENDIX C TABLES

C-1.1. Estimated weekly abundance of all fish species, Roseton Generating Station, 1996.

C-1.2. Estimated weekly abundance of alewife, Roseton Generating Station, 1996.

C-1.3. Estimated weekly abundance of American eel, Roseton Generating Station, 1996.

C-1.4. Estimated weekly abundance of American shad, Roseton Generating Station, 1996.

C-1.5. Estimated weekly abundance of Atlantic tomcod, Roseton Generating Station, 1996.

C-1.6. Estimated weekly abundance of bay anchovy, Roseton Generating Station, 1996.

C-1.7. Estimated weekly abundance of blueback herring, Roseton Generating Station, 1996.

C-1.8. Estimated weekly abundance of brown bullhead, Roseton Generating Station, 1996.

C-1.9. Estimated weekly abundance of channel catfish, Roseton Generation Station, 1996.

C-1.10. Estimated weekly abundance of gizzard shad, Roseton Generating Station, 1996.

C-1.11. Estimated weekly abundance of golden shiner, Roseton Generating Station, 1996.

C-1.12. Estimated weekly abundance of hogchoker, Roseton Generating Station, 1996.

C-1.13. Estimated weekly abundance of pumpkinseed, Roseton Generating Station, 1996.

C-1.14. Estimated weekly abundance of rainbow smelt, Roseton Generating Station, 1996.

C-1.15. Estimated weekly abundance of spottail shiner, Roseton Generating Station, 1996.

C-1.16. Estimated weekly abundance of striped bass, Roseton Generating Station, 1996.

C-1.17. Estimated weekly abundance of white catfish, Roseton Generating Station, 1996.

C-1.18. Estimated weekly abundance of white perch, Roseton Generating Station, 1996.

C-1.19. Estimated weekly abundance of yellow perch, Roseton Generating Station, 1996.

C-1.20. Estimated weekly abundance of blue crab, Roseton Generating Station, 1996.

C-2.1. Estimated weekly abundance of all fish species, Danskammer Point Generating Station, 1996.

C-2.2. Estimated weekly abundance of alewife, Danskammer Point Generating Station, 1996.

C-2.3. Estimated weekly abundance of American shad, Danskammer Point Generating Station, 1996.

C-2.4. Estimated weekly abundance of Atlantic tomcod, Danskammer Point Generating Station, 1996.

C-2.5. Estimated weekly abundance of bay anchovy, Danskammer Point Generating Station, 1996.

C-2.6. Estimated weekly abundance of blueback herring, Danskammer Point Generating Station, 1996.

C-2.7 Estimated weekly abundance of gizzard shad, Danskammer Point Generating Station, 1996.

C-2.8. Estimated weekly abundance of golden shiner, Danskammer Point Generating Station, 1996.

C-2.9. Estimated weekly abundance of pumpkinseed, Danskammer Point Generating Station, 1996.

C-2.10. Estimated weekly abundance of rainbow smelt, Danskammer Point Generating Station, 1996.

C-2.11. Estimated weekly abundance of spottail shiner, Danskammer Point Generating Station, 1996.

C-2.12. Estimated weekly abundance of striped bass, Danskammer Point Generating Station, 1996.

C-2.13. Estimated weekly abundance of white catfish, Danskammer Point Generating Station, 1996.

C-2.14. Estimated weekly abundance of white perch, Danskammer Point Generating Station, 1996.

C-2.15. Estimated weekly abundance of yellow perch, Danskammer Point Generating Station, 1996.

C-2.16. Estimated weekly abundance of blue crab, Danskammer Point Generating Station, 1996.

APPENDIX TABLE C-1.1. ESTIMATED WEEKLY ABUNDANCE OF ALL FISH SPECIES, ROSETON GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	101	544.80	0.1854	3796.80	704	
	2	35	531.10	0.0659	3796.80	250	
	3	48	531.10	0.0904	3950.40	357	
	4	364	542.40	0.6711	5421.60	3638	
	MONTHLY EST.			0.2532	16965.60		4296
FEBRUARY	1	346	542.40	0.6379	3796.80	2422	
	2	93	531.10	0.1751	3825.60	670	
	3	101	542.40	0.1862	3890.40	724	
	4	338	1118.40	0.3022	4406.40	1332	
	MONTHLY EST.			0.3254	15919.20		5179
MARCH	1	247	542.40	0.4554	3796.80	1729	
	2	105	542.40	0.1936	3796.80	735	
	3	116	542.40	0.2139	3796.80	812	
	4	54	309.60	0.1744	3604.80	629	
	MONTHLY EST.			0.2593	14995.20		3888
APRIL	1	112	309.60	0.3618	2162.40	782	
	2	56	311.89	0.1804	2174.40	392	
	3	86	269.23	0.3194	2150.40	687	
	4	336	307.20	1.0938	2764.80	3024	
	MONTHLY EST.			0.4888	9252.00		4523
MAY	1	114	307.20	0.3711	2150.40	798	
	2	100	307.20	0.3255	2150.40	700	
	3	85	307.20	0.2767	2484.00	687	
	4	153	824.40	0.1856	3698.40	686	
	MONTHLY EST.			0.2897	10483.20		3037
JUNE	1	24	307.20	0.0781	2167.20	169	
	2	102	542.40	0.1881	3441.60	647	
	3	28	460.20	0.0608	3108.00	189	
	4	2	314.40	0.0064	2829.60	18	
	MONTHLY EST.			0.0833	11546.40		962
JULY	1	12	314.40	0.0382	2200.80	84	
	2	3	309.82	0.0097	2832.00	27	
	3	10	537.88	0.0186	3110.40	58	
	4	1	292.79	0.0034	3144.00	11	
	MONTHLY EST.			0.0175	11287.20		197
AUGUST	1	6	309.60	0.0194	2978.40	58	
	2	71	542.40	0.1309	2748.00	360	
	3	9	314.40	0.0286	2808.00	80	
	4	1642	807.93	2.0323	3936.00	7999	
	MONTHLY EST.			0.5528	12470.40		6894
SEPTEMBER	1	26	314.40	0.0827	2200.80	182	
	2	21	313.20	0.0670	2198.40	147	
	3	11	314.40	0.0350	2200.80	77	
	4	14	314.40	0.0445	2829.60	126	
	MONTHLY EST.			0.0573	9429.60		540
OCTOBER	1	14	314.40	0.0445	2200.80	98	
	2	14	314.40	0.0445	2200.80	98	
	3	10	314.40	0.0318	2200.80	70	
	4	125	624.43	0.2002	3144.00	629	
	MONTHLY EST.			0.0803	9746.40		782
NOVEMBER	1	947	440.25	2.1511	3079.20	6624	
	2	81	314.40	0.2576	2200.80	567	
	3	1275	443.34	2.8759	3064.80	8814	
	4	301	298.24	1.0092	3055.20	3083	
	MONTHLY EST.			1.5735	11400.00		17937
DECEMBER	1	604	570.86	1.0581	3864.00	4088	
	2	445	542.40	0.8204	3571.20	2930	
	3	142	542.40	0.2618	3319.20	869	
	4	187	549.60	0.3402	4466.40	1520	
	MONTHLY EST.			0.6201	15220.80		9439

APPENDIX TABLE C-1.2. ESTIMATED WEEKLY ABUNDANCE OF ALEWIFE, ROSETON GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	544.80	0.0000	3796.80	0	
	2	0	531.10	0.0000	3796.80	0	
	3	0	531.10	0.0000	3950.40	0	
	4	3	542.40	0.0055	5421.60	30	
	MONTHLY EST.			0.0014	16965.60		23
FEBRUARY	1	95	542.40	0.1751	3796.80	665	
	2	2	531.10	0.0038	3825.60	14	
	3	0	542.40	0.0000	3890.40	0	
	4	11	1118.40	0.0098	4406.40	43	
	MONTHLY EST.			0.0472	15919.20		751
MARCH	1	2	542.40	0.0037	3796.80	14	
	2	0	542.40	0.0000	3796.80	0	
	3	0	542.40	0.0000	3796.80	0	
	4	3	309.60	0.0097	3604.80	35	
	MONTHLY EST.			0.0033	14995.20		50
APRIL	1	0	309.60	0.0000	2162.40	0	
	2	0	311.89	0.0000	2174.40	0	
	3	0	269.23	0.0000	2150.40	0	
	4	1	307.20	0.0033	2764.80	9	
	MONTHLY EST.			0.0008	9252.00		8
MAY	1	0	307.20	0.0000	2150.40	0	
	2	0	307.20	0.0000	2150.40	0	
	3	0	307.20	0.0000	2484.00	0	
	4	2	824.40	0.0024	3698.40	9	
	MONTHLY EST.			0.0006	10483.20		6
JUNE	1	0	307.20	0.0000	2167.20	0	
	2	1	542.40	0.0018	3441.60	6	
	3	0	460.20	0.0000	3108.00	0	
	4	0	314.40	0.0000	2829.60	0	
	MONTHLY EST.			0.0005	11546.40		5
JULY	1	0	314.40	0.0000	2200.80	0	
	2	0	309.82	0.0000	2832.00	0	
	3	0	537.88	0.0000	3110.40	0	
	4	0	292.79	0.0000	3144.00	0	
	MONTHLY EST.			0.0000	11287.20		0
AUGUST	1	2	309.60	0.0065	2978.40	19	
	2	28	542.40	0.0516	2748.00	142	
	3	1	314.40	0.0032	2808.00	9	
	4	101	807.93	0.1250	3936.00	492	
	MONTHLY EST.			0.0466	12470.40		581
SEPTEMBER	1	4	314.40	0.0127	2200.80	28	
	2	4	313.20	0.0128	2198.40	28	
	3	1	314.40	0.0032	2200.80	7	
	4	2	314.40	0.0064	2829.60	18	
	MONTHLY EST.			0.0088	9429.60		83
OCTOBER	1	2	314.40	0.0064	2200.80	14	
	2	6	314.40	0.0191	2200.80	42	
	3	0	314.40	0.0000	2200.80	0	
	4	14	624.43	0.0224	3144.00	70	
	MONTHLY EST.			0.0120	9746.40		117
NOVEMBER	1	35	440.25	0.0795	3079.20	245	
	2	1	314.40	0.0032	2200.80	7	
	3	1	443.34	0.0023	3064.80	7	
	4	2	298.24	0.0067	3055.20	20	
	MONTHLY EST.			0.0229	11400.00		261
DECEMBER	1	54	570.86	0.0946	3864.00	366	
	2	1	542.40	0.0018	3571.20	7	
	3	4	542.40	0.0074	3319.20	24	
	4	1	549.60	0.0018	4466.40	8	
	MONTHLY EST.			0.0264	15220.80		402

APPENDIX TABLE C-1.3. ESTIMATED WEEKLY ABUNDANCE OF AMERICAN EEL, ROSETON GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	544.80	0.0000	3796.80	0	
	2	1	531.10	0.0019	3796.80	7	
	3	0	531.10	0.0000	3950.40	0	
	4	0	542.40	0.0000	5421.60	0	
	MONTHLY EST.			0.0005	16965.60		8
FEBRUARY	1	1	542.40	0.0018	3796.80	7	
	2	0	531.10	0.0000	3825.60	0	
	3	0	542.40	0.0000	3890.40	0	
	4	0	1118.40	0.0000	4406.40	0	
	MONTHLY EST.			0.0005	15919.20		7
MARCH	1	0	542.40	0.0000	3796.80	0	
	2	0	542.40	0.0000	3796.80	0	
	3	0	542.40	0.0000	3796.80	0	
	4	2	309.60	0.0065	3604.80	23	
	MONTHLY EST.			0.0016	14995.20		24
APRIL	1	0	309.60	0.0000	2162.40	0	
	2	2	311.89	0.0050	2174.40	11	
	3	0	269.23	0.0000	2150.40	0	
	4	0	307.20	0.0000	2764.80	0	
	MONTHLY EST.			0.0013	9252.00		12
MAY	1	0	307.20	0.0000	2150.40	0	
	2	1	307.20	0.0033	2150.40	7	
	3	0	307.20	0.0000	2484.00	0	
	4	0	824.40	0.0000	3698.40	0	
	MONTHLY EST.			0.0008	10483.20		9
JUNE	1	0	307.20	0.0000	2167.20	0	
	2	0	542.40	0.0000	3441.60	0	
	3	0	460.20	0.0000	3108.00	0	
	4	0	314.40	0.0000	2829.60	0	
	MONTHLY EST.			0.0000	11546.40		0
JULY	1	2	314.40	0.0064	2200.80	14	
	2	0	309.82	0.0000	2832.00	0	
	3	0	537.88	0.0000	3110.40	0	
	4	0	292.79	0.0000	3144.00	0	
	MONTHLY EST.			0.0016	11287.20		18
AUGUST	1	0	309.60	0.0000	2978.40	0	
	2	0	542.40	0.0000	2748.00	0	
	3	0	314.40	0.0000	2808.00	0	
	4	1	807.93	0.0012	3936.00	5	
	MONTHLY EST.			0.0003	12470.40		4
SEPTEMBER	1	0	314.40	0.0000	2200.80	0	
	2	0	313.20	0.0000	2198.40	0	
	3	0	314.40	0.0000	2200.80	0	
	4	0	314.40	0.0000	2829.60	0	
	MONTHLY EST.			0.0000	9429.60		0
OCTOBER	1	0	314.40	0.0000	2200.80	0	
	2	0	314.40	0.0000	2200.80	0	
	3	0	314.40	0.0000	2200.80	0	
	4	0	624.43	0.0000	3144.00	0	
	MONTHLY EST.			0.0000	9746.40		0
NOVEMBER	1	0	440.25	0.0000	3079.20	0	
	2	0	314.40	0.0000	2200.80	0	
	3	4	443.34	0.0090	3064.80	28	
	4	3	298.24	0.0101	3055.20	31	
	MONTHLY EST.			0.0048	11400.00		54
DECEMBER	1	2	570.86	0.0035	3864.00	14	
	2	0	542.40	0.0000	3571.20	0	
	3	2	542.40	0.0037	3319.20	12	
	4	1	549.60	0.0018	4466.40	8	
	MONTHLY EST.			0.0023	15220.80		34

APPENDIX TABLE C-1.4. ESTIMATED WEEKLY ABUNDANCE OF AMERICAN SHAD, ROSETON GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	544.80	0.0000	3796.80	0	
	2	0	531.10	0.0000	3796.80	0	
	3	0	531.10	0.0000	3950.40	0	
	4	0	542.40	0.0000	5421.60	0	
	MONTHLY EST.			0.0000	16965.60		0
FEBRUARY	1	0	542.40	0.0000	3796.80	0	
	2	0	531.10	0.0000	3825.60	0	
	3	0	542.40	0.0000	3890.40	0	
	4	0	1118.40	0.0000	4406.40	0	
	MONTHLY EST.			0.0000	15919.20		0
MARCH	1	0	542.40	0.0000	3796.80	0	
	2	0	542.40	0.0000	3796.80	0	
	3	0	542.40	0.0000	3796.80	0	
	4	0	309.60	0.0000	3604.80	0	
	MONTHLY EST.			0.0000	14995.20		0
APRIL	1	0	309.60	0.0000	2162.40	0	
	2	0	311.89	0.0000	2174.40	0	
	3	0	269.23	0.0000	2150.40	0	
	4	0	307.20	0.0000	2764.80	0	
	MONTHLY EST.			0.0000	9252.00		0
MAY	1	0	307.20	0.0000	2150.40	0	
	2	0	307.20	0.0000	2150.40	0	
	3	0	307.20	0.0000	2484.00	0	
	4	0	824.40	0.0000	3698.40	0	
	MONTHLY EST.			0.0000	10483.20		0
JUNE	1	0	307.20	0.0000	2167.20	0	
	2	0	542.40	0.0000	3441.60	0	
	3	0	460.20	0.0000	3108.00	0	
	4	0	314.40	0.0000	2829.60	0	
	MONTHLY EST.			0.0000	11546.40		0
JULY	1	0	314.40	0.0000	2200.80	0	
	2	0	309.82	0.0000	2832.00	0	
	3	2	537.88	0.0037	3110.40	12	
	4	0	292.79	0.0000	3144.00	0	
	MONTHLY EST.			0.0009	11287.20		10
AUGUST	1	0	309.60	0.0000	2978.40	0	
	2	2	542.40	0.0037	2748.00	10	
	3	0	314.40	0.0000	2808.00	0	
	4	36	807.93	0.0446	3936.00	175	
	MONTHLY EST.			0.0121	12470.40		150
SEPTEMBER	1	0	314.40	0.0000	2200.80	0	
	2	0	313.20	0.0000	2198.40	0	
	3	1	314.40	0.0032	2200.80	7	
	4	1	314.40	0.0032	2829.60	9	
	MONTHLY EST.			0.0016	9429.60		15
OCTOBER	1	0	314.40	0.0000	2200.80	0	
	2	0	314.40	0.0000	2200.80	0	
	3	1	314.40	0.0032	2200.80	7	
	4	7	624.43	0.0112	3144.00	35	
	MONTHLY EST.			0.0036	9746.40		35
NOVEMBER	1	6	440.25	0.0136	3079.20	42	
	2	0	314.40	0.0000	2200.80	0	
	3	0	443.34	0.0000	3064.80	0	
	4	0	298.24	0.0000	3055.20	0	
	MONTHLY EST.			0.0034	11400.00		39
DECEMBER	1	0	570.86	0.0000	3864.00	0	
	2	0	542.40	0.0000	3571.20	0	
	3	0	542.40	0.0000	3319.20	0	
	4	0	549.60	0.0000	4466.40	0	
	MONTHLY EST.			0.0000	15220.80		0

APPENDIX TABLE C-1.5. ESTIMATED WEEKLY ABUNDANCE OF ATLANTIC TOMCOD, ROSETON GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	544.80	0.0000	3796.80	0	
	2	1	531.10	0.0019	3796.80	7	
	3	0	531.10	0.0000	3950.40	0	
	4	0	542.40	0.0000	5421.60	0	
	MONTHLY EST.			0.0005	16965.60		8
FEBRUARY	1	0	542.40	0.0000	3796.80	0	
	2	0	531.10	0.0000	3825.60	0	
	3	0	542.40	0.0000	3890.40	0	
	4	1	1118.40	0.0009	4406.40	4	
	MONTHLY EST.			0.0002	15919.20		4
MARCH	1	0	542.40	0.0000	3796.80	0	
	2	0	542.40	0.0000	3796.80	0	
	3	0	542.40	0.0000	3796.80	0	
	4	0	309.60	0.0000	3604.80	0	
	MONTHLY EST.			0.0000	14995.20		0
APRIL	1	0	309.60	0.0000	2162.40	0	
	2	0	311.89	0.0000	2174.40	0	
	3	0	269.23	0.0000	2150.40	0	
	4	0	307.20	0.0000	2764.80	0	
	MONTHLY EST.			0.0000	9252.00		0
MAY	1	0	307.20	0.0000	2150.40	0	
	2	0	307.20	0.0000	2150.40	0	
	3	0	307.20	0.0000	2484.00	0	
	4	0	824.40	0.0000	3698.40	0	
	MONTHLY EST.			0.0000	10483.20		0
JUNE	1	0	307.20	0.0000	2167.20	0	
	2	2	542.40	0.0037	3441.60	13	
	3	0	460.20	0.0000	3108.00	0	
	4	0	314.40	0.0000	2829.60	0	
	MONTHLY EST.			0.0009	11546.40		11
JULY	1	0	314.40	0.0000	2200.80	0	
	2	0	309.82	0.0000	2832.00	0	
	3	0	537.88	0.0000	3110.40	0	
	4	0	292.79	0.0000	3144.00	0	
	MONTHLY EST.			0.0000	11287.20		0
AUGUST	1	0	309.60	0.0000	2978.40	0	
	2	3	542.40	0.0055	2748.00	15	
	3	0	314.40	0.0000	2808.00	0	
	4	2	807.93	0.0025	3936.00	10	
	MONTHLY EST.			0.0020	12470.40		25
SEPTEMBER	1	2	314.40	0.0064	2200.80	14	
	2	0	313.20	0.0000	2198.40	0	
	3	0	314.40	0.0000	2200.80	0	
	4	1	314.40	0.0032	2829.60	9	
	MONTHLY EST.			0.0024	9429.60		22
OCTOBER	1	0	314.40	0.0000	2200.80	0	
	2	0	314.40	0.0000	2200.80	0	
	3	0	314.40	0.0000	2200.80	0	
	4	0	624.43	0.0000	3144.00	0	
	MONTHLY EST.			0.0000	9746.40		0
NOVEMBER	1	0	440.25	0.0000	3079.20	0	
	2	0	314.40	0.0000	2200.80	0	
	3	1	443.34	0.0023	3064.80	7	
	4	0	298.24	0.0000	3055.20	0	
	MONTHLY EST.			0.0006	11400.00		6
DECEMBER	1	1	570.86	0.0018	3864.00	7	
	2	15	542.40	0.0277	3571.20	99	
	3	2	542.40	0.0037	3319.20	12	
	4	26	549.60	0.0473	4466.40	211	
	MONTHLY EST.			0.0201	15220.80		306

APPENDIX TABLE C-1.6. ESTIMATED WEEKLY ABUNDANCE OF BAY ANCHOVY, ROSETON GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	544.80	0.0000	3796.80	0	
	2	0	531.10	0.0000	3796.80	0	
	3	0	531.10	0.0000	3950.40	0	
	4	0	542.40	0.0000	5421.60	0	
	MONTHLY EST.			0.0000	16965.60		0
FEBRUARY	1	0	542.40	0.0000	3796.80	0	
	2	0	531.10	0.0000	3825.60	0	
	3	0	542.40	0.0000	3890.40	0	
	4	0	1118.40	0.0000	4406.40	0	
	MONTHLY EST.			0.0000	15919.20		0
MARCH	1	0	542.40	0.0000	3796.80	0	
	2	0	542.40	0.0000	3796.80	0	
	3	0	542.40	0.0000	3796.80	0	
	4	0	309.60	0.0000	3604.80	0	
	MONTHLY EST.			0.0000	14995.20		0
APRIL	1	0	309.60	0.0000	2162.40	0	
	2	0	311.89	0.0000	2174.40	0	
	3	0	269.23	0.0000	2150.40	0	
	4	0	307.20	0.0000	2764.80	0	
	MONTHLY EST.			0.0000	9252.00		0
MAY	1	0	307.20	0.0000	2150.40	0	
	2	0	307.20	0.0000	2150.40	0	
	3	0	307.20	0.0000	2484.00	0	
	4	1	824.40	0.0012	3698.40	4	
	MONTHLY EST.			0.0003	10483.20		3
JUNE	1	0	307.20	0.0000	2167.20	0	
	2	0	542.40	0.0000	3441.60	0	
	3	0	460.20	0.0000	3108.00	0	
	4	0	314.40	0.0000	2829.60	0	
	MONTHLY EST.			0.0000	11546.40		0
JULY	1	0	314.40	0.0000	2200.80	0	
	2	0	309.82	0.0000	2832.00	0	
	3	0	537.88	0.0000	3110.40	0	
	4	0	292.79	0.0000	3144.00	0	
	MONTHLY EST.			0.0000	11287.20		0
AUGUST	1	0	309.60	0.0000	2978.40	0	
	2	2	542.40	0.0037	2748.00	10	
	3	0	314.40	0.0000	2808.00	0	
	4	13	807.93	0.0161	3936.00	63	
	MONTHLY EST.			0.0049	12470.40		62
SEPTEMBER	1	0	314.40	0.0000	2200.80	0	
	2	0	313.20	0.0000	2198.40	0	
	3	0	314.40	0.0000	2200.80	0	
	4	0	314.40	0.0000	2829.60	0	
	MONTHLY EST.			0.0000	9429.60		0
OCTOBER	1	0	314.40	0.0000	2200.80	0	
	2	0	314.40	0.0000	2200.80	0	
	3	0	314.40	0.0000	2200.80	0	
	4	0	624.43	0.0000	3144.00	0	
	MONTHLY EST.			0.0000	9746.40		0
NOVEMBER	1	0	440.25	0.0000	3079.20	0	
	2	0	314.40	0.0000	2200.80	0	
	3	0	443.34	0.0000	3064.80	0	
	4	0	298.24	0.0000	3055.20	0	
	MONTHLY EST.			0.0000	11400.00		0
DECEMBER	1	0	570.86	0.0000	3864.00	0	
	2	0	542.40	0.0000	3571.20	0	
	3	0	542.40	0.0000	3319.20	0	
	4	0	549.60	0.0000	4466.40	0	
	MONTHLY EST.			0.0000	15220.80		0

APPENDIX TABLE C-1.7. ESTIMATED WEEKLY ABUNDANCE OF BLUEBACK HERRING, ROSETON GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	544.80	0.0000	3796.80	0	
	2	0	531.10	0.0000	3796.80	0	
	3	0	531.10	0.0000	3950.40	0	
	4	0	542.40	0.0000	5421.60	0	
	MONTHLY EST.			0.0000	16965.60		0
FEBRUARY	1	0	542.40	0.0000	3796.80	0	
	2	0	531.10	0.0000	3825.60	0	
	3	0	542.40	0.0000	3890.40	0	
	4	0	1118.40	0.0000	4406.40	0	
	MONTHLY EST.			0.0000	15919.20		0
MARCH	1	0	542.40	0.0000	3796.80	0	
	2	0	542.40	0.0000	3796.80	0	
	3	0	542.40	0.0000	3796.80	0	
	4	0	309.60	0.0000	3604.80	0	
	MONTHLY EST.			0.0000	14995.20		0
APRIL	1	0	309.60	0.0000	2162.40	0	
	2	0	311.89	0.0000	2174.40	0	
	3	0	269.23	0.0000	2150.40	0	
	4	0	307.20	0.0000	2764.80	0	
	MONTHLY EST.			0.0000	9252.00		0
MAY	1	0	307.20	0.0000	2150.40	0	
	2	1	307.20	0.0033	2150.40	7	
	3	1	307.20	0.0033	2484.00	8	
	4	5	824.40	0.0061	3698.40	22	
	MONTHLY EST.			0.0031	10483.20		33
JUNE	1	2	307.20	0.0065	2167.20	14	
	2	4	542.40	0.0074	3441.60	25	
	3	2	460.20	0.0043	3108.00	14	
	4	0	314.40	0.0000	2829.60	0	
	MONTHLY EST.			0.0046	11546.40		53
JULY	1	0	314.40	0.0000	2200.80	0	
	2	0	309.82	0.0000	2832.00	0	
	3	0	537.88	0.0000	3110.40	0	
	4	0	292.79	0.0000	3144.00	0	
	MONTHLY EST.			0.0000	11287.20		0
AUGUST	1	0	309.60	0.0000	2978.40	0	
	2	0	542.40	0.0000	2748.00	0	
	3	0	314.40	0.0000	2808.00	0	
	4	1183	807.93	1.4642	3936.00	5763	
	MONTHLY EST.			0.3661	12470.40		4565
SEPTEMBER	1	2	314.40	0.0064	2200.80	14	
	2	1	313.20	0.0032	2198.40	7	
	3	0	314.40	0.0000	2200.80	0	
	4	0	314.40	0.0000	2829.60	0	
	MONTHLY EST.			0.0024	9429.60		23
OCTOBER	1	1	314.40	0.0032	2200.80	7	
	2	4	314.40	0.0127	2200.80	28	
	3	1	314.40	0.0032	2200.80	7	
	4	19	624.43	0.0304	3144.00	96	
	MONTHLY EST.			0.0124	9746.40		121
NOVEMBER	1	51	440.25	0.1158	3079.20	357	
	2	1	314.40	0.0032	2200.80	7	
	3	1	443.34	0.0023	3064.80	7	
	4	3	298.24	0.0101	3055.20	31	
	MONTHLY EST.			0.0328	11400.00		374
DECEMBER	1	1	570.86	0.0018	3864.00	7	
	2	0	542.40	0.0000	3571.20	0	
	3	0	542.40	0.0000	3319.20	0	
	4	0	549.60	0.0000	4466.40	0	
	MONTHLY EST.			0.0004	15220.80		7

APPENDIX TABLE C-1.8. ESTIMATED WEEKLY ABUNDANCE OF BROWN BULLHEAD, ROSETON GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	544.80	0.0000	3796.80	0	
	2	0	531.10	0.0000	3796.80	0	
	3	1	531.10	0.0019	3950.40	7	
	4	3	542.40	0.0055	5421.60	30	
	MONTHLY EST.			0.0019	16965.60		31
FEBRUARY	1	3	542.40	0.0055	3796.80	21	
	2	1	531.10	0.0019	3825.60	7	
	3	1	542.40	0.0018	3890.40	7	
	4	1	1118.40	0.0009	4406.40	4	
	MONTHLY EST.			0.0025	15919.20		40
MARCH	1	1	542.40	0.0018	3796.80	7	
	2	1	542.40	0.0018	3796.80	7	
	3	0	542.40	0.0000	3796.80	0	
	4	2	309.60	0.0065	3604.80	23	
	MONTHLY EST.			0.0025	14995.20		38
APRIL	1	3	309.60	0.0097	2162.40	21	
	2	0	311.89	0.0000	2174.40	0	
	3	4	269.23	0.0149	2150.40	32	
	4	5	307.20	0.0163	2764.80	45	
	MONTHLY EST.			0.0102	9252.00		94
MAY	1	4	307.20	0.0130	2150.40	28	
	2	1	307.20	0.0033	2150.40	7	
	3	2	307.20	0.0065	2484.00	16	
	4	2	824.40	0.0024	3698.40	9	
	MONTHLY EST.			0.0063	10483.20		66
JUNE	1	0	307.20	0.0000	2167.20	0	
	2	2	542.40	0.0037	3441.60	13	
	3	1	460.20	0.0022	3108.00	7	
	4	0	314.40	0.0000	2829.60	0	
	MONTHLY EST.			0.0015	11546.40		17
JULY	1	0	314.40	0.0000	2200.80	0	
	2	0	309.82	0.0000	2832.00	0	
	3	0	537.88	0.0000	3110.40	0	
	4	0	292.79	0.0000	3144.00	0	
	MONTHLY EST.			0.0000	11287.20		0
AUGUST	1	1	309.60	0.0032	2978.40	10	
	2	12	542.40	0.0221	2748.00	61	
	3	1	314.40	0.0032	2808.00	9	
	4	15	807.93	0.0186	3936.00	73	
	MONTHLY EST.			0.0118	12470.40		147
SEPTEMBER	1	0	314.40	0.0000	2200.80	0	
	2	0	313.20	0.0000	2198.40	0	
	3	0	314.40	0.0000	2200.80	0	
	4	1	314.40	0.0032	2829.60	9	
	MONTHLY EST.			0.0008	9429.60		7
OCTOBER	1	0	314.40	0.0000	2200.80	0	
	2	1	314.40	0.0032	2200.80	7	
	3	1	314.40	0.0032	2200.80	7	
	4	8	624.43	0.0128	3144.00	40	
	MONTHLY EST.			0.0048	9746.40		47
NOVEMBER	1	13	440.25	0.0295	3079.20	91	
	2	2	314.40	0.0064	2200.80	14	
	3	1	443.34	0.0023	3064.80	7	
	4	1	298.24	0.0034	3055.20	10	
	MONTHLY EST.			0.0104	11400.00		118
DECEMBER	1	1	570.86	0.0018	3864.00	7	
	2	4	542.40	0.0074	3571.20	26	
	3	2	542.40	0.0037	3319.20	12	
	4	1	549.60	0.0018	4466.40	8	
	MONTHLY EST.			0.0037	15220.80		56

APPENDIX TABLE C-1.9. ESTIMATED WEEKLY ABUNDANCE OF CHANNEL CATFISH, ROSETON GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	544.80	0.0000	3796.80	0	
	2	1	531.10	0.0019	3796.80	7	
	3	0	531.10	0.0000	3950.40	0	
	4	3	542.40	0.0055	5421.60	30	
	MONTHLY EST.			0.0019	16965.60		31
FEBRUARY	1	0	542.40	0.0000	3796.80	0	
	2	0	531.10	0.0000	3825.60	0	
	3	1	542.40	0.0018	3890.40	7	
	4	2	1118.40	0.0018	4406.40	8	
	MONTHLY EST.			0.0009	15919.20		14
MARCH	1	1	542.40	0.0018	3796.80	7	
	2	0	542.40	0.0000	3796.80	0	
	3	1	542.40	0.0018	3796.80	7	
	4	5	309.60	0.0161	3604.80	58	
	MONTHLY EST.			0.0050	14995.20		74
APRIL	1	3	309.60	0.0097	2162.40	21	
	2	3	311.89	0.0100	2174.40	22	
	3	2	269.23	0.0074	2150.40	16	
	4	2	307.20	0.0065	2764.80	18	
	MONTHLY EST.			0.0084	9252.00		78
MAY	1	0	307.20	0.0000	2150.40	0	
	2	0	307.20	0.0000	2150.40	0	
	3	0	307.20	0.0000	2484.00	0	
	4	0	824.40	0.0000	3698.40	0	
	MONTHLY EST.			0.0000	10483.20		0
JUNE	1	0	307.20	0.0000	2167.20	0	
	2	0	542.40	0.0000	3441.60	0	
	3	1	460.20	0.0022	3108.00	7	
	4	0	314.40	0.0000	2829.60	0	
	MONTHLY EST.			0.0005	11546.40		6
JULY	1	0	314.40	0.0000	2200.80	0	
	2	0	309.82	0.0000	2832.00	0	
	3	0	537.88	0.0000	3110.40	0	
	4	0	292.79	0.0000	3144.00	0	
	MONTHLY EST.			0.0000	11287.20		0
AUGUST	1	0	309.60	0.0000	2978.40	0	
	2	1	542.40	0.0018	2748.00	5	
	3	0	314.40	0.0000	2808.00	0	
	4	12	807.93	0.0149	3936.00	58	
	MONTHLY EST.			0.0042	12470.40		52
SEPTEMBER	1	4	314.40	0.0127	2200.80	28	
	2	1	313.20	0.0032	2198.40	7	
	3	3	314.40	0.0095	2200.80	21	
	4	1	314.40	0.0032	2829.60	9	
	MONTHLY EST.			0.0072	9429.60		68
OCTOBER	1	1	314.40	0.0032	2200.80	7	
	2	0	314.40	0.0000	2200.80	0	
	3	0	314.40	0.0000	2200.80	0	
	4	0	624.43	0.0000	3144.00	0	
	MONTHLY EST.			0.0008	9746.40		8
NOVEMBER	1	7	440.25	0.0159	3079.20	49	
	2	1	314.40	0.0032	2200.80	7	
	3	12	443.34	0.0271	3064.80	83	
	4	23	298.24	0.0771	3055.20	236	
	MONTHLY EST.			0.0308	11400.00		351
DECEMBER	1	18	570.86	0.0315	3864.00	122	
	2	30	542.40	0.0553	3571.20	198	
	3	31	542.40	0.0572	3319.20	190	
	4	26	549.60	0.0473	4466.40	211	
	MONTHLY EST.			0.0478	15220.80		728

APPENDIX TABLE C-1.10. ESTIMATED WEEKLY ABUNDANCE OF GIZZARD SHAD, ROSETON GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	39	544.80	0.0716	3796.80	272	
	2	6	531.10	0.0113	3796.80	43	
	3	3	531.10	0.0056	3950.40	22	
	4	16	542.40	0.0295	5421.60	160	
	MONTHLY EST.			0.0295	16965.60		501
FEBRUARY	1	22	542.40	0.0406	3796.80	154	
	2	6	531.10	0.0113	3825.60	43	
	3	5	542.40	0.0092	3890.40	36	
	4	7	1118.40	0.0063	4406.40	28	
	MONTHLY EST.			0.0168	15919.20		268
MARCH	1	1	542.40	0.0018	3796.80	7	
	2	2	542.40	0.0037	3796.80	14	
	3	0	542.40	0.0000	3796.80	0	
	4	0	309.60	0.0000	3604.80	0	
	MONTHLY EST.			0.0014	14995.20		21
APRIL	1	0	309.60	0.0000	2162.40	0	
	2	0	311.89	0.0000	2174.40	0	
	3	0	269.23	0.0000	2150.40	0	
	4	0	307.20	0.0000	2764.80	0	
	MONTHLY EST.			0.0000	9252.00		0
MAY	1	0	307.20	0.0000	2150.40	0	
	2	0	307.20	0.0000	2150.40	0	
	3	0	307.20	0.0000	2484.00	0	
	4	1	824.40	0.0012	3698.40	4	
	MONTHLY EST.			0.0003	10483.20		3
JUNE	1	0	307.20	0.0000	2167.20	0	
	2	0	542.40	0.0000	3441.60	0	
	3	0	460.20	0.0000	3108.00	0	
	4	0	314.40	0.0000	2829.60	0	
	MONTHLY EST.			0.0000	11546.40		0
JULY	1	0	314.40	0.0000	2200.80	0	
	2	0	309.82	0.0000	2832.00	0	
	3	0	537.88	0.0000	3110.40	0	
	4	0	292.79	0.0000	3144.00	0	
	MONTHLY EST.			0.0000	11287.20		0
AUGUST	1	0	309.60	0.0000	2978.40	0	
	2	0	542.40	0.0000	2748.00	0	
	3	0	314.40	0.0000	2808.00	0	
	4	0	807.93	0.0000	3936.00	0	
	MONTHLY EST.			0.0000	12470.40		0
SEPTEMBER	1	0	314.40	0.0000	2200.80	0	
	2	0	313.20	0.0000	2198.40	0	
	3	0	314.40	0.0000	2200.80	0	
	4	0	314.40	0.0000	2829.60	0	
	MONTHLY EST.			0.0000	9429.60		0
OCTOBER	1	0	314.40	0.0000	2200.80	0	
	2	0	314.40	0.0000	2200.80	0	
	3	0	314.40	0.0000	2200.80	0	
	4	0	624.43	0.0000	3144.00	0	
	MONTHLY EST.			0.0000	9746.40		0
NOVEMBER	1	21	440.25	0.0477	3079.20	147	
	2	0	314.40	0.0000	2200.80	0	
	3	57	443.34	0.1286	3064.80	394	
	4	42	298.24	0.1408	3055.20	430	
	MONTHLY EST.			0.0793	11400.00		904
DECEMBER	1	126	570.86	0.2207	3864.00	853	
	2	52	542.40	0.0959	3571.20	342	
	3	16	542.40	0.0295	3319.20	98	
	4	19	549.60	0.0346	4466.40	154	
	MONTHLY EST.			0.0952	15220.80		1448

APPENDIX TABLE C-1.11. ESTIMATED WEEKLY ABUNDANCE OF GOLDEN SHINER, ROSETON GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	5	544.80	0.0092	3796.80	35	
	2	1	531.10	0.0019	3796.80	7	
	3	1	531.10	0.0019	3950.40	7	
	4	12	542.40	0.0221	5421.60	120	
	MONTHLY EST.			0.0088	16965.60		149
FEBRUARY	1	10	542.40	0.0184	3796.80	70	
	2	7	531.10	0.0132	3825.60	50	
	3	7	542.40	0.0129	3890.40	50	
	4	70	1118.40	0.0626	4406.40	276	
	MONTHLY EST.			0.0268	15919.20		426
MARCH	1	74	542.40	0.1364	3796.80	518	
	2	18	542.40	0.0332	3796.80	126	
	3	12	542.40	0.0221	3796.80	84	
	4	5	309.60	0.0161	3604.80	58	
	MONTHLY EST.			0.0520	14995.20		779
APRIL	1	1	309.60	0.0032	2162.40	7	
	2	0	311.89	0.0000	2174.40	0	
	3	3	269.23	0.0111	2150.40	24	
	4	3	307.20	0.0098	2764.80	27	
	MONTHLY EST.			0.0060	9252.00		56
MAY	1	2	307.20	0.0065	2150.40	14	
	2	0	307.20	0.0000	2150.40	0	
	3	0	307.20	0.0000	2484.00	0	
	4	0	824.40	0.0000	3698.40	0	
	MONTHLY EST.			0.0016	10483.20		17
JUNE	1	0	307.20	0.0000	2167.20	0	
	2	0	542.40	0.0000	3441.60	0	
	3	0	460.20	0.0000	3108.00	0	
	4	0	314.40	0.0000	2829.60	0	
	MONTHLY EST.			0.0000	11546.40		0
JULY	1	0	314.40	0.0000	2200.80	0	
	2	0	309.82	0.0000	2832.00	0	
	3	0	537.88	0.0000	3110.40	0	
	4	0	292.79	0.0000	3144.00	0	
	MONTHLY EST.			0.0000	11287.20		0
AUGUST	1	1	309.60	0.0032	2978.40	10	
	2	0	542.40	0.0000	2748.00	0	
	3	0	314.40	0.0000	2808.00	0	
	4	0	807.93	0.0000	3936.00	0	
	MONTHLY EST.			0.0008	12470.40		10
SEPTEMBER	1	0	314.40	0.0000	2200.80	0	
	2	0	313.20	0.0000	2198.40	0	
	3	0	314.40	0.0000	2200.80	0	
	4	0	314.40	0.0000	2829.60	0	
	MONTHLY EST.			0.0000	9429.60		0
OCTOBER	1	0	314.40	0.0000	2200.80	0	
	2	0	314.40	0.0000	2200.80	0	
	3	0	314.40	0.0000	2200.80	0	
	4	0	624.43	0.0000	3144.00	0	
	MONTHLY EST.			0.0000	9746.40		0
NOVEMBER	1	36	440.25	0.0818	3079.20	252	
	2	0	314.40	0.0000	2200.80	0	
	3	14	443.34	0.0316	3064.80	97	
	4	7	298.24	0.0235	3055.20	72	
	MONTHLY EST.			0.0342	11400.00		390
DECEMBER	1	57	570.86	0.0998	3864.00	386	
	2	24	542.40	0.0442	3571.20	158	
	3	41	542.40	0.0756	3319.20	251	
	4	35	549.60	0.0637	4466.40	284	
	MONTHLY EST.			0.0708	15220.80		1078

APPENDIX TABLE C-1.12. ESTIMATED WEEKLY ABUNDANCE OF HOGCHOKER, ROSETON GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	544.80	0.0000	3796.80	0	
	2	0	531.10	0.0000	3796.80	0	
	3	0	531.10	0.0000	3950.40	0	
	4	0	542.40	0.0000	5421.60	0	
	MONTHLY EST.			0.0000	16965.60		0
FEBRUARY	1	0	542.40	0.0000	3796.80	0	
	2	0	531.10	0.0000	3825.60	0	
	3	0	542.40	0.0000	3890.40	0	
	4	0	1118.40	0.0000	4406.40	0	
	MONTHLY EST.			0.0000	15919.20		0
MARCH	1	0	542.40	0.0000	3796.80	0	
	2	0	542.40	0.0000	3796.80	0	
	3	0	542.40	0.0000	3796.80	0	
	4	0	309.60	0.0000	3604.80	0	
	MONTHLY EST.			0.0000	14995.20		0
APRIL	1	0	309.60	0.0000	2162.40	0	
	2	0	311.89	0.0000	2174.40	0	
	3	1	269.23	0.0037	2150.40	8	
	4	4	307.20	0.0130	2764.80	36	
	MONTHLY EST.			0.0042	9252.00		39
MAY	1	28	307.20	0.0911	2150.40	196	
	2	37	307.20	0.1204	2150.40	259	
	3	26	307.20	0.0846	2484.00	210	
	4	43	824.40	0.0522	3698.40	193	
	MONTHLY EST.			0.0871	10483.20		913
JUNE	1	0	307.20	0.0000	2167.20	0	
	2	2	542.40	0.0037	3441.60	13	
	3	0	460.20	0.0000	3108.00	0	
	4	0	314.40	0.0000	2829.60	0	
	MONTHLY EST.			0.0009	11546.40		11
JULY	1	0	314.40	0.0000	2200.80	0	
	2	0	309.82	0.0000	2832.00	0	
	3	2	537.88	0.0037	3110.40	12	
	4	0	292.79	0.0000	3144.00	0	
	MONTHLY EST.			0.0009	11287.20		10
AUGUST	1	0	309.60	0.0000	2978.40	0	
	2	1	542.40	0.0018	2748.00	5	
	3	1	314.40	0.0032	2808.00	9	
	4	2	807.93	0.0025	3936.00	10	
	MONTHLY EST.			0.0019	12470.40		23
SEPTEMBER	1	0	314.40	0.0000	2200.80	0	
	2	9	313.20	0.0287	2198.40	63	
	3	4	314.40	0.0127	2200.80	28	
	4	0	314.40	0.0000	2829.60	0	
	MONTHLY EST.			0.0104	9429.60		98
OCTOBER	1	0	314.40	0.0000	2200.80	0	
	2	0	314.40	0.0000	2200.80	0	
	3	0	314.40	0.0000	2200.80	0	
	4	4	624.43	0.0064	3144.00	20	
	MONTHLY EST.			0.0016	9746.40		16
NOVEMBER	1	1	440.25	0.0023	3079.20	7	
	2	2	314.40	0.0064	2200.80	14	
	3	2	443.34	0.0045	3064.80	14	
	4	0	298.24	0.0000	3055.20	0	
	MONTHLY EST.			0.0033	11400.00		37
DECEMBER	1	0	570.86	0.0000	3864.00	0	
	2	0	542.40	0.0000	3571.20	0	
	3	0	542.40	0.0000	3319.20	0	
	4	0	549.60	0.0000	4466.40	0	
	MONTHLY EST.			0.0000	15220.80		0

APPENDIX TABLE C-1.13. ESTIMATED WEEKLY ABUNDANCE OF PUMPKINSEED, ROSETON GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	5	544.80	0.0092	3796.80	35	
	2	3	531.10	0.0056	3796.80	21	
	3	8	531.10	0.0151	3950.40	60	
	4	17	542.40	0.0313	5421.60	170	
	MONTHLY EST.			0.0153	16965.60		260
FEBRUARY	1	32	542.40	0.0590	3796.80	224	
	2	15	531.10	0.0282	3825.60	108	
	3	10	542.40	0.0184	3890.40	72	
	4	44	1118.40	0.0393	4406.40	173	
	MONTHLY EST.			0.0363	15919.20		577
MARCH	1	22	542.40	0.0406	3796.80	154	
	2	7	542.40	0.0129	3796.80	49	
	3	3	542.40	0.0055	3796.80	21	
	4	2	309.60	0.0065	3604.80	23	
	MONTHLY EST.			0.0164	14995.20		245
APRIL	1	5	309.60	0.0161	2162.40	35	
	2	3	311.89	0.0100	2174.40	22	
	3	7	269.23	0.0260	2150.40	56	
	4	35	307.20	0.1139	2764.80	315	
	MONTHLY EST.			0.0415	9252.00		384
MAY	1	19	307.20	0.0618	2150.40	133	
	2	5	307.20	0.0163	2150.40	35	
	3	11	307.20	0.0358	2484.00	89	
	4	11	824.40	0.0133	3698.40	49	
	MONTHLY EST.			0.0318	10483.20		334
JUNE	1	5	307.20	0.0163	2167.20	35	
	2	5	542.40	0.0092	3441.60	32	
	3	2	460.20	0.0043	3108.00	14	
	4	0	314.40	0.0000	2829.60	0	
	MONTHLY EST.			0.0075	11546.40		86
JULY	1	4	314.40	0.0127	2200.80	28	
	2	0	309.82	0.0000	2832.00	0	
	3	0	537.88	0.0000	3110.40	0	
	4	0	292.79	0.0000	3144.00	0	
	MONTHLY EST.			0.0032	11287.20		36
AUGUST	1	0	309.60	0.0000	2978.40	0	
	2	1	542.40	0.0018	2748.00	5	
	3	0	314.40	0.0000	2808.00	0	
	4	0	807.93	0.0000	3936.00	0	
	MONTHLY EST.			0.0005	12470.40		6
SEPTEMBER	1	1	314.40	0.0032	2200.80	7	
	2	0	313.20	0.0000	2198.40	0	
	3	0	314.40	0.0000	2200.80	0	
	4	1	314.40	0.0032	2829.60	9	
	MONTHLY EST.			0.0016	9429.60		15
OCTOBER	1	2	314.40	0.0064	2200.80	14	
	2	0	314.40	0.0000	2200.80	0	
	3	3	314.40	0.0095	2200.80	21	
	4	1	624.43	0.0016	3144.00	5	
	MONTHLY EST.			0.0044	9746.40		43
NOVEMBER	1	5	440.25	0.0114	3079.20	35	
	2	0	314.40	0.0000	2200.80	0	
	3	0	443.34	0.0000	3064.80	0	
	4	6	298.24	0.0201	3055.20	61	
	MONTHLY EST.			0.0079	11400.00		90
DECEMBER	1	0	570.86	0.0000	3864.00	0	
	2	4	542.40	0.0074	3571.20	26	
	3	0	542.40	0.0000	3319.20	0	
	4	1	549.60	0.0018	4466.40	8	
	MONTHLY EST.			0.0023	15220.80		35

APPENDIX TABLE C-1.14. ESTIMATED WEEKLY ABUNDANCE OF RAINBOW SMELT, ROSETON GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	544.80	0.0000	3796.80	0	
	2	0	531.10	0.0000	3796.80	0	
	3	0	531.10	0.0000	3950.40	0	
	4	0	542.40	0.0000	5421.60	0	
	MONTHLY EST.			0.0000	16965.60		0
FEBRUARY	1	0	542.40	0.0000	3796.80	0	
	2	0	531.10	0.0000	3825.60	0	
	3	0	542.40	0.0000	3890.40	0	
	4	0	1118.40	0.0000	4406.40	0	
	MONTHLY EST.			0.0000	15919.20		0
MARCH	1	0	542.40	0.0000	3796.80	0	
	2	0	542.40	0.0000	3796.80	0	
	3	0	542.40	0.0000	3796.80	0	
	4	0	309.60	0.0000	3604.80	0	
	MONTHLY EST.			0.0000	14995.20		0
APRIL	1	0	309.60	0.0000	2162.40	0	
	2	0	311.89	0.0000	2174.40	0	
	3	0	269.23	0.0000	2150.40	0	
	4	0	307.20	0.0000	2764.80	0	
	MONTHLY EST.			0.0000	9252.00		0
MAY	1	0	307.20	0.0000	2150.40	0	
	2	0	307.20	0.0000	2150.40	0	
	3	0	307.20	0.0000	2484.00	0	
	4	0	824.40	0.0000	3698.40	0	
	MONTHLY EST.			0.0000	10483.20		0
JUNE	1	0	307.20	0.0000	2167.20	0	
	2	0	542.40	0.0000	3441.60	0	
	3	0	460.20	0.0000	3108.00	0	
	4	0	314.40	0.0000	2829.60	0	
	MONTHLY EST.			0.0000	11546.40		0
JULY	1	0	314.40	0.0000	2200.80	0	
	2	0	309.82	0.0000	2832.00	0	
	3	0	537.88	0.0000	3110.40	0	
	4	0	292.79	0.0000	3144.00	0	
	MONTHLY EST.			0.0000	11287.20		0
AUGUST	1	0	309.60	0.0000	2978.40	0	
	2	0	542.40	0.0000	2748.00	0	
	3	0	314.40	0.0000	2808.00	0	
	4	0	807.93	0.0000	3936.00	0	
	MONTHLY EST.			0.0000	12470.40		0
SEPTEMBER	1	0	314.40	0.0000	2200.80	0	
	2	0	313.20	0.0000	2198.40	0	
	3	0	314.40	0.0000	2200.80	0	
	4	0	314.40	0.0000	2829.60	0	
	MONTHLY EST.			0.0000	9429.60		0
OCTOBER	1	0	314.40	0.0000	2200.80	0	
	2	0	314.40	0.0000	2200.80	0	
	3	0	314.40	0.0000	2200.80	0	
	4	0	624.43	0.0000	3144.00	0	
	MONTHLY EST.			0.0000	9746.40		0
NOVEMBER	1	0	440.25	0.0000	3079.20	0	
	2	0	314.40	0.0000	2200.80	0	
	3	0	443.34	0.0000	3064.80	0	
	4	0	298.24	0.0000	3055.20	0	
	MONTHLY EST.			0.0000	11400.00		0
DECEMBER	1	0	570.86	0.0000	3864.00	0	
	2	0	542.40	0.0000	3571.20	0	
	3	0	542.40	0.0000	3319.20	0	
	4	0	549.60	0.0000	4466.40	0	
	MONTHLY EST.			0.0000	15220.80		0

APPENDIX TABLE C-1.15. ESTIMATED WEEKLY ABUNDANCE OF SPOTTAIL SHINER, ROSETON GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	17	544.80	0.0312	3796.80	118	
	2	10	531.10	0.0188	3796.80	71	
	3	10	531.10	0.0188	3950.40	74	
	4	33	542.40	0.0608	5421.60	330	
	MONTHLY EST.			0.0324	16965.60		550
FEBRUARY	1	26	542.40	0.0479	3796.80	182	
	2	10	531.10	0.0188	3825.60	72	
	3	29	542.40	0.0535	3890.40	208	
	4	112	1118.40	0.1001	4406.40	441	
	MONTHLY EST.			0.0551	15919.20		877
MARCH	1	76	542.40	0.1401	3796.80	532	
	2	24	542.40	0.0442	3796.80	168	
	3	37	542.40	0.0682	3796.80	259	
	4	19	309.60	0.0614	3604.80	221	
	MONTHLY EST.			0.0785	14995.20		1177
APRIL	1	41	309.60	0.1324	2162.40	286	
	2	23	311.89	0.0752	2174.40	163	
	3	21	269.23	0.0780	2150.40	168	
	4	36	307.20	0.1172	2764.80	324	
	MONTHLY EST.			0.1007	9252.00		932
MAY	1	6	307.20	0.0195	2150.40	42	
	2	3	307.20	0.0098	2150.40	21	
	3	3	307.20	0.0098	2484.00	24	
	4	13	824.40	0.0158	3698.40	58	
	MONTHLY EST.			0.0137	10483.20		144
JUNE	1	3	307.20	0.0098	2167.20	21	
	2	17	542.40	0.0313	3441.60	108	
	3	2	460.20	0.0043	3108.00	14	
	4	0	314.40	0.0000	2829.60	0	
	MONTHLY EST.			0.0114	11546.40		131
JULY	1	1	314.40	0.0032	2200.80	7	
	2	1	309.82	0.0032	2832.00	9	
	3	0	537.88	0.0000	3110.40	0	
	4	0	292.79	0.0000	3144.00	0	
	MONTHLY EST.			0.0016	11287.20		18
AUGUST	1	0	309.60	0.0000	2978.40	0	
	2	2	542.40	0.0037	2748.00	10	
	3	0	314.40	0.0000	2808.00	0	
	4	39	807.93	0.0483	3936.00	190	
	MONTHLY EST.			0.0130	12470.40		162
SEPTEMBER	1	0	314.40	0.0000	2200.80	0	
	2	1	313.20	0.0032	2198.40	7	
	3	0	314.40	0.0000	2200.80	0	
	4	1	314.40	0.0032	2829.60	9	
	MONTHLY EST.			0.0016	9429.60		15
OCTOBER	1	1	314.40	0.0032	2200.80	7	
	2	0	314.40	0.0000	2200.80	0	
	3	0	314.40	0.0000	2200.80	0	
	4	7	624.43	0.0112	3144.00	35	
	MONTHLY EST.			0.0036	9746.40		35
NOVEMBER	1	84	440.25	0.1908	3079.20	588	
	2	7	314.40	0.0223	2200.80	49	
	3	330	443.34	0.7444	3064.80	2281	
	4	62	298.24	0.2079	3055.20	635	
	MONTHLY EST.			0.2913	11400.00		3321
DECEMBER	1	48	570.86	0.0841	3864.00	325	
	2	71	542.40	0.1309	3571.20	467	
	3	15	542.40	0.0277	3319.20	92	
	4	52	549.60	0.0946	4466.40	423	
	MONTHLY EST.			0.0843	15220.80		1283

APPENDIX TABLE C-1.16. ESTIMATED WEEKLY ABUNDANCE OF STRIPED BASS, ROSETON GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	544.80	0.0000	3796.80	0	
	2	0	531.10	0.0000	3796.80	0	
	3	2	531.10	0.0038	3950.40	15	
	4	0	542.40	0.0000	5421.60	0	
	MONTHLY EST.			0.0009	16965.60		16
FEBRUARY	1	0	542.40	0.0000	3796.80	0	
	2	1	531.10	0.0019	3825.60	7	
	3	0	542.40	0.0000	3890.40	0	
	4	0	1118.40	0.0000	4406.40	0	
	MONTHLY EST.			0.0005	15919.20		7
MARCH	1	1	542.40	0.0018	3796.80	7	
	2	0	542.40	0.0000	3796.80	0	
	3	1	542.40	0.0018	3796.80	7	
	4	0	309.60	0.0000	3604.80	0	
	MONTHLY EST.			0.0009	14995.20		14
APRIL	1	0	309.60	0.0000	2162.40	0	
	2	0	311.89	0.0000	2174.40	0	
	3	0	269.23	0.0000	2150.40	0	
	4	0	307.20	0.0000	2764.80	0	
	MONTHLY EST.			0.0000	9252.00		0
MAY	1	0	307.20	0.0000	2150.40	0	
	2	0	307.20	0.0000	2150.40	0	
	3	0	307.20	0.0000	2484.00	0	
	4	0	824.40	0.0000	3698.40	0	
	MONTHLY EST.			0.0000	10483.20		0
JUNE	1	0	307.20	0.0000	2167.20	0	
	2	0	542.40	0.0000	3441.60	0	
	3	0	460.20	0.0000	3108.00	0	
	4	0	314.40	0.0000	2829.60	0	
	MONTHLY EST.			0.0000	11546.40		0
JULY	1	1	314.40	0.0032	2200.80	7	
	2	0	309.82	0.0000	2832.00	0	
	3	3	537.88	0.0056	3110.40	17	
	4	0	292.79	0.0000	3144.00	0	
	MONTHLY EST.			0.0022	11287.20		25
AUGUST	1	0	309.60	0.0000	2978.40	0	
	2	6	542.40	0.0111	2748.00	30	
	3	0	314.40	0.0000	2808.00	0	
	4	19	807.93	0.0235	3936.00	93	
	MONTHLY EST.			0.0086	12470.40		108
SEPTEMBER	1	2	314.40	0.0064	2200.80	14	
	2	1	313.20	0.0032	2198.40	7	
	3	0	314.40	0.0000	2200.80	0	
	4	0	314.40	0.0000	2829.60	0	
	MONTHLY EST.			0.0024	9429.60		23
OCTOBER	1	0	314.40	0.0000	2200.80	0	
	2	0	314.40	0.0000	2200.80	0	
	3	0	314.40	0.0000	2200.80	0	
	4	1	624.43	0.0016	3144.00	5	
	MONTHLY EST.			0.0004	9746.40		4
NOVEMBER	1	9	440.25	0.0204	3079.20	63	
	2	4	314.40	0.0127	2200.80	28	
	3	5	443.34	0.0113	3064.80	35	
	4	6	298.24	0.0201	3055.20	61	
	MONTHLY EST.			0.0161	11400.00		184
DECEMBER	1	1	570.86	0.0018	3864.00	7	
	2	0	542.40	0.0000	3571.20	0	
	3	0	542.40	0.0000	3319.20	0	
	4	0	549.60	0.0000	4466.40	0	
	MONTHLY EST.			0.0004	15220.80		7

APPENDIX TABLE C-1.17. ESTIMATED WEEKLY ABUNDANCE OF WHITE CATFISH, ROSETON GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	544.80	0.0000	3796.80	0	
	2	1	531.10	0.0019	3796.80	7	
	3	0	531.10	0.0000	3950.40	0	
	4	1	542.40	0.0018	5421.60	10	
	MONTHLY EST.			0.0009	16965.60		16
FEBRUARY	1	10	542.40	0.0184	3796.80	70	
	2	2	531.10	0.0038	3825.60	14	
	3	11	542.40	0.0203	3890.40	79	
	4	14	1118.40	0.0125	4406.40	55	
	MONTHLY EST.			0.0138	15919.20		219
MARCH	1	7	542.40	0.0129	3796.80	49	
	2	6	542.40	0.0111	3796.80	42	
	3	3	542.40	0.0055	3796.80	21	
	4	2	309.60	0.0065	3604.80	23	
	MONTHLY EST.			0.0090	14995.20		135
APRIL	1	3	309.60	0.0097	2162.40	21	
	2	11	311.89	0.0351	2174.40	76	
	3	7	269.23	0.0260	2150.40	56	
	4	7	307.20	0.0228	2764.80	63	
	MONTHLY EST.			0.0234	9252.00		216
MAY	1	4	307.20	0.0130	2150.40	28	
	2	5	307.20	0.0163	2150.40	35	
	3	1	307.20	0.0033	2484.00	8	
	4	5	824.40	0.0061	3698.40	22	
	MONTHLY EST.			0.0097	10483.20		101
JUNE	1	0	307.20	0.0000	2167.20	0	
	2	0	542.40	0.0000	3441.60	0	
	3	0	460.20	0.0000	3108.00	0	
	4	0	314.40	0.0000	2829.60	0	
	MONTHLY EST.			0.0000	11546.40		0
JULY	1	1	314.40	0.0032	2200.80	7	
	2	0	309.82	0.0000	2832.00	0	
	3	1	537.88	0.0019	3110.40	6	
	4	0	292.79	0.0000	3144.00	0	
	MONTHLY EST.			0.0013	11287.20		14
AUGUST	1	0	309.60	0.0000	2978.40	0	
	2	1	542.40	0.0018	2748.00	5	
	3	0	314.40	0.0000	2808.00	0	
	4	46	807.93	0.0569	3936.00	224	
	MONTHLY EST.			0.0147	12470.40		183
SEPTEMBER	1	7	314.40	0.0223	2200.80	49	
	2	4	313.20	0.0128	2198.40	28	
	3	0	314.40	0.0000	2200.80	0	
	4	4	314.40	0.0127	2829.60	36	
	MONTHLY EST.			0.0119	9429.60		113
OCTOBER	1	0	314.40	0.0000	2200.80	0	
	2	0	314.40	0.0000	2200.80	0	
	3	0	314.40	0.0000	2200.80	0	
	4	3	624.43	0.0048	3144.00	15	
	MONTHLY EST.			0.0012	9746.40		12
NOVEMBER	1	6	440.25	0.0136	3079.20	42	
	2	6	314.40	0.0191	2200.80	42	
	3	55	443.34	0.1241	3064.80	380	
	4	8	298.24	0.0268	3055.20	82	
	MONTHLY EST.			0.0459	11400.00		523
DECEMBER	1	1	570.86	0.0018	3864.00	7	
	2	7	542.40	0.0129	3571.20	46	
	3	0	542.40	0.0000	3319.20	0	
	4	2	549.60	0.0036	4466.40	16	
	MONTHLY EST.			0.0046	15220.80		70

APPENDIX TABLE C-1.18. ESTIMATED WEEKLY ABUNDANCE OF WHITE PERCH, ROSETON GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	26	544.80	0.0477	3796.80	181	
	2	5	531.10	0.0094	3796.80	36	
	3	13	531.10	0.0245	3950.40	97	
	4	258	542.40	0.4757	5421.60	2579	
	MONTHLY EST.			0.1393	16965.60		2364
FEBRUARY	1	118	542.40	0.2176	3796.80	826	
	2	30	531.10	0.0565	3825.60	216	
	3	24	542.40	0.0442	3890.40	172	
	4	25	1118.40	0.0224	4406.40	98	
	MONTHLY EST.			0.0852	15919.20		1356
MARCH	1	29	542.40	0.0535	3796.80	203	
	2	27	542.40	0.0498	3796.80	189	
	3	26	542.40	0.0479	3796.80	182	
	4	1	309.60	0.0032	3604.80	12	
	MONTHLY EST.			0.0386	14995.20		579
APRIL	1	43	309.60	0.1389	2162.40	300	
	2	12	311.89	0.0400	2174.40	87	
	3	35	269.23	0.1300	2150.40	280	
	4	228	307.20	0.7422	2764.80	2052	
	MONTHLY EST.			0.2628	9252.00		2431
MAY	1	41	307.20	0.1335	2150.40	287	
	2	44	307.20	0.1432	2150.40	308	
	3	38	307.20	0.1237	2484.00	307	
	4	61	824.40	0.0740	3698.40	274	
	MONTHLY EST.			0.1186	10483.20		1243
JUNE	1	14	307.20	0.0456	2167.20	99	
	2	68	542.40	0.1254	3441.60	431	
	3	19	460.20	0.0413	3108.00	128	
	4	2	314.40	0.0064	2829.60	18	
	MONTHLY EST.			0.0546	11546.40		631
JULY	1	3	314.40	0.0095	2200.80	21	
	2	1	309.82	0.0032	2832.00	9	
	3	1	537.88	0.0019	3110.40	6	
	4	1	292.79	0.0034	3144.00	11	
	MONTHLY EST.			0.0045	11287.20		51
AUGUST	1	1	309.60	0.0032	2978.40	10	
	2	11	542.40	0.0203	2748.00	56	
	3	6	314.40	0.0191	2808.00	54	
	4	41	807.93	0.0507	3936.00	200	
	MONTHLY EST.			0.0233	12470.40		291
SEPTEMBER	1	3	314.40	0.0095	2200.80	21	
	2	0	313.20	0.0000	2198.40	0	
	3	1	314.40	0.0032	2200.80	7	
	4	0	314.40	0.0000	2829.60	0	
	MONTHLY EST.			0.0032	9429.60		30
OCTOBER	1	2	314.40	0.0064	2200.80	14	
	2	0	314.40	0.0000	2200.80	0	
	3	1	314.40	0.0032	2200.80	7	
	4	26	624.43	0.0416	3144.00	131	
	MONTHLY EST.			0.0128	9746.40		125
NOVEMBER	1	644	440.25	1.4628	3079.20	4504	
	2	47	314.40	0.1495	2200.80	329	
	3	785	443.34	1.7707	3064.80	5427	
	4	133	298.24	0.4459	3055.20	1362	
	MONTHLY EST.			0.9572	11400.00		10912
DECEMBER	1	275	570.86	0.4817	3864.00	1861	
	2	213	542.40	0.3927	3571.20	1402	
	3	16	542.40	0.0295	3319.20	98	
	4	11	549.60	0.0200	4466.40	89	
	MONTHLY EST.			0.2310	15220.80		3516

APPENDIX TABLE C-1.19. ESTIMATED WEEKLY ABUNDANCE OF YELLOW PERCH, ROSETON GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	1	544.80	0.0018	3796.80	7	
	2	0	531.10	0.0000	3796.80	0	
	3	1	531.10	0.0019	3950.40	7	
	4	1	542.40	0.0018	5421.60	10	
	MONTHLY EST.			0.0014	16965.60		24
FEBRUARY	1	3	542.40	0.0055	3796.80	21	
	2	4	531.10	0.0075	3825.60	29	
	3	3	542.40	0.0055	3890.40	22	
	4	11	1118.40	0.0098	4406.40	43	
	MONTHLY EST.			0.0071	15919.20		113
MARCH	1	11	542.40	0.0203	3796.80	77	
	2	3	542.40	0.0055	3796.80	21	
	3	15	542.40	0.0277	3796.80	105	
	4	2	309.60	0.0065	3604.80	23	
	MONTHLY EST.			0.0150	14995.20		225
APRIL	1	8	309.60	0.0258	2162.40	56	
	2	0	311.89	0.0000	2174.40	0	
	3	5	269.23	0.0186	2150.40	40	
	4	5	307.20	0.0163	2764.80	45	
	MONTHLY EST.			0.0152	9252.00		140
MAY	1	0	307.20	0.0000	2150.40	0	
	2	1	307.20	0.0033	2150.40	7	
	3	0	307.20	0.0000	2484.00	0	
	4	1	824.40	0.0012	3698.40	4	
	MONTHLY EST.			0.0011	10483.20		12
JUNE	1	0	307.20	0.0000	2167.20	0	
	2	0	542.40	0.0000	3441.60	0	
	3	0	460.20	0.0000	3108.00	0	
	4	0	314.40	0.0000	2829.60	0	
	MONTHLY EST.			0.0000	11546.40		0
JULY	1	0	314.40	0.0000	2200.80	0	
	2	0	309.82	0.0000	2832.00	0	
	3	0	537.88	0.0000	3110.40	0	
	4	0	292.79	0.0000	3144.00	0	
	MONTHLY EST.			0.0000	11287.20		0
AUGUST	1	0	309.60	0.0000	2978.40	0	
	2	0	542.40	0.0000	2748.00	0	
	3	0	314.40	0.0000	2808.00	0	
	4	0	807.93	0.0000	3936.00	0	
	MONTHLY EST.			0.0000	12470.40		0
SEPTEMBER	1	0	314.40	0.0000	2200.80	0	
	2	0	313.20	0.0000	2198.40	0	
	3	0	314.40	0.0000	2200.80	0	
	4	0	314.40	0.0000	2829.60	0	
	MONTHLY EST.			0.0000	9429.60		0
OCTOBER	1	0	314.40	0.0000	2200.80	0	
	2	0	314.40	0.0000	2200.80	0	
	3	0	314.40	0.0000	2200.80	0	
	4	0	624.43	0.0000	3144.00	0	
	MONTHLY EST.			0.0000	9746.40		0
NOVEMBER	1	0	440.25	0.0000	3079.20	0	
	2	0	314.40	0.0000	2200.80	0	
	3	0	443.34	0.0000	3064.80	0	
	4	0	298.24	0.0000	3055.20	0	
	MONTHLY EST.			0.0000	11400.00		0
DECEMBER	1	4	570.86	0.0070	3864.00	27	
	2	2	542.40	0.0037	3571.20	13	
	3	1	542.40	0.0018	3319.20	6	
	4	2	549.60	0.0036	4466.40	16	
	MONTHLY EST.			0.0040	15220.80		62

APPENDIX TABLE C-1.20. ESTIMATED WEEKLY ABUNDANCE OF BLUE CRAB, ROSETON GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	544.80	0.0000	3796.80	0	
	2	0	531.10	0.0000	3796.80	0	
	3	0	531.10	0.0000	3950.40	0	
	4	0	542.40	0.0000	5421.60	0	
	MONTHLY EST.			0.0000	16965.60		0
FEBRUARY	1	0	542.40	0.0000	3796.80	0	
	2	0	531.10	0.0000	3825.60	0	
	3	0	542.40	0.0000	3890.40	0	
	4	0	1118.40	0.0000	4406.40	0	
	MONTHLY EST.			0.0000	15919.20		0
MARCH	1	0	542.40	0.0000	3796.80	0	
	2	0	542.40	0.0000	3796.80	0	
	3	0	542.40	0.0000	3796.80	0	
	4	0	309.60	0.0000	3604.80	0	
	MONTHLY EST.			0.0000	14995.20		0
APRIL	1	0	309.60	0.0000	2162.40	0	
	2	0	311.89	0.0000	2174.40	0	
	3	0	269.23	0.0000	2150.40	0	
	4	0	307.20	0.0000	2764.80	0	
	MONTHLY EST.			0.0000	9252.00		0
MAY	1	0	307.20	0.0000	2150.40	0	
	2	0	307.20	0.0000	2150.40	0	
	3	0	307.20	0.0000	2484.00	0	
	4	0	824.40	0.0000	3698.40	0	
	MONTHLY EST.			0.0000	10483.20		0
JUNE	1	1	307.20	0.0033	2167.20	7	
	2	8	542.40	0.0147	3441.60	51	
	3	2	460.20	0.0043	3108.00	14	
	4	0	314.40	0.0000	2829.60	0	
	MONTHLY EST.			0.0056	11546.40		65
JULY	1	19	314.40	0.0604	2200.80	133	
	2	11	309.82	0.0355	2832.00	101	
	3	23	537.88	0.0428	3110.40	133	
	4	11	292.79	0.0376	3144.00	118	
	MONTHLY EST.			0.0441	11287.20		497
AUGUST	1	10	309.60	0.0323	2978.40	96	
	2	43	542.40	0.0793	2748.00	218	
	3	21	314.40	0.0668	2808.00	188	
	4	55	807.93	0.0681	3936.00	268	
	MONTHLY EST.			0.0616	12470.40		768
SEPTEMBER	1	11	314.40	0.0350	2200.80	77	
	2	5	313.20	0.0160	2198.40	35	
	3	11	314.40	0.0350	2200.80	77	
	4	11	314.40	0.0350	2829.60	99	
	MONTHLY EST.			0.0302	9429.60		285
OCTOBER	1	5	314.40	0.0159	2200.80	35	
	2	6	314.40	0.0191	2200.80	42	
	3	7	314.40	0.0223	2200.80	49	
	4	45	624.43	0.0721	3144.00	227	
	MONTHLY EST.			0.0323	9746.40		315
NOVEMBER	1	27	440.25	0.0613	3079.20	189	
	2	7	314.40	0.0223	2200.80	49	
	3	0	443.34	0.0000	3064.80	0	
	4	3	298.24	0.0101	3055.20	31	
	MONTHLY EST.			0.0234	11400.00		267
DECEMBER	1	1	570.86	0.0018	3864.00	7	
	2	0	542.40	0.0000	3571.20	0	
	3	0	542.40	0.0000	3319.20	0	
	4	0	549.60	0.0000	4466.40	0	
	MONTHLY EST.			0.0004	15220.80		7

APPENDIX TABLE C-2.1. ESTIMATED WEEKLY ABUNDANCE OF ALL FISH SPECIES, DANSKAMMER POINT GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	1434	181.19	7.9146	1369.06	10835	
	2	44	203.04	0.2167	1469.28	318	
	3	41	200.50	0.2045	1330.20	272	
	4	1210	196.70	6.1517	1834.73	11287	
	MONTHLY EST.			3.6219	6003.26		21743
FEBRUARY	1	1085	190.49	5.6958	1412.14	8043	
	2	435	198.11	2.1958	1361.64	2990	
	3	435	198.25	2.1942	1347.77	2957	
	4	514	397.11	1.2943	1596.22	2066	
	MONTHLY EST.			2.8450	5717.76		16267
MARCH	1	511	196.70	2.5979	1421.28	3692	
	2	259	173.10	1.4963	1321.68	1978	
	3	352	217.84	1.6159	1544.62	2496	
	4	173	195.71	0.8840	2108.83	1864	
	MONTHLY EST.			1.6485	6396.41		10545
APRIL	1	532	192.18	2.7682	1318.01	3649	
	2	179	155.24	1.1530	1421.28	1639	
	3	477	168.35	2.8333	1412.69	4003	
	4	1978	198.67	9.9563	1703.59	16961	
	MONTHLY EST.			4.1777	5855.57		24463
MAY	1	1354	198.67	6.8154	886.78	6044	
	2	59	58.88	1.0021	454.20	455	
	3	307	116.77	2.6291	809.06	2127	
	4	156	232.96	0.6696	1156.85	775	
	MONTHLY EST.			2.7791	3306.89		9190
JUNE	1	1364	231.08	5.9028	1636.30	9659	
	2	1294	233.39	5.5444	2167.87	12020	
	3	526	317.84	1.6549	2261.66	3743	
	4	506	281.93	1.7948	2650.90	4758	
	MONTHLY EST.			3.7242	8716.73		32463
JULY	1	732	309.34	2.3663	2148.07	5083	
	2	466	324.80	1.4347	2198.26	3154	
	3	1059	323.87	3.2698	2149.92	7030	
	4	510	358.51	1.4226	3846.43	5472	
	MONTHLY EST.			2.1234	10342.68		21961
AUGUST	1	1173	399.22	2.9382	2666.26	7834	
	2	1129	407.06	2.7735	2688.17	7456	
	3	714	309.01	2.3106	2445.00	5649	
	4	2051	736.37	2.7853	3471.50	9669	
	MONTHLY EST.			2.7019	11270.93		30453
SEPTEMBER	1	600	365.17	1.6431	2041.58	3354	
	2	433	322.44	1.3429	2232.65	2998	
	3	750	345.63	2.1700	2417.54	5246	
	4	653	269.87	2.4197	2632.58	6370	
	MONTHLY EST.			1.8939	9324.36		17659
OCTOBER	1	346	245.18	1.4112	1450.51	2047	
	2	607	232.30	2.6130	1464.05	3826	
	3	360	203.04	1.7730	1420.49	2519	
	4	1737	394.31	4.4051	2030.71	8946	
	MONTHLY EST.			2.5506	6365.76		16236
NOVEMBER	1	832	203.04	4.0977	1428.26	5853	
	2	971	203.04	4.7823	1421.54	6798	
	3	4140	203.04	20.3901	1412.02	28791	
	4	1766	203.04	8.6978	1796.14	15622	
	MONTHLY EST.			9.4920	6057.96		57502
DECEMBER	1	3057	198.67	15.3874	1431.19	22022	
	2	1523	195.49	7.7906	1394.66	10865	
	3	282	181.39	1.5546	1361.69	2117	
	4	575	203.04	2.8320	2071.54	5866	
	MONTHLY EST.			6.8912	6259.08		43132

APPENDIX TABLE C-2.2. ESTIMATED WEEKLY ABUNDANCE OF ALEWIFE, DANSKAMMER POINT GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	181.19	0.0000	1369.06	0	
	2	0	203.04	0.0000	1469.28	0	
	3	0	200.50	0.0000	1330.20	0	
	4	0	196.70	0.0000	1834.73	0	
	MONTHLY EST.			0.0000	6003.26		0
FEBRUARY	1	27	190.49	0.1417	1412.14	200	
	2	0	198.11	0.0000	1361.64	0	
	3	0	198.25	0.0000	1347.77	0	
	4	2	397.11	0.0050	1596.22	8	
	MONTHLY EST.			0.0367	5717.76		210
MARCH	1	1	196.70	0.0051	1421.28	7	
	2	3	173.10	0.0173	1321.68	23	
	3	3	217.84	0.0138	1544.62	21	
	4	3	195.71	0.0153	2108.83	32	
	MONTHLY EST.			0.0129	6396.41		82
APRIL	1	0	192.18	0.0000	1318.01	0	
	2	0	155.24	0.0000	1421.28	0	
	3	0	168.35	0.0000	1412.69	0	
	4	3	198.67	0.0151	1703.59	26	
	MONTHLY EST.			0.0038	5855.57		22
MAY	1	0	198.67	0.0000	886.78	0	
	2	0	58.88	0.0000	454.20	0	
	3	1	116.77	0.0086	809.06	7	
	4	3	232.96	0.0129	1156.85	15	
	MONTHLY EST.			0.0054	3306.89		18
JUNE	1	6	231.08	0.0260	1636.30	42	
	2	3	233.39	0.0129	2167.87	28	
	3	2	317.84	0.0063	2261.66	14	
	4	2	281.93	0.0071	2650.90	19	
	MONTHLY EST.			0.0131	8716.73		114
JULY	1	6	309.34	0.0194	2148.07	42	
	2	5	324.80	0.0154	2198.26	34	
	3	7	323.87	0.0216	2149.92	46	
	4	9	358.51	0.0251	3846.43	97	
	MONTHLY EST.			0.0204	10342.68		211
AUGUST	1	25	399.22	0.0626	2666.26	167	
	2	142	407.06	0.3488	2688.17	938	
	3	74	309.01	0.2395	2445.00	586	
	4	92	736.37	0.1249	3471.50	434	
	MONTHLY EST.			0.1940	11270.93		2186
SEPTEMBER	1	77	365.17	0.2109	2041.58	430	
	2	42	322.44	0.1303	2232.65	291	
	3	102	345.63	0.2951	2417.54	713	
	4	74	269.87	0.2742	2632.58	722	
	MONTHLY EST.			0.2276	9324.36		2122
OCTOBER	1	61	245.18	0.2488	1450.51	361	
	2	80	232.30	0.3444	1464.05	504	
	3	23	203.04	0.1133	1420.49	161	
	4	128	394.31	0.3246	2030.71	659	
	MONTHLY EST.			0.2578	6365.76		1641
NOVEMBER	1	25	203.04	0.1231	1428.26	176	
	2	14	203.04	0.0690	1421.54	98	
	3	1	203.04	0.0049	1412.02	7	
	4	0	203.04	0.0000	1796.14	0	
	MONTHLY EST.			0.0493	6057.96		298
DECEMBER	1	27	198.67	0.1359	1431.19	195	
	2	0	195.49	0.0000	1394.66	0	
	3	3	181.39	0.0165	1361.69	23	
	4	0	203.04	0.0000	2071.54	0	
	MONTHLY EST.			0.0381	6259.08		239

APPENDIX TABLE C-2.3. ESTIMATED WEEKLY ABUNDANCE OF AMERICAN SHAD, DANSKAMMER POINT GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	181.19	0.0000	1369.06	0	
	2	0	203.04	0.0000	1469.28	0	
	3	0	200.50	0.0000	1330.20	0	
	4	0	196.70	0.0000	1834.73	0	
	MONTHLY EST.			0.0000	6003.26		0
FEBRUARY	1	0	190.49	0.0000	1412.14	0	
	2	0	198.11	0.0000	1361.64	0	
	3	0	198.25	0.0000	1347.77	0	
	4	0	397.11	0.0000	1596.22	0	
	MONTHLY EST.			0.0000	5717.76		0
MARCH	1	0	196.70	0.0000	1421.28	0	
	2	0	173.10	0.0000	1321.68	0	
	3	0	217.84	0.0000	1544.62	0	
	4	0	195.71	0.0000	2108.83	0	
	MONTHLY EST.			0.0000	6396.41		0
APRIL	1	0	192.18	0.0000	1318.01	0	
	2	0	155.24	0.0000	1421.28	0	
	3	0	168.35	0.0000	1412.69	0	
	4	0	198.67	0.0000	1703.59	0	
	MONTHLY EST.			0.0000	5855.57		0
MAY	1	0	198.67	0.0000	886.78	0	
	2	0	58.88	0.0000	454.20	0	
	3	0	116.77	0.0000	809.06	0	
	4	0	232.96	0.0000	1156.85	0	
	MONTHLY EST.			0.0000	3306.89		0
JUNE	1	0	231.08	0.0000	1636.30	0	
	2	0	233.39	0.0000	2167.87	0	
	3	0	317.84	0.0000	2261.66	0	
	4	0	281.93	0.0000	2650.90	0	
	MONTHLY EST.			0.0000	8716.73		0
JULY	1	12	309.34	0.0388	2148.07	83	
	2	13	324.80	0.0400	2198.26	88	
	3	36	323.87	0.1112	2149.92	239	
	4	12	358.51	0.0335	3846.43	129	
	MONTHLY EST.			0.0559	10342.68		578
AUGUST	1	29	399.22	0.0726	2666.26	194	
	2	110	407.06	0.2702	2688.17	726	
	3	21	309.01	0.0680	2445.00	166	
	4	71	736.37	0.0964	3471.50	335	
	MONTHLY EST.			0.1268	11270.93		1429
SEPTEMBER	1	60	365.17	0.1643	2041.58	335	
	2	55	322.44	0.1706	2232.65	381	
	3	45	345.63	0.1302	2417.54	315	
	4	43	269.87	0.1593	2632.58	419	
	MONTHLY EST.			0.1561	9324.36		1456
OCTOBER	1	22	245.18	0.0897	1450.51	130	
	2	58	232.30	0.2497	1464.05	366	
	3	35	203.04	0.1724	1420.49	245	
	4	127	394.31	0.3221	2030.71	654	
	MONTHLY EST.			0.2085	6365.76		1327
NOVEMBER	1	22	203.04	0.1084	1428.26	155	
	2	7	203.04	0.0345	1421.54	49	
	3	2	203.04	0.0099	1412.02	14	
	4	0	203.04	0.0000	1796.14	0	
	MONTHLY EST.			0.0382	6057.96		231
DECEMBER	1	0	198.67	0.0000	1431.19	0	
	2	0	195.49	0.0000	1394.66	0	
	3	0	181.39	0.0000	1361.69	0	
	4	0	203.04	0.0000	2071.54	0	
	MONTHLY EST.			0.0000	6259.08		0

APPENDIX TABLE C-2.4. ESTIMATED WEEKLY ABUNDANCE OF ATLANTIC TOMCOD, DANSKAMMER POINT GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	181.19	0.0000	1369.06	0	
	2	0	203.04	0.0000	1469.28	0	
	3	0	200.50	0.0000	1330.20	0	
	4	3	196.70	0.0153	1834.73	28	
	MONTHLY EST.			0.0038	6003.26		23
FEBRUARY	1	1	190.49	0.0052	1412.14	7	
	2	2	198.11	0.0101	1361.64	14	
	3	0	198.25	0.0000	1347.77	0	
	4	1	397.11	0.0025	1596.22	4	
	MONTHLY EST.			0.0045	5717.76		26
MARCH	1	1	196.70	0.0051	1421.28	7	
	2	0	173.10	0.0000	1321.68	0	
	3	0	217.84	0.0000	1544.62	0	
	4	0	195.71	0.0000	2108.83	0	
	MONTHLY EST.			0.0013	6396.41		8
APRIL	1	0	192.18	0.0000	1318.01	0	
	2	0	155.24	0.0000	1421.28	0	
	3	0	168.35	0.0000	1412.69	0	
	4	0	198.67	0.0000	1703.59	0	
	MONTHLY EST.			0.0000	5855.57		0
MAY	1	0	198.67	0.0000	886.78	0	
	2	0	58.88	0.0000	454.20	0	
	3	0	116.77	0.0000	809.06	0	
	4	3	232.96	0.0129	1156.85	15	
	MONTHLY EST.			0.0032	3306.89		11
JUNE	1	64	231.08	0.2770	1636.30	453	
	2	156	233.39	0.6684	2167.87	1449	
	3	8	317.84	0.0252	2261.66	57	
	4	27	281.93	0.0958	2650.90	254	
	MONTHLY EST.			0.2666	8716.73		2324
JULY	1	23	309.34	0.0744	2148.07	160	
	2	15	324.80	0.0462	2198.26	102	
	3	42	323.87	0.1297	2149.92	279	
	4	65	358.51	0.1813	3846.43	697	
	MONTHLY EST.			0.1079	10342.68		1116
AUGUST	1	160	399.22	0.4008	2666.26	1069	
	2	49	407.06	0.1204	2688.17	324	
	3	45	309.01	0.1456	2445.00	356	
	4	82	736.37	0.1114	3471.50	387	
	MONTHLY EST.			0.1945	11270.93		2193
SEPTEMBER	1	17	365.17	0.0466	2041.58	95	
	2	26	322.44	0.0806	2232.65	180	
	3	61	345.63	0.1765	2417.54	427	
	4	13	269.87	0.0482	2632.58	127	
	MONTHLY EST.			0.0880	9324.36		820
OCTOBER	1	3	245.18	0.0122	1450.51	18	
	2	4	232.30	0.0172	1464.05	25	
	3	1	203.04	0.0049	1420.49	7	
	4	11	394.31	0.0279	2030.71	57	
	MONTHLY EST.			0.0156	6365.76		99
NOVEMBER	1	4	203.04	0.0197	1428.26	28	
	2	3	203.04	0.0148	1421.54	21	
	3	53	203.04	0.2610	1412.02	369	
	4	25	203.04	0.1231	1796.14	221	
	MONTHLY EST.			0.1047	6057.96		634
DECEMBER	1	3	198.67	0.0151	1431.19	22	
	2	79	195.49	0.4041	1394.66	564	
	3	37	181.39	0.2040	1361.69	278	
	4	283	203.04	1.3938	2071.54	2887	
	MONTHLY EST.			0.5043	6259.08		3156

APPENDIX TABLE C-2.5. ESTIMATED WEEKLY ABUNDANCE OF BAY ANCHOVY, DANSKAMMER POINT GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	181.19	0.0000	1369.06	0	
	2	0	203.04	0.0000	1469.28	0	
	3	0	200.50	0.0000	1330.20	0	
	4	0	196.70	0.0000	1834.73	0	
	MONTHLY EST.			0.0000	6003.26		0
FEBRUARY	1	0	190.49	0.0000	1412.14	0	
	2	0	198.11	0.0000	1361.64	0	
	3	0	198.25	0.0000	1347.77	0	
	4	0	397.11	0.0000	1596.22	0	
	MONTHLY EST.			0.0000	5717.76		0
MARCH	1	0	196.70	0.0000	1421.28	0	
	2	0	173.10	0.0000	1321.68	0	
	3	0	217.84	0.0000	1544.62	0	
	4	0	195.71	0.0000	2108.83	0	
	MONTHLY EST.			0.0000	6396.41		0
APRIL	1	0	192.18	0.0000	1318.01	0	
	2	0	155.24	0.0000	1421.28	0	
	3	0	168.35	0.0000	1412.69	0	
	4	0	198.67	0.0000	1703.59	0	
	MONTHLY EST.			0.0000	5855.57		0
MAY	1	0	198.67	0.0000	886.78	0	
	2	0	58.88	0.0000	454.20	0	
	3	0	116.77	0.0000	809.06	0	
	4	0	232.96	0.0000	1156.85	0	
	MONTHLY EST.			0.0000	3306.89		0
JUNE	1	0	231.08	0.0000	1636.30	0	
	2	0	233.39	0.0000	2167.87	0	
	3	0	317.84	0.0000	2261.66	0	
	4	0	281.93	0.0000	2650.90	0	
	MONTHLY EST.			0.0000	8716.73		0
JULY	1	0	309.34	0.0000	2148.07	0	
	2	0	324.80	0.0000	2198.26	0	
	3	1	323.87	0.0031	2149.92	7	
	4	1	358.51	0.0028	3846.43	11	
	MONTHLY EST.			0.0015	10342.68		15
AUGUST	1	0	399.22	0.0000	2666.26	0	
	2	9	407.06	0.0221	2688.17	59	
	3	0	309.01	0.0000	2445.00	0	
	4	17	736.37	0.0231	3471.50	80	
	MONTHLY EST.			0.0113	11270.93		127
SEPTEMBER	1	13	365.17	0.0356	2041.58	73	
	2	6	322.44	0.0186	2232.65	42	
	3	6	345.63	0.0174	2417.54	42	
	4	6	269.87	0.0222	2632.58	59	
	MONTHLY EST.			0.0235	9324.36		219
OCTOBER	1	0	245.18	0.0000	1450.51	0	
	2	0	232.30	0.0000	1464.05	0	
	3	0	203.04	0.0000	1420.49	0	
	4	0	394.31	0.0000	2030.71	0	
	MONTHLY EST.			0.0000	6365.76		0
NOVEMBER	1	0	203.04	0.0000	1428.26	0	
	2	0	203.04	0.0000	1421.54	0	
	3	0	203.04	0.0000	1412.02	0	
	4	0	203.04	0.0000	1796.14	0	
	MONTHLY EST.			0.0000	6057.96		0
DECEMBER	1	0	198.67	0.0000	1431.19	0	
	2	0	195.49	0.0000	1394.66	0	
	3	0	181.39	0.0000	1361.69	0	
	4	0	203.04	0.0000	2071.54	0	
	MONTHLY EST.			0.0000	6259.08		0

APPENDIX TABLE C-2.6. ESTIMATED WEEKLY ABUNDANCE OF BLUEBACK HERRING, DANSKAMMER POINT GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	181.19	0.0000	1369.06	0	
	2	0	203.04	0.0000	1469.28	0	
	3	0	200.50	0.0000	1330.20	0	
	4	0	196.70	0.0000	1834.73	0	
	MONTHLY EST.			0.0000	6003.26		0
FEBRUARY	1	0	190.49	0.0000	1412.14	0	
	2	0	198.11	0.0000	1361.64	0	
	3	0	198.25	0.0000	1347.77	0	
	4	0	397.11	0.0000	1596.22	0	
	MONTHLY EST.			0.0000	5717.76		0
MARCH	1	0	196.70	0.0000	1421.28	0	
	2	0	173.10	0.0000	1321.68	0	
	3	0	217.84	0.0000	1544.62	0	
	4	0	195.71	0.0000	2108.83	0	
	MONTHLY EST.			0.0000	6396.41		0
APRIL	1	0	192.18	0.0000	1318.01	0	
	2	0	155.24	0.0000	1421.28	0	
	3	0	168.35	0.0000	1412.69	0	
	4	0	198.67	0.0000	1703.59	0	
	MONTHLY EST.			0.0000	5855.57		0
MAY	1	1	198.67	0.0050	886.78	4	
	2	0	58.88	0.0000	454.20	0	
	3	3	116.77	0.0257	809.06	21	
	4	4	232.96	0.0172	1156.85	20	
	MONTHLY EST.			0.0120	3306.89		40
JUNE	1	11	231.08	0.0476	1636.30	78	
	2	23	233.39	0.0985	2167.87	214	
	3	11	317.84	0.0346	2261.66	78	
	4	1	281.93	0.0035	2650.90	9	
	MONTHLY EST.			0.0461	8716.73		402
JULY	1	1	309.34	0.0032	2148.07	7	
	2	1	324.80	0.0031	2198.26	7	
	3	15	323.87	0.0463	2149.92	100	
	4	4	358.51	0.0112	3846.43	43	
	MONTHLY EST.			0.0159	10342.68		165
AUGUST	1	90	399.22	0.2254	2666.26	601	
	2	16	407.06	0.0393	2688.17	106	
	3	7	309.01	0.0227	2445.00	55	
	4	54	736.37	0.0733	3471.50	255	
	MONTHLY EST.			0.0902	11270.93		1016
SEPTEMBER	1	23	365.17	0.0630	2041.58	129	
	2	10	322.44	0.0310	2232.65	69	
	3	7	345.63	0.0203	2417.54	49	
	4	50	269.87	0.1853	2632.58	488	
	MONTHLY EST.			0.0749	9324.36		698
OCTOBER	1	22	245.18	0.0897	1450.51	130	
	2	200	232.30	0.8610	1464.05	1260	
	3	54	203.04	0.2660	1420.49	378	
	4	458	394.31	1.1615	2030.71	2359	
	MONTHLY EST.			0.5945	6365.76		3785
NOVEMBER	1	44	203.04	0.2167	1428.26	310	
	2	40	203.04	0.1970	1421.54	280	
	3	0	203.04	0.0000	1412.02	0	
	4	1	203.04	0.0049	1796.14	9	
	MONTHLY EST.			0.1047	6057.96		634
DECEMBER	1	0	198.67	0.0000	1431.19	0	
	2	0	195.49	0.0000	1394.66	0	
	3	0	181.39	0.0000	1361.69	0	
	4	0	203.04	0.0000	2071.54	0	
	MONTHLY EST.			0.0000	6259.08		0

APPENDIX TABLE C-2.7. ESTIMATED WEEKLY ABUNDANCE OF GIZZARD SHAD, DANSKAMMER POINT GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	1409	181.19	7.7766	1369.06	10647	
	2	26	203.04	0.1281	1469.28	188	
	3	12	200.50	0.0598	1330.20	80	
	4	439	196.70	2.2319	1834.73	4095	
	MONTHLY EST.			2.5491	6003.26		15303
FEBRUARY	1	673	190.49	3.5330	1412.14	4989	
	2	212	198.11	1.0701	1361.64	1457	
	3	251	198.25	1.2661	1347.77	1706	
	4	100	397.11	0.2518	1596.22	402	
	MONTHLY EST.			1.5303	5717.76		8750
MARCH	1	5	196.70	0.0254	1421.28	36	
	2	15	173.10	0.0867	1321.68	115	
	3	3	217.84	0.0138	1544.62	21	
	4	1	195.71	0.0051	2108.83	11	
	MONTHLY EST.			0.0327	6396.41		209
APRIL	1	0	192.18	0.0000	1318.01	0	
	2	0	155.24	0.0000	1421.28	0	
	3	0	168.35	0.0000	1412.69	0	
	4	1	198.67	0.0050	1703.59	9	
	MONTHLY EST.			0.0013	5855.57		7
MAY	1	0	198.67	0.0000	886.78	0	
	2	0	58.88	0.0000	454.20	0	
	3	0	116.77	0.0000	809.06	0	
	4	0	232.96	0.0000	1156.85	0	
	MONTHLY EST.			0.0000	3306.89		0
JUNE	1	0	231.08	0.0000	1636.30	0	
	2	0	233.39	0.0000	2167.87	0	
	3	0	317.84	0.0000	2261.66	0	
	4	0	281.93	0.0000	2650.90	0	
	MONTHLY EST.			0.0000	8716.73		0
JULY	1	0	309.34	0.0000	2148.07	0	
	2	0	324.80	0.0000	2198.26	0	
	3	0	323.87	0.0000	2149.92	0	
	4	1	358.51	0.0028	3846.43	11	
	MONTHLY EST.			0.0007	10342.68		7
AUGUST	1	0	399.22	0.0000	2666.26	0	
	2	0	407.06	0.0000	2688.17	0	
	3	1	309.01	0.0032	2445.00	8	
	4	1	736.37	0.0014	3471.50	5	
	MONTHLY EST.			0.0011	11270.93		13
SEPTEMBER	1	1	365.17	0.0027	2041.58	6	
	2	0	322.44	0.0000	2232.65	0	
	3	0	345.63	0.0000	2417.54	0	
	4	0	269.87	0.0000	2632.58	0	
	MONTHLY EST.			0.0007	9324.36		6
OCTOBER	1	0	245.18	0.0000	1450.51	0	
	2	0	232.30	0.0000	1464.05	0	
	3	20	203.04	0.0985	1420.49	140	
	4	46	394.31	0.1167	2030.71	237	
	MONTHLY EST.			0.0538	6365.76		342
NOVEMBER	1	75	203.04	0.3694	1428.26	528	
	2	88	203.04	0.4334	1421.54	616	
	3	324	203.04	1.5957	1412.02	2253	
	4	127	203.04	0.6255	1796.14	1123	
	MONTHLY EST.			0.7560	6057.96		4580
DECEMBER	1	159	198.67	0.8003	1431.19	1145	
	2	171	195.49	0.8747	1394.66	1220	
	3	16	181.39	0.0882	1361.69	120	
	4	91	203.04	0.4482	2071.54	928	
	MONTHLY EST.			0.5529	6259.08		3460

APPENDIX TABLE C-2.8. ESTIMATED WEEKLY ABUNDANCE OF GOLDEN SHINER, DANSKAMMER POINT GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	3	181.19	0.0166	1369.06	23	
	2	1	203.04	0.0049	1469.28	7	
	3	1	200.50	0.0050	1330.20	7	
	4	73	196.70	0.3711	1834.73	681	
	MONTHLY EST.			0.0994	6003.26		597
FEBRUARY	1	30	190.49	0.1575	1412.14	222	
	2	23	198.11	0.1161	1361.64	158	
	3	12	198.25	0.0605	1347.77	82	
	4	103	397.11	0.2594	1596.22	414	
	MONTHLY EST.			0.1484	5717.76		848
MARCH	1	115	196.70	0.5847	1421.28	831	
	2	26	173.10	0.1502	1321.68	199	
	3	11	217.84	0.0505	1544.62	78	
	4	9	195.71	0.0460	2108.83	97	
	MONTHLY EST.			0.2078	6396.41		1329
APRIL	1	16	192.18	0.0833	1318.01	110	
	2	3	155.24	0.0193	1421.28	27	
	3	10	168.35	0.0594	1412.69	84	
	4	26	198.67	0.1309	1703.59	223	
	MONTHLY EST.			0.0732	5855.57		429
MAY	1	7	198.67	0.0352	886.78	31	
	2	1	58.88	0.0170	454.20	8	
	3	0	116.77	0.0000	809.06	0	
	4	1	232.96	0.0043	1156.85	5	
	MONTHLY EST.			0.0141	3306.89		47
JUNE	1	1	231.08	0.0043	1636.30	7	
	2	2	233.39	0.0086	2167.87	19	
	3	0	317.84	0.0000	2261.66	0	
	4	0	281.93	0.0000	2650.90	0	
	MONTHLY EST.			0.0032	8716.73		28
JULY	1	1	309.34	0.0032	2148.07	7	
	2	2	324.80	0.0062	2198.26	14	
	3	1	323.87	0.0031	2149.92	7	
	4	2	358.51	0.0056	3846.43	21	
	MONTHLY EST.			0.0045	10342.68		47
AUGUST	1	2	399.22	0.0050	2666.26	13	
	2	2	407.06	0.0049	2688.17	13	
	3	4	309.01	0.0129	2445.00	32	
	4	6	736.37	0.0081	3471.50	28	
	MONTHLY EST.			0.0078	11270.93		87
SEPTEMBER	1	1	365.17	0.0027	2041.58	6	
	2	0	322.44	0.0000	2232.65	0	
	3	1	345.63	0.0029	2417.54	7	
	4	0	269.87	0.0000	2632.58	0	
	MONTHLY EST.			0.0014	9324.36		13
OCTOBER	1	1	245.18	0.0041	1450.51	6	
	2	1	232.30	0.0043	1464.05	6	
	3	1	203.04	0.0049	1420.49	7	
	4	8	394.31	0.0203	2030.71	41	
	MONTHLY EST.			0.0084	6365.76		53
NOVEMBER	1	20	203.04	0.0985	1428.26	141	
	2	7	203.04	0.0345	1421.54	49	
	3	43	203.04	0.2118	1412.02	299	
	4	26	203.04	0.1281	1796.14	230	
	MONTHLY EST.			0.1182	6057.96		716
DECEMBER	1	21	198.67	0.1057	1431.19	151	
	2	26	195.49	0.1330	1394.66	185	
	3	4	181.39	0.0221	1361.69	30	
	4	22	203.04	0.1084	2071.54	224	
	MONTHLY EST.			0.0923	6259.08		578

APPENDIX TABLE C-2.9. ESTIMATED WEEKLY ABUNDANCE OF PUMPKINSEED, DANSKAMMER POINT GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	1	181.19	0.0055	1369.06	8	
	2	0	203.04	0.0000	1469.28	0	
	3	3	200.50	0.0150	1330.20	20	
	4	26	196.70	0.1322	1834.73	243	
	MONTHLY EST.			0.0382	6003.26		229
FEBRUARY	1	16	190.49	0.0840	1412.14	119	
	2	26	198.11	0.1312	1361.64	179	
	3	22	198.25	0.1110	1347.77	150	
	4	33	397.11	0.0831	1596.22	133	
	MONTHLY EST.			0.1023	5717.76		585
MARCH	1	16	196.70	0.0813	1421.28	116	
	2	4	173.10	0.0231	1321.68	31	
	3	3	217.84	0.0138	1544.62	21	
	4	4	195.71	0.0204	2108.83	43	
	MONTHLY EST.			0.0347	6396.41		222
APRIL	1	7	192.18	0.0364	1318.01	48	
	2	5	155.24	0.0322	1421.28	46	
	3	14	168.35	0.0832	1412.69	117	
	4	81	198.67	0.4077	1703.59	695	
	MONTHLY EST.			0.1399	5855.57		819
MAY	1	79	198.67	0.3976	886.78	353	
	2	2	58.88	0.0340	454.20	15	
	3	23	116.77	0.1970	809.06	159	
	4	35	232.96	0.1502	1156.85	174	
	MONTHLY EST.			0.1947	3306.89		644
JUNE	1	86	231.08	0.3722	1636.30	609	
	2	15	233.39	0.0643	2167.87	139	
	3	9	317.84	0.0283	2261.66	64	
	4	35	281.93	0.1241	2650.90	329	
	MONTHLY EST.			0.1472	8716.73		1283
JULY	1	26	309.34	0.0841	2148.07	181	
	2	19	324.80	0.0585	2198.26	129	
	3	4	323.87	0.0124	2149.92	27	
	4	7	358.51	0.0195	3846.43	75	
	MONTHLY EST.			0.0436	10342.68		451
AUGUST	1	6	399.22	0.0150	2666.26	40	
	2	4	407.06	0.0098	2688.17	26	
	3	1	309.01	0.0032	2445.00	8	
	4	5	736.37	0.0068	3471.50	24	
	MONTHLY EST.			0.0087	11270.93		98
SEPTEMBER	1	3	365.17	0.0082	2041.58	17	
	2	0	322.44	0.0000	2232.65	0	
	3	9	345.63	0.0260	2417.54	63	
	4	41	269.87	0.1519	2632.58	400	
	MONTHLY EST.			0.0465	9324.36		434
OCTOBER	1	42	245.18	0.1713	1450.51	248	
	2	20	232.30	0.0861	1464.05	126	
	3	12	203.04	0.0591	1420.49	84	
	4	33	394.31	0.0837	2030.71	170	
	MONTHLY EST.			0.1000	6365.76		637
NOVEMBER	1	0	203.04	0.0000	1428.26	0	
	2	4	203.04	0.0197	1421.54	28	
	3	4	203.04	0.0197	1412.02	28	
	4	2	203.04	0.0099	1796.14	18	
	MONTHLY EST.			0.0123	6057.96		75
DECEMBER	1	2	198.67	0.0101	1431.19	14	
	2	0	195.49	0.0000	1394.66	0	
	3	1	181.39	0.0055	1361.69	8	
	4	1	203.04	0.0049	2071.54	10	
	MONTHLY EST.			0.0051	6259.08		32

APPENDIX TABLE C-2.10. ESTIMATED WEEKLY ABUNDANCE OF RAINBOW SMELT, DANSKAMMER POINT GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	181.19	0.0000	1369.06	0	
	2	0	203.04	0.0000	1469.28	0	
	3	0	200.50	0.0000	1330.20	0	
	4	0	196.70	0.0000	1834.73	0	
	MONTHLY EST.			0.0000	6003.26		0
FEBRUARY	1	0	190.49	0.0000	1412.14	0	
	2	0	198.11	0.0000	1361.64	0	
	3	0	198.25	0.0000	1347.77	0	
	4	0	397.11	0.0000	1596.22	0	
	MONTHLY EST.			0.0000	5717.76		0
MARCH	1	0	196.70	0.0000	1421.28	0	
	2	0	173.10	0.0000	1321.68	0	
	3	0	217.84	0.0000	1544.62	0	
	4	0	195.71	0.0000	2108.83	0	
	MONTHLY EST.			0.0000	6396.41		0
APRIL	1	0	192.18	0.0000	1318.01	0	
	2	0	155.24	0.0000	1421.28	0	
	3	0	168.35	0.0000	1412.69	0	
	4	0	198.67	0.0000	1703.59	0	
	MONTHLY EST.			0.0000	5855.57		0
MAY	1	0	198.67	0.0000	886.78	0	
	2	0	58.88	0.0000	454.20	0	
	3	0	116.77	0.0000	809.06	0	
	4	0	232.96	0.0000	1156.85	0	
	MONTHLY EST.			0.0000	3306.89		0
JUNE	1	0	231.08	0.0000	1636.30	0	
	2	0	233.39	0.0000	2167.87	0	
	3	0	317.84	0.0000	2261.66	0	
	4	0	281.93	0.0000	2650.90	0	
	MONTHLY EST.			0.0000	8716.73		0
JULY	1	0	309.34	0.0000	2148.07	0	
	2	0	324.80	0.0000	2198.26	0	
	3	0	323.87	0.0000	2149.92	0	
	4	0	358.51	0.0000	3846.43	0	
	MONTHLY EST.			0.0000	10342.68		0
AUGUST	1	0	399.22	0.0000	2666.26	0	
	2	0	407.06	0.0000	2688.17	0	
	3	0	309.01	0.0000	2445.00	0	
	4	0	736.37	0.0000	3471.50	0	
	MONTHLY EST.			0.0000	11270.93		0
SEPTEMBER	1	0	365.17	0.0000	2041.58	0	
	2	0	322.44	0.0000	2232.65	0	
	3	0	345.63	0.0000	2417.54	0	
	4	0	269.87	0.0000	2632.58	0	
	MONTHLY EST.			0.0000	9324.36		0
OCTOBER	1	0	245.18	0.0000	1450.51	0	
	2	0	232.30	0.0000	1464.05	0	
	3	0	203.04	0.0000	1420.49	0	
	4	0	394.31	0.0000	2030.71	0	
	MONTHLY EST.			0.0000	6365.76		0
NOVEMBER	1	0	203.04	0.0000	1428.26	0	
	2	0	203.04	0.0000	1421.54	0	
	3	0	203.04	0.0000	1412.02	0	
	4	0	203.04	0.0000	1796.14	0	
	MONTHLY EST.			0.0000	6057.96		0
DECEMBER	1	0	198.67	0.0000	1431.19	0	
	2	0	195.49	0.0000	1394.66	0	
	3	0	181.39	0.0000	1361.69	0	
	4	0	203.04	0.0000	2071.54	0	
	MONTHLY EST.			0.0000	6259.08		0

APPENDIX TABLE C-2.11. ESTIMATED WEEKLY ABUNDANCE OF SPOTTAIL SHINER, DANSKAMMER POINT GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	6	181.19	0.0331	1369.06	45	
	2	1	203.04	0.0049	1469.28	7	
	3	4	200.50	0.0199	1330.20	27	
	4	130	196.70	0.6609	1834.73	1213	
	MONTHLY EST.			0.1797	6003.26		1079
FEBRUARY	1	51	190.49	0.2677	1412.14	378	
	2	53	198.11	0.2675	1361.64	364	
	3	59	198.25	0.2976	1347.77	401	
	4	144	397.11	0.3626	1596.22	579	
	MONTHLY EST.			0.2989	5717.76		1709
MARCH	1	239	196.70	1.2151	1421.28	1727	
	2	56	173.10	0.3235	1321.68	428	
	3	84	217.84	0.3856	1544.62	596	
	4	76	195.71	0.3883	2108.83	819	
	MONTHLY EST.			0.5781	6396.41		3698
APRIL	1	124	192.18	0.6452	1318.01	850	
	2	57	155.24	0.3672	1421.28	522	
	3	78	168.35	0.4633	1412.69	655	
	4	133	198.67	0.6695	1703.59	1140	
	MONTHLY EST.			0.5363	5855.57		3140
MAY	1	123	198.67	0.6191	886.78	549	
	2	0	58.88	0.0000	454.20	0	
	3	20	116.77	0.1713	809.06	139	
	4	9	232.96	0.0386	1156.85	45	
	MONTHLY EST.			0.2073	3306.89		685
JUNE	1	232	231.08	1.0040	1636.30	1643	
	2	223	233.39	0.9555	2167.87	2071	
	3	40	317.84	0.1258	2261.66	285	
	4	29	281.93	0.1029	2650.90	273	
	MONTHLY EST.			0.5470	8716.73		4768
JULY	1	105	309.34	0.3394	2148.07	729	
	2	32	324.80	0.0985	2198.26	217	
	3	89	323.87	0.2748	2149.92	591	
	4	50	358.51	0.1395	3846.43	536	
	MONTHLY EST.			0.2131	10342.68		2204
AUGUST	1	77	399.22	0.1929	2666.26	514	
	2	54	407.06	0.1327	2688.17	357	
	3	110	309.01	0.3560	2445.00	870	
	4	68	736.37	0.0923	3471.50	321	
	MONTHLY EST.			0.1935	11270.93		2181
SEPTEMBER	1	9	365.17	0.0246	2041.58	50	
	2	9	322.44	0.0279	2232.65	62	
	3	18	345.63	0.0521	2417.54	126	
	4	8	269.87	0.0296	2632.58	78	
	MONTHLY EST.			0.0336	9324.36		313
OCTOBER	1	10	245.18	0.0408	1450.51	59	
	2	13	232.30	0.0560	1464.05	82	
	3	16	203.04	0.0788	1420.49	112	
	4	124	394.31	0.3145	2030.71	639	
	MONTHLY EST.			0.1225	6365.76		780
NOVEMBER	1	72	203.04	0.3546	1428.26	506	
	2	32	203.04	0.1576	1421.54	224	
	3	507	203.04	2.4970	1412.02	3526	
	4	201	203.04	0.9900	1796.14	1778	
	MONTHLY EST.			0.9998	6057.96		6057
DECEMBER	1	49	198.67	0.2466	1431.19	353	
	2	74	195.49	0.3785	1394.66	528	
	3	9	181.39	0.0496	1361.69	68	
	4	61	203.04	0.3004	2071.54	622	
	MONTHLY EST.			0.2438	6259.08		1526

APPENDIX TABLE C-2.12. ESTIMATED WEEKLY ABUNDANCE OF STRIPED BASS, DANSKAMMER POINT GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	1	181.19	0.0055	1369.06	8	
	2	0	203.04	0.0000	1469.28	0	
	3	3	200.50	0.0150	1330.20	20	
	4	3	196.70	0.0153	1834.73	28	
	MONTHLY EST.			0.0089	6003.26		54
FEBRUARY	1	1	190.49	0.0052	1412.14	7	
	2	1	198.11	0.0050	1361.64	7	
	3	0	198.25	0.0000	1347.77	0	
	4	1	397.11	0.0025	1596.22	4	
	MONTHLY EST.			0.0032	5717.76		18
MARCH	1	0	196.70	0.0000	1421.28	0	
	2	0	173.10	0.0000	1321.68	0	
	3	0	217.84	0.0000	1544.62	0	
	4	0	195.71	0.0000	2108.83	0	
	MONTHLY EST.			0.0000	6396.41		0
APRIL	1	0	192.18	0.0000	1318.01	0	
	2	0	155.24	0.0000	1421.28	0	
	3	0	168.35	0.0000	1412.69	0	
	4	2	198.67	0.0101	1703.59	17	
	MONTHLY EST.			0.0025	5855.57		15
MAY	1	3	198.67	0.0151	886.78	13	
	2	0	58.88	0.0000	454.20	0	
	3	0	116.77	0.0000	809.06	0	
	4	0	232.96	0.0000	1156.85	0	
	MONTHLY EST.			0.0038	3306.89		12
JUNE	1	9	231.08	0.0389	1636.30	64	
	2	9	233.39	0.0386	2167.87	84	
	3	8	317.84	0.0252	2261.66	57	
	4	3	281.93	0.0106	2650.90	28	
	MONTHLY EST.			0.0283	8716.73		247
JULY	1	38	309.34	0.1228	2148.07	264	
	2	44	324.80	0.1355	2198.26	298	
	3	171	323.87	0.5280	2149.92	1135	
	4	74	358.51	0.2064	3846.43	794	
	MONTHLY EST.			0.2482	10342.68		2567
AUGUST	1	89	399.22	0.2229	2666.26	594	
	2	114	407.06	0.2801	2688.17	753	
	3	106	309.01	0.3430	2445.00	839	
	4	375	736.37	0.5093	3471.50	1768	
	MONTHLY EST.			0.3388	11270.93		3819
SEPTEMBER	1	110	365.17	0.3012	2041.58	615	
	2	97	322.44	0.3008	2232.65	672	
	3	171	345.63	0.4947	2417.54	1196	
	4	103	269.87	0.3817	2632.58	1005	
	MONTHLY EST.			0.3696	9324.36		3446
OCTOBER	1	17	245.18	0.0693	1450.51	101	
	2	25	232.30	0.1076	1464.05	158	
	3	10	203.04	0.0493	1420.49	70	
	4	27	394.31	0.0685	2030.71	139	
	MONTHLY EST.			0.0737	6365.76		469
NOVEMBER	1	13	203.04	0.0640	1428.26	91	
	2	17	203.04	0.0837	1421.54	119	
	3	27	203.04	0.1330	1412.02	188	
	4	12	203.04	0.0591	1796.14	106	
	MONTHLY EST.			0.0850	6057.96		515
DECEMBER	1	9	198.67	0.0453	1431.19	65	
	2	9	195.49	0.0460	1394.66	64	
	3	0	181.39	0.0000	1361.69	0	
	4	0	203.04	0.0000	2071.54	0	
	MONTHLY EST.			0.0228	6259.08		143

APPENDIX TABLE C-2.13. ESTIMATED WEEKLY ABUNDANCE OF WHITE CATFISH, DANSKAMMER POINT GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	2	181.19	0.0110	1369.06	15	
	2	3	203.04	0.0148	1469.28	22	
	3	2	200.50	0.0100	1330.20	13	
	4	24	196.70	0.1220	1834.73	224	
	MONTHLY EST.			0.0395	6003.26		237
FEBRUARY	1	14	190.49	0.0735	1412.14	104	
	2	14	198.11	0.0707	1361.64	96	
	3	28	198.25	0.1412	1347.77	190	
	4	30	397.11	0.0755	1596.22	121	
	MONTHLY EST.			0.0902	5717.76		516
MARCH	1	9	196.70	0.0458	1421.28	65	
	2	12	173.10	0.0693	1321.68	92	
	3	6	217.84	0.0275	1544.62	43	
	4	11	195.71	0.0562	2108.83	119	
	MONTHLY EST.			0.0497	6396.41		318
APRIL	1	12	192.18	0.0624	1318.01	82	
	2	14	155.24	0.0902	1421.28	128	
	3	21	168.35	0.1247	1412.69	176	
	4	25	198.67	0.1258	1703.59	214	
	MONTHLY EST.			0.1008	5855.57		590
MAY	1	26	198.67	0.1309	886.78	116	
	2	2	58.88	0.0340	454.20	15	
	3	3	116.77	0.0257	809.06	21	
	4	3	232.96	0.0129	1156.85	15	
	MONTHLY EST.			0.0509	3306.89		168
JUNE	1	4	231.08	0.0173	1636.30	28	
	2	26	233.39	0.1114	2167.87	242	
	3	7	317.84	0.0220	2261.66	50	
	4	13	281.93	0.0461	2650.90	122	
	MONTHLY EST.			0.0492	8716.73		429
JULY	1	46	309.34	0.1487	2148.07	319	
	2	27	324.80	0.0831	2198.26	183	
	3	14	323.87	0.0432	2149.92	93	
	4	4	358.51	0.0112	3846.43	43	
	MONTHLY EST.			0.0716	10342.68		740
AUGUST	1	20	399.22	0.0501	2666.26	134	
	2	18	407.06	0.0442	2688.17	119	
	3	20	309.01	0.0647	2445.00	158	
	4	524	736.37	0.7116	3471.50	2470	
	MONTHLY EST.			0.2177	11270.93		2453
SEPTEMBER	1	152	365.17	0.4162	2041.58	850	
	2	62	322.44	0.1923	2232.65	429	
	3	134	345.63	0.3877	2417.54	937	
	4	90	269.87	0.3335	2632.58	878	
	MONTHLY EST.			0.3324	9324.36		3100
OCTOBER	1	28	245.18	0.1142	1450.51	166	
	2	46	232.30	0.1980	1464.05	290	
	3	19	203.04	0.0936	1420.49	133	
	4	227	394.31	0.5757	2030.71	1169	
	MONTHLY EST.			0.2454	6365.76		1562
NOVEMBER	1	113	203.04	0.5565	1428.26	795	
	2	187	203.04	0.9210	1421.54	1309	
	3	407	203.04	2.0045	1412.02	2830	
	4	59	203.04	0.2906	1796.14	522	
	MONTHLY EST.			0.9432	6057.96		5714
DECEMBER	1	14	198.67	0.0705	1431.19	101	
	2	25	195.49	0.1279	1394.66	178	
	3	2	181.39	0.0110	1361.69	15	
	4	3	203.04	0.0148	2071.54	31	
	MONTHLY EST.			0.0560	6259.08		351

APPENDIX TABLE C-2.14. ESTIMATED WEEKLY ABUNDANCE OF WHITE PERCH, DANSKAMMER POINT GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	9	181.19	0.0497	1369.06	68	
	2	7	203.04	0.0345	1469.28	51	
	3	6	200.50	0.0299	1330.20	40	
	4	464	196.70	2.3590	1834.73	4328	
	MONTHLY EST.			0.6183	6003.26		3712
FEBRUARY	1	251	190.49	1.3176	1412.14	1861	
	2	78	198.11	0.3937	1361.64	536	
	3	34	198.25	0.1715	1347.77	231	
	4	62	397.11	0.1561	1596.22	249	
	MONTHLY EST.			0.5098	5717.76		2915
MARCH	1	69	196.70	0.3508	1421.28	499	
	2	122	173.10	0.7048	1321.68	932	
	3	222	217.84	1.0191	1544.62	1574	
	4	55	195.71	0.2810	2108.83	593	
	MONTHLY EST.			0.5889	6396.41		3767
APRIL	1	341	192.18	1.7744	1318.01	2339	
	2	85	155.24	0.5475	1421.28	778	
	3	319	168.35	1.8948	1412.69	2677	
	4	1646	198.67	8.2851	1703.59	14114	
	MONTHLY EST.			3.1255	5855.57		18301
MAY	1	1042	198.67	5.2449	886.78	4651	
	2	36	58.88	0.6115	454.20	278	
	3	234	116.77	2.0040	809.06	1621	
	4	73	232.96	0.3134	1156.85	363	
	MONTHLY EST.			2.0434	3306.89		6757
JUNE	1	924	231.08	3.9987	1636.30	6543	
	2	820	233.39	3.5135	2167.87	7617	
	3	428	317.84	1.3466	2261.66	3046	
	4	389	281.93	1.3798	2650.90	3658	
	MONTHLY EST.			2.5596	8716.73		22312
JULY	1	438	309.34	1.4159	2148.07	3041	
	2	244	324.80	0.7512	2198.26	1651	
	3	181	323.87	0.5589	2149.92	1202	
	4	255	358.51	0.7113	3846.43	2736	
	MONTHLY EST.			0.8593	10342.68		8888
AUGUST	1	560	399.22	1.4027	2666.26	3740	
	2	451	407.06	1.1079	2688.17	2978	
	3	192	309.01	0.6213	2445.00	1519	
	4	524	736.37	0.7116	3471.50	2470	
	MONTHLY EST.			0.9609	11270.93		10830
SEPTEMBER	1	62	365.17	0.1698	2041.58	347	
	2	68	322.44	0.2109	2232.65	471	
	3	125	345.63	0.3617	2417.54	874	
	4	162	269.87	0.6003	2632.58	1580	
	MONTHLY EST.			0.3357	9324.36		3130
OCTOBER	1	77	245.18	0.3140	1450.51	456	
	2	105	232.30	0.4520	1464.05	662	
	3	98	203.04	0.4827	1420.49	686	
	4	425	394.31	1.0778	2030.71	2189	
	MONTHLY EST.			0.5816	6365.76		3703
NOVEMBER	1	401	203.04	1.9750	1428.26	2821	
	2	531	203.04	2.6152	1421.54	3718	
	3	2711	203.04	13.3520	1412.02	18853	
	4	1267	203.04	6.2401	1796.14	11208	
	MONTHLY EST.			6.0456	6057.96		36624
DECEMBER	1	2743	198.67	13.8069	1431.19	19760	
	2	1069	195.49	5.4683	1394.66	7626	
	3	181	181.39	0.9978	1361.69	1359	
	4	63	203.04	0.3103	2071.54	643	
	MONTHLY EST.			5.1458	6259.08		32208

APPENDIX TABLE C-2.15. ESTIMATED WEEKLY ABUNDANCE OF YELLOW PERCH, DANSKAMMER POINT GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	181.19	0.0000	1369.06	0	
	2	0	203.04	0.0000	1469.28	0	
	3	2	200.50	0.0100	1330.20	13	
	4	13	196.70	0.0661	1834.73	121	
	MONTHLY EST.			0.0190	6003.26		114
FEBRUARY	1	3	190.49	0.0157	1412.14	22	
	2	4	198.11	0.0202	1361.64	27	
	3	4	198.25	0.0202	1347.77	27	
	4	8	397.11	0.0201	1596.22	32	
	MONTHLY EST.			0.0191	5717.76		109
MARCH	1	24	196.70	0.1220	1421.28	173	
	2	9	173.10	0.0520	1321.68	69	
	3	15	217.84	0.0689	1544.62	106	
	4	2	195.71	0.0102	2108.83	22	
	MONTHLY EST.			0.0633	6396.41		405
APRIL	1	14	192.18	0.0728	1318.01	96	
	2	2	155.24	0.0129	1421.28	18	
	3	1	168.35	0.0059	1412.69	8	
	4	17	198.67	0.0856	1703.59	146	
	MONTHLY EST.			0.0443	5855.57		259
MAY	1	4	198.67	0.0201	886.78	18	
	2	0	58.88	0.0000	454.20	0	
	3	0	116.77	0.0000	809.06	0	
	4	3	232.96	0.0129	1156.85	15	
	MONTHLY EST.			0.0083	3306.89		27
JUNE	1	6	231.08	0.0260	1636.30	42	
	2	2	233.39	0.0086	2167.87	19	
	3	3	317.84	0.0094	2261.66	21	
	4	0	281.93	0.0000	2650.90	0	
	MONTHLY EST.			0.0110	8716.73		96
JULY	1	0	309.34	0.0000	2148.07	0	
	2	0	324.80	0.0000	2198.26	0	
	3	0	323.87	0.0000	2149.92	0	
	4	0	358.51	0.0000	3846.43	0	
	MONTHLY EST.			0.0000	10342.68		0
AUGUST	1	0	399.22	0.0000	2666.26	0	
	2	0	407.06	0.0000	2688.17	0	
	3	0	309.01	0.0000	2445.00	0	
	4	1	736.37	0.0014	3471.50	5	
	MONTHLY EST.			0.0003	11270.93		4
SEPTEMBER	1	0	365.17	0.0000	2041.58	0	
	2	0	322.44	0.0000	2232.65	0	
	3	0	345.63	0.0000	2417.54	0	
	4	0	269.87	0.0000	2632.58	0	
	MONTHLY EST.			0.0000	9324.36		0
OCTOBER	1	0	245.18	0.0000	1450.51	0	
	2	0	232.30	0.0000	1464.05	0	
	3	2	203.04	0.0099	1420.49	14	
	4	3	394.31	0.0076	2030.71	15	
	MONTHLY EST.			0.0044	6365.76		28
NOVEMBER	1	0	203.04	0.0000	1428.26	0	
	2	0	203.04	0.0000	1421.54	0	
	3	2	203.04	0.0099	1412.02	14	
	4	0	203.04	0.0000	1796.14	0	
	MONTHLY EST.			0.0025	6057.96		15
DECEMBER	1	2	198.67	0.0101	1431.19	14	
	2	10	195.49	0.0512	1394.66	71	
	3	6	181.39	0.0331	1361.69	45	
	4	13	203.04	0.0640	2071.54	133	
	MONTHLY EST.			0.0396	6259.08		248

APPENDIX TABLE C-2.16. ESTIMATED WEEKLY ABUNDANCE OF BLUE CRAB, DANSKAMMER POINT GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	181.19	0.0000	1369.06	0	
	2	0	203.04	0.0000	1469.28	0	
	3	0	200.50	0.0000	1330.20	0	
	4	0	196.70	0.0000	1834.73	0	
	MONTHLY EST.			0.0000	6003.26		0
FEBRUARY	1	0	190.49	0.0000	1412.14	0	
	2	0	198.11	0.0000	1361.64	0	
	3	0	198.25	0.0000	1347.77	0	
	4	0	397.11	0.0000	1596.22	0	
	MONTHLY EST.			0.0000	5717.76		0
MARCH	1	0	196.70	0.0000	1421.28	0	
	2	0	173.10	0.0000	1321.68	0	
	3	0	217.84	0.0000	1544.62	0	
	4	0	195.71	0.0000	2108.83	0	
	MONTHLY EST.			0.0000	6396.41		0
APRIL	1	0	192.18	0.0000	1318.01	0	
	2	0	155.24	0.0000	1421.28	0	
	3	0	168.35	0.0000	1412.69	0	
	4	0	198.67	0.0000	1703.59	0	
	MONTHLY EST.			0.0000	5855.57		0
MAY	1	0	198.67	0.0000	886.78	0	
	2	0	58.88	0.0000	454.20	0	
	3	0	116.77	0.0000	809.06	0	
	4	0	232.96	0.0000	1156.85	0	
	MONTHLY EST.			0.0000	3306.89		0
JUNE	1	0	231.08	0.0000	1636.30	0	
	2	1	233.39	0.0043	2167.87	9	
	3	4	317.84	0.0126	2261.66	28	
	4	2	281.93	0.0071	2650.90	19	
	MONTHLY EST.			0.0060	8716.73		52
JULY	1	6	309.34	0.0194	2148.07	42	
	2	20	324.80	0.0616	2198.26	135	
	3	20	323.87	0.0618	2149.92	133	
	4	32	358.51	0.0893	3846.43	343	
	MONTHLY EST.			0.0580	10342.68		600
AUGUST	1	20	399.22	0.0501	2666.26	134	
	2	26	407.06	0.0639	2688.17	172	
	3	26	309.01	0.0841	2445.00	206	
	4	46	736.37	0.0625	3471.50	217	
	MONTHLY EST.			0.0651	11270.93		734
SEPTEMBER	1	25	365.17	0.0685	2041.58	140	
	2	27	322.44	0.0837	2232.65	187	
	3	28	345.63	0.0810	2417.54	196	
	4	45	269.87	0.1667	2632.58	439	
	MONTHLY EST.			0.1000	9324.36		932
OCTOBER	1	26	245.18	0.1060	1450.51	154	
	2	26	232.30	0.1119	1464.05	164	
	3	26	203.04	0.1281	1420.49	182	
	4	54	394.31	0.1369	2030.71	278	
	MONTHLY EST.			0.1207	6365.76		769
NOVEMBER	1	35	203.04	0.1724	1428.26	246	
	2	11	203.04	0.0542	1421.54	77	
	3	10	203.04	0.0493	1412.02	70	
	4	4	203.04	0.0197	1796.14	35	
	MONTHLY EST.			0.0739	6057.96		448
DECEMBER	1	0	198.67	0.0000	1431.19	0	
	2	0	195.49	0.0000	1394.66	0	
	3	0	181.39	0.0000	1361.69	0	
	4	0	203.04	0.0000	2071.54	0	
	MONTHLY EST.			0.0000	6259.08		0

APPENDIX D

ESTIMATED IMPINGEMENT BIOMASS

LIST OF APPENDIX D TABLES

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D-1.3. Estimated weekly biomass of American eel, Roseton Generating Station, 1996.

D-1.4. Estimated weekly biomass of American shad, Roseton Generating Station, 1996.

D-1.5. Estimated weekly biomass of Atlantic tomcod, Roseton Generating Station, 1996.

D-1.6. Estimated weekly biomass of bay anchovy, Roseton Generating Station, 1996.

D-1.7. Estimated weekly biomass of blueback herring, Roseton Generating Station, 1996.

D-1.8. Estimated weekly biomass of brown bullhead, Roseton Generating Station, 1996.

D-1.9. Estimated weekly biomass of channel catfish, Roseton Generating Station, 1996.

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D-1.12. Estimated weekly biomass of hogchoker, Roseton Generating Station, 1996.

D-1.13. Estimated weekly biomass of pumpkinseed, Roseton Generating Station, 1996.

D-1.14. Estimated weekly biomass of rainbow smelt, Roseton Generating Station, 1996.

D-1.15. Estimated weekly biomass of spottail shiner, Roseton Generating Station, 1996.

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D-2.3. Estimated weekly biomass of American shad, Danskammer Point Generating Station, 1996.

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D-2.7. Estimated weekly biomass of gizzard shad, Danskammer Point Generating Station, 1996.

D-2.8. Estimated weekly biomass of golden shiner, Danskammer Point Generating Station, 1996.

D-2.9. Estimated weekly biomass of pumpkinseed, Danskammer Point Generating Station, 1996.

D-2.10. Estimated weekly biomass of rainbow smelt, Danskammer Point Generating Station, 1996.

D-2.11. Estimated weekly biomass of spottail shiner, Danskammer Point Generating Station, 1996.

D-2.12. Estimated weekly biomass of striped bass, Danskammer Point Generating Station, 1996.

D-2.13. Estimated weekly biomass of white catfish, Danskammer Point Generating Station, 1996.

D-2.14. Estimated weekly biomass of white perch, Danskammer Point Generating Station, 1996.

D-2.15. Estimated weekly biomass of yellow perch, Danskammer Point Generating Station, 1996.

D-2.16. Estimated weekly biomass of blue crab, Danskammer Point Generating Station, 1996.

APPENDIX TABLE D-1.1. ESTIMATED WEEKLY BIOMASS OF ALL FISH SPECIES, ROSETON GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	16939.9	544.80	31.0938	3796.80	118056.9	
	2	3896.4	531.10	7.3365	3796.80	27855.1	
	3	3254.4	531.10	6.1277	3950.40	24206.7	
	4	34138.3	542.40	62.9393	5421.60	341231.9	
	MONTHLY EST.			26.8743	16965.60		455938.9
FEBRUARY	1	35562.4	542.40	65.5649	3796.80	248936.8	
	2	10097.3	531.10	19.0121	3825.60	72732.5	
	3	9083.9	542.40	16.7476	3890.40	65154.9	
	4	18102.6	1118.40	16.1862	4406.40	71322.7	
	MONTHLY EST.			29.3777	15919.20		467669.1
MARCH	1	8293.3	542.40	15.2900	3796.80	58053.1	
	2	5262.4	542.40	9.7021	3796.80	36836.8	
	3	4253.6	542.40	7.8422	3796.80	29775.2	
	4	1142.6	309.60	3.6906	3604.80	13303.8	
	MONTHLY EST.			9.1312	14995.20		136924.3
APRIL	1	2327.8	309.60	7.5187	2162.40	16258.5	
	2	906.4	311.89	2.9061	2174.40	6319.1	
	3	1525.4	269.23	5.6659	2150.40	12183.9	
	4	3140.4	307.20	10.2227	2764.80	28263.6	
	MONTHLY EST.			6.5783	9252.00		60862.8
MAY	1	1426.9	307.20	4.6449	2150.40	9988.3	
	2	1735.9	307.20	5.6507	2150.40	12151.3	
	3	1187.7	307.20	3.8662	2484.00	9603.7	
	4	3685.8	824.40	4.4709	3698.40	16535.1	
	MONTHLY EST.			4.6582	10483.20		48832.5
JUNE	1	652.0	307.20	2.1224	2167.20	4599.7	
	2	2665.5	542.40	4.9143	3441.60	16913.0	
	3	1278.4	460.20	2.7779	3108.00	8633.8	
	4	108.6	314.40	0.3454	2829.60	977.4	
	MONTHLY EST.			2.5400	11546.40		29327.9
JULY	1	550.9	314.40	1.7522	2200.80	3856.3	
	2	145.0	309.82	0.4680	2832.00	1325.4	
	3	582.0	537.88	1.0820	3110.40	3365.5	
	4	0.9	292.79	0.0031	3144.00	9.7	
	MONTHLY EST.			0.8263	11287.20		9327.0
AUGUST	1	42.0	309.60	0.1357	2978.40	404.1	
	2	349.3	542.40	0.6440	2748.00	1769.7	
	3	30.9	314.40	0.0983	2808.00	276.0	
	4	1907.9	807.93	2.3615	3936.00	9294.7	
	MONTHLY EST.			0.8098	12470.40		10099.1
SEPTEMBER	1	669.7	314.40	2.1301	2200.80	4687.9	
	2	120.6	313.20	0.3851	2198.40	846.5	
	3	45.0	314.40	0.1431	2200.80	315.0	
	4	75.6	314.40	0.2405	2829.60	680.4	
	MONTHLY EST.			0.7247	9429.60		6833.5
OCTOBER	1	53.1	314.40	0.1689	2200.80	371.7	
	2	29.6	314.40	0.0941	2200.80	207.2	
	3	24.7	314.40	0.0786	2200.80	172.9	
	4	547.4	624.43	0.8766	3144.00	2756.1	
	MONTHLY EST.			0.3046	9746.40		2968.4
NOVEMBER	1	3509.8	440.25	7.9723	3079.20	24548.3	
	2	421.8	314.40	1.3416	2200.80	2952.6	
	3	10345.7	443.34	23.3360	3064.80	71520.1	
	4	3298.9	298.24	11.0611	3055.20	33793.9	
	MONTHLY EST.			10.9277	11400.00		124576.3
DECEMBER	1	13849.0	570.86	24.2599	3864.00	93740.2	
	2	8353.6	542.40	15.4012	3571.20	55000.7	
	3	2563.9	542.40	4.7270	3319.20	15689.7	
	4	3330.2	549.60	6.0593	4466.40	27063.3	
	MONTHLY EST.			12.6118	15220.80		191962.2

APPENDIX TABLE D-1.2. ESTIMATED WEEKLY BIOMASS OF ALEWIFE, ROSETON GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	544.80	0.0000	3796.80	0.0	
	2	0.0	531.10	0.0000	3796.80	0.0	
	3	0.0	531.10	0.0000	3950.40	0.0	
	4	14.5	542.40	0.0267	5421.60	144.9	
	MONTHLY EST.			0.0067	16965.60		113.4
FEBRUARY	1	667.0	542.40	1.2297	3796.80	4669.0	
	2	9.8	531.10	0.0185	3825.60	70.6	
	3	0.0	542.40	0.0000	3890.40	0.0	
	4	73.9	1118.40	0.0661	4406.40	291.2	
	MONTHLY EST.			0.3286	15919.20		5230.4
MARCH	1	8.6	542.40	0.0159	3796.80	60.2	
	2	0.0	542.40	0.0000	3796.80	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	17.8	309.60	0.0575	3604.80	207.3	
	MONTHLY EST.			0.0183	14995.20		275.0
APRIL	1	0.0	309.60	0.0000	2162.40	0.0	
	2	0.0	311.89	0.0000	2174.40	0.0	
	3	0.0	269.23	0.0000	2150.40	0.0	
	4	150.4	307.20	0.4896	2764.80	1353.6	
	MONTHLY EST.			0.1224	9252.00		1132.4
MAY	1	0.0	307.20	0.0000	2150.40	0.0	
	2	0.0	307.20	0.0000	2150.40	0.0	
	3	0.0	307.20	0.0000	2484.00	0.0	
	4	184.2	824.40	0.2234	3698.40	826.4	
	MONTHLY EST.			0.0559	10483.20		585.6
JUNE	1	0.0	307.20	0.0000	2167.20	0.0	
	2	14.5	542.40	0.0267	3441.60	92.0	
	3	0.0	460.20	0.0000	3108.00	0.0	
	4	0.0	314.40	0.0000	2829.60	0.0	
	MONTHLY EST.			0.0067	11546.40		77.2
JULY	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	309.82	0.0000	2832.00	0.0	
	3	0.0	537.88	0.0000	3110.40	0.0	
	4	0.0	292.79	0.0000	3144.00	0.0	
	MONTHLY EST.			0.0000	11287.20		0.0
AUGUST	1	3.2	309.60	0.0103	2978.40	30.8	
	2	40.8	542.40	0.0752	2748.00	206.7	
	3	1.3	314.40	0.0041	2808.00	11.6	
	4	118.6	807.93	0.1468	3936.00	577.8	
	MONTHLY EST.			0.0591	12470.40		737.3
SEPTEMBER	1	8.5	314.40	0.0270	2200.80	59.5	
	2	6.0	313.20	0.0192	2198.40	42.1	
	3	1.7	314.40	0.0054	2200.80	11.9	
	4	2.9	314.40	0.0092	2829.60	26.1	
	MONTHLY EST.			0.0152	9429.60		143.4
OCTOBER	1	4.5	314.40	0.0143	2200.80	31.5	
	2	11.5	314.40	0.0366	2200.80	80.5	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	39.5	624.43	0.0633	3144.00	198.9	
	MONTHLY EST.			0.0285	9746.40		278.1
NOVEMBER	1	110.3	440.25	0.2505	3079.20	771.5	
	2	2.7	314.40	0.0086	2200.80	18.9	
	3	0.9	443.34	0.0020	3064.80	6.2	
	4	4.3	298.24	0.0144	3055.20	44.0	
	MONTHLY EST.			0.0689	11400.00		785.4
DECEMBER	1	396.5	570.86	0.6946	3864.00	2683.8	
	2	8.1	542.40	0.0149	3571.20	53.3	
	3	26.3	542.40	0.0485	3319.20	160.9	
	4	5.2	549.60	0.0095	4466.40	42.3	
	MONTHLY EST.			0.1919	15220.80		2920.3

APPENDIX TABLE D-1.3. ESTIMATED WEEKLY BIOMASS OF AMERICAN EEL, ROSETON GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	544.80	0.0000	3796.80	0.0	
	2	83.7	531.10	0.1576	3796.80	598.4	
	3	0.0	531.10	0.0000	3950.40	0.0	
	4	0.0	542.40	0.0000	5421.60	0.0	
	MONTHLY EST.			0.0394	16965.60		668.4
FEBRUARY	1	184.7	542.40	0.3405	3796.80	1292.9	
	2	0.0	531.10	0.0000	3825.60	0.0	
	3	0.0	542.40	0.0000	3890.40	0.0	
	4	0.0	1118.40	0.0000	4406.40	0.0	
	MONTHLY EST.			0.0851	15919.20		1355.2
MARCH	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	542.40	0.0000	3796.80	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	134.6	309.60	0.4348	3604.80	1567.2	
	MONTHLY EST.			0.1087	14995.20		1629.8
APRIL	1	0.0	309.60	0.0000	2162.40	0.0	
	2	248.9	311.89	0.7980	2174.40	1735.2	
	3	0.0	269.23	0.0000	2150.40	0.0	
	4	0.0	307.20	0.0000	2764.80	0.0	
	MONTHLY EST.			0.1995	9252.00		1845.8
MAY	1	0.0	307.20	0.0000	2150.40	0.0	
	2	61.0	307.20	0.1986	2150.40	427.0	
	3	0.0	307.20	0.0000	2484.00	0.0	
	4	0.0	824.40	0.0000	3698.40	0.0	
	MONTHLY EST.			0.0496	10483.20		520.4
JUNE	1	0.0	307.20	0.0000	2167.20	0.0	
	2	0.0	542.40	0.0000	3441.60	0.0	
	3	0.0	460.20	0.0000	3108.00	0.0	
	4	0.0	314.40	0.0000	2829.60	0.0	
	MONTHLY EST.			0.0000	11546.40		0.0
JULY	1	296.5	314.40	0.9431	2200.80	2075.5	
	2	0.0	309.82	0.0000	2832.00	0.0	
	3	0.0	537.88	0.0000	3110.40	0.0	
	4	0.0	292.79	0.0000	3144.00	0.0	
	MONTHLY EST.			0.2358	11287.20		2661.1
AUGUST	1	0.0	309.60	0.0000	2978.40	0.0	
	2	0.0	542.40	0.0000	2748.00	0.0	
	3	0.0	314.40	0.0000	2808.00	0.0	
	4	3.4	807.93	0.0042	3936.00	16.6	
	MONTHLY EST.			0.0011	12470.40		13.1
SEPTEMBER	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	313.20	0.0000	2198.40	0.0	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	0.0	314.40	0.0000	2829.60	0.0	
	MONTHLY EST.			0.0000	9429.60		0.0
OCTOBER	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	314.40	0.0000	2200.80	0.0	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	0.0	624.43	0.0000	3144.00	0.0	
	MONTHLY EST.			0.0000	9746.40		0.0
NOVEMBER	1	0.0	440.25	0.0000	3079.20	0.0	
	2	0.0	314.40	0.0000	2200.80	0.0	
	3	610.6	443.34	1.3773	3064.80	4221.1	
	4	560.0	298.24	1.8777	3055.20	5736.6	
	MONTHLY EST.			0.8137	11400.00		9276.6
DECEMBER	1	314.0	570.86	0.5500	3864.00	2125.4	
	2	0.0	542.40	0.0000	3571.20	0.0	
	3	155.8	542.40	0.2872	3319.20	953.4	
	4	98.7	549.60	0.1796	4466.40	802.1	
	MONTHLY EST.			0.2542	15220.80		3869.4

APPENDIX TABLE D-1.4. ESTIMATED WEEKLY BIOMASS OF AMERICAN SHAD, ROSETON GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	544.80	0.0000	3796.80	0.0	
	2	0.0	531.10	0.0000	3796.80	0.0	
	3	0.0	531.10	0.0000	3950.40	0.0	
	4	0.0	542.40	0.0000	5421.60	0.0	
	MONTHLY EST.			0.0000	16965.60		0.0
FEBRUARY	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	531.10	0.0000	3825.60	0.0	
	3	0.0	542.40	0.0000	3890.40	0.0	
	4	0.0	1118.40	0.0000	4406.40	0.0	
	MONTHLY EST.			0.0000	15919.20		0.0
MARCH	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	542.40	0.0000	3796.80	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	0.0	309.60	0.0000	3604.80	0.0	
	MONTHLY EST.			0.0000	14995.20		0.0
APRIL	1	0.0	309.60	0.0000	2162.40	0.0	
	2	0.0	311.89	0.0000	2174.40	0.0	
	3	0.0	269.23	0.0000	2150.40	0.0	
	4	0.0	307.20	0.0000	2764.80	0.0	
	MONTHLY EST.			0.0000	9252.00		0.0
MAY	1	0.0	307.20	0.0000	2150.40	0.0	
	2	0.0	307.20	0.0000	2150.40	0.0	
	3	0.0	307.20	0.0000	2484.00	0.0	
	4	0.0	824.40	0.0000	3698.40	0.0	
	MONTHLY EST.			0.0000	10483.20		0.0
JUNE	1	0.0	307.20	0.0000	2167.20	0.0	
	2	0.0	542.40	0.0000	3441.60	0.0	
	3	0.0	460.20	0.0000	3108.00	0.0	
	4	0.0	314.40	0.0000	2829.60	0.0	
	MONTHLY EST.			0.0000	11546.40		0.0
JULY	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	309.82	0.0000	2832.00	0.0	
	3	3.5	537.88	0.0065	3110.40	20.2	
	4	0.0	292.79	0.0000	3144.00	0.0	
	MONTHLY EST.			0.0016	11287.20		18.4
AUGUST	1	0.0	309.60	0.0000	2978.40	0.0	
	2	1.5	542.40	0.0028	2748.00	7.6	
	3	0.0	314.40	0.0000	2808.00	0.0	
	4	34.1	807.93	0.0422	3936.00	166.1	
	MONTHLY EST.			0.0112	12470.40		140.2
SEPTEMBER	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	313.20	0.0000	2198.40	0.0	
	3	1.5	314.40	0.0048	2200.80	10.5	
	4	2.8	314.40	0.0089	2829.60	25.2	
	MONTHLY EST.			0.0034	9429.60		32.2
OCTOBER	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	314.40	0.0000	2200.80	0.0	
	3	2.0	314.40	0.0064	2200.80	14.0	
	4	17.2	624.43	0.0275	3144.00	86.6	
	MONTHLY EST.			0.0085	9746.40		82.6
NOVEMBER	1	12.7	440.25	0.0288	3079.20	88.8	
	2	0.0	314.40	0.0000	2200.80	0.0	
	3	0.0	443.34	0.0000	3064.80	0.0	
	4	0.0	298.24	0.0000	3055.20	0.0	
	MONTHLY EST.			0.0072	11400.00		82.2
DECEMBER	1	0.0	570.86	0.0000	3864.00	0.0	
	2	0.0	542.40	0.0000	3571.20	0.0	
	3	0.0	542.40	0.0000	3319.20	0.0	
	4	0.0	549.60	0.0000	4466.40	0.0	
	MONTHLY EST.			0.0000	15220.80		0.0

APPENDIX TABLE D-1.5. ESTIMATED WEEKLY BIOMASS OF ATLANTIC TOMCOD, ROSETON GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	544.80	0.0000	3796.80	0.0	
	2	55.1	531.10	0.1037	3796.80	393.9	
	3	0.0	531.10	0.0000	3950.40	0.0	
	4	0.0	542.40	0.0000	5421.60	0.0	
	MONTHLY EST.			0.0259	16965.60		440.0
FEBRUARY	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	531.10	0.0000	3825.60	0.0	
	3	0.0	542.40	0.0000	3890.40	0.0	
	4	19.5	1118.40	0.0174	4406.40	76.8	
	MONTHLY EST.			0.0044	15919.20		69.4
MARCH	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	542.40	0.0000	3796.80	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	0.0	309.60	0.0000	3604.80	0.0	
	MONTHLY EST.			0.0000	14995.20		0.0
APRIL	1	0.0	309.60	0.0000	2162.40	0.0	
	2	0.0	311.89	0.0000	2174.40	0.0	
	3	0.0	269.23	0.0000	2150.40	0.0	
	4	0.0	307.20	0.0000	2764.80	0.0	
	MONTHLY EST.			0.0000	9252.00		0.0
MAY	1	0.0	307.20	0.0000	2150.40	0.0	
	2	0.0	307.20	0.0000	2150.40	0.0	
	3	0.0	307.20	0.0000	2484.00	0.0	
	4	0.0	824.40	0.0000	3698.40	0.0	
	MONTHLY EST.			0.0000	10483.20		0.0
JUNE	1	0.0	307.20	0.0000	2167.20	0.0	
	2	9.9	542.40	0.0183	3441.60	62.8	
	3	0.0	460.20	0.0000	3108.00	0.0	
	4	0.0	314.40	0.0000	2829.60	0.0	
	MONTHLY EST.			0.0046	11546.40		52.7
JULY	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	309.82	0.0000	2832.00	0.0	
	3	0.0	537.88	0.0000	3110.40	0.0	
	4	0.0	292.79	0.0000	3144.00	0.0	
	MONTHLY EST.			0.0000	11287.20		0.0
AUGUST	1	0.0	309.60	0.0000	2978.40	0.0	
	2	14.2	542.40	0.0262	2748.00	71.9	
	3	0.0	314.40	0.0000	2808.00	0.0	
	4	13.6	807.93	0.0168	3936.00	66.3	
	MONTHLY EST.			0.0108	12470.40		134.1
SEPTEMBER	1	10.0	314.40	0.0318	2200.80	70.0	
	2	0.0	313.20	0.0000	2198.40	0.0	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	3.8	314.40	0.0121	2829.60	34.2	
	MONTHLY EST.			0.0110	9429.60		103.5
OCTOBER	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	314.40	0.0000	2200.80	0.0	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	0.0	624.43	0.0000	3144.00	0.0	
	MONTHLY EST.			0.0000	9746.40		0.0
NOVEMBER	1	0.0	440.25	0.0000	3079.20	0.0	
	2	0.0	314.40	0.0000	2200.80	0.0	
	3	9.4	443.34	0.0212	3064.80	65.0	
	4	0.0	298.24	0.0000	3055.20	0.0	
	MONTHLY EST.			0.0053	11400.00		60.4
DECEMBER	1	28.2	570.86	0.0494	3864.00	190.9	
	2	399.5	542.40	0.7365	3571.20	2630.3	
	3	45.6	542.40	0.0841	3319.20	279.0	
	4	747.8	549.60	1.3606	4466.40	6077.1	
	MONTHLY EST.			0.5577	15220.80		8488.0

APPENDIX TABLE D-1.6. ESTIMATED WEEKLY BIOMASS OF BAY ANCHOVY, ROSETON GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	544.80	0.0000	3796.80	0.0	
	2	0.0	531.10	0.0000	3796.80	0.0	
	3	0.0	531.10	0.0000	3950.40	0.0	
	4	0.0	542.40	0.0000	5421.60	0.0	
	MONTHLY EST.			0.0000	16965.60		0.0
FEBRUARY	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	531.10	0.0000	3825.60	0.0	
	3	0.0	542.40	0.0000	3890.40	0.0	
	4	0.0	1118.40	0.0000	4406.40	0.0	
	MONTHLY EST.			0.0000	15919.20		0.0
MARCH	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	542.40	0.0000	3796.80	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	0.0	309.60	0.0000	3604.80	0.0	
	MONTHLY EST.			0.0000	14995.20		0.0
APRIL	1	0.0	309.60	0.0000	2162.40	0.0	
	2	0.0	311.89	0.0000	2174.40	0.0	
	3	0.0	269.23	0.0000	2150.40	0.0	
	4	0.0	307.20	0.0000	2764.80	0.0	
	MONTHLY EST.			0.0000	9252.00		0.0
MAY	1	0.0	307.20	0.0000	2150.40	0.0	
	2	0.0	307.20	0.0000	2150.40	0.0	
	3	0.0	307.20	0.0000	2484.00	0.0	
	4	142.5	824.40	0.1729	3698.40	639.3	
	MONTHLY EST.			0.0432	10483.20		453.0
JUNE	1	0.0	307.20	0.0000	2167.20	0.0	
	2	0.0	542.40	0.0000	3441.60	0.0	
	3	0.0	460.20	0.0000	3108.00	0.0	
	4	0.0	314.40	0.0000	2829.60	0.0	
	MONTHLY EST.			0.0000	11546.40		0.0
JULY	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	309.82	0.0000	2832.00	0.0	
	3	0.0	537.88	0.0000	3110.40	0.0	
	4	0.0	292.79	0.0000	3144.00	0.0	
	MONTHLY EST.			0.0000	11287.20		0.0
AUGUST	1	0.0	309.60	0.0000	2978.40	0.0	
	2	7.1	542.40	0.0131	2748.00	36.0	
	3	0.0	314.40	0.0000	2808.00	0.0	
	4	5.9	807.93	0.0073	3936.00	28.7	
	MONTHLY EST.			0.0051	12470.40		63.6
SEPTEMBER	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	313.20	0.0000	2198.40	0.0	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	0.0	314.40	0.0000	2829.60	0.0	
	MONTHLY EST.			0.0000	9429.60		0.0
OCTOBER	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	314.40	0.0000	2200.80	0.0	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	0.0	624.43	0.0000	3144.00	0.0	
	MONTHLY EST.			0.0000	9746.40		0.0
NOVEMBER	1	0.0	440.25	0.0000	3079.20	0.0	
	2	0.0	314.40	0.0000	2200.80	0.0	
	3	0.0	443.34	0.0000	3064.80	0.0	
	4	0.0	298.24	0.0000	3055.20	0.0	
	MONTHLY EST.			0.0000	11400.00		0.0
DECEMBER	1	0.0	570.86	0.0000	3864.00	0.0	
	2	0.0	542.40	0.0000	3571.20	0.0	
	3	0.0	542.40	0.0000	3319.20	0.0	
	4	0.0	549.60	0.0000	4466.40	0.0	
	MONTHLY EST.			0.0000	15220.80		0.0

APPENDIX TABLE D-1.7. ESTIMATED WEEKLY BIOMASS OF BLUEBACK HERRING, ROSETON GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	544.80	0.0000	3796.80	0.0	
	2	0.0	531.10	0.0000	3796.80	0.0	
	3	0.0	531.10	0.0000	3950.40	0.0	
	4	0.0	542.40	0.0000	5421.60	0.0	
	MONTHLY EST.			0.0000	16965.60		0.0
FEBRUARY	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	531.10	0.0000	3825.60	0.0	
	3	0.0	542.40	0.0000	3890.40	0.0	
	4	0.0	1118.40	0.0000	4406.40	0.0	
	MONTHLY EST.			0.0000	15919.20		0.0
MARCH	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	542.40	0.0000	3796.80	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	0.0	309.60	0.0000	3604.80	0.0	
	MONTHLY EST.			0.0000	14995.20		0.0
APRIL	1	0.0	309.60	0.0000	2162.40	0.0	
	2	0.0	311.89	0.0000	2174.40	0.0	
	3	0.0	269.23	0.0000	2150.40	0.0	
	4	0.0	307.20	0.0000	2764.80	0.0	
	MONTHLY EST.			0.0000	9252.00		0.0
MAY	1	0.0	307.20	0.0000	2150.40	0.0	
	2	157.1	307.20	0.5114	2150.40	1099.7	
	3	191.8	307.20	0.6243	2484.00	1550.9	
	4	726.1	824.40	0.8808	3698.40	3257.4	
	MONTHLY EST.			0.5041	10483.20		5284.9
JUNE	1	141.5	307.20	0.4606	2167.20	998.2	
	2	466.1	542.40	0.8593	3441.60	2957.5	
	3	225.2	460.20	0.4894	3108.00	1520.9	
	4	0.0	314.40	0.0000	2829.60	0.0	
	MONTHLY EST.			0.4523	11546.40		5222.7
JULY	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	309.82	0.0000	2832.00	0.0	
	3	0.0	537.88	0.0000	3110.40	0.0	
	4	0.0	292.79	0.0000	3144.00	0.0	
	MONTHLY EST.			0.0000	11287.20		0.0
AUGUST	1	0.0	309.60	0.0000	2978.40	0.0	
	2	0.0	542.40	0.0000	2748.00	0.0	
	3	0.0	314.40	0.0000	2808.00	0.0	
	4	536.9	807.93	0.6645	3936.00	2615.6	
	MONTHLY EST.			0.1661	12470.40		2071.8
SEPTEMBER	1	1.3	314.40	0.0041	2200.80	9.1	
	2	0.4	313.20	0.0013	2198.40	2.8	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	0.0	314.40	0.0000	2829.60	0.0	
	MONTHLY EST.			0.0014	9429.60		12.8
OCTOBER	1	1.1	314.40	0.0035	2200.80	7.7	
	2	4.8	314.40	0.0153	2200.80	33.6	
	3	1.5	314.40	0.0048	2200.80	10.5	
	4	39.1	624.43	0.0626	3144.00	196.9	
	MONTHLY EST.			0.0215	9746.40		209.9
NOVEMBER	1	71.2	440.25	0.1617	3079.20	498.0	
	2	1.4	314.40	0.0045	2200.80	9.8	
	3	0.6	443.34	0.0014	3064.80	4.1	
	4	3.8	298.24	0.0127	3055.20	38.9	
	MONTHLY EST.			0.0451	11400.00		513.8
DECEMBER	1	3.2	570.86	0.0056	3864.00	21.7	
	2	0.0	542.40	0.0000	3571.20	0.0	
	3	0.0	542.40	0.0000	3319.20	0.0	
	4	0.0	549.60	0.0000	4466.40	0.0	
	MONTHLY EST.			0.0014	15220.80		21.3

APPENDIX TABLE D-1.8. ESTIMATED WEEKLY BIOMASS OF BROWN BULLHEAD, ROSETON GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	544.80	0.0000	3796.80	0.0	
	2	0.0	531.10	0.0000	3796.80	0.0	
	3	260.1	531.10	0.4897	3950.40	1934.7	
	4	284.1	542.40	0.5238	5421.60	2839.7	
	MONTHLY EST.			0.2534	16965.60		4298.7
FEBRUARY	1	527.6	542.40	0.9727	3796.80	3693.2	
	2	3.2	531.10	0.0060	3825.60	23.1	
	3	9.5	542.40	0.0175	3890.40	68.1	
	4	6.1	1118.40	0.0055	4406.40	24.0	
	MONTHLY EST.			0.2504	15919.20		3986.6
MARCH	1	13.8	542.40	0.0254	3796.80	96.6	
	2	197.7	542.40	0.3645	3796.80	1383.9	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	270.7	309.60	0.8744	3604.80	3151.9	
	MONTHLY EST.			0.3161	14995.20		4739.6
APRIL	1	92.3	309.60	0.2981	2162.40	644.7	
	2	0.0	311.89	0.0000	2174.40	0.0	
	3	78.1	269.23	0.2901	2150.40	623.8	
	4	267.1	307.20	0.8695	2764.80	2403.9	
	MONTHLY EST.			0.3644	9252.00		3371.6
MAY	1	22.2	307.20	0.0723	2150.40	155.4	
	2	16.8	307.20	0.0547	2150.40	117.6	
	3	14.4	307.20	0.0469	2484.00	116.4	
	4	12.7	824.40	0.0154	3698.40	57.0	
	MONTHLY EST.			0.0473	10483.20		495.9
JUNE	1	0.0	307.20	0.0000	2167.20	0.0	
	2	144.8	542.40	0.2670	3441.60	918.8	
	3	195.5	460.20	0.4248	3108.00	1320.3	
	4	0.0	314.40	0.0000	2829.60	0.0	
	MONTHLY EST.			0.1729	11546.40		1996.9
JULY	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	309.82	0.0000	2832.00	0.0	
	3	0.0	537.88	0.0000	3110.40	0.0	
	4	0.0	292.79	0.0000	3144.00	0.0	
	MONTHLY EST.			0.0000	11287.20		0.0
AUGUST	1	1.3	309.60	0.0042	2978.40	12.5	
	2	22.1	542.40	0.0407	2748.00	112.0	
	3	2.6	314.40	0.0083	2808.00	23.2	
	4	166.2	807.93	0.2057	3936.00	809.7	
	MONTHLY EST.			0.0647	12470.40		807.2
SEPTEMBER	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	313.20	0.0000	2198.40	0.0	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	6.5	314.40	0.0207	2829.60	58.5	
	MONTHLY EST.			0.0052	9429.60		48.7
OCTOBER	1	0.0	314.40	0.0000	2200.80	0.0	
	2	3.9	314.40	0.0124	2200.80	27.3	
	3	2.8	314.40	0.0089	2200.80	19.6	
	4	36.9	624.43	0.0591	3144.00	185.8	
	MONTHLY EST.			0.0201	9746.40		195.9
NOVEMBER	1	86.7	440.25	0.1969	3079.20	606.4	
	2	11.8	314.40	0.0375	2200.80	82.6	
	3	8.7	443.34	0.0196	3064.80	60.1	
	4	5.3	298.24	0.0178	3055.20	54.3	
	MONTHLY EST.			0.0680	11400.00		774.8
DECEMBER	1	16.8	570.86	0.0294	3864.00	113.7	
	2	211.1	542.40	0.3892	3571.20	1389.9	
	3	8.9	542.40	0.0164	3319.20	54.5	
	4	169.2	549.60	0.3079	4466.40	1375.0	
	MONTHLY EST.			0.1857	15220.80		2826.9

APPENDIX TABLE D-1.9. ESTIMATED WEEKLY BIOMASS OF CHANNEL CATFISH, ROSETON GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	544.80	0.0000	3796.80	0.0	
	2	8.0	531.10	0.0151	3796.80	57.2	
	3	0.0	531.10	0.0000	3950.40	0.0	
	4	197.2	542.40	0.3636	5421.60	1971.1	
	MONTHLY EST.			0.0947	16965.60		1605.9
FEBRUARY	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	531.10	0.0000	3825.60	0.0	
	3	3.8	542.40	0.0070	3890.40	27.3	
	4	6.3	1118.40	0.0056	4406.40	24.8	
	MONTHLY EST.			0.0032	15919.20		50.3
MARCH	1	3.9	542.40	0.0072	3796.80	27.3	
	2	0.0	542.40	0.0000	3796.80	0.0	
	3	17.1	542.40	0.0315	3796.80	119.7	
	4	64.0	309.60	0.2067	3604.80	745.2	
	MONTHLY EST.			0.0614	14995.20		920.1
APRIL	1	32.5	309.60	0.1050	2162.40	227.0	
	2	126.2	311.89	0.4046	2174.40	879.8	
	3	24.3	269.23	0.0903	2150.40	194.1	
	4	28.0	307.20	0.0911	2764.80	252.0	
	MONTHLY EST.			0.1728	9252.00		1598.3
MAY	1	0.0	307.20	0.0000	2150.40	0.0	
	2	0.0	307.20	0.0000	2150.40	0.0	
	3	0.0	307.20	0.0000	2484.00	0.0	
	4	0.0	824.40	0.0000	3698.40	0.0	
	MONTHLY EST.			0.0000	10483.20		0.0
JUNE	1	0.0	307.20	0.0000	2167.20	0.0	
	2	0.0	542.40	0.0000	3441.60	0.0	
	3	10.2	460.20	0.0222	3108.00	68.9	
	4	0.0	314.40	0.0000	2829.60	0.0	
	MONTHLY EST.			0.0055	11546.40		64.0
JULY	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	309.82	0.0000	2832.00	0.0	
	3	0.0	537.88	0.0000	3110.40	0.0	
	4	0.0	292.79	0.0000	3144.00	0.0	
	MONTHLY EST.			0.0000	11287.20		0.0
AUGUST	1	0.0	309.60	0.0000	2978.40	0.0	
	2	38.5	542.40	0.0710	2748.00	195.1	
	3	0.0	314.40	0.0000	2808.00	0.0	
	4	87.0	807.93	0.1077	3936.00	423.8	
	MONTHLY EST.			0.0447	12470.40		557.0
SEPTEMBER	1	8.3	314.40	0.0264	2200.80	58.1	
	2	2.8	313.20	0.0089	2198.40	19.7	
	3	8.4	314.40	0.0267	2200.80	58.8	
	4	1.5	314.40	0.0048	2829.60	13.5	
	MONTHLY EST.			0.0167	9429.60		157.5
OCTOBER	1	4.2	314.40	0.0134	2200.80	29.4	
	2	0.0	314.40	0.0000	2200.80	0.0	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	0.0	624.43	0.0000	3144.00	0.0	
	MONTHLY EST.			0.0033	9746.40		32.6
NOVEMBER	1	41.9	440.25	0.0952	3079.20	293.1	
	2	5.4	314.40	0.0172	2200.80	37.8	
	3	96.5	443.34	0.2177	3064.80	667.1	
	4	217.0	298.24	0.7276	3055.20	2222.9	
	MONTHLY EST.			0.2644	11400.00		3014.2
DECEMBER	1	218.4	570.86	0.3826	3864.00	1478.3	
	2	235.8	542.40	0.4347	3571.20	1552.5	
	3	208.1	542.40	0.3837	3319.20	1273.5	
	4	175.4	549.60	0.3191	4466.40	1425.4	
	MONTHLY EST.			0.3800	15220.80		5784.4

APPENDIX TABLE D-1.10. ESTIMATED WEEKLY BIOMASS OF GIZZARD SHAD, ROSETON GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	15735.4	544.80	28.8829	3796.80	109662.6	
	2	2979.4	531.10	5.6099	3796.80	21299.5	
	3	2322.6	531.10	4.3732	3950.40	17275.8	
	4	20117.8	542.40	37.0903	5421.60	201089.0	
	MONTHLY EST.			18.9891	16965.60		322161.0
FEBRUARY	1	25434.7	542.40	46.8929	3796.80	178042.9	
	2	6505.6	531.10	12.2493	3825.60	46860.9	
	3	5829.6	542.40	10.7478	3890.40	41813.2	
	4	8993.5	1118.40	8.0414	4406.40	35433.6	
	MONTHLY EST.			19.4828	15919.20		310151.2
MARCH	1	1009.7	542.40	1.8615	3796.80	7067.9	
	2	1646.8	542.40	3.0361	3796.80	11527.6	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	0.0	309.60	0.0000	3604.80	0.0	
	MONTHLY EST.			1.2244	14995.20		18360.4
APRIL	1	0.0	309.60	0.0000	2162.40	0.0	
	2	0.0	311.89	0.0000	2174.40	0.0	
	3	0.0	269.23	0.0000	2150.40	0.0	
	4	0.0	307.20	0.0000	2764.80	0.0	
	MONTHLY EST.			0.0000	9252.00		0.0
MAY	1	0.0	307.20	0.0000	2150.40	0.0	
	2	0.0	307.20	0.0000	2150.40	0.0	
	3	0.0	307.20	0.0000	2484.00	0.0	
	4	1179.7	824.40	1.4310	3698.40	5292.3	
	MONTHLY EST.			0.3577	10483.20		3750.3
JUNE	1	0.0	307.20	0.0000	2167.20	0.0	
	2	0.0	542.40	0.0000	3441.60	0.0	
	3	0.0	460.20	0.0000	3108.00	0.0	
	4	0.0	314.40	0.0000	2829.60	0.0	
	MONTHLY EST.			0.0000	11546.40		0.0
JULY	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	309.82	0.0000	2832.00	0.0	
	3	0.0	537.88	0.0000	3110.40	0.0	
	4	0.0	292.79	0.0000	3144.00	0.0	
	MONTHLY EST.			0.0000	11287.20		0.0
AUGUST	1	0.0	309.60	0.0000	2978.40	0.0	
	2	0.0	542.40	0.0000	2748.00	0.0	
	3	0.0	314.40	0.0000	2808.00	0.0	
	4	0.0	807.93	0.0000	3936.00	0.0	
	MONTHLY EST.			0.0000	12470.40		0.0
SEPTEMBER	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	313.20	0.0000	2198.40	0.0	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	0.0	314.40	0.0000	2829.60	0.0	
	MONTHLY EST.			0.0000	9429.60		0.0
OCTOBER	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	314.40	0.0000	2200.80	0.0	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	0.0	624.43	0.0000	3144.00	0.0	
	MONTHLY EST.			0.0000	9746.40		0.0
NOVEMBER	1	209.2	440.25	0.4752	3079.20	1463.2	
	2	0.0	314.40	0.0000	2200.80	0.0	
	3	893.9	443.34	2.0163	3064.80	6179.6	
	4	548.9	298.24	1.8404	3055.20	5622.9	
	MONTHLY EST.			1.0830	11400.00		12346.0
DECEMBER	1	5785.6	570.86	10.1349	3864.00	39161.2	
	2	1805.1	542.40	3.3280	3571.20	11884.9	
	3	491.2	542.40	0.9056	3319.20	3005.9	
	4	805.0	549.60	1.4647	4466.40	6541.9	
	MONTHLY EST.			3.9583	15220.80		60248.4

APPENDIX TABLE D-1.11. ESTIMATED WEEKLY BIOMASS OF GOLDEN SHINER, ROSETON GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	146.3	544.80	0.2685	3796.80	1019.6	
	2	42.2	531.10	0.0795	3796.80	301.7	
	3	2.5	531.10	0.0047	3950.40	18.6	
	4	605.1	542.40	1.1156	5421.60	6048.3	
	MONTHLY EST.			0.3671	16965.60		6227.7
FEBRUARY	1	470.9	542.40	0.8682	3796.80	3296.3	
	2	308.7	531.10	0.5812	3825.60	2223.6	
	3	158.8	542.40	0.2928	3890.40	1139.0	
	4	2635.4	1118.40	2.3564	4406.40	10383.2	
	MONTHLY EST.			1.0246	15919.20		16311.6
MARCH	1	3898.3	542.40	7.1871	3796.80	27288.1	
	2	893.2	542.40	1.6468	3796.80	6252.4	
	3	505.9	542.40	0.9327	3796.80	3541.3	
	4	82.9	309.60	0.2678	3604.80	965.2	
	MONTHLY EST.			2.5086	14995.20		37616.8
APRIL	1	4.8	309.60	0.0155	2162.40	33.5	
	2	0.0	311.89	0.0000	2174.40	0.0	
	3	56.3	269.23	0.2091	2150.40	449.7	
	4	22.3	307.20	0.0726	2764.80	200.7	
	MONTHLY EST.			0.0743	9252.00		687.5
MAY	1	10.1	307.20	0.0329	2150.40	70.7	
	2	0.0	307.20	0.0000	2150.40	0.0	
	3	0.0	307.20	0.0000	2484.00	0.0	
	4	0.0	824.40	0.0000	3698.40	0.0	
	MONTHLY EST.			0.0082	10483.20		86.2
JUNE	1	0.0	307.20	0.0000	2167.20	0.0	
	2	0.0	542.40	0.0000	3441.60	0.0	
	3	0.0	460.20	0.0000	3108.00	0.0	
	4	0.0	314.40	0.0000	2829.60	0.0	
	MONTHLY EST.			0.0000	11546.40		0.0
JULY	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	309.82	0.0000	2832.00	0.0	
	3	0.0	537.88	0.0000	3110.40	0.0	
	4	0.0	292.79	0.0000	3144.00	0.0	
	MONTHLY EST.			0.0000	11287.20		0.0
AUGUST	1	36.0	309.60	0.1163	2978.40	346.3	
	2	0.0	542.40	0.0000	2748.00	0.0	
	3	0.0	314.40	0.0000	2808.00	0.0	
	4	0.0	807.93	0.0000	3936.00	0.0	
	MONTHLY EST.			0.0291	12470.40		362.5
SEPTEMBER	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	313.20	0.0000	2198.40	0.0	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	0.0	314.40	0.0000	2829.60	0.0	
	MONTHLY EST.			0.0000	9429.60		0.0
OCTOBER	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	314.40	0.0000	2200.80	0.0	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	0.0	624.43	0.0000	3144.00	0.0	
	MONTHLY EST.			0.0000	9746.40		0.0
NOVEMBER	1	207.5	440.25	0.4713	3079.20	1451.3	
	2	0.0	314.40	0.0000	2200.80	0.0	
	3	201.9	443.34	0.4554	3064.80	1395.7	
	4	159.2	298.24	0.5338	3055.20	1630.8	
	MONTHLY EST.			0.3651	11400.00		4162.5
DECEMBER	1	1369.8	570.86	2.3995	3864.00	9271.8	
	2	621.1	542.40	1.1451	3571.20	4089.4	
	3	1088.7	542.40	2.0072	3319.20	6662.3	
	4	724.1	549.60	1.3175	4466.40	5884.5	
	MONTHLY EST.			1.7173	15220.80		26139.2

APPENDIX TABLE D-1.12. ESTIMATED WEEKLY BIOMASS OF HOGCHOKER, ROSETON GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	544.80	0.0000	3796.80	0.0	
	2	0.0	531.10	0.0000	3796.80	0.0	
	3	0.0	531.10	0.0000	3950.40	0.0	
	4	0.0	542.40	0.0000	5421.60	0.0	
	MONTHLY EST.			0.0000	16965.60		0.0
FEBRUARY	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	531.10	0.0000	3825.60	0.0	
	3	0.0	542.40	0.0000	3890.40	0.0	
	4	0.0	1118.40	0.0000	4406.40	0.0	
	MONTHLY EST.			0.0000	15919.20		0.0
MARCH	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	542.40	0.0000	3796.80	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	0.0	309.60	0.0000	3604.80	0.0	
	MONTHLY EST.			0.0000	14995.20		0.0
APRIL	1	0.0	309.60	0.0000	2162.40	0.0	
	2	0.0	311.89	0.0000	2174.40	0.0	
	3	12.7	269.23	0.0472	2150.40	101.4	
	4	59.4	307.20	0.1934	2764.80	534.6	
	MONTHLY EST.			0.0601	9252.00		556.3
MAY	1	269.7	307.20	0.8779	2150.40	1887.9	
	2	418.1	307.20	1.3610	2150.40	2926.7	
	3	243.7	307.20	0.7933	2484.00	1970.5	
	4	279.2	824.40	0.3387	3698.40	1252.5	
	MONTHLY EST.			0.8427	10483.20		8834.4
JUNE	1	0.0	307.20	0.0000	2167.20	0.0	
	2	2.1	542.40	0.0039	3441.60	13.3	
	3	0.0	460.20	0.0000	3108.00	0.0	
	4	0.0	314.40	0.0000	2829.60	0.0	
	MONTHLY EST.			0.0010	11546.40		11.2
JULY	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	309.82	0.0000	2832.00	0.0	
	3	26.4	537.88	0.0491	3110.40	152.7	
	4	0.0	292.79	0.0000	3144.00	0.0	
	MONTHLY EST.			0.0123	11287.20		138.5
AUGUST	1	0.0	309.60	0.0000	2978.40	0.0	
	2	13.1	542.40	0.0242	2748.00	66.4	
	3	5.1	314.40	0.0162	2808.00	45.5	
	4	22.6	807.93	0.0280	3936.00	110.1	
	MONTHLY EST.			0.0171	12470.40		213.1
SEPTEMBER	1	0.0	314.40	0.0000	2200.80	0.0	
	2	82.5	313.20	0.2634	2198.40	579.1	
	3	31.2	314.40	0.0992	2200.80	218.4	
	4	0.0	314.40	0.0000	2829.60	0.0	
	MONTHLY EST.			0.0907	9429.60		854.9
OCTOBER	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	314.40	0.0000	2200.80	0.0	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	27.1	624.43	0.0434	3144.00	136.4	
	MONTHLY EST.			0.0108	9746.40		105.7
NOVEMBER	1	14.4	440.25	0.0327	3079.20	100.7	
	2	36.3	314.40	0.1155	2200.80	254.1	
	3	25.9	443.34	0.0584	3064.80	179.0	
	4	0.0	298.24	0.0000	3055.20	0.0	
	MONTHLY EST.			0.0516	11400.00		588.8
DECEMBER	1	0.0	570.86	0.0000	3864.00	0.0	
	2	0.0	542.40	0.0000	3571.20	0.0	
	3	0.0	542.40	0.0000	3319.20	0.0	
	4	0.0	549.60	0.0000	4466.40	0.0	
	MONTHLY EST.			0.0000	15220.80		0.0

APPENDIX TABLE D-1.13. ESTIMATED WEEKLY BIOMASS OF PUMPKINSEED, ROSETON GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	341.3	544.80	0.6265	3796.80	2378.6	
	2	88.7	531.10	0.1670	3796.80	634.1	
	3	189.0	531.10	0.3559	3950.40	1405.8	
	4	279.3	542.40	0.5149	5421.60	2791.8	
	MONTHLY EST.			0.4161	16965.60		7058.9
FEBRUARY	1	298.6	542.40	0.5505	3796.80	2090.2	
	2	466.8	531.10	0.8789	3825.60	3362.4	
	3	201.3	542.40	0.3711	3890.40	1443.8	
	4	1118.8	1118.40	1.0004	4406.40	4408.0	
	MONTHLY EST.			0.7002	15919.20		11147.2
MARCH	1	386.7	542.40	0.7129	3796.80	2706.9	
	2	85.4	542.40	0.1574	3796.80	597.8	
	3	75.6	542.40	0.1394	3796.80	529.2	
	4	68.5	309.60	0.2213	3604.80	797.6	
	MONTHLY EST.			0.3078	14995.20		4614.9
APRIL	1	138.8	309.60	0.4483	2162.40	969.4	
	2	88.9	311.89	0.2850	2174.40	619.8	
	3	211.3	269.23	0.7848	2150.40	1687.7	
	4	925.8	307.20	3.0137	2764.80	8332.2	
	MONTHLY EST.			1.1330	9252.00		10482.2
MAY	1	541.6	307.20	1.7630	2150.40	3791.2	
	2	158.0	307.20	0.5143	2150.40	1106.0	
	3	363.0	307.20	1.1816	2484.00	2935.2	
	4	439.8	824.40	0.5335	3698.40	1973.0	
	MONTHLY EST.			0.9981	10483.20		10463.4
JUNE	1	188.7	307.20	0.6143	2167.20	1331.2	
	2	151.4	542.40	0.2791	3441.60	960.7	
	3	44.8	460.20	0.0973	3108.00	302.6	
	4	0.0	314.40	0.0000	2829.60	0.0	
	MONTHLY EST.			0.2477	11546.40		2859.9
JULY	1	134.5	314.40	0.4278	2200.80	941.5	
	2	0.0	309.82	0.0000	2832.00	0.0	
	3	0.0	537.88	0.0000	3110.40	0.0	
	4	0.0	292.79	0.0000	3144.00	0.0	
	MONTHLY EST.			0.1069	11287.20		1207.2
AUGUST	1	0.0	309.60	0.0000	2978.40	0.0	
	2	78.9	542.40	0.1455	2748.00	399.7	
	3	0.0	314.40	0.0000	2808.00	0.0	
	4	0.0	807.93	0.0000	3936.00	0.0	
	MONTHLY EST.			0.0364	12470.40		453.5
SEPTEMBER	1	31.7	314.40	0.1008	2200.80	221.9	
	2	0.0	313.20	0.0000	2198.40	0.0	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	12.7	314.40	0.0404	2829.60	114.3	
	MONTHLY EST.			0.0353	9429.60		332.9
OCTOBER	1	13.2	314.40	0.0420	2200.80	92.4	
	2	0.0	314.40	0.0000	2200.80	0.0	
	3	8.5	314.40	0.0270	2200.80	59.5	
	4	4.4	624.43	0.0070	3144.00	22.2	
	MONTHLY EST.			0.0190	9746.40		185.3
NOVEMBER	1	76.7	440.25	0.1742	3079.20	536.5	
	2	0.0	314.40	0.0000	2200.80	0.0	
	3	0.0	443.34	0.0000	3064.80	0.0	
	4	20.2	298.24	0.0677	3055.20	206.9	
	MONTHLY EST.			0.0605	11400.00		689.6
DECEMBER	1	0.0	570.86	0.0000	3864.00	0.0	
	2	11.1	542.40	0.0205	3571.20	73.1	
	3	0.0	542.40	0.0000	3319.20	0.0	
	4	3.6	549.60	0.0066	4466.40	29.3	
	MONTHLY EST.			0.0068	15220.80		102.8

APPENDIX TABLE D-1.14. ESTIMATED WEEKLY BIOMASS OF RAINBOW SMELT, ROSETON GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	544.80	0.0000	3796.80	0.0	
	2	0.0	531.10	0.0000	3796.80	0.0	
	3	0.0	531.10	0.0000	3950.40	0.0	
	4	0.0	542.40	0.0000	5421.60	0.0	
	MONTHLY EST.			0.0000	16965.60		0.0
FEBRUARY	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	531.10	0.0000	3825.60	0.0	
	3	0.0	542.40	0.0000	3890.40	0.0	
	4	0.0	1118.40	0.0000	4406.40	0.0	
	MONTHLY EST.			0.0000	15919.20		0.0
MARCH	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	542.40	0.0000	3796.80	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	0.0	309.60	0.0000	3604.80	0.0	
	MONTHLY EST.			0.0000	14995.20		0.0
APRIL	1	0.0	309.60	0.0000	2162.40	0.0	
	2	0.0	311.89	0.0000	2174.40	0.0	
	3	0.0	269.23	0.0000	2150.40	0.0	
	4	0.0	307.20	0.0000	2764.80	0.0	
	MONTHLY EST.			0.0000	9252.00		0.0
MAY	1	0.0	307.20	0.0000	2150.40	0.0	
	2	0.0	307.20	0.0000	2150.40	0.0	
	3	0.0	307.20	0.0000	2484.00	0.0	
	4	0.0	824.40	0.0000	3698.40	0.0	
	MONTHLY EST.			0.0000	10483.20		0.0
JUNE	1	0.0	307.20	0.0000	2167.20	0.0	
	2	0.0	542.40	0.0000	3441.60	0.0	
	3	0.0	460.20	0.0000	3108.00	0.0	
	4	0.0	314.40	0.0000	2829.60	0.0	
	MONTHLY EST.			0.0000	11546.40		0.0
JULY	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	309.82	0.0000	2832.00	0.0	
	3	0.0	537.88	0.0000	3110.40	0.0	
	4	0.0	292.79	0.0000	3144.00	0.0	
	MONTHLY EST.			0.0000	11287.20		0.0
AUGUST	1	0.0	309.60	0.0000	2978.40	0.0	
	2	0.0	542.40	0.0000	2748.00	0.0	
	3	0.0	314.40	0.0000	2808.00	0.0	
	4	0.0	807.93	0.0000	3936.00	0.0	
	MONTHLY EST.			0.0000	12470.40		0.0
SEPTEMBER	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	313.20	0.0000	2198.40	0.0	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	0.0	314.40	0.0000	2829.60	0.0	
	MONTHLY EST.			0.0000	9429.60		0.0
OCTOBER	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	314.40	0.0000	2200.80	0.0	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	0.0	624.43	0.0000	3144.00	0.0	
	MONTHLY EST.			0.0000	9746.40		0.0
NOVEMBER	1	0.0	440.25	0.0000	3079.20	0.0	
	2	0.0	314.40	0.0000	2200.80	0.0	
	3	0.0	443.34	0.0000	3064.80	0.0	
	4	0.0	298.24	0.0000	3055.20	0.0	
	MONTHLY EST.			0.0000	11400.00		0.0
DECEMBER	1	0.0	570.86	0.0000	3864.00	0.0	
	2	0.0	542.40	0.0000	3571.20	0.0	
	3	0.0	542.40	0.0000	3319.20	0.0	
	4	0.0	549.60	0.0000	4466.40	0.0	
	MONTHLY EST.			0.0000	15220.80		0.0

APPENDIX TABLE D-1.15. ESTIMATED WEEKLY BIOMASS OF SPOTTAIL SHINER, ROSETON GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	138.1	544.80	0.2535	3796.80	962.4	
	2	61.7	531.10	0.1162	3796.80	441.1	
	3	79.2	531.10	0.1491	3950.40	589.1	
	4	223.6	542.40	0.4122	5421.60	2235.0	
	MONTHLY EST.			0.2328	16965.60		3948.9
FEBRUARY	1	158.7	542.40	0.2926	3796.80	1110.9	
	2	53.2	531.10	0.1002	3825.60	383.2	
	3	137.2	542.40	0.2529	3890.40	984.1	
	4	690.4	1118.40	0.6173	4406.40	2720.1	
	MONTHLY EST.			0.3158	15919.20		5026.6
MARCH	1	569.2	542.40	1.0494	3796.80	3984.4	
	2	168.7	542.40	0.3110	3796.80	1180.9	
	3	261.3	542.40	0.4817	3796.80	1829.1	
	4	160.0	309.60	0.5168	3604.80	1862.9	
	MONTHLY EST.			0.5897	14995.20		8843.3
APRIL	1	326.5	309.60	1.0546	2162.40	2280.4	
	2	181.7	311.89	0.5826	2174.40	1266.7	
	3	195.8	269.23	0.7273	2150.40	1563.9	
	4	160.9	307.20	0.5238	2764.80	1448.1	
	MONTHLY EST.			0.7220	9252.00		6680.4
MAY	1	15.0	307.20	0.0488	2150.40	105.0	
	2	8.5	307.20	0.0277	2150.40	59.5	
	3	6.1	307.20	0.0199	2484.00	49.3	
	4	53.2	824.40	0.0645	3698.40	238.7	
	MONTHLY EST.			0.0402	10483.20		421.6
JUNE	1	19.5	307.20	0.0635	2167.20	137.6	
	2	77.6	542.40	0.1431	3441.60	492.4	
	3	15.3	460.20	0.0332	3108.00	103.3	
	4	0.0	314.40	0.0000	2829.60	0.0	
	MONTHLY EST.			0.0599	11546.40		692.2
JULY	1	6.2	314.40	0.0197	2200.80	43.4	
	2	4.4	309.82	0.0142	2832.00	40.2	
	3	0.0	537.88	0.0000	3110.40	0.0	
	4	0.0	292.79	0.0000	3144.00	0.0	
	MONTHLY EST.			0.0085	11287.20		95.7
AUGUST	1	0.0	309.60	0.0000	2978.40	0.0	
	2	13.5	542.40	0.0249	2748.00	68.4	
	3	0.0	314.40	0.0000	2808.00	0.0	
	4	35.9	807.93	0.0444	3936.00	174.9	
	MONTHLY EST.			0.0173	12470.40		216.1
SEPTEMBER	1	0.0	314.40	0.0000	2200.80	0.0	
	2	1.0	313.20	0.0032	2198.40	7.0	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	7.4	314.40	0.0235	2829.60	66.6	
	MONTHLY EST.			0.0067	9429.60		63.0
OCTOBER	1	3.8	314.40	0.0121	2200.80	26.6	
	2	0.0	314.40	0.0000	2200.80	0.0	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	13.7	624.43	0.0219	3144.00	69.0	
	MONTHLY EST.			0.0085	9746.40		82.9
NOVEMBER	1	209.0	440.25	0.4747	3079.20	1461.8	
	2	11.2	314.40	0.0356	2200.80	78.4	
	3	963.7	443.34	2.1737	3064.80	6662.1	
	4	259.5	298.24	0.8701	3055.20	2658.3	
	MONTHLY EST.			0.8885	11400.00		10129.4
DECEMBER	1	228.6	570.86	0.4004	3864.00	1547.3	
	2	377.4	542.40	0.6958	3571.20	2484.8	
	3	90.4	542.40	0.1667	3319.20	553.2	
	4	224.9	549.60	0.4092	4466.40	1827.7	
	MONTHLY EST.			0.4180	15220.80		6362.7

APPENDIX TABLE D-1.16. ESTIMATED WEEKLY BIOMASS OF STRIPED BASS, ROSETON GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	544.80	0.0000	3796.80	0.0	
	2	0.0	531.10	0.0000	3796.80	0.0	
	3	27.5	531.10	0.0518	3950.40	204.5	
	4	0.0	542.40	0.0000	5421.60	0.0	
	MONTHLY EST.			0.0129	16965.60		219.6
FEBRUARY	1	0.0	542.40	0.0000	3796.80	0.0	
	2	3.4	531.10	0.0064	3825.60	24.5	
	3	0.0	542.40	0.0000	3890.40	0.0	
	4	0.0	1118.40	0.0000	4406.40	0.0	
	MONTHLY EST.			0.0016	15919.20		25.5
MARCH	1	23.4	542.40	0.0431	3796.80	163.8	
	2	0.0	542.40	0.0000	3796.80	0.0	
	3	10.7	542.40	0.0197	3796.80	74.9	
	4	0.0	309.60	0.0000	3604.80	0.0	
	MONTHLY EST.			0.0157	14995.20		235.7
APRIL	1	0.0	309.60	0.0000	2162.40	0.0	
	2	0.0	311.89	0.0000	2174.40	0.0	
	3	0.0	269.23	0.0000	2150.40	0.0	
	4	0.0	307.20	0.0000	2764.80	0.0	
	MONTHLY EST.			0.0000	9252.00		0.0
MAY	1	0.0	307.20	0.0000	2150.40	0.0	
	2	0.0	307.20	0.0000	2150.40	0.0	
	3	0.0	307.20	0.0000	2484.00	0.0	
	4	0.0	824.40	0.0000	3698.40	0.0	
	MONTHLY EST.			0.0000	10483.20		0.0
JUNE	1	0.0	307.20	0.0000	2167.20	0.0	
	2	0.0	542.40	0.0000	3441.60	0.0	
	3	0.0	460.20	0.0000	3108.00	0.0	
	4	0.0	314.40	0.0000	2829.60	0.0	
	MONTHLY EST.			0.0000	11546.40		0.0
JULY	1	36.8	314.40	0.1170	2200.80	257.6	
	2	0.0	309.82	0.0000	2832.00	0.0	
	3	6.5	537.88	0.0121	3110.40	37.6	
	4	0.0	292.79	0.0000	3144.00	0.0	
	MONTHLY EST.			0.0323	11287.20		364.4
AUGUST	1	0.0	309.60	0.0000	2978.40	0.0	
	2	16.1	542.40	0.0297	2748.00	81.6	
	3	0.0	314.40	0.0000	2808.00	0.0	
	4	36.8	807.93	0.0455	3936.00	179.3	
	MONTHLY EST.			0.0188	12470.40		234.5
SEPTEMBER	1	1.9	314.40	0.0060	2200.80	13.3	
	2	0.8	313.20	0.0026	2198.40	5.6	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	0.0	314.40	0.0000	2829.60	0.0	
	MONTHLY EST.			0.0021	9429.60		20.3
OCTOBER	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	314.40	0.0000	2200.80	0.0	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	3.8	624.43	0.0061	3144.00	19.1	
	MONTHLY EST.			0.0015	9746.40		14.8
NOVEMBER	1	21.8	440.25	0.0495	3079.20	152.5	
	2	12.0	314.40	0.0382	2200.80	84.0	
	3	12.9	443.34	0.0291	3064.80	89.2	
	4	16.6	298.24	0.0557	3055.20	170.1	
	MONTHLY EST.			0.0431	11400.00		491.5
DECEMBER	1	3.7	570.86	0.0065	3864.00	25.0	
	2	0.0	542.40	0.0000	3571.20	0.0	
	3	0.0	542.40	0.0000	3319.20	0.0	
	4	0.0	549.60	0.0000	4466.40	0.0	
	MONTHLY EST.			0.0016	15220.80		24.7

APPENDIX TABLE D-1.17. ESTIMATED WEEKLY BIOMASS OF WHITE CATFISH, ROSETON GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	544.80	0.0000	3796.80	0.0	
	2	396.4	531.10	0.7464	3796.80	2833.8	
	3	0.0	531.10	0.0000	3950.40	0.0	
	4	67.4	542.40	0.1243	5421.60	673.7	
	MONTHLY EST.			0.2177	16965.60		3692.7
FEBRUARY	1	743.3	542.40	1.3704	3796.80	5203.1	
	2	461.2	531.10	0.8684	3825.60	3322.1	
	3	1190.2	542.40	2.1943	3890.40	8536.8	
	4	1587.0	1118.40	1.4190	4406.40	6252.6	
	MONTHLY EST.			1.4630	15919.20		23290.1
MARCH	1	847.3	542.40	1.5621	3796.80	5931.1	
	2	571.7	542.40	1.0540	3796.80	4001.9	
	3	700.7	542.40	1.2919	3796.80	4904.9	
	4	12.3	309.60	0.0397	3604.80	143.2	
	MONTHLY EST.			0.9869	14995.20		14799.3
APRIL	1	63.4	309.60	0.2048	2162.40	442.8	
	2	88.6	311.89	0.2841	2174.40	617.7	
	3	34.1	269.23	0.1267	2150.40	272.4	
	4	40.4	307.20	0.1315	2764.80	363.6	
	MONTHLY EST.			0.1868	9252.00		1727.9
MAY	1	185.2	307.20	0.6029	2150.40	1296.4	
	2	637.7	307.20	2.0758	2150.40	4463.9	
	3	10.2	307.20	0.0332	2484.00	82.5	
	4	131.7	824.40	0.1598	3698.40	590.8	
	MONTHLY EST.			0.7179	10483.20		7526.1
JUNE	1	0.0	307.20	0.0000	2167.20	0.0	
	2	0.0	542.40	0.0000	3441.60	0.0	
	3	0.0	460.20	0.0000	3108.00	0.0	
	4	0.0	314.40	0.0000	2829.60	0.0	
	MONTHLY EST.			0.0000	11546.40		0.0
JULY	1	14.4	314.40	0.0458	2200.80	100.8	
	2	0.0	309.82	0.0000	2832.00	0.0	
	3	536.4	537.88	0.9972	3110.40	3101.8	
	4	0.0	292.79	0.0000	3144.00	0.0	
	MONTHLY EST.			0.2608	11287.20		2943.3
AUGUST	1	0.0	309.60	0.0000	2978.40	0.0	
	2	1.3	542.40	0.0024	2748.00	6.6	
	3	0.0	314.40	0.0000	2808.00	0.0	
	4	520.4	807.93	0.6441	3936.00	2535.2	
	MONTHLY EST.			0.1616	12470.40		2015.6
SEPTEMBER	1	547.7	314.40	1.7420	2200.80	3833.9	
	2	27.1	313.20	0.0865	2198.40	190.2	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	16.9	314.40	0.0538	2829.60	152.1	
	MONTHLY EST.			0.4706	9429.60		4437.4
OCTOBER	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	314.40	0.0000	2200.80	0.0	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	14.4	624.43	0.0231	3144.00	72.5	
	MONTHLY EST.			0.0058	9746.40		56.2
NOVEMBER	1	30.7	440.25	0.0697	3079.20	214.7	
	2	107.2	314.40	0.3410	2200.80	750.4	
	3	350.5	443.34	0.7906	3064.80	2423.0	
	4	46.5	298.24	0.1559	3055.20	476.3	
	MONTHLY EST.			0.3393	11400.00		3868.0
DECEMBER	1	7.1	570.86	0.0124	3864.00	48.1	
	2	44.4	542.40	0.0819	3571.20	292.3	
	3	0.0	542.40	0.0000	3319.20	0.0	
	4	13.3	549.60	0.0242	4466.40	108.1	
	MONTHLY EST.			0.0296	15220.80		450.9

APPENDIX TABLE D-1.18. ESTIMATED WEEKLY BIOMASS OF WHITE PERCH, ROSETON GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	294.6	544.80	0.5407	3796.80	2053.1	
	2	167.4	531.10	0.3152	3796.80	1196.7	
	3	289.6	531.10	0.5453	3950.40	2154.1	
	4	11981.7	542.40	22.0902	5421.60	119764.0	
	MONTHLY EST.			5.8728	16965.60		99636.3
FEBRUARY	1	6376.1	542.40	11.7553	3796.80	44632.7	
	2	1349.3	531.10	2.5406	3825.60	9719.2	
	3	966.4	542.40	1.7817	3890.40	6931.6	
	4	872.8	1118.40	0.7804	4406.40	3438.8	
	MONTHLY EST.			4.2145	15919.20		67091.6
MARCH	1	695.0	542.40	1.2813	3796.80	4865.0	
	2	934.3	542.40	1.7225	3796.80	6540.1	
	3	871.6	542.40	1.6069	3796.80	6101.2	
	4	32.9	309.60	0.1063	3604.80	383.1	
	MONTHLY EST.			1.1793	14995.20		17683.4
APRIL	1	944.7	309.60	3.0514	2162.40	6598.3	
	2	168.8	311.89	0.5412	2174.40	1176.8	
	3	586.5	269.23	2.1785	2150.40	4684.6	
	4	1222.7	307.20	3.9801	2764.80	11004.3	
	MONTHLY EST.			2.4378	9252.00		22554.5
MAY	1	190.0	307.20	0.6185	2150.40	1330.0	
	2	231.0	307.20	0.7520	2150.40	1617.0	
	3	210.4	307.20	0.6849	2484.00	1701.3	
	4	428.4	824.40	0.5197	3698.40	1921.9	
	MONTHLY EST.			0.6437	10483.20		6748.5
JUNE	1	302.3	307.20	0.9840	2167.20	2132.6	
	2	1351.3	542.40	2.4913	3441.60	8574.2	
	3	781.5	460.20	1.6982	3108.00	5277.9	
	4	108.6	314.40	0.3454	2829.60	977.4	
	MONTHLY EST.			1.3797	11546.40		15931.1
JULY	1	62.5	314.40	0.1988	2200.80	437.5	
	2	8.7	309.82	0.0281	2832.00	79.5	
	3	9.0	537.88	0.0167	3110.40	52.0	
	4	0.9	292.79	0.0031	3144.00	9.7	
	MONTHLY EST.			0.0617	11287.20		696.1
AUGUST	1	1.2	309.60	0.0039	2978.40	11.5	
	2	97.8	542.40	0.1803	2748.00	495.5	
	3	21.9	314.40	0.0697	2808.00	195.6	
	4	278.9	807.93	0.3452	3936.00	1358.7	
	MONTHLY EST.			0.1498	12470.40		1867.6
SEPTEMBER	1	59.5	314.40	0.1892	2200.80	416.5	
	2	0.0	313.20	0.0000	2198.40	0.0	
	3	0.7	314.40	0.0022	2200.80	4.9	
	4	0.0	314.40	0.0000	2829.60	0.0	
	MONTHLY EST.			0.0479	9429.60		451.4
OCTOBER	1	4.7	314.40	0.0149	2200.80	32.9	
	2	0.0	314.40	0.0000	2200.80	0.0	
	3	1.2	314.40	0.0038	2200.80	8.4	
	4	80.7	624.43	0.1292	3144.00	406.3	
	MONTHLY EST.			0.0370	9746.40		360.6
NOVEMBER	1	2245.0	440.25	5.0994	3079.20	15702.0	
	2	150.1	314.40	0.4774	2200.80	1050.7	
	3	7114.9	443.34	16.0485	3064.80	49185.5	
	4	1373.3	298.24	4.6046	3055.20	14068.1	
	MONTHLY EST.			6.5575	11400.00		74755.4
DECEMBER	1	5226.5	570.86	9.1555	3864.00	35376.8	
	2	4071.8	542.40	7.5070	3571.20	26809.0	
	3	281.0	542.40	0.5181	3319.20	1719.6	
	4	37.4	549.60	0.0680	4466.40	303.9	
	MONTHLY EST.			4.3122	15220.80		65634.4

APPENDIX TABLE D-1.19. ESTIMATED WEEKLY BIOMASS OF YELLOW PERCH, ROSETON GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	6.6	544.80	0.0121	3796.80	46.0	
	2	0.0	531.10	0.0000	3796.80	0.0	
	3	29.0	531.10	0.0546	3950.40	215.7	
	4	70.2	542.40	0.1294	5421.60	701.7	
	MONTHLY EST.			0.0490	16965.60		831.9
FEBRUARY	1	546.4	542.40	1.0074	3796.80	3824.8	
	2	318.4	531.10	0.5995	3825.60	2293.5	
	3	175.2	542.40	0.3230	3890.40	1256.6	
	4	1096.9	1118.40	0.9808	4406.40	4321.7	
	MONTHLY EST.			0.7277	15919.20		11583.9
MARCH	1	768.7	542.40	1.4172	3796.80	5380.9	
	2	532.6	542.40	0.9819	3796.80	3728.2	
	3	1585.8	542.40	2.9237	3796.80	11100.6	
	4	118.3	309.60	0.3821	3604.80	1377.4	
	MONTHLY EST.			1.4262	14995.20		21386.6
APRIL	1	697.2	309.60	2.2519	2162.40	4869.6	
	2	0.0	311.89	0.0000	2174.40	0.0	
	3	322.1	269.23	1.1964	2150.40	2572.7	
	4	92.3	307.20	0.3005	2764.80	830.7	
	MONTHLY EST.			0.9372	9252.00		8670.9
MAY	1	0.0	307.20	0.0000	2150.40	0.0	
	2	36.4	307.20	0.1185	2150.40	254.8	
	3	0.0	307.20	0.0000	2484.00	0.0	
	4	59.1	824.40	0.0717	3698.40	265.1	
	MONTHLY EST.			0.0475	10483.20		498.4
JUNE	1	0.0	307.20	0.0000	2167.20	0.0	
	2	0.0	542.40	0.0000	3441.60	0.0	
	3	0.0	460.20	0.0000	3108.00	0.0	
	4	0.0	314.40	0.0000	2829.60	0.0	
	MONTHLY EST.			0.0000	11546.40		0.0
JULY	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	309.82	0.0000	2832.00	0.0	
	3	0.0	537.88	0.0000	3110.40	0.0	
	4	0.0	292.79	0.0000	3144.00	0.0	
	MONTHLY EST.			0.0000	11287.20		0.0
AUGUST	1	0.0	309.60	0.0000	2978.40	0.0	
	2	0.0	542.40	0.0000	2748.00	0.0	
	3	0.0	314.40	0.0000	2808.00	0.0	
	4	0.0	807.93	0.0000	3936.00	0.0	
	MONTHLY EST.			0.0000	12470.40		0.0
SEPTEMBER	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	313.20	0.0000	2198.40	0.0	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	0.0	314.40	0.0000	2829.60	0.0	
	MONTHLY EST.			0.0000	9429.60		0.0
OCTOBER	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	314.40	0.0000	2200.80	0.0	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	0.0	624.43	0.0000	3144.00	0.0	
	MONTHLY EST.			0.0000	9746.40		0.0
NOVEMBER	1	0.0	440.25	0.0000	3079.20	0.0	
	2	0.0	314.40	0.0000	2200.80	0.0	
	3	0.0	443.34	0.0000	3064.80	0.0	
	4	0.0	298.24	0.0000	3055.20	0.0	
	MONTHLY EST.			0.0000	11400.00		0.0
DECEMBER	1	150.9	570.86	0.2643	3864.00	1021.4	
	2	89.7	542.40	0.1654	3571.20	590.6	
	3	13.0	542.40	0.0240	3319.20	79.6	
	4	174.3	549.60	0.3171	4466.40	1416.5	
	MONTHLY EST.			0.1927	15220.80		2933.1

APPENDIX TABLE D-1.20. ESTIMATED WEEKLY BIOMASS OF BLUE CRAB, ROSETON GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	544.80	0.0000	3796.80	0.0	
	2	0.0	531.10	0.0000	3796.80	0.0	
	3	0.0	531.10	0.0000	3950.40	0.0	
	4	0.0	542.40	0.0000	5421.60	0.0	
	MONTHLY EST.			0.0000	16965.60		0.0
FEBRUARY	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	531.10	0.0000	3825.60	0.0	
	3	0.0	542.40	0.0000	3890.40	0.0	
	4	0.0	1118.40	0.0000	4406.40	0.0	
	MONTHLY EST.			0.0000	15919.20		0.0
MARCH	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	542.40	0.0000	3796.80	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	0.0	309.60	0.0000	3604.80	0.0	
	MONTHLY EST.			0.0000	14995.20		0.0
APRIL	1	0.0	309.60	0.0000	2162.40	0.0	
	2	0.0	311.89	0.0000	2174.40	0.0	
	3	0.0	269.23	0.0000	2150.40	0.0	
	4	0.0	307.20	0.0000	2764.80	0.0	
	MONTHLY EST.			0.0000	9252.00		0.0
MAY	1	0.0	307.20	0.0000	2150.40	0.0	
	2	0.0	307.20	0.0000	2150.40	0.0	
	3	0.0	307.20	0.0000	2484.00	0.0	
	4	0.0	824.40	0.0000	3698.40	0.0	
	MONTHLY EST.			0.0000	10483.20		0.0
JUNE	1	2.4	307.20	0.0078	2167.20	16.9	
	2	10.6	542.40	0.0195	3441.60	67.3	
	3	18.3	460.20	0.0398	3108.00	123.6	
	4	0.0	314.40	0.0000	2829.60	0.0	
	MONTHLY EST.			0.0168	11546.40		193.8
JULY	1	122.0	314.40	0.3880	2200.80	854.0	
	2	89.4	309.82	0.2886	2832.00	817.2	
	3	343.4	537.88	0.6384	3110.40	1985.8	
	4	222.2	292.79	0.7589	3144.00	2386.0	
	MONTHLY EST.			0.5185	11287.20		5852.3
AUGUST	1	166.2	309.60	0.5368	2978.40	1598.9	
	2	1163.5	542.40	2.1451	2748.00	5894.7	
	3	714.1	314.40	2.2713	2808.00	6377.8	
	4	2045.4	807.93	2.5316	3936.00	9964.6	
	MONTHLY EST.			1.8712	12470.40		23334.9
SEPTEMBER	1	350.7	314.40	1.1155	2200.80	2454.9	
	2	252.5	313.20	0.8062	2198.40	1772.3	
	3	596.3	314.40	1.8966	2200.80	4174.1	
	4	577.0	314.40	1.8352	2829.60	5193.0	
	MONTHLY EST.			1.4134	9429.60		13327.6
OCTOBER	1	149.2	314.40	0.4746	2200.80	1044.4	
	2	689.5	314.40	2.1931	2200.80	4826.5	
	3	461.3	314.40	1.4672	2200.80	3229.1	
	4	2912.7	624.43	4.6645	3144.00	14665.3	
	MONTHLY EST.			2.1999	9746.40		21440.6
NOVEMBER	1	1410.9	440.25	3.2048	3079.20	9868.1	
	2	395.0	314.40	1.2564	2200.80	2765.0	
	3	0.0	443.34	0.0000	3064.80	0.0	
	4	66.5	298.24	0.2230	3055.20	681.2	
	MONTHLY EST.			1.1710	11400.00		13349.7
DECEMBER	1	0.4	570.86	0.0007	3864.00	2.7	
	2	0.0	542.40	0.0000	3571.20	0.0	
	3	0.0	542.40	0.0000	3319.20	0.0	
	4	0.0	549.60	0.0000	4466.40	0.0	
	MONTHLY EST.			0.0002	15220.80		2.7

APPENDIX TABLE D-2.1. ESTIMATED WEEKLY BIOMASS OF ALL FISH SPECIES, DANSKAMMER POINT GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	1606827.6	181.19	8868.4361	1369.06	12141385.7	
	2	17725.9	203.04	87.3025	1469.28	128271.8	
	3	11034.6	200.50	55.0349	1330.20	73207.4	
	4	571488.7	196.70	2905.4562	1834.73	5330721.8	
	MONTHLY EST.			2979.0574	6003.26		17884068.1
FEBRUARY	1	813928.0	190.49	4272.7898	1412.14	6033760.3	
	2	266600.3	198.11	1345.7525	1361.64	1832430.4	
	3	311110.0	198.25	1569.3129	1347.77	2115069.7	
	4	143587.2	397.11	361.5762	1596.22	577153.7	
	MONTHLY EST.			1887.3578	5717.76		10791459.1
MARCH	1	23660.1	196.70	120.2883	1421.28	170963.3	
	2	30721.7	173.10	177.4809	1321.68	234573.0	
	3	19370.7	217.84	88.9234	1544.62	137352.4	
	4	6061.3	195.71	30.9711	2108.83	65312.9	
	MONTHLY EST.			104.4159	6396.41		667886.8
APRIL	1	18342.7	192.18	95.4439	1318.01	125795.9	
	2	4067.9	155.24	26.2038	1421.28	37242.9	
	3	14378.5	168.35	85.4063	1412.69	120652.5	
	4	39460.3	198.67	198.6233	1703.59	338373.1	
	MONTHLY EST.			101.4193	5855.57		593867.9
MAY	1	21513.9	198.67	108.2902	886.78	96029.1	
	2	1585.8	58.88	26.9346	454.20	12233.7	
	3	4264.3	116.77	36.5194	809.06	29546.6	
	4	4277.0	232.96	18.3592	1156.85	21238.8	
	MONTHLY EST.			47.5258	3306.89		157162.7
JUNE	1	24283.3	231.08	105.0871	1636.30	171953.7	
	2	30309.6	233.39	129.8680	2167.87	281537.1	
	3	19159.9	317.84	60.2816	2261.66	136336.7	
	4	12661.0	281.93	44.9089	2650.90	119048.9	
	MONTHLY EST.			85.0364	8716.73		741239.2
JULY	1	14274.5	309.34	46.1451	2148.07	99122.9	
	2	9425.5	324.80	29.0194	2198.26	63792.1	
	3	9174.3	323.87	28.3269	2149.92	60900.6	
	4	9490.4	358.51	26.4719	3846.43	101822.3	
	MONTHLY EST.			32.4908	10342.68		336042.2
AUGUST	1	24545.9	399.22	61.4844	2666.26	163933.0	
	2	18759.8	407.06	46.0855	2688.17	123885.6	
	3	7731.3	309.01	25.0197	2445.00	61173.2	
	4	26614.9	736.37	36.1435	3471.50	125472.4	
	MONTHLY EST.			42.1833	11270.93		475444.7
SEPTEMBER	1	5223.4	365.17	14.3042	2041.58	29203.2	
	2	2905.3	322.44	9.0102	2232.65	20116.7	
	3	6767.5	345.63	19.5802	2417.54	47336.1	
	4	5184.5	269.87	19.2113	2632.58	50575.3	
	MONTHLY EST.			15.5265	9324.36		144774.5
OCTOBER	1	2144.4	245.18	8.7461	1450.51	12686.3	
	2	2922.2	232.30	12.5796	1464.05	18417.1	
	3	2068.0	203.04	10.1852	1420.49	14467.9	
	4	11456.7	394.31	29.0548	2030.71	59001.8	
	MONTHLY EST.			15.1414	6365.76		96386.5
NOVEMBER	1	6660.8	203.04	32.8054	1428.26	46854.7	
	2	9015.3	203.04	44.4016	1421.54	63118.8	
	3	71972.5	203.04	354.4745	1412.02	500523.6	
	4	36982.4	203.04	182.1434	1796.14	327154.4	
	MONTHLY EST.			153.4562	6057.96		929631.6
DECEMBER	1	99659.7	198.67	501.6369	1431.19	717938.7	
	2	51488.7	195.49	263.3801	1394.66	367326.7	
	3	7973.5	181.39	43.9573	1361.69	59856.1	
	4	16766.5	203.04	82.5773	2071.54	171061.9	
	MONTHLY EST.			222.8879	6259.08		1395073.2

APPENDIX TABLE D-2.2. ESTIMATED WEEKLY BIOMASS OF ALEWIFE, DANSKAMMER POINT GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	181.19	0.0000	1369.06	0.0	
	2	0.0	203.04	0.0000	1469.28	0.0	
	3	0.0	200.50	0.0000	1330.20	0.0	
	4	0.0	196.70	0.0000	1834.73	0.0	
	MONTHLY EST.			0.0000	6003.26		0.0
FEBRUARY	1	193.6	190.49	1.0163	1412.14	1435.2	
	2	0.0	198.11	0.0000	1361.64	0.0	
	3	0.0	198.25	0.0000	1347.77	0.0	
	4	14.2	397.11	0.0358	1596.22	57.1	
	MONTHLY EST.			0.2630	5717.76		1503.9
MARCH	1	294.6	196.70	1.4978	1421.28	2128.7	
	2	732.2	173.10	4.2300	1321.68	5590.7	
	3	611.0	217.84	2.8049	1544.62	4332.4	
	4	19.6	195.71	0.1001	2108.83	211.2	
	MONTHLY EST.			2.1582	6396.41		13804.6
APRIL	1	0.0	192.18	0.0000	1318.01	0.0	
	2	0.0	155.24	0.0000	1421.28	0.0	
	3	0.0	168.35	0.0000	1412.69	0.0	
	4	543.4	198.67	2.7352	1703.59	4659.7	
	MONTHLY EST.			0.6838	5855.57		4004.0
MAY	1	0.0	198.67	0.0000	886.78	0.0	
	2	0.0	58.88	0.0000	454.20	0.0	
	3	227.2	116.77	1.9457	809.06	1574.2	
	4	434.3	232.96	1.8643	1156.85	2156.7	
	MONTHLY EST.			0.9525	3306.89		3149.8
JUNE	1	854.3	231.08	3.6970	1636.30	6049.4	
	2	259.2	233.39	1.1106	2167.87	2407.6	
	3	41.0	317.84	0.1290	2261.66	291.7	
	4	136.0	281.93	0.4824	2650.90	1278.8	
	MONTHLY EST.			1.3548	8716.73		11809.0
JULY	1	71.6	309.34	0.2315	2148.07	497.2	
	2	20.7	324.80	0.0637	2198.26	140.1	
	3	53.1	323.87	0.1640	2149.92	352.5	
	4	137.8	358.51	0.3844	3846.43	1478.5	
	MONTHLY EST.			0.2109	10342.68		2181.1
AUGUST	1	229.3	399.22	0.5744	2666.26	1531.4	
	2	383.0	407.06	0.9409	2688.17	2529.2	
	3	204.5	309.01	0.6618	2445.00	1618.1	
	4	552.6	736.37	0.7504	3471.50	2605.2	
	MONTHLY EST.			0.7319	11270.93		8248.9
SEPTEMBER	1	217.8	365.17	0.5964	2041.58	1217.7	
	2	106.3	322.44	0.3297	2232.65	736.0	
	3	341.9	345.63	0.9892	2417.54	2391.5	
	4	199.9	269.87	0.7407	2632.58	1950.0	
	MONTHLY EST.			0.6640	9324.36		6191.5
OCTOBER	1	158.9	245.18	0.6481	1450.51	940.1	
	2	226.6	232.30	0.9755	1464.05	1428.1	
	3	81.7	203.04	0.4024	1420.49	571.6	
	4	497.2	394.31	1.2609	2030.71	2560.6	
	MONTHLY EST.			0.8217	6365.76		5230.8
NOVEMBER	1	173.5	203.04	0.8545	1428.26	1220.5	
	2	55.5	203.04	0.2733	1421.54	388.6	
	3	1.7	203.04	0.0084	1412.02	11.8	
	4	0.0	203.04	0.0000	1796.14	0.0	
	MONTHLY EST.			0.2841	6057.96		1720.8
DECEMBER	1	260.9	198.67	1.3132	1431.19	1879.5	
	2	0.0	195.49	0.0000	1394.66	0.0	
	3	41.5	181.39	0.2288	1361.69	311.5	
	4	0.0	203.04	0.0000	2071.54	0.0	
	MONTHLY EST.			0.3855	6259.08		2412.9

APPENDIX TABLE D-2.3. ESTIMATED WEEKLY BIOMASS OF AMERICAN SHAD, DANSKAMMER POINT GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	181.19	0.0000	1369.06	0.0	
	2	0.0	203.04	0.0000	1469.28	0.0	
	3	0.0	200.50	0.0000	1330.20	0.0	
	4	0.0	196.70	0.0000	1834.73	0.0	
	MONTHLY EST.			0.0000	6003.26		0.0
FEBRUARY	1	0.0	190.49	0.0000	1412.14	0.0	
	2	0.0	198.11	0.0000	1361.64	0.0	
	3	0.0	198.25	0.0000	1347.77	0.0	
	4	0.0	397.11	0.0000	1596.22	0.0	
	MONTHLY EST.			0.0000	5717.76		0.0
MARCH	1	0.0	196.70	0.0000	1421.28	0.0	
	2	0.0	173.10	0.0000	1321.68	0.0	
	3	0.0	217.84	0.0000	1544.62	0.0	
	4	0.0	195.71	0.0000	2108.83	0.0	
	MONTHLY EST.			0.0000	6396.41		0.0
APRIL	1	0.0	192.18	0.0000	1318.01	0.0	
	2	0.0	155.24	0.0000	1421.28	0.0	
	3	0.0	168.35	0.0000	1412.69	0.0	
	4	0.0	198.67	0.0000	1703.59	0.0	
	MONTHLY EST.			0.0000	5855.57		0.0
MAY	1	0.0	198.67	0.0000	886.78	0.0	
	2	0.0	58.88	0.0000	454.20	0.0	
	3	0.0	116.77	0.0000	809.06	0.0	
	4	0.0	232.96	0.0000	1156.85	0.0	
	MONTHLY EST.			0.0000	3306.89		0.0
JUNE	1	0.0	231.08	0.0000	1636.30	0.0	
	2	0.0	233.39	0.0000	2167.87	0.0	
	3	0.0	317.84	0.0000	2261.66	0.0	
	4	0.0	281.93	0.0000	2650.90	0.0	
	MONTHLY EST.			0.0000	8716.73		0.0
JULY	1	3.6	309.34	0.0116	2148.07	25.0	
	2	10.8	324.80	0.0333	2198.26	73.1	
	3	23.4	323.87	0.0723	2149.92	155.3	
	4	13.1	358.51	0.0365	3846.43	140.5	
	MONTHLY EST.			0.0384	10342.68		397.4
AUGUST	1	27.0	399.22	0.0676	2666.26	180.3	
	2	169.8	407.06	0.4171	2688.17	1121.3	
	3	24.0	309.01	0.0777	2445.00	189.9	
	4	117.6	736.37	0.1597	3471.50	554.4	
	MONTHLY EST.			0.1805	11270.93		2034.8
SEPTEMBER	1	113.7	365.17	0.3114	2041.58	635.7	
	2	143.9	322.44	0.4463	2232.65	996.4	
	3	94.1	345.63	0.2723	2417.54	658.2	
	4	87.8	269.87	0.3253	2632.58	856.5	
	MONTHLY EST.			0.3388	9324.36		3159.2
OCTOBER	1	48.8	245.18	0.1990	1450.51	288.7	
	2	140.4	232.30	0.6044	1464.05	884.9	
	3	95.2	203.04	0.4689	1420.49	666.0	
	4	344.7	394.31	0.8742	2030.71	1775.2	
	MONTHLY EST.			0.5366	6365.76		3416.0
NOVEMBER	1	59.5	203.04	0.2930	1428.26	418.5	
	2	20.9	203.04	0.1029	1421.54	146.3	
	3	5.0	203.04	0.0246	1412.02	34.8	
	4	0.0	203.04	0.0000	1796.14	0.0	
	MONTHLY EST.			0.1052	6057.96		637.0
DECEMBER	1	0.0	198.67	0.0000	1431.19	0.0	
	2	0.0	195.49	0.0000	1394.66	0.0	
	3	0.0	181.39	0.0000	1361.69	0.0	
	4	0.0	203.04	0.0000	2071.54	0.0	
	MONTHLY EST.			0.0000	6259.08		0.0

APPENDIX TABLE D-2.4. ESTIMATED WEEKLY BIOMASS OF ATLANTIC TOMCOD, DANSKAMMER POINT GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	181.19	0.0000	1369.06	0.0	
	2	0.0	203.04	0.0000	1469.28	0.0	
	3	0.0	200.50	0.0000	1330.20	0.0	
	4	118.6	196.70	0.6030	1834.73	1106.3	
	MONTHLY EST.			0.1507	6003.26		904.9
FEBRUARY	1	39.0	190.49	0.2047	1412.14	289.1	
	2	97.7	198.11	0.4932	1361.64	671.5	
	3	0.0	198.25	0.0000	1347.77	0.0	
	4	29.4	397.11	0.0740	1596.22	118.2	
	MONTHLY EST.			0.1930	5717.76		1103.4
MARCH	1	60.0	196.70	0.3050	1421.28	433.5	
	2	0.0	173.10	0.0000	1321.68	0.0	
	3	0.0	217.84	0.0000	1544.62	0.0	
	4	0.0	195.71	0.0000	2108.83	0.0	
	MONTHLY EST.			0.0763	6396.41		487.8
APRIL	1	0.0	192.18	0.0000	1318.01	0.0	
	2	0.0	155.24	0.0000	1421.28	0.0	
	3	0.0	168.35	0.0000	1412.69	0.0	
	4	0.0	198.67	0.0000	1703.59	0.0	
	MONTHLY EST.			0.0000	5855.57		0.0
MAY	1	0.0	198.67	0.0000	886.78	0.0	
	2	0.0	58.88	0.0000	454.20	0.0	
	3	0.0	116.77	0.0000	809.06	0.0	
	4	5.5	232.96	0.0236	1156.85	27.3	
	MONTHLY EST.			0.0059	3306.89		19.5
JUNE	1	184.3	231.08	0.7976	1636.30	1305.1	
	2	557.0	233.39	2.3866	2167.87	5173.8	
	3	34.0	317.84	0.1070	2261.66	241.9	
	4	150.9	281.93	0.5352	2650.90	1418.9	
	MONTHLY EST.			0.9566	8716.73		8338.4
JULY	1	124.2	309.34	0.4015	2148.07	862.5	
	2	84.5	324.80	0.2602	2198.26	571.9	
	3	280.0	323.87	0.8645	2149.92	1858.7	
	4	430.8	358.51	1.2016	3846.43	4622.0	
	MONTHLY EST.			0.6820	10342.68		7053.3
AUGUST	1	1117.5	399.22	2.7992	2666.26	7463.4	
	2	300.7	407.06	0.7387	2688.17	1985.8	
	3	313.9	309.01	1.0158	2445.00	2483.7	
	4	539.8	736.37	0.7331	3471.50	2544.8	
	MONTHLY EST.			1.3217	11270.93		14896.7
SEPTEMBER	1	103.4	365.17	0.2832	2041.58	578.1	
	2	147.2	322.44	0.4565	2232.65	1019.2	
	3	300.8	345.63	0.8703	2417.54	2104.0	
	4	105.9	269.87	0.3924	2632.58	1033.1	
	MONTHLY EST.			0.5006	9324.36		4667.7
OCTOBER	1	20.0	245.18	0.0816	1450.51	118.3	
	2	25.6	232.30	0.1102	1464.05	161.3	
	3	13.1	203.04	0.0645	1420.49	91.6	
	4	108.5	394.31	0.2752	2030.71	558.8	
	MONTHLY EST.			0.1329	6365.76		845.8
NOVEMBER	1	48.9	203.04	0.2408	1428.26	344.0	
	2	47.1	203.04	0.2320	1421.54	329.8	
	3	1242.3	203.04	6.1185	1412.02	8639.4	
	4	693.6	203.04	3.4161	1796.14	6135.7	
	MONTHLY EST.			2.5018	6057.96		15156.1
DECEMBER	1	85.6	198.67	0.4309	1431.19	616.7	
	2	2444.9	195.49	12.5064	1394.66	17442.2	
	3	1095.6	181.39	6.0400	1361.69	8224.5	
	4	8093.6	203.04	39.8621	2071.54	82575.8	
	MONTHLY EST.			14.7098	6259.08		92070.0

APPENDIX TABLE D-2.5. ESTIMATED WEEKLY BIOMASS OF BAY ANCHOVY, DANSKAMMER POINT GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	181.19	0.0000	1369.06	0.0	
	2	0.0	203.04	0.0000	1469.28	0.0	
	3	0.0	200.50	0.0000	1330.20	0.0	
	4	0.0	196.70	0.0000	1834.73	0.0	
	MONTHLY EST.			0.0000	6003.26		0.0
FEBRUARY	1	0.0	190.49	0.0000	1412.14	0.0	
	2	0.0	198.11	0.0000	1361.64	0.0	
	3	0.0	198.25	0.0000	1347.77	0.0	
	4	0.0	397.11	0.0000	1596.22	0.0	
	MONTHLY EST.			0.0000	5717.76		0.0
MARCH	1	0.0	196.70	0.0000	1421.28	0.0	
	2	0.0	173.10	0.0000	1321.68	0.0	
	3	0.0	217.84	0.0000	1544.62	0.0	
	4	0.0	195.71	0.0000	2108.83	0.0	
	MONTHLY EST.			0.0000	6396.41		0.0
APRIL	1	0.0	192.18	0.0000	1318.01	0.0	
	2	0.0	155.24	0.0000	1421.28	0.0	
	3	0.0	168.35	0.0000	1412.69	0.0	
	4	0.0	198.67	0.0000	1703.59	0.0	
	MONTHLY EST.			0.0000	5855.57		0.0
MAY	1	0.0	198.67	0.0000	886.78	0.0	
	2	0.0	58.88	0.0000	454.20	0.0	
	3	0.0	116.77	0.0000	809.06	0.0	
	4	0.0	232.96	0.0000	1156.85	0.0	
	MONTHLY EST.			0.0000	3306.89		0.0
JUNE	1	0.0	231.08	0.0000	1636.30	0.0	
	2	0.0	233.39	0.0000	2167.87	0.0	
	3	0.0	317.84	0.0000	2261.66	0.0	
	4	0.0	281.93	0.0000	2650.90	0.0	
	MONTHLY EST.			0.0000	8716.73		0.0
JULY	1	0.0	309.34	0.0000	2148.07	0.0	
	2	0.0	324.80	0.0000	2198.26	0.0	
	3	3.2	323.87	0.0099	2149.92	21.2	
	4	4.1	358.51	0.0114	3846.43	44.0	
	MONTHLY EST.			0.0053	10342.68		55.1
AUGUST	1	0.0	399.22	0.0000	2666.26	0.0	
	2	25.3	407.06	0.0622	2688.17	167.1	
	3	0.0	309.01	0.0000	2445.00	0.0	
	4	14.8	736.37	0.0201	3471.50	69.8	
	MONTHLY EST.			0.0206	11270.93		231.8
SEPTEMBER	1	7.3	365.17	0.0200	2041.58	40.8	
	2	8.0	322.44	0.0248	2232.65	55.4	
	3	4.4	345.63	0.0127	2417.54	30.8	
	4	9.2	269.87	0.0341	2632.58	89.7	
	MONTHLY EST.			0.0229	9324.36		213.6
OCTOBER	1	0.0	245.18	0.0000	1450.51	0.0	
	2	0.0	232.30	0.0000	1464.05	0.0	
	3	0.0	203.04	0.0000	1420.49	0.0	
	4	0.0	394.31	0.0000	2030.71	0.0	
	MONTHLY EST.			0.0000	6365.76		0.0
NOVEMBER	1	0.0	203.04	0.0000	1428.26	0.0	
	2	0.0	203.04	0.0000	1421.54	0.0	
	3	0.0	203.04	0.0000	1412.02	0.0	
	4	0.0	203.04	0.0000	1796.14	0.0	
	MONTHLY EST.			0.0000	6057.96		0.0
DECEMBER	1	0.0	198.67	0.0000	1431.19	0.0	
	2	0.0	195.49	0.0000	1394.66	0.0	
	3	0.0	181.39	0.0000	1361.69	0.0	
	4	0.0	203.04	0.0000	2071.54	0.0	
	MONTHLY EST.			0.0000	6259.08		0.0

APPENDIX TABLE D-2.6. ESTIMATED WEEKLY BIOMASS OF BLUEBACK HERRING, DANSKAMMER POINT GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	181.19	0.0000	1369.06	0.0	
	2	0.0	203.04	0.0000	1469.28	0.0	
	3	0.0	200.50	0.0000	1330.20	0.0	
	4	0.0	196.70	0.0000	1834.73	0.0	
	MONTHLY EST.			0.0000	6003.26		0.0
FEBRUARY	1	0.0	190.49	0.0000	1412.14	0.0	
	2	0.0	198.11	0.0000	1361.64	0.0	
	3	0.0	198.25	0.0000	1347.77	0.0	
	4	0.0	397.11	0.0000	1596.22	0.0	
	MONTHLY EST.			0.0000	5717.76		0.0
MARCH	1	0.0	196.70	0.0000	1421.28	0.0	
	2	0.0	173.10	0.0000	1321.68	0.0	
	3	0.0	217.84	0.0000	1544.62	0.0	
	4	0.0	195.71	0.0000	2108.83	0.0	
	MONTHLY EST.			0.0000	6396.41		0.0
APRIL	1	0.0	192.18	0.0000	1318.01	0.0	
	2	0.0	155.24	0.0000	1421.28	0.0	
	3	0.0	168.35	0.0000	1412.69	0.0	
	4	0.0	198.67	0.0000	1703.59	0.0	
	MONTHLY EST.			0.0000	5855.57		0.0
MAY	1	146.1	198.67	0.7354	886.78	652.1	
	2	0.0	58.88	0.0000	454.20	0.0	
	3	490.6	116.77	4.2015	809.06	3399.3	
	4	440.1	232.96	1.8891	1156.85	2185.5	
	MONTHLY EST.			1.7065	3306.89		5643.2
JUNE	1	1232.2	231.08	5.3324	1636.30	8725.4	
	2	2365.4	233.39	10.1351	2167.87	21971.5	
	3	1152.1	317.84	3.6248	2261.66	8198.0	
	4	108.9	281.93	0.3863	2650.90	1024.0	
	MONTHLY EST.			4.8696	8716.73		42447.2
JULY	1	86.0	309.34	0.2780	2148.07	597.2	
	2	105.9	324.80	0.3260	2198.26	716.7	
	3	9.4	323.87	0.0290	2149.92	62.4	
	4	3.6	358.51	0.0100	3846.43	38.6	
	MONTHLY EST.			0.1608	10342.68		1662.9
AUGUST	1	28.7	399.22	0.0719	2666.26	191.7	
	2	6.8	407.06	0.0167	2688.17	44.9	
	3	3.0	309.01	0.0097	2445.00	23.7	
	4	96.2	736.37	0.1306	3471.50	453.5	
	MONTHLY EST.			0.0572	11270.93		645.1
SEPTEMBER	1	13.7	365.17	0.0375	2041.58	76.6	
	2	4.8	322.44	0.0149	2232.65	33.2	
	3	3.1	345.63	0.0090	2417.54	21.7	
	4	33.5	269.87	0.1241	2632.58	326.8	
	MONTHLY EST.			0.0464	9324.36		432.4
OCTOBER	1	52.5	245.18	0.2141	1450.51	310.6	
	2	428.0	232.30	1.8425	1464.05	2697.5	
	3	131.3	203.04	0.6467	1420.49	918.6	
	4	918.3	394.31	2.3289	2030.71	4729.2	
	MONTHLY EST.			1.2580	6365.76		8008.3
NOVEMBER	1	96.4	203.04	0.4748	1428.26	678.1	
	2	58.6	203.04	0.2886	1421.54	410.3	
	3	0.0	203.04	0.0000	1412.02	0.0	
	4	1.3	203.04	0.0064	1796.14	11.5	
	MONTHLY EST.			0.1924	6057.96		1165.9
DECEMBER	1	0.0	198.67	0.0000	1431.19	0.0	
	2	0.0	195.49	0.0000	1394.66	0.0	
	3	0.0	181.39	0.0000	1361.69	0.0	
	4	0.0	203.04	0.0000	2071.54	0.0	
	MONTHLY EST.			0.0000	6259.08		0.0

APPENDIX TABLE D-2.7. ESTIMATED WEEKLY BIOMASS OF GIZZARD SHAD, DANSKAMMER POINT GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	1605218.1	181.19	8859.5529	1369.06	12129224.1	
	2	17233.4	203.04	84.8769	1469.28	124707.9	
	3	10008.4	200.50	49.9167	1330.20	66399.2	
	4	533268.9	196.70	2711.1462	1834.73	4974215.8	
	MONTHLY EST.			2926.3732	6003.26		17567790.8
FEBRUARY	1	788929.2	190.49	4141.5563	1412.14	5848440.7	
	2	251194.3	198.11	1267.9857	1361.64	1726540.0	
	3	292341.4	198.25	1474.6396	1347.77	1987472.0	
	4	120514.3	397.11	303.4748	1596.22	484411.4	
	MONTHLY EST.			1796.9141	5717.76		10274323.5
MARCH	1	6022.4	196.70	30.6180	1421.28	43516.7	
	2	16661.2	173.10	96.2527	1321.68	127215.2	
	3	3202.2	217.84	14.7001	1544.62	22705.9	
	4	1227.2	195.71	6.2706	2108.83	13223.6	
	MONTHLY EST.			36.9603	6396.41		236413.2
APRIL	1	0.0	192.18	0.0000	1318.01	0.0	
	2	0.0	155.24	0.0000	1421.28	0.0	
	3	0.0	168.35	0.0000	1412.69	0.0	
	4	999.9	198.67	5.0330	1703.59	8574.2	
	MONTHLY EST.			1.2582	5855.57		7367.8
MAY	1	0.0	198.67	0.0000	886.78	0.0	
	2	0.0	58.88	0.0000	454.20	0.0	
	3	0.0	116.77	0.0000	809.06	0.0	
	4	0.0	232.96	0.0000	1156.85	0.0	
	MONTHLY EST.			0.0000	3306.89		0.0
JUNE	1	0.0	231.08	0.0000	1636.30	0.0	
	2	0.0	233.39	0.0000	2167.87	0.0	
	3	0.0	317.84	0.0000	2261.66	0.0	
	4	0.0	281.93	0.0000	2650.90	0.0	
	MONTHLY EST.			0.0000	8716.73		0.0
JULY	1	0.0	309.34	0.0000	2148.07	0.0	
	2	0.0	324.80	0.0000	2198.26	0.0	
	3	0.0	323.87	0.0000	2149.92	0.0	
	4	3.5	358.51	0.0098	3846.43	37.6	
	MONTHLY EST.			0.0024	10342.68		25.2
AUGUST	1	0.0	399.22	0.0000	2666.26	0.0	
	2	0.0	407.06	0.0000	2688.17	0.0	
	3	7.6	309.01	0.0246	2445.00	60.1	
	4	10.3	736.37	0.0140	3471.50	48.6	
	MONTHLY EST.			0.0096	11270.93		108.7
SEPTEMBER	1	684.2	365.17	1.8737	2041.58	3825.2	
	2	0.0	322.44	0.0000	2232.65	0.0	
	3	0.0	345.63	0.0000	2417.54	0.0	
	4	0.0	269.87	0.0000	2632.58	0.0	
	MONTHLY EST.			0.4684	9324.36		4367.7
OCTOBER	1	0.0	245.18	0.0000	1450.51	0.0	
	2	0.0	232.30	0.0000	1464.05	0.0	
	3	222.3	203.04	1.0949	1420.49	1555.2	
	4	422.6	394.31	1.0717	2030.71	2176.4	
	MONTHLY EST.			0.5416	6365.76		3448.0
NOVEMBER	1	833.2	203.04	4.1036	1428.26	5861.1	
	2	1107.5	203.04	5.4546	1421.54	7753.9	
	3	6875.1	203.04	33.8608	1412.02	47812.0	
	4	2558.1	203.04	12.5990	1796.14	22629.5	
	MONTHLY EST.			14.0045	6057.96		84838.7
DECEMBER	1	6381.8	198.67	32.1228	1431.19	45973.9	
	2	8160.0	195.49	41.7408	1394.66	58214.4	
	3	902.3	181.39	4.9743	1361.69	6773.5	
	4	4505.6	203.04	22.1907	2071.54	45968.8	
	MONTHLY EST.			25.2572	6259.08		158086.6

APPENDIX TABLE D-2.8. ESTIMATED WEEKLY BIOMASS OF GOLDEN SHINER, DANSKAMMER POINT GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	254.8	181.19	1.4063	1369.06	1925.3	
	2	12.4	203.04	0.0611	1469.28	89.7	
	3	1.9	200.50	0.0095	1330.20	12.6	
	4	3736.1	196.70	18.9944	1834.73	34849.5	
	MONTHLY EST.			5.1178	6003.26		30723.5
FEBRUARY	1	2451.7	190.49	12.8704	1412.14	18174.8	
	2	1320.1	198.11	6.6636	1361.64	9073.5	
	3	952.8	198.25	4.8061	1347.77	6477.6	
	4	6660.4	397.11	16.7720	1596.22	26771.7	
	MONTHLY EST.			10.2780	5717.76		58767.4
MARCH	1	7355.5	196.70	37.3955	1421.28	53149.4	
	2	1639.5	173.10	9.4715	1321.68	12518.3	
	3	724.1	217.84	3.3241	1544.62	5134.4	
	4	636.8	195.71	3.2538	2108.83	6861.8	
	MONTHLY EST.			13.3612	6396.41		85463.7
APRIL	1	824.1	192.18	4.2881	1318.01	5651.8	
	2	67.0	155.24	0.4316	1421.28	613.4	
	3	428.8	168.35	2.5470	1412.69	3598.1	
	4	1114.6	198.67	5.6103	1703.59	9557.7	
	MONTHLY EST.			3.2193	5855.57		18850.6
MAY	1	140.8	198.67	0.7087	886.78	628.5	
	2	8.5	58.88	0.1444	454.20	65.6	
	3	0.0	116.77	0.0000	809.06	0.0	
	4	87.4	232.96	0.3752	1156.85	434.0	
	MONTHLY EST.			0.3071	3306.89		1015.4
JUNE	1	21.2	231.08	0.0917	1636.30	150.1	
	2	22.4	233.39	0.0960	2167.87	208.1	
	3	0.0	317.84	0.0000	2261.66	0.0	
	4	0.0	281.93	0.0000	2650.90	0.0	
	MONTHLY EST.			0.0469	8716.73		409.1
JULY	1	86.6	309.34	0.2800	2148.07	601.4	
	2	14.5	324.80	0.0446	2198.26	98.1	
	3	57.4	323.87	0.1772	2149.92	381.0	
	4	18.1	358.51	0.0505	3846.43	194.2	
	MONTHLY EST.			0.1381	10342.68		1428.1
AUGUST	1	26.5	399.22	0.0664	2666.26	177.0	
	2	48.8	407.06	0.1199	2688.17	322.3	
	3	127.0	309.01	0.4110	2445.00	1004.9	
	4	134.0	736.37	0.1820	3471.50	631.7	
	MONTHLY EST.			0.1948	11270.93		2195.7
SEPTEMBER	1	41.6	365.17	0.1139	2041.58	232.6	
	2	0.0	322.44	0.0000	2232.65	0.0	
	3	20.9	345.63	0.0605	2417.54	146.2	
	4	0.0	269.87	0.0000	2632.58	0.0	
	MONTHLY EST.			0.0436	9324.36		406.5
OCTOBER	1	3.4	245.18	0.0139	1450.51	20.1	
	2	5.3	232.30	0.0228	1464.05	33.4	
	3	3.3	203.04	0.0163	1420.49	23.1	
	4	60.8	394.31	0.1542	2030.71	313.1	
	MONTHLY EST.			0.0518	6365.76		329.6
NOVEMBER	1	196.3	203.04	0.9668	1428.26	1380.9	
	2	71.5	203.04	0.3521	1421.54	500.6	
	3	1725.6	203.04	8.4988	1412.02	12000.5	
	4	672.1	203.04	3.3102	1796.14	5945.5	
	MONTHLY EST.			3.2820	6057.96		19882.2
DECEMBER	1	832.6	198.67	4.1909	1431.19	5998.0	
	2	1285.2	195.49	6.5742	1394.66	9168.8	
	3	70.5	181.39	0.3887	1361.69	529.2	
	4	596.9	203.04	2.9398	2071.54	6089.9	
	MONTHLY EST.			3.5234	6259.08		22053.2

APPENDIX TABLE D-2.9. ESTIMATED WEEKLY BIOMASS OF PUMPKINSEED, DANSKAMMER POINT GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	5.9	181.19	0.0326	1369.06	44.6	
	2	0.0	203.04	0.0000	1469.28	0.0	
	3	33.7	200.50	0.1681	1330.20	223.6	
	4	433.3	196.70	2.2029	1834.73	4041.7	
	MONTHLY EST.			0.6009	6003.26		3607.3
FEBRUARY	1	634.6	190.49	3.3314	1412.14	4704.4	
	2	456.2	198.11	2.3028	1361.64	3135.6	
	3	550.6	198.25	2.7774	1347.77	3743.2	
	4	782.5	397.11	1.9705	1596.22	3145.3	
	MONTHLY EST.			2.5955	5717.76		14840.5
MARCH	1	359.6	196.70	1.8282	1421.28	2598.4	
	2	44.2	173.10	0.2553	1321.68	337.5	
	3	27.6	217.84	0.1267	1544.62	195.7	
	4	229.7	195.71	1.1737	2108.83	2475.1	
	MONTHLY EST.			0.8460	6396.41		5411.3
APRIL	1	290.6	192.18	1.5121	1318.01	1993.0	
	2	179.5	155.24	1.1563	1421.28	1643.4	
	3	349.4	168.35	2.0754	1412.69	2931.9	
	4	2508.9	198.67	12.6285	1703.59	21513.9	
	MONTHLY EST.			4.3431	5855.57		25431.2
MAY	1	3412.3	198.67	17.1758	886.78	15231.1	
	2	68.7	58.88	1.1669	454.20	530.0	
	3	1005.1	116.77	8.6077	809.06	6964.2	
	4	1450.8	232.96	6.2276	1156.85	7204.4	
	MONTHLY EST.			8.2945	3306.89		27428.9
JUNE	1	3721.9	231.08	16.1067	1636.30	26355.3	
	2	714.8	233.39	3.0627	2167.87	6639.6	
	3	287.5	317.84	0.9045	2261.66	2045.8	
	4	1203.0	281.93	4.2671	2650.90	11311.6	
	MONTHLY EST.			6.0853	8716.73		53043.5
JULY	1	827.0	309.34	2.6734	2148.07	5742.7	
	2	568.1	324.80	1.7491	2198.26	3844.9	
	3	171.2	323.87	0.5286	2149.92	1136.5	
	4	307.8	358.51	0.8586	3846.43	3302.4	
	MONTHLY EST.			1.4524	10342.68		15021.9
AUGUST	1	296.6	399.22	0.7429	2666.26	1980.9	
	2	187.2	407.06	0.4599	2688.17	1236.2	
	3	12.4	309.01	0.0401	2445.00	98.1	
	4	169.3	736.37	0.2299	3471.50	798.1	
	MONTHLY EST.			0.3682	11270.93		4150.1
SEPTEMBER	1	66.9	365.17	0.1832	2041.58	374.0	
	2	0.0	322.44	0.0000	2232.65	0.0	
	3	373.8	345.63	1.0815	2417.54	2614.6	
	4	240.2	269.87	0.8901	2632.58	2343.2	
	MONTHLY EST.			0.5387	9324.36		5023.0
OCTOBER	1	397.1	245.18	1.6196	1450.51	2349.2	
	2	332.6	232.30	1.4318	1464.05	2096.2	
	3	53.1	203.04	0.2615	1420.49	371.5	
	4	675.1	394.31	1.7121	2030.71	3476.8	
	MONTHLY EST.			1.2562	6365.76		7997.0
NOVEMBER	1	0.0	203.04	0.0000	1428.26	0.0	
	2	17.1	203.04	0.0842	1421.54	119.7	
	3	58.0	203.04	0.2857	1412.02	403.4	
	4	8.0	203.04	0.0394	1796.14	70.8	
	MONTHLY EST.			0.1023	6057.96		619.8
DECEMBER	1	113.3	198.67	0.5703	1431.19	816.2	
	2	0.0	195.49	0.0000	1394.66	0.0	
	3	73.6	181.39	0.4058	1361.69	552.5	
	4	5.1	203.04	0.0251	2071.54	52.0	
	MONTHLY EST.			0.2503	6259.08		1566.6

APPENDIX TABLE D-2.10. ESTIMATED WEEKLY BIOMASS OF RAINBOW SMELT, DANSKAMMER POINT GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	181.19	0.0000	1369.06	0.0	
	2	0.0	203.04	0.0000	1469.28	0.0	
	3	0.0	200.50	0.0000	1330.20	0.0	
	4	0.0	196.70	0.0000	1834.73	0.0	
	MONTHLY EST.			0.0000	6003.26		0.0
FEBRUARY	1	0.0	190.49	0.0000	1412.14	0.0	
	2	0.0	198.11	0.0000	1361.64	0.0	
	3	0.0	198.25	0.0000	1347.77	0.0	
	4	0.0	397.11	0.0000	1596.22	0.0	
	MONTHLY EST.			0.0000	5717.76		0.0
MARCH	1	0.0	196.70	0.0000	1421.28	0.0	
	2	0.0	173.10	0.0000	1321.68	0.0	
	3	0.0	217.84	0.0000	1544.62	0.0	
	4	0.0	195.71	0.0000	2108.83	0.0	
	MONTHLY EST.			0.0000	6396.41		0.0
APRIL	1	0.0	192.18	0.0000	1318.01	0.0	
	2	0.0	155.24	0.0000	1421.28	0.0	
	3	0.0	168.35	0.0000	1412.69	0.0	
	4	0.0	198.67	0.0000	1703.59	0.0	
	MONTHLY EST.			0.0000	5855.57		0.0
MAY	1	0.0	198.67	0.0000	886.78	0.0	
	2	0.0	58.88	0.0000	454.20	0.0	
	3	0.0	116.77	0.0000	809.06	0.0	
	4	0.0	232.96	0.0000	1156.85	0.0	
	MONTHLY EST.			0.0000	3306.89		0.0
JUNE	1	0.0	231.08	0.0000	1636.30	0.0	
	2	0.0	233.39	0.0000	2167.87	0.0	
	3	0.0	317.84	0.0000	2261.66	0.0	
	4	0.0	281.93	0.0000	2650.90	0.0	
	MONTHLY EST.			0.0000	8716.73		0.0
JULY	1	0.0	309.34	0.0000	2148.07	0.0	
	2	0.0	324.80	0.0000	2198.26	0.0	
	3	0.0	323.87	0.0000	2149.92	0.0	
	4	0.0	358.51	0.0000	3846.43	0.0	
	MONTHLY EST.			0.0000	10342.68		0.0
AUGUST	1	0.0	399.22	0.0000	2666.26	0.0	
	2	0.0	407.06	0.0000	2688.17	0.0	
	3	0.0	309.01	0.0000	2445.00	0.0	
	4	0.0	736.37	0.0000	3471.50	0.0	
	MONTHLY EST.			0.0000	11270.93		0.0
SEPTEMBER	1	0.0	365.17	0.0000	2041.58	0.0	
	2	0.0	322.44	0.0000	2232.65	0.0	
	3	0.0	345.63	0.0000	2417.54	0.0	
	4	0.0	269.87	0.0000	2632.58	0.0	
	MONTHLY EST.			0.0000	9324.36		0.0
OCTOBER	1	0.0	245.18	0.0000	1450.51	0.0	
	2	0.0	232.30	0.0000	1464.05	0.0	
	3	0.0	203.04	0.0000	1420.49	0.0	
	4	0.0	394.31	0.0000	2030.71	0.0	
	MONTHLY EST.			0.0000	6365.76		0.0
NOVEMBER	1	0.0	203.04	0.0000	1428.26	0.0	
	2	0.0	203.04	0.0000	1421.54	0.0	
	3	0.0	203.04	0.0000	1412.02	0.0	
	4	0.0	203.04	0.0000	1796.14	0.0	
	MONTHLY EST.			0.0000	6057.96		0.0
DECEMBER	1	0.0	198.67	0.0000	1431.19	0.0	
	2	0.0	195.49	0.0000	1394.66	0.0	
	3	0.0	181.39	0.0000	1361.69	0.0	
	4	0.0	203.04	0.0000	2071.54	0.0	
	MONTHLY EST.			0.0000	6259.08		0.0

APPENDIX TABLE D-2.11. ESTIMATED WEEKLY BIOMASS OF SPOTTAIL SHINER, DANSKAMMER POINT GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	45.3	181.19	0.2500	1369.06	342.3	
	2	2.2	203.04	0.0108	1469.28	15.9	
	3	28.5	200.50	0.1421	1330.20	189.1	
	4	1045.9	196.70	5.3174	1834.73	9755.9	
	MONTHLY EST.			1.4301	6003.26		8585.2
FEBRUARY	1	416.7	190.49	2.1875	1412.14	3089.1	
	2	368.3	198.11	1.8591	1361.64	2531.4	
	3	438.3	198.25	2.2109	1347.77	2979.8	
	4	1044.4	397.11	2.6300	1596.22	4198.0	
	MONTHLY EST.			2.2219	5717.76		12704.1
MARCH	1	1635.4	196.70	8.3144	1421.28	11817.1	
	2	432.5	173.10	2.4986	1321.68	3302.3	
	3	670.4	217.84	3.0775	1544.62	4753.6	
	4	628.1	195.71	3.2094	2108.83	6768.0	
	MONTHLY EST.			4.2750	6396.41		27344.5
APRIL	1	948.2	192.18	4.9338	1318.01	6502.8	
	2	437.8	155.24	2.8201	1421.28	4008.2	
	3	585.2	168.35	3.4760	1412.69	4910.5	
	4	822.6	198.67	4.1406	1703.59	7053.8	
	MONTHLY EST.			3.8426	5855.57		22500.8
MAY	1	790.4	198.67	3.9785	886.78	3528.0	
	2	0.0	58.88	0.0000	454.20	0.0	
	3	56.9	116.77	0.4873	809.06	394.2	
	4	40.2	232.96	0.1726	1156.85	199.6	
	MONTHLY EST.			1.1596	3306.89		3834.6
JUNE	1	1577.4	231.08	6.8263	1636.30	11169.8	
	2	1391.0	233.39	5.9600	2167.87	12920.6	
	3	287.6	317.84	0.9049	2261.66	2046.5	
	4	186.6	281.93	0.6619	2650.90	1754.6	
	MONTHLY EST.			3.5883	8716.73		31277.9
JULY	1	641.1	309.34	2.0725	2148.07	4451.8	
	2	199.8	324.80	0.6151	2198.26	1352.3	
	3	539.5	323.87	1.6658	2149.92	3581.3	
	4	326.6	358.51	0.9110	3846.43	3504.1	
	MONTHLY EST.			1.3161	10342.68		13612.0
AUGUST	1	512.6	399.22	1.2840	2666.26	3423.5	
	2	366.8	407.06	0.9011	2688.17	2422.3	
	3	686.6	309.01	2.2219	2445.00	5432.7	
	4	477.4	736.37	0.6483	3471.50	2250.6	
	MONTHLY EST.			1.2638	11270.93		14244.6
SEPTEMBER	1	59.4	365.17	0.1627	2041.58	332.1	
	2	61.1	322.44	0.1895	2232.65	423.1	
	3	125.0	345.63	0.3617	2417.54	874.3	
	4	63.2	269.87	0.2342	2632.58	616.5	
	MONTHLY EST.			0.2370	9324.36		2209.9
OCTOBER	1	54.2	245.18	0.2211	1450.51	320.6	
	2	94.0	232.30	0.4047	1464.05	592.4	
	3	72.4	203.04	0.3566	1420.49	506.5	
	4	734.9	394.31	1.8637	2030.71	3784.7	
	MONTHLY EST.			0.7115	6365.76		4529.3
NOVEMBER	1	322.0	203.04	1.5859	1428.26	2265.1	
	2	125.3	203.04	0.6171	1421.54	877.3	
	3	2940.8	203.04	14.4838	1412.02	20451.4	
	4	1243.4	203.04	6.1239	1796.14	10999.4	
	MONTHLY EST.			5.7027	6057.96		34546.7
DECEMBER	1	311.0	198.67	1.5654	1431.19	2240.4	
	2	460.4	195.49	2.3551	1394.66	3284.6	
	3	78.2	181.39	0.4311	1361.69	587.0	
	4	401.1	203.04	1.9755	2071.54	4092.3	
	MONTHLY EST.			1.5818	6259.08		9900.4

APPENDIX TABLE D-2.12. ESTIMATED WEEKLY BIOMASS OF STRIPED BASS, DANSKAMMER POINT GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	98.2	181.19	0.5420	1369.06	742.0	
	2	0.0	203.04	0.0000	1469.28	0.0	
	3	578.8	200.50	2.8868	1330.20	3840.0	
	4	801.4	196.70	4.0743	1834.73	7475.3	
	MONTHLY EST.			1.8758	6003.26		11260.7
FEBRUARY	1	275.1	190.49	1.4442	1412.14	2039.4	
	2	312.2	198.11	1.5759	1361.64	2145.9	
	3	0.0	198.25	0.0000	1347.77	0.0	
	4	704.6	397.11	1.7743	1596.22	2832.2	
	MONTHLY EST.			1.1986	5717.76		6853.3
MARCH	1	0.0	196.70	0.0000	1421.28	0.0	
	2	0.0	173.10	0.0000	1321.68	0.0	
	3	0.0	217.84	0.0000	1544.62	0.0	
	4	0.0	195.71	0.0000	2108.83	0.0	
	MONTHLY EST.			0.0000	6396.41		0.0
APRIL	1	0.0	192.18	0.0000	1318.01	0.0	
	2	0.0	155.24	0.0000	1421.28	0.0	
	3	0.0	168.35	0.0000	1412.69	0.0	
	4	65.1	198.67	0.3277	1703.59	558.2	
	MONTHLY EST.			0.0819	5855.57		479.7
MAY	1	105.5	198.67	0.5310	886.78	470.9	
	2	0.0	58.88	0.0000	454.20	0.0	
	3	0.0	116.77	0.0000	809.06	0.0	
	4	0.0	232.96	0.0000	1156.85	0.0	
	MONTHLY EST.			0.1328	3306.89		439.0
JUNE	1	95.3	231.08	0.4124	1636.30	674.8	
	2	123.9	233.39	0.5309	2167.87	1150.9	
	3	128.9	317.84	0.4055	2261.66	917.2	
	4	28.5	281.93	0.1011	2650.90	268.0	
	MONTHLY EST.			0.3625	8716.73		3159.7
JULY	1	145.9	309.34	0.4716	2148.07	1013.1	
	2	77.3	324.80	0.2380	2198.26	523.2	
	3	210.6	323.87	0.6503	2149.92	1398.0	
	4	189.3	358.51	0.5280	3846.43	2031.0	
	MONTHLY EST.			0.4720	10342.68		4881.5
AUGUST	1	334.1	399.22	0.8369	2666.26	2231.3	
	2	633.7	407.06	1.5568	2688.17	4184.8	
	3	418.2	309.01	1.3534	2445.00	3309.0	
	4	2181.2	736.37	2.9621	3471.50	10283.0	
	MONTHLY EST.			1.6773	11270.93		18904.5
SEPTEMBER	1	447.5	365.17	1.2255	2041.58	2501.9	
	2	406.7	322.44	1.2613	2232.65	2816.0	
	3	642.5	345.63	1.8589	2417.54	4494.0	
	4	380.0	269.87	1.4081	2632.58	3706.9	
	MONTHLY EST.			1.4385	9324.36		13412.6
OCTOBER	1	112.1	245.18	0.4572	1450.51	663.2	
	2	165.6	232.30	0.7129	1464.05	1043.7	
	3	108.8	203.04	0.5359	1420.49	761.2	
	4	149.7	394.31	0.3796	2030.71	771.0	
	MONTHLY EST.			0.5214	6365.76		3319.1
NOVEMBER	1	197.7	203.04	0.9737	1428.26	1390.7	
	2	55.6	203.04	0.2738	1421.54	389.3	
	3	1894.4	203.04	9.3302	1412.02	13174.4	
	4	291.9	203.04	1.4376	1796.14	2582.2	
	MONTHLY EST.			3.0038	6057.96		18197.2
DECEMBER	1	149.8	198.67	0.7540	1431.19	1079.1	
	2	2351.4	195.49	12.0281	1394.66	16775.2	
	3	0.0	181.39	0.0000	1361.69	0.0	
	4	0.0	203.04	0.0000	2071.54	0.0	
	MONTHLY EST.			3.1955	6259.08		20001.1

APPENDIX TABLE D-2.13. ESTIMATED WEEKLY BIOMASS OF WHITE CATFISH, DANSKAMMER POINT GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	759.3	181.19	4.1907	1369.06	5737.4	
	2	339.1	203.04	1.6701	1469.28	2453.9	
	3	44.4	200.50	0.2214	1330.20	294.6	
	4	3175.1	196.70	16.1423	1834.73	29616.6	
	MONTHLY EST.			5.5561	6003.26		33355.0
FEBRUARY	1	3960.4	190.49	20.7905	1412.14	29359.0	
	2	6462.8	198.11	32.6231	1361.64	44420.9	
	3	12243.8	198.25	61.7606	1347.77	83239.0	
	4	8083.3	397.11	20.3551	1596.22	32491.1	
	MONTHLY EST.			33.8823	5717.76		193731.0
MARCH	1	2727.8	196.70	13.8682	1421.28	19710.6	
	2	3946.2	173.10	22.7974	1321.68	30130.9	
	3	2034.8	217.84	9.3410	1544.62	14428.2	
	4	147.1	195.71	0.7516	2108.83	1585.1	
	MONTHLY EST.			11.6895	6396.41		74771.1
APRIL	1	1790.1	192.18	9.3146	1318.01	12276.7	
	2	80.2	155.24	0.5166	1421.28	734.3	
	3	4613.1	168.35	27.4012	1412.69	38709.3	
	4	2503.8	198.67	12.6029	1703.59	21470.2	
	MONTHLY EST.			12.4588	5855.57		72953.4
MAY	1	1400.6	198.67	7.0499	886.78	6251.7	
	2	16.3	58.88	0.2769	454.20	125.7	
	3	17.2	116.77	0.1473	809.06	119.2	
	4	38.7	232.96	0.1661	1156.85	192.2	
	MONTHLY EST.			1.9100	3306.89		6316.3
JUNE	1	19.1	231.08	0.0827	1636.30	135.2	
	2	278.8	233.39	1.1946	2167.87	2589.7	
	3	469.7	317.84	1.4778	2261.66	3342.3	
	4	200.9	281.93	0.7126	2650.90	1889.0	
	MONTHLY EST.			0.8669	8716.73		7556.6
JULY	1	572.2	309.34	1.8497	2148.07	3973.4	
	2	2074.1	324.80	6.3858	2198.26	14037.6	
	3	2008.1	323.87	6.2003	2149.92	13330.1	
	4	62.1	358.51	0.1732	3846.43	666.3	
	MONTHLY EST.			3.6523	10342.68		37774.1
AUGUST	1	896.5	399.22	2.2456	2666.26	5987.4	
	2	945.3	407.06	2.3222	2688.17	6242.6	
	3	245.7	309.01	0.7951	2445.00	1944.1	
	4	3045.3	736.37	4.1356	3471.50	14356.7	
	MONTHLY EST.			2.3746	11270.93		26764.4
SEPTEMBER	1	985.8	365.17	2.6996	2041.58	5511.4	
	2	257.2	322.44	0.7977	2232.65	1780.9	
	3	2066.3	345.63	5.9784	2417.54	14453.0	
	4	2047.7	269.87	7.5878	2632.58	19975.5	
	MONTHLY EST.			4.2659	9324.36		39776.4
OCTOBER	1	167.6	245.18	0.6836	1450.51	991.5	
	2	260.9	232.30	1.1231	1464.05	1644.3	
	3	96.1	203.04	0.4733	1420.49	672.3	
	4	1394.5	394.31	3.5365	2030.71	7181.7	
	MONTHLY EST.			1.4541	6365.76		9256.6
NOVEMBER	1	733.8	203.04	3.6141	1428.26	5161.8	
	2	1248.2	203.04	6.1476	1421.54	8739.0	
	3	4307.0	203.04	21.2126	1412.02	29952.5	
	4	355.9	203.04	1.7529	1796.14	3148.4	
	MONTHLY EST.			8.1818	6057.96		49564.8
DECEMBER	1	116.1	198.67	0.5844	1431.19	836.4	
	2	386.3	195.49	1.9760	1394.66	2755.9	
	3	11.5	181.39	0.0634	1361.69	86.3	
	4	47.1	203.04	0.2320	2071.54	480.5	
	MONTHLY EST.			0.7140	6259.08		4468.7

APPENDIX TABLE D-2.14. ESTIMATED WEEKLY BIOMASS OF WHITE PERCH, DANSKAMMER POINT GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	338.1	181.19	1.8660	1369.06	2554.7	
	2	94.2	203.04	0.4639	1469.28	681.7	
	3	177.4	200.50	0.8848	1330.20	1176.9	
	4	24170.2	196.70	122.8816	1834.73	225454.3	
	MONTHLY EST.			31.5241	6003.26		189247.5
FEBRUARY	1	14913.9	190.49	78.2919	1412.14	110558.8	
	2	5257.4	198.11	26.5385	1361.64	36135.8	
	3	2110.9	198.25	10.6479	1347.77	14350.9	
	4	3862.6	397.11	9.7267	1596.22	15525.9	
	MONTHLY EST.			31.3012	5717.76		178972.9
MARCH	1	2579.8	196.70	13.1157	1421.28	18641.1	
	2	5849.3	173.10	33.7917	1321.68	44661.8	
	3	9923.9	217.84	45.5568	1544.62	70367.7	
	4	2261.5	195.71	11.5555	2108.83	24368.6	
	MONTHLY EST.			26.0049	6396.41		166338.1
APRIL	1	12535.3	192.18	65.2259	1318.01	85968.2	
	2	2481.8	155.24	15.9868	1421.28	22721.7	
	3	7308.2	168.35	43.4097	1412.69	61324.4	
	4	28489.3	198.67	143.4008	1703.59	244296.5	
	MONTHLY EST.			67.0058	5855.57		392357.0
MAY	1	14011.3	198.67	70.5258	886.78	62540.6	
	2	998.1	58.88	16.9526	454.20	7699.9	
	3	2248.3	116.77	19.2544	809.06	15578.1	
	4	1192.3	232.96	5.1180	1156.85	5920.8	
	MONTHLY EST.			27.9627	3306.89		92469.6
JUNE	1	15520.5	231.08	67.1657	1636.30	109903.0	
	2	23445.3	233.39	100.4564	2167.87	217776.6	
	3	15828.5	317.84	49.8002	2261.66	112631.4	
	4	9815.4	281.93	34.8155	2650.90	92292.3	
	MONTHLY EST.			63.0595	8716.73		549672.1
JULY	1	10931.9	309.34	35.3395	2148.07	75911.7	
	2	5911.3	324.80	18.1998	2198.26	40007.9	
	3	5484.8	323.87	16.9351	2149.92	36409.1	
	4	7725.1	358.51	21.5479	3846.43	82882.5	
	MONTHLY EST.			23.0056	10342.68		237939.2
AUGUST	1	20756.8	399.22	51.9931	2666.26	138627.0	
	2	15017.1	407.06	36.8912	2688.17	99169.7	
	3	5062.3	309.01	16.3824	2445.00	40055.0	
	4	17559.1	736.37	23.8456	3471.50	82780.0	
	MONTHLY EST.			32.2781	11270.93		363803.9
SEPTEMBER	1	1729.0	365.17	4.7348	2041.58	9666.6	
	2	1222.0	322.44	3.7898	2232.65	8461.3	
	3	1972.1	345.63	5.7058	2417.54	13794.1	
	4	1592.2	269.87	5.8999	2632.58	15532.1	
	MONTHLY EST.			5.0326	9324.36		46925.8
OCTOBER	1	648.3	245.18	2.6441	1450.51	3835.4	
	2	823.5	232.30	3.5450	1464.05	5190.1	
	3	681.7	203.04	3.3575	1420.49	4769.2	
	4	3292.7	394.31	8.3504	2030.71	16957.4	
	MONTHLY EST.			4.4743	6365.76		28482.1
NOVEMBER	1	3044.3	203.04	14.9936	1428.26	21414.8	
	2	5298.2	203.04	26.0944	1421.54	37094.3	
	3	51109.6	203.04	251.7218	1412.02	355435.2	
	4	30401.6	203.04	149.7321	1796.14	268939.2	
	MONTHLY EST.			110.6355	6057.96		670225.2
DECEMBER	1	90539.3	198.67	455.7294	1431.19	652236.2	
	2	34111.7	195.49	174.4915	1394.66	243357.1	
	3	5013.1	181.39	27.6368	1361.69	37632.7	
	4	1919.5	203.04	9.4538	2071.54	19583.9	
	MONTHLY EST.			166.8279	6259.08		1044189.1

APPENDIX TABLE D-2.15. ESTIMATED WEEKLY BIOMASS OF YELLOW PERCH, DANSKAMMER POINT GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	181.19	0.0000	1369.06	0.0	
	2	0.0	203.04	0.0000	1469.28	0.0	
	3	105.2	200.50	0.5247	1330.20	697.9	
	4	1239.8	196.70	6.3032	1834.73	11564.6	
	MONTHLY EST.			1.7070	6003.26		10247.3
FEBRUARY	1	697.6	190.49	3.6621	1412.14	5171.4	
	2	201.6	198.11	1.0176	1361.64	1385.7	
	3	479.6	198.25	2.4192	1347.77	3260.5	
	4	735.6	397.11	1.8524	1596.22	2956.8	
	MONTHLY EST.			2.2378	5717.76		12795.4
MARCH	1	1903.8	196.70	9.6789	1421.28	13756.5	
	2	785.2	173.10	4.5361	1321.68	5995.3	
	3	1816.2	217.84	8.3375	1544.62	12878.2	
	4	601.2	195.71	3.0719	2108.83	6478.2	
	MONTHLY EST.			6.4061	6396.41		40976.2
APRIL	1	1557.7	192.18	8.1053	1318.01	10682.8	
	2	361.3	155.24	2.3273	1421.28	3307.8	
	3	47.2	168.35	0.2804	1412.69	396.1	
	4	1522.8	198.67	7.6650	1703.59	13058.1	
	MONTHLY EST.			4.5945	5855.57		26903.4
MAY	1	265.1	198.67	1.3344	886.78	1183.3	
	2	0.0	58.88	0.0000	454.20	0.0	
	3	0.0	116.77	0.0000	809.06	0.0	
	4	317.4	232.96	1.3625	1156.85	1576.2	
	MONTHLY EST.			0.6742	3306.89		2229.5
JUNE	1	687.6	231.08	2.9756	1636.30	4869.0	
	2	151.7	233.39	0.6500	2167.87	1409.1	
	3	235.5	317.84	0.7409	2261.66	1675.8	
	4	0.0	281.93	0.0000	2650.90	0.0	
	MONTHLY EST.			1.0916	8716.73		9515.5
JULY	1	0.0	309.34	0.0000	2148.07	0.0	
	2	0.0	324.80	0.0000	2198.26	0.0	
	3	0.0	323.87	0.0000	2149.92	0.0	
	4	0.0	358.51	0.0000	3846.43	0.0	
	MONTHLY EST.			0.0000	10342.68		0.0
AUGUST	1	0.0	399.22	0.0000	2666.26	0.0	
	2	0.0	407.06	0.0000	2688.17	0.0	
	3	0.0	309.01	0.0000	2445.00	0.0	
	4	47.2	736.37	0.0641	3471.50	222.5	
	MONTHLY EST.			0.0160	11270.93		180.6
SEPTEMBER	1	0.0	365.17	0.0000	2041.58	0.0	
	2	0.0	322.44	0.0000	2232.65	0.0	
	3	0.0	345.63	0.0000	2417.54	0.0	
	4	0.0	269.87	0.0000	2632.58	0.0	
	MONTHLY EST.			0.0000	9324.36		0.0
OCTOBER	1	0.0	245.18	0.0000	1450.51	0.0	
	2	0.0	232.30	0.0000	1464.05	0.0	
	3	17.6	203.04	0.0867	1420.49	123.1	
	4	42.2	394.31	0.1070	2030.71	217.3	
	MONTHLY EST.			0.0484	6365.76		308.3
NOVEMBER	1	0.0	203.04	0.0000	1428.26	0.0	
	2	0.0	203.04	0.0000	1421.54	0.0	
	3	64.2	203.04	0.3162	1412.02	446.5	
	4	0.0	203.04	0.0000	1796.14	0.0	
	MONTHLY EST.			0.0790	6057.96		478.9
DECEMBER	1	136.9	198.67	0.6891	1431.19	986.2	
	2	471.3	195.49	2.4108	1394.66	3362.3	
	3	294.1	181.39	1.6214	1361.69	2207.8	
	4	422.8	203.04	2.0823	2071.54	4313.7	
	MONTHLY EST.			1.7009	6259.08		10646.1

APPENDIX TABLE D-2.16. ESTIMATED WEEKLY BIOMASS OF BLUE CRAB, DANSKAMMER POINT GENERATING STATION, 1996.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	181.19	0.0000	1369.06	0.0	
	2	0.0	203.04	0.0000	1469.28	0.0	
	3	0.0	200.50	0.0000	1330.20	0.0	
	4	0.0	196.70	0.0000	1834.73	0.0	
	MONTHLY EST.			0.0000	6003.26		0.0
FEBRUARY	1	0.0	190.49	0.0000	1412.14	0.0	
	2	0.0	198.11	0.0000	1361.64	0.0	
	3	0.0	198.25	0.0000	1347.77	0.0	
	4	0.0	397.11	0.0000	1596.22	0.0	
	MONTHLY EST.			0.0000	5717.76		0.0
MARCH	1	0.0	196.70	0.0000	1421.28	0.0	
	2	0.0	173.10	0.0000	1321.68	0.0	
	3	0.0	217.84	0.0000	1544.62	0.0	
	4	0.0	195.71	0.0000	2108.83	0.0	
	MONTHLY EST.			0.0000	6396.41		0.0
APRIL	1	0.0	192.18	0.0000	1318.01	0.0	
	2	0.0	155.24	0.0000	1421.28	0.0	
	3	0.0	168.35	0.0000	1412.69	0.0	
	4	0.0	198.67	0.0000	1703.59	0.0	
	MONTHLY EST.			0.0000	5855.57		0.0
MAY	1	0.0	198.67	0.0000	886.78	0.0	
	2	0.0	58.88	0.0000	454.20	0.0	
	3	0.0	116.77	0.0000	809.06	0.0	
	4	0.0	232.96	0.0000	1156.85	0.0	
	MONTHLY EST.			0.0000	3306.89		0.0
JUNE	1	0.0	231.08	0.0000	1636.30	0.0	
	2	1.4	233.39	0.0060	2167.87	13.0	
	3	14.7	317.84	0.0462	2261.66	104.6	
	4	7.7	281.93	0.0273	2650.90	72.4	
	MONTHLY EST.			0.0199	8716.73		173.4
JULY	1	33.1	309.34	0.1070	2148.07	229.8	
	2	225.8	324.80	0.6952	2198.26	1528.2	
	3	366.6	323.87	1.1319	2149.92	2433.6	
	4	555.1	358.51	1.5484	3846.43	5955.7	
	MONTHLY EST.			0.8706	10342.68		9004.6
AUGUST	1	508.2	399.22	1.2730	2666.26	3394.1	
	2	762.2	407.06	1.8724	2688.17	5033.4	
	3	637.3	309.01	2.0624	2445.00	5042.6	
	4	1866.8	736.37	2.5351	3471.50	8800.8	
	MONTHLY EST.			1.9357	11270.93		21817.6
SEPTEMBER	1	1503.8	365.17	4.1181	2041.58	8407.5	
	2	1880.1	322.44	5.8308	2232.65	13018.1	
	3	2292.9	345.63	6.6340	2417.54	16038.0	
	4	3235.2	269.87	11.9881	2632.58	31559.7	
	MONTHLY EST.			7.1427	9324.36		66601.6
OCTOBER	1	1453.7	245.18	5.9290	1450.51	8600.1	
	2	1751.7	232.30	7.5408	1464.05	11040.0	
	3	1693.6	203.04	8.3412	1420.49	11848.6	
	4	3725.2	394.31	9.4473	2030.71	19184.7	
	MONTHLY EST.			7.8146	6365.76		49745.7
NOVEMBER	1	1865.4	203.04	9.1874	1428.26	13122.0	
	2	351.6	203.04	1.7317	1421.54	2461.7	
	3	406.7	203.04	2.0031	1412.02	2828.3	
	4	182.0	203.04	0.8964	1796.14	1610.0	
	MONTHLY EST.			3.4546	6057.96		20927.9
DECEMBER	1	0.0	198.67	0.0000	1431.19	0.0	
	2	0.0	195.49	0.0000	1394.66	0.0	
	3	0.0	181.39	0.0000	1361.69	0.0	
	4	0.0	203.04	0.0000	2071.54	0.0	
	MONTHLY EST.			0.0000	6259.08		0.0

APPENDIX E

IMPINGEMENT COLLECTION EFFICIENCY PROGRAM RESULTS

LIST OF APPENDIX E TABLES

E-1. Roseton collection efficiency results, 1996.

E-2. Danskammer Point Units 1 and 2 collection efficiency results, 1996.

E-3. Danskammer Point Units 3 and 4 collection efficiency results, 1996.

APPENDIX E

IMPINGEMENT COLLECTION EFFICIENCY PROGRAM RESULTS

Impingement collection efficiency tests were conducted monthly at Roseton and Danskammer Point during 1996. Normally fifty inconspicuously marked fish (caudal fin clip) of varying sizes were introduced to the screenwash sluiceway before or during a scheduled screen cycle. Collection efficiency was determined separately by size group (<13 cm, 13-25 cm, or >25 cm). Following collection, as part of a normal 6-hr impingement sample, organisms were analyzed without the analysis team being notified. The sample was reexamined for marked fish as a check on analytical techniques, and collection efficiency was calculated according to the following formula:

$$\text{Collection Efficiency} = \frac{\text{Number Recovered}}{\text{Number Released}} \times 100\%$$

All marked fish recovered were identified during the initial analysis phase.

ROSETON GENERATING STATION

The overall 1996 collection efficiency calculated for Roseton was 98%, with values ranging from a low of 96% (on three different dates) to 100% (during six different dates) for all size groups of fish combined (Table E-1). The overall collection efficiency in 1996 was 98% for fish less than 13 cm total length (362 released and 353 recovered) and >99% (288 released, 287 recovered) for fish 13-25 cm. None of the fish tested in 1996 fell into the greater than 25 cm size group.

DANSKAMMER POINT GENERATING STATION

Collection efficiency sampling at Units 1 and 2 was only conducted in July, August, and September because the units were not operating during the collection efficiency test dates in other months. On the 19 July scheduled sampling date, collection efficiency was found to be

unacceptably low (30%) and the reason was discovered to be a large hole in the sluiceway. Sampling at Units 1 and 2 on that date was therefore considered invalid. The problem was fixed before the following week's scheduled sampling date, when collection efficiency was again tested and found to be 98%. At Danskammer Point Units 1 and 2 the overall 1996 collection efficiency (valid sampling dates only) was 97%, with monthly values ranging from 96% (August) to 98% (July and September, Table E-2). Collection efficiency was 95% (82 released, 78 recovered) for fish under 13 cm in total length and 100% for fish 13-25 cm (68 released, 68 recovered). There were no test fish larger than 25 cm released at Danskammer Point Units 1 and 2 in 1996.

At Danskammer Point Units 3 and 4 the overall 1996 collection efficiency was 96%, with monthly values ranging from 92% in June and August to 100% in four different months (Table E-3). Collection efficiency was 95% (386 released, 365 recovered) for fish under 13 cm in total length and 99% (264 released, 262 recovered) for fish 13-25 cm in total length. There were no fish larger than 25 cm in total length released at Danskammer Point Units 3 and 4 in 1996.

APPENDIX TABLE E-1. ROSETON COLLECTION EFFICIENCY RESULTS, 1996.

	REL. LOCATION		SMALL (<13 cm)			MEDIUM (13-25 cm)			LARGE (>25 cm)			TOTAL ALL SIZES		
DATE	UNITS	SCREENS	NO. REL.	NO. REC.	COLL. EFF. (%)	NO. REL.	NO. REC.	COLL. EFF. (%)	NO. REL.	NO. REC.	COLL. EFF. (%)	NO. REL.	NO. REC.	COLL. EFF. (%)
11 Jan	1 & 2	1D/2A	42	40	95	8	8	100				50	48	96
1 Feb	1 & 2	1D/2A	25	24	96	25	25	100				50	49	98
14 Mar	1 & 2	1D/2A	25	25	100	25	25	100				50	50	100
19 Apr	1 & 2	2A/2B	25	24	96	25	24	96				50	48	96
25 Apr	1 & 2	1D/2A	25	25	100	25	25	100				50	50	100
9 May	1 & 2	1D/2A	25	24	96	25	25	100				50	49	98
6 Jun	1 & 2	1D/2A	25	25	100	25	25	100				50	50	100
18 Jul	1 & 2	1B/1C	35	35	100	15	15	100				50	50	100
8 Aug	1 & 2	1B/1C	25	24	96	25	25	100				50	49	98
5 Sep	1 & 2	1D/2A	25	25	100	25	25	100				50	50	100
3 Oct	1 & 2	1B/1C	35	34	97	15	15	100				50	49	98
7 Nov	1 & 2		25	23	92	25	25	100				50	48	96
12 Dec	1 & 2	1C/1D	25	25	100	25	25	100				50	50	100
TOTAL	1 & 2		362	353	98	288	287	>99				650	640	98

APPENDIX TABLE E-2. DANSKAMMER POINT UNITS 1 AND 2 COLLECTION EFFICIENCY RESULTS, 1996.

	REL. LOCATION		SMALL (<13 cm)			MEDIUM (13-25 cm)			LARGE (>25 cm)			TOTAL ALL SIZES		
DATE	UNITS	SCREENS	NO. REL.	NO. REC.	COLL. EFF. (%)	NO. REL.	NO. REC.	COLL. EFF. (%)	NO. REL.	NO. REC.	COLL. EFF. (%)	NO. REL.	NO. REC.	COLL. EFF. (%)
19 Jul[a]	1 & 2	1A/1B	35	6	17	15	9	60				50	15	30
25 Jul	1 & 2	1A/2C	27	26	96	23	23	100				50	49	98
8 Aug	1 & 2	1A/2C	30	28	93	20	20	100				50	48	96
5 Sep	1 & 2	2A/2B	25	24	96	25	25	100				50	49	98
TOTAL	1 & 2		82	78	95	68	68	100				150	146	97

[a]No sampling conducted (not included in totals for the year)

APPENDIX TABLE E-3. DANSKAMMER POINT UNITS 3 AND 4 COLLECTION EFFICIENCY RESULTS, 1996.

	REL. LOCATION		SMALL (<13 cm)			MEDIUM (13-25 cm)			LARGE (>25 cm)			TOTAL ALL SIZES		
DATE	UNITS	SCREENS	NO. REL.	NO. REC.	COLL. EFF. (%)	NO. REL.	NO. REC.	COLL. EFF. (%)	NO. REL.	NO. REC.	COLL. EFF. (%)	NO. REL.	NO. REC.	COLL. EFF. (%)
11 Jan	3 & 4	4C	42	42	100	8	8	100				50	50	100
1 Feb	3 & 4	4C	24	24	100	26	26	100				50	50	100
14 Mar	3 & 4	3C/4C	25	23	92	25	25	100				50	48	96
25 Apr	3 & 4	4A/4B	25	23	92	25	25	100				50	48	96
26 Apr	3 & 4	3C/4C	25	25	100	25	25	100				50	50	100
9 May	3 & 4	3B/3C	25	23	92	25	25	100				50	48	96
6 Jun	3 & 4	3C/4C	45	41	91	5	5	100				50	46	92
18 Jul	3 & 4	3C/4C	35	32	91	15	15	100				50	47	94
8 Aug	3 & 4	3C/4C	30	26	87	20	20	100				50	46	92
5 Sep	3 & 4	3C/4C	25	24	96	25	23	92				50	47	94
3 Oct	3 & 4	3C/4C	35	34	97	15	15	100				50	49	98
7 Nov	3 & 4		25	25	100	25	25	100				50	50	100
12 Dec	3 & 4	3C/4C	25	23	92	25	25	100				50	48	96
TOTAL	3 & 4		386	365	95	264	262	99				650	627	96

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NORMANDEAU ASSOCIATES
ENVIRONMENTAL CONSULTANTS

ROSETON AND DANSKAMMER POINT GENERATING STATIONS IMPINGEMENT MONITORING PROGRAM 1998 ANNUAL PROGRESS REPORT

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June 1999

ROSETON AND DANSKAMMER POINT GENERATING STATIONS IMPINGEMENT MONITORING PROGRAM 1998 ANNUAL PROGRESS REPORT

Permit (Facility) Numbers:

NY 000 6262 (Danskammer Point)

NY 000 8231 (Roseton)

This annual report is submitted as partial fulfillment of SPDES permit conditions as stipulated within the section entitled Additional Requirements: Number 9 (Biological Monitoring and Reporting) of the Danskammer Point permit; and Number 7 (Biological Monitoring and Reporting) which is embodied in a Memorandum of Agreement (MOA) for Roseton Generating Station.

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1.0 EXECUTIVE SUMMARY

1.0 EXECUTIVE SUMMARY

The 1998 impingement abundance monitoring program conducted at Central Hudson Gas & Electric Corporation's Roseton and Danskammer Point Generating Stations represents a continuation of year-round intake monitoring programs begun in January of 1972 at Danskammer Point and in July of 1973 at Roseton. Weekly sampling consisting of four successive 6-hour diel periods was conducted to quantify the numbers, types, and biomass of Hudson River fish and major invertebrates impinged on the cooling water intake screening system of each station. Based on observed impingement rates on sampling days and recorded plant flow for the entire year, the total impingement for the year was estimated. This report provides the results of studies conducted during 1998 and compares those results with historical patterns of impingement.

Temperature and dissolved oxygen in 1998 exhibited the typical seasonal patterns seen in previous years, with temperature highest from mid-July to early September in the 26-27°C range, and dissolved oxygen at its lowest levels during late May to early October (about 6-8 mg/l). Weekly averages of specific conductance were below 250 µmhos/cm for more than half the year and were slightly elevated throughout the late summer and fall. Turbidity and total suspended solids concentrations were at fairly constant levels throughout 1998 except for elevated values on one date in mid-January. Total organic carbon and pH were at typical levels in 1998. Metals were monitored in the nearfield area in a continuation of expanded water quality analysis begun in 1989. Most values for ten of the 14 metals were below detection limits most of the time in 1998, and the data for the other four were similar to previous years' data.

On the 52 sampling dates in 1998, 12,617 fish representing 38 species in 17 families were collected at Roseton. At Danskammer Point the collections on 52 sampling dates totaled 32,110 fish in 45 species and 20 families. At Roseton in 1998, the estimated annual total impingement of 84,389 fish and the annual rate of impingement of 0.3779 fish per million gallons (MG) were lower than the long-term average. The estimated annual total impingement at Danskammer Point of 220,320 fish in 1998 and the annual impingement rate of 2.1620 fish/MG were also below average for the 1974-1998 period. Blue crab impingement, which has been monitored during 1986-1998, was higher than in all but one of the previous 12 years at Roseton and higher than in all of the previous 12 years at Danskammer Point. White perch was the numerically dominant fish species impinged during 1998 at Roseton, contributing 44.2% of the estimated annual total impingement. Bay anchovy was second, accounting for 14.2% of the

estimated total at Roseton, followed by blueback herring (8.2%). White perch was also numerically dominant at Danskammer Point in 1998 (42.1% of the estimated annual total impingement), with striped bass second (16.2%), and white catfish third (9.1%). Biomass at Roseton in 1998 was dominated by white perch, which often dominated the impingement biomass during the summer and fall. Biomass at Danskammer Point in 1998 was dominated by gizzard shad, with large adults frequently impinged in the winter. Overall, the 1998 impingement monitoring program at the two generating stations showed abundances, seasonal and diel impingement patterns, and species composition similar to those of the previous 24 years, with only minor shifts in the dominant fish species.

2.0 INTRODUCTION

2.0 INTRODUCTION

2.1 PROGRAM BACKGROUND, DESCRIPTION AND OBJECTIVES

Central Hudson Gas & Electric Corporation operates two fossil-fueled electric generating plants in Newburgh, New York: Roseton Generating Station at river kilometer 106, and Danskammer Point Generating Station at river kilometer 107 upstream from Battery Park in New York City (river kilometer 0). These two power stations, sited on the estuarine portion of the Hudson River, use once-through cooling. The numbers of fish impinged on the intake screens have been monitored continually since January 1972 at Danskammer Point and since July 1973 at Roseton. This report presents the results of the January-December 1998 impingement sampling conducted by Normandeau Associates Inc.. The sampling design, gear, and methods were consistent with those of previous years. Earlier years' impingement programs were presented in a series of annual reports (LMS 1978a, 1978b, 1979a, 1979b, 1980a, 1980b, 1981, 1982, 1983, 1984, 1987, 1988, 1989, 1993, 1994; EA 1985, 1986; NAI 1990, 1992, 1996a, 1996b, 1997a, 1997b, 1998).

Impingement sampling in 1998 consisted of weekly 24-hour collections (Thursday morning to Friday morning) from the traveling screen washwater sluiceway discharges at each plant. Water quality data were collected weekly at the two plant intakes and, during open-water periods, at a midchannel river reference station. Key study objectives of the 1998 impingement program included the following:

- Estimate (collectively, by species, and by age/length categories) the total number and biomass of fish impinged weekly, monthly, and annually.
- Monitor and record the diel distribution of selected impinged taxa/life stages.
- Monitor and record pertinent biological data relative to the impingement of invertebrates.
- Provide specific water quality data from predetermined intake and river reference sites.
- Monitor and record specific plant operational data (cooling water pumps/traveling screens in operation during all impingement collections, etc.).

2.2 REPORT FORMAT

Section 3 describes the two plants and general characteristics of the Hudson River in the vicinity of the study site. Section 4 summarizes the field, laboratory, and analytical procedures used. Section 5 presents the water quality results for both in-plant and river reference station data, and also characterizes the patterns of freshwater flow into the estuary. Section 6 provides the biological data from the 1998 program and discusses these results with respect to previous years' data. Section 7 presents a review of the literature cited. Detailed data tables are provided in five appendices:

A - Annual Impingement Abundance by Species
B - Length-Frequency Information for Major Taxa
C - Estimated Impingement Abundance
D - Estimated Impingement Biomass
E - Impingement Collection Efficiency Program Results

3.0 STUDY SITE DESCRIPTION

3.0 STUDY SITE DESCRIPTION

3.1 LOWER HUDSON RIVER ESTUARY - PLANT VICINITY

The lower Hudson River estuary is approximately 247 km (154 miles) long. With its mouth at the southern tip of Manhattan (the Battery), the estuary extends in a northerly direction to the Federal Dam at Troy, New York. The Federal Dam, constructed in 1832 as part of the New York State canal system, forms the boundary between the tidal estuarine lower Hudson River and the riverine upper Hudson River. The lower Hudson River is defined as a drowned river valley or "coastal plain estuary" (Pritchard 1967), with saltwater intrusion generally restricted to the more southerly portion, although it is occasionally reported as far north as Poughkeepsie at km 122 (mile 76) upriver from the Battery in New York City. During extreme drought years the salt front has been reported as far north as Kingston at km 170 (mile 106) (Buckley 1971). Mean freshwater flow measured at the Federal Dam has averaged approximately 387 m^3/sec (13,660 cfs) over a 50-year period.

The northern Newburgh Bay area of the Hudson River, in which Roseton Generating Station and Danskammer Point Generating Station are found, is bounded on the south by the Newburgh-Beacon Bridge (km 100.4) and on the north by New Hamburg (km 109.5). Newburgh Bay south of the bridge is wide with extensive shoals, especially along the eastern shore. The city of Newburgh dominates the western shore of the bay. North of Newburgh Bay the Hudson River flows through a comparatively deep, narrow channel extending upstream past the Mid-Hudson Bridge at Poughkeepsie (km 121) to Esopus Meadows (km 140). The northern Newburgh Bay region of the Hudson River is widest (about 1.5 km) just south of Roseton Generating Station and narrows slightly in the area of the Newburgh-Beacon Bridge. Wappinger Creek is the only major tributary in northern Newburgh Bay, entering on the eastern side of the Hudson River just south of New Hamburg; the area near the confluence is a wide, shallow shelf. Central Hudson Gas & Electric Corporation operates two fossil-fueled steam electric generating stations with once-through cooling on the west shore of northern Newburgh Bay: the Roseton plant at km 106 and the Danskammer Point plant at km 107. Plant locations are illustrated in Figure 3-1. Hydrodynamic and physiographic characteristics of northern Newburgh Bay are presented in Table 3-1.

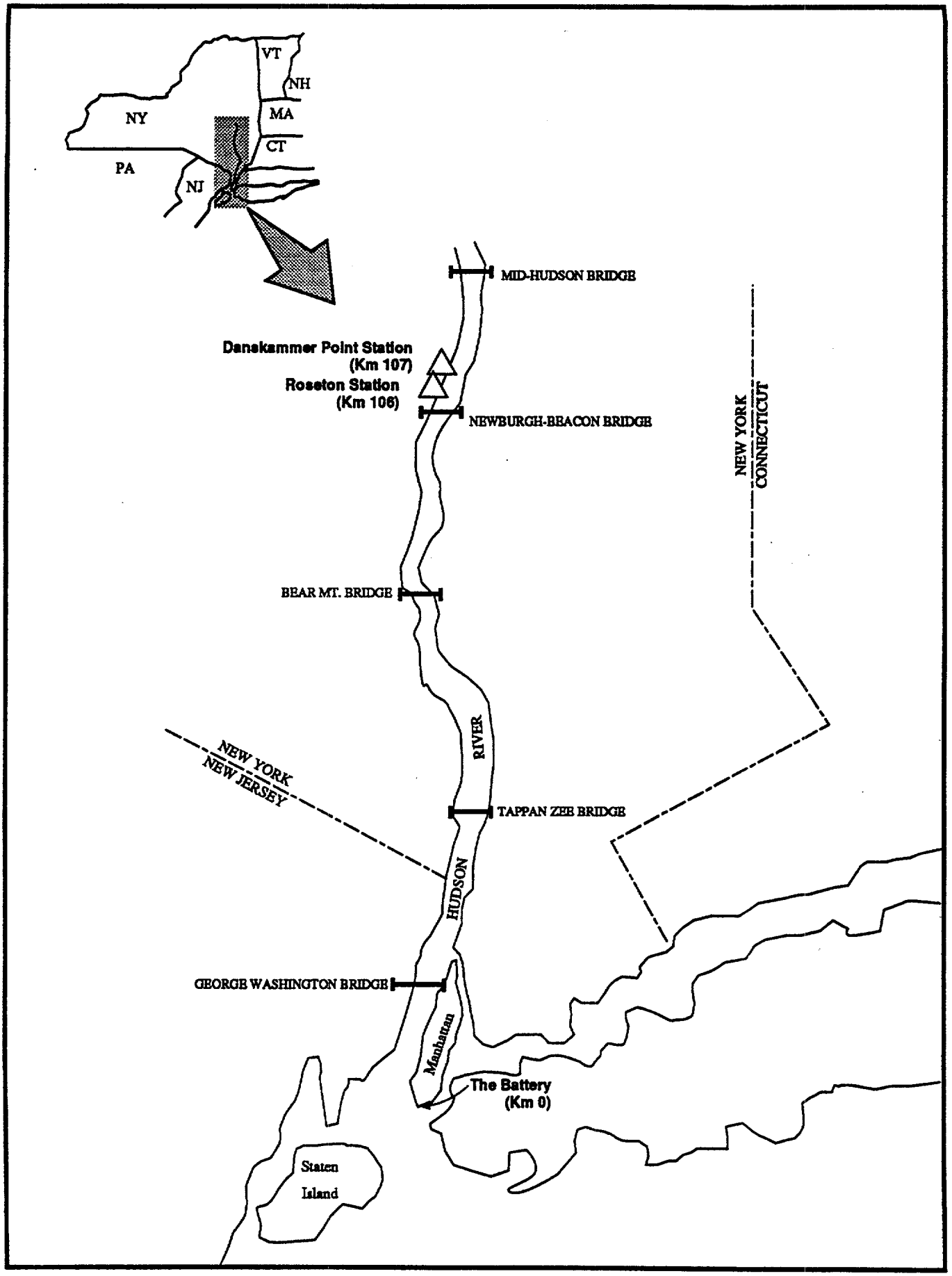


Figure 3-1. Location of the Roseton and Danskammer Point generating stations.

TABLE 3-1. HYDRODYNAMIC AND PHYSIOGRAPHIC CHARACTERISTICS OF NORTHERN NEWBURGH BAY IN THE VICINITY OF ROSETON AND DANSKAMMER POINT GENERATING STATIONS.

PARAMETER	VALUE
Average maximum ebb current velocity	56.64 cm/sec
Average maximum flood current velocity	51.49 cm/sec
Mean high water	0.98 m above mean sea level
Mean low water	0.06 m above mean sea level
Mean tidal level	0.46 m above mean sea level
Mean tidal range	0.88 m
Spring tidal range	1.01 m
Maximum depth	25.0 m
Mean depth	14.8 m
Maximum width	1555 m
Mean width	1335 m
River width at Danskammer Point discharge	1045 m
River width at Roseton discharge	1198 m

(Source: LMS 1989)

3.2 ROSETON GENERATING STATION

Roseton Generating Station is located on the west bank of the Hudson River approximately 106 km north of the New York Battery and 6 km north of the Newburgh-Beacon Bridge. Roseton Station is a fossil-fueled steam electric generating station whose two independent units have a total maximum net generating capacity of 1,200 MWe. Steam is cooled by means of a once-through cooling system that withdraws water from the Hudson River at a shoreline intake structure. The intake consists of four cooling water pumps with a combined rated capacity of 2,426.2 m^3/min, eight vertical traveling screens equipped with 0.95-cm square mesh (six screens) or 0.32-cm x 1.27-cm rectangular mesh (two screens), and 10 vertical trash rack arrays with 7.6-cm spacing between the bars (center to center). Heated effluent is discharged to the river through a single submerged discharge pipe with a multiport diffuser.

Units 1 and 2 of Roseton Generating Station were placed in commercial service on 31 December and 14 September 1974, respectively. Table 3-2 presents plant-specific information related to flow and pump operation.

3.3 DANSKAMMER POINT GENERATING STATION

Danskammer Point Generating Station is located on the west side of the Hudson River, 0.9 km north of the Roseton plant. Danskammer Point Station is a fossil-fueled steam electric generating station. The total maximum net generating capability of its four steam turbine generators ranges from 480 to 491 MWe.

Each of the four generating units at Danskammer Point Station has a separate once-through cooling water system. The cooling water is drawn from a common intake canal, passes through the condensers, and is discharged to the Hudson River through three separate shoreline subsurface pipes on the south side of the plant. The intake, located on the north side of the plant, consists of a debris boom and trash bar racks located at the river shoreline, an intake canal, and a common intake bay from which river water is diverted into the individual cooling systems

TABLE 3-2. COOLING WATER PUMP FLOW RATES FOR ROSETON AND DANSKAMMER POINT GENERATING STATIONS.

PLANT AND UNIT(S)	NUMBER OF PUMPS	NUMBER OF PUMPS OPERATING	COOLING WATER FLOW[a] THOUSANDS OF GALLONS PER MINUTE	CUBIC METERS PER MINUTE	MILLIONS OF GALLONS PER HOUR
Roseton 1 & 2	4	1	213-228	806-863	12.8-13.7
		2	362-418	1370-1580	21.7-25.1
		3	526-561	1990-2120	31.6-33.7
		4	641	2430	38.5
Danskammer Point 1	2	1	21	80	1.3
		2	42	160	2.5
Danskammer Point 2	2	1	21	80	1.3
		2	42	160	2.5
Danskammer Point 3	2	1	41	160	2.5
		2	82	310	4.9
Danskammer Point 4	3	1	50	190	3.0
		2	100	380	6.0
		3	150	570	9.0

[a]Flow rate at Roseton with fewer than four pumps operating varies within the range shown depending on the operating status of the condensers.

through a series of vertical traveling screens. The intake canal is 137 m long and 10.4 m wide. Nine cooling water pumps (Table 3-2) supply a total cooling water flow of 1,196 m^3/min, which results in a mean maximum intake canal velocity at low water of 0.6 m/sec.

Traveling screens for Units 1 and 2 (six traveling screens) and for Unit 4 (three traveling screens) are equipped with 0.95-cm square mesh. The three Unit 3 traveling screens are equipped with interwoven stainless steel wire with a 0.32-cm square mesh.

4.0 MATERIALS AND METHODS

4.0 MATERIALS AND METHODS

4.1 SAMPLE COLLECTION

4.1.1 Schedule

Impingement sampling was conducted once per week throughout 1998. On each sampling date simultaneous 24-hr collections were made at three sites (unless there was no cooling water withdrawal, eliminating the need for sampling at a site): Roseton, Danskammer Point Units 1 and 2, and Danskammer Point Units 3 and 4. Collection typically began at 0900 hrs each Thursday and ended at 0900 hrs the following day (Friday). Each 24-hr sampling effort was subdivided into four consecutive 6-hr periods. In years prior to 1989, additional sampling days were scheduled if fish abundance reached 1,000 at either plant on a regularly scheduled sample date, but this procedure was approved for modification. Additional sampling days were not scheduled after 1988 because the data obtained did not substantially improve the accuracy or precision of impingement estimates (LMS 1989). Furthermore, deleting additional impingement collections provided the opportunity to return impinged fish immediately to the river thus increasing the opportunity for fish survival. Table 4-1 lists the sampling dates and number of samples (6-hr diel periods) collected in 1998.

4.1.2 General Sampling Procedures

All operable traveling screens were prewashed immediately prior to initiation of each 24-hr sampling effort to remove any entrapped organisms accumulated before the sample start time. Screens were inspected and screen housings and sluiceways were cleaned prior to each 24-hr sampling period and, if plant operation permitted, between successive 6-hr samples. The status of pumps and traveling screens and the screenwash duration and pressure were recorded during sampling. Samples were collected over the following time intervals each week: 0900-1500 hrs, 1500-2100 hrs, 2100-0300 hrs, and 0300-0900 hrs.

Impingement samples were collected by intercepting the screenwash discharge with nets, collection baskets, or a 0.6-cm mesh conveyor belt, depending on the site of collection.

TABLE 4-1. SAMPLING DATES AND NUMBER OF SAMPLES COLLECTED, ROSETON AND DANSKAMMER POINT IMPINGEMENT MONITORING PROGRAM, 1998.[a]

	NUMBER OF SAMPLES COLLECTED			NUMBER OF SAMPLES COLLECTED	
SAMPLE DATE	ROSETON	DANSKAMMER POINT	SAMPLE DATE	ROSETON	DANSKAMMER POINT
8 Jan	4	4	1 Jul	4	8
15 Jan	4	8	9 Jul	4	8
22 Jan	4	8	16 Jul	4	8
29 Jan	4	8	23 Jul	4	8
			30 Jul	4	8
5 Feb	4	8			
12 Feb	4	4	6 Aug	4	8
19 Feb	4	4	13 Aug	4	8
26 Feb	4	4	20 Aug	4	8
			27 Aug	4	8
5 Mar	4	4			
12 Mar	4	4	3 Sep	4	8
19 Mar	4	4	10 Sep	4	8
26 Mar	4	4	17 Sep	4	8
			24 Sep	4	8
2 Apr	4	4			
9 Apr	4	4	1 Oct	4	4
16 Apr	4	4	8 Oct	4	4
23 Apr	4	4	15 Oct	4	8
30 Apr	4	4	22 Oct	4	4
			29 Oct	4	4
7 May	4	4			
14 May	4	4	5 Nov	4	4
21 May	4	8	12 Nov	4	4
28 May	4	8	19 Nov	4	4
			24 Nov	4	4
4 Jun	4	8			
11 Jun	4	8	3 Dec	4	8
18 Jun	4	8	10 Dec	4	8
25 Jun	4	8	17 Dec	4	4
			22 Dec	4	4
			29 Dec	4	4
			1998 TOTAL	208	312

[a] Sampling dates listed as beginning date of 24-hr collection interval, which ended at 0900 hrs on the following date. Each 6-hr collection at an outfall within the 24 hours is counted as a separate sample.

When possible, organisms alive at the time of sample collection were analyzed immediately and returned to the river alive before completing other sample processing tasks. Fish and invertebrates were separated from the debris for identification, enumeration, and measurements. The volume and weight of the debris were determined, and the debris was categorized as to its major components (leaves, fresh vegetation, decayed vegetation, algae, sticks, plastic, or other).

All sturgeon were examined for external tags. Any dead sturgeon collected are typically frozen and held for the New York State Department of Environmental Conservation. All striped bass were checked for presence of a magnetic nose or cheek tag, the presence of which would indicate that the specimen was a hatchery-released fish. All striped bass and Atlantic tomcod were checked for tags and fin clips.

The following water quality data were collected at the prewash and near the end of each 6-hr period (five times during each 24-hr weekly sampling effort) at the Roseton intake and the Danskammer intake: surface and bottom temperature, surface and bottom conductivity, surface and bottom dissolved oxygen, tide height, and tide stage. Two additional parameters, pH and total suspended solids, were sampled at surface and bottom once per sampling date at both intakes, at approximately 1500 hrs. Locations of the in-plant water quality sampling locations are shown in Figures 4-1 and 4-2.

Additional water quality sampling was conducted weekly at a reference station located midchannel in the Hudson River directly out from the Roseton plant (Figure 4-3) during the daytime low slack tide on each sampling date (Table 4-2). Temperature and conductivity were measured at 2-m depth intervals. Dissolved oxygen, pH, total suspended solids, turbidity, and total organic carbon were measured or sampled at three depths (surface, mid-depth, and bottom). Once per month an additional sample was collected and analyzed for the following metals: aluminum, arsenic, cadmium, total chromium, hexavalent chromium, copper, iron, lead, manganese, mercury, nickel, selenium, vanadium, and zinc.

Collection efficiency tests were conducted at both Roseton and Danskammer Point at approximately monthly intervals to measure the efficiency of both the gear and the sampling crew (Appendix E). A known number of marked fish were released into the screenwash discharge, and the number found in the sample were counted to determine the percent recovered.

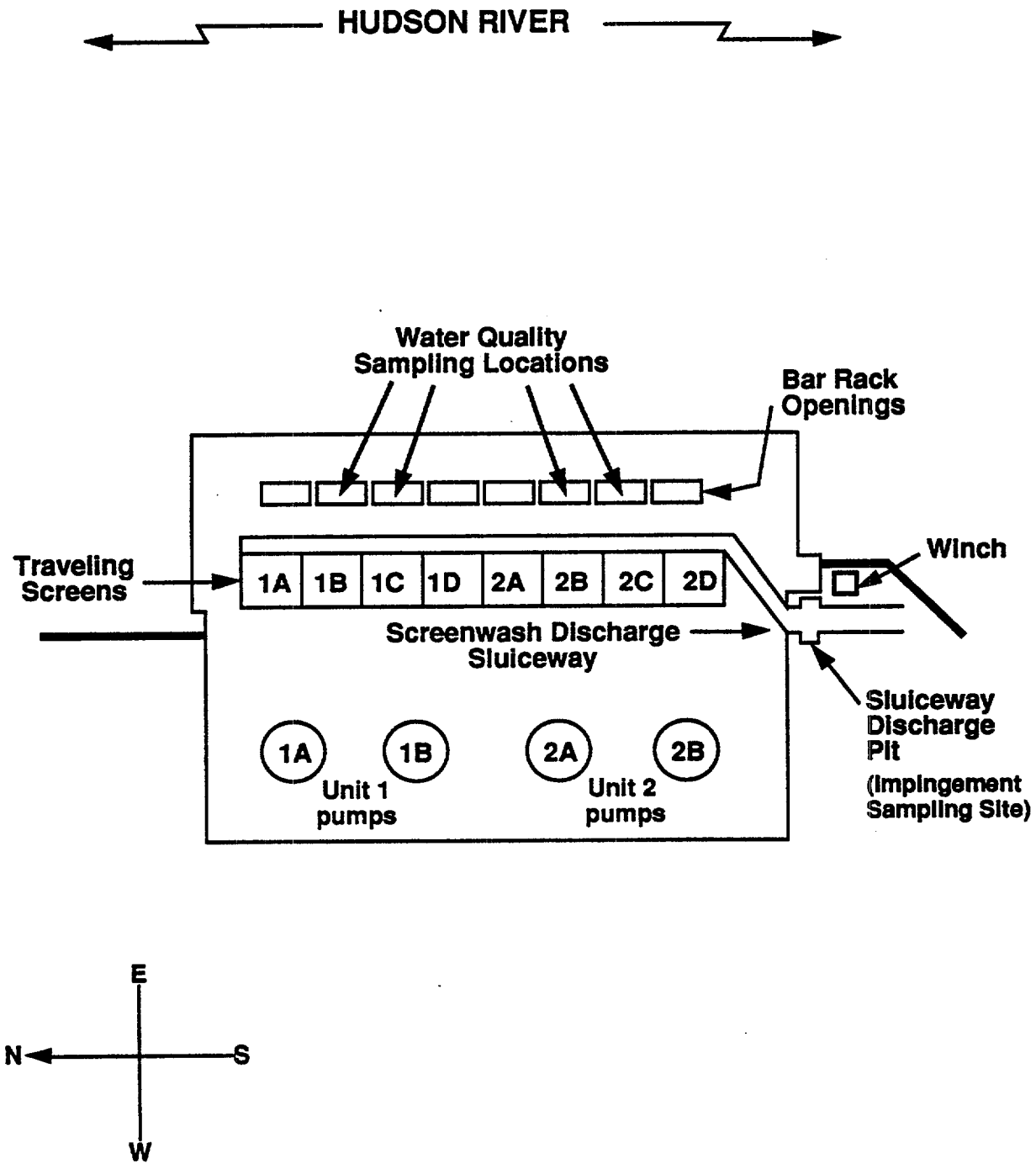


Figure 4-1. Roseton impingement and water quality sampling locations.

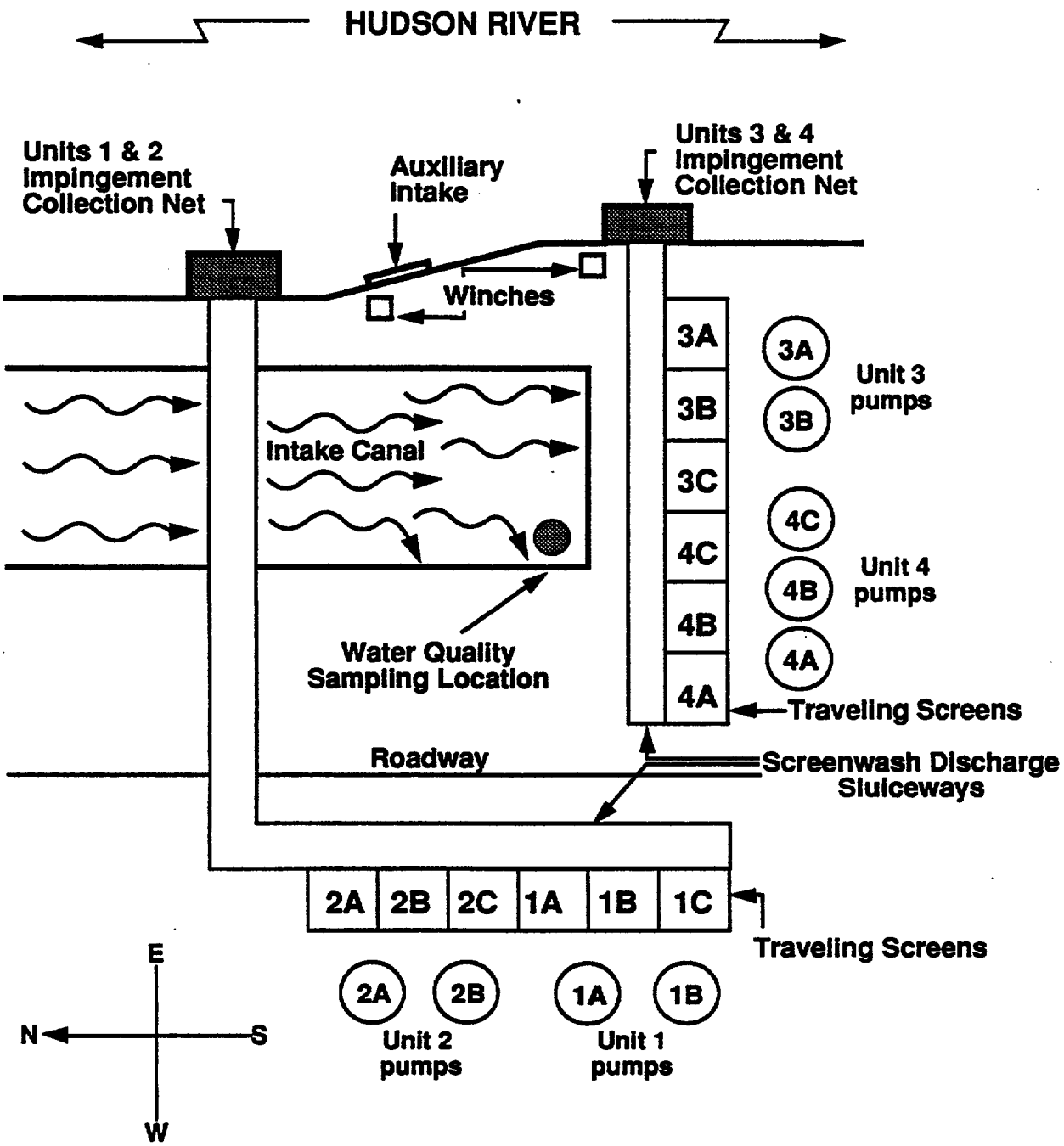


Figure 4-2. Danskammer Point impingement and water quality sampling locations.

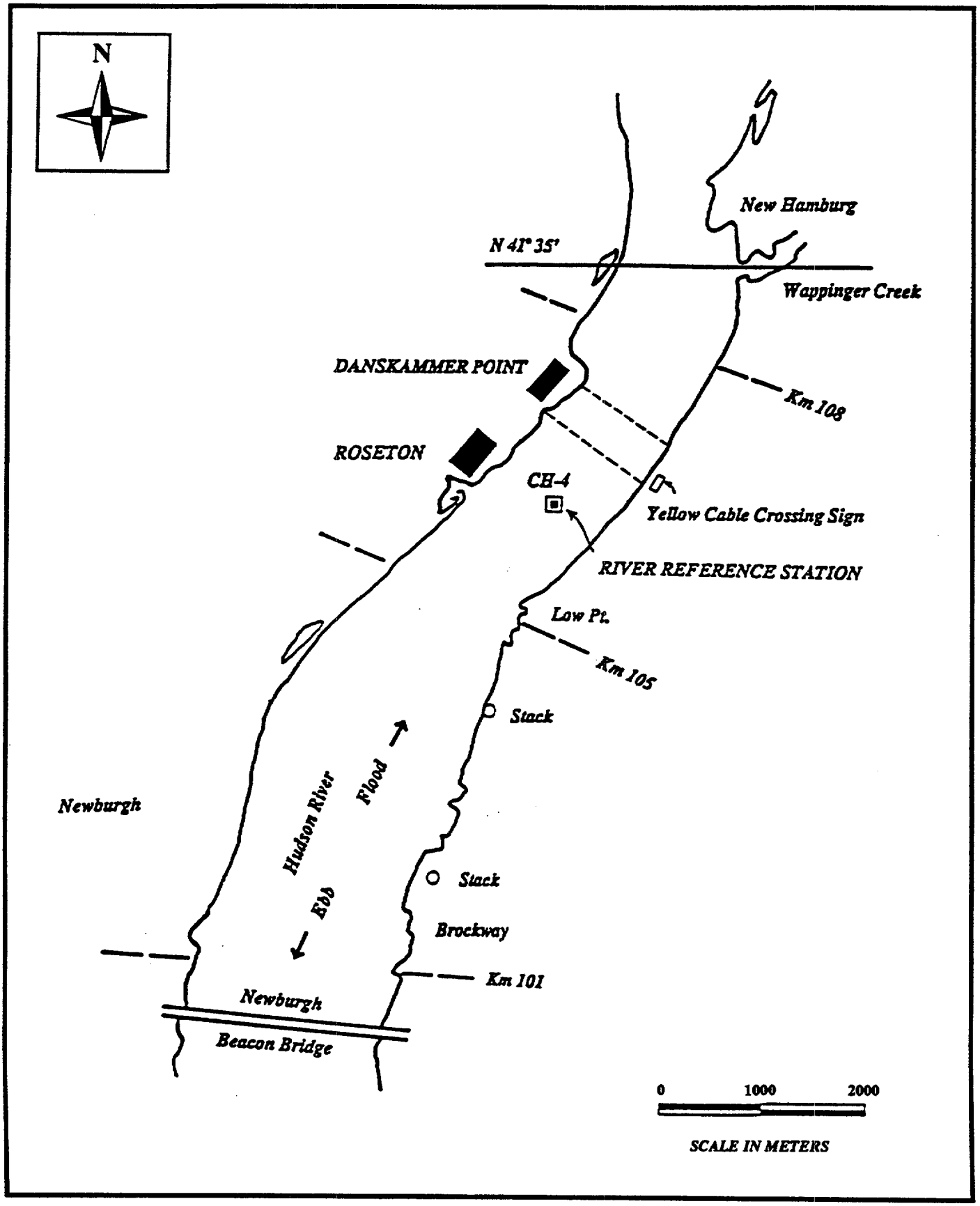


Figure 4-3. River Reference Station CH-4 for water quality sampling in the vicinity of Roseton and Danskammer Point generating stations.

TABLE 4-2. DATES OF WATER QUALITY SAMPLING AT THE RIVER REFERENCE STATION FOR THE 1998 ROSETON AND DANSKAMMER POINT GENERATING STATIONS IMPINGEMENT MONITORING PROGRAM.

15 Jan[b]	10 Jul
23 Jan	16 Jul
30 Jan	30 Jul
5 Feb[b]	7 Aug[b]
12 Feb	13 Aug
19 Feb	21 Aug
27 Feb	27 Aug
5 Mar[b]	4 Sep[b]
13 Mar	10 Sep
19 Mar	18 Sep
27 Mar	24 Sep
2 Apr[b]	2 Oct[b]
10 Apr	9 Oct
16 Apr	15 Oct
23 Apr	22 Oct
30 Apr	29 Oct
8 May[b]	5 Nov[b]
14 May	12 Nov
22 May	19 Nov
28 May	24 Nov
4 Jun[b]	4 Dec[b]
11 Jun	10 Dec
26 Jun	18 Dec
1 Jul[b]	22 Dec

[a]No sampling was conducted on two sampling dates due to adverse weather conditions (2 January and 29 December) and no sampling was conducted on two scheduled dates due to boat problems (18 June and 23 July).

[b]Dates on which monthly samples were collected for analysis of metals.

4.1.3 Procedures Specific to Roseton

The collection apparatus used in 1998 at Roseton was a portable, motorized, conveyor belt positioned to intercept the screenwash discharge as it entered the sluiceway discharge pit. The 0.6-cm mesh belt screened organisms and debris from the discharge flow and dropped them onto a sorting table. Location of the sampling site is shown in Figure 4-1.

4.1.4 Procedures Specific to Danskammer Point

Units 1 and 2 were sampled separately from Units 3 and 4 at Danskammer Point. Sampling nets were hoisted into position by winches to catch the screenwash discharges where they empty into the river (Figure 4-2). Nets with 0.6-cm mesh were used for the Unit 1 and 2 discharge, and 0.3-cm mesh nets were used at Units 3 and 4, corresponding to the mesh size on the respective units' traveling screens.

4.2 SAMPLE PROCESSING PROCEDURES

Total count and weight of each species of fish and of major invertebrate species were determined for each 6-hr sample. For fish, these data were recorded separately by age/length groups (young-of-the-year, yearling, and older) on the basis of cutoff lengths revised weekly for each species. For individual fish and blue crabs, length (carapace width point-to-point for crabs) and weight were recorded to the nearest 1 mm and 0.1 g, respectively. Also, the sex of individual blue crabs was determined. If there were over 25 crabs or over 25 of any age/length group in a 6-hr sample of a fish species at either plant, then that species and group was randomly subsampled for individual length and weight measurements. Subsample sizes were 25 for blue crabs and 25 per length class for fish.

Counts and measurements were subjected to a quality control inspection designed to assure an Average Outgoing Quality Limit of 10% (i.e. ≥90% of the data are within specified accuracy ranges).

Samples for pH were analyzed using a pHTestr 2 pH meter to the nearest 0.1 pH unit. Turbidity analysis was performed with a model 2100A nephelometric turbidimeter, manufac-

tured by Hach Instrument Corporation. Values were recorded to the nearest 0.1 Nephelometric Turbidity Unit (NTU).

All analyses of metals, total suspended solids, and total organic carbon were performed by EnviroTest Laboratories Inc., Newburgh, New York, a New York State certified laboratory. Aluminum, arsenic, cadmium, total chromium, copper, iron, manganese, nickel, vanadium, and zinc were analyzed by EPA method 200.7. Lead was analyzed by EPA method 239.2 or by EPA method 200.7, mercury by EPA method 245.1, selenium by EPA method 270.2, total suspended solids by EPA method 160.2, and total organic carbon by American Public Health Association standard method 5310-C. Hexavalent chromium was analyzed by American Public Health Association standard method 3500-CRD, or by EPA method 354.1.

Water quality parameters measured *in situ* included temperature and conductivity (Yellow Springs Instruments model 33 salinity - conductivity - temperature meter) and dissolved oxygen (Yellow Springs Instruments model 57 dissolved oxygen meter).

4.3 ANALYTICAL PROCEDURES

Impingement rates observed on sampling days were used to estimate rates and totals (of both numbers and biomass) of fish and invertebrates impinged on a weekly, monthly, and annual basis by the following procedure. Each month was divided into four approximately weekly intervals: week 1 = dates 1-7, week 2 = dates 8-14, week 3 = dates 15-21, and week 4 = dates above 21. The weekly impingement rate was estimated as the total count (or biomass) for all samples collected during that week (units combined at Danskammer Point) divided by the total plant flow during the minutes of sample collection. The impingement rate for each month was estimated as the average of the four weekly rates for that month. The estimate of the total number (or biomass) impinged for each month was calculated as the monthly impingement rate multiplied by the total plant flow for the month.

The variance of each monthly estimate was calculated as

$$VAR\ (F_j\ M_j) = F_j^2 \left(\frac{S_j^2}{n_j}\right)\left(\frac{N_j - d_j}{N_j}\right)$$

where F_j = plant flow in month j in millions of gallons,
S_j = standard deviation of the weekly impingement rates in month j,
n_j = number of weeks averaged for month j,
N_j = number of days in month j, and
d_j = number of sampling days in month j.

The annual impingement rate was calculated as the mean of the 12 monthly impingement rates. The estimate of the total number (or biomass) impinged for the year was the sum of the 12 monthly estimates. The variance for the annual estimate was calculated as the sum of the 12 monthly variances. The 95% confidence interval for the annual estimate, assuming normally distributed data, was calculated as 1.96 multiplied by the square root of the variance for the annual estimate (where 1.96 is the Student's t value at $\alpha = 0.05$).

No rounding of data was done prior to the final step in each analysis. This prevented introduction of rounding error in the final result, and may present the appearance in a table that a column of data does not sum exactly to the total shown in the last row. This is because the intermediate values (e.g. estimated numbers of individual species impinged) are rounded for display in the table but the sum (e.g. all species combined) was calculated from the exact (unrounded) values.

5.0 RESULTS OF WATER QUALITY MONITORING PROGRAM

5.0 RESULTS OF WATER QUALITY MONITORING PROGRAM

5.1 HUDSON RIVER FRESHWATER FLOW

The daily freshwater flow to the lower Hudson River at Green Island (river kilometer 247), which has been presented in previous years' reports, is not yet available for 1998 because of modifications or reconstruction to dams at Green Island and other upstream sites. Table 5-1 characterizes the typical seasonal pattern of freshwater input to the Hudson over the ten-year period 1988-1997, with a long-term summary covering 1946-1997 (1997 is the latest year for which data are available, October 1996-September 1997 data are provisional, and October-December 1997 data are not yet available). Greatest freshwater flow typically has occurred during the spring, and lowest flows during the summer, with considerable variability among years (Figure 5-1).

5.2 REFERENCE STATION WATER QUALITY

Water temperature (°C), specific conductance (µmhos/cm at 25°C), pH, dissolved oxygen (mg/l), total suspended solids (mg/l), turbidity (NTU), and total organic carbon (mg/l) were recorded weekly during the open-water period, at the Hudson River reference station (CH-4) from surface, middle, and bottom depths. Concentrations of 14 metals (mg/l) were determined once per month from mid-depth water samples at the same sampling station on 12 dates. Due to bad weather or boat problems, river water quality sampling was not conducted on four scheduled dates (one each January, June, July, and December).

Mean water temperature in the river ranged from 0.1 to 27.2°C during 1998 (Table 5-2). The highest mean temperature for 1998 was recorded on 13 August and 27 August; the lowest was on 30 January. The highest temperatures in 1998 were from mid-July to early September. Water temperature measurements from the three depths were similar, with the surface temperature frequently the highest of the three during the summer (Figure 5-2).

TABLE 5-1. MEAN MONTHLY FRESHWATER FLOW FOR THE LOWER HUDSON RIVER FOR 1988-1997 AND THE LONG-TERM SUMMARY FOR 1946-1997.[a]

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MEAN[b]	MAX	MIN
1988	9468	12340	16280	16830	12620	4340	4627	4910	5779	7437	19970	11630	10496	19970	4340
1989	6870	9030	12060	23890	27060	18490	7985	6853	8831	14470	21390	10600	13955	27060	6853
1990	13530	24850	35110	31590	34980	8839	5553	8746	5604	16990	23100	24330	19414	35110	5553
1991	18130	17560	24620	23200	12270	5154	4027	4448	4908	7629	10660	12850	12089	24620	4027
1992	10730	8340	14430	22910	17720	12180	8968	7181	7680	10140	18780	15490	12876	22910	7181
1993	19110	9746	16010	61820	13250	7157	4706	4935	5573	6787	12110	14230	14582	61820	4706
1994	8194	11920	19850	50060	20130	8223	8777	9361	6720	6268	8853	14010	14339	50060	6268
1995	17320	9279	18170	9073	5577	4590	3339	3426	3587	12750	24500	11580	10272	24500	3339
1996	26010	17810	16270	33190	38200	12470	13570	6766	6553	10170	21650	34940	19825	38200	6553
1997	16430	18230	24120	30840	22720	6350	5397	4458	4477						

LONG-TERM SUMMARY (FEBRUARY 1946-SEPTEMBER 1997)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MEAN[b]
MAX	33970	31260	44240	61820	40520	29630	18380	14630	17030	30140	26150	34940	
MEAN	13543	14107	22104	30789	19085	10045	6730	5820	6458	9017	13126	15074	13809
MIN	4177	4528	9116	9073	5500	3567	3074	2903	2873	2965	3257	6084	
N	51	52	52	52	52	52	52	52	52	51	51	51	

[a]Flows are in ft^3/s (cfs); data for October 1996-September 1997 are provisional; data for October-December 1997 are not yet available.
[b]Mean of monthly means weighted by number of days/month.
N=Number of years.
Source of data: U.S. Geological Survey, Water Resources Div., Troy, N.Y.

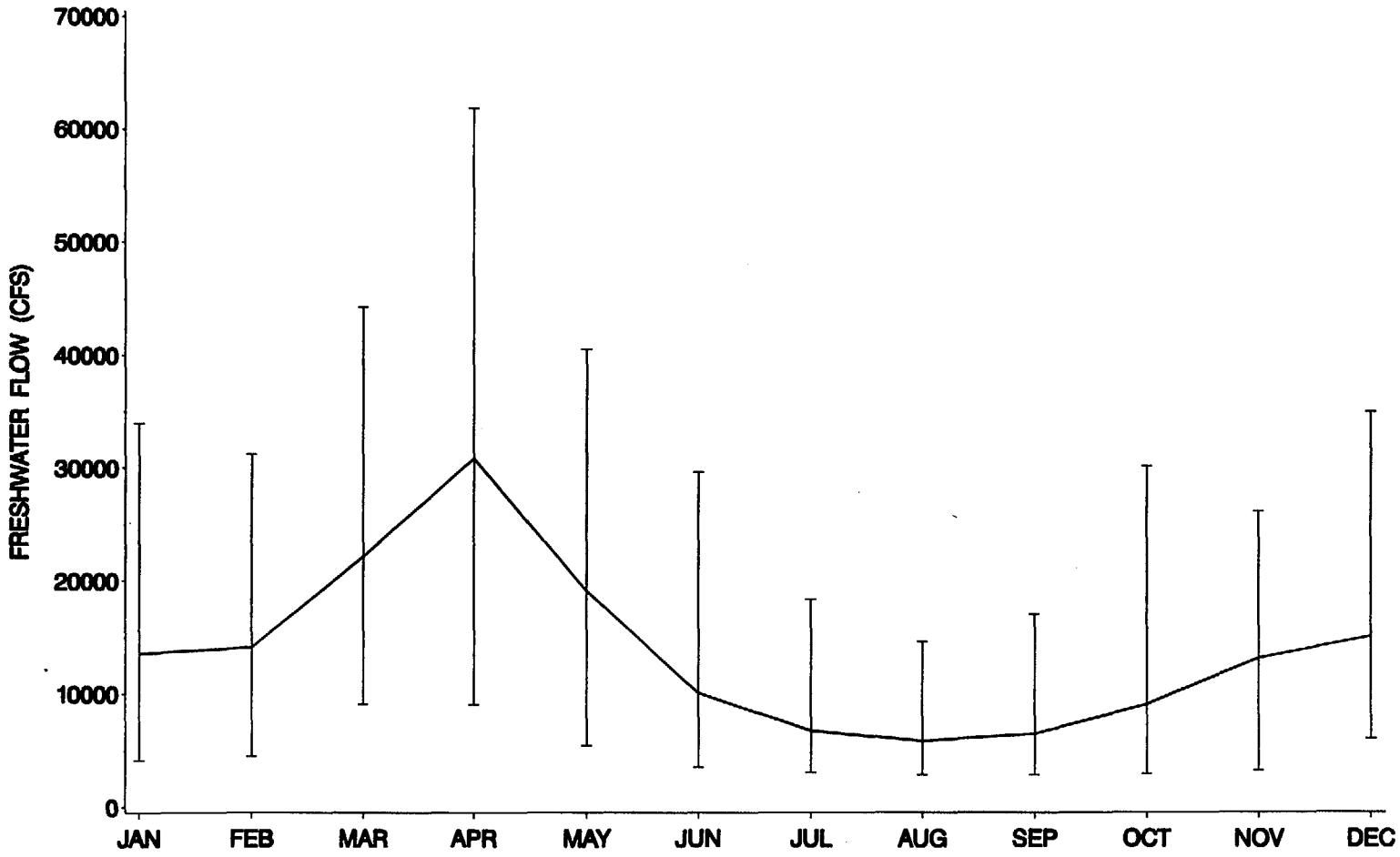


Figure 5-1. Average and range of mean monthly freshwater flow rate for the lower Hudson River for 1946-1997.

TABLE 5-2. AVERAGE VALUES OF SELECTED WATER QUALITY PARAMETERS AT THE RIVER CHANNEL SAMPLING STATION, 1998.[a]

SAMPLED DATE	MEAN TEMPERATURE (°C)	MEAN D.O. (MG/L)	MEAN CONDUCTIVITY (µMHOS/CM AT 25°C)	MEAN TSS (MG/L)	MEAN pH	MEAN TURB (NTU)	MEAN TOT.ORG.C (MG/L)
01/15/98	2.1	13.4	158	66.7	7.7	50.0	5.5
01/23/98	1.1	12.8	172	18.0	7.4	21.0	5.2
01/30/98	0.1	14.0	204	26.0	7.7	18.2	4.8
02/05/98	0.6	12.8	220	30.3	7.9	15.7	5.7
02/12/98	0.8	13.3	239	15.7	7.4	11.5	4.1
02/19/98	1.2	13.7	250	7.0	7.9	7.0	5.4
02/27/98	1.8	12.7	243	20.0	7.7	12.6	3.8
03/05/98	3.9	13.0	254	11.7	7.7	10.8	3.8
03/13/98	3.8	12.5	224	11.7	7.8	9.7	3.8
03/19/98	3.0	13.3	226	20.7	7.7	19.7	3.7
03/27/98	2.8	12.8	218	19.7	7.7	10.0	4.0
04/02/98	7.9	13.5	226	13.3	7.5	9.1	13.3
04/10/98	8.1	11.3	146	23.3	7.5	18.3	6.1
04/16/98	9.7	11.5	158	12.7	7.3	14.5	5.7
04/23/98	10.9	11.0	185	14.0	7.4	10.3	4.1
04/30/98	12.8	10.6	201	19.8	7.3	11.3	3.9
05/08/98	14.6	9.0	234	15.8	7.5	7.3	3.5
05/14/98	15.2	9.4	211	17.8	7.5	14.5	4.1
05/22/98	17.0	9.3	227	11.5	7.6	11.7	4.7
05/28/98	19.4	8.0	205	13.0	7.5	7.8	4.8
06/04/98	20.7	8.0	215	13.7	7.7	9.7	5.8
06/11/98	20.7	8.0	217	10.7	7.4	7.7	4.1
06/26/98	22.6	8.2	191	16.7	7.4	12.7	5.1
07/01/98	23.3	7.3	188	10.0	7.3	9.3	4.8
07/10/98	24.7	6.7	175	18.2[c]	7.3	8.2	4.9
07/16/98	25.9	6.6	181	21.3	7.5	9.6	4.8
07/30/98	26.7	7.5	188	9.0	7.6	6.7	4.3
08/07/98	27.0	8.0	191	12.2	7.9	4.7	4.1
08/13/98	27.2	7.6	209	13.3	7.5	6.1	4.2
08/21/98	26.2	6.6	230	8.7	7.6	7.4	3.8
08/27/98	27.2	7.0	240	7.5	7.7	5.6	4.1
09/04/98	26.3	6.9	255	10.5	7.5	6.5	3.9
09/10/98	24.4	6.8	298	14.0	.[b]	5.1	3.9
09/18/98	23.7	5.8	308	10.0	.[b]	5.1	4.1
09/24/98	23.8	7.2	328	12.8	7.8	5.1	3.8
10/02/98	21.3	7.8	251	14.2	7.9	5.7	3.7
10/09/98	20.0	8.0	292	13.0	7.9	8.0	4.3
10/15/98	18.8	8.4	298	15.9	7.9	6.7	3.7
10/22/98	17.4	8.6	272	16.5	7.9	6.4	4.6
10/29/98	15.4	9.3	268	12.5	7.8	3.9	4.2
11/05/98	14.3	9.4	266	17.0	7.8	6.8	4.4
11/12/98	12.9	9.7	273	24.8	7.8	9.8	5.4
11/19/98	11.7	9.1	272	18.8	7.6	6.9	3.9
11/24/98	10.2	10.2	268	15.5	7.8	6.7	4.3
12/04/98	8.9	10.3	258	26.2	7.8	9.0	5.5
12/10/98	8.6	10.6	250	23.8	7.7	.[d]	4.1
12/18/98	7.1	10.5	251	16.0	7.8	6.9	6.5
12/22/98	7.4	11.4	254	16.7	7.7	8.6	4.0

[a]Means are averages of all depths sampled for each parameter.
[b]Missing data for pH (2 dates) are due to instrument problems.
[c]10 July TSS data are questionable (analyzed 3 days beyond the 7-day holding time).
[d]Turbidity data not available for 10 December.

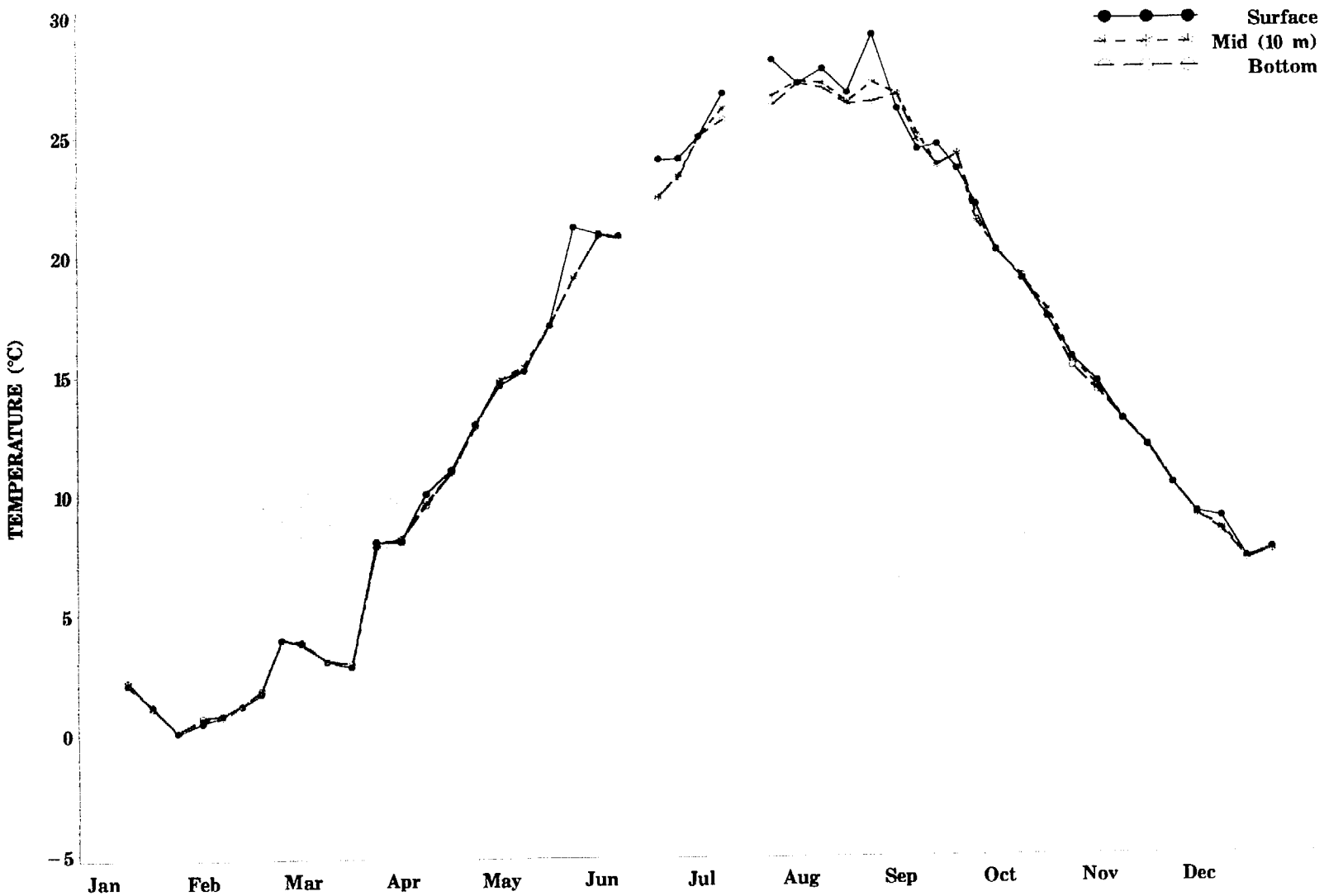


Figure 5−2. Weekly water temperature at river reference station CH−4, Roseton and Danskammer Point vicinity, 1998.

Mean specific conductance ranged from 146 to 328 µmhos/cm (corrected to 25°C) throughout the open-water sampling period (Table 5-2). Values were lowest in January and April. The influence of marine waters on northern Newburgh Bay, which is typically characterized by an increase in specific conductivity, occurred primarily during the fall in 1998 (Figure 5-3). The higher conductivity values reflected the relatively low freshwater flows that are typically characteristic for that time of year (Figure 5-1). The surface value was consistently lowest, reflecting the lower density of the less saline water (Figure 5-3).

The mean pH during 1998 ranged between 7.3 and 7.9 throughout the study period, tending to be lowest in the spring and highest in the fall (Table 5-2). The highest mean pH value (7.9) was observed on six different dates, and the lowest mean value (7.3) was recorded on four different dates. The pH values recorded during 1998 were usually similar among the three depths for each date (Figure 5-4).

Mean dissolved oxygen ranged from 5.8 to 14.0 mg/l and exhibited the typical inverse relationship to water temperature, with the highest values recorded during January-March, and the lowest values occurring in July-September (Table 5-2). Dissolved oxygen levels usually varied little with depth but generally the surface value tended to be the highest among the three depths (Figure 5-5).

In 1998 the mean concentrations of total suspended solids (TSS) ranged from a low of 7.0 mg/l on 19 February to a high of 66.7 mg/l on 15 January (Table 5-2, Figure 5-6). In 1998 the TSS values were generally a little higher in the winter than in the rest of the year. The seasonality was less distinct for the TSS data than it was for conductivity, suggesting the influence of factors other than freshwater flow, such as storm events. In general, the TSS levels were highest at the bottom depth and lowest in surface samples.

Turbidity values recorded at the river reference station (Figure 5-7) exhibited a generally decreasing trend from April through August, were fairly consistent during the late summer and fall, and increased somewhat during November-December. The average turbidity level (depths combined) ranged from 3.9 NTU on 29 October to 50.0 NTU on 15 January. Throughout much of the year turbidity was usually highest at the bottom and lowest at the surface.

Total organic carbon (TOC) concentrations tended to be higher and more variable in April and December than during the other months (Figure 5-8). Mean TOC levels ranged from 3.5 mg/l measured on 8 May to 13.3 mg/l on 2 April. Differences in TOC levels among the three sampling depths were typically minor, with none of the three depths tending to be consistently highest or lowest. On 2 April, however, the surface value was more than twice the mid-depth value and over six times the value at the bottom. Two dates in December also had elevated surface TOC values relative to the other two depths.

Samples from the river reference station CH-4 were also tested for 14 different metals on a monthly basis. Four metals, including aluminum, iron, manganese, and zinc were at detectable levels on at least eight of the 12 sampling dates (Table 5-3 and Figures 5-9 through 5-12). Several of the metals tested were below detection limits during all of the sampling events, including arsenic, cadmium, hexavalent chromium, total chromium, copper, nickel, and vanadium. Lead, mercury, and selenium were each above their detection limits on one of the 12 sampling dates. Highest concentrations were observed on the January sampling date for aluminum and manganese, in February for iron, and June for zinc. Highest values for some of these metals were observed in the spring during weekly sampling in previous years, but seasonal patterns have not been particularly consistent or distinct.

5.3 IN-PLANT WATER QUALITY

5.3.1 Roseton Generating Station

Mean water temperature, dissolved oxygen, specific conductance, pH, and total suspended solids recorded at the Roseton intake for each impingement monitoring date are presented in Table 5-4. Mean weekly water temperature ranged from 1.0°C, recorded on 29-30 January, to 27.7°C, recorded during 6-7 August. Dissolved oxygen values displayed a typical inverse relationship with water temperature; the lowest values were recorded during summer and the highest values were recorded during the cold-water periods of winter and late fall. The highest mean dissolved oxygen value was 13.7 mg/l on 29-30 January. The lowest mean dissolved oxygen value was 6.4 mg/l on 17-18 September. Specific conductance (µmhos/cm at 25°C) was generally highest in the late summer to early fall, indicating a higher influx of salt water during that period

Figure 5–3. Weekly specific conductance at river reference station CH–4, Roseton and Danskammer Point vicinity, 1998.

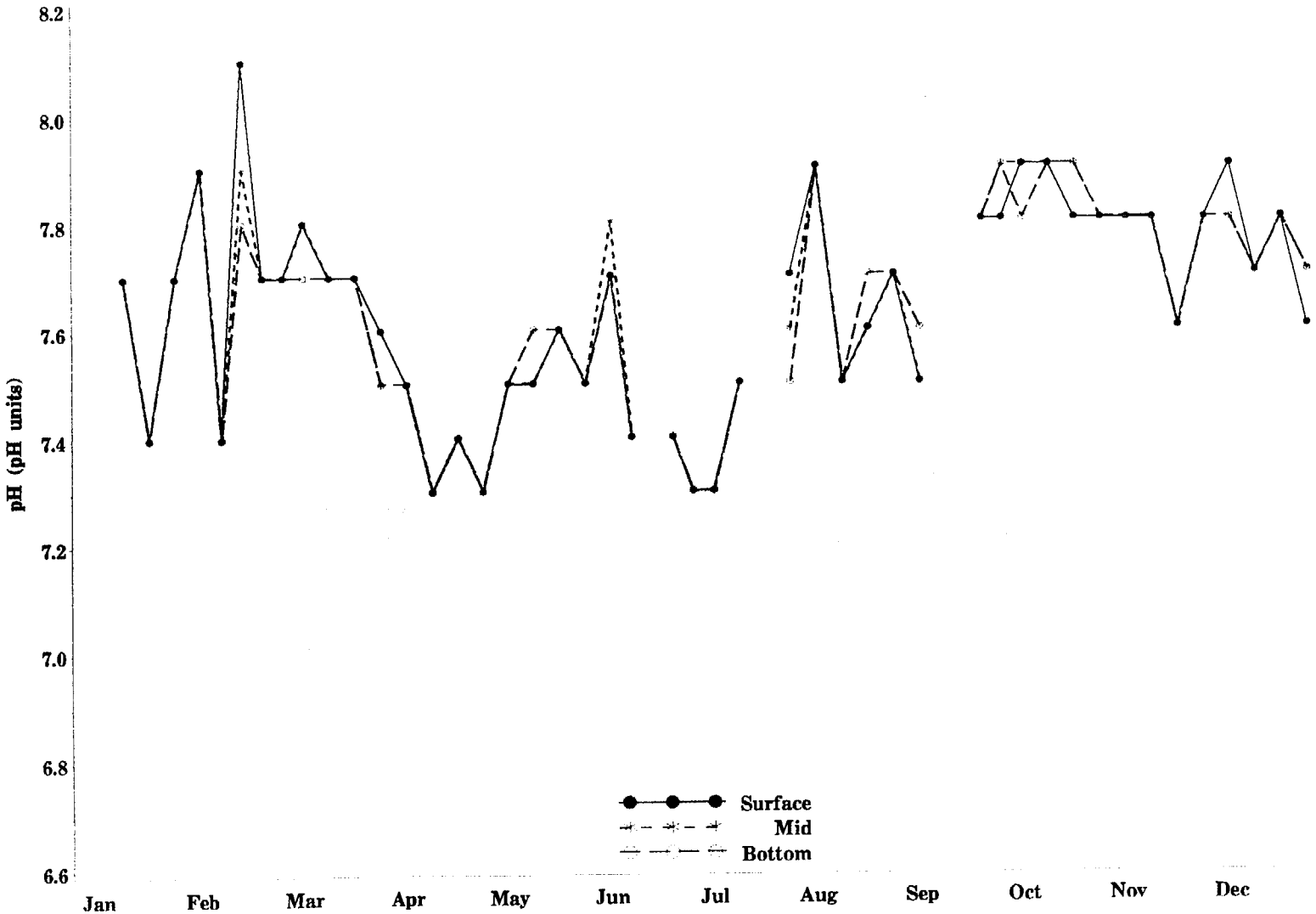


Figure 5 – 4. Weekly pH at river reference station CH – 4, Roseton and Danskammer Point vicinity, 1998.

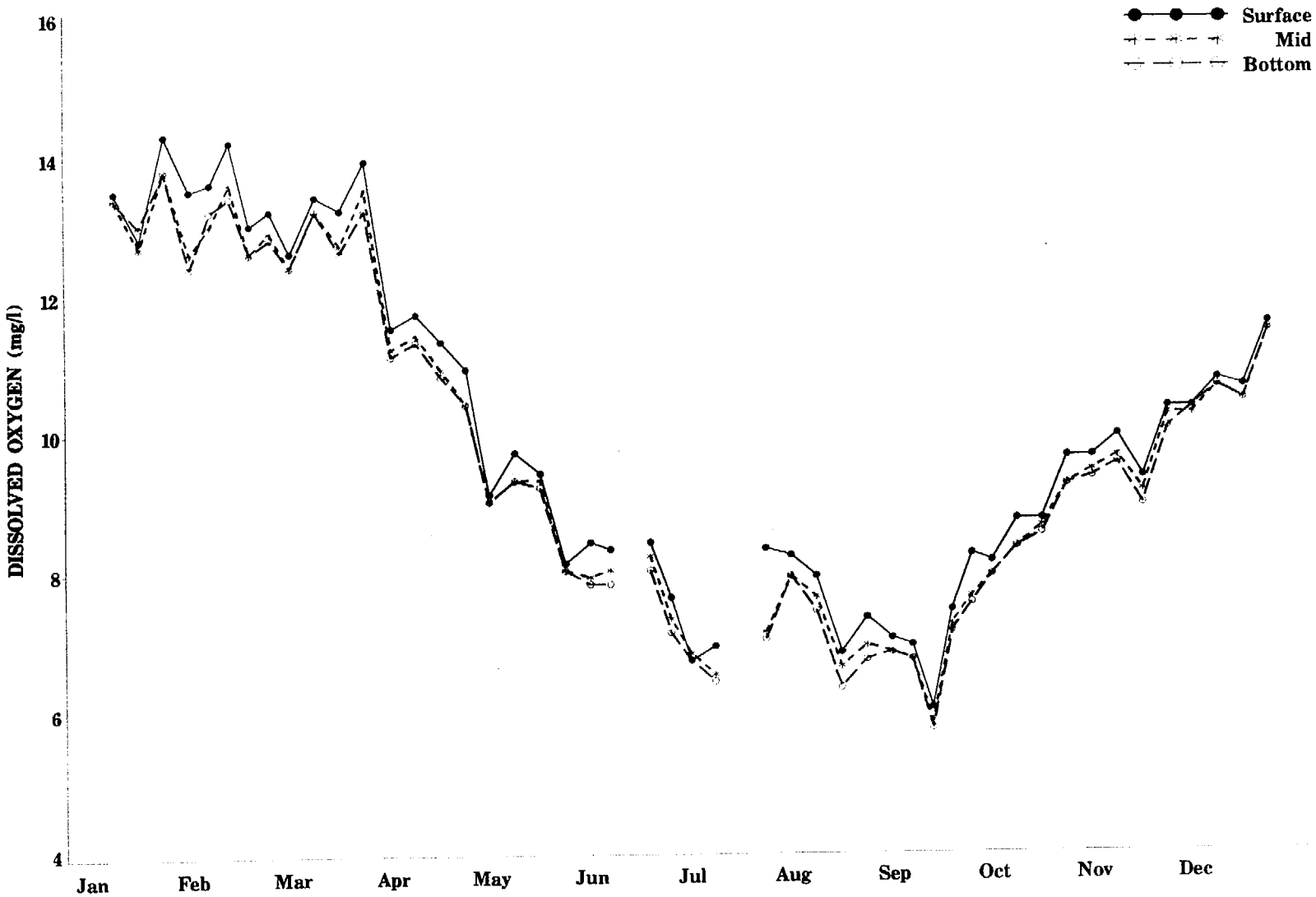


Figure 5–5. Weekly dissolved oxygen at river reference station CH–4, Roseton and Danskammer Point vicinity, 1998.

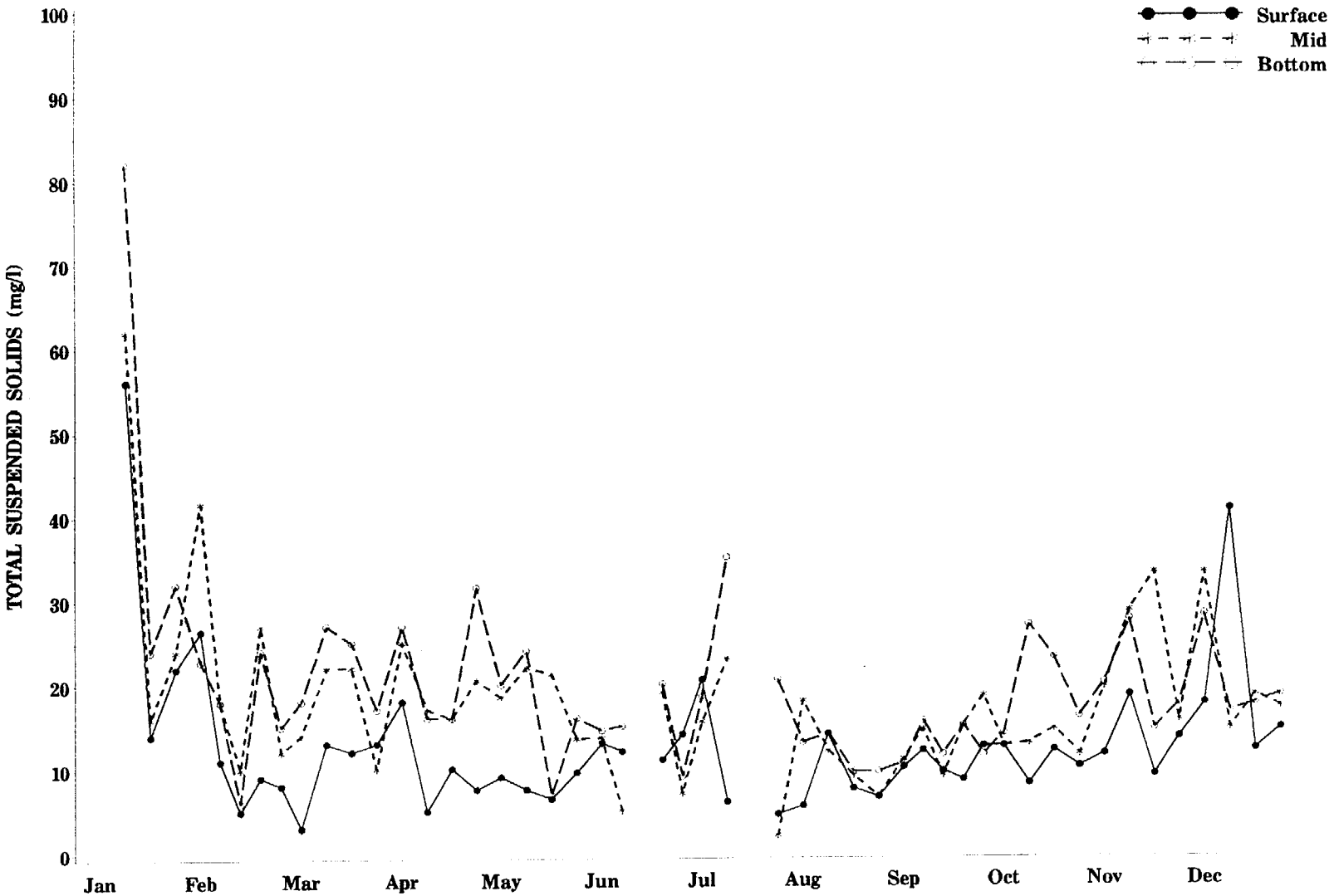


Figure 5 – 6. Weekly total suspended solids at river reference station CH – 4, Roseton and Danskammer Point vicinity, 1998.

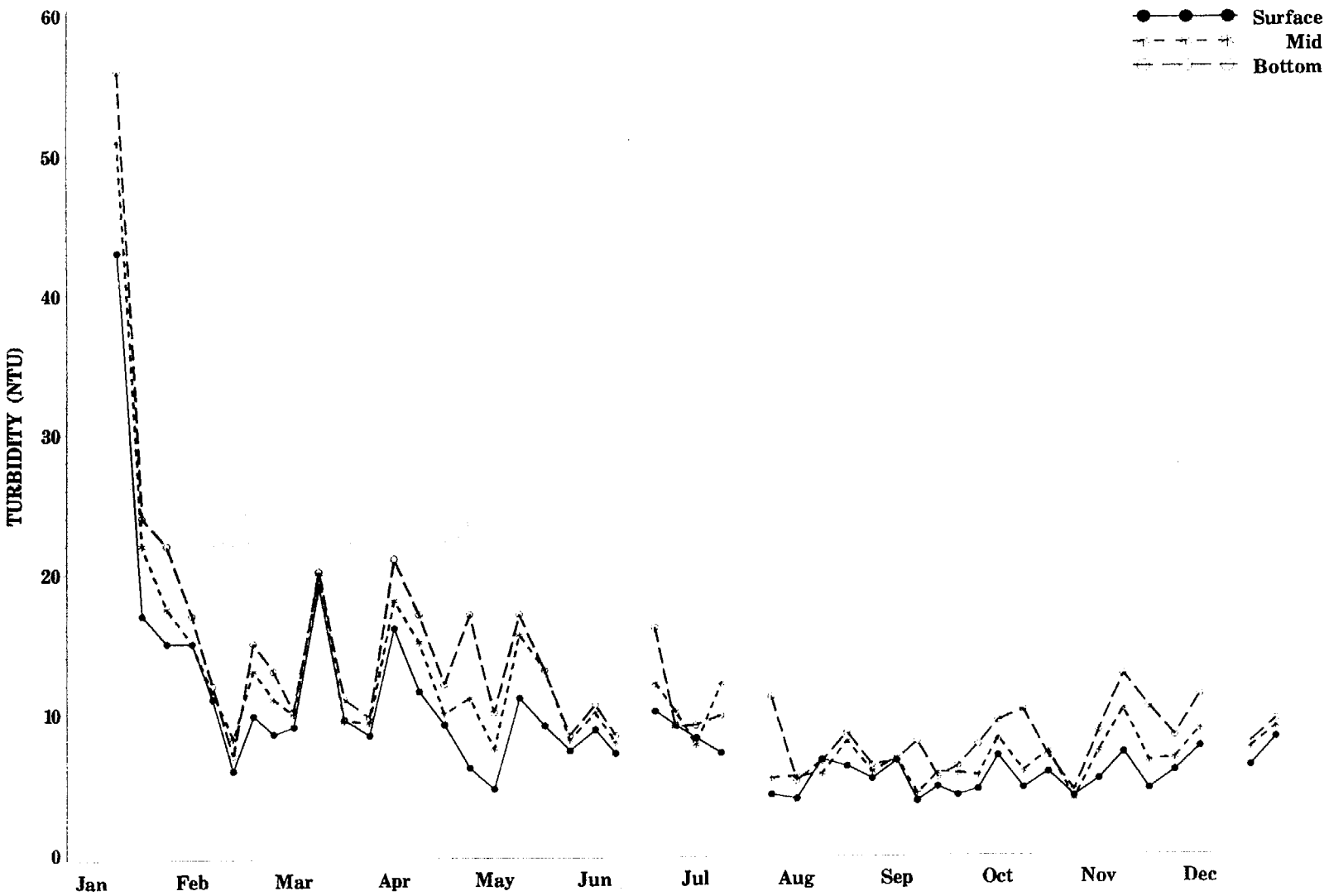


Figure 5-7. Weekly turbidity at river reference station CH-4, Roseton and Danskammer Point vicinity, 1998.

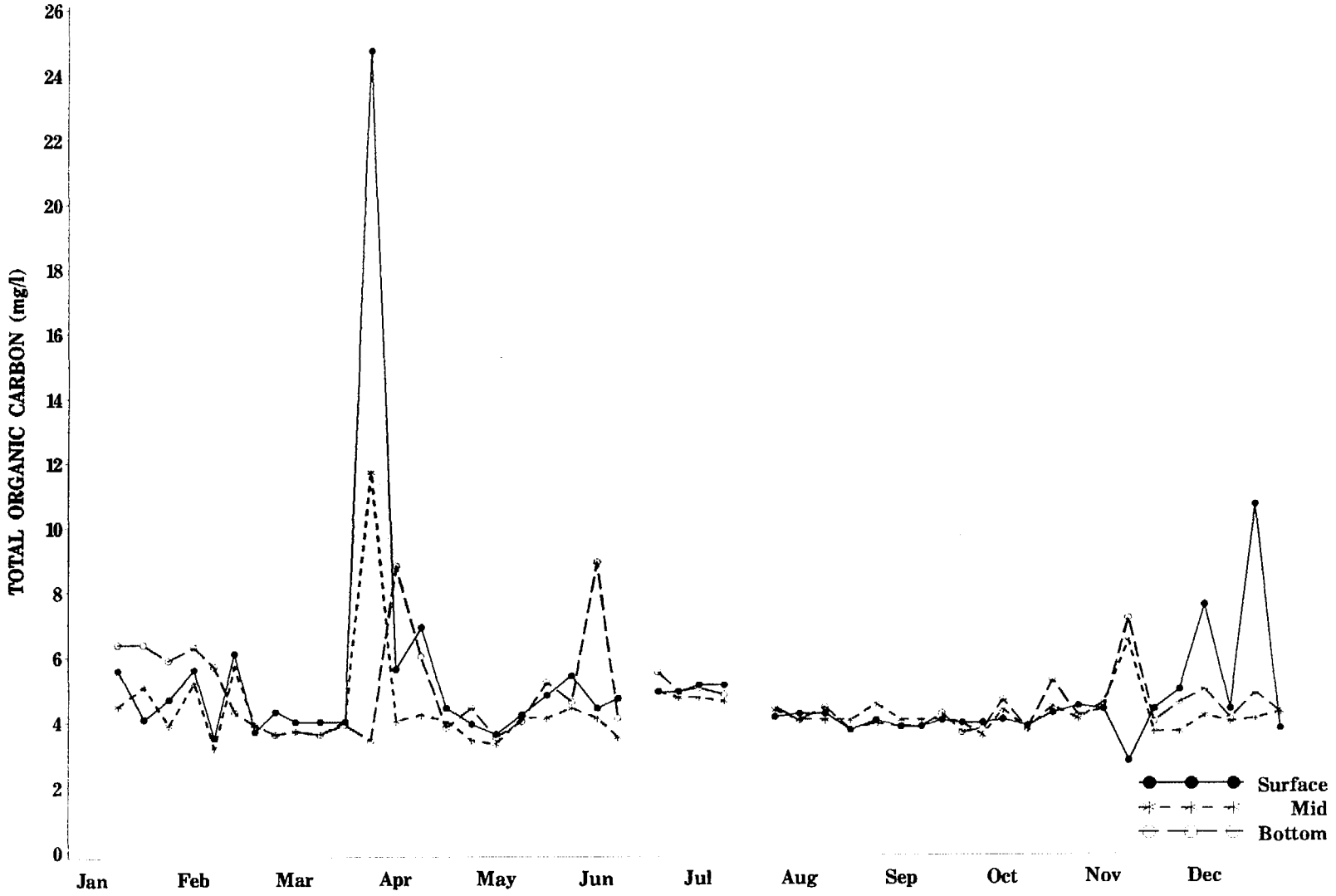


Figure 5-8. Weekly total organic carbon at river reference station CH-4, Roseton and Danskammer Point vicinity, 1998.

TABLE 5-3. CONCENTRATIONS OF METALS AT THE RIVER REFERENCE STATION CH-4, ROSETON AND DANSKAMMER POINT VICINITY, 1998.

METAL	MEAN[a] CONCENTRATION (mg/L)	MIN[a] (mg/L)	MAX[a] (mg/L)	NUMBER OF DATES CONCENTRATION WAS MEASURABLE[c]
Aluminum	0.34[b]	<0.222	0.93	8
Arsenic	<0.0111	<0.01	<0.0111	0
Cadmium	<0.01	<0.005	<0.01	0
Hexavalent Chromium	<0.01	<0.01	<0.01	0
Total Chromium	<0.0111	<0.01	<0.0111	0
Copper	<0.0278	<0.025	<0.0278	0
Iron	4.83	0.287	51.2	12
Lead	<0.0033	<0.0033	0.0034	1
Manganese	0.0473	0.0305	0.112	12
Mercury	<0.0002	<0.0002	0.00096	1
Nickel	<0.0444	<0.04	<0.0444	0
Selenium	<0.0056	<0.005	0.0058	1
Vanadium	<0.0556	<0.005	<0.0556	0
Zinc	0.084[b]	<0.02	0.268	8

[a] < is below the detection limit.

[b] When concentrations were below the detection limit, one-half of the detection limit was used to calculate a mean concentration.

[c] Total number of sampling dates = 12.

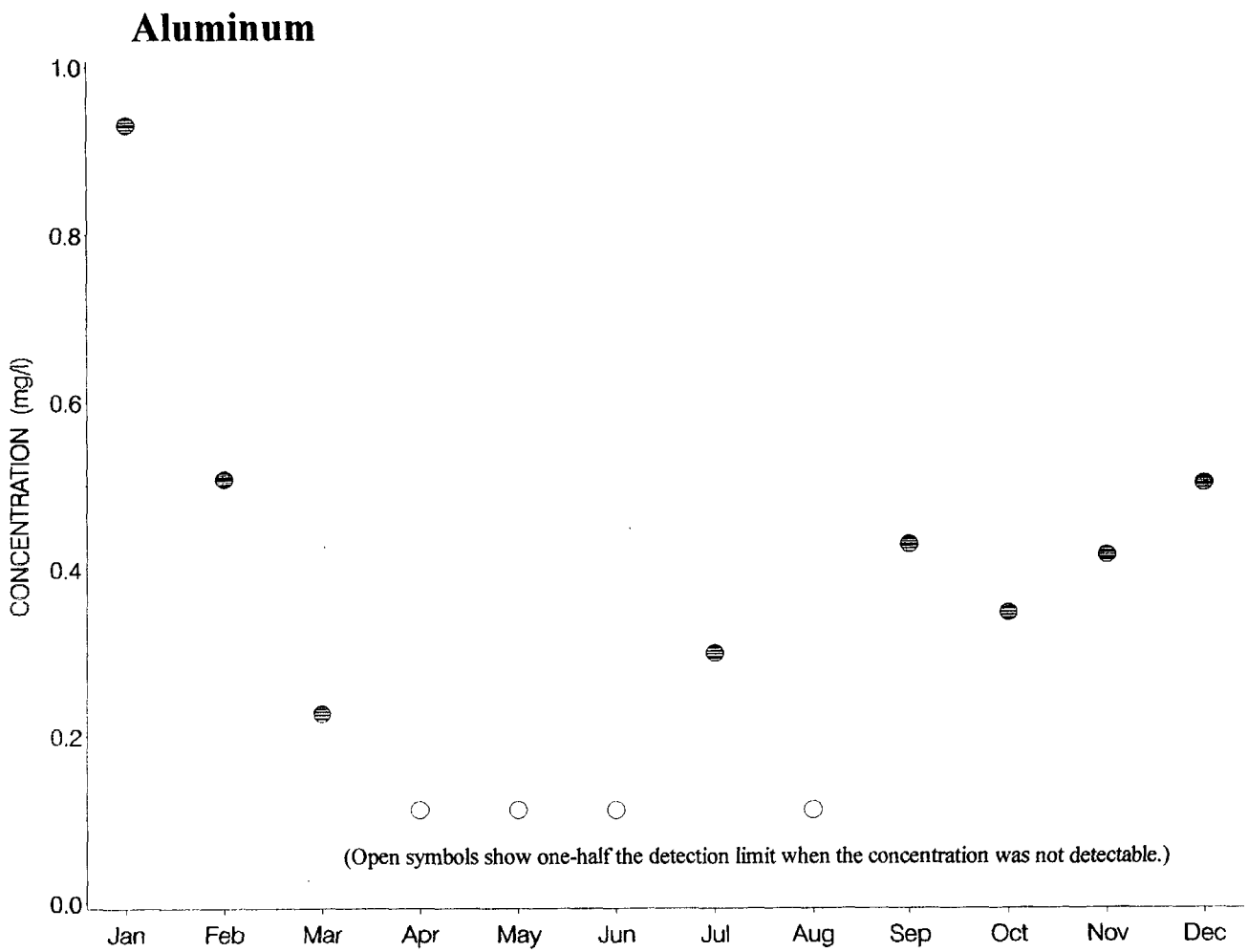


Figure 5-9. Monthly concentration of aluminum at the river reference station CH-4, Roseton and Danskammer Point vicinity, 1998.

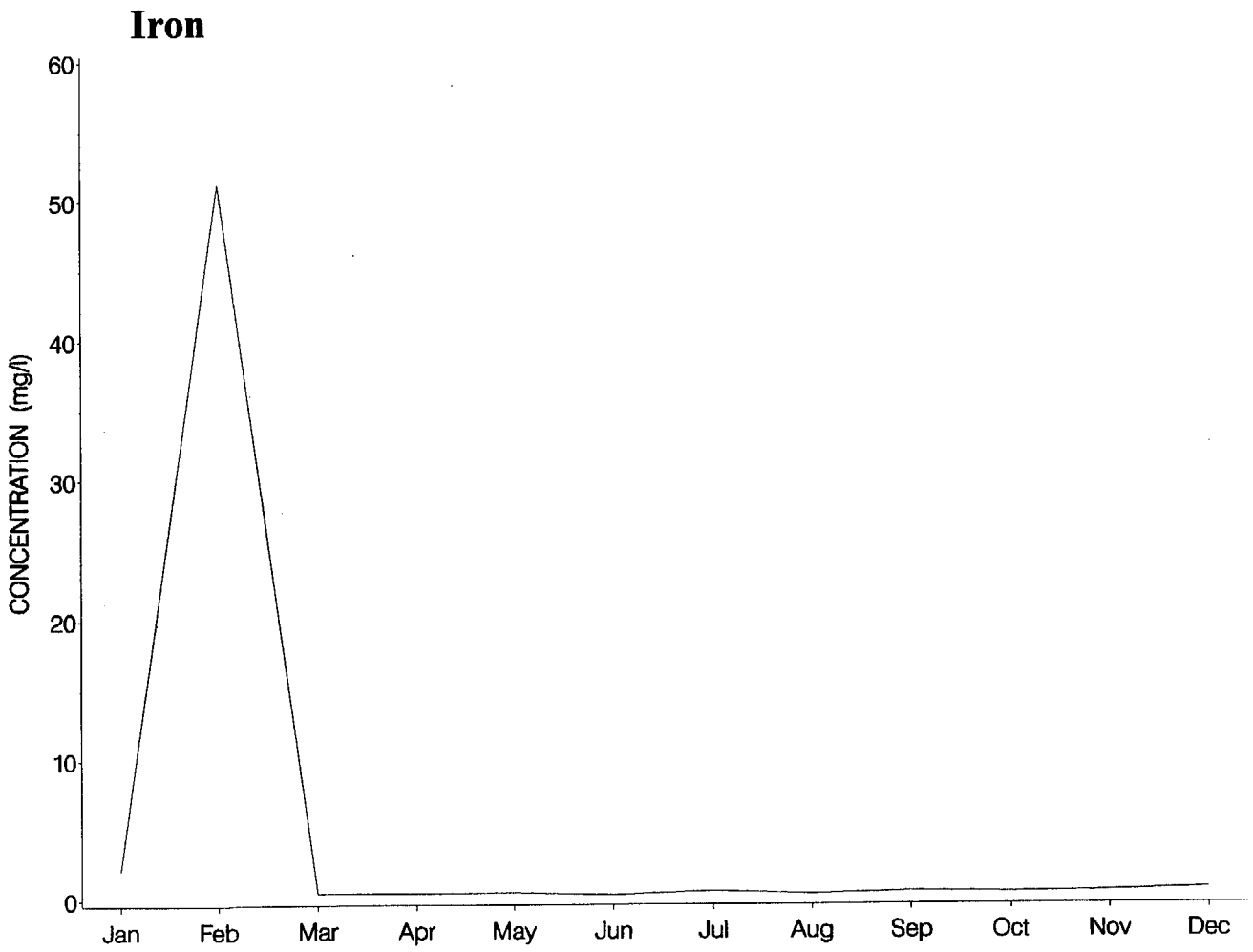


Figure 5-10. Monthly concentration of iron at the river reference station CH-4, Roseton and Danskammer Point vicinity, 1998.

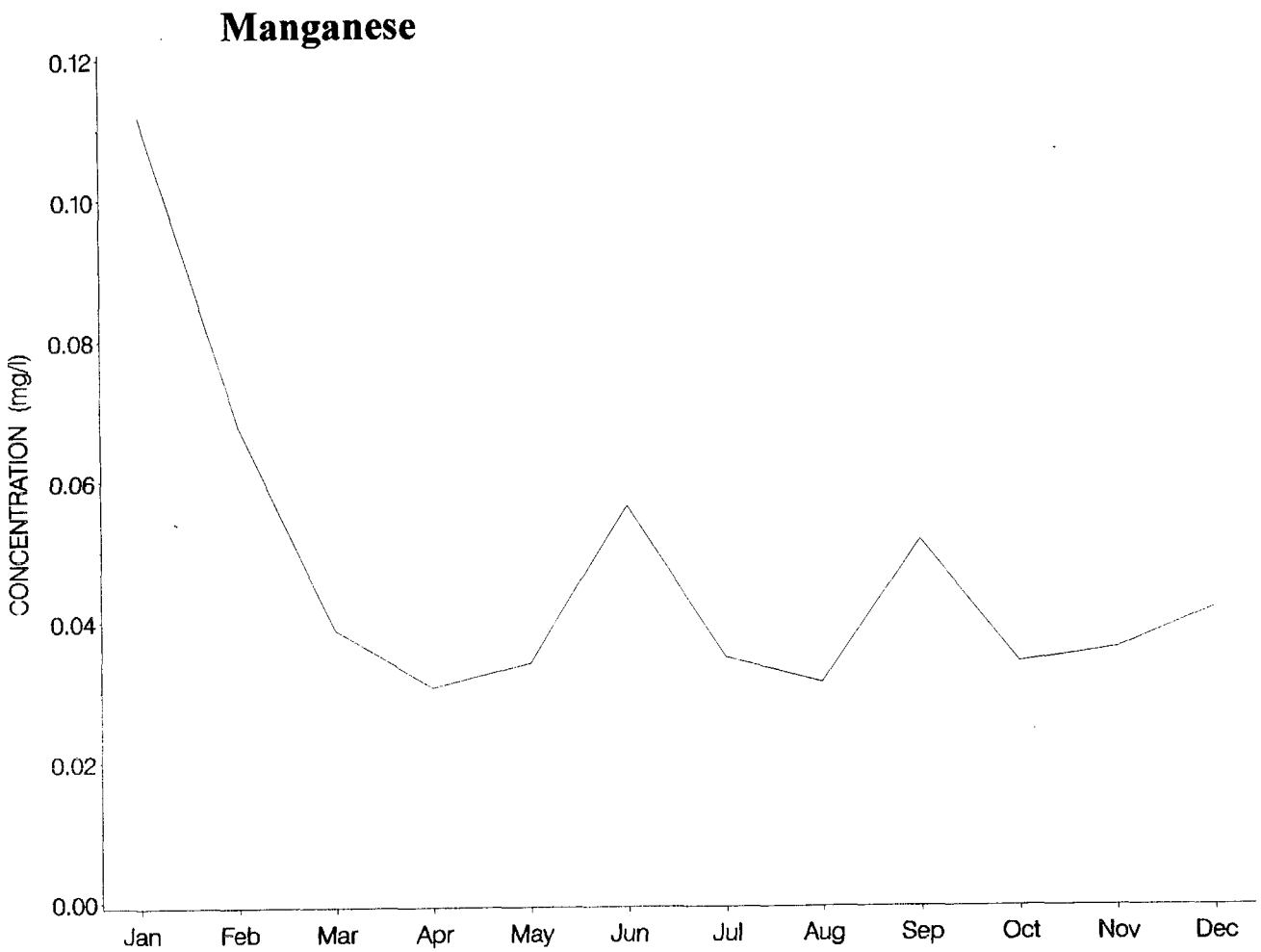
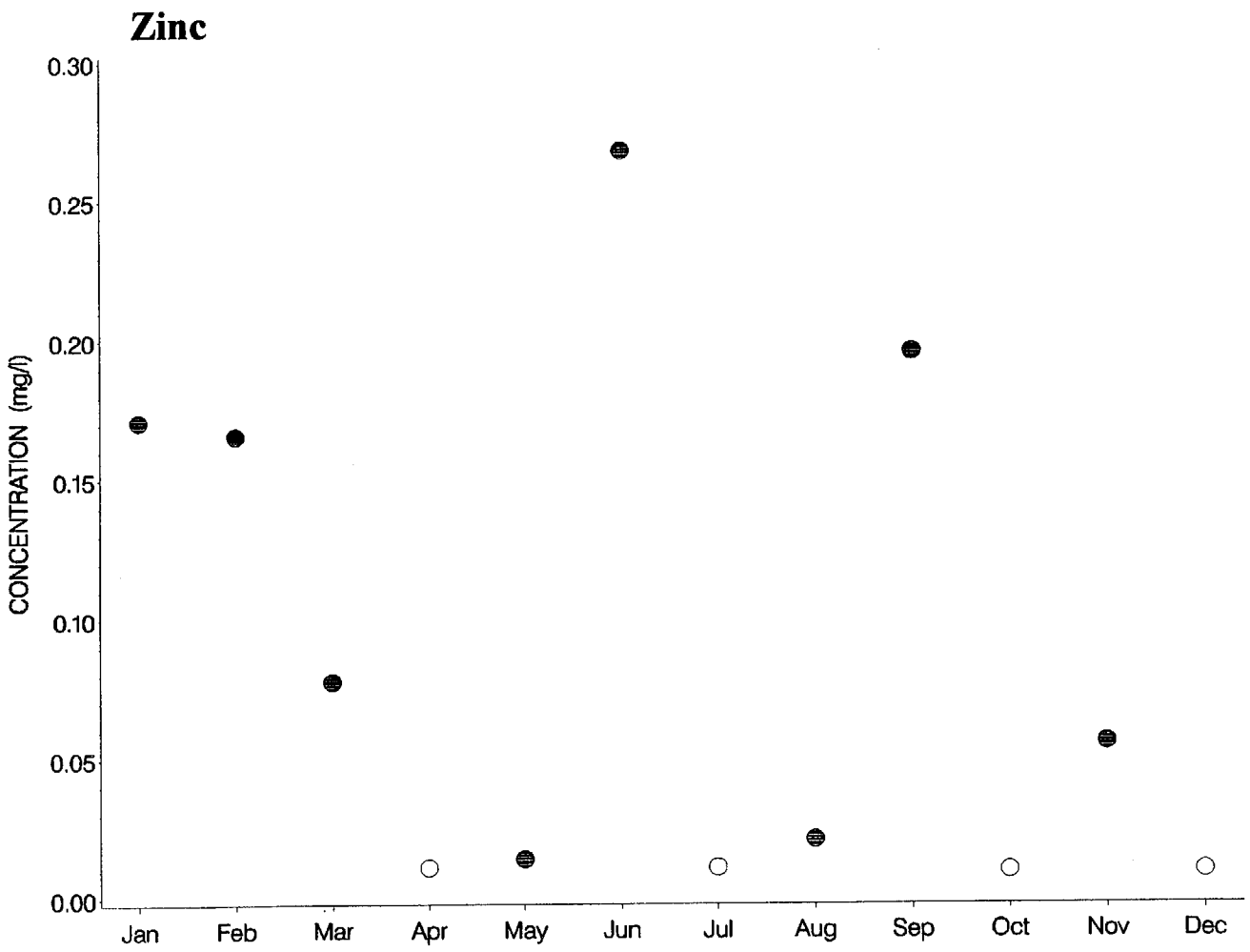


Figure 5-11. Monthly concentration of manganese at the river reference station CH-4, Roseton and Danskammer Point vicinity, 1998.



(Open symbols show one-half the detection limit when the concentration was not detectable.)

Figure 5-12. Monthly concentration of zinc at the river reference station CH-4, Roseton and Danskammer Point vicinity, 1998.

TABLE 5-4. AVERAGE VALUES OF SELECTED WATER QUALITY PARAMETERS AT THE INTAKE OF ROSETON GENERATING STATION, 1998.[a]

SAMPLE START DATE	SAMPLE END DATE	MEAN TEMPERATURE (°C)	MEAN D.O. (MG/L)	MEAN CONDUCTIVITY (µMHOS/CM AT 25°C)	MEAN TSS (MG/L)	MEAN pH
08JAN98	09JAN98	2.2	13.5	268	17.5	7.5
15JAN98	16JAN98	3.0	12.6	163	60.0	7.6
22JAN98	23JAN98	2.1	12.2	162	18.0	7.4
29JAN98	30JAN98	1.0	13.7	195	27.0	7.7
05FEB98	06FEB98	1.3	12.9	215	23.8	8.1
12FEB98	13FEB98	1.7	13.6	231	21.5	7.6
19FEB98	20FEB98	3.0	13.6	239	14.0	7.7
26FEB98	27FEB98	3.4	13.2	233	21.0	7.3
05MAR98	06MAR98	5.0	12.9	251	8.0	7.7
12MAR98	13MAR98	5.0	12.7	231	15.5	7.5
19MAR98	20MAR98	5.1	12.7	222	19.5	7.4
26MAR98	27MAR98	4.6	12.6	211	67.0	7.7
02APR98	03APR98	8.7	13.0	224	29.0	7.8
09APR98	10APR98	8.6	11.5	147	22.5	7.5
16APR98	17APR98	10.4	11.1	158	21.5	7.3
23APR98	24APR98	11.2	10.7	175	43.6	7.3
30APR98	01MAY98	13.5	10.6	204	37.6	7.3
07MAY98	08MAY98	14.9	9.2	236	34.5	7.5
14MAY98	15MAY98	16.1	9.2	209	17.0	7.5
21MAY98	22MAY98	17.6	9.4	195	27.8	7.5
28MAY98	29MAY98	20.5	7.8	199	33.5	7.5
04JUN98	05JUN98	20.5	8.1	214	27.6	7.8
11JUN98	12JUN98	21.2	7.9	216	20.8	7.4
18JUN98	19JUN98	20.8	8.0	211	21.5	7.4
25JUN98	26JUN98	23.3	7.5	209	22.0	7.3
01JUL98	02JUL98	23.7	7.5	186	20.0	7.3
09JUL98	10JUL98	25.1	6.9	185	18.5[c]	7.3
16JUL98	17JUL98	26.3	6.7	177	9.8	7.5
23JUL98	24JUL98	26.7	6.5	183	15.3	7.4
30JUL98	31JUL98	27.1	7.1	179	18.5	7.5
06AUG98	07AUG98	27.7	7.7	181	19.0	8.0
13AUG98	14AUG98	26.9	7.4	265	37.0	7.7
20AUG98	21AUG98	25.8	7.0	255	17.8	7.7
27AUG98	28AUG98	27.2	6.8	248	18.0	7.7
03SEP98	04SEP98	26.3	6.9	292	31.5	7.5
10SEP98	11SEP98	24.1	6.9	403	29.0	.[b]
17SEP98	18SEP98	25.0	6.4	468	20.5	7.6
24SEP98	25SEP98	22.7	7.2	402	18.8	7.9
01OCT98	02OCT98	22.1	7.7	299	38.5	7.9
08OCT98	09OCT98	20.0	7.6	406	40.3	7.8
15OCT98	16OCT98	18.5	8.3	276	45.4	7.9
22OCT98	23OCT98	16.8	8.8	239	22.3	7.9
29OCT98	30OCT98	15.9	9.2	234	19.8	7.8
05NOV98	06NOV98	14.0	9.3	277	27.8	7.8
12NOV98	13NOV98	13.0	9.6	259	26.8	7.8
19NOV98	20NOV98	12.2	9.4	254	25.0	7.6
24NOV98	25NOV98	9.8	9.9	248	28.8	7.8
03DEC98	04DEC98	9.9	10.2	235	28.8	7.8
10DEC98	11DEC98	8.9	10.4	228	32.8	7.8
17DEC98	18DEC98	7.9	10.5	228	38.0	7.8
22DEC98	23DEC98	7.4	11.0	236	36.5	7.5
29DEC98	30DEC98	7.0	10.7	234	28.0	7.6

[a]Means are averages of surface and bottom values for all time periods sampled for each parameter.
[b]Missing pH data for one date resulted from instrument problems.
[c]9 July TSS data are questionable (analyzed 4 days beyond the 7-day holding time).

of low freshwater flow. Weekly averages ranged from 147 µmhos/cm on 9-10 April to 468 µmhos/cm on 17-18 September. Mean total suspended solids ranged from a low of 8.0 mg/l (5-6 March) to a high of 60.0 mg/l (15-16 January). The weekly mean pH values were consistent throughout 1998, ranging from 7.3 on several dates to 8.1 on 5-6 February.

5.3.2 Danskammer Point Generating Station

Water quality values recorded in the Danskammer Point intake canal for each impingement sampling date in 1998 are reported in Table 5-5. Mean water temperature ranged from 0.8°C (29-30 January) to the year's high of 27.0°C (6-7 August). Danskammer Point generally had slightly lower mean temperatures recorded for the same date compared to Roseton. Slightly warmer temperatures at Roseton, particularly during the cold winter months, may be due to the use of a de-icer system which recirculated a small portion of the heated discharge water back into the intake. Danskammer Point dissolved oxygen values were similar to the Roseton values in both the range and seasonal patterns, with values ranging from 6.4 mg/l (23-24 July) to 13.8 mg/l (29-30 January). Weekly average specific conductance (µmhos/cm at 25°C) ranged from a low of 144 µmhos/cm (9-10 April) to a high of 384 µmhos/cm (8-9 October). Total suspended solids from the Danskammer Point intake ranged from a low of 2.0 mg/l on 5-6 March to a high of 114.5 mg/l on 8-9 October. The pH range at Danskammer Point was similar to that at Roseton, 7.3 to 8.0.

TABLE 5-5. AVERAGE VALUES OF SELECTED WATER QUALITY PARAMETERS AT THE INTAKE OF DANSKAMMER POINT GENERATING STATION, 1998.[a]

SAMPLE START DATE	SAMPLE END DATE	MEAN TEMPERATURE (°C)	MEAN D.O. (MG/L)	MEAN CONDUCTIVITY (µMHOS/CM AT 25°C)	MEAN TSS (MG/L)	MEAN pH
08JAN98	09JAN98	2.7	13.4	270	16.5	7.5
15JAN98	16JAN98	2.8	13.1	165	50.0	7.6
22JAN98	23JAN98	2.4	12.8	162	18.0	7.5
29JAN98	30JAN98	0.8	13.8	197	19.0	7.7
05FEB98	06FEB98	2.0	13.2	217	48.2	8.0
12FEB98	13FEB98	1.4	13.6	232	17.5	7.5
19FEB98	20FEB98	2.0	13.4	238	11.5	7.8
26FEB98	27FEB98	3.2	13.4	238	22.0	7.6
05MAR98	06MAR98	4.7	13.1	251	2.0	7.7
12MAR98	13MAR98	4.6	12.8	230	18.5	7.5
19MAR98	20MAR98	4.1	13.1	225	24.5	7.6
26MAR98	27MAR98	4.2	12.8	211	24.5	7.8
02APR98	03APR98	8.3	13.0	228	15.5	7.7
09APR98	10APR98	8.5	11.3	144	13.0	7.5
16APR98	17APR98	10.9	11.0	158	14.5	7.3
23APR98	24APR98	11.3	10.8	193	58.0	7.5
30APR98	01MAY98	13.3	10.6	201	40.0	7.3
07MAY98	08MAY98	15.0	9.3	230	27.8	7.5
14MAY98	15MAY98	15.7	9.3	211	41.0	7.5
21MAY98	22MAY98	17.9	9.3	193	39.2	7.5
28MAY98	29MAY98	19.3	7.7	207	76.5	7.5
04JUN98	05JUN98	20.0	8.1	213	83.3	7.7
11JUN98	12JUN98	20.9	7.4	216	46.5	7.4
18JUN98	19JUN98	20.7	8.0	211	37.3	7.4
25JUN98	26JUN98	23.0	7.6	218	34.5	7.3
01JUL98	02JUL98	23.0	7.5	188	14.5	7.3
09JUL98	10JUL98	24.5	6.9	180	18.5[c]	7.4
16JUL98	17JUL98	25.7	7.0	175	17.0	7.5
23JUL98	24JUL98	25.7	6.4	189	17.5	7.4
30JUL98	31JUL98	26.5	7.3	179	17.3	7.5
06AUG98	07AUG98	27.0	7.9	187	16.3	8.0
13AUG98	14AUG98	26.4	7.7	225	45.8	7.6
20AUG98	21AUG98	25.7	7.2	223	18.3	8.0
27AUG98	28AUG98	26.6	7.0	243	28.3	7.6
03SEP98	04SEP98	26.4	7.0	259	17.8	7.5
10SEP98	11SEP98	23.6	7.1	352	78.8	.[b]
17SEP98	18SEP98	23.9	6.8	335	72.0	7.8
24SEP98	25SEP98	22.4	7.4	358	64.0	7.9
01OCT98	02OCT98	21.6	7.8	280	43.8	7.9
08OCT98	09OCT98	19.6	7.6	384	114.5	7.8
15OCT98	16OCT98	18.6	8.6	257	4.8	7.9
22OCT98	23OCT98	16.2	9.0	232	50.8	7.9
29OCT98	30OCT98	15.8	9.2	230	97.5	7.8
05NOV98	06NOV98	13.8	9.4	244	31.0	7.8
12NOV98	13NOV98	12.5	9.6	250	28.3	7.8
19NOV98	20NOV98	11.7	9.7	247	47.0	7.6
24NOV98	25NOV98	9.9	10.0	248	34.3	7.7
03DEC98	04DEC98	10.0	10.5	229	48.5	7.8
10DEC98	11DEC98	8.7	10.7	226	31.8	8.0
17DEC98	18DEC98	8.1	10.7	228	23.3	7.8
22DEC98	23DEC98	7.3	11.1	230	42.8	7.5
29DEC98	30DEC98	7.3	10.9	233	26.5	7.5

[a]Means are averages of surface and bottom values for all time periods sampled for each parameter.
[b]Missing pH data for one date resulted from instrument problems.
[c]9 July TSS data are questionable (analyzed 4 days beyond the 7-day holding time).

6.0 RESULTS OF IMPINGEMENT MONITORING PROGRAM

6.0 RESULTS OF IMPINGEMENT MONITORING PROGRAM

6.1 PROPORTION OF PLANT FLOW SAMPLED

Impingement sampling was conducted on 52 dates in 1998 at Roseton and on 52 dates at Danskammer Point (Section 4.1.1). At Roseton, 14.4% of the total plant flow in 1998 was sampled for impinged organisms. The percentage of plant flow sampled on a monthly basis ranged from 12.8% in March to 16.9% in July (Table 6-1). The variation was primarily due to the number of weekly sampling events that occurred in each month. All 208 of the scheduled 6-hr samples were successfully collected during 1998 at Roseton.

At Danskammer Point 14.3% of the total flow for all units combined was sampled in 1998. On a monthly basis the percentage of plant flow sampled ranged from 12.8% in March to 16.6% in July and October (Table 6-1). A higher proportion of plant flow was sampled in months with five sampling dates than in months with only four. A total of 416 samples (6-hr each) were scheduled to be collected in 1998, with equal numbers at the two sluiceway discharges (Unit 1 and 2 screenwash and Unit 3 and 4 screenwash). However, for half of 1998, Units 1 and 2 did not operate; thus, a total of 312 of the 416 scheduled samples were collected (75.0%)

6.2 SPECIES INVENTORY

Thirty-eight fish species were collected at Roseton in 1998 (Table 6-2), which is comparable to findings in past years (Appendix Table A-1). Seventeen families of fishes were collected, with Centrarchidae being represented by the most species (six). No Atlantic sturgeon or shortnose sturgeon were collected in 1998. Rainbow smelt, which had been collected frequently in the past were not collected in 1998. Channel catfish, which were not present at all during the first 12 years of sampling and were only present in low numbers from 1985 to 1994, increased to a new high in 1998 (256 individuals, compared to the previous highs of 14 in 1994, 51 in 1995, 196 in 1996, and 212 in 1997). Three invertebrate taxa were collected at Roseton: two crab species (blue crab and mud crab) and crayfish.

TABLE 6-1. MONTHLY TOTAL PLANT FLOW AND FLOW SAMPLED AT ROSETON AND DANSKAMMER POINT GENERATING STATIONS, 1998.[a]

	ROSETON GENERATING STATION				DANSKAMMER POINT GENERATING STATION			
MONTH	TOTAL PLANT FLOW	FLOW SAMPLED	PERCENT OF FLOW SAMPLED	NUMBER OF DAYS SAMPLED	TOTAL PLANT FLOW	FLOW SAMPLED	PERCENT OF FLOW SAMPLED	NUMBER OF DAYS SAMPLED
Jan	16,814.4	2,169.60	12.9	4	7,876.66	1,038.01	13.2	4
Feb	14,164.8	2,166.96	15.3	4	6,232.18	839.16	13.5	4
Mar	18,004.8	2,306.40	12.8	4	6,320.28	811.17	12.8	4
Apr	16,975.2	2,812.05	16.6	5	6,068.18	928.20	15.3	5
May	17,289.6	2,229.60	12.9	4	9,391.70	1,379.28	14.7	4
Jun	20,376.0	2,732.85	13.4	4	11,320.78	1,482.22	13.1	4
Jul	21,849.6	3,699.88	16.9	5	12,669.74	2,104.03	16.6	5
Aug	24,482.4	3,207.60	13.1	4	12,959.28	1,672.87	12.9	4
Sep	18,285.6	2,469.50	13.5	4	12,269.83	1,611.30	13.1	4
Oct	19,593.6	3,131.75	16.0	5	8,148.34	1,354.54	16.6	5
Nov	17,932.8	2,351.03	13.1	4	5,577.53	801.06	14.4	4
Dec	18,674.4	2,939.63	15.7	5	7,145.54	1,141.51	16.0	5
TOTAL	224,443.2	32,216.85	14.4	52	105,980.04	15,163.35	14.3	52

[a]Flow is in millions of gallons.

TABLE 6-2. SPECIES COMPOSITION OF FISH IN IMPINGEMENT COLLECTIONS AT ROSETON GENERATING STATION IN 1998.

SCIENTIFIC NAME	COMMON NAME	OCCUR-RENCE	TOTAL COUNT
Anguillidae	freshwater eels		
Anguilla rostrata	American eel	E	26
Clupeidae	herrings		
Alosa aestivalis	blueback herring	E	1,223
Alosa pseudoharengus	alewife	E	200
Alosa sapidissima	American shad	E	108
Brevoortia tyrannus	Atlantic menhaden	M	20
Dorosoma cepedianum	gizzard shad	E	146
Clupeidae	unidentified clupeid		2
Engraulidae	anchovies		
Anchoa mitchilli	bay anchovy	E	2,067
Cyprinidae	carps and minnows		
Carassius auratus	goldfish	F	13
Cyprinus carpio	common carp	F	22
Notemigonus crysoleucas	golden shiner	F	119
Notropis atherinoides	emerald shiner	F	7
Notropis hudsonius	spottail shiner	F	725
Catostomidae	suckers		
Catostomus commersoni	white sucker	F	3
Ictaluridae	bullhead catfishes		
Ameiurus catus	white catfish	F	630
Ameiurus nebulosus	brown bullhead	F	260
Ictalurus punctatus	channel catfish	F	256
Gadidae	cods		
Microgadus tomcod	Atlantic tomcod	E	138
Cyprinodontidae	killifishes		
Fundulus diaphanus	banded killifish	F	9
Fundulus heteroclitus	mummichog	E	2
Gasterosteidae	sticklebacks		
Apeltes quadracus	fourspine stickleback	E	2
Gasterosteus aculeatus	threespine stickleback	E	17
Percichthyidae	temperate basses		
Morone americana	white perch	E	5,310
Morone saxatilis	striped bass	E	582
Centrarchidae	sunfishes		
Lepomis auritus	redbreast sunfish	F	3
Lepomis gibbosus	pumpkinseed	F	286
Lepomis macrochirus	bluegill	F	76
Micropterus dolomieu	smallmouth bass	F	2
Micropterus salmoides	largemouth bass	F	9
Pomoxis nigromaculatus	black crappie	F	9
Centrarchidae	unidentified centrarchid		6
Percidae	perches		
Etheostoma olmstedi	tessellated darter	F	72
Perca flavescens	yellow perch	F	38

(Continued)

TABLE 6-2. (CONTINUED)

SCIENTIFIC NAME	COMMON NAME	OCCUR-RENCE	TOTAL COUNT
Pomatomidae	bluefishes		
Pomatomus saltatrix	bluefish	M	21
Carangidae	jacks		
Caranx hippos	crevalle jack	M	12
Sciaenidae	drums		
Aplodinotus grunniens	freshwater drum	F	69
Cynoscion regalis	weakfish	M	9
Micropogonias undulatus	Atlantic croaker	E	30
Gobiidae	gobies		
Gobiosoma bosc	naked goby	E	1
Soleidae	soles		
Trinectes maculatus	hogchoker	E	87

Species are grouped by family. Scientific names, common names, and occurrence are according to Robins et al. (1991). Occurrence: F=freshwater, M=marine, E=euryhaline (occurring in both fresh and salt waters).

Forty-five fish species representing 20 families were collected at Danskammer Point during 1998 (Table 6-3). The family Cyprinidae (carps and minnows) was represented by eight species, which represents the greatest diversity within a family. Two species collected in 1998 were not previously collected from impingement sampling at Danskammer Point: blacknose dace and brook silverside (Appendix Table A-2). One Atlantic sturgeon (present in 19 of 24 previous years) and two shortnose sturgeon (present in eight previous years) were present in the 1998 collections at Danskammer Point. One species that had frequently been collected in the past was limited to a single fish in 1998 (rainbow smelt). Channel catfish, a species that was rarely collected in the early years of sampling (nine individuals over the first 14 years), was relatively abundant in 1998, with 596 individuals collected. The only year in which more were collected was 1997, with 614 individuals. A similar increasing trend in channel catfish has been observed at Roseton. Three invertebrate taxa were collected: blue crab, mud crab and crayfish.

6.3 ABUNDANCE, BIOMASS, AND PERCENT COMPOSITION

6.3.1 Fish

6.3.1.1 Roseton Generating Station

Fifty-two 24-hr impingement sampling events at Roseton in 1998 resulted in the collection of 12,617 fish, which is lower than in all but three of the previous 25 years since sampling began in 1973 (Appendix Table A-1). Roseton impingement counts decreased by 79% from 1997 to 1998. The species with the largest decrease was blueback herring, down from 28,374 in 1997 to 1,223 in 1998. White perch was the most numerous fish in 1998, making up 42.1% of the total abundance, followed by anchovy (16.4%) and blueback herring (9.7%) (Table 6-4, Figure 6-1). The top ten species (in terms of numerical abundance) accounted for 91.5% of the total collected at Roseton in 1998.

Monthly abundance for fish impinged on collection days at Roseton in 1998 (Table 6-5, Figure 6-2) was similar to the patterns of previous years in that the month of highest abundance was in the second half of the year. In some past years there was also a secondary peak in abundance in the spring, and in 1998 there was a small secondary peak in April. The usual summer-fall increase in abundance occurred in October of 1998, mainly due to abrupt increases of

TABLE 6-3. SPECIES COMPOSITION OF FISH IN IMPINGEMENT COLLECTIONS AT DANSKAMMER POINT GENERATING STATION IN 1998.

SCIENTIFIC NAME	COMMON NAME	OCCUR-RENCE	TOTAL COUNT
Acipenseridae	sturgeons		
Acipenser brevirostrum	shortnose sturgeon	E	2
Acipenser oxyrhynchus	Atlantic sturgeon	E	1
Anguillidae	freshwater eels		
Anguilla rostrata	American eel	E	64
Clupeidae	herrings		
Alosa aestivalis	blueback herring	E	489
Alosa pseudoharengus	alewife	E	943
Alosa sapidissima	American shad	E	866
Brevoortia tyrannus	Atlantic menhaden	M	30
Dorosoma cepedianum	gizzard shad	E	1,092
Clupeidae	unidentified clupeid		1
Engraulidae	anchovies		
Anchoa mitchilli	bay anchovy	E	822
Cyprinidae	carps and minnows		
Carassius auratus	goldfish	F	32
Cyprinus carpio	common carp	F	19
Notemigonus crysoleucas	golden shiner	F	492
Notropis atherinoides	emerald shiner	F	6
Notropis hudsonius	spottail shiner	F	2,176
Pimephales notatus	bluntnose minnow	F	1
Pimephales promelas	fathead minnow	F	2
Rhinichthys atratulus	blacknose dace	F	1
Catostomidae	suckers		
Catostomus commersoni	white sucker	F	1
Ictaluridae	bullhead catfishes		
Ameiurus catus	white catfish	F	2,935
Ameiurus nebulosus	brown bullhead	F	473
Ictalurus punctatus	channel catfish	F	596
Umbridae	mudminnows		
Umbra limi	central mudminnow	F	2
Osmeridae	smelts		
Osmerus mordax	rainbow smelt	E	1
Gadidae	cods		
Microgadus tomcod	Atlantic tomcod	E	715
Cyprinodontidae	killifishes		
Fundulus diaphanus	banded killifish	F	8
Fundulus heteroclitus	mummichog	E	2
Atherinidae	silversides		
Labidesthes sicculus	brook silverside	F	1
Gasterosteidae	sticklebacks		
Gasterosteus aculeatus	threespine stickleback	E	19

(Continued)

TABLE 6-3. (CONTINUED)

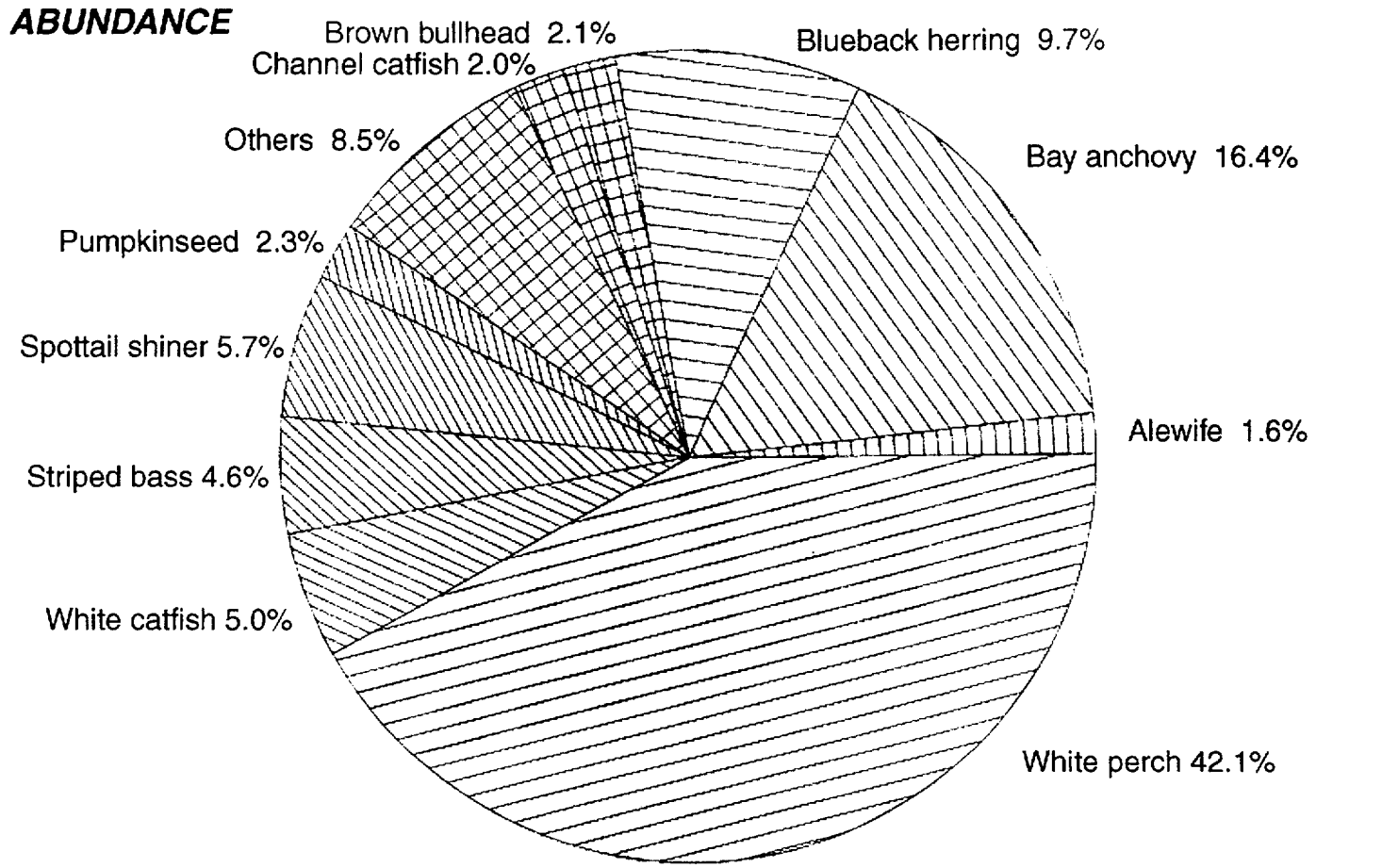
SCIENTIFIC NAME	COMMON NAME	OCCUR-RENCE	TOTAL COUNT
Percichthyidae	temperate basses		
Morone americana	white perch	E	13,470
Morone saxatilis	striped bass	E	5,174
Centrarchidae	sunfishes		
Ambloplites rupestris	rock bass	F	6
Lepomis auritus	redbreast sunfish	F	9
Lepomis gibbosus	pumpkinseed	F	861
Lepomis macrochirus	bluegill	F	203
Micropterus dolomieu	smallmouth bass	F	2
Micropterus salmoides	largemouth bass	F	23
Pomoxis nigromaculatus	black crappie	F	42
Centrarchidae	unidentified centrarchid		1
Percidae	perches		
Etheostoma olmstedi	tessellated darter	F	87
Perca flavescens	yellow perch	F	71
Pomatomidae	bluefishes		
Pomatomus saltatrix	bluefish	M	168
Carangidae	jacks		
Caranx hippos	crevalle jack	M	28
Sciaenidae	drums		
Aplodinotus grunniens	freshwater drum	F	53
Cynoscion regalis	weakfish	M	31
Micropogonias undulatus	Atlantic croaker	E	9
Soleidae	soles		
Trinectes maculatus	hogchoker	E	80

Species are grouped by family. Scientific names, common names, and occurrence are according to Robins et al. (1991). Occurrence: F=freshwater, M=marine, E=euryhaline (occurring in both fresh and salt waters).

TABLE 6-4. ABUNDANCE, BIOMASS, AND PERCENT COMPOSITION OF THE TOP TEN FISH SPECIES AT ROSETON GENERATING STATION, 1998.

	ABUNDANCE	PERCENT OF TOTAL
White perch	5310	42.1
Bay anchovy	2067	16.4
Blueback herring	1223	9.7
Spottail shiner	725	5.7
White catfish	630	5.0
Striped bass	582	4.6
Pumpkinseed	286	2.3
Brown bullhead	260	2.1
Channel catfish	256	2.0
Alewife	200	1.6
Others	1078	8.5
TOTAL	12617	100.0

	BIOMASS (KG)	PERCENT OF TOTAL
White perch	36.38	33.4
Gizzard shad	20.90	19.2
White catfish	8.15	7.5
Blueback herring	7.59	7.0
Brown bullhead	3.91	3.6
Pumpkinseed	3.51	3.2
Channel catfish	3.50	3.2
Bay anchovy	3.12	2.9
Spottail shiner	3.07	2.8
American eel	2.95	2.7
Others	15.73	14.5
TOTAL	108.79	100.0



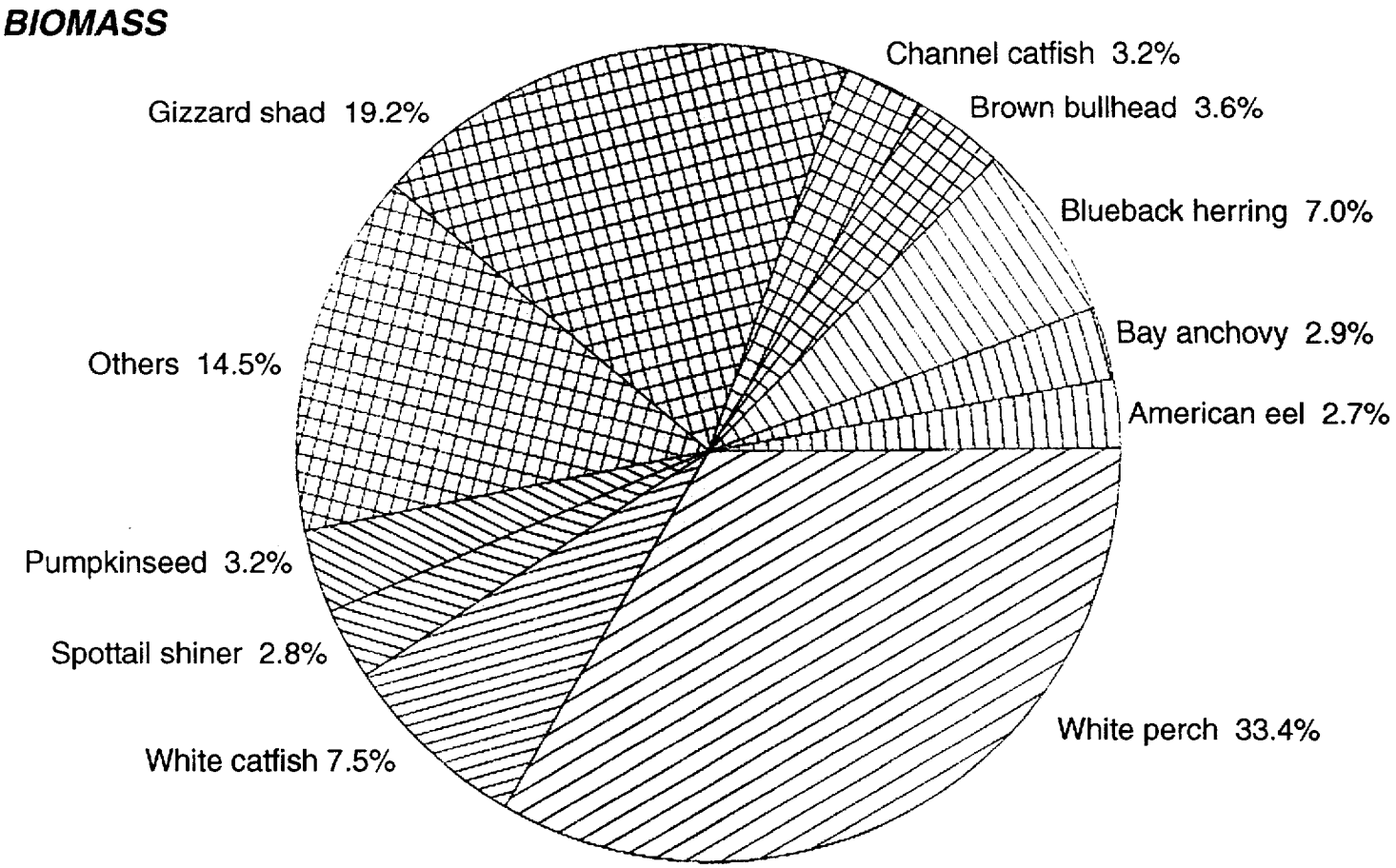


Figure 6-1. Relative abundance and relative biomass of fish species collected during impingement monitoring, Roseton Generating Station, 1998.

TABLE 6-5. MONTHLY COUNT AND PERCENT COMPOSITION OF FISH SPECIES IN IMPINGEMENT COLLECTIONS, ROSETON GENERATING STATION, 1998.

SPECIES	JAN		FEB		MAR		APR		MAY		JUN	
	NO.	PCNT	NO.	PCNT	NO.	PCNT	NO.	PCNT	NO.	PCNT	NO.	PCNT
Alewife	4	0.6			3	0.9	1	0.1	10	1.6	21	2.6
American eel	1	0.1	2	0.9	1	0.3	1	0.1	3	0.5	2	0.2
American shad											15	1.9
Atlantic croaker												
Atlantic menhaden												
Atlantic tomcod	6	0.9	2	0.9					7	1.1	53	6.5
Banded killifish	4	0.6	1	0.5			1	0.1			1	0.1
Bay anchovy									3	0.5	78	9.6
Black crappie	5	0.7			1	0.3	1	0.1			1	0.1
Blueback herring							10	0.8	8	1.3	16	2.0
Bluefish									1	0.2		
Bluegill	4	0.6	1	0.5			2	0.2	20	3.3	4	0.5
Brown bullhead	3	0.4	1	0.5	3	0.9	86	6.6	23	3.8	25	3.1
Channel catfish	52	7.7	10	4.5	59	17.2	38	2.9	5	0.8	7	0.9
Common carp	15	2.2	1	0.5					2	0.3		
Crevalle jack												
Emerald shiner											4	0.5
Fourspine stickleback									1	0.2	1	0.1
Freshwater drum	3	0.4	2	0.9			2	0.2				
Gizzard shad	96	14.2	14	6.4	2	0.6						
Golden shiner	25	3.7	32	14.5	12	3.5	8	0.6	5	0.8		
Goldfish	7	1.0	2	0.9	1	0.3			1	0.2		
Herring family												
Hogchoker			1	0.5			22	1.7	11	1.8		
Largemouth bass	4	0.6										
Mummichog									1	0.2	1	0.1
Naked goby												
Pumpkinseed	32	4.7	11	5.0	8	2.3	48	3.7	29	4.7	14	1.7
Redbreast sunfish									1	0.2		
Smallmouth bass												
Spottail shiner	208	30.8	82	37.3	102	29.7	122	9.4	54	8.8	26	3.2
Striped bass	17	2.5					6	0.5	2	0.3	9	1.1
Sunfish family							1	0.1	2	0.3		
Tessellated darter			1	0.5	5	1.5	42	3.2	4	0.7	6	0.7
Threespine stickleback	2	0.3	6	2.7	8	2.3	1	0.1				
Weakfish												
White catfish	1	0.1			1	0.3	4	0.3	2	0.3	8	1.0
White perch	167	24.7	48	21.8	126	36.7	898	69.2	416	68.0	517	63.8
White sucker							1	0.1	1	0.2		
Yellow perch	20	3.0	3	1.4	11	3.2	2	0.2			1	0.1
TOTAL	676	100.0	220	100.0	343	100.0	1297	100.0	612	100.0	810	100.0

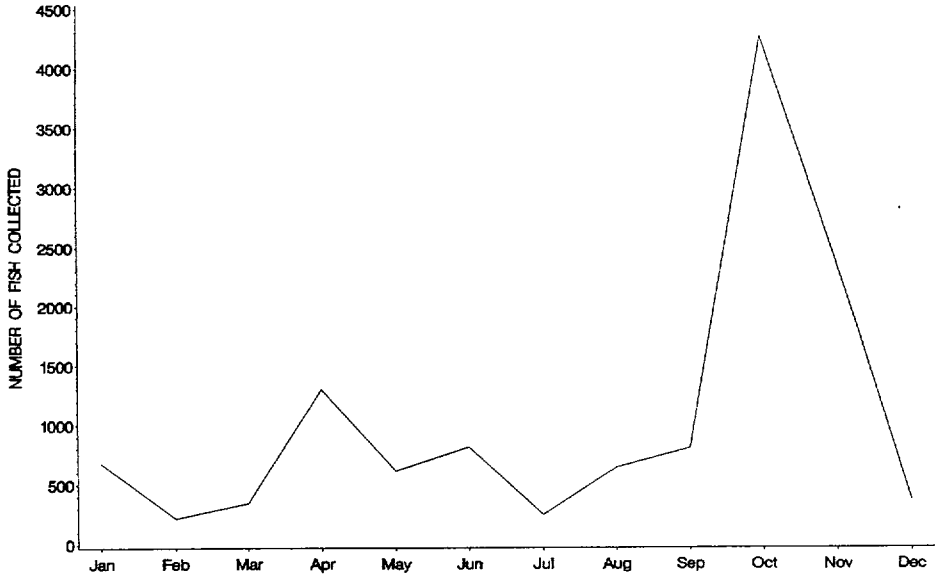
(CONTINUED)

TABLE 6-5. (CONTINUED)

SPECIES	JUL		AUG		SEP		OCT		NOV		DEC	
	NO.	PCNT	NO.	PCNT	NO.	PCNT	NO.	PCNT	NO.	PCNT	NO.	PCNT
Alewife	11	4.5	19	3.0	7	0.9	63	1.5	60	2.5	1	0.3
American eel	3	1.2	3	0.5	3	0.4	5	0.1	1	<0.1	1	0.3
American shad	13	5.3	1	0.2	5	0.6	46	1.1	28	1.2		
Atlantic croaker							25	0.6	4	0.2	1	0.3
Atlantic menhaden			3	0.5	7	0.9	7	0.2	3	0.1		
Atlantic tomcod	28	11.5	36	5.6	6	0.8						
Banded killifish							2	<0.1				
Bay anchovy	16	6.6	85	13.3	258	32.3	1614	37.9	13	0.5		
Black crappie	1	0.4										
Blueback herring	4	1.6	9	1.4	5	0.6	663	15.6	505	21.4	3	0.8
Bluefish			4	0.6	11	1.4	5	0.1				
Bluegill	2	0.8			4	0.5	20	0.5	17	0.7	2	0.6
Brown bullhead	28	11.5	65	10.2	14	1.8	10	0.2	2	0.1		
Channel catfish	9	3.7	30	4.7	17	2.1	9	0.2	9	0.4	11	3.1
Common carp					1	0.1	3	0.1				
Crevalle jack					9	1.1	3	0.1				
Emerald shiner			1	0.2	1	0.1	1	<0.1				
Fourspine stickleback												
Freshwater drum			12	1.9	24	3.0	19	0.4	4	0.2	3	0.8
Gizzard shad			13	2.0			1	<0.1	7	0.3	13	3.7
Golden shiner			1	0.2	3	0.4			7	0.3	26	7.3
Goldfish	1	0.4					1	<0.1				
Herring family	1	0.4							1	<0.1		
Hogchoker	1	0.4			7	0.9	38	0.9	4	0.2	3	0.8
Largemouth bass							2	<0.1	2	0.1	1	0.3
Mummichog												
Naked goby							1	<0.1				
Pumpkinseed	2	0.8	3	0.5	9	1.1	117	2.7	11	0.5	2	0.6
Redbreast sunfish							2	<0.1				
Smallmouth bass					1	0.1					1	0.3
Spottail shiner	26	10.7	7	1.1	9	1.1	27	0.6	37	1.6	25	7.0
Striped bass	44	18.0	65	10.2	53	6.6	280	6.6	90	3.8	16	4.5
Sunfish family							3	0.1				
Tessellated darter	7	2.9	3	0.5	1	0.1	2	<0.1			1	0.3
Threespine stickleback												
Weakfish					8	1.0			1	<0.1		
White catfish	3	1.2	20	3.1	20	2.5	76	1.8	482	20.4	13	3.7
White perch	44	18.0	260	40.6	315	39.5	1211	28.4	1077	45.5	231	65.1
White sucker											1	0.3
Yellow perch							1	<0.1				
TOTAL	244	100.0	640	100.0	798	100.0	4257	100.0	2365	100.0	355	100.0

Total Fish

Abundance



Biomass

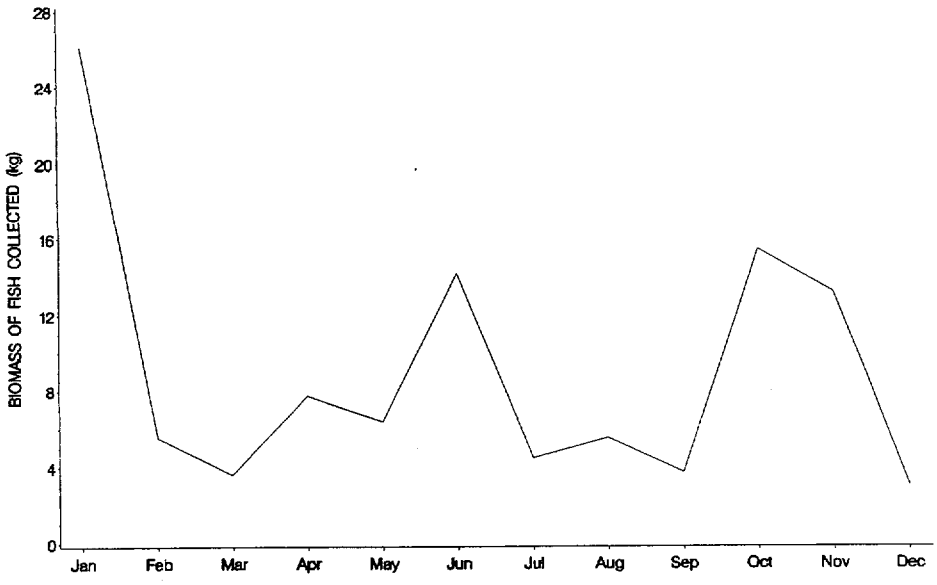


Figure 6-2. Monthly impingement abundance and biomass, Roseton Generating Station, 1998.

bay anchovy, blueback herring, and white perch. Abundances decreased in November, then decreased again in December. White perch was the primary species responsible for the small secondary peak in April. February had the lowest abundance for the year with 220 individuals collected.

The highest monthly biomass totals for 1998 at Roseton were in January, June, and October, mainly due to gizzard shad in January, white perch in June, and white perch and blueback herring in October (Table 6-6, Figure 6-2). The overall biomass pattern differed from the numerical abundance pattern due to the presence of the relatively large adult gizzard shad impinged in January and the increase in size of the most abundant species between April and June (white perch). The top three species in terms of biomass were, in decreasing order, white perch, gizzard shad, and white catfish. These species made up 60.1% (65.4 kg) of the total biomass measured (108.8 kg) in 1998 (Table 6-4, Figure 6-1).

White perch was the dominant species in terms of biomass for eight of the twelve months. The species with the greatest biomass in the remaining months were gizzard shad (January and February), brown bullhead (July), and white catfish (August). For the year, January collections yielded the greatest fish biomass (26.1 kg) and December the least (3.0 kg) (Table 6-6).

White perch, the most abundant species at Roseton in 1998, reached its peak abundance in October and its greatest biomass during June. It was the first or second most abundant species impinged during every month (Table 6-5). Young-of-the-year white perch were first impinged on collection days in June and were the most abundant life stage of this species collected during 1998 (Table 6-7, Appendix Table B-1.11). White perch ranked first in total biomass (33.4%) during 1998 (Table 6-4).

Bay anchovy, the second most abundant species at Roseton during 1998, with a total of 2,067 fish collected, was the most abundant species in October collections (Table 6-5). Young-of-the-year fish were first collected in August and were the most abundant age group of bay anchovy collected in 1998 (Table 6-7, Appendix Table B-1.3). Bay anchovy ranked eighth in total biomass with 3.1 kg (Table 6-4, Figure 6-1).

TABLE 6-6. MONTHLY BIOMASS AND PERCENT COMPOSITION OF FISH SPECIES IN IMPINGEMENT COLLECTIONS, ROSETON GENERATING STATION, 1998.

SPECIES	JAN		FEB		MAR		APR		MAY		JUN	
	GM.	PCNT	GM.	PCNT	GM.	PCNT	GM.	PCNT	GM.	PCNT	GM.	PCNT
Alewife	31	0.1			49	1.4	2	<0.1	288	4.5	497	3.5
American eel	171	0.7	323	5.8	123	3.4	125	1.6	596	9.4	279	2.0
American shad											10	0.1
Atlantic croaker												
Atlantic menhaden												
Atlantic tomcod	185	0.7	24	0.4					11	0.2	211	1.5
Banded killifish	19	0.1	6	0.1			11	0.1			1	<0.1
Bay anchovy									9	0.1	242	1.7
Black crappie	161	0.6			3	0.1	9	0.1			1	<0.1
Blueback herring							37	0.5	452	7.1	714	5.0
Bluefish									7	0.1		
Bluegill	113	0.4	3	0.1			7	0.1	45	0.7	8	0.1
Brown bullhead	20	0.1	5	0.1	161	4.5	657	8.5	182	2.9	889	6.3
Channel catfish	595	2.3	84	1.5	528	14.6	340	4.4	52	0.8	416	2.9
Common carp	428	1.6	7	0.1					14	0.2		
Crevalle jack												
Emerald shiner											15	0.1
Fourspine stickleback									1	<0.1	2	<0.1
Freshwater drum	74	0.3	35	0.6			34	0.4				
Gizzard shad	17499	66.9	3072	55.4	117	3.2						
Golden shiner	808	3.1	604	10.9	255	7.1	138	1.8	13	0.2		
Goldfish	185	0.7	114	2.0	55	1.5			1	<0.1		
Herring family												
Hogchoker			25	0.4			418	5.4	137	2.2		
Largemouth bass	62	0.2										
Mummichog									3	<0.1	2	<0.1
Naked goby												
Pumpkinseed	786	3.0	289	5.2	141	3.9	781	10.1	256	4.0	105	0.7
Redbreast sunfish									2	<0.1		
Smallmouth bass												
Spottail shiner	979	3.7	324	5.8	409	11.3	460	6.0	186	2.9	129	0.9
Striped bass	97	0.4					32	0.4	8	0.1	90	0.6
Sunfish family							1	<0.1	2	<0.1		
Tessellated darter			5	0.1	18	0.5	147	1.9	11	0.2	13	0.1
Threespine stickleback	5	<0.1	15	0.3	17	0.5	2	<0.1				
Weakfish												
White catfish	6	<0.1			6	0.2	64	0.8	63	1.0	568	4.0
White perch	2942	11.3	404	7.3	896	24.8	4308	55.7	3552	55.7	9915	70.0
White sucker							9	0.1	483	7.6		
Yellow perch	984	3.8	213	3.8	829	23.0	149	1.9			66	0.5
TOTAL (KG)	26.1	100.0	5.6	100.0	3.6	100.0	7.7	100.0	6.4	100.0	14.2	100.0

(CONTINUED)

TABLE 6-6. (CONTINUED)

SPECIES	JUL		AUG		SEP		OCT		NOV		DEC	
	GM.	PCNT	GM.	PCNT	GM.	PCNT	GM.	PCNT	GM.	PCNT	GM.	PCNT
Alewife	111	2.5	143	2.6	83	2.2	588	3.8	518	3.9	6	0.2
American eel	166	3.7	71	1.3	57	1.5	853	5.5	74	0.6	111	3.7
American shad	29	0.6	1	<0.1	41	1.1	427	2.8	264	2.0		
Atlantic croaker							5	<0.1	2	<0.1	0	<0.1
Atlantic menhaden			3	0.1	14	0.4	32	0.2	20	0.1		
Atlantic tomcod	124	2.8	168	3.0	20	0.5						
Banded killifish							11	0.1				
Bay anchovy	58	1.3	215	3.9	704	18.9	1866	12.1	25	0.2		
Black crappie	2	<0.1										
Blueback herring	14	0.3	159	2.9	56	1.5	3712	24.1	2434	18.5	10	0.3
Bluefish			31	0.6	63	1.7	100	0.7				
Bluegill	7	0.2			190	5.1	203	1.3	136	1.0	44	1.5
Brown bullhead	1270	28.5	458	8.3	89	2.4	163	1.1	13	0.1		
Channel catfish	861	19.3	266	4.8	113	3.0	111	0.7	47	0.4	82	2.8
Common carp					5	0.1	13	0.1				
Crevalle jack					13	0.3	10	0.1				
Emerald shiner			6	0.1	4	0.1	4	<0.1				
Fourspine stickleback												
Freshwater drum			30	0.5	90	2.4	114	0.7	18	0.1	19	0.6
Gizzard shad			40	0.7			8	0.1	50	0.4	112	3.8
Golden shiner			34	0.6	51	1.4			60	0.5	179	6.0
Goldfish	301	6.7					10	0.1				
Herring family	0	<0.1							4	<0.1		
Hogchoker	2	<0.1			26	0.7	162	1.1	5	<0.1	3	0.1
Largemouth bass							16	0.1	23	0.2	11	0.4
Mummichog												
Naked goby							2	<0.1				
Pumpkinseed	72	1.6	72	1.3	107	2.9	753	4.9	141	1.1	7	0.2
Redbreast sunfish							8	<0.1				
Smallmouth bass					10	0.3					7	0.2
Spottail shiner	111	2.5	46	0.8	60	1.6	103	0.7	137	1.0	122	4.1
Striped bass	44	1.0	190	3.4	191	5.1	1044	6.8	294	2.2	97	3.3
Sunfish family							4	<0.1				
Tessellated darter	22	0.5	11	0.2	1	<0.1	8	0.1			5	0.2
Threespine stickleback												
Weakfish					55	1.5			23	0.2		
White catfish	311	7.0	2442	44.4	441	11.9	447	2.9	3695	28.1	103	3.5
White perch	959	21.5	1118	20.3	1236	33.2	4608	29.9	5166	39.3	1281	43.1
White sucker											773	26.0
Yellow perch							15	0.1				
TOTAL (KG)	4.5	100.0	5.5	100.0	3.7	100.0	15.4	100.0	13.1	100.0	3.0	100.0

TABLE 6-7. MONTHLY SUMMARY OF LENGTH DATA FOR SELECTED IMPINGED SPECIES, ROSETON GENERATING STATION, 1998.[a]

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Alewife	TOTAL ANAL.	4	0	3	1	10	21	11	19	7	58	60	1
	MEAN LENGTH	9.8	0	13.4	6.5	13.0	13.9	9.4	9.0	11.8	10.8	10.5	9.3
	MIN. LENGTH	8.3	0	9.9	6.5	8.2	11.2	3.2	3.9	8.8	6.3	7.3	9.3
	MAX. LENGTH	12.9	0	17.4	6.5	26.7	26.0	15.8	15.0	16.9	15.5	14.5	9.3
Atlantic tomcod	TOTAL ANAL.	6	2	0	0	7	51	28	36	6	0	0	0
	MEAN LENGTH	14.5	12.1	0	0	5.9	7.8	8.0	8.5	8.0	0	0	0
	MIN. LENGTH	10.0	10.1	0	0	5.1	6.0	6.6	6.7	7.0	0	0	0
	MAX. LENGTH	23.2	14.0	0	0	6.7	10.4	9.5	11.0	8.7	0	0	0
Bay anchovy	TOTAL ANAL.	0	0	0	0	3	62	16	77	162	315	13	0
	MEAN LENGTH	0	0	0	0	7.4	7.6	7.9	7.0	7.0	6.1	6.6	0
	MIN. LENGTH	0	0	0	0	7.1	6.5	7.5	4.1	3.1	3.2	4.8	0
	MAX. LENGTH	0	0	0	0	8.0	8.8	8.7	9.4	9.7	9.3	8.5	0
Blueback herring	TOTAL ANAL.	0	0	0	10	8	16	4	9	3	196	106	3
	MEAN LENGTH	0	0	0	8.1	16.4	16.7	7.2	11.3	11.4	9.6	9.1	8.3
	MIN. LENGTH	0	0	0	7.1	8.3	11.0	6.9	4.2	8.9	7.0	7.0	7.3
	MAX. LENGTH	0	0	0	9.2	27.9	27.0	7.4	25.9	15.5	11.3	10.7	9.5
Brown bullhead	TOTAL ANAL.	3	1	3	86	23	25	27	64	13	10	2	0
	MEAN LENGTH	8.3	7.6	14.7	8.6	8.9	11.8	9.8	6.8	8.2	10.4	8.0	0
	MIN. LENGTH	7.1	7.6	8.4	5.6	6.7	5.8	4.6	4.0	6.3	8.1	7.0	0
	MAX. LENGTH	9.2	7.6	26.0	22.7	10.9	25.7	34.3	26.5	10.9	19.3	8.9	0
Channel catfish	TOTAL ANAL.	52	10	59	38	5	7	9	29	17	9	9	11
	MEAN LENGTH	10.7	10.2	10.6	10.8	11.4	15.4	17.0	8.3	8.4	9.8	8.6	9.7
	MIN. LENGTH	6.4	6.6	6.6	5.5	10.0	7.4	5.4	4.4	5.4	6.0	7.3	8.3
	MAX. LENGTH	24.1	13.1	16.4	13.2	13.0	29.0	38.0	18.9	20.1	22.3	10.9	11.6
Pumpkinseed	TOTAL ANAL.	32	11	8	48	29	14	2	3	8	117	11	2
	MEAN LENGTH	9.1	9.8	8.4	8.7	7.7	7.6	12.0	11.1	7.4	6.9	8.1	5.9
	MIN. LENGTH	4.3	5.5	5.8	4.8	5.1	4.5	9.1	10.0	4.5	4.5	6.0	4.9
	MAX. LENGTH	18.6	15.8	17.2	15.6	13.8	9.0	14.8	12.0	13.0	12.6	16.0	6.9
Spottail shiner	TOTAL ANAL.	205	79	80	118	54	26	26	6	8	27	37	25
	MEAN LENGTH	8.1	8.0	8.2	7.7	7.3	8.4	7.5	9.2	8.8	7.8	7.8	8.6
	MIN. LENGTH	5.4	6.1	6.0	5.4	5.5	6.5	3.6	6.0	5.4	5.6	6.2	6.6
	MAX. LENGTH	12.3	12.4	12.0	12.5	11.5	10.7	11.0	11.8	12.2	11.1	11.3	11.2
Striped bass	TOTAL ANAL.	17	0	0	6	2	9	44	64	52	193	90	16
	MEAN LENGTH	8.6	0	0	8.7	7.6	9.4	4.3	6.1	6.9	7.5	7.3	8.7
	MIN. LENGTH	6.5	0	0	6.7	6.7	3.2	2.7	3.0	4.1	5.4	5.5	6.6
	MAX. LENGTH	11.4	0	0	11.0	8.4	19.3	9.0	14.3	14.3	9.8	9.9	11.0
White catfish	TOTAL ANAL.	1	0	1	4	2	8	3	20	17	75	266	13
	MEAN LENGTH	8.1	0	9.5	10.0	14.9	15.7	18.1	13.3	8.0	8.4	9.0	8.9
	MIN. LENGTH	8.1	0	9.5	5.7	13.2	9.5	9.9	3.9	5.2	6.0	5.8	5.0
	MAX. LENGTH	8.1	0	9.5	17.2	16.6	28.0	29.0	40.4	21.4	11.4	17.5	11.0
White perch	TOTAL ANAL.	167	47	122	344	204	301	44	198	238	410	352	182
	MEAN LENGTH	9.9	8.6	8.5	7.9	9.0	11.7	10.8	6.4	6.5	7.1	7.6	7.7
	MIN. LENGTH	5.9	5.5	5.3	5.3	5.1	3.8	2.4	2.7	4.0	5.0	4.6	5.1
	MAX. LENGTH	25.5	14.9	14.8	18.1	20.5	21.3	19.0	20.0	20.1	22.0	15.1	13.3
Blue crab	TOTAL ANAL.	0	0	0	4	262	386	487	400	400	496	375	81
	MEAN LENGTH	0	0	0	4.4	5.4	6.4	8.0	9.2	5.9	5.7	4.6	4.4
	MIN. LENGTH	0	0	0	2.5	2.1	2.3	3.5	1.2	1.1	1.5	1.7	1.2
	MAX. LENGTH	0	0	0	5.5	8.9	11.4	14.5	16.2	16.1	16.9	14.1	12.9

[a]Lengths are in centimeters.

Blueback herring, the third most abundant species collected at Roseton in 1998, was most abundant in October and November, when 1,168 of the year's total of 1,223 were collected (Table 6-5). Young-of-the-year blueback herring were first impinged on collection days in July, and this was by far the most abundant age group impinged during the year (Table 6-7, Appendix Table B-1.4).

6.3.1.2 Danskammer Point Generating Station

Fifty-two 24-hr impingement sampling events in 1998 at Danskammer Point resulted in the collection of 32,110 fish (Table 6-8). This total count was 37.6% lower than the number of fish collected in 1997 and was the third lowest in the 25-year study (Appendix Table A-2).

The most abundant fish species collected at Danskammer Point in 1998 was white perch, with 13,470 individuals representing 41.9% of the total abundance (Table 6-8, Figure 6-3). The second most abundant species was striped bass (5,174 or 16.1%), and third was white catfish (2,935 or 9.1%). The total for white catfish was higher than in 1997 by a factor of 5.7. The ten most abundant species collected at Danskammer Point represented 90.5% of the total abundance in 1998.

The 1998 monthly impingement count at Danskammer Point was highest in October (Table 6-9, Figure 6-4). The month with the lowest total was February. The seasonal abundance pattern was bimodal, with the primary peak in October-November, and the secondary peak in May-June. White perch was numerically dominant in eight of the twelve months, gizzard shad was dominant in January, spottail shiner was dominant in February, and striped bass was dominant in August and September (Table 6-9).

Gizzard shad also exhibited the highest biomass impinged on collection days at Danskammer Point in 1998, contributing 58.0% of the total biomass of 1,215.7 kg collected for the year (Table 6-8, Figure 6-3). The next four dominant fish in decreasing order of contribution to the total biomass collected at Danskammer Point in 1998 were white perch (22.3%), white catfish (4.0%), striped bass (3.0%) and golden shiner (2.3%) (Table 6-8, Figure 6-3). The monthly biomass trend for 1998 exhibited its strongest peak in January, with smaller peaks in May

TABLE 6-8. ABUNDANCE, BIOMASS, AND PERCENT COMPOSITION OF THE TOP TEN FISH SPECIES AT DANSKAMMER POINT GENERATING STATION, 1998.

	ABUNDANCE	PERCENT OF TOTAL
White perch	13470	41.9
Striped bass	5174	16.1
White catfish	2935	9.1
Spottail shiner	2176	6.8
Gizzard shad	1092	3.4
Alewife	943	2.9
American shad	866	2.7
Pumpkinseed	861	2.7
Bay anchovy	822	2.6
Atlantic tomcod	715	2.2
Others	3056	9.5
TOTAL	32110	100.0

	BIOMASS (KG)	PERCENT OF TOTAL
Gizzard shad	704.87	58.0
White perch	271.56	22.3
White catfish	48.84	4.0
Striped bass	36.62	3.0
Golden shiner	28.05	2.3
Alewife	23.13	1.9
Pumpkinseed	16.99	1.4
Spottail shiner	13.36	1.1
American shad	8.86	0.7
Atlantic tomcod	8.37	0.7
Others	55.05	4.5
TOTAL	1215.71	100.0

and October (Figure 6-4). These peaks reflect the dominance of large gizzard shad in January and white perch in May and October (Table 6-10). The month with the lowest biomass in impingement collections was December with 18.7 kg (1.5% of the 1998 total).

White perch, the most abundant species at Danskammer Point in 1998, was present in impingement collections during every month of the year, with its highest abundance occurring in May (Table 6-9). White perch was the species accounting for the most biomass in every month from April through October, as well as December (Table 6-10). Young-of-the-year white perch were first impinged on collection days in July, and were the dominant age group in August through December (Table 6-11, Appendix Table B-2.10).

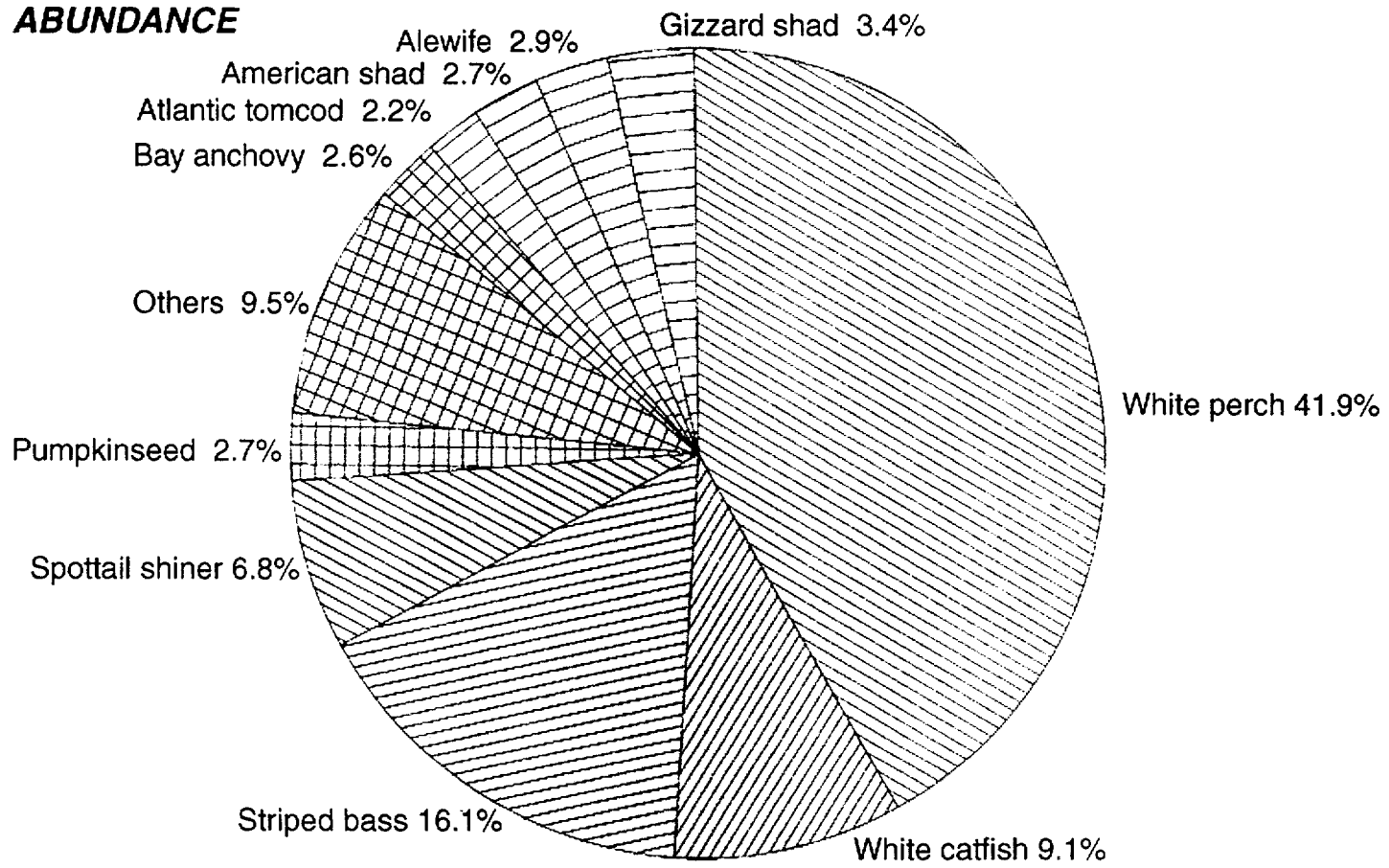
Striped bass, the second most abundant species collected in 1998 at Danskammer Point, was also present in impingement collections during all 12 months of 1998. This species was most abundant during June through December and had its greatest biomass in January and May-December (Tables 6-9, 6-10). Yearling and adult striped bass were primarily collected during May through September, and young-of-the-year were first impinged on collection days in June, becoming the dominant age class during August through December (Table 6-11, Appendix Table B-2.8).

White catfish, the species ranking third in abundance in 1998 at Danskammer Point, were impinged during every month. The months with the highest abundance were August-December. White catfish had the greatest biomass impinged of any species in November (Table 6-10). Young-of-the-year were the most abundant life stage during August through December and adults were present in small numbers throughout most of the year (Table 6-11, Appendix Table B-2.9).

6.3.2 Invertebrates

6.3.2.1 Roseton Generating Station

Three invertebrate taxa (blue crab, mud crab, and crayfish) were identified and counted during the 1998 impingement collections at Roseton (Table 6-12). The total number of invertebrates collected at Roseton in 1998 was 38,082. In 1998, at least one of the three invertebrate taxa appeared in the impingement collections at Roseton in all months except February and



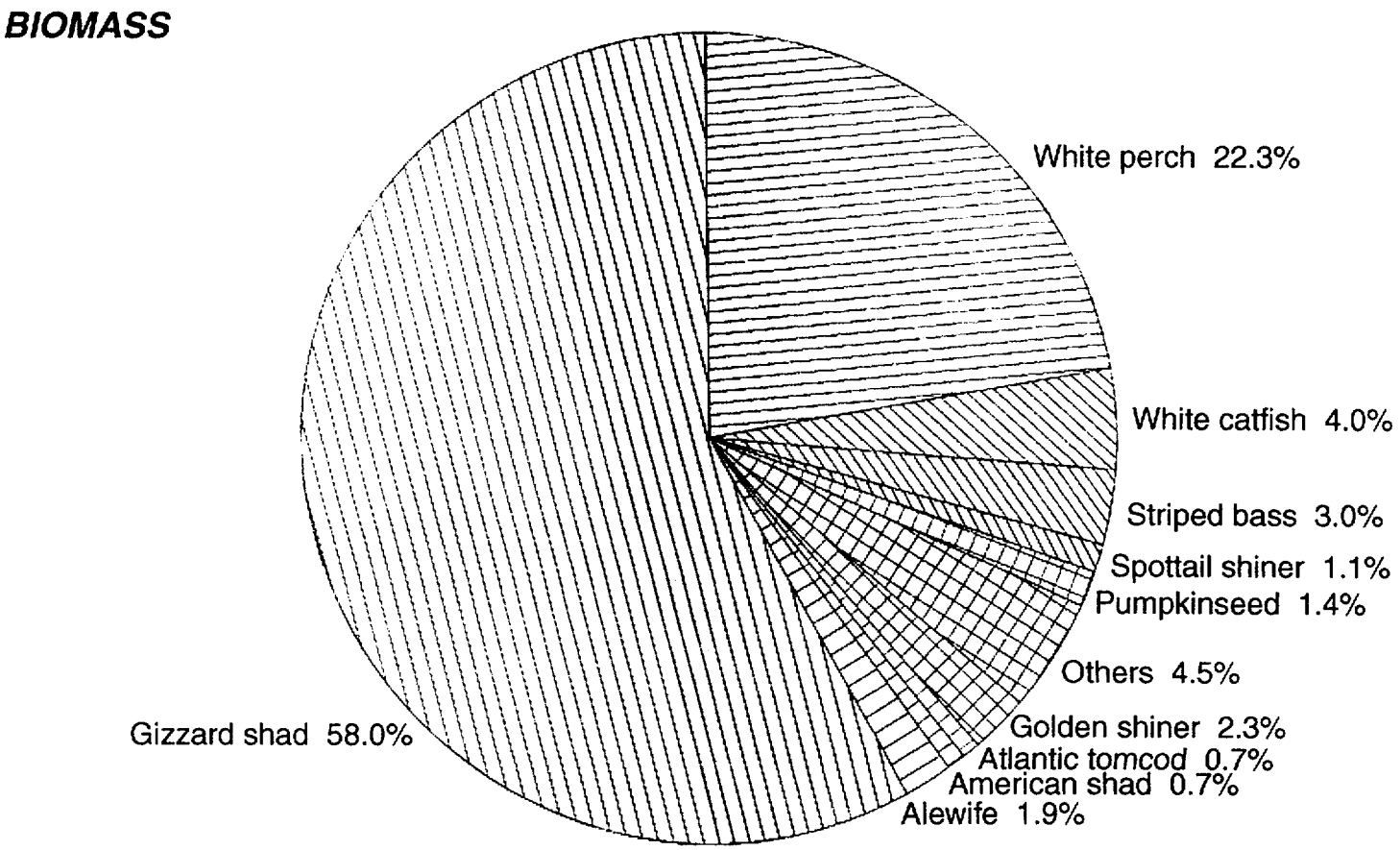


Figure 6-3. Relative abundance and relative biomass of fish species collected during impingement monitoring, Danskammer Point Generating Station, 1998.

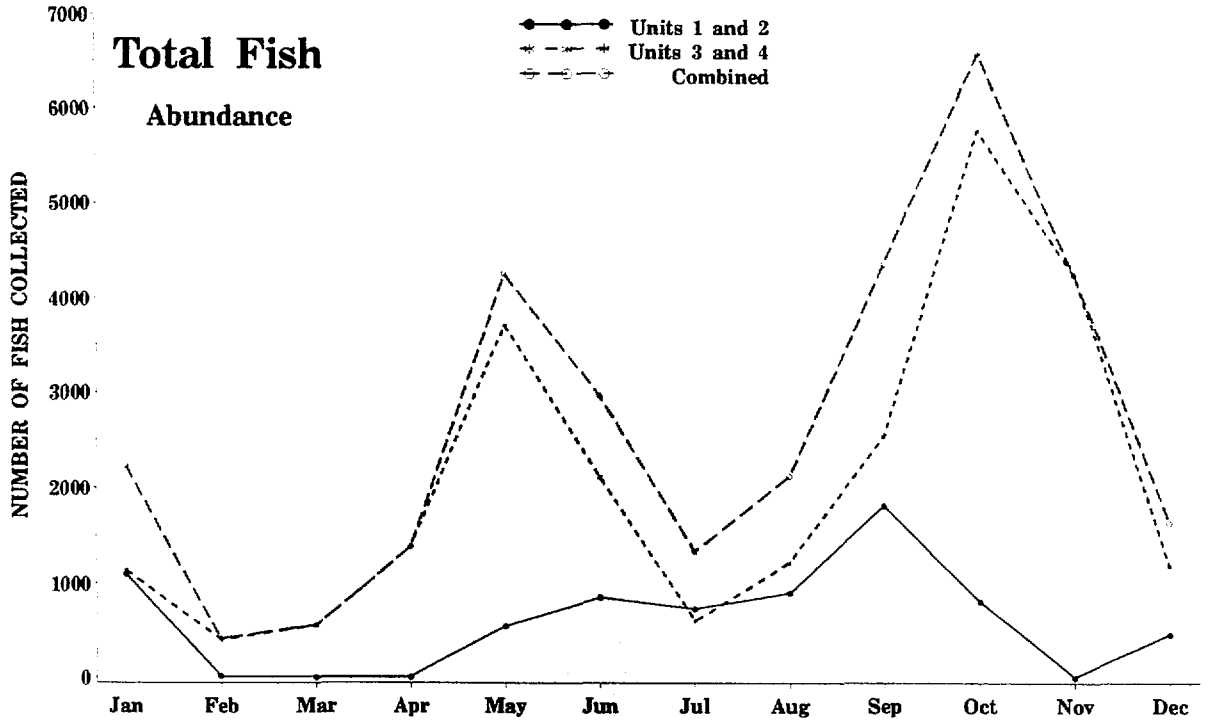
TABLE 6-9. MONTHLY COUNT AND PERCENT COMPOSITION OF FISH SPECIES IN IMPINGEMENT COLLECTIONS, DANSKAMMER POINT GENERATING STATION, 1998.

SPECIES	JAN		FEB		MAR		APR		MAY		JUN	
	NO.	PCNT	NO.	PCNT	NO.	PCNT	NO.	PCNT	NO.	PCNT	NO.	PCNT
Alewife	1	<0.1			16	2.9	2	0.1	54	1.3	60	2.0
American eel	1	<0.1			4	0.7	7	0.5	10	0.2	6	0.2
American shad									1	<0.1		
Atlantic croaker												
Atlantic menhaden												
Atlantic sturgeon												
Atlantic tomcod	156	7.0	20	4.8	31	5.6			51	1.2	278	9.4
Banded killifish	2	0.1	1	0.2	2	0.4					3	0.1
Bay anchovy									4	0.1	40	1.3
Black crappie	6	0.3	1	0.2	2	0.4			2	<0.1	1	<0.1
Blacknose dace									1	<0.1		
Blueback herring							9	0.6	58	1.4	18	0.6
Bluefish												
Bluegill	3	0.1					3	0.2	44	1.0	6	0.2
Bluntnose minnow									1	<0.1		
Brook silverside	1	<0.1										
Brown bullhead	16	0.7	2	0.5	2	0.4	108	7.8	157	3.7	66	2.2
Central mudminnow	1	<0.1					1	0.1				
Channel catfish	83	3.7	38	9.2	84	15.1	45	3.2	38	0.9	10	0.3
Common carp	14	0.6	1	0.2			3	0.2				
Crevalle jack												
Emerald shiner												
Fathead minnow							1	0.1	1	<0.1		
Freshwater drum	2	0.1	2	0.5	1	0.2	2	0.1			1	<0.1
Gizzard shad	806	36.1	31	7.5	31	5.6	4	0.3				
Golden shiner	331	14.8	78	18.8	18	3.2	14	1.0	18	0.4	2	0.1
Goldfish	25	1.1	1	0.2			1	0.1	3	0.1		
Herring family												
Hogchoker							3	0.2	5	0.1	3	0.1
Largemouth bass	8	0.4	1	0.2	1	0.2						
Mummichog							2	0.1				
Pumpkinseed	53	2.4	10	2.4	1	0.2	106	7.6	353	8.3	79	2.7
Rainbow smelt					1	0.2						
Redbreast sunfish							1	0.1	3	0.1	1	<0.1
Rock bass											1	<0.1
Shortnose sturgeon			1	0.2					1	<0.1		
Smallmouth bass												
Spottail shiner	287	12.9	136	32.8	80	14.3	156	11.3	698	16.4	249	8.4
Striped bass	9	0.4	1	0.2	4	0.7	8	0.6	70	1.6	109	3.7
Sunfish family	1	<0.1										
Tessellated darter	1	<0.1	1	0.2	1	0.2	42	3.0	27	0.6	5	0.2
Threespine stickleback	1	<0.1	14	3.4	3	0.5	1	0.1				
Weakfish												
White catfish	4	0.2	2	0.5	1	0.2	9	0.6	6	0.1	39	1.3
White perch	398	17.8	67	16.1	262	47.0	844	60.9	2649	62.2	1994	67.1
White sucker							1	0.1				
Yellow perch	20	0.9	7	1.7	13	2.3	13	0.9	7	0.2	2	0.1
TOTAL	2230	100.0	415	100.0	558	100.0	1386	100.0	4262	100.0	2973	100.0

(CONTINUED)

TABLE 6-9. (CONTINUED)

SPECIES	JUL NO.	JUL PCNT	AUG NO.	AUG PCNT	SEP NO.	SEP PCNT	OCT NO.	OCT PCNT	NOV NO.	NOV PCNT	DEC NO.	DEC PCNT
Alewife	87	6.5	102	4.8	113	2.6	320	4.9	166	3.9	22	1.3
American eel	11	0.8	3	0.1	9	0.2	7	0.1	4	0.1	2	0.1
American shad	14	1.0	29	1.4	142	3.3	495	7.5	176	4.1	9	0.6
Atlantic croaker									8	0.2	1	0.1
Atlantic menhaden	1	0.1			14	0.3	12	0.2	3	0.1		
Atlantic sturgeon							1	<0.1				
Atlantic tomcod	109	8.2	18	0.8	18	0.4	2	<0.1	4	0.1	28	1.7
Banded killifish												
Bay anchovy	18	1.3	59	2.8	497	11.4	200	3.0	4	0.1		
Black crappie			8	0.4			17	0.3	3	0.1	2	0.1
Blacknose dace												
Blueback herring	11	0.8	37	1.7	12	0.3	141	2.1	202	4.7	1	0.1
Bluefish			17	0.8	137	3.1	14	0.2				
Bluegill	15	1.1	9	0.4	30	0.7	64	1.0	15	0.4	14	0.9
Bluntnose minnow												
Brook silverside												
Brown bullhead	17	1.3	68	3.2	20	0.5	15	0.2	2	<0.1		
Central mudminnow												
Channel catfish	11	0.8	111	5.2	70	1.6	44	0.7	21	0.5	41	2.5
Common carp											1	0.1
Crevalle jack					18	0.4	10	0.2				
Emerald shiner							1	<0.1			5	0.3
Fathead minnow												
Freshwater drum			8	0.4	14	0.3	12	0.2	7	0.2	4	0.2
Gizzard shad			147	6.9	3	0.1	13	0.2	29	0.7	28	1.7
Golden shiner	1	0.1			1	<0.1	7	0.1	9	0.2	13	0.8
Goldfish	2	0.1										
Herring family			1	<0.1								
Hogchoker	2	0.1	2	0.1	21	0.5	31	0.5	9	0.2	4	0.2
Largemouth bass			2	0.1	2	<0.1	6	0.1	1	<0.1	2	0.1
Mummichog												
Pumpkinseed	39	2.9	15	0.7	38	0.9	148	2.3	14	0.3	5	0.3
Rainbow smelt												
Redbreast sunfish			2	0.1	1	<0.1	1	<0.1				
Rock bass	1	0.1	3	0.1	1	<0.1						
Shortnose sturgeon												
Smallmouth bass					1	<0.1					1	0.1
Spottail shiner	91	6.8	52	2.4	41	0.9	189	2.9	86	2.0	111	6.8
Striped bass	158	11.8	699	32.9	1700	39.1	2071	31.5	208	4.9	137	8.4
Sunfish family												
Tessellated darter	4	0.3	1	<0.1	1	<0.1	3	<0.1			1	0.1
Threespine stickleback												
Weakfish					24	0.6	7	0.1				
White catfish	25	1.9	116	5.5	300	6.9	662	10.1	1640	38.5	131	8.0
White perch	719	53.8	614	28.9	1124	25.8	2081	31.6	1648	38.7	1070	65.4
White sucker												
Yellow perch	1	0.1	1	<0.1			2	<0.1	2	<0.1	3	0.2
TOTAL	1337	100.0	2124	100.0	4352	100.0	6576	100.0	4261	100.0	1636	100.0



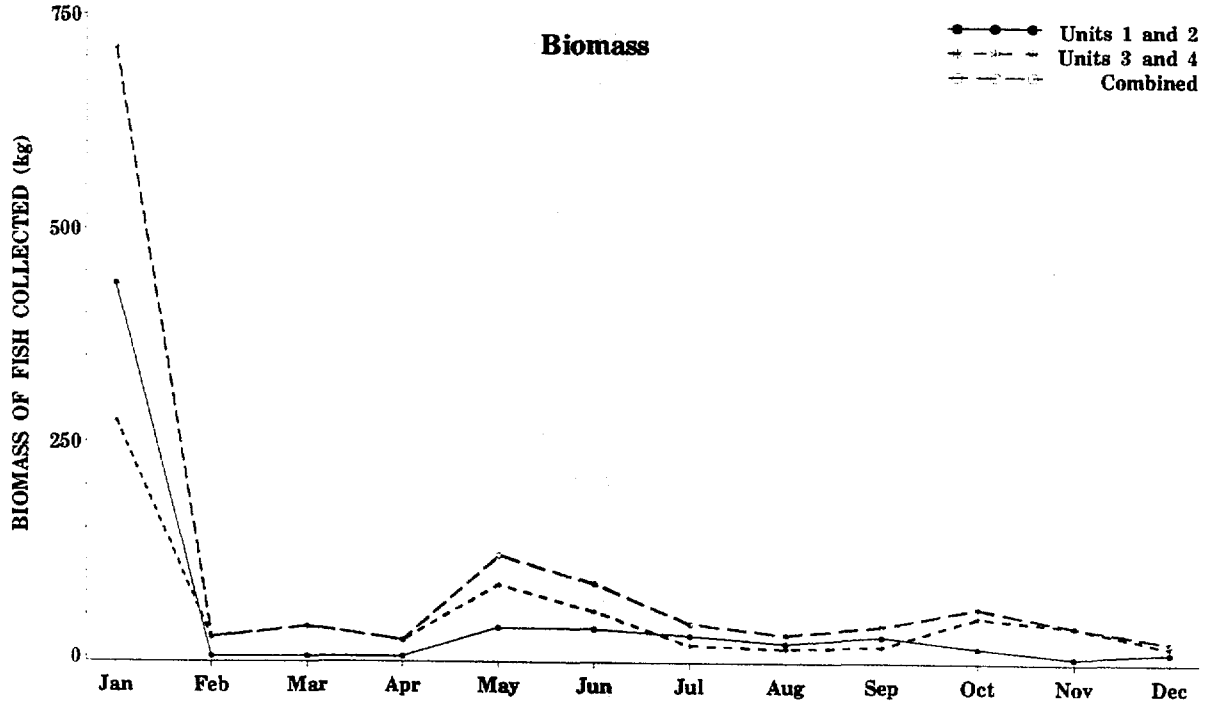


Figure 6-4. Monthly impingement abundance and biomass, Danskammer Point Generating Station, 1998.

TABLE 6-10. MONTHLY BIOMASS AND PERCENT COMPOSITION OF FISH SPECIES IN IMPINGEMENT COLLECTIONS, DANSKAMMER POINT GENERATING STATION, 1998.

	JAN		FEB		MAR		APR		MAY		JUN	
SPECIES	GM.	PCNT	GM.	PCNT	GM.	PCNT	GM.	PCNT	GM.	PCNT	GM.	PCNT
Alewife	262	<0.1			3555	9.9	272	1.4	4102	3.4	1635	1.9
American eel	406	0.1			91	0.3	418	2.1	645	0.5	541	0.6
American shad									635	0.5		
Atlantic croaker												
Atlantic menhaden												
Atlantic sturgeon												
Atlantic tomcod	3953	0.6	455	1.9	787	2.2			160	0.1	1146	1.3
Banded killifish	9	<0.1	3	<0.1	11	<0.1					11	<0.1
Bay anchovy									13	<0.1	130	0.1
Black crappie	217	<0.1	33	0.1	13	<0.1			12	<0.1	28	<0.1
Blacknose dace									3	<0.1		
Blueback herring							39	0.2	3392	2.8	1397	1.6
Bluefish												
Bluegill	74	<0.1					186	0.9	1212	1.0	367	0.4
Bluntnose minnow									2	<0.1		
Brook silverside	2	<0.1										
Brown bullhead	506	0.1	12	0.1	202	0.6	1246	6.2	2056	1.7	1579	1.8
Central mudminnow	3	<0.1					4	<0.1				
Channel catfish	1227	0.2	427	1.8	917	2.6	498	2.5	349	0.3	143	0.2
Common carp	722	0.1	63	0.3			103	0.5				
Crevalle jack												
Emerald shiner												
Fathead minnow							2	<0.1	2	<0.1		
Freshwater drum	24	<0.1	20	0.1	442	1.2	45	0.2			30	<0.1
Gizzard shad	662878	93.2	15122	63.5	21195	59.3	3379	16.7				
Golden shiner	21725	3.1	3704	15.5	722	2.0	404	2.0	612	0.5	133	0.2
Goldfish	763	0.1	23	0.1			51	0.3	243	0.2		
Herring family												
Hogchoker							64	0.3	56	<0.1	17	<0.1
Largemouth bass	99	<0.1	30	0.1	15	<0.1						
Mummichog							9	<0.1				
Pumpkinseed	834	0.1	205	0.9	2	<0.1	2328	11.5	6838	5.7	1456	1.7
Rainbow smelt					17	<0.1						
Redbreast sunfish							92	0.5	213	0.2	54	0.1
Rock bass											123	0.1
Shortnose sturgeon			1686	7.1					1704	1.4		
Smallmouth bass												
Spottail shiner	1822	0.3	649	2.7	471	1.3	752	3.7	3980	3.3	1492	1.7
Striped bass	1138	0.2	3	<0.1	74	0.2	220	1.1	4371	3.7	1298	1.5
Sunfish family	3	<0.1										
Tessellated darter	3	<0.1	3	<0.1	3	<0.1	114	0.6	94	0.1	14	<0.1
Threespine stickleback	2	<0.1	29	0.1	7	<0.1	1	<0.1				
Weakfish												
White catfish	279	<0.1	23	0.1	502	1.4	1539	7.6	2864	2.4	3489	4.0
White perch	12520	1.8	741	3.1	5493	15.4	7365	36.5	85551	71.5	71405	82.4
White sucker							3	<0.1				
Yellow perch	2030	0.3	598	2.5	1253	3.5	1042	5.2	587	0.5	162	0.2
TOTAL (KG)	711.5	100.0	23.8	100.0	35.8	100.0	20.2	100.0	119.7	100.0	86.6	100.0

(CONTINUED)

TABLE 6-10. (CONTINUED)

SPECIES	JUL GM.	JUL PCNT	AUG GM.	AUG PCNT	SEP GM.	SEP PCNT	OCT GM.	OCT PCNT	NOV GM.	NOV PCNT	DEC GM.	DEC PCNT
Alewife	1467	3.7	1580	5.8	2541	6.9	4701	8.0	2176	5.9	834	4.5
American eel	770	1.9	27	0.1	562	1.5	143	0.2	1105	3.0	763	4.1
American shad	97	0.2	175	0.6	1186	3.2	4752	8.1	1919	5.2	101	0.5
Atlantic croaker									3	<0.1	0	<0.1
Atlantic menhaden	19	<0.1			39	0.1	62	0.1	27	0.1		
Atlantic sturgeon							25	<0.1				
Atlantic tomcod	646	1.6	84	0.3	61	0.2	8	<0.1	67	0.2	1004	5.4
Banded killifish												
Bay anchovy	62	0.2	209	0.8	1258	3.4	282	0.5	10	<0.1		
Black crappie			78	0.3			1296	2.2	199	0.5	157	0.8
Blacknose dace												
Blueback herring	136	0.3	409	1.5	86	0.2	886	1.5	1051	2.8	3	<0.1
Bluefish			140	0.5	1801	4.9	326	0.6				
Bluegill	359	0.9	304	1.1	1240	3.4	1665	2.8	330	0.9	852	4.6
Bluntnose minnow												
Brook silverside												
Brown bullhead	463	1.2	727	2.7	185	0.5	330	0.6	17	<0.1		
Central mudminnow												
Channel catfish	255	0.6	593	2.2	327	0.9	368	0.6	161	0.4	378	2.0
Common carp											9	<0.1
Crevalle jack					211	0.6	380	0.7				
Emerald shiner							6	<0.1			31	0.2
Fathead minnow												
Freshwater drum			26	0.1	87	0.2	198	0.3	111	0.3	44	0.2
Gizzard shad			1150	4.2	17	<0.1	178	0.3	344	0.9	612	3.3
Golden shiner	109	0.3			21	0.1	250	0.4	186	0.5	182	1.0
Goldfish	74	0.2										
Herring family			1	<0.1								
Hogchoker	18	<0.1	1	<0.1	12	<0.1	81	0.1	42	0.1	24	0.1
Largemouth bass			16	0.1	29	0.1	139	0.2	74	0.2	282	1.5
Mummichog												
Pumpkinseed	1218	3.1	331	1.2	1150	3.1	2317	4.0	188	0.5	125	0.7
Rainbow smelt												
Redbreast sunfish			111	0.4	2	<0.1	46	0.1				
Rock bass	244	0.6	384	1.4	235	0.6						
Shortnose sturgeon												
Smallmouth bass					9	<0.1					8	<0.1
Spottail shiner	629	1.6	384	1.4	291	0.8	1551	2.7	603	1.6	741	4.0
Striped bass	1856	4.7	4001	14.7	7768	21.0	13153	22.5	1445	3.9	1292	6.9
Sunfish family												
Tessellated darter	16	<0.1	5	<0.1	4	<0.1	7	<0.1			5	<0.1
Threespine stickleback												
Weakfish					157	0.4	116	0.2				
White catfish	8590	21.7	5694	20.9	3098	8.4	6070	10.4	15719	42.4	975	5.2
White perch	22571	56.9	10700	39.3	14610	39.5	19085	32.6	11284	30.4	10236	54.7
White sucker												
Yellow perch	69	0.2	67	0.2			35	0.1	30	0.1	42	0.2
TOTAL (KG)	39.7	100.0	27.2	100.0	37.0	100.0	58.5	100.0	37.1	100.0	18.7	100.0

TABLE 6-11. MONTHLY SUMMARY OF LENGTH DATA FOR SELECTED IMPINGED SPECIES, DANSKAMMER POINT GENERATING STATION, 1998.[a]

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Alewife	TOTAL ANAL.	1	0	16	2	53	58	80	97	85	212	164	22
	MEAN LENGTH	29.5	0	28.4	19.8	19.2	14.5	12.1	11.3	14.1	12.5	11.8	16.6
	MIN. LENGTH	29.5	0	24.4	8.5	8.2	10.2	5.4	5.7	8.4	7.4	6.9	8.7
	MAX. LENGTH	29.5	0	31.0	31.1	30.0	27.7	17.7	24.7	18.8	19.7	18.8	19.1
American shad	TOTAL ANAL.	0	0	0	0	1	0	12	22	106	213	144	9
	MEAN LENGTH	0	0	0	0	40.9	0	9.0	9.4	10.5	11.1	11.5	11.7
	MIN. LENGTH	0	0	0	0	40.9	0	6.1	8.4	8.1	9.4	9.7	10.6
	MAX. LENGTH	0	0	0	0	40.9	0	17.1	11.7	15.7	21.5	33.2	12.4
Atlantic tomcod	TOTAL ANAL.	153	20	31	0	50	164	73	17	16	2	4	28
	MEAN LENGTH	14.5	14.4	14.6	0	6.6	7.9	8.7	8.3	7.8	8.2	12.5	15.3
	MIN. LENGTH	10.6	10.8	11.6	0	4.1	5.8	6.4	6.9	7.0	7.8	10.6	11.2
	MAX. LENGTH	24.1	27.3	25.5	0	16.7	10.6	16.2	10.4	8.8	8.6	14.1	28.3
Bay anchovy	TOTAL ANAL.	0	0	0	0	4	36	18	47	233	150	4	0
	MEAN LENGTH	0	0	0	0	7.4	7.8	7.8	7.9	6.4	5.9	6.5	0
	MIN. LENGTH	0	0	0	0	6.9	6.2	7.1	2.8	3.0	3.0	3.8	0
	MAX. LENGTH	0	0	0	0	7.8	8.4	8.7	9.4	9.9	9.8	8.8	0
Gizzard shad	TOTAL ANAL.	346	31	31	4	0	0	0	109	3	12	29	28
	MEAN LENGTH	34.3	28.6	35.4	39.9	0	0	0	8.2	8.2	10.8	11.0	12.8
	MIN. LENGTH	10.5	14.2	16.9	20.2	0	0	0	5.7	6.4	8.7	8.5	8.9
	MAX. LENGTH	54.6	53.5	50.7	47.3	0	0	0	43.2	10.6	16.4	15.6	22.2
Pumpkinseed	TOTAL ANAL.	53	10	1	106	301	79	37	14	34	146	14	5
	MEAN LENGTH	7.8	8.8	5.1	9.8	9.7	9.3	11.2	10.6	11.3	8.6	8.4	11.0
	MIN. LENGTH	4.9	4.6	5.1	5.4	4.7	5.0	6.1	7.7	5.3	4.4	5.4	6.1
	MAX. LENGTH	18.9	16.1	5.1	17.0	17.8	16.1	18.4	15.5	17.3	17.8	13.1	13.3
Spottail shiner	TOTAL ANAL.	266	128	80	144	406	153	84	50	34	105	86	111
	MEAN LENGTH	9.1	8.3	9.1	8.2	9.0	9.2	9.3	9.4	9.3	9.4	9.5	9.3
	MIN. LENGTH	5.0	5.7	6.1	4.9	5.3	6.5	7.8	6.0	5.6	6.1	7.0	6.7
	MAX. LENGTH	12.3	15.2	11.4	14.3	12.5	12.5	11.6	11.1	11.5	11.9	12.2	13.0
Striped bass	TOTAL ANAL.	9	1	4	8	70	109	157	307	428	434	184	137
	MEAN LENGTH	15.3	7.7	11.9	11.8	11.6	10.8	9.5	8.2	9.1	8.9	8.7	9.6
	MIN. LENGTH	7.5	7.7	9.5	6.3	7.6	2.0	2.1	4.8	4.4	5.6	5.6	5.8
	MAX. LENGTH	46.6	7.7	18.3	26.5	63.2	20.0	34.9	29.4	26.0	30.2	24.0	16.5
White catfish	TOTAL ANAL.	4	2	1	9	5	38	24	104	201	348	336	103
	MEAN LENGTH	14.5	9.8	33.5	17.5	25.6	13.9	24.7	9.2	8.3	9.1	9.6	9.0
	MIN. LENGTH	7.5	6.7	33.5	5.3	8.5	6.0	5.0	4.2	5.0	5.8	5.6	4.9
	MAX. LENGTH	26.3	12.9	33.5	42.2	42.0	45.3	44.5	44.7	44.4	40.5	37.8	11.2
White perch	TOTAL ANAL.	310	67	248	367	568	655	605	453	613	604	416	510
	MEAN LENGTH	11.6	8.9	10.8	9.2	11.3	12.7	12.8	10.5	10.2	9.4	9.1	9.6
	MIN. LENGTH	6.0	5.3	5.5	5.0	4.9	5.8	5.3	3.4	4.9	4.8	5.0	5.2
	MAX. LENGTH	22.7	17.8	22.6	22.5	23.7	26.0	28.6	30.4	26.3	22.0	19.9	17.8
Blue crab	TOTAL ANAL.	4	0	0	3	220	364	506	400	400	483	346	126
	MEAN LENGTH	5.2	0	0	3.8	5.4	6.7	8.1	9.9	6.5	5.4	4.1	3.6
	MIN. LENGTH	4.1	0	0	1.7	1.9	1.9	2.5	1.0	0.9	1.5	1.2	1.6
	MAX. LENGTH	6.5	0	0	6.1	9.2	12.4	14.7	16.7	16.7	16.3	14.8	6.5

[a]Lengths are in centimeters.

TABLE 6-12. INVERTEBRATE ABUNDANCE AND PERCENT COMPOSITION, ROSETON AND DANSKAMMER POINT GENERATING STATIONS, 1998.

		BLUE CRAB		CRAYFISH		MUD CRAB		TOTAL	
PLANT	MONTH	NO.	%	NO.	%	NO.	%	NO.	%
ROSETON	JAN					1	100.0	1	100.0
	FEB								
	MAR								
	APR	4	9.5			38	90.5	42	100.0
	MAY	1335	99.5	1	0.1	6	0.4	1342	100.0
	JUN	2294	100.0	1	0.0			2295	100.0
	JUL	2008	100.0	1	0.0			2009	100.0
	AUG	4257	100.0	1	0.0	1	0.0	4259	100.0
	SEP	17334	100.0	2	0.0	2	0.0	17338	100.0
	OCT	7821	99.9			8	0.1	7829	100.0
	NOV	2852	99.4			16	0.6	2868	100.0
	DEC	87	87.9			12	12.1	99	100.0
	TOTAL	37992	99.8	6	0.0	84	0.2	38082	100.0
DANSKAMMER	JAN	4	80.0			1	20.0	5	100.0
	FEB								
	MAR								
	APR	3	2.0	4	2.6	144	95.4	151	100.0
	MAY	694	95.5			33	4.5	727	100.0
	JUN	1587	99.4	4	0.3	5	0.3	1596	100.0
	JUL	1210	99.8	2	0.2	1	0.1	1213	100.0
	AUG	2600	99.8	3	0.1	1	0.0	2604	100.0
	SEP	6530	100.0	1	0.0			6531	100.0
	OCT	4075	99.8			7	0.2	4082	100.0
	NOV	1066	96.2			42	3.8	1108	100.0
	DEC	150	46.3			174	53.7	324	100.0
	TOTAL	17919	97.7	14	0.1	408	2.2	18341	100.0

March. The highest monthly impingement count for invertebrates occurred during September with 17,338 individuals, or 45.5% of the total collected in 1998. In 1998 at Roseton, blue crab ranked first among invertebrates in overall abundance with 37,992 individuals (99.8%); mud crabs followed with 84 individuals and crayfish were third, with only six individuals collected (Table 6-12).

Abundance of blue crab in 1998 ranked second among the 13 years of invertebrate collections (Table 6-13). At Roseton there was a trend of increasing blue crab counts in four of the five years from 1987-1991. This was followed by declines in both 1992 and 1993, increases in 1994 and 1995, an abrupt decrease in 1996, and sharp increases in 1997 and 1998.

The blue crab impingement collections at Roseton were dominated by males in a ratio of 3.4:1 (77.2% males, 22.8% females; Table 6-14), which is to be expected due to the tendency for males to be more abundant than females in higher reaches of estuaries where salinity is lower (Hamer 1955, Williams 1984).

6.3.2.2 Danskammer Point Generating Station

A total of 18,341 invertebrates representing three taxa were collected at Danskammer Point in 1998. Blue crab accounted for 17,919 individuals or 97.7% of the total, followed by mud crab (408, 2.2%) and crayfish with 14 individuals (Table 6-12). Blue crab was the dominant species from May through November.

At least one of the three invertebrate taxa appeared in the Danskammer Point impingement collections in every month except February and March 1998 and were most abundant in September (6,531 or 35.6% of the annual total). Mud crab reached peaks in April (144) and December (174) and crayfish were collected sporadically from April through September (Table 6-12).

The number of blue crabs impinged at Danskammer Point followed a similar pattern among years to the Roseton counts, peaking at 15,944 individuals in 1991 and 9,036 individuals in 1992 (Table 6-13). The blue crab abundance approximately doubled from 1994 to 1995, then decreased by 92.9% from 1995 to 1996 before rebounding to 10,868 in 1997 and reaching its highest level of 17,919 in 1998.

TABLE 6-13. MONTHLY BLUE CRAB IMPINGEMENT COUNTS, ROSETON AND DANSKAMMER POINT GENERATING STATIONS, 1986-1998.

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
ROSETON													
1986	0	0	0	0	0	0	0	9	3	3	0	0	15
1987	0	0	0	0	1	0	2	62	119	157	11	0	352
1988	0	0	0	0	2	57	129	388	862	464	69	1	1,972
1989	0	1	0	0	2	783	490	999	1,615	845	196	0	4,931
1990	0	0	0	0	0	31	214	257	235	198	76	2	1,013
1991	0	0	0	0	28	624	1,084	19,180	40,522	4,072	929	0	66,439
1992	0	0	1	0	947	5,147	7,402	6,348	4,758	1,193	111	3	25,910
1993	0	0	0	0	0	5	409	229	374	111	74	2	1,204
1994	0	0	0	0	1	4	40	2,221	1,006	394	337	26	4,029
1995	0	1	0	0	1,617	1,406	4,509	2,926	195	579	92	0	11,325
1996	0	0	0	0	0	11	64	129	38	63	37	1	343
1997	0	0	0	0	0	27	94	3,190	3,568	3,587	1,444	1	11,911
1998	0	0	0	4	1,335	2,294	2,008	4,257	17,334	7,821	2,852	87	37,992
DANSKAMMER POINT													
1986	0	0	0	0	1	0	1	17	15	2	2	0	38
1987	0	0	0	0	2	3	5	40	64	91	29	0	234
1988	0	0	0	0	0	37	287	415	383	783	500	1	2,406
1989	0	0	0	0	1	238	272	640	706	422	312	1	2,592
1990	0	0	0	0	0	7	58	152	123	167	28	0	535
1991	0	0	0	0	0	155	309	2,976	8,361	3,326	810	7	15,944
1992	0	0	0	1	64	871	4,071	2,239	946	791	52	1	9,036
1993	0	2	0	0	0	4	276	297	306	138	73	0	1,096
1994	1	1	0	0	0	6	37	1,442	1,436	213	164	31	3,331
1995	0	0	1	0	287	1,004	2,547	1,571	969	603	361	0	7,343
1996	0	0	0	0	0	7	78	118	125	132	60	0	520
1997	0	0	0	0	0	3	213	5,038	3,986	1,045	580	3	10,868
1998	4	0	0	3	694	1,587	1,210	2,600	6,530	4,075	1,066	150	17,919

TABLE 6-14. MONTHLY BLUE CRAB IMPINGEMENT COUNTS BY SEX, ROSETON AND DANSKAMMER POINT GENERATING STATIONS, 1998.[a]

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
ROSETON	SEX													
	MALE				3	224	309	362	279	295	385	305	69	2231
	FEMALE				1	38	77	125	121	104	111	70	12	659
	UNKNOWN									1				1
	TOTAL				4	262	386	487	400	400	496	375	81	2891
DANSKAMMER	SEX													
	MALE	3			2	180	290	390	304	306	373	274	99	2221
	FEMALE	1			1	40	74	116	94	92	110	71	27	626
	UNKNOWN								2	2		1		5
	TOTAL	4			3	220	364	506	400	400	483	346	126	2852

[a]Sex determinations were done on a subsample of the total impingement count.

The 1998 blue crab population at Danskammer Point was dominated by males (78.0%) in a 3.5:1 ratio (Table 6-14).

6.4 DIEL IMPINGEMENT PATTERNS

The 6-hr impingement sampling intervals during each 24-hr collection period at Roseton and Danskammer Point permitted the data to be grouped into periods characterized as day (0900-1500 hrs), dusk (1500-2100 hrs), night (2100-0300 hrs) and dawn (0300-0900 hrs). Annual impingement counts for two age groups, young-of-the-year and older (yearling through adult), were examined in impingement collections for the four most abundant fish species at each plant to describe diel impingement patterns. Specimens that could not be measured due to damage were excluded from this analysis, because age categories were based on length.

6.4.1 Roseton Generating Station

The four most abundant species in impingement collections at Roseton in 1998 were examined for diel impingement patterns. White perch, bay anchovy, blueback herring, and spottail shiner accounted for 73.9% of the total abundance in 1998. Diel impingement collection information for Roseton is presented in Figure 6-5.

White perch was the most abundant species in impingement collections at Roseton in 1998. Nearly one-third of the young-of-the-year white perch were collected during the night diel period, and nearly as many were collected during dusk samples. The remainder were mostly impinged in the dawn period, with relatively few occurring in day collections. Nearly 50% of the yearlings and adults were collected during the night, with successively smaller numbers impinged during dawn, dusk, and day collections.

Bay anchovy ranked second in impingement collections at Roseton in 1998. Young-of-the-year bay anchovy were mostly collected during the night and dusk periods. Yearling and adult bay anchovy were most commonly collected in night impingement samples, and least commonly collected in day samples.

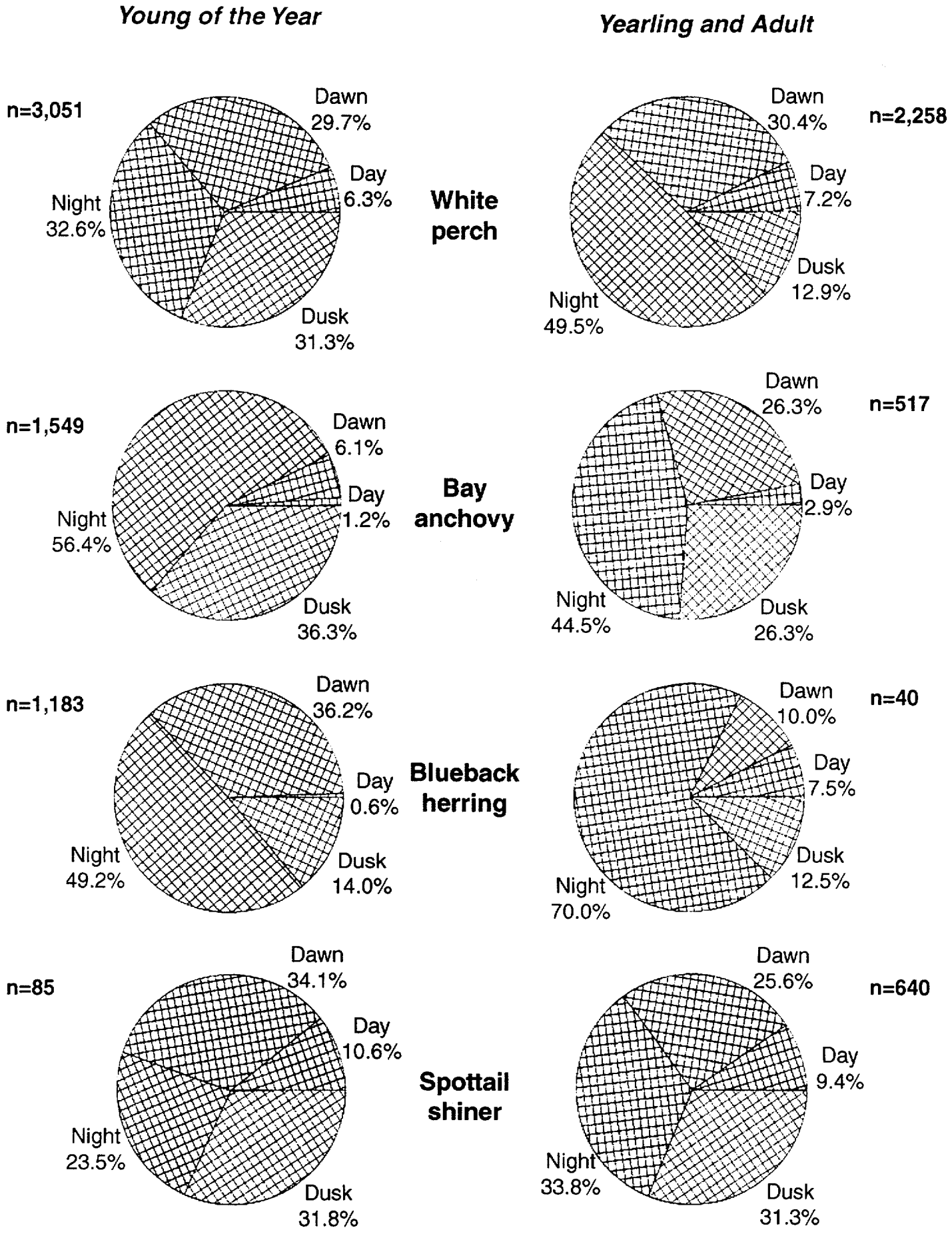


Figure 6-5. Diel collection for the four most abundant species by age class, Roseton Generating Station, 1998.

Blueback herring was the third most abundant species in impingement collections at Roseton in 1998. Nearly half of the young-of-the-year were collected at night and over one-third were collected in dawn samples. Very few were collected in the day samples (Figure 6-5). Seventy percent of the yearling and adult blueback herring were collected at night, with the remainder occurring about equally in the other three sampling periods.

Spottail shiner was the fourth most abundant species in impingement collections at Roseton in 1998. The majority of the young-of-the-year appeared in dawn and dusk collections. Yearlings and adult spottail shiner were most often collected in night and dusk impingement samples. Both age groups were least often collected during the day, similar to the other three species.

6.4.2 Danskammer Point Generating Station

The four most abundant species in impingement collections at Danskammer Point Station in 1998 were examined for diel abundance patterns. At Danskammer, white perch, striped bass, white catfish, and spottail shiner represented 74.0% of the total abundance in 1998 (Table 6-8, Figure 6-2). Diel impingement collection information for these four species at Danskammer Point is presented by age group in Figure 6-6.

White perch was the most abundant species in impingement collections at Danskammer Point in 1998. The largest proportion of both age classes (young-of-the-year and yearling/adult) were collected at night, and most of the others were in dusk or dawn samples (Figure 6-6). During the day diel sampling period, the lowest numbers were collected, approximately 12% for both age groups.

Striped bass was the second most abundant species in impingement collections at Danskammer Point in 1998. Young-of-the-year and yearling/adult striped bass were similar in their diel distribution patterns. Both age groups were most abundant in the night diel period and least abundant in the day period.

White catfish was the third most abundant species in impingement collections at Danskammer Point in 1998. Nearly half of the young-of-the-year were collected in night samples,

and only 7.2% were collected in day samples. Over 38% of the yearlings and adults were collected at night, with day and dusk accounting for the smallest numbers collected.

Spottail shiner ranked fourth in impingement collections at Danskammer Point in 1998. Yearling and older fish, which represented the majority of the year's catch, were most numerous at night (42%) and least numerous in the day (8%). The young-of-the-year were most abundant in dusk and dawn collections

6.5 IMPINGEMENT PATTERNS FOR SELECTED TAXA

Impingement data for total fish and for selected individual species extrapolated from collection dates to include all dates ("estimated impingement") are used for comparisons among age classes and among years in Section 6.5.1 and for analysis of seasonal patterns in Section 6.5.2. Estimated impingement abundance and biomass are presented in Appendices C and D, respectively, for total fish, selected fish species, and blue crabs on a weekly and monthly basis by plant. Selected fish species included in Appendices C and D for both plants include eight species that have historically been considered key species for this program: alewife, American shad, Atlantic tomcod, bay anchovy, blueback herring, rainbow smelt, striped bass, and white perch. Any fish species that ranked in the top 10 in abundance or biomass collected in 1998 at one of the two plants is included in Appendices C and D for that plant.

6.5.1 Estimated Impingement by Age Class and Comparison to Historical Impingement Rates

Estimated numbers of fish impinged during each month in 1998 are shown for the historically abundant species alewife, American shad, Atlantic tomcod, bay anchovy, blueback herring, spottail shiner, striped bass, and white perch by age class in Table 6-15 (Roseton) and Table 6-16 (Danskammer Point). The monthly totals for all age classes combined (including any that could not be assigned to length class due to damage) are shown in Appendix C. In the following sections, percentages by age class refer to the percentages among the total number of those fish that could be assigned to an age class, as presented in Tables 6-15 and 6-16. Annual impingement rates presented graphically for the same eight historically abundant species are for all age classes combined.

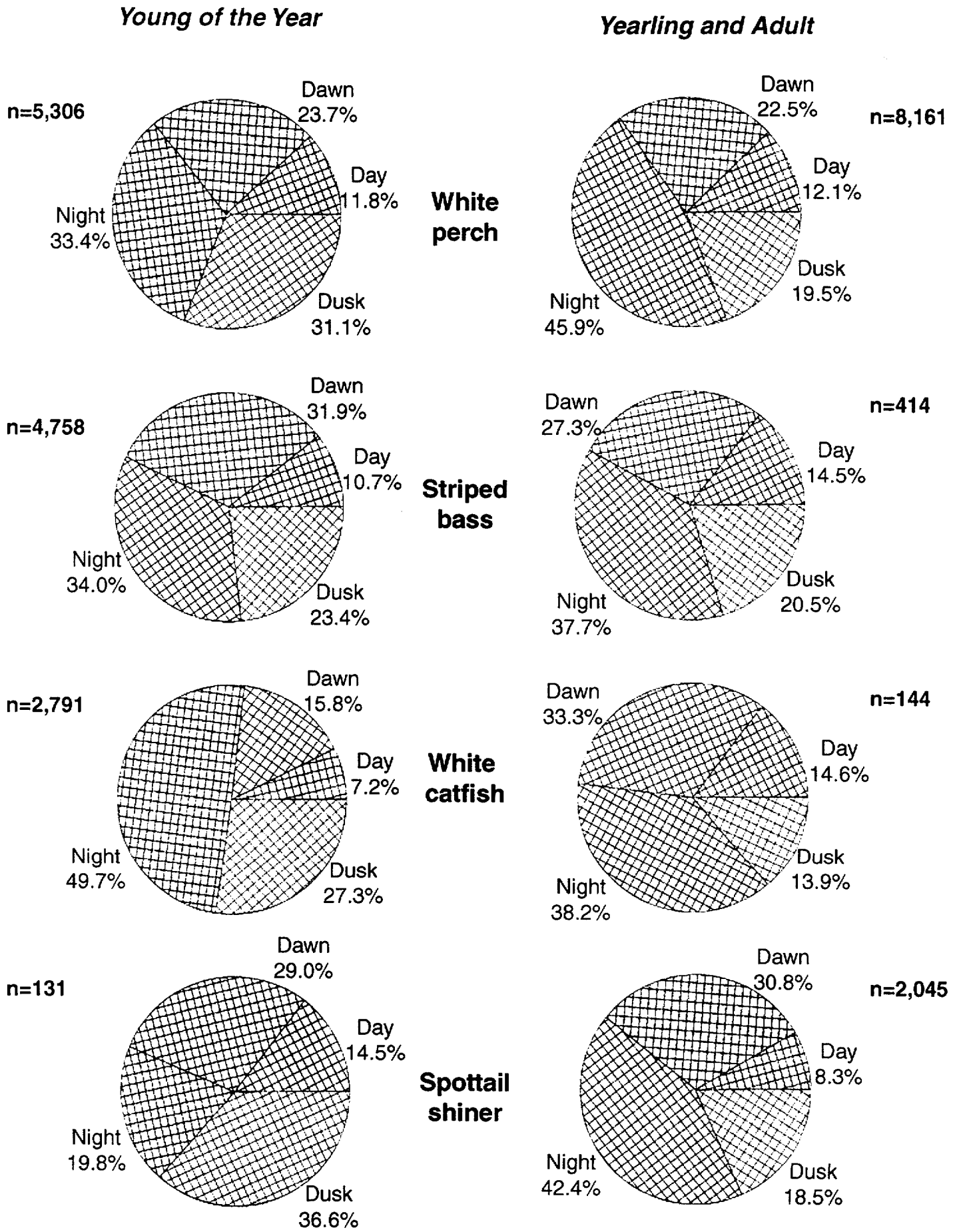


Figure 6-6. Diel collection for the four most abundant species by age class, Danskammer Point Generating Station, 1998.

TABLE 6-15. ESTIMATED MONTHLY IMPINGEMENT BY AGE CLASS FOR SELECTED SPECIES AT ROSETON GENERATING STATION, 1998.

	Alewife			American shad			Atlantic tomcod			Bay anchovy		
	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT
JAN	0	41	0	0	0	0	0	52	10	0	0	0
FEB	0	0	0	0	0	0	0	13	0	0	0	0
MAR	0	16	8	0	0	0	0	0	0	0	0	0
APR	0	7	0	0	0	0	0	0	0	0	0	0
MAY	0	61	15	0	0	0	53	0	0	0	15	7
JUN	0	112	16	87	0	0	325	0	0	0	454	0
JUL	32	37	0	88	0	0	158	0	0	0	114	0
AUG	124	23	0	8	0	0	269	0	0	179	476	0
SEP	36	16	0	39	0	0	50	0	0	492	1347	0
OCT	284	15	0	246	0	0	0	0	0	7789	1030	0
NOV	455	0	0	209	0	0	0	0	0	60	38	0
DEC	8	0	0	0	0	0	0	0	0	0	0	0
TOTAL	938	329	39	677	0	0	855	65	10	8520	3474	7

	Blueback herring			Spottail shiner			Striped bass			White perch		
	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT
JAN	0	0	0	0	1168	424	0	165	0	0	1033	450
FEB	0	0	0	0	418	118	0	0	0	0	268	46
MAR	0	0	0	0	637	172	0	0	0	0	855	113
APR	0	39	0	0	693	146	0	35	0	0	5902	99
MAY	0	31	31	0	353	54	0	16	0	0	2865	328
JUN	0	67	44	0	166	0	12	38	6	7	2032	1645
JUL	14	0	0	55	112	0	223	4	0	28	133	139
AUG	41	15	16	15	35	0	488	24	0	1974	38	47
SEP	24	11	0	30	36	0	399	8	0	2323	8	46
OCT	2772	0	0	138	31	0	1701	0	0	7049	26	37
NOV	3767	0	0	256	31	0	680	0	0	8119	109	15
DEC	20	0	0	117	44	0	102	0	0	1518	36	0
TOTAL	6637	164	91	611	3725	913	3605	290	6	21019	13305	2966

YOY - YOUNG-OF-THE-YEAR

TABLE 6-16. ESTIMATED MONTHLY IMPINGEMENT BY AGE CLASS FOR SELECTED SPECIES AT DANSKAMMER POINT GENERATING STATION, 1998.

	Alewife			American shad			Atlantic tomcod			Bay anchovy		
	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT
JAN	0	0	5	0	0	0	0	1061	23	0	0	0
FEB	0	0	0	0	0	0	0	138	8	0	0	0
MAR	0	0	125	0	0	0	0	234	8	0	0	0
APR	0	5	8	0	0	0	0	0	0	0	0	0
MAY	0	152	188	0	0	6	276	41	0	0	22	0
JUN	0	384	52	0	0	0	1864	86	0	0	294	0
JUL	101	422	0	60	11	0	764	15	0	0	132	0
AUG	507	286	8	223	0	0	139	0	0	39	418	0
SEP	227	603	0	1059	8	0	137	0	0	1846	1813	0
OCT	1412	524	0	3005	6	0	11	0	0	983	201	0
NOV	1043	105	0	1214	0	7	27	0	0	14	14	0
DEC	25	112	0	59	0	0	123	9	0	0	0	0
TOTAL	3315	2591	385	5620	25	13	3342	1585	39	2883	2894	0

	Blueback herring			Spottail shiner			Striped bass			White perch		
	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT
JAN	0	0	0	0	856	1094	0	59	24	0	1119	2086
FEB	0	0	0	0	621	311	0	7	0	0	386	93
MAR	0	0	0	0	335	288	0	23	8	0	1232	810
APR	0	42	0	0	797	276	0	38	5	0	5196	700
MAY	0	234	156	0	3141	1297	0	471	18	0	8291	8124
JUN	0	27	99	0	1727	0	7	756	7	0	3999	11312
JUL	41	0	7	0	476	0	289	535	26	23	1970	2581
AUG	282	8	8	24	385	0	5273	163	23	2685	1078	1031
SEP	76	15	0	46	268	0	12406	484	30	5959	1485	998
OCT	830	12	0	200	981	0	12429	136	6	10624	1412	532
NOV	1397	0	0	248	362	0	1439	7	7	10699	785	55
DEC	6	0	0	329	327	0	862	32	0	6131	1092	173
TOTAL	2633	338	271	847	10277	3267	32705	2712	154	36120	28045	28496

YOY - YOUNG-OF-THE-YEAR

6.5.1.1 Alewife

An estimated total number of 1,306 alewife were impinged at Roseton in 1998, and 6,306 at Danskammer Point, of which all 1,306 were classified by life stage at Roseton (Table 6-15) and 6,291 were classified by life stage at Danskammer Point (Table 6-16). During July to December, 91.2% of the estimated alewife impinged at Roseton were young-of-the-year. During January to June, 85.9% were yearlings and the rest were adults. Adults accounted for only 0.3% of the alewife impinged at Roseton over the entire year.

At Danskammer Point the proportion of alewife that were yearlings and adults was greater than at Roseton but otherwise the seasonal patterns were similar, with young-of-the-year dominating the second half of the year. Yearlings accounted for a larger proportion of the alewife impingement (41.2%) than did adults, which accounted for 6.1%. All three life stages were impinged in larger numbers at Danskammer Point than at Roseton.

The annual impingement rate for alewife in 1998 at Roseton was the second lowest during the entire 1975-1998 period of record (Figure 6-7). The Danskammer Point annual alewife impingement rate in 1998 was the third lowest for the 25-year period of record.

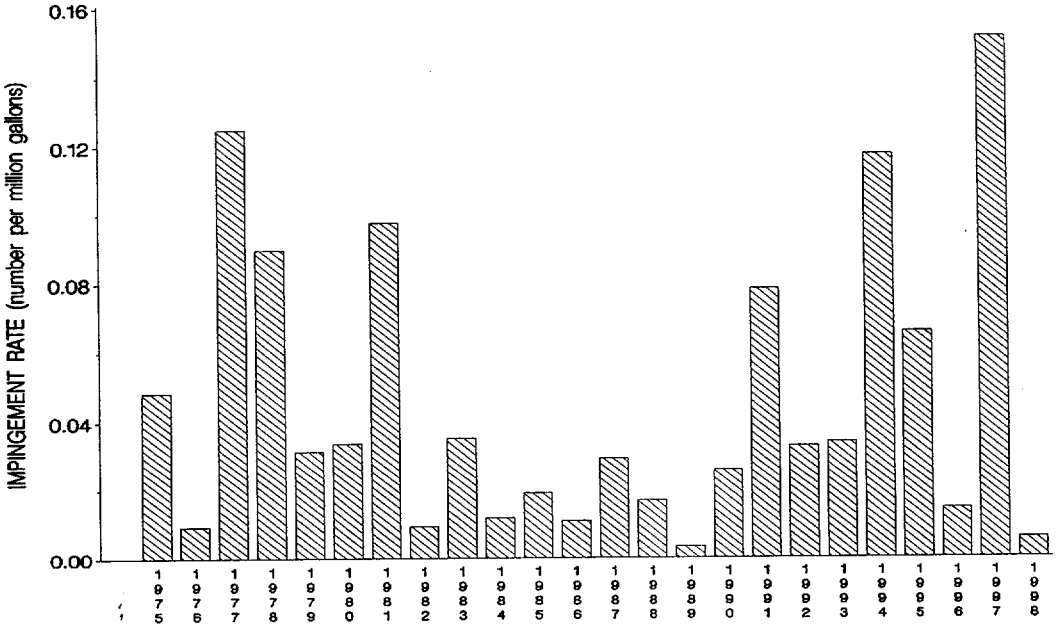
6.5.1.2 American Shad

The estimated total numbers of American shad impinged in 1998 were 685 at Roseton and 5,658 at Danskammer Point, of which 677 were classified by life stage at Roseton (Table 6-15) and all 5,658 were classified by life stage at Danskammer Point (Table 6-16). All American shad impinged in 1998 at Roseton and most of those impinged at Danskammer Point were young-of-the-year. The young-of-the-year shad first were impinged during June at Roseton and during July at Danskammer Point, and were present through November at Roseton and through December at Danskammer Point. The greatest numbers were impinged in October at both plants.

Compared with previous years' annual impingement rates of American shad, the 1998 rate was the third lowest in 24 years at Roseton, and the eighth highest for the entire 25-year period at Danskammer Point (Figure 6-8).

Alewife

Roseton



Danskammer Point

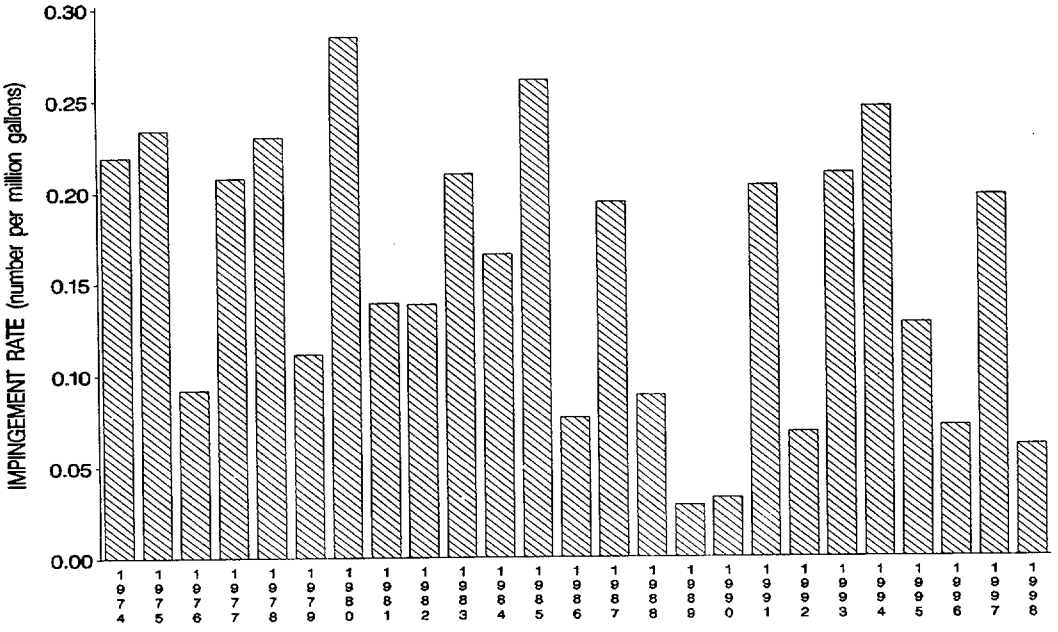
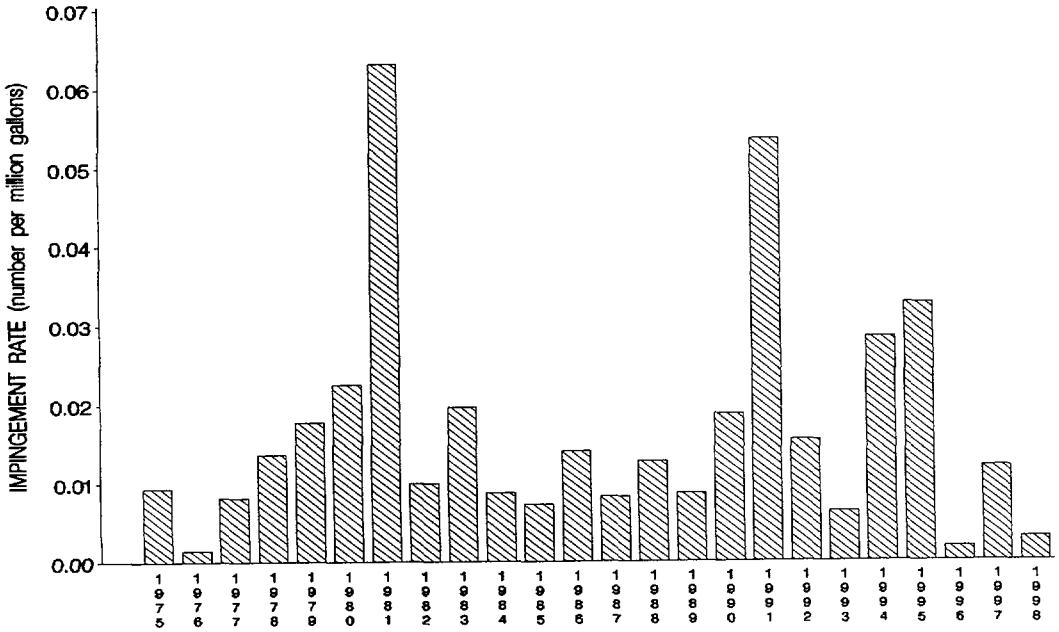


Figure 6-7. Annual impingement rate for alewife at Roseton and Danskammer Point generating stations, 1974-1998.

American Shad

Roseton



Danskammer Point

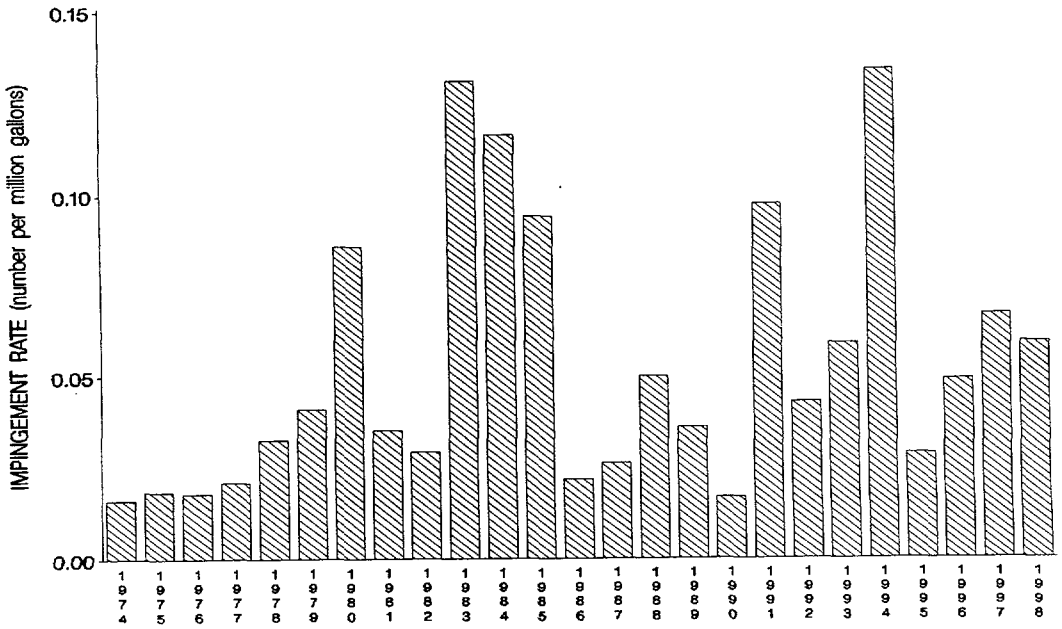


Figure 6-8. Annual impingement rate for American shad at Roseton and Danskammer Point generating stations, 1974-1998.

6.5.1.3 Atlantic Tomcod

Total impingement of Atlantic tomcod during 1998 was estimated at 930 fish at Roseton and 4,966 at Danskammer Point, of which all were classified by life stage (Tables 6-15 and 6-16). The predominant life stages were yearling in the early part of the year and young-of-the-year in the summer. Adults were only occasionally impinged. The young-of-the-year Atlantic tomcod first appeared in May at both plants. The highest young-of-the-year impingement occurred in June at each plant. Yearling Atlantic tomcod, which are sexually mature, were impinged in greatest numbers in January at both plants.

Annual mean impingement rate of Atlantic tomcod in 1998 was lower than in most years, particularly compared to the mid-to-late 1970s (Figure 6-9). The impingement in 1998 was the ninth lowest in 24 years at Roseton and the fifth lowest in 25 years at Danskammer Point.

6.5.1.4 Bay Anchovy

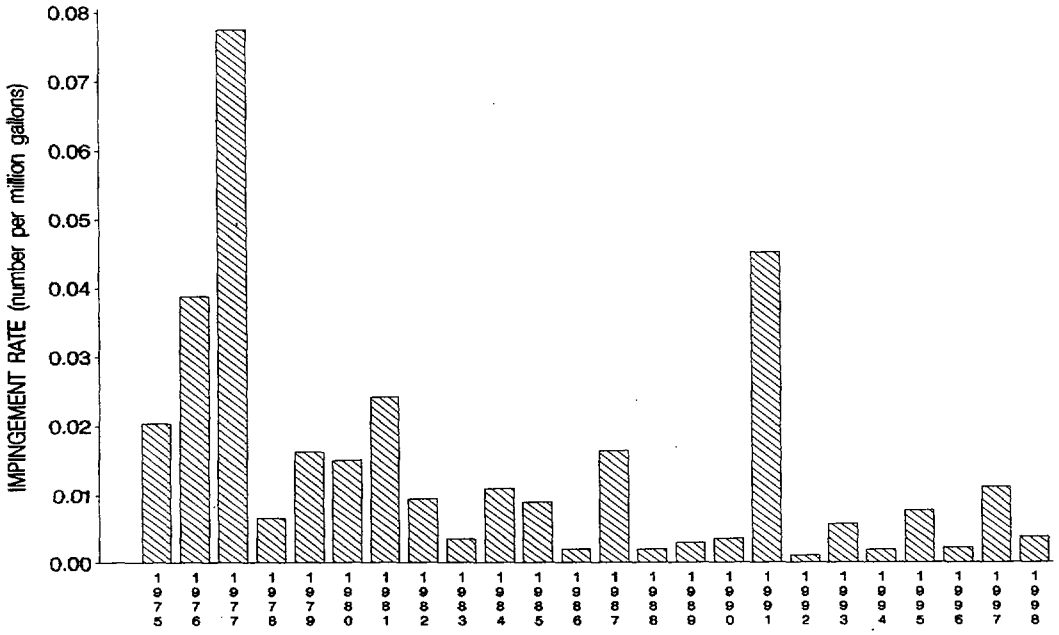
The estimated total numbers of bay anchovy impinged during 1998 were 12,010 at Roseton and 5,847 at Danskammer Point, of which 12,001 were classified by life stage at Roseton (Table 6-15) and 5,777 were classified by life stage at Danskammer Point (Table 6-16). At Roseton about 70.9% were young-of-the-year and at Danskammer Point 49.9% were young-of-the-year. The remaining fish were all yearlings at Danskammer Point, and nearly all were yearlings at Roseton. All of the young-of-the-year bay anchovy impingement was observed during August through November, and yearling bay anchovies (which are sexually mature) were impinged during May to November.

The annual impingement rates for bay anchovy at Roseton (Figure 6-10) indicate two low years (1975-1976) followed by several moderate years (1977-1984), and then a declining trend through 1989. In 1991 the highest annual impingement rate recorded over the 24-year data base occurred. The annual impingement in 1998 was the ninth lowest for the period of record.

The historical pattern of bay anchovy impingement rates at Danskammer Point also exhibited a general cycle of increasing then decreasing values from year-to-year (Figure 6-10). The years of highest abundances at Danskammer Point were 1983-1985, 1988, 1991, 1993, 1995,

Atlantic Tomcod

Roseton



Danskammer Point

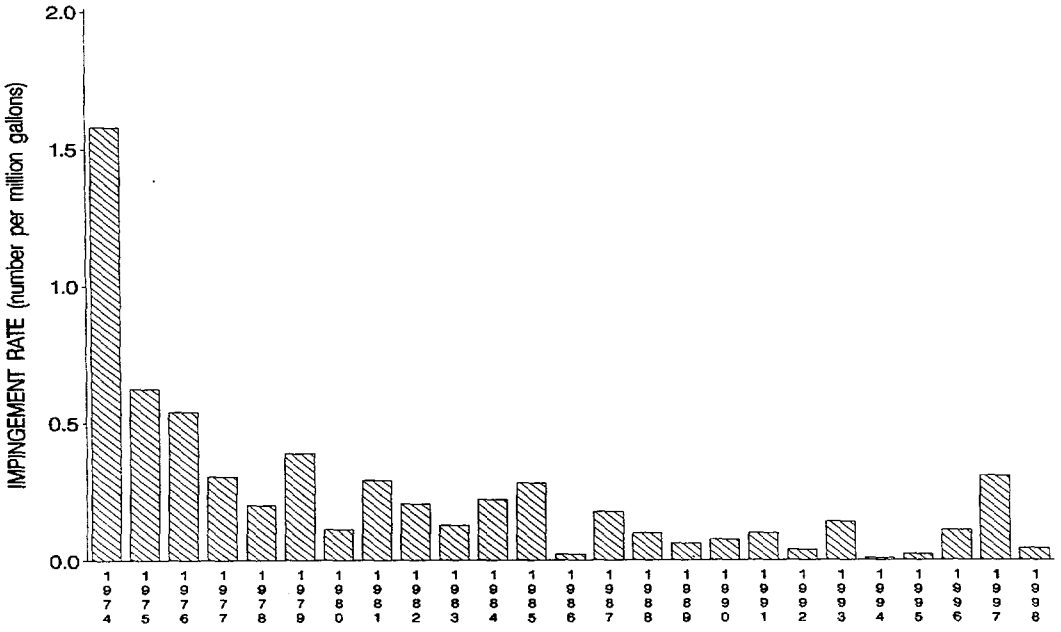
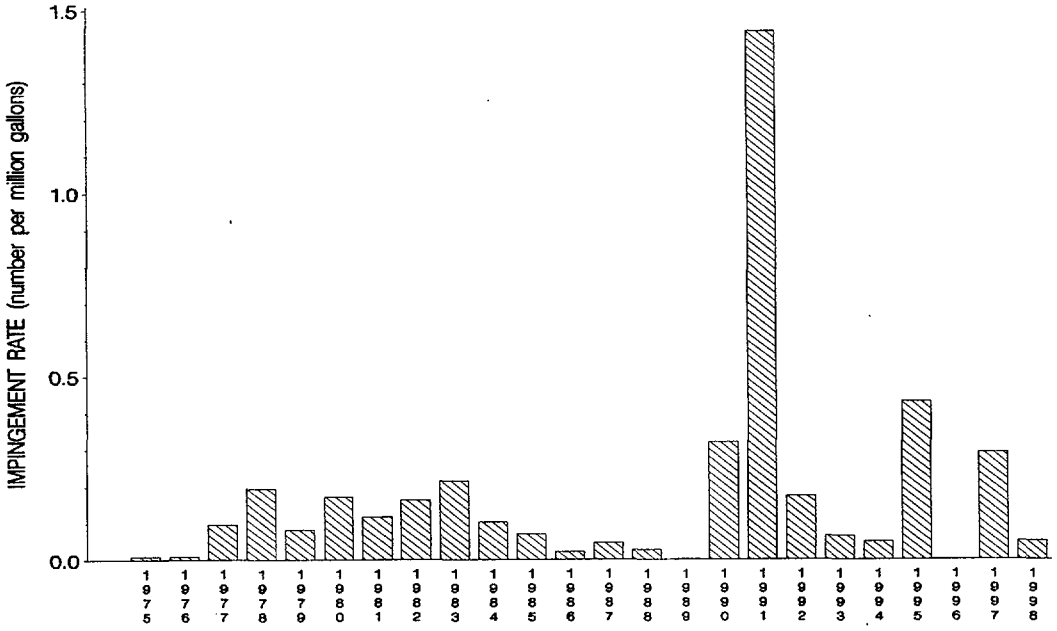


Figure 6-9. Annual impingement rate for Atlantic tomcod at Roseton and Danskammer Point generating stations, 1974-1998.

Bay Anchovy

Roseton



Danskammer Point

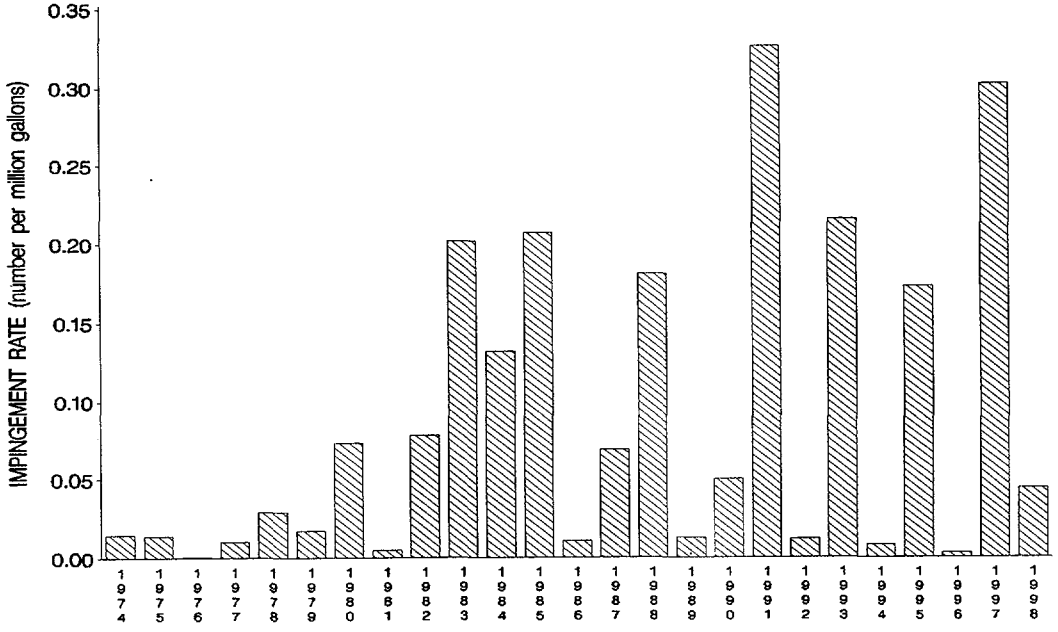


Figure 6-10. Annual impingement rate for bay anchovy at Roseton and Danskammer Point generating stations, 1974-1998.

and 1997. The 1998 annual impingement rate for bay anchovy was the thirteenth highest recorded at Danskammer Point since 1974.

6.5.1.5 Blueback Herring

The total numbers of blueback herring estimated to have been impinged during 1998 were 6,893 at Roseton and 3,241 at Danskammer Point, of which all were classified by life stage (Tables 6-15 and 6-16). Of these, young-of-the-year fish made up the vast majority: 96.3% at Roseton and 81.2% at Danskammer Point. This 1998 year class first appeared in impingement collections in July at both plants. The greatest numbers impinged were in November at both plants. Both yearlings and adults were also impinged at both plants, although adults occurred in very low numbers, particularly at Roseton. Adults were a somewhat greater component at Danskammer Point (8.4% for the whole year) than at Roseton (1.3%). Most impingement of yearlings and adults occurred in spring and summer.

Compared to the previous 23-24 years, the annual blueback herring impingement rate during 1998 was the lowest on record at both Roseton and Danskammer Point (Figure 6-11). Rates have varied considerably among years and between the two plants.

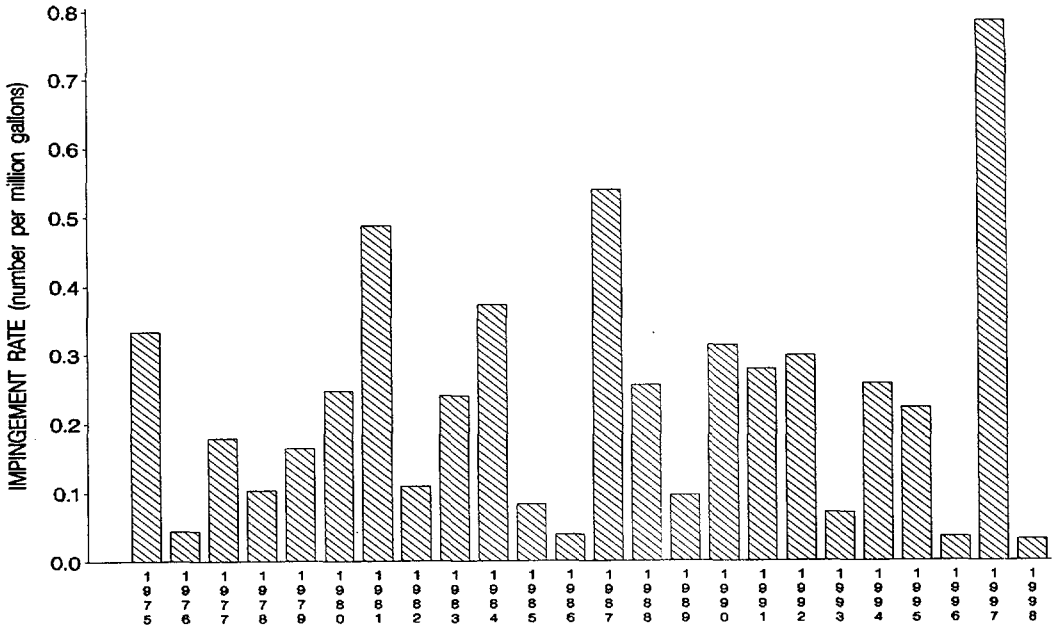
6.5.1.6 Spottail Shiner

At Roseton an estimated total of 5,249 spottail shiner were impinged and at Danskammer Point the estimate was 14,391, of which all were classified by life stage (Table 6-16). Each of the three life stages was abundant for at least part of the year. Yearlings were the most abundant life stage impinged at both plants in 1998. Adults were impinged only during January-May, and young-of-the-year were impinged only during July through December. Yearlings were present in every month of the year.

Annual impingement rates for spottail shiner (Figure 6-12) have not been characterized by such wide fluctuations among years as were those of clupeids and bay anchovy. The 1998 impingement rates were a little below average compared to past years.

Blueback Herring

Roseton



Danskammer Point

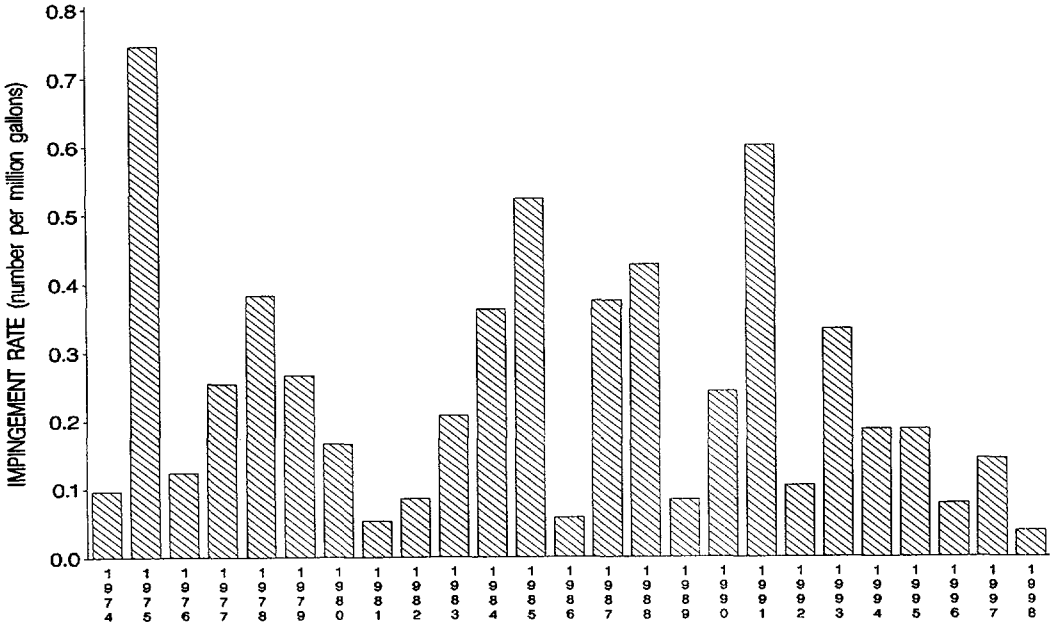
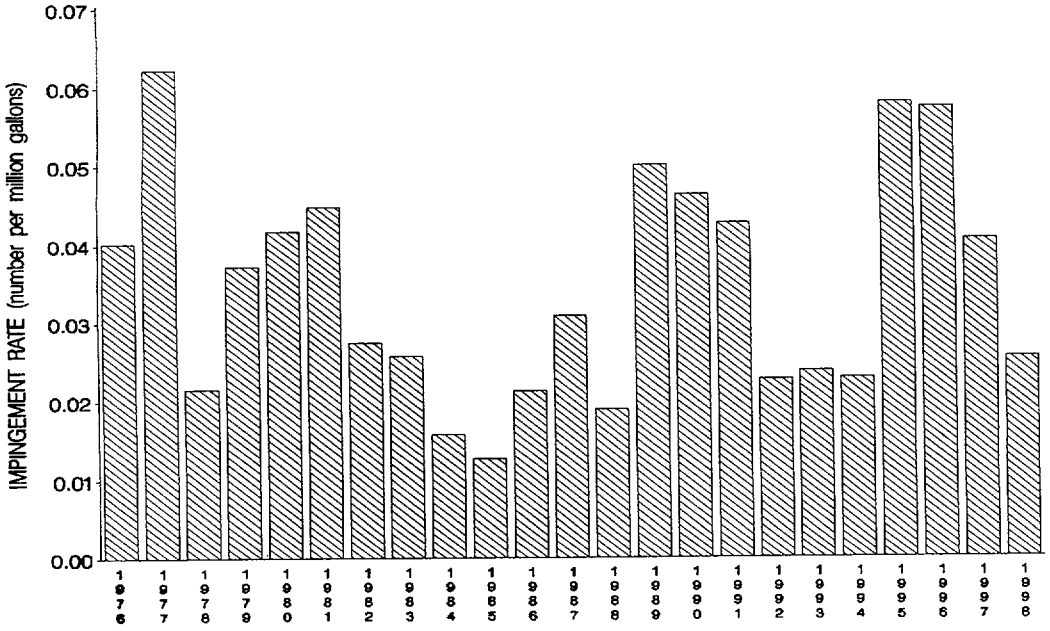


Figure 6-11. Annual impingement rate for blueback herring at Roseton and Danskammer Point generating stations, 1974-1998.

Spottail Shiner

Roseton



Danskammer Point

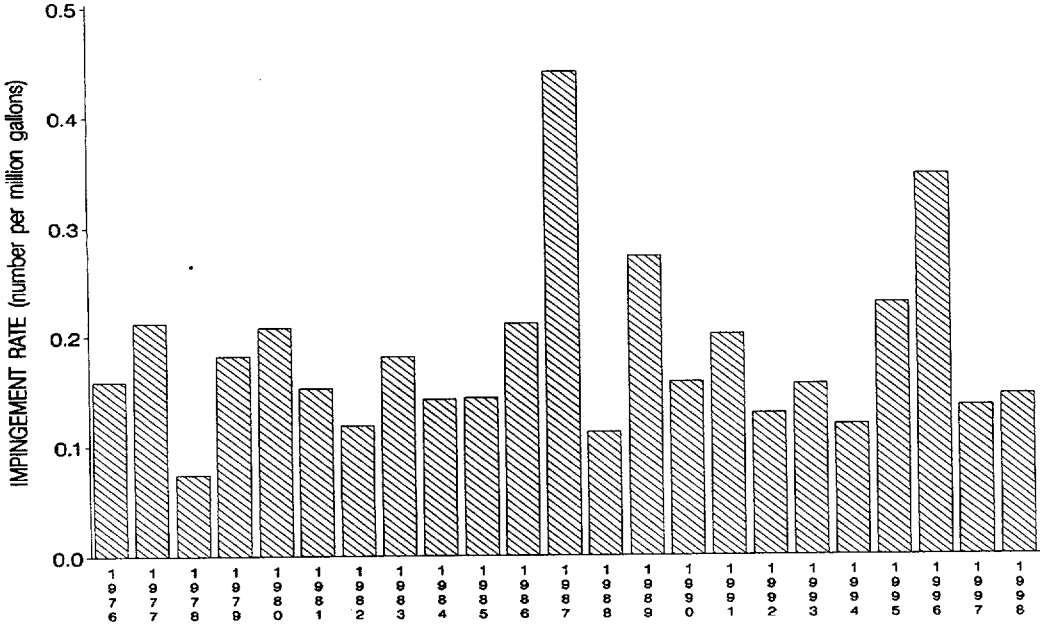


Figure 6-12. Annual impingement rate for spottail shiner at Roseton and Danskammer Point generating stations, 1976-1998.

6.5.1.7 Striped Bass

The estimated total numbers of striped bass impinged in 1998 were 3,901 at Roseton and 35,586 at Danskammer Point, all of which were classified by life stage at Roseton and 35,571 were classified by life stage at Danskammer Point (Table 6-15 and Table 6-16). The age composition at Roseton was dominated by young-of-the-year (92.4%), with yearlings making up most of the remaining impingement. At Danskammer Point 91.9% were young-of-the-year, 7.6% yearlings, and 0.4% adults. Young-of-the-year striped bass were first impinged in June at both Roseton and Danskammer Point, and impingement of this early life stage reached a maximum in October at both plants. Striped bass older than yearlings, which were observed only once at Roseton, were present in Danskammer impingement collections in ten of the 12 months, in no particular seasonal pattern.

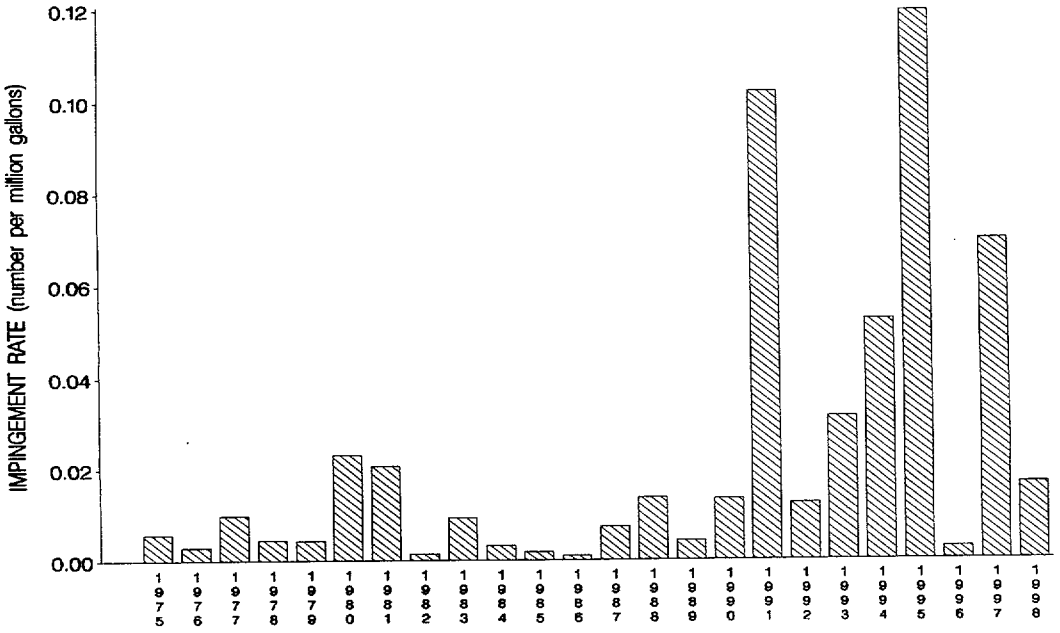
Annual impingement rates for striped bass in 1998 were above average compared to most of the 1974-1997 data for both Roseton and Danskammer Point (Figure 6-13). The striped bass annual impingement rate for 1998 was the eighth highest in 24 years at Roseton and higher than in all but three previous years at Danskammer Point.

6.5.1.8 White Perch

Total numbers of white perch estimated to have been impinged in 1998 were 37,296 at Roseton and 92,685 at Danskammer Point, of which 37,290 were classified by life stage at Roseton (Table 6-15) and 92,661 were classified by life stage at Danskammer Point (Table 6-16). Young-of-the-year white perch represented 56.4% of the estimated total impinged at Roseton and 39.0% at Danskammer Point. They first appeared in June at Roseton and in July at Danskammer Point, reaching a maximum in November at both plants. Yearling fish constituted 35.7% of the Roseton impingement and 30.3% at Danskammer Point. Yearling white perch were present in impingement collections in every month at both plants. Yearlings reached peaks in April at Roseton and May at Danskammer Point. Adults were 8.0% of estimated impingement at Roseton and 30.8% at Danskammer Point. Their seasonal abundance pattern at both plants was similar to that of the yearlings. In comparison with the previous 24 years, the 1998 white perch impingement rates were somewhat lower than average at both plants (Figure 6-14).

Striped Bass

Roseton



Danskammer Point

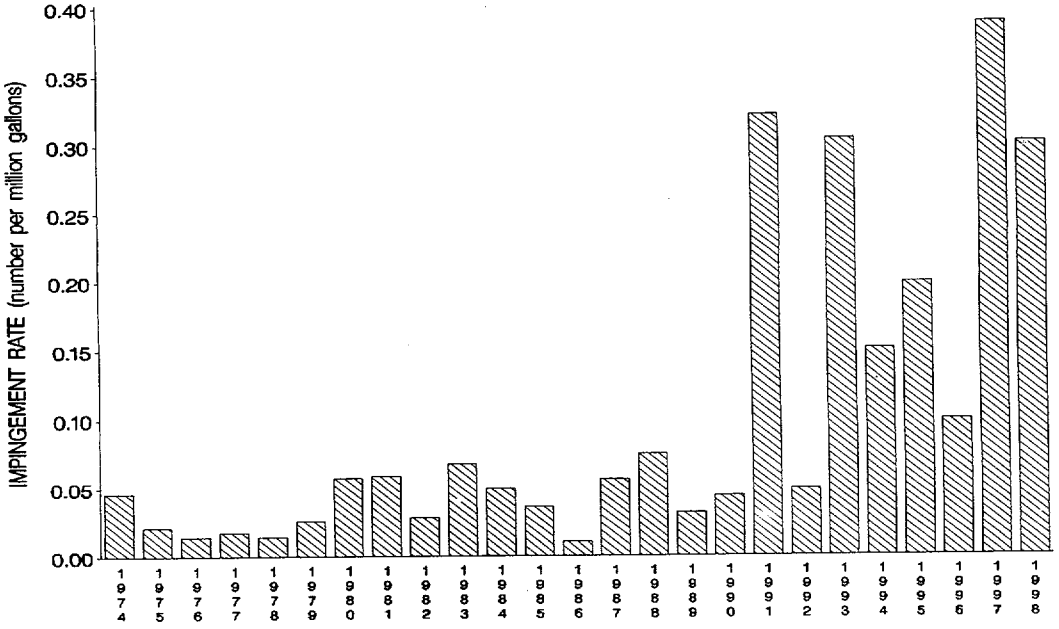
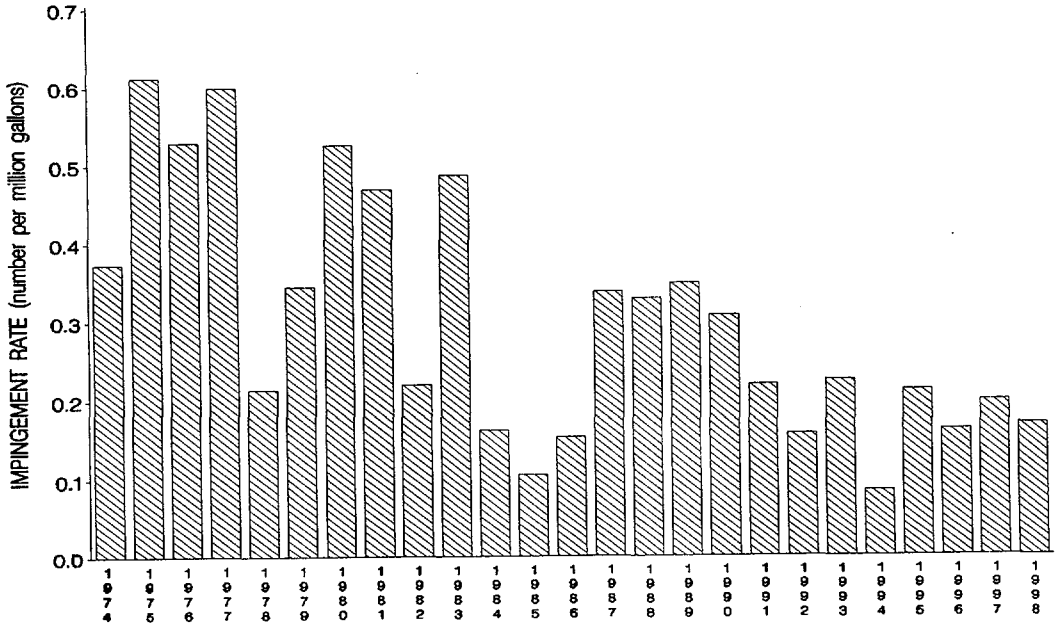


Figure 6-13. Annual impingement rate for striped bass at Roseton and Danskammer Point generating stations, 1974-1998.

White Perch

Roseton



Danskammer Point

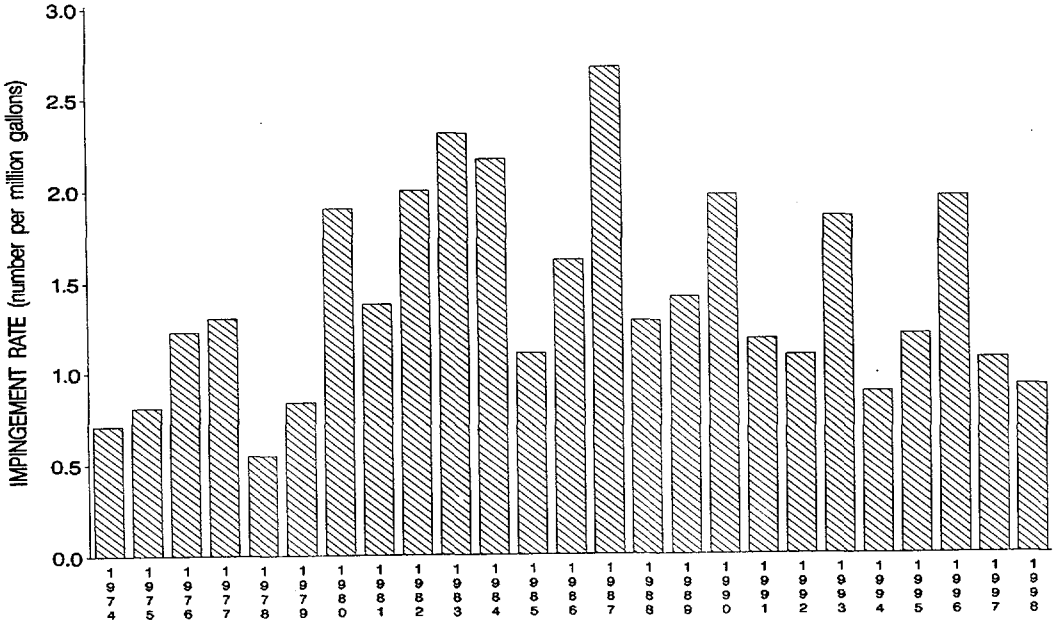


Figure 6-14. Annual impingement rate for white perch at Roseton and Danskammer Point generating stations, 1974-1998.

6.5.2 Seasonal Impingement Patterns

6.5.2.1 Total Fish

Roseton Generating Station

The monthly estimated total impingement of all fish species combined is shown in Figure 6-15 (abundance and biomass) and Table 6-17 (abundance and percent composition) for Roseton in 1998. The months of highest estimated impingement abundance were October (23,418) and November (17,972). The lowest monthly total impingement estimate was for February (1,438).

An abundance of bay anchovy and white perch was primarily responsible for the high estimated impingement in October, and the high impingement in November was largely due to abundant white perch, blueback herring, and white catfish.

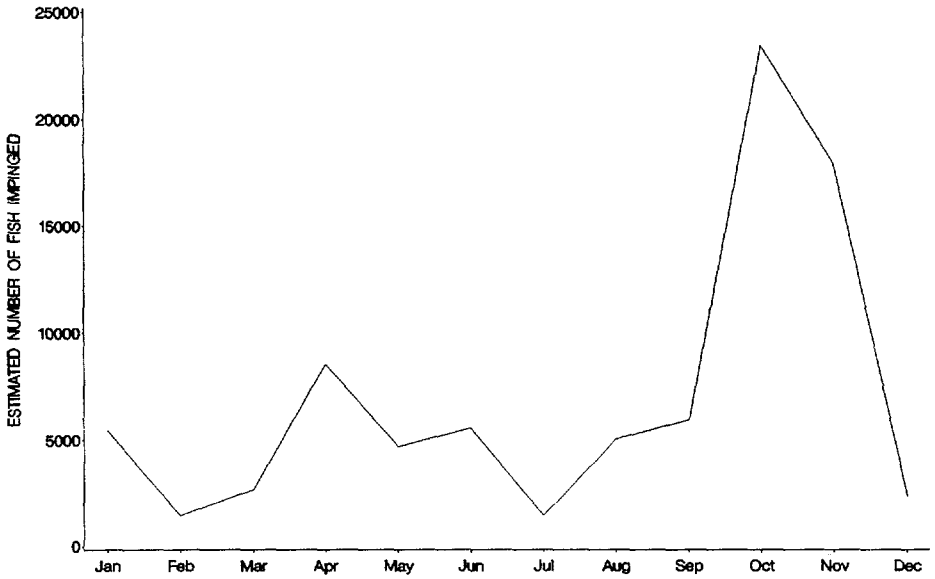
The seasonal trend of estimated biomass at Roseton was characterized by a major peak in January, with smaller peaks in June and October-November (Figure 6-15). The peak in January in estimated biomass was mainly due to gizzard shad, which accounted for 66.2% of the total during that month (Table 6-18). The next highest monthly estimated biomass impinged was in June, when white perch combined accounted for 73.3% of the total biomass. White perch accounted for the greatest percentage of biomass impinged in March-July and September-December; gizzard shad ranked first in January and February; and white catfish ranked first in August in estimated biomass impinged at Roseton.

Danskammer Point Generating Station

At Danskammer Point, the highest monthly estimated total fish impingement in 1998 occurred in October (Figure 6-16 and Table 6-19), when the total number impinged for all units combined was estimated at 39,832 The lowest total was in February at 2,933 fish. The peak impingement in October of 1998 was mainly due to striped bass and white perch (totaling 63.1% of the estimated impingement for the month). A secondary abundance peak occurred in May-June. White perch accounted for 64.1% of the estimated abundance in that two-month period.

Total Fish

Estimated Abundance



Estimated Biomass

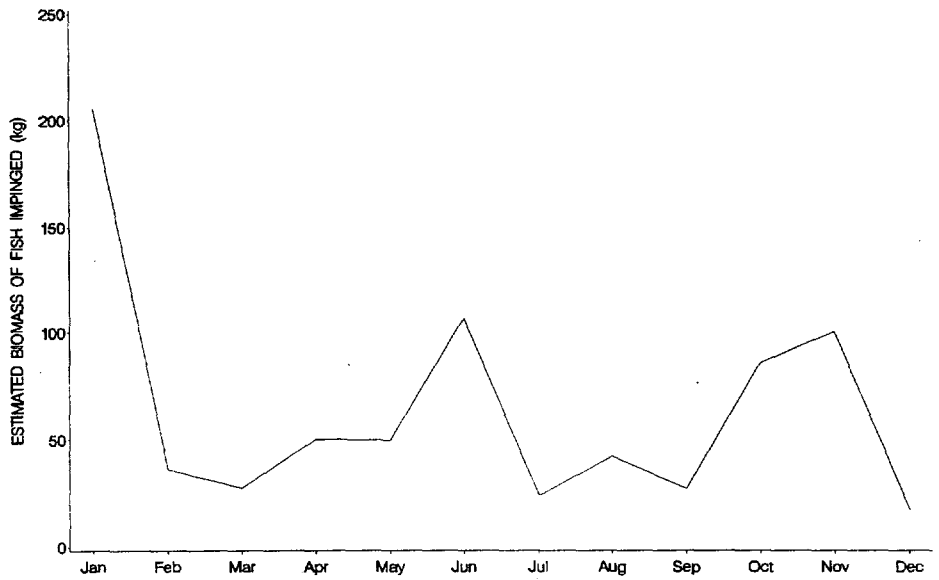


Figure 6-15. Monthly estimated impingement of all fish species combined, Roseton Generating Station, 1998.

TABLE 6-17. ESTIMATED MONTHLY ABUNDANCE AND PERCENT COMPOSITION OF THE TEN MOST ABUNDANT SPECIES COLLECTED IN IMPINGEMENT SAMPLES, ROSETON GENERATING STATION, 1998.

	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE	
	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%
Alewife	41	0.8	0	0.0	24	0.9	7	0.1	77	1.6	128	2.3
Bay anchovy	0	0.0	0	0.0	0	0.0	0	0.0	22	0.5	454	8.2
Blueback herring	0	0.0	0	0.0	0	0.0	39	0.5	62	1.3	111	2.0
Brown bullhead	26	0.5	7	0.5	23	0.9	479	5.6	182	3.9	173	3.1
Channel catfish	388	7.1	65	4.5	455	17.1	257	3.0	40	0.8	51	0.9
Pumpkinseed	243	4.5	72	5.0	61	2.3	307	3.6	223	4.8	98	1.8
Spottail shiner	1591	29.3	536	37.3	808	30.4	839	9.8	407	8.7	166	3.0
Striped bass	165	3.0	0	0.0	0	0.0	35	0.4	16	0.3	56	1.0
White catfish	10	0.2	0	0.0	8	0.3	26	0.3	16	0.3	54	1.0
White perch	1483	27.3	314	21.8	969	36.4	6002	70.4	3193	68.0	3684	66.6
Others	1478	27.2	444	30.9	314	11.8	539	6.3	455	9.7	555	10.0
TOTAL	5425	100.0	1438	100.0	2662	100.0	8529	100.0	4693	100.0	5531	100.0

	JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%
Alewife	69	4.7	147	2.9	53	0.9	299	1.3	455	2.5	8	0.3
Bay anchovy	114	7.9	655	13.1	1840	31.1	8828	37.7	97	0.5	0	0.0
Blueback herring	14	1.0	72	1.4	36	0.6	2772	11.8	3767	21.0	20	0.8
Brown bullhead	124	8.5	509	10.2	114	1.9	59	0.3	15	0.1	0	0.0
Channel catfish	57	3.9	236	4.7	130	2.2	55	0.2	68	0.4	63	2.7
Pumpkinseed	7	0.5	24	0.5	68	1.2	850	3.6	85	0.5	16	0.7
Spottail shiner	167	11.5	51	1.0	66	1.1	169	0.7	287	1.6	161	6.8
Striped bass	227	15.7	512	10.2	407	6.9	1701	7.3	680	3.8	102	4.3
White catfish	19	1.3	155	3.1	150	2.5	452	1.9	3675	20.4	97	4.1
White perch	300	20.7	2059	41.1	2383	40.3	7112	30.4	8243	45.9	1554	66.1
Others	351	24.2	592	11.8	664	11.2	1123	4.8	599	3.3	331	14.1
TOTAL	1449	100.0	5010	100.0	5909	100.0	23418	100.0	17972	100.0	2352	100.0

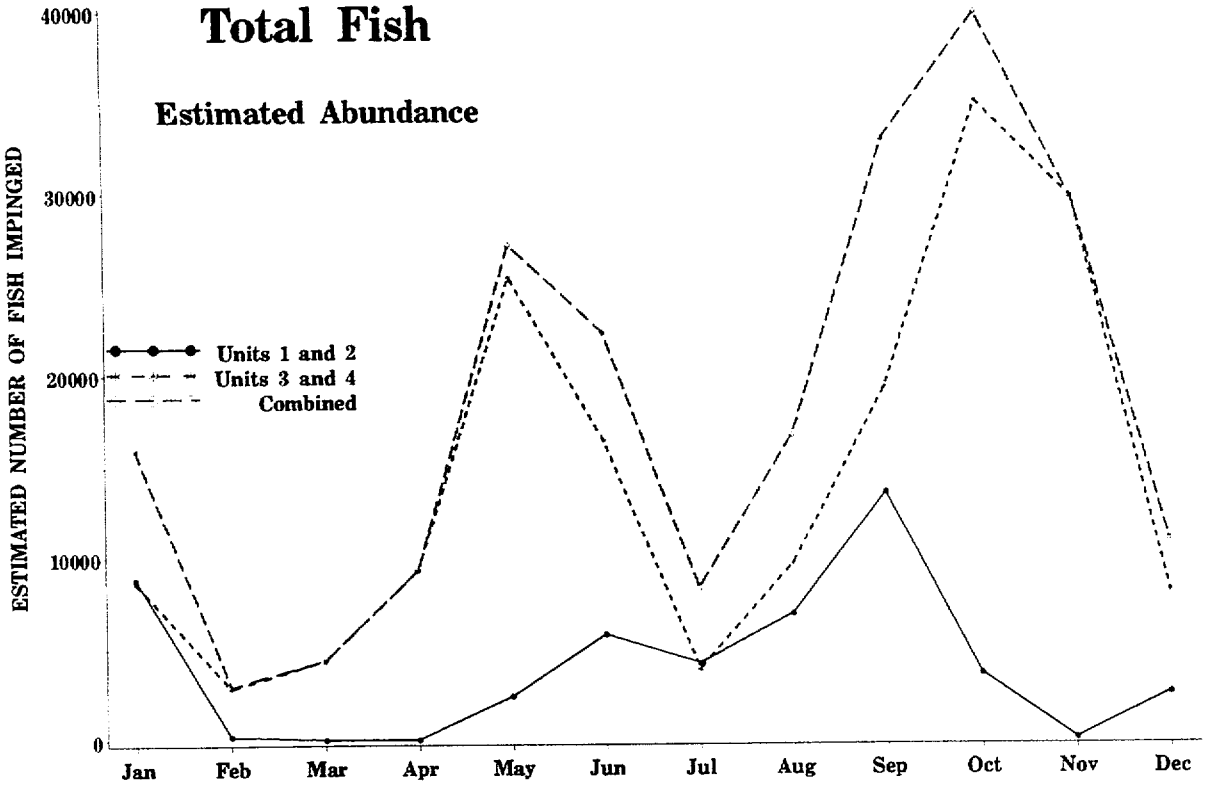
	ANNUAL TOTAL	
	ESTIM. NUMBER	%
Alewife	1306	1.5
Bay anchovy	12010	14.2
Blueback herring	6893	8.2
Brown bullhead	1709	2.0
Channel catfish	1865	2.2
Pumpkinseed	2053	2.4
Spottail shiner	5249	6.2
Striped bass	3901	4.6
White catfish	4662	5.5
White perch	37296	44.2
Others	7445	8.8
TOTAL	84389	100.0

TABLE 6-18. ESTIMATED MONTHLY BIOMASS (KILOGRAMS) AND PERCENT COMPOSITION OF THE TEN MOST ABUNDANT SPECIES COLLECTED IN IMPINGEMENT SAMPLES, ROSETON GENERATING STATION, 1998.

	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE	
	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%
American eel	1.8	0.9	2.1	5.8	0.9	3.3	1.0	1.9	4.7	9.6	1.7	1.6
Bay anchovy	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	1.4	1.3
Blueback herring	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	3.6	7.2	5.1	4.8
Brown bullhead	0.2	0.1	0.0	0.1	1.2	4.4	3.6	7.2	1.4	2.9	5.6	5.2
Channel catfish	4.7	2.3	0.6	1.5	4.1	14.6	2.3	4.6	0.4	0.8	2.9	2.7
Gizzard shad	136.4	66.2	20.1	55.3	0.9	3.3	0.0	0.0	0.0	0.0	0.0	0.0
Pumpkinseed	5.4	2.6	1.9	5.2	1.1	4.1	4.8	9.5	2.0	4.0	0.7	0.7
Spottail shiner	7.4	3.6	2.1	5.8	3.2	11.6	3.2	6.3	1.4	2.8	0.8	0.8
White catfish	0.1	0.0	0.0	0.0	0.0	0.2	0.3	0.6	0.5	1.0	4.2	3.9
White perch	25.9	12.6	2.6	7.3	6.9	24.7	29.2	58.0	27.5	55.5	78.1	73.3
Others	24.1	11.7	6.9	18.9	9.3	33.7	5.8	11.5	8.0	16.1	6.1	5.7
TOTAL	205.9	100.0	36.3	100.0	27.7	100.0	50.3	100.0	49.6	100.0	106.5	100.0

	JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%
American eel	1.3	5.6	0.6	1.3	0.4	1.6	5.2	6.1	0.5	0.5	0.5	2.7
Bay anchovy	0.4	1.7	1.6	3.9	4.9	17.9	10.7	12.4	0.2	0.2	0.0	0.0
Blueback herring	0.1	0.2	1.3	3.0	0.3	1.3	15.4	18.0	18.1	18.1	0.1	0.4
Brown bullhead	6.0	25.2	3.4	8.0	0.7	2.6	1.1	1.3	0.1	0.1	0.0	0.0
Channel catfish	3.7	15.7	2.1	5.1	0.9	3.3	0.7	0.8	0.4	0.4	0.5	2.8
Gizzard shad	0.0	0.0	0.3	0.8	0.0	0.0	0.0	0.0	0.4	0.4	0.7	4.2
Pumpkinseed	0.3	1.1	0.6	1.4	0.8	2.9	5.4	6.3	1.1	1.1	0.1	0.3
Spottail shiner	0.7	2.8	0.3	0.8	0.4	1.6	0.6	0.7	1.1	1.1	0.7	4.4
White catfish	1.3	5.4	18.3	43.5	2.9	10.5	2.7	3.1	28.2	28.2	0.8	4.4
White perch	7.1	29.7	8.8	21.0	9.4	34.6	27.5	32.0	39.6	39.6	8.4	49.1
Others	3.0	12.6	4.7	11.2	6.4	23.5	16.4	19.1	10.3	10.3	5.4	31.6
TOTAL	23.8	100.0	42.1	100.0	27.2	100.0	85.8	100.0	100.0	100.0	17.0	100.0

	ANNUAL TOTAL	
	ESTIM. BIOMASS	%
American eel	20.7	2.7
Bay anchovy	19.3	2.5
Blueback herring	44.2	5.7
Brown bullhead	23.4	3.0
Channel catfish	23.2	3.0
Gizzard shad	158.8	20.6
Pumpkinseed	24.2	3.1
Spottail shiner	21.9	2.8
White catfish	59.2	7.7
White perch	270.9	35.1
Others	106.4	13.8
TOTAL	772.3	100.0



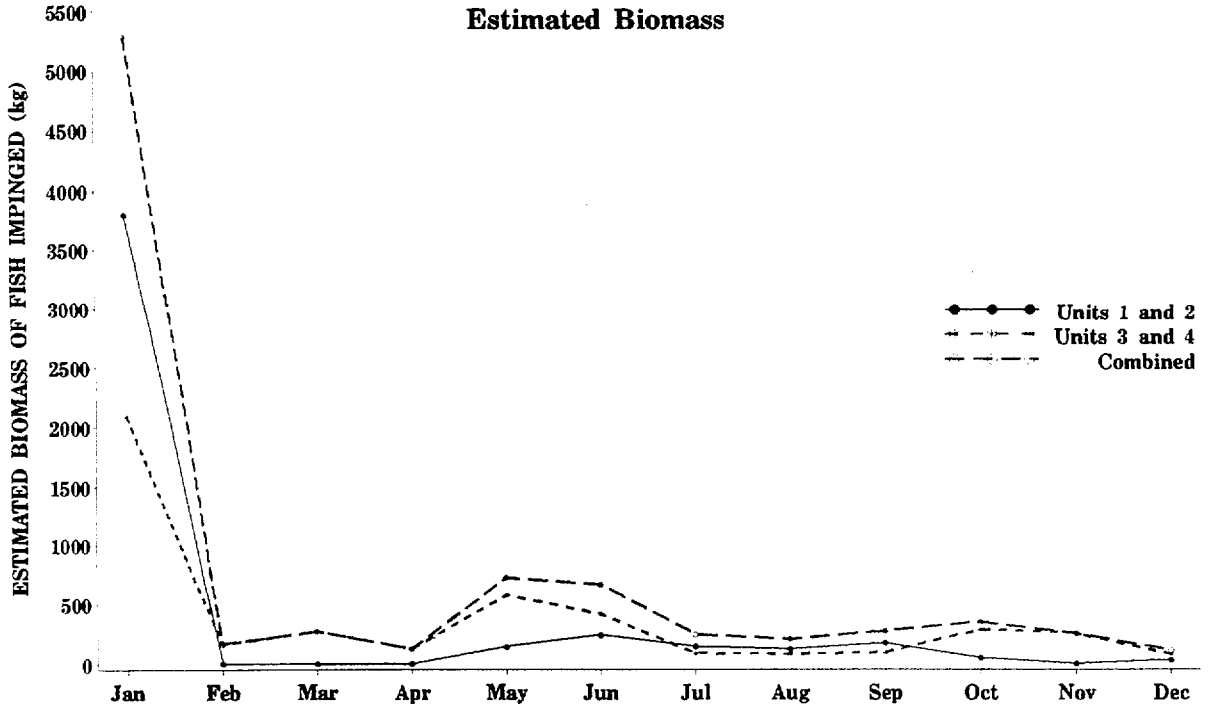


Figure 6 – 16. Monthly estimated impingement of all fish species combined, Danskammer Point Generating Station, 1998.

TABLE 6-19. ESTIMATED MONTHLY ABUNDANCE AND PERCENT COMPOSITION OF THE TEN MOST ABUNDANT SPECIES COLLECTED IN IMPINGEMENT SAMPLES, DANSKAMMER POINT GENERATING STATION, 1998.

	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE	
	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%
Alewife	5	0.0	0	0.0	125	2.9	12	0.1	340	1.3	436	2.0
American shad	0	0.0	0	0.0	0	0.0	0	0.0	6	0.0	0	0.0
Atlantic tomcod	1085	6.8	146	5.0	241	5.6	0	0.0	318	1.2	1950	8.7
Bay anchovy	0	0.0	0	0.0	0	0.0	0	0.0	22	0.1	294	1.3
Gizzard shad	5976	37.4	226	7.7	241	5.6	24	0.3	0	0.0	0	0.0
Pumpkinseed	428	2.7	69	2.3	8	0.2	636	6.9	2434	9.0	565	2.5
Spottail shiner	1951	12.2	932	31.8	624	14.3	1073	11.6	4438	16.3	1727	7.7
Striped bass	83	0.5	7	0.2	31	0.7	43	0.5	489	1.8	770	3.4
White catfish	35	0.2	14	0.5	8	0.2	62	0.7	37	0.1	295	1.3
White perch	3205	20.1	479	16.3	2042	47.0	5896	63.6	16415	60.5	15311	68.6
Others	3193	20.0	1061	36.2	1028	23.6	1525	16.5	2647	9.8	983	4.4
TOTAL	15961	100.0	2933	100.0	4348	100.0	9273	100.0	27146	100.0	22331	100.0

	JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%
Alewife	524	6.3	800	4.8	845	2.6	1936	4.9	1147	3.9	137	1.3
American shad	71	0.9	223	1.3	1067	3.2	3012	7.6	1221	4.1	59	0.5
Atlantic tomcod	779	9.4	139	0.8	137	0.4	11	0.0	27	0.1	132	1.2
Bay anchovy	132	1.6	458	2.7	3722	11.3	1190	3.0	28	0.1	0	0.0
Gizzard shad	0	0.0	1183	7.1	23	0.1	77	0.2	204	0.7	178	1.6
Pumpkinseed	257	3.1	117	0.7	291	0.9	897	2.3	99	0.3	34	0.3
Spottail shiner	476	5.7	409	2.5	314	1.0	1181	3.0	610	2.1	657	6.0
Striped bass	850	10.3	5459	32.8	12936	39.3	12571	31.6	1452	4.9	895	8.2
White catfish	147	1.8	909	5.5	2269	6.9	4014	10.1	11414	38.4	834	7.6
White perch	4574	55.2	4794	28.8	8465	25.7	12568	31.6	11540	38.8	7396	67.7
Others	471	5.7	2162	13.0	2846	8.6	2374	6.0	1986	6.7	599	5.5
TOTAL	8281	100.0	16653	100.0	32915	100.0	39832	100.0	29729	100.0	10920	100.0

	ANNUAL TOTAL	
	ESTIM. NUMBER	%
Alewife	6306	2.9
American shad	5658	2.6
Atlantic tomcod	4966	2.3
Bay anchovy	5847	2.7
Gizzard shad	8131	3.7
Pumpkinseed	5837	2.6
Spottail shiner	14391	6.5
Striped bass	35586	16.2
White catfish	20039	9.1
White perch	92685	42.1
Others	20876	9.5
TOTAL	220320	100.0

The seasonal trend of estimated biomass followed a different pattern to that of the estimated numerical abundance in 1998 at Danskammer Point. January was by far the month when the greatest biomass was impinged, accounting for 60.5% of the biomass impinged for the year (Figure 6-16). Gizzard shad was responsible for 93.9% of the biomass for January (Table 6-20). Gizzard shad or white perch had the greatest biomass impinged in every month except for November, when white catfish ranked first.

6.5.2.2 Selected Species

The typical seasonal patterns of impingement for key species can be seen by examining the mean and range of impingement rates for each month over a period of several years. Alewife impingement rates were historically highest in the summer and fall when young-of-the-year predominate (Figure 6-17). A secondary peak in the historical means can be clearly seen in the spring at Danskammer Point, but this peak was not evident in the means at Roseton. The earlier spring peak primarily represents adults. The season of abundance tends to be longer at Danskammer Point than at Roseton. In 1998 the alewife impingement followed a seasonal pattern generally similar to that observed in past years, except that there was no spring peak at Danskammer Point and the fall peaks occurred slightly later than average.

American shad impingement has generally been restricted to summer and fall (Figure 6-18), and has consisted almost entirely of young-of-the-year fish. Peaks have usually occurred either in summer or fall at Roseton or Danskammer Point, resulting in an average with a bimodal pattern at both plants. In 1998 the peaks were in October-November at Roseton and in October at Danskammer Point.

Atlantic tomcod impingement has usually been at its highest levels in December and January, which is during the spawning season, and normally higher at Danskammer Point than at Roseton (Figure 6-19, Table 6-21). These are primarily one-year-old fish (classified as young-of-the-year fish in December and yearlings in January), with some impingement of two-year-olds occurring at the same time (classified as yearlings in December and adults in January, though tomcod are sexually mature at one year of age) (Tables 6-22, 6-23, 6-24, and 6-25). There has often been another peak in impingement in the spring or summer consisting of young-of-the-year, which was again evident in 1998, when it was higher than the January and December peaks. The

TABLE 6-20. ESTIMATED MONTHLY BIOMASS (KILOGRAMS) AND PERCENT COMPOSITION OF THE TEN MOST ABUNDANT SPECIES COLLECTED IN IMPINGEMENT SAMPLES, DANSKAMMER POINT GENERATING STATION, 1998.

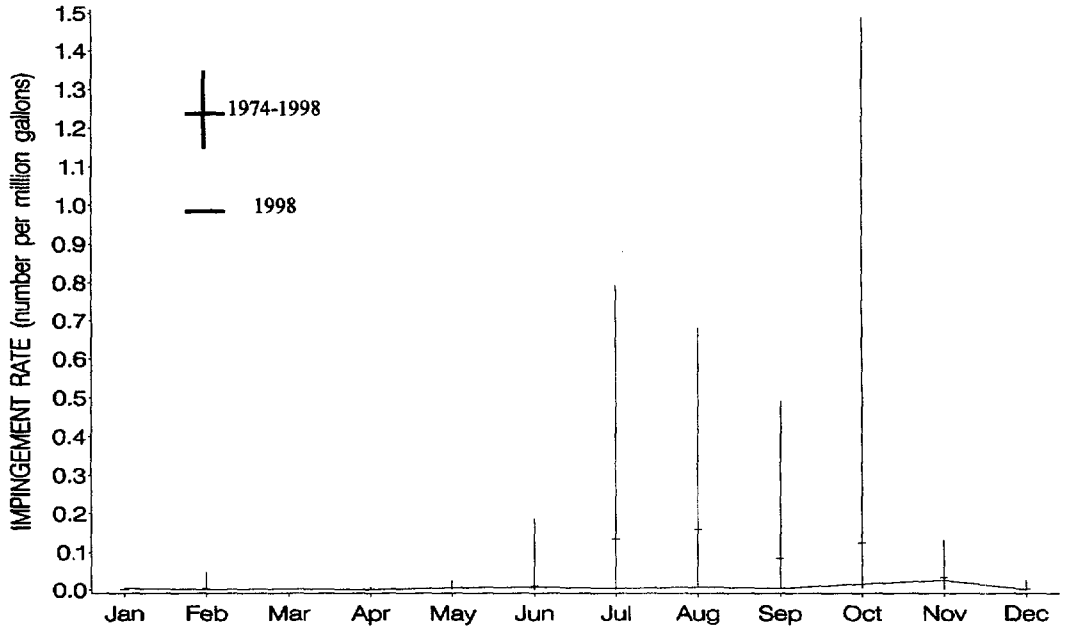
	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE	
	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%
Alewife	1.2	0.0	0.0	0.0	27.7	9.9	2.0	1.5	24.4	3.4	11.8	1.8
American shad	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.6	0.5	0.0	0.0
Atlantic tomcod	25.7	0.5	3.4	1.9	6.1	2.2	0.0	0.0	0.9	0.1	8.0	1.2
Gizzard shad	4964.9	93.9	113.7	65.2	165.0	59.2	21.5	16.4	0.0	0.0	0.0	0.0
Golden shiner	125.1	2.4	25.9	14.8	5.6	2.0	2.7	2.1	5.0	0.7	1.0	0.1
Pumpkinseed	5.2	0.1	1.4	0.8	0.0	0.0	13.3	10.2	48.1	6.6	10.6	1.6
Spottail shiner	12.3	0.2	4.5	2.6	3.7	1.3	5.0	3.8	25.7	3.5	10.5	1.6
Striped bass	6.3	0.1	0.0	0.0	0.6	0.2	1.1	0.8	27.2	3.7	9.1	1.4
White catfish	1.7	0.0	0.2	0.1	3.9	1.4	10.5	8.0	17.7	2.4	24.2	3.6
White perch	104.5	2.0	5.3	3.1	42.8	15.4	51.7	39.4	504.8	69.4	558.2	83.7
Others	43.2	0.8	19.9	11.4	23.2	8.3	23.2	17.7	69.9	9.6	33.8	5.1
TOTAL	5290.2	100.0	174.2	100.0	278.5	100.0	131.1	100.0	727.3	100.0	667.2	100.0

	JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%
Alewife	9.5	3.8	12.2	5.8	19.0	6.8	28.4	8.1	15.1	5.8	5.2	4.3
American shad	0.5	0.2	1.3	0.6	8.9	3.2	28.9	8.2	13.4	5.2	0.7	0.5
Atlantic tomcod	4.6	1.8	0.7	0.3	0.5	0.2	0.0	0.0	0.5	0.2	4.7	3.9
Gizzard shad	0.0	0.0	9.0	4.2	0.1	0.0	1.1	0.3	2.4	0.9	3.6	3.0
Golden shiner	0.4	0.2	0.0	0.0	0.2	0.1	1.6	0.4	1.3	0.5	1.1	0.9
Pumpkinseed	7.8	3.1	2.6	1.2	8.8	3.2	14.1	4.0	1.3	0.5	0.9	0.8
Spottail shiner	3.2	1.3	3.0	1.4	2.2	0.8	9.7	2.7	4.3	1.7	4.4	3.7
Striped bass	11.6	4.6	31.4	14.8	58.9	21.2	79.9	22.6	10.1	3.9	8.4	7.0
White catfish	48.3	19.2	44.1	20.8	23.1	8.3	36.9	10.4	109.5	42.3	6.2	5.2
White perch	149.0	59.3	83.1	39.2	109.7	39.4	114.2	32.3	78.8	30.4	70.4	58.8
Others	16.3	6.5	24.4	11.5	47.2	16.9	38.2	10.8	22.3	8.6	14.2	11.9
TOTAL	251.1	100.0	211.8	100.0	278.5	100.0	352.9	100.0	258.8	100.0	119.7	100.0

	ANNUAL TOTAL	
	ESTIM. BIOMASS	%
Alewife	156.4	1.8
American shad	57.3	0.7
Atlantic tomcod	55.0	0.6
Gizzard shad	5281.4	60.4
Golden shiner	169.8	1.9
Pumpkinseed	114.2	1.3
Spottail shiner	88.5	1.0
Striped bass	244.5	2.8
White catfish	326.1	3.7
White perch	1872.4	21.4
Others	375.8	4.3
TOTAL	8741.4	100.0

Alewife

Roseton



Danskammer Point

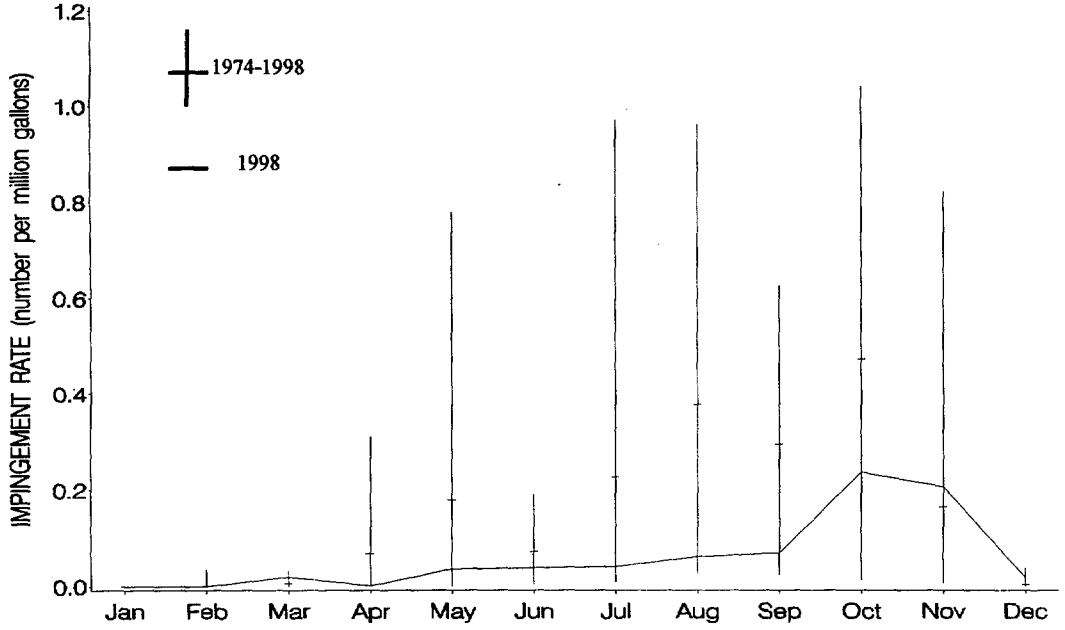
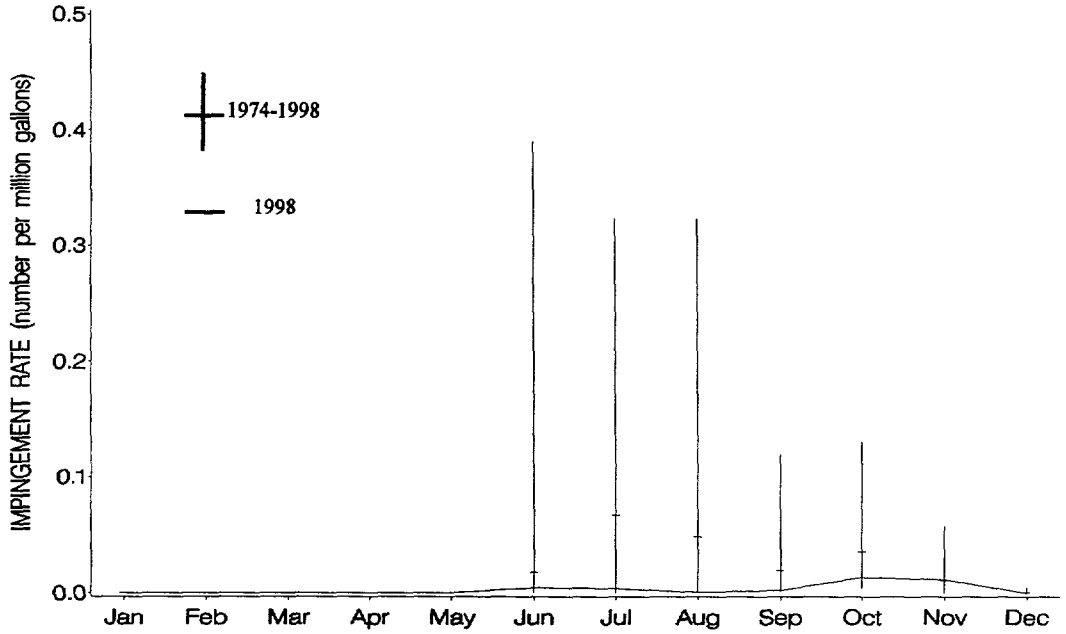


Figure 6-17. Monthly average impingement rate in 1998 for alewife at Roseton and Danskammer Point generating stations and the long-term monthly average and range for 1974-1998.

American Shad

Roseton



Danskammer Point

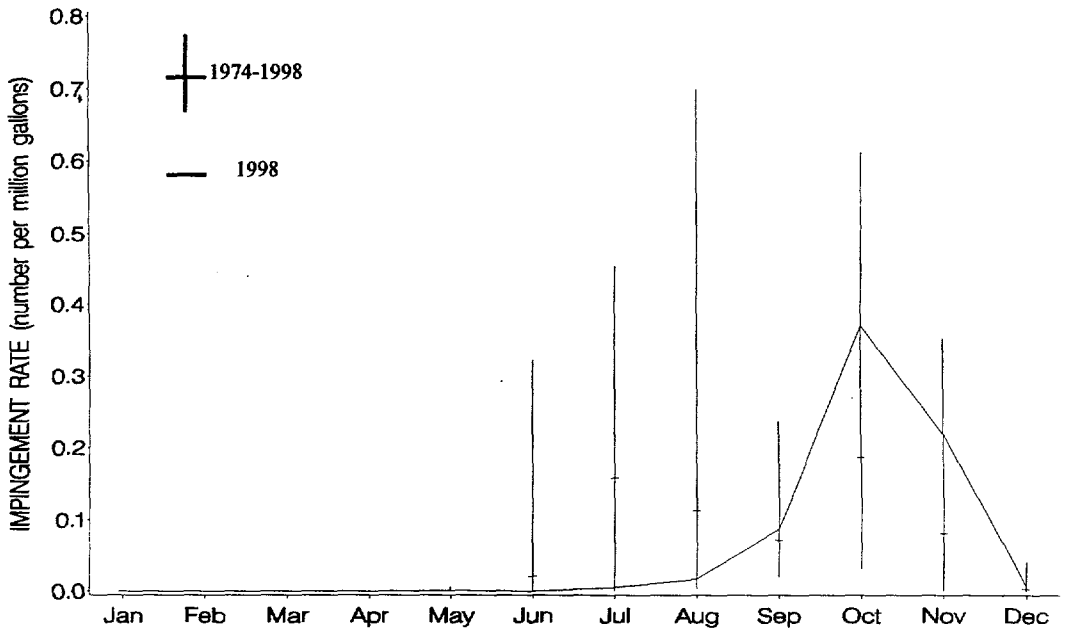
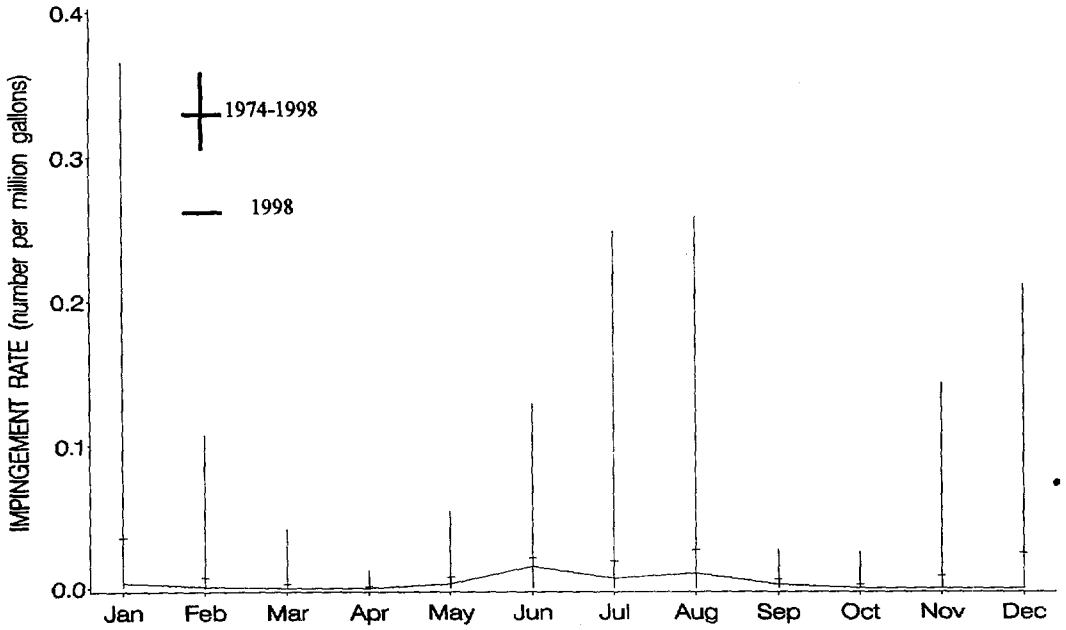


Figure 6-18. Monthly average impingement rate in 1998 for American shad at Roseton and Danskammer Point generating stations and the long-term monthly average and range for 1974-1998.

Atlantic Tomcod

Roseton



Danskammer Point

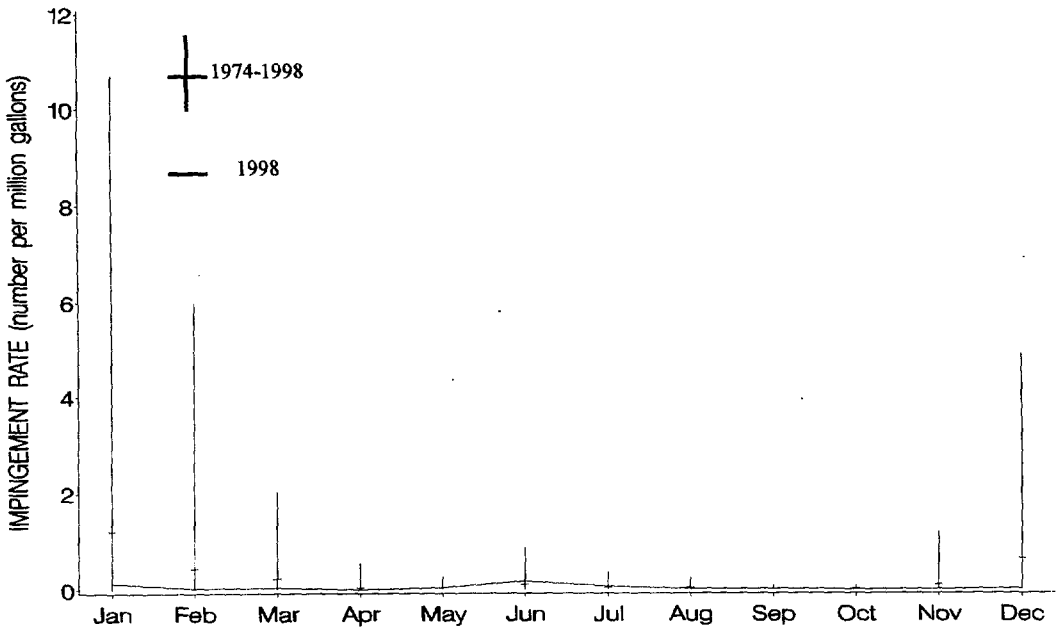


Figure 6-19. Monthly average impingement rate in 1998 for Atlantic tomcod at Roseton and Danskammer Point generating stations and the long-term monthly average and range for 1974-1998.

TABLE 6-21. MONTHLY ABUNDANCE AND BIOMASS OF ATLANTIC TOMCOD, ROSETON AND DANSKAMMER POINT GENERATING STATIONS, MAY 1998 - APRIL 1998.

			ABUNDANCE		BIOMASS	
		MONTHLY FLOW SAMPLED (10^6 gal)	NUMBER COLLECTED	PERCENT OF ANNUAL TOTAL	BIOMASS COLLECTED (g)	PERCENT OF ANNUAL TOTAL
ROSETON						
1997	May	1,129.90	7	3.6	4	0.4
	Jun	2,935.10	20	10.4	57	5.2
	Jul	3,617.41	33	17.1	191	17.3
	Aug	2,542.61	116	60.1	589	53.4
	Sep	1,091.81	7	3.6	28	2.5
	Oct	2,227.20	0	0.0	0	0.0
	Nov	2,229.60	0	0.0	0	0.0
	Dec	2,716.27	2	1.0	26	2.4
1998	Jan	2,169.60	6	3.1	185	16.8
	Feb	2,166.96	2	1.0	24	2.2
	Mar	2,306.40	0	0.0	0	0.0
	Apr	2,812.05	0	0.0	0	0.0
TOTAL		27,944.91	193	100.0	1,104	100.0
DANSKAMMER POINT						
1997	May	1,374.79	10	1.0	57	0.6
	Jun	1,644.73	120	12.2	423	4.3
	Jul	1,846.68	274	27.8	1,386	14.0
	Aug	1,509.01	255	25.8	1,238	12.5
	Sep	1,331.22	54	5.5	364	3.7
	Oct	926.06	27	2.7	263	2.7
	Nov	811.03	16	1.6	242	2.4
	Dec	1,013.37	24	2.4	711	7.2
1998	Jan	1,038.01	156	15.8	3,953	40.0
	Feb	839.16	20	2.0	455	4.6
	Mar	811.17	31	3.1	787	8.0
	Apr	928.20	0	0.0	0	0.0
TOTAL		14,073.43	987	100.0	9,879	100.0

TABLE 6-22. LENGTH FREQUENCY OF ATLANTIC TOMCOD, ROSETON GENERATING STATION, MAY 1997 - APRIL 1998.

	1997								1998			
INTERVAL (cm)	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR
3.1-4.0	4											
4.1-5.0	2											
5.1-6.0		4	2									
6.1-7.0	1	11	10	7	1							
7.1-8.0		2	11	37	1							
8.1-9.0		1	7	35	5							
9.1-10.0		2	2	14					1			
10.1-11.0				4						1		
11.1-12.0				1				1				
12.1-13.0								1				
13.1-14.0									4	1		
14.1-15.0												
15.1-16.0												
16.1-17.0												
17.1-18.0				1								
18.1-19.0				1								
19.1-20.0			1									
20.1-21.0												
21.1-22.0												
22.1-23.0												
23.1-24.0									1			
Total Analyzed	7	20	33	100	7	0	0	2	6	2	0	0
Mean Length	4.2	6.8	7.8	8.5	8.2			11.9	14.5	12.1		
Minimum Length	3.2	5.6	5.5	6.2	7.0			11.1	10.0	10.1		
Maximum Length	6.2	9.5	19.1	18.9	8.7			12.6	23.2	14.0		

TABLE 6-23. LENGTH FREQUENCY OF ATLANTIC TOMCOD, DANSKAMMER POINT GENERATING STATION, MAY 1997 - APRIL 1998.

	1997								1998			
INTERVAL (cm)	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR
2.1-3.0	1											
3.1-4.0												
4.1-5.0	4											
5.1-6.0	2	6										
6.1-7.0		39	12	20	8							
7.1-8.0		39	53	64	20	2						
8.1-9.0		13	47	48	12	4						
9.1-10.0		3	26	38	6	3						
10.1-11.0			2	14	1	9	7	1	6	1		
11.1-12.0				1	1	5	2	7	21	3	2	
12.1-13.0						3	4	6	31	6	5	
13.1-14.0	2				1	1	2	3	40	4	9	
14.1-15.0					1		1	2	17	3	8	
15.1-16.0				1				1	8		3	
16.1-17.0		1	1					1	6		2	
17.1-18.0									3			
18.1-19.0	1			1				1	2			
19.1-20.0					1				3	1		
20.1-21.0									3			
21.1-22.0									4	1	1	
22.1-23.0									5			
23.1-24.0									3			
24.1-25.0									1			
25.1-26.0											1	
26.1-27.0												
27.1-28.0								1		1		
Total Analyzed	10	101	141	187	51	27	16	23	153	20	31	0
Mean Length	7.8	7.3	8.3	8.5	8.5	10.4	11.8	13.8	14.5	14.4	14.6	
Minimum Length	3.0	5.7	6.3	6.2	6.1	7.8	10.3	10.7	10.6	10.8	11.6	
Maximum Length	18.5	16.4	16.1	19.0	19.2	13.3	14.4	27.5	24.1	27.3	25.5	

TABLE 6-24. ESTIMATED MONTHLY IMPINGEMENT OF ATLANTIC TOMCOD BY AGE CLASS, ROSETON AND DANSKAMMER POINT GENERATING STATIONS, MAY 1997-APRIL 1998.

		ROSETON				DANSKAMMER POINT			
DATE		YOY[a]	YEARLING	ADULT	TOTAL[b]	YOY[a]	YEARLING	ADULT	TOTAL[b]
1997	May	24	0	0	24	46	32	0	78
	Jun	157	0	0	157	865	8	0	873
	Jul	232	7	0	239	1284	7	0	1290
	Aug	666	9	0	675	1899	15	0	1914
	Sep	50	0	0	50	363	7	0	370
	Oct	0	0	0	0	112	0	0	112
	Nov	0	0	0	0	121	0	0	121
	Dec	8	0	0	8	136	4	0	140
1998	Jan	0	52	10	62	0	1061	23	1085
	Feb	0	13	0	13	0	138	8	146
	Mar	0	0	0	0	0	234	8	241
	Apr	0	0	0	0	0	0	0	0
TOTAL		1137	81	10	1228	4826	1506	39	6370

[a]YOY = Young-of-the-year.

[b]Totals in some cases may exceed sum of age groups due to damaged specimens that could not be assigned to age groups.

TABLE 6-25. MONTHLY IMPINGEMENT RATE AND ESTIMATED TOTAL IMPINGEMENT ABUNDANCE AND BIOMASS OF ATLANTIC TOMCOD, ROSETON AND DANSKAMMER POINT GENERATING STATIONS, MAY 1997-APRIL 1998.

		ESTIMATED NUMBER		ESTIMATED BIOMASS	
		RATE (No./10^6 Gal)	ESTIMATED NUMBER	RATE (g/10^6 Gal)	ESTIMATED GRAMS
ROSETON					
1997	May	0.0032	24	0.0018	14
	Jun	0.0076	157	0.0200	416
	Jul	0.0102	239	0.0571	1,342
	Aug	0.0391	675	0.1878	3,242
	Sep	0.0051	50	0.0203	198
	Oct	0.0000	0	0.0000	0
	Nov	0.0000	0	0.0000	0
	Dec	0.0005	8	0.0061	103
1998	Jan	0.0037	62	0.1138	1,913
	Feb	0.0009	13	0.0111	157
	Mar	0.0000	0	0.0000	0
	Apr	0.0000	0	0.0000	0
TOTAL			1,228		7,385
DANSKAMMER POINT					
1997	May	0.0090	78	0.0665	574
	Jun	0.0736	873	0.2618	3,106
	Jul	0.1129	1,290	0.5711	6,529
	Aug	0.1679	1,914	0.8194	9,342
	Sep	0.0405	370	0.2727	2,488
	Oct	0.0185	112	0.1723	1,049
	Nov	0.0197	121	0.2985	1,835
	Dec	0.0222	140	0.5857	3,687
1998	Jan	0.1377	1,085	3.2618	25,692
	Feb	0.0234	146	0.5394	3,362
	Mar	0.0382	241	0.9693	6,126
	Apr	0.0000	0	0.0000	0
TOTAL			6,370		63,790

1998 tomcod data indicated below average impingement at both plants in January and December, with summer impingement rates about average at both plants (Figure 6-19).

Bay anchovy impingement has been restricted almost entirely to the period June - October in each year (Figure 6-20), with the peak typically occurring in August-September at both plants. In 1998 the bay anchovy impingement rate peaked in October at Roseton and in September at Danskammer Point.

Blueback herring seasonal impingement patterns have been similar at the two stations, with a well defined peak occurring in the fall of each year, typically in October (Figure 6-21). The fall peak represents the seaward migration of young-of-the-year fish from inland waters and the upper estuary. The 1998 data were generally consistent with this pattern, although the peak occurred in November at both plants.

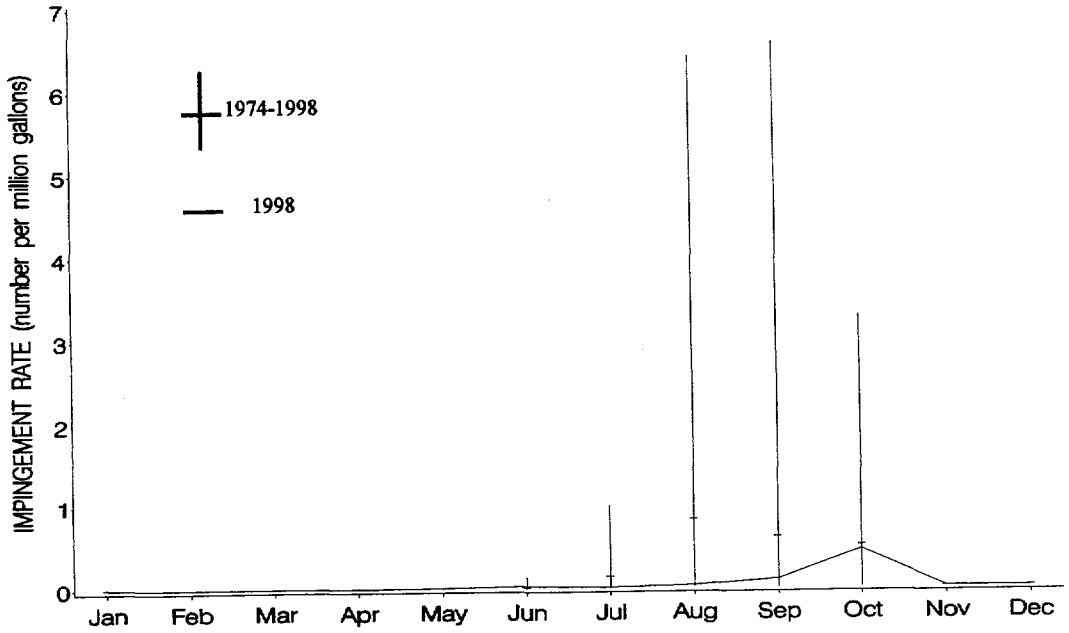
The seasonal patterns of spottail shiner impingement rates have been similar at the two stations, with generally higher rates at Danskammer Point (Figure 6-22). The greatest numbers of spottail shiner are typically impinged in the winter and spring. Although spottail shiners are usually impinged in every month, July through September represents the period of lowest impingement rates. There is usually a significant contribution by multiple age classes of spottail shiner to the impingement totals at Roseton and Danskammer Point Stations, with yearling and adults contributing in the early part of the year, and young-of-the-year and yearlings in the later months. The 1998 data were consistent with this long-term seasonal pattern.

Striped bass impingement can be characterized as lowest in the spring and highest in the summer and fall (Figure 6-23). Multi-year means for all months are higher at Danskammer Point than at Roseton. Yearlings have typically predominated during the first half of the year, and young-of-the-year in the second half of the year. The 1998 impingement levels generally followed a similar seasonal pattern, with highest numbers of young-of-the-year in October at both plants. The September and October impingement rates at Danskammer Point in 1998 were the highest for those months over the 25-year period of record.

White perch have generally exhibited a bimodal seasonal impingement pattern (Figure 6-24). The spring peak consists of yearlings and adults, whereas the fall peak is dominated by

Bay Anchovy

Roseton



Danskammer Point

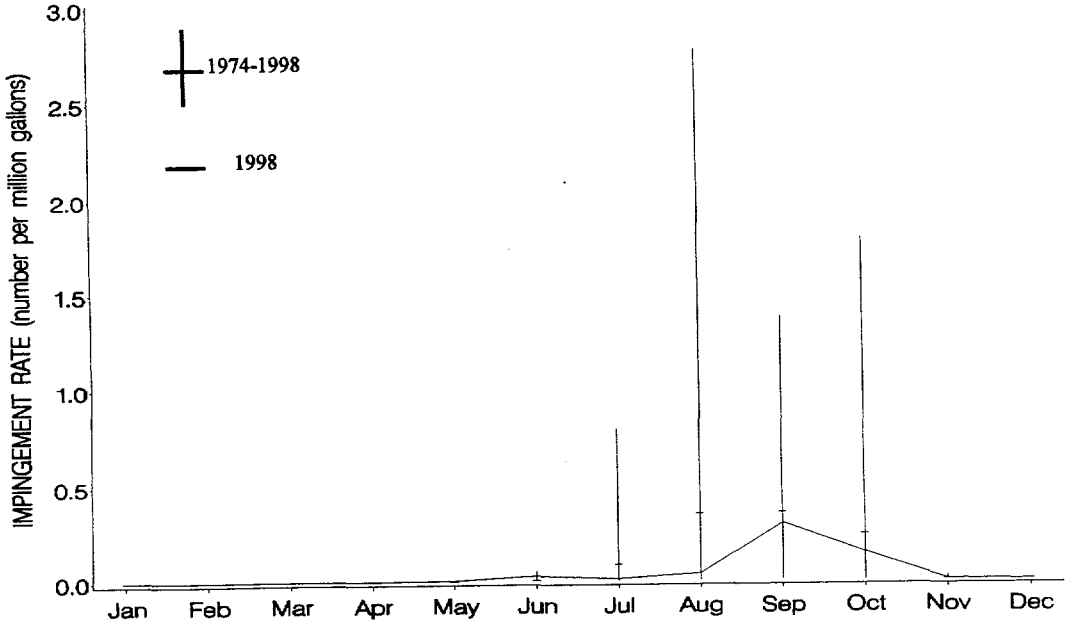
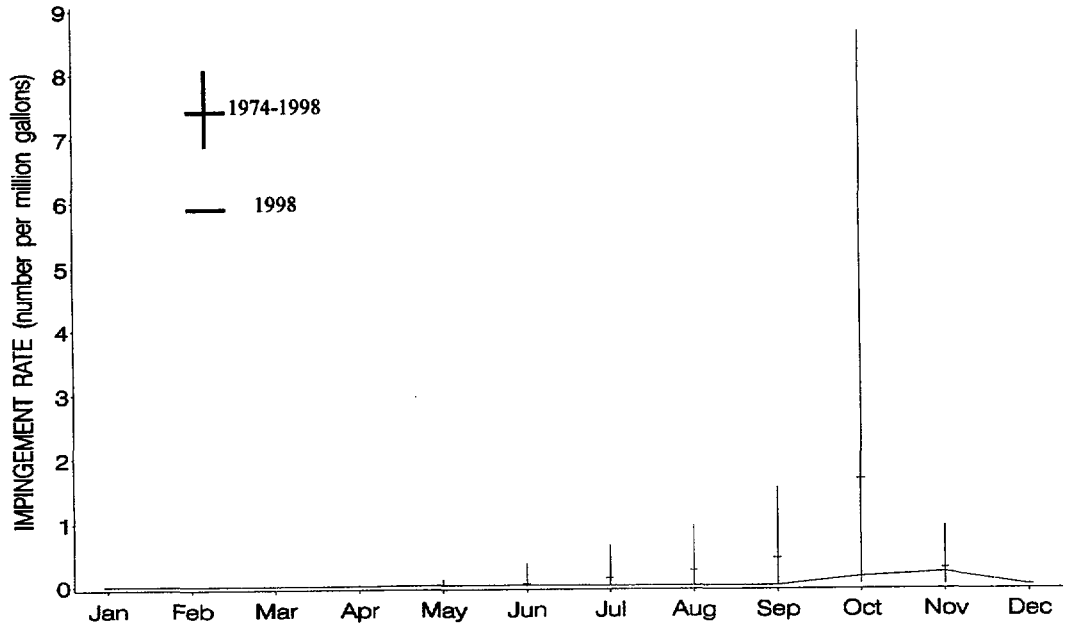


Figure 6-20. Monthly average impingement rate in 1998 for bay anchovy at Roseton and Danskammer Point generating stations and the long-term monthly average and range for 1974-1998.

Blueback Herring

Roseton



Danskammer Point

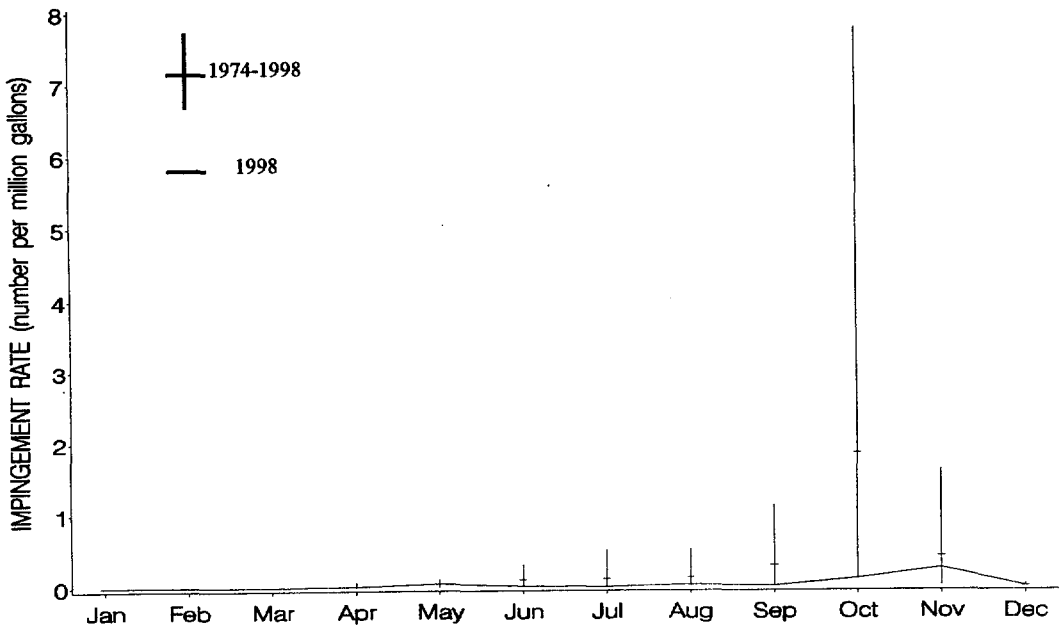
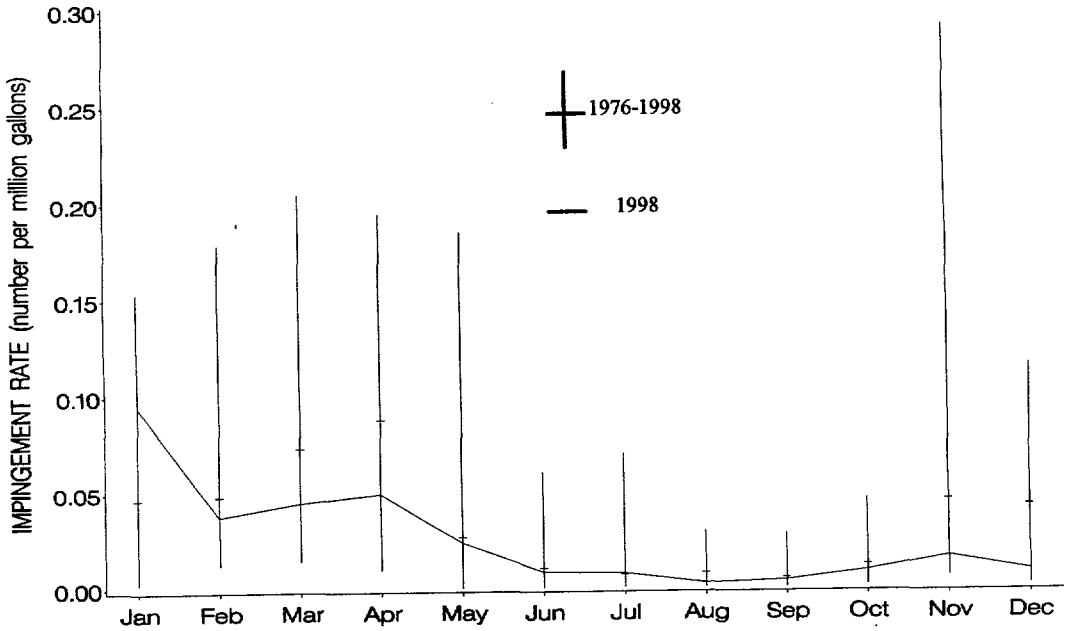


Figure 6-21. Monthly average impingement rate in 1998 for blueback herring at Roseton and Danskammer Point generating stations and the long-term monthly average and range for 1974-1998.

Spottail Shiner

Roseton



Danskammer Point

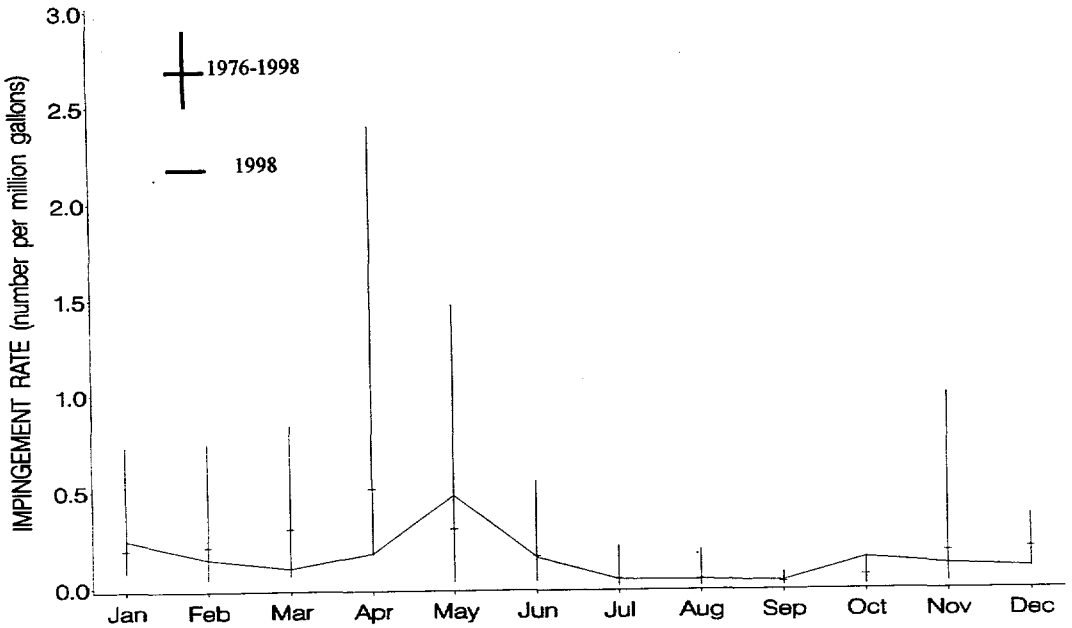
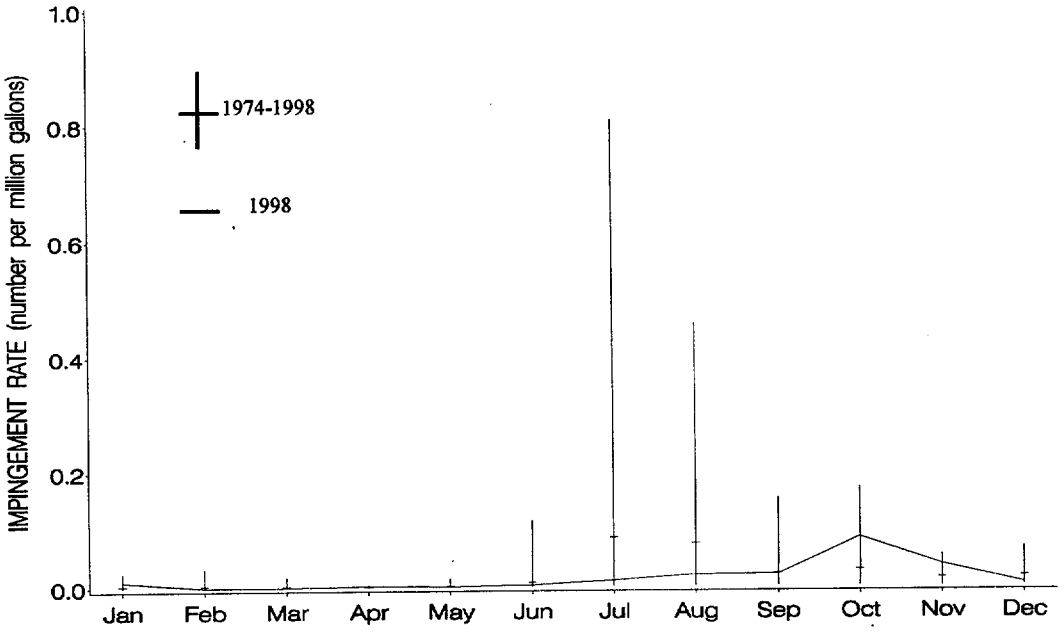


Figure 6-22. Monthly average impingement rate in 1998 for spottail shiner at Roseton and Danskammer Point generating stations and the long-term monthly average and range for 1976-1998.

Striped Bass

Roseton



Danskammer Point

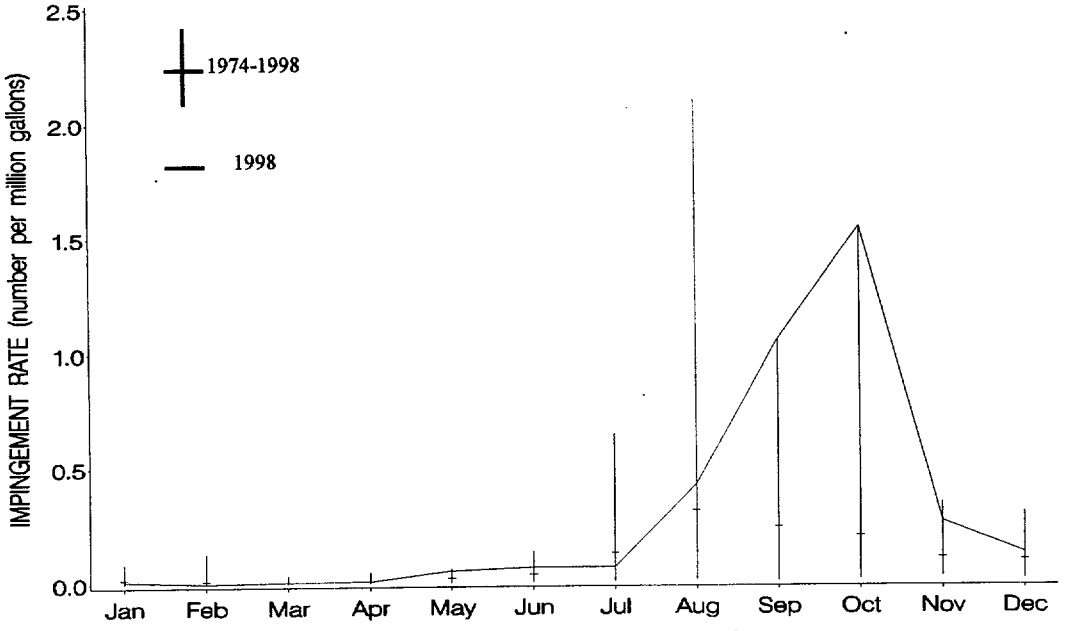
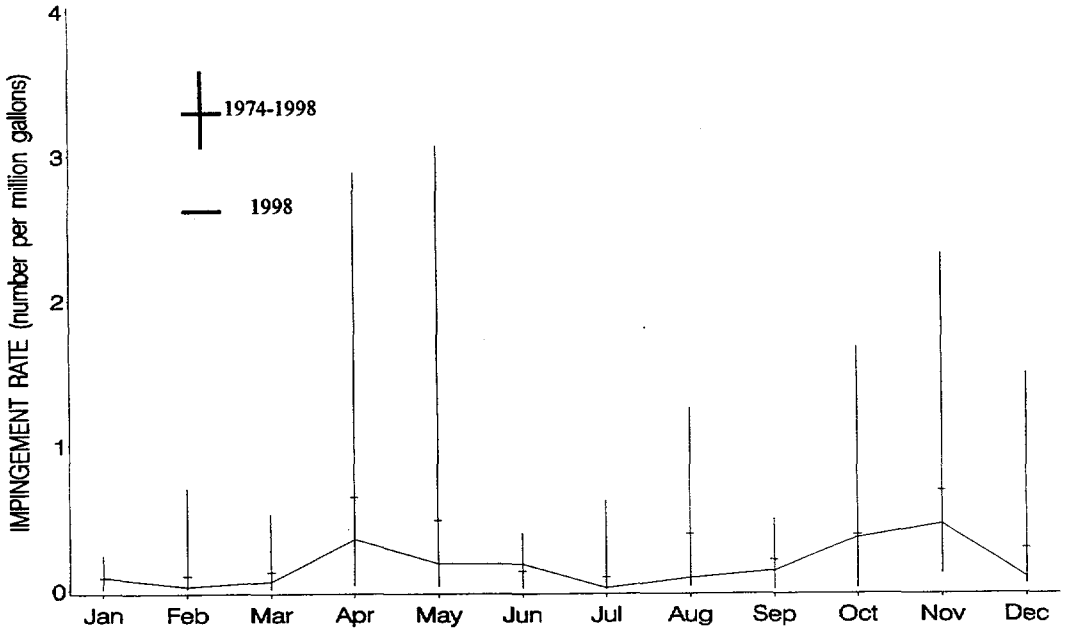


Figure 6-23. Monthly average impingement rate in 1998 for striped bass at Roseton and Danskammer Point generating stations and the long-term monthly average and range for 1974-1998.

White Perch

Roseton



Danskammer Point

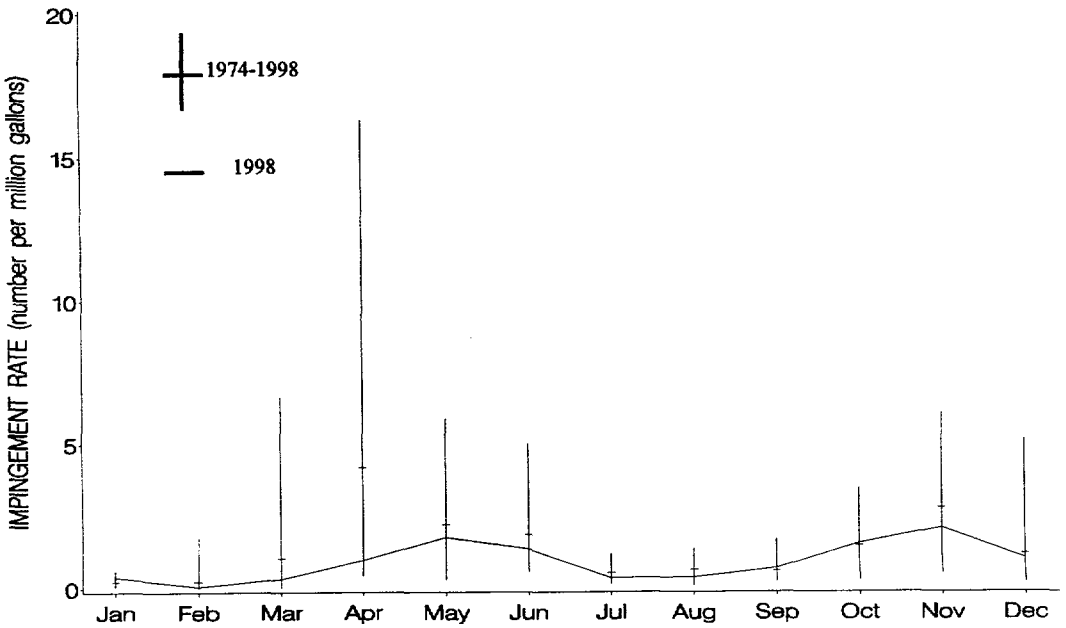


Figure 6-24. Monthly average impingement rate in 1998 for white perch at Roseton and Danskammer Point generating stations and the long-term monthly average and range for 1974-1998.

young-of-the-year with significant contributions of yearlings and adults as well. The spring peak coincides with spawning activity, and there is usually a distinct low period in the summer. In 1998, white perch impingement was consistent with this historical pattern.

6.6 IMPINGEMENT RELATED TO ABIOTIC FACTORS

During 1998 the influence of marine waters in the northern Newburgh Bay area of the Hudson River, characterized by an increase in specific conductance, occurred primarily in the fall. Typically during the summer and fall a number of species typically associated with marine waters are impinged, such as weakfish and bluefish. In 1998, those two species were present in modest numbers, which was consistent with specific conductance being at lower than average levels compared to previous years. This was in contrast to some previous years (for example, 1994 and 1996) when there was very little intrusion of saline water upriver as far as Roseton and Danskammer Point, but the abundance of marine species in 1998 was not as great as in years such as 1991, 1993, and 1995, when specific conductance was above average.

The unusually low salinity in 1996 must not have been the only factor responsible for the increased abundance of channel catfish noted in that year (NAI 1997b), as this primarily freshwater species occurred in even greater numbers in 1997. The increase in numbers of impinged channel catfish appears to be a long-term trend rather than merely a response to annual fluctuations in salinity. In 1998, the numbers of this species remained comparable to the numbers collected in 1997.

6.7 COMPARISON BETWEEN PLANTS

The cooling water flow, sampling effort, and a summary of impingement results for 1998 at Roseton and Danskammer Point are compared in Table 6-26. The annual mean rates of impingement were 0.3779 fish per million gallons (MG) at Roseton and 2.1620 fish/MG at Danskammer Point. The total number of fish estimated to have been impinged at Roseton (84,389±20,212) was less than the estimated number for Danskammer Point (220,320±42,272), despite the plant flow at Roseton being more than double the flow at Danskammer Point.

TABLE 6-26. SUMMARY OF IMPINGEMENT SAMPLING RESULTS, ROSETON AND DANSKAMMER POINT GENERATING STATIONS, 1998.

	ROSETON	DANSKAMMER POINT[a]
Number of dates sampled	52	52
Percent of dates sampled	14.2%	14.2%
Total plant cooling water flow	224,443.2 MG	105,980.04 MG
Volume of flow sampled	32,216.85 MG	15,163.35 MG
Percent of total plant flow sampled	14.4%	14.3%
Annual rate of impingement	0.3779/MG	2.1620/MG
Total number of fish collected (A)	12,617	32,110
Number of fish species identified[b]	38	45
Number of fish families represented	17	20
Estimated annual number of fish impinged (B)	84,389 ±20,212[c]	220,320 ±42,272[c]
Total fish biomass collected (C)	108.8 kg	1,215.7 kg
Estimated annual fish biomass impinged (D)	772.3 kg	8,741.4 kg
C/A = average weight of fish impinged	8.9 g	37.9 g
D/B = average weight of estimated number of fish	9.2 g	39.7 g

[a]Danskammer Point data for 1998 represent only Unit 3 and Unit 4 for half of the year, because Unit 1 and Unit 2 were off line for 26 of 52 sampling dates.
[b]Excluding the taxa unidentified clupeids and unidentified centrarchids.
[c]95% confidence interval
MG = million gallons
kg = kilograms
g = grams

Seasonal patterns in 1998 were generally similar at the two plants, with the highest abundances occurring in October and November. Estimated total impingement at both Roseton and Danskammer Point in 1998 was lowest in February.

There was a difference between the two plants in the average weight of fish impinged. Impinged fish at Roseton weighed an average of about 9 g compared to 38-40 g at Danskammer Point. Part of that difference was because the proportion of gizzard shad and white catfish in the samples was higher at Danskammer Point than at Roseton. Those two relatively large species (averaging over 10 g per fish) accounted for 12.5% of the fish in the Danskammer Point samples compared to only 6.2% at Roseton (Table 6-8). At Roseton, the two relatively small species, blueback herring and bay anchovy (averaging less than 10 g per fish), accounted for 26.1% of the fish in Roseton samples, but only 4.1% of the fish at Danskammer Point. Danskammer Point average fish weights have consistently been noted as being heavier in previous years, for example 1988 (LMS 1989), 1989 (NAI 1990), 1990 (NAI 1992), 1991 (LMS 1993), 1992 (LMS 1994), 1993 (NAI 1996a), 1994 (NAI 1996b), 1995 (NAI 1997a), 1996 (NAI 1997b), and 1997 (NAI 1998). The difference between the plants was also partly due to differences in average weight for the same species. White perch, gizzard shad, white catfish, striped bass, and blueback herring were all heavier on average at Danskammer Point than at Roseton.

The numbers of species and families present at the two plants were fairly similar, and the species composition was also similar. Two species new to the Danskammer impingement program were collected in 1998: blacknose dace, which was collected in May, and brook silverside, which was collected in January (Appendix Table A-2). Both had previously been collected at Roseton. Both are freshwater species and their presence in impingement samples reflects the lower than average salinities that occurred in those sampling weeks. Their presence has previously been recorded in the lower Hudson River region (Smith 1985).

6.8 LONG-TERM IMPINGEMENT PATTERNS

Annual impingement rates and estimates of the total number impinged each year during 1973-1998 are presented in Table 6-27 (Roseton) and Table 6-28 (Danskammer Point).

TABLE 6-27. ANNUAL MEAN IMPINGEMENT RATE,[a] ESTIMATED TOTAL NUMBER,[b] AND PERCENTAGE OF THE TOTAL ESTIMATED NUMBER IMPINGED FOR SELECTED SPECIES, ROSETON GENERATING STATION, 1973-1998.

	WHITE PERCH			STRIPED BASS			ATLANTIC TOMCOD			ALEWIFE		
YEAR	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED
1973[c]	0.898	9,157	41.4	0.039	490	2.2	0.014	259	1.2	1.187	1,873	8.5
1974	0.3733	37,330	64.6	0.0051	642	1.1	0.0445	4,296	7.4	0.0125	1,464	2.5
1975	0.6123	139,400	48.4	0.0058	1,388	0.5	0.0203	4,755	1.7	0.0484	12,214	4.2
1976	0.5290	104,183	69.4	0.0030	607	0.4	0.0388	7,208	4.8	0.0093	2,424	1.6
1977	0.5988	131,747	43.1	0.0098	2,730	0.9	0.0775	19,424	6.3	0.1248	37,251	12.2
1978	0.2135	57,980	28.2	0.0045	1,220	0.6	0.0065	1,670	0.8	0.0896	25,971	12.6
1979	0.3443	93,391	45.5	0.0044	1,187	0.6	0.0163	3,770	1.8	0.0314	9,578	4.7
1980	0.5259	131,259	41.2	0.0230	5,657	1.8	0.0151	3,637	1.1	0.0335	9,300	2.9
1981	0.4689	111,693	30.8	0.0205	5,091	1.4	0.0242	5,662	1.6	0.0975	27,611	7.6
1982	0.2195	47,252	31.7	0.0014	332	0.2	0.0094	2,044	1.4	0.0092	2,307	1.5
1983	0.4876	109,723	42.1	0.0092	2,181	0.8	0.0035	884	0.3	0.0351	10,101	3.9
1984	0.1614	38,362	21.4	0.0036	848	0.5	0.0114	2,698	1.5	0.0133	3,164	1.8
1985	0.1727	26,219	29.3	0.0020	427	0.5	0.0164	2,298	2.6	0.0300	5,144	5.8
1986	0.1525	35,833	49.3	0.0011	259	0.4	0.0020	439	0.6	0.0108	2,828	3.9
1987	0.3367	82,723	29.1	0.0073	2,019	0.7	0.0164	3,926	1.4	0.0292	8,951	3.2
1988	0.3285	80,358	44.9	0.0136	3,264	1.8	0.0020	478	0.3	0.0167	5,148	2.9
1989	0.3476	78,608	50.9	0.0042	1,030	0.7	0.0029	726	0.5	0.0032	946	0.6
1990	0.3069	68,224	24.3	0.0133	4,070	1.5	0.0035	804	0.3	0.0257	7,580	2.7
1991	0.2189	61,223	8.1	0.1021	33,159	4.4	0.0451	15,201	2.0	0.0782	25,320	3.4
1992	0.1560	40,328	19.0	0.0124	3,580	1.7	0.0011	290	0.1	0.0327	9,454	4.5
1993	0.2247	45,435	39.1	0.0311	6,226	5.4	0.0057	1,152	1.0	0.0338	6,743	5.8
1994	0.0845	17,441	11.5	0.0525	13,420	8.9	0.0019	411	0.3	0.1174	28,668	19.0
1995	0.2112	39,441	16.3	0.1194	26,126	10.8	0.0078	1,657	0.7	0.0656	14,664	6.1
1996	0.1609	23,528	40.8	0.0027	387	0.7	0.0022	382	0.7	0.0142	2,287	4.0
1997	0.1970	37,613	12.3	0.0698	14,259	4.7	0.0111	2,200	0.7	0.1512	27,177	8.9
1998	0.1681	37,296	44.2	0.0166	3,901	4.6	0.0037	930	1.1	0.0057	1,306	1.5

(Continued)

TABLE 6-27. (CONTINUED)

YEAR	AMERICAN SHAD			BAY ANCHOVY			BLUEBACK HERRING			SPOTTAIL SHINER			TOTAL SPECIES	
	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER
1973[c]	0.0016	21	0.1	0.176	1,107	5.0	0.599	6,377	28.8	0.064	1,515	6.9	2.062	22,105
1974	0.0025	337	0.6	0.0211	3,414	5.9	0.0257	2,764	4.8	0.0543	3,661	6.3	0.5944	57,775
1975	0.0094	2,348	0.8	0.0097	2,348	0.8	0.3338	78,854	27.4	0.0698	14,999	5.2	1.2518	288,149
1976	0.0015	367	0.2	0.0085	2,380	1.6	0.0444	10,447	7.0	0.0403	8,502	5.7	0.7449	150,069
1977	0.0082	2,426	0.8	0.0970	31,184	10.2	0.1777	46,066	15.1	0.0623	13,205	4.3	1.2578	305,956
1978	0.0137	4,138	2.0	0.1947	59,265	28.9	0.1081	28,984	14.1	0.0215	5,464	2.7	0.7297	205,341
1979	0.0177	5,397	2.6	0.0829	28,120	13.7	0.1629	40,936	19.9	0.0372	8,537	4.2	0.7541	205,320
1980	0.0226	6,435	2.0	0.1714	44,937	14.1	0.2461	62,909	19.8	0.0417	9,873	3.1	1.2690	318,528
1981	0.0632	17,543	4.8	0.1168	33,756	9.3	0.4874	125,914	34.7	0.0448	9,793	2.7	1.4366	362,734
1982	0.0100	2,649	1.8	0.1631	46,964	31.5	0.1082	23,703	15.9	0.0274	5,553	3.7	0.6336	148,904
1983	0.0197	5,209	2.0	0.2147	63,188	24.3	0.2390	43,554	16.7	0.0257	5,741	2.2	1.1280	260,513
1984	0.0090	2,131	1.2	0.1286	30,576	17.0	0.3778	89,792	50.0	0.0147	3,502	2.0	0.7554	179,544
1985	0.0118	1,927	2.2	0.1194	19,124	21.4	0.1031	18,740	20.0	0.0105	2,757	3.1	0.5338	89,343
1986	0.0141	4,008	5.5	0.0214	6,101	8.4	0.0384	9,707	13.4	0.0213	4,651	6.4	0.3004	72,627
1987	0.082	2,407	0.8	0.0470	15,884	5.6	0.5389	138,756	48.9	0.0308	6,802	2.4	1.1109	284,038
1988	0.0128	3,748	2.1	0.0272	6,706	3.7	0.2546	52,530	29.4	0.0190	4,131	2.3	0.7728	178,900
1989	0.0087	2,496	1.6	0.0027	800	0.5	0.0951	24,755	16.0	0.0500	10,861	7.0	0.6681	154,515
1990	0.0188	5,476	2.0	0.3207	86,700	30.9	0.3135	79,660	28.4	0.0463	10,264	3.7	1.1275	280,478
1991	0.0536	17,107	2.3	1.4419	446,100	59.1	0.2774	74,417	9.9	0.0427	9,889	1.3	2.5101	754,486
1992	0.0155	4,596	2.2	0.1743	45,735	21.6	0.2975	82,680	30.0	0.0227	5,060	2.4	0.7975	212,089
1993	0.0063	1,271	1.1	0.0658	13,062	11.2	0.0706	14,056	12.1	0.0237	3,762	3.2	0.6007	116,325
1994	0.0283	7,404	4.9	0.0491	7,400	4.9	0.2569	48,175	31.9	0.0229	4,580	3.0	0.7273	151,080
1995	0.0327	7,458	3.1	0.4292	66,146	27.4	0.2206	34,721	14.4	0.0580	9,459	3.9	1.3899	241,724
1996	0.0018	250	0.4	0.0004	65	0.1	0.0351	5,175	9.0	0.0573	8,645	15.0	0.3834	57,676
1997	0.0121	2,287	0.7	0.2919	51,969	17.0	0.7852	137,743	45.1	0.0406	6,290	2.1	1.7047	305,523
1998	0.0029	685	0.8	0.0510	12,010	14.2	0.0308	6,893	8.2	0.0254	5,249	6.2	0.3779	84,389

[a]Mean of the monthly rates (number of fish per million gallons).
[b]Computed from the sum of the monthly estimates.
[c]Impingement samples began July 1973.
Source of 1973-1988 and 1991-1992 data: LMS (1989) and LMS (1994)
Source of 1989-1990 and 1993-1997 data: NAI (1992) and NAI (1998)

TABLE 6-28. ANNUAL MEAN IMPINGEMENT RATE,[a] ESTIMATED TOTAL NUMBER,[b] AND PERCENTAGE OF THE TOTAL ESTIMATED NUMBER IMPINGED FOR SELECTED SPECIES, DANSKAMMER POINT GENERATING STATION, 1973-1998.

	WHITE PERCH			STRIPED BASS			ATLANTIC TOMCOD			ALEWIFE		
YEAR	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED
1973[c]	0.8015	110,545	10.8	0.1451	18,992	1.8	6.9843	647,076	63.0	1.0048	148,912	14.5
1974	0.7105	84,253	25.5	0.0464	6,293	1.9	1.5781	155,908	47.1	0.2190	31,379	9.5
1975	0.8054	98,230	30.3	0.0214	2,588	0.8	0.6212	46,926	14.5	0.2338	29,755	9.2
1976	1.2230	117,738	47.8	0.0142	1,421	0.6	0.5373	54,637	22.2	0.0921	9,920	4.0
1977	1.3002	140,835	47.4	0.0175	1,859	0.6	0.3041	26,879	9.1	0.2076	24,633	8.3
1978	0.5456	52,240	29.3	0.0141	1,495	0.8	0.1976	18,395	10.3	0.2298	24,343	13.7
1979	0.8349	79,089	40.6	0.0257	2,087	1.1	0.3874	32,174	16.5	0.1112	10,841	5.6
1980	1.8991	175,055	51.1	0.0575	6,401	1.9	0.1125	8,498	2.5	0.2845	33,740	9.9
1981	1.3767	139,865	54.6	0.0586	5,443	2.1	0.2914	27,649	10.8	0.1387	18,086	7.1
1982	1.9937	221,359	65.5	0.0281	2,982	0.9	0.2034	19,453	5.6	0.1379	16,085	4.8
1983	2.3047	226,752	51.3	0.0677	7,576	1.7	0.1273	12,945	2.9	0.2097	26,205	5.9
1984	2.1701	243,465	56.2	0.0522	5,858	1.4	0.2132	23,916	5.5	0.1884	21,132	4.9
1985	1.2503	117,662	34.2	0.0437	4,145	1.2	0.2541	25,622	7.5	0.3980	32,812	9.5
1986	1.6122	157,880	70.0	0.0103	933	0.4	0.0211	1,774	0.8	0.0761	8,460	3.7
1987	2.6613	233,444	55.9	0.0558	6,091	1.5	0.1765	16,319	3.9	0.1942	22,393	5.4
1988	1.2841	148,803	42.9	0.0752	9,780	2.8	0.0984	10,868	3.1	0.0886	12,643	3.6
1989	1.4074	157,697	54.6	0.0315	3,808	1.3	0.0622	6,617	2.3	0.0289	3,693	1.3
1990	1.9640	187,977	62.8	0.0438	5,338	1.8	0.0758	6,832	2.3	0.0325	4,530	1.5
1991	1.1710	138,101	30.2	0.3212	43,482	9.5	0.0989	12,232	2.7	0.2030	27,570	6.0
1992	1.0800	112,707	57.9	0.0489	5,760	3.0	0.0371	3,187	1.6	0.0684	8,010	4.1
1993	1.8431	135,887	41.1	0.3040	29,498	8.9	0.1371	10,637	3.2	0.2095	18,561	5.6
1994	0.8807	66,688	33.3	0.1504	14,994	7.5	0.0084	722	0.4	0.2458	23,864	11.9
1995	1.1950	116,059	38.1	0.1987	23,084	7.6	0.0219	2,480	0.8	0.1270	14,775	4.8
1996	1.9479	153,146	50.8	0.0987	11,305	3.7	0.1079	10,409	3.5	0.0716	7,143	2.4
1997	1.0601	98,350	29.2	0.3883	44,786	13.3	0.3044	24,613	7.3	0.1974	20,255	6.0
1998	0.9122	92,685	42.1	0.3012	35,586	16.2	0.0428	4,966	2.3	0.0609	6,306	2.9

(Continued)

TABLE 6-28. (CONTINUED)

YEAR	AMERICAN SHAD			BAY ANCHOVY			BLUEBACK HERRING			SPOTTAIL SHINER			TOTAL SPECIES	
	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER
1973[c]	0.0089	1,266	0.1	0.1540	1,852	0.2	0.2230	29,234	2.8	0.1499	16,137	1.6	9.7541	1,027,304
1974	0.0164	2,444	0.7	0.0148	2,252	0.7	0.0959	13,339	4.0	0.0886	9,672	2.9	3.0032	330,788
1975	0.0186	2,456	0.8	0.0138	2,047	0.6	0.7473	100,111	30.9	0.0967	9,855	3.0	2.8647	323,874
1976	0.0180	2,011	0.8	0.0005	69	<0.1	0.1224	14,176	5.8	0.1584	14,279	5.8	2.4985	246,258
1977	0.0209	2,600	0.9	0.0102	1,253	0.4	0.2546	30,096	10.1	0.2127	21,547	7.3	2.8116	296,947
1978	0.0325	3,624	2.0	0.0292	2,829	1.6	0.3826	40,526	22.7	0.0743	6,856	3.8	1.7946	178,155
1979	0.0409	4,201	2.2	0.0174	1,962	1.0	0.2662	26,397	13.6	0.1814	15,170	7.8	2.1290	194,879
1980	0.0857	11,502	3.4	0.0730	9,833	2.9	0.1648	19,615	5.7	0.2080	15,756	4.6	3.4804	342,353
1981	0.0351	4,628	1.8	0.0052	620	0.2	0.0527	6,563	2.6	0.1521	13,783	5.4	2.5185	256,371
1982	0.0291	3,305	1.0	0.0780	9,456	2.8	0.0850	9,980	3.0	0.1186	12,566	3.7	3.0828	337,976
1983	0.1310	16,814	3.8	0.2016	25,128	5.7	0.2071	23,288	5.3	0.1810	17,688	4.0	4.2397	442,392
1984	0.1286	14,426	3.3	0.1315	16,601	3.8	0.3600	40,390	9.3	0.1401	15,715	3.6	3.8611	433,174
1985	0.1256	11,632	3.4	0.2072	26,310	7.7	0.7605	62,182	18.1	0.1227	13,689	4.0	3.7039	343,824
1986	0.0216	2,179	1.0	0.0107	1,350	0.6	0.0571	6,217	2.8	0.2114	19,642	8.7	2.3160	225,685
1987	0.0260	2,911	0.7	0.0684	8,928	2.1	0.3750	42,879	10.3	0.4409	37,702	9.0	4.5056	417,367
1988	0.0498	7,094	2.0	0.1811	25,115	7.2	0.4292	58,149	16.8	0.1124	12,035	3.5	2.8443	346,490
1989	0.0359	4,648	1.6	0.0126	1,400	0.5	0.0832	9,586	3.3	0.2717	28,595	9.9	2.5984	288,595
1990	0.0169	2,212	0.7	0.0497	7,320	2.4	0.2427	30,743	10.3	0.1572	14,522	4.9	2.9967	299,126
1991	0.0974	13,646	3.0	0.3265	45,938	10.1	0.6018	69,471	15.2	0.2007	20,655	4.5	3.7839	456,672
1992	0.0426	5,198	2.7	0.0121	1,452	0.7	0.1033	12,334	6.3	0.1286	11,973	6.1	1.8891	194,771
1993	0.0587	5,756	1.7	0.2156	22,359	6.8	0.3329	26,355	8.0	0.1550	11,149	3.4	4.2743	330,259
1994	0.1338	12,056	6.0	0.0084	918	0.5	0.1868	14,799	7.4	0.1181	8,884	4.4	2.4302	200,390
1995	0.0284	3,195	1.0	0.1728	22,187	7.3	0.1867	18,277	6.0	0.2296	20,234	6.6	3.1546	304,842
1996	0.0488	5,021	1.7	0.0030	361	0.1	0.0782	6,740	2.2	0.3461	28,140	9.3	3.7041	301,615
1997	0.0664	7,505	2.2	0.3025	39,056	11.6	0.1426	11,922	3.5	0.1349	13,468	4.0	3.3104	337,054
1998	0.0589	5,658	2.6	0.0440	5,847	2.7	0.0374	3,241	1.5	0.1449	14,391	6.5	2.1620	220,320

[a]Mean of the monthly rates (number of fish per million gallons).
[b]Computed from the sum of the monthly estimates.
[c]Impingement samples began July 1973.
Source of 1973-1988 and 1991-1992 data: LMS (1989) and LMS (1994)
Source of 1989-1990 and 1993-1997 data: NAI (1992) and NAI (1998)

6.8.1 Roseton Generating Station

The estimated total impingement at Roseton in 1998 for all species combined was 84,389 This total was the fourth lowest estimate in the 25-year period of record (excluding 1973 when impingement sampling was only conducted for six months). The numerically dominant species, white perch, was impinged in lower numbers in only four previous years. In most of the 24 previous years at Roseton, white perch was the dominant species, except for six years in which blueback herring predominated, and four years when bay anchovy was the most abundant species impinged. At Roseton in 1998, compared to the previous 24 years, lower numbers were impinged in only one year for alewife, two years for blueback herring, and three years for American shad (Table 6-27).

6.8.2 Danskammer Point Generating Station

The 1998 total estimated impingement at Danskammer Point of 220,320 fish was lower than in all but four of the previous 24 years. Striped bass were impinged in higher numbers than usual at Danskammer Point. The total number estimated to have been impinged during 1998 was the third highest in 25 years for striped bass (Table 6-28). Alewife, blueback herring and American shad were each impinged in lower numbers than in most previous years. The dominant species in 1998 was white perch, as it has been in all but two of the previous 24 years. In 1974 unusually high numbers of Atlantic tomcod were impinged, and in 1975 blueback herring were particularly abundant.

6.9 RELEASED FISH AND INVERTEBRATES

Efforts were made at both plants to return living fish and invertebrates to the Hudson River following analysis. Living organisms were placed in a container of river water as soon as possible after the sample was collected. Following analysis, living organisms were returned to the river south of the Roseton seal well. During times when access or lack of water prevented release at this location, organisms were released at a nearby shoreline location.

At Roseton 728 fish (5.8% of the total collected during the year) and 31,180 invertebrates (81.9% of the total collected) were released alive (Table 6-29). Predominant fish species

TABLE 6-29. NUMBER OF FISH AND INVERTEBRATES RELEASED ALIVE FOLLOWING ANALYSIS, ROSETON GENERATING STATION, 1998.

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
Fish													
American eel										3			3
Atlantic tomcod	1							1					2
Banded killifish	1												1
Bluegill											1		1
Brown bullhead	2		1	76	14	5	1			6	2		107
Channel catfish	14		12	17		1	1				3	2	50
Common carp	1												1
Golden shiner	1												1
Goldfish			1										1
Hogchoker		1		20	11				3	24	2	3	64
Pumpkinseed	3			4									7
Spottail shiner	1			1									2
Striped bass													
Threespine stickleback		4	4										8
White catfish	1			1	1		1			32	425	9	470
White perch											2		2
Yellow perch	1	2	5										8
TOTAL	26	7	23	119	26	6	3	1	3	65	435	14	728
Invertebrates													
Blue crab				4	1156	1875	1787	3365	13176	6924	2742	81	31110
Crayfish					1	1	1	1					4
Mud crab	1			27	6			1	2	8	11	10	66
TOTAL	1			31	1163	1876	1788	3367	13178	6932	2753	91	31180

released alive were white catfish, brown bullhead, hogchoker, and channel catfish, representing 64.6% (470), 14.7% (107), 8.8% (64), and 6.9% (50) of the total released, respectively. Blue crabs accounted for most of the invertebrates, representing 99.8% (31,110) of the invertebrates released.

At Danskammer Point in 1998, 2,838 fish (8.8% of the total collected in 1998) were released alive and 15,697 invertebrates (85.6% of the total collected) were released alive (Table 6-30). Predominant fish species released alive were white catfish, brown bullhead, channel catfish, and Atlantic tomcod, representing 66.8% (1,896), 9.4% (268), 6.7% (189), and 4.2% (120) of the total released, respectively. Blue crab was the predominant invertebrate released alive, representing 98.2% (15,413) of the total released.

Overall, the number of fish released alive was generally highest in November (mainly white catfish) at both plants. At Roseton, the greatest number of fish released alive in one month was 435, in November (59.8% of the total released during the year), and the lowest number of fish released alive in one month was one, in August. At Danskammer Point, the most fish released alive in a month was 1,540 in November (54.3% of the year's total), and the lowest number of fish released alive in one month was 11, in September (0.4% of the year's total). The greatest number of invertebrates were released in September-October at both plants. Overall, the seasonal pattern of numbers of fish and invertebrates released alive corresponded with the seasonal pattern of abundances impinged of some of the hardier species, and with cooler water temperatures and higher dissolved oxygen content.

TABLE 6-30. NUMBER OF FISH AND INVERTEBRATES RELEASED ALIVE FOLLOWING ANALYSIS, DANSKAMMER POINT GENERATING STATION, 1998.

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
Fish													
American eel	1			4	4	3	1	3	4	2	2	1	25
Atlantic tomcod	64	18	17									21	120
Banded killifish			2										2
Black crappie	1				1					1			3
Blacknose dace					1								1
Bluegill					4			1		4	2	9	20
Brown bullhead	11	2	2	80	116	39	5	7		4	2		268
Central mudminnow				1									1
Channel catfish	39	23	40	20	13					4	16	34	189
Common carp	4			1									5
Freshwater drum						1				1	1		3
Gizzard shad												1	1
Golden shiner	46	25	1	1						1		1	75
Goldfish	9	1		1	1								12
Hogchoker				2	5	1	2		1	18	5	4	38
Largemouth bass	1	1	1									2	5
Mummichog				1									1
Pumpkinseed	13	3	1	18	15				1	7	2	4	64
Shortnose sturgeon		1											1
Spottail shiner	2	9	1		2			1				3	18
Striped bass			1									2	3
Tessellated darter		1	1	2								1	5
Threespine stickleback		12	2										14
White catfish	2	2	1	2	3	5	4	3	2	247	1509	116	1896
White perch	3	1	1	2	1		4		3	2		16	33
Yellow perch	10	4	12	6							1	2	35
TOTAL	206	103	83	141	166	49	16	15	11	291	1540	217	2838
Invertebrates													
Blue crab	2			3	586	1184	1116	1779	5650	3910	1038	145	15413
Crayfish				4		4	1	3	1				13
Mud crab	1			80	26	5		1		6	26	126	271
TOTAL	3			87	612	1193	1117	1783	5651	3916	1064	271	15697

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7.0 LITERATURE CITED

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APPENDIX A

ANNUAL IMPINGEMENT ABUNDANCE BY SPECIES

LIST OF APPENDIX A TABLES

A-1. Species representation and abundance in the impingement monitoring program, Roseton Generating Station, 1973-1998.

A-2. Species representation and abundance in the impingement monitoring program, Danskammer Point Generating Station, 1974-1998.

APPENDIX TABLE A-1. SPECIES REPRESENTATION AND ABUNDANCE IN THE IMPINGEMENT MONITORING PROGRAM, ROSETON GENERATING STATION, 1973-1998.

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
White perch	8798	5654	18411	15136	24616	12566	22212	28112	26824	8731
Blueback herring	7676	485	9549	1404	11022	5421	8422	18094	33590	4761
Bay anchovy	1248	515	408	333	9007	14199	6406	11675	9260	7124
Alewife	1435	254	1967	329	9201	5711	2208	2125	7719	455
Spottail shiner	334	700	1902	1107	1934	873	1453	1652	1816	742
Striped bass	416	86	207	89	604	242	207	1128	1174	60
American shad	19	28	342	51	551	843	1097	1372	4662	502
Gizzard shad	15	25	736	333	395	444	191	714	2497	144
Pumpkinseed	16	77	267	273	336	231	607	5146	864	1397
Atlantic tomcod	78	860	613	1126	3484	293	542	601	1102	282
Hogchoker	74	40	243	129	233	198	151	719	177	206
Rainbow smelt	97	14	445	74	630	1920	400	572	53	58
White catfish	190	234	1059	406	679	214	140	149	101	251
Brown bullhead	3	16	35	32	25	14	74	159	309	96
Golden shiner	29	38	57	35	111	64	57	78	84	64
Weakfish					3			641	19	26
Bluegill	118	20	729	53	204	33	79	302	81	142
Banded killifish	3	6	31	34	24	39	103	582	228	90
Atlantic menhaden						1	2	5	25	2
Tessellated darter	6	19	101	153	69	309	450	246	54	54
Yellow perch		11	52	31	65	86	83	105	273	126
Herring family					332	5	5	62	547	22
Goldfish	12	23	51	47	126	266	206	63	135	17
American eel	5	27	134	85	150	57	59	59	54	22
Bluefish		1	109		9	8	1	30	12	5
Channel catfish										
Largemouth bass		2	14	6	5	2	11	53	44	10
Black crappie	3	2		3	8	3	2	4	8	1
Threespine stickleback		2	4	1	4	1	8	7	2	5
Fourspine stickleback				1	2	1	9	52	27	18
Common carp			4		1	9	11	13	6	
Sunfish family							1		1	
Redbreast sunfish		4	6	4	7	17	8	16	21	10
Freshwater drum										
White crappie					41	2			1	
White bass			1	4	32	12				
Atlantic sturgeon	3	4	9	2	11	5		1	3	1
Atlantic croaker										
Crevalle jack								3	4	1
Mummichog				1		3		4	1	1
Spot				2	24					
Rock bass	1		3	2	1		6		4	
Naked goby										
Atlantic silverside										
Smallmouth bass					1					2

(CONTINUED)

APPENDIX TABLE A-1. (CONTINUED)

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
Central mudminnow				1	9	1		4		
Brook silverside										
Black bullhead					2	10	1	2		
White sucker		2			1	1	1		2	1
Fathead minnow						1	1			
Yellow bullhead			3		2		4		1	
Atlantic needlefish								1		
Summer flounder								2		
Emerald shiner				1						
Hickory shad							2	1		
Northern pipefish								1		1
Spanish mackerel										
Bluntnose minnow										
Sea lamprey										
Shortnose sturgeon		1								
Morone species										
Brown trout							1			
Chain pickerel									2	1
Eastern silvery minnow					1					
White mullet								1		
Winter flounder										
Ictalurus species								1		
Silver perch										
Striped searobin										2
Blacknose dace										
Brook stickleback										
Butterfish										
Carp and minnow family					1					
Conger eel										
Creek chub										
Eastern mudminnow										
Fat sleeper										
Kokanee										
Lepomis species										
Longnose gar										
Northern pike										
Northern stargazer								1		
Pimephales species										
Redfin pickerel										
Spotfin shiner			1							
Warmouth			1							
Total	20579	9150	37494	21288	63963	44105	45221	74558	91787	25433
Species	23	29	32	33	40	37	36	41	38	37

(CONTINUED)

APPENDIX TABLE A-1. (CONTINUED)

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
White perch	22141	7934	6308	5172	16351	14423	11506	11596	8742	5497
Blueback herring	7041	23083	3764	1500	40512	9849	3670	11248	10725	11479
Bay anchovy	14367	7255	4360	1009	2763	1413	113	13129	68080	5740
Alewife	2138	617	1097	430	1913	793	137	1051	3509	1322
Spottail shiner	1102	492	383	659	1040	659	1547	1717	1457	681
Striped bass	422	196	74	36	462	635	145	553	4584	504
American shad	1031	525	430	601	521	569	353	728	2369	616
Gizzard shad	616	52	208	249	423	658	2392	571	959	303
Pumpkinseed	731	667	464	322	639	1025	554	452	484	267
Atlantic tomcod	168	524	598	65	585	68	97	117	1993	42
Hogchoker	589	193	855	75	1018	703	860	467	2234	572
Rainbow smelt	94	56	105	124	1444	125	14	59	393	540
White catfish	499	270	85	65	170	177	173	244	59	75
Brown bullhead	305	85	106	144	93	272	74	120	160	335
Golden shiner	73	58	31	94	120	137	389	158	372	206
Weakfish	46	1	352			68	10		1946	
Bluegill	59	81	20	8	80	244	100	107	87	23
Banded killifish	70	25	52	63	64	96	24	62	106	78
Atlantic menhaden	1		4	5	6		3	46	2684	52
Tessellated darter	128	22	43	24	46	58	66	20	195	184
Yellow perch	118	54	34	45	47	36	71	93	89	76
Herring family			2	8	10	7	5	55		
Goldfish	10	8	9	5	8	22	34	15	23	19
American eel	39	17	16	5	31	36	15	35	44	27
Bluefish	42	2	62		67	9	9	2	609	3
Channel catfish			1		1	4	5	4	3	11
Largemouth bass	9	4	3	19	18	34	14	24	16	20
Black crappie	8	4	2	6	6	2	7	14	15	11
Threespine stickleback	2	4	15	2	10	13	20	3	13	16
Fourspine stickleback	15	1		5	12	2	2	2	3	10
Common carp	1		2	8	8	3	2	4	15	26
Sunfish family				1		2	27	61		
Redbreast sunfish	3			2	6	1	6	8	1	6
Freshwater drum							10	6	1	
White crappie	2	3	4	3	2	4	2	2	4	5
White bass					1		1	2	2	
Atlantic sturgeon	3	2		1	1				1	
Atlantic croaker										
Crevalle jack	2				2	3		4		
Mummichog	1						1	3		
Spot										
Rock bass				2	1					
Naked goby									15	1
Atlantic silverside				1					7	
Smallmouth bass	3	3	1	2			1		2	1

(CONTINUED)

APPENDIX TABLE A-1. (CONTINUED)

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
Central mudminnow								1		
Brook silverside										1
Black bullhead					1					
White sucker	2		1							1
Fathead minnow	1				4	1	1	2		1
Yellow bullhead		3			1	1				
Atlantic needlefish				1	3		1	3	2	1
Summer flounder				2					5	
Emerald shiner										
Hickory shad					3	1			1	
Northern pipefish									3	
Spanish mackerel									7	
Bluntnose minnow	5									
Sea lamprey						1		2		
Shortnose sturgeon		1	1			1				
Morone species										
Brown trout										
Chain pickerel									1	
Eastern silvery minnow	1									
White mullet			1							
Winter flounder										
Ictalurus species				1						
Silver perch										
Striped searobin										
Blacknose dace										
Brook stickleback										
Butterfish										
Carp and minnow family										
Conger eel										1
Creek chub		1								
Eastern mudminnow	1									
Fat sleeper										
Kokanee				1						
Lepomis species									1	
Longnose gar							1			
Northern pike									1	
Northern stargazer										
Pimephales species	1									
Redfin pickerel								1		
Spotfin shiner										
Warmouth										
Total	51890	42243	19493	10765	68493	32155	22462	42791	112022	28753
Species	40	33	34	36	40	37	39	40	45	38

(CONTINUED)

APPENDIX TABLE A-1. (CONTINUED)

	1993	1994	1995	1996	1997	1998
White perch	6540	2435	6051	3409	6755	5310
Blueback herring	2245	7458	4698	1283	28374	1223
Bay anchovy	2028	1232	9539	16	9907	2067
Alewife	1049	4177	2239	384	5662	200
Spottail shiner	536	689	1424	1293	969	725
Striped bass	1092	1849	3891	63	2567	582
American shad	223	1107	1136	56	443	108
Gizzard shad	986	509	1622	441	2005	146
Pumpkinseed	503	346	760	305	445	286
Atlantic tomcod	160	55	258	57	347	138
Hogchoker	384	315	462	169	100	87
Rainbow smelt	924	599	209		1	
White catfish	289	159	131	252	111	630
Brown bullhead	109	921	407	103	856	260
Golden shiner	128	163	376	446	290	119
Weakfish	178		9		76	9
Bluegill	217	67	117	91	58	76
Banded killifish	14	169	969	134	45	9
Atlantic menhaden		4	79	6	3	20
Tessellated darter	12	76	245	41	125	72
Yellow perch	50	38	39	84	83	38
Herring family	1		464	121	1	2
Goldfish	10	4	42	27	24	13
American eel	11	20	83	22	52	26
Bluefish	31		54		20	21
Channel catfish	9	14	51	196	212	256
Largemouth bass	20	4	23	9	26	9
Black crappie	13	13	67	39	23	9
Threespine stickleback	7	49	17	8	6	17
Fourspine stickleback		14	31	10	10	2
Common carp	17	12	15	16	24	22
Sunfish family	2	13	36	9	17	6
Redbreast sunfish	3	7	9	4	9	3
Freshwater drum	4	5		1	5	69
White crappie						
White bass			2	1		
Atlantic sturgeon						
Atlantic croaker			16			30
Crevalle jack	1		1			12
Mummichog		1	2	4	3	2
Spot			1			
Rock bass	4		1	1		
Naked goby			1		2	1
Atlantic silverside			11			
Smallmouth bass				1		2

(CONTINUED)

APPENDIX TABLE A-1. (CONTINUED)

	1993	1994	1995	1996	1997	1998
Central mudminnow		1	1			
Brook silverside			5	10	1	
Black bullhead						
White sucker		1				3
Fathead minnow	2	1				
Yellow bullhead						
Atlantic needlefish		1				
Summer flounder	1					
Emerald shiner					1	7
Hickory shad					1	
Northern pipefish	1		2			
Spanish mackerel						
Bluntnose minnow					1	
Sea lamprey				2	1	
Shortnose sturgeon		1	1			
Morone species	1		3		1	
Brown trout	1			2		
Chain pickerel						
Eastern silvery minnow					1	
White mullet	1					
Winter flounder	2	1				
Ictalurus species						
Silver perch			1		1	
Striped searobin						
Blacknose dace					1	
Brook stickleback				1		
Butterfish			1			
Carp and minnow family						
Conger eel						
Creek chub						
Eastern mudminnow						
Fat sleeper		1				
Kokanee						
Lepomis species						
Longnose gar						
Northern pike						
Northern stargazer						
Pimephales species						
Redfin pickerel						
Spotfin shiner						
Warmouth						
Total	17809	22531	35602	9117	59665	12617
Species	38	38	45	37	42	38

Source of 1973-1997 data: NAI (1998)

A higher taxon was not counted as an additional species unless no species from that taxon was recorded that year.

APPENDIX TABLE A-2. SPECIES REPRESENTATION AND ABUNDANCE IN THE IMPINGEMENT MONITORING PROGRAM, DANSKAMMER POINT GENERATING STATION, 1974-1998.

	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
White perch	10396	14152	18875	28415	11106	16095	42961	34019	57323	62672
Blueback herring	1869	9711	1997	5633	10298	6241	5089	1318	2369	5919
Atlantic tomcod	12629	5849	9830	3784	3312	5282	1999	10545	3890	3623
Alewife	4519	4314	1478	4294	6333	2474	8543	3751	4215	6528
Gizzard shad	205	2997	1231	3580	953	234	4981	2903	1857	8637
Spottail shiner	948	1457	2318	4151	1248	2636	3608	2624	3312	5370
Bay anchovy	301	278	10	200	589	278	2095	107	2580	7082
Striped bass	908	362	228	342	270	341	1364	1164	665	1982
Pumpkinseed	384	380	600	1009	548	767	3227	1922	4097	3881
American shad	359	342	359	408	922	889	2938	827	738	3968
White catfish	595	678	826	1079	293	201	687	432	533	4599
Golden shiner	599	197	398	531	344	565	288	412	435	672
Brown bullhead	92	62	43	46	38	63	336	306	429	1759
Hogchoker	33	60	74	88	46	40	390	159	409	580
Rainbow smelt	46	44	493	277	1074	727	135	21	39	125
Yellow perch	40	34	73	134	115	147	306	353	642	965
Bluegill	117	274	105	317	80	130	273	457	285	409
Weakfish							1162	2	22	151
Goldfish	191	127	173	557	749	758	198	308	108	75
Herring family	63	11	6	147	30	53	111	88	20	96
American eel	117	88	229	245	123	97	184	135	168	222
Bluefish	5	6		2			390	22	27	457
Channel catfish						3	1			
Tessellated darter	24	18	26	28	56	116	98	35	129	152
Atlantic menhaden		1	5				6	2	2	1
Banded killifish	14	10	25	45	37	121	146	175	112	82
Largemouth bass	9	16	27	20	7	54	351	82	47	51
Redbreast sunfish	23	14	18	48	17	28	57	97	65	107
Black crappie	15	10	26	32	20	21	13	13	35	34
Common carp	8	2	1	11	7	29	28	28	11	15
Fourspine stickleback		1	2	2		7	10	7	25	78
Threespine stickleback				1	1	2	2	2		
White bass	1	8	2	129	12			2		
Spot			20	120	20				2	
White sucker	25		1	12	3	10	5	12	9	14
White crappie	4			51	2	4		1	2	8
Morone species				1						
Freshwater drum										1
Rock bass	2		4	11	2	2	6	7	6	7
Sunfish family	4	2	3	2		3	1		1	
Crevalle jack					1		3	4	7	11
Smallmouth bass	9		1	1				2		
Silver perch										
Hickory shad					4		1		1	7
Black bullhead			4	17	15	4				

(CONTINUED)

APPENDIX TABLE A-2. (CONTINUED)

	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Fathead minnow				1						
Atlantic sturgeon	5	1	1	6	1	1		1	1	2
Atlantic needlefish							1	5	1	10
Yellow bullhead				1				4		
Emerald shiner	1		2		1					
Chain pickerel	1		2	1		1	2	2		2
Central mudminnow	1			4						
Eastern silvery minnow	5		6	4	3					
Unidentified	13		2						1	
Brown trout	2			3		2	1			2
Shortnose sturgeon				1					3	1
Mummichog					1		1	2		
Atlantic croaker										
Longear sunfish			3	7						
Brook silverside										
Sea lamprey						1		3		1
Summer flounder							2			
Warmouth		1								
Bluntnose minnow										
Naked goby										
Northern pike						2				
White mullet		1					3	1		
Atlantic silverside										
Conger eel										
Redfin pickerel				1			1			
Inland silverside							1			
Northern hog sucker				1	1					
Pomoxis species		1		2						
Winter flounder										
Brook trout				1						
Carp and minnow family										1
Fallfish				1						
Gray snapper										
Ictalurus species	1									
Kokanee										
Notropis species		1		1						
Rainbow trout								1		
Silver lamprey								1		
Spanish mackerel										
Blacknose dace										
Brindled madtom						1				
Butterfish										
Common shiner						1				
Creek chub										
Cutlips minnow										

(CONTINUED)

APPENDIX TABLE A-2. (CONTINUED)

	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Eastern mudminnow				1						
Lamprey family										
Logperch										
Menidia species										
Oncorhynchus species	1									
Striped searobin									1	
Sturgeon family		1								
Sucker family				1						
Total	34584	41511	39527	55807	38682	38431	82005	62364	84624	120359
Species	38	32	38	49	39	39	43	45	39	41

(CONTINUED)

APPENDIX TABLE A-2. (CONTINUED)

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
White perch	61361	26597	36583	59487	31907	21898	33849	19458	15775	19509
Blueback herring	9112	16178	1142	10128	11971	1412	3882	10878	1744	4095
Atlantic tomcod	4678	5405	309	2970	3179	830	1333	1643	607	1443
Alewife	4789	8466	1503	4581	2608	554	664	3807	1184	2696
Gizzard shad	1280	3445	411	2581	4382	4769	1903	3288	1873	4127
Spottail shiner	3641	2610	3955	8502	2422	3885	2382	3038	1753	1636
Bay anchovy	4172	6358	219	1869	4489	211	1033	7050	204	3381
Striped bass	1448	930	168	1211	2117	555	786	6008	820	4726
Pumpkinseed	3385	1436	1437	1437	1396	904	689	1447	588	1923
American shad	4021	2672	355	602	1691	672	296	1933	800	867
White catfish	2346	552	174	620	855	748	913	210	186	1144
Golden shiner	866	718	636	911	1048	1284	608	861	480	240
Brown bullhead	429	229	189	416	1125	253	253	268	344	275
Hogchoker	860	1477	323	625	939	588	373	912	561	528
Rainbow smelt	259	121	628	1404	309	20	432	251	255	823
Yellow perch	669	345	376	510	161	217	167	175	171	98
Bluegill	555	181	45	199	380	286	122	159	68	129
Weakfish	1	259			59	1	1	1606		529
Goldfish	52	71	43	46	158	134	29	47	50	18
Herring family	13	11	36	79	1701	53	18			7
American eel	145	131	91	183	98	65	82	78	55	45
Bluefish	23	178		70	7	33	3	734	1	196
Channel catfish	1	3		1	15	6	4	6	14	15
Tessellated darter	80	67	67	203	97	68	26	89	45	26
Atlantic menhaden		76	18	7		7	16	1487	8	2
Banded killifish	74	77	86	108	99	40	16	42	16	20
Largemouth bass	28	42	20	87	151	33	28	28	29	23
Redbreast sunfish	96	21	12	35	12	14	18	14	15	8
Black crappie	51	9	10	12	26	22	29	30	20	11
Common carp	5	33	15	18	54	54	14	28	51	7
Fourspine stickleback	2	4	15	189	7	6		3	2	4
Threespine stickleback	10	20	9	14	22	13	2	5	8	9
White bass				6	1	1	5	10		
Spot					1					
White sucker	15	5	3	12	1	5	9	1		3
White crappie	3	8	12	7	9	2	3	4	1	2
Morone species					89	6				4
Freshwater drum		1				14	5	1	2	6
Rock bass	4	2	3	11	2	1	2	1	1	1
Sunfish family			1	5		23	9			2
Crevalle jack	5		1	1	11		11			
Smallmouth bass	18	23		1	3	2		3	1	
Silver perch										
Hickory shad	8		8	8	4		2	5		
Black bullhead		3	1	2						

(CONTINUED)

APPENDIX TABLE A-2. (CONTINUED)

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Fathead minnow				25	2					5
Atlantic sturgeon	3	1	1	1	1		2		1	
Atlantic needlefish	1	10		1			2			
Yellow bullhead	10	6		3					1	2
Emerald shiner				3	2				1	1
Chain pickerel	3	3			1			1		
Central mudminnow			1	2			1			7
Eastern silvery minnow										
Unidentified	2									
Brown trout				1				1	1	
Shortnose sturgeon	3	2					1		1	
Mummichog		1					1		2	
Atlantic croaker										
Longear sunfish										
Brook silverside								1		
Sea lamprey				1	1	1				
Summer flounder	2	1						2		
Warmouth								1	3	
Bluntnose minnow			2					2		
Naked goby					1	1		3		
Northern pike						1		1		
White mullet										
Atlantic silverside										
Conger eel									4	
Redfin pickerel				1						
Inland silverside					1				1	
Northern hog sucker										
Pomoxis species										
Winter flounder		2						1		
Brook trout										
Carp and minnow family										
Fallfish										
Gray snapper										
Ictalurus species	1									
Kokanee			1							
Notropis species										
Rainbow trout										
Silver lamprey		1								
Spanish mackerel								2		
Blacknose dace										
Brindled madtom										
Butterfish										
Common shiner										
Creek chub	1									
Cutlips minnow										

(CONTINUED)

APPENDIX TABLE A-2. (CONTINUED)

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Eastern mudminnow										
Lamprey family				1						
Logperch										
Menidia species					1					
Oncorhynchus species										
Striped searobin										
Sturgeon family										
Sucker family										
Total	104531	78791	48909	99197	73616	39692	50024	65623	27747	48593
Species	43	46	38	47	45	41	42	48	43	40

(CONTINUED)

APPENDIX TABLE A-2. (CONTINUED)

	1994	1995	1996	1997	1998
White perch	10280	17445	20649	15403	13470
Blueback herring	2106	2168	1151	2310	489
Atlantic tomcod	122	398	1370	3663	715
Alewife	3344	2169	1076	3478	943
Gizzard shad	2086	5927	4268	5690	1092
Spottail shiner	1424	3049	3768	2015	2176
Bay anchovy	131	3807	59	5237	822
Striped bass	2227	3632	1702	6644	5174
Pumpkinseed	1091	1941	791	898	861
American shad	1750	458	780	1250	866
White catfish	563	510	2552	515	2935
Golden shiner	393	819	676	450	492
Brown bullhead	1791	513	585	2208	473
Hogchoker	302	435	215	219	80
Rainbow smelt	1867	55		1	1
Yellow perch	73	122	175	137	71
Bluegill	102	184	207	48	203
Weakfish		643	1	131	31
Goldfish	7	61	53	30	32
Herring family	46	97	815	39	1
American eel	33	87	49	60	64
Bluefish		223		227	168
Channel catfish	44	115	439	614	596
Tessellated darter	71	145	66	57	87
Atlantic menhaden	3	23	39	8	30
Banded killifish	38	73	54	16	8
Largemouth bass	17	38	23	28	23
Redbreast sunfish	16	17	15	18	9
Black crappie	20	70	24	34	42
Common carp	18	33	34	14	19
Fourspine stickleback	8	3	4	6	
Threespine stickleback	29	16	1	3	19
White bass		3	3		
Spot					
White sucker	2	2	2		1
White crappie			1		
Morone species		8		5	
Freshwater drum	3	2	12	10	53
Rock bass	3	4	9	4	6
Sunfish family	9	21	4	2	1
Crevalle jack	1	6			28
Smallmouth bass	2	2	1		2
Silver perch		61			
Hickory shad			1	2	
Black bullhead					

(CONTINUED)

APPENDIX TABLE A-2. (CONTINUED)

	1994	1995	1996	1997	1998
Fathead minnow	2		1	2	2
Atlantic sturgeon	1	3		1	1
Atlantic needlefish					
Yellow bullhead					
Emerald shiner			4	3	6
Chain pickerel			1		
Central mudminnow	1			1	2
Eastern silvery minnow				1	
Unidentified					
Brown trout			2	1	
Shortnose sturgeon		1			2
Mummichog	1			1	2
Atlantic croaker		1			9
Longear sunfish					
Brook silverside			6		1
Sea lamprey					
Summer flounder					
Warmouth	1		1		
Bluntnose minnow					1
Naked goby					
Northern pike	1				
White mullet					
Atlantic silverside		4			
Conger eel					
Redfin pickerel			1		
Inland silverside					
Northern hog sucker				1	
Pomoxis species					
Winter flounder					
Brook trout	1				
Carp and minnow family				1	
Fallfish				1	
Gray snapper	2				
Ictalurus species					
Kokanee				1	
Notropis species					
Rainbow trout		1			
Silver lamprey					
Spanish mackerel					
Blacknose dace					1
Brindled madtom					
Butterfish		1			
Common shiner					
Creek chub					
Cutlips minnow			1		

(CONTINUED)

APPENDIX TABLE A-2. (CONTINUED)

	1994	1995	1996	1997	1998
Eastern mudminnow					
Lamprey family					
Logperch				1	
Menidia species					
Oncorhynchus species					
Striped searobin					
Sturgeon family					
Sucker family					
Total	30032	45396	41691	51489	32110
Species	42	44	44	45	45

Source of 1973-1997 data: NAI (1998)

A higher taxon was not counted as an additional species unless no species from that taxon was recorded that year.

APPENDIX B

LENGTH-FREQUENCY INFORMATION FOR MAJOR TAXA

LIST OF APPENDIX B TABLES

B-1.1. Length-frequency of alewife, Roseton Generating Station, 1998.

B-1.2. Length-frequency of Atlantic tomcod, Roseton Generating Station, 1998.

B-1.3. Length-frequency of bay anchovy, Roseton Generating Station, 1998.

B-1.4. Length-frequency of blueback herring, Roseton Generating Station, 1998.

B-1.5. Length-frequency of brown bullhead, Roseton Generating Station, 1998.

B-1.6. Length-frequency of channel catfish, Roseton Generating Station, 1998.

B-1.7. Length-frequency of pumpkinseed, Roseton Generating Station, 1998.

B-1.8. Length-frequency of spottail shiner, Roseton Generating Station, 1998.

B-1.9. Length-frequency of striped bass, Roseton Generating Station, 1998.

B-1.10. Length-frequency of white catfish, Roseton Generating Station, 1998.

B-1.11. Length-frequency of white perch, Roseton Generating Station, 1998.

B-1.12. Frequency distribution of carapace width for blue crab, Roseton Generating Station, 1998.

B-2.1. Length-frequency of alewife, Danskammer Point Generating Station, 1998.

B-2.2. Length-frequency of American shad, Danskammer Point Generating Station, 1998.

B-2.3. Length-frequency of Atlantic tomcod, Danskammer Point Generating Station, 1998.

B-2.4. Length-frequency of bay anchovy, Danskammer Point Generating Station, 1998.

B-2.5. Length-frequency of gizzard shad, Danskammer Point Generating Station, 1998.

B-2.6. Length-frequency of pumpkinseed, Danskammer Point Generating Station, 1998.

B-2.7. Length-frequency of spottail shiner, Danskammer Point Generating Station, 1998.

B-2.8. Length-frequency of striped bass, Danskammer Point Generating Station, 1998.

B-2.9. Length-frequency of white catfish, Danskammer Point Generating Station, 1998.

B-2.10. Length-frequency of white perch, Danskammer Point Generating Station, 1998.

B-2.11. Frequency distribution of carapace width for blue crab, Danskammer Point Generating Station, 1998.

TABLE B-1.1 LENGTH-FREQUENCY OF ALEWIFE, ROSETON GENERATING STATION, 1998.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
3.1 - 4.0	0	0	0	0	0	0	1	1	0	0	0	0
4.1 - 5.0	0	0	0	0	0	0	0	0	0	0	0	0
5.1 - 6.0	0	0	0	0	0	0	2	0	0	0	0	0
6.1 - 7.0	0	0	0	1	0	0	1	0	0	1	0	0
7.1 - 8.0	0	0	0	0	0	0	1	10	0	2	5	0
8.1 - 9.0	2	0	0	0	3	0	0	1	1	6	8	0
9.1 - 10.0	1	0	1	0	1	0	0	3	1	6	9	1
10.1- 11.0	0	0	0	0	2	0	1	0	1	9	11	0
11.1- 12.0	0	0	0	0	1	7	1	1	1	28	19	0
12.1- 13.0	1	0	1	0	1	4	3	0	1	3	7	0
13.1- 14.0	0	0	0	0	0	5	0	0	1	1	0	0
14.1- 15.0	0	0	0	0	0	2	0	3	0	1	1	0
15.1- 16.0	0	0	0	0	0	1	1	0	0	1	0	0
16.1- 17.0	0	0	0	0	0	0	0	0	1	0	0	0
17.1- 18.0	0	0	1	0	0	0	0	0	0	0	0	0
18.1- 19.0	0	0	0	0	0	0	0	0	0	0	0	0
19.1- 20.0	0	0	0	0	0	0	0	0	0	0	0	0
20.1- 21.0	0	0	0	0	0	0	0	0	0	0	0	0
21.1- 22.0	0	0	0	0	0	0	0	0	0	0	0	0
22.1- 23.0	0	0	0	0	0	0	0	0	0	0	0	0
23.1- 24.0	0	0	0	0	1	0	0	0	0	0	0	0
24.1- 25.0	0	0	0	0	0	1	0	0	0	0	0	0
25.1- 26.0	0	0	0	0	0	1	0	0	0	0	0	0
26.1- 27.0	0	0	0	0	1	0	0	0	0	0	0	0
TOTAL ANAL.	4	0	3	1	10	21	11	19	7	58	60	1
MEAN LENGTH	9.8	0	13.4	6.5	13.0	13.9	9.4	9.0	11.8	10.8	10.5	9.3
MIN. LENGTH	8.3	0	9.9	6.5	8.2	11.2	3.2	3.9	8.8	6.3	7.3	9.3
MAX. LENGTH	12.9	0	17.4	6.5	26.7	26.0	15.8	15.0	16.9	15.5	14.5	9.3

TABLE B-1.2 LENGTH-FREQUENCY OF ATLANTIC TOMCOD, ROSETON GENERATING STATION, 1998.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
5.1 - 6.0	0	0	0	0	4	1	0	0	0	0	0	0
6.1 - 7.0	0	0	0	0	3	10	7	4	1	0	0	0
7.1 - 8.0	0	0	0	0	0	23	8	12	2	0	0	0
8.1 - 9.0	0	0	0	0	0	13	11	9	3	0	0	0
9.1 - 10.0	1	0	0	0	0	3	2	8	0	0	0	0
10.1- 11.0	0	1	0	0	0	1	0	3	0	0	0	0
11.1- 12.0	0	0	0	0	0	0	0	0	0	0	0	0
12.1- 13.0	0	0	0	0	0	0	0	0	0	0	0	0
13.1- 14.0	4	1	0	0	0	0	0	0	0	0	0	0
14.1- 15.0	0	0	0	0	0	0	0	0	0	0	0	0
15.1- 16.0	0	0	0	0	0	0	0	0	0	0	0	0
16.1- 17.0	0	0	0	0	0	0	0	0	0	0	0	0
17.1- 18.0	0	0	0	0	0	0	0	0	0	0	0	0
18.1- 19.0	0	0	0	0	0	0	0	0	0	0	0	0
19.1- 20.0	0	0	0	0	0	0	0	0	0	0	0	0
20.1- 21.0	0	0	0	0	0	0	0	0	0	0	0	0
21.1- 22.0	0	0	0	0	0	0	0	0	0	0	0	0
22.1- 23.0	0	0	0	0	0	0	0	0	0	0	0	0
23.1- 24.0	1	0	0	0	0	0	0	0	0	0	0	0
TOTAL ANAL.	6	2	0	0	7	51	28	36	6	0	0	0
MEAN LENGTH	14.5	12.1	0	0	5.9	7.8	8.0	8.5	8.0	0	0	0
MIN. LENGTH	10.0	10.1	0	0	5.1	6.0	6.6	6.7	7.0	0	0	0
MAX. LENGTH	23.2	14.0	0	0	6.7	10.4	9.5	11.0	8.7	0	0	0

TABLE B-1.3 LENGTH-FREQUENCY OF BAY ANCHOVY, ROSETON GENERATING STATION, 1998.

INTERVAL (CM)		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
3.1 - 4.0		0	0	0	0	0	0	0	0	4	3	0	0
4.1 - 5.0		0	0	0	0	0	0	0	10	20	76	1	0
5.1 - 6.0		0	0	0	0	0	0	0	15	14	96	4	0
6.1 - 7.0		0	0	0	0	0	5	0	3	21	63	3	0
7.1 - 8.0		0	0	0	0	3	50	11	26	56	30	3	0
8.1 - 9.0		0	0	0	0	0	7	5	21	45	45	2	0
9.1 - 10.0		0	0	0	0	0	0	0	2	2	2	0	0
	TOTAL ANAL.	0	0	0	0	3	62	16	77	162	315	13	0
	MEAN LENGTH	0	0	0	0	7.4	7.6	7.9	7.0	7.0	6.1	6.6	0
	MIN. LENGTH	0	0	0	0	7.1	6.5	7.5	4.1	3.1	3.2	4.8	0
	MAX. LENGTH	0	0	0	0	8.0	8.8	8.7	9.4	9.7	9.3	8.5	0

TABLE B-1.4 LENGTH-FREQUENCY OF BLUEBACK HERRING, ROSETON GENERATING STATION, 1998.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
4.1 - 5.0	0	0	0	0	0	0	0	1	0	0	0	0
5.1 - 6.0	0	0	0	0	0	0	0	1	0	0	0	0
6.1 - 7.0	0	0	0	0	0	0	1	1	0	1	2	0
7.1 - 8.0	0	0	0	6	0	0	3	2	0	14	11	2
8.1 - 9.0	0	0	0	3	2	0	0	0	1	35	42	0
9.1 - 10.0	0	0	0	1	2	0	0	0	1	75	37	1
10.1- 11.0	0	0	0	0	0	1	0	0	0	70	14	0
11.1- 12.0	0	0	0	0	0	4	0	0	0	1	0	0
12.1- 13.0	0	0	0	0	0	5	0	0	0	0	0	0
13.1- 14.0	0	0	0	0	0	0	0	2	0	0	0	0
14.1- 15.0	0	0	0	0	0	0	0	0	0	0	0	0
15.1- 16.0	0	0	0	0	0	0	0	0	1	0	0	0
16.1- 17.0	0	0	0	0	0	0	0	1	0	0	0	0
17.1- 18.0	0	0	0	0	1	0	0	0	0	0	0	0
18.1- 19.0	0	0	0	0	0	0	0	0	0	0	0	0
19.1- 20.0	0	0	0	0	0	0	0	0	0	0	0	0
20.1- 21.0	0	0	0	0	0	0	0	0	0	0	0	0
21.1- 22.0	0	0	0	0	0	0	0	0	0	0	0	0
22.1- 23.0	0	0	0	0	0	0	0	0	0	0	0	0
23.1- 24.0	0	0	0	0	0	3	0	0	0	0	0	0
24.1- 25.0	0	0	0	0	1	1	0	0	0	0	0	0
25.1- 26.0	0	0	0	0	0	1	0	1	0	0	0	0
26.1- 27.0	0	0	0	0	1	1	0	0	0	0	0	0
27.1- 28.0	0	0	0	0	1	0	0	0	0	0	0	0
TOTAL ANAL.	0	0	0	10	8	16	4	9	3	196	106	3
MEAN LENGTH	0	0	0	8.1	16.4	16.7	7.2	11.3	11.4	9.6	9.1	8.3
MIN. LENGTH	0	0	0	7.1	8.3	11.0	6.9	4.2	8.9	7.0	7.0	7.3
MAX. LENGTH	0	0	0	9.2	27.9	27.0	7.4	25.9	15.5	11.3	10.7	9.5

TABLE B-1.5 LENGTH-FREQUENCY OF BROWN BULLHEAD, ROSETON GENERATING STATION, 1998.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
3.1 - 4.0	0	0	0	0	0	0	0	1	0	0	0	0
4.1 - 5.0	0	0	0	0	0	0	2	2	0	0	0	0
5.1 - 6.0	0	0	0	2	0	1	16	30	0	0	0	0
6.1 - 7.0	0	0	0	12	2	0	1	22	2	0	1	0
7.1 - 8.0	1	1	0	20	6	1	1	5	7	0	0	0
8.1 - 9.0	1	0	1	29	3	6	0	2	1	4	1	0
9.1 - 10.0	1	0	1	19	7	5	0	0	1	3	0	0
10.1- 11.0	0	0	0	1	5	3	0	0	2	1	0	0
11.1- 12.0	0	0	0	1	0	3	0	0	0	0	0	0
12.1- 13.0	0	0	0	0	0	1	0	0	0	1	0	0
13.1- 14.0	0	0	0	0	0	1	1	0	0	0	0	0
14.1- 15.0	0	0	0	0	0	0	0	0	0	0	0	0
15.1- 16.0	0	0	0	0	0	0	0	0	0	0	0	0
16.1- 17.0	0	0	0	0	0	1	1	0	0	0	0	0
17.1- 18.0	0	0	0	0	0	0	0	0	0	0	0	0
18.1- 19.0	0	0	0	0	0	0	0	0	0	0	0	0
19.1- 20.0	0	0	0	0	0	0	0	0	0	1	0	0
20.1- 21.0	0	0	0	1	0	0	1	0	0	0	0	0
21.1- 22.0	0	0	0	0	0	0	0	0	0	0	0	0
22.1- 23.0	0	0	0	1	0	1	1	0	0	0	0	0
23.1- 24.0	0	0	0	0	0	0	2	1	0	0	0	0
24.1- 25.0	0	0	0	0	0	0	0	0	0	0	0	0
25.1- 26.0	0	0	1	0	0	2	0	0	0	0	0	0
26.1- 27.0	0	0	0	0	0	0	0	1	0	0	0	0
27.1- 28.0	0	0	0	0	0	0	0	0	0	0	0	0
28.1- 29.0	0	0	0	0	0	0	0	0	0	0	0	0
29.1- 30.0	0	0	0	0	0	0	0	0	0	0	0	0
30.1- 31.0	0	0	0	0	0	0	0	0	0	0	0	0
31.1- 32.0	0	0	0	0	0	0	0	0	0	0	0	0
32.1- 33.0	0	0	0	0	0	0	0	0	0	0	0	0
33.1- 34.0	0	0	0	0	0	0	0	0	0	0	0	0
34.1- 35.0	0	0	0	0	0	0	1	0	0	0	0	0
TOTAL ANAL.	3	1	3	86	23	25	27	64	13	10	2	0
MEAN LENGTH	8.3	7.6	14.7	8.6	8.9	11.8	9.8	6.8	8.2	10.4	8.0	0
MIN. LENGTH	7.1	7.6	8.4	5.6	6.7	5.8	4.6	4.0	6.3	8.1	7.0	0
MAX. LENGTH	9.2	7.6	26.0	22.7	10.9	25.7	34.3	26.5	10.9	19.3	8.9	0

TABLE B-1.6 LENGTH-FREQUENCY OF CHANNEL CATFISH, ROSETON GENERATING STATION, 1998.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
4.1 - 5.0	0	0	0	0	0	0	0	3	0	0	0	0
5.1 - 6.0	0	0	0	1	0	0	1	2	3	1	0	0
6.1 - 7.0	2	1	1	0	0	0	0	10	5	2	0	0
7.1 - 8.0	5	0	1	0	0	1	0	5	3	2	3	0
8.1 - 9.0	3	0	4	1	0	0	0	5	1	1	4	3
9.1 - 10.0	12	3	13	8	1	1	0	0	2	0	1	5
10.1- 11.0	12	4	16	10	1	0	0	0	0	0	1	1
11.1- 12.0	7	1	18	12	2	0	0	0	2	1	0	2
12.1- 13.0	9	0	4	5	1	1	1	0	0	1	0	0
13.1- 14.0	0	1	1	1	0	1	0	0	0	0	0	0
14.1- 15.0	0	0	0	0	0	0	2	0	0	0	0	0
15.1- 16.0	0	0	0	0	0	0	2	0	0	0	0	0
16.1- 17.0	0	0	1	0	0	1	1	1	0	0	0	0
17.1- 18.0	0	0	0	0	0	0	0	2	0	0	0	0
18.1- 19.0	0	0	0	0	0	1	0	1	0	0	0	0
19.1- 20.0	0	0	0	0	0	0	0	0	0	0	0	0
20.1- 21.0	0	0	0	0	0	0	1	0	1	0	0	0
21.1- 22.0	0	0	0	0	0	0	0	0	0	0	0	0
22.1- 23.0	1	0	0	0	0	0	0	0	0	1	0	0
23.1- 24.0	0	0	0	0	0	0	0	0	0	0	0	0
24.1- 25.0	1	0	0	0	0	0	0	0	0	0	0	0
25.1- 26.0	0	0	0	0	0	0	0	0	0	0	0	0
26.1- 27.0	0	0	0	0	0	0	0	0	0	0	0	0
27.1- 28.0	0	0	0	0	0	0	0	0	0	0	0	0
28.1- 29.0	0	0	0	0	0	1	0	0	0	0	0	0
29.1- 30.0	0	0	0	0	0	0	0	0	0	0	0	0
30.1- 31.0	0	0	0	0	0	0	0	0	0	0	0	0
31.1- 32.0	0	0	0	0	0	0	0	0	0	0	0	0
32.1- 33.0	0	0	0	0	0	0	0	0	0	0	0	0
33.1- 34.0	0	0	0	0	0	0	0	0	0	0	0	0
34.1- 35.0	0	0	0	0	0	0	0	0	0	0	0	0
35.1- 36.0	0	0	0	0	0	0	0	0	0	0	0	0
36.1- 37.0	0	0	0	0	0	0	0	0	0	0	0	0
37.1- 38.0	0	0	0	0	0	0	1	0	0	0	0	0
TOTAL ANAL.	52	10	59	38	5	7	9	29	17	9	9	11
MEAN LENGTH	10.7	10.2	10.6	10.8	11.4	15.4	17.0	8.3	8.4	9.8	8.6	9.7
MIN. LENGTH	6.4	6.6	6.6	5.5	10.0	7.4	5.4	4.4	5.4	6.0	7.3	8.3
MAX. LENGTH	24.1	13.1	16.4	13.2	13.0	29.0	38.0	18.9	20.1	22.3	10.9	11.6

TABLE B-1.7 LENGTH-FREQUENCY OF PUMPKINSEED, ROSETON GENERATING STATION, 1998.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
4.1 - 5.0	2	0	0	1	0	3	0	0	3	8	0	1
5.1 - 6.0	4	2	3	6	3	0	0	0	1	27	1	0
6.1 - 7.0	8	2	0	10	8	1	0	0	0	42	5	1
7.1 - 8.0	6	1	2	15	11	1	0	0	1	27	2	0
8.1 - 9.0	3	2	2	4	4	9	0	0	1	1	1	0
9.1 - 10.0	0	0	0	1	0	0	1	1	1	4	0	0
10.1- 11.0	0	0	0	0	0	0	0	0	0	3	1	0
11.1- 12.0	0	0	0	2	1	0	0	2	0	4	0	0
12.1- 13.0	0	0	0	0	0	0	0	0	1	1	0	0
13.1- 14.0	1	1	0	1	2	0	0	0	0	0	0	0
14.1- 15.0	4	2	0	4	0	0	1	0	0	0	0	0
15.1- 16.0	2	1	0	4	0	0	0	0	0	0	1	0
16.1- 17.0	1	0	0	0	0	0	0	0	0	0	0	0
17.1- 18.0	0	0	1	0	0	0	0	0	0	0	0	0
18.1- 19.0	1	0	0	0	0	0	0	0	0	0	0	0
TOTAL ANAL.	32	11	8	48	29	14	2	3	8	117	11	2
MEAN LENGTH	9.1	9.8	8.4	8.7	7.7	7.6	12.0	11.1	7.4	6.9	8.1	5.9
MIN. LENGTH	4.3	5.5	5.8	4.8	5.1	4.5	9.1	10.0	4.5	4.5	6.0	4.9
MAX. LENGTH	18.6	15.8	17.2	15.6	13.8	9.0	14.8	12.0	13.0	12.6	16.0	6.9

TABLE B-1.8 LENGTH-FREQUENCY OF SPOTTAIL SHINER, ROSETON GENERATING STATION, 1998.

INTERVAL (CM)		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
3.1 - 4.0		0	0	0	0	0	0	2	0	0	0	0	0
4.1 - 5.0		0	0	0	0	0	0	6	0	0	0	0	0
5.1 - 6.0		11	0	1	9	6	0	0	1	1	1	0	0
6.1 - 7.0		54	23	24	46	22	2	0	1	1	9	11	2
7.1 - 8.0		60	35	27	33	18	8	3	0	2	10	15	11
8.1 - 9.0		17	3	5	8	1	11	9	0	0	2	7	4
9.1 - 10.0		20	6	5	5	1	2	2	2	1	2	0	3
10.1- 11.0		33	10	12	11	5	3	4	0	1	2	3	3
11.1- 12.0		8	1	6	5	1	0	0	2	1	1	1	2
12.1- 13.0		2	1	0	1	0	0	0	0	1	0	0	0
	TOTAL ANAL.	205	79	80	118	54	26	26	6	8	27	37	25
	MEAN LENGTH	8.1	8.0	8.2	7.7	7.3	8.4	7.5	9.2	8.8	7.8	7.8	8.6
	MIN. LENGTH	5.4	6.1	6.0	5.4	5.5	6.5	3.6	6.0	5.4	5.6	6.2	6.6
	MAX. LENGTH	12.3	12.4	12.0	12.5	11.5	10.7	11.0	11.8	12.2	11.1	11.3	11.2

TABLE B-1.9 LENGTH-FREQUENCY OF STRIPED BASS, ROSETON GENERATING STATION, 1998.

INTERVAL (CM)		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2.1 - 3.0		0	0	0	0	0	0	3	3	0	0	0	0
3.1 - 4.0		0	0	0	0	0	2	17	14	0	0	0	0
4.1 - 5.0		0	0	0	0	0	0	14	3	4	0	0	0
5.1 - 6.0		0	0	0	0	0	0	7	9	14	11	6	0
6.1 - 7.0		2	0	0	1	1	0	2	19	14	54	31	2
7.1 - 8.0		4	0	0	2	0	2	0	7	12	74	36	5
8.1 - 9.0		7	0	0	1	1	1	1	6	3	44	16	3
9.1 - 10.0		1	0	0	0	0	0	0	0	3	10	1	4
10.1- 11.0		2	0	0	2	0	1	0	0	1	0	0	2
11.1- 12.0		1	0	0	0	0	2	0	0	0	0	0	0
12.1- 13.0		0	0	0	0	0	0	0	1	0	0	0	0
13.1- 14.0		0	0	0	0	0	0	0	1	0	0	0	0
14.1- 15.0		0	0	0	0	0	0	0	1	1	0	0	0
15.1- 16.0		0	0	0	0	0	0	0	0	0	0	0	0
16.1- 17.0		0	0	0	0	0	0	0	0	0	0	0	0
17.1- 18.0		0	0	0	0	0	0	0	0	0	0	0	0
18.1- 19.0		0	0	0	0	0	0	0	0	0	0	0	0
19.1- 20.0		0	0	0	0	0	1	0	0	0	0	0	0
	TOTAL ANAL.	17	0	0	6	2	9	44	64	52	193	90	16
	MEAN LENGTH	8.6	0	0	8.7	7.6	9.4	4.3	6.1	6.9	7.5	7.3	8.7
	MIN. LENGTH	6.5	0	0	6.7	6.7	3.2	2.7	3.0	4.1	5.4	5.5	6.6
	MAX. LENGTH	11.4	0	0	11.0	8.4	19.3	9.0	14.3	14.3	9.8	9.9	11.0

TABLE B-1.10 LENGTH-FREQUENCY OF WHITE CATFISH, ROSETON GENERATING STATION, 1998.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
3.1 - 4.0	0	0	0	0	0	0	0	1	0	0	0	0
4.1 - 5.0	0	0	0	0	0	0	0	2	0	0	0	1
5.1 - 6.0	0	0	0	1	0	0	0	7	2	1	4	0
6.1 - 7.0	0	0	0	0	0	0	0	3	7	12	13	0
7.1 - 8.0	0	0	0	0	0	0	0	0	3	16	38	4
8.1 - 9.0	1	0	0	2	0	0	0	1	3	19	88	2
9.1 - 10.0	0	0	1	0	0	1	1	0	1	22	78	1
10.1- 11.0	0	0	0	0	0	3	0	0	0	4	37	5
11.1- 12.0	0	0	0	0	0	0	0	0	0	1	4	0
12.1- 13.0	0	0	0	0	0	0	0	0	0	0	2	0
13.1- 14.0	0	0	0	0	1	0	0	0	0	0	1	0
14.1- 15.0	0	0	0	0	0	1	0	0	0	0	0	0
15.1- 16.0	0	0	0	0	0	0	1	0	0	0	0	0
16.1- 17.0	0	0	0	0	1	0	0	0	0	0	0	0
17.1- 18.0	0	0	0	1	0	1	0	0	0	0	1	0
18.1- 19.0	0	0	0	0	0	0	0	0	0	0	0	0
19.1- 20.0	0	0	0	0	0	0	0	0	0	0	0	0
20.1- 21.0	0	0	0	0	0	0	0	0	0	0	0	0
21.1- 22.0	0	0	0	0	0	0	0	0	1	0	0	0
22.1- 23.0	0	0	0	0	0	0	0	0	0	0	0	0
23.1- 24.0	0	0	0	0	0	0	0	0	0	0	0	0
24.1- 25.0	0	0	0	0	0	1	0	1	0	0	0	0
25.1- 26.0	0	0	0	0	0	0	0	0	0	0	0	0
26.1- 27.0	0	0	0	0	0	0	0	0	0	0	0	0
27.1- 28.0	0	0	0	0	0	1	0	2	0	0	0	0
28.1- 29.0	0	0	0	0	0	0	1	0	0	0	0	0
29.1- 30.0	0	0	0	0	0	0	0	1	0	0	0	0
30.1- 31.0	0	0	0	0	0	0	0	0	0	0	0	0
31.1- 32.0	0	0	0	0	0	0	0	0	0	0	0	0
32.1- 33.0	0	0	0	0	0	0	0	0	0	0	0	0
33.1- 34.0	0	0	0	0	0	0	0	0	0	0	0	0
34.1- 35.0	0	0	0	0	0	0	0	0	0	0	0	0
35.1- 36.0	0	0	0	0	0	0	0	0	0	0	0	0
36.1- 37.0	0	0	0	0	0	0	0	1	0	0	0	0
37.1- 38.0	0	0	0	0	0	0	0	0	0	0	0	0
38.1- 39.0	0	0	0	0	0	0	0	0	0	0	0	0
39.1- 40.0	0	0	0	0	0	0	0	0	0	0	0	0
40.1- 41.0	0	0	0	0	0	0	0	1	0	0	0	0
TOTAL ANAL.	1	0	1	4	2	8	3	20	17	75	266	13
MEAN LENGTH	8.1	0	9.5	10.0	14.9	15.7	18.1	13.3	8.0	8.4	9.0	8.9
MIN. LENGTH	8.1	0	9.5	5.7	13.2	9.5	9.9	3.9	5.2	6.0	5.8	5.0
MAX. LENGTH	8.1	0	9.5	17.2	16.6	28.0	29.0	40.4	21.4	11.4	17.5	11.0

TABLE B-1.11 LENGTH-FREQUENCY OF WHITE PERCH, ROSETON GENERATING STATION, 1998.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2.1 - 3.0	0	0	0	0	0	0	1	1	0	0	0	0
3.1 - 4.0	0	0	0	0	0	1	0	14	2	0	0	0
4.1 - 5.0	0	0	0	0	0	0	4	16	18	1	2	0
5.1 - 6.0	1	2	6	9	13	1	2	49	92	70	33	21
6.1 - 7.0	12	5	14	63	48	6	0	79	68	157	99	44
7.1 - 8.0	47	12	29	155	77	35	2	28	48	116	107	47
8.1 - 9.0	47	16	40	92	21	61	10	0	4	51	78	47
9.1 - 10.0	12	6	18	9	1	31	3	0	0	9	17	17
10.1- 11.0	5	3	3	6	2	3	3	3	0	0	7	3
11.1- 12.0	6	0	4	4	0	9	1	2	1	1	1	1
12.1- 13.0	4	0	2	0	6	30	1	1	0	0	5	0
13.1- 14.0	8	1	1	0	3	42	5	0	1	0	1	2
14.1- 15.0	8	2	5	2	5	32	5	2	0	1	1	0
15.1- 16.0	8	0	0	2	13	17	2	1	0	2	1	0
16.1- 17.0	1	0	0	1	4	17	1	0	3	1	0	0
17.1- 18.0	3	0	0	0	4	8	2	0	0	0	0	0
18.1- 19.0	1	0	0	1	3	1	2	0	0	0	0	0
19.1- 20.0	1	0	0	0	3	6	0	2	0	0	0	0
20.1- 21.0	0	0	0	0	1	0	0	0	1	0	0	0
21.1- 22.0	2	0	0	0	0	1	0	0	0	1	0	0
22.1- 23.0	0	0	0	0	0	0	0	0	0	0	0	0
23.1- 24.0	0	0	0	0	0	0	0	0	0	0	0	0
24.1- 25.0	0	0	0	0	0	0	0	0	0	0	0	0
25.1- 26.0	1	0	0	0	0	0	0	0	0	0	0	0
TOTAL ANAL.	167	47	122	344	204	301	44	198	238	410	352	182
MEAN LENGTH	9.9	8.6	8.5	7.9	9.0	11.7	10.8	6.4	6.5	7.1	7.6	7.7
MIN. LENGTH	5.9	5.5	5.3	5.3	5.1	3.8	2.4	2.7	4.0	5.0	4.6	5.1
MAX. LENGTH	25.5	14.9	14.8	18.1	20.5	21.3	19.0	20.0	20.1	22.0	15.1	13.3

TABLE B-1.12 FREQUENCY DISTRIBUTION OF CARAPACE WIDTH FOR BLUE CRAB, ROSETON GENERATING STATION, 1998.

INTERVAL (CM)		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1.1 - 2.0		0	0	0	0	0	0	0	14	31	12	4	6
2.1 - 3.0		0	0	0	1	6	4	0	13	99	41	34	11
3.1 - 4.0		0	0	0	0	29	16	5	1	92	117	133	29
4.1 - 5.0		0	0	0	2	62	44	15	2	18	152	91	14
5.1 - 6.0		0	0	0	1	91	102	37	22	6	54	72	13
6.1 - 7.0		0	0	0	0	49	106	101	37	9	21	20	1
7.1 - 8.0		0	0	0	0	21	76	103	48	17	8	1	1
8.1 - 9.0		0	0	0	0	4	29	107	49	21	7	4	2
9.1 - 10.0		0	0	0	0	0	6	63	47	23	7	4	1
10.1- 11.0		0	0	0	0	0	2	29	39	24	24	4	1
11.1- 12.0		0	0	0	0	0	1	21	57	11	13	2	1
12.1- 13.0		0	0	0	0	0	0	5	36	20	16	0	1
13.1- 14.0		0	0	0	0	0	0	0	24	21	12	5	0
14.1- 15.0		0	0	0	0	0	0	1	7	4	6	1	0
15.1- 16.0		0	0	0	0	0	0	0	3	3	4	0	0
16.1- 17.0		0	0	0	0	0	0	0	1	1	2	0	0
	TOTAL ANAL.	0	0	0	4	262	386	487	400	400	496	375	81
	MEAN LENGTH	0	0	0	4.4	5.4	6.4	8.0	9.2	5.9	5.7	4.6	4.4
	MIN. LENGTH	0	0	0	2.5	2.1	2.3	3.5	1.2	1.1	1.5	1.7	1.2
	MAX. LENGTH	0	0	0	5.5	8.9	11.4	14.5	16.2	16.1	16.9	14.1	12.9

TABLE B-2.1 LENGTH-FREQUENCY OF ALEWIFE, DANSKAMMER POINT GENERATING STATION, 1998.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
5.1 - 6.0	0	0	0	0	0	0	5	2	0	0	0	0
6.1 - 7.0	0	0	0	0	0	0	6	4	0	0	1	0
7.1 - 8.0	0	0	0	0	0	0	5	15	0	2	4	0
8.1 - 9.0	0	0	0	1	4	0	7	17	2	4	5	2
9.1 - 10.0	0	0	0	0	6	0	0	17	8	10	15	0
10.1- 11.0	0	0	0	0	4	5	1	5	10	51	23	0
11.1- 12.0	0	0	0	0	3	8	2	0	3	56	64	0
12.1- 13.0	0	0	0	0	2	12	9	1	2	18	33	1
13.1- 14.0	0	0	0	0	1	14	16	5	6	5	2	0
14.1- 15.0	0	0	0	0	1	11	15	7	13	16	2	1
15.1- 16.0	0	0	0	0	0	0	11	9	20	29	2	0
16.1- 17.0	0	0	0	0	4	1	1	13	15	15	4	4
17.1- 18.0	0	0	0	0	0	0	2	1	4	5	6	8
18.1- 19.0	0	0	0	0	0	0	0	0	2	0	3	5
19.1- 20.0	0	0	0	0	0	0	0	0	0	1	0	1
20.1- 21.0	0	0	0	0	0	0	0	0	0	0	0	0
21.1- 22.0	0	0	0	0	0	0	0	0	0	0	0	0
22.1- 23.0	0	0	0	0	0	1	0	0	0	0	0	0
23.1- 24.0	0	0	0	0	2	2	0	0	0	0	0	0
24.1- 25.0	0	0	1	0	7	1	0	1	0	0	0	0
25.1- 26.0	0	0	3	0	7	1	0	0	0	0	0	0
26.1- 27.0	0	0	1	0	5	1	0	0	0	0	0	0
27.1- 28.0	0	0	2	0	4	1	0	0	0	0	0	0
28.1- 29.0	0	0	2	0	1	0	0	0	0	0	0	0
29.1- 30.0	1	0	3	0	2	0	0	0	0	0	0	0
30.1- 31.0	0	0	4	0	0	0	0	0	0	0	0	0
31.1- 32.0	0	0	0	1	0	0	0	0	0	0	0	0
TOTAL ANAL.	1	0	16	2	53	58	80	97	85	212	164	22
MEAN LENGTH	29.5	0	28.4	19.8	19.2	14.5	12.1	11.3	14.1	12.5	11.8	16.6
MIN. LENGTH	29.5	0	24.4	8.5	8.2	10.2	5.4	5.7	8.4	7.4	6.9	8.7
MAX. LENGTH	29.5	0	31.0	31.1	30.0	27.7	17.7	24.7	18.8	19.7	18.8	19.1

TABLE B-2.2 LENGTH-FREQUENCY OF AMERICAN SHAD, DANSKAMMER POINT GENERATING STATION, 1998.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
6.1 - 7.0	0	0	0	0	0	0	2	0	0	0	0	0
7.1 - 8.0	0	0	0	0	0	0	4	0	0	0	0	0
8.1 - 9.0	0	0	0	0	0	0	4	8	3	0	0	0
9.1 - 10.0	0	0	0	0	0	0	0	9	21	6	3	0
10.1- 11.0	0	0	0	0	0	0	0	4	71	101	48	2
11.1- 12.0	0	0	0	0	0	0	0	1	10	92	78	4
12.1- 13.0	0	0	0	0	0	0	1	0	0	11	13	3
13.1- 14.0	0	0	0	0	0	0	0	0	0	2	1	0
14.1- 15.0	0	0	0	0	0	0	0	0	0	0	0	0
15.1- 16.0	0	0	0	0	0	0	0	0	1	0	0	0
16.1- 17.0	0	0	0	0	0	0	0	0	0	0	0	0
17.1- 18.0	0	0	0	0	0	0	1	0	0	0	0	0
18.1- 19.0	0	0	0	0	0	0	0	0	0	0	0	0
19.1- 20.0	0	0	0	0	0	0	0	0	0	0	0	0
20.1- 21.0	0	0	0	0	0	0	0	0	0	0	0	0
21.1- 22.0	0	0	0	0	0	0	0	0	0	1	0	0
22.1- 23.0	0	0	0	0	0	0	0	0	0	0	0	0
23.1- 24.0	0	0	0	0	0	0	0	0	0	0	0	0
24.1- 25.0	0	0	0	0	0	0	0	0	0	0	0	0
25.1- 26.0	0	0	0	0	0	0	0	0	0	0	0	0
26.1- 27.0	0	0	0	0	0	0	0	0	0	0	0	0
27.1- 28.0	0	0	0	0	0	0	0	0	0	0	0	0
28.1- 29.0	0	0	0	0	0	0	0	0	0	0	0	0
29.1- 30.0	0	0	0	0	0	0	0	0	0	0	0	0
30.1- 31.0	0	0	0	0	0	0	0	0	0	0	0	0
31.1- 32.0	0	0	0	0	0	0	0	0	0	0	0	0
32.1- 33.0	0	0	0	0	0	0	0	0	0	0	0	0
33.1- 34.0	0	0	0	0	0	0	0	0	0	0	1	0
34.1- 35.0	0	0	0	0	0	0	0	0	0	0	0	0
35.1- 36.0	0	0	0	0	0	0	0	0	0	0	0	0
36.1- 37.0	0	0	0	0	0	0	0	0	0	0	0	0
37.1- 38.0	0	0	0	0	0	0	0	0	0	0	0	0
38.1- 39.0	0	0	0	0	0	0	0	0	0	0	0	0
39.1- 40.0	0	0	0	0	0	0	0	0	0	0	0	0
40.1- 41.0	0	0	0	0	1	0	0	0	0	0	0	0
TOTAL ANAL.	0	0	0	0	1	0	12	22	106	213	144	9
MEAN LENGTH	0	0	0	0	40.9	0	9.0	9.4	10.5	11.1	11.5	11.7
MIN. LENGTH	0	0	0	0	40.9	0	6.1	8.4	8.1	9.4	9.7	10.6
MAX. LENGTH	0	0	0	0	40.9	0	17.1	11.7	15.7	21.5	33.2	12.4

TABLE B-2.3 LENGTH-FREQUENCY OF ATLANTIC TOMCOD, DANSKAMMER POINT GENERATING STATION, 1998.

INTERVAL (CM)		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
4.1 - 5.0		0	0	0	0	3	0	0	0	0	0	0	0
5.1 - 6.0		0	0	0	0	14	2	0	0	0	0	0	0
6.1 - 7.0		0	0	0	0	17	27	4	1	1	0	0	0
7.1 - 8.0		0	0	0	0	14	67	23	7	10	1	0	0
8.1 - 9.0		0	0	0	0	1	53	25	3	5	1	0	0
9.1 - 10.0		0	0	0	0	0	14	16	5	0	0	0	0
10.1- 11.0		6	1	0	0	0	1	0	1	0	0	1	0
11.1- 12.0		21	3	2	0	0	0	3	0	0	0	1	1
12.1- 13.0		31	6	5	0	0	0	0	0	0	0	0	1
13.1- 14.0		40	4	9	0	0	0	0	0	0	0	1	8
14.1- 15.0		17	3	8	0	0	0	0	0	0	0	1	12
15.1- 16.0		8	0	3	0	0	0	1	0	0	0	0	1
16.1- 17.0		6	0	2	0	1	0	1	0	0	0	0	1
17.1- 18.0		3	0	0	0	0	0	0	0	0	0	0	0
18.1- 19.0		2	0	0	0	0	0	0	0	0	0	0	1
19.1- 20.0		3	1	0	0	0	0	0	0	0	0	0	1
20.1- 21.0		3	0	0	0	0	0	0	0	0	0	0	0
21.1- 22.0		4	1	1	0	0	0	0	0	0	0	0	0
22.1- 23.0		5	0	0	0	0	0	0	0	0	0	0	0
23.1- 24.0		3	0	0	0	0	0	0	0	0	0	0	1
24.1- 25.0		1	0	0	0	0	0	0	0	0	0	0	0
25.1- 26.0		0	0	1	0	0	0	0	0	0	0	0	0
26.1- 27.0		0	0	0	0	0	0	0	0	0	0	0	0
27.1- 28.0		0	1	0	0	0	0	0	0	0	0	0	0
28.1- 29.0		0	0	0	0	0	0	0	0	0	0	0	1
	TOTAL ANAL.	153	20	31	0	50	164	73	17	16	2	4	28
	MEAN LENGTH	14.5	14.4	14.6	0	6.6	7.9	8.7	8.3	7.8	8.2	12.5	15.3
	MIN. LENGTH	10.6	10.8	11.6	0	4.1	5.8	6.4	6.9	7.0	7.8	10.6	11.2
	MAX. LENGTH	24.1	27.3	25.5	0	16.7	10.6	16.2	10.4	8.8	8.6	14.1	28.3

TABLE B-2.4 LENGTH-FREQUENCY OF BAY ANCHOVY, DANSKAMMER POINT GENERATING STATION, 1998.

INTERVAL (CM)		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2.1 - 3.0		0	0	0	0	0	0	0	1	1	1	0	0
3.1 - 4.0		0	0	0	0	0	0	0	1	14	11	1	0
4.1 - 5.0		0	0	0	0	0	0	0	0	62	31	1	0
5.1 - 6.0		0	0	0	0	0	0	0	0	44	53	0	0
6.1 - 7.0		0	0	0	0	1	4	0	0	14	24	0	0
7.1 - 8.0		0	0	0	0	3	23	14	20	30	10	0	0
8.1 - 9.0		0	0	0	0	0	9	4	23	64	17	2	0
9.1 - 10.0		0	0	0	0	0	0	0	2	4	3	0	0
	TOTAL ANAL.	0	0	0	0	4	36	18	47	233	150	4	0
	MEAN LENGTH	0	0	0	0	7.4	7.8	7.8	7.9	6.4	5.9	6.5	0
	MIN. LENGTH	0	0	0	0	6.9	6.2	7.1	2.8	3.0	3.0	3.8	0
	MAX. LENGTH	0	0	0	0	7.8	8.4	8.7	9.4	9.9	9.8	8.8	0

TABLE B-2.5 LENGTH-FREQUENCY OF GIZZARD SHAD, DANSKAMMER POINT GENERATING STATION, 1998.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
5.1 - 6.0	0	0	0	0	0	0	0	1	0	0	0	0
6.1 - 7.0	0	0	0	0	0	0	0	21	1	0	0	0
7.1 - 8.0	0	0	0	0	0	0	0	37	1	0	0	0
8.1 - 9.0	0	0	0	0	0	0	0	41	0	2	3	4
9.1 - 10.0	0	0	0	0	0	0	0	8	0	6	8	3
10.1- 11.0	2	0	0	0	0	0	0	0	1	0	7	5
11.1- 12.0	0	0	0	0	0	0	0	0	0	0	5	1
12.1- 13.0	6	0	0	0	0	0	0	0	0	2	1	4
13.1- 14.0	7	0	0	0	0	0	0	0	0	1	2	3
14.1- 15.0	9	2	0	0	0	0	0	0	0	0	2	2
15.1- 16.0	15	1	0	0	0	0	0	0	0	0	1	2
16.1- 17.0	13	2	2	0	0	0	0	0	0	1	0	0
17.1- 18.0	11	4	2	0	0	0	0	0	0	0	0	0
18.1- 19.0	22	2	1	0	0	0	0	0	0	0	0	2
19.1- 20.0	10	2	2	0	0	0	0	0	0	0	0	0
20.1- 21.0	18	3	0	1	0	0	0	0	0	0	0	0
21.1- 22.0	16	2	3	0	0	0	0	0	0	0	0	1
22.1- 23.0	8	2	1	0	0	0	0	0	0	0	0	1
23.1- 24.0	6	0	1	0	0	0	0	0	0	0	0	0
24.1- 25.0	2	0	0	0	0	0	0	0	0	0	0	0
25.1- 26.0	1	0	0	0	0	0	0	0	0	0	0	0
26.1- 27.0	0	0	0	0	0	0	0	0	0	0	0	0
27.1- 28.0	0	0	0	0	0	0	0	0	0	0	0	0
28.1- 29.0	0	0	0	0	0	0	0	0	0	0	0	0
29.1- 30.0	0	0	0	0	0	0	0	0	0	0	0	0
30.1- 31.0	0	0	0	0	0	0	0	0	0	0	0	0
31.1- 32.0	0	0	0	0	0	0	0	0	0	0	0	0
32.1- 33.0	0	0	0	0	0	0	0	0	0	0	0	0
33.1- 34.0	1	0	0	0	0	0	0	0	0	0	0	0
34.1- 35.0	0	0	0	0	0	0	0	0	0	0	0	0
35.1- 36.0	0	0	0	0	0	0	0	0	0	0	0	0
36.1- 37.0	4	0	1	0	0	0	0	0	0	0	0	0
37.1- 38.0	1	0	1	0	0	0	0	0	0	0	0	0
38.1- 39.0	3	0	0	0	0	0	0	0	0	0	0	0
39.1- 40.0	4	0	0	0	0	0	0	0	0	0	0	0
40.1- 41.0	6	1	0	0	0	0	0	0	0	0	0	0
41.1- 42.0	9	0	2	0	0	0	0	0	0	0	0	0
42.1- 43.0	13	0	1	0	0	0	0	0	0	0	0	0
43.1- 44.0	16	2	1	0	0	0	0	1	0	0	0	0
44.1- 45.0	19	1	1	0	0	0	0	0	0	0	0	0
45.1- 46.0	19	1	1	1	0	0	0	0	0	0	0	0
46.1- 47.0	26	2	3	1	0	0	0	0	0	0	0	0
47.1- 48.0	17	1	5	1	0	0	0	0	0	0	0	0
48.1- 49.0	24	1	1	0	0	0	0	0	0	0	0	0
49.1- 50.0	15	0	0	0	0	0	0	0	0	0	0	0
50.1- 51.0	11	1	2	0	0	0	0	0	0	0	0	0
51.1- 52.0	8	0	0	0	0	0	0	0	0	0	0	0
52.1- 53.0	1	0	0	0	0	0	0	0	0	0	0	0
53.1- 54.0	2	1	0	0	0	0	0	0	0	0	0	0
54.1- 55.0	1	0	0	0	0	0	0	0	0	0	0	0
TOTAL ANAL.	346	31	31	4	0	0	0	109	3	12	29	28
MEAN LENGTH	34.3	28.6	35.4	39.9	0	0	0	8.2	8.2	10.8	11.0	12.8
MIN. LENGTH	10.5	14.2	16.9	20.2	0	0	0	5.7	6.4	8.7	8.5	8.9
MAX. LENGTH	54.6	53.5	50.7	47.3	0	0	0	43.2	10.6	16.4	15.6	22.2

TABLE B-2.6 LENGTH-FREQUENCY OF PUMPKINSEED, DANSKAMMER POINT GENERATING STATION, 1998.

INTERVAL (CM)		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
4.1 - 5.0		2	1	0	0	1	1	0	0	0	4	0	0
5.1 - 6.0		20	1	1	4	5	8	0	0	4	14	5	0
6.1 - 7.0		15	3	0	11	24	5	2	0	1	40	3	1
7.1 - 8.0		3	2	0	31	84	11	0	1	0	28	0	0
8.1 - 9.0		3	0	0	22	79	26	6	3	1	16	0	0
9.1 - 10.0		2	0	0	4	13	10	10	2	1	1	0	0
10.1- 11.0		1	0	0	1	9	2	6	3	0	5	1	1
11.1- 12.0		0	0	0	4	9	3	2	3	14	18	3	1
12.1- 13.0		0	1	0	4	18	2	1	1	7	10	1	1
13.1- 14.0		1	1	0	7	19	2	1	0	4	4	1	1
14.1- 15.0		1	0	0	8	22	2	2	0	0	2	0	0
15.1- 16.0		1	0	0	6	10	6	3	1	1	0	0	0
16.1- 17.0		3	1	0	4	6	1	3	0	0	2	0	0
17.1- 18.0		0	0	0	0	2	0	0	0	1	2	0	0
18.1- 19.0		1	0	0	0	0	0	1	0	0	0	0	0
	TOTAL ANAL.	53	10	1	106	301	79	37	14	34	146	14	5
	MEAN LENGTH	7.8	8.8	5.1	9.8	9.7	9.3	11.2	10.6	11.3	8.6	8.4	11.0
	MIN. LENGTH	4.9	4.6	5.1	5.4	4.7	5.0	6.1	7.7	5.3	4.4	5.4	6.1
	MAX. LENGTH	18.9	16.1	5.1	17.0	17.8	16.1	18.4	15.5	17.3	17.8	13.1	13.3

TABLE B-2.7 LENGTH-FREQUENCY OF SPOTTAIL SHINER, DANSKAMMER POINT GENERATING STATION, 1998.

INTERVAL (CM)		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
4.1 - 5.0		1	0	0	2	0	0	0	0	0	0	0	0
5.1 - 6.0		12	5	0	8	6	0	0	1	1	0	0	0
6.1 - 7.0		38	43	9	41	31	2	0	1	1	12	1	5
7.1 - 8.0		49	30	18	32	116	20	3	0	3	14	18	29
8.1 - 9.0		20	4	14	14	73	68	37	6	3	6	16	18
9.1 - 10.0		30	5	7	13	38	19	30	34	18	24	12	8
10.1- 11.0		85	35	21	24	101	34	8	7	7	40	31	33
11.1- 12.0		26	3	11	8	37	7	6	1	1	9	7	17
12.1- 13.0		5	2	0	0	4	3	0	0	0	0	1	1
13.1- 14.0		0	0	0	1	0	0	0	0	0	0	0	0
14.1- 15.0		0	0	0	1	0	0	0	0	0	0	0	0
15.1- 16.0		0	1	0	0	0	0	0	0	0	0	0	0
	TOTAL ANAL.	266	128	80	144	406	153	84	50	34	105	86	111
	MEAN LENGTH	9.1	8.3	9.1	8.2	9.0	9.2	9.3	9.4	9.3	9.4	9.5	9.3
	MIN. LENGTH	5.0	5.7	6.1	4.9	5.3	6.5	7.8	6.0	5.6	6.1	7.0	6.7
	MAX. LENGTH	12.3	15.2	11.4	14.3	12.5	12.5	11.6	11.1	11.5	11.9	12.2	13.0

TABLE B-2.8 LENGTH-FREQUENCY OF STRIPED BASS, DANSKAMMER POINT GENERATING STATION, 1998.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1.1 - 2.0	0	0	0	0	0	1	0	0	0	0	0	0
2.1 - 3.0	0	0	0	0	0	0	2	0	0	0	0	0
3.1 - 4.0	0	0	0	0	0	0	4	0	0	0	0	0
4.1 - 5.0	0	0	0	0	0	0	8	1	1	0	0	0
5.1 - 6.0	0	0	0	0	0	0	19	8	9	2	2	2
6.1 - 7.0	0	0	0	1	0	0	21	81	19	33	20	13
7.1 - 8.0	3	1	0	0	6	0	15	104	126	103	57	32
8.1 - 9.0	1	0	0	1	17	11	1	64	154	163	44	21
9.1 - 10.0	2	0	3	2	18	29	13	18	41	86	31	17
10.1- 11.0	0	0	0	2	14	28	21	7	15	13	16	18
11.1- 12.0	0	0	0	0	5	16	22	9	14	5	10	10
12.1- 13.0	0	0	0	1	3	14	9	5	17	1	1	11
13.1- 14.0	0	0	0	0	2	7	6	4	11	4	0	3
14.1- 15.0	0	0	0	0	0	1	6	1	6	9	1	5
15.1- 16.0	0	0	0	0	2	1	3	1	9	5	0	4
16.1- 17.0	0	0	0	0	0	0	2	1	1	5	0	1
17.1- 18.0	0	0	0	0	0	0	2	1	1	3	1	0
18.1- 19.0	0	0	1	0	0	0	1	1	0	0	0	0
19.1- 20.0	1	0	0	0	0	1	0	0	0	1	0	0
20.1- 21.0	1	0	0	0	0	0	1	0	0	0	0	0
21.1- 22.0	0	0	0	0	0	0	0	0	0	0	0	0
22.1- 23.0	0	0	0	0	0	0	0	0	0	0	0	0
23.1- 24.0	0	0	0	0	0	0	0	0	2	0	1	0
24.1- 25.0	0	0	0	0	0	0	0	0	1	0	0	0
25.1- 26.0	0	0	0	0	0	0	0	0	1	0	0	0
26.1- 27.0	0	0	0	1	0	0	0	0	0	0	0	0
27.1- 28.0	0	0	0	0	0	0	0	0	0	0	0	0
28.1- 29.0	0	0	0	0	0	0	0	0	0	0	0	0
29.1- 30.0	0	0	0	0	0	0	0	1	0	0	0	0
30.1- 31.0	0	0	0	0	1	0	0	0	0	1	0	0
31.1- 32.0	0	0	0	0	0	0	0	0	0	0	0	0
32.1- 33.0	0	0	0	0	0	0	0	0	0	0	0	0
33.1- 34.0	0	0	0	0	0	0	0	0	0	0	0	0
34.1- 35.0	0	0	0	0	0	0	1	0	0	0	0	0
35.1- 36.0	0	0	0	0	0	0	0	0	0	0	0	0
36.1- 37.0	0	0	0	0	0	0	0	0	0	0	0	0
37.1- 38.0	0	0	0	0	0	0	0	0	0	0	0	0
38.1- 39.0	0	0	0	0	0	0	0	0	0	0	0	0
39.1- 40.0	0	0	0	0	0	0	0	0	0	0	0	0
40.1- 41.0	0	0	0	0	0	0	0	0	0	0	0	0
41.1- 42.0	0	0	0	0	0	0	0	0	0	0	0	0
42.1- 43.0	0	0	0	0	0	0	0	0	0	0	0	0
43.1- 44.0	0	0	0	0	0	0	0	0	0	0	0	0
44.1- 45.0	0	0	0	0	0	0	0	0	0	0	0	0
45.1- 46.0	0	0	0	0	0	0	0	0	0	0	0	0
46.1- 47.0	1	0	0	0	0	0	0	0	0	0	0	0
47.1- 48.0	0	0	0	0	0	0	0	0	0	0	0	0
48.1- 49.0	0	0	0	0	0	0	0	0	0	0	0	0
49.1- 50.0	0	0	0	0	0	0	0	0	0	0	0	0
50.1- 51.0	0	0	0	0	0	0	0	0	0	0	0	0
51.1- 52.0	0	0	0	0	0	0	0	0	0	0	0	0
52.1- 53.0	0	0	0	0	1	0	0	0	0	0	0	0
53.1- 54.0	0	0	0	0	0	0	0	0	0	0	0	0
54.1- 55.0	0	0	0	0	0	0	0	0	0	0	0	0
55.1- 56.0	0	0	0	0	0	0	0	0	0	0	0	0
56.1- 57.0	0	0	0	0	0	0	0	0	0	0	0	0
57.1- 55.0	0	0	0	0	0	0	0	0	0	0	0	0
58.1- 59.0	0	0	0	0	0	0	0	0	0	0	0	0
59.1- 60.0	0	0	0	0	0	0	0	0	0	0	0	0
60.1- 61.0	0	0	0	0	0	0	0	0	0	0	0	0
61.1- 62.0	0	0	0	0	0	0	0	0	0	0	0	0
62.1- 63.0	0	0	0	0	0	0	0	0	0	0	0	0
63.1- 64.0	0	0	0	0	1	0	0	0	0	0	0	0
TOTAL ANAL.	9	1	4	8	70	109	157	307	428	434	184	137
MEAN LENGTH	15.3	7.7	11.9	11.8	11.6	10.8	9.5	8.2	9.1	8.9	8.7	9.6
MIN. LENGTH	7.5	7.7	9.5	6.3	7.6	2.0	2.1	4.8	4.4	5.6	5.6	5.8
MAX. LENGTH	46.6	7.7	18.3	26.5	63.2	20.0	34.9	29.4	26.0	30.2	24.0	16.5

TABLE B-2.9 LENGTH-FREQUENCY OF WHITE CATFISH, DANSKAMMER POINT GENERATING STATION, 1998.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
4.1 - 5.0	0	0	0	0	0	0	1	5	1	0	0	1
5.1 - 6.0	0	0	0	2	0	1	0	38	11	1	7	2
6.1 - 7.0	0	1	0	0	0	4	0	33	47	24	10	5
7.1 - 8.0	1	0	0	2	0	2	2	11	55	64	29	12
8.1 - 9.0	1	0	0	0	1	3	2	2	48	119	94	28
9.1 - 10.0	0	0	0	0	0	8	0	1	27	95	104	39
10.1- 11.0	0	0	0	0	1	6	0	0	5	32	62	14
11.1- 12.0	0	0	0	0	0	1	1	1	0	6	22	2
12.1- 13.0	0	1	0	0	0	1	0	0	1	0	0	0
13.1- 14.0	0	0	0	0	0	0	1	1	0	0	0	0
14.1- 15.0	0	0	0	0	0	1	0	0	0	0	0	0
15.1- 16.0	1	0	0	1	0	1	1	0	0	1	1	0
16.1- 17.0	0	0	0	0	0	1	0	0	1	0	1	0
17.1- 18.0	0	0	0	0	0	0	0	0	0	1	1	0
18.1- 19.0	0	0	0	1	0	2	0	0	0	0	0	0
19.1- 20.0	0	0	0	0	0	1	2	1	1	0	0	0
20.1- 21.0	0	0	0	0	0	0	0	0	1	0	2	0
21.1- 22.0	0	0	0	0	0	0	0	0	0	1	0	0
22.1- 23.0	0	0	0	0	0	1	1	0	0	0	1	0
23.1- 24.0	0	0	0	1	0	0	1	0	1	0	1	0
24.1- 25.0	0	0	0	0	0	0	1	1	0	0	0	0
25.1- 26.0	0	0	0	0	1	1	1	0	0	0	0	0
26.1- 27.0	1	0	0	0	0	1	0	3	0	1	0	0
27.1- 28.0	0	0	0	0	0	0	0	0	0	0	0	0
28.1- 29.0	0	0	0	0	0	0	0	0	0	0	0	0
29.1- 30.0	0	0	0	0	0	1	1	0	1	0	0	0
30.1- 31.0	0	0	0	0	0	0	0	1	0	1	0	0
31.1- 32.0	0	0	0	0	0	0	0	1	0	0	0	0
32.1- 33.0	0	0	0	1	0	0	1	0	0	1	0	0
33.1- 34.0	0	0	1	0	0	1	0	1	0	0	0	0
34.1- 35.0	0	0	0	0	0	0	0	1	0	0	0	0
35.1- 36.0	0	0	0	0	0	0	1	1	0	0	0	0
36.1- 37.0	0	0	0	0	0	0	2	0	0	0	0	0
37.1- 38.0	0	0	0	0	0	0	0	0	0	0	1	0
38.1- 39.0	0	0	0	0	0	0	1	1	0	0	0	0
39.1- 40.0	0	0	0	0	0	0	0	0	0	0	0	0
40.1- 41.0	0	0	0	0	0	0	1	0	0	1	0	0
41.1- 42.0	0	0	0	0	2	0	1	0	0	0	0	0
42.1- 43.0	0	0	0	1	0	0	1	0	0	0	0	0
43.1- 44.0	0	0	0	0	0	0	0	0	0	0	0	0
44.1- 45.0	0	0	0	0	0	0	1	1	1	0	0	0
45.1- 46.0	0	0	0	0	0	1	0	0	0	0	0	0
TOTAL ANAL.	4	2	1	9	5	38	24	104	201	348	336	103
MEAN LENGTH	14.5	9.8	33.5	17.5	25.6	13.9	24.7	9.2	8.3	9.1	9.6	9.0
MIN. LENGTH	7.5	6.7	33.5	5.3	8.5	6.0	5.0	4.2	5.0	5.8	5.6	4.9
MAX. LENGTH	26.3	12.9	33.5	42.2	42.0	45.3	44.5	44.7	44.4	40.5	37.8	11.2

TABLE B-2.10 LENGTH-FREQUENCY OF WHITE PERCH, DANSKAMMER POINT GENERATING STATION, 1998.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
3.1 - 4.0	0	0	0	0	0	0	0	3	0	0	0	0
4.1 - 5.0	0	0	0	1	1	0	0	1	2	1	3	0
5.1 - 6.0	1	2	5	10	6	3	6	28	20	53	24	14
6.1 - 7.0	17	14	16	43	53	12	1	95	78	120	56	72
7.1 - 8.0	50	18	63	117	145	89	2	64	123	106	95	110
8.1 - 9.0	55	13	44	93	94	112	50	4	121	94	78	99
9.1 - 10.0	23	7	16	8	6	34	129	9	6	38	39	43
10.1- 11.0	11	2	6	11	11	5	79	56	18	9	31	8
11.1- 12.0	14	1	13	18	19	11	22	61	64	59	18	26
12.1- 13.0	12	0	12	14	20	46	41	18	51	41	43	82
13.1- 14.0	36	5	17	14	41	62	50	19	35	10	19	24
14.1- 15.0	31	0	18	14	38	75	57	23	24	21	4	9
15.1- 16.0	17	2	11	12	32	43	61	23	30	17	3	8
16.1- 17.0	12	1	10	5	29	64	45	18	14	9	1	9
17.1- 18.0	17	2	4	1	18	33	25	11	9	10	1	6
18.1- 19.0	7	0	6	1	16	35	19	7	6	7	0	0
19.1- 20.0	1	0	0	2	18	19	4	9	5	6	1	0
20.1- 21.0	1	0	0	1	13	4	2	1	3	1	0	0
21.1- 22.0	3	0	5	0	4	3	3	2	1	2	0	0
22.1- 23.0	2	0	2	2	3	3	3	0	0	0	0	0
23.1- 24.0	0	0	0	0	1	0	2	0	1	0	0	0
24.1- 25.0	0	0	0	0	0	0	1	0	1	0	0	0
25.1- 26.0	0	0	0	0	0	2	1	0	0	0	0	0
26.1- 27.0	0	0	0	0	0	0	0	0	1	0	0	0
27.1- 28.0	0	0	0	0	0	0	0	0	0	0	0	0
28.1- 29.0	0	0	0	0	0	0	2	0	0	0	0	0
29.1- 30.0	0	0	0	0	0	0	0	0	0	0	0	0
30.1- 31.0	0	0	0	0	0	0	0	1	0	0	0	0
TOTAL ANAL.	310	67	248	367	568	655	605	453	613	604	416	510
MEAN LENGTH	11.6	8.9	10.8	9.2	11.3	12.7	12.8	10.5	10.2	9.4	9.1	9.6
MIN. LENGTH	6.0	5.3	5.5	5.0	4.9	5.8	5.3	3.4	4.9	4.8	5.0	5.2
MAX. LENGTH	22.7	17.8	22.6	22.5	23.7	26.0	28.6	30.4	26.3	22.0	19.9	17.8

TABLE B-2.11 FREQUENCY DISTRIBUTION OF CARAPACE WIDTH FOR BLUE CRAB, DANSKAMMER POINT GENERATING STATION, 1998.

INTERVAL (CM)		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0.1 - 1.0		0	0	0	0	0	0	0	1	2	0	0	0
1.1 - 2.0		0	0	0	1	1	1	0	23	56	16	17	11
2.1 - 3.0		0	0	0	0	11	7	1	3	101	69	60	27
3.1 - 4.0		0	0	0	1	22	16	1	0	58	131	124	46
4.1 - 5.0		2	0	0	0	64	37	9	1	16	110	84	28
5.1 - 6.0		1	0	0	0	51	68	38	7	6	54	45	12
6.1 - 7.0		1	0	0	1	37	89	85	27	6	21	7	2
7.1 - 8.0		0	0	0	0	26	75	126	39	8	5	1	0
8.1 - 9.0		0	0	0	0	7	45	113	42	8	6	0	0
9.1 - 10.0		0	0	0	0	1	20	62	36	9	7	0	0
10.1- 11.0		0	0	0	0	0	4	45	53	12	6	1	0
11.1- 12.0		0	0	0	0	0	1	14	66	32	16	2	0
12.1- 13.0		0	0	0	0	0	1	8	38	24	8	2	0
13.1- 14.0		0	0	0	0	0	0	3	36	25	15	2	0
14.1- 15.0		0	0	0	0	0	0	1	21	25	11	1	0
15.1- 16.0		0	0	0	0	0	0	0	6	8	6	0	0
16.1- 17.0		0	0	0	0	0	0	0	1	4	2	0	0
	TOTAL ANAL.	4	0	0	3	220	364	506	400	400	483	346	126
	MEAN LENGTH	5.2	0	0	3.8	5.4	6.7	8.1	9.9	6.5	5.4	4.1	3.6
	MIN. LENGTH	4.1	0	0	1.7	1.9	1.9	2.5	1.0	0.9	1.5	1.2	1.6
	MAX. LENGTH	6.5	0	0	6.1	9.2	12.4	14.7	16.7	16.7	16.3	14.8	6.5

APPENDIX C

ESTIMATED IMPINGEMENT ABUNDANCE

LIST OF APPENDIX C TABLES

C-1.1. Estimated weekly abundance of all fish species, Roseton Generating Station, 1998.

C-1.2. Estimated weekly abundance of alewife, Roseton Generating Station, 1998.

C-1.3. Estimated weekly abundance of American eel, Roseton Generating Station, 1998.

C-1.4. Estimated weekly abundance of American shad, Roseton Generating Station, 1998.

C-1.5. Estimated weekly abundance of Atlantic tomcod, Roseton Generating Station, 1998.

C-1.6. Estimated weekly abundance of bay anchovy, Roseton Generating Station, 1998.

C-1.7. Estimated weekly abundance of blueback herring, Roseton Generating Station, 1998.

C-1.8. Estimated weekly abundance of brown bullhead, Roseton Generating Station, 1998.

C-1.9. Estimated weekly abundance of channel catfish, Roseton Generating Station, 1998.

C-1.10. Estimated weekly abundance of gizzard shad, Roseton Generating Station, 1998.

C-1.11. Estimated weekly abundance of pumpkinseed, Roseton Generating Station, 1998.

C-1.12. Estimated weekly abundance of rainbow smelt, Roseton Generating Station, 1998.

C-1.13. Estimated weekly abundance of spottail shiner, Roseton Generating Station, 1998.

C-1.14. Estimated weekly abundance of striped bass, Roseton Generating Station, 1998.

C-1.15. Estimated weekly abundance of white catfish, Roseton Generating Station, 1998.

C-1.16. Estimated weekly abundance of white perch, Roseton Generating Station, 1998.

C-1.17. Estimated weekly abundance of blue crab, Roseton Generating Station, 1998.

C-2.1. Estimated weekly abundance of all fish species, Danskammer Point Generating Station, 1998.

C-2.2. Estimated weekly abundance of alewife, Danskammer Point Generating Station, 1998.

C-2.3. Estimated weekly abundance of American shad, Danskammer Point Generating Station, 1998.

C-2.4. Estimated weekly abundance of Atlantic tomcod, Danskammer Point Generating Station, 1998.

C-2.5. Estimated weekly abundance of bay anchovy, Danskammer Point Generating Station, 1998.

C-2.6. Estimated weekly abundance of blueback herring, Danskammer Point Generating Station, 1998.

C-2.7. Estimated weekly abundance of gizzard shad, Danskammer Point Generating Station, 1998.

C-2.8. Estimated weekly abundance of golden shiner, Danskammer Point Generating Station, 1998.

C-2.9. Estimated weekly abundance of pumpkinseed, Danskammer Point Generating Station, 1998.

C-2.10. Estimated weekly abundance of rainbow smelt, Danskammer Point Generating Station, 1998.

C-2.11. Estimated weekly abundance of spottail shiner, Danskammer Point Generating Station, 1998.

C-2.12. Estimated weekly abundance of striped bass, Danskammer Point Generating Station, 1998.

C-2.13. Estimated weekly abundance of white catfish, Danskammer Point Generating Station, 1998.

C-2.14. Estimated weekly abundance of white perch, Danskammer Point Generating Station, 1998.

C-2.15. Estimated weekly abundance of blue crab, Danskammer Point Generating Station, 1998.

APPENDIX TABLE C-1.1. ESTIMATED WEEKLY ABUNDANCE OF ALL FISH SPECIES, ROSETON GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1		0.00		3796.80		
	2	65	542.40	0.1198	3796.80	455	
	3	309	542.40	0.5697	3796.80	2163	
	4	302	1084.80	0.2784	5424.00	1510	
	MONTHLY EST.			0.3226	16814.40		5425
FEBRUARY	1	110	542.40	0.2028	3470.40	704	
	2	47	539.76	0.0871	3619.20	315	
	3	32	542.40	0.0590	3278.40	193	
	4	31	542.40	0.0572	3796.80	217	
	MONTHLY EST.			0.1015	14164.80		1438
MARCH	1	26	542.40	0.0479	3796.80	182	
	2	93	602.40	0.1544	4082.40	630	
	3	90	602.40	0.1494	4216.80	630	
	4	134	559.20	0.2396	5908.80	1416	
	MONTHLY EST.			0.1478	18004.80		2662
APRIL	1	171	602.40	0.2839	4216.80	1197	
	2	601	581.25	1.0340	4077.60	4216	
	3	226	542.40	0.4167	3796.80	1582	
	4	299	1086.00	0.2753	4884.00	1345	
	MONTHLY EST.			0.5025	16975.20		8529
MAY	1	50	542.40	0.0922	3796.80	350	
	2	212	542.40	0.3909	3796.80	1484	
	3	232	602.40	0.3851	4056.00	1562	
	4	118	542.40	0.2176	5640.00	1227	
	MONTHLY EST.			0.2714	17289.60		4693
JUNE	1	143	577.20	0.2477	3964.80	982	
	2	42	542.40	0.0774	3945.60	306	
	3	222	732.45	0.3031	5246.40	1590	
	4	403	880.80	0.4575	7219.20	3303	
	MONTHLY EST.			0.2715	20376.00		5531
JULY	1	64	720.00	0.0889	4536.00	403	
	2	22	654.60	0.0336	4778.40	161	
	3	65	790.48	0.0822	5088.00	418	
	4	93	1534.80	0.0606	7447.20	451	
	MONTHLY EST.			0.0663	21849.60		1449
AUGUST	1	109	835.80	0.1304	5227.20	682	
	2	189	762.60	0.2478	5512.80	1366	
	3	243	746.40	0.3256	5330.40	1735	
	4	99	862.80	0.1147	8412.00	965	
	MONTHLY EST.			0.2046	24482.40		5010
SEPTEMBER	1	262	808.80	0.3239	5071.20	1643	
	2	223	559.20	0.3988	3950.40	1575	
	3	170	536.75	0.3167	3796.80	1203	
	4	143	564.75	0.2532	5467.20	1384	
	MONTHLY EST.			0.3232	18285.60		5909
OCTOBER	1	215	555.35	0.3871	4670.40	1808	
	2	1567	750.00	2.0893	4598.40	9608	
	3	348	573.00	0.6073	4252.80	2583	
	4	2127	1253.40	1.6970	6072.00	10304	
	MONTHLY EST.			1.1952	19593.60		23418
NOVEMBER	1	1109	602.40	1.8410	4178.40	7692	
	2	740	577.30	1.2818	4185.60	5365	
	3	300	568.93	0.5273	4188.00	2208	
	4	216	602.40	0.3586	5380.80	1929	
	MONTHLY EST.			1.0022	17932.80		17972
DECEMBER	1	64	602.40	0.1062	4216.80	448	
	2	143	602.40	0.2374	4216.80	1001	
	3	38	602.40	0.0631	4216.80	266	
	4	110	1132.43	0.0971	6024.00	585	
	MONTHLY EST.			0.1260	18674.40		2352

APPENDIX TABLE C-1.2. ESTIMATED WEEKLY ABUNDANCE OF ALEWIFE, ROSETON GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1		0.00		3796.80		
	2	0	542.40	0.0000	3796.80	0	
	3	4	542.40	0.0074	3796.80	28	
	4	0	1084.80	0.0000	5424.00	0	
	MONTHLY EST.			0.0025	16814.40		41
FEBRUARY	1	0	542.40	0.0000	3470.40	0	
	2	0	539.76	0.0000	3619.20	0	
	3	0	542.40	0.0000	3278.40	0	
	4	0	542.40	0.0000	3796.80	0	
	MONTHLY EST.			0.0000	14164.80		0
MARCH	1	0	542.40	0.0000	3796.80	0	
	2	0	602.40	0.0000	4082.40	0	
	3	1	602.40	0.0017	4216.80	7	
	4	2	559.20	0.0036	5908.80	21	
	MONTHLY EST.			0.0013	18004.80		24
APRIL	1	0	602.40	0.0000	4216.80	0	
	2	1	581.25	0.0017	4077.60	7	
	3	0	542.40	0.0000	3796.80	0	
	4	0	1086.00	0.0000	4884.00	0	
	MONTHLY EST.			0.0004	16975.20		7
MAY	1	1	542.40	0.0018	3796.80	7	
	2	0	542.40	0.0000	3796.80	0	
	3	4	602.40	0.0066	4056.00	27	
	4	5	542.40	0.0092	5640.00	52	
	MONTHLY EST.			0.0044	17289.60		77
JUNE	1	1	577.20	0.0017	3964.80	7	
	2	0	542.40	0.0000	3945.60	0	
	3	3	732.45	0.0041	5246.40	21	
	4	17	880.80	0.0193	7219.20	139	
	MONTHLY EST.			0.0063	20376.00		128
JULY	1	4	720.00	0.0056	4536.00	25	
	2	0	654.60	0.0000	4778.40	0	
	3	4	790.48	0.0051	5088.00	26	
	4	3	1534.80	0.0020	7447.20	15	
	MONTHLY EST.			0.0031	21849.60		69
AUGUST	1	5	835.80	0.0060	5227.20	31	
	2	2	762.60	0.0026	5512.80	14	
	3	8	746.40	0.0107	5330.40	57	
	4	4	862.80	0.0046	8412.00	39	
	MONTHLY EST.			0.0060	24482.40		147
SEPTEMBER	1	2	808.80	0.0025	5071.20	13	
	2	0	559.20	0.0000	3950.40	0	
	3	2	536.75	0.0037	3796.80	14	
	4	3	564.75	0.0053	5467.20	29	
	MONTHLY EST.			0.0029	18285.60		53
OCTOBER	1	2	555.35	0.0036	4670.40	17	
	2	4	750.00	0.0053	4598.40	25	
	3	7	573.00	0.0122	4252.80	52	
	4	50	1253.40	0.0399	6072.00	242	
	MONTHLY EST.			0.0153	19593.60		299
NOVEMBER	1	23	602.40	0.0382	4178.40	160	
	2	17	577.30	0.0294	4185.60	123	
	3	6	568.93	0.0105	4188.00	44	
	4	14	602.40	0.0232	5380.80	125	
	MONTHLY EST.			0.0254	17932.80		455
DECEMBER	1	0	602.40	0.0000	4216.80	0	
	2	1	602.40	0.0017	4216.80	7	
	3	0	602.40	0.0000	4216.80	0	
	4	0	1132.43	0.0000	6024.00	0	
	MONTHLY EST.			0.0004	18674.40		8

APPENDIX TABLE C-1.3. ESTIMATED WEEKLY ABUNDANCE OF AMERICAN EEL, ROSETON GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1		0.00		3796.80		
	2	0	542.40	0.0000	3796.80	0	
	3	1	542.40	0.0018	3796.80	7	
	4	0	1084.80	0.0000	5424.00	0	
	MONTHLY EST.			0.0006	16814.40		10
FEBRUARY	1	0	542.40	0.0000	3470.40	0	
	2	0	539.76	0.0000	3619.20	0	
	3	1	542.40	0.0018	3278.40	6	
	4	1	542.40	0.0018	3796.80	7	
	MONTHLY EST.			0.0009	14164.80		13
MARCH	1	0	542.40	0.0000	3796.80	0	
	2	1	602.40	0.0017	4082.40	7	
	3	0	602.40	0.0000	4216.80	0	
	4	0	559.20	0.0000	5908.80	0	
	MONTHLY EST.			0.0004	18004.80		7
APRIL	1	0	602.40	0.0000	4216.80	0	
	2	0	581.25	0.0000	4077.60	0	
	3	1	542.40	0.0018	3796.80	7	
	4	0	1086.00	0.0000	4884.00	0	
	MONTHLY EST.			0.0005	16975.20		8
MAY	1	2	542.40	0.0037	3796.80	14	
	2	0	542.40	0.0000	3796.80	0	
	3	0	602.40	0.0000	4056.00	0	
	4	1	542.40	0.0018	5640.00	10	
	MONTHLY EST.			0.0014	17289.60		24
JUNE	1	0	577.20	0.0000	3964.80	0	
	2	0	542.40	0.0000	3945.60	0	
	3	1	732.45	0.0014	5246.40	7	
	4	1	880.80	0.0011	7219.20	8	
	MONTHLY EST.			0.0006	20376.00		13
JULY	1	1	720.00	0.0014	4536.00	6	
	2	1	654.60	0.0015	4778.40	7	
	3	1	790.48	0.0013	5088.00	6	
	4	0	1534.80	0.0000	7447.20	0	
	MONTHLY EST.			0.0010	21849.60		23
AUGUST	1	1	835.80	0.0012	5227.20	6	
	2	0	762.60	0.0000	5512.80	0	
	3	2	746.40	0.0027	5330.40	14	
	4	0	862.80	0.0000	8412.00	0	
	MONTHLY EST.			0.0010	24482.40		24
SEPTEMBER	1	1	808.80	0.0012	5071.20	6	
	2	1	559.20	0.0018	3950.40	7	
	3	1	536.75	0.0019	3796.80	7	
	4	0	564.75	0.0000	5467.20	0	
	MONTHLY EST.			0.0012	18285.60		22
OCTOBER	1	0	555.35	0.0000	4670.40	0	
	2	4	750.00	0.0053	4598.40	25	
	3	0	573.00	0.0000	4252.80	0	
	4	1	1253.40	0.0008	6072.00	5	
	MONTHLY EST.			0.0015	19593.60		30
NOVEMBER	1	1	602.40	0.0017	4178.40	7	
	2	0	577.30	0.0000	4185.60	0	
	3	0	568.93	0.0000	4188.00	0	
	4	0	602.40	0.0000	5380.80	0	
	MONTHLY EST.			0.0004	17932.80		7
DECEMBER	1	0	602.40	0.0000	4216.80	0	
	2	0	602.40	0.0000	4216.80	0	
	3	0	602.40	0.0000	4216.80	0	
	4	1	1132.43	0.0009	6024.00	5	
	MONTHLY EST.			0.0002	18674.40		4

APPENDIX TABLE C-1.4. ESTIMATED WEEKLY ABUNDANCE OF AMERICAN SHAD, ROSETON GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1		0.00		3796.80		
	2	0	542.40	0.0000	3796.80	0	
	3	0	542.40	0.0000	3796.80	0	
	4	0	1084.80	0.0000	5424.00	0	
	MONTHLY EST.			0.0000	16814.40		0
FEBRUARY	1	0	542.40	0.0000	3470.40	0	
	2	0	539.76	0.0000	3619.20	0	
	3	0	542.40	0.0000	3278.40	0	
	4	0	542.40	0.0000	3796.80	0	
	MONTHLY EST.			0.0000	14164.80		0
MARCH	1	0	542.40	0.0000	3796.80	0	
	2	0	602.40	0.0000	4082.40	0	
	3	0	602.40	0.0000	4216.80	0	
	4	0	559.20	0.0000	5908.80	0	
	MONTHLY EST.			0.0000	18004.80		0
APRIL	1	0	602.40	0.0000	4216.80	0	
	2	0	581.25	0.0000	4077.60	0	
	3	0	542.40	0.0000	3796.80	0	
	4	0	1086.00	0.0000	4884.00	0	
	MONTHLY EST.			0.0000	16975.20		0
MAY	1	0	542.40	0.0000	3796.80	0	
	2	0	542.40	0.0000	3796.80	0	
	3	0	602.40	0.0000	4056.00	0	
	4	0	542.40	0.0000	5640.00	0	
	MONTHLY EST.			0.0000	17289.60		0
JUNE	1	0	577.20	0.0000	3964.80	0	
	2	0	542.40	0.0000	3945.60	0	
	3	0	732.45	0.0000	5246.40	0	
	4	15	880.80	0.0170	7219.20	123	
	MONTHLY EST.			0.0043	20376.00		87
JULY	1	1	720.00	0.0014	4536.00	6	
	2	3	654.60	0.0046	4778.40	22	
	3	7	790.48	0.0089	5088.00	45	
	4	2	1534.80	0.0013	7447.20	10	
	MONTHLY EST.			0.0040	21849.60		88
AUGUST	1	0	835.80	0.0000	5227.20	0	
	2	1	762.60	0.0013	5512.80	7	
	3	0	746.40	0.0000	5330.40	0	
	4	0	862.80	0.0000	8412.00	0	
	MONTHLY EST.			0.0003	24482.40		8
SEPTEMBER	1	1	808.80	0.0012	5071.20	6	
	2	1	559.20	0.0018	3950.40	7	
	3	1	536.75	0.0019	3796.80	7	
	4	2	564.75	0.0035	5467.20	19	
	MONTHLY EST.			0.0021	18285.60		39
OCTOBER	1	3	555.35	0.0054	4670.40	25	
	2	14	750.00	0.0187	4598.40	86	
	3	5	573.00	0.0087	4252.80	37	
	4	24	1253.40	0.0191	6072.00	116	
	MONTHLY EST.			0.0130	19593.60		254
NOVEMBER	1	24	602.40	0.0398	4178.40	166	
	2	2	577.30	0.0035	4185.60	15	
	3	1	568.93	0.0018	4188.00	7	
	4	1	602.40	0.0017	5380.80	9	
	MONTHLY EST.			0.0117	17932.80		209
DECEMBER	1	0	602.40	0.0000	4216.80	0	
	2	0	602.40	0.0000	4216.80	0	
	3	0	602.40	0.0000	4216.80	0	
	4	0	1132.43	0.0000	6024.00	0	
	MONTHLY EST.			0.0000	18674.40		0

APPENDIX TABLE C-1.5. ESTIMATED WEEKLY ABUNDANCE OF ATLANTIC TOMCOD, ROSETON GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1		0.00		3796.80		
	2	2	542.40	0.0037	3796.80	14	
	3	4	542.40	0.0074	3796.80	28	
	4	0	1084.80	0.0000	5424.00	0	
	MONTHLY EST.			0.0037	16814.40		62
FEBRUARY	1	2	542.40	0.0037	3470.40	13	
	2	0	539.76	0.0000	3619.20	0	
	3	0	542.40	0.0000	3278.40	0	
	4	0	542.40	0.0000	3796.80	0	
	MONTHLY EST.			0.0009	14164.80		13
MARCH	1	0	542.40	0.0000	3796.80	0	
	2	0	602.40	0.0000	4082.40	0	
	3	0	602.40	0.0000	4216.80	0	
	4	0	559.20	0.0000	5908.80	0	
	MONTHLY EST.			0.0000	18004.80		0
APRIL	1	0	602.40	0.0000	4216.80	0	
	2	0	581.25	0.0000	4077.60	0	
	3	0	542.40	0.0000	3796.80	0	
	4	0	1086.00	0.0000	4884.00	0	
	MONTHLY EST.			0.0000	16975.20		0
MAY	1	0	542.40	0.0000	3796.80	0	
	2	3	542.40	0.0055	3796.80	21	
	3	4	602.40	0.0066	4056.00	27	
	4	0	542.40	0.0000	5640.00	0	
	MONTHLY EST.			0.0030	17289.60		53
JUNE	1	1	577.20	0.0017	3964.80	7	
	2	1	542.40	0.0018	3945.60	7	
	3	10	732.45	0.0137	5246.40	72	
	4	41	880.80	0.0465	7219.20	336	
	MONTHLY EST.			0.0159	20376.00		325
JULY	1	9	720.00	0.0125	4536.00	57	
	2	4	654.60	0.0061	4778.40	29	
	3	1	790.48	0.0013	5088.00	6	
	4	14	1534.80	0.0091	7447.20	68	
	MONTHLY EST.			0.0072	21849.60		158
AUGUST	1	27	835.80	0.0323	5227.20	169	
	2	6	762.60	0.0079	5512.80	43	
	3	2	746.40	0.0027	5330.40	14	
	4	1	862.80	0.0012	8412.00	10	
	MONTHLY EST.			0.0110	24482.40		269
SEPTEMBER	1	0	808.80	0.0000	5071.20	0	
	2	4	559.20	0.0072	3950.40	28	
	3	2	536.75	0.0037	3796.80	14	
	4	0	564.75	0.0000	5467.20	0	
	MONTHLY EST.			0.0027	18285.60		50
OCTOBER	1	0	555.35	0.0000	4670.40	0	
	2	0	750.00	0.0000	4598.40	0	
	3	0	573.00	0.0000	4252.80	0	
	4	0	1253.40	0.0000	6072.00	0	
	MONTHLY EST.			0.0000	19593.60		0
NOVEMBER	1	0	602.40	0.0000	4178.40	0	
	2	0	577.30	0.0000	4185.60	0	
	3	0	568.93	0.0000	4188.00	0	
	4	0	602.40	0.0000	5380.80	0	
	MONTHLY EST.			0.0000	17932.80		0
DECEMBER	1	0	602.40	0.0000	4216.80	0	
	2	0	602.40	0.0000	4216.80	0	
	3	0	602.40	0.0000	4216.80	0	
	4	0	1132.43	0.0000	6024.00	0	
	MONTHLY EST.			0.0000	18674.40		0

APPENDIX TABLE C-1.6. ESTIMATED WEEKLY ABUNDANCE OF BAY ANCHOVY, ROSETON GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1		0.00		3796.80		
	2	0	542.40	0.0000	3796.80	0	
	3	0	542.40	0.0000	3796.80	0	
	4	0	1084.80	0.0000	5424.00	0	
	MONTHLY EST.			0.0000	16814.40		0
FEBRUARY	1	0	542.40	0.0000	3470.40	0	
	2	0	539.76	0.0000	3619.20	0	
	3	0	542.40	0.0000	3278.40	0	
	4	0	542.40	0.0000	3796.80	0	
	MONTHLY EST.			0.0000	14164.80		0
MARCH	1	0	542.40	0.0000	3796.80	0	
	2	0	602.40	0.0000	4082.40	0	
	3	0	602.40	0.0000	4216.80	0	
	4	0	559.20	0.0000	5908.80	0	
	MONTHLY EST.			0.0000	18004.80		0
APRIL	1	0	602.40	0.0000	4216.80	0	
	2	0	581.25	0.0000	4077.60	0	
	3	0	542.40	0.0000	3796.80	0	
	4	0	1086.00	0.0000	4884.00	0	
	MONTHLY EST.			0.0000	16975.20		0
MAY	1	0	542.40	0.0000	3796.80	0	
	2	0	542.40	0.0000	3796.80	0	
	3	2	602.40	0.0033	4056.00	13	
	4	1	542.40	0.0018	5640.00	10	
	MONTHLY EST.			0.0013	17289.60		22
JUNE	1	1	577.20	0.0017	3964.80	7	
	2	0	542.40	0.0000	3945.60	0	
	3	0	732.45	0.0000	5246.40	0	
	4	77	880.80	0.0874	7219.20	631	
	MONTHLY EST.			0.0223	20376.00		454
JULY	1	13	720.00	0.0181	4536.00	82	
	2	1	654.60	0.0015	4778.40	7	
	3	0	790.48	0.0000	5088.00	0	
	4	2	1534.80	0.0013	7447.20	10	
	MONTHLY EST.			0.0052	21849.60		114
AUGUST	1	30	835.80	0.0359	5227.20	188	
	2	29	762.60	0.0380	5512.80	210	
	3	16	746.40	0.0214	5330.40	114	
	4	10	862.80	0.0116	8412.00	97	
	MONTHLY EST.			0.0267	24482.40		655
SEPTEMBER	1	112	808.80	0.1385	5071.20	702	
	2	55	559.20	0.0984	3950.40	389	
	3	48	536.75	0.0894	3796.80	340	
	4	43	564.75	0.0761	5467.20	416	
	MONTHLY EST.			0.1006	18285.60		1840
OCTOBER	1	52	555.35	0.0936	4670.40	437	
	2	736	750.00	0.9813	4598.40	4513	
	3	72	573.00	0.1257	4252.80	534	
	4	754	1253.40	0.6016	6072.00	3653	
	MONTHLY EST.			0.4505	19593.60		8828
NOVEMBER	1	11	602.40	0.0183	4178.40	76	
	2	2	577.30	0.0035	4185.60	15	
	3	0	568.93	0.0000	4188.00	0	
	4	0	602.40	0.0000	5380.80	0	
	MONTHLY EST.			0.0054	17932.80		97
DECEMBER	1	0	602.40	0.0000	4216.80	0	
	2	0	602.40	0.0000	4216.80	0	
	3	0	602.40	0.0000	4216.80	0	
	4	0	1132.43	0.0000	6024.00	0	
	MONTHLY EST.			0.0000	18674.40		0

APPENDIX TABLE C-1.7. ESTIMATED WEEKLY ABUNDANCE OF BLUEBACK HERRING, ROSETON GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1		0.00		3796.80		
	2	0	542.40	0.0000	3796.80	0	
	3	0	542.40	0.0000	3796.80	0	
	4	0	1084.80	0.0000	5424.00	0	
	MONTHLY EST.			0.0000	16814.40		0
FEBRUARY	1	0	542.40	0.0000	3470.40	0	
	2	0	539.76	0.0000	3619.20	0	
	3	0	542.40	0.0000	3278.40	0	
	4	0	542.40	0.0000	3796.80	0	
	MONTHLY EST.			0.0000	14164.80		0
MARCH	1	0	542.40	0.0000	3796.80	0	
	2	0	602.40	0.0000	4082.40	0	
	3	0	602.40	0.0000	4216.80	0	
	4	0	559.20	0.0000	5908.80	0	
	MONTHLY EST.			0.0000	18004.80		0
APRIL	1	0	602.40	0.0000	4216.80	0	
	2	0	581.25	0.0000	4077.60	0	
	3	0	542.40	0.0000	3796.80	0	
	4	10	1086.00	0.0092	4884.00	45	
	MONTHLY EST.			0.0023	16975.20		39
MAY	1	0	542.40	0.0000	3796.80	0	
	2	3	542.40	0.0055	3796.80	21	
	3	2	602.40	0.0033	4056.00	13	
	4	3	542.40	0.0055	5640.00	31	
	MONTHLY EST.			0.0036	17289.60		62
JUNE	1	0	577.20	0.0000	3964.80	0	
	2	1	542.40	0.0018	3945.60	7	
	3	13	732.45	0.0177	5246.40	93	
	4	2	880.80	0.0023	7219.20	16	
	MONTHLY EST.			0.0055	20376.00		111
JULY	1	0	720.00	0.0000	4536.00	0	
	2	0	654.60	0.0000	4778.40	0	
	3	0	790.48	0.0000	5088.00	0	
	4	4	1534.80	0.0026	7447.20	19	
	MONTHLY EST.			0.0007	21849.60		14
AUGUST	1	0	835.80	0.0000	5227.20	0	
	2	3	762.60	0.0039	5512.80	22	
	3	5	746.40	0.0067	5330.40	36	
	4	1	862.80	0.0012	8412.00	10	
	MONTHLY EST.			0.0029	24482.40		72
SEPTEMBER	1	2	808.80	0.0025	5071.20	13	
	2	2	559.20	0.0036	3950.40	14	
	3	0	536.75	0.0000	3796.80	0	
	4	1	564.75	0.0018	5467.20	10	
	MONTHLY EST.			0.0020	18285.60		36
OCTOBER	1	2	555.35	0.0036	4670.40	17	
	2	12	750.00	0.0160	4598.40	74	
	3	30	573.00	0.0524	4252.80	223	
	4	619	1253.40	0.4939	6072.00	2999	
	MONTHLY EST.			0.1415	19593.60		2772
NOVEMBER	1	478	602.40	0.7935	4178.40	3316	
	2	19	577.30	0.0329	4185.60	138	
	3	5	568.93	0.0088	4188.00	37	
	4	3	602.40	0.0050	5380.80	27	
	MONTHLY EST.			0.2100	17932.80		3767
DECEMBER	1	1	602.40	0.0017	4216.80	7	
	2	1	602.40	0.0017	4216.80	7	
	3	0	602.40	0.0000	4216.80	0	
	4	1	1132.43	0.0009	6024.00	5	
	MONTHLY EST.			0.0011	18674.40		20

APPENDIX TABLE C-1.8. ESTIMATED WEEKLY ABUNDANCE OF BROWN BULLHEAD, ROSETON GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1		0.00		3796.80		
	2	0	542.40	0.0000	3796.80	0	
	3	2	542.40	0.0037	3796.80	14	
	4	1	1084.80	0.0009	5424.00	5	
	MONTHLY EST.			0.0015	16814.40		26
FEBRUARY	1	1	542.40	0.0018	3470.40	6	
	2	0	539.76	0.0000	3619.20	0	
	3	0	542.40	0.0000	3278.40	0	
	4	0	542.40	0.0000	3796.80	0	
	MONTHLY EST.			0.0005	14164.80		7
MARCH	1	1	542.40	0.0018	3796.80	7	
	2	2	602.40	0.0033	4082.40	14	
	3	0	602.40	0.0000	4216.80	0	
	4	0	559.20	0.0000	5908.80	0	
	MONTHLY EST.			0.0013	18004.80		23
APRIL	1	12	602.40	0.0199	4216.80	84	
	2	16	581.25	0.0275	4077.60	112	
	3	13	542.40	0.0240	3796.80	91	
	4	45	1086.00	0.0414	4884.00	202	
	MONTHLY EST.			0.0282	16975.20		479
MAY	1	7	542.40	0.0129	3796.80	49	
	2	9	542.40	0.0166	3796.80	63	
	3	2	602.40	0.0033	4056.00	13	
	4	5	542.40	0.0092	5640.00	52	
	MONTHLY EST.			0.0105	17289.60		182
JUNE	1	1	577.20	0.0017	3964.80	7	
	2	5	542.40	0.0092	3945.60	36	
	3	6	732.45	0.0082	5246.40	43	
	4	13	880.80	0.0148	7219.20	107	
	MONTHLY EST.			0.0085	20376.00		173
JULY	1	4	720.00	0.0056	4536.00	25	
	2	1	654.60	0.0015	4778.40	7	
	3	1	790.48	0.0013	5088.00	6	
	4	22	1534.80	0.0143	7447.20	107	
	MONTHLY EST.			0.0057	21849.60		124
AUGUST	1	11	835.80	0.0132	5227.20	69	
	2	25	762.60	0.0328	5512.80	181	
	3	20	746.40	0.0268	5330.40	143	
	4	9	862.80	0.0104	8412.00	88	
	MONTHLY EST.			0.0208	24482.40		509
SEPTEMBER	1	1	808.80	0.0012	5071.20	6	
	2	8	559.20	0.0143	3950.40	57	
	3	5	536.75	0.0093	3796.80	35	
	4	0	564.75	0.0000	5467.20	0	
	MONTHLY EST.			0.0062	18285.60		114
OCTOBER	1	0	555.35	0.0000	4670.40	0	
	2	4	750.00	0.0053	4598.40	25	
	3	2	573.00	0.0035	4252.80	15	
	4	4	1253.40	0.0032	6072.00	19	
	MONTHLY EST.			0.0030	19593.60		59
NOVEMBER	1	1	602.40	0.0017	4178.40	7	
	2	0	577.30	0.0000	4185.60	0	
	3	0	568.93	0.0000	4188.00	0	
	4	1	602.40	0.0017	5380.80	9	
	MONTHLY EST.			0.0008	17932.80		15
DECEMBER	1	0	602.40	0.0000	4216.80	0	
	2	0	602.40	0.0000	4216.80	0	
	3	0	602.40	0.0000	4216.80	0	
	4	0	1132.43	0.0000	6024.00	0	
	MONTHLY EST.			0.0000	18674.40		0

APPENDIX TABLE C-1.9. ESTIMATED WEEKLY ABUNDANCE OF CHANNEL CATFISH, ROSETON GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1		0.00		3796.80		
	2	4	542.40	0.0074	3796.80	28	
	3	19	542.40	0.0350	3796.80	133	
	4	29	1084.80	0.0267	5424.00	145	
	MONTHLY EST.			0.0230	16814.40		388
FEBRUARY	1	3	542.40	0.0055	3470.40	19	
	2	1	539.76	0.0019	3619.20	7	
	3	5	542.40	0.0092	3278.40	30	
	4	1	542.40	0.0018	3796.80	7	
	MONTHLY EST.			0.0046	14164.80		65
MARCH	1	7	542.40	0.0129	3796.80	49	
	2	22	602.40	0.0365	4082.40	149	
	3	15	602.40	0.0249	4216.80	105	
	4	15	559.20	0.0268	5908.80	158	
	MONTHLY EST.			0.0253	18004.80		455
APRIL	1	30	602.40	0.0498	4216.80	210	
	2	2	581.25	0.0034	4077.60	14	
	3	2	542.40	0.0037	3796.80	14	
	4	4	1086.00	0.0037	4884.00	18	
	MONTHLY EST.			0.0152	16975.20		257
MAY	1	2	542.40	0.0037	3796.80	14	
	2	2	542.40	0.0037	3796.80	14	
	3	0	602.40	0.0000	4056.00	0	
	4	1	542.40	0.0018	5640.00	10	
	MONTHLY EST.			0.0023	17289.60		40
JUNE	1	2	577.20	0.0035	3964.80	14	
	2	0	542.40	0.0000	3945.60	0	
	3	4	732.45	0.0055	5246.40	29	
	4	1	880.80	0.0011	7219.20	8	
	MONTHLY EST.			0.0025	20376.00		51
JULY	1	5	720.00	0.0069	4536.00	32	
	2	1	654.60	0.0015	4778.40	7	
	3	0	790.48	0.0000	5088.00	0	
	4	3	1534.80	0.0020	7447.20	15	
	MONTHLY EST.			0.0026	21849.60		57
AUGUST	1	2	835.80	0.0024	5227.20	13	
	2	4	762.60	0.0052	5512.80	29	
	3	17	746.40	0.0228	5330.40	121	
	4	7	862.80	0.0081	8412.00	68	
	MONTHLY EST.			0.0096	24482.40		236
SEPTEMBER	1	4	808.80	0.0049	5071.20	25	
	2	7	559.20	0.0125	3950.40	49	
	3	3	536.75	0.0056	3796.80	21	
	4	3	564.75	0.0053	5467.20	29	
	MONTHLY EST.			0.0071	18285.60		130
OCTOBER	1	1	555.35	0.0018	4670.40	8	
	2	2	750.00	0.0027	4598.40	12	
	3	2	573.00	0.0035	4252.80	15	
	4	4	1253.40	0.0032	6072.00	19	
	MONTHLY EST.			0.0028	19593.60		55
NOVEMBER	1	4	602.40	0.0066	4178.40	28	
	2	3	577.30	0.0052	4185.60	22	
	3	1	568.93	0.0018	4188.00	7	
	4	1	602.40	0.0017	5380.80	9	
	MONTHLY EST.			0.0038	17932.80		68
DECEMBER	1	2	602.40	0.0033	4216.80	14	
	2	0	602.40	0.0000	4216.80	0	
	3	3	602.40	0.0050	4216.80	21	
	4	6	1132.43	0.0053	6024.00	32	
	MONTHLY EST.			0.0034	18674.40		63

APPENDIX TABLE C-1.10. ESTIMATED WEEKLY ABUNDANCE OF GIZZARD SHAD, ROSETON GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1		0.00		3796.80		
	2	3	542.40	0.0055	3796.80	21	
	3	48	542.40	0.0885	3796.80	336	
	4	45	1084.80	0.0415	5424.00	225	
	MONTHLY EST.			0.0452	16814.40		760
FEBRUARY	1	11	542.40	0.0203	3470.40	70	
	2	1	539.76	0.0019	3619.20	7	
	3	2	542.40	0.0037	3278.40	12	
	4	0	542.40	0.0000	3796.80	0	
	MONTHLY EST.			0.0065	14164.80		91
MARCH	1	0	542.40	0.0000	3796.80	0	
	2	0	602.40	0.0000	4082.40	0	
	3	1	602.40	0.0017	4216.80	7	
	4	1	559.20	0.0018	5908.80	11	
	MONTHLY EST.			0.0009	18004.80		16
APRIL	1	0	602.40	0.0000	4216.80	0	
	2	0	581.25	0.0000	4077.60	0	
	3	0	542.40	0.0000	3796.80	0	
	4	0	1086.00	0.0000	4884.00	0	
	MONTHLY EST.			0.0000	16975.20		0
MAY	1	0	542.40	0.0000	3796.80	0	
	2	0	542.40	0.0000	3796.80	0	
	3	0	602.40	0.0000	4056.00	0	
	4	0	542.40	0.0000	5640.00	0	
	MONTHLY EST.			0.0000	17289.60		0
JUNE	1	0	577.20	0.0000	3964.80	0	
	2	0	542.40	0.0000	3945.60	0	
	3	0	732.45	0.0000	5246.40	0	
	4	0	880.80	0.0000	7219.20	0	
	MONTHLY EST.			0.0000	20376.00		0
JULY	1	0	720.00	0.0000	4536.00	0	
	2	0	654.60	0.0000	4778.40	0	
	3	0	790.48	0.0000	5088.00	0	
	4	0	1534.80	0.0000	7447.20	0	
	MONTHLY EST.			0.0000	21849.60		0
AUGUST	1	0	835.80	0.0000	5227.20	0	
	2	3	762.60	0.0039	5512.80	22	
	3	10	746.40	0.0134	5330.40	71	
	4	0	862.80	0.0000	8412.00	0	
	MONTHLY EST.			0.0043	24482.40		106
SEPTEMBER	1	0	808.80	0.0000	5071.20	0	
	2	0	559.20	0.0000	3950.40	0	
	3	0	536.75	0.0000	3796.80	0	
	4	0	564.75	0.0000	5467.20	0	
	MONTHLY EST.			0.0000	18285.60		0
OCTOBER	1	0	555.35	0.0000	4670.40	0	
	2	0	750.00	0.0000	4598.40	0	
	3	0	573.00	0.0000	4252.80	0	
	4	1	1253.40	0.0008	6072.00	5	
	MONTHLY EST.			0.0002	19593.60		4
NOVEMBER	1	0	602.40	0.0000	4178.40	0	
	2	5	577.30	0.0087	4185.60	36	
	3	2	568.93	0.0035	4188.00	15	
	4	0	602.40	0.0000	5380.80	0	
	MONTHLY EST.			0.0030	17932.80		55
DECEMBER	1	1	602.40	0.0017	4216.80	7	
	2	3	602.40	0.0050	4216.80	21	
	3	3	602.40	0.0050	4216.80	21	
	4	6	1132.43	0.0053	6024.00	32	
	MONTHLY EST.			0.0042	18674.40		79

APPENDIX TABLE C-1.11. ESTIMATED WEEKLY ABUNDANCE OF PUMPKINSEED, ROSETON GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1		0.00		3796.80		
	2	4	542.40	0.0074	3796.80	28	
	3	11	542.40	0.0203	3796.80	77	
	4	17	1084.80	0.0157	5424.00	85	
	MONTHLY EST.			0.0144	16814.40		243
FEBRUARY	1	8	542.40	0.0147	3470.40	51	
	2	2	539.76	0.0037	3619.20	13	
	3	1	542.40	0.0018	3278.40	6	
	4	0	542.40	0.0000	3796.80	0	
	MONTHLY EST.			0.0051	14164.80		72
MARCH	1	1	542.40	0.0018	3796.80	7	
	2	6	602.40	0.0100	4082.40	41	
	3	1	602.40	0.0017	4216.80	7	
	4	0	559.20	0.0000	5908.80	0	
	MONTHLY EST.			0.0034	18004.80		61
APRIL	1	2	602.40	0.0033	4216.80	14	
	2	16	581.25	0.0275	4077.60	112	
	3	15	542.40	0.0277	3796.80	105	
	4	15	1086.00	0.0138	4884.00	67	
	MONTHLY EST.			0.0181	16975.20		307
MAY	1	1	542.40	0.0018	3796.80	7	
	2	11	542.40	0.0203	3796.80	77	
	3	10	602.40	0.0166	4056.00	67	
	4	7	542.40	0.0129	5640.00	73	
	MONTHLY EST.			0.0129	17289.60		223
JUNE	1	1	577.20	0.0017	3964.80	7	
	2	1	542.40	0.0018	3945.60	7	
	3	9	732.45	0.0123	5246.40	64	
	4	3	880.80	0.0034	7219.20	25	
	MONTHLY EST.			0.0048	20376.00		98
JULY	1	0	720.00	0.0000	4536.00	0	
	2	0	654.60	0.0000	4778.40	0	
	3	0	790.48	0.0000	5088.00	0	
	4	2	1534.80	0.0013	7447.20	10	
	MONTHLY EST.			0.0003	21849.60		7
AUGUST	1	1	835.80	0.0012	5227.20	6	
	2	0	762.60	0.0000	5512.80	0	
	3	2	746.40	0.0027	5330.40	14	
	4	0	862.80	0.0000	8412.00	0	
	MONTHLY EST.			0.0010	24482.40		24
SEPTEMBER	1	2	808.80	0.0025	5071.20	13	
	2	1	559.20	0.0018	3950.40	7	
	3	0	536.75	0.0000	3796.80	0	
	4	6	564.75	0.0106	5467.20	58	
	MONTHLY EST.			0.0037	18285.60		68
OCTOBER	1	39	555.35	0.0702	4670.40	328	
	2	50	750.00	0.0667	4598.40	307	
	3	15	573.00	0.0262	4252.80	111	
	4	13	1253.40	0.0104	6072.00	63	
	MONTHLY EST.			0.0434	19593.60		850
NOVEMBER	1	0	602.40	0.0000	4178.40	0	
	2	11	577.30	0.0191	4185.60	80	
	3	0	568.93	0.0000	4188.00	0	
	4	0	602.40	0.0000	5380.80	0	
	MONTHLY EST.			0.0048	17932.80		85
DECEMBER	1	2	602.40	0.0033	4216.80	14	
	2	0	602.40	0.0000	4216.80	0	
	3	0	602.40	0.0000	4216.80	0	
	4	0	1132.43	0.0000	6024.00	0	
	MONTHLY EST.			0.0008	18674.40		16

APPENDIX TABLE C-1.12. ESTIMATED WEEKLY ABUNDANCE OF RAINBOW SMELT, ROSETON GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1		0.00		3796.80		
	2	0	542.40	0.0000	3796.80	0	
	3	0	542.40	0.0000	3796.80	0	
	4	0	1084.80	0.0000	5424.00	0	
	MONTHLY EST.			0.0000	16814.40		0
FEBRUARY	1	0	542.40	0.0000	3470.40	0	
	2	0	539.76	0.0000	3619.20	0	
	3	0	542.40	0.0000	3278.40	0	
	4	0	542.40	0.0000	3796.80	0	
	MONTHLY EST.			0.0000	14164.80		0
MARCH	1	0	542.40	0.0000	3796.80	0	
	2	0	602.40	0.0000	4082.40	0	
	3	0	602.40	0.0000	4216.80	0	
	4	0	559.20	0.0000	5908.80	0	
	MONTHLY EST.			0.0000	18004.80		0
APRIL	1	0	602.40	0.0000	4216.80	0	
	2	0	581.25	0.0000	4077.60	0	
	3	0	542.40	0.0000	3796.80	0	
	4	0	1086.00	0.0000	4884.00	0	
	MONTHLY EST.			0.0000	16975.20		0
MAY	1	0	542.40	0.0000	3796.80	0	
	2	0	542.40	0.0000	3796.80	0	
	3	0	602.40	0.0000	4056.00	0	
	4	0	542.40	0.0000	5640.00	0	
	MONTHLY EST.			0.0000	17289.60		0
JUNE	1	0	577.20	0.0000	3964.80	0	
	2	0	542.40	0.0000	3945.60	0	
	3	0	732.45	0.0000	5246.40	0	
	4	0	880.80	0.0000	7219.20	0	
	MONTHLY EST.			0.0000	20376.00		0
JULY	1	0	720.00	0.0000	4536.00	0	
	2	0	654.60	0.0000	4778.40	0	
	3	0	790.48	0.0000	5088.00	0	
	4	0	1534.80	0.0000	7447.20	0	
	MONTHLY EST.			0.0000	21849.60		0
AUGUST	1	0	835.80	0.0000	5227.20	0	
	2	0	762.60	0.0000	5512.80	0	
	3	0	746.40	0.0000	5330.40	0	
	4	0	862.80	0.0000	8412.00	0	
	MONTHLY EST.			0.0000	24482.40		0
SEPTEMBER	1	0	808.80	0.0000	5071.20	0	
	2	0	559.20	0.0000	3950.40	0	
	3	0	536.75	0.0000	3796.80	0	
	4	0	564.75	0.0000	5467.20	0	
	MONTHLY EST.			0.0000	18285.60		0
OCTOBER	1	0	555.35	0.0000	4670.40	0	
	2	0	750.00	0.0000	4598.40	0	
	3	0	573.00	0.0000	4252.80	0	
	4	0	1253.40	0.0000	6072.00	0	
	MONTHLY EST.			0.0000	19593.60		0
NOVEMBER	1	0	602.40	0.0000	4178.40	0	
	2	0	577.30	0.0000	4185.60	0	
	3	0	568.93	0.0000	4188.00	0	
	4	0	602.40	0.0000	5380.80	0	
	MONTHLY EST.			0.0000	17932.80		0
DECEMBER	1	0	602.40	0.0000	4216.80	0	
	2	0	602.40	0.0000	4216.80	0	
	3	0	602.40	0.0000	4216.80	0	
	4	0	1132.43	0.0000	6024.00	0	
	MONTHLY EST.			0.0000	18674.40		0

APPENDIX TABLE C-1.13. ESTIMATED WEEKLY ABUNDANCE OF SPOTTAIL SHINER, ROSETON GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1		0.00		3796.80		
	2	17	542.40	0.0313	3796.80	119	
	3	83	542.40	0.1530	3796.80	581	
	4	108	1084.80	0.0996	5424.00	540	
	MONTHLY EST.			0.0946	16814.40		1591
FEBRUARY	1	32	542.40	0.0590	3470.40	205	
	2	18	539.76	0.0333	3619.20	121	
	3	13	542.40	0.0240	3278.40	79	
	4	19	542.40	0.0350	3796.80	133	
	MONTHLY EST.			0.0378	14164.80		536
MARCH	1	7	542.40	0.0129	3796.80	49	
	2	16	602.40	0.0266	4082.40	108	
	3	9	602.40	0.0149	4216.80	63	
	4	70	559.20	0.1252	5908.80	740	
	MONTHLY EST.			0.0449	18004.80		808
APRIL	1	13	602.40	0.0216	4216.80	91	
	2	60	581.25	0.1032	4077.60	421	
	3	30	542.40	0.0553	3796.80	210	
	4	19	1086.00	0.0175	4884.00	85	
	MONTHLY EST.			0.0494	16975.20		839
MAY	1	3	542.40	0.0055	3796.80	21	
	2	15	542.40	0.0277	3796.80	105	
	3	29	602.40	0.0481	4056.00	195	
	4	7	542.40	0.0129	5640.00	73	
	MONTHLY EST.			0.0236	17289.60		407
JUNE	1	1	577.20	0.0017	3964.80	7	
	2	2	542.40	0.0037	3945.60	15	
	3	5	732.45	0.0068	5246.40	36	
	4	18	880.80	0.0204	7219.20	148	
	MONTHLY EST.			0.0082	20376.00		166
JULY	1	3	720.00	0.0042	4536.00	19	
	2	4	654.60	0.0061	4778.40	29	
	3	13	790.48	0.0164	5088.00	84	
	4	6	1534.80	0.0039	7447.20	29	
	MONTHLY EST.			0.0077	21849.60		167
AUGUST	1	0	835.80	0.0000	5227.20	0	
	2	0	762.60	0.0000	5512.80	0	
	3	1	746.40	0.0013	5330.40	7	
	4	6	862.80	0.0070	8412.00	58	
	MONTHLY EST.			0.0021	24482.40		51
SEPTEMBER	1	3	808.80	0.0037	5071.20	19	
	2	2	559.20	0.0036	3950.40	14	
	3	1	536.75	0.0019	3796.80	7	
	4	3	564.75	0.0053	5467.20	29	
	MONTHLY EST.			0.0036	18285.60		66
OCTOBER	1	3	555.35	0.0054	4670.40	25	
	2	15	750.00	0.0200	4598.40	92	
	3	2	573.00	0.0035	4252.80	15	
	4	7	1253.40	0.0056	6072.00	34	
	MONTHLY EST.			0.0086	19593.60		169
NOVEMBER	1	2	602.40	0.0033	4178.40	14	
	2	28	577.30	0.0485	4185.60	203	
	3	6	568.93	0.0105	4188.00	44	
	4	1	602.40	0.0017	5380.80	9	
	MONTHLY EST.			0.0160	17932.80		287
DECEMBER	1	2	602.40	0.0033	4216.80	14	
	2	14	602.40	0.0232	4216.80	98	
	3	0	602.40	0.0000	4216.80	0	
	4	9	1132.43	0.0079	6024.00	48	
	MONTHLY EST.			0.0086	18674.40		161

APPENDIX TABLE C-1.14. ESTIMATED WEEKLY ABUNDANCE OF STRIPED BASS, ROSETON GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1		0.00		3796.80		
	2	5	542.40	0.0092	3796.80	35	
	3	10	542.40	0.0184	3796.80	70	
	4	2	1084.80	0.0018	5424.00	10	
	MONTHLY EST.			0.0098	16814.40		165
FEBRUARY	1	0	542.40	0.0000	3470.40	0	
	2	0	539.76	0.0000	3619.20	0	
	3	0	542.40	0.0000	3278.40	0	
	4	0	542.40	0.0000	3796.80	0	
	MONTHLY EST.			0.0000	14164.80		0
MARCH	1	0	542.40	0.0000	3796.80	0	
	2	0	602.40	0.0000	4082.40	0	
	3	0	602.40	0.0000	4216.80	0	
	4	0	559.20	0.0000	5908.80	0	
	MONTHLY EST.			0.0000	18004.80		0
APRIL	1	0	602.40	0.0000	4216.80	0	
	2	0	581.25	0.0000	4077.60	0	
	3	3	542.40	0.0055	3796.80	21	
	4	3	1086.00	0.0028	4884.00	13	
	MONTHLY EST.			0.0021	16975.20		35
MAY	1	1	542.40	0.0018	3796.80	7	
	2	1	542.40	0.0018	3796.80	7	
	3	0	602.40	0.0000	4056.00	0	
	4	0	542.40	0.0000	5640.00	0	
	MONTHLY EST.			0.0009	17289.60		16
JUNE	1	0	577.20	0.0000	3964.80	0	
	2	0	542.40	0.0000	3945.60	0	
	3	3	732.45	0.0041	5246.40	21	
	4	6	880.80	0.0068	7219.20	49	
	MONTHLY EST.			0.0027	20376.00		56
JULY	1	0	720.00	0.0000	4536.00	0	
	2	0	654.60	0.0000	4778.40	0	
	3	21	790.48	0.0266	5088.00	135	
	4	23	1534.80	0.0150	7447.20	112	
	MONTHLY EST.			0.0104	21849.60		227
AUGUST	1	11	835.80	0.0132	5227.20	69	
	2	27	762.60	0.0354	5512.80	195	
	3	21	746.40	0.0281	5330.40	150	
	4	6	862.80	0.0070	8412.00	58	
	MONTHLY EST.			0.0209	24482.40		512
SEPTEMBER	1	11	808.80	0.0136	5071.20	69	
	2	19	559.20	0.0340	3950.40	134	
	3	8	536.75	0.0149	3796.80	57	
	4	15	564.75	0.0266	5467.20	145	
	MONTHLY EST.			0.0223	18285.60		407
OCTOBER	1	11	555.35	0.0198	4670.40	93	
	2	170	750.00	0.2267	4598.40	1042	
	3	23	573.00	0.0401	4252.80	171	
	4	76	1253.40	0.0606	6072.00	368	
	MONTHLY EST.			0.0868	19593.60		1701
NOVEMBER	1	58	602.40	0.0963	4178.40	402	
	2	25	577.30	0.0433	4185.60	181	
	3	5	568.93	0.0088	4188.00	37	
	4	2	602.40	0.0033	5380.80	18	
	MONTHLY EST.			0.0379	17932.80		680
DECEMBER	1	1	602.40	0.0017	4216.80	7	
	2	2	602.40	0.0033	4216.80	14	
	3	7	602.40	0.0116	4216.80	49	
	4	6	1132.43	0.0053	6024.00	32	
	MONTHLY EST.			0.0055	18674.40		102

APPENDIX TABLE C-1.15. ESTIMATED WEEKLY ABUNDANCE OF WHITE CATFISH, ROSETON GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1		0.00		3796.80		
	2	0	542.40	0.0000	3796.80	0	
	3	1	542.40	0.0018	3796.80	7	
	4	0	1084.80	0.0000	5424.00	0	
	MONTHLY EST.			0.0006	16814.40		10
FEBRUARY	1	0	542.40	0.0000	3470.40	0	
	2	0	539.76	0.0000	3619.20	0	
	3	0	542.40	0.0000	3278.40	0	
	4	0	542.40	0.0000	3796.80	0	
	MONTHLY EST.			0.0000	14164.80		0
MARCH	1	0	542.40	0.0000	3796.80	0	
	2	0	602.40	0.0000	4082.40	0	
	3	0	602.40	0.0000	4216.80	0	
	4	1	559.20	0.0018	5908.80	11	
	MONTHLY EST.			0.0004	18004.80		8
APRIL	1	1	602.40	0.0017	4216.80	7	
	2	2	581.25	0.0034	4077.60	14	
	3	0	542.40	0.0000	3796.80	0	
	4	1	1086.00	0.0009	4884.00	4	
	MONTHLY EST.			0.0015	16975.20		26
MAY	1	1	542.40	0.0018	3796.80	7	
	2	0	542.40	0.0000	3796.80	0	
	3	0	602.40	0.0000	4056.00	0	
	4	1	542.40	0.0018	5640.00	10	
	MONTHLY EST.			0.0009	17289.60		16
JUNE	1	1	577.20	0.0017	3964.80	7	
	2	0	542.40	0.0000	3945.60	0	
	3	4	732.45	0.0055	5246.40	29	
	4	3	880.80	0.0034	7219.20	25	
	MONTHLY EST.			0.0026	20376.00		54
JULY	1	1	720.00	0.0014	4536.00	6	
	2	1	654.60	0.0015	4778.40	7	
	3	0	790.48	0.0000	5088.00	0	
	4	1	1534.80	0.0007	7447.20	5	
	MONTHLY EST.			0.0009	21849.60		19
AUGUST	1	9	835.80	0.0108	5227.20	56	
	2	7	762.60	0.0092	5512.80	51	
	3	4	746.40	0.0054	5330.40	29	
	4	0	862.80	0.0000	8412.00	0	
	MONTHLY EST.			0.0063	24482.40		155
SEPTEMBER	1	6	808.80	0.0074	5071.20	38	
	2	4	559.20	0.0072	3950.40	28	
	3	5	536.75	0.0093	3796.80	35	
	4	5	564.75	0.0089	5467.20	48	
	MONTHLY EST.			0.0082	18285.60		150
OCTOBER	1	6	555.35	0.0108	4670.40	50	
	2	30	750.00	0.0400	4598.40	184	
	3	10	573.00	0.0175	4252.80	74	
	4	30	1253.40	0.0239	6072.00	145	
	MONTHLY EST.			0.0230	19593.60		452
NOVEMBER	1	170	602.40	0.2822	4178.40	1179	
	2	79	577.30	0.1368	4185.60	573	
	3	142	568.93	0.2496	4188.00	1045	
	4	91	602.40	0.1511	5380.80	813	
	MONTHLY EST.			0.2049	17932.80		3675
DECEMBER	1	6	602.40	0.0100	4216.80	42	
	2	4	602.40	0.0066	4216.80	28	
	3	2	602.40	0.0033	4216.80	14	
	4	1	1132.43	0.0009	6024.00	5	
	MONTHLY EST.			0.0052	18674.40		97

APPENDIX TABLE C-1.16. ESTIMATED WEEKLY ABUNDANCE OF WHITE PERCH, ROSETON GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1		0.00		3796.80		
	2	21	542.40	0.0387	3796.80	147	
	3	99	542.40	0.1825	3796.80	693	
	4	47	1084.80	0.0433	5424.00	235	
	MONTHLY EST.			0.0882	16814.40		1483
FEBRUARY	1	29	542.40	0.0535	3470.40	186	
	2	9	539.76	0.0167	3619.20	60	
	3	5	542.40	0.0092	3278.40	30	
	4	5	542.40	0.0092	3796.80	35	
	MONTHLY EST.			0.0221	14164.80		314
MARCH	1	5	542.40	0.0092	3796.80	35	
	2	31	602.40	0.0515	4082.40	210	
	3	50	602.40	0.0830	4216.80	350	
	4	40	559.20	0.0715	5908.80	423	
	MONTHLY EST.			0.0538	18004.80		969
APRIL	1	95	602.40	0.1577	4216.80	665	
	2	477	581.25	0.8206	4077.60	3346	
	3	147	542.40	0.2710	3796.80	1029	
	4	179	1086.00	0.1648	4884.00	805	
	MONTHLY EST.			0.3535	16975.20		6002
MAY	1	26	542.40	0.0479	3796.80	182	
	2	154	542.40	0.2839	3796.80	1078	
	3	154	602.40	0.2556	4056.00	1037	
	4	82	542.40	0.1512	5640.00	853	
	MONTHLY EST.			0.1847	17289.60		3193
JUNE	1	131	577.20	0.2270	3964.80	900	
	2	32	542.40	0.0590	3945.60	233	
	3	154	732.45	0.2103	5246.40	1103	
	4	200	880.80	0.2271	7219.20	1639	
	MONTHLY EST.			0.1808	20376.00		3684
JULY	1	18	720.00	0.0250	4536.00	113	
	2	5	654.60	0.0076	4778.40	36	
	3	14	790.48	0.0177	5088.00	90	
	4	7	1534.80	0.0046	7447.20	34	
	MONTHLY EST.			0.0137	21849.60		300
AUGUST	1	11	835.80	0.0132	5227.20	69	
	2	81	762.60	0.1062	5512.80	586	
	3	123	746.40	0.1648	5330.40	878	
	4	45	862.80	0.0522	8412.00	439	
	MONTHLY EST.			0.0841	24482.40		2059
SEPTEMBER	1	86	808.80	0.1063	5071.20	539	
	2	87	559.20	0.1556	3950.40	615	
	3	87	536.75	0.1621	3796.80	615	
	4	55	564.75	0.0974	5467.20	532	
	MONTHLY EST.			0.1303	18285.60		2383
OCTOBER	1	78	555.35	0.1405	4670.40	656	
	2	471	750.00	0.6280	4598.40	2888	
	3	164	573.00	0.2862	4252.80	1217	
	4	498	1253.40	0.3973	6072.00	2413	
	MONTHLY EST.			0.3630	19593.60		7112
NOVEMBER	1	322	602.40	0.5345	4178.40	2233	
	2	528	577.30	0.9146	4185.60	3828	
	3	130	568.93	0.2285	4188.00	957	
	4	97	602.40	0.1610	5380.80	866	
	MONTHLY EST.			0.4597	17932.80		8243
DECEMBER	1	44	602.40	0.0730	4216.80	308	
	2	102	602.40	0.1693	4216.80	714	
	3	20	602.40	0.0332	4216.80	140	
	4	65	1132.43	0.0574	6024.00	346	
	MONTHLY EST.			0.0832	18674.40		1554

APPENDIX TABLE C-1.17. ESTIMATED WEEKLY ABUNDANCE OF BLUE CRAB, ROSETON GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1		0.00		3796.80		
	2	0	542.40	0.0000	3796.80	0	
	3	0	542.40	0.0000	3796.80	0	
	4	0	1084.80	0.0000	5424.00	0	
	MONTHLY EST.			0.0000	16814.40		0
FEBRUARY	1	0	542.40	0.0000	3470.40	0	
	2	0	539.76	0.0000	3619.20	0	
	3	0	542.40	0.0000	3278.40	0	
	4	0	542.40	0.0000	3796.80	0	
	MONTHLY EST.			0.0000	14164.80		0
MARCH	1	0	542.40	0.0000	3796.80	0	
	2	0	602.40	0.0000	4082.40	0	
	3	0	602.40	0.0000	4216.80	0	
	4	0	559.20	0.0000	5908.80	0	
	MONTHLY EST.			0.0000	18004.80		0
APRIL	1	0	602.40	0.0000	4216.80	0	
	2	1	581.25	0.0017	4077.60	7	
	3	1	542.40	0.0018	3796.80	7	
	4	2	1086.00	0.0018	4884.00	9	
	MONTHLY EST.			0.0014	16975.20		23
MAY	1	7	542.40	0.0129	3796.80	49	
	2	63	542.40	0.1162	3796.80	441	
	3	754	602.40	1.2517	4056.00	5077	
	4	511	542.40	0.9421	5640.00	5313	
	MONTHLY EST.			0.5807	17289.60		10040
JUNE	1	213	577.20	0.3690	3964.80	1463	
	2	341	542.40	0.6287	3945.60	2481	
	3	799	732.45	1.0909	5246.40	5723	
	4	941	880.80	1.0683	7219.20	7713	
	MONTHLY EST.			0.7892	20376.00		16081
JULY	1	418	720.00	0.5806	4536.00	2633	
	2	583	654.60	0.8906	4778.40	4256	
	3	529	790.48	0.6692	5088.00	3405	
	4	478	1534.80	0.3114	7447.20	2319	
	MONTHLY EST.			0.6130	21849.60		13393
AUGUST	1	305	835.80	0.3649	5227.20	1908	
	2	1894	762.60	2.4836	5512.80	13692	
	3	824	746.40	1.1040	5330.40	5885	
	4	1234	862.80	1.4302	8412.00	12031	
	MONTHLY EST.			1.3457	24482.40		32945
SEPTEMBER	1	6851	808.80	8.4706	5071.20	42956	
	2	5863	559.20	10.4846	3950.40	41418	
	3	2913	536.75	5.4271	3796.80	20606	
	4	1707	564.75	3.0226	5467.20	16525	
	MONTHLY EST.			6.8512	18285.60		125279
OCTOBER	1	2008	555.35	3.6157	4670.40	16887	
	2	2536	750.00	3.3813	4598.40	15549	
	3	1438	573.00	2.5096	4252.80	10673	
	4	1839	1253.40	1.4672	6072.00	8909	
	MONTHLY EST.			2.7435	19593.60		53754
NOVEMBER	1	1693	602.40	2.8104	4178.40	11743	
	2	784	577.30	1.3580	4185.60	5684	
	3	264	568.93	0.4640	4188.00	1943	
	4	111	602.40	0.1843	5380.80	991	
	MONTHLY EST.			1.2042	17932.80		21594
DECEMBER	1	52	602.40	0.0863	4216.80	364	
	2	22	602.40	0.0365	4216.80	154	
	3	8	602.40	0.0133	4216.80	56	
	4	5	1132.43	0.0044	6024.00	27	
	MONTHLY EST.			0.0351	18674.40		656

APPENDIX TABLE C-2.1. ESTIMATED WEEKLY ABUNDANCE OF ALL FISH SPECIES, DANSKAMMER POINT GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1		0.00		1421.28		
	2	101	203.04	0.4974	1664.18	828	
	3	961	274.87	3.4962	2042.33	7140	
	4	1168	560.10	2.0853	2748.86	5732	
	MONTHLY EST.			2.0263	7876.66		15961
FEBRUARY	1	254	234.41	1.0836	1749.89	1896	
	2	91	201.35	0.4520	1517.81	686	
	3	31	201.63	0.1537	1543.20	237	
	4	39	201.77	0.1933	1421.28	275	
	MONTHLY EST.			0.4706	6232.18		2933
MARCH	1	80	203.04	0.3940	1455.26	573	
	2	75	203.04	0.3694	1421.28	525	
	3	266	203.04	1.3101	1413.34	1852	
	4	137	202.05	0.6780	2030.40	1377	
	MONTHLY EST.			0.6879	6320.28		4348
APRIL	1	75	202.19	0.3709	1421.28	527	
	2	717	203.04	3.5313	1411.15	4983	
	3	192	195.29	0.9832	1421.47	1398	
	4	402	327.68	1.2268	1814.28	2226	
	MONTHLY EST.			1.5281	6068.18		9273
MAY	1	303	248.43	1.2197	1506.58	1838	
	2	862	327.35	2.6333	1625.78	4281	
	3	1482	384.61	3.8533	2566.20	9888	
	4	1615	418.89	3.8555	3693.14	14239	
	MONTHLY EST.			2.8904	9391.70		27146
JUNE	1	605	301.60	2.0060	2316.58	4647	
	2	492	344.81	1.4269	2505.58	3575	
	3	1203	429.45	2.8012	2685.19	7522	
	4	673	406.36	1.6562	3813.43	6316	
	MONTHLY EST.			1.9726	11320.78		22331
JULY	1	394	420.16	0.9377	2883.96	2704	
	2	234	414.16	0.5650	2608.78	1474	
	3	233	425.17	0.5480	2956.87	1620	
	4	476	844.54	0.5636	4220.14	2379	
	MONTHLY EST.			0.6536	12669.74		8281
AUGUST	1	144	418.85	0.3438	2977.87	1024	
	2	635	426.64	1.4884	2920.51	4347	
	3	1005	400.02	2.5124	2871.96	7215	
	4	340	427.36	0.7956	4188.94	3333	
	MONTHLY EST.			1.2850	12959.28		16653
SEPTEMBER	1	493	398.75	1.2364	2894.71	3579	
	2	1918	401.73	4.7744	2925.19	13966	
	3	1320	423.64	3.1158	2866.70	8932	
	4	621	387.18	1.6039	3583.22	5747	
	MONTHLY EST.			2.6826	12269.83		32915
OCTOBER	1	332	327.82	1.0128	2315.76	2345	
	2	3045	323.41	9.4154	2311.75	21766	
	3	1509	363.73	4.1487	1940.26	8050	
	4	1690	339.58	4.9767	1580.57	7866	
	MONTHLY EST.			4.8884	8148.34		39832
NOVEMBER	1	1696	203.04	8.3530	1421.28	11872	
	2	1173	191.76	6.1170	1409.98	8625	
	3	1249	203.22	6.1460	1421.57	8737	
	4	143	203.04	0.7043	1324.70	933	
	MONTHLY EST.			5.3301	5577.53		29729
DECEMBER	1	723	287.61	2.5138	1988.26	4998	
	2	192	263.10	0.7298	1705.61	1245	
	3	413	198.11	2.0848	1421.28	2963	
	4	308	392.69	0.7843	2030.40	1593	
	MONTHLY EST.			1.5282	7145.54		10920

APPENDIX TABLE C-2.2. ESTIMATED WEEKLY ABUNDANCE OF ALEWIFE, DANSKAMMER POINT GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1		0.00		1421.28		
	2	0	203.04	0.0000	1664.18	0	
	3	0	274.87	0.0000	2042.33	0	
	4	1	560.10	0.0018	2748.86	5	
	MONTHLY EST.			0.0006	7876.66		5
FEBRUARY	1	0	234.41	0.0000	1749.89	0	
	2	0	201.35	0.0000	1517.81	0	
	3	0	201.63	0.0000	1543.20	0	
	4	0	201.77	0.0000	1421.28	0	
	MONTHLY EST.			0.0000	6232.18		0
MARCH	1	0	203.04	0.0000	1455.26	0	
	2	0	203.04	0.0000	1421.28	0	
	3	16	203.04	0.0788	1413.34	111	
	4	0	202.05	0.0000	2030.40	0	
	MONTHLY EST.			0.0197	6320.28		125
APRIL	1	1	202.19	0.0049	1421.28	7	
	2	0	203.04	0.0000	1411.15	0	
	3	0	195.29	0.0000	1421.47	0	
	4	1	327.68	0.0031	1814.28	6	
	MONTHLY EST.			0.0020	6068.18		12
MAY	1	4	248.43	0.0161	1506.58	24	
	2	8	327.35	0.0244	1625.78	40	
	3	19	384.61	0.0494	2566.20	127	
	4	23	418.89	0.0549	3693.14	203	
	MONTHLY EST.			0.0362	9391.70		340
JUNE	1	8	301.60	0.0265	2316.58	61	
	2	4	344.81	0.0116	2505.58	29	
	3	17	429.45	0.0396	2685.19	106	
	4	31	406.36	0.0763	3813.43	291	
	MONTHLY EST.			0.0385	11320.78		436
JULY	1	26	420.16	0.0619	2883.96	178	
	2	13	414.16	0.0314	2608.78	82	
	3	13	425.17	0.0306	2956.87	90	
	4	35	844.54	0.0414	4220.14	175	
	MONTHLY EST.			0.0413	12669.74		524
AUGUST	1	16	418.85	0.0382	2977.87	114	
	2	18	426.64	0.0422	2920.51	123	
	3	47	400.02	0.1175	2871.96	337	
	4	21	427.36	0.0491	4188.94	206	
	MONTHLY EST.			0.0618	12959.28		800
SEPTEMBER	1	18	398.75	0.0451	2894.71	131	
	2	25	401.73	0.0622	2925.19	182	
	3	57	423.64	0.1345	2866.70	386	
	4	13	387.18	0.0336	3583.22	120	
	MONTHLY EST.			0.0689	12269.83		845
OCTOBER	1	21	327.82	0.0641	2315.76	148	
	2	97	323.41	0.2999	2311.75	693	
	3	44	363.73	0.1210	1940.26	235	
	4	158	339.58	0.4653	1580.57	735	
	MONTHLY EST.			0.2376	8148.34		1936
NOVEMBER	1	77	203.04	0.3792	1421.28	539	
	2	19	191.76	0.0991	1409.98	140	
	3	50	203.22	0.2460	1421.57	350	
	4	20	203.04	0.0985	1324.70	130	
	MONTHLY EST.			0.2057	5577.53		1147
DECEMBER	1	22	287.61	0.0765	1988.26	152	
	2	0	263.10	0.0000	1705.61	0	
	3	0	198.11	0.0000	1421.28	0	
	4	0	392.69	0.0000	2030.40	0	
	MONTHLY EST.			0.0191	7145.54		137

APPENDIX TABLE C-2.3. ESTIMATED WEEKLY ABUNDANCE OF AMERICAN SHAD, DANSKAMMER POINT GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1		0.00		1421.28		
	2	0	203.04	0.0000	1664.18	0	
	3	0	274.87	0.0000	2042.33	0	
	4	0	560.10	0.0000	2748.86	0	
	MONTHLY EST.			0.0000	7876.66		0
FEBRUARY	1	0	234.41	0.0000	1749.89	0	
	2	0	201.35	0.0000	1517.81	0	
	3	0	201.63	0.0000	1543.20	0	
	4	0	201.77	0.0000	1421.28	0	
	MONTHLY EST.			0.0000	6232.18		0
MARCH	1	0	203.04	0.0000	1455.26	0	
	2	0	203.04	0.0000	1421.28	0	
	3	0	203.04	0.0000	1413.34	0	
	4	0	202.05	0.0000	2030.40	0	
	MONTHLY EST.			0.0000	6320.28		0
APRIL	1	0	202.19	0.0000	1421.28	0	
	2	0	203.04	0.0000	1411.15	0	
	3	0	195.29	0.0000	1421.47	0	
	4	0	327.68	0.0000	1814.28	0	
	MONTHLY EST.			0.0000	6068.18		0
MAY	1	0	248.43	0.0000	1506.58	0	
	2	0	327.35	0.0000	1625.78	0	
	3	0	384.61	0.0000	2566.20	0	
	4	1	418.89	0.0024	3693.14	9	
	MONTHLY EST.			0.0006	9391.70		6
JUNE	1	0	301.60	0.0000	2316.58	0	
	2	0	344.81	0.0000	2505.58	0	
	3	0	429.45	0.0000	2685.19	0	
	4	0	406.36	0.0000	3813.43	0	
	MONTHLY EST.			0.0000	11320.78		0
JULY	1	0	420.16	0.0000	2883.96	0	
	2	0	414.16	0.0000	2608.78	0	
	3	5	425.17	0.0118	2956.87	35	
	4	9	844.54	0.0107	4220.14	45	
	MONTHLY EST.			0.0056	12669.74		71
AUGUST	1	7	418.85	0.0167	2977.87	50	
	2	7	426.64	0.0164	2920.51	48	
	3	4	400.02	0.0100	2871.96	29	
	4	11	427.36	0.0257	4188.94	108	
	MONTHLY EST.			0.0172	12959.28		223
SEPTEMBER	1	20	398.75	0.0502	2894.71	145	
	2	33	401.73	0.0821	2925.19	240	
	3	65	423.64	0.1534	2866.70	440	
	4	24	387.18	0.0620	3583.22	222	
	MONTHLY EST.			0.0869	12269.83		1067
OCTOBER	1	6	327.82	0.0183	2315.76	42	
	2	186	323.41	0.5751	2311.75	1330	
	3	37	363.73	0.1017	1940.26	197	
	4	266	339.58	0.7833	1580.57	1238	
	MONTHLY EST.			0.3696	8148.34		3012
NOVEMBER	1	102	203.04	0.5024	1421.28	714	
	2	31	191.76	0.1617	1409.98	228	
	3	29	203.22	0.1427	1421.57	203	
	4	14	203.04	0.0690	1324.70	91	
	MONTHLY EST.			0.2189	5577.53		1221
DECEMBER	1	8	287.61	0.0278	1988.26	55	
	2	0	263.10	0.0000	1705.61	0	
	3	1	198.11	0.0050	1421.28	7	
	4	0	392.69	0.0000	2030.40	0	
	MONTHLY EST.			0.0082	7145.54		59

APPENDIX TABLE C-2.4. ESTIMATED WEEKLY ABUNDANCE OF ATLANTIC TOMCOD, DANSKAMMER POINT GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1		0.00		1421.28		
	2	1	203.04	0.0049	1664.18	8	
	3	71	274.87	0.2583	2042.33	528	
	4	84	560.10	0.1500	2748.86	412	
	MONTHLY EST.			0.1377	7876.66		1085
FEBRUARY	1	8	234.41	0.0341	1749.89	60	
	2	7	201.35	0.0348	1517.81	53	
	3	0	201.63	0.0000	1543.20	0	
	4	5	201.77	0.0248	1421.28	35	
	MONTHLY EST.			0.0234	6232.18		146
MARCH	1	3	203.04	0.0148	1455.26	22	
	2	3	203.04	0.0148	1421.28	21	
	3	20	203.04	0.0985	1413.34	139	
	4	5	202.05	0.0247	2030.40	50	
	MONTHLY EST.			0.0382	6320.28		241
APRIL	1	0	202.19	0.0000	1421.28	0	
	2	0	203.04	0.0000	1411.15	0	
	3	0	195.29	0.0000	1421.47	0	
	4	0	327.68	0.0000	1814.28	0	
	MONTHLY EST.			0.0000	6068.18		0
MAY	1	3	248.43	0.0121	1506.58	18	
	2	9	327.35	0.0275	1625.78	45	
	3	12	384.61	0.0312	2566.20	80	
	4	27	418.89	0.0645	3693.14	238	
	MONTHLY EST.			0.0338	9391.70		318
JUNE	1	10	301.60	0.0332	2316.58	77	
	2	47	344.81	0.1363	2505.58	342	
	3	184	429.45	0.4285	2685.19	1150	
	4	37	406.36	0.0911	3813.43	347	
	MONTHLY EST.			0.1722	11320.78		1950
JULY	1	64	420.16	0.1523	2883.96	439	
	2	31	414.16	0.0748	2608.78	195	
	3	2	425.17	0.0047	2956.87	14	
	4	12	844.54	0.0142	4220.14	60	
	MONTHLY EST.			0.0615	12669.74		779
AUGUST	1	9	418.85	0.0215	2977.87	64	
	2	7	426.64	0.0164	2920.51	48	
	3	2	400.02	0.0050	2871.96	14	
	4	0	427.36	0.0000	4188.94	0	
	MONTHLY EST.			0.0107	12959.28		139
SEPTEMBER	1	1	398.75	0.0025	2894.71	7	
	2	15	401.73	0.0373	2925.19	109	
	3	2	423.64	0.0047	2866.70	14	
	4	0	387.18	0.0000	3583.22	0	
	MONTHLY EST.			0.0111	12269.83		137
OCTOBER	1	0	327.82	0.0000	2315.76	0	
	2	0	323.41	0.0000	2311.75	0	
	3	2	363.73	0.0055	1940.26	11	
	4	0	339.58	0.0000	1580.57	0	
	MONTHLY EST.			0.0014	8148.34		11
NOVEMBER	1	2	203.04	0.0099	1421.28	14	
	2	0	191.76	0.0000	1409.98	0	
	3	2	203.22	0.0098	1421.57	14	
	4	0	203.04	0.0000	1324.70	0	
	MONTHLY EST.			0.0049	5577.53		27
DECEMBER	1	3	287.61	0.0104	1988.26	21	
	2	0	263.10	0.0000	1705.61	0	
	3	0	198.11	0.0000	1421.28	0	
	4	25	392.69	0.0637	2030.40	129	
	MONTHLY EST.			0.0185	7145.54		132

APPENDIX TABLE C-2.5. ESTIMATED WEEKLY ABUNDANCE OF BAY ANCHOVY, DANSKAMMER POINT GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1		0.00		1421.28		
	2	0	203.04	0.0000	1664.18	0	
	3	0	274.87	0.0000	2042.33	0	
	4	0	560.10	0.0000	2748.86	0	
	MONTHLY EST.			0.0000	7876.66		0
FEBRUARY	1	0	234.41	0.0000	1749.89	0	
	2	0	201.35	0.0000	1517.81	0	
	3	0	201.63	0.0000	1543.20	0	
	4	0	201.77	0.0000	1421.28	0	
	MONTHLY EST.			0.0000	6232.18		0
MARCH	1	0	203.04	0.0000	1455.26	0	
	2	0	203.04	0.0000	1421.28	0	
	3	0	203.04	0.0000	1413.34	0	
	4	0	202.05	0.0000	2030.40	0	
	MONTHLY EST.			0.0000	6320.28		0
APRIL	1	0	202.19	0.0000	1421.28	0	
	2	0	203.04	0.0000	1411.15	0	
	3	0	195.29	0.0000	1421.47	0	
	4	0	327.68	0.0000	1814.28	0	
	MONTHLY EST.			0.0000	6068.18		0
MAY	1	0	248.43	0.0000	1506.58	0	
	2	0	327.35	0.0000	1625.78	0	
	3	0	384.61	0.0000	2566.20	0	
	4	4	418.89	0.0095	3693.14	35	
	MONTHLY EST.			0.0024	9391.70		22
JUNE	1	6	301.60	0.0199	2316.58	46	
	2	1	344.81	0.0029	2505.58	7	
	3	0	429.45	0.0000	2685.19	0	
	4	33	406.36	0.0812	3813.43	310	
	MONTHLY EST.			0.0260	11320.78		294
JULY	1	16	420.16	0.0381	2883.96	110	
	2	1	414.16	0.0024	2608.78	6	
	3	0	425.17	0.0000	2956.87	0	
	4	1	844.54	0.0012	4220.14	5	
	MONTHLY EST.			0.0104	12669.74		132
AUGUST	1	0	418.85	0.0000	2977.87	0	
	2	36	426.64	0.0844	2920.51	246	
	3	19	400.02	0.0475	2871.96	136	
	4	4	427.36	0.0094	4188.94	39	
	MONTHLY EST.			0.0353	12959.28		458
SEPTEMBER	1	40	398.75	0.1003	2894.71	290	
	2	130	401.73	0.3236	2925.19	947	
	3	248	423.64	0.5854	2866.70	1678	
	4	79	387.18	0.2040	3583.22	731	
	MONTHLY EST.			0.3033	12269.83		3722
OCTOBER	1	16	327.82	0.0488	2315.76	113	
	2	78	323.41	0.2412	2311.75	558	
	3	91	363.73	0.2502	1940.26	485	
	4	15	339.58	0.0442	1580.57	70	
	MONTHLY EST.			0.1461	8148.34		1190
NOVEMBER	1	3	203.04	0.0148	1421.28	21	
	2	1	191.76	0.0052	1409.98	7	
	3	0	203.22	0.0000	1421.57	0	
	4	0	203.04	0.0000	1324.70	0	
	MONTHLY EST.			0.0050	5577.53		28
DECEMBER	1	0	287.61	0.0000	1988.26	0	
	2	0	263.10	0.0000	1705.61	0	
	3	0	198.11	0.0000	1421.28	0	
	4	0	392.69	0.0000	2030.40	0	
	MONTHLY EST.			0.0000	7145.54		0

APPENDIX TABLE C-2.6. ESTIMATED WEEKLY ABUNDANCE OF BLUEBACK HERRING, DANSKAMMER POINT GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1		0.00		1421.28		
	2	0	203.04	0.0000	1664.18	0	
	3	0	274.87	0.0000	2042.33	0	
	4	0	560.10	0.0000	2748.86	0	
	MONTHLY EST.			0.0000	7876.66		0
FEBRUARY	1	0	234.41	0.0000	1749.89	0	
	2	0	201.35	0.0000	1517.81	0	
	3	0	201.63	0.0000	1543.20	0	
	4	0	201.77	0.0000	1421.28	0	
	MONTHLY EST.			0.0000	6232.18		0
MARCH	1	0	203.04	0.0000	1455.26	0	
	2	0	203.04	0.0000	1421.28	0	
	3	0	203.04	0.0000	1413.34	0	
	4	0	202.05	0.0000	2030.40	0	
	MONTHLY EST.			0.0000	6320.28		0
APRIL	1	0	202.19	0.0000	1421.28	0	
	2	0	203.04	0.0000	1411.15	0	
	3	0	195.29	0.0000	1421.47	0	
	4	9	327.68	0.0275	1814.28	50	
	MONTHLY EST.			0.0069	6068.18		42
MAY	1	11	248.43	0.0443	1506.58	67	
	2	13	327.35	0.0397	1625.78	65	
	3	5	384.61	0.0130	2566.20	33	
	4	29	418.89	0.0692	3693.14	256	
	MONTHLY EST.			0.0416	9391.70		390
JUNE	1	0	301.60	0.0000	2316.58	0	
	2	4	344.81	0.0116	2505.58	29	
	3	11	429.45	0.0256	2685.19	69	
	4	3	406.36	0.0074	3813.43	28	
	MONTHLY EST.			0.0111	11320.78		126
JULY	1	0	420.16	0.0000	2883.96	0	
	2	1	414.16	0.0024	2608.78	6	
	3	1	425.17	0.0024	2956.87	7	
	4	9	844.54	0.0107	4220.14	45	
	MONTHLY EST.			0.0039	12669.74		49
AUGUST	1	0	418.85	0.0000	2977.87	0	
	2	2	426.64	0.0047	2920.51	14	
	3	33	400.02	0.0825	2871.96	237	
	4	2	427.36	0.0047	4188.94	20	
	MONTHLY EST.			0.0230	12959.28		298
SEPTEMBER	1	2	398.75	0.0050	2894.71	15	
	2	5	401.73	0.0124	2925.19	36	
	3	4	423.64	0.0094	2866.70	27	
	4	1	387.18	0.0026	3583.22	9	
	MONTHLY EST.			0.0074	12269.83		90
OCTOBER	1	3	327.82	0.0092	2315.76	21	
	2	2	323.41	0.0062	2311.75	14	
	3	11	363.73	0.0302	1940.26	59	
	4	125	339.58	0.3681	1580.57	582	
	MONTHLY EST.			0.1034	8148.34		843
NOVEMBER	1	155	203.04	0.7634	1421.28	1085	
	2	25	191.76	0.1304	1409.98	184	
	3	21	203.22	0.1033	1421.57	147	
	4	1	203.04	0.0049	1324.70	7	
	MONTHLY EST.			0.2505	5577.53		1397
DECEMBER	1	1	287.61	0.0035	1988.26	7	
	2	0	263.10	0.0000	1705.61	0	
	3	0	198.11	0.0000	1421.28	0	
	4	0	392.69	0.0000	2030.40	0	
	MONTHLY EST.			0.0009	7145.54		6

APPENDIX TABLE C-2.7. ESTIMATED WEEKLY ABUNDANCE OF GIZZARD SHAD, DANSKAMMER POINT GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1		0.00		1421.28		
	2	27	203.04	0.1330	1664.18	221	
	3	406	274.87	1.4771	2042.33	3017	
	4	373	560.10	0.6659	2748.86	1831	
	MONTHLY EST.			0.7587	7876.66		5976
FEBRUARY	1	13	234.41	0.0555	1749.89	97	
	2	16	201.35	0.0795	1517.81	121	
	3	0	201.63	0.0000	1543.20	0	
	4	2	201.77	0.0099	1421.28	14	
	MONTHLY EST.			0.0362	6232.18		226
MARCH	1	2	203.04	0.0099	1455.26	14	
	2	2	203.04	0.0099	1421.28	14	
	3	23	203.04	0.1133	1413.34	160	
	4	4	202.05	0.0198	2030.40	40	
	MONTHLY EST.			0.0382	6320.28		241
APRIL	1	1	202.19	0.0049	1421.28	7	
	2	1	203.04	0.0049	1411.15	7	
	3	0	195.29	0.0000	1421.47	0	
	4	2	327.68	0.0061	1814.28	11	
	MONTHLY EST.			0.0040	6068.18		24
MAY	1	0	248.43	0.0000	1506.58	0	
	2	0	327.35	0.0000	1625.78	0	
	3	0	384.61	0.0000	2566.20	0	
	4	0	418.89	0.0000	3693.14	0	
	MONTHLY EST.			0.0000	9391.70		0
JUNE	1	0	301.60	0.0000	2316.58	0	
	2	0	344.81	0.0000	2505.58	0	
	3	0	429.45	0.0000	2685.19	0	
	4	0	406.36	0.0000	3813.43	0	
	MONTHLY EST.			0.0000	11320.78		0
JULY	1	0	420.16	0.0000	2883.96	0	
	2	0	414.16	0.0000	2608.78	0	
	3	0	425.17	0.0000	2956.87	0	
	4	0	844.54	0.0000	4220.14	0	
	MONTHLY EST.			0.0000	12669.74		0
AUGUST	1	0	418.85	0.0000	2977.87	0	
	2	11	426.64	0.0258	2920.51	75	
	3	132	400.02	0.3300	2871.96	948	
	4	4	427.36	0.0094	4188.94	39	
	MONTHLY EST.			0.0913	12959.28		1183
SEPTEMBER	1	0	398.75	0.0000	2894.71	0	
	2	3	401.73	0.0075	2925.19	22	
	3	0	423.64	0.0000	2866.70	0	
	4	0	387.18	0.0000	3583.22	0	
	MONTHLY EST.			0.0019	12269.83		23
OCTOBER	1	0	327.82	0.0000	2315.76	0	
	2	3	323.41	0.0093	2311.75	21	
	3	4	363.73	0.0110	1940.26	21	
	4	6	339.58	0.0177	1580.57	28	
	MONTHLY EST.			0.0095	8148.34		77
NOVEMBER	1	10	203.04	0.0493	1421.28	70	
	2	11	191.76	0.0574	1409.98	81	
	3	8	203.22	0.0394	1421.57	56	
	4	0	203.04	0.0000	1324.70	0	
	MONTHLY EST.			0.0365	5577.53		204
DECEMBER	1	6	287.61	0.0209	1988.26	41	
	2	6	263.10	0.0228	1705.61	39	
	3	6	198.11	0.0303	1421.28	43	
	4	10	392.69	0.0255	2030.40	52	
	MONTHLY EST.			0.0249	7145.54		178

APPENDIX TABLE C-2.8. ESTIMATED WEEKLY ABUNDANCE OF GOLDEN SHINER, DANSKAMMER POINT GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1		0.00		1421.28		
	2	10	203.04	0.0493	1664.18	82	
	3	52	274.87	0.1892	2042.33	386	
	4	269	560.10	0.4803	2748.86	1320	
	MONTHLY EST.			0.2396	7876.66		1887
FEBRUARY	1	50	234.41	0.2133	1749.89	373	
	2	16	201.35	0.0795	1517.81	121	
	3	7	201.63	0.0347	1543.20	54	
	4	5	201.77	0.0248	1421.28	35	
	MONTHLY EST.			0.0881	6232.18		549
MARCH	1	3	203.04	0.0148	1455.26	22	
	2	0	203.04	0.0000	1421.28	0	
	3	11	203.04	0.0542	1413.34	77	
	4	4	202.05	0.0198	2030.40	40	
	MONTHLY EST.			0.0222	6320.28		140
APRIL	1	0	202.19	0.0000	1421.28	0	
	2	6	203.04	0.0296	1411.15	42	
	3	3	195.29	0.0154	1421.47	22	
	4	5	327.68	0.0153	1814.28	28	
	MONTHLY EST.			0.0150	6068.18		91
MAY	1	7	248.43	0.0282	1506.58	42	
	2	7	327.35	0.0214	1625.78	35	
	3	4	384.61	0.0104	2566.20	27	
	4	0	418.89	0.0000	3693.14	0	
	MONTHLY EST.			0.0150	9391.70		141
JUNE	1	0	301.60	0.0000	2316.58	0	
	2	1	344.81	0.0029	2505.58	7	
	3	0	429.45	0.0000	2685.19	0	
	4	1	406.36	0.0025	3813.43	9	
	MONTHLY EST.			0.0013	11320.78		15
JULY	1	0	420.16	0.0000	2883.96	0	
	2	0	414.16	0.0000	2608.78	0	
	3	0	425.17	0.0000	2956.87	0	
	4	1	844.54	0.0012	4220.14	5	
	MONTHLY EST.			0.0003	12669.74		4
AUGUST	1	0	418.85	0.0000	2977.87	0	
	2	0	426.64	0.0000	2920.51	0	
	3	0	400.02	0.0000	2871.96	0	
	4	0	427.36	0.0000	4188.94	0	
	MONTHLY EST.			0.0000	12959.28		0
SEPTEMBER	1	0	398.75	0.0000	2894.71	0	
	2	0	401.73	0.0000	2925.19	0	
	3	1	423.64	0.0024	2866.70	7	
	4	0	387.18	0.0000	3583.22	0	
	MONTHLY EST.			0.0006	12269.83		7
OCTOBER	1	0	327.82	0.0000	2315.76	0	
	2	6	323.41	0.0186	2311.75	43	
	3	0	363.73	0.0000	1940.26	0	
	4	1	339.58	0.0029	1580.57	5	
	MONTHLY EST.			0.0054	8148.34		44
NOVEMBER	1	2	203.04	0.0099	1421.28	14	
	2	4	191.76	0.0209	1409.98	29	
	3	3	203.22	0.0148	1421.57	21	
	4	0	203.04	0.0000	1324.70	0	
	MONTHLY EST.			0.0114	5577.53		63
DECEMBER	1	1	287.61	0.0035	1988.26	7	
	2	3	263.10	0.0114	1705.61	19	
	3	3	198.11	0.0151	1421.28	22	
	4	6	392.69	0.0153	2030.40	31	
	MONTHLY EST.			0.0113	7145.54		81

APPENDIX TABLE C-2.9. ESTIMATED WEEKLY ABUNDANCE OF PUMPKINSEED, DANSKAMMER POINT GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1		0.00		1421.28		
	2	0	203.04	0.0000	1664.18	0	
	3	37	274.87	0.1346	2042.33	275	
	4	16	560.10	0.0286	2748.86	79	
	MONTHLY EST.			0.0544	7876.66		428
FEBRUARY	1	8	234.41	0.0341	1749.89	60	
	2	1	201.35	0.0050	1517.81	8	
	3	0	201.63	0.0000	1543.20	0	
	4	1	201.77	0.0050	1421.28	7	
	MONTHLY EST.			0.0110	6232.18		69
MARCH	1	0	203.04	0.0000	1455.26	0	
	2	0	203.04	0.0000	1421.28	0	
	3	1	203.04	0.0049	1413.34	7	
	4	0	202.05	0.0000	2030.40	0	
	MONTHLY EST.			0.0012	6320.28		8
APRIL	1	1	202.19	0.0049	1421.28	7	
	2	39	203.04	0.1921	1411.15	271	
	3	10	195.29	0.0512	1421.47	73	
	4	56	327.68	0.1709	1814.28	310	
	MONTHLY EST.			0.1048	6068.18		636
MAY	1	41	248.43	0.1650	1506.58	249	
	2	164	327.35	0.5010	1625.78	815	
	3	82	384.61	0.2132	2566.20	547	
	4	66	418.89	0.1576	3693.14	582	
	MONTHLY EST.			0.2592	9391.70		2434
JUNE	1	12	301.60	0.0398	2316.58	92	
	2	3	344.81	0.0087	2505.58	22	
	3	48	429.45	0.1118	2685.19	300	
	4	16	406.36	0.0394	3813.43	150	
	MONTHLY EST.			0.0499	11320.78		565
JULY	1	11	420.16	0.0262	2883.96	76	
	2	14	414.16	0.0338	2608.78	88	
	3	4	425.17	0.0094	2956.87	28	
	4	10	844.54	0.0118	4220.14	50	
	MONTHLY EST.			0.0203	12669.74		257
AUGUST	1	0	418.85	0.0000	2977.87	0	
	2	7	426.64	0.0164	2920.51	48	
	3	7	400.02	0.0175	2871.96	50	
	4	1	427.36	0.0023	4188.94	10	
	MONTHLY EST.			0.0091	12959.28		117
SEPTEMBER	1	2	398.75	0.0050	2894.71	15	
	2	9	401.73	0.0224	2925.19	66	
	3	10	423.64	0.0236	2866.70	68	
	4	17	387.18	0.0439	3583.22	157	
	MONTHLY EST.			0.0237	12269.83		291
OCTOBER	1	10	327.82	0.0305	2315.76	71	
	2	77	323.41	0.2381	2311.75	550	
	3	40	363.73	0.1100	1940.26	213	
	4	21	339.58	0.0618	1580.57	98	
	MONTHLY EST.			0.1101	8148.34		897
NOVEMBER	1	3	203.04	0.0148	1421.28	21	
	2	8	191.76	0.0417	1409.98	59	
	3	3	203.22	0.0148	1421.57	21	
	4	0	203.04	0.0000	1324.70	0	
	MONTHLY EST.			0.0178	5577.53		99
DECEMBER	1	3	287.61	0.0104	1988.26	21	
	2	1	263.10	0.0038	1705.61	6	
	3	1	198.11	0.0050	1421.28	7	
	4	0	392.69	0.0000	2030.40	0	
	MONTHLY EST.			0.0048	7145.54		34

APPENDIX TABLE C-2.10. ESTIMATED WEEKLY ABUNDANCE OF RAINBOW SMELT, DANSKAMMER POINT GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1		0.00		1421.28		
	2	0	203.04	0.0000	1664.18	0	
	3	0	274.87	0.0000	2042.33	0	
	4	0	560.10	0.0000	2748.86	0	
	MONTHLY EST.			0.0000	7876.66		0
FEBRUARY	1	0	234.41	0.0000	1749.89	0	
	2	0	201.35	0.0000	1517.81	0	
	3	0	201.63	0.0000	1543.20	0	
	4	0	201.77	0.0000	1421.28	0	
	MONTHLY EST.			0.0000	6232.18		0
MARCH	1	0	203.04	0.0000	1455.26	0	
	2	0	203.04	0.0000	1421.28	0	
	3	1	203.04	0.0049	1413.34	7	
	4	0	202.05	0.0000	2030.40	0	
	MONTHLY EST.			0.0012	6320.28		8
APRIL	1	0	202.19	0.0000	1421.28	0	
	2	0	203.04	0.0000	1411.15	0	
	3	0	195.29	0.0000	1421.47	0	
	4	0	327.68	0.0000	1814.28	0	
	MONTHLY EST.			0.0000	6068.18		0
MAY	1	0	248.43	0.0000	1506.58	0	
	2	0	327.35	0.0000	1625.78	0	
	3	0	384.61	0.0000	2566.20	0	
	4	0	418.89	0.0000	3693.14	0	
	MONTHLY EST.			0.0000	9391.70		0
JUNE	1	0	301.60	0.0000	2316.58	0	
	2	0	344.81	0.0000	2505.58	0	
	3	0	429.45	0.0000	2685.19	0	
	4	0	406.36	0.0000	3813.43	0	
	MONTHLY EST.			0.0000	11320.78		0
JULY	1	0	420.16	0.0000	2883.96	0	
	2	0	414.16	0.0000	2608.78	0	
	3	0	425.17	0.0000	2956.87	0	
	4	0	844.54	0.0000	4220.14	0	
	MONTHLY EST.			0.0000	12669.74		0
AUGUST	1	0	418.85	0.0000	2977.87	0	
	2	0	426.64	0.0000	2920.51	0	
	3	0	400.02	0.0000	2871.96	0	
	4	0	427.36	0.0000	4188.94	0	
	MONTHLY EST.			0.0000	12959.28		0
SEPTEMBER	1	0	398.75	0.0000	2894.71	0	
	2	0	401.73	0.0000	2925.19	0	
	3	0	423.64	0.0000	2866.70	0	
	4	0	387.18	0.0000	3583.22	0	
	MONTHLY EST.			0.0000	12269.83		0
OCTOBER	1	0	327.82	0.0000	2315.76	0	
	2	0	323.41	0.0000	2311.75	0	
	3	0	363.73	0.0000	1940.26	0	
	4	0	339.58	0.0000	1580.57	0	
	MONTHLY EST.			0.0000	8148.34		0
NOVEMBER	1	0	203.04	0.0000	1421.28	0	
	2	0	191.76	0.0000	1409.98	0	
	3	0	203.22	0.0000	1421.57	0	
	4	0	203.04	0.0000	1324.70	0	
	MONTHLY EST.			0.0000	5577.53		0
DECEMBER	1	0	287.61	0.0000	1988.26	0	
	2	0	263.10	0.0000	1705.61	0	
	3	0	198.11	0.0000	1421.28	0	
	4	0	392.69	0.0000	2030.40	0	
	MONTHLY EST.			0.0000	7145.54		0

APPENDIX TABLE C-2.11. ESTIMATED WEEKLY ABUNDANCE OF SPOTTAIL SHINER, DANSKAMMER POINT GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1		0.00		1421.28		
	2	15	203.04	0.0739	1664.18	123	
	3	99	274.87	0.3602	2042.33	736	
	4	173	560.10	0.3089	2748.86	849	
	MONTHLY EST.			0.2476	7876.66		1951
FEBRUARY	1	110	234.41	0.4693	1749.89	821	
	2	13	201.35	0.0646	1517.81	98	
	3	8	201.63	0.0397	1543.20	61	
	4	5	201.77	0.0248	1421.28	35	
	MONTHLY EST.			0.1496	6232.18		932
MARCH	1	3	203.04	0.0148	1455.26	22	
	2	6	203.04	0.0296	1421.28	42	
	3	42	203.04	0.2069	1413.34	292	
	4	29	202.05	0.1435	2030.40	291	
	MONTHLY EST.			0.0987	6320.28		624
APRIL	1	6	202.19	0.0297	1421.28	42	
	2	81	203.04	0.3989	1411.15	563	
	3	33	195.29	0.1690	1421.47	240	
	4	36	327.68	0.1099	1814.28	199	
	MONTHLY EST.			0.1769	6068.18		1073
MAY	1	39	248.43	0.1570	1506.58	237	
	2	175	327.35	0.5346	1625.78	869	
	3	203	384.61	0.5278	2566.20	1354	
	4	281	418.89	0.6708	3693.14	2477	
	MONTHLY EST.			0.4726	9391.70		4438
JUNE	1	10	301.60	0.0332	2316.58	77	
	2	21	344.81	0.0609	2505.58	153	
	3	154	429.45	0.3586	2685.19	963	
	4	64	406.36	0.1575	3813.43	601	
	MONTHLY EST.			0.1525	11320.78		1727
JULY	1	1	420.16	0.0024	2883.96	7	
	2	24	414.16	0.0579	2608.78	151	
	3	10	425.17	0.0235	2956.87	70	
	4	56	844.54	0.0663	4220.14	280	
	MONTHLY EST.			0.0375	12669.74		476
AUGUST	1	2	418.85	0.0048	2977.87	14	
	2	19	426.64	0.0445	2920.51	130	
	3	28	400.02	0.0700	2871.96	201	
	4	3	427.36	0.0070	4188.94	29	
	MONTHLY EST.			0.0316	12959.28		409
SEPTEMBER	1	17	398.75	0.0426	2894.71	123	
	2	14	401.73	0.0348	2925.19	102	
	3	4	423.64	0.0094	2866.70	27	
	4	6	387.18	0.0155	3583.22	56	
	MONTHLY EST.			0.0256	12269.83		314
OCTOBER	1	2	327.82	0.0061	2315.76	14	
	2	162	323.41	0.5009	2311.75	1158	
	3	4	363.73	0.0110	1940.26	21	
	4	21	339.58	0.0618	1580.57	98	
	MONTHLY EST.			0.1450	8148.34		1181
NOVEMBER	1	9	203.04	0.0443	1421.28	63	
	2	48	191.76	0.2503	1409.98	353	
	3	21	203.22	0.1033	1421.57	147	
	4	8	203.04	0.0394	1324.70	52	
	MONTHLY EST.			0.1093	5577.53		610
DECEMBER	1	20	287.61	0.0695	1988.26	138	
	2	15	263.10	0.0570	1705.61	97	
	3	19	198.11	0.0959	1421.28	136	
	4	57	392.69	0.1452	2030.40	295	
	MONTHLY EST.			0.0919	7145.54		657

APPENDIX TABLE C-2.12. ESTIMATED WEEKLY ABUNDANCE OF STRIPED BASS, DANSKAMMER POINT GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1		0.00		1421.28		
	2	2	203.04	0.0099	1664.18	16	
	3	5	274.87	0.0182	2042.33	37	
	4	2	560.10	0.0036	2748.86	10	
	MONTHLY EST.			0.0105	7876.66		83
FEBRUARY	1	1	234.41	0.0043	1749.89	7	
	2	0	201.35	0.0000	1517.81	0	
	3	0	201.63	0.0000	1543.20	0	
	4	0	201.77	0.0000	1421.28	0	
	MONTHLY EST.			0.0011	6232.18		7
MARCH	1	0	203.04	0.0000	1455.26	0	
	2	2	203.04	0.0099	1421.28	14	
	3	0	203.04	0.0000	1413.34	0	
	4	2	202.05	0.0099	2030.40	20	
	MONTHLY EST.			0.0049	6320.28		31
APRIL	1	0	202.19	0.0000	1421.28	0	
	2	2	203.04	0.0099	1411.15	14	
	3	0	195.29	0.0000	1421.47	0	
	4	6	327.68	0.0183	1814.28	33	
	MONTHLY EST.			0.0070	6068.18		43
MAY	1	15	248.43	0.0604	1506.58	91	
	2	20	327.35	0.0611	1625.78	99	
	3	16	384.61	0.0416	2566.20	107	
	4	19	418.89	0.0454	3693.14	168	
	MONTHLY EST.			0.0521	9391.70		489
JUNE	1	6	301.60	0.0199	2316.58	46	
	2	10	344.81	0.0290	2505.58	73	
	3	44	429.45	0.1025	2685.19	275	
	4	49	406.36	0.1206	3813.43	460	
	MONTHLY EST.			0.0680	11320.78		770
JULY	1	22	420.16	0.0524	2883.96	151	
	2	20	414.16	0.0483	2608.78	126	
	3	26	425.17	0.0612	2956.87	181	
	4	90	844.54	0.1066	4220.14	450	
	MONTHLY EST.			0.0671	12669.74		850
AUGUST	1	32	418.85	0.0764	2977.87	228	
	2	227	426.64	0.5321	2920.51	1554	
	3	294	400.02	0.7350	2871.96	2111	
	4	146	427.36	0.3416	4188.94	1431	
	MONTHLY EST.			0.4213	12959.28		5459
SEPTEMBER	1	135	398.75	0.3386	2894.71	980	
	2	1037	401.73	2.5813	2925.19	7551	
	3	299	423.64	0.7058	2866.70	2023	
	4	229	387.18	0.5915	3583.22	2119	
	MONTHLY EST.			1.0543	12269.83		12936
OCTOBER	1	124	327.82	0.3783	2315.76	876	
	2	1168	323.41	3.6115	2311.75	8349	
	3	577	363.73	1.5864	1940.26	3078	
	4	202	339.58	0.5949	1580.57	940	
	MONTHLY EST.			1.5428	8148.34		12571
NOVEMBER	1	96	203.04	0.4728	1421.28	672	
	2	60	191.76	0.3129	1409.98	441	
	3	48	203.22	0.2362	1421.57	336	
	4	4	203.04	0.0197	1324.70	26	
	MONTHLY EST.			0.2604	5577.53		1452
DECEMBER	1	57	287.61	0.1982	1988.26	394	
	2	23	263.10	0.0874	1705.61	149	
	3	28	198.11	0.1413	1421.28	201	
	4	29	392.69	0.0739	2030.40	150	
	MONTHLY EST.			0.1252	7145.54		895

APPENDIX TABLE C-2.13. ESTIMATED WEEKLY ABUNDANCE OF WHITE CATFISH, DANSKAMMER POINT GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1		0.00		1421.28		
	2	2	203.04	0.0099	1664.18	16	
	3	0	274.87	0.0000	2042.33	0	
	4	2	560.10	0.0036	2748.86	10	
	MONTHLY EST.			0.0045	7876.66		35
FEBRUARY	1	1	234.41	0.0043	1749.89	7	
	2	0	201.35	0.0000	1517.81	0	
	3	0	201.63	0.0000	1543.20	0	
	4	1	201.77	0.0050	1421.28	7	
	MONTHLY EST.			0.0023	6232.18		14
MARCH	1	1	203.04	0.0049	1455.26	7	
	2	0	203.04	0.0000	1421.28	0	
	3	0	203.04	0.0000	1413.34	0	
	4	0	202.05	0.0000	2030.40	0	
	MONTHLY EST.			0.0012	6320.28		8
APRIL	1	1	202.19	0.0049	1421.28	7	
	2	3	203.04	0.0148	1411.15	21	
	3	3	195.29	0.0154	1421.47	22	
	4	2	327.68	0.0061	1814.28	11	
	MONTHLY EST.			0.0103	6068.18		62
MAY	1	0	248.43	0.0000	1506.58	0	
	2	2	327.35	0.0061	1625.78	10	
	3	0	384.61	0.0000	2566.20	0	
	4	4	418.89	0.0095	3693.14	35	
	MONTHLY EST.			0.0039	9391.70		37
JUNE	1	7	301.60	0.0232	2316.58	54	
	2	9	344.81	0.0261	2505.58	65	
	3	13	429.45	0.0303	2685.19	81	
	4	10	406.36	0.0246	3813.43	94	
	MONTHLY EST.			0.0260	11320.78		295
JULY	1	10	420.16	0.0238	2883.96	69	
	2	3	414.16	0.0072	2608.78	19	
	3	1	425.17	0.0024	2956.87	7	
	4	11	844.54	0.0130	4220.14	55	
	MONTHLY EST.			0.0116	12669.74		147
AUGUST	1	16	418.85	0.0382	2977.87	114	
	2	40	426.64	0.0938	2920.51	274	
	3	51	400.02	0.1275	2871.96	366	
	4	9	427.36	0.0211	4188.94	88	
	MONTHLY EST.			0.0701	12959.28		909
SEPTEMBER	1	59	398.75	0.1480	2894.71	428	
	2	85	401.73	0.2116	2925.19	619	
	3	102	423.64	0.2408	2866.70	690	
	4	54	387.18	0.1395	3583.22	500	
	MONTHLY EST.			0.1849	12269.83		2269
OCTOBER	1	42	327.82	0.1281	2315.76	297	
	2	251	323.41	0.7761	2311.75	1794	
	3	104	363.73	0.2859	1940.26	555	
	4	265	339.58	0.7804	1580.57	1233	
	MONTHLY EST.			0.4926	8148.34		4014
NOVEMBER	1	646	203.04	3.1816	1421.28	4522	
	2	383	191.76	1.9973	1409.98	2816	
	3	539	203.22	2.6523	1421.57	3770	
	4	72	203.04	0.3546	1324.70	470	
	MONTHLY EST.			2.0465	5577.53		11414
DECEMBER	1	108	287.61	0.3755	1988.26	747	
	2	8	263.10	0.0304	1705.61	52	
	3	9	198.11	0.0454	1421.28	65	
	4	6	392.69	0.0153	2030.40	31	
	MONTHLY EST.			0.1167	7145.54		834

APPENDIX TABLE C-2.14. ESTIMATED WEEKLY ABUNDANCE OF WHITE PERCH, DANSKAMMER POINT GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1		0.00		1421.28		
	2	25	203.04	0.1231	1664.18	205	
	3	233	274.87	0.8477	2042.33	1731	
	4	140	560.10	0.2500	2748.86	687	
	MONTHLY EST.			0.4069	7876.66		3205
FEBRUARY	1	36	234.41	0.1536	1749.89	269	
	2	21	201.35	0.1043	1517.81	158	
	3	0	201.63	0.0000	1543.20	0	
	4	10	201.77	0.0496	1421.28	70	
	MONTHLY EST.			0.0769	6232.18		479
MARCH	1	30	203.04	0.1478	1455.26	215	
	2	25	203.04	0.1231	1421.28	175	
	3	133	203.04	0.6550	1413.34	926	
	4	74	202.05	0.3662	2030.40	744	
	MONTHLY EST.			0.3230	6320.28		2042
APRIL	1	39	202.19	0.1929	1421.28	274	
	2	529	203.04	2.6054	1411.15	3677	
	3	119	195.29	0.6094	1421.47	866	
	4	157	327.68	0.4791	1814.28	869	
	MONTHLY EST.			0.9717	6068.18		5896
MAY	1	129	248.43	0.5193	1506.58	782	
	2	342	327.35	1.0447	1625.78	1699	
	3	1070	384.61	2.7820	2566.20	7139	
	4	1108	418.89	2.6451	3693.14	9769	
	MONTHLY EST.			1.7478	9391.70		16415
JUNE	1	516	301.60	1.7109	2316.58	3963	
	2	355	344.81	1.0295	2505.58	2580	
	3	711	429.45	1.6556	2685.19	4446	
	4	412	406.36	1.0139	3813.43	3866	
	MONTHLY EST.			1.3525	11320.78		15311
JULY	1	221	420.16	0.5260	2883.96	1517	
	2	114	414.16	0.2753	2608.78	718	
	3	161	425.17	0.3787	2956.87	1120	
	4	223	844.54	0.2640	4220.14	1114	
	MONTHLY EST.			0.3610	12669.74		4574
AUGUST	1	38	418.85	0.0907	2977.87	270	
	2	209	426.64	0.4899	2920.51	1431	
	3	252	400.02	0.6300	2871.96	1809	
	4	115	427.36	0.2691	4188.94	1127	
	MONTHLY EST.			0.3699	12959.28		4794
SEPTEMBER	1	138	398.75	0.3461	2894.71	1002	
	2	410	401.73	1.0206	2925.19	2985	
	3	426	423.64	1.0056	2866.70	2883	
	4	150	387.18	0.3874	3583.22	1388	
	MONTHLY EST.			0.6899	12269.83		8465
OCTOBER	1	80	327.82	0.2440	2315.76	565	
	2	912	323.41	2.8200	2311.75	6519	
	3	517	363.73	1.4214	1940.26	2758	
	4	572	339.58	1.6844	1580.57	2662	
	MONTHLY EST.			1.5425	8148.34		12568
NOVEMBER	1	566	203.04	2.7876	1421.28	3962	
	2	558	191.76	2.9099	1409.98	4103	
	3	510	203.22	2.5096	1421.57	3568	
	4	14	203.04	0.0690	1324.70	91	
	MONTHLY EST.			2.0690	5577.53		11540
DECEMBER	1	468	287.61	1.6272	1988.26	3235	
	2	125	263.10	0.4751	1705.61	810	
	3	329	198.11	1.6607	1421.28	2360	
	4	148	392.69	0.3769	2030.40	765	
	MONTHLY EST.			1.0350	7145.54		7396

APPENDIX TABLE C-2.15. ESTIMATED WEEKLY ABUNDANCE OF BLUE CRAB, DANSKAMMER POINT GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1		0.00		1421.28		
	2	0	203.04	0.0000	1664.18	0	
	3	1	274.87	0.0036	2042.33	7	
	4	3	560.10	0.0054	2748.86	15	
	MONTHLY EST.			0.0030	7876.66		24
FEBRUARY	1	0	234.41	0.0000	1749.89	0	
	2	0	201.35	0.0000	1517.81	0	
	3	0	201.63	0.0000	1543.20	0	
	4	0	201.77	0.0000	1421.28	0	
	MONTHLY EST.			0.0000	6232.18		0
MARCH	1	0	203.04	0.0000	1455.26	0	
	2	0	203.04	0.0000	1421.28	0	
	3	0	203.04	0.0000	1413.34	0	
	4	0	202.05	0.0000	2030.40	0	
	MONTHLY EST.			0.0000	6320.28		0
APRIL	1	0	202.19	0.0000	1421.28	0	
	2	1	203.04	0.0049	1411.15	7	
	3	0	195.29	0.0000	1421.47	0	
	4	2	327.68	0.0061	1814.28	11	
	MONTHLY EST.			0.0028	6068.18		17
MAY	1	2	248.43	0.0081	1506.58	12	
	2	31	327.35	0.0947	1625.78	154	
	3	486	384.61	1.2636	2566.20	3243	
	4	175	418.89	0.4178	3693.14	1543	
	MONTHLY EST.			0.4460	9391.70		4189
JUNE	1	122	301.60	0.4045	2316.58	937	
	2	191	344.81	0.5539	2505.58	1388	
	3	777	429.45	1.8093	2685.19	4858	
	4	497	406.36	1.2231	3813.43	4664	
	MONTHLY EST.			0.9977	11320.78		11295
JULY	1	232	420.16	0.5522	2883.96	1592	
	2	316	414.16	0.7630	2608.78	1990	
	3	247	425.17	0.5809	2956.87	1718	
	4	415	844.54	0.4914	4220.14	2074	
	MONTHLY EST.			0.5969	12669.74		7562
AUGUST	1	223	418.85	0.5324	2977.87	1585	
	2	473	426.64	1.1087	2920.51	3238	
	3	1088	400.02	2.7199	2871.96	7811	
	4	816	427.36	1.9094	4188.94	7998	
	MONTHLY EST.			1.5676	12959.28		20315
SEPTEMBER	1	1520	398.75	3.8119	2894.71	11034	
	2	2485	401.73	6.1857	2925.19	18094	
	3	1427	423.64	3.3684	2866.70	9656	
	4	1098	387.18	2.8359	3583.22	10162	
	MONTHLY EST.			4.0505	12269.83		49699
OCTOBER	1	1121	327.82	3.4196	2315.76	7919	
	2	1287	323.41	3.9795	2311.75	9200	
	3	942	363.73	2.5898	1940.26	5025	
	4	725	339.58	2.1350	1580.57	3374	
	MONTHLY EST.			3.0310	8148.34		24697
NOVEMBER	1	607	203.04	2.9896	1421.28	4249	
	2	273	191.76	1.4237	1409.98	2007	
	3	118	203.22	0.5807	1421.57	825	
	4	68	203.04	0.3349	1324.70	444	
	MONTHLY EST.			1.3322	5577.53		7430
DECEMBER	1	118	287.61	0.4103	1988.26	816	
	2	23	263.10	0.0874	1705.61	149	
	3	8	198.11	0.0404	1421.28	57	
	4	1	392.69	0.0025	2030.40	5	
	MONTHLY EST.			0.1352	7145.54		966

APPENDIX D

ESTIMATED IMPINGEMENT BIOMASS

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APPENDIX TABLE D-1.1. ESTIMATED WEEKLY BIOMASS OF ALL FISH SPECIES, ROSETON GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1		0.00		3796.80		
	2	799.0	542.40	1.4731	3796.80	5593.0	
	3	12904.8	542.40	23.7920	3796.80	90333.6	
	4	12445.9	1084.80	11.4730	5424.00	62229.5	
	MONTHLY EST.			12.2460	16814.40		205909.8
FEBRUARY	1	3170.9	542.40	5.8461	3470.40	20288.1	
	2	534.2	539.76	0.9897	3619.20	3581.9	
	3	1482.9	542.40	2.7340	3278.40	8963.0	
	4	362.2	542.40	0.6678	3796.80	2535.4	
	MONTHLY EST.			2.5594	14164.80		36253.0
MARCH	1	369.7	542.40	0.6816	3796.80	2587.9	
	2	1707.5	602.40	2.8345	4082.40	11571.5	
	3	760.9	602.40	1.2631	4216.80	5326.3	
	4	769.9	559.20	1.3768	5908.80	8135.2	
	MONTHLY EST.			1.5390	18004.80		27709.4
APRIL	1	1212.7	602.40	2.0131	4216.80	8488.9	
	2	3076.5	581.25	5.2929	4077.60	21582.3	
	3	1488.7	542.40	2.7447	3796.80	10420.9	
	4	1953.3	1086.00	1.7986	4884.00	8784.5	
	MONTHLY EST.			2.9623	16975.20		50286.0
MAY	1	1003.9	542.40	1.8508	3796.80	7027.3	
	2	1145.9	542.40	2.1126	3796.80	8021.3	
	3	1457.3	602.40	2.4192	4056.00	9812.1	
	4	2766.9	542.40	5.1012	5640.00	28770.9	
	MONTHLY EST.			2.8710	17289.60		49637.9
JUNE	1	5335.0	577.20	9.2429	3964.80	36646.2	
	2	1231.6	542.40	2.2706	3945.60	8959.1	
	3	3336.5	732.45	4.5553	5246.40	23898.7	
	4	4269.1	880.80	4.8468	7219.20	34990.3	
	MONTHLY EST.			5.2289	20376.00		106544.3
JULY	1	945.9	720.00	1.3138	4536.00	5959.2	
	2	455.4	654.60	0.6957	4778.40	3324.3	
	3	567.8	790.48	0.7183	5088.00	3654.7	
	4	2493.4	1534.80	1.6246	7447.20	12098.5	
	MONTHLY EST.			1.0881	21849.60		23774.1
AUGUST	1	2254.3	835.80	2.6972	5227.20	14098.7	
	2	1422.3	762.60	1.8651	5512.80	10281.7	
	3	1138.2	746.40	1.5249	5330.40	8128.4	
	4	686.1	862.80	0.7952	8412.00	6689.2	
	MONTHLY EST.			1.7206	24482.40		42124.2
SEPTEMBER	1	1324.7	808.80	1.6379	5071.20	8305.9	
	2	1222.5	559.20	2.1862	3950.40	8636.2	
	3	607.4	536.75	1.1316	3796.80	4296.6	
	4	564.4	564.75	0.9994	5467.20	5463.8	
	MONTHLY EST.			1.4888	18285.60		27222.8
OCTOBER	1	900.3	555.35	1.6211	4670.40	7571.4	
	2	5502.7	750.00	7.3369	4598.40	33738.2	
	3	1459.8	573.00	2.5476	4252.80	10834.6	
	4	7535.8	1253.40	6.0123	6072.00	36506.6	
	MONTHLY EST.			4.3795	19593.60		85810.2
NOVEMBER	1	5761.0	602.40	9.5634	4178.40	39959.8	
	2	4030.3	577.30	6.9813	4185.60	29220.9	
	3	1961.5	568.93	3.4477	4188.00	14438.9	
	4	1396.6	602.40	2.3184	5380.80	12474.8	
	MONTHLY EST.			5.5777	17932.80		100023.7
DECEMBER	1	362.0	602.40	0.6009	4216.80	2534.0	
	2	738.8	602.40	1.2264	4216.80	5171.6	
	3	213.3	602.40	0.3541	4216.80	1493.1	
	4	1658.4	1132.43	1.4645	6024.00	8821.9	
	MONTHLY EST.			0.9115	18674.40		17021.3

APPENDIX TABLE D-1.2. ESTIMATED WEEKLY BIOMASS OF ALEWIFE, ROSETON GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1		0.00		3796.80		
	2	0.0	542.40	0.0000	3796.80	0.0	
	3	31.3	542.40	0.0577	3796.80	219.1	
	4	0.0	1084.80	0.0000	5424.00	0.0	
	MONTHLY EST.			0.0192	16814.40		323.4
FEBRUARY	1	0.0	542.40	0.0000	3470.40	0.0	
	2	0.0	539.76	0.0000	3619.20	0.0	
	3	0.0	542.40	0.0000	3278.40	0.0	
	4	0.0	542.40	0.0000	3796.80	0.0	
	MONTHLY EST.			0.0000	14164.80		0.0
MARCH	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	602.40	0.0000	4082.40	0.0	
	3	6.1	602.40	0.0101	4216.80	42.7	
	4	43.3	559.20	0.0774	5908.80	457.5	
	MONTHLY EST.			0.0219	18004.80		394.1
APRIL	1	0.0	602.40	0.0000	4216.80	0.0	
	2	1.8	581.25	0.0031	4077.60	12.6	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	0.0	1086.00	0.0000	4884.00	0.0	
	MONTHLY EST.			0.0008	16975.20		13.1
MAY	1	99.0	542.40	0.1825	3796.80	693.0	
	2	0.0	542.40	0.0000	3796.80	0.0	
	3	156.0	602.40	0.2590	4056.00	1050.4	
	4	33.2	542.40	0.0612	5640.00	345.2	
	MONTHLY EST.			0.1257	17289.60		2172.9
JUNE	1	130.8	577.20	0.2266	3964.80	898.5	
	2	0.0	542.40	0.0000	3945.60	0.0	
	3	142.9	732.45	0.1951	5246.40	1023.6	
	4	223.5	880.80	0.2537	7219.20	1831.8	
	MONTHLY EST.			0.1689	20376.00		3440.8
JULY	1	48.0	720.00	0.0667	4536.00	302.4	
	2	0.0	654.60	0.0000	4778.40	0.0	
	3	16.3	790.48	0.0206	5088.00	104.9	
	4	46.7	1534.80	0.0304	7447.20	226.6	
	MONTHLY EST.			0.0294	21849.60		643.0
AUGUST	1	48.5	835.80	0.0580	5227.20	303.3	
	2	10.9	762.60	0.0143	5512.80	78.8	
	3	42.5	746.40	0.0569	5330.40	303.5	
	4	40.9	862.80	0.0474	8412.00	398.8	
	MONTHLY EST.			0.0442	24482.40		1081.3
SEPTEMBER	1	19.1	808.80	0.0236	5071.20	119.8	
	2	0.0	559.20	0.0000	3950.40	0.0	
	3	19.2	536.75	0.0358	3796.80	135.8	
	4	44.5	564.75	0.0788	5467.20	430.8	
	MONTHLY EST.			0.0345	18285.60		631.7
OCTOBER	1	29.0	555.35	0.0522	4670.40	243.9	
	2	50.4	750.00	0.0672	4598.40	309.0	
	3	57.7	573.00	0.1007	4252.80	428.2	
	4	451.0	1253.40	0.3598	6072.00	2184.8	
	MONTHLY EST.			0.1450	19593.60		2840.8
NOVEMBER	1	210.7	602.40	0.3498	4178.40	1461.5	
	2	135.4	577.30	0.2345	4185.60	981.7	
	3	64.4	568.93	0.1132	4188.00	474.1	
	4	107.8	602.40	0.1790	5380.80	962.9	
	MONTHLY EST.			0.2191	17932.80		3929.3
DECEMBER	1	0.0	602.40	0.0000	4216.80	0.0	
	2	5.6	602.40	0.0093	4216.80	39.2	
	3	0.0	602.40	0.0000	4216.80	0.0	
	4	0.0	1132.43	0.0000	6024.00	0.0	
	MONTHLY EST.			0.0023	18674.40		43.4

APPENDIX TABLE D-1.3. ESTIMATED WEEKLY BIOMASS OF AMERICAN EEL, ROSETON GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1		0.00		3796.80		
	2	0.0	542.40	0.0000	3796.80	0.0	
	3	171.2	542.40	0.3156	3796.80	1198.4	
	4	0.0	1084.80	0.0000	5424.00	0.0	
	MONTHLY EST.			0.1052	16814.40		1769.1
FEBRUARY	1	0.0	542.40	0.0000	3470.40	0.0	
	2	0.0	539.76	0.0000	3619.20	0.0	
	3	204.3	542.40	0.3767	3278.40	1234.8	
	4	118.7	542.40	0.2188	3796.80	830.9	
	MONTHLY EST.			0.1489	14164.80		2108.8
MARCH	1	0.0	542.40	0.0000	3796.80	0.0	
	2	123.2	602.40	0.2045	4082.40	834.9	
	3	0.0	602.40	0.0000	4216.80	0.0	
	4	0.0	559.20	0.0000	5908.80	0.0	
	MONTHLY EST.			0.0511	18004.80		920.6
APRIL	1	0.0	602.40	0.0000	4216.80	0.0	
	2	0.0	581.25	0.0000	4077.60	0.0	
	3	125.2	542.40	0.2308	3796.80	876.4	
	4	0.0	1086.00	0.0000	4884.00	0.0	
	MONTHLY EST.			0.0577	16975.20		979.6
MAY	1	479.4	542.40	0.8838	3796.80	3355.8	
	2	0.0	542.40	0.0000	3796.80	0.0	
	3	0.0	602.40	0.0000	4056.00	0.0	
	4	116.6	542.40	0.2150	5640.00	1212.4	
	MONTHLY EST.			0.2747	17289.60		4749.5
JUNE	1	0.0	577.20	0.0000	3964.80	0.0	
	2	0.0	542.40	0.0000	3945.60	0.0	
	3	34.6	732.45	0.0472	5246.40	247.8	
	4	244.4	880.80	0.2775	7219.20	2003.1	
	MONTHLY EST.			0.0812	20376.00		1654.1
JULY	1	39.1	720.00	0.0543	4536.00	246.3	
	2	108.7	654.60	0.1661	4778.40	793.5	
	3	18.2	790.48	0.0230	5088.00	117.1	
	4	0.0	1534.80	0.0000	7447.20	0.0	
	MONTHLY EST.			0.0608	21849.60		1329.5
AUGUST	1	15.0	835.80	0.0179	5227.20	93.8	
	2	0.0	762.60	0.0000	5512.80	0.0	
	3	55.5	746.40	0.0744	5330.40	396.4	
	4	0.0	862.80	0.0000	8412.00	0.0	
	MONTHLY EST.			0.0231	24482.40		565.0
SEPTEMBER	1	15.1	808.80	0.0187	5071.20	94.7	
	2	22.1	559.20	0.0395	3950.40	156.1	
	3	20.2	536.75	0.0376	3796.80	142.9	
	4	0.0	564.75	0.0000	5467.20	0.0	
	MONTHLY EST.			0.0240	18285.60		438.1
OCTOBER	1	0.0	555.35	0.0000	4670.40	0.0	
	2	717.8	750.00	0.9571	4598.40	4401.0	
	3	0.0	573.00	0.0000	4252.80	0.0	
	4	135.5	1253.40	0.1081	6072.00	656.4	
	MONTHLY EST.			0.2663	19593.60		5217.6
NOVEMBER	1	73.7	602.40	0.1223	4178.40	511.2	
	2	0.0	577.30	0.0000	4185.60	0.0	
	3	0.0	568.93	0.0000	4188.00	0.0	
	4	0.0	602.40	0.0000	5380.80	0.0	
	MONTHLY EST.			0.0306	17932.80		548.5
DECEMBER	1	0.0	602.40	0.0000	4216.80	0.0	
	2	0.0	602.40	0.0000	4216.80	0.0	
	3	0.0	602.40	0.0000	4216.80	0.0	
	4	111.2	1132.43	0.0982	6024.00	591.5	
	MONTHLY EST.			0.0245	18674.40		458.4

APPENDIX TABLE D-1.4. ESTIMATED WEEKLY BIOMASS OF AMERICAN SHAD, ROSETON GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1		0.00		3796.80		
	2	0.0	542.40	0.0000	3796.80	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	0.0	1084.80	0.0000	5424.00	0.0	
	MONTHLY EST.			0.0000	16814.40		0.0
FEBRUARY	1	0.0	542.40	0.0000	3470.40	0.0	
	2	0.0	539.76	0.0000	3619.20	0.0	
	3	0.0	542.40	0.0000	3278.40	0.0	
	4	0.0	542.40	0.0000	3796.80	0.0	
	MONTHLY EST.			0.0000	14164.80		0.0
MARCH	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	602.40	0.0000	4082.40	0.0	
	3	0.0	602.40	0.0000	4216.80	0.0	
	4	0.0	559.20	0.0000	5908.80	0.0	
	MONTHLY EST.			0.0000	18004.80		0.0
APRIL	1	0.0	602.40	0.0000	4216.80	0.0	
	2	0.0	581.25	0.0000	4077.60	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	0.0	1086.00	0.0000	4884.00	0.0	
	MONTHLY EST.			0.0000	16975.20		0.0
MAY	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	542.40	0.0000	3796.80	0.0	
	3	0.0	602.40	0.0000	4056.00	0.0	
	4	0.0	542.40	0.0000	5640.00	0.0	
	MONTHLY EST.			0.0000	17289.60		0.0
JUNE	1	0.0	577.20	0.0000	3964.80	0.0	
	2	0.0	542.40	0.0000	3945.60	0.0	
	3	0.0	732.45	0.0000	5246.40	0.0	
	4	10.3	880.80	0.0117	7219.20	84.4	
	MONTHLY EST.			0.0029	20376.00		59.6
JULY	1	0.9	720.00	0.0013	4536.00	5.7	
	2	4.9	654.60	0.0075	4778.40	35.8	
	3	16.9	790.48	0.0214	5088.00	108.8	
	4	6.3	1534.80	0.0041	7447.20	30.6	
	MONTHLY EST.			0.0086	21849.60		186.9
AUGUST	1	0.0	835.80	0.0000	5227.20	0.0	
	2	0.7	762.60	0.0009	5512.80	5.1	
	3	0.0	746.40	0.0000	5330.40	0.0	
	4	0.0	862.80	0.0000	8412.00	0.0	
	MONTHLY EST.			0.0002	24482.40		5.6
SEPTEMBER	1	7.9	808.80	0.0098	5071.20	49.5	
	2	10.7	559.20	0.0191	3950.40	75.6	
	3	9.1	536.75	0.0170	3796.80	64.4	
	4	13.4	564.75	0.0237	5467.20	129.7	
	MONTHLY EST.			0.0174	18285.60		318.1
OCTOBER	1	26.4	555.35	0.0475	4670.40	222.0	
	2	125.2	750.00	0.1669	4598.40	767.6	
	3	47.1	573.00	0.0822	4252.80	349.6	
	4	228.5	1253.40	0.1823	6072.00	1107.0	
	MONTHLY EST.			0.1197	19593.60		2346.2
NOVEMBER	1	230.2	602.40	0.3821	4178.40	1596.7	
	2	17.2	577.30	0.0298	4185.60	124.7	
	3	10.3	568.93	0.0181	4188.00	75.8	
	4	5.8	602.40	0.0096	5380.80	51.8	
	MONTHLY EST.			0.1099	17932.80		1971.1
DECEMBER	1	0.0	602.40	0.0000	4216.80	0.0	
	2	0.0	602.40	0.0000	4216.80	0.0	
	3	0.0	602.40	0.0000	4216.80	0.0	
	4	0.0	1132.43	0.0000	6024.00	0.0	
	MONTHLY EST.			0.0000	18674.40		0.0

APPENDIX TABLE D-1.5. ESTIMATED WEEKLY BIOMASS OF ATLANTIC TOMCOD, ROSETON GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1		0.00		3796.80		
	2	121.3	542.40	0.2236	3796.80	849.1	
	3	63.8	542.40	0.1176	3796.80	446.6	
	4	0.0	1084.80	0.0000	5424.00	0.0	
	MONTHLY EST.			0.1138	16814.40		1912.7
FEBRUARY	1	24.1	542.40	0.0444	3470.40	154.2	
	2	0.0	539.76	0.0000	3619.20	0.0	
	3	0.0	542.40	0.0000	3278.40	0.0	
	4	0.0	542.40	0.0000	3796.80	0.0	
	MONTHLY EST.			0.0111	14164.80		157.3
MARCH	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	602.40	0.0000	4082.40	0.0	
	3	0.0	602.40	0.0000	4216.80	0.0	
	4	0.0	559.20	0.0000	5908.80	0.0	
	MONTHLY EST.			0.0000	18004.80		0.0
APRIL	1	0.0	602.40	0.0000	4216.80	0.0	
	2	0.0	581.25	0.0000	4077.60	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	0.0	1086.00	0.0000	4884.00	0.0	
	MONTHLY EST.			0.0000	16975.20		0.0
MAY	1	0.0	542.40	0.0000	3796.80	0.0	
	2	3.6	542.40	0.0066	3796.80	25.2	
	3	7.3	602.40	0.0121	4056.00	49.2	
	4	0.0	542.40	0.0000	5640.00	0.0	
	MONTHLY EST.			0.0047	17289.60		81.1
JUNE	1	3.2	577.20	0.0055	3964.80	22.0	
	2	3.3	542.40	0.0061	3945.60	24.0	
	3	31.3	732.45	0.0427	5246.40	224.2	
	4	173.2	880.80	0.1966	7219.20	1419.6	
	MONTHLY EST.			0.0628	20376.00		1278.6
JULY	1	35.9	720.00	0.0499	4536.00	226.2	
	2	16.7	654.60	0.0255	4778.40	121.9	
	3	5.8	790.48	0.0073	5088.00	37.3	
	4	65.2	1534.80	0.0425	7447.20	316.4	
	MONTHLY EST.			0.0313	21849.60		683.8
AUGUST	1	126.2	835.80	0.1510	5227.20	789.3	
	2	27.8	762.60	0.0365	5512.80	201.0	
	3	8.1	746.40	0.0109	5330.40	57.8	
	4	5.4	862.80	0.0063	8412.00	52.6	
	MONTHLY EST.			0.0511	24482.40		1252.0
SEPTEMBER	1	0.0	808.80	0.0000	5071.20	0.0	
	2	12.9	559.20	0.0231	3950.40	91.1	
	3	6.6	536.75	0.0123	3796.80	46.7	
	4	0.0	564.75	0.0000	5467.20	0.0	
	MONTHLY EST.			0.0088	18285.60		161.7
OCTOBER	1	0.0	555.35	0.0000	4670.40	0.0	
	2	0.0	750.00	0.0000	4598.40	0.0	
	3	0.0	573.00	0.0000	4252.80	0.0	
	4	0.0	1253.40	0.0000	6072.00	0.0	
	MONTHLY EST.			0.0000	19593.60		0.0
NOVEMBER	1	0.0	602.40	0.0000	4178.40	0.0	
	2	0.0	577.30	0.0000	4185.60	0.0	
	3	0.0	568.93	0.0000	4188.00	0.0	
	4	0.0	602.40	0.0000	5380.80	0.0	
	MONTHLY EST.			0.0000	17932.80		0.0
DECEMBER	1	0.0	602.40	0.0000	4216.80	0.0	
	2	0.0	602.40	0.0000	4216.80	0.0	
	3	0.0	602.40	0.0000	4216.80	0.0	
	4	0.0	1132.43	0.0000	6024.00	0.0	
	MONTHLY EST.			0.0000	18674.40		0.0

APPENDIX TABLE D-1.6. ESTIMATED WEEKLY BIOMASS OF BAY ANCHOVY, ROSETON GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1		0.00		3796.80		
	2	0.0	542.40	0.0000	3796.80	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	0.0	1084.80	0.0000	5424.00	0.0	
	MONTHLY EST.			0.0000	16814.40		0.0
FEBRUARY	1	0.0	542.40	0.0000	3470.40	0.0	
	2	0.0	539.76	0.0000	3619.20	0.0	
	3	0.0	542.40	0.0000	3278.40	0.0	
	4	0.0	542.40	0.0000	3796.80	0.0	
	MONTHLY EST.			0.0000	14164.80		0.0
MARCH	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	602.40	0.0000	4082.40	0.0	
	3	0.0	602.40	0.0000	4216.80	0.0	
	4	0.0	559.20	0.0000	5908.80	0.0	
	MONTHLY EST.			0.0000	18004.80		0.0
APRIL	1	0.0	602.40	0.0000	4216.80	0.0	
	2	0.0	581.25	0.0000	4077.60	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	0.0	1086.00	0.0000	4884.00	0.0	
	MONTHLY EST.			0.0000	16975.20		0.0
MAY	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	542.40	0.0000	3796.80	0.0	
	3	6.0	602.40	0.0100	4056.00	40.4	
	4	2.6	542.40	0.0048	5640.00	27.0	
	MONTHLY EST.			0.0037	17289.60		63.8
JUNE	1	2.3	577.20	0.0040	3964.80	15.8	
	2	0.0	542.40	0.0000	3945.60	0.0	
	3	0.0	732.45	0.0000	5246.40	0.0	
	4	239.3	880.80	0.2717	7219.20	1961.3	
	MONTHLY EST.			0.0689	20376.00		1404.3
JULY	1	46.4	720.00	0.0644	4536.00	292.3	
	2	3.5	654.60	0.0053	4778.40	25.5	
	3	0.0	790.48	0.0000	5088.00	0.0	
	4	7.8	1534.80	0.0051	7447.20	37.8	
	MONTHLY EST.			0.0187	21849.60		409.0
AUGUST	1	92.7	835.80	0.1109	5227.20	579.8	
	2	73.0	762.60	0.0957	5512.80	527.7	
	3	33.1	746.40	0.0443	5330.40	236.4	
	4	15.9	862.80	0.0184	8412.00	155.0	
	MONTHLY EST.			0.0674	24482.40		1649.0
SEPTEMBER	1	362.7	808.80	0.4484	5071.20	2274.1	
	2	166.3	559.20	0.2974	3950.40	1174.8	
	3	119.2	536.75	0.2221	3796.80	843.2	
	4	56.0	564.75	0.0992	5467.20	542.1	
	MONTHLY EST.			0.2668	18285.60		4878.0
OCTOBER	1	60.7	555.35	0.1093	4670.40	510.5	
	2	1024.6	750.00	1.3661	4598.40	6282.0	
	3	84.5	573.00	0.1475	4252.80	627.2	
	4	696.4	1253.40	0.5556	6072.00	3373.7	
	MONTHLY EST.			0.5446	19593.60		10671.2
NOVEMBER	1	20.8	602.40	0.0345	4178.40	144.3	
	2	4.0	577.30	0.0069	4185.60	29.0	
	3	0.0	568.93	0.0000	4188.00	0.0	
	4	0.0	602.40	0.0000	5380.80	0.0	
	MONTHLY EST.			0.0104	17932.80		185.9
DECEMBER	1	0.0	602.40	0.0000	4216.80	0.0	
	2	0.0	602.40	0.0000	4216.80	0.0	
	3	0.0	602.40	0.0000	4216.80	0.0	
	4	0.0	1132.43	0.0000	6024.00	0.0	
	MONTHLY EST.			0.0000	18674.40		0.0

APPENDIX TABLE D-1.7. ESTIMATED WEEKLY BIOMASS OF BLUEBACK HERRING, ROSETON GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1		0.00		3796.80		
	2	0.0	542.40	0.0000	3796.80	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	0.0	1084.80	0.0000	5424.00	0.0	
	MONTHLY EST.			0.0000	16814.40		0.0
FEBRUARY	1	0.0	542.40	0.0000	3470.40	0.0	
	2	0.0	539.76	0.0000	3619.20	0.0	
	3	0.0	542.40	0.0000	3278.40	0.0	
	4	0.0	542.40	0.0000	3796.80	0.0	
	MONTHLY EST.			0.0000	14164.80		0.0
MARCH	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	602.40	0.0000	4082.40	0.0	
	3	0.0	602.40	0.0000	4216.80	0.0	
	4	0.0	559.20	0.0000	5908.80	0.0	
	MONTHLY EST.			0.0000	18004.80		0.0
APRIL	1	0.0	602.40	0.0000	4216.80	0.0	
	2	0.0	581.25	0.0000	4077.60	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	37.3	1086.00	0.0343	4884.00	167.7	
	MONTHLY EST.			0.0086	16975.20		145.8
MAY	1	0.0	542.40	0.0000	3796.80	0.0	
	2	316.7	542.40	0.5839	3796.80	2216.9	
	3	29.8	602.40	0.0495	4056.00	200.6	
	4	105.0	542.40	0.1936	5640.00	1091.8	
	MONTHLY EST.			0.2067	17289.60		3574.4
JUNE	1	0.0	577.20	0.0000	3964.80	0.0	
	2	86.0	542.40	0.1586	3945.60	625.6	
	3	603.4	732.45	0.8238	5246.40	4322.0	
	4	24.6	880.80	0.0279	7219.20	201.6	
	MONTHLY EST.			0.2526	20376.00		5146.4
JULY	1	0.0	720.00	0.0000	4536.00	0.0	
	2	0.0	654.60	0.0000	4778.40	0.0	
	3	0.0	790.48	0.0000	5088.00	0.0	
	4	14.3	1534.80	0.0093	7447.20	69.4	
	MONTHLY EST.			0.0023	21849.60		50.9
AUGUST	1	0.0	835.80	0.0000	5227.20	0.0	
	2	51.1	762.60	0.0670	5512.80	369.4	
	3	91.1	746.40	0.1221	5330.40	650.6	
	4	16.9	862.80	0.0196	8412.00	164.8	
	MONTHLY EST.			0.0522	24482.40		1277.0
SEPTEMBER	1	41.7	808.80	0.0516	5071.20	261.5	
	2	7.2	559.20	0.0129	3950.40	50.9	
	3	0.0	536.75	0.0000	3796.80	0.0	
	4	6.7	564.75	0.0119	5467.20	64.9	
	MONTHLY EST.			0.0191	18285.60		348.8
OCTOBER	1	6.9	555.35	0.0124	4670.40	58.0	
	2	55.4	750.00	0.0739	4598.40	339.7	
	3	164.1	573.00	0.2864	4252.80	1217.9	
	4	3486.0	1253.40	2.7812	6072.00	16887.7	
	MONTHLY EST.			0.7885	19593.60		15449.1
NOVEMBER	1	2327.8	602.40	3.8642	4178.40	16146.2	
	2	72.3	577.30	0.1252	4185.60	524.2	
	3	24.4	568.93	0.0429	4188.00	179.6	
	4	9.2	602.40	0.0153	5380.80	82.2	
	MONTHLY EST.			1.0119	17932.80		18146.2
DECEMBER	1	5.6	602.40	0.0093	4216.80	39.2	
	2	1.8	602.40	0.0030	4216.80	12.6	
	3	0.0	602.40	0.0000	4216.80	0.0	
	4	2.5	1132.43	0.0022	6024.00	13.3	
	MONTHLY EST.			0.0036	18674.40		67.7

APPENDIX TABLE D-1.8. ESTIMATED WEEKLY BIOMASS OF BROWN BULLHEAD, ROSETON GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1		0.00		3796.80		
	2	0.0	542.40	0.0000	3796.80	0.0	
	3	15.8	542.40	0.0291	3796.80	110.6	
	4	4.3	1084.80	0.0040	5424.00	21.5	
	MONTHLY EST.			0.0110	16814.40		185.5
FEBRUARY	1	5.0	542.40	0.0092	3470.40	32.0	
	2	0.0	539.76	0.0000	3619.20	0.0	
	3	0.0	542.40	0.0000	3278.40	0.0	
	4	0.0	542.40	0.0000	3796.80	0.0	
	MONTHLY EST.			0.0023	14164.80		32.6
MARCH	1	9.2	542.40	0.0170	3796.80	64.4	
	2	151.4	602.40	0.2513	4082.40	1026.0	
	3	0.0	602.40	0.0000	4216.80	0.0	
	4	0.0	559.20	0.0000	5908.80	0.0	
	MONTHLY EST.			0.0671	18004.80		1207.6
APRIL	1	160.6	602.40	0.2666	4216.80	1124.2	
	2	75.3	581.25	0.1295	4077.60	528.2	
	3	80.8	542.40	0.1490	3796.80	565.6	
	4	340.2	1086.00	0.3133	4884.00	1530.0	
	MONTHLY EST.			0.2146	16975.20		3642.8
MAY	1	48.1	542.40	0.0887	3796.80	336.7	
	2	61.8	542.40	0.1139	3796.80	432.6	
	3	20.1	602.40	0.0334	4056.00	135.3	
	4	51.9	542.40	0.0957	5640.00	539.7	
	MONTHLY EST.			0.0829	17289.60		1433.6
JUNE	1	12.5	577.20	0.0217	3964.80	85.9	
	2	32.5	542.40	0.0599	3945.60	236.4	
	3	245.5	732.45	0.3352	5246.40	1758.5	
	4	598.5	880.80	0.6795	7219.20	4905.4	
	MONTHLY EST.			0.2741	20376.00		5584.3
JULY	1	230.3	720.00	0.3199	4536.00	1450.9	
	2	28.1	654.60	0.0429	4778.40	205.1	
	3	122.8	790.48	0.1553	5088.00	790.4	
	4	889.0	1534.80	0.5792	7447.20	4313.6	
	MONTHLY EST.			0.2743	21849.60		5994.2
AUGUST	1	25.9	835.80	0.0310	5227.20	162.0	
	2	66.5	762.60	0.0872	5512.80	480.7	
	3	60.0	746.40	0.0804	5330.40	428.5	
	4	305.6	862.80	0.3542	8412.00	2979.5	
	MONTHLY EST.			0.1382	24482.40		3383.3
SEPTEMBER	1	10.5	808.80	0.0130	5071.20	65.8	
	2	49.3	559.20	0.0882	3950.40	348.3	
	3	29.1	536.75	0.0542	3796.80	205.8	
	4	0.0	564.75	0.0000	5467.20	0.0	
	MONTHLY EST.			0.0388	18285.60		710.2
OCTOBER	1	0.0	555.35	0.0000	4670.40	0.0	
	2	29.3	750.00	0.0391	4598.40	179.6	
	3	87.5	573.00	0.1527	4252.80	649.4	
	4	46.2	1253.40	0.0369	6072.00	223.8	
	MONTHLY EST.			0.0572	19593.60		1119.9
NOVEMBER	1	4.1	602.40	0.0068	4178.40	28.4	
	2	0.0	577.30	0.0000	4185.60	0.0	
	3	0.0	568.93	0.0000	4188.00	0.0	
	4	8.5	602.40	0.0141	5380.80	75.9	
	MONTHLY EST.			0.0052	17932.80		93.8
DECEMBER	1	0.0	602.40	0.0000	4216.80	0.0	
	2	0.0	602.40	0.0000	4216.80	0.0	
	3	0.0	602.40	0.0000	4216.80	0.0	
	4	0.0	1132.43	0.0000	6024.00	0.0	
	MONTHLY EST.			0.0000	18674.40		0.0

APPENDIX TABLE D-1.9. ESTIMATED WEEKLY BIOMASS OF CHANNEL CATFISH, ROSETON GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1		0.00		3796.80		
	2	22.8	542.40	0.0420	3796.80	159.6	
	3	291.7	542.40	0.5378	3796.80	2041.9	
	4	280.8	1084.80	0.2588	5424.00	1404.0	
	MONTHLY EST.			0.2796	16814.40		4700.6
FEBRUARY	1	20.5	542.40	0.0378	3470.40	131.2	
	2	17.8	539.76	0.0330	3619.20	119.4	
	3	39.7	542.40	0.0732	3278.40	240.0	
	4	6.3	542.40	0.0116	3796.80	44.1	
	MONTHLY EST.			0.0389	14164.80		550.9
MARCH	1	52.9	542.40	0.0975	3796.80	370.3	
	2	234.7	602.40	0.3896	4082.40	1590.5	
	3	122.6	602.40	0.2035	4216.80	858.2	
	4	117.5	559.20	0.2101	5908.80	1241.6	
	MONTHLY EST.			0.2252	18004.80		4054.6
APRIL	1	262.8	602.40	0.4363	4216.80	1839.6	
	2	24.7	581.25	0.0425	4077.60	173.3	
	3	17.2	542.40	0.0317	3796.80	120.4	
	4	35.5	1086.00	0.0327	4884.00	159.7	
	MONTHLY EST.			0.1358	16975.20		2305.0
MAY	1	21.2	542.40	0.0391	3796.80	148.4	
	2	23.1	542.40	0.0426	3796.80	161.7	
	3	0.0	602.40	0.0000	4056.00	0.0	
	4	7.8	542.40	0.0144	5640.00	81.1	
	MONTHLY EST.			0.0240	17289.60		415.2
JUNE	1	17.2	577.20	0.0298	3964.80	118.1	
	2	0.0	542.40	0.0000	3945.60	0.0	
	3	368.9	732.45	0.5037	5246.40	2642.4	
	4	29.8	880.80	0.0338	7219.20	244.2	
	MONTHLY EST.			0.1418	20376.00		2889.7
JULY	1	144.0	720.00	0.2000	4536.00	907.2	
	2	19.1	654.60	0.0292	4778.40	139.4	
	3	0.0	790.48	0.0000	5088.00	0.0	
	4	697.5	1534.80	0.4545	7447.20	3384.4	
	MONTHLY EST.			0.1709	21849.60		3734.3
AUGUST	1	3.5	835.80	0.0042	5227.20	21.9	
	2	80.2	762.60	0.1052	5512.80	579.8	
	3	159.3	746.40	0.2134	5330.40	1137.6	
	4	22.7	862.80	0.0263	8412.00	221.3	
	MONTHLY EST.			0.0873	24482.40		2136.6
SEPTEMBER	1	10.3	808.80	0.0127	5071.20	64.6	
	2	79.3	559.20	0.1418	3950.40	560.2	
	3	7.6	536.75	0.0142	3796.80	53.8	
	4	15.9	564.75	0.0282	5467.20	153.9	
	MONTHLY EST.			0.0492	18285.60		899.9
OCTOBER	1	3.1	555.35	0.0056	4670.40	26.1	
	2	77.0	750.00	0.1027	4598.40	472.1	
	3	11.1	573.00	0.0194	4252.80	82.4	
	4	19.9	1253.40	0.0159	6072.00	96.4	
	MONTHLY EST.			0.0359	19593.60		702.9
NOVEMBER	1	19.2	602.40	0.0319	4178.40	133.2	
	2	18.8	577.30	0.0326	4185.60	136.3	
	3	4.9	568.93	0.0086	4188.00	36.1	
	4	4.2	602.40	0.0070	5380.80	37.5	
	MONTHLY EST.			0.0200	17932.80		358.8
DECEMBER	1	11.7	602.40	0.0194	4216.80	81.9	
	2	0.0	602.40	0.0000	4216.80	0.0	
	3	27.5	602.40	0.0457	4216.80	192.5	
	4	43.2	1132.43	0.0381	6024.00	229.8	
	MONTHLY EST.			0.0258	18674.40		481.9

APPENDIX TABLE D-1.10. ESTIMATED WEEKLY BIOMASS OF GIZZARD SHAD, ROSETON GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1		0.00		3796.80		
	2	97.6	542.40	0.1799	3796.80	683.2	
	3	8802.3	542.40	16.2284	3796.80	61616.1	
	4	8599.5	1084.80	7.9273	5424.00	42997.5	
	MONTHLY EST.			8.1119	16814.40		136396.4
FEBRUARY	1	1939.6	542.40	3.5760	3470.40	12410.0	
	2	29.9	539.76	0.0554	3619.20	200.5	
	3	1102.7	542.40	2.0330	3278.40	6665.0	
	4	0.0	542.40	0.0000	3796.80	0.0	
	MONTHLY EST.			1.4161	14164.80		20058.6
MARCH	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	602.40	0.0000	4082.40	0.0	
	3	35.3	602.40	0.0586	4216.80	247.1	
	4	81.8	559.20	0.1463	5908.80	864.3	
	MONTHLY EST.			0.0512	18004.80		922.2
APRIL	1	0.0	602.40	0.0000	4216.80	0.0	
	2	0.0	581.25	0.0000	4077.60	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	0.0	1086.00	0.0000	4884.00	0.0	
	MONTHLY EST.			0.0000	16975.20		0.0
MAY	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	542.40	0.0000	3796.80	0.0	
	3	0.0	602.40	0.0000	4056.00	0.0	
	4	0.0	542.40	0.0000	5640.00	0.0	
	MONTHLY EST.			0.0000	17289.60		0.0
JUNE	1	0.0	577.20	0.0000	3964.80	0.0	
	2	0.0	542.40	0.0000	3945.60	0.0	
	3	0.0	732.45	0.0000	5246.40	0.0	
	4	0.0	880.80	0.0000	7219.20	0.0	
	MONTHLY EST.			0.0000	20376.00		0.0
JULY	1	0.0	720.00	0.0000	4536.00	0.0	
	2	0.0	654.60	0.0000	4778.40	0.0	
	3	0.0	790.48	0.0000	5088.00	0.0	
	4	0.0	1534.80	0.0000	7447.20	0.0	
	MONTHLY EST.			0.0000	21849.60		0.0
AUGUST	1	0.0	835.80	0.0000	5227.20	0.0	
	2	8.1	762.60	0.0106	5512.80	58.6	
	3	32.0	746.40	0.0429	5330.40	228.5	
	4	0.0	862.80	0.0000	8412.00	0.0	
	MONTHLY EST.			0.0134	24482.40		327.4
SEPTEMBER	1	0.0	808.80	0.0000	5071.20	0.0	
	2	0.0	559.20	0.0000	3950.40	0.0	
	3	0.0	536.75	0.0000	3796.80	0.0	
	4	0.0	564.75	0.0000	5467.20	0.0	
	MONTHLY EST.			0.0000	18285.60		0.0
OCTOBER	1	0.0	555.35	0.0000	4670.40	0.0	
	2	0.0	750.00	0.0000	4598.40	0.0	
	3	0.0	573.00	0.0000	4252.80	0.0	
	4	7.8	1253.40	0.0062	6072.00	37.8	
	MONTHLY EST.			0.0016	19593.60		30.5
NOVEMBER	1	0.0	602.40	0.0000	4178.40	0.0	
	2	32.3	577.30	0.0560	4185.60	234.2	
	3	18.0	568.93	0.0316	4188.00	132.5	
	4	0.0	602.40	0.0000	5380.80	0.0	
	MONTHLY EST.			0.0219	17932.80		392.7
DECEMBER	1	7.3	602.40	0.0121	4216.80	51.1	
	2	34.8	602.40	0.0578	4216.80	243.6	
	3	26.8	602.40	0.0445	4216.80	187.6	
	4	43.4	1132.43	0.0383	6024.00	230.9	
	MONTHLY EST.			0.0382	18674.40		712.9

APPENDIX TABLE D-1.11. ESTIMATED WEEKLY BIOMASS OF PUMPKINSEED, ROSETON GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1		0.00		3796.80		
	2	203.8	542.40	0.3757	3796.80	1426.6	
	3	65.3	542.40	0.1204	3796.80	457.1	
	4	516.5	1084.80	0.4761	5424.00	2582.5	
	MONTHLY EST.			0.3241	16814.40		5449.3
FEBRUARY	1	196.0	542.40	0.3614	3470.40	1254.1	
	2	88.1	539.76	0.1632	3619.20	590.7	
	3	5.0	542.40	0.0092	3278.40	30.2	
	4	0.0	542.40	0.0000	3796.80	0.0	
	MONTHLY EST.			0.1334	14164.80		1890.3
MARCH	1	99.9	542.40	0.1842	3796.80	699.3	
	2	36.5	602.40	0.0606	4082.40	247.4	
	3	5.0	602.40	0.0083	4216.80	35.0	
	4	0.0	559.20	0.0000	5908.80	0.0	
	MONTHLY EST.			0.0633	18004.80		1139.1
APRIL	1	63.1	602.40	0.1047	4216.80	441.7	
	2	141.2	581.25	0.2429	4077.60	990.5	
	3	267.3	542.40	0.4928	3796.80	1871.1	
	4	309.4	1086.00	0.2849	4884.00	1391.4	
	MONTHLY EST.			0.2813	16975.20		4775.9
MAY	1	23.1	542.40	0.0426	3796.80	161.7	
	2	96.3	542.40	0.1775	3796.80	674.1	
	3	102.9	602.40	0.1708	4056.00	692.8	
	4	34.1	542.40	0.0629	5640.00	354.6	
	MONTHLY EST.			0.1135	17289.60		1961.6
JUNE	1	8.6	577.20	0.0149	3964.80	59.1	
	2	9.6	542.40	0.0177	3945.60	69.8	
	3	60.6	732.45	0.0827	5246.40	434.1	
	4	25.7	880.80	0.0292	7219.20	210.6	
	MONTHLY EST.			0.0361	20376.00		736.1
JULY	1	0.0	720.00	0.0000	4536.00	0.0	
	2	0.0	654.60	0.0000	4778.40	0.0	
	3	0.0	790.48	0.0000	5088.00	0.0	
	4	72.2	1534.80	0.0470	7447.20	350.3	
	MONTHLY EST.			0.0118	21849.60		257.0
AUGUST	1	17.3	835.80	0.0207	5227.20	108.2	
	2	0.0	762.60	0.0000	5512.80	0.0	
	3	54.7	746.40	0.0733	5330.40	390.6	
	4	0.0	862.80	0.0000	8412.00	0.0	
	MONTHLY EST.			0.0235	24482.40		575.2
SEPTEMBER	1	26.6	808.80	0.0329	5071.20	166.8	
	2	23.5	559.20	0.0420	3950.40	166.0	
	3	0.0	536.75	0.0000	3796.80	0.0	
	4	56.9	564.75	0.1008	5467.20	550.8	
	MONTHLY EST.			0.0439	18285.60		803.0
OCTOBER	1	234.2	555.35	0.4217	4670.40	1969.6	
	2	331.5	750.00	0.4420	4598.40	2032.5	
	3	101.1	573.00	0.1764	4252.80	750.4	
	4	86.1	1253.40	0.0687	6072.00	417.1	
	MONTHLY EST.			0.2772	19593.60		5431.6
NOVEMBER	1	0.0	602.40	0.0000	4178.40	0.0	
	2	141.4	577.30	0.2449	4185.60	1025.2	
	3	0.0	568.93	0.0000	4188.00	0.0	
	4	0.0	602.40	0.0000	5380.80	0.0	
	MONTHLY EST.			0.0612	17932.80		1098.1
DECEMBER	1	7.2	602.40	0.0120	4216.80	50.4	
	2	0.0	602.40	0.0000	4216.80	0.0	
	3	0.0	602.40	0.0000	4216.80	0.0	
	4	0.0	1132.43	0.0000	6024.00	0.0	
	MONTHLY EST.			0.0030	18674.40		55.8

APPENDIX TABLE D-1.12. ESTIMATED WEEKLY BIOMASS OF RAINBOW SMELT, ROSETON GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1		0.00		3796.80		
	2	0.0	542.40	0.0000	3796.80	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	0.0	1084.80	0.0000	5424.00	0.0	
	MONTHLY EST.			0.0000	16814.40		0.0
FEBRUARY	1	0.0	542.40	0.0000	3470.40	0.0	
	2	0.0	539.76	0.0000	3619.20	0.0	
	3	0.0	542.40	0.0000	3278.40	0.0	
	4	0.0	542.40	0.0000	3796.80	0.0	
	MONTHLY EST.			0.0000	14164.80		0.0
MARCH	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	602.40	0.0000	4082.40	0.0	
	3	0.0	602.40	0.0000	4216.80	0.0	
	4	0.0	559.20	0.0000	5908.80	0.0	
	MONTHLY EST.			0.0000	18004.80		0.0
APRIL	1	0.0	602.40	0.0000	4216.80	0.0	
	2	0.0	581.25	0.0000	4077.60	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	0.0	1086.00	0.0000	4884.00	0.0	
	MONTHLY EST.			0.0000	16975.20		0.0
MAY	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	542.40	0.0000	3796.80	0.0	
	3	0.0	602.40	0.0000	4056.00	0.0	
	4	0.0	542.40	0.0000	5640.00	0.0	
	MONTHLY EST.			0.0000	17289.60		0.0
JUNE	1	0.0	577.20	0.0000	3964.80	0.0	
	2	0.0	542.40	0.0000	3945.60	0.0	
	3	0.0	732.45	0.0000	5246.40	0.0	
	4	0.0	880.80	0.0000	7219.20	0.0	
	MONTHLY EST.			0.0000	20376.00		0.0
JULY	1	0.0	720.00	0.0000	4536.00	0.0	
	2	0.0	654.60	0.0000	4778.40	0.0	
	3	0.0	790.48	0.0000	5088.00	0.0	
	4	0.0	1534.80	0.0000	7447.20	0.0	
	MONTHLY EST.			0.0000	21849.60		0.0
AUGUST	1	0.0	835.80	0.0000	5227.20	0.0	
	2	0.0	762.60	0.0000	5512.80	0.0	
	3	0.0	746.40	0.0000	5330.40	0.0	
	4	0.0	862.80	0.0000	8412.00	0.0	
	MONTHLY EST.			0.0000	24482.40		0.0
SEPTEMBER	1	0.0	808.80	0.0000	5071.20	0.0	
	2	0.0	559.20	0.0000	3950.40	0.0	
	3	0.0	536.75	0.0000	3796.80	0.0	
	4	0.0	564.75	0.0000	5467.20	0.0	
	MONTHLY EST.			0.0000	18285.60		0.0
OCTOBER	1	0.0	555.35	0.0000	4670.40	0.0	
	2	0.0	750.00	0.0000	4598.40	0.0	
	3	0.0	573.00	0.0000	4252.80	0.0	
	4	0.0	1253.40	0.0000	6072.00	0.0	
	MONTHLY EST.			0.0000	19593.60		0.0
NOVEMBER	1	0.0	602.40	0.0000	4178.40	0.0	
	2	0.0	577.30	0.0000	4185.60	0.0	
	3	0.0	568.93	0.0000	4188.00	0.0	
	4	0.0	602.40	0.0000	5380.80	0.0	
	MONTHLY EST.			0.0000	17932.80		0.0
DECEMBER	1	0.0	602.40	0.0000	4216.80	0.0	
	2	0.0	602.40	0.0000	4216.80	0.0	
	3	0.0	602.40	0.0000	4216.80	0.0	
	4	0.0	1132.43	0.0000	6024.00	0.0	
	MONTHLY EST.			0.0000	18674.40		0.0

APPENDIX TABLE D-1.13. ESTIMATED WEEKLY BIOMASS OF SPOTTAIL SHINER, ROSETON GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1		0.00		3796.80		
	2	64.6	542.40	0.1191	3796.80	452.2	
	3	381.2	542.40	0.7028	3796.80	2668.4	
	4	533.1	1084.80	0.4914	5424.00	2665.5	
	MONTHLY EST.			0.4378	16814.40		7361.0
FEBRUARY	1	99.9	542.40	0.1842	3470.40	639.2	
	2	93.3	539.76	0.1729	3619.20	625.6	
	3	64.4	542.40	0.1187	3278.40	389.2	
	4	66.5	542.40	0.1226	3796.80	465.5	
	MONTHLY EST.			0.1496	14164.80		2118.9
MARCH	1	22.2	542.40	0.0409	3796.80	155.4	
	2	87.9	602.40	0.1459	4082.40	595.7	
	3	55.8	602.40	0.0926	4216.80	390.6	
	4	243.3	559.20	0.4351	5908.80	2570.8	
	MONTHLY EST.			0.1786	18004.80		3216.4
APRIL	1	81.8	602.40	0.1358	4216.80	572.6	
	2	236.7	581.25	0.4072	4077.60	1660.5	
	3	75.8	542.40	0.1397	3796.80	530.6	
	4	65.8	1086.00	0.0606	4884.00	295.9	
	MONTHLY EST.			0.1858	16975.20		3154.6
MAY	1	6.3	542.40	0.0116	3796.80	44.1	
	2	52.3	542.40	0.0964	3796.80	366.1	
	3	88.4	602.40	0.1467	4056.00	595.2	
	4	38.7	542.40	0.0713	5640.00	402.4	
	MONTHLY EST.			0.0815	17289.60		1409.7
JUNE	1	3.6	577.20	0.0062	3964.80	24.7	
	2	13.1	542.40	0.0242	3945.60	95.3	
	3	17.7	732.45	0.0242	5246.40	126.8	
	4	94.1	880.80	0.1068	7219.20	771.3	
	MONTHLY EST.			0.0403	20376.00		822.1
JULY	1	15.7	720.00	0.0218	4536.00	98.9	
	2	20.3	654.60	0.0310	4778.40	148.2	
	3	32.9	790.48	0.0416	5088.00	211.8	
	4	42.2	1534.80	0.0275	7447.20	204.8	
	MONTHLY EST.			0.0305	21849.60		666.0
AUGUST	1	0.0	835.80	0.0000	5227.20	0.0	
	2	0.0	762.60	0.0000	5512.80	0.0	
	3	1.6	746.40	0.0021	5330.40	11.4	
	4	44.0	862.80	0.0510	8412.00	429.0	
	MONTHLY EST.			0.0133	24482.40		325.3
SEPTEMBER	1	19.9	808.80	0.0246	5071.20	124.8	
	2	4.3	559.20	0.0077	3950.40	30.4	
	3	7.9	536.75	0.0147	3796.80	55.9	
	4	28.2	564.75	0.0499	5467.20	273.0	
	MONTHLY EST.			0.0242	18285.60		443.2
OCTOBER	1	8.3	555.35	0.0149	4670.40	69.8	
	2	54.8	750.00	0.0731	4598.40	336.0	
	3	5.0	573.00	0.0087	4252.80	37.1	
	4	34.6	1253.40	0.0276	6072.00	167.6	
	MONTHLY EST.			0.0311	19593.60		609.1
NOVEMBER	1	6.0	602.40	0.0100	4178.40	41.6	
	2	107.4	577.30	0.1860	4185.60	778.7	
	3	20.5	568.93	0.0360	4188.00	150.9	
	4	3.4	602.40	0.0056	5380.80	30.4	
	MONTHLY EST.			0.0594	17932.80		1065.5
DECEMBER	1	13.0	602.40	0.0216	4216.80	91.0	
	2	52.8	602.40	0.0876	4216.80	369.6	
	3	0.0	602.40	0.0000	4216.80	0.0	
	4	56.6	1132.43	0.0500	6024.00	301.1	
	MONTHLY EST.			0.0398	18674.40		743.3

APPENDIX TABLE D-1.14. ESTIMATED WEEKLY BIOMASS OF STRIPED BASS, ROSETON GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1		0.00		3796.80		
	2	28.5	542.40	0.0525	3796.80	199.5	
	3	57.0	542.40	0.1051	3796.80	399.0	
	4	11.8	1084.80	0.0109	5424.00	59.0	
	MONTHLY EST.			0.0562	16814.40		944.5
FEBRUARY	1	0.0	542.40	0.0000	3470.40	0.0	
	2	0.0	539.76	0.0000	3619.20	0.0	
	3	0.0	542.40	0.0000	3278.40	0.0	
	4	0.0	542.40	0.0000	3796.80	0.0	
	MONTHLY EST.			0.0000	14164.80		0.0
MARCH	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	602.40	0.0000	4082.40	0.0	
	3	0.0	602.40	0.0000	4216.80	0.0	
	4	0.0	559.20	0.0000	5908.80	0.0	
	MONTHLY EST.			0.0000	18004.80		0.0
APRIL	1	0.0	602.40	0.0000	4216.80	0.0	
	2	0.0	581.25	0.0000	4077.60	0.0	
	3	17.5	542.40	0.0323	3796.80	122.5	
	4	14.5	1086.00	0.0134	4884.00	65.2	
	MONTHLY EST.			0.0114	16975.20		193.6
MAY	1	4.9	542.40	0.0090	3796.80	34.3	
	2	2.6	542.40	0.0048	3796.80	18.2	
	3	0.0	602.40	0.0000	4056.00	0.0	
	4	0.0	542.40	0.0000	5640.00	0.0	
	MONTHLY EST.			0.0035	17289.60		59.8
JUNE	1	0.0	577.20	0.0000	3964.80	0.0	
	2	0.0	542.40	0.0000	3945.60	0.0	
	3	13.9	732.45	0.0190	5246.40	99.6	
	4	75.6	880.80	0.0858	7219.20	619.6	
	MONTHLY EST.			0.0262	20376.00		533.9
JULY	1	0.0	720.00	0.0000	4536.00	0.0	
	2	0.0	654.60	0.0000	4778.40	0.0	
	3	15.7	790.48	0.0199	5088.00	101.1	
	4	28.3	1534.80	0.0184	7447.20	137.3	
	MONTHLY EST.			0.0096	21849.60		209.2
AUGUST	1	9.5	835.80	0.0114	5227.20	59.4	
	2	99.7	762.60	0.1307	5512.80	720.7	
	3	66.3	746.40	0.0888	5330.40	473.5	
	4	14.0	862.80	0.0162	8412.00	136.5	
	MONTHLY EST.			0.0618	24482.40		1512.7
SEPTEMBER	1	29.1	808.80	0.0360	5071.20	182.5	
	2	41.2	559.20	0.0737	3950.40	291.1	
	3	29.4	536.75	0.0548	3796.80	208.0	
	4	91.5	564.75	0.1620	5467.20	885.8	
	MONTHLY EST.			0.0816	18285.60		1492.3
OCTOBER	1	50.5	555.35	0.0909	4670.40	424.7	
	2	611.7	750.00	0.8156	4598.40	3750.5	
	3	90.8	573.00	0.1585	4252.80	673.9	
	4	290.7	1253.40	0.2319	6072.00	1408.3	
	MONTHLY EST.			0.3242	19593.60		6352.9
NOVEMBER	1	193.8	602.40	0.3217	4178.40	1344.2	
	2	77.8	577.30	0.1348	4185.60	564.1	
	3	14.5	568.93	0.0255	4188.00	106.7	
	4	8.2	602.40	0.0136	5380.80	73.2	
	MONTHLY EST.			0.1239	17932.80		2221.8
DECEMBER	1	4.9	602.40	0.0081	4216.80	34.3	
	2	9.5	602.40	0.0158	4216.80	66.5	
	3	35.7	602.40	0.0593	4216.80	249.9	
	4	47.1	1132.43	0.0416	6024.00	250.6	
	MONTHLY EST.			0.0312	18674.40		582.5

APPENDIX TABLE D-1.15. ESTIMATED WEEKLY BIOMASS OF WHITE CATFISH, ROSETON GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1		0.00		3796.80		
	2	0.0	542.40	0.0000	3796.80	0.0	
	3	5.5	542.40	0.0101	3796.80	38.5	
	4	0.0	1084.80	0.0000	5424.00	0.0	
	MONTHLY EST.			0.0034	16814.40		56.8
FEBRUARY	1	0.0	542.40	0.0000	3470.40	0.0	
	2	0.0	539.76	0.0000	3619.20	0.0	
	3	0.0	542.40	0.0000	3278.40	0.0	
	4	0.0	542.40	0.0000	3796.80	0.0	
	MONTHLY EST.			0.0000	14164.80		0.0
MARCH	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	602.40	0.0000	4082.40	0.0	
	3	0.0	602.40	0.0000	4216.80	0.0	
	4	6.1	559.20	0.0109	5908.80	64.5	
	MONTHLY EST.			0.0027	18004.80		49.1
APRIL	1	1.7	602.40	0.0028	4216.80	11.9	
	2	11.5	581.25	0.0198	4077.60	80.7	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	51.2	1086.00	0.0471	4884.00	230.3	
	MONTHLY EST.			0.0174	16975.20		296.0
MAY	1	17.6	542.40	0.0324	3796.80	123.2	
	2	0.0	542.40	0.0000	3796.80	0.0	
	3	0.0	602.40	0.0000	4056.00	0.0	
	4	45.6	542.40	0.0841	5640.00	474.2	
	MONTHLY EST.			0.0291	17289.60		503.6
JUNE	1	151.8	577.20	0.2630	3964.80	1042.7	
	2	0.0	542.40	0.0000	3945.60	0.0	
	3	381.3	732.45	0.5206	5246.40	2731.2	
	4	35.0	880.80	0.0397	7219.20	286.9	
	MONTHLY EST.			0.2058	20376.00		4194.0
JULY	1	10.9	720.00	0.0151	4536.00	68.7	
	2	27.1	654.60	0.0414	4778.40	197.8	
	3	0.0	790.48	0.0000	5088.00	0.0	
	4	272.5	1534.80	0.1775	7447.20	1322.2	
	MONTHLY EST.			0.0585	21849.60		1278.7
AUGUST	1	1816.9	835.80	2.1738	5227.20	11363.1	
	2	612.7	762.60	0.8034	5512.80	4429.2	
	3	12.1	746.40	0.0162	5330.40	86.4	
	4	0.0	862.80	0.0000	8412.00	0.0	
	MONTHLY EST.			0.7484	24482.40		18322.0
SEPTEMBER	1	307.8	808.80	0.3806	5071.20	1929.9	
	2	10.8	559.20	0.0193	3950.40	76.3	
	3	106.2	536.75	0.1979	3796.80	751.2	
	4	16.0	564.75	0.0283	5467.20	154.9	
	MONTHLY EST.			0.1565	18285.60		2862.0
OCTOBER	1	24.7	555.35	0.0445	4670.40	207.7	
	2	188.5	750.00	0.2513	4598.40	1155.7	
	3	67.2	573.00	0.1173	4252.80	498.8	
	4	166.3	1253.40	0.1327	6072.00	805.6	
	MONTHLY EST.			0.1364	19593.60		2673.4
NOVEMBER	1	1226.0	602.40	2.0352	4178.40	8503.8	
	2	599.0	577.30	1.0376	4185.60	4342.9	
	3	1153.3	568.93	2.0271	4188.00	8489.6	
	4	716.9	602.40	1.1901	5380.80	6403.5	
	MONTHLY EST.			1.5725	17932.80		28199.2
DECEMBER	1	56.3	602.40	0.0935	4216.80	394.1	
	2	30.5	602.40	0.0506	4216.80	213.5	
	3	5.1	602.40	0.0085	4216.80	35.7	
	4	10.9	1132.43	0.0096	6024.00	58.0	
	MONTHLY EST.			0.0405	18674.40		757.2

APPENDIX TABLE D-1.16. ESTIMATED WEEKLY BIOMASS OF WHITE PERCH, ROSETON GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1		0.00		3796.80		
	2	121.7	542.40	0.2244	3796.80	851.9	
	3	1954.0	542.40	3.6025	3796.80	13678.0	
	4	866.5	1084.80	0.7988	5424.00	4332.5	
	MONTHLY EST.			1.5419	16814.40		25925.8
FEBRUARY	1	251.0	542.40	0.4628	3470.40	1606.0	
	2	86.3	539.76	0.1599	3619.20	578.7	
	3	33.7	542.40	0.0621	3278.40	203.7	
	4	32.8	542.40	0.0605	3796.80	229.6	
	MONTHLY EST.			0.1863	14164.80		2639.1
MARCH	1	32.9	542.40	0.0607	3796.80	230.3	
	2	215.5	602.40	0.3577	4082.40	1460.4	
	3	414.5	602.40	0.6881	4216.80	2901.5	
	4	233.2	559.20	0.4170	5908.80	2464.1	
	MONTHLY EST.			0.3809	18004.80		6857.6
APRIL	1	513.9	602.40	0.8531	4216.80	3597.3	
	2	2365.7	581.25	4.0700	4077.60	16595.9	
	3	690.4	542.40	1.2729	3796.80	4832.8	
	4	738.4	1086.00	0.6799	4884.00	3320.8	
	MONTHLY EST.			1.7190	16975.20		29179.9
MAY	1	220.1	542.40	0.4058	3796.80	1540.7	
	2	523.2	542.40	0.9646	3796.80	3662.4	
	3	967.5	602.40	1.6061	4056.00	6514.2	
	4	1841.2	542.40	3.3945	5640.00	19145.2	
	MONTHLY EST.			1.5928	17289.60		27538.1
JUNE	1	4999.5	577.20	8.6616	3964.80	34341.7	
	2	1087.1	542.40	2.0042	3945.60	7907.9	
	3	1352.2	732.45	1.8461	5246.40	9685.6	
	4	2475.8	880.80	2.8109	7219.20	20292.1	
	MONTHLY EST.			3.8307	20376.00		78054.7
JULY	1	361.1	720.00	0.5015	4536.00	2274.9	
	2	225.4	654.60	0.3443	4778.40	1645.4	
	3	330.2	790.48	0.4177	5088.00	2125.4	
	4	42.6	1534.80	0.0278	7447.20	206.7	
	MONTHLY EST.			0.3228	21849.60		7053.8
AUGUST	1	98.0	835.80	0.1173	5227.20	612.9	
	2	376.7	762.60	0.4940	5512.80	2723.1	
	3	481.6	746.40	0.6452	5330.40	3439.3	
	4	161.2	862.80	0.1868	8412.00	1571.6	
	MONTHLY EST.			0.3608	24482.40		8833.8
SEPTEMBER	1	291.1	808.80	0.3599	5071.20	1825.2	
	2	511.1	559.20	0.9140	3950.40	3610.6	
	3	235.1	536.75	0.4380	3796.80	1663.0	
	4	198.2	564.75	0.3510	5467.20	1918.7	
	MONTHLY EST.			0.5157	18285.60		9430.2
OCTOBER	1	379.2	555.35	0.6828	4670.40	3189.0	
	2	1865.0	750.00	2.4867	4598.40	11434.7	
	3	584.0	573.00	1.0192	4252.80	4334.4	
	4	1779.5	1253.40	1.4197	6072.00	8620.7	
	MONTHLY EST.			1.4021	19593.60		27472.3
NOVEMBER	1	1334.0	602.40	2.2145	4178.40	9253.0	
	2	2697.3	577.30	4.6723	4185.60	19556.2	
	3	625.6	568.93	1.0996	4188.00	4605.1	
	4	509.5	602.40	0.8458	5380.80	4551.0	
	MONTHLY EST.			2.2080	17932.80		39596.2
DECEMBER	1	235.5	602.40	0.3909	4216.80	1648.5	
	2	518.7	602.40	0.8611	4216.80	3630.9	
	3	94.0	602.40	0.1560	4216.80	658.0	
	4	433.0	1132.43	0.3824	6024.00	2303.4	
	MONTHLY EST.			0.4476	18674.40		8358.7

APPENDIX TABLE D-1.17. ESTIMATED WEEKLY BIOMASS OF BLUE CRAB, ROSETON GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1		0.00		3796.80		
	2	0.0	542.40	0.0000	3796.80	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	0.0	1084.80	0.0000	5424.00	0.0	
	MONTHLY EST.			0.0000	16814.40		0.0
FEBRUARY	1	0.0	542.40	0.0000	3470.40	0.0	
	2	0.0	539.76	0.0000	3619.20	0.0	
	3	0.0	542.40	0.0000	3278.40	0.0	
	4	0.0	542.40	0.0000	3796.80	0.0	
	MONTHLY EST.			0.0000	14164.80		0.0
MARCH	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	602.40	0.0000	4082.40	0.0	
	3	0.0	602.40	0.0000	4216.80	0.0	
	4	0.0	559.20	0.0000	5908.80	0.0	
	MONTHLY EST.			0.0000	18004.80		0.0
APRIL	1	0.0	602.40	0.0000	4216.80	0.0	
	2	6.0	581.25	0.0103	4077.60	42.1	
	3	8.6	542.40	0.0159	3796.80	60.2	
	4	6.0	1086.00	0.0055	4884.00	27.0	
	MONTHLY EST.			0.0079	16975.20		134.5
MAY	1	56.9	542.40	0.1049	3796.80	398.3	
	2	451.7	542.40	0.8328	3796.80	3161.9	
	3	7165.3	602.40	11.8946	4056.00	48244.5	
	4	4660.2	542.40	8.5918	5640.00	48457.8	
	MONTHLY EST.			5.3560	17289.60		92603.5
JUNE	1	3013.1	577.20	5.2202	3964.80	20697.1	
	2	2900.0	542.40	5.3466	3945.60	21095.6	
	3	10529.3	732.45	14.3755	5246.40	75419.4	
	4	15793.3	880.80	17.9306	7219.20	129444.8	
	MONTHLY EST.			10.7182	20376.00		218394.5
JULY	1	9537.7	720.00	13.2468	4536.00	60087.5	
	2	13764.0	654.60	21.0266	4778.40	100473.4	
	3	15706.0	790.48	19.8689	5088.00	101092.7	
	4	16713.4	1534.80	10.8896	7447.20	81097.2	
	MONTHLY EST.			16.2580	21849.60		355230.1
AUGUST	1	13216.0	835.80	15.8124	5227.20	82654.6	
	2	166904.9	762.60	218.8630	5512.80	1206547.8	
	3	44398.6	746.40	59.4837	5330.40	317071.7	
	4	38252.5	862.80	44.3353	8412.00	372948.6	
	MONTHLY EST.			84.6236	24482.40		2071788.4
SEPTEMBER	1	58836.9	808.80	72.7459	5071.20	368909.1	
	2	52888.5	559.20	94.5789	3950.40	373624.3	
	3	144920.0	536.75	269.9953	3796.80	1025118.3	
	4	27892.0	564.75	49.3882	5467.20	270015.3	
	MONTHLY EST.			121.6771	18285.60		2224938.6
OCTOBER	1	24635.2	555.35	44.3598	4670.40	207177.9	
	2	53775.1	750.00	71.7001	4598.40	329705.9	
	3	19089.8	573.00	33.3155	4252.80	141684.3	
	4	18920.7	1253.40	15.0955	6072.00	91659.9	
	MONTHLY EST.			41.1177	19593.60		805644.4
NOVEMBER	1	10598.2	602.40	17.5933	4178.40	73511.8	
	2	4453.7	577.30	7.7147	4185.60	32290.7	
	3	1338.5	568.93	2.3526	4188.00	9852.9	
	4	669.8	602.40	1.1119	5380.80	5982.8	
	MONTHLY EST.			7.1931	17932.80		128993.0
DECEMBER	1	359.1	602.40	0.5961	4216.80	2513.7	
	2	185.4	602.40	0.3078	4216.80	1297.8	
	3	88.1	602.40	0.1462	4216.80	616.7	
	4	88.3	1132.43	0.0780	6024.00	469.7	
	MONTHLY EST.			0.2820	18674.40		5266.7

APPENDIX TABLE D-2.1. ESTIMATED WEEKLY BIOMASS OF ALL FISH SPECIES, DANSKAMMER POINT GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1		0.00		1421.28		
	2	13166.6	203.04	64.8473	1664.18	107917.9	
	3	379581.1	274.87	1380.9393	2042.33	2820331.1	
	4	318750.9	560.10	569.0932	2748.86	1564359.8	
	MONTHLY EST.			671.6266	7876.66		5290171.9
FEBRUARY	1	9250.7	234.41	39.4636	1749.89	69056.9	
	2	11423.0	201.35	56.7326	1517.81	86109.2	
	3	457.1	201.63	2.2670	1543.20	3498.5	
	4	2698.6	201.77	13.3746	1421.28	19009.0	
	MONTHLY EST.			27.9595	6232.18		174248.2
MARCH	1	5384.7	203.04	26.5204	1455.26	38594.2	
	2	1236.4	203.04	6.0894	1421.28	8654.8	
	3	25489.4	203.04	125.5388	1413.34	177428.5	
	4	3660.1	202.05	18.1146	2030.40	36779.8	
	MONTHLY EST.			44.0658	6320.28		278508.2
APRIL	1	2468.6	202.19	12.2091	1421.28	17352.5	
	2	8212.0	203.04	40.4452	1411.15	57074.4	
	3	2313.9	195.29	11.8488	1421.47	16842.8	
	4	7181.4	327.68	21.9156	1814.28	39761.1	
	MONTHLY EST.			21.6047	6068.18		131101.2
MAY	1	4710.1	248.43	18.9595	1506.58	28563.9	
	2	17287.0	327.35	52.8086	1625.78	85855.4	
	3	22346.4	384.61	58.1015	2566.20	149099.9	
	4	75351.0	418.89	179.8842	3693.14	664338.2	
	MONTHLY EST.			77.4384	9391.70		727278.8
JUNE	1	22503.3	301.60	74.6141	2316.58	172849.1	
	2	15914.4	344.81	46.1538	2505.58	115641.7	
	3	28091.5	429.45	65.4124	2685.19	175644.9	
	4	20138.4	406.36	49.5586	3813.43	188988.4	
	MONTHLY EST.			58.9347	11320.78		667186.7
JULY	1	10906.5	420.16	25.9580	2883.96	74861.9	
	2	9234.0	414.16	22.2956	2608.78	58164.3	
	3	6777.7	425.17	15.9412	2956.87	47136.0	
	4	12747.5	844.54	15.0939	4220.14	63698.5	
	MONTHLY EST.			19.8222	12669.74		251142.1
AUGUST	1	3493.6	418.85	8.3409	2977.87	24838.1	
	2	10050.3	426.64	23.5570	2920.51	68798.6	
	3	9661.5	400.02	24.1525	2871.96	69364.9	
	4	3988.4	427.36	9.3327	4188.94	39094.2	
	MONTHLY EST.			16.3458	12959.28		211829.6
SEPTEMBER	1	3853.6	398.75	9.6642	2894.71	27975.0	
	2	14408.6	401.73	35.8664	2925.19	104916.0	
	3	13902.5	423.64	32.8165	2866.70	94075.1	
	4	4821.5	387.18	12.4528	3583.22	44621.2	
	MONTHLY EST.			22.7000	12269.83		278524.6
OCTOBER	1	2708.0	327.82	8.2607	2315.76	19129.9	
	2	26650.6	323.41	82.4055	2311.75	190501.1	
	3	15897.7	363.73	43.7077	1940.26	84804.1	
	4	13199.4	339.58	38.8698	1580.57	61436.3	
	MONTHLY EST.			43.3109	8148.34		352911.9
NOVEMBER	1	14204.6	203.04	69.9596	1421.28	99432.2	
	2	10409.9	191.76	54.2861	1409.98	76542.1	
	3	11290.0	203.22	55.5556	1421.57	78976.0	
	4	1184.9	203.04	5.8358	1324.70	7730.7	
	MONTHLY EST.			46.4093	5577.53		258849.0
DECEMBER	1	8360.3	287.61	29.0680	1988.26	57794.7	
	2	1878.2	263.10	7.1387	1705.61	12175.9	
	3	3698.0	198.11	18.6669	1421.28	26530.8	
	4	4762.8	392.69	12.1288	2030.40	24626.3	
	MONTHLY EST.			16.7506	7145.54		119692.2

APPENDIX TABLE D-2.2. ESTIMATED WEEKLY BIOMASS OF ALEWIFE, DANSKAMMER POINT GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1		0.00		1421.28		
	2	0.0	203.04	0.0000	1664.18	0.0	
	3	0.0	274.87	0.0000	2042.33	0.0	
	4	262.3	560.10	0.4683	2748.86	1287.3	
	MONTHLY EST.			0.1561	7876.66		1229.6
FEBRUARY	1	0.0	234.41	0.0000	1749.89	0.0	
	2	0.0	201.35	0.0000	1517.81	0.0	
	3	0.0	201.63	0.0000	1543.20	0.0	
	4	0.0	201.77	0.0000	1421.28	0.0	
	MONTHLY EST.			0.0000	6232.18		0.0
MARCH	1	0.0	203.04	0.0000	1455.26	0.0	
	2	0.0	203.04	0.0000	1421.28	0.0	
	3	3554.5	203.04	17.5064	1413.34	24742.4	
	4	0.0	202.05	0.0000	2030.40	0.0	
	MONTHLY EST.			4.3766	6320.28		27661.3
APRIL	1	268.0	202.19	1.3255	1421.28	1883.8	
	2	0.0	203.04	0.0000	1411.15	0.0	
	3	0.0	195.29	0.0000	1421.47	0.0	
	4	4.4	327.68	0.0134	1814.28	24.4	
	MONTHLY EST.			0.3347	6068.18		2031.2
MAY	1	25.6	248.43	0.1030	1506.58	155.2	
	2	285.3	327.35	0.8715	1625.78	1416.9	
	3	1667.2	384.61	4.3348	2566.20	11123.9	
	4	2124.0	418.89	5.0706	3693.14	18726.4	
	MONTHLY EST.			2.5950	9391.70		24371.4
JUNE	1	263.8	301.60	0.8747	2316.58	2026.3	
	2	42.8	344.81	0.1241	2505.58	311.0	
	3	743.9	429.45	1.7322	2685.19	4651.3	
	4	584.4	406.36	1.4382	3813.43	5484.3	
	MONTHLY EST.			1.0423	11320.78		11799.5
JULY	1	529.6	420.16	1.2605	2883.96	3635.2	
	2	255.8	414.16	0.6176	2608.78	1611.3	
	3	258.8	425.17	0.6087	2956.87	1799.8	
	4	422.7	844.54	0.5005	4220.14	2112.2	
	MONTHLY EST.			0.7468	12669.74		9462.1
AUGUST	1	183.0	418.85	0.4369	2977.87	1301.1	
	2	439.2	426.64	1.0294	2920.51	3006.5	
	3	443.9	400.02	1.1097	2871.96	3187.0	
	4	514.0	427.36	1.2027	4188.94	5038.2	
	MONTHLY EST.			0.9447	12959.28		12242.6
SEPTEMBER	1	388.1	398.75	0.9733	2894.71	2817.4	
	2	556.8	401.73	1.3860	2925.19	4054.3	
	3	1345.0	423.64	3.1748	2866.70	9101.3	
	4	251.0	387.18	0.6483	3583.22	2322.9	
	MONTHLY EST.			1.5456	12269.83		18964.3
OCTOBER	1	379.5	327.82	1.1577	2315.76	2680.9	
	2	1584.7	323.41	4.9000	2311.75	11327.6	
	3	845.4	363.73	2.3243	1940.26	4509.7	
	4	1891.3	339.58	5.5695	1580.57	8803.0	
	MONTHLY EST.			3.4879	8148.34		28420.3
NOVEMBER	1	949.2	203.04	4.6749	1421.28	6644.4	
	2	317.2	191.76	1.6542	1409.98	2332.3	
	3	730.7	203.22	3.5956	1421.57	5111.4	
	4	179.3	203.04	0.8831	1324.70	1169.8	
	MONTHLY EST.			2.7019	5577.53		15070.2
DECEMBER	1	833.7	287.61	2.8987	1988.26	5763.4	
	2	0.0	263.10	0.0000	1705.61	0.0	
	3	0.0	198.11	0.0000	1421.28	0.0	
	4	0.0	392.69	0.0000	2030.40	0.0	
	MONTHLY EST.			0.7247	7145.54		5178.2

APPENDIX TABLE D-2.3. ESTIMATED WEEKLY BIOMASS OF AMERICAN SHAD, DANSKAMMER POINT GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1		0.00		1421.28		
	2	0.0	203.04	0.0000	1664.18	0.0	
	3	0.0	274.87	0.0000	2042.33	0.0	
	4	0.0	560.10	0.0000	2748.86	0.0	
	MONTHLY EST.			0.0000	7876.66		0.0
FEBRUARY	1	0.0	234.41	0.0000	1749.89	0.0	
	2	0.0	201.35	0.0000	1517.81	0.0	
	3	0.0	201.63	0.0000	1543.20	0.0	
	4	0.0	201.77	0.0000	1421.28	0.0	
	MONTHLY EST.			0.0000	6232.18		0.0
MARCH	1	0.0	203.04	0.0000	1455.26	0.0	
	2	0.0	203.04	0.0000	1421.28	0.0	
	3	0.0	203.04	0.0000	1413.34	0.0	
	4	0.0	202.05	0.0000	2030.40	0.0	
	MONTHLY EST.			0.0000	6320.28		0.0
APRIL	1	0.0	202.19	0.0000	1421.28	0.0	
	2	0.0	203.04	0.0000	1411.15	0.0	
	3	0.0	195.29	0.0000	1421.47	0.0	
	4	0.0	327.68	0.0000	1814.28	0.0	
	MONTHLY EST.			0.0000	6068.18		0.0
MAY	1	0.0	248.43	0.0000	1506.58	0.0	
	2	0.0	327.35	0.0000	1625.78	0.0	
	3	0.0	384.61	0.0000	2566.20	0.0	
	4	634.6	418.89	1.5150	3693.14	5595.0	
	MONTHLY EST.			0.3787	9391.70		3557.0
JUNE	1	0.0	301.60	0.0000	2316.58	0.0	
	2	0.0	344.81	0.0000	2505.58	0.0	
	3	0.0	429.45	0.0000	2685.19	0.0	
	4	0.0	406.36	0.0000	3813.43	0.0	
	MONTHLY EST.			0.0000	11320.78		0.0
JULY	1	0.0	420.16	0.0000	2883.96	0.0	
	2	0.0	414.16	0.0000	2608.78	0.0	
	3	48.2	425.17	0.1134	2956.87	335.2	
	4	48.8	844.54	0.0578	4220.14	243.9	
	MONTHLY EST.			0.0428	12669.74		542.1
AUGUST	1	25.7	418.85	0.0614	2977.87	182.7	
	2	43.8	426.64	0.1027	2920.51	299.8	
	3	28.7	400.02	0.0717	2871.96	206.1	
	4	77.1	427.36	0.1804	4188.94	755.7	
	MONTHLY EST.			0.1040	12959.28		1348.3
SEPTEMBER	1	146.0	398.75	0.3661	2894.71	1059.9	
	2	295.3	401.73	0.7351	2925.19	2150.2	
	3	565.6	423.64	1.3351	2866.70	3827.3	
	4	179.3	387.18	0.4631	3583.22	1659.4	
	MONTHLY EST.			0.7248	12269.83		8893.7
OCTOBER	1	51.3	327.82	0.1565	2315.76	362.4	
	2	1789.5	323.41	5.5333	2311.75	12791.5	
	3	379.3	363.73	1.0428	1940.26	2023.3	
	4	2532.3	339.58	7.4572	1580.57	11786.5	
	MONTHLY EST.			3.5474	8148.34		28905.6
NOVEMBER	1	1010.6	203.04	4.9773	1421.28	7074.2	
	2	483.4	191.76	2.5209	1409.98	3554.4	
	3	294.3	203.22	1.4482	1421.57	2058.7	
	4	130.4	203.04	0.6422	1324.70	850.8	
	MONTHLY EST.			2.3972	5577.53		13370.2
DECEMBER	1	89.1	287.61	0.3098	1988.26	615.9	
	2	0.0	263.10	0.0000	1705.61	0.0	
	3	11.4	198.11	0.0575	1421.28	81.8	
	4	0.0	392.69	0.0000	2030.40	0.0	
	MONTHLY EST.			0.0918	7145.54		656.2

APPENDIX TABLE D-2.4. ESTIMATED WEEKLY BIOMASS OF ATLANTIC TOMCOD, DANSKAMMER POINT GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1		0.00		1421.28		
	2	15.1	203.04	0.0744	1664.18	123.8	
	3	1446.9	274.87	5.2639	2042.33	10750.6	
	4	2490.8	560.10	4.4470	2748.86	12224.3	
	MONTHLY EST.			3.2618	7876.66		25691.9
FEBRUARY	1	145.4	234.41	0.6203	1749.89	1085.4	
	2	94.0	201.35	0.4669	1517.81	708.6	
	3	0.0	201.63	0.0000	1543.20	0.0	
	4	216.0	201.77	1.0705	1421.28	1521.5	
	MONTHLY EST.			0.5394	6232.18		3361.7
MARCH	1	177.9	203.04	0.8762	1455.26	1275.1	
	2	46.2	203.04	0.2275	1421.28	323.4	
	3	438.3	203.04	2.1587	1413.34	3051.0	
	4	124.2	202.05	0.6147	2030.40	1248.1	
	MONTHLY EST.			0.9693	6320.28		6126.1
APRIL	1	0.0	202.19	0.0000	1421.28	0.0	
	2	0.0	203.04	0.0000	1411.15	0.0	
	3	0.0	195.29	0.0000	1421.47	0.0	
	4	0.0	327.68	0.0000	1814.28	0.0	
	MONTHLY EST.			0.0000	6068.18		0.0
MAY	1	2.0	248.43	0.0081	1506.58	12.1	
	2	15.9	327.35	0.0486	1625.78	79.0	
	3	22.0	384.61	0.0572	2566.20	146.8	
	4	120.0	418.89	0.2865	3693.14	1058.0	
	MONTHLY EST.			0.1001	9391.70		939.9
JUNE	1	34.3	301.60	0.1137	2316.58	263.5	
	2	177.1	344.81	0.5136	2505.58	1286.9	
	3	760.4	429.45	1.7706	2685.19	4754.5	
	4	174.1	406.36	0.4284	3813.43	1633.8	
	MONTHLY EST.			0.7066	11320.78		7999.3
JULY	1	318.4	420.16	0.7578	2883.96	2185.5	
	2	246.0	414.16	0.5940	2608.78	1549.5	
	3	12.7	425.17	0.0299	2956.87	88.3	
	4	68.4	844.54	0.0810	4220.14	341.8	
	MONTHLY EST.			0.3657	12669.74		4632.8
AUGUST	1	52.4	418.85	0.1251	2977.87	372.5	
	2	25.6	426.64	0.0600	2920.51	175.2	
	3	6.3	400.02	0.0157	2871.96	45.2	
	4	0.0	427.36	0.0000	4188.94	0.0	
	MONTHLY EST.			0.0502	12959.28		650.7
SEPTEMBER	1	4.2	398.75	0.0105	2894.71	30.5	
	2	49.3	401.73	0.1227	2925.19	359.0	
	3	7.9	423.64	0.0186	2866.70	53.5	
	4	0.0	387.18	0.0000	3583.22	0.0	
	MONTHLY EST.			0.0380	12269.83		465.9
OCTOBER	1	0.0	327.82	0.0000	2315.76	0.0	
	2	0.0	323.41	0.0000	2311.75	0.0	
	3	7.6	363.73	0.0209	1940.26	40.5	
	4	0.0	339.58	0.0000	1580.57	0.0	
	MONTHLY EST.			0.0052	8148.34		42.6
NOVEMBER	1	21.8	203.04	0.1074	1421.28	152.6	
	2	0.0	191.76	0.0000	1409.98	0.0	
	3	44.8	203.22	0.2205	1421.57	313.4	
	4	0.0	203.04	0.0000	1324.70	0.0	
	MONTHLY EST.			0.0820	5577.53		457.1
DECEMBER	1	66.9	287.61	0.2326	1988.26	462.5	
	2	0.0	263.10	0.0000	1705.61	0.0	
	3	0.0	198.11	0.0000	1421.28	0.0	
	4	936.6	392.69	2.3851	2030.40	4842.7	
	MONTHLY EST.			0.6544	7145.54		4676.3

APPENDIX TABLE D-2.5. ESTIMATED WEEKLY BIOMASS OF BAY ANCHOVY, DANSKAMMER POINT GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1		0.00		1421.28		
	2	0.0	203.04	0.0000	1664.18	0.0	
	3	0.0	274.87	0.0000	2042.33	0.0	
	4	0.0	560.10	0.0000	2748.86	0.0	
	MONTHLY EST.			0.0000	7876.66		0.0
FEBRUARY	1	0.0	234.41	0.0000	1749.89	0.0	
	2	0.0	201.35	0.0000	1517.81	0.0	
	3	0.0	201.63	0.0000	1543.20	0.0	
	4	0.0	201.77	0.0000	1421.28	0.0	
	MONTHLY EST.			0.0000	6232.18		0.0
MARCH	1	0.0	203.04	0.0000	1455.26	0.0	
	2	0.0	203.04	0.0000	1421.28	0.0	
	3	0.0	203.04	0.0000	1413.34	0.0	
	4	0.0	202.05	0.0000	2030.40	0.0	
	MONTHLY EST.			0.0000	6320.28		0.0
APRIL	1	0.0	202.19	0.0000	1421.28	0.0	
	2	0.0	203.04	0.0000	1411.15	0.0	
	3	0.0	195.29	0.0000	1421.47	0.0	
	4	0.0	327.68	0.0000	1814.28	0.0	
	MONTHLY EST.			0.0000	6068.18		0.0
MAY	1	0.0	248.43	0.0000	1506.58	0.0	
	2	0.0	327.35	0.0000	1625.78	0.0	
	3	0.0	384.61	0.0000	2566.20	0.0	
	4	13.4	418.89	0.0320	3693.14	118.1	
	MONTHLY EST.			0.0080	9391.70		75.1
JUNE	1	19.3	301.60	0.0640	2316.58	148.2	
	2	4.9	344.81	0.0142	2505.58	35.6	
	3	0.0	429.45	0.0000	2685.19	0.0	
	4	105.6	406.36	0.2599	3813.43	991.0	
	MONTHLY EST.			0.0845	11320.78		956.8
JULY	1	54.5	420.16	0.1297	2883.96	374.1	
	2	3.1	414.16	0.0075	2608.78	19.5	
	3	0.0	425.17	0.0000	2956.87	0.0	
	4	4.2	844.54	0.0050	4220.14	21.0	
	MONTHLY EST.			0.0355	12669.74		450.3
AUGUST	1	0.0	418.85	0.0000	2977.87	0.0	
	2	132.9	426.64	0.3115	2920.51	909.8	
	3	68.5	400.02	0.1712	2871.96	491.8	
	4	7.3	427.36	0.0171	4188.94	71.6	
	MONTHLY EST.			0.1250	12959.28		1619.4
SEPTEMBER	1	114.2	398.75	0.2864	2894.71	829.0	
	2	555.3	401.73	1.3823	2925.19	4043.4	
	3	501.5	423.64	1.1838	2866.70	3393.5	
	4	86.5	387.18	0.2234	3583.22	800.5	
	MONTHLY EST.			0.7690	12269.83		9435.0
OCTOBER	1	18.6	327.82	0.0567	2315.76	131.4	
	2	122.0	323.41	0.3772	2311.75	872.1	
	3	113.7	363.73	0.3126	1940.26	606.5	
	4	27.8	339.58	0.0819	1580.57	129.4	
	MONTHLY EST.			0.2071	8148.34		1687.6
NOVEMBER	1	9.5	203.04	0.0468	1421.28	66.5	
	2	0.3	191.76	0.0016	1409.98	2.2	
	3	0.0	203.22	0.0000	1421.57	0.0	
	4	0.0	203.04	0.0000	1324.70	0.0	
	MONTHLY EST.			0.0121	5577.53		67.4
DECEMBER	1	0.0	287.61	0.0000	1988.26	0.0	
	2	0.0	263.10	0.0000	1705.61	0.0	
	3	0.0	198.11	0.0000	1421.28	0.0	
	4	0.0	392.69	0.0000	2030.40	0.0	
	MONTHLY EST.			0.0000	7145.54		0.0

APPENDIX TABLE D-2.6. ESTIMATED WEEKLY BIOMASS OF BLUEBACK HERRING, DANSKAMMER POINT GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1		0.00		1421.28		
	2	0.0	203.04	0.0000	1664.18	0.0	
	3	0.0	274.87	0.0000	2042.33	0.0	
	4	0.0	560.10	0.0000	2748.86	0.0	
	MONTHLY EST.			0.0000	7876.66		0.0
FEBRUARY	1	0.0	234.41	0.0000	1749.89	0.0	
	2	0.0	201.35	0.0000	1517.81	0.0	
	3	0.0	201.63	0.0000	1543.20	0.0	
	4	0.0	201.77	0.0000	1421.28	0.0	
	MONTHLY EST.			0.0000	6232.18		0.0
MARCH	1	0.0	203.04	0.0000	1455.26	0.0	
	2	0.0	203.04	0.0000	1421.28	0.0	
	3	0.0	203.04	0.0000	1413.34	0.0	
	4	0.0	202.05	0.0000	2030.40	0.0	
	MONTHLY EST.			0.0000	6320.28		0.0
APRIL	1	0.0	202.19	0.0000	1421.28	0.0	
	2	0.0	203.04	0.0000	1411.15	0.0	
	3	0.0	195.29	0.0000	1421.47	0.0	
	4	39.4	327.68	0.1202	1814.28	218.1	
	MONTHLY EST.			0.0301	6068.18		182.4
MAY	1	39.1	248.43	0.1574	1506.58	237.1	
	2	288.0	327.35	0.8798	1625.78	1430.3	
	3	452.9	384.61	1.1776	2566.20	3021.8	
	4	2611.5	418.89	6.2344	3693.14	23024.5	
	MONTHLY EST.			2.1123	9391.70		19837.9
JUNE	1	0.0	301.60	0.0000	2316.58	0.0	
	2	382.7	344.81	1.1099	2505.58	2780.9	
	3	823.3	429.45	1.9171	2685.19	5147.8	
	4	191.0	406.36	0.4700	3813.43	1792.4	
	MONTHLY EST.			0.8743	11320.78		9897.2
JULY	1	0.0	420.16	0.0000	2883.96	0.0	
	2	1.3	414.16	0.0031	2608.78	8.2	
	3	91.9	425.17	0.2161	2956.87	639.1	
	4	43.1	844.54	0.0510	4220.14	215.4	
	MONTHLY EST.			0.0676	12669.74		856.2
AUGUST	1	0.0	418.85	0.0000	2977.87	0.0	
	2	10.6	426.64	0.0248	2920.51	72.6	
	3	367.8	400.02	0.9195	2871.96	2640.6	
	4	30.5	427.36	0.0714	4188.94	299.0	
	MONTHLY EST.			0.2539	12959.28		3290.6
SEPTEMBER	1	21.4	398.75	0.0537	2894.71	155.4	
	2	19.1	401.73	0.0475	2925.19	139.1	
	3	41.3	423.64	0.0975	2866.70	279.5	
	4	4.2	387.18	0.0108	3583.22	38.9	
	MONTHLY EST.			0.0524	12269.83		642.8
OCTOBER	1	10.4	327.82	0.0317	2315.76	73.5	
	2	26.5	323.41	0.0819	2311.75	189.4	
	3	80.1	363.73	0.2202	1940.26	427.3	
	4	768.8	339.58	2.2640	1580.57	3578.4	
	MONTHLY EST.			0.6495	8148.34		5292.1
NOVEMBER	1	804.7	203.04	3.9633	1421.28	5632.9	
	2	131.1	191.76	0.6837	1409.98	964.0	
	3	111.5	203.22	0.5487	1421.57	780.0	
	4	3.6	203.04	0.0177	1324.70	23.5	
	MONTHLY EST.			1.3033	5577.53		7269.4
DECEMBER	1	3.1	287.61	0.0108	1988.26	21.4	
	2	0.0	263.10	0.0000	1705.61	0.0	
	3	0.0	198.11	0.0000	1421.28	0.0	
	4	0.0	392.69	0.0000	2030.40	0.0	
	MONTHLY EST.			0.0027	7145.54		19.3

APPENDIX TABLE D-2.7. ESTIMATED WEEKLY BIOMASS OF GIZZARD SHAD, DANSKAMMER POINT GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1		0.00		1421.28		
	2	11521.0	203.04	56.7425	1664.18	94430.0	
	3	362361.9	274.87	1318.2948	2042.33	2692390.5	
	4	288994.8	560.10	515.9671	2748.86	1418323.4	
	MONTHLY EST.			630.3348	7876.66		4964930.5
FEBRUARY	1	3040.6	234.41	12.9712	1749.89	22698.2	
	2	10114.7	201.35	50.2349	1517.81	76247.0	
	3	0.0	201.63	0.0000	1543.20	0.0	
	4	1966.7	201.77	9.7472	1421.28	13853.5	
	MONTHLY EST.			18.2383	6232.18		113664.5
MARCH	1	2873.2	203.04	14.1509	1455.26	20593.3	
	2	163.2	203.04	0.8038	1421.28	1142.4	
	3	16953.7	203.04	83.4993	1413.34	118012.6	
	4	1204.6	202.05	5.9618	2030.40	12104.8	
	MONTHLY EST.			26.1040	6320.28		164984.3
APRIL	1	910.2	202.19	4.5016	1421.28	6398.1	
	2	1157.4	203.04	5.7004	1411.15	8044.1	
	3	0.0	195.29	0.0000	1421.47	0.0	
	4	1311.6	327.68	4.0026	1814.28	7261.9	
	MONTHLY EST.			3.5512	6068.18		21549.0
MAY	1	0.0	248.43	0.0000	1506.58	0.0	
	2	0.0	327.35	0.0000	1625.78	0.0	
	3	0.0	384.61	0.0000	2566.20	0.0	
	4	0.0	418.89	0.0000	3693.14	0.0	
	MONTHLY EST.			0.0000	9391.70		0.0
JUNE	1	0.0	301.60	0.0000	2316.58	0.0	
	2	0.0	344.81	0.0000	2505.58	0.0	
	3	0.0	429.45	0.0000	2685.19	0.0	
	4	0.0	406.36	0.0000	3813.43	0.0	
	MONTHLY EST.			0.0000	11320.78		0.0
JULY	1	0.0	420.16	0.0000	2883.96	0.0	
	2	0.0	414.16	0.0000	2608.78	0.0	
	3	0.0	425.17	0.0000	2956.87	0.0	
	4	0.0	844.54	0.0000	4220.14	0.0	
	MONTHLY EST.			0.0000	12669.74		0.0
AUGUST	1	0.0	418.85	0.0000	2977.87	0.0	
	2	589.1	426.64	1.3808	2920.51	4032.6	
	3	541.6	400.02	1.3539	2871.96	3888.4	
	4	18.8	427.36	0.0440	4188.94	184.3	
	MONTHLY EST.			0.6947	12959.28		9002.6
SEPTEMBER	1	0.0	398.75	0.0000	2894.71	0.0	
	2	16.5	401.73	0.0411	2925.19	120.1	
	3	0.0	423.64	0.0000	2866.70	0.0	
	4	0.0	387.18	0.0000	3583.22	0.0	
	MONTHLY EST.			0.0103	12269.83		126.0
OCTOBER	1	0.0	327.82	0.0000	2315.76	0.0	
	2	97.4	323.41	0.3012	2311.75	696.2	
	3	44.4	363.73	0.1221	1940.26	236.8	
	4	36.1	339.58	0.1063	1580.57	168.0	
	MONTHLY EST.			0.1324	8148.34		1078.7
NOVEMBER	1	108.7	203.04	0.5354	1421.28	760.9	
	2	91.7	191.76	0.4782	1409.98	674.3	
	3	143.3	203.22	0.7051	1421.57	1002.4	
	4	0.0	203.04	0.0000	1324.70	0.0	
	MONTHLY EST.			0.4297	5577.53		2396.5
DECEMBER	1	141.9	287.61	0.4934	1988.26	981.0	
	2	133.5	263.10	0.5074	1705.61	865.4	
	3	71.8	198.11	0.3624	1421.28	515.1	
	4	265.0	392.69	0.6748	2030.40	1370.2	
	MONTHLY EST.			0.5095	7145.54		3640.8

APPENDIX TABLE D-2.8. ESTIMATED WEEKLY BIOMASS OF GOLDEN SHINER, DANSKAMMER POINT GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1		0.00		1421.28		
	2	380.3	203.04	1.8730	1664.18	3117.1	
	3	4143.2	274.87	15.0732	2042.33	30784.5	
	4	17201.5	560.10	30.7113	2748.86	84421.2	
	MONTHLY EST.			15.8859	7876.66		125127.4
FEBRUARY	1	2548.6	234.41	10.8724	1749.89	19025.4	
	2	791.6	201.35	3.9315	1517.81	5967.3	
	3	288.3	201.63	1.4298	1543.20	2206.5	
	4	75.1	201.77	0.3722	1421.28	529.0	
	MONTHLY EST.			4.1515	6232.18		25872.7
MARCH	1	98.9	203.04	0.4871	1455.26	708.9	
	2	0.0	203.04	0.0000	1421.28	0.0	
	3	530.6	203.04	2.6133	1413.34	3693.4	
	4	92.3	202.05	0.4568	2030.40	927.5	
	MONTHLY EST.			0.8893	6320.28		5620.6
APRIL	1	0.0	202.19	0.0000	1421.28	0.0	
	2	140.2	203.04	0.6905	1411.15	974.4	
	3	148.2	195.29	0.7589	1421.47	1078.7	
	4	115.2	327.68	0.3516	1814.28	637.8	
	MONTHLY EST.			0.4502	6068.18		2732.1
MAY	1	286.1	248.43	1.1516	1506.58	1735.0	
	2	248.5	327.35	0.7591	1625.78	1234.2	
	3	77.5	384.61	0.2015	2566.20	517.1	
	4	0.0	418.89	0.0000	3693.14	0.0	
	MONTHLY EST.			0.5281	9391.70		4959.4
JUNE	1	0.0	301.60	0.0000	2316.58	0.0	
	2	33.7	344.81	0.0977	2505.58	244.9	
	3	0.0	429.45	0.0000	2685.19	0.0	
	4	99.3	406.36	0.2444	3813.43	931.9	
	MONTHLY EST.			0.0855	11320.78		968.2
JULY	1	0.0	420.16	0.0000	2883.96	0.0	
	2	0.0	414.16	0.0000	2608.78	0.0	
	3	0.0	425.17	0.0000	2956.87	0.0	
	4	108.8	844.54	0.1288	4220.14	543.7	
	MONTHLY EST.			0.0322	12669.74		408.1
AUGUST	1	0.0	418.85	0.0000	2977.87	0.0	
	2	0.0	426.64	0.0000	2920.51	0.0	
	3	0.0	400.02	0.0000	2871.96	0.0	
	4	0.0	427.36	0.0000	4188.94	0.0	
	MONTHLY EST.			0.0000	12959.28		0.0
SEPTEMBER	1	0.0	398.75	0.0000	2894.71	0.0	
	2	0.0	401.73	0.0000	2925.19	0.0	
	3	21.0	423.64	0.0496	2866.70	142.1	
	4	0.0	387.18	0.0000	3583.22	0.0	
	MONTHLY EST.			0.0124	12269.83		152.1
OCTOBER	1	0.0	327.82	0.0000	2315.76	0.0	
	2	192.6	323.41	0.5955	2311.75	1376.7	
	3	0.0	363.73	0.0000	1940.26	0.0	
	4	57.5	339.58	0.1693	1580.57	267.6	
	MONTHLY EST.			0.1912	8148.34		1558.1
NOVEMBER	1	60.3	203.04	0.2970	1421.28	422.1	
	2	55.2	191.76	0.2879	1409.98	405.9	
	3	70.9	203.22	0.3489	1421.57	496.0	
	4	0.0	203.04	0.0000	1324.70	0.0	
	MONTHLY EST.			0.2334	5577.53		1302.0
DECEMBER	1	6.4	287.61	0.0223	1988.26	44.2	
	2	42.2	263.10	0.1604	1705.61	273.6	
	3	33.8	198.11	0.1706	1421.28	242.5	
	4	100.0	392.69	0.2547	2030.40	517.1	
	MONTHLY EST.			0.1520	7145.54		1086.0

APPENDIX TABLE D-2.9. ESTIMATED WEEKLY BIOMASS OF PUMPKINSEED, DANSKAMMER POINT GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1		0.00		1421.28		
	2	0.0	203.04	0.0000	1664.18	0.0	
	3	258.9	274.87	0.9419	2042.33	1923.7	
	4	574.9	560.10	1.0264	2748.86	2821.5	
	MONTHLY EST.			0.6561	7876.66		5167.9
FEBRUARY	1	147.1	234.41	0.6275	1749.89	1098.1	
	2	3.5	201.35	0.0174	1517.81	26.4	
	3	0.0	201.63	0.0000	1543.20	0.0	
	4	54.7	201.77	0.2711	1421.28	385.3	
	MONTHLY EST.			0.2290	6232.18		1427.2
MARCH	1	0.0	203.04	0.0000	1455.26	0.0	
	2	0.0	203.04	0.0000	1421.28	0.0	
	3	1.8	203.04	0.0089	1413.34	12.5	
	4	0.0	202.05	0.0000	2030.40	0.0	
	MONTHLY EST.			0.0022	6320.28		14.0
APRIL	1	5.9	202.19	0.0292	1421.28	41.5	
	2	644.0	203.04	3.1718	1411.15	4475.9	
	3	218.3	195.29	1.1179	1421.47	1589.0	
	4	1459.5	327.68	4.4540	1814.28	8080.8	
	MONTHLY EST.			2.1932	6068.18		13308.8
MAY	1	1061.3	248.43	4.2720	1506.58	6436.1	
	2	3379.9	327.35	10.3250	1625.78	16786.2	
	3	880.1	384.61	2.2883	2566.20	5872.2	
	4	1517.1	418.89	3.6217	3693.14	13375.6	
	MONTHLY EST.			5.1268	9391.70		48149.0
JUNE	1	272.7	301.60	0.9042	2316.58	2094.6	
	2	108.1	344.81	0.3135	2505.58	785.5	
	3	766.8	429.45	1.7855	2685.19	4794.5	
	4	308.1	406.36	0.7582	3813.43	2891.4	
	MONTHLY EST.			0.9404	11320.78		10645.6
JULY	1	472.4	420.16	1.1243	2883.96	3242.5	
	2	316.4	414.16	0.7640	2608.78	1993.0	
	3	55.6	425.17	0.1308	2956.87	386.7	
	4	373.5	844.54	0.4423	4220.14	1866.4	
	MONTHLY EST.			0.6153	12669.74		7796.0
AUGUST	1	0.0	418.85	0.0000	2977.87	0.0	
	2	104.5	426.64	0.2449	2920.51	715.3	
	3	204.1	400.02	0.5102	2871.96	1465.3	
	4	21.9	427.36	0.0512	4188.94	214.7	
	MONTHLY EST.			0.2016	12959.28		2612.6
SEPTEMBER	1	40.4	398.75	0.1013	2894.71	293.3	
	2	272.1	401.73	0.6773	2925.19	1981.3	
	3	301.7	423.64	0.7122	2866.70	2041.5	
	4	535.9	387.18	1.3841	3583.22	4959.6	
	MONTHLY EST.			0.7187	12269.83		8818.6
OCTOBER	1	97.1	327.82	0.2962	2315.76	685.9	
	2	1308.4	323.41	4.0457	2311.75	9352.6	
	3	603.4	363.73	1.6589	1940.26	3218.8	
	4	308.4	339.58	0.9082	1580.57	1435.4	
	MONTHLY EST.			1.7272	8148.34		14074.2
NOVEMBER	1	69.7	203.04	0.3433	1421.28	487.9	
	2	67.8	191.76	0.3536	1409.98	498.5	
	3	50.2	203.22	0.2470	1421.57	351.2	
	4	0.0	203.04	0.0000	1324.70	0.0	
	MONTHLY EST.			0.2360	5577.53		1316.1
DECEMBER	1	59.0	287.61	0.2051	1988.26	407.9	
	2	26.0	263.10	0.0988	1705.61	168.6	
	3	40.1	198.11	0.2024	1421.28	287.7	
	4	0.0	392.69	0.0000	2030.40	0.0	
	MONTHLY EST.			0.1266	7145.54		904.6

APPENDIX TABLE D-2.10. ESTIMATED WEEKLY BIOMASS OF RAINBOW SMELT, DANSKAMMER POINT GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1		0.00		1421.28		
	2	0.0	203.04	0.0000	1664.18	0.0	
	3	0.0	274.87	0.0000	2042.33	0.0	
	4	0.0	560.10	0.0000	2748.86	0.0	
	MONTHLY EST.			0.0000	7876.66		0.0
FEBRUARY	1	0.0	234.41	0.0000	1749.89	0.0	
	2	0.0	201.35	0.0000	1517.81	0.0	
	3	0.0	201.63	0.0000	1543.20	0.0	
	4	0.0	201.77	0.0000	1421.28	0.0	
	MONTHLY EST.			0.0000	6232.18		0.0
MARCH	1	0.0	203.04	0.0000	1455.26	0.0	
	2	0.0	203.04	0.0000	1421.28	0.0	
	3	17.4	203.04	0.0857	1413.34	121.1	
	4	0.0	202.05	0.0000	2030.40	0.0	
	MONTHLY EST.			0.0214	6320.28		135.4
APRIL	1	0.0	202.19	0.0000	1421.28	0.0	
	2	0.0	203.04	0.0000	1411.15	0.0	
	3	0.0	195.29	0.0000	1421.47	0.0	
	4	0.0	327.68	0.0000	1814.28	0.0	
	MONTHLY EST.			0.0000	6068.18		0.0
MAY	1	0.0	248.43	0.0000	1506.58	0.0	
	2	0.0	327.35	0.0000	1625.78	0.0	
	3	0.0	384.61	0.0000	2566.20	0.0	
	4	0.0	418.89	0.0000	3693.14	0.0	
	MONTHLY EST.			0.0000	9391.70		0.0
JUNE	1	0.0	301.60	0.0000	2316.58	0.0	
	2	0.0	344.81	0.0000	2505.58	0.0	
	3	0.0	429.45	0.0000	2685.19	0.0	
	4	0.0	406.36	0.0000	3813.43	0.0	
	MONTHLY EST.			0.0000	11320.78		0.0
JULY	1	0.0	420.16	0.0000	2883.96	0.0	
	2	0.0	414.16	0.0000	2608.78	0.0	
	3	0.0	425.17	0.0000	2956.87	0.0	
	4	0.0	844.54	0.0000	4220.14	0.0	
	MONTHLY EST.			0.0000	12669.74		0.0
AUGUST	1	0.0	418.85	0.0000	2977.87	0.0	
	2	0.0	426.64	0.0000	2920.51	0.0	
	3	0.0	400.02	0.0000	2871.96	0.0	
	4	0.0	427.36	0.0000	4188.94	0.0	
	MONTHLY EST.			0.0000	12959.28		0.0
SEPTEMBER	1	0.0	398.75	0.0000	2894.71	0.0	
	2	0.0	401.73	0.0000	2925.19	0.0	
	3	0.0	423.64	0.0000	2866.70	0.0	
	4	0.0	387.18	0.0000	3583.22	0.0	
	MONTHLY EST.			0.0000	12269.83		0.0
OCTOBER	1	0.0	327.82	0.0000	2315.76	0.0	
	2	0.0	323.41	0.0000	2311.75	0.0	
	3	0.0	363.73	0.0000	1940.26	0.0	
	4	0.0	339.58	0.0000	1580.57	0.0	
	MONTHLY EST.			0.0000	8148.34		0.0
NOVEMBER	1	0.0	203.04	0.0000	1421.28	0.0	
	2	0.0	191.76	0.0000	1409.98	0.0	
	3	0.0	203.22	0.0000	1421.57	0.0	
	4	0.0	203.04	0.0000	1324.70	0.0	
	MONTHLY EST.			0.0000	5577.53		0.0
DECEMBER	1	0.0	287.61	0.0000	1988.26	0.0	
	2	0.0	263.10	0.0000	1705.61	0.0	
	3	0.0	198.11	0.0000	1421.28	0.0	
	4	0.0	392.69	0.0000	2030.40	0.0	
	MONTHLY EST.			0.0000	7145.54		0.0

APPENDIX TABLE D-2.11. ESTIMATED WEEKLY BIOMASS OF SPOTTAIL SHINER, DANSKAMMER POINT GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1		0.00		1421.28		
	2	63.6	203.04	0.3132	1664.18	521.3	
	3	670.7	274.87	2.4400	2042.33	4983.4	
	4	1087.2	560.10	1.9411	2748.86	5335.7	
	MONTHLY EST.			1.5648	7876.66		12325.3
FEBRUARY	1	507.4	234.41	2.1646	1749.89	3787.8	
	2	66.5	201.35	0.3303	1517.81	501.3	
	3	42.9	201.63	0.2128	1543.20	328.3	
	4	32.3	201.77	0.1601	1421.28	227.5	
	MONTHLY EST.			0.7169	6232.18		4468.0
MARCH	1	14.2	203.04	0.0699	1455.26	101.8	
	2	29.9	203.04	0.1473	1421.28	209.3	
	3	257.7	203.04	1.2692	1413.34	1793.8	
	4	169.3	202.05	0.8379	2030.40	1701.3	
	MONTHLY EST.			0.5811	6320.28		3672.6
APRIL	1	49.0	202.19	0.2423	1421.28	344.4	
	2	356.4	203.04	1.7553	1411.15	2477.0	
	3	120.1	195.29	0.6150	1421.47	874.2	
	4	226.5	327.68	0.6912	1814.28	1254.1	
	MONTHLY EST.			0.8260	6068.18		5012.1
MAY	1	355.3	248.43	1.4302	1506.58	2154.7	
	2	927.1	327.35	2.8321	1625.78	4604.4	
	3	1083.5	384.61	2.8171	2566.20	7229.3	
	4	1614.4	418.89	3.8540	3693.14	14233.5	
	MONTHLY EST.			2.7334	9391.70		25671.0
JUNE	1	75.5	301.60	0.2503	2316.58	579.9	
	2	161.9	344.81	0.4695	2505.58	1176.4	
	3	846.5	429.45	1.9711	2685.19	5292.8	
	4	408.4	406.36	1.0050	3813.43	3832.6	
	MONTHLY EST.			0.9240	11320.78		10460.4
JULY	1	5.5	420.16	0.0131	2883.96	37.8	
	2	161.9	414.16	0.3909	2608.78	1019.8	
	3	63.0	425.17	0.1482	2956.87	438.1	
	4	398.3	844.54	0.4716	4220.14	1990.3	
	MONTHLY EST.			0.2559	12669.74		3242.8
AUGUST	1	9.5	418.85	0.0227	2977.87	67.5	
	2	145.6	426.64	0.3413	2920.51	996.7	
	3	206.6	400.02	0.5165	2871.96	1483.3	
	4	22.1	427.36	0.0517	4188.94	216.6	
	MONTHLY EST.			0.2330	12959.28		3020.0
SEPTEMBER	1	125.3	398.75	0.3142	2894.71	909.6	
	2	89.3	401.73	0.2223	2925.19	650.2	
	3	34.0	423.64	0.0803	2866.70	230.1	
	4	42.6	387.18	0.1100	3583.22	394.2	
	MONTHLY EST.			0.1817	12269.83		2229.4
OCTOBER	1	13.8	327.82	0.0421	2315.76	97.5	
	2	1348.6	323.41	4.1700	2311.75	9639.9	
	3	32.2	363.73	0.0885	1940.26	171.8	
	4	156.2	339.58	0.4600	1580.57	727.0	
	MONTHLY EST.			1.1901	8148.34		9697.7
NOVEMBER	1	70.7	203.04	0.3482	1421.28	494.9	
	2	344.9	191.76	1.7986	1409.98	2536.0	
	3	155.2	203.22	0.7637	1421.57	1085.7	
	4	31.7	203.04	0.1561	1324.70	206.8	
	MONTHLY EST.			0.7667	5577.53		4276.1
DECEMBER	1	157.7	287.61	0.5483	1988.26	1090.2	
	2	109.2	263.10	0.4151	1705.61	707.9	
	3	112.1	198.11	0.5659	1421.28	804.2	
	4	361.6	392.69	0.9208	2030.40	1869.7	
	MONTHLY EST.			0.6125	7145.54		4376.8

APPENDIX TABLE D-2.12. ESTIMATED WEEKLY BIOMASS OF STRIPED BASS, DANSKAMMER POINT GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1		0.00		1421.28		
	2	10.7	203.04	0.0527	1664.18	87.7	
	3	183.3	274.87	0.6669	2042.33	1361.9	
	4	944.1	560.10	1.6856	2748.86	4633.4	
	MONTHLY EST.			0.8017	7876.66		6314.8
FEBRUARY	1	3.2	234.41	0.0137	1749.89	23.9	
	2	0.0	201.35	0.0000	1517.81	0.0	
	3	0.0	201.63	0.0000	1543.20	0.0	
	4	0.0	201.77	0.0000	1421.28	0.0	
	MONTHLY EST.			0.0034	6232.18		21.3
MARCH	1	0.0	203.04	0.0000	1455.26	0.0	
	2	11.9	203.04	0.0586	1421.28	83.3	
	3	0.0	203.04	0.0000	1413.34	0.0	
	4	62.4	202.05	0.3088	2030.40	627.0	
	MONTHLY EST.			0.0919	6320.28		580.6
APRIL	1	0.0	202.19	0.0000	1421.28	0.0	
	2	17.7	203.04	0.0872	1411.15	123.0	
	3	0.0	195.29	0.0000	1421.47	0.0	
	4	202.1	327.68	0.6168	1814.28	1119.0	
	MONTHLY EST.			0.1760	6068.18		1067.9
MAY	1	109.6	248.43	0.4412	1506.58	664.7	
	2	1391.5	327.35	4.2508	1625.78	6910.8	
	3	140.6	384.61	0.3656	2566.20	938.1	
	4	2728.9	418.89	6.5147	3693.14	24059.6	
	MONTHLY EST.			2.8930	9391.70		27170.6
JUNE	1	46.1	301.60	0.1529	2316.58	354.1	
	2	90.5	344.81	0.2625	2505.58	657.6	
	3	505.6	429.45	1.1773	2685.19	3161.3	
	4	655.7	406.36	1.6136	3813.43	6153.4	
	MONTHLY EST.			0.8016	11320.78		9074.3
JULY	1	262.1	420.16	0.6238	2883.96	1799.0	
	2	601.2	414.16	1.4516	2608.78	3786.9	
	3	346.5	425.17	0.8150	2956.87	2409.8	
	4	646.0	844.54	0.7649	4220.14	3228.0	
	MONTHLY EST.			0.9138	12669.74		11577.9
AUGUST	1	360.9	418.85	0.8616	2977.87	2565.9	
	2	975.8	426.64	2.2872	2920.51	6679.8	
	3	1948.9	400.02	4.8720	2871.96	13992.2	
	4	715.3	427.36	1.6738	4188.94	7011.4	
	MONTHLY EST.			2.4237	12959.28		31408.8
SEPTEMBER	1	654.1	398.75	1.6404	2894.71	4748.4	
	2	3865.2	401.73	9.6214	2925.19	28144.4	
	3	1984.8	423.64	4.6851	2866.70	13430.7	
	4	1264.3	387.18	3.2654	3583.22	11700.6	
	MONTHLY EST.			4.8031	12269.83		58932.7
OCTOBER	1	612.6	327.82	1.8687	2315.76	4327.5	
	2	7739.7	323.41	23.9317	2311.75	55324.1	
	3	3623.5	363.73	9.9621	1940.26	19329.1	
	4	1177.4	339.58	3.4672	1580.57	5480.2	
	MONTHLY EST.			9.8074	8148.34		79914.3
NOVEMBER	1	783.2	203.04	3.8574	1421.28	5482.4	
	2	323.7	191.76	1.6880	1409.98	2380.1	
	3	306.8	203.22	1.5097	1421.57	2146.1	
	4	31.1	203.04	0.1532	1324.70	202.9	
	MONTHLY EST.			1.8021	5577.53		10051.1
DECEMBER	1	584.9	287.61	2.0336	1988.26	4043.4	
	2	212.1	263.10	0.8062	1705.61	1375.0	
	3	236.3	198.11	1.1928	1421.28	1695.3	
	4	258.3	392.69	0.6578	2030.40	1335.6	
	MONTHLY EST.			1.1726	7145.54		8378.8

APPENDIX TABLE D-2.13. ESTIMATED WEEKLY BIOMASS OF WHITE CATFISH, DANSKAMMER POINT GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1		0.00		1421.28		
	2	42.5	203.04	0.2093	1664.18	348.3	
	3	0.0	274.87	0.0000	2042.33	0.0	
	4	236.0	560.10	0.4214	2748.86	1158.2	
	MONTHLY EST.			0.2102	7876.66		1655.9
FEBRUARY	1	3.3	234.41	0.0141	1749.89	24.6	
	2	0.0	201.35	0.0000	1517.81	0.0	
	3	0.0	201.63	0.0000	1543.20	0.0	
	4	19.3	201.77	0.0957	1421.28	135.9	
	MONTHLY EST.			0.0274	6232.18		171.0
MARCH	1	501.8	203.04	2.4714	1455.26	3596.6	
	2	0.0	203.04	0.0000	1421.28	0.0	
	3	0.0	203.04	0.0000	1413.34	0.0	
	4	0.0	202.05	0.0000	2030.40	0.0	
	MONTHLY EST.			0.6179	6320.28		3905.0
APRIL	1	1.4	202.19	0.0069	1421.28	9.8	
	2	203.5	203.04	1.0023	1411.15	1414.3	
	3	888.9	195.29	4.5518	1421.47	6470.3	
	4	445.6	327.68	1.3598	1814.28	2467.1	
	MONTHLY EST.			1.7302	6068.18		10499.2
MAY	1	0.0	248.43	0.0000	1506.58	0.0	
	2	1068.3	327.35	3.2635	1625.78	5305.7	
	3	0.0	384.61	0.0000	2566.20	0.0	
	4	1795.4	418.89	4.2861	3693.14	15829.3	
	MONTHLY EST.			1.8874	9391.70		17725.9
JUNE	1	98.5	301.60	0.3266	2316.58	756.6	
	2	54.3	344.81	0.1575	2505.58	394.6	
	3	989.5	429.45	2.3041	2685.19	6186.9	
	4	2347.0	406.36	5.7757	3813.43	22025.4	
	MONTHLY EST.			2.1410	11320.78		24237.5
JULY	1	1832.4	420.16	4.3612	2883.96	12577.5	
	2	2217.6	414.16	5.3544	2608.78	13968.5	
	3	125.1	425.17	0.2942	2956.87	870.0	
	4	4414.7	844.54	5.2273	4220.14	22060.0	
	MONTHLY EST.			3.8093	12669.74		48262.8
AUGUST	1	884.8	418.85	2.1124	2977.87	6290.6	
	2	2877.7	426.64	6.7451	2920.51	19699.1	
	3	1375.9	400.02	3.4396	2871.96	9878.3	
	4	555.5	427.36	1.2999	4188.94	5445.0	
	MONTHLY EST.			3.3992	12959.28		44051.6
SEPTEMBER	1	353.6	398.75	0.8868	2894.71	2566.9	
	2	756.2	401.73	1.8824	2925.19	5506.3	
	3	1686.4	423.64	3.9807	2866.70	11411.5	
	4	301.5	387.18	0.7787	3583.22	2790.3	
	MONTHLY EST.			1.8821	12269.83		23093.5
OCTOBER	1	589.1	327.82	1.7970	2315.76	4161.5	
	2	2317.3	323.41	7.1653	2311.75	16564.3	
	3	902.4	363.73	2.4810	1940.26	4813.7	
	4	2261.4	339.58	6.6594	1580.57	10525.6	
	MONTHLY EST.			4.5257	8148.34		36876.7
NOVEMBER	1	5621.6	203.04	27.6872	1421.28	39351.2	
	2	3877.8	191.76	20.2222	1409.98	28512.7	
	3	5568.2	203.22	27.3999	1421.57	38950.8	
	4	651.6	203.04	3.2092	1324.70	4251.3	
	MONTHLY EST.			19.6296	5577.53		109484.6
DECEMBER	1	848.4	287.61	2.9498	1988.26	5865.0	
	2	50.8	263.10	0.1931	1705.61	329.3	
	3	48.6	198.11	0.2453	1421.28	348.7	
	4	27.5	392.69	0.0700	2030.40	142.2	
	MONTHLY EST.			0.8646	7145.54		6177.8

APPENDIX TABLE D-2.14. ESTIMATED WEEKLY BIOMASS OF WHITE PERCH, DANSKAMMER POINT GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1		0.00		1421.28		
	2	321.2	203.04	1.5820	1664.18	2632.7	
	3	8874.3	274.87	32.2852	2042.33	65937.1	
	4	3324.1	560.10	5.9348	2748.86	16314.0	
	MONTHLY EST.			13.2673	7876.66		104502.2
FEBRUARY	1	361.5	234.41	1.5422	1749.89	2698.6	
	2	196.4	201.35	0.9754	1517.81	1480.5	
	3	0.0	201.63	0.0000	1543.20	0.0	
	4	183.4	201.77	0.9090	1421.28	1291.9	
	MONTHLY EST.			0.8566	6232.18		5338.7
MARCH	1	721.0	203.04	3.5510	1455.26	5167.7	
	2	361.5	203.04	1.7804	1421.28	2530.5	
	3	3354.1	203.04	16.5194	1413.34	23347.5	
	4	1056.2	202.05	5.2273	2030.40	10613.6	
	MONTHLY EST.			6.7696	6320.28		42785.5
APRIL	1	854.2	202.19	4.2247	1421.28	6004.4	
	2	4480.8	203.04	22.0686	1411.15	31142.1	
	3	762.2	195.29	3.9030	1421.47	5548.0	
	4	1267.8	327.68	3.8690	1814.28	7019.4	
	MONTHLY EST.			8.5163	6068.18		51678.5
MAY	1	1964.4	248.43	7.9073	1506.58	11912.9	
	2	5883.6	327.35	17.9733	1625.78	29220.7	
	3	17073.4	384.61	44.3915	2566.20	113917.4	
	4	60629.7	418.89	144.7403	3693.14	534546.7	
	MONTHLY EST.			53.7531	9391.70		504833.0
JUNE	1	21237.0	301.60	70.4154	2316.58	163122.6	
	2	14254.4	344.81	41.3395	2505.58	103579.4	
	3	22012.9	429.45	51.2581	2685.19	137637.9	
	4	13900.9	406.36	34.2087	3813.43	130452.7	
	MONTHLY EST.			49.3054	11320.78		558175.9
JULY	1	7079.3	420.16	16.8491	2883.96	48592.1	
	2	5001.3	414.16	12.0757	2608.78	31502.8	
	3	4863.8	425.17	11.4397	2956.87	33825.6	
	4	5626.8	844.54	6.6625	4220.14	28116.8	
	MONTHLY EST.			11.7568	12669.74		148955.0
AUGUST	1	1384.6	418.85	3.3057	2977.87	9844.0	
	2	4288.3	426.64	10.0514	2920.51	29355.3	
	3	3389.9	400.02	8.4743	2871.96	24337.9	
	4	1637.0	427.36	3.8305	4188.94	16045.8	
	MONTHLY EST.			6.4155	12959.28		83140.1
SEPTEMBER	1	1562.6	398.75	3.9187	2894.71	11343.6	
	2	5899.1	401.73	14.6842	2925.19	42954.2	
	3	5883.9	423.64	13.8888	2866.70	39815.0	
	4	1264.4	387.18	3.2656	3583.22	11701.5	
	MONTHLY EST.			8.9394	12269.83		109684.3
OCTOBER	1	403.1	327.82	1.2297	2315.76	2847.6	
	2	8196.4	323.41	25.3438	2311.75	58588.7	
	3	7206.8	363.73	19.8137	1940.26	38443.7	
	4	3278.4	339.58	9.6543	1580.57	15259.2	
	MONTHLY EST.			14.0104	8148.34		114161.2
NOVEMBER	1	4311.9	203.04	21.2367	1421.28	30183.3	
	2	3300.6	191.76	17.2121	1409.98	24268.7	
	3	3578.7	203.22	17.6100	1421.57	25033.8	
	4	93.0	203.04	0.4580	1324.70	606.8	
	MONTHLY EST.			14.1292	5577.53		78806.1
DECEMBER	1	4961.3	287.61	17.2500	1988.26	34297.4	
	2	1122.6	263.10	4.2668	1705.61	7277.5	
	3	2922.8	198.11	14.7538	1421.28	20969.3	
	4	1229.7	392.69	3.1315	2030.40	6358.2	
	MONTHLY EST.			9.8505	7145.54		70387.4

APPENDIX TABLE D-2.15. ESTIMATED WEEKLY BIOMASS OF BLUE CRAB, DANSKAMMER POINT GENERATING STATION, 1998.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1		0.00		1421.28		
	2	0.0	203.04	0.0000	1664.18	0.0	
	3	4.4	274.87	0.0160	2042.33	32.7	
	4	32.4	560.10	0.0578	2748.86	159.0	
	MONTHLY EST.			0.0246	7876.66		193.9
FEBRUARY	1	0.0	234.41	0.0000	1749.89	0.0	
	2	0.0	201.35	0.0000	1517.81	0.0	
	3	0.0	201.63	0.0000	1543.20	0.0	
	4	0.0	201.77	0.0000	1421.28	0.0	
	MONTHLY EST.			0.0000	6232.18		0.0
MARCH	1	0.0	203.04	0.0000	1455.26	0.0	
	2	0.0	203.04	0.0000	1421.28	0.0	
	3	0.0	203.04	0.0000	1413.34	0.0	
	4	0.0	202.05	0.0000	2030.40	0.0	
	MONTHLY EST.			0.0000	6320.28		0.0
APRIL	1	0.0	202.19	0.0000	1421.28	0.0	
	2	1.2	203.04	0.0059	1411.15	8.3	
	3	0.0	195.29	0.0000	1421.47	0.0	
	4	11.3	327.68	0.0345	1814.28	62.6	
	MONTHLY EST.			0.0101	6068.18		61.3
MAY	1	22.2	248.43	0.0894	1506.58	134.6	
	2	190.2	327.35	0.5810	1625.78	944.6	
	3	3710.4	384.61	9.6472	2566.20	24756.6	
	4	2199.5	418.89	5.2508	3693.14	19392.1	
	MONTHLY EST.			3.8921	9391.70		36553.4
JUNE	1	1327.2	301.60	4.4006	2316.58	10194.3	
	2	2307.4	344.81	6.6917	2505.58	16766.7	
	3	12070.1	429.45	28.1058	2685.19	75469.5	
	4	10964.6	406.36	26.9828	3813.43	102897.1	
	MONTHLY EST.			16.5452	11320.78		187304.9
JULY	1	5981.7	420.16	14.2368	2883.96	41058.2	
	2	8776.0	414.16	21.1898	2608.78	55279.4	
	3	8424.1	425.17	19.8135	2956.87	58586.0	
	4	17288.5	844.54	20.4708	4220.14	86389.6	
	MONTHLY EST.			18.9277	12669.74		239809.2
AUGUST	1	12837.3	418.85	30.6488	2977.87	91268.1	
	2	24828.8	426.64	58.1966	2920.51	169963.8	
	3	27675.8	400.02	69.1858	2871.96	198699.0	
	4	33073.7	427.36	77.3914	4188.94	324187.8	
	MONTHLY EST.			58.8557	12959.28		762726.9
SEPTEMBER	1	36877.1	398.75	92.4814	2894.71	267706.9	
	2	36437.5	401.73	90.7015	2925.19	265319.2	
	3	36110.7	423.64	85.2383	2866.70	244353.0	
	4	26975.0	387.18	69.6701	3583.22	249643.5	
	MONTHLY EST.			84.5228	12269.83		1037080.6
OCTOBER	1	26337.0	327.82	80.3408	2315.76	186050.0	
	2	10034.7	323.41	31.0280	2311.75	71729.0	
	3	8133.8	363.73	22.3623	1940.26	43388.6	
	4	6743.9	339.58	19.8595	1580.57	31389.3	
	MONTHLY EST.			38.3977	8148.34		312877.0
NOVEMBER	1	2762.1	203.04	13.6037	1421.28	19334.7	
	2	1209.8	191.76	6.3089	1409.98	8895.4	
	3	554.6	203.22	2.7291	1421.57	3879.5	
	4	390.9	203.04	1.9252	1324.70	2550.4	
	MONTHLY EST.			6.1417	5577.53		34255.7
DECEMBER	1	391.9	287.61	1.3626	1988.26	2709.2	
	2	80.3	263.10	0.3052	1705.61	520.6	
	3	25.4	198.11	0.1282	1421.28	182.2	
	4	1.5	392.69	0.0038	2030.40	7.8	
	MONTHLY EST.			0.4500	7145.54		3215.2

APPENDIX E

IMPINGEMENT COLLECTION EFFICIENCY PROGRAM RESULTS

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E-1. Roseton collection efficiency results, 1998.

E-2. Danskammer Point Units 1 and 2 collection efficiency results, 1998.

E-3. Danskammer Point Units 3 and 4 collection efficiency results, 1998.

APPENDIX E

IMPINGEMENT COLLECTION EFFICIENCY PROGRAM RESULTS

Impingement collection efficiency tests were conducted monthly at Roseton and Danskammer Point during 1998. Normally fifty inconspicuously marked fish (caudal fin clip) of varying sizes were introduced to the screenwash sluiceway before or during a scheduled screen cycle. Collection efficiency was determined separately by size group (< 13 cm, 13-25 cm, or > 25 cm). Following collection, as part of a normal 6-hr impingement sample, organisms were analyzed without the analysis team being notified. The sample was reexamined for marked fish as a check on analytical techniques, and collection efficiency was calculated according to the following formula:

$$\text{Collection Efficiency} = \frac{\text{Number Recovered}}{\text{Number Released}} \times 100\%$$

All marked fish recovered were identified during the initial analysis phase.

ROSETON GENERATING STATION

The overall 1998 collection efficiency calculated for Roseton was 97%, with values ranging from a low of 91% (on 3 December) to 100% (during four different dates) for all size groups of fish combined (Table E-1). The overall collection efficiency in 1998 was 95% for fish less than 13 cm total length (465 released and 442 recovered) and 100% (205 released, 205 recovered) for fish 13-25 cm. None of the fish tested in 1998 fell into the greater than 25 cm size group.

DANSKAMMER POINT GENERATING STATION

Collection efficiency sampling at Units 1 and 2 was only conducted in six months because the units were not operating during the collection efficiency test dates in other months. At Danskammer Point Units 1 and 2 the overall 1998 collection efficiency was 96%, with monthly values ranging from 92% (September) to 100% (February and July, Table E-2). Collection efficiency was 95% (236 released, 218 recovered) for fish under 13 cm in total length and 100% for fish 13-25 cm (90 released, 90 recovered). There were no test fish larger than 25 cm released at Danskammer Point Units 1 and 2 in 1998.

At Danskammer Point Units 3 and 4 the overall 1998 collection efficiency was 95%, with monthly values ranging from 90% on 14 May to 100% on 2 April (Table E-3). Collection efficiency was 94% (465 released, 435 recovered) for fish under 13 cm in total length and 98% (205 released, 200 recovered) for fish 13-25 cm in total length. There were no fish larger than 25 cm in total length released at Danskammer Point Units 3 and 4 in 1998.

APPENDIX TABLE E-1. ROSETON COLLECTION EFFICIENCY RESULTS, 1998.

	REL. LOCATION		SMALL (<13 cm)			MEDIUM (13-25 cm)			LARGE (>25 cm)			TOTAL ALL SIZES		
DATE	UNITS	SCREENS	NO. REL.	NO. REC.	COLL. EFF. (%)	NO. REL.	NO. REC.	COLL. EFF. (%)	NO. REL.	NO. REC.	COLL. EFF. (%)	NO. REL.	NO. REC.	COLL. EFF. (%)
8 Jan	1 & 2	1A/1B	30	26	87	20	20	100				50	46	92
5 Feb	1 & 2	1C/1D	35	33	94	15	15	100				50	48	96
5 Mar	1 & 2		25	25	100	25	25	100				50	50	100
2 Apr	1 & 2		25	24	96	25	25	100				50	49	98
14 May	1 & 2	1D/2A	30	29	97	20	20	100				50	49	98
4 Jun	1 & 2	1C/1D	45	42	93	5	5	100				50	47	94
1 Jul	1 & 2	1A/1B	30	30	100	20	20	100				50	50	100
6 Aug	1 & 2	1C/1D	25	23	92	25	25	100				50	48	96
17 Sep	1 & 2	1B/1C	25	21	84	25	25	100				50	46	92
2 Oct	1 & 2	1C/1D	25	25	100	25	25	100				50	50	100
5 Nov	1 & 2	1A/1B	100	100	100							100	100	100
3 Dec	1 & 2	1A/1B	70	64	91							70	64	91
TOTAL	1 & 2		465	442	95	205	205	100				670	647	97

APPENDIX TABLE E-2. DANSKAMMER POINT UNITS 1 AND 2 COLLECTION EFFICIENCY RESULTS, 1998.

	REL. LOCATION		SMALL (<13 cm)			MEDIUM (13-25 cm)			LARGE (>25 cm)			TOTAL ALL SIZES		
DATE	UNITS	SCREENS	NO. REL.	NO. REC.	COLL. EFF. (%)	NO. REL.	NO. REC.	COLL. EFF. (%)	NO. REL.	NO. REC.	COLL. EFF. (%)	NO. REL.	NO. REC.	COLL. EFF. (%)
5 Feb	1 & 2	1A/2C	35	35	100	15	15	100				50	50	100
4 Jun	1 & 2	1A/2C	45	44	98	5	5	100				50	49	98
1 Jul	1 & 2	1A/1B	30	30	100	20	20	100				50	50	100
6 Aug	1 & 2	1A/2C	25	22	88	25	25	100				50	47	94
17 Sep	1 & 2	1A/1B	25	21	84	25	25	100				50	46	92
3 Dec	1 & 2	1A/1B	70	66	94							70	66	94
TOTAL	1 & 2		230	218	95	90	90	100				320	308	96

APPENDIX TABLE E-3. DANSKAMMER POINT UNITS 3 AND 4 COLLECTION EFFICIENCY RESULTS, 1998.

	REL. LOCATION		SMALL (<13 cm)			MEDIUM (13-25 cm)			LARGE (>25 cm)			TOTAL ALL SIZES		
DATE	UNITS	SCREENS	NO. REL.	NO. REC.	COLL. EFF. (%)	NO. REL.	NO. REC.	COLL. EFF. (%)	NO. REL.	NO. REC.	COLL. EFF. (%)	NO. REL.	NO. REC.	COLL. EFF. (%)
8 Jan	3 & 4	4A/4B	30	28	93	20	20	100				50	48	96
5 Feb	3 & 4	3C/4C	35	34	97	15	15	100				50	49	98
5 Mar	3 & 4		25	23	92	25	25	100				50	48	96
2 Apr	3 & 4		25	25	100	25	25	100				50	50	100
14 May	3 & 4	3C/4C	30	28	93	20	17	85				50	45	90
4 Jun	3 & 4	3C/4C	45	43	96	5	5	100				50	48	96
1 Jul	3 & 4	4A/4B	30	28	93	20	18	90				50	46	92
6 Aug	3 & 4	3C/4C	25	23	92	25	25	100				50	48	96
17 Sep	3 & 4	4A/4B	25	21	84	25	25	100				50	46	92
2 Oct	3 & 4	4B	25	21	84	25	25	100				50	46	92
5 Nov	3 & 4	4A/4B	100	94	94							100	94	94
3 Dec	3 & 4	4A/4B	70	67	96							70	67	96
TOTAL	3 & 4		465	435	94	205	200	98				670	635	95

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ROSETON AND DANSKAMMER POINT GENERATING STATIONS IMPINGEMENT MONITORING PROGRAM 1995 ANNUAL PROGRESS REPORT

NORMANDEAU ASSOCIATES
ENVIRONMENTAL CONSULTANTS

ROSETON AND DANSKAMMER POINT GENERATING STATIONS IMPINGEMENT MONITORING PROGRAM 1995 ANNUAL PROGRESS REPORT

Prepared for

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R-15291.000

April 1997

ROSETON AND DANSKAMMER POINT GENERATING STATIONS
IMPINGEMENT MONITORING PROGRAM
1995 ANNUAL PROGRESS REPORT

Permit (Facility) Numbers:

NY 000 6262 (Danskammer Point)

NY 000 8231 (Roseton)

This annual report is submitted as partial fulfillment of SPDES permit conditions as stipulated within the section entitled Additional Requirements: Number 9 (Biological Monitoring and Reporting) of the Danskammer Point permit; and Number 7 (Biological Monitoring and Reporting) which is embodied in a Memorandum of Agreement (MOA) for Roseton Generating Station.

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1.0 EXECUTIVE SUMMARY

1.0 EXECUTIVE SUMMARY

The 1995 impingement abundance monitoring program conducted at Central Hudson Gas & Electric Corporation's Roseton and Danskammer Point Generating Stations represents a continuation of year-round intake monitoring programs begun in January of 1972 at Danskammer Point and in July of 1973 at Roseton. Weekly sampling consisting of four successive 6-hour diel periods was conducted to quantify the numbers, types, and biomass of Hudson River fish and major invertebrates impinged on the cooling water intake screening system of each station. Based on observed impingement rates on sampling days and the total plant flow for the entire year, the total impingement for the year was estimated. This report provides the results of studies conducted during 1995 and compares those results with seasonal and annual patterns of impingement and related water quality conditions in previous years.

Temperature and dissolved oxygen in 1995 exhibited the typical seasonal patterns seen in previous years, with temperature highest from late July to early September in the 26-28°C range, and dissolved oxygen at its lowest levels during that same period (about 6-8 mg/l). Specific conductance was below 300 µmhos/cm for most of the year, except for a brief period from late August through early October when values were approximately 2000-3000 µmho/cm. Freshwater flow entering the Hudson River estuary at Troy, New York, was much lower than usual for an extended period in 1995 (April - September). Turbidity and total suspended solids concentrations did not exhibit the distinct seasonality observed in past years (i.e., highest in the spring), and this was likely a result of the lower than normal freshwater flow in the spring of 1995. Total organic carbon and pH were at normal levels in 1995. Metals were monitored in the nearfield area in a continuation of expanded water quality analysis begun in 1989. Most values for nine of the 14 metals were at or below detection limits in 1995, and the data for the other five were similar to previous years' data.

On the 52 sampling dates in 1995, 35,602 fish representing 45 species in 22 families were collected at Roseton. At Danskammer Point the collections totaled 45,396 fish in 44 species and 21 families. At Roseton in 1995, the estimated annual total impingement of 241,724 fish and the annual rate of impingement of 1.3899 fish per million gallons (MG) were both higher than the long-term average. The estimated annual total impingement at Danskammer Point of 304,842 fish in 1995 and the annual impingement rate of 3.1546 fish/MG were both

average for the 1974-1995 period. Blue crab impingement, which has been monitored during 1986-1995, was higher than all but two of the previous nine years. Bay anchovy was the numerically dominant fish species impinged during 1995 at Roseton, contributing 27.4% of the estimated annual total impingement. White perch was second, accounting for 16.3% of the estimated total at Roseton, followed by blueback herring (14.4%). White perch was numerically dominant at Danskammer Point in 1995 (38.1% of the estimated annual total impingement), with gizzard shad second (13.5%), and striped bass third (7.6%). Biomass at both Roseton and Danskammer Point in 1995 was dominated by gizzard shad, primarily due to their abundance in December, when large adult gizzard shad were abundant in the impingement samples. Overall, the 1995 impingement monitoring program at the two generating stations showed abundances, seasonal and diel impingement patterns, and species composition similar to those of the previous 21 years, with only minor shifts in fish dominance.

2.0 INTRODUCTION

2.0 INTRODUCTION

2.1 PROGRAM BACKGROUND, DESCRIPTION AND OBJECTIVES

Central Hudson Gas & Electric Corporation operates two fossil-fueled electric generating plants in Newburgh, New York: Roseton Generating Station at river kilometer 106, and Danskammer Point Generating Station at river kilometer 107 upstream from Battery Park in New York City (river kilometer 0). These two power stations, sited on the estuarine portion of the Hudson River, use once-through cooling. The numbers of fish impinged on the intake screens have been monitored continually since January 1972 at Danskammer Point and since July 1973 at Roseton. This report presents the results of the January-December 1995 impingement sampling conducted by Normandeau Associates Inc.. The sampling design, gear, and methods were consistent with those of previous years. Earlier years' impingement programs were presented in a series of annual reports (LMS 1978a, 1978b, 1979a, 1979b, 1980a, 1980b, 1981, 1982, 1983, 1984, 1987, 1988, 1989, 1993, 1994; EA 1985, 1986; NAI 1990, 1992, 1996a, 1996b).

Impingement sampling in 1995 consisted of weekly 24-hour collections (Thursday morning to Friday morning) from the traveling screen washwater sluiceway discharges at each plant. Water quality data were collected weekly at the two plant intakes and, during open-water periods, at a midchannel river reference station. Key study objectives of the 1995 impingement program included the following:

- Estimate (collectively, by species, and by age/length categories) the total number and biomass of fish impinged weekly, monthly, and annually.
- Monitor and record the diel distribution of selected impinged taxa/life stages.
- Monitor and record pertinent biological data relative to the impingement of invertebrates.
- Provide specific water quality data from predetermined intake and river reference sites.
- Monitor and record specific plant operational data (cooling water pumps/traveling screens in operation during all impingement collections, etc.).

2.2 REPORT FORMAT

Section 3 describes the two plants and general characteristics of the Hudson River in the vicinity of the study site. Section 4 summarizes the field, laboratory, and analytical procedures used. Section 5 presents the water quality results for both in-plant and river reference station data, and also characterizes the patterns of freshwater flow into the estuary. Section 6 provides the biological data from the 1995 program and discusses these results with respect to previous years' data. Section 7 presents a review of the literature cited. Detailed data tables are provided in five appendices:

A - Annual Impingement Abundance by Species
B - Length-Frequency Information for Major Taxa
C - Estimated Impingement Abundance
D - Estimated Impingement Biomass
E - Impingement Collection Efficiency Program Results

3.0 STUDY SITE DESCRIPTION

3.0 STUDY SITE DESCRIPTION

3.1 LOWER HUDSON RIVER ESTUARY - PLANT VICINITY

The lower Hudson River estuary is approximately 247 km (154 miles) long. With its mouth at the southern tip of Manhattan (the Battery), the estuary extends in a northerly direction to the Federal Dam at Troy, New York. The Federal Dam, constructed in 1832 as part of the New York State canal system, forms the boundary between the tidal estuarine lower Hudson River and the riverine upper Hudson River. The lower Hudson River is defined as a drowned river valley or "coastal plain estuary" (Pritchard 1967), with saltwater intrusion generally restricted to the more southerly portion, although it is occasionally reported as far north as Poughkeepsie at km 122 (mile 76) upriver from the Battery in New York City. During extreme drought years the salt front has been reported as far north as Kingston at km 170 (mile 106) (Buckley 1971). Mean freshwater flow measured at the Federal Dam has averaged approximately 387 m^3/sec (13,660 cfs) over a 50-year period.

The northern Newburgh Bay area of the Hudson River, in which Roseton Generating Station and Danskammer Point Generating Station are found, is bounded on the south by the Newburgh-Beacon Bridge (km 100.4) and on the north by New Hamburg (km 109.5). Newburgh Bay south of the bridge is wide with extensive shoals, especially along the eastern shore. The city of Newburgh dominates the western shore of the bay. North of Newburgh Bay the Hudson River flows through a comparatively deep, narrow channel extending upstream past the Mid-Hudson Bridge at Poughkeepsie (km 121) to Esopus Meadows (km 140). The northern Newburgh Bay region of the Hudson River is widest (about 1.5 km) just south of Roseton Generating Station and narrows slightly in the area of the Newburgh-Beacon Bridge. Wappinger Creek is the only major tributary in northern Newburgh Bay, entering on the eastern side of the Hudson River just south of New Hamburg; the area near the confluence is a wide, shallow shelf. Central Hudson Gas & Electric Corporation operates two fossil-fueled steam electric generating stations with once-through cooling on the west shore of northern Newburgh Bay: the Roseton plant at km 106 and the Danskammer Point plant at km 107. Plant locations are illustrated in Figure 3-1. Hydrodynamic and physiographic characteristics of northern Newburgh Bay are presented in Table 3-1.

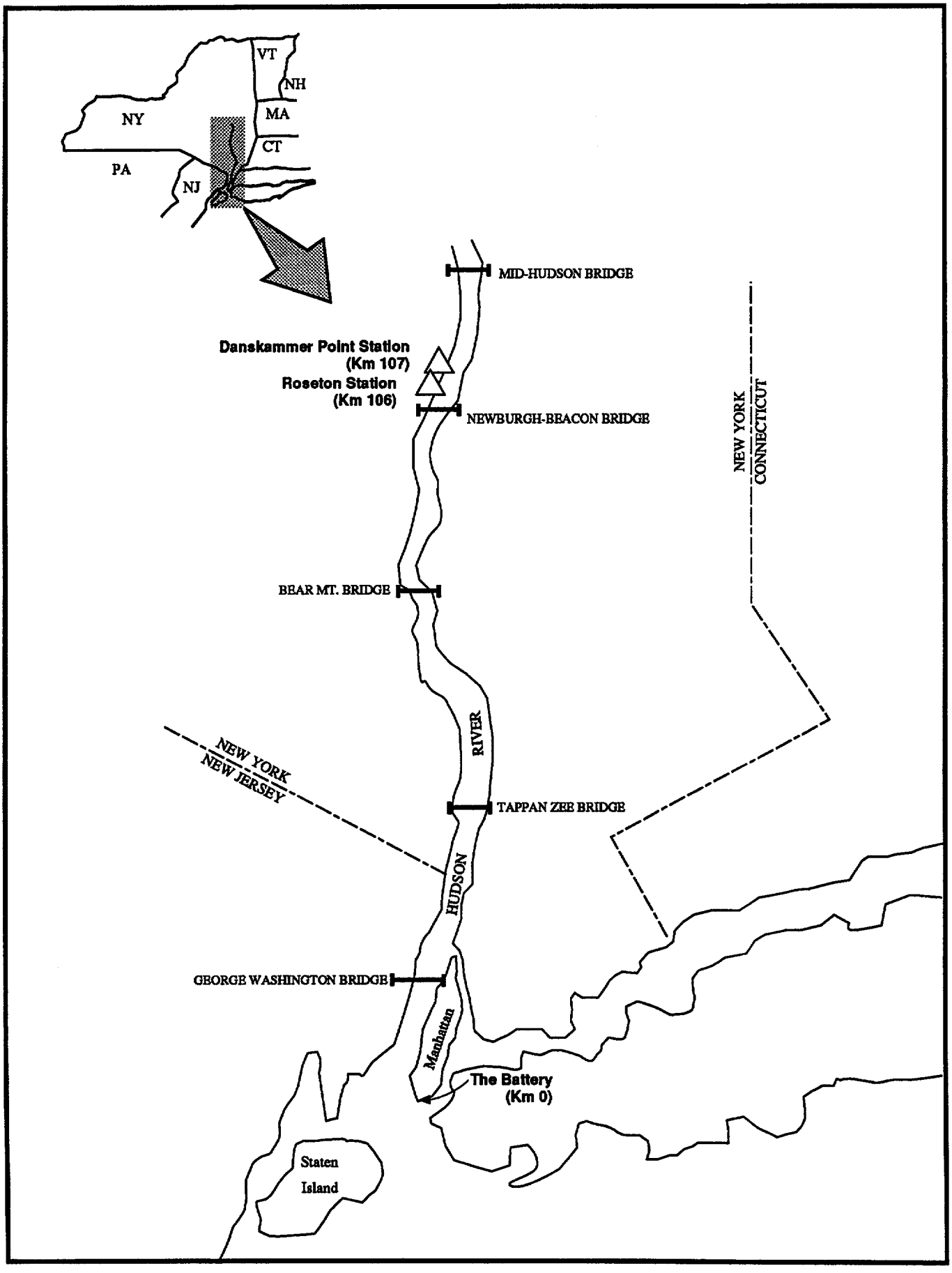


Figure 3-1. Location of the Roseton and Danskammer Point generating stations.

TABLE 3-1. HYDRODYNAMIC AND PHYSIOGRAPHIC CHARACTERISTICS OF NORTHERN NEWBURGH BAY IN THE VICINITY OF ROSETON AND DANSKAMMER POINT GENERATING STATIONS.

PARAMETER	VALUE
Average maximum ebb current velocity	56.64 cm/sec
Average maximum flood current velocity	51.49 cm/sec
Mean high water	0.98 m above mean sea level
Mean low water	0.06 m above mean sea level
Mean tidal level	0.46 m above mean sea level
Mean tidal range	0.88 m
Spring tidal range	1.01 m
Maximum depth	25.0 m
Mean depth	14.8 m
Maximum width	1555 m
Mean width	1335 m
River width at Danskammer Point discharge	1045 m
River width at Roseton discharge	1198 m

(Source: LMS 1989)

3.2 ROSETON GENERATING STATION

Roseton Generating Station is located on the west bank of the Hudson River approximately 106 km north of the New York Battery and 6 km north of the Newburgh-Beacon Bridge. Roseton Station is a fossil-fueled steam electric generating station whose two independent units have a total maximum net generating capacity of 1,200 MWe. Steam is cooled by means of a once-through cooling system that withdraws water from the Hudson River at a shoreline intake structure. The intake consists of four cooling water pumps with a combined rated capacity of 2,426.2 m^3/min, eight vertical traveling screens equipped with 0.95-cm square mesh (six screens) or 0.32-cm x 1.27-cm rectangular mesh (two screens), and 10 vertical trash rack arrays with 7.6-cm spacing between the bars (center to center). Heated effluent is discharged to the river through a single submerged discharge pipe with a multiport diffuser.

Units 1 and 2 of Roseton Generating Station were placed in commercial service on 31 December and 14 September 1974, respectively. Table 3-2 presents plant-specific information related to flow and pump operation.

3.3 DANSKAMMER POINT GENERATING STATION

Danskammer Point Generating Station is located on the west side of the Hudson River, 0.9 km north of the Roseton plant. Danskammer Point Station is a fossil-fueled steam electric generating station. The total maximum net generating capability of its four steam turbine generators ranges from 480 to 491 MWe.

Each of the four generating units at Danskammer Point Station has a separate once-through cooling water system. The cooling water is drawn from a common intake canal, passes through the condensers, and is discharged to the Hudson River through three separate shoreline subsurface pipes on the south side of the plant. The intake, located on the north side of the plant, consists of a debris boom and trash bar racks located at the river shoreline, an intake canal, and a common intake bay from which river water is diverted into the individual cooling systems

TABLE 3-2. COOLING WATER PUMP FLOW RATES FOR ROSETON AND DANSKAMMER POINT GENERATING STATIONS.

PLANT AND UNIT(S)	NUMBER OF PUMPS	NUMBER OF PUMPS OPERATING	COOLING WATER FLOW[a] THOUSANDS OF GALLONS PER MINUTE	CUBIC METERS PER MINUTE	MILLIONS OF GALLONS PER HOUR
Roseton 1 & 2	4	1	213-228	806-863	12.8-13.7
		2	362-418	1370-1580	21.7-25.1
		3	526-561	1990-2120	31.6-33.7
		4	641	2430	38.5
Danskammer Point 1	2	1	21	80	1.3
		2	42	160	2.5
Danksammer Point 2	2	1	21	80	1.3
		2	42	160	2.5
Danskammer Point 3	2	1	41	160	2.5
		2	82	310	4.9
Danskammer Point 4	3	1	50	190	3.0
		2	100	380	6.0
		3	150	570	9.0

[a]Flow rate at Roseton with fewer than four pumps operating varies within the range shown depending on the operating status of the condensers.

through a series of vertical traveling screens. The intake canal is 137 m long and 10.4 m wide. Nine cooling water pumps (Table 3-2) supply a total cooling water flow of 1,196 m^3/min, which results in a mean maximum intake canal velocity at low water of 0.6 m/sec.

Traveling screens for Units 1 and 2 (six traveling screens) and for Unit 4 (three traveling screens) are equipped with 0.95-cm square mesh. The three Unit 3 traveling screens are equipped with interwoven stainless steel wire with a 0.32-cm square mesh.

4.0 MATERIALS AND METHODS

4.0 MATERIALS AND METHODS

4.1 SAMPLE COLLECTION

4.1.1 Schedule

Impingement sampling was conducted once per week throughout 1995. On each sampling date simultaneous 24-hr collections were made at three sites (unless unit outage resulted in no cooling water withdrawal, eliminating the need for sampling at a site): Roseton, Danskammer Point Units 1 and 2, and Danskammer Point Units 3 and 4. Collection typically began at 0900 hrs each Thursday and ended at 0900 hrs the following day (Friday). Each 24-hr sampling effort was subdivided into four consecutive 6-hr periods. In years prior to 1989, additional sampling days were scheduled if fish abundance reached 1,000 at either plant on a regularly scheduled sample date, but this procedure was approved for modification. Additional sampling days were not scheduled after 1988 because the data obtained did not substantially improve the accuracy or precision of impingement estimates (LMS 1989). Furthermore, deleting additional impingement collections provided the opportunity to return impinged fish immediately to the river thus increasing the opportunity for fish survival. Table 4-1 lists the sampling dates and number of samples (6-hr diel periods) collected in 1995.

4.1.2 General Sampling Procedures

All operable traveling screens were prewashed immediately prior to initiation of each 24-hr sampling effort to remove any entrapped organisms accumulated before the sample start time. Screens were inspected and screen housings and sluiceways were cleaned prior to each 24-hr sampling period and, if plant operation permitted, between successive 6-hr samples. The status of pumps and traveling screens and the screenwash duration and pressure were recorded during sampling. Samples were collected over the following time intervals each week: 0900-1500 hrs, 1500-2100 hrs, 2100-0300 hrs, and 0300-0900 hrs.

Impingement samples were collected by intercepting the screenwash discharge with nets, collection baskets, or a 0.6-cm mesh conveyor belt, depending on the site of collection.

TABLE 4-1. SAMPLING DATES AND NUMBER OF SAMPLES COLLECTED, ROSETON AND DANSKAMMER POINT IMPINGEMENT MONITORING PROGRAM, 1995.[a]

	NUMBER OF SAMPLES COLLECTED			NUMBER OF SAMPLES COLLECTED	
SAMPLE DATE	ROSETON	DANSKAMMER POINT	SAMPLE DATE	ROSETON	DANSKAMMER POINT
5 Jan	4	4	6 Jul	4	8
12 Jan	4	4	13 Jul	4	8
19 Jan	4	4	20 Jul	4	8
26 Jan	4	4	27 Jul	4	8
2 Feb	4	8	3 Aug	4	8
9 Feb	4	7[b]	10 Aug	4	8
16 Feb	4	4	17 Aug	4	8
23 Feb	4	4	24 Aug	4	8
			31 Aug	4	8
2 Mar	4	8	7 Sep	4	8
9 Mar	4	8	14 Sep	4	8
16 Mar	4	8	21 Sep	4	8
23 Mar	4	8	28 Sep	4	8
30 Mar	4	8			
6 Apr	4	4	5 Oct	4	8
13 Apr	4	4	12 Oct	4	8
20 Apr	4	4	19 Oct	4	8
27 Apr	4	4	26 Oct	4	8
4 May	4	8	2 Nov	4	8
11 May	4	8	9 Nov	4	8
18 May	4	8	16 Nov	4	4
25 May	4	8	21 Nov	4	8
			30 Nov	4	8
1 Jun	4	8	7 Dec	4	4
8 Jun	4	8	14 Dec	4	4
15 Jun	4	4	21 Dec	4	4
22 Jun	4	8	28 Dec	4	4
29 Jun	4	8			
			1995 TOTAL	208	351

[a]Sampling dates listed as beginning date of 24-hr collection interval, which ended at 0900 hrs on the following date. Each 6-hr collection at an outfall within the 24 hours is counted as a separate sample.
[b]Circulating water pumps at Unit 1 and Unit 2 were shut down at the end of Period 3.

When possible, organisms alive at the time of sample collection were analyzed immediately and returned to the river alive before completing other sample processing tasks. Fish and invertebrates were separated from the debris for identification, enumeration, and measurements. The volume and weight of the debris were determined, and the debris was categorized as to its major components (leaves, fresh vegetation, decayed vegetation, algae, sticks, plastic, or other).

Any dead sturgeon collected are typically frozen and held for the New York State Department of Environmental Conservation. All striped bass were checked for presence of a magnetic nose or cheek tag, the presence of which would indicate that the specimen was a hatchery-released fish. All striped bass and Atlantic tomcod were checked for tags and fin clips.

The following water quality data were collected at the prewash and near the end of each 6-hr period (five times during each 24-hr weekly sampling effort) at the Roseton intake and the Danskammer intake: surface and bottom temperature, surface and bottom conductivity, surface and bottom dissolved oxygen, tide height, and tide stage. Two additional parameters, pH and total suspended solids, were sampled at surface and bottom once per sampling date at both intakes, at approximately 1500 hrs. Locations of the in-plant water quality sampling locations are shown in Figures 4-1 and 4-2.

Additional water quality sampling was conducted weekly at a reference station located midchannel in the Hudson River directly out from the Roseton plant (Figure 4-3) during the daytime low slack tide on each sampling date (Table 4-2). Temperature and conductivity were measured at 2-m depth intervals. Dissolved oxygen, pH, total suspended solids, turbidity, and total organic carbon were measured or sampled at three depths (surface, mid-depth, and bottom). Once per month an additional sample was collected and analyzed for the following metals: aluminum, arsenic, cadmium, total chromium, hexavalent chromium, copper, iron, lead, manganese, mercury, nickel, selenium, vanadium, and zinc.

Collection efficiency tests were conducted at both Roseton and Danskammer Point at approximately monthly intervals to measure the efficiency of both the gear and the sampling crew (Appendix E). A known number of marked fish were released into the screenwash discharge, and the number found in the sample were counted to determine the percent recovered.

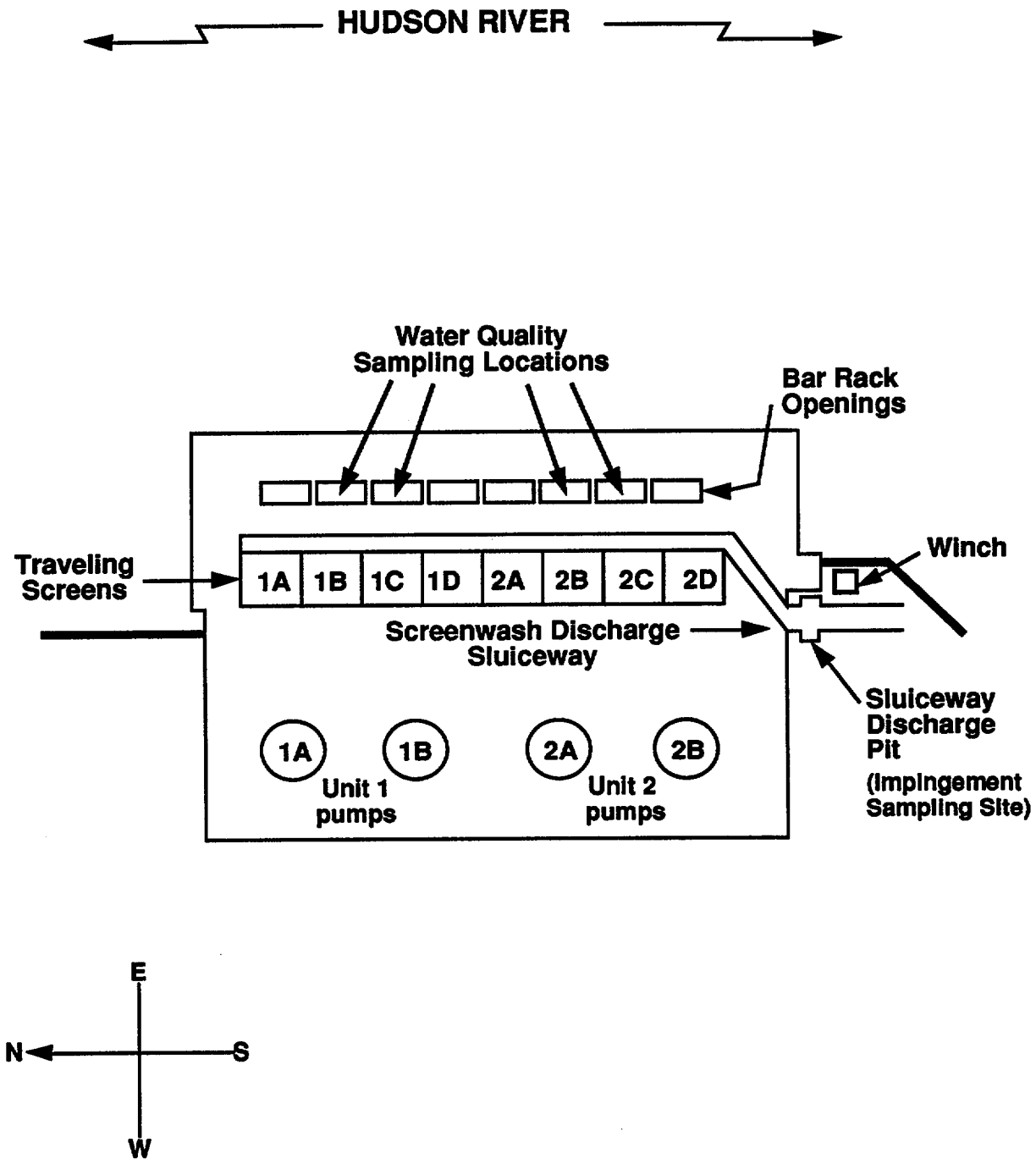


Figure 4-1. Roseton impingement and water quality sampling locations.

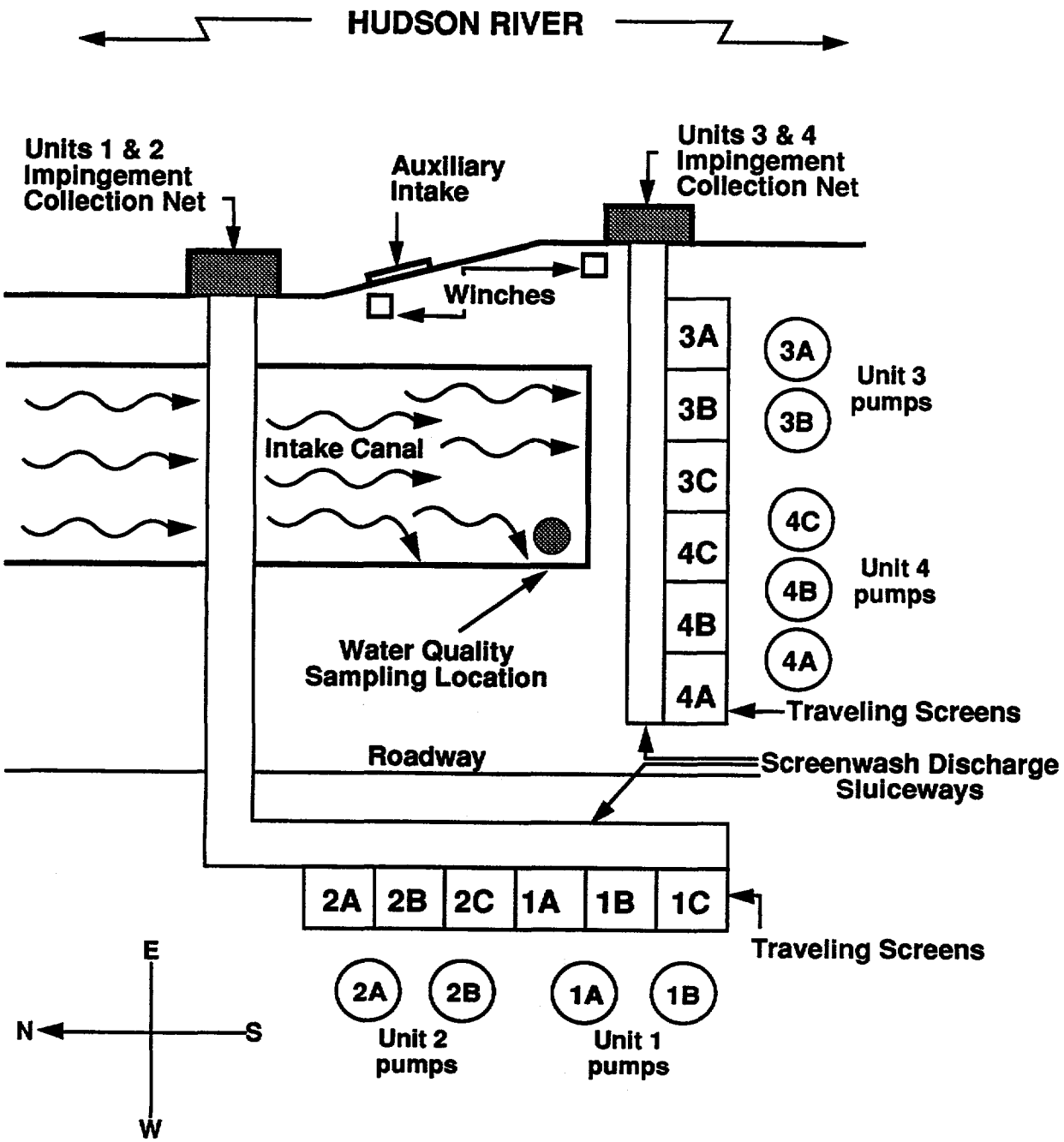


Figure 4-2. Danskammer Point impingement and water quality sampling locations.

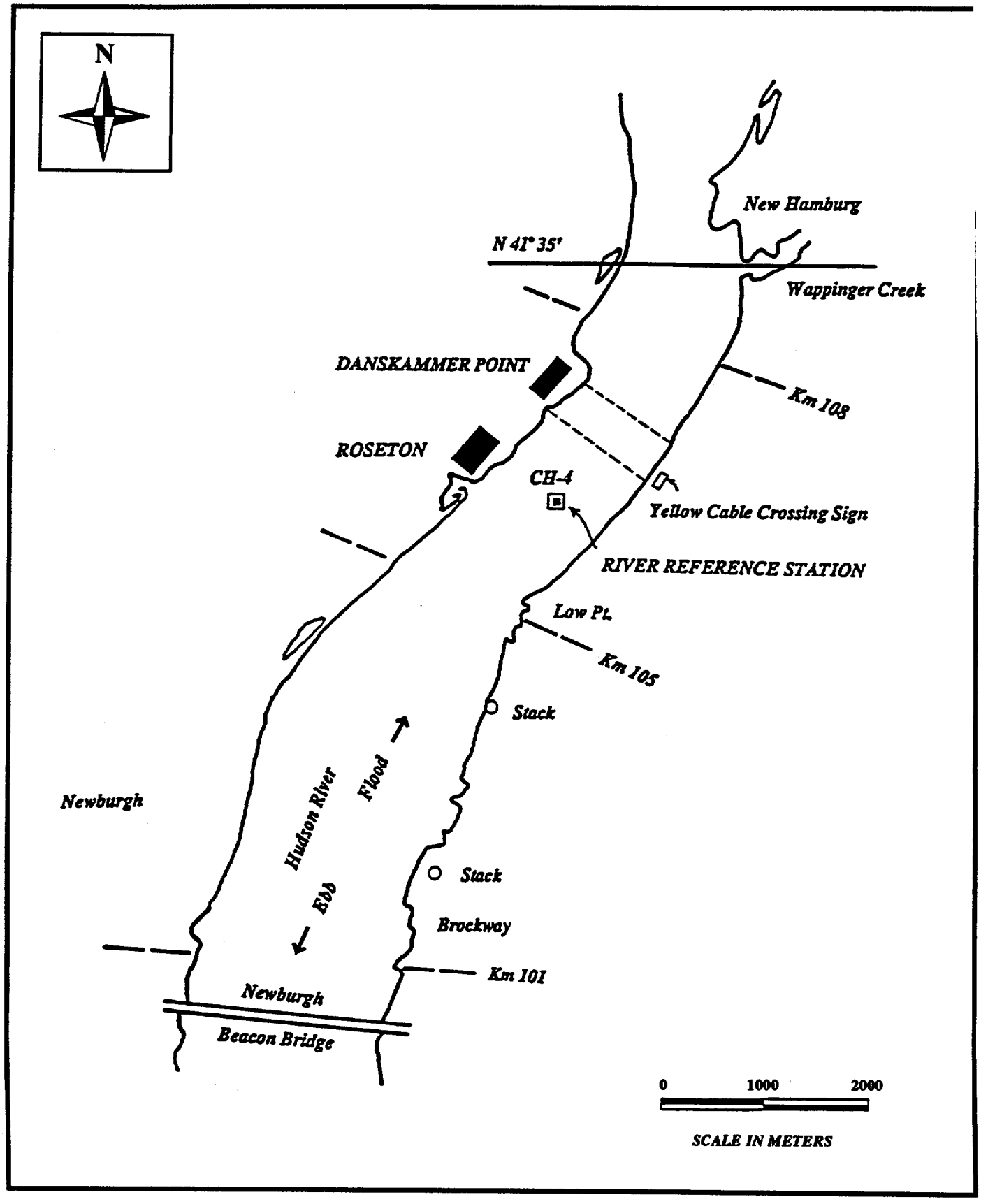


Figure 4-3. River Reference Station CH-4 for water quality sampling in the vicinity of Roseton and Danskammer Point generating stations.

TABLE 4-2. DATES OF WATER QUALITY SAMPLING AT THE RIVER REFERENCE STATION FOR THE 1995 ROSETON AND DANSKAMMER POINT GENERATING STATIONS IMPINGEMENT MONITORING PROGRAM.[a]

5 Jan[b]	13 Jul
12 Jan	20 Jul
19 Jan	27 Jul
26 Jan	3 Aug[b]
2 Feb[b]	10 Aug
9 Feb	17 Aug
9 Mar[b]	24 Aug
16 Mar	31 Aug
23 Mar	8 Sep[b]
31 Mar	14 Sep
6 Apr[b]	22 Sep
14 Apr	28 Sep
20 Apr	6 Oct[b]
27 Apr	12 Oct
4 May[b]	19 Oct
12 May	26 Oct
18 May	2 Nov[b]
26 May	9 Nov
2 Jun[b]	16 Nov
8 Jun	22 Nov
15 Jun	30 Nov
23 Jun	7 Dec[b]
29 Jun	14 Dec
6 Jul[b]	

[a]No sampling was conducted on five sampling dates due to ice or weather conditions: 16 February, 23 February, 2 March, 21 December, and 28 December.

[b]Dates on which monthly samples were collected for analysis of metals.

4.1.3 Procedures Specific to Roseton

The collection apparatus used in 1995 at Roseton was a portable, motorized, conveyor belt positioned to intercept the screenwash discharge as it entered the sluiceway discharge pit. The 0.6-cm mesh belt screened organisms and debris from the discharge flow and dropped them onto a sorting table. Location of the sampling site is shown in Figure 4-1.

4.1.4 Procedures Specific to Danskammer Point

Units 1 and 2 were sampled separately from Units 3 and 4 at Danskammer Point. Sampling nets were hoisted into position by winches to catch the screenwash discharges where they empty into the river (Figure 4-2). Nets with 0.6-cm mesh were used for the Unit 1 and 2 discharge, and 0.3-cm mesh nets were used at Units 3 and 4, corresponding to the mesh size on the respective units' traveling screens.

4.2 SAMPLE PROCESSING PROCEDURES

Total count and weight of each species of fish and of major invertebrate species were determined for each 6-hr sample. For fish, these data were recorded separately by age/length groups (young-of-the-year, yearling, and older) on the basis of cutoff lengths revised weekly for each species. For individual fish and blue crabs, length (carapace width point-to-point for crabs) and weight were recorded to the nearest 1 mm and 0.1 g, respectively. Also, the sex of individual blue crabs was determined. If there were over 25 crabs or over 25 of any age/length group in a 6-hr sample of a fish species at either plant, then that species and group was randomly subsampled for individual length and weight measurements. Subsample sizes were 25 for blue crabs and 25 per length class for fish.

Counts and measurements were subjected to a quality control inspection designed to assure an Average Outgoing Quality Limit of 10% (i.e. ≥90% of the data are within specified accuracy ranges).

Samples for pH were analyzed using a pHTestr 2 pH meter to the nearest 0.1 pH unit. Turbidity analysis was performed with a model 2100A nephelometric turbidimeter, manufactured by Hach Instrument Corporation. Values were recorded to the nearest 0.1 Nephelometric Turbidity Unit (NTU).

All analyses of metals, total suspended solids, and total organic carbon were performed by EnviroTest Laboratories Inc., Newburgh, New York, a New York State certified laboratory. Aluminum, cadmium, total chromium, copper, iron, manganese, nickel, vanadium, and zinc were analyzed by EPA method 200.7. Arsenic was analyzed by EPA method 206.2, lead by EPA method 239.2, mercury by EPA method 245.1, selenium by EPA method 270.2, total suspended solids by EPA method 160.2, and total organic carbon by EPA method 415.2. Hexavelent chromium was analyzed by American Public Health Association standard method 3500-CR.

Water quality parameters measured *in situ* included temperature and conductivity (Yellow Springs Instruments model 33 salinity - conductivity - temperature meter) and dissolved oxygen (Yellow Springs Instruments model 57 dissolved oxygen meter).

4.3 ANALYTICAL PROCEDURES

Impingement rates observed on sampling days were used to estimate rates and totals (of both numbers and biomass) of fish and invertebrates impinged on a weekly, monthly, and annual basis by the following procedure. Each month was divided into four approximately weekly intervals: week 1 = dates 1-7, week 2 = dates 8-14, week 3 = dates 15-21, and week 4 = dates above 21. The weekly impingement rate was estimated as the total count (or biomass) for all samples collected during that week (units combined at Danskammer Point) divided by the total plant flow during the minutes of sample collection. The impingement rate for each month was estimated as the average of the four weekly rates for that month. The estimate of the total number (or biomass) impinged for each month was calculated as the monthly impingement rate multiplied by the total plant flow for the month.

The variance of each monthly estimate was calculated as

$$VAR\ (F_j\ M_j) = F_j^2 \left(\frac{S_j^2}{n_j} \right) \left(\frac{N_j - d_j}{N_j} \right)$$

where F_j = plant flow in month j in millions of gallons,
S_j = standard deviation of the weekly impingement rates in month j,
n_j = number of weeks averaged for month j,
N_j = number of days in month j, and
d_j = number of sampling days in month j.

The annual impingement rate was calculated as the mean of the 12 monthly impingement rates. The estimate of the total number (or biomass) impinged for the year was the sum of the 12 monthly estimates. The variance for the annual estimate was calculated as the sum of the 12 monthly variances. The 95% confidence interval for the annual estimate, assuming normally distributed data, was calculated as 1.96 multiplied by the square root of the variance for the annual estimate (where 1.96 is the Student's t value at $\alpha = 0.05$).

No rounding of data was done prior to the final step in each analysis. This prevented introduction of rounding error in the final result, and may present the appearance in a table that a column of data does not sum exactly to the total shown in the last row. This is because the intermediate values (e.g. estimated numbers of individual species impinged) are rounded for display in the table but the sum (e.g. all species combined) was calculated from the exact (unrounded) values.

5.0 RESULTS OF WATER QUALITY MONITORING PROGRAM

5.0 RESULTS OF WATER QUALITY MONITORING PROGRAM

5.1 HUDSON RIVER FRESHWATER FLOW

During 1995, the average monthly flow rate for fresh water entering the estuarine portion of the Hudson River at Green Island (river kilometer 247) reached a maximum in November at 24,387 cubic feet per second (cfs) and the month with lowest average (3,339 cfs) was July (Table 5-1). (Data for October-December are provisional.) In relation to the seasonal pattern observed over the past 50 years, the 1995 freshwater flow was below normal levels for most of the year (Figure 5-1). The freshwater flow for April 1995 was the lowest average for that month during the 50-year period of record. The overall mean freshwater flow rate for 1995 was 30.3% lower than the long-term average.

5.2 REFERENCE STATION WATER QUALITY

Water temperature (°C), specific conductance (µmhos/cm at 25°C), pH, dissolved oxygen (mg/l), total suspended solids (mg/l), turbidity (NTU), and total organic carbon (mg/l) were recorded weekly during the open-water period, at the Hudson River reference station (CH-4) from surface, middle, and bottom depths. Concentrations of 14 metals (mg/l) were determined once per month from mid-depth water samples at the same sampling station. Due to the rough weather and extensive ice formations that existed during the coldest months, river water quality sampling was not conducted on two scheduled dates in February, one in March, and two in December.

Mean water temperature in the river ranged from 0.7 to 28.0°C during 1995 (Table 5-2). The highest mean temperature for 1995 was recorded on 3 August; the lowest was on 9 February. The highest temperatures in 1995 were from late July to early September. Water temperature measurements from the three depths were similar, with the surface temperature frequently the highest of the three (Figure 5-2).

TABLE 5-1. MEAN MONTHLY FRESHWATER FLOW FOR THE LOWER HUDSON RIVER FOR 1986-1995 AND THE LONG-TERM SUMMARY FOR 1946-1995.[a]

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MEAN[b]	MAX	MIN
1986	10860	12650	35710	24110	12070	14260	8036	10830	7686	11890	19230	18510	15501	35710	7686
1987	9274	7104	21380	34720	5505	6170	5728	4178	12040	17860	16050	15710	12978	34720	4178
1988	9468	12340	16280	16830	12620	4340	4627	4910	5779	7437	19970	11630	10496	19970	4340
1989	6870	9030	12060	23890	27060	18490	7985	6853	8831	14470	21390	10600	13955	27060	6853
1990	13530	24850	35110	31590	34980	8839	5553	8746	5604	16990	23100	24330	19414	35110	5553
1991	18130	17560	24620	23200	12270	5154	4027	4448	4908	7629	10660	12850	12089	24620	4027
1992	10730	8340	14430	22910	17720	12180	8968	7181	7680	10140	18780	15490	12876	22910	7181
1993	19110	9746	16010	61820	13250	7157	4706	4935	5573	6787	12110	14230	14582	61820	4706
1994	8194	11920	19850	50060	20130	8223	8777	9361	6720	6268	8853	14010	14339	50060	6268
1995	17320	9279	18170	9073	5577	4590	3339	3426	3587	12526	24387	11306	10221	24387	3339

LONG-TERM SUMMARY (FEBRUARY 1946-DECEMBER 1995)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MEAN[b]
MAX	33970	31260	44240	61820	40520	29630	18380	14630	17030	30140	26150	28220	
MEAN	13230	13950	22180	30740	18630	10070	6620	5828	6496	8989	12953	14671	13680
MIN	4177	4528	9116	9073	5500	3567	3074	2903	2873	2965	3257	6084	
N	49	50	50	50	50	50	50	50	50	50	50	50	

[a]Flows are in ft^3/s (cfs); data for October-December 1995 are provisional.
[b]Mean of monthly means weighted by number of days/month.
N=Number of years.
Source of data: U.S. Geological Survey, Water Resources Div., Troy, N.Y.

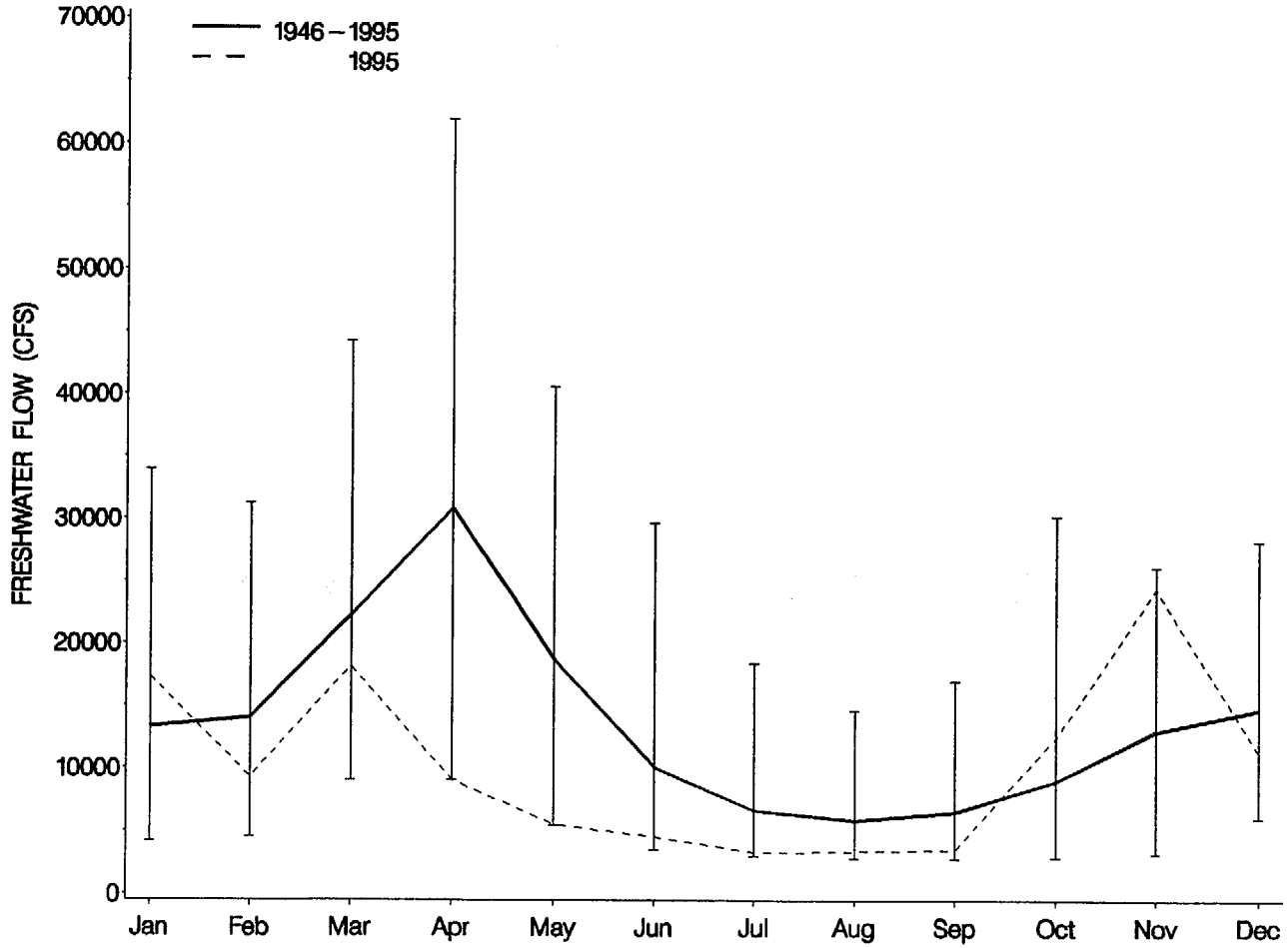


Figure 5-1. Monthly average freshwater flow rate for the lower Hudson River in 1995 and the long-term monthly average and range for 1946-1995. (October-December data for 1995 are provisional.)

TABLE 5-2. AVERAGE VALUES OF SELECTED WATER QUALITY PARAMETERS AT THE RIVER CHANNEL SAMPLING STATION, 1995.[a]

SAMPLED DATE	MEAN TEMPERATURE (°C)	MEAN D.O. (MG/L)	MEAN CONDUCTIVITY (μMHOS/CM AT 25°C)	MEAN TSS (MG/L)	MEAN pH	MEAN TURB (NTU)	MEAN TOT.ORG.C (MG/L)
01/05/95	1.8	13.2	224	15.0	7.1	10.5	4.6
01/12/95	1.2	13.2	216	15.7	7.2	7.3	3.7
01/19/95	1.6	13.8	213	13.3	7.3	7.6	5.8
01/26/95	4.1	12.6	220	19.0	7.4	13.1	5.7
02/02/95	2.7	13.3	197	35.0	7.3	19.0	4.8
02/09/95	0.7	12.7	209	11.3	7.4	11.3	4.2
03/09/95	1.2	14.6	239	13.3	7.0	5.3	6.0
03/16/95	3.1	14.4	247	35.7	7.2	30.7	4.6
03/23/95	5.7	14.1	176	23.3	7.1	21.7	7.5
03/31/95	7.4	13.5	230	28.7	7.3	13.7	4.0
04/06/95	7.2	12.2	200	15.7	7.3	9.9	2.7
04/14/95	7.7	12.8	202	12.2	7.3	15.8	3.0
04/20/95	8.4	12.6	211	21.7	7.4	4.2	4.2
04/27/95	10.4	10.9	221	9.7	7.5	3.9	3.6
05/04/95	11.8	12.4	247	11.0	7.4	2.8	3.0
05/12/95	12.8	10.5	363	14.7	7.5	5.2	3.2
05/18/95	14.0	10.4	251	12.0	7.1	3.6	5.4
05/26/95	16.1	8.6	267	19.3	7.5	4.3	3.1
06/02/95	17.9	10.6	265	13.0	7.8	2.4	4.6
06/08/95	20.0	9.3	255	6.3	7.4	4.4	3.5
06/15/95	20.1	8.7	260	31.7	7.3	12.8	3.0
06/23/95	22.2	7.6	272	27.7	7.6	6.1	3.7
06/29/95	23.2	7.9	275	10.7	7.7	3.0	3.2
07/06/95	24.3	6.9	496	5.6	7.4	4.6	3.7
07/13/95	24.8	7.2	763	19.0	7.6	6.4	3.6
07/20/95	26.1	6.5	785	3.7	7.4	4.6	3.5
07/27/95	26.7	6.9	458	16.7	7.4	5.7	3.3
08/03/95	28.0	7.3	516	9.0	7.5	5.8	3.0
08/10/95	27.2	6.8	393	20.0	7.6	5.9	3.3
08/17/95	27.7	6.5	387	10.0	7.3	6.1	4.0
08/24/95	27.1	6.0	1660	12.5	7.2	6.4	3.2
08/31/95	25.8	6.8	3117	14.0	7.4	4.9	3.3
09/08/95	25.7	8.3	2748	18.7	.[b]	8.0	3.1
09/14/95	24.8	7.2	2242	17.3	7.4	8.0	3.4
09/22/95	23.0	7.1	3061	14.7	7.5	5.2	3.5
09/28/95	21.5	7.3	2736	13.0	7.6	7.0	3.4
10/06/95	20.9	7.5	3104	16.7	7.4	9.6	3.5
10/12/95	19.7	7.9	1078	21.3	7.5	6.6	4.0
10/19/95	17.9	8.3	313	11.7	7.6	5.5	4.0
10/26/95	14.5	7.9	229	43.3	7.4	20.7	4.5
11/02/95	13.6	9.0	262	25.3	7.4	14.0	4.7
11/09/95	10.9	8.9	183	21.3	7.3	11.2	6.6
11/16/95	6.5	11.0	165	34.0	7.2	28.0	5.6
11/22/95	5.0	11.5	193	39.3	7.3	28.3	7.6
11/30/95	4.1	12.0	196	34.3	7.2	16.8	4.6
12/07/95	2.1	12.4	207	30.0	7.3	11.8	4.5
12/14/95	2.0	12.3	194	13.3	7.7	9.7	4.0

[a]Means are averages of all depths sampled for each parameter.
[b]Missing value due to meter malfunction.

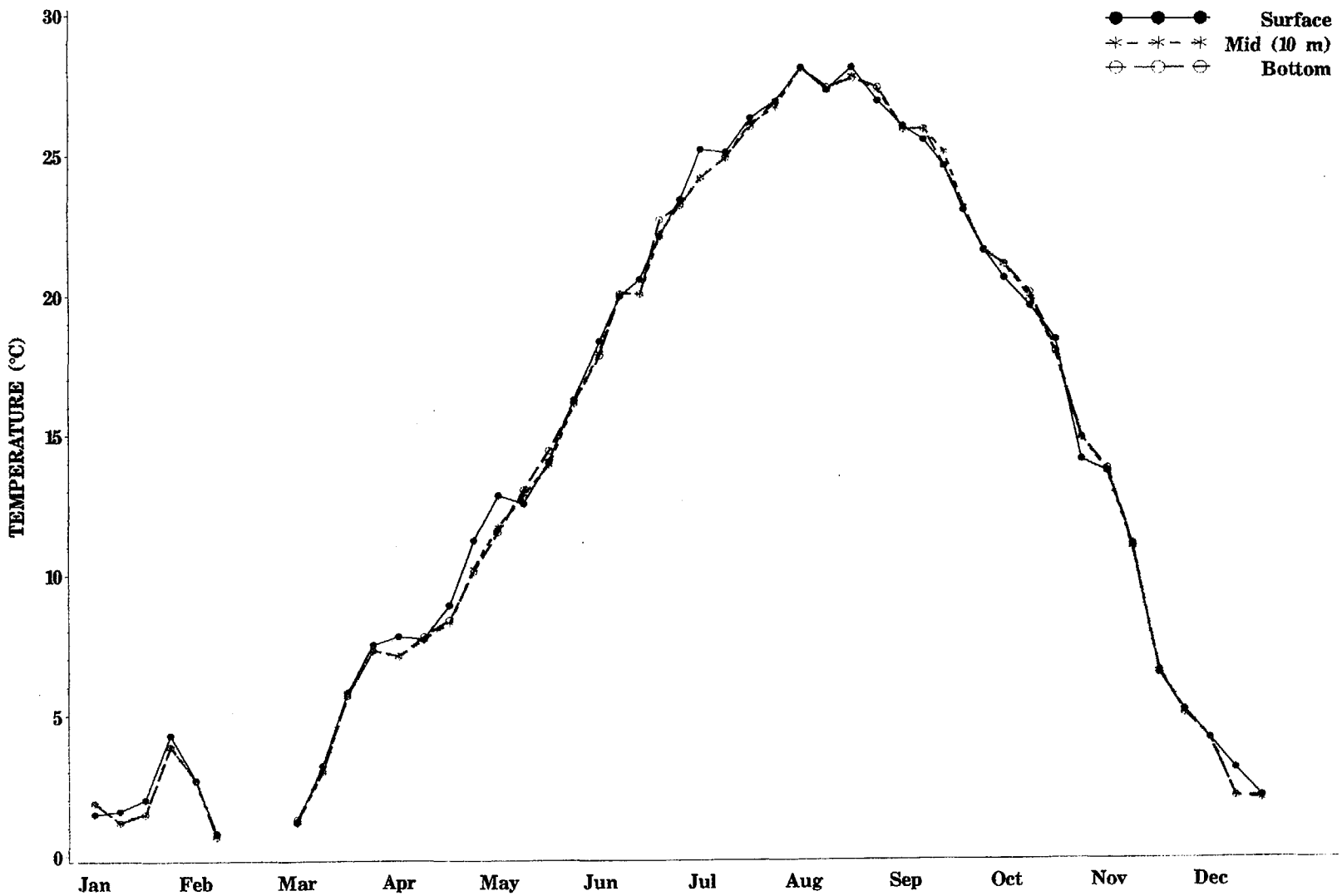


Figure 5 – 2. Weekly water temperature at river reference station CH – 4, Roseton and Danskammer Point vicinity, 1995.

Mean specific conductance ranged from 165 to 3,117 µmhos/cm (corrected to 25°C) throughout the open-water sampling period (Table 5-2). Values were lowest during the winter and spring (January - June) and late fall (November - December). The influence of marine waters on northern Newburgh Bay, characterized by an increase in specific conductivity, was evident mainly during late August through mid-October (Figure 5-3). The higher conductivity values corresponded to relatively low freshwater flows entering the estuary at Green Island (Figure 5-1). During the period of higher conductivities, the surface value was consistently lowest and the bottom value was consistently highest, reflecting the higher density of the more saline water (Figure 5-3).

The mean pH during 1995 ranged between 7.0 and 7.8 throughout the study period without any particular seasonal pattern (Table 5-2). The highest mean pH value (7.8) was observed on 2 June, and the lowest mean value (7.0) was recorded on 9 March. The pH values recorded during 1995 were similar among the three depths for each date (Figure 5-4).

Mean dissolved oxygen ranged from 6.0 to 14.6 mg/l and exhibited the typical inverse relationship to water temperature, with the highest values recorded during March and the lowest values occurring in August (Table 5-2). Dissolved oxygen levels usually varied little with depth but on 25 May the mid-depth and bottom readings were substantially lower than the surface value (Figure 5-5).

In 1995 the mean concentrations of total suspended solids (TSS) ranged from a low of 3.7 mg/l on 20 July to a high of 43.3 mg/l on 26 October (Table 5-2, Figure 5-6). In 1995 the TSS values were generally highest in March, coinciding with the period of peak freshwater flow, and also in November-December. The seasonality was less distinct for the TSS data than it was for conductivity, suggesting the influence of factors other than freshwater flow, such as storm events. In general, the TSS levels were highest at the bottom depth and lowest in surface samples.

Turbidity values recorded at the river reference station (Figure 5-7) exhibited a seasonal trend generally corresponding to that of the TSS values. During March and November the measured turbidity levels consistently exceeded 10 NTU, whereas during the rest of the year turbidity levels were usually below 10 NTU. The average turbidity level (depths combined)

ranged from 2.4 NTU on 2 June to 30.7 NTU on 16 March. The highest single turbidity value during 1995 (37.0 NTU) was recorded at the bottom depth on 16 March and the lowest (1.5 NTU) from the surface on 1 June.

Total organic carbon (TOC) concentrations tended to be slightly higher in the colder months of the year than during the warmer months (Figure 5-8). Mean TOC levels ranged from 2.7 mg/l measured on 6 April to 7.6 mg/l on 22 November. Although TOC levels generally increased during the fall, the magnitude of the increase was relatively small. Differences in TOC levels among the three sampling depths were typically minor, although occasionally the mid-depth or bottom TOC concentration noticeably exceeded concentrations at the other depths.

Samples from the river reference station CH-4 were also tested for 14 different metals on a monthly basis. Five metals, including aluminum, iron, lead, manganese, and zinc were above the detection limits on most of the sampling dates (Table 5-3 and Figures 5-9 through 5-13). Several of the metals tested were at or below detection limits during all of the sampling events, including arsenic, cadmium, hexavalent chromium, total chromium, copper, nickel, and vanadium. Mercury was slightly above its detection limit on one date and selenium was above its detection limit on two of the 12 sampling dates. Highest concentrations were generally observed on the February, November, and December sampling dates for aluminum, iron, lead, and manganese. Total suspended solids and turbidity also tended to be high on those dates, suggesting that the metals are primarily associated with sediment particles rather than being dissolved in the water. Zinc concentrations were highest in March and September. Highest values for some of these metals were observed in the spring during weekly sampling in previous years, but seasonal patterns have not been particularly consistent or distinct.

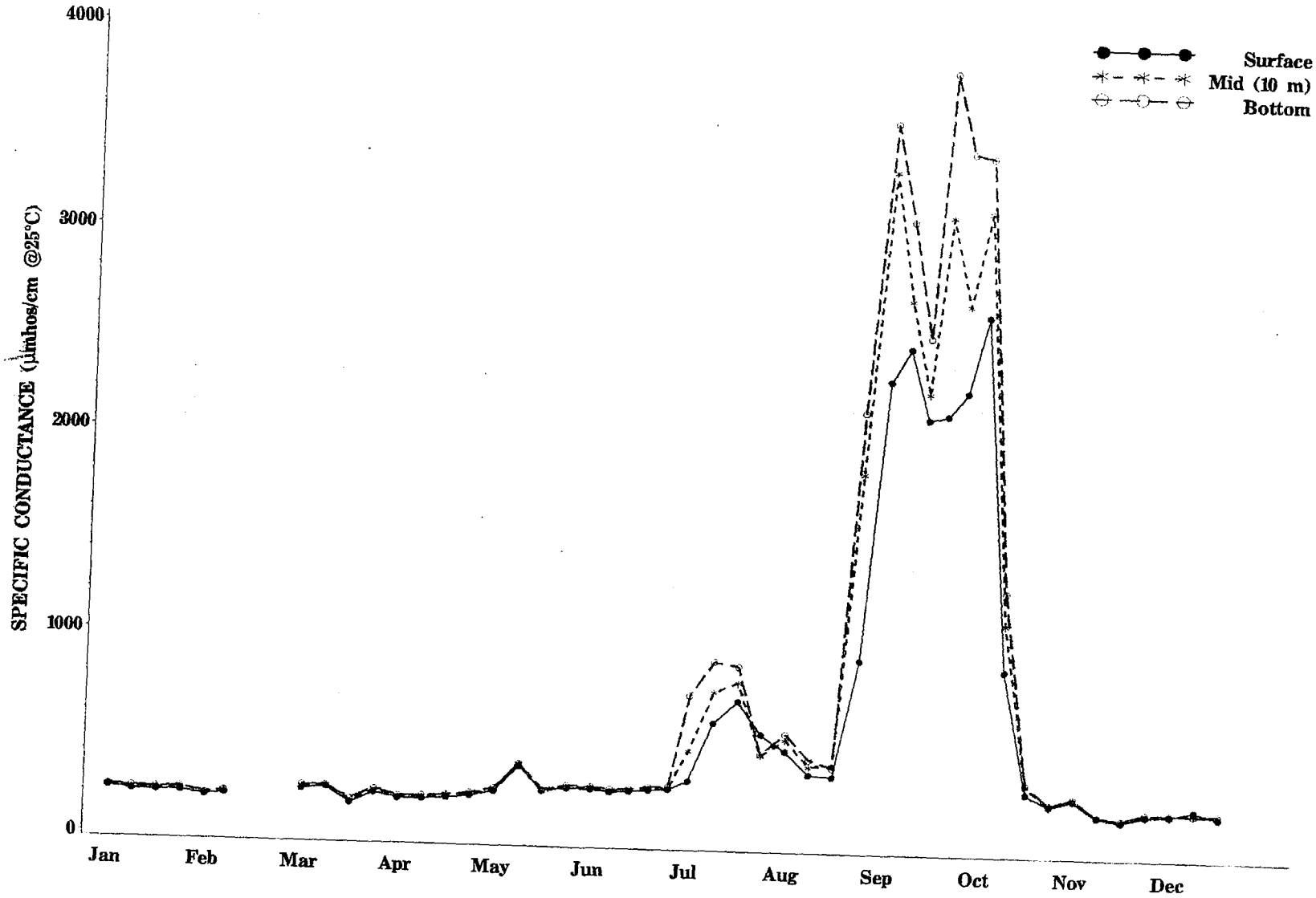


Figure 5–3. Weekly specific conductance at river reference station CH–4, Roseton and Danskammer Point vicinity, 1995.

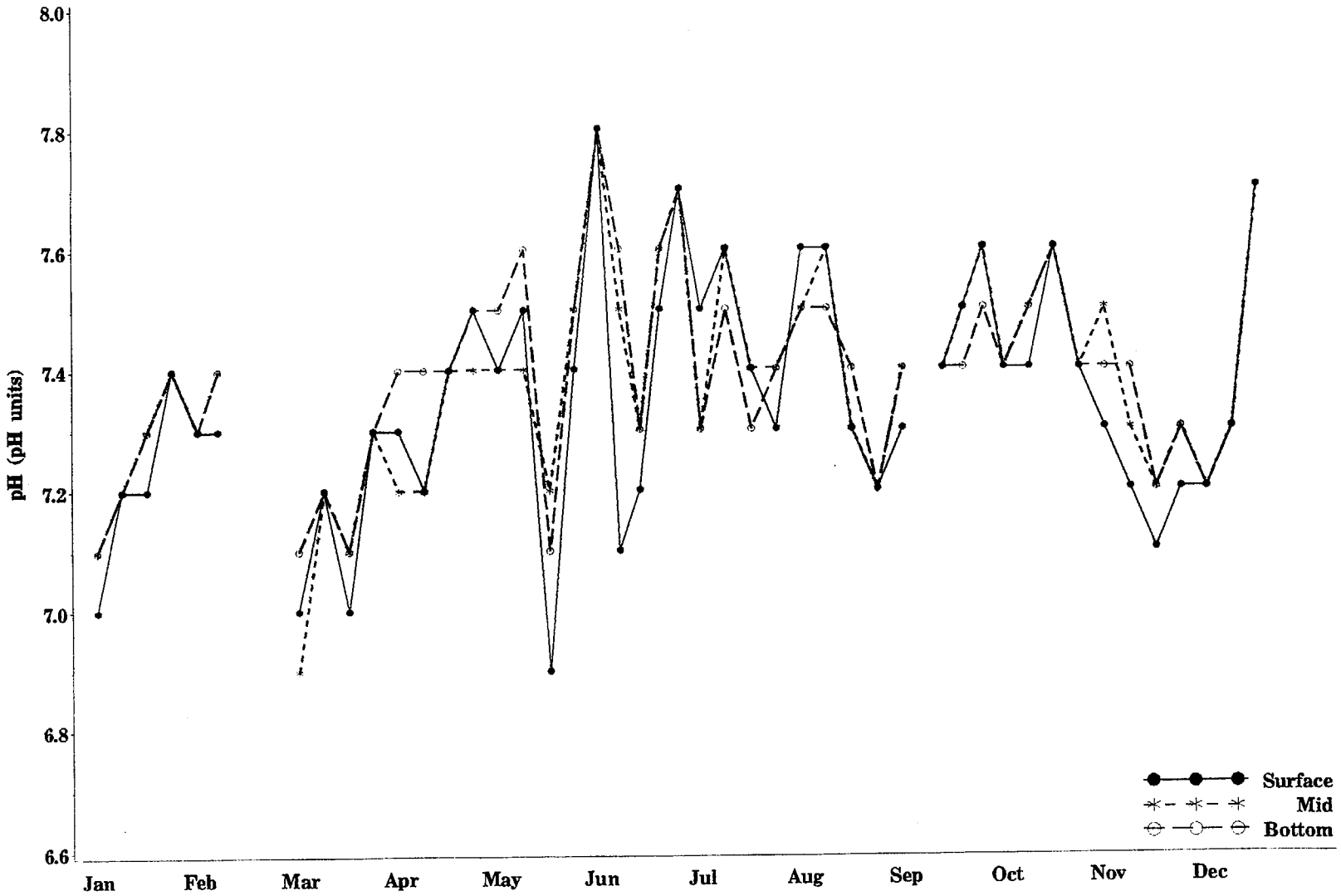


Figure 5 – 4. Weekly pH at river reference station CH – 4, Roseton and Danskammer Point vicinity, 1995.

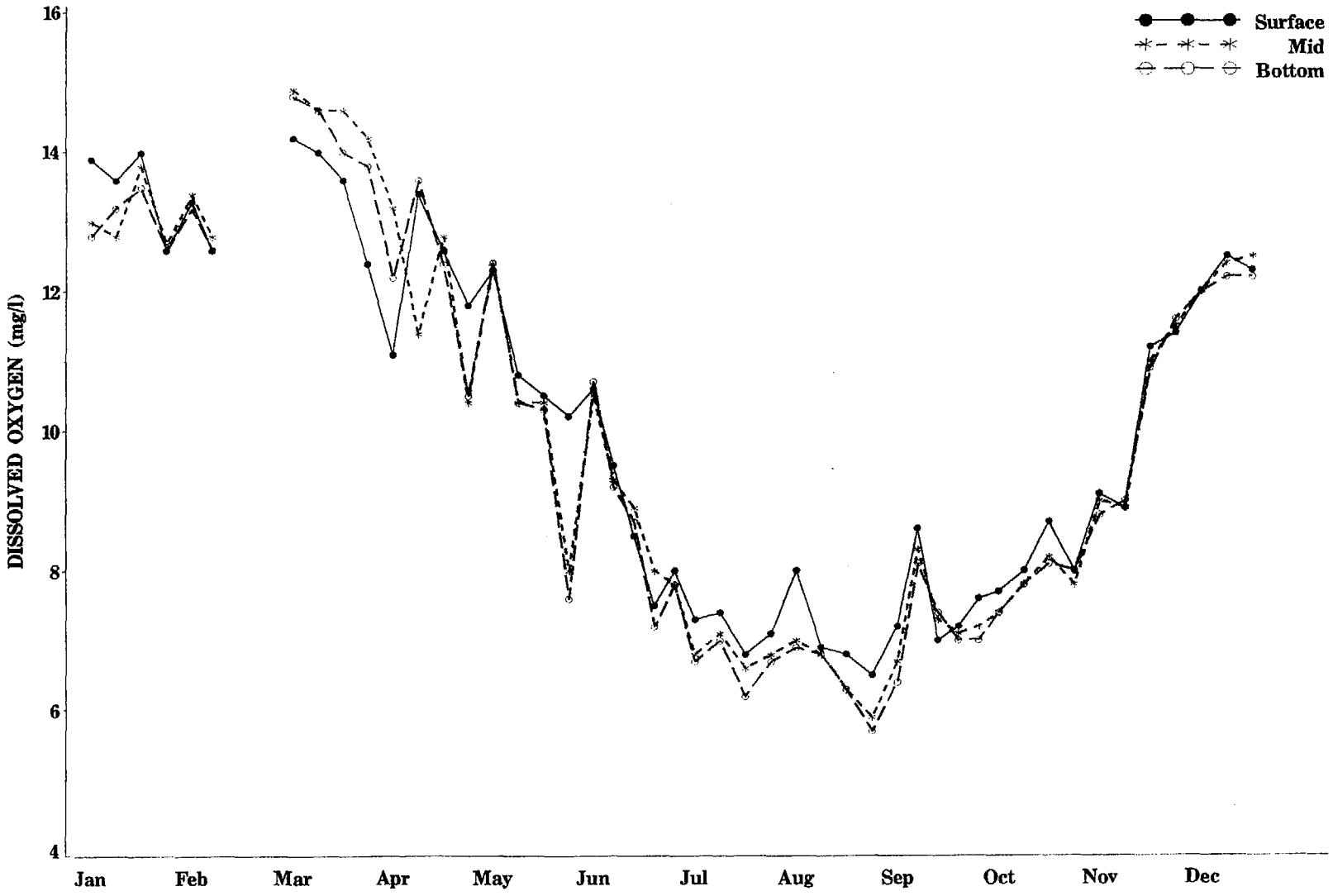


Figure 5-5. Weekly dissolved oxygen at river reference station CH-4, Roseton and Danskammer Point vicinity, 1995.

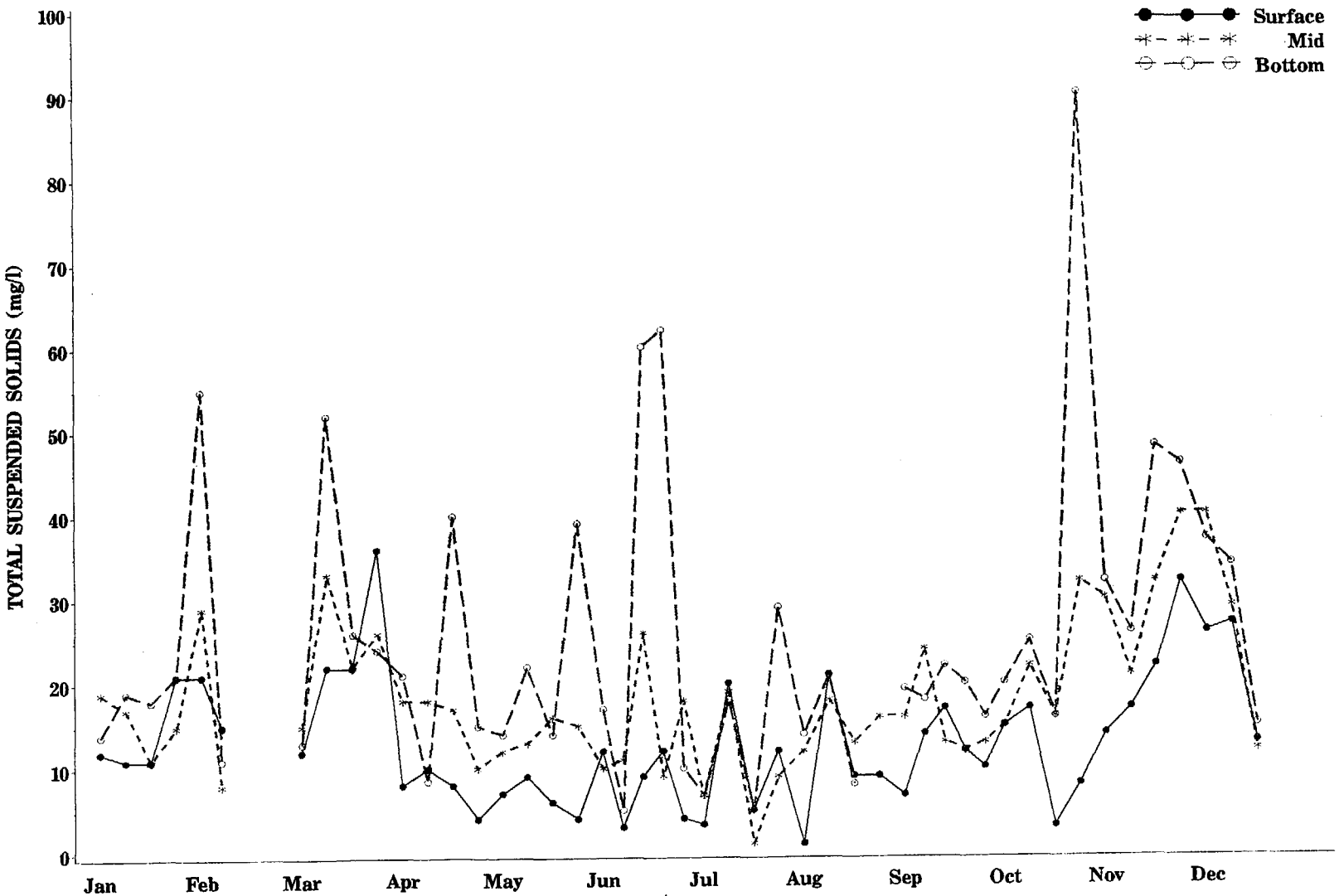


Figure 5 – 6. Weekly total suspended solids at river reference station CH – 4, Roseton and Danskammer Point vicinity, 1995.

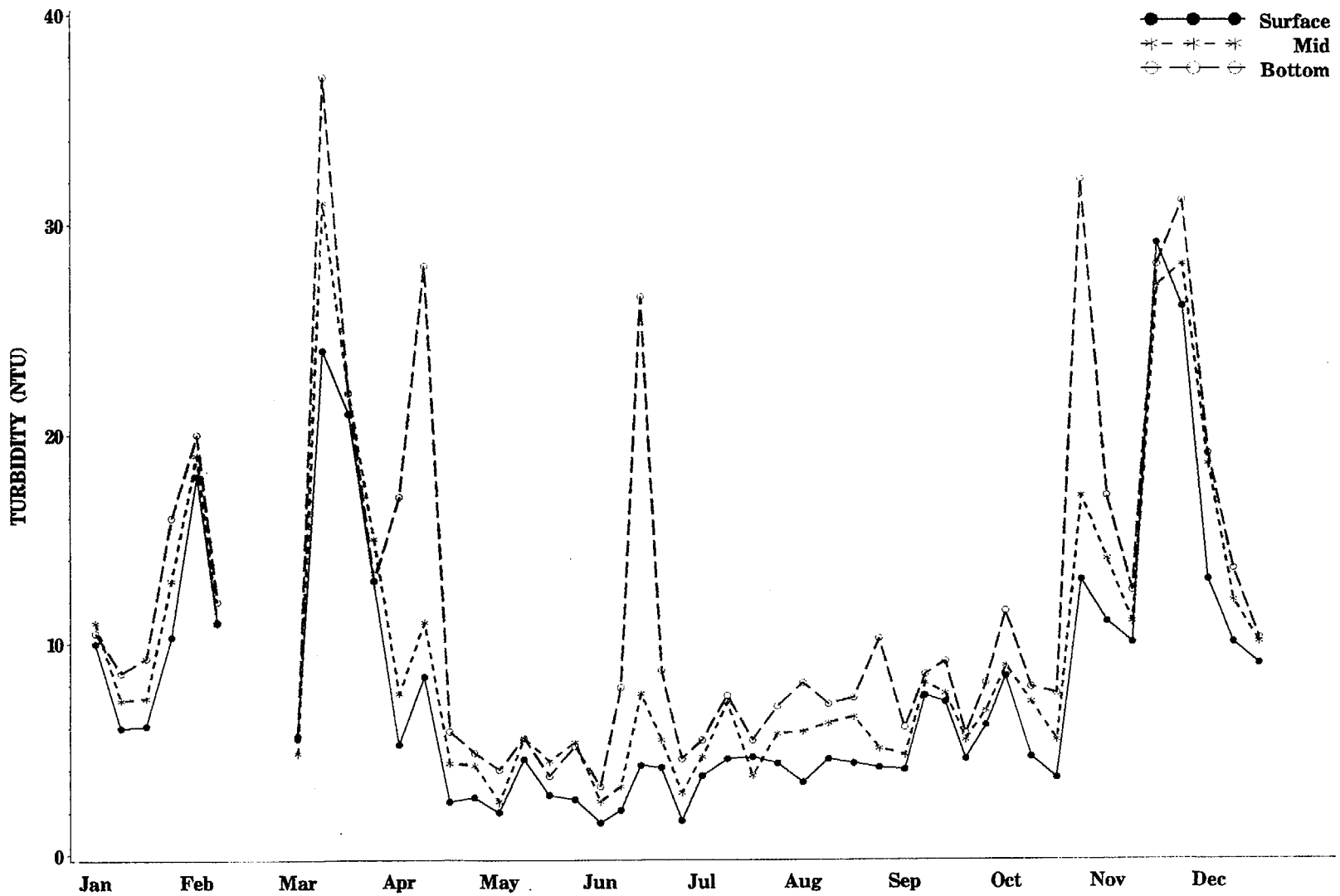


Figure 5–7. Weekly turbidity at river reference station CH–4, Roseton and Danskammer Point vicinity, 1995.

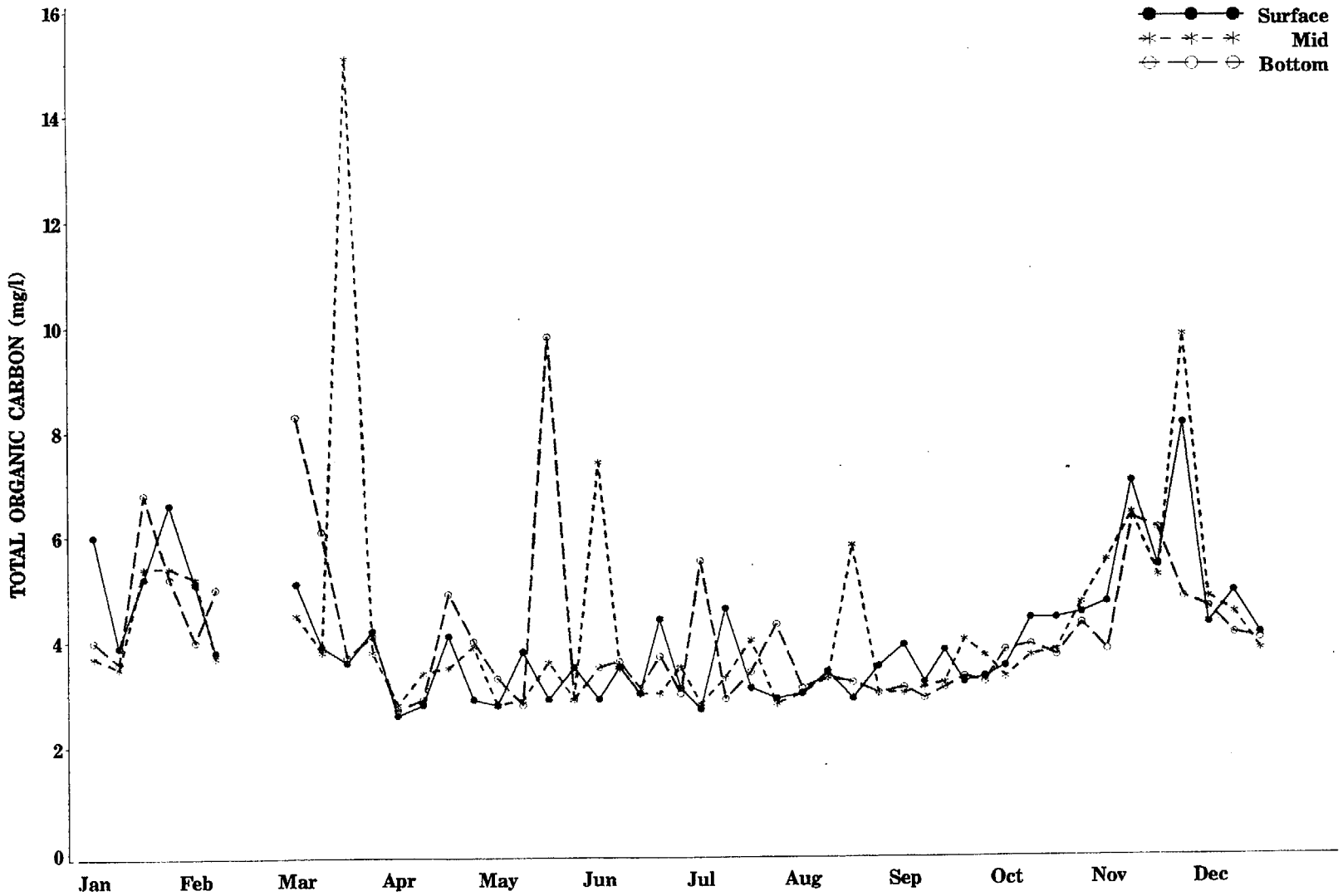


Figure 5 – 8. Weekly total organic carbon at river reference station CH – 4, Roseton and Danskammer Point vicinity, 1995.

TABLE 5-3. CONCENTRATIONS OF METALS AT THE RIVER REFERENCE STATION CH-4, ROSETON AND DANSKAMMER POINT VICINITY, 1995.

METAL	MEAN[a,b] CONCENTRATION (mg/L)	MIN[a] (mg/L)	MAX[a] (mg/L)	NUMBER OF DATES CONCENTRATION WAS MEASURABLE ABOVE DETECTION LIMIT[c]
Aluminum	0.34	0.16	0.60	12
Arsenic	<0.0056	<0.005	<0.0056	0
Cadmium	<0.01	<0.01	<0.01	0
Hexavalent Chromium	<0.01	<0.01	<0.01	0
Total Chromium	<0.01	<0.01	<0.01	0
Copper	<0.01	<0.01	0.01	1
Iron	0.62	0.28	1.10	12
Lead	0.0018	<0.0010	0.0027	10
Manganese	0.04	0.02	0.06	12
Mercury	<0.0002	<0.0002	0.00031	1
Nickel	<0.04	<0.04	<0.04	0
Selenium	<0.0056	<0.002	0.0066	2
Vanadium	<0.06	<0.05	<0.06	0
Zinc	0.10	0.03	0.19	12

[a]< is below the detection limit.

[b]When concentrations were below the detection limit, one-half of the detection limit was used to calculate a mean concentration.

[c]Total number of sampling dates = 12, except for arsenic, which was analyzed on 11 dates (the January sample was not analyzed for arsenic due to a misunderstanding by the laboratory contractor).

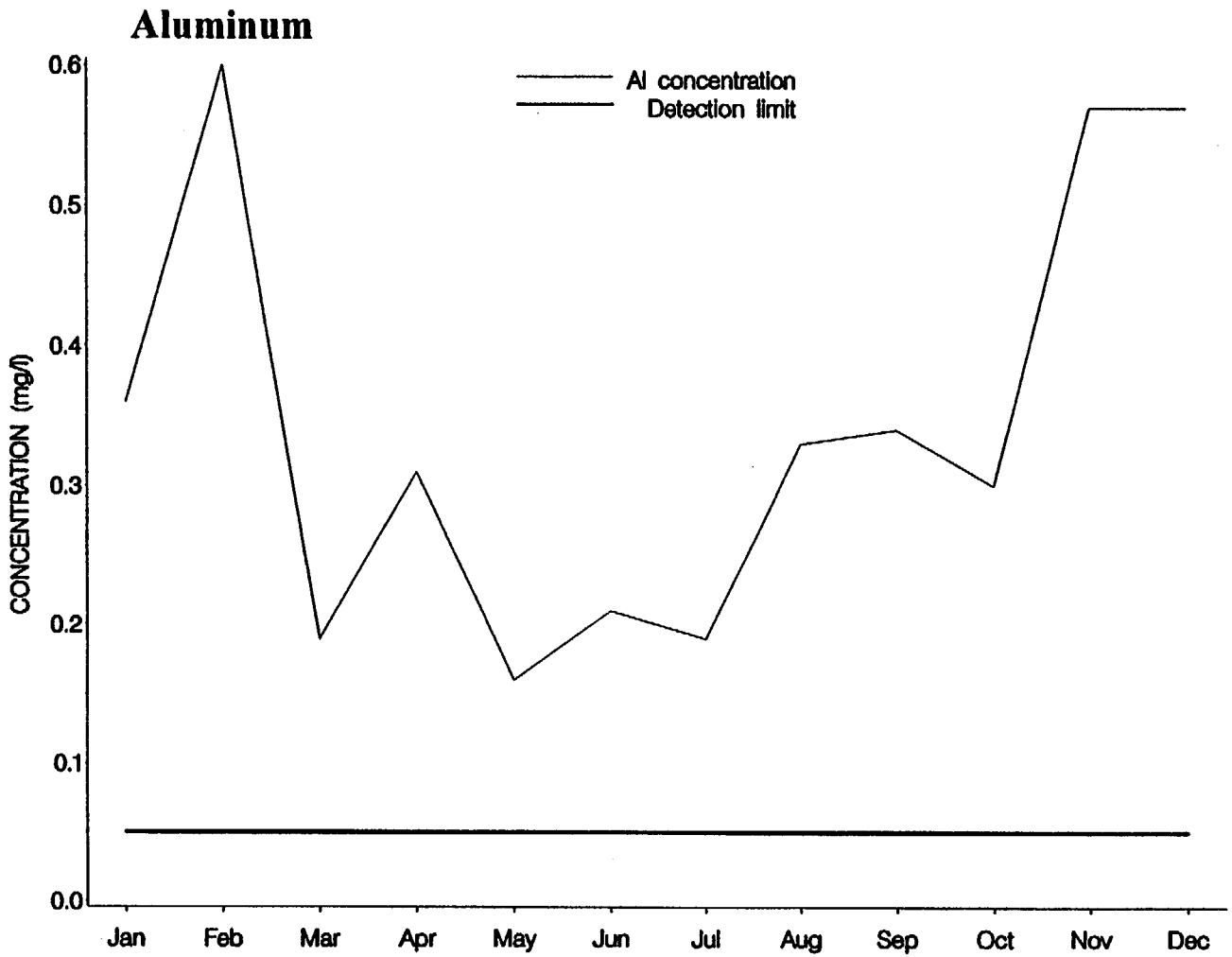


Figure 5-9. Monthly concentration of aluminum at the river reference station CH-4, Roseton and Danskammer Point vicinity, 1995.

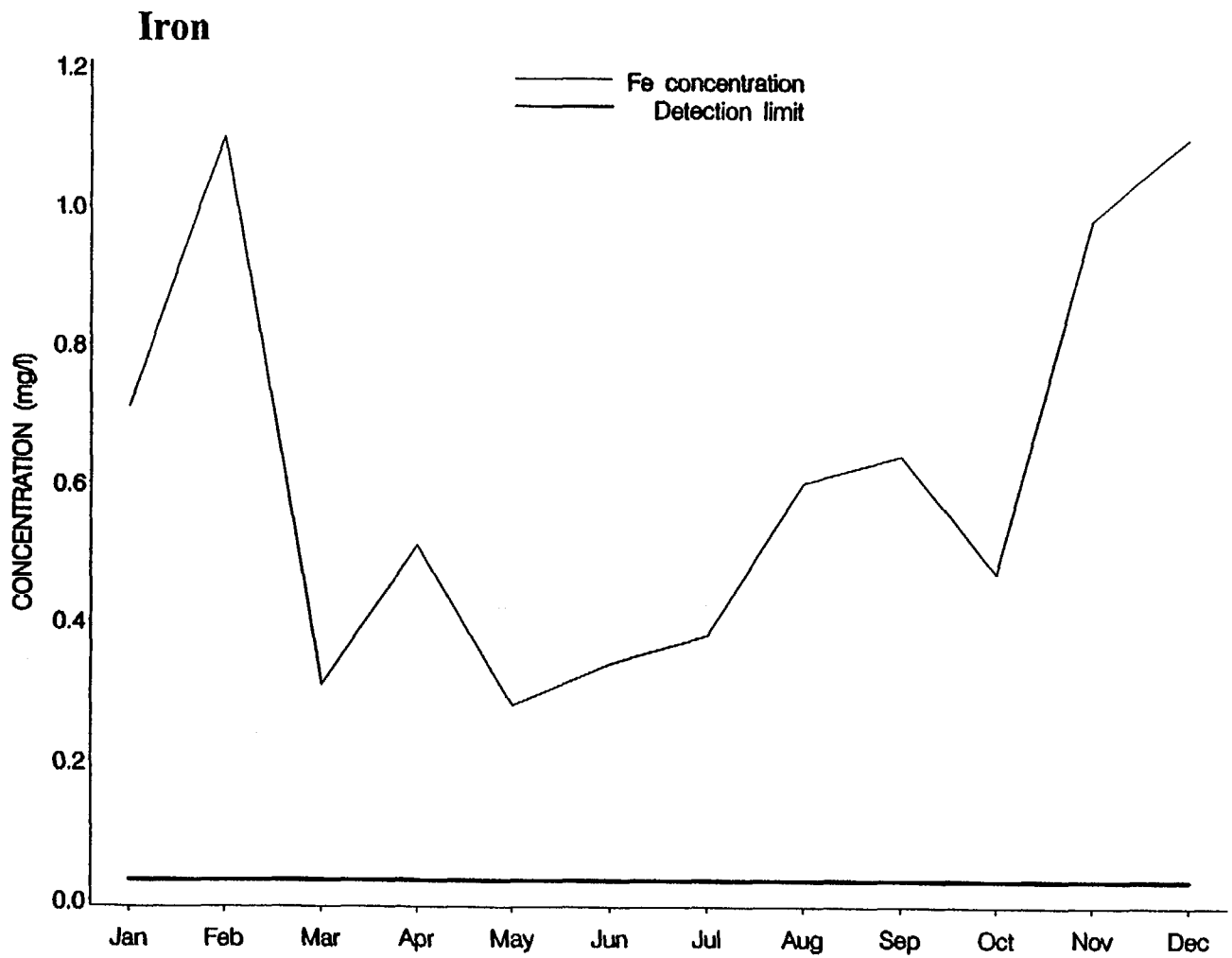


Figure 5-10. Monthly concentration of iron at the river reference station CH-4, Roseton and Danskammer Point vicinity, 1995.

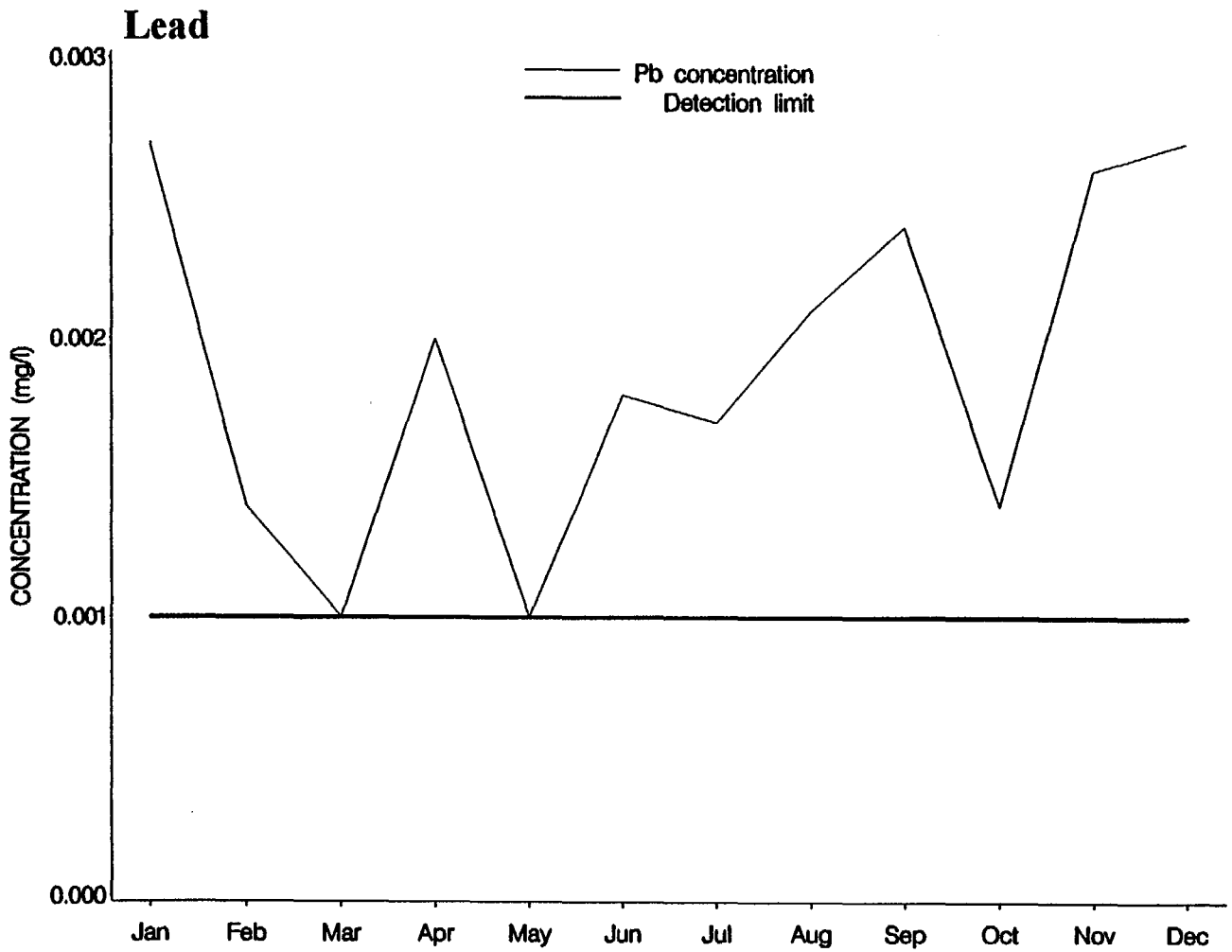


Figure 5-11. Monthly concentration of lead at the river reference station CH-4, Roseton and Danskammer Point vicinity, 1995.

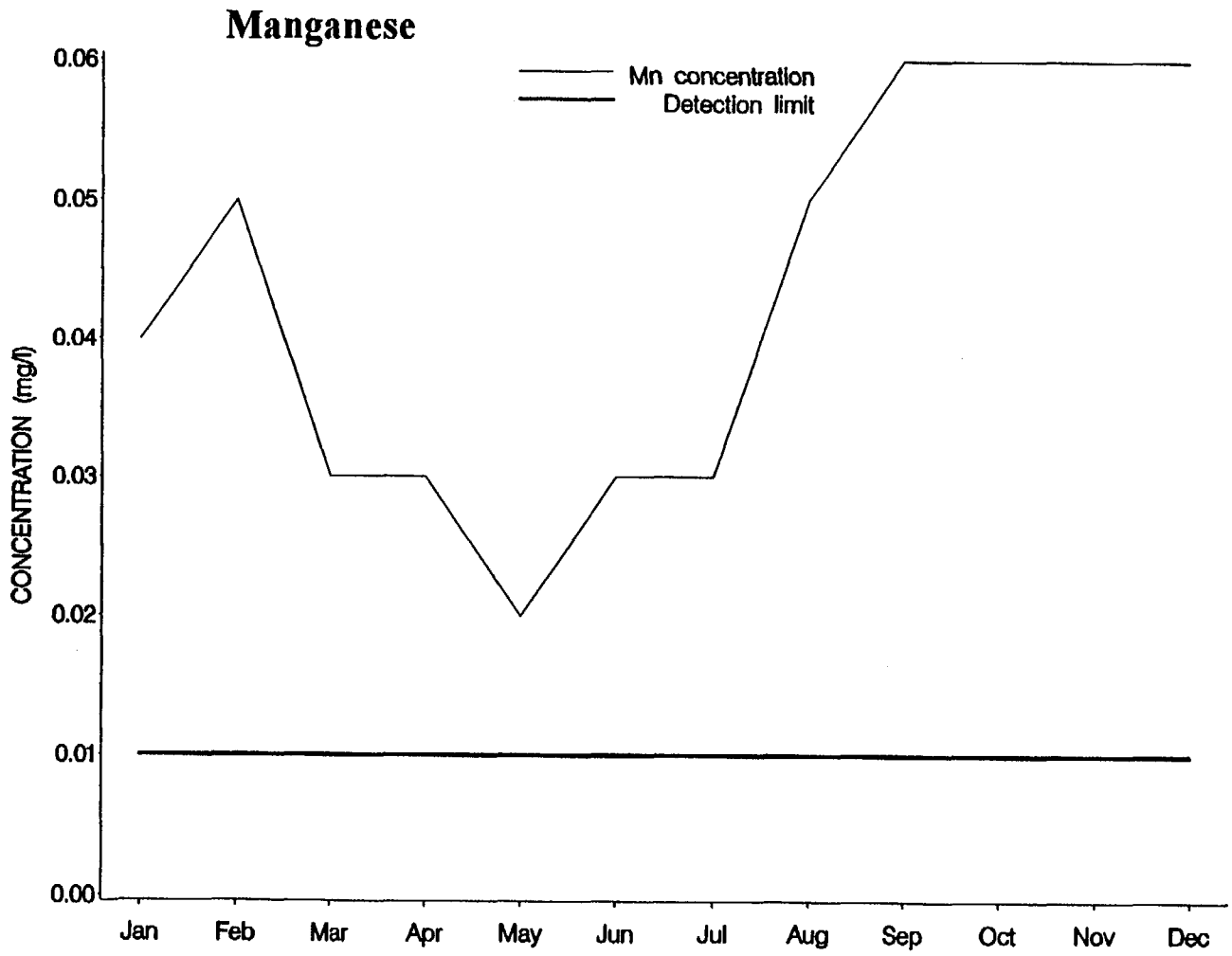


Figure 5-12. Monthly concentration of manganese at the river reference station CH-4, Roseton and Danskammer Point vicinity, 1995.

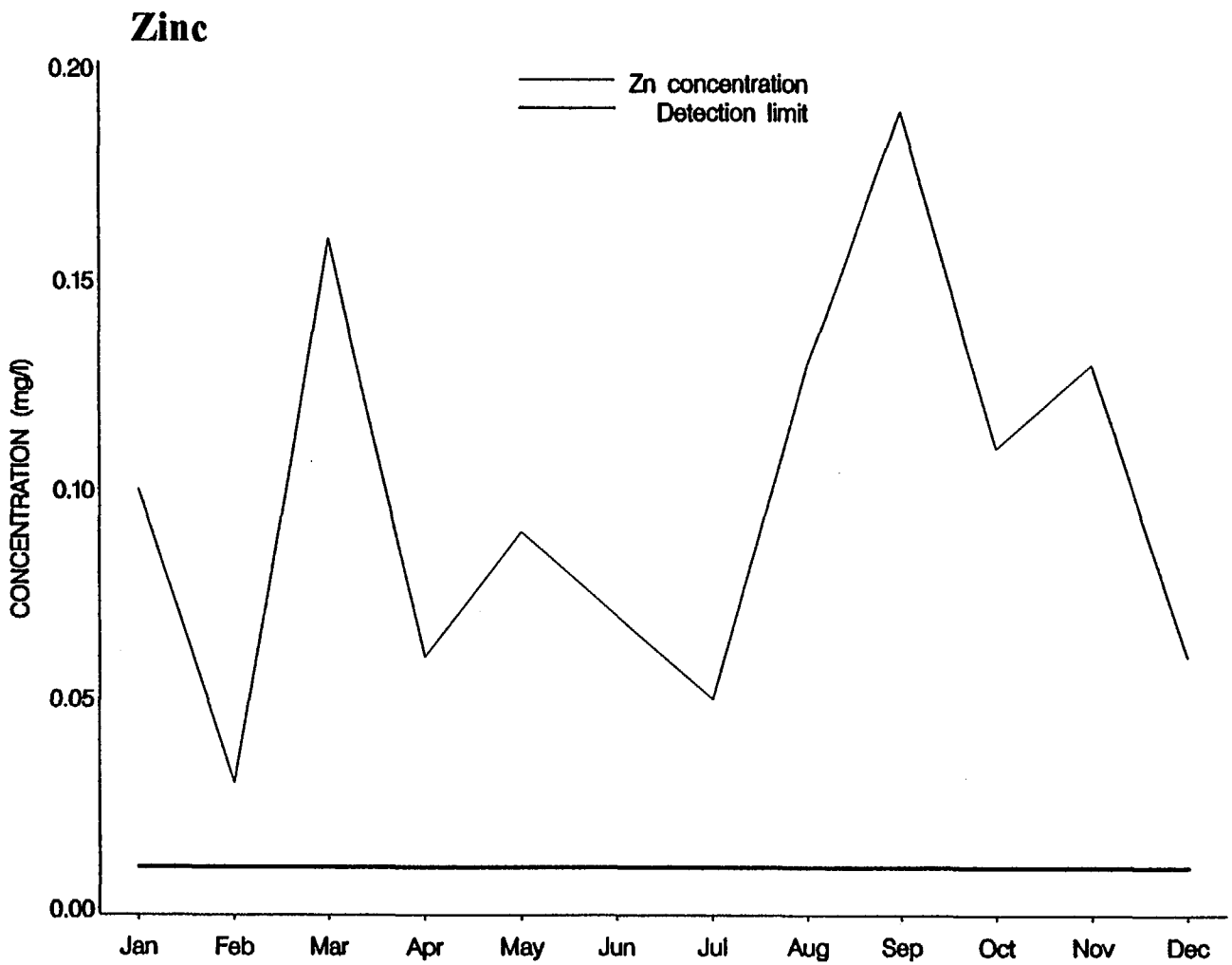


Figure 5-13. Monthly concentration of zinc at the river reference station CH-4, Roseton and Danskammer Point vicinity, 1995.

5.3 IN-PLANT WATER QUALITY

5.3.1 Roseton Generating Station

Mean water temperature, dissolved oxygen, specific conductance, pH, and total suspended solids recorded at the Roseton intake for each impingement monitoring date are presented in Table 5-4. Mean weekly water temperature ranged from 1.4°C, recorded on 28-29 December, to 30.5°C, recorded during 17-18 August. Dissolved oxygen values displayed a typical inverse relationship with water temperature; the lowest values were recorded during summer and the highest values were recorded during the cold-water periods of winter and late fall. The highest mean dissolved oxygen value was 13.6 mg/l on 16-17 February. The lowest mean dissolved oxygen value was 6.2 mg/l on 24-25 August. Specific conductance (µmhos/cm at 25°C) was generally highest in the summer, indicating a higher influx of salt water during that period of low freshwater flow. Weekly averages ranged from 169 µmhos/cm on 16-17 November to 3,467 µmhos/cm on 31 August-1 September. Mean total suspended solids ranged from a low of 9.5 mg/l (19-20 January) to a high of 109.0 mg/l (28-29 September). The weekly mean pH values were consistent throughout 1995, ranging from 6.9 on 16-17 March to 8.0 on 1-2 June.

5.3.2 Danskammer Point Generating Station

Water quality values recorded in the Danskammer Point intake canal for each impingement sampling date in 1995 are reported in Table 5-5. Mean water temperature ranged from 0.7°C (28-29 December) to the year's high of 29.2°C (17-18 August). Danskammer Point generally had slightly lower mean temperatures recorded for the same date compared to Roseton. Slightly warmer temperatures at Roseton, particularly during the cold winter months, may be due to the use of a de-icer system which recirculated a small portion of the heated discharge water back into the intake. Danskammer Point dissolved oxygen values were similar to the Roseton values in both the range and seasonal patterns, with values ranging from 6.5 mg/l (24-25 August) to 13.7 mg/l (19-20 January and 16-17 February). Weekly average specific conductance (µmhos/cm at 25°C) ranged from a low of 161 µmhos/cm (9-10 November) to a high of 3,867 µmhos/cm (7-8 September). Total suspended solids from the Danskammer Point intake

TABLE 5-4. AVERAGE VALUES OF SELECTED WATER QUALITY PARAMETERS AT THE INTAKE OF ROSETON GENERATING STATION, 1995.[a]

SAMPLE START DATE	SAMPLE END DATE	MEAN TEMPERATURE (°C)	MEAN D.O. (MG/L)	MEAN CONDUCTIVITY (μMHOS/CM AT 25°C)	MEAN TSS (MG/L)	MEAN pH
05JAN95	06JAN95	3.8	12.4	220	19.0	7.2
12JAN95	13JAN95	2.3	13.1	214	13.0	7.2
19JAN95	20JAN95	3.2	12.9	217	9.5	7.6
26JAN95	27JAN95	4.5	13.2	226	18.5	7.3
02FEB95	03FEB95	3.8	13.1	195	20.0	7.2
09FEB95	10FEB95	3.4	13.1	202	23.0	7.4
16FEB95	17FEB95	2.1	13.6	200	17.0	7.1
23FEB95	24FEB95	2.5	13.1	212	20.0	7.3
02MAR95	03MAR95	2.1	13.0	218	14.0	7.4
09MAR95	10MAR95	2.2	12.7	234	11.5	7.4
16MAR95	17MAR95	5.1	12.7	238	30.0	6.9
23MAR95	24MAR95	6.7	12.7	222	37.0	7.1
30MAR95	31MAR95	7.9	12.0	234	17.0	7.3
06APR95	07APR95	8.3	11.8	200	27.0	7.4
13APR95	14APR95	8.7	12.0	213	27.0	.[b]
20APR95	21APR95	9.8	11.6	210	24.5	7.4
27APR95	28APR95	10.8	10.0	235	54.5	7.5
04MAY95	05MAY95	12.4	11.3	239	14.0	7.4
11MAY95	12MAY95	13.7	10.7	248	26.0	7.6
18MAY95	19MAY95	14.9	9.6	272	28.5	7.6
25MAY95	26MAY95	17.0	10.0	266	27.5	7.3
01JUN95	02JUN95	18.9	11.0	267	29.0	8.0
08JUN95	09JUN95	20.0	8.7	251	21.5	7.3
15JUN95	16JUN95	20.7	8.1	256	19.5	7.3
22JUN95	23JUN95	22.7	7.6	283	23.0	7.3
29JUN95	30JUN95	23.5	8.1	310	18.5	7.5
06JUL95	07JUL95	24.3	7.0	922	20.7	7.7
13JUL95	14JUL95	25.1	7.2	993	38.0	7.5
20JUL95	21JUL95	26.4	6.5	1001	24.0	7.2
27JUL95	28JUL95	26.9	6.9	807	29.0	7.3
03AUG95	04AUG95	28.4	6.9	894	15.5	7.5
10AUG95	11AUG95	27.6	6.6	528	23.0	7.6
17AUG95	18AUG95	30.5	7.0	592	10.0	7.3
24AUG95	25AUG95	27.2	6.2	1914	24.5	7.4
31AUG95	01SEP95	26.5	6.7	3467	69.0	7.5
07SEP95	08SEP95	25.7	8.6	3388	93.0	7.7
14SEP95	15SEP95	24.7	7.6	2768	34.0	7.4
21SEP95	22SEP95	23.0	7.5	2689	29.0	7.7
28SEP95	29SEP95	21.4	7.3	3123	109.0	7.6
05OCT95	06OCT95	20.4	7.4	3082	51.0	7.7
12OCT95	13OCT95	19.6	7.8	1347	39.5	7.6
19OCT95	20OCT95	18.0	8.3	352	30.0	7.6
26OCT95	27OCT95	15.4	8.3	236	25.0	7.4
02NOV95	03NOV95	13.9	8.8	263	37.5	7.4
09NOV95	10NOV95	10.4	9.1	179	14.5	7.3
16NOV95	17NOV95	6.9	10.7	169	34.0	7.3
21NOV95	22NOV95	5.8	11.5	195	61.0	7.3
30NOV95	01DEC95	5.0	11.6	191	33.0	7.2
07DEC95	08DEC95	5.2	11.9	199	29.0	7.4
14DEC95	15DEC95	4.0	11.6	194	12.0	7.6
21DEC95	22DEC95	1.8	11.9	217	32.0	7.4
28DEC95	29DEC95	1.4	12.6	229	15.5	7.7

[a]Means are averages of surface and bottom values for all time periods sampled for each parameter.
[b]Missing pH data for one date resulted from an instrument malfunction.

TABLE 5-5. AVERAGE VALUES OF SELECTED WATER QUALITY PARAMETERS AT THE INTAKE OF DANSKAMMER POINT GENERATING STATION, 1995.[a]

SAMPLE START DATE	SAMPLE END DATE	MEAN TEMPERATURE (°C)	MEAN D.O. (MG/L)	MEAN CONDUCTIVITY (µMHOS/CM AT 25°C)	MEAN TSS (MG/L)	MEAN pH
05JAN95	06JAN95	2.9	13.2	221	18.5	7.2
12JAN95	13JAN95	2.6	13.6	210	41.5	7.3
19JAN95	20JAN95	3.3	13.7	212	7.5	7.5
26JAN95	27JAN95	5.0	13.5	220	19.5	7.3
02FEB95	03FEB95	3.2	13.1	195	25.5	7.3
09FEB95	10FEB95	1.7	13.4	201	13.0	7.4
16FEB95	17FEB95	1.9	13.7	200	16.0	7.1
23FEB95	24FEB95	3.0	13.2	201	12.5	7.4
02MAR95	03MAR95	2.1	13.0	219	20.5	7.4
09MAR95	10MAR95	2.3	12.8	237	11.5	7.3
16MAR95	17MAR95	5.2	12.9	241	32.5	6.9
23MAR95	24MAR95	6.5	12.7	239	30.0	7.2
30MAR95	31MAR95	8.1	11.8	227	25.5	7.2
06APR95	07APR95	7.8	12.0	197	19.0	7.4
13APR95	14APR95	8.3	12.5	210	16.5	.[b]
20APR95	21APR95	9.2	11.7	205	26.0	7.4
27APR95	28APR95	11.1	10.1	256	22.0	7.5
04MAY95	05MAY95	12.4	11.1	240	15.0	7.4
11MAY95	12MAY95	13.2	10.9	261	27.0	7.5
18MAY95	19MAY95	14.8	10.2	234	62.5	7.4
25MAY95	26MAY95	16.4	9.6	328	26.0	7.3
01JUN95	02JUN95	18.1	10.1	259	41.0	7.8
08JUN95	09JUN95	19.8	8.9	247	45.0	7.4
15JUN95	16JUN95	20.8	8.3	256	61.5	7.3
22JUN95	23JUN95	22.5	7.5	269	26.0	7.2
29JUN95	30JUN95	23.4	8.0	314	40.0	7.5
06JUL95	07JUL95	24.5	7.0	786	26.0	7.6
13JUL95	14JUL95	25.7	7.3	960	29.5	7.5
20JUL95	21JUL95	25.8	6.7	1009	27.0	7.3
27JUL95	28JUL95	27.0	7.0	667	32.5	7.4
03AUG95	04AUG95	27.5	7.3	690	31.0	7.5
10AUG95	11AUG95	27.2	6.9	470	24.5	7.4
17AUG95	18AUG95	29.2	7.0	492	24.5	7.3
24AUG95	25AUG95	26.4	6.5	1107	38.5	7.5
31AUG95	01SEP95	25.7	6.9	3176	69.0	7.4
07SEP95	08SEP95	25.8	8.7	3867	35.5	7.7
14SEP95	15SEP95	24.2	7.5	2512	58.0	7.4
21SEP95	22SEP95	22.9	7.5	2700	25.5	7.8
28SEP95	29SEP95	21.1	7.5	2751	86.0	7.5
05OCT95	06OCT95	20.4	7.5	2845	50.5	7.7
12OCT95	13OCT95	19.4	8.1	1243	66.5	7.6
19OCT95	20OCT95	17.7	8.3	377	37.5	7.6
26OCT95	27OCT95	15.2	8.4	229	36.0	7.4
02NOV95	03NOV95	14.0	8.7	263	40.0	7.4
09NOV95	10NOV95	10.6	9.4	161	30.5	7.4
16NOV95	17NOV95	6.6	10.9	170	20.0	7.4
21NOV95	22NOV95	6.0	11.7	187	99.0	7.3
30NOV95	01DEC95	4.5	12.0	191	28.5	7.2
07DEC95	08DEC95	4.6	12.1	197	36.5	7.4
14DEC95	15DEC95	2.8	12.3	193	18.0	7.6
21DEC95	22DEC95	1.7	11.9	210	23.0	7.4
28DEC95	29DEC95	0.7	12.8	230	18.0	7.7

[a]Means are averages of surface and bottom values for all time periods sampled for each parameter.
[b]Missing pH data for one date resulted from an instrument malfunction.

exhibited the same general trend noted for Roseton. Values ranged from a low of 7.5 mg/l on 19-20 January to a high of 99.0 mg/l on 21-22 November. The pH range at Danskammer Point was similar to Roseton, 6.9 to 7.8.

6.0 RESULTS OF IMPINGEMENT MONITORING PROGRAM

6.0 RESULTS OF IMPINGEMENT MONITORING PROGRAM

6.1 PROPORTION OF PLANT FLOW SAMPLED

Impingement sampling was conducted on 52 dates in 1995 at Roseton and on 52 dates at Danskammer Point (Section 4.1.1). At Roseton, 14.9% of the total plant flow in 1995 was sampled for impinged organisms. The percentage of plant flow sampled on a monthly basis ranged from 12.9% in October to 18.0% in June (Table 6-1). The variation was primarily due to the number of weekly sampling events that occurred in each month. All the 208 scheduled 6-hr samples were successfully collected during 1995 at Roseton.

At Danskammer Point 14.7% of the total flow for all units combined was sampled in 1995. On a monthly basis the percentage of plant flow sampled ranged from 12.4% in December to 17.9% in August (Table 6-1). A higher proportion of plant flow was sampled in months with five sampling dates than in months with only four. A total of 416 samples (6-hr each) were scheduled to be collected in 1995, with equal numbers at the two sluiceway discharges (Unit 1 and 2 screenwash and Unit 3 and 4 screenwash). However, for some periods in 1995, Units 1 and 2 did not operate; thus, a total of 351 of the 416 scheduled samples were collected (84.4%)

6.2 SPECIES INVENTORY

Forty-five fish species were collected at Roseton in 1995 (Table 6-2), which is comparable to findings in past years (Appendix Table A-1). Twenty-two families of fishes were collected, with Centrarchidae being represented by the most species (six). Three species that were not previously identified at Roseton Station (Atlantic croaker, butterfish, and silver perch) were impinged in 1995 (Appendix Table A-1). One shortnose sturgeon was collected in 1995 at Roseton, bringing the total to six individuals over the 23 years of sampling. Weakfish, which had been observed in 11 of the 22 previous years, with as many as 1,946 impinged in a single year (1991), were only collected in low numbers in 1995. Three invertebrate taxa were collected at Roseton: two crab species (blue crab and mud crab) and crayfish.

TABLE 6-1. MONTHLY TOTAL PLANT FLOW AND FLOW SAMPLED AT ROSETON AND DANSKAMMER POINT GENERATING STATIONS, 1995.[a]

	ROSETON GENERATING STATION				DANSKAMMER POINT GENERATING STATION			
MONTH	TOTAL PLANT FLOW	FLOW SAMPLED	PERCENT OF FLOW SAMPLED	NUMBER OF DAYS SAMPLED	TOTAL PLANT FLOW	FLOW SAMPLED	PERCENT OF FLOW SAMPLED	NUMBER OF DAYS SAMPLED
Jan	13,512.0	1,989.54	14.7	4	6,084.79	804.83	13.2	4
Feb	14,836.8	2,001.60	13.5	4	6,109.44	886.02	14.5	4
Mar	11,424.0	1,776.64	15.6	5	7,015.49	1,142.03	16.3	5
Apr	9,432.0	1,254.98	13.3	4	5,878.56	786.88	13.4	4
May	16,324.8	2,194.20	13.4	4	4,189.08	561.76	13.4	4
Jun	14,995.2	2,699.40	18.0	5	8,863.03	1,379.91	15.6	5
Jul	19,615.2	2,874.60	14.7	4	10,812.34	1,473.02	13.6	4
Aug	17,978.4	3,010.20	16.7	5	11,235.17	2,011.54	17.9	5
Sep	9,340.8	1,257.60	13.5	4	10,997.71	1,599.47	14.5	4
Oct	9,746.4	1,257.60	12.9	4	8,233.46	1,111.15	13.5	4
Nov	10,380.0	1,800.00	17.3	5	7,228.92	1,137.18	15.7	5
Dec	16,274.4	2,234.67	13.7	4	6,169.54	767.13	12.4	4
TOTAL	163,860.0	24,351.03	14.9	52	92,817.53	13,660.92	14.7	52

[a]Flow is in millions of gallons.

TABLE 6-2. SPECIES COMPOSITION OF FISH IN IMPINGEMENT COLLECTIONS AT ROSETON GENERATING STATION IN 1995.

SCIENTIFIC NAME	COMMON NAME	OCCUR-RENCE	TOTAL COUNT
Acipenseridae	sturgeons		
Acipenser brevirostrum	shortnose sturgeon	E	1
Anguillidae	freshwater eels		
Anguilla rostrata	American eel	E	83
Clupeidae	herrings		
Alosa aestivalis	blueback herring	E	4,698
Alosa pseudoharengus	alewife	E	2,239
Alosa sapidissima	American shad	E	1,136
Brevoortia tyrannus	Atlantic menhaden	M	79
Dorosoma cepedianum	gizzard shad	E	1,622
Clupeidae	unidentified clupeid		464
Engraulidae	anchovies		
Anchoa mitchilli	bay anchovy	E	9,539
Cyprinidae	carps and minnows		
Carassius auratus	goldfish	F	42
Cyprinus carpio	common carp	F	15
Notemigonus crysoleucas	golden shiner	F	376
Notropis hudsonius	spottail shiner	F	1,424
Ictaluridae	bullhead catfishes		
Ameiurus catus	white catfish	F	131
Ameiurus nebulosus	brown bullhead	F	407
Ictalurus punctatus	channel catfish	F	51
Umbridae	mudminnows		
Umbra limi	central mudminnow	F	1
Osmeridae	smelts		
Osmerus mordax	rainbow smelt	E	209
Gadidae	cods		
Microgadus tomcod	Atlantic tomcod	E	258
Cyprinodontidae	killifishes		
Fundulus diaphanus	banded killifish	F	969
Fundulus heteroclitus	mummichog	E	2
Atherinidae	silversides		
Labidesthes sicculus	brook silverside	F	5
Menidia menidia	Atlantic silverside	M	11
Gasterosteidae	sticklebacks		
Apeltes quadracus	fourspine stickleback	E	31
Gasterosteus aculeatus	threespine stickleback	E	17
Syngnathidae	pipefishes		
Syngnathus fuscus	northern pipefish	M	2
Percichthyidae	temperate basses		
Morone americana	white perch	E	6,051
Morone chrysops	white bass	F	2
Morone saxatilis	striped bass	E	3,891
Morone sp.	unidentified *Morone*		3

(Continued)

TABLE 6-2 (CONTINUED)

SCIENTIFIC NAME	COMMON NAME	OCCUR-RENCE	TOTAL COUNT
Centrarchidae	sunfishes		
Ambloplites rupestris	rock bass	F	1
Lepomis auritus	redbreast sunfish	F	9
Lepomis gibbosus	pumpkinseed	F	760
Lepomis macrochirus	bluegill	F	117
Micropterus salmoides	largemouth bass	F	23
Pomoxis nigromaculatus	black crappie	F	67
Centrarchidae	unidentified centrarchid		36
Percidae	perches		
Etheostoma olmstedi	tessellated darter	F	245
Perca flavescens	yellow perch	F	39
Pomatomidae	bluefishes		
Pomatomus saltatrix	bluefish	M	54
Carangidae	jacks		
Caranx hippos	crevalle jack	M	1
Sciaenidae	drums		
Bairdiella chrysoura	silver perch	E	1
Cynoscion regalis	weakfish	M	9
Leiostomus xanthurus	spot	E	1
Micropogonias undulatus	Atlantic croaker	E	16
Gobiidae	gobies		
Gobiosoma bosc	naked goby	E	1
Stromateidae	butterfishes		
Peprilus triacanthus	butterfish	M	1
Soleidae	soles		
Trinectes maculatus	hogchoker	E	462

Species are grouped by family. Scientific names, common names, and occurrence are according to Robins et al. (1991). Occurrence: F=freshwater, M=marine, E=euryhaline (occurring in both fresh and salt waters).

Forty-four fish species representing 21 families were collected at Danskammer Point during 1995 (Table 6-3). The family Centrarchidae (sunfishes) was represented by seven species, which represents the greatest diversity within a family. Thirty-eight species that only rarely occurred in previous years did not occur in the 1995 impingement collections (Appendix Table A-2). Four species collected in 1995 were not previously collected from impingement sampling at Danskammer Point Station: silver perch, Atlantic silverside, Atlantic croaker, and butterfish (Appendix Table A-2). Atlantic sturgeon (present in 17 of 21 previous years) and shortnose sturgeon (present in seven previous years) were both present in the 1995 collections at Danskammer Point. Three invertebrate taxa were collected: blue crab, mud crab and crayfish.

6.3 ABUNDANCE, BIOMASS, AND PERCENT COMPOSITION

6.3.1 Fish

6.3.1.1 Roseton Generating Station

Fifty-two 24-hr impingement sampling events at Roseton Generating Station in 1995 resulted in the collection of 35,602 fish, which ranks twelfth highest in the 23 years since sampling began in 1973 (Appendix Table A-1). Roseton Station impingement counts increased by 58.0% from 1994 to 1995. The increase can be attributed mainly to increased abundance of bay anchovy, white perch, and striped bass. Blueback herring and alewife counts decreased between the two years by 37.0% and 46.4%, respectively. The most numerous fish in 1995, bay anchovy, made up 26.8% of the total abundance, followed by white perch (17.0%) and blueback herring (13.2%) (Table 6-4, Figure 6-1). The top ten species (in terms of numerical abundance) accounted for 90.8% of the total collected at Roseton in 1995.

TABLE 6-3. SPECIES COMPOSITION OF FISH IN IMPINGEMENT COLLECTIONS AT DANSKAMMER POINT GENERATING STATION IN 1995.

SCIENTIFIC NAME	COMMON NAME	OCCUR-RENCE	TOTAL COUNT
Acipenseridae	sturgeons		
Acipenser brevirostrum	shortnose sturgeon	E	1
Acipenser oxyrhynchus	Atlantic sturgeon	E	3
Anguillidae	freshwater eels		
Anguilla rostrata	American eel	E	87
Clupeidae	herrings		
Alosa aestivalis	blueback herring	E	2,168
Alosa pseudoharengus	alewife	E	2,169
Alosa sapidissima	American shad	E	458
Brevoortia tyrannus	Atlantic menhaden	M	23
Dorosoma cepedianum	gizzard shad	E	5,927
Clupeidae	unidentified clupeid		97
Engraulidae	anchovies		
Anchoa mitchilli	bay anchovy	E	3,807
Cyprinidae	carps and minnows		
Carassius auratus	goldfish	F	61
Cyprinus carpio	common carp	F	33
Notemigonus crysoleucas	golden shiner	F	819
Notropis hudsonius	spottail shiner	F	3,049
Catostomidae	suckers		
Catostomus commersoni	white sucker	F	2
Ictaluridae	bullhead catfishes		
Ameiurus catus	white catfish	F	510
Ameiurus nebulosus	brown bullhead	F	513
Ictalurus punctatus	channel catfish	F	115
Osmeridae	smelts		
Osmerus mordax	rainbow smelt	E	55
Salmonidae	trouts		
Oncorhynchus mykiss	rainbow trout	E	1
Gadidae	cods		
Microgadus tomcod	Atlantic tomcod	E	398
Cyprinodontidae	killifishes		
Fundulus diaphanus	banded killifish	F	73
Atherinidae	silversides		
Menidia menidia	Atlantic silverside	M	4
Gasterosteidae	sticklebacks		
Apeltes quadracus	fourspine stickleback	E	3
Gasterosteus aculeatus	threespine stickleback	E	16
Percichthyidae	temperate basses		
Morone americana	white perch	E	17,445
Morone chrysops	white bass	F	3
Morone saxatilis	striped bass	E	3,632
Morone sp.	unidentified *Morone*		8

(Continued)

TABLE 6-3 (CONTINUED)

SCIENTIFIC NAME	COMMON NAME	OCCUR-RENCE	TOTAL COUNT
Centrarchidae	sunfishes		
Ambloplites rupestris	rock bass	F	4
Lepomis auritus	redbreast sunfish	F	17
Lepomis gibbosus	pumpkinseed	F	1,941
Lepomis macrochirus	bluegill	F	184
Micropterus dolomieu	smallmouth bass	F	2
Micropterus salmoides	largemouth bass	F	38
Pomoxis nigromaculatus	black crappie	F	70
Centrarchidae	unidentified centrarchid		21
Percidae	perches		
Etheostoma olmstedi	tessellated darter	F	145
Perca flavescens	yellow perch	F	122
Pomatomidae	bluefishes		
Pomatomus saltatrix	bluefish	M	223
Carangidae	jacks		
Caranx hippos	crevalle jack	M	6
Sciaenidae	drums		
Aplodinotus grunniens	freshwater drum	F	2
Bairdiella chrysoura	silver perch	E	61
Cynoscion regalis	weakfish	M	643
Micropogonias undulatus	Atlantic croaker	E	1
Stromateidae	butterfishes		
Peprilus triacanthus	butterfish	M	1
Soleidae	soles		
Trinectes maculatus	hogchoker	E	435

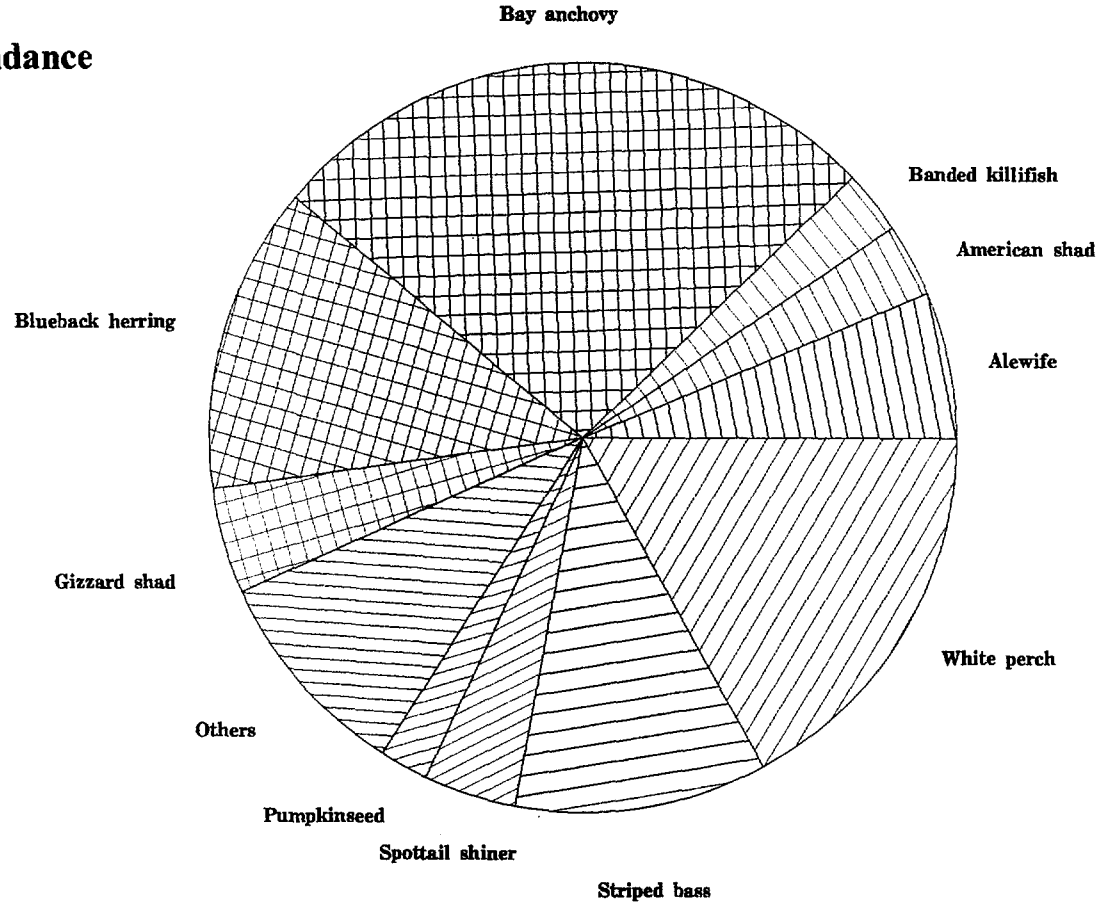
Species are grouped by family. Scientific names, common names, and occurrence are according to Robins et al. (1991). Occurrence: F=freshwater, M=marine, E=euryhaline (occurring in both fresh and salt waters).

TABLE 6-4. ABUNDANCE, BIOMASS, AND PERCENT COMPOSITION OF THE TOP TEN FISH SPECIES AT ROSETON GENERATING STATION, 1995.

	ABUNDANCE	PERCENT OF TOTAL
Bay anchovy	9539	26.8
White perch	6051	17.0
Blueback herring	4698	13.2
Striped bass	3891	10.9
Alewife	2239	6.3
Gizzard shad	1622	4.6
Spottail shiner	1424	4.0
American shad	1136	3.2
Banded killifish	969	2.7
Pumpkinseed	760	2.1
Others	3273	9.2
TOTAL	35602	100.0

	BIOMASS (KG)	PERCENT OF TOTAL
Gizzard shad	176.40	60.1
White perch	29.21	10.0
Pumpkinseed	13.23	4.5
Golden shiner	9.88	3.4
Bay anchovy.	8.13	2.8
Alewife	7.17	2.4
Brown bullhead	6.24	2.1
Blueback herring	6.11	2.1
Spottail shiner	6.05	2.1
American eel	5.24	1.8
Others	25.70	8.8
TOTAL	293.35	100.0

Abundance



Biomass

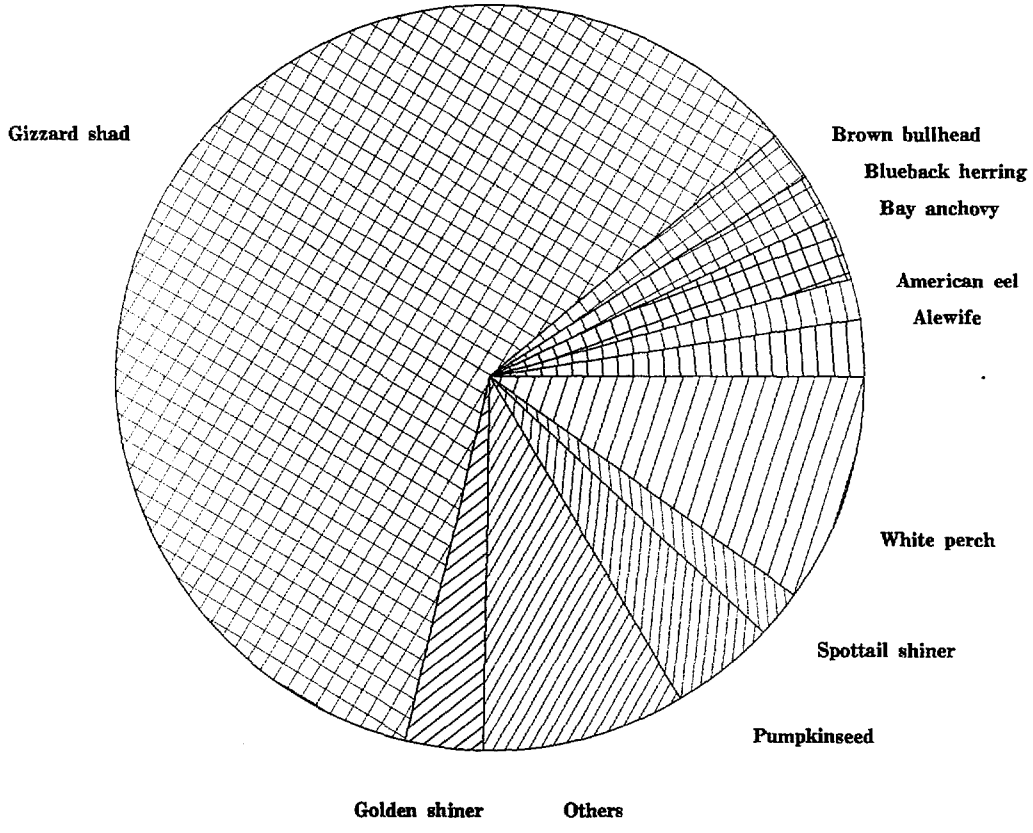


Figure 6-1. Relative species abundance and relative biomass of fish collected during impingement monitoring, Roseton Generating Station, 1995.

Monthly abundance results for fish impinged on collection days at Roseton in 1995 (Table 6-5, Figure 6-2) were similar to the patterns of previous years in that the month of highest abundance was in the second half of the year. In some past years there was also a secondary peak in abundance in the spring, but in 1995 the highest counts were in July and August, with a secondary peak in October. The usual summer-fall increase in abundance occurred in July of 1995, marked by abrupt increases of alewife, blueback herring, striped bass, and white perch. Abundances remained high during August, decreased greatly in September, then increased again in October. Bay anchovy was the most important contributor to the August and October totals, with a total abundance of 8,876 individuals (53.0%) for those two months combined. September had the lowest abundance for the year with 129 individuals collected.

The monthly biomass pattern for 1995 at Roseton was dominated by a much higher value in December than in all other months (Table 6-6, Figure 6-2). The overall biomass pattern differed markedly from the numerical abundance pattern due to the presence of many very large adult gizzard shad. In July, August and October, blueback herring and either alewife or bay anchovy were much more numerous than gizzard shad were in December. Individuals of these three species were small, however, allowing the much larger but less numerous gizzard shad to dominate the overall biomass pattern during the year. The top three species in terms of biomass were, in decreasing order, gizzard shad, white perch, and pumpkinseed. These species made up 74.6% (218.8 kg) of the total biomass measured (293.4 kg) in 1995 (Table 6-4, Figure 6-1).

White perch was the dominant species in terms of biomass for six of the twelve months. The species with the greatest biomass in the remaining six months were gizzard shad (January, February, and December), golden shiner (March), pumpkinseed (April), and bay anchovy (October). For the year, December collections yielded by far the greatest fish biomass (169.2 kg) and September the least (0.8 kg) (Table 6-6).

Bay anchovy, the most abundant species at Roseton in 1995, reached its peak abundance and greatest biomass during August and was also the most abundant species impinged during October (Tables 6-5 and 6-6). Young-of-the-year bay anchovy were first impinged on

TABLE 6-5. MONTHLY COUNT AND PERCENT COMPOSITION OF FISH SPECIES IN IMPINGEMENT COLLECTIONS, ROSETON GENERATING STATION, 1995.

	JAN		FEB		MAR		APR		MAY		JUN	
SPECIES	NO.	PCNT	NO.	PCNT	NO.	PCNT	NO.	PCNT	NO.	PCNT	NO.	PC
Alewife	2	0.4			3	0.5	2	0.7	9	0.7	10	0
American eel	1	0.2			4	0.7	1	0.4	4	0.3	10	0
American shad											6	0
Atlantic croaker												
Atlantic menhaden											12	1
Atlantic silverside												
Atlantic tomcod	1	0.2							27	2.0	69	6.
Banded killifish	88	16.5	24	5.8	31	5.1	2	0.7	1	0.1	18	1.
Bay anchovy												
Black crappie	15	2.8	1	0.2	1	0.2						
Blueback herring							2	0.7	22	1.7	5	0.
Bluefish											1	0.
Bluegill	10	1.9	3	0.7	1	0.2	2	0.7	1	0.1		
Brook silverside			2	0.5	2	0.3						
Brown bullhead	4	0.8	1	0.2	3	0.5	16	5.9	197	14.8	93	8.
Butterfish												
Central mudminnow					1	0.2						
Channel catfish	5	0.9	2	0.5	5	0.8			5	0.4	4	0.
Common carp	2	0.4			1	0.2					1	0.
Crevalle jack												
Fourspine stickleback			2	0.5	16	2.6	9	3.3				
Gizzard shad	107	20.1	58	14.1	1	0.2						
Golden shiner	77	14.4	85	20.6	99	16.4	3	1.1	2	0.2	1	0.
Goldfish	7	1.3	6	1.5			1	0.4				
Herring family											31	2.
Hogchoker					1	0.2	4	1.5	307	23.1	38	3.
Largemouth bass	3	0.6										
Morone species											3	0.
Mummichog					1	0.2						
Naked goby												
Northern pipefish												
Pumpkinseed	64	12.0	42	10.2	25	4.1	29	10.6	68	5.1	34	3.
Rainbow smelt			2	0.5	8	1.3	4	1.5	93	7.0	34	3.
Redbreast sunfish	3	0.6			1	0.2					1	0.
Rock bass			1	0.2								
Shortnose sturgeon			1	0.2								
Silver perch												
Spot												
Spottail shiner	97	18.2	126	30.6	250	41.4	72	26.4	68	5.1	106	9.3
Striped bass	23	4.3	4	1.0	2	0.3	5	1.8	34	2.6	167	14.6
Sunfish family	4	0.8										
Tessellated darter	6	1.1	1	0.2	73	12.1	53	19.4	27	2.0	32	2.8
Threespine stickleback			8	1.9	7	1.2	1	0.4				
Weakfish												
White bass												
White catfish	1	0.2			4	0.7	4	1.5	11	0.8	39	3.4
White perch	9	1.7	30	7.3	54	8.9	62	22.7	451	34.0	427	37.4
Yellow perch	4	0.8	13	3.2	10	1.7	1	0.4	1	0.1		
TOTAL	533	100.0	412	100.0	604	100.0	273	100.0	1328	100.0	1142	100.0

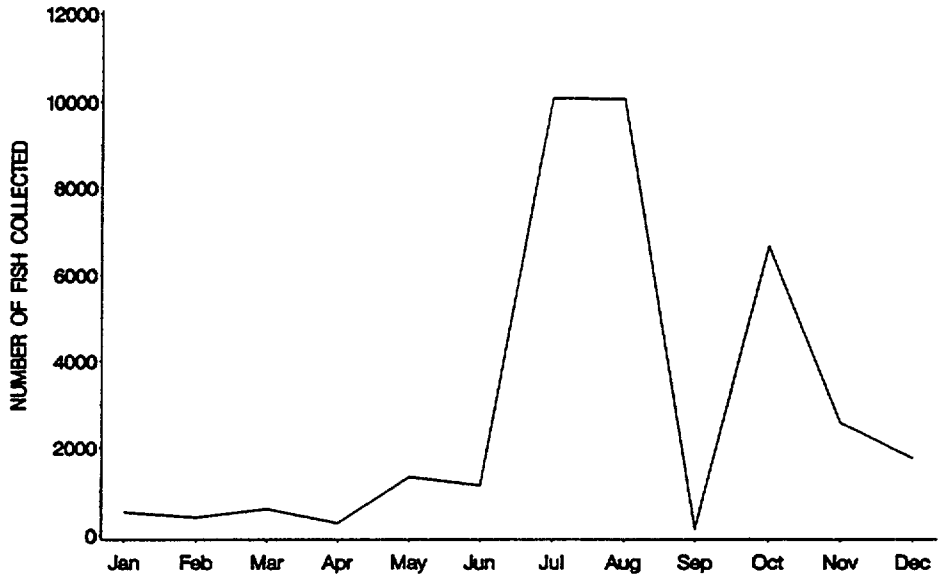
(CONTINUED)

TABLE 6-5. (CONTINUED)

SPECIES	JUL		AUG		SEP		OCT		NOV		DEC	
	NO.	PCNT	NO.	PCNT	NO.	PCNT	NO.	PCNT	NO.	PCNT	NO.	PCNT
Alewife	1700	16.9	454	4.5	2	1.6	39	0.6	18	0.7		
American eel	22	0.2	31	0.3	2	1.6	3	<0.1	4	0.2	1	0.1
American shad	965	9.6	146	1.4	2	1.6	8	0.1	9	0.3		
Atlantic croaker							16	0.2				
Atlantic menhaden	42	0.4	21	0.2			4	0.1				
Atlantic silverside					1	0.8	10	0.1				
Atlantic tomcod	157	1.6	4	<0.1								
Banded killifish	9	0.1	28	0.3			53	0.8	640	24.8	75	4.3
Bay anchovy	648	6.4	4796	47.6	15	11.6	4080	61.1				
Black crappie			1	<0.1			1	<0.1	26	1.0	22	1.3
Blueback herring	1312	13.0	1244	12.3	10	7.8	1894	28.4	209	8.1		
Bluefish	35	0.3	10	0.1	8	6.2						
Bluegill			2	<0.1			17	0.3	77	3.0	4	0.2
Brook silverside									1	<0.1		
Brown bullhead	58	0.6	21	0.2	2	1.6	1	<0.1	8	0.3	3	0.2
Butterfish			1	<0.1								
Central mudminnow												
Channel catfish	4	<0.1	3	<0.1			1	<0.1	4	0.2	18	1.0
Common carp									2	0.1	9	0.5
Crevalle jack					1	0.8						
Fourspine stickleback							1	<0.1	2	0.1	1	0.1
Gizzard shad	290	2.9	9	0.1			1	<0.1	139	5.4	1017	57.9
Golden shiner									24	0.9	85	4.8
Goldfish									3	0.1	25	1.4
Herring family	433	4.3										
Hogchoker	45	0.4	24	0.2	5	3.9	21	0.3	16	0.6	1	0.1
Largemouth bass	2	<0.1	2	<0.1					8	0.3	8	0.5
Morone species												
Mummichog									1	<0.1		
Naked goby							1	<0.1				
Northern pipefish							2	<0.1				
Pumpkinseed	9	0.1	9	0.1	17	13.2	155	2.3	153	5.9	155	8.8
Rainbow smelt	46	0.5	22	0.2								
Redbreast sunfish					1	0.8			2	0.1	1	0.1
Rock bass												
Shortnose sturgeon												
Silver perch							1	<0.1				
Spot	1	<0.1										
Spottail shiner	195	1.9	92	0.9	2	1.6	15	0.2	230	8.9	171	9.7
Striped bass	2283	22.6	1242	12.3	13	10.1	77	1.2	33	1.3	8	0.5
Sunfish family							4	0.1	26	1.0	2	0.1
Tessellated darter	32	0.3	12	0.1			7	0.1	1	<0.1	1	0.1
Threespine stickleback							1	<0.1				
Weakfish			8	0.1			1	<0.1				
White bass									1	<0.1	1	0.1
White catfish	45	0.4	9	0.1			5	0.1	13	0.5		
White perch	1753	17.4	1889	18.7	48	37.2	261	3.9	930	36.0	137	7.8
Yellow perch											10	0.6
TOTAL	10086	100.0	10080	100.0	129	100.0	6680	100.0	2580	100.0	1755	100.0

Total Fish

Abundance



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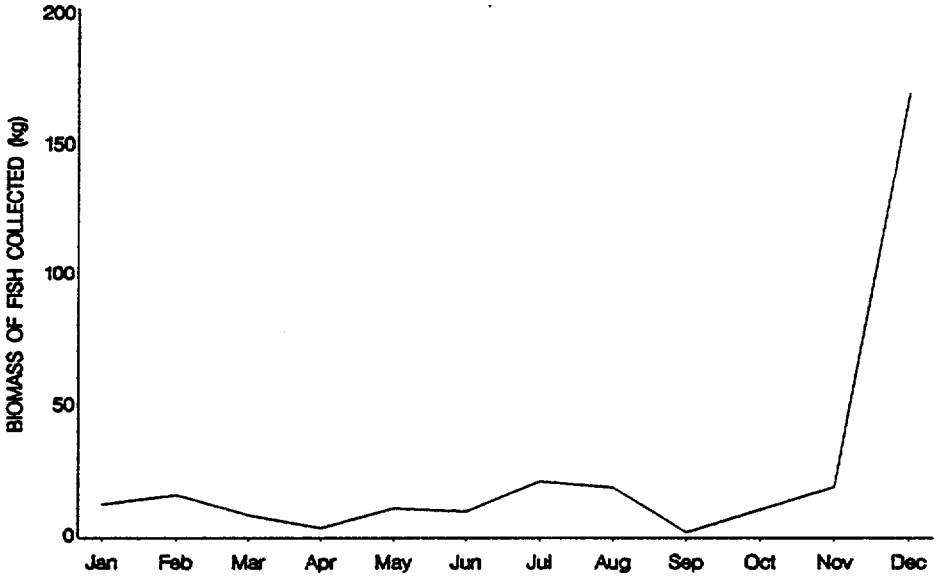


Figure 6-2. Monthly impingement abundance and biomass, Roseton Generating Station, 1995.

.BLE 6-6. MONTHLY BIOMASS AND PERCENT COMPOSITION OF FISH SPECIES IN IMPINGEMENT COLLECTIONS, ROSETON GENERATING STATION, 1995.

SPECIES	JAN		FEB		MAR		APR		MAY		JUN	
	GM.	PCNT	GM.	PCNT	GM.	PCNT	GM.	PCNT	GM.	PCNT	GM.	PCNT
.lewife	22	0.2			35	0.5	388	14.6	237	2.4	26	0.3
.merican eel	391	3.3			235	3.1	56	2.1	335	3.4	624	7.0
.merican shad											3	<0.1
.tlantic croaker												
.tlantic menhaden											11	0.1
.tlantic silverside												
.tlantic tomcod	55	0.5							136	1.4	168	1.9
.anded killifish	207	1.8	69	0.4	91	1.2	2	0.1	2	<0.1	48	0.5
.ay anchovy												
.lack crappie	1034	8.8	99	0.6	2	<0.1						
.lueback herring							9	0.3	367	3.7	353	4.0
.luefish											2	<0.1
.luegill	565	4.8	37	0.2	59	0.8	4	0.1	10	0.1		
.rook silverside			2	<0.1	2	<0.1						
.rown bullhead	37	0.3	209	1.4	84	1.1	181	6.8	2400	24.1	1318	14.9
.utterfish												
.entral mudminnow					3	<0.1						
.hannel catfish	36	0.3	4	<0.1	34	0.5			33	0.3	48	0.5
.ommon carp	26	0.2			45	0.6					1	<0.1
.revalle jack												
.ourspine stickleback			1	<0.1	7	0.1	3	0.1				
.izzard shad	5298	44.9	7241	47.0	118	1.6						
.olden shiner	1065	9.0	2880	18.7	3115	41.8	14	0.5	95	1.0	6	0.1
.oldfish	245	2.1	486	3.1			23	0.9				
.erring family											7	0.1
.ogchoker					1	<0.1	54	2.0	537	5.4	64	0.7
.argemouth bass	124	1.1										
.orone species											<1	<0.1
.ummichog					1	<0.1						
.aked goby												
.orthern pipefish												
.umpkinseed	1544	13.1	1517	9.8	795	10.7	713	26.8	1967	19.8	838	9.5
.ainbow smelt			38	0.2	96	1.3	10	0.4	269	2.7	31	0.4
.edbreast sunfish	56	0.5			2	<0.1					82	0.9
.ock bass			99	0.6								
.hortnose sturgeon			156	1.0								
.ilver perch												
.pot												
.pottail shiner	454	3.8	653	4.2	1392	18.7	264	9.9	432	4.3	623	7.0
.triped bass	99	0.8	26	0.2	30	0.4	20	0.7	164	1.6	122	1.4
.unfish family	5	<0.1										
.essellated darter	21	0.2	3	<0.1	227	3.0	178	6.7	86	0.9	80	0.9
.hreespine stickleback			18	0.1	17	0.2	3	0.1				
.eakfish												
.hite bass												
.hite catfish	310	2.6			58	0.8	131	4.9	43	0.4	187	2.1
.hite perch	39	0.3	608	3.9	622	8.3	591	22.2	2723	27.3	4208	47.6
.ellow perch	168	1.4	1277	8.3	381	5.1	12	0.5	122	1.2		
OTAL (KG)	11.8	100.0	15.4	100.0	7.5	100.0	2.7	100.0	10.0	100.0	8.8	100.0

(CONTINUED)

TABLE 6-6. (CONTINUED)

SPECIES	JUL		AUG		SEP		OCT		NOV		DEC	
	GM.	PCNT	GM.	PCNT	GM.	PCNT	GM.	PCNT	GM.	PCNT	GM.	PC
Alewife	3781	18.3	2414	13.1	31	3.7	167	1.7	69	0.4		
American eel	792	3.8	2120	11.5	54	6.5	136	1.4	408	2.2	92	(
American shad	1503	7.3	503	2.7	7	0.9	48	0.5	41	0.2		
Atlantic croaker							3	<0.1				
Atlantic menhaden	57	0.3	17	0.1			35	0.4				
Atlantic silverside					3	0.3	23	0.2				
Atlantic tomcod	559	2.7	17	0.1								
Banded killifish	17	0.1	15	0.1			68	0.7	1268	6.8	246	0
Bay anchovy	1822	8.8	3252	17.7	34	4.1	3020	31.6				
Black crappie			4	<0.1			9	0.1	138	0.7	210	0
Blueback herring	1013	4.9	1020	5.5	63	7.6	2878	30.1	402	2.2		
Bluefish	353	1.7	57	0.3	38	4.5						
Bluegill			13	0.1			115	1.2	563	3.0	122	0
Brook silverside									1	<0.1		
Brown bullhead	1112	5.4	155	0.8	165	19.9	6	0.1	335	1.8	239	0
Butterfish			1	<0.1								
Central mudminnow												
Channel catfish	21	0.1	4	<0.1			19	0.2	48	0.3	419	0
Common carp									91	0.5	489	0
Crevalle jack					2	0.3						
Fourspine stickleback							1	<0.1	1	<0.1	<1	<0
Gizzard shad	600	2.9	618	3.4			11	0.1	6044	32.6	156469	92.
Golden shiner									252	1.4	2452	1.
Goldfish									80	0.4	1438	0.
Herring family	195	0.9										
Hogchoker	164	0.8	74	0.4	15	1.8	161	1.7	164	0.9	17	<0.
Largemouth bass	3	<0.1	15	0.1					113	0.6	340	0.
Morone species												
Mummichog									3	<0.1		
Naked goby							1	<0.1				
Northern pipefish							2	<0.1				
Pumpkinseed	241	1.2	127	0.7	98	11.9	694	7.3	896	4.8	3803	2.
Rainbow smelt	22	0.1	8	<0.1								
Redbreast sunfish					4	0.5			6	<0.1	27	<0.
Rock bass												
Shortnose sturgeon												
Silver perch							16	0.2				
Spot	7	<0.1										
Spottail shiner	513	2.5	175	1.0	3	0.3	23	0.2	732	4.0	782	0.!
Striped bass	1381	6.7	1637	8.9	57	6.9	185	1.9	220	1.2	36	<0.'
Sunfish family							4	<0.1	24	0.1	2	<0.'
Tessellated darter	22	0.1	8	<0.1			8	0.1	2	<0.1	2	<0.'
Threespine stickleback							1	<0.1				
Weakfish			46	0.2			15	0.2				
White bass									28	0.2	33	<0.1
White catfish	966	4.7	571	3.1			702	7.3	64	0.3		
White perch	5528	26.7	5550	30.1	254	30.7	1203	12.6	6524	35.2	1364	0.8
Yellow perch											644	0.4
TOTAL (KG)	20.7	100.0	18.4	100.0	0.8	100.0	9.6	100.0	18.5	100.0	169.2	100.0

collection days in July and were the most abundant life stage of this species collected during 1995 (Table 6-7, Appendix Table B-1.5). Despite being the top ranked species in terms of numbers collected, bay anchovy only ranked fifth in total biomass (2.8%) during 1995 (Table 6-4).

White perch, the second most abundant species at Roseton during 1995, with a total of 6,051 fish collected, was the most abundant species in May, June, September, and November collections (Table 6-5). Young-of-the-year fish were first collected in July and accounted for the majority of the white perch collected in 1995 (Table 6-7, Appendix Table B-1.11). White perch ranked second in total biomass with 29.2 kg (Table 6-4, Figure 6-1).

Blueback herring, the third most abundant species collected at Roseton in 1995, was not the most abundant species in any individual month (Table 6-5). The peak abundances for this species at Roseton Station occurred in July (1,312 individuals), August (1,244 individuals), and October (1,894 individuals), with young-of-the-year first impinged on collection days in July (Tables 6-5 and 6-7, Appendix Table B-1.6).

6.3.1.2 Danskammer Point Generating Station

Fifty-two 24-hr impingement sampling events in 1995 at Danskammer Point Generating Station resulted in the collection of 45,396 fish (Table 6-8). This total count was 51.2% higher than the number of fish collected in 1994 and was the fourteenth highest in the 22-year study (Appendix Table A-2).

The most abundant fish species collected at Danskammer Point Station in 1995 was white perch, with 17,445 individuals representing 38.4% of the total abundance (Table 6-8, Figure 6-3). This total was 69.7% higher than the total count for white perch in 1994. The second most abundant species was gizzard shad (5,927 or 13.1%) and third was bay anchovy (3,807 or 8.4%). The totals for both gizzard shad and bay anchovy were both substantially higher than in 1994. The ten most abundant species collected at Danskammer Point represented 91.6% of the total abundance in 1995.

TABLE 6-7. MONTHLY SUMMARY OF LENGTH DATA FOR SELECTED IMPINGED SPECIES, ROSETON GENERATING STATION, 1995.[a]

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Alewife	TOTAL ANAL.	2	0	3	2	9	10	356	230	2	39	17	0
	MEAN LENGTH	11.5	0	11.5	26.4	12.2	4.5	6.9	8.5	11.6	8.2	7.9	0
	MIN. LENGTH	11.4	0	11.1	26.0	9.6	3.1	3.1	4.2	7.1	7.0	6.7	0
	MAX. LENGTH	11.6	0	11.9	26.7	25.9	13.4	25.7	28.1	16.0	14.3	9.5	0
American shad	TOTAL ANAL.	0	0	0	0	0	5	214	138	1	8	9	0
	MEAN LENGTH	0	0	0	0	0	3.8	5.8	7.1	7.8	9.4	8.8	0
	MIN. LENGTH	0	0	0	0	0	3.6	3.1	3.6	7.8	8.0	8.3	0
	MAX. LENGTH	0	0	0	0	0	4.1	8.5	24.5	7.8	13.0	9.3	0
Atlantic tomcod	TOTAL ANAL.	1	0	0	0	27	68	107	4	0	0	0	0
	MEAN LENGTH	20.2	0	0	0	5.3	5.9	7.4	8.1	0	0	0	0
	MIN. LENGTH	20.2	0	0	0	2.9	3.5	5.6	7.3	0	0	0	0
	MAX. LENGTH	20.2	0	0	0	18.0	18.1	16.2	9.4	0	0	0	0
Banded killifish	TOTAL ANAL.	59	23	31	2	1	18	9	28	0	53	72	74
	MEAN LENGTH	6.3	6.5	6.3	4.8	5.8	6.4	5.1	3.7	0	5.0	6.7	6.7
	MIN. LENGTH	3.3	3.5	3.2	3.5	5.8	5.2	2.5	2.5	0	2.9	4.3	3.2
	MAX. LENGTH	9.8	9.8	9.4	6.0	5.8	7.9	7.8	7.1	0	9.1	9.5	10.5
Bay anchovy	TOTAL ANAL.	0	0	0	0	0	0	223	295	11	364	0	0
	MEAN LENGTH	0	0	0	0	0	0	7.2	5.0	6.8	5.9	0	0
	MIN. LENGTH	0	0	0	0	0	0	2.9	3.0	3.9	3.3	0	0
	MAX. LENGTH	0	0	0	0	0	0	9.5	8.8	8.8	9.3	0	0
Blueback herring	TOTAL ANAL.	0	0	0	2	22	5	153	224	10	284	149	0
	MEAN LENGTH	0	0	0	8.6	10.5	20.4	5.0	4.9	7.9	6.2	6.8	0
	MIN. LENGTH	0	0	0	7.6	8.5	12.7	3.2	3.2	5.5	3.8	5.4	0
	MAX. LENGTH	0	0	0	9.5	31.2	26.6	14.8	26.4	24.2	13.8	8.5	0
Gizzard shad	TOTAL ANAL.	107	58	1	0	0	0	167	8	0	1	137	526
	MEAN LENGTH	15.6	20.9	22.7	0	0	0	6.4	11.6	0	11.8	12.2	18.6
	MIN. LENGTH	9.5	12.0	22.7	0	0	0	5.2	6.6	0	11.8	6.3	7.7
	MAX. LENGTH	35.0	48.9	22.7	0	0	0	9.2	39.2	0	11.8	48.0	50.3
Pumpkinseed	TOTAL ANAL.	63	42	24	29	66	34	9	9	17	129	133	144
	MEAN LENGTH	9.3	11.0	10.7	10.0	11.6	10.5	11.1	8.5	6.5	6.0	6.5	9.9
	MIN. LENGTH	4.9	4.7	4.4	3.8	4.4	4.7	7.4	4.0	3.9	2.6	4.1	4.8
	MAX. LENGTH	20.9	19.4	18.0	16.9	15.9	17.2	17.1	11.6	12.7	15.1	15.9	18.1
Spottail shiner	TOTAL ANAL.	95	117	225	63	68	96	172	77	2	15	177	148
	MEAN LENGTH	8.1	8.4	8.6	7.7	8.8	8.9	6.1	5.7	6.0	6.0	7.4	8.0
	MIN. LENGTH	5.1	5.3	4.8	5.5	4.6	6.2	2.8	3.5	5.9	4.4	4.0	4.5
	MAX. LENGTH	11.5	12.6	13.3	12.3	11.5	12.3	11.7	10.9	6.0	7.6	11.7	12.5
Striped bass	TOTAL ANAL.	23	4	2	5	34	64	358	260	13	73	33	8
	MEAN LENGTH	7.8	8.7	11.3	7.9	8.3	4.0	4.1	5.3	7.2	6.3	8.2	8.2
	MIN. LENGTH	6.4	7.1	8.2	6.6	6.4	2.1	2.0	2.2	4.3	4.3	5.5	7.7
	MAX. LENGTH	9.4	10.0	14.3	8.6	12.2	13.2	22.7	26.8	12.5	10.3	18.0	8.7
White perch	TOTAL ANAL.	9	28	53	62	275	268	483	416	48	194	389	112
	MEAN LENGTH	7.4	9.8	9.0	8.5	8.0	9.1	6.5	6.6	6.4	7.2	8.7	8.4
	MIN. LENGTH	6.2	5.6	6.2	5.1	4.7	5.4	2.2	2.8	4.1	4.1	5.2	5.1
	MAX. LENGTH	10.0	24.3	16.5	19.7	18.4	18.4	20.4	22.2	17.5	18.1	21.4	19.5
Blue crab	TOTAL ANAL.	0	1	0	0	201	404	400	454	184	289	87	0
	MEAN LENGTH	0	2.6	0	0	5.7	6.7	9.1	10.6	8.6	5.3	5.5	0
	MIN. LENGTH	0	2.6	0	0	2.0	1.4	4.1	1.3	1.2	0.8	1.4	0
	MAX. LENGTH	0	2.6	0	0	9.0	12.6	16.5	17.9	18.4	16.9	17.6	0

[a]Lengths are in centimeters.

TABLE 6-8. ABUNDANCE, BIOMASS, AND PERCENT COMPOSITION OF THE TOP TEN FISH SPECIES AT DANSKAMMER POINT GENERATING STATION, 1995.

	ABUNDANCE	PERCENT OF TOTAL
White perch	17445	38.4
Gizzard shad	5927	13.1
Bay anchovy	3807	8.4
Striped bass	3632	8.0
Spottail shiner	3049	6.7
Alewife	2169	4.8
Blueback herring	2168	4.8
Pumpkinseed	1941	4.3
Golden shiner	819	1.8
Weakfish	643	1.4
Others	3796	8.4
TOTAL	45396	100.0

	BIOMASS (KG)	PERCENT OF TOTAL
Gizzard shad	1738.40	75.3
White perch	312.36	13.5
Alewife	37.22	1.6
Golden shiner	32.20	1.4
Striped bass	30.39	1.3
Pumpkinseed	29.12	1.3
White catfish	26.71	1.2
Spottail shiner	20.23	0.9
Blueback herring	13.56	0.6
Yellow perch	9.67	0.4
Others	57.77	2.5
TOTAL	2307.62	100.0

The 1995 monthly impingement count at Danskammer Point was highest in November (Table 6-9, Figure 6-4). The totals in the second half of the year were higher than those in the first half of the year. The lowest monthly totals were in January, February, April, and May. White perch was numerically dominant in seven of the twelve months, gizzard shad was dominant in January, February, and December and bay anchovy was dominant in August and September (Table 6-9).

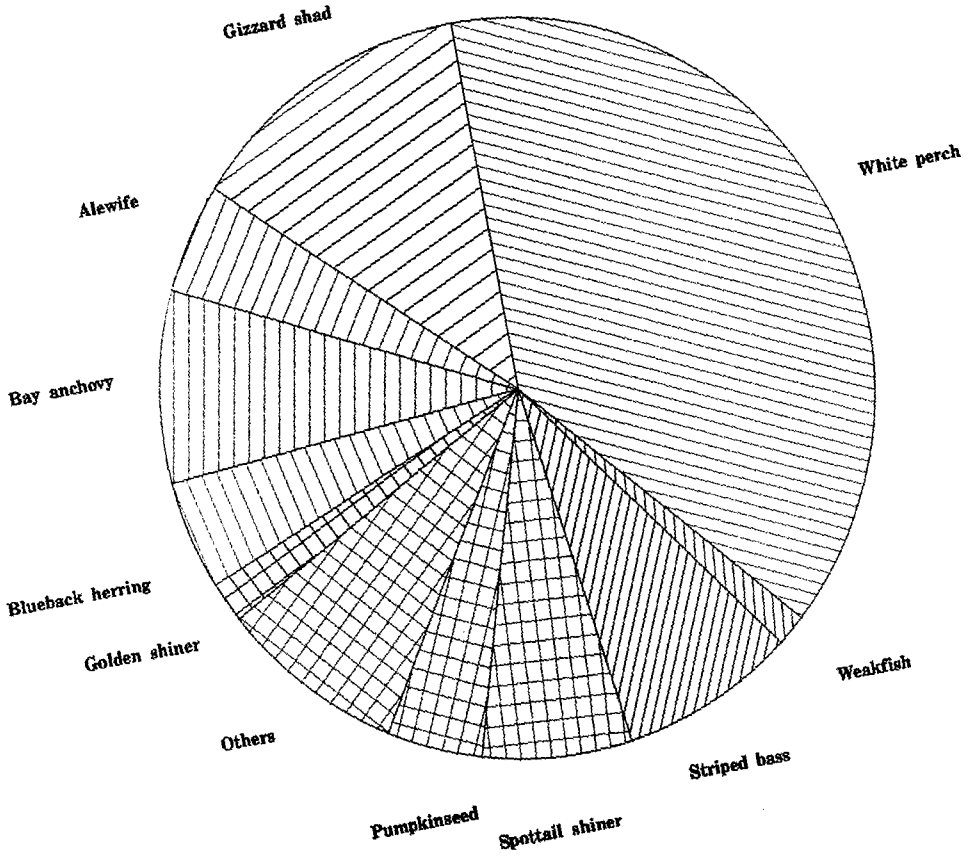
Gizzard shad (at least two year classes, including large numbers of adults) exhibited the highest biomass impinged on collection days at Danskammer Point in 1995, contributing 75.3% of the total biomass of 2,308 kg collected for the year (Table 6-8, Figure 6-3). The next four dominant fish in decreasing order of contribution to the total biomass collected at Danskammer Point in 1995 were white perch (13.5%), alewife (1.6%), golden shiner (1.4%) and striped bass (1.3%) (Table 6-8, Figure 6-3). The monthly biomass trends for 1995 exhibited a very strong peak in December and much lower totals in all other months (Figure 6-4). This peak reflects the dominance of gizzard shad in December, when 67.4% of the year's biomass was collected (Table 6-10). The month with the lowest biomass in impingement collections was May, with 7.8 kg (0.3% of the 1995 total).

White perch, the most abundant species at Danskammer Point in 1995, was present in impingement collections during every month of the year, with its highest abundance occurring in October and November (Table 6-9). Young-of-the-year white perch were first impinged on collection days in July, and were the dominant age group in the second half of the year (Table 6-11, Appendix Table B-2.11).

Gizzard shad, the second most abundant species collected in 1995 at Danskammer Point, was present in impingement collections during ten months of 1995. This species was most abundant during November and December and had the greatest biomass during December (Tables 6-9, 6-10). Adult gizzard shad were primarily collected during the colder months (January, February, November, and December), and young-of-the-year were first impinged on collection days in July (Table 6-11, Appendix Table B-2.5).

Bay anchovy, the species ranking third in abundance in 1995 at Danskammer Point, were impinged only during July-October and were the most abundant species in August and

undance



Biomass

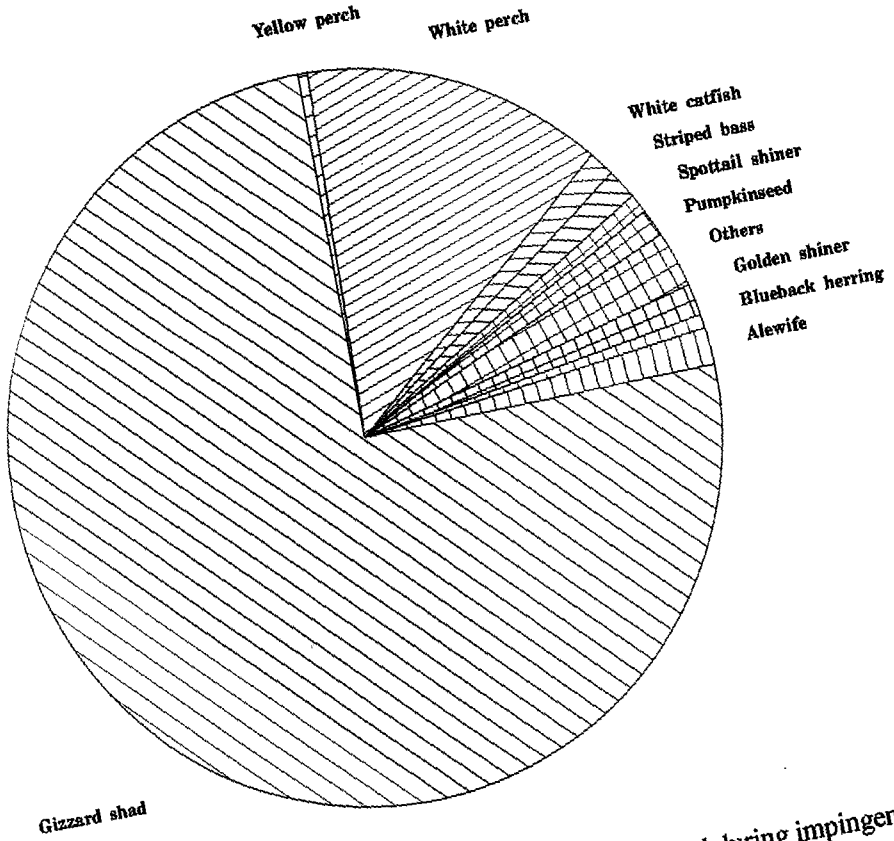


Figure 6-3. Relative species abundance and relative biomass of fish collected during impingement monitoring, Danskammer Point Generating Station, 1995.

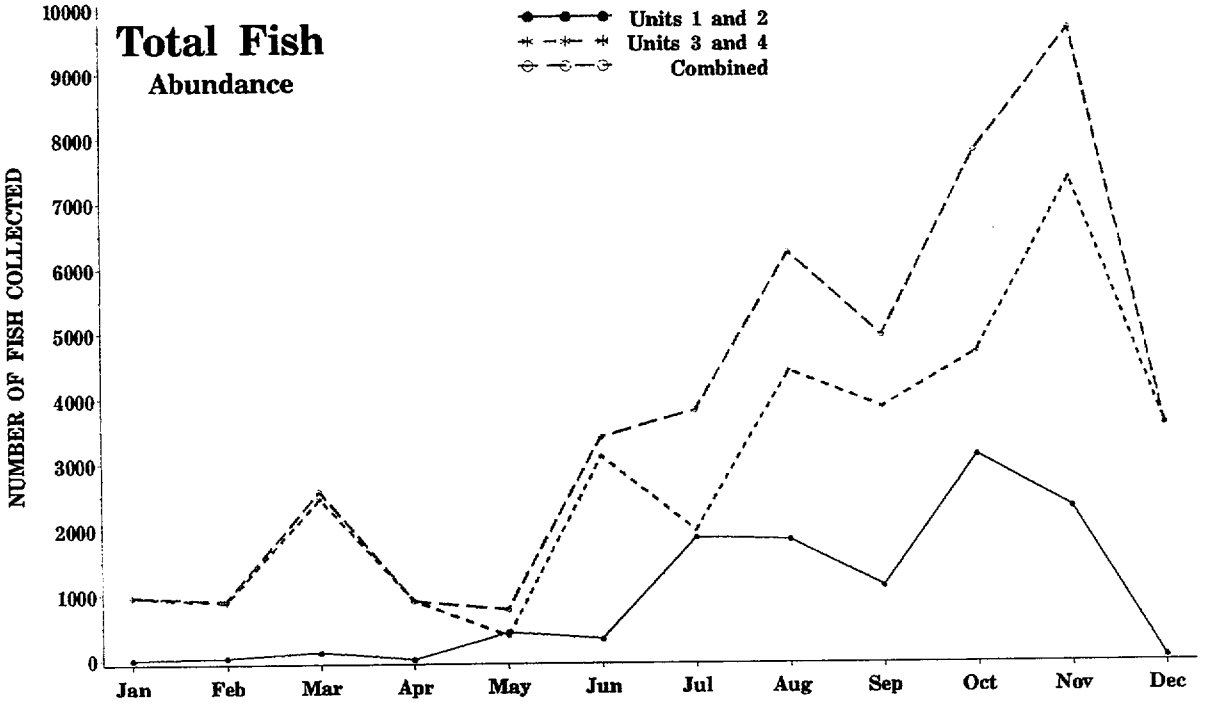
ABLE 6-9. MONTHLY COUNT AND PERCENT COMPOSITION OF FISH SPECIES IN IMPINGEMENT COLLECTIONS, DANSKAMMER POINT GENERATING STATION, 1995.

SPECIES	JAN		FEB		MAR		APR		MAY		JUN	
	NO.	PCNT	NO.	PCNT	NO.	PCNT	NO.	PCNT	NO.	PCNT	NO.	PCNT
Alewife					23	0.9	1	0.1	8	1.1	13	0.4
American eel	1	0.1	1	0.1	10	0.4	6	0.7	12	1.6	11	0.3
American shad											1	<0.1
Atlantic croaker												
Atlantic menhaden											1	<0.1
Atlantic silverside												
Atlantic sturgeon					2	0.1			1	0.1		
Atlantic tomcod	17	1.8	12	1.3					1	0.1	149	4.4
Banded killifish	14	1.5	5	0.5	4	0.2	2	0.2			3	0.1
Bay anchovy												
Black crappie	8	0.8	3	0.3	1	<0.1			1	0.1		
Blueback herring					2	0.1	1	0.1	2	0.3	83	2.4
Bluefish												
Bluegill	10	1.0	9	1.0	3	0.1	2	0.2			3	0.1
Brown bullhead	8	0.8	1	0.1	19	0.7	41	4.6	18	2.4	304	9.0
Butterfish												
Channel catfish	8	0.8	3	0.3	8	0.3	3	0.3	3	0.4	10	0.3
Common carp	2	0.2	3	0.3								
Crevalle jack												
Fourspine stickleback												
Freshwater drum					1	<0.1						
Gizzard shad	318	33.0	252	27.7	21	0.8					1	<0.1
Golden shiner	150	15.6	192	21.1	278	10.8	10	1.1	1	0.1	5	0.1
Goldfish	9	0.9	8	0.9	12	0.5	3	0.3				
Herring family											4	0.1
Hogchoker							6	0.7	205	27.0	70	2.1
Largemouth bass	4	0.4	1	0.1	1	<0.1						
Morone species												
Pumpkinseed	38	3.9	29	3.2	52	2.0	67	7.5	124	16.3	158	4.7
Rainbow smelt					35	1.4	4	0.4			9	0.3
Rainbow trout												
Redbreast sunfish									1	0.1	3	0.1
Rock bass			1	0.1								
Shortnose sturgeon												
Silver perch												
Smallmouth bass												
Spottail shiner	185	19.2	189	20.8	689	26.8	265	29.6	17	2.2	687	20.3
Striped bass	72	7.5	12	1.3	4	0.2	40	4.5	44	5.8	95	2.8
Sunfish family	3	0.3	1	0.1			1	0.1				
Tessellated darter	3	0.3	2	0.2	38	1.5	61	6.8	11	1.4	19	0.6
Threespine stickleback			7	0.8	6	0.2	3	0.3				
Weakfish												
White bass												
White catfish	9	0.9	2	0.2	10	0.4	13	1.5	5	0.7	65	1.9
White perch	86	8.9	160	17.6	1310	50.9	361	40.3	305	40.1	1697	50.0
White sucker					2	0.1						
Yellow perch	18	1.9	17	1.9	43	1.7	6	0.7	1	0.1		
TOTAL	963	100.0	910	100.0	2574	100.0	896	100.0	760	100.0	3391	100.0

(CONTINUED)

TABLE 6-9. (CONTINUED)

SPECIES	JUL NO.	JUL PCNT	AUG NO.	AUG PCNT	SEP NO.	SEP PCNT	OCT NO.	OCT PCNT	NOV NO.	NOV PCNT	DEC NO.	DEC PCNT
Alewife	309	8.1	678	10.9	455	9.2	640	8.2	42	0.4		
American eel	11	0.3	17	0.3	7	0.1	7	0.1	3	<0.1	1	<0.
American shad	41	1.1	87	1.4	115	2.3	196	2.5	18	0.2		
Atlantic croaker									1	<0.1		
Atlantic menhaden	3	0.1	5	0.1	8	0.2	6	0.1				
Atlantic silverside			1	<0.1	3	0.1						
Atlantic sturgeon												
Atlantic tomcod	211	5.6	3	<0.1	1	<0.1			1	<0.1	3	0.
Banded killifish	2	0.1	6	0.1	5	0.1	4	0.1	7	0.1	21	0.
Bay anchovy	185	4.9	1629	26.2	1634	33.1	359	4.6				
Black crappie	1	<0.1			2	<0.1	7	0.1	28	0.3	19	0.
Blueback herring	47	1.2	48	0.8	48	1.0	1517	19.5	420	4.4		
Bluefish	63	1.7	70	1.1	80	1.6	10	0.1				
Bluegill	2	0.1			3	0.1	61	0.8	87	0.9	4	0.
Brown bullhead	33	0.9	41	0.7	23	0.5	8	0.1	10	0.1	7	0.
Butterfish					1	<0.1						
Channel catfish			22	0.4	4	0.1	5	0.1	21	0.2	28	0.
Common carp									7	0.1	21	0.
Crevalle jack					2	<0.1	4	0.1				
Fourspine stickleback							1	<0.1	2	<0.1		
Freshwater drum											1	<0.
Gizzard shad	509	13.4	29	0.5	3	0.1	38	0.5	2165	22.5	2591	72.
Golden shiner	1	<0.1	1	<0.1	3	0.1	3	<0.1	37	0.4	138	3.
Goldfish			1	<0.1					6	0.1	22	0.
Herring family	74	1.9	8	0.1	3	0.1	8	0.1				
Hogchoker	32	0.8	58	0.9	22	0.4	38	0.5	3	<0.1	1	<0.
Largemouth bass			1	<0.1			4	0.1	15	0.2	12	0.
Morone species	8	0.2										
Pumpkinseed	38	1.0	44	0.7	59	1.2	716	9.2	522	5.4	94	2.
Rainbow smelt	2	0.1	5	0.1								
Rainbow trout	1	<0.1										
Redbreast sunfish	3	0.1	1	<0.1	3	0.1	3	<0.1	3	<0.1		
Rock bass	2	0.1									1	<0.1
Shortnose sturgeon	1	<0.1										
Silver perch			1	<0.1	49	1.0	11	0.1				
Smallmouth bass							1	<0.1			1	<0.1
Spottail shiner	178	4.7	96	1.5	120	2.4	71	0.9	331	3.4	221	6.2
Striped bass	245	6.5	1350	21.7	1034	20.9	582	7.5	138	1.4	16	0.4
Sunfish family			1	<0.1			2	<0.1	12	0.1	1	<0.1
Tessellated darter	3	0.1	2	<0.1	4	0.1	1	<0.1	1	<0.1		
Threespine stickleback												
Weakfish			392	6.3	220	4.5	31	0.4				
White bass									1	<0.1	2	0.1
White catfish	78	2.1	31	0.5	22	0.4	86	1.1	176	1.8	13	0.4
White perch	1714	45.1	1586	25.5	1006	20.4	3349	43.1	5559	57.7	312	8.8
White sucker												
Yellow perch	1	<0.1							10	0.1	26	0.7
TOTAL	3798	100.0	6214	100.0	4939	100.0	7769	100.0	9626	100.0	3556	100.0



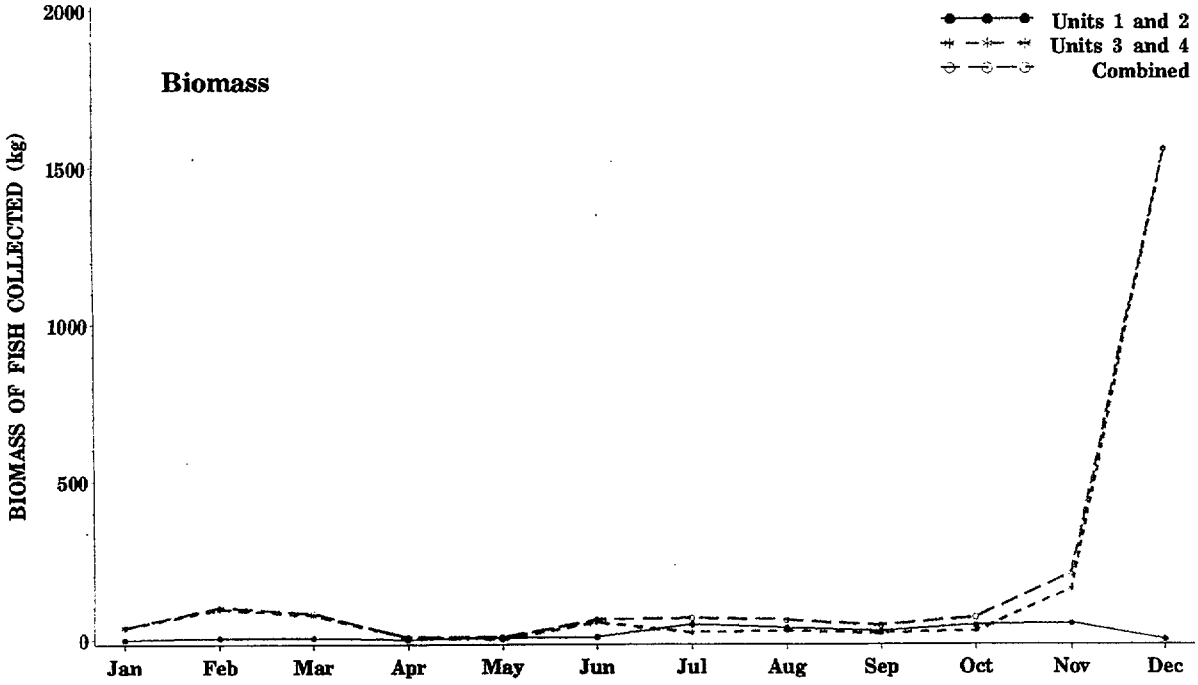


Figure 6 – 4. Monthly impingement abundance and biomass, Danskammer Point Generating Station, 1995.

ıBLE 6-10. MONTHLY BIOMASS AND PERCENT COMPOSITION OF FISH SPECIES IN IMPINGEMENT COLLECTIONS, DANKSAMMER POINT GENERATING STATION, 1995.

	JAN		FEB		MAR		APR		MAY		JUN	
'ECIES	GM.	PCNT	GM.	PCNT	GM.	PCNT	GM.	PCNT	GM.	PCNT	GM.	PCNT
ılewife					408	0.5	14	0.2	925	11.9	681	1.1
ımerican eel	98	0.3	352	0.3	1102	1.3	438	5.1	389	5.0	1119	1.8
ımerican shad											<1	<0.1
ıtlantic croaker												
ıtlantic menhaden											1	<0.1
ıtlantic silverside												
ıtlantic sturgeon					29	<0.1			50	0.6		
ıtlantic tomcod	560	1.4	344	0.3					1	<0.1	412	0.7
;anded killifish	76	0.2	22	<0.1	29	<0.1	18	0.2			12	<0.1
;ay anchovy												
;lack crappie	747	1.9	264	0.3	143	0.2			104	1.3		
;lueback herring					8	<0.1	3	<0.1	114	1.5	7764	12.5
;luefish												
;luegill	894	2.3	513	0.5	195	0.2	203	2.4			38	0.1
;rown bullhead	79	0.2	235	0.2	354	0.4	537	6.3	188	2.4	4204	6.8
·utterfish												
:hannel catfish	75	0.2	29	<0.1	96	0.1	10	0.1	10	0.1	42	0.1
:ommon carp	31	0.1	82	0.1								
revalle jack												
ourspine stickleback												
reshwater drum					30	<0.1						
izzard shad	24139	62.5	80323	78.9	17912	21.8					834	1.3
olden shiner	4587	11.9	7694	7.6	11259	13.7	253	3.0	17	0.2	177	0.3
oldfish	304	0.8	310	0.3	478	0.6	87	1.0				
erring family											1	<0.1
ogchoker							59	0.7	321	4.1	147	0.2
argemouth bass	191	0.5	1425	1.4	315	0.4						
orone species												
umpkinseed	961	2.5	1061	1.0	1518	1.8	2316	27.1	3216	41.5	4310	7.0
ainbow smelt					512	0.6	28	0.3			22	<0.1
ainbow trout												
edbreast sunfish									34	0.4	315	0.5
ock bass			6	<0.1								
hortnose sturgeon												
ilver perch												
mallmouth bass												
pottail shiner	1094	2.8	1355	1.3	5152	6.3	1377	16.1	118	1.5	4609	7.4
triped bass	319	0.8	61	0.1	54	0.1	202	2.4	205	2.6	1040	1.7
unfish family	4	<0.1	2	<0.1			1	<0.1				
essellated darter	18	<0.1	9	<0.1	173	0.2	230	2.7	31	0.4	53	0.1
hreespine stickleback			17	<0.1	14	<0.1	8	0.1				
'eakfish												
'hite bass												
'hite catfish	1978	5.1	2311	2.3	1795	2.2	42	0.5	26	0.3	2609	4.2
'hite perch	1312	3.4	4500	4.4	37106	45.1	2662	31.1	1933	24.9	33588	54.2
'hite sucker					21	<0.1						
ellow perch	1174	3.0	914	0.9	3514	4.3	70	0.8	72	0.9		
OTAL (KG)	38.6	100.0	101.8	100.0	82.2	100.0	8.6	100.0	7.8	100.0	62.0	100.0

(CONTINUED)

TABLE 6-10. (CONTINUED)

	JUL		AUG		SEP		OCT		NOV		DEC	
SPECIES	GM.	PCNT	GM.	PCNT	GM.	PCNT	GM.	PCNT	GM.	PCNT	GM.	P
Alewife	5915	8.8	12579	20.4	7150	15.8	9271	13.4	275	0.1		
American eel	485	0.7	873	1.4	502	1.1	243	0.4	1269	0.6	1	<(
American shad	87	0.1	359	0.6	543	1.2	1039	1.5	83	<0.1		
Atlantic croaker									1	<0.1		
Atlantic menhaden	9	<0.1	49	0.1	23	0.1	49	0.1				
Atlantic silverside			2	<0.1	7	<0.1						
Atlantic sturgeon												
Atlantic tomcod	965	1.4	12	<0.1	5	<0.1			24	<0.1	209	<(
Banded killifish	10	<0.1	3	<0.1	9	<0.1	17	<0.1	40	<0.1	116	<(
Bay anchovy	463	0.7	630	1.0	1354	3.0	776	1.1				
Black crappie	78	0.1			212	0.5	63	0.1	284	0.1	97	<(
Blueback herring	553	0.8	791	1.3	138	0.3	3347	4.9	844	0.4		
Bluefish	757	1.1	1693	2.7	1725	3.8	437	0.6				
Bluegill	49	0.1			381	0.8	524	0.8	1909	0.9	367	<0
Brown bullhead	1227	1.8	573	0.9	347	0.8	325	0.5	333	0.2	879	0
Butterfish					9	<0.1						
Channel catfish			87	0.1	24	0.1	24	<0.1	739	0.4	815	0
Common carp									597	0.3	970	0
Crevalle jack					11	<0.1	75	0.1				
Fourspine stickleback							<1	<0.1	1	<0.1		
Freshwater drum											45	<0
Gizzard shad	1124	1.7	215	0.3	61	0.1	403	0.6	87797	42.2	1525588	98
Golden shiner	14	<0.1	31	<0.1	177	0.4	11	<0.1	1437	0.7	6539	0
Goldfish			2	<0.1					186	0.1	1235	0
Herring family	25	<0.1	109	0.2	11	<0.1	8	<0.1				
Hogchoker	166	0.2	452	0.7	151	0.3	281	0.4	46	<0.1	20	<0
Largemouth bass			5	<0.1			84	0.1	937	0.5	628	<0
Morone species	1	<0.1										
Pumpkinseed	1101	1.6	1355	2.2	1531	3.4	5806	8.4	3707	1.8	2239	0
Rainbow smelt	5	<0.1	1	<0.1								
Rainbow trout	189	0.3										
Redbreast sunfish	156	0.2	2	<0.1	49	0.1	200	0.3	37	<0.1		
Rock bass	163	0.2									7	<0.
Shortnose sturgeon	1193	1.8										
Silver perch			3	<0.1	291	0.6	89	0.1				
Smallmouth bass							6	<0.1			137	<0.
Spottail shiner	1156	1.7	766	1.2	925	2.0	411	0.6	1903	0.9	1364	0.
Striped bass	2087	3.1	8316	13.5	5986	13.2	3921	5.7	6526	3.1	1673	0.
Sunfish family			10	<0.1			4	<0.1	11	<0.1	1	<0.
Tessellated darter	7	<0.1	4	<0.1	3	<0.1	4	<0.1	4	<0.1		
Threespine stickleback												
Weakfish			2723	4.4	2420	5.3	416	0.6				
White bass									18	<0.1	77	<0.
White catfish	3685	5.5	4365	7.1	1532	3.4	1492	2.2	3779	1.8	3095	0.
White perch	45484	67.5	25632	41.6	19770	43.6	39630	57.5	94024	45.2	6716	0.
White sucker												
Yellow perch	201	0.3							1053	0.5	2676	0.
TOTAL (KG)	67.4	100.0	61.6	100.0	45.3	100.0	69.0	100.0	207.9	100.0	1555.5	100.

TABLE 6-11. MONTHLY SUMMARY OF LENGTH DATA FOR SELECTED IMPINGED SPECIES, DANSKAMMER POINT GENERATING STATION, 1995.[a]

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Alewife	TOTAL ANAL.	0	0	23	1	7	13	228	455	290	429	42	0
	MEAN LENGTH	0	0	11.6	12.1	22.4	17.0	11.6	11.8	11.8	11.9	8.8	0
	MIN. LENGTH	0	0	9.2	12.1	9.4	10.9	4.3	5.7	6.2	6.3	6.5	0
	MAX. LENGTH	0	0	27.3	12.1	28.3	27.7	29.8	29.5	29.7	29.8	18.2	0
Atlantic tomcod	TOTAL ANAL.	17	12	0	0	1	123	147	3	1	0	1	3
	MEAN LENGTH	16.4	15.8	0	0	4.4	6.8	7.8	7.7	8.9	0	14.5	18.5
	MIN. LENGTH	13.0	13.3	0	0	4.4	3.8	5.1	7.2	8.9	0	14.5	17.0
	MAX. LENGTH	23.0	19.2	0	0	4.4	8.8	19.1	8.5	8.9	0	14.5	21.0
Bay anchovy	TOTAL ANAL.	0	0	0	0	0	0	96	325	428	238	0	0
	MEAN LENGTH	0	0	0	0	0	0	7.5	4.2	5.3	6.6	0	0
	MIN. LENGTH	0	0	0	0	0	0	2.8	2.5	2.2	2.5	0	0
	MAX. LENGTH	0	0	0	0	0	0	9.7	9.2	10.3	9.7	0	0
Blueback herring	TOTAL ANAL.	0	0	2	1	2	82	37	44	47	238	127	0
	MEAN LENGTH	0	0	8.5	7.3	16.6	24.5	8.1	9.0	6.5	7.6	7.1	0
	MIN. LENGTH	0	0	7.8	7.3	8.8	9.1	3.1	3.5	4.1	5.3	5.5	0
	MAX. LENGTH	0	0	9.2	7.3	24.4	29.9	25.5	28.5	15.8	26.3	8.9	0
Gizzard shad	TOTAL ANAL.	283	238	21	0	0	1	122	25	3	37	795	903
	MEAN LENGTH	16.9	25.2	38.2	0	0	44.1	6.5	9.5	13.4	10.8	14.1	24.0
	MIN. LENGTH	8.3	10.8	12.6	0	0	44.1	5.2	7.3	13.0	6.5	6.7	7.6
	MAX. LENGTH	46.3	56.2	52.3	0	0	44.1	9.2	13.5	14.2	14.8	53.6	54.3
Golden shiner	TOTAL ANAL.	150	178	225	10	1	5	1	1	2	3	37	135
	MEAN LENGTH	13.8	15.1	15.5	13.3	13.1	15.3	10.9	15.2	19.0	8.0	14.6	16.1
	MIN. LENGTH	6.5	6.4	6.1	7.1	13.1	12.7	10.9	15.2	18.8	7.5	7.8	6.6
	MAX. LENGTH	24.4	25.5	22.7	18.0	13.1	19.5	10.9	15.2	19.1	8.9	21.7	22.6
Pumpkinseed	TOTAL ANAL.	38	28	52	67	123	143	37	37	58	270	280	94
	MEAN LENGTH	9.6	11.1	9.7	11.9	11.3	11.4	11.3	11.1	9.9	8.2	7.3	9.7
	MIN. LENGTH	4.8	4.5	4.9	5.0	6.5	6.6	8.1	5.1	4.8	4.1	4.1	4.6
	MAX. LENGTH	17.5	17.4	18.1	16.9	19.1	16.7	17.0	14.7	17.5	17.0	16.5	19.6
Spottail shiner	TOTAL ANAL.	158	185	557	243	17	176	113	71	91	68	322	207
	MEAN LENGTH	9.0	9.5	9.6	8.7	9.2	9.1	9.2	9.8	9.5	8.9	8.8	8.9
	MIN. LENGTH	5.3	5.4	5.6	5.5	7.0	6.7	3.7	5.4	4.7	5.7	5.2	5.3
	MAX. LENGTH	13.7	13.1	13.2	12.4	11.9	13.1	12.1	12.0	12.2	12.4	12.6	12.5
Striped bass	TOTAL ANAL.	72	12	4	40	44	94	193	575	412	360	138	16
	MEAN LENGTH	7.9	8.4	10.0	8.5	8.1	10.1	8.6	8.8	9.1	9.0	13.1	17.0
	MIN. LENGTH	6.4	7.4	6.0	6.5	6.7	2.0	1.8	2.7	4.6	4.3	5.9	7.2
	MAX. LENGTH	11.4	9.9	17.0	11.5	11.7	18.9	29.1	33.9	28.9	27.6	43.2	41.8
Weakfish	TOTAL ANAL.	0	0	0	0	0	0	0	138	143	29	0	0
	MEAN LENGTH	0	0	0	0	0	0	0	8.8	10.9	11.8	0	0
	MIN. LENGTH	0	0	0	0	0	0	0	4.3	6.7	7.9	0	0
	MAX. LENGTH	0	0	0	0	0	0	0	14.0	16.1	13.9	0	0
White perch	TOTAL ANAL.	86	146	551	215	218	709	691	853	591	928	1244	255
	MEAN LENGTH	9.5	11.6	11.6	8.8	8.1	11.2	11.9	10.7	11.3	11.2	11.6	11.3
	MIN. LENGTH	4.6	5.9	5.7	5.2	5.2	5.6	2.4	3.9	4.1	5.2	5.2	5.2
	MAX. LENGTH	17.5	23.5	28.2	16.6	18.7	26.3	28.0	24.6	31.2	28.7	23.8	25.0
Blue crab	TOTAL ANAL.	0	0	1	0	183	372	392	500	395	320	172	0
	MEAN LENGTH	0	0	2.7	0	5.3	6.9	8.8	11.6	9.5	5.7	6.1	0
	MIN. LENGTH	0	0	2.7	0	2.2	1.4	4.1	1.0	0.7	0.7	1.2	0
	MAX. LENGTH	0	0	2.7	0	8.9	14.7	16.3	16.6	17.6	18.1	17.0	0

[a]Lengths are in centimeters.

September collections. Young-of-the-year were the most abundant life stage, and first appeared in July (Table 6-11, Appendix Table B-2.3).

6.3.2 Invertebrates

6.3.2.1 Roseton Generating Station

Three invertebrate taxa (blue crab, mud crab, and crayfish) were identified and counted during the 1995 impingement collections at Roseton (Table 6-12). The total number of invertebrates collected at Roseton in 1995 was 11,943. In 1995, at least one of the three invertebrate taxa appeared in the impingement collections at Roseton in all months except December. The highest monthly impingement count for invertebrates occurred during July with 4,537 individuals, or 38.0% of the total collected in 1995. In 1995 at Roseton Station, blue crab ranked first among invertebrates in overall abundance with 11,325 individuals (94.8%); mud crabs followed with 599 individuals and crayfish was third, with only 19 individuals collected (Table 6-12).

Abundance of blue crab in 1995 ranked third among the ten years of invertebrate collections (Table 6-13). At Roseton there was a trend of increasing blue crab counts in four of the five years from 1987-1991. This was followed by declines in both 1992 and 1993, and then increases in 1994 and 1995.

The blue crab impingement collections at Roseton Station were dominated by males in a ratio of approximately 2.6:1 (72.5% males, 27.5% females; Table 6-14), which is to be expected due to the tendency for males to be more abundant than females in higher reaches of estuaries where salinity is lower (Hamer 1955, Williams 1984).

6.3.2.2 Danskammer Point Generating Station

A total of 8,086 invertebrates representing three taxa were collected at Danskammer Point in 1995. Blue crab accounted for 7,343 individuals or 90.8% of the total, followed

TABLE 6-12. INVERTEBRATE ABUNDANCE AND PERCENT COMPOSITION, ROSETON AND DANSKAMMER POINT GENERATING STATIONS, 1995.

		BLUE CRAB		CRAYFISH		MUD CRAB		TOTAL	
PLANT	MONTH	NO.	%	NO.	%	NO.	%	NO.	%
ROSETON	JAN					3	100.0	3	100.0
	FEB	1	50.0			1	50.0	2	100.0
	MAR					6	100.0	6	100.0
	APR			2	11.1	16	88.9	18	100.0
	MAY	1617	98.8	4	0.2	16	1.0	1637	100.0
	JUN	1406	97.0	2	0.1	41	2.8	1449	100.0
	JUL	4509	99.4	5	0.1	23	0.5	4537	100.0
	AUG	2926	94.2	3	0.1	176	5.7	3105	100.0
	SEP	195	61.1	2	0.6	122	38.2	319	100.0
	OCT	579	80.3	1	0.1	141	19.6	721	100.0
	NOV	92	63.0			54	37.0	146	100.0
	DEC								
	TOTAL	11325	94.8	19	0.2	599	5.0	11943	100.0
DANSKAMMER POINT	JAN					5	100.0	5	100.0
	FEB					1	100.0	1	100.0
	MAR	1	4.3	1	4.3	21	91.3	23	100.0
	APR			7	5.4	122	94.6	129	100.0
	MAY	287	87.5	8	2.4	33	10.1	328	100.0
	JUN	1004	95.4	9	0.9	39	3.7	1052	100.0
	JUL	2547	99.7	2	0.1	6	0.2	2555	100.0
	AUG	1571	94.9	12	0.7	73	4.4	1656	100.0
	SEP	969	90.1	13	1.2	93	8.7	1075	100.0
	OCT	603	87.3	1	0.1	87	12.6	691	100.0
	NOV	361	63.3	1	0.2	208	36.5	570	100.0
	DEC					1	100.0	1	100.0
	TOTAL	7343	90.8	54	0.7	689	8.5	8086	100.0

TABLE 6-13. MONTHLY BLUE CRAB IMPINGEMENT COUNTS, ROSETON AND DANSKAMMER POINT GENERATING STATIONS, 1986-1995.

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
ROSETON													
1986	0	0	0	0	0	0	0	9	3	3	0	0	15
1987	0	0	0	0	1	0	2	62	119	157	11	0	352
1988	0	0	0	0	2	57	129	388	862	464	69	1	1,972
1989	0	1	0	0	2	783	490	999	1,615	845	196	0	4,931
1990	0	0	0	0	0	31	214	257	235	198	76	2	1,013
1991	0	0	0	0	28	624	1,084	19,180	40,522	4,072	929	0	66,439
1992	0	0	1	0	947	5,147	7,402	6,348	4,758	1,193	111	3	25,910
1993	0	0	0	0	0	5	409	229	374	111	74	2	1,204
1994	0	0	0	0	1	4	40	2,221	1,006	394	337	26	4,029
1995	0	1	0	0	1,617	1,406	4,509	2,926	195	579	92	0	11,325
DANSKAMMER POINT													
1986	0	0	0	0	1	0	1	17	15	2	2	0	38
1987	0	0	0	0	2	3	5	40	64	91	29	0	234
1988	0	0	0	0	0	37	287	415	383	783	500	1	2,406
1989	0	0	0	0	1	238	272	640	706	422	312	1	2,592
1990	0	0	0	0	0	7	58	152	123	167	28	0	535
1991	0	0	0	0	0	155	309	2,976	8,361	3,326	810	7	15,944
1992	0	0	0	1	64	871	4,071	2,239	946	791	52	1	9,036
1993	0	2	0	0	0	4	276	297	306	138	73	0	1,096
1994	1	1	0	0	0	6	37	1,442	1,436	213	164	31	3,331
1995	0	0	1	0	287	1,004	2,547	1,571	969	603	361	0	7,343

TABLE 6-14. MONTHLY BLUE CRAB IMPINGEMENT COUNTS BY SEX, ROSETON AND DANSKAMMER POINT GENERATING STATIONS, 1995.[a]

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
ROSETON	SEX													
	MALE		1			161	284	293	300	128	227	71		1465
	FEMALE					40	120	107	154	56	62	16		555
	TOTAL		1			201	404	400	454	184	289	87		2020
DANSKAMMER POINT	SEX													
	MALE					142	273	254	340	328	255	141		1733
	FEMALE			1		41	99	138	158	67	65	31		600
	UNKNOWN								2					2
	TOTAL			1		183	372	392	500	395	320	172		2335

[a]Sex determinations were done on a subsample of the total impingement count.

by mud crab (689, 8.5%) and crayfish with 54 individuals (Table 6-12). Blue crab was the dominant species from May through November.

At least one of the three invertebrate taxa appeared in the Danskammer Point impingement collections in every month of 1995 and were most abundant in July (2,555 or 31.6% of the annual total). Mud crab reached peaks in April (122) and November (208) and crayfish were collected mainly from April through September (Table 6-12).

The number of blue crabs impinged at Danskammer Point followed a similar pattern among years to the Roseton counts, peaking at 15,944 individuals in 1991 and 9,036 individuals in 1992 (Table 6-13). The blue crab abundance approximately doubled from 1994 to 1995.

The 1995 blue crab population at Danskammer Point was dominated by males (74.2%) in a 2.9:1 ratio (Table 6-14).

6.4 DIEL IMPINGEMENT PATTERNS

The 6-hr impingement sampling intervals during each 24-hr collection period at Roseton and Danskammer Point Generating Stations permitted the data to be grouped into periods characterized as day (0900-1500 hrs), dusk (1500-2100 hrs), night (2100-0300 hrs) and dawn (0300-0900 hrs). Annual impingement counts for two age groups, young-of-the-year and older (yearling through adult), were examined in impingement collections for the four most abundant fish species at each plant to describe diel impingement patterns. Specimens that could not be measured due to damage were excluded from this analysis, because age categories were based on length.

6.4.1 Roseton Generating Station

The four most abundant species in impingement collections at Roseton Station in 1995 were examined for diel impingement patterns. Bay anchovy, white perch, blueback

herring, and striped bass accounted for 67.9% of the total abundance in 1995. Diel impingement collection information for Roseton is presented in Figure 6-5.

Bay anchovy was the most abundant species in impingement collections at Roseton in 1995. Over three-fifths of the young-of-the-year bay anchovy were collected during the night period, and most of the remaining individuals were collected during the 6-hr dawn and dusk periods. Very few were present in day collections. Nearly half of the yearlings or adults were collected during the night, with successively smaller numbers impinged during dawn, dusk, and day collections.

White perch ranked second in impingement collections at Roseton in 1995. Both young-of-the-year and yearling/adult white perch were abundant. Both age groups were most commonly collected in night impingement samples, followed by dawn, dusk, and day samples in that order.

Blueback herring was the third most abundant species in impingement collections at Roseton in 1995. Young-of-the-year were most abundant in the night and dawn diel periods (Figure 6-5). A very small proportion of young-of-the-year blueback herring were collected during the day diel period. Relatively few yearling and adult blueback herring were collected in 1995 impingement collections, but those that were collected were most abundant at night and least abundant during the day.

Striped bass was the fourth most abundant species in impingement collections at Roseton in 1995. Striped bass showed a diel pattern similar to that of the three most abundant species, being impinged most often at night and least often during the day. The proportion impinged at night was slightly higher than for white perch. Yearlings and adults accounted for a very small proportion of striped bass in impingement samples, and followed a similar diel occurrence pattern.

6.4.2 Danskammer Point Generating Station

The four most abundant species in impingement collections at Danskammer Point Station in 1995 were examined for diel abundance patterns. At Danksammer, white perch, gizzard shad, bay anchovy, and striped bass represented 67.9% of the total abundance in 1995 (Table 6-8, Figure 6-2). Diel impingement collection information for these four species at Danskammer Point is presented by age group in Figure 6-6.

White perch was the most abundant species in impingement collections at Danskammer Point in 1995. Both young-of-the-year and yearling/adult age classes were similar in their diel impingement patterns. Nearly half were collected at night, and most of the others were in dusk or dawn samples (Figure 6-6). There were slightly more white perch in dusk samples than in dawn samples at Danskammer Point.

Gizzard shad was the second most abundant species in impingement collections at Danskammer Point in 1995. Young-of-the-year were most abundant in the night diel period and least abundant in the day period. Yearling and adult gizzard shad were impinged in approximately equal numbers in night and dawn samples, with somewhat fewer collected during the day and dusk collections. Among the four species evaluated, gizzard shad was the most evenly distributed among the four diel periods.

Bay anchovy was the third most abundant species in impingement collections at Danskammer Point in 1995. The young-of-the-year were most abundant in night collections, and very few were collected in day samples. Over half of the yearlings and adults were collected at night, with day accounting for the smallest numbers collected.

Striped bass ranked fourth in impingement collections at Danskammer Point in 1995. Young-of-the-year, which represented the majority of the year's catch, were most numerous at night and least numerous in the day. The yearlings and adults showed a very similar pattern.

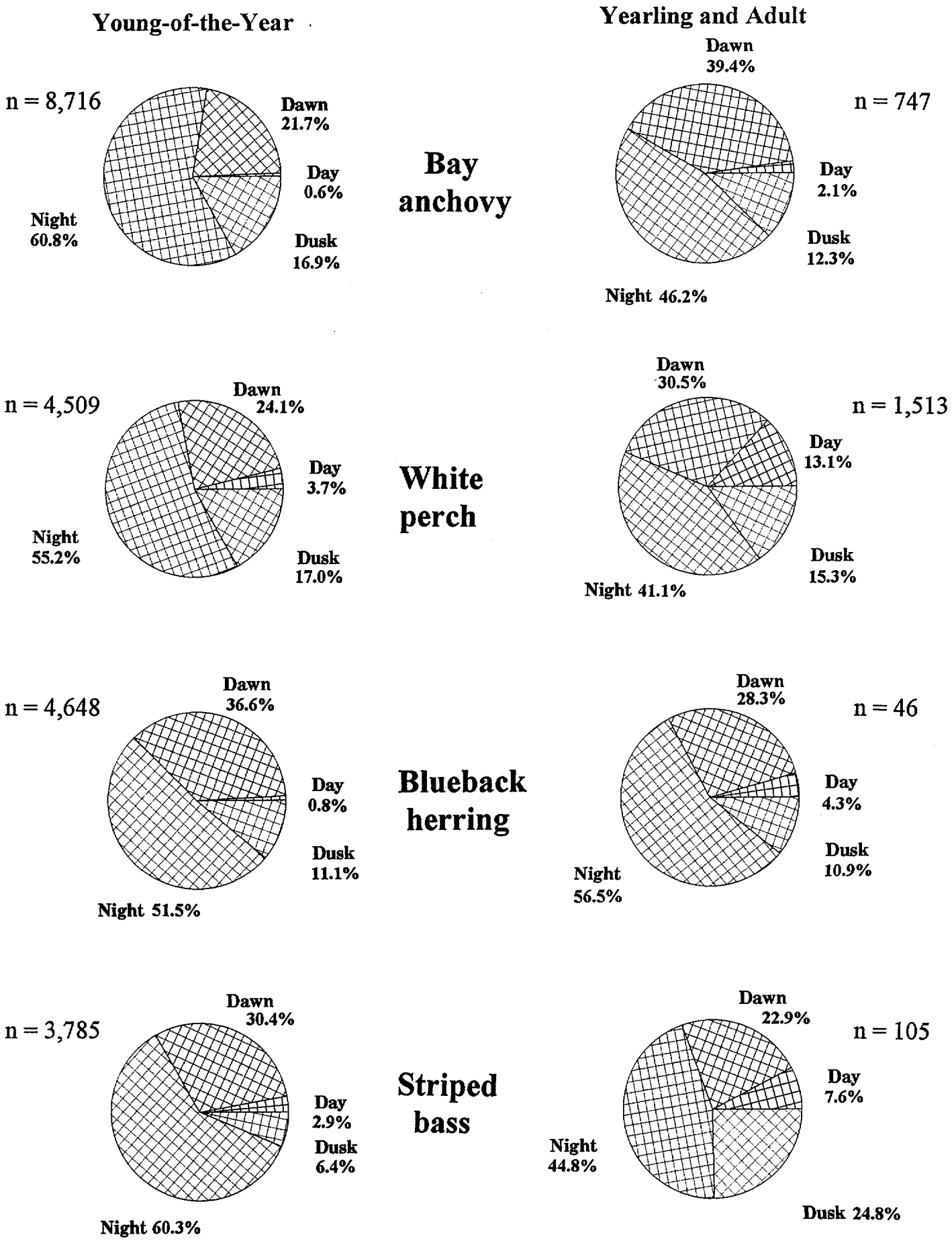


Figure 6-5. Diel collection for the four most abundant species by age class, Roseton Generating Station, 1995.

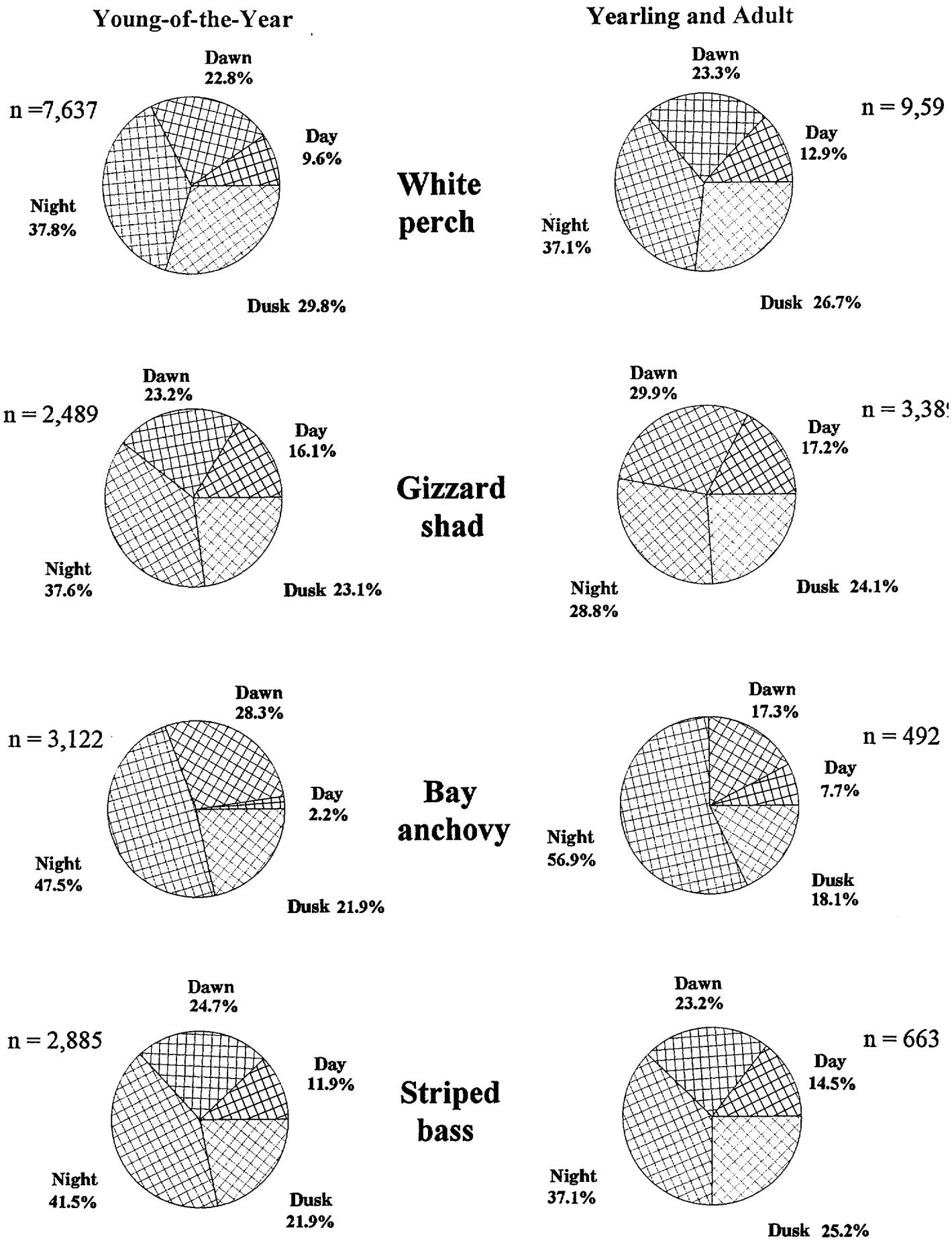


Figure 6-6. Diel collection for the four most abundant species by age class, Danskammer Point Generating Station, 1995.

6.5 IMPINGEMENT PATTERNS FOR SELECTED TAXA

Impingement data for total fish and for selected individual species extrapolated from collection dates to include all dates ("estimated impingement") are used for comparisons among age classes and among years in Section 6.5.1 and for analysis of seasonal patterns in Section 6.5.2. Estimated impingement abundance and biomass are presented in Appendices C and D, respectively, for total fish, selected fish species, and blue crabs on a weekly and monthly basis by plant. Selected fish species included in Appendices C and D for both plants include eight species that have historically been considered key species for this program: alewife, American shad, Atlantic tomcod, bay anchovy, blueback herring, rainbow smelt, striped bass, and white perch. Any fish species that ranked in the top 10 in abundance or biomass collected in 1995 at one of the two plants is included in Appendices C and D for that plant.

6.5.1 Estimated Impingement by Age Class and Long-Term Impingement Patterns

Estimated numbers of fish impinged during each month in 1995 are shown for the historically abundant species alewife, American shad, Atlantic tomcod, bay anchovy, blueback herring, spottail shiner, striped bass, and white perch by age class in Table 6-15 (Roseton) and Table 6-16 (Danskammer Point). The monthly totals for all age classes combined (including any that could not be assigned to length class due to damage) are shown in Appendix C. In the following sections, percentages by age class refer to the percentages among the total number of those fish that could be assigned to an age class, as presented in Tables 6-15 and 6-16. Annual impingement rates presented graphically for the same eight historically abundant species are for all age classes combined.

6.5.1.1 Alewife

An estimated total number of 14,664 alewife were impinged at Roseton in 1995, and 14,775 at Danskammer Point, of which 14,426 were classified by life stage at Roseton (Table 6-15) and 13,511 were classified by life stage at Danskammer Point (Table 6-16). During the peak months of alewife impingement at Roseton (July and August) 95.6% of the estimated alewife

TABLE 6-15. ESTIMATED MONTHLY IMPINGEMENT BY AGE CLASS FOR SELECTED SPECIES AT ROSETON GENERATING STATION, 1995.

	Alewife			American shad			Atlantic tomcod			Bay anchovy		
	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT
JAN	0	12	0	0	0	0	0	6	0	0	0	0
FEB	0	0	0	0	0	0	0	0	0	0	0	0
MAR	0	27	0	0	0	0	0	0	0	0	0	0
APR	0	0	15	0	0	0	0	0	0	0	0	0
MAY	0	59	8	0	0	0	178	22	0	0	0	0
JUN	31	7	0	17	0	0	399	3	0	0	0	0
JUL	10599	379	6	6260	0	0	998	12	0	231	3803	0
AUG	2603	215	8	919	0	11	22	0	0	29726	266	0
SEP	7	7	0	7	0	0	0	0	0	37	45	0
OCT	295	8	0	62	0	0	0	0	0	30403	1155	0
NOV	140	0	0	74	0	0	0	0	0	0	0	0
DEC	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	13675	714	37	7340	0	11	1597	44	0	60397	5268	0

	Blueback herring			Spottail shiner			Striped bass			White perch		
	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT
JAN	0	0	0	0	468	113	0	148	0	0	64	0
FEB	0	0	0	0	635	214	0	30	0	0	165	44
MAR	0	0	0	0	1185	570	0	14	0	0	256	60
APR	0	15	0	0	488	45	0	38	0	0	414	53
MAY	0	152	7	0	368	132	0	250	0	0	3133	177
JUN	0	7	22	0	710	0	519	87	0	0	2579	337
JUL	10601	62	0	838	487	0	15795	80	9	10212	1694	347
AUG	7353	12	17	438	101	0	8202	42	6	11409	270	118
SEP	67	0	7	15	0	0	89	7	0	342	0	15
OCT	14655	8	0	116	0	0	597	0	0	1961	23	39
NOV	1709	0	0	929	159	0	148	5	0	4223	264	88
DEC	0	0	0	865	330	0	58	0	0	829	111	51
TOTAL	34384	256	53	3201	4930	1075	25407	700	15	28975	8972	1329

YOY - YOUNG-OF-THE-YEAR

TABLE 6-16. ESTIMATED MONTHLY IMPINGEMENT BY AGE CLASS FOR SELECTED SPECIES AT DANSKAMMER POINT GENERATING STATION, 1995.

	Alewife			American shad			Atlantic tomcod			Bay anchovy		
	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT
JAN	0	0	0	0	0	0	0	121	7	0	0	0
FEB	0	0	0	0	0	0	0	81	0	0	0	0
MAR	0	162	4	0	0	0	0	0	0	0	0	0
APR	0	7	0	0	0	0	0	0	0	0	0	0
MAY	0	15	30	0	0	0	6	0	0	0	0	0
JUN	0	61	24	3	0	0	700	0	0	0	0	0
JUL	932	751	91	260	0	0	1208	27	0	99	666	0
AUG	2118	1153	190	492	0	7	21	0	0	7042	173	0
SEP	2054	566	174	750	0	0	7	0	0	9482	1269	0
OCT	3895	834	130	1398	9	0	0	0	0	1124	1070	0
NOV	299	24	0	123	0	0	8	0	0	0	0	0
DEC	0	0	0	0	0	0	23	0	0	0	0	0
TOTAL	9296	3574	641	3027	9	7	1973	229	7	17747	3178	0

	Blueback herring			Spottail shiner			Striped bass			White perch		
	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT
JAN	0	0	0	0	951	456	0	543	0	0	465	190
FEB	0	0	0	0	717	565	0	80	0	0	470	610
MAR	0	15	0	0	1951	2047	0	19	4	0	2374	3989
APR	0	7	0	0	1513	449	0	293	0	0	2388	273
MAY	0	6	6	0	71	36	0	268	0	0	1761	103
JUN	0	36	523	0	4657	0	17	599	26	0	7209	4715
JUL	187	30	34	6	1049	0	845	758	21	167	5024	6094
AUG	198	21	35	4	382	0	6517	703	56	5988	1099	1902
SEP	283	34	0	60	725	0	6294	550	7	4241	861	1501
OCT	13481	86	5	256	280	0	3875	135	14	22404	3737	2167
NOV	2954	0	0	994	991	0	594	193	60	19604	9157	3701
DEC	0	0	0	788	936	0	64	41	24	1330	660	444
TOTAL	17104	235	604	2108	14223	3553	18205	4184	213	53735	35204	25690

YOY - YOUNG-OF-THE-YEAR

impinged were young-of-the-year. Adult alewife accounted for only 0.3% of the alewife impinged over the entire year. Yearlings were also impinged in relatively low numbers (4.9% of the total), and were most frequently impinged during July and August.

At Danskammer Point the seasonal occurrence of all age groups was spread over a greater number of months than their occurrence at Roseton. Yearlings accounted for a larger proportion of the alewife impingement (26.5%) than did adults, which accounted for 4.7%. Both older age groups were impinged in larger numbers at Danskammer Point than at Roseton.

The annual impingement rate for alewife in 1995 at Roseton was the sixth highest compared to the entire 1975-1995 period of record (Figure 6-7). The Danskammer Point annual alewife impingement rate in 1995 was the eighth lowest for the 22-year period.

6.5.1.2 American Shad

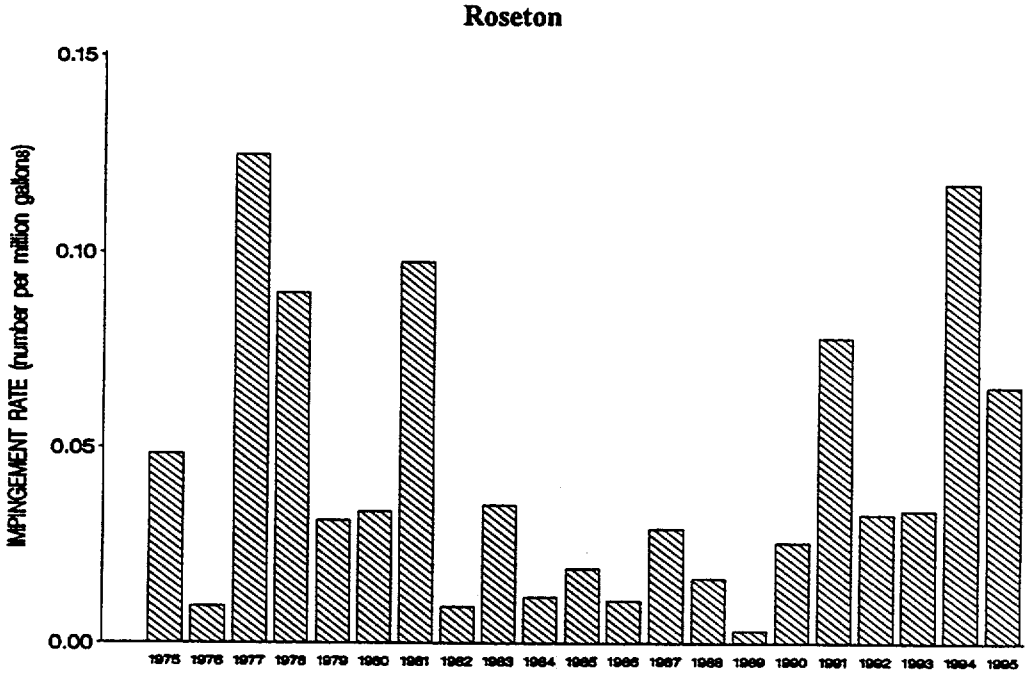
The estimated total numbers of American shad impinged in 1995 were 7,458 at Roseton and 3,195 at Danskammer Point, of which 7,351 were classified by life stage at Roseton (Table 6-15) and 3,043 were classified by life stage at Danskammer Point (Table 6-16). The vast majority of American shad impinged in 1995 at both plants were young-of-the-year. The young-of-the-year shad first were impinged during June and were present through November at both Roseton and Danskammer Point. The greatest numbers were impinged in July at Roseton and in October at Danskammer Point.

Compared with previous years' annual impingement rates of American shad, the 1995 rate was the third highest in 21 years at Roseton, and the eighth lowest for the entire 22-year period at Danskammer Point (Figure 6-8).

6.5.1.3 Atlantic Tomcod

Total impingement of Atlantic tomcod during 1995 was estimated at 1,657 fish at Roseton and 2,480 at Danskammer Point, of which 1,641 were classified by life stage at Roseton and 2,209 at Danskammer Point (Tables 6-15 and 6-16). The predominant life stage was young-

Alewife



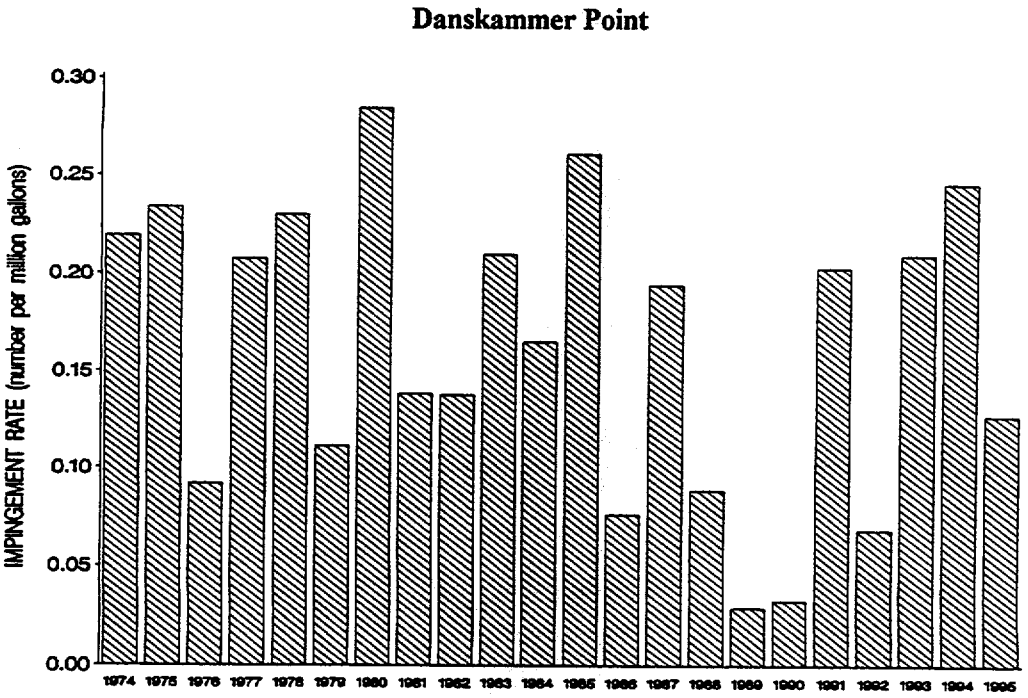
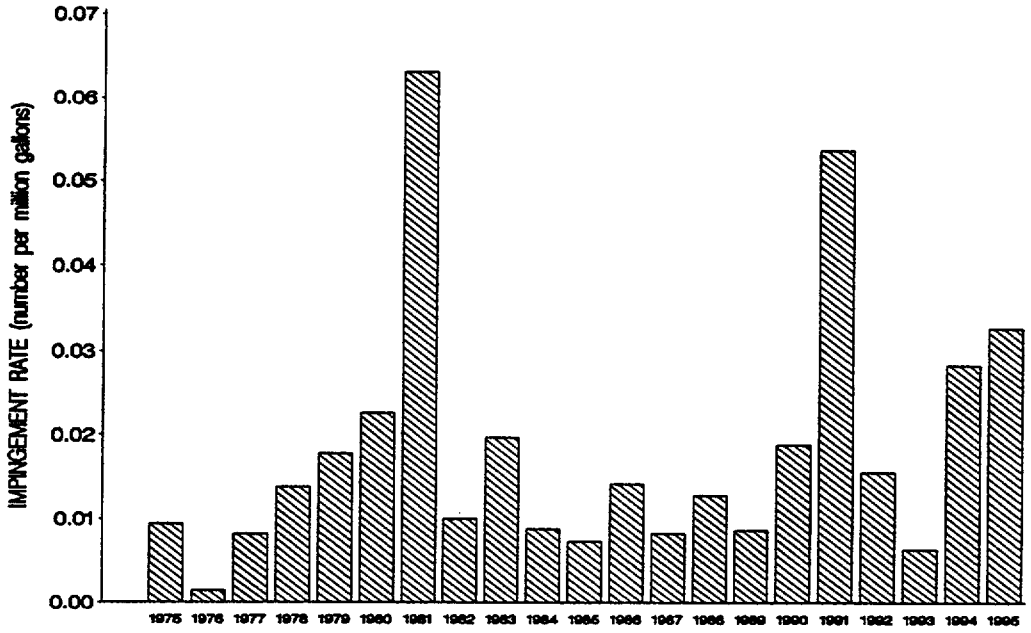


Figure 6-7. Annual impingement rate for alewife at Roseton and Danskammer Point generating stations, 1974-1995.

American Shad

Roseton



Danskammer Point

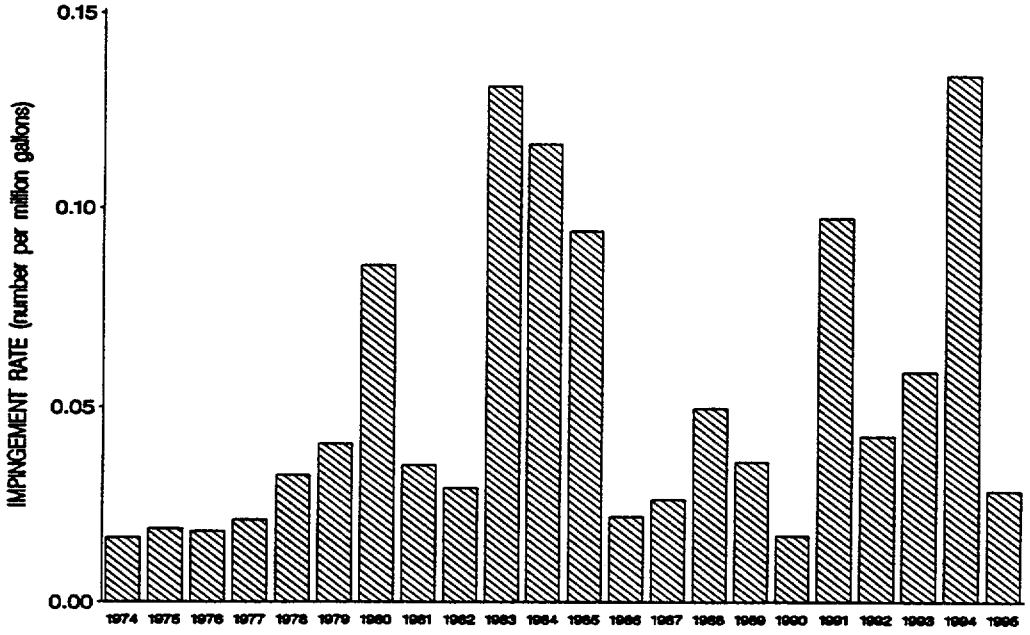


Figure 6-8. Annual impingement rate for American shad at Roseton and Danskammer Point generating stations, 1974-1995.

of-the-year (97.3% at Roseton and 89.3% at Danskammer Point). Yearlings were occasionally impinged (2.7% at Roseton and 10.4% at Danskammer Point). There were few Atlantic tomcod older than yearlings that were impinged in 1995 at Danskammer Point, and none at Roseton. The young-of-the-year Atlantic tomcod first appeared in May at both Roseton and Danskammer Point. The highest young-of-the-year impingement occurred in July at each plant. Yearling Atlantic tomcod, which are sexually mature, were most abundant in January and February at Danskammer Point.

Annual mean impingement rate of Atlantic tomcod in 1995 was average compared to previous years at Roseton and the third lowest in 22 years at Danskammer Point (Figure 6-9). The highest rates were generally in the mid- to late 1970s except for a relatively high impingement rate at Roseton in 1991.

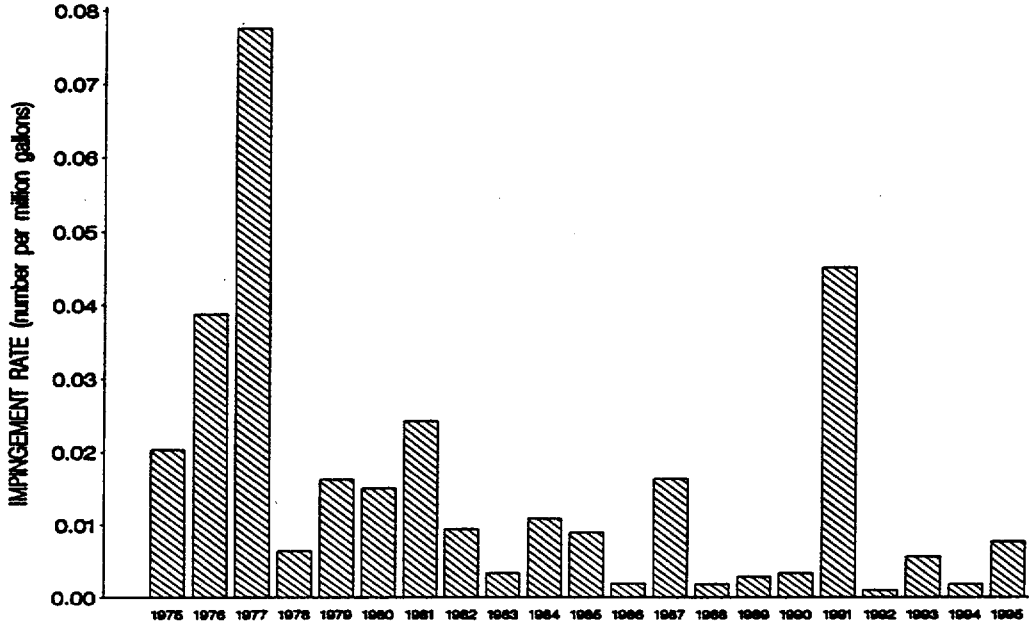
6.5.1.4 Bay Anchovy

The estimated total numbers of bay anchovy impinged during 1995 were 66,146 at Roseton and 22,187 at Danskammer Point, of which 65,665 were classified by life stage at Roseton (Table 6-15) and 20,925 were classified by life stage at Danskammer Point (Table 6-16). At Roseton 92.0% were young-of-the-year and 8.0% were yearlings, and at Danskammer Point 84.8% were young-of-the-year and the remaining 15.2% were yearlings. All of the young-of-the-year bay anchovy impingement was observed during July through October, with the highest numbers impinged during October at Roseton and September at Danskammer Point. Yearling bay anchovies (which are sexually mature) were also impinged during July through October.

The annual impingement rates for bay anchovy at Roseton (Figure 6-10) indicate two low years (1975-1976) followed by several moderate years (1977-1984), and then a declining trend through 1989. In 1991 the highest annual impingement rate recorded over the 19-year data base occurred. The annual impingement in 1995 was the second highest for the period of record.

Atlantic Tomcod

Roseton



Danskammer Point

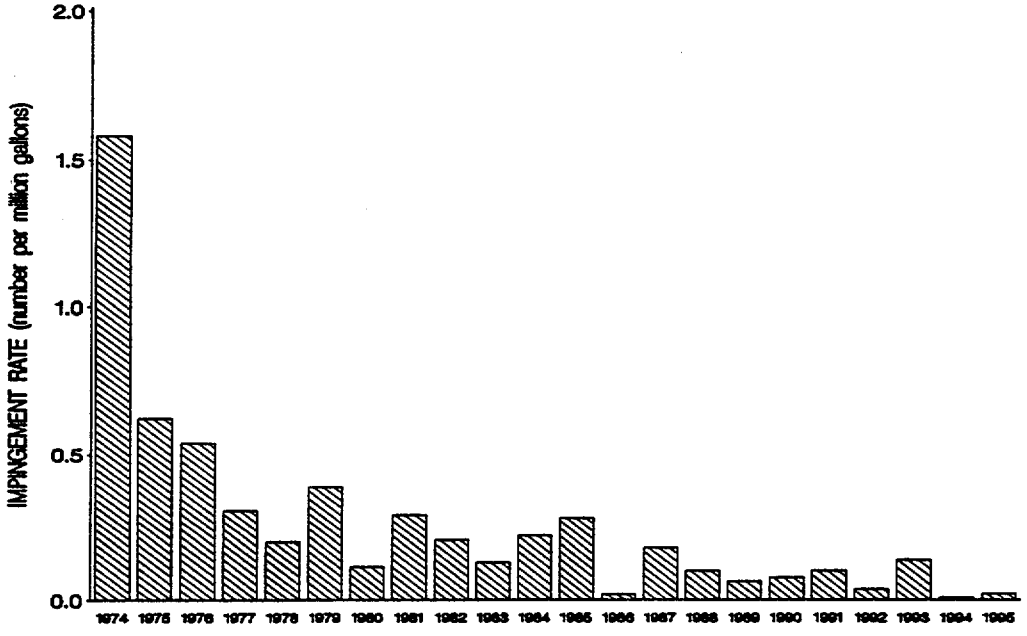
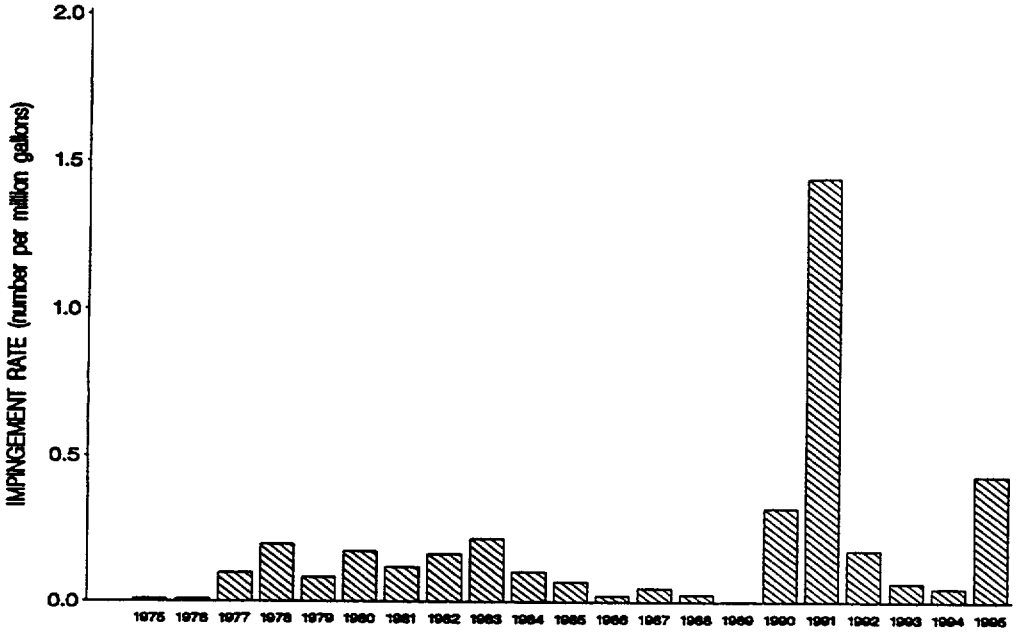


Figure 6-9. Annual impingement rate for Atlantic tomcod at Roseton and Danskammer Point generating stations, 1974-1995.

Bay Anchovy

Roseton



Danskammer Point

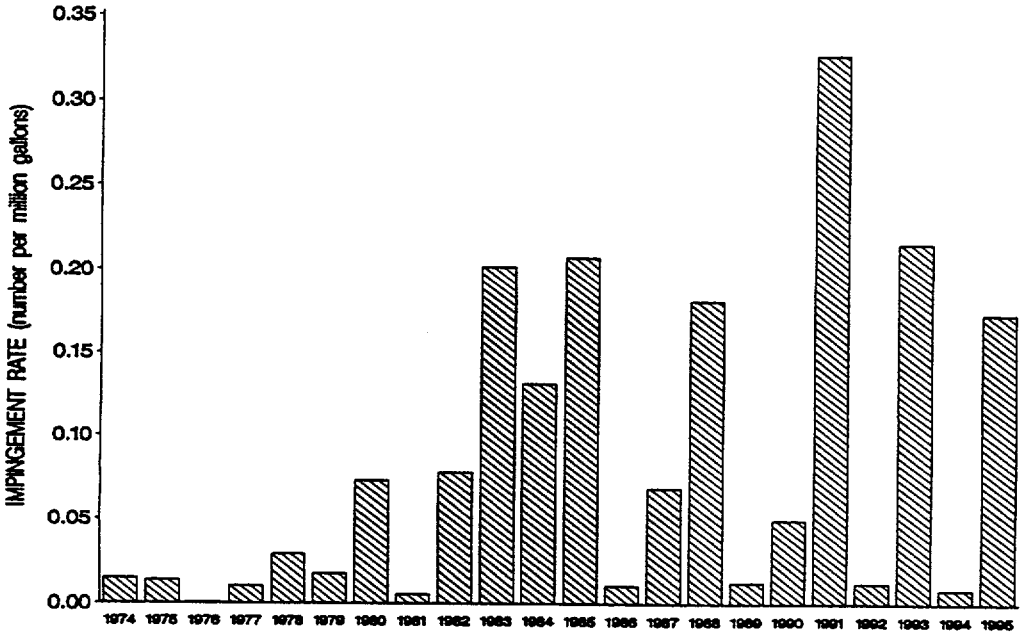


Figure 6-10. Annual impingement rate for bay anchovy at Roseton and Danskammer Point generating stations, 1974-1995.

The historical pattern of bay anchovy impingement rates at Danskammer Point also exhibited a general cycle of increasing then decreasing values from year-to-year (Figure 6-10). The years of highest abundances at Danskammer Point were 1983-1985, 1988, 1991, 1993, and 1995. The 1995 annual impingement rate for bay anchovy was the sixth highest recorded at Danskammer Point since 1974.

6.5.1.5 Blueback Herring

The total numbers of blueback herring estimated to have been impinged during 1995 were 34,721 at Roseton and 18,277 at Danskammer Point, of which 34,693 were classified by life stage at Roseton (Table 6-15) and 17,943 were classified by life stage at Danskammer Point (Table 6-16). Of these, young-of-the-year fish made up the vast majority: 99.1% at Roseton and 95.3% at Danskammer Point. This 1995 year class first appeared in impingement collections in July at both plants. The greatest numbers impinged were in October at both plants. Both yearlings and adults were also impinged at both plants, although these age groups were a somewhat greater component at Danskammer Point (1.3% and 3.4% for the whole year, respectively) than at Roseton (0.7% and 0.2%). Most impingement of yearlings and adults occurred in spring and summer.

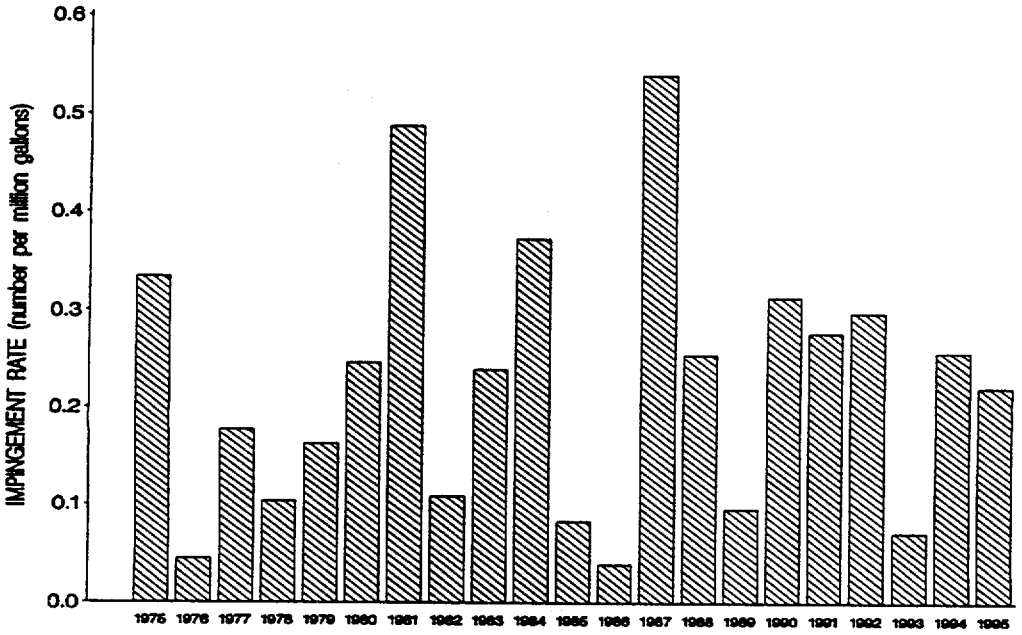
Compared to the previous 20-21 years, the annual blueback herring impingement rate during 1995 was about average at Roseton and a little below average at Danskammer Point (Figure 6-11). Rates have varied considerably among years and between the two plants. The annual impingement rate in 1995 at Roseton was a little lower than in 1994, whereas at Danskammer Point, the annual blueback herring impingement rate during 1995 was nearly identical to the rate in 1994.

6.5.1.6 Spottail Shiner

At Roseton an estimated total of 9,459 spottail shiner were impinged and at Danskammer Point the estimate was 20,234, of which 9,206 were classified by life stage at Roseton (Table 6-15) and 19,884 were classified by life stage at Danskammer Point (Table 6-

Blueback Herring

Roseton



Danskammer Point

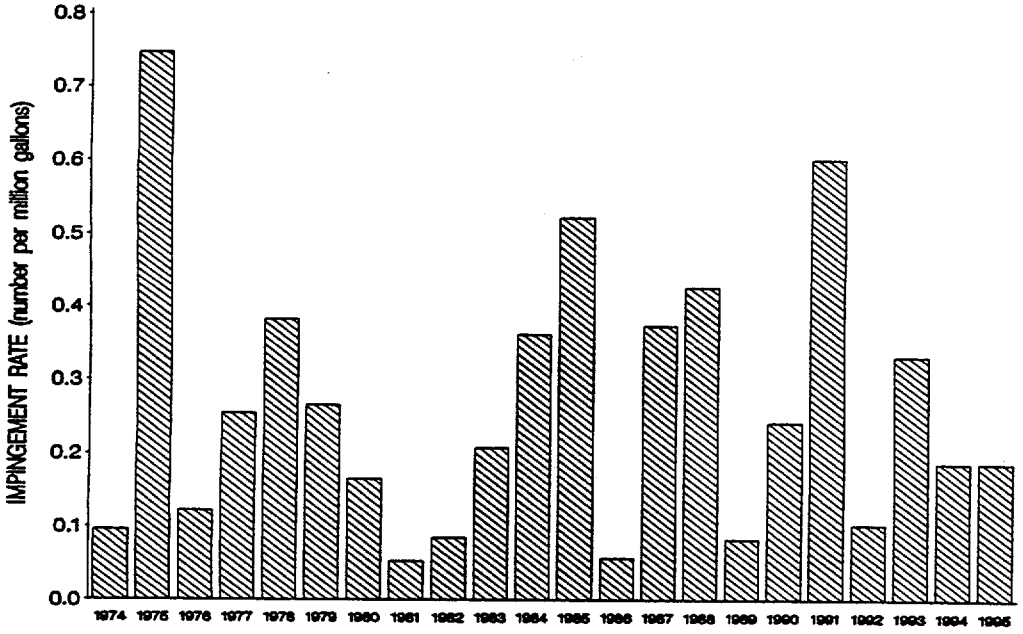


Figure 6-11. Annual impingement rate for blueback herring at Roseton and Danskammer Point generating stations, 1974-1995.

16). Over half of the total at each plant were yearlings. Adults were impinged only during January-May, and young-of-the-year were impinged only from July until December. Yearlings were present most of the year and were most abundant in the first half of the year.

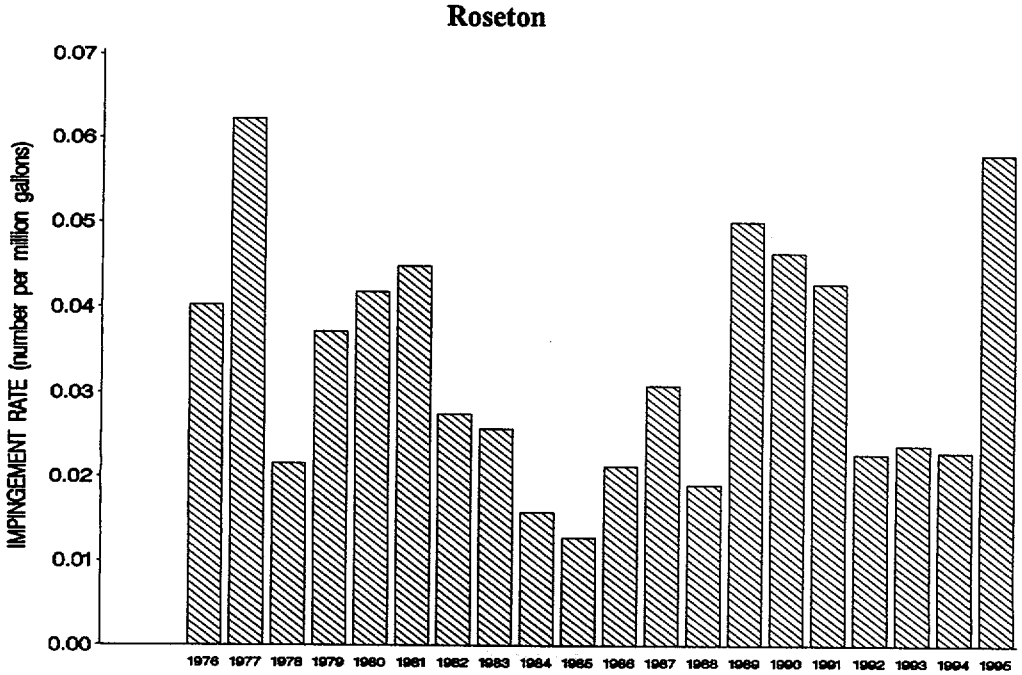
Annual impingement rates for spottail shiner (Figure 6-12) have not been characterized by such wide fluctuations among years as were those of clupeids and bay anchovy. The 1995 impingement rates were higher than in most past years, except for the rates in 1977 at Roseton, and in 1987 and 1989 at Danskammer Point.

6.5.1.7 Striped Bass

The estimated total numbers of striped bass impinged in 1995 were 26,126 at Roseton and 23,084 at Danskammer Point, of which 26,122 were classified by life stage at Roseton (Table 6-15) and 22,602 were classified by life stage at Danskammer Point (Table 6-16). The age composition at Roseton was dominated by young-of-the-year (97.3%), with yearlings making up most of the remaining impingement. The age class proportions at Danskammer Point included a larger proportion of yearlings: 80.5% young-of-the-year, 18.5% yearlings, and 0.9% adults. Young-of-the-year striped bass were first impinged in June at both plants, and impingement of this early life stage reached a maximum earlier at Roseton (July) than at Danskammer Point (August). The highest percentage of striped bass impinged during the first half of the year were yearlings, until the more abundant young-of-the year fish became large enough to be retained on the traveling screens. Striped bass older than yearlings were present in impingement collections mainly during the second half of the year.

Annual impingement rates for striped bass in 1995 were high compared to most of the 1974-1994 data (Figure 6-13). The striped bass annual impingement rate for 1995 was higher than in all previous years at Roseton and higher than in all but two previous years at Danskammer Point.

Spottail Shiner



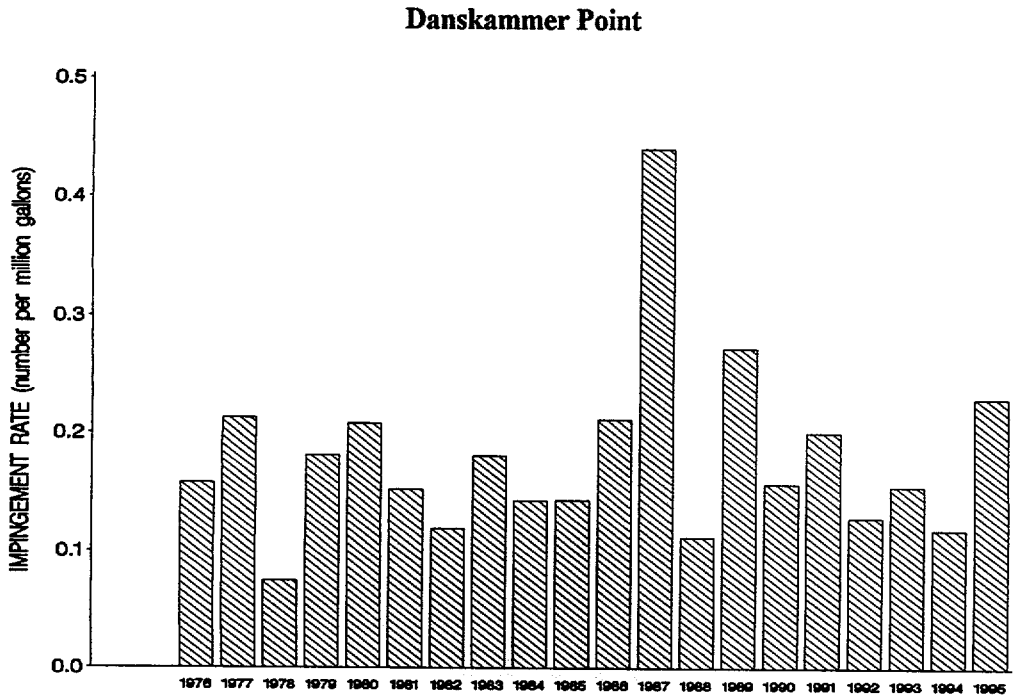
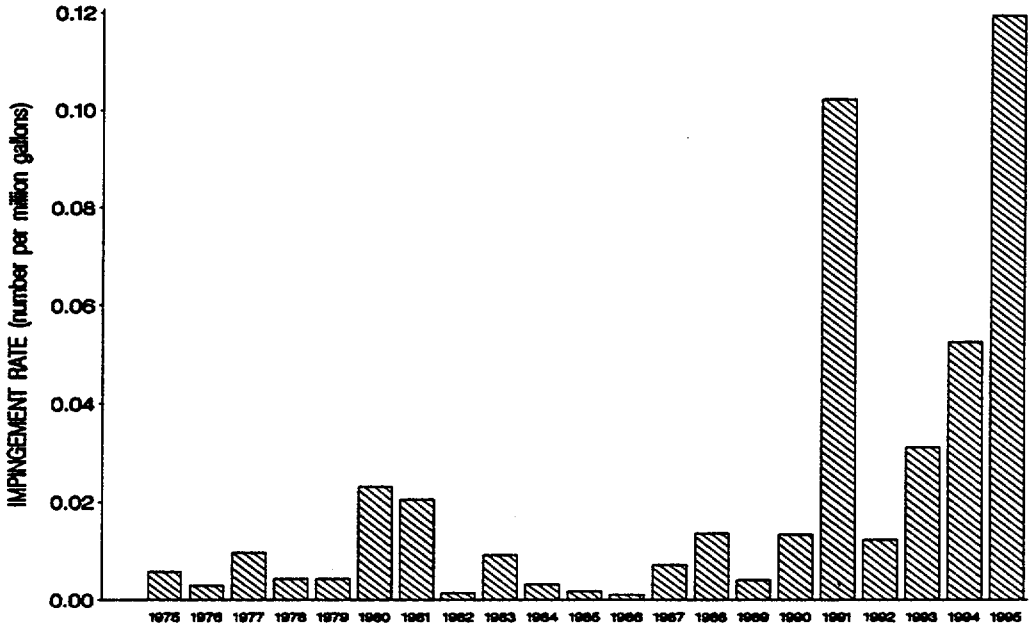


Figure 6-12. Annual impingement rate for spottail shiner at Roseton and Danskammer Point generating stations, 1976-1995.

Striped Bass

Roseton



Danskammer Point

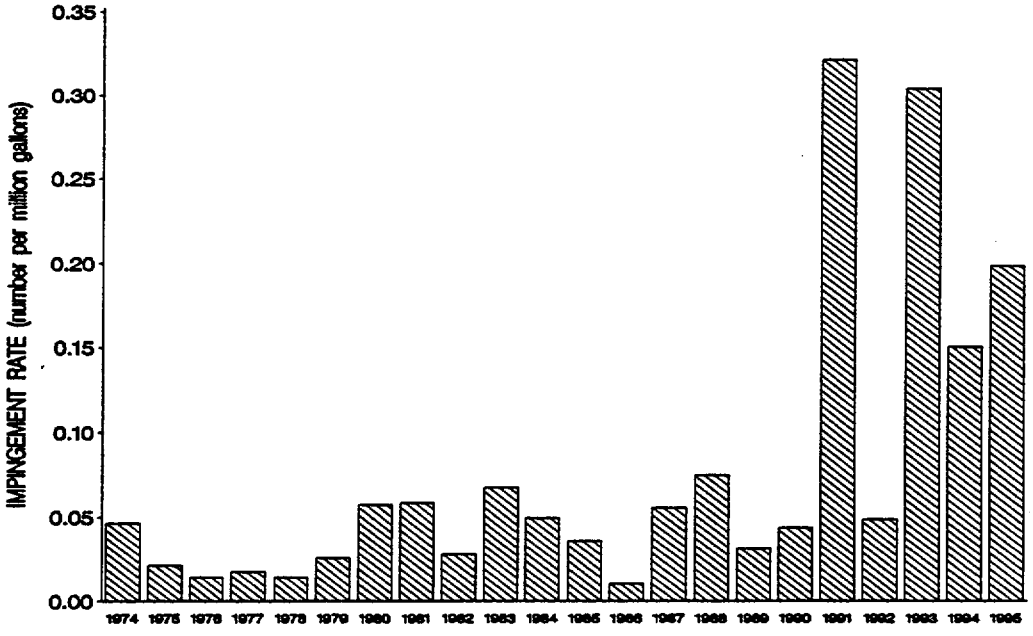


Figure 6-13. Annual impingement rate for striped bass at Roseton and Danskammer Point generating stations, 1974-1995.

6.5.1.8 White Perch

Total numbers of white perch estimated to have been impinged in 1995 were 39,441 at Roseton and 116,059 at Danskammer Point, of which 39,276 were classified by life stage at Roseton (Table 6-15) and 114,629 were classified by life stage at Danskammer Point (Table 6-16). Young-of-the-year white perch represented 73.8% of the estimated total impinged at Roseton and 46.9% at Danskammer Point. At both plants they first appeared in July, reaching a maximum in August at Roseton and in October at Danskammer Point. Yearling fish constituted 22.8% of the Roseton impingement and 30.7% at Danskammer Point. Yearling white perch were present in impingement collections in every month except September at Roseton and in all months at Danskammer Point. Yearlings reached peaks in May at Roseton and November at Danskammer Point. Adults were the least abundant age group of white perch at both Roseton (3.4%) and Danskammer Point (22.4%). Their seasonal abundance pattern at both plants was similar to that of the yearlings. In comparison with the previous 21 years, the 1995 white perch impingement rates were slightly below average at both plants (Figure 6-14).

6.5.2 Seasonal Impingement Patterns

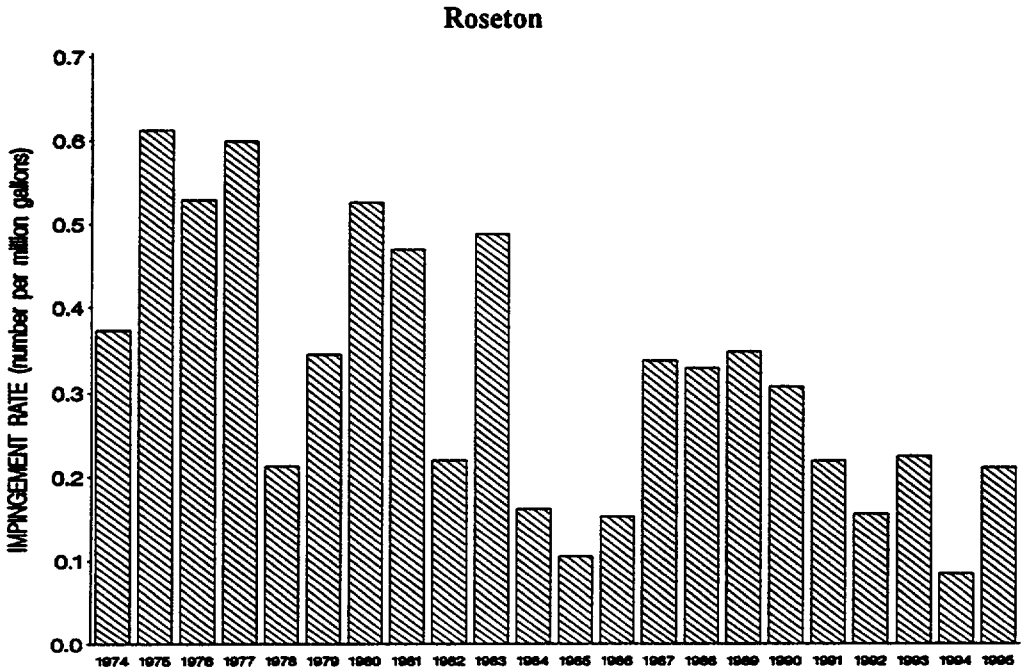
6.5.2.1 Total Fish

Roseton Generating Station

The monthly estimated total impingement of all fish species combined is shown in Figure 6-15 (abundance and biomass) and Table 6-17 (abundance and percent composition) for Roseton in 1995. The months of highest estimated impingement abundance were July (70,822), August (63,130), and October (51,770). The lowest monthly total impingement estimate was for September (958). An abundance of bay anchovy was primarily responsible for the high estimated impingement in August and October, and the high impingement in July was largely due to abundant striped bass, white perch, alewife, and blueback herring.

The seasonal trend of estimated biomass at Roseton was characterized by 60.7% of the total for the year being impinged in a single month, December (Figure 6-15). The December

White Perch



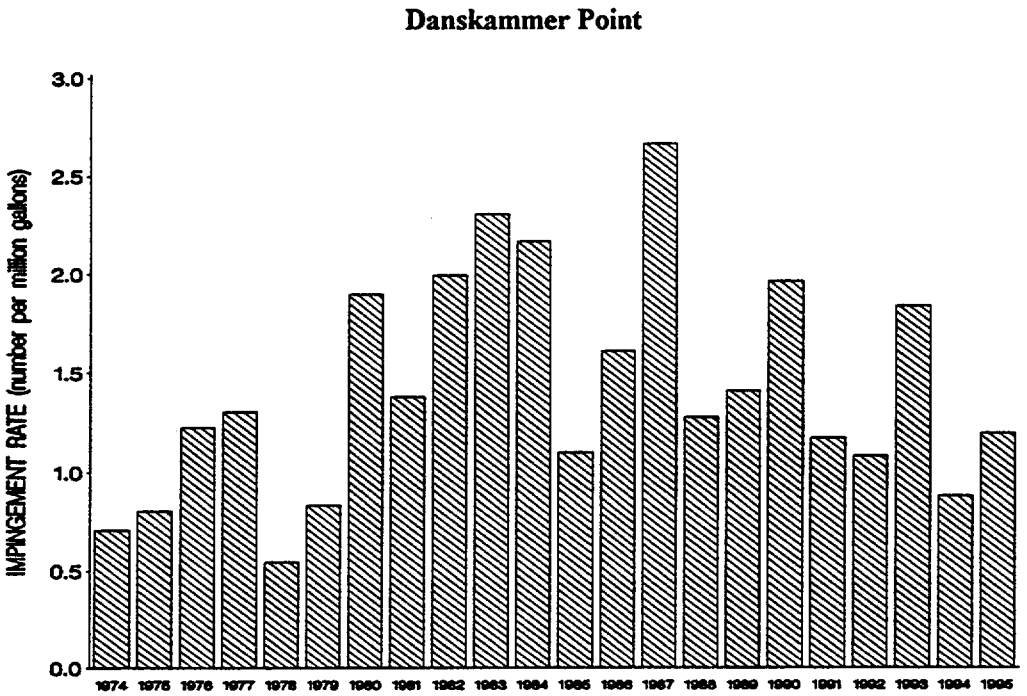
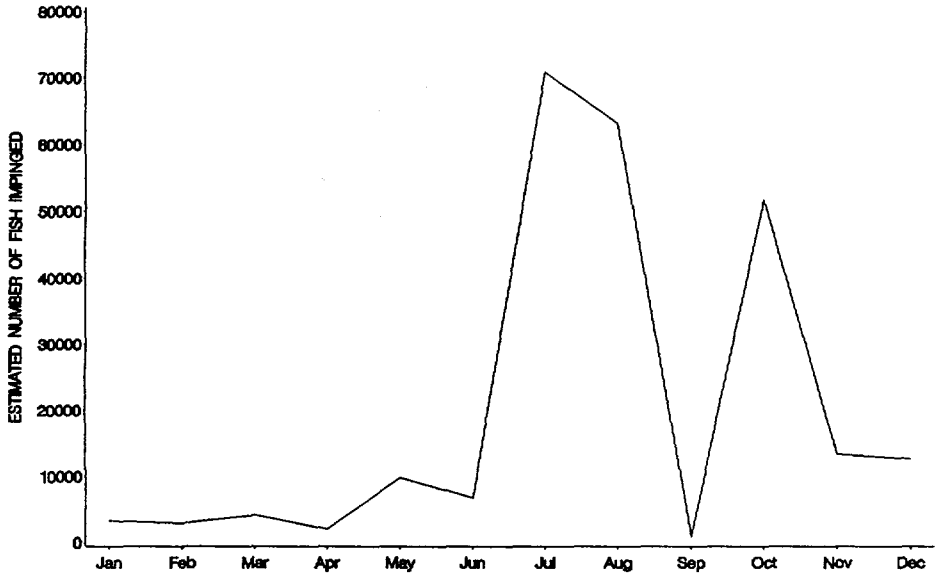


Figure 6-14. Annual impingement rate for white perch at Roseton and Danskammer Point generating stations, 1974-1995.

Total Fish

Estimated Abundance



Estimated Biomass

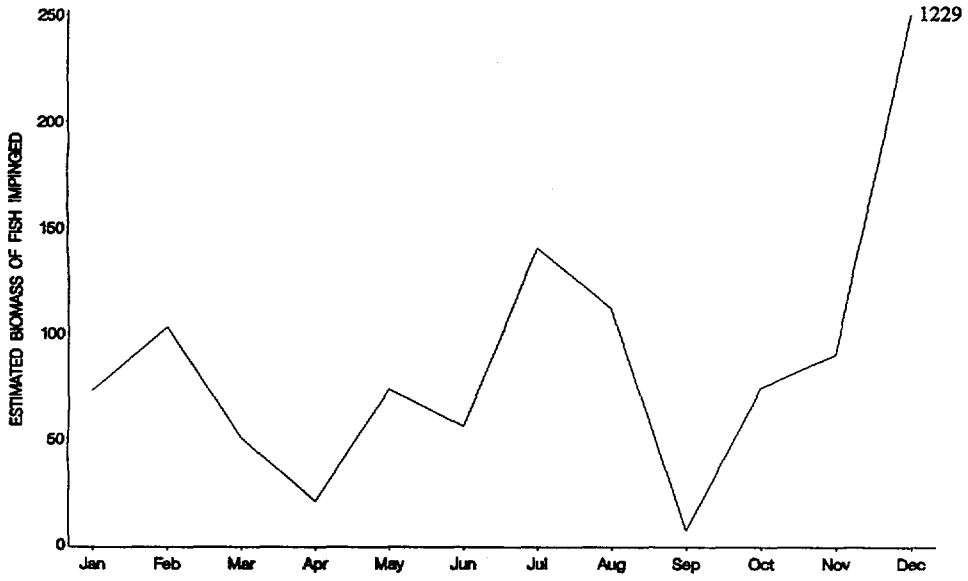


Figure 6-15. Monthly estimated impingement of all fish species combined, Roseton Generating Station, 1995.

TABLE 6-17. ESTIMATED MONTHLY ABUNDANCE AND PERCENT COMPOSITION OF THE TEN MOST ABUNDANT SPECIES COLLECTED IN IMPINGEMENT SAMPLES, ROSETON GENERATING STATION, 1995.

	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE	
	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%
Alewife	12	0.37	0	0.00	27	0.65	15	0.73	66	0.68	37	0.56
American shad	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	20	0.30
Banded killifish	533	16.02	169	5.88	232	5.56	15	0.73	8	0.08	116	1.72
Bay anchovy	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Blueback herring	0	0.00	0	0.00	0	0.00	15	0.73	160	1.64	28	0.42
Gizzard shad	652	19.62	387	13.51	5	0.13	0	0.00	0	0.00	0	0.00
Pumpkinseed	391	11.75	278	9.70	178	4.26	218	10.61	508	5.20	238	3.54
Spottail shiner	593	17.84	906	31.62	1824	43.72	540	26.34	501	5.13	713	10.60
Striped bass	148	4.46	30	1.06	14	0.33	38	1.83	250	2.56	605	9.00
White perch	64	1.92	233	8.13	321	7.69	466	22.74	3318	33.99	2919	43.39
Others	932	28.03	863	30.11	1571	37.66	744	36.28	4952	50.73	2050	30.47
TOTAL	3325	100.0	2866	100.0	4172	100.0	2051	100.0	9762	100.0	6728	100.0

	JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%
Alewife	11203	15.82	2842	4.50	15	1.55	302	0.58	144	1.08	0	0.00
American shad	6344	8.96	943	1.49	15	1.55	62	0.12	74	0.55	0	0.00
Banded killifish	56	0.08	177	0.28	0	0.00	411	0.79	3063	22.87	543	4.26
Bay anchovy	4422	6.24	29992	47.51	111	11.63	31620	61.08	0	0.00	0	0.00
Blueback herring	10676	15.07	7381	11.69	74	7.75	14679	28.35	1709	12.76	0	0.00
Gizzard shad	2420	3.42	50	0.08	0	0.00	8	0.01	630	4.71	7369	57.81
Pumpkinseed	57	0.08	55	0.09	126	13.18	1201	2.32	773	5.77	1126	8.83
Spottail shiner	1375	1.94	539	0.85	15	1.55	116	0.22	1093	8.16	1245	9.77
Striped bass	15883	22.43	8254	13.08	97	10.08	597	1.15	153	1.14	58	0.45
White perch	12273	17.33	11802	18.70	357	37.21	2023	3.91	4654	34.74	1012	7.94
Others	6113	8.63	1094	1.73	149	15.50	752	1.45	1101	8.22	1394	10.94
TOTAL	70822	100.0	63130	100.0	958	100.0	51770	100.0	13395	100.0	12747	100.0

	ANNUAL TOTAL	
	ESTIM. NUMBER	%
Alewife	14664	6.07
American shad	7458	3.09
Banded killifish	5322	2.20
Bay anchovy	66146	27.36
Blueback herring	34721	14.36
Gizzard shad	11522	4.77
Pumpkinseed	5148	2.13
Spottail shiner	9459	3.91
Striped bass	26126	10.81
White perch	39441	16.32
Others	21716	8.98
TOTAL	241724	100.0

peak in estimated biomass was due to gizzard shad, which accounted for 92.4% of the December total (Table 6-18). Among the months other than December, the highest estimated biomass impinged was in July and August, when white perch, alewife, and bay anchovy accounted for 56.7% of the total biomass. Gizzard shad accounted for the greatest percentage of biomass impinged in January, February, and December; white perch ranked first in May-September and in November; golden shiner ranked first in March; pumpkinseed ranked first in April; and bay anchovy ranked first in estimated biomass impinged at Roseton in October.

Danskammer Point Generating Station

At Danskammer Point, the highest monthly estimated total fish impingement in 1995 occurred in the fall, although relatively high numbers of fish were impinged from June through December (Figure 6-16 and Table 6-19). The highest total numbers impinged for all units combined were in October, estimated at 64,552, and November, estimated at 57,171. June-September and December also had high totals (above 20,000), while the lowest total was in May, at 4,787 fish. The peak impingement in October and November of 1995 was mainly due to white perch (44.1% of the estimated impingement in October and 56.8% in November). Other major contributors were blueback herring (21.3% of the October total) and gizzard shad (21.6% of the November total).

The seasonal trend of estimated biomass followed a different pattern to that of the estimated numerical abundance in 1995 at Danskammer Point. December was by far the month when the greatest biomass was impinged, accounting for 72.2% of the biomass impinged for the year (Figure 6-16). Gizzard shad was responsible for 98.2% of that December peak (Table 6-20). Gizzard or white perch had the greatest biomass impinged in every month except in May, when pumpkinseed accounted for the largest percent of impinged biomass.

6.5.2.2 Selected Species

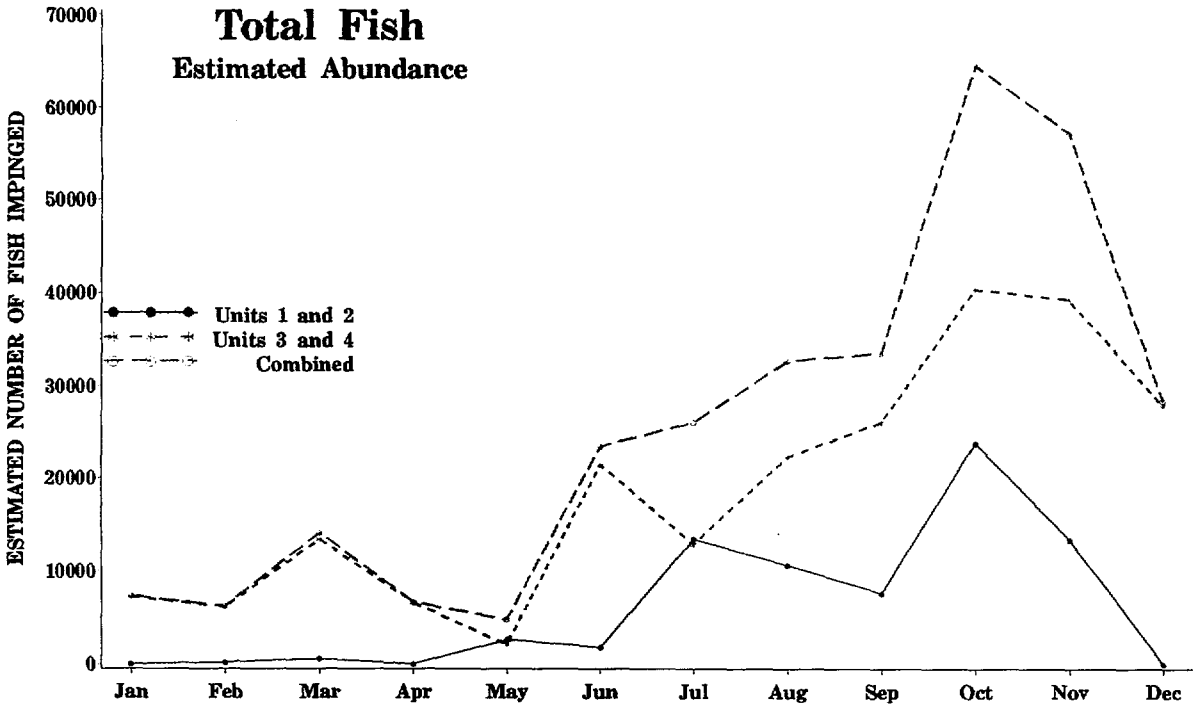
The typical seasonal patterns of impingement for key species can be seen by examining the mean and range of impingement rates for each month over a period of several

TABLE 6-18. ESTIMATED MONTHLY BIOMASS (KILOGRAMS) AND PERCENT COMPOSITION OF THE TEN MOST ABUNDANT SPECIES COLLECTED IN IMPINGEMENT SAMPLES, ROSETON GENERATING STATION, 1995.

	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE	
	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%
Alewife	0.1	0.18	0.0	0.00	0.3	0.64	2.9	14.58	1.8	2.40	0.2	0.30
American eel	2.3	3.22	0.0	0.00	1.8	3.67	0.4	2.09	2.4	3.31	3.5	6.26
Bay anchovy	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00
Blueback herring	0.0	0.00	0.0	0.00	0.0	0.00	0.1	0.34	2.7	3.61	2.4	4.34
Brown bullhead	0.2	0.31	1.4	1.39	0.7	1.37	1.4	6.83	17.7	24.11	8.2	14.72
Gizzard shad	32.4	44.52	48.7	47.42	0.6	1.23	0.0	0.00	0.0	0.00	0.0	0.00
Golden shiner	6.5	8.98	19.2	18.67	19.7	39.01	0.1	0.54	0.7	0.93	0.0	0.08
Pumpkinseed	9.4	12.93	9.9	9.61	5.6	11.11	5.3	26.82	14.7	20.01	5.9	10.53
Spottail shiner	2.8	3.81	4.6	4.45	10.8	21.33	2.0	9.94	3.2	4.32	4.2	7.50
White perch	0.3	0.38	4.1	3.99	3.6	7.22	4.4	22.28	20.0	27.29	26.5	47.67
Others	18.7	25.68	14.9	14.47	7.3	14.43	3.3	16.58	10.3	14.02	4.8	8.60
TOTAL	72.8	100.0	102.8	100.0	50.4	100.0	19.9	100.0	73.5	100.0	55.6	100.0

	JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%
Alewife	24.6	17.58	14.9	13.39	0.2	3.71	1.3	1.75	0.5	0.59	0.0	0.00
American eel	5.6	4.03	12.1	10.86	0.4	6.49	1.1	1.43	2.0	2.17	0.6	0.05
Bay anchovy	12.6	8.97	20.2	18.16	0.3	4.13	23.4	31.62	0.0	0.00	0.0	0.00
Blueback herring	7.7	5.50	6.0	5.37	0.5	7.58	22.3	30.13	3.3	3.66	0.0	0.00
Brown bullhead	7.5	5.34	0.9	0.82	1.2	19.93	0.0	0.06	1.6	1.81	1.8	0.15
Gizzard shad	4.9	3.51	3.3	2.92	0.0	0.00	0.1	0.12	28.6	31.81	1136.0	92.45
Golden shiner	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	1.2	1.32	17.9	1.46
Pumpkinseed	1.5	1.07	0.8	0.73	0.7	11.88	5.4	7.26	4.2	4.70	27.6	2.24
Spottail shiner	3.4	2.42	1.0	0.93	0.0	0.30	0.2	0.25	3.5	3.85	5.7	0.46
White perch	36.3	25.94	34.1	30.53	1.9	30.73	9.3	12.60	31.3	34.77	10.0	0.81
Others	35.9	25.65	18.2	16.29	0.9	15.24	10.9	14.79	13.8	15.33	29.2	2.37
TOTAL	140.1	100.0	111.5	100.0	6.1	100.0	74.0	100.0	89.9	100.0	1228.8	100.0

	ANNUAL TOTAL	
	ESTIM. BIOMASS	%
Alewife	46.9	2.32
American eel	32.3	1.60
Bay anchovy	56.5	2.79
Blueback herring	44.9	2.22
Brown bullhead	42.7	2.11
Gizzard shad	1254.6	61.94
Golden shiner	65.3	3.23
Pumpkinseed	91.0	4.49
Spottail shiner	41.2	2.04
White perch	181.9	8.98
Others	168.2	8.30
TOTAL	2025.6	100.0



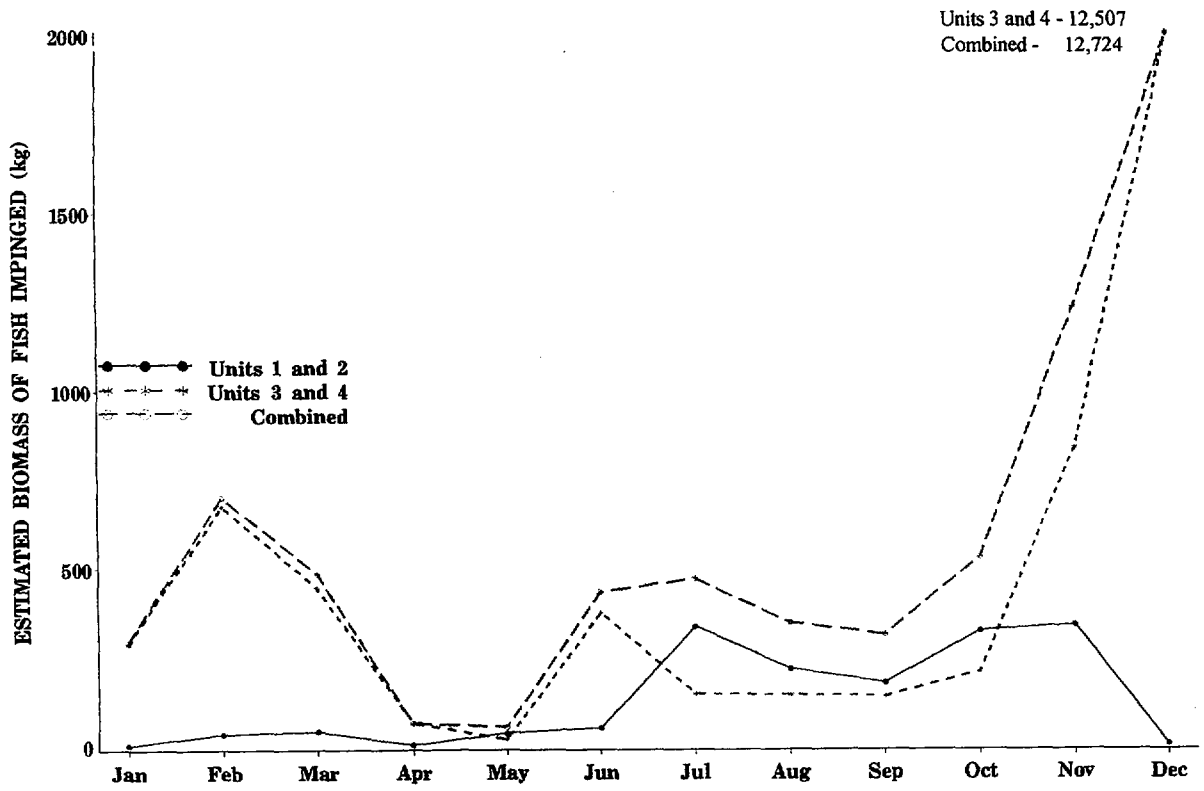


Figure 6-16. Monthly estimated impingement of all fish species combined, Danskammer Point Generating Station, 1995.

TABLE 6-19. ESTIMATED MONTHLY ABUNDANCE AND PERCENT COMPOSITION OF THE TEN MOST ABUNDANT SPECIES COLLECTED IN IMPINGEMENT SAMPLES. DANSKAMMER POINT GENERATING STATION, 1995.

	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE	
	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%
Alewife	0	0.00	0	0.00	166	1.18	7	0.11	50	1.05	85	0.36
Bay anchovy	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Blueback herring	0	0.00	0	0.00	15	0.11	7	0.11	12	0.25	563	2.41
Gizzard shad	2401	32.92	1724	27.63	151	1.07	0	0.00	0	0.00	7	0.03
Golden shiner	1137	15.59	1343	21.53	1922	13.64	74	1.12	6	0.12	41	0.17
Pumpkinseed	287	3.94	197	3.16	327	2.32	492	7.42	905	18.91	1225	5.24
Spottail shiner	1408	19.30	1294	20.74	4001	28.41	1976	29.82	106	2.22	4697	20.07
Striped bass	543	7.45	80	1.29	23	0.16	293	4.42	268	5.61	646	2.76
Weakfish	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
White perch	655	8.98	1079	17.30	6367	45.20	2661	40.16	1865	38.96	11975	51.17
Others	863	11.83	522	8.36	1114	7.91	1116	16.85	1574	32.89	4162	17.79
TOTAL	7294	100.0	6240	100.0	14087	100.0	6627	100.0	4787	100.0	23401	100.0

	JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%
Alewife	2166	8.32	3914	11.96	3109	9.26	4955	7.68	323	0.56	0	0.00
Bay anchovy	1241	4.77	7501	22.93	11189	33.32	2255	3.49	0	0.00	0	0.00
Blueback herring	315	1.21	276	0.84	324	0.96	13725	21.26	3040	5.32	0	0.00
Gizzard shad	3229	12.40	165	0.50	20	0.06	341	0.53	12369	21.64	20778	73.31
Golden shiner	7	0.03	7	0.02	20	0.06	28	0.04	217	0.38	1082	3.82
Pumpkinseed	260	1.00	230	0.70	402	1.20	6353	9.84	3167	5.54	743	2.62
Spottail shiner	1214	4.66	438	1.34	806	2.40	564	0.87	2005	3.51	1724	6.08
Striped bass	1720	6.61	7495	22.91	7001	20.85	4037	6.25	848	1.48	129	0.46
Weakfish	0	0.00	1439	4.40	1484	4.42	174	0.27	0	0.00	0	0.00
White perch	11953	45.91	9325	28.50	6801	20.25	28443	44.06	32501	56.85	2434	8.59
Others	3933	15.10	1930	5.90	2426	7.22	3676	5.70	2701	4.72	1454	5.13
TOTAL	26038	100.0	32720	100.0	33582	100.0	64552	100.0	57171	100.0	28344	100.0

	ANNUAL TOTAL	
	ESTIM. NUMBER	%
Alewife	14775	4.85
Bay anchovy	22187	7.28
Blueback herring	18277	6.00
Gizzard shad	41186	13.51
Golden shiner	5883	1.93
Pumpkinseed	14590	4.79
Spottail shiner	20234	6.64
Striped bass	23084	7.57
Weakfish	3097	1.02
White perch	116059	38.07
Others	25471	8.36
TOTAL	304842	100.0

TABLE 6-20. ESTIMATED MONTHLY BIOMASS (KILOGRAMS) AND PERCENT COMPOSITION OF THE TEN MOST ABUNDANT SPECIES COLLECTED IN IMPINGEMENT SAMPLES, DANSKAMMER POINT GENERATING STATION, 1995.

	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE	
	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%
Alewife	0.0	0.00	0.0	0.00	2.3	0.48	0.1	0.16	5.5	10.51	4.1	0.96
Blueback herring	0.0	0.00	0.0	0.00	0.1	0.01	0.0	0.03	0.7	1.28	53.9	12.55
Gizzard shad	182.4	62.39	548.8	78.58	133.0	27.63	0.0	0.00	0.0	0.00	5.6	1.31
Golden shiner	34.8	11.91	54.3	7.78	77.1	16.02	1.9	2.95	0.1	0.20	1.3	0.31
Pumpkinseed	7.3	2.49	7.1	1.02	10.3	2.13	17.0	26.79	23.6	45.12	32.9	7.67
Spottail shiner	8.3	2.85	9.3	1.33	30.6	6.36	10.3	16.25	0.7	1.40	31.5	7.34
Striped bass	2.4	0.82	0.4	0.06	0.2	0.05	1.5	2.34	1.2	2.37	7.3	1.69
White catfish	15.0	5.13	17.4	2.49	8.5	1.76	0.3	0.49	0.3	0.51	25.3	5.90
White perch	10.0	3.42	30.3	4.33	179.1	37.22	19.6	31.02	11.8	22.61	224.4	52.25
Yellow perch	8.9	3.04	6.4	0.92	19.8	4.11	0.5	0.81	0.4	0.81	0.0	0.00
Others	23.3	7.96	24.3	3.48	20.3	4.22	12.1	19.15	7.9	15.18	43.0	10.02
TOTAL	292.3	100.0	698.4	100.0	481.3	100.0	63.3	100.0	52.2	100.0	429.4	100.0

	JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%
Alewife	42.5	9.09	71.8	20.94	49.2	15.90	62.7	11.91	2.2	0.17	0.0	0.00
Blueback herring	3.8	0.82	4.6	1.34	0.9	0.30	29.6	5.63	6.1	0.50	0.0	0.00
Gizzard shad	7.2	1.53	1.2	0.34	0.4	0.13	3.6	0.68	537.5	43.61	12489.2	98.16
Golden shiner	0.1	0.02	0.2	0.06	1.2	0.39	0.1	0.02	8.7	0.71	51.2	0.40
Pumpkinseed	7.5	1.59	7.1	2.07	10.5	3.39	46.1	8.76	22.5	1.82	17.7	0.14
Spottail shiner	7.9	1.68	3.4	0.99	6.2	2.01	3.2	0.60	11.7	0.95	10.6	0.08
Striped bass	15.3	3.26	46.1	13.44	40.6	13.13	27.7	5.26	40.6	3.29	13.2	0.10
White catfish	23.8	5.10	29.2	8.53	10.4	3.37	12.2	2.32	23.4	1.90	23.9	0.19
White perch	317.3	67.82	145.2	42.33	134.9	43.60	308.5	58.62	533.5	43.29	52.3	0.41
Yellow perch	1.5	0.32	0.0	0.00	0.0	0.00	0.0	0.00	6.4	0.52	21.5	0.17
Others	41.1	8.77	34.2	9.96	55.0	17.77	32.6	6.20	39.9	3.24	44.2	0.35
TOTAL	467.8	100.0	343.0	100.0	309.3	100.0	526.3	100.0	1232.5	100.0	12723.8	100.0

	ANNUAL TOTAL	
	ESTIM. BIOMASS	%
Alewife	240.4	1.36
Blueback herring	99.8	0.57
Gizzard shad	13908.7	78.94
Golden shiner	231.1	1.31
Pumpkinseed	209.5	1.19
Spottail shiner	133.8	0.76
Striped bass	196.6	1.12
White catfish	189.8	1.08
White perch	1966.8	11.16
Yellow perch	65.4	0.37
Others	377.9	2.14
TOTAL	17619.6	100.0

years. Alewife impingement rates were historically highest in the summer and fall when young-of-the-year predominate (Figure 6-17). A secondary peak in the historical means can be clearly seen in the spring at Danskammer Point, but this peak was not evident in the means at Roseton. The earlier spring peak primarily represents adults. The season of abundance tends to be longer at Danskammer Point than at Roseton. In 1995 the alewife impingement followed a seasonal pattern similar to that observed in past years, except that there was no spring peak at Danskammer Point.

American shad impingement has generally been restricted to summer and fall (Figure 6-18), and has consisted almost entirely of young-of-the-year fish. Peaks have usually occurred either in summer or fall at Roseton or Danskammer Point, resulting in an average with a bimodal pattern at both plants. In 1995 the peaks were in July at Roseton and in October at Danskammer Point.

Atlantic tomcod impingement has usually been at its highest levels in December and January, which is during the spawning season, and normally higher at Danskammer Point than at Roseton (Figure 6-19, Table 6-21). These are primarily one-year-old fish (classified as young-of-the-year fish in December and yearlings in January), with some impingement of two-year-olds occurring at the same time (classified as yearlings in December and adults in January, though tomcod are sexually mature at one year of age) (Tables 6-22, 6-23, 6-24, and 6-25). There has often been another peak in impingement in the spring or summer consisting of young-of-the-year. The 1995 tomcod data indicated very low impingement at both plants, with impingement rates and estimated totals highest in July at both plants (Figure 6-19).

Bay anchovy impingement has been restricted almost entirely to the period June - October in each year (Figure 6-20), with the peak occurring in late summer or fall. Generally, the peak has occurred earlier at Roseton than at Danskammer Point. Danskammer abundance typically increases gradually through the summer months, peaks in the fall, and then declines rapidly. In 1995, the peak months were August and October at Roseton and September at Danskammer Point, consisting mainly of young-of-the-year.

Blueback herring seasonal impingement patterns have been similar at the two stations, with a well defined peak occurring in the fall of each year, typically in October (Figure

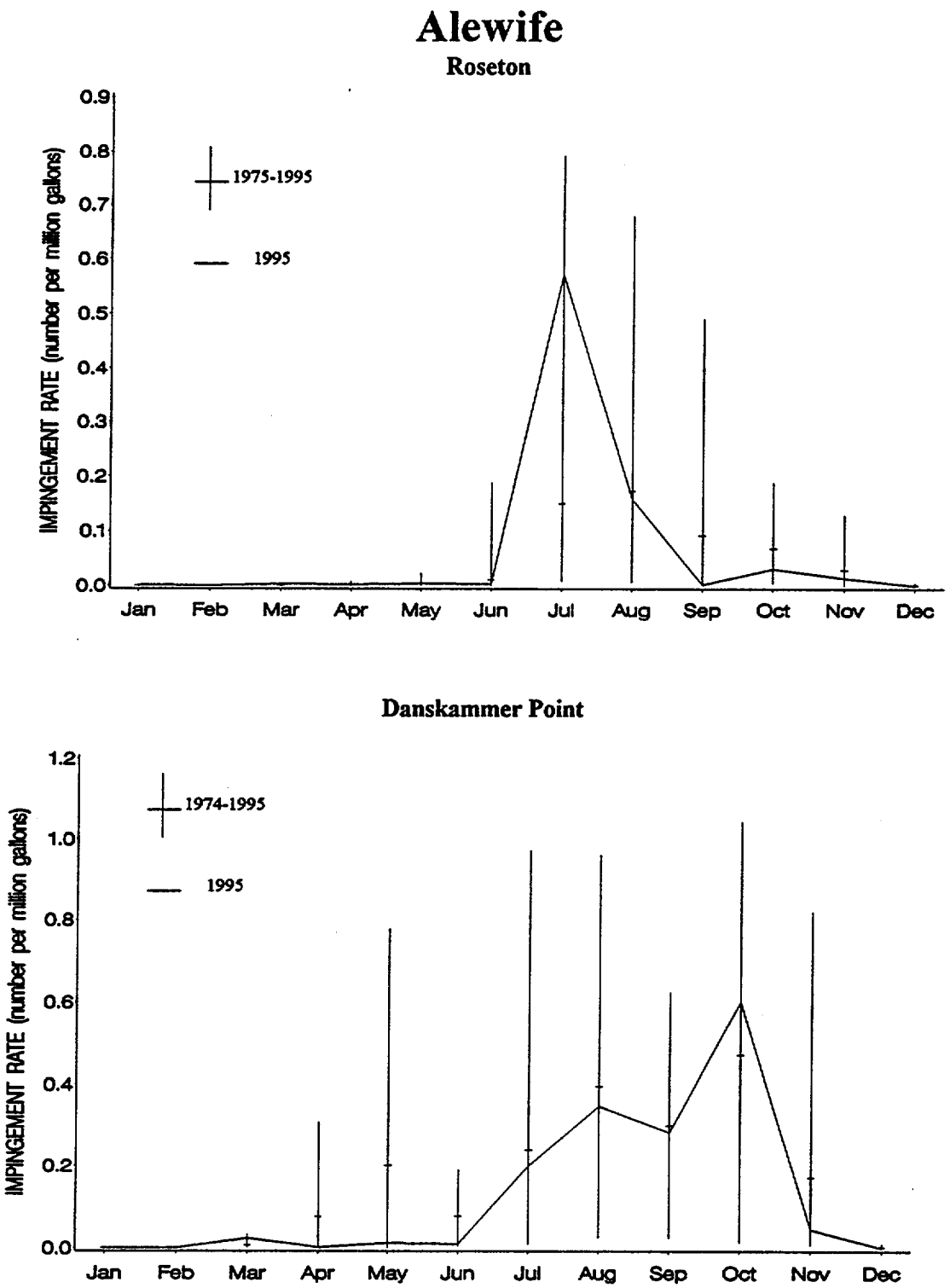
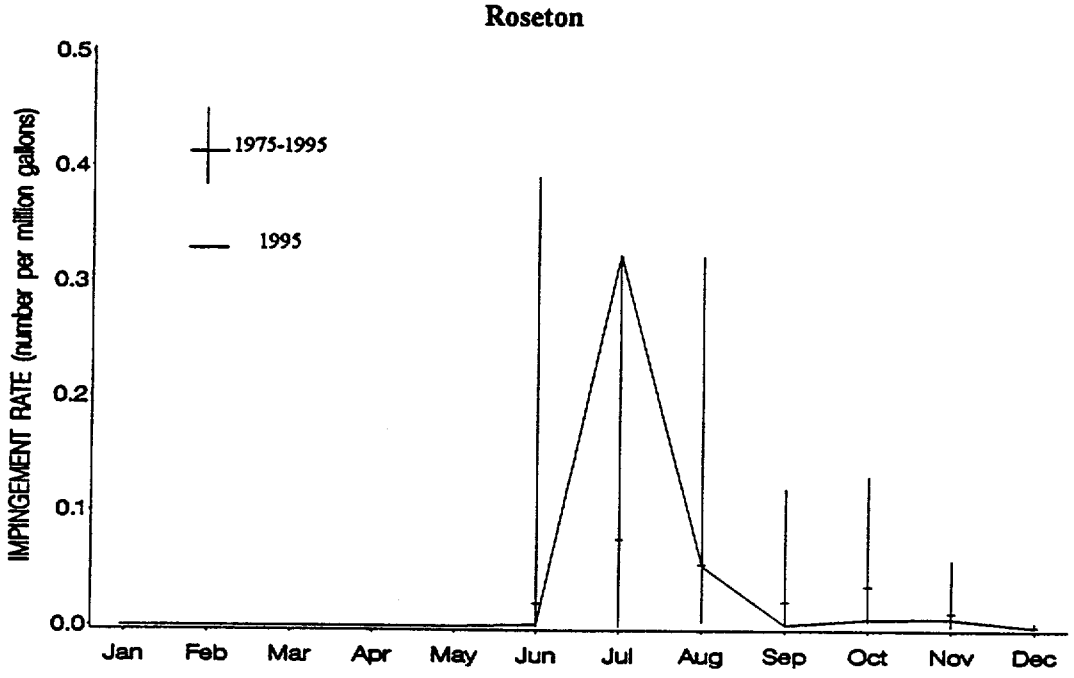


Figure 6-17. Monthly average impingement rate in 1995 for alewife at Roseton and Danskammer Point generating stations and the long-term monthly average and range for 1974-1995.

American Shad



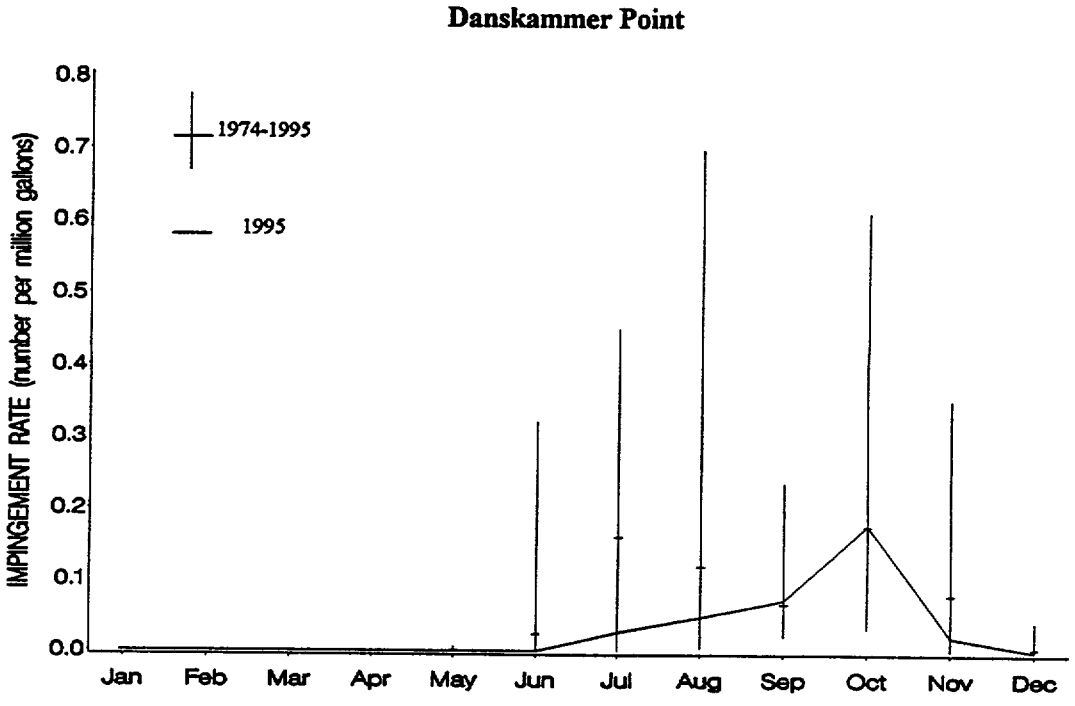
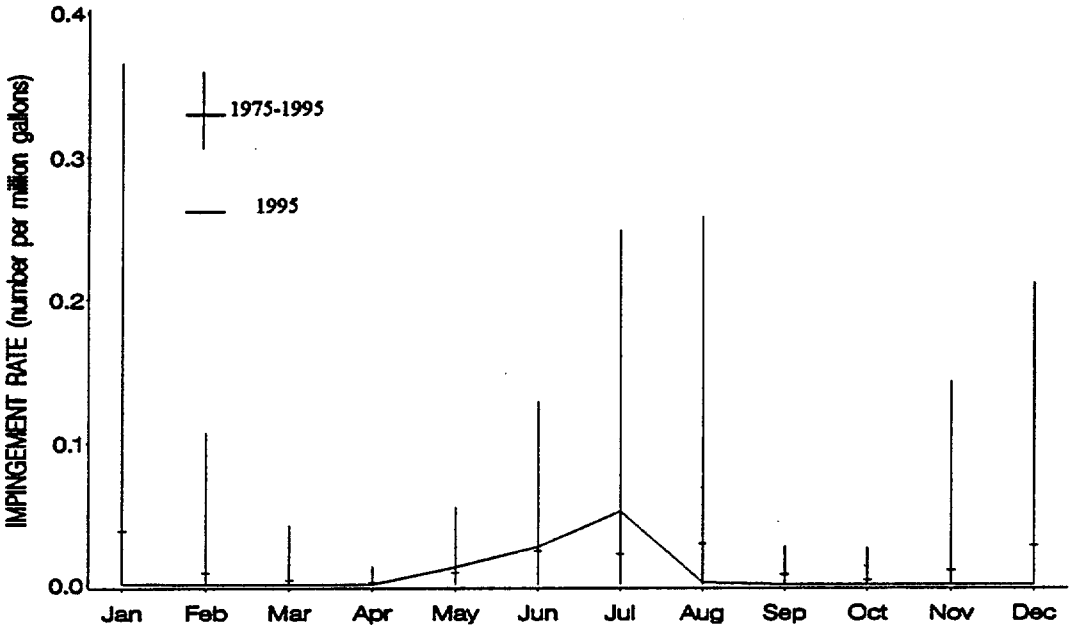


Figure 6-18. Monthly average impingement rate in 1995 for American shad at Roseton and Danskammer Point generating stations and the long-term monthly average and range for 1974-1995.

Atlantic Tomcod

Roseton



Danskammer Point

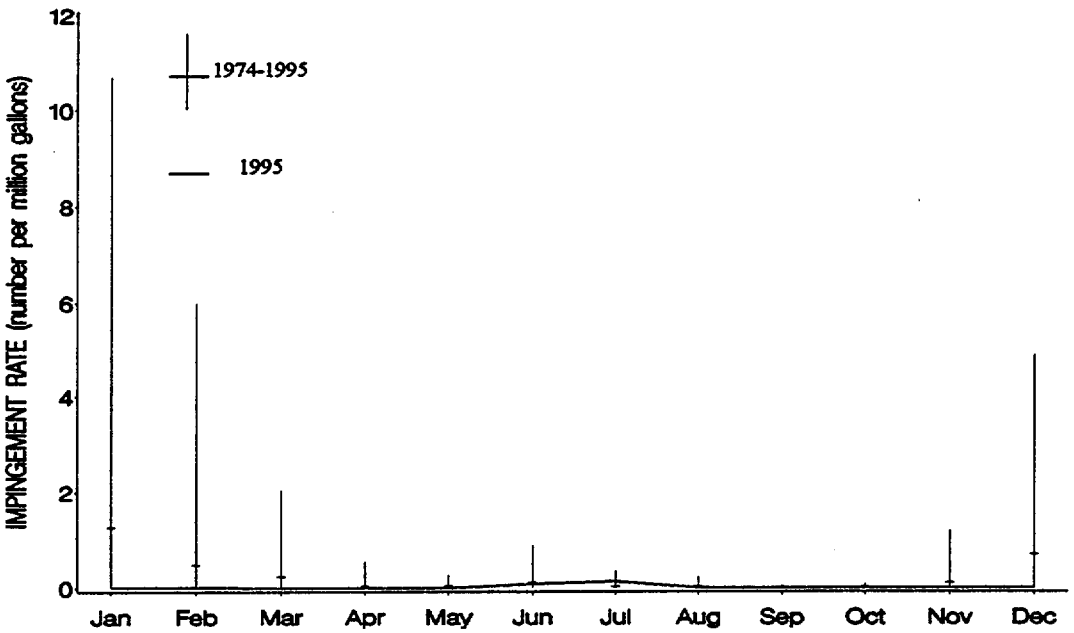


Figure 6-19. Monthly average impingement rate in 1995 for Atlantic tomcod at Roseton and Danskammer Point generating stations and the long-term monthly average and range for 1974-1995.

TABLE 6-21. MONTHLY ABUNDANCE AND BIOMASS OF ATLANTIC TOMCOD, ROSETON AND DANSKAMMER POINT GENERATING STATIONS, MAY 1994 - APRIL 1995.

			ABUNDANCE		BIOMASS	
		MONTHLY FLOW SAMPLED (10^6 gal)	NUMBER COLLECTED	PERCENT OF ANNUAL TOTAL	BIOMASS COLLECTED (g)	PERCENT OF ANNUAL TOTAL
ROSETON						
1994	May	2,163.95	15	53.6	7	7.6
	Jun	3,244.80	9	32.1	15	16.3
	Jul	3,235.20	2	7.1	6	6.5
	Aug	2,011.20	0	0.0	0	0.0
	Sep	1,550.61	0	0.0	0	0.0
	Oct	2,256.60	1	3.6	9	9.8
	Nov	2,256.00	0	0.0	0	0.0
	Dec	2,584.80	0	0.0	0	0.0
1995	Jan	1,989.54	1	3.6	55	59.8
	Feb	2,001.60	0	0.0	0	0.0
	Mar	1,776.64	0	0.0	0	0.0
	Apr	1,254.98	0	0.0	0	0.0
TOTAL		26,325.92	28	100.0	92	100.0
DANSKAMMER POINT						
1994	May	466.00	0	0.0	0	0.0
	Jun	1,434.10	45	42.9	129	6.3
	Jul	1,415.64	6	5.7	21	1.0
	Aug	1,327.55	1	1.0	4	0.2
	Sep	1,451.70	3	2.9	19	0.9
	Oct	616.44	1	1.0	11	0.5
	Nov	811.62	2	1.9	49	2.4
	Dec	1,072.81	18	17.1	900	44.2
1995	Jan	804.83	17	16.2	560	27.5
	Feb	886.02	12	11.4	344	16.9
	Mar	1,142.03	0	0.0	0	0.0
	Apr	786.88	0	0.0	0	0.0
TOTAL		12,215.62	105	100.0	2,037	100.0

TABLE 6-22. LENGTH FREQUENCY OF ATLANTIC TOMCOD, ROSETON GENERATING STATION, MAY 1994 - APRIL 1995.

	1994								1995			
INTERVAL (cm)	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR
2.1-3.0	1											
3.1-4.0	10											
4.1-5.0	4	1										
5.1-6.0		7										
6.1-7.0			1									
7.1-8.0		1	1									
9.1-10.0						1						
20.1-21.0									1			
Total Analyzed	15	9	2	0	0	1	0	0	1	0	0	0
Mean Length	3.8	5.8	7.0			10.0			20.2			
Minimum Length	2.8	4.9	6.7			10.0			20.2			
Maximum Length	4.8	7.7	7.3			10.0			20.2			

TABLE 6-23. LENGTH FREQUENCY OF ATLANTIC TOMCOD, DANSKAMMER POINT GENERATING STATION, MAY 1994 - APRIL 1995.

INTERVAL (cm)	1994								1995			
	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR
4.1- 5.0		1										
5.1- 6.0		5	1									
6.1- 7.0		20	3									
7.1- 8.0		14	1	1								
8.1- 9.0		5	1		2							
9.1-10.0					1							
10.1-11.0						1						
12.1-13.0								2	1			
13.1-14.0							1	4		3		
14.1-15.0							1	2	6	2		
15.1-16.0								3	3	2		
16.1-17.0								3	3	1		
17.1-18.0								1	1	3		
18.1-19.0								1				
19.1-20.0								1	1	1		
21.1-22.0									1			
22.1-23.0									1			
29.1-30.0								1				
Total Analyzed	0	45	6	1	3	1	2	18	17	12	0	0
Mean Length		6.9	7.0	8.0	8.9	11.0	13.7	16.1	16.4	15.8		
Minimum Length		5.0	6.0	8.0	8.4	11.0	13.2	12.2	13.0	13.3		
Maximum Length		8.7	8.3	8.0	10.0	11.0	14.2	29.5	23.0	19.2		

TABLE 6-24. ESTIMATED MONTHLY IMPINGEMENT OF ATLANTIC TOMCOD BY AGE CLASS, ROSETON AND DANSKAMMER POINT GENERATING STATIONS, MAY 1994-APRIL 1995.

DATE		ROSETON				DANSKAMMER POINT			
		YOY[a]	YEARLING	ADULT	TOTAL[b]	YOY[a]	YEARLING	ADULT	TOTAL[b]
1994	May	115	0	0	115	0	0	0	0
	Jun	63	0	0	63	223	0	0	223
	Jul	15	0	0	15	44	0	0	44
	Aug	0	0	0	0	8	0	0	8
	Sep	0	0	0	0	19	0	0	19
	Oct	8	0	0	8	8	0	0	8
	Nov	0	0	0	0	12	0	0	12
	Dec	0	0	0	0	82	0	4	86
1995	Jan	0	6	0	6	0	121	7	128
	Feb	0	0	0	0	0	81	0	81
	Mar	0	0	0	0	0	0	0	0
	Apr	0	0	0	0	0	0	0	0
TOTAL		201	6	0	207	396	202	11	609

[a]YOY = Young-of-the-year.

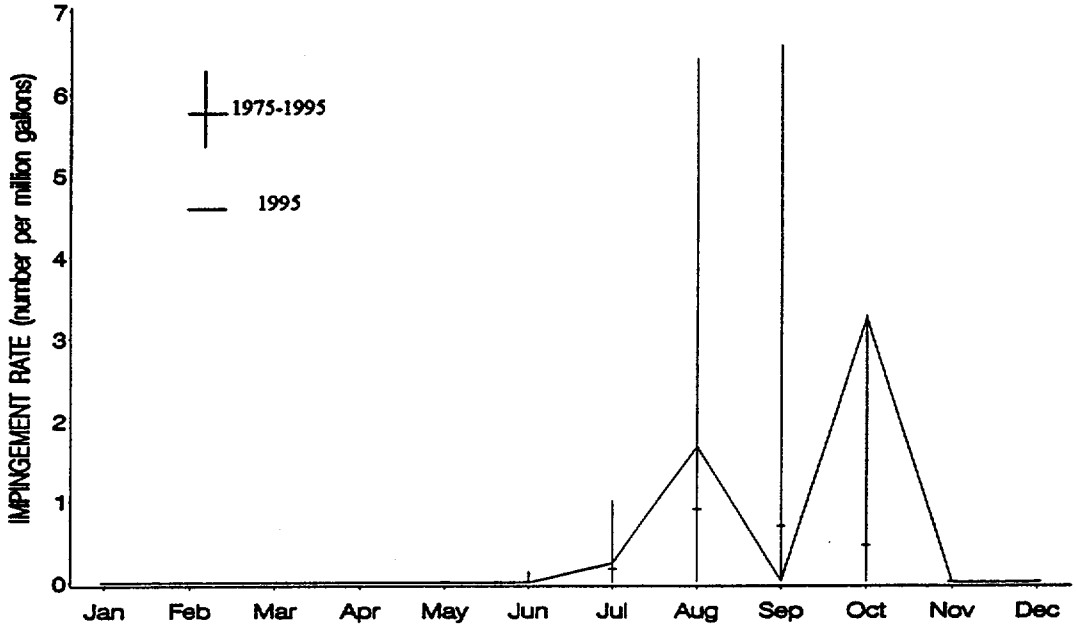
[b]Totals in some cases may exceed sum of age groups due to damaged specimens that could not be assigned to age groups.

TABLE 6-25. MONTHLY IMPINGEMENT RATE AND ESTIMATED TOTAL IMPINGEMENT ABUNDANCE AND BIOMASS OF ATLANTIC TOMCOD, ROSETON AND DANSKAMMER POINT GENERATING STATIONS, MAY 1994-APRIL 1995.

	ESTIMATED NUMBER		ESTIMATED BIOMASS	
	RATE (No./10^6 Gal)	ESTIMATED NUMBER	RATE (g/10^6 Gal)	ESTIMATED GRAMS
ROSETON				
1994 May	0.0069	115	0.003	57
Jun	0.0035	63	0.005	94
Jul	0.0006	15	0.002	45
Aug	0.0000	0	0.000	0
Sep	0.0000	0	0.000	0
Oct	0.0004	8	0.004	69
Nov	0.0000	0	0.000	0
Dec	0.0000	0	0.000	0
1995 Jan	0.0005	6	0.025	338
Feb	0.0000	0	0.000	0
Mar	0.0000	0	0.000	0
Apr	0.0000	0	0.000	0
TOTAL		207		603
DANSKAMMER POINT				
1994 May	0.0000	0	0.000	0
Jun	0.0260	223	0.067	574
Jul	0.0044	44	0.016	156
Aug	0.0008	8	0.003	34
Sep	0.0022	19	0.014	122
Oct	0.0016	8	0.017	89
Nov	0.0020	12	0.050	288
Dec	0.0131	86	0.644	4,231
1995 Jan	0.0211	128	0.694	4,220
Feb	0.0132	81	0.380	2,320
Mar	0.0000	0	0.000	0
Apr	0.0000	0	0.000	0
TOTAL		609		12,034

Bay Anchovy

Roseton



Danskammer Point

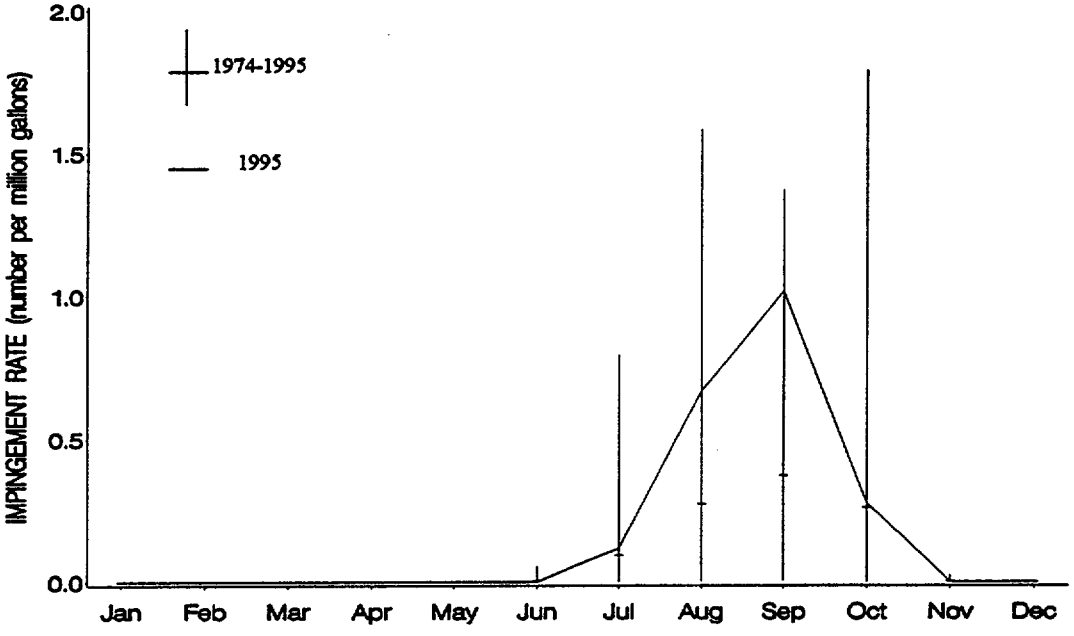


Figure 6-20. Monthly average impingement rate in 1995 for bay anchovy at Roseton and Danskammer Point generating stations and the long-term monthly average and range for 1974-1995.

6-21). The October peak represents the seaward migration of young-of-the-year fish from inland waters and the upper estuary. The 1995 data were generally consistent with this pattern, with the peak occurring in October at both plants.

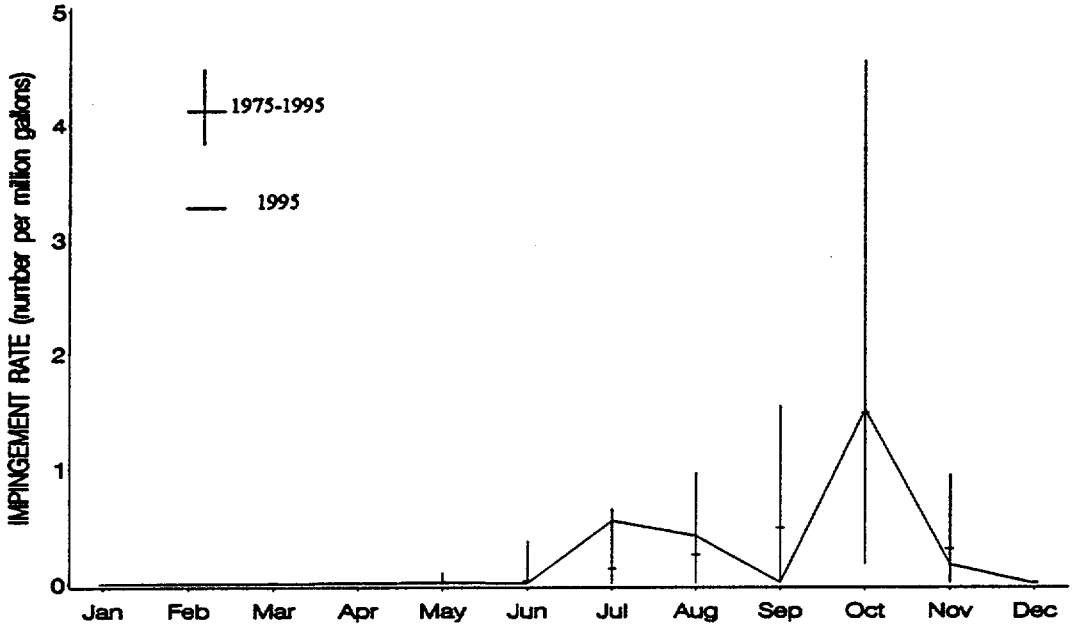
The seasonal patterns of spottail shiner impingement rates have been similar at the two stations, with generally higher rates at Danskammer Point (Figure 6-22). The greatest numbers of spottail shiner are typically impinged in the winter and spring. Although spottail shiners are usually impinged in every month, July through September represents the period of lowest impingement rates. There is usually a significant contribution by multiple age classes of spottail shiner to the impingement totals at Roseton and Danskammer Point Stations, with yearling and adults contributing in the early part of the year, and young-of-the-year and yearlings in the later months. The 1995 data were generally consistent with this long-term seasonal pattern.

Striped bass impingement can be characterized as lowest in the spring and highest in the summer and fall (Figure 6-23). Multi-year means for all months are higher at Danskammer Point than at Roseton. Yearlings have typically predominated during the first half of the year, and young-of-the-year in the second half of the year. The 1995 impingement levels generally followed a similar seasonal pattern, with high numbers of young-of-the-year in July and August at Roseton and in August-October at Danskammer Point.

White perch have generally exhibited a bimodal seasonal impingement pattern (Figure 6-24). The spring peak consists of yearlings and adults, whereas the fall peak is dominated by young-of-the-year with significant contributions of yearlings and adults as well. The spring peak coincides with spawning activity, and there is usually a distinct low period in the summer. In 1995, white perch impingement was generally consistent with the historical pattern. The peaks of yearlings and adults occurred slightly later in the year than the average, however, in May-June at Roseton (Table 6-15) and June-July at Danskammer Point (Table 6-16), so that the peaks for yearlings and adults did not appear distinct from the appearance of the more numerous young-of-the-year in July (Figure 6-24).

Blueback Herring

Roseton



Danskammer Point

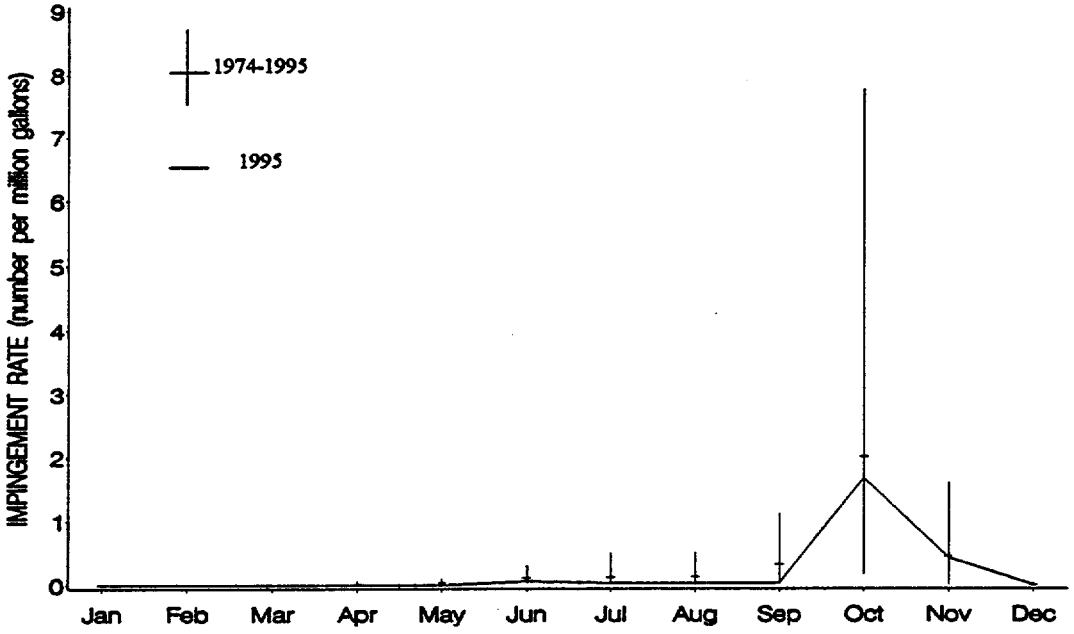
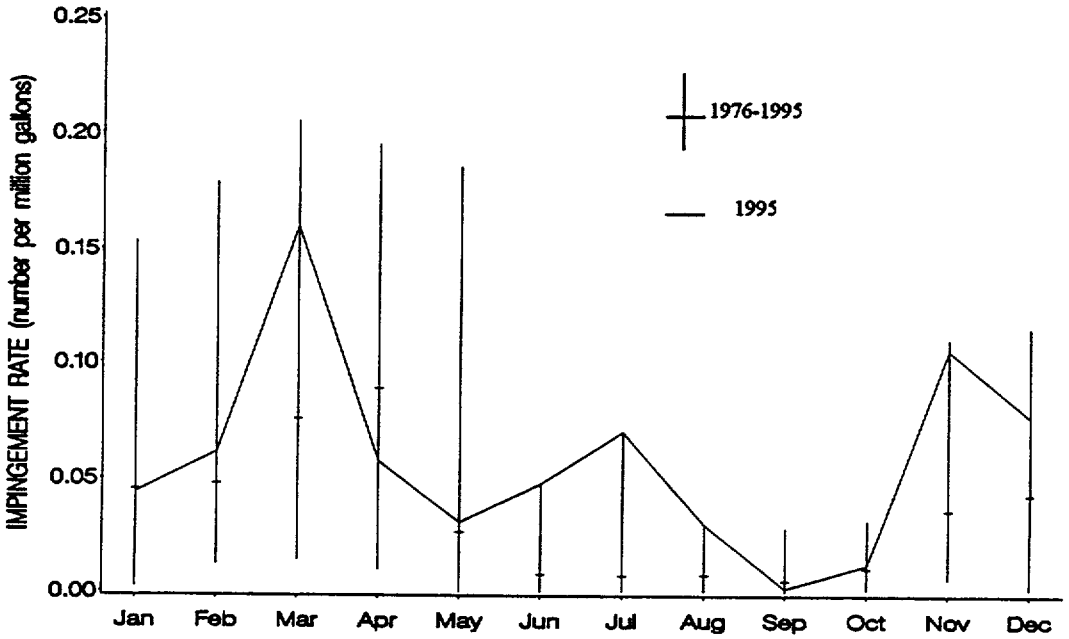


Figure 6-21. Monthly average impingement rate in 1995 for blueback herring at Roseton and Danskammer Point generating stations and the long-term monthly average and range for 1974-1995.

Spottail Shiner

Roseton



Danskammer Point

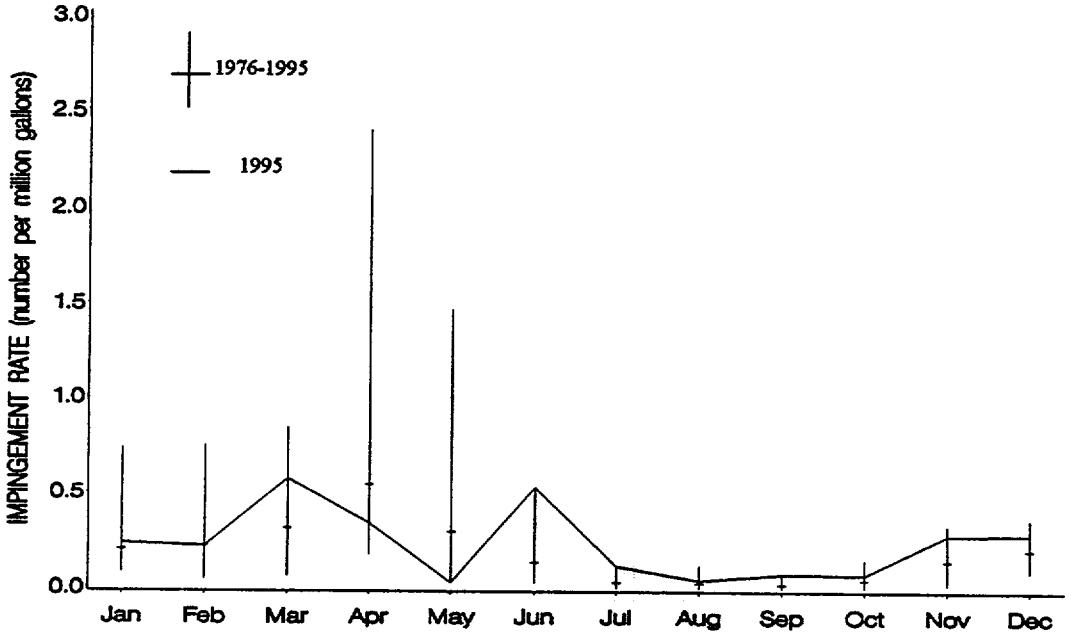
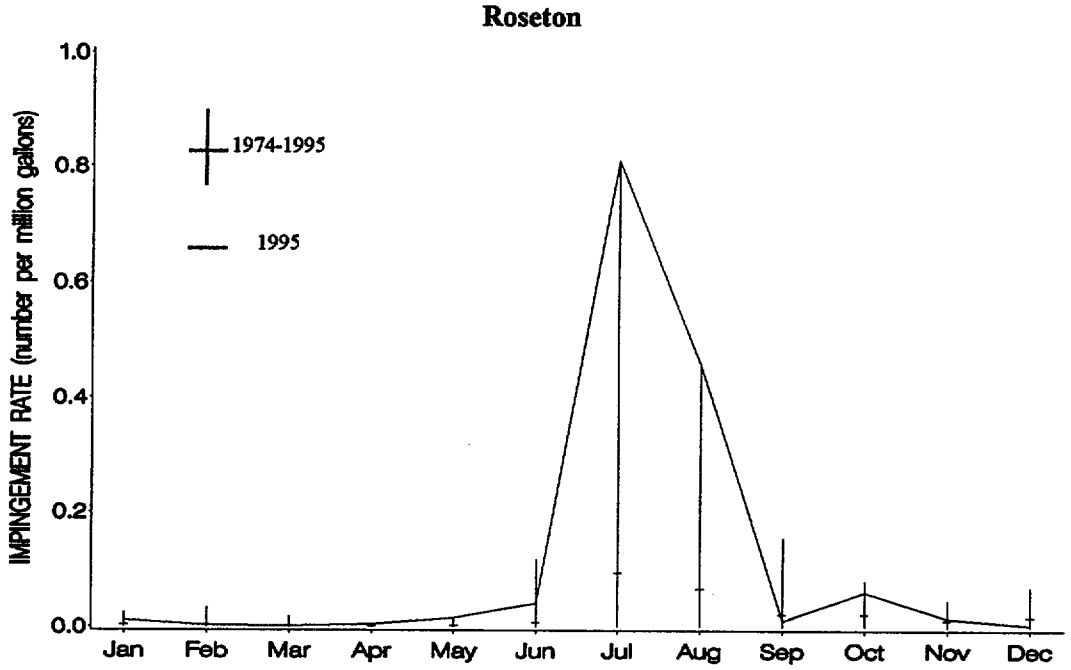


Figure 6-22. Monthly average impingement rate in 1995 for spottail shiner at Roseton and Danskammer Point generating stations and the long-term monthly average and range for 1976-1995.

Striped Bass



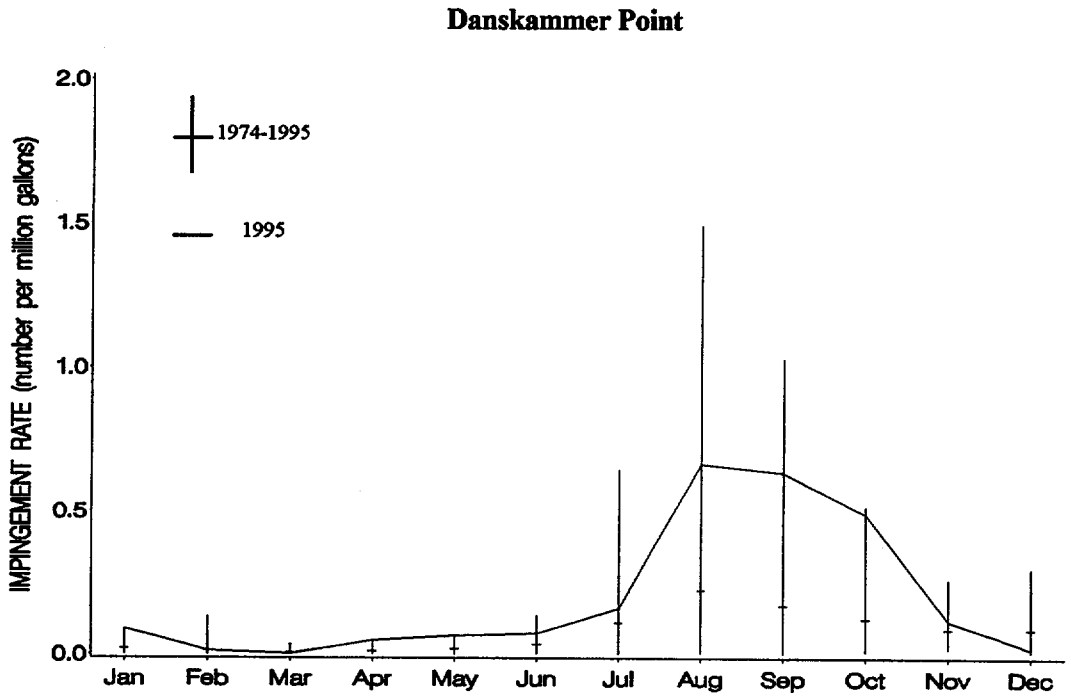
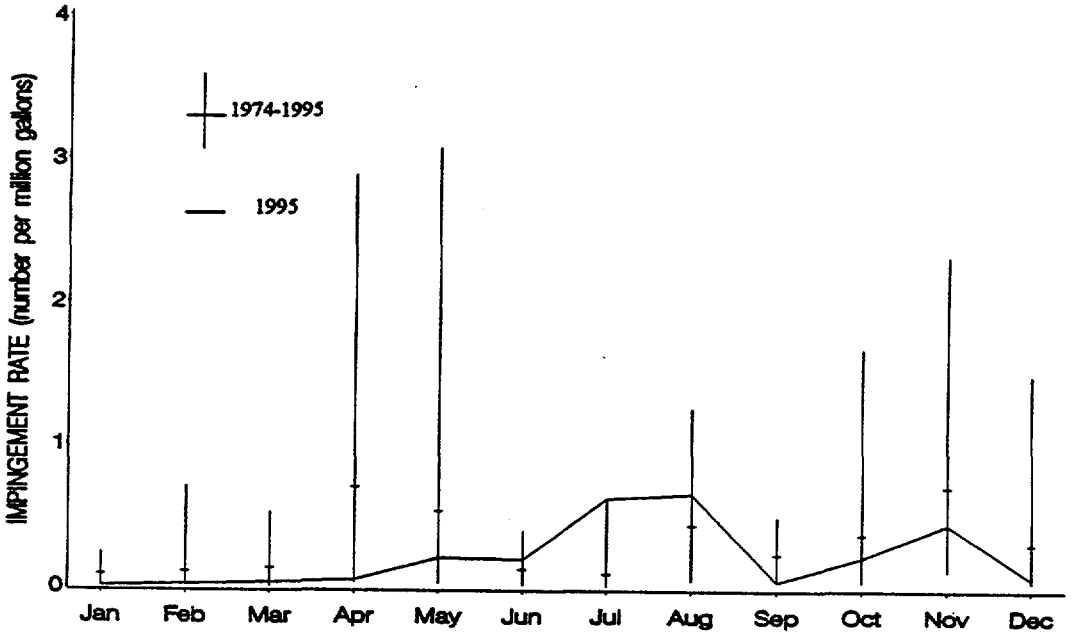


Figure 6-23. Monthly average impingement rate in 1995 for striped bass at Roseton and Danskammer Point generating stations and the long-term monthly average and range for 1974-1995.

White Perch

Roseton



Danskammer Point

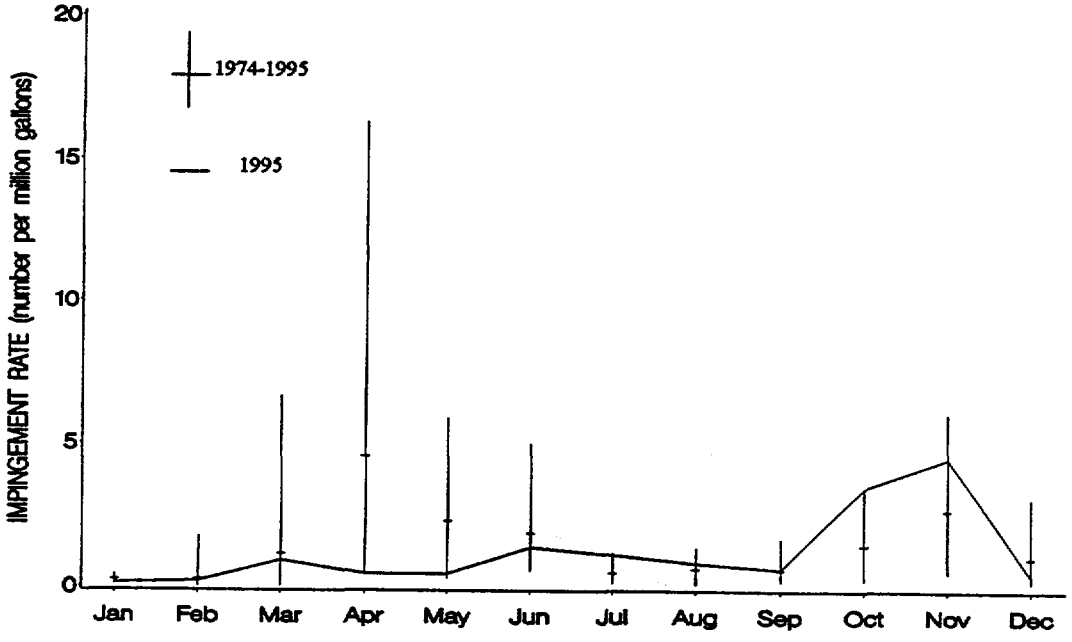


Figure 6-24. Monthly average impingement rate in 1995 for white perch at Roseton and Danskammer Point generating stations and the long-term monthly average and range for 1974-1995.

6.6 IMPINGEMENT RELATED TO ABIOTIC FACTORS

During 1995 the influence of marine waters in the northern Newburgh Bay area of the Hudson River, characterized by an increase in specific conductance, occurred during an eight-week period that included late August, all of September, and early October. During this period a number of species typically associated with marine waters were impinged, including Atlantic croaker, Atlantic silverside, bluefish, butterfish, crevalle jack, and weakfish. In some previous years (for example, 1994) there was very little intrusion of saline water upriver as far as Roseton and Danskammer Point, and the representation of marine species was not as great as in the 1995 impingement collections.

Historically, large numbers of yearling and adult white perch have been collected in the spring, especially at Danskammer Point. In 1995, the numbers of white perch yearlings and adults collected in April and May at Danskammer Point were lower than usual (perhaps due to lower than normal freshwater flow in April and May 1995). Appearance of these age groups typically coincides with the increase in freshwater flow and is probably a direct result of adult spawning activity. White perch young-of-the-year collections increased in the fall as the water temperature declined, similar to the abundance and seasonal patterns of occurrence of young-of-the-year white perch in previous years.

6.7 COMPARISON BETWEEN PLANTS

The cooling water flow, sampling effort, and a summary of impingement results for 1995 at Roseton and Danskammer Point are compared in Table 6-26. The annual mean rates of impingement were 1.3899 fish per million gallons (MG) at Roseton and 3.1546 fish/MG at Danskammer Point. The total number of fish estimated to have been impinged at Roseton (241,724±60,020) was less than the estimated number for Danskammer Point (304,842±68,997), despite the plant flow at Roseton being more than twice that at Danskammer Point.

Seasonal patterns in 1995 were generally similar at the two plants, with impingement abundance generally higher in the second half of the year. Highest abundances occurred later in the year at Danskammer Point than at Roseton. Estimated total impingement at Roseton was

TABLE 6-26. SUMMARY OF IMPINGEMENT SAMPLING RESULTS, ROSETON AND DANSKAMMER POINT GENERATING STATIONS, 1995.

	ROSETON	DANSKAMMER POINT[a]
Number of dates sampled	52	52
Percent of dates sampled	14.2%	14.2%
Total plant cooling water flow	163,860.0 MG	92,817.5 MG
Volume of flow sampled	24,351.03 MG	13,660.92 MG
Percent of total plant flow sampled	14.9%	14.7%
Annual rate of impingement	1.3899/MG	3.1546/MG
Total number of fish collected (A)	35,602	45,396
Number of fish species identified[b]	45	44
Number of fish families represented	22	21
Estimated annual number of fish impinged (B)	241,724 ±60,020[c]	304,842 ±68,997[c]
Total fish biomass collected (C)	293.4 kg	2,307.6 kg
Estimated annual fish biomass impinged (D)	2,025.6 kg	17,619.6 kg
C/A = average weight of fish impinged	8.2 g	50.8 g
D/B = average weight of estimated number of fish	8.4 g	57.8 g

[a]Danskammer Point data for 1995 represent only Unit 3 and Unit 4 for part of the year, becasue Unit 1 and Unit 2 were off line for 16 of 52 sampling dates.
[b]Excluding the taxa unidentified clupeids, unidentified centrarchids, and unidentified *Morone*.
[c]95% confidence interval
MG = million gallons
kg = kilograms
g = grams

greatest in July, August, and October, with low impingement during September. Impingement at Danskammer Point in 1995 was highest in October and November, and was lowest in January through May.

There was a substantial difference between the two plants in the average weight of fish impinged. Impinged fish at Roseton weighed an average of about 8 g compared to about 50-60 g at Danskammer Point. Much of that difference was because the proportion of gizzard shad in the samples was higher at Danskammer Point than at Roseton. Excluding gizzard shad, the average weight per fish was 3.4 g at Roseton and 14.4 g at Danskammer Point, based on total counts and biomass on sampling days (or 3.3 g at Roseton and 14.1 g at Danskammer Point based on total estimated impingement abundance and biomass for the year). Thus, even when gizzard shad are excluded, impinged fish weighed more, on average, at Danskammer Point than at Roseton. Danskammer Point average fish weights have also been noted as being heavier in previous years, for example 1988 (LMS 1989), 1989 (NAI 1990), 1990 (NAI 1992), 1991 (LMS 1993), 1992 (LMS 1994), 1993 (NAI 1996a), and 1994 (NAI 1996b). In 1995, differences in species composition between the two plants accounted for much of the difference in average weight. At Roseton bay anchovy (which averaged less than 1 g each) accounted for 26.8% of the total number of fish collected and gizzard shad (which averaged more than 100 g) were 4.6% of the total. At Danskammer Point bay anchovy were only 8.4% of the total and gizzard shad were 13.1%. The difference between the plants was also partly due to there being a small peak in impingement in March (mostly white perch) at Danskammer Point, whereas impingement at Roseton stayed low until later in the year. Impingement in the latter part of the year is mainly composed of young-of-the-year fish, compared to greater proportions of larger fish (yearlings and adults) earlier in the year.

The number of species and families present at the two plants was similar, and the species composition was also similar. Three species new to the Roseton/Danskammer impingement program were collected in 1995: Atlantic croaker, butterfish, and silver perch. All three species were collected at both plants (Appendix Tables A-1 and A-2). These species primarily occur along the coast and their presence in impingement samples reflects the higher than average salinities that occurred in this section of the river in late summer and early fall of 1995. Their presence has previously been recorded in the Hudson River estuary (Smith 1985).

6.8 LONG-TERM IMPINGEMENT PATTERNS

Annual impingement rates and estimates of the total number impinged each year during 1973-1995 are presented in Table 6-27 (Roseton) and Table 6-28 (Danskammer Point).

6.8.1 Roseton Generating Station

The estimated total impingement at Roseton in 1995 for all species combined was 241,724 fish. This total was the ninth highest estimate in the 22-year period of record (excluding 1973 when impingement sampling was only conducted for six months). The numerically dominant species, bay anchovy, was impinged in higher numbers in only two previous years. In most of the 21 previous years at Roseton, white perch was the dominant species, except for five years in which blueback herring predominated, and three years when bay anchovy was the most abundant species impinged. However, in 1995 white perch impingement was at the sixth lowest level since 1973 (which was only a partial year of sampling). Striped bass were impinged in higher numbers in only one of the previous 21 years. American shad and spottail shiner were also impinged in higher numbers in 1995 than in most previous years.

6.8.2 Danskammer Point Generating Station

The 1995 total estimated impingement at Danskammer Point of 304,842 fish was average compared to the previous 21 years. Striped bass, bay anchovy, and spottail shiner were impinged in higher numbers than usual at Danskammer Point. The total number estimated to have been impinged during 1995 was the third highest in 22 years for striped bass, the sixth highest for bay anchovy, and the fifth highest for spottail shiner. Atlantic tomcod impingement was lower than in all but two of the 21 previous years. Impingement in 1995 was slightly lower than usual for white perch, alewife, American shad, and blueback herring. The dominant species in 1995 was white perch, as it has been in all but two of the previous 21 years. In 1974 unusually high numbers of Atlantic tomcod were impinged, and in 1975 blueback herring were particularly abundant.

TABLE 6-27. ANNUAL MEAN IMPINGEMENT RATE,[a] ESTIMATED TOTAL NUMBER,[b] AND PERCENTAGE OF THE TOTAL ESTIMATED NUMBER IMPINGED FOR SELECTED SPECIES, ROSETON GENERATING STATION, 1973-1995.

	WHITE PERCH			STRIPED BASS			ATLANTIC TOMCOD			ALEWIFE		
YEAR	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED
1973[c]	0.898	9,157	41.4	0.039	490	2.2	0.014	259	1.2	1.187	1,873	8.5
1974	0.3733	37,330	64.6	0.0051	642	1.1	0.0445	4,296	7.4	0.0125	1,464	2.5
1975	0.6123	139,400	48.4	0.0058	1,388	0.5	0.0203	4,755	1.7	0.0484	12,214	4.2
1976	0.5290	104,183	69.4	0.0030	607	0.4	0.0388	7,208	4.8	0.0093	2,424	1.6
1977	0.5988	131,747	43.1	0.0098	2,730	0.9	0.0775	19,424	6.3	0.1248	37,251	12.2
1978	0.2135	57,980	28.2	0.0045	1,220	0.6	0.0065	1,670	0.8	0.0896	25,971	12.6
1979	0.3443	93,391	45.5	0.0044	1,187	0.6	0.0163	3,770	1.8	0.0314	9,578	4.7
1980	0.5259	131,259	41.2	0.0230	5,657	1.8	0.0151	3,637	1.1	0.0335	9,300	2.9
1981	0.4689	111,693	30.8	0.0205	5,091	1.4	0.0242	5,662	1.6	0.0975	27,611	7.6
1982	0.2195	47,252	31.7	0.0014	332	0.2	0.0094	2,044	1.4	0.0092	2,307	1.5
1983	0.4876	109,723	42.1	0.0092	2,181	0.8	0.0035	884	0.3	0.0351	10,101	3.9
1984	0.1614	38,362	21.4	0.0036	848	0.5	0.0114	2,698	1.5	0.0133	3,164	1.8
1985	0.1727	26,219	29.3	0.0020	427	0.5	0.0164	2,298	2.6	0.0300	5,144	5.8
1986	0.1525	35,833	49.3	0.0011	259	0.4	0.0020	439	0.6	0.0108	2,828	3.9
1987	0.3367	82,723	29.1	0.0073	2,019	0.7	0.0164	3,926	1.4	0.0292	8,951	3.2
1988	0.3285	80,358	44.9	0.0136	3,264	1.8	0.0020	478	0.3	0.0167	5,148	2.9
1989	0.3476	78,608	50.9	0.0042	1,030	0.7	0.0029	726	0.5	0.0032	946	0.6
1990	0.3069	68,224	24.3	0.0133	4,070	1.5	0.0035	804	0.3	0.0257	7,580	2.7
1991	0.2189	61,223	8.1	0.1021	33,159	4.4	0.0451	15,201	2.0	0.0782	25,320	3.4
1992	0.1560	40,328	19.0	0.0124	3,580	1.7	0.0011	290	0.1	0.0327	9,454	4.5
1993	0.2247	45,435	39.1	0.0311	6,226	5.4	0.0057	1,152	1.0	0.0338	6,743	5.8
1994	0.0845	17,441	11.5	0.0525	13,420	8.9	0.0019	411	0.3	0.1174	28,668	19.0
1995	0.2112	39,441	16.3	0.1194	26,126	10.8	0.0078	1,657	0.7	0.0656	14,664	6.1

(Continued)

TABLE 6-27. (CONTINUED)

YEAR	AMERICAN SHAD			BAY ANCHOVY			BLUEBACK HERRING			SPOTTAIL SHINER			TOTAL SPECIES	
	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER
1973[c]	0.0016	21	0.1	0.176	1,107	5.0	0.599	6,377	28.8	0.064	1,515	6.9	2.062	22,105
1974	0.0025	337	0.6	0.0211	3,414	5.9	0.0257	2,764	4.8	0.0543	3,661	6.3	0.5944	57,775
1975	0.0094	2,348	0.8	0.0097	2,348	0.8	0.3338	78,854	27.4	0.0698	14,999	5.2	1.2518	288,149
1976	0.0015	367	0.2	0.0085	2,380	1.6	0.0444	10,447	7.0	0.0403	8,502	5.7	0.7449	150,069
1977	0.0082	2,426	0.8	0.0970	31,184	10.2	0.1777	46,066	15.1	0.0623	13,205	4.3	1.2578	305,956
1978	0.0137	4,138	2.0	0.1947	59,265	28.9	0.1081	28,984	14.1	0.0215	5,464	2.7	0.7297	205,341
1979	0.0177	5,397	2.6	0.0829	28,120	13.7	0.1629	40,936	19.9	0.0372	8,537	4.2	0.7541	205,320
1980	0.0226	6,435	2.0	0.1714	44,937	14.1	0.2461	62,909	19.8	0.0417	9,873	3.1	1.2690	318,528
1981	0.0632	17,543	4.8	0.1168	33,756	9.3	0.4874	125,914	34.7	0.0448	9,793	2.7	1.4366	362,734
1982	0.0100	2,649	1.8	0.1631	46,964	31.5	0.1082	23,703	15.9	0.0274	5,553	3.7	0.6336	148,904
1983	0.0197	5,209	2.0	0.2147	63,188	24.3	0.2390	43,554	16.7	0.0257	5,741	2.2	1.1280	260,513
1984	0.0090	2,131	1.2	0.1286	30,576	17.0	0.3778	89,792	50.0	0.0147	3,502	2.0	0.7554	179,544
1985	0.0118	1,927	2.2	0.1194	19,124	21.4	0.1031	18,740	20.0	0.0105	2,757	3.1	0.5338	89,343
1986	0.0141	4,008	5.5	0.0214	6,101	8.4	0.0384	9,707	13.4	0.0213	4,651	6.4	0.3004	72,627
1987	0.082	2,407	0.8	0.0470	15,884	5.6	0.5389	138,756	48.9	0.0308	6,802	2.4	1.1109	284,038
1988	0.0128	3,748	2.1	0.0272	6,706	3.7	0.2546	52,530	29.4	0.0190	4,131	2.3	0.7728	178,900
1989	0.0087	2,496	1.6	0.0027	800	0.5	0.0951	24,755	16.0	0.0500	10,861	7.0	0.6681	154,515
1990	0.0188	5,476	2.0	0.3207	86,700	30.9	0.3135	79,660	28.4	0.0463	10,264	3.7	1.1275	280,478
1991	0.0536	17,107	2.3	1.4419	446,100	59.1	0.2774	74,417	9.9	0.0427	9,889	1.3	2.5101	754,486
1992	0.0155	4,596	2.2	0.1743	45,735	21.6	0.2975	82,680	30.0	0.0227	5,060	2.4	0.7975	212,089
1993	0.0063	1,271	1.1	0.0658	13,062	11.2	0.0706	14,056	12.1	0.0237	3,762	3.2	0.6007	116,325
1994	0.0283	7,404	4.9	0.0491	7,400	4.9	0.2569	48,175	31.9	0.0229	4,580	3.0	0.7273	151,080
1995	0.0327	7,458	3.1	0.4292	66,146	27.4	0.2206	34,721	14.4	0.0580	9,459	3.9	1.3899	241,724

[a]Mean of the monthly rates (number of fish per million gallons).
[b]Computed from the sum of the monthly estimates.
[c]Impingement samples began July 1973.

Source of 1973-1988 and 1991-1992 data: LMS (1989) and LMS (1994)
Source of 1989-1990 and 1993-1994 data: NAI (1992) and NAI (1996b)

TABLE 6-28. ANNUAL MEAN IMPINGEMENT RATE,[a] ESTIMATED TOTAL NUMBER,[b] AND PERCENTAGE OF THE TOTAL ESTIMATED NUMBER IMPINGED FOR SELECTED SPECIES, DANSKAMMER POINT GENERATING STATION, 1973-1995.

	WHITE PERCH			STRIPED BASS			ATLANTIC TOMCOD			ALEWIFE		
YEAR	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED
1973[c]	0.8015	110,545	10.8	0.1451	18,992	1.8	6.9843	647,076	63.0	1.0048	148,912	14.5
1974	0.7105	84,253	25.5	0.0464	6,293	1.9	1.5781	155,908	47.1	0.2190	31,379	9.5
1975	0.8054	98,230	30.3	0.0214	2,588	0.8	0.6212	46,926	14.5	0.2338	29,755	9.2
1976	1.2230	117,738	47.8	0.0142	1,421	0.6	0.5373	54,637	22.2	0.0921	9,920	4.0
1977	1.3002	140,835	47.4	0.0175	1,859	0.6	0.3041	26,879	9.1	0.2076	24,633	8.3
1978	0.5456	52,240	29.3	0.0141	1,495	0.8	0.1976	18,395	10.3	0.2298	24,343	13.7
1979	0.8349	79,089	40.6	0.0257	2,087	1.1	0.3874	32,174	16.5	0.1112	10,841	5.6
1980	1.8991	175,055	51.1	0.0575	6,401	1.9	0.1125	8,498	2.5	0.2845	33,740	9.9
1981	1.3767	139,865	54.6	0.0586	5,443	2.1	0.2914	27,649	10.8	0.1387	18,086	7.1
1982	1.9937	221,359	65.5	0.0281	2,982	0.9	0.2034	19,453	5.6	0.1379	16,085	4.8
1983	2.3047	226,752	51.3	0.0677	7,576	1.7	0.1273	12,945	2.9	0.2097	26,205	5.9
1984	2.1701	243,465	56.2	0.0522	5,858	1.4	0.2132	23,916	5.5	0.1884	21,132	4.9
1985	1.2503	117,662	34.2	0.0437	4,145	1.2	0.2541	25,622	7.5	0.3980	32,812	9.5
1986	1.6122	157,880	70.0	0.0103	933	0.4	0.0211	1,774	0.8	0.0761	8,460	3.7
1987	2.6613	233,444	55.9	0.0558	6,091	1.5	0.1765	16,319	3.9	0.1942	22,393	5.4
1988	1.2841	148,803	42.9	0.0752	9,780	2.8	0.0984	10,868	3.1	0.0886	12,643	3.6
1989	1.4074	157,697	54.6	0.0315	3,808	1.3	0.0622	6,617	2.3	0.0289	3,693	1.3
1990	1.9640	187,977	62.8	0.0438	5,338	1.8	0.0758	6,832	2.3	0.0325	4,530	1.5
1991	1.1710	138,101	30.2	0.3212	43,482	9.5	0.0989	12,232	2.7	0.2030	27,570	6.0
1992	1.0800	112,707	57.9	0.0489	5,760	3.0	0.0371	3,187	1.6	0.0684	8,010	4.1
1993	1.8431	135,887	41.1	0.3040	29,498	8.9	0.1371	10,637	3.2	0.2095	18,561	5.6
1994	0.8807	66,688	33.3	0.1504	14,994	7.5	0.0084	722	0.4	0.2458	23,864	11.9
1995	1.1950	116,059	38.1	0.1987	23,084	7.6	0.0219	2,480	0.8	0.1270	14,775	4.8

(Continued)

TABLE 6-28. (CONTINUED)

YEAR	AMERICAN SHAD			BAY ANCHOVY			BLUEBACK HERRING			SPOTTAIL SHINER			TOTAL SPECIES	
	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER
1973[c]	0.0089	1,266	0.1	0.1540	1,852	0.2	0.2230	29,234	2.8	0.1499	16,137	1.6	9.7541	1,027,304
1974	0.0164	2,444	0.7	0.0148	2,252	0.7	0.0959	13,339	4.0	0.0886	9,672	2.9	3.0032	330,788
1975	0.0186	2,456	0.8	0.0138	2,047	0.6	0.7473	100,111	30.9	0.0967	9,855	3.0	2.8647	323,874
1976	0.0180	2,011	0.8	0.0005	69	<0.1	0.1224	14,176	5.8	0.1584	14,279	5.8	2.4985	246,258
1977	0.0209	2,600	0.9	0.0102	1,253	0.4	0.2546	30,096	10.1	0.2127	21,547	7.3	2.8116	296,947
1978	0.0325	3,624	2.0	0.0292	2,829	1.6	0.3826	40,526	22.7	0.0743	6,856	3.8	1.7946	178,155
1979	0.0409	4,201	2.2	0.0174	1,962	1.0	0.2662	26,397	13.6	0.1814	15,170	7.8	2.1290	194,879
1980	0.0857	11,502	3.4	0.0730	9,833	2.9	0.1648	19,615	5.7	0.2080	15,756	4.6	3.4804	342,353
1981	0.0351	4,628	1.8	0.0052	620	0.2	0.0527	6,563	2.6	0.1521	13,783	5.4	2.5185	256,371
1982	0.0291	3,305	1.0	0.0780	9,456	2.8	0.0850	9,980	3.0	0.1186	12,566	3.7	3.0828	337,976
1983	0.1310	16,814	3.8	0.2016	25,128	5.7	0.2071	23,288	5.3	0.1810	17,688	4.0	4.2397	442,392
1984	0.1286	14,426	3.3	0.1315	16,601	3.8	0.3600	40,390	9.3	0.1401	15,715	3.6	3.8611	433,174
1985	0.1256	11,632	3.4	0.2072	26,310	7.7	0.7605	62,182	18.1	0.1227	13,689	4.0	3.7039	343,824
1986	0.0216	2,179	1.0	0.0107	1,350	0.6	0.0571	6,217	2.8	0.2114	19,642	8.7	2.3160	225,685
1987	0.0260	2,911	0.7	0.0684	8,928	2.1	0.3750	42,879	10.3	0.4409	37,702	9.0	4.5056	417,367
1988	0.0498	7,094	2.0	0.1811	25,115	7.2	0.4292	58,149	16.8	0.1124	12,035	3.5	2.8443	346,490
1989	0.0359	4,648	1.6	0.0126	1,400	0.5	0.0832	9,586	3.3	0.2717	28,595	9.9	2.5984	288,595
1990	0.0169	2,212	0.7	0.0497	7,320	2.4	0.2427	30,743	10.3	0.1572	14,522	4.9	2.9967	299,126
1991	0.0974	13,646	3.0	0.3265	45,938	10.1	0.6018	69,471	15.2	0.2007	20,655	4.5	3.7839	456,672
1992	0.0426	5,198	2.7	0.0121	1,452	0.7	0.1033	12,334	6.3	0.1286	11,973	6.1	1.8891	194,771
1993	0.0587	5,756	1.7	0.2156	22,359	6.8	0.3329	26,355	8.0	0.1550	11,149	3.4	4.2743	330,259
1994	0.1338	12,056	6.0	0.0084	918	0.5	0.1868	14,799	7.4	0.1181	8,884	4.4	2.4302	200,390
1995	0.0284	3,195	1.0	0.1728	22,187	7.3	0.1867	18,277	6.0	0.2296	20,234	6.6	3.1546	304,842

[a]Mean of the monthly rates (number of fish per million gallons).
[b]Computed from the sum of the monthly estimates.
[c]Impingement samples began July 1973.

Source of 1973-1988 and 1991-1992 data: LMS (1989) and LMS (1994)
Source of 1989-1990 and 1993-1994 data: NAI (1992) and NAI (1996b)

6.9 RELEASED FISH AND INVERTEBRATES

Efforts were made at both plants to return living fish and invertebrates to the Hudson River following analysis. Living organisms were placed in a container of river water as soon as possible after the sample was collected. Following analysis, living organisms were returned to the river south of the Roseton seal well. During times when access or lack of circulating water flow prevented release at this location, organisms were released at a nearby shoreline location.

At Roseton 1,762 fish (4.9% of the total collected during the year) and 10,542 invertebrates (88.3% of the total collected) were released alive (Table 6-29). Predominant fish species released alive were banded killifish, hogchoker, and brown bullhead, representing 38.8% (683), 20.4% (360), and 13.5% (238) of the total released, respectively. Blue crabs accounted for most of the invertebrates, representing 95.1% (10,027) of the invertebrates released.

At Danskammer Point in 1995, 1,754 fish (3.9% of the total collected in 1995) were released alive and 7,453 invertebrates (92.2% of the total collected) were released alive (Table 6-30). Predominant fish species released alive were golden shiner, hogchoker, brown bullhead, and white catfish, representing 18.1% (318), 16.0% (280), 13.4% (235), and 12.1% (213) of the total, respectively. Blue crab was the predominant invertebrate released alive, representing 91.2% (6,797) of the total released.

Overall, the number of fish released alive was generally highest in January-June and in November at both plants. At Roseton, the greatest number of fish released alive in one month was 628, in November (35.6% of the total released during the year), and the lowest number of fish released alive in one month was four, in September (0.2% of the year's releases). At Danskammer Point, the most fish released alive in a month was 426, in March (24.3% of the year's total), and the lowest number of fish released alive in one month was eight, in September (0.5% of the year's total). The greatest number of invertebrates were released in July and August at both plants. Overall, the seasonal pattern of numbers of fish and invertebrates released alive corresponded with the seasonal pattern of abundances impinged, and with cooler water temperatures and higher dissolved oxygen content.

TABLE 6-29. NUMBER OF FISH AND INVERTEBRATES RELEASED FOLLOWING ANALYSIS, ROSETON GENERATING STATION, 1995.

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
Fish													
American eel			3	1		2	8	2		2		1	19
Banded killifish	7	8	21	1		2				24	607	13	683
Black crappie	5	1									1		7
Bluegill											1		1
Brown bullhead	1		3	16	168	40	8	1		1			238
Central mudminnow			1										1
Channel catfish	3		4		3	1					1	2	14
Common carp			1										1
Fourspine stickleback		2	13	8									23
Golden shiner	11	20	22	1	1							1	56
Goldfish	4	1		1								1	7
Hogchoker			1	3	288	28	13	2	3	11	11		360
Largemouth bass	1										1		2
Mummichog			1										1
Naked goby										1			1
Pumpkinseed	5	8	9	12	27	3				18	2	2	86
Rainbow smelt			3										3
Redbreast sunfish			1										1
Spottail shiner	7	27	64	3	2								103
Striped bass	2		1		1				1				5
Tessellated darter	1	1	39	26	5	1						1	74
Threespine stickleback		4	1	1						1			7
White catfish	1		4	2	4	6	1			3	1		22
White perch		1	8	8	10	1	1			3	3		35
Yellow perch	2	4	4	1								1	12
TOTAL	50	77	204	84	509	84	31	5	4	64	628	22	1762
Invertebrates													
Blue crab					1500	1266	4122	2343	185	550	61		10027
Crayfish				1	4	2	2	3	2	1			15
Mud crab	1	1	6	14	16	41	22	105	120	137	37		500
TOTAL	1	1	6	15	1520	1309	4146	2451	307	688	98		10542

TABLE 6-30. NUMBER OF FISH AND INVERTEBRATES RELEASED FOLLOWING ANALYSIS, DANSKAMMER POINT GENERATING STATION, 1995.

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
Fish													
American eel	1	1	3	2	8	3	1	2	1	4	1	1	28
Atlantic sturgeon			1		1								2
Atlantic tomcod	12	9											21
Banded killifish	12	3	3	2							1	2	23
Black crappie	6	1									1	2	10
Bluegill	8	7	2	1						2	4	2	26
Brown bullhead	7	1	19	40	14	135	4	1	4	2	7	1	235
Channel catfish	7	3	6								4	2	22
Common carp	1	3											4
Fourspine stickleback											2		2
Gizzard shad	5	1											6
Golden shiner	92	78	148										318
Goldfish	5	5	9	2								3	24
Hogchoker				4	186	55	12	9	1	12	1		280
Largemouth bass	3	1									1	2	7
Pumpkinseed	19	9	20	23	32	8				3	13	3	130
Rainbow smelt			2										2
Rock bass		1											1
Smallmouth bass												1	1
Spottail shiner	41	22	105										168
Striped bass	5			1							1	2	9
Sunfish family				1									1
Tessellated darter	1	2	13	15									31
Threespine stickleback		5	4	1									10
White catfish	7	2	8	12	2	21			2	59	100		213
White perch	3	17	52	8	22	2	1			3	1	3	112
White sucker			1										1
Yellow perch	17	16	30	2								2	67
TOTAL	252	187	426	114	265	224	18	12	8	85	137	26	1754
Invertebrates													
Blue crab					285	984	2433	1251	898	588	358		6797
Crayfish			1	6	8	9	2	9	12	1	1		49
Mud crab	5	1	21	108	33	39	6	46	83	82	182	1	607
TOTAL	5	1	22	114	326	1032	2441	1306	993	671	541	1	7453

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7.0 LITERATURE CITED

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APPENDIX A

ANNUAL IMPINGEMENT ABUNDANCE BY SPECIES

LIST OF APPENDIX A TABLES

A-1. Species representation and abundance in the impingement monitoring program, Roseton Generating Station, 1973-1995.

A-2. Species representation and abundance in the impingement monitoring program, Danskammer Point Generating Station, 1974-1995.

APPENDIX TABLE A-1. SPECIES REPRESENTATION AND ABUNDANCE IN THE IMPINGEMENT MONITORING PROGRAM, ROSETON GENERATING STATION, 1973-1995.

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
te perch	8798	5654	18411	15136	24616	12566	22212	28112	26824	8731
ıeback herring	7676	485	9549	1404	11022	5421	8422	18094	33590	4761
' anchovy	1248	515	408	333	9007	14199	6406	11675	9260	7124
;wife	1435	254	1967	329	9201	5711	2208	2125	7719	455
›ttail shiner	334	700	1902	1107	1934	873	1453	1652	1816	742
:rican shad	19	28	342	51	551	843	1097	1372	4662	502
·iped bass	416	86	207	89	604	242	207	1128	1174	60
ıpkinseed	16	77	267	273	336	231	607	5146	864	1397
zard shad	15	25	736	333	395	444	191	714	2497	144
antic tomcod	78	860	613	1126	3484	293	542	601	1102	282
choker	74	40	243	129	233	198	151	719	177	206
nbow smelt	97	14	445	74	630	1920	400	572	53	58
te catfish	190	234	1059	406	679	214	140	149	101	251
wn bullhead	3	16	35	32	25	14	74	159	309	96
kfish					3			641	19	26
egill	118	20	729	53	204	33	79	302	81	142
ded killifish	3	6	31	34	24	39	103	582	228	90
den shiner	29	38	57	35	111	64	57	78	84	64
antic menhaden						1	2	5	25	2
sellated darter	6	19	101	153	69	309	450	246	54	54
low perch		11	52	31	65	86	83	105	273	126
;ing family					332	5	5	62	547	22
dfish	12	23	51	47	126	266	206	63	135	17
efish		1	109		9	8	1	30	12	5
rican eel	5	27	134	85	150	57	59	59	54	22
gemouth bass		2	14	6	5	2	11	53	44	10
rspine stickleback				1	2	1	9	52	27	18
eespine stickleback		2	4	1	4	1	8	7	2	5
ck crappie	3	2		3	8	3	2	4	8	1
non carp			4		1	9	11	13	6	
›reast sunfish		4	6	4	7	17	8	16	21	10
fish family							1		1	
ınel catfish										
te crappie					41	2			1	
te bass			1	4	32	12				
antic sturgeon	3	4	9	2	11	5		1	3	1
t				2	24					
shwater drum										
< bass	1		3	2	1		6		4	
valle jack								3	4	1
antic silverside										
tral mudminnow				1	9	1		4		
nichog				1		3		4	1	1

(CONTINUED)

APPENDIX TABLE A-1. (CONTINUED)

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
Naked goby										
Atlantic croaker										
Black bullhead					2	10	1	2		
Smallmouth bass					1					
Fathead minnow						1	1			
Yellow bullhead			3		2		4		1	
Atlantic needlefish								1		
White sucker		2			1	1	1		2	
Summer flounder								2		
Hickory shad							2	1		
Northern pipefish								1		
Spanish mackerel										
Brook silverside										
Shortnose sturgeon		1								
Bluntnose minnow										
Chain pickerel									2	
Morone species										
Sea lamprey										
White mullet								1		
Winter flounder										
Brown trout							1			
Eastern silvery minnow					1					
Ictalurus species								1		
Striped searobin										
Butterfish										
Carp and minnow family					1					
Conger eel										
Creek chub										
Eastern mudminnow										
Emerald shiner				1						
Fat sleeper										
Kokanee										
Lepomis species										
Longnose gar										
Northern pike										
Northern stargazer								1		
Pimephales species										
Redfin pickerel										
Silver perch										
Spotfin shiner			1							
Warmouth			1							
TOTAL	20579	9149	37494	21288	63953	44105	45221	74558	91787	25433
SPECIES	23	29	32	33	40	37	36	41	38	37

(CONTINUE

ENDIX TABLE A-1. (CONTINUED)

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
te perch	22141	7934	6308	5172	16351	14423	11506	11596	8742	5497
eback herring	7041	23083	3764	1500	40512	9849	3670	11248	10725	11479
anchovy	14367	7255	4360	1009	2763	1413	113	13129	68080	5740
ife	2138	617	1097	430	1913	793	137	1051	3509	1322
ttail shiner	1102	492	383	659	1040	659	1547	1717	1457	681
rican shad	1031	525	430	601	521	569	353	728	2369	616
iped bass	422	196	74	36	462	635	145	553	4584	504
okinseed	731	667	464	322	639	1025	554	452	484	267
zard shad	616	52	208	249	423	658	2392	571	959	303
antic tomcod	168	524	598	65	585	68	97	117	1993	42
choker	589	193	855	75	1018	703	860	467	2234	572
nbow smelt	94	56	105	124	1444	125	14	59	393	540
te catfish	499	270	85	65	170	177	173	244	59	75
wn bullhead	305	85	106	144	93	272	74	120	160	335
cfish	46	1	352			68	10		1946	
egill	59	81	20	8	80	244	100	107	87	23
ded killifish	70	25	52	63	64	96	24	62	106	78
den shiner	73	58	31	94	120	137	389	158	372	206
ntic menhaden	1		4	5	6		3	46	2684	52
sellated darter	128	22	43	24	46	58	66	20	195	184
ow perch	118	54	34	45	47	36	71	93	89	76
ing family			2	8	10	7	5	55		
lfish	10	8	9	5	8	22	34	15	23	19
fish	42	2	62		67	9	9	2	609	3
ican eel	39	17	16	5	31	36	15	35	44	27
lemouth bass	9	4	3	19	18	34	14	24	16	20
spine stickleback	15	1		5	12	2	2	2	3	10
espine stickleback	2	4	15	2	10	13	20	3	13	16
k crappie	8	4	2	6	6	2	7	14	15	11
on carp	1		2	8	8	3	2	4	15	26
reast sunfish	3			2	6	1	6	8	1	6
ish family				1		2	27	61		
nel catfish			1		1	4	5	4	3	11
e crappie	2	3	4	3	2	4	2	2	4	5
e bass					1		1	2	2	
ntic sturgeon	3	2		1	1				1	
hwater drum							10	6	1	
bass				2	1					
alle jack	2				2	3		4		
ntic silverside				1					7	
ral mudminnow								1		
ichog	1						1	3		

(CONTINUED)

APPENDIX TABLE A-1. (CONTINUED)

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
Naked goby									15	
Atlantic croaker										
Black bullhead					1					
Smallmouth bass	3	3	1	2			1		2	
Fathead minnow	1				4	1	1	2		
Yellow bullhead		3			1	1				
Atlantic needlefish				1	3		1	3	2	
White sucker	2		1							
Summer flounder				2					5	
Hickory shad					3	1			1	
Northern pipefish									3	
Spanish mackerel									7	
Brook silverside										
Shortnose sturgeon		1	1			1				
Bluntnose minnow	5									
Chain pickerel									1	
Morone species										
Sea lamprey						1		2		
White mullet			1							
Winter flounder										
Brown trout										
Eastern silvery minnow	1									
Ictalurus species				1						
Striped searobin										
Butterfish										
Carp and minnow family										
Conger eel										
Creek chub		1								
Eastern mudminnow	1									
Emerald shiner										
Fat sleeper										
Kokanee				1						
Lepomis species									1	
Longnose gar							1			
Northern pike									1	
Northern stargazer										
Pimephales species	1									
Redfin pickerel								1		
Silver perch										
Spotfin shiner										
Warmouth										
TOTAL	51890	42243	19493	10765	68493	32155	22462	42791	112022	28753
SPECIES	40	33	34	36	40	37	39	40	45	38

(CONTINUE

APPENDIX TABLE A-1. (CONTINUED)

	1993	1994	1995
White perch	6540	2435	6051
Blueback herring	2245	7458	4698
Bay anchovy	2028	1232	9539
Alewife	1049	4177	2239
Spottail shiner	536	689	1424
American shad	223	1107	1136
Striped bass	1092	1849	3891
Pumpkinseed	503	346	760
Gizzard shad	986	509	1622
Atlantic tomcod	160	55	258
Hogchoker	384	315	462
Rainbow smelt	924	599	209
White catfish	289	159	131
Brown bullhead	109	921	407
Weakfish	178		9
Bluegill	217	67	117
Banded killifish	14	169	969
Golden shiner	128	163	376
Atlantic menhaden		4	79
Tessellated darter	12	76	245
Yellow perch	50	38	39
Herring family	1		464
Goldfish	10	4	42
Bluefish	31		54
American eel	11	20	83
Largemouth bass	20	4	23
Fourspine stickleback		14	31
Threespine stickleback	7	49	17
Black crappie	13	13	67
Common carp	17	12	15
Redbreast sunfish	3	7	9
Sunfish family	2	13	36
Channel catfish	9	14	51
White crappie			
White bass			2
Atlantic sturgeon			
Spot			1
Freshwater drum	4	5	
Rock bass	4		1
Crevalle jack	1		1
Atlantic silverside			11
Central mudminnow		1	1
Mummichog		1	2

(CONTINUED)

APPENDIX TABLE A-1. (CONTINUED)

	1993	1994	1995
Naked goby			1
Atlantic croaker			16
Black bullhead			
Smallmouth bass			
Fathead minnow	2	1	
Yellow bullhead			
Atlantic needlefish		1	
White sucker		1	
Summer flounder	1		
Hickory shad			
Northern pipefish	1		2
Spanish mackerel			
Brook silverside			5
Shortnose sturgeon		1	1
Bluntnose minnow			
Chain pickerel			
Morone species	1		3
Sea lamprey			
White mullet	1		
Winter flounder	2	1	
Brown trout	1		
Eastern silvery minnow			
Ictalurus species			
Striped searobin			
Butterfish			1
Carp and minnow family			
Conger eel			
Creek chub			
Eastern mudminnow			
Emerald shiner			
Fat sleeper		1	
Kokanee			
Lepomis species			
Longnose gar			
Northern pike			
Northern stargazer			
Pimephales species			
Redfin pickerel			
Silver perch			1
Spotfin shiner			
Warmouth			
TOTAL	17809	22531	35602
SPECIES	38	38	45

Source of 1973-1988 and 1991-1992 data: LMS (1989) and LMS (1994)
Source of 1989-1990 and 1993-1994 data: NAI (1992) and NAI (1996b)

A higher taxon was not counted as an additional species unless no species from that taxon was recorded that year.

APPENDIX TABLE A-2. SPECIES REPRESENTATION AND ABUNDANCE IN THE IMPINGEMENT MONITORING PROGRAM, DANSKAMMER POINT GENERATING STATION, 1974-1995.

	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
te perch	10396	14152	18875	28415	11106	16095	42961	34019	57323	62672
eback herring	1869	9711	1997	5633	10298	6241	5089	1318	2369	5919
antic tomcod	12629	5849	9830	3784	3312	5282	1999	10545	3890	3623
wife	4519	4314	1478	4294	6333	2474	8543	3751	4215	6528
ttail shiner	948	1457	2318	4151	1248	2636	3608	2624	3312	5370
zard shad	205	2997	1231	3580	953	234	4981	2903	1857	8637
anchovy	301	278	10	200	589	278	2095	107	2580	7082
okinseed	384	380	600	1009	548	767	3227	1922	4097	3881
iped bass	908	362	228	342	270	341	1364	1164	665	1982
rican shad	359	342	359	408	922	889	2938	827	738	3968
te catfish	595	678	826	1079	293	201	687	432	533	4599
den shiner	599	197	398	531	344	565	288	412	435	672
choker	33	60	74	88	46	40	390	159	409	580
nbow smelt	46	44	493	277	1074	727	135	21	39	125
wn bullhead	92	62	43	46	38	63	336	306	429	1759
low perch	40	34	73	134	115	147	306	353	642	965
egill	117	274	105	317	80	130	273	457	285	409
tfish							1162	2	22	151
dfish	191	127	173	557	749	758	198	308	108	75
rican eel	117	88	229	245	123	97	184	135	168	222
ring family	63	11	6	147	30	53	111	88	20	96
efish	5	6		2			390	22	27	457
sellated darter	24	18	26	28	56	116	98	35	129	152
antic menhaden		1	5				6	2	2	1
ded killifish	14	10	25	45	37	121	146	175	112	82
gemouth bass	9	16	27	20	7	54	351	82	47	51
breast sunfish	23	14	18	48	17	28	57	97	65	107
ck crappie	15	10	26	32	20	21	13	13	35	34
mon carp	8	2	1	11	7	29	28	28	11	15
spine stickleback		1	2	2		7	10	7	25	78
nnel catfish						3	1			
te bass	1	8	2	129	12			2		
espine stickleback				1	1	2	2	2		
			20	120	20				2	
te sucker	25		1	12	3	10	5	12	9	14
te crappie	4			51	2	4		1	2	8
one species				1						
fish family	4	2	3	2		3	1		1	
bass	2		4	11	2	2	6	7	6	7
lmouth bass	9		1	1				2		
valle jack					1		3	4	7	11
ver perch										
tory shad					4		1		1	7

(CONTINUED)

APPENDIX TABLE A-2. (CONTINUED)

	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Black bullhead			4	17	15	4				
Fathead minnow				1						
Freshwater drum										
Atlantic sturgeon	5	1	1	6	1	1		1	1	
Atlantic needlefish							1	5	1	1
Yellow bullhead				1				4		
Chain pickerel	1		2	1		1	2	2		
Eastern silvery minnow	5		6	4	3					
Unidentified	13		2						1	
Central mudminnow	1			4						
Brown trout	2			3		2	1			
Shortnose sturgeon				1					3	
Emerald shiner	1		2		1					
Longear sunfish			3	7						
Mummichog					1		1	2		
Sea lamprey						1		3		
Summer flounder							2			
Warmouth		1								
Naked goby										
Northern pike						2				
White mullet		1					3	1		
Atlantic silverside										
Bluntnose minnow										
Conger eel										
Inland silverside							1			
Pomoxis species		1		2						
Redfin pickerel				1			1			
Winter flounder										
Brook trout				1						
Gray snapper										
Ictalurus species	1									
Northern hog sucker				1	1					
Notropis species		1		1						
Rainbow trout								1		
Silver lamprey								1		
Spanish mackerel										
Atlantic croaker										
Brindled madtom						1				
Brook silverside										
Butterfish										
Carp and minnow family										1
Common shiner						1				
Creek chub										

(CONTINUE

ENDIX TABLE A-2. (CONTINUED)

	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
tern mudminnow				1						
lfish				1						
anee										
orey family										
idia species										
orhynchus species	1									
iped searobin										1
rgeon family		1								
ker family				1						
AL	34584	41511	39527	55807	38682	38431	82005	62364	84624	120359
CIES	38	32	38	49	39	39	43	45	39	41

(CONTINUED)

APPENDIX TABLE A-2. (CONTINUED)

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
White perch	61361	26597	36583	59487	31907	21898	33849	19458	15775	195
Blueback herring	9112	16178	1142	10128	11971	1412	3882	10878	1744	40
Atlantic tomcod	4678	5405	309	2970	3179	830	1333	1643	607	144
Alewife	4789	8466	1503	4581	2608	554	664	3807	1184	26
Spottail shiner	3641	2610	3955	8502	2422	3885	2382	3038	1753	163
Gizzard shad	1280	3445	411	2581	4382	4769	1903	3288	1873	412
Bay anchovy	4172	6358	219	1869	4489	211	1033	7050	204	338
Pumpkinseed	3385	1436	1437	1437	1396	904	689	1447	588	192
Striped bass	1448	930	168	1211	2117	555	786	6008	820	472
American shad	4021	2672	355	602	1691	672	296	1933	800	86
White catfish	2346	552	174	620	855	748	913	210	186	114
Golden shiner	866	718	636	911	1048	1284	608	861	480	24
Hogchoker	860	1477	323	625	939	588	373	912	561	52
Rainbow smelt	259	121	628	1404	309	20	432	251	255	82
Brown bullhead	429	229	189	416	1125	253	253	268	344	27
Yellow perch	669	345	376	510	161	217	167	175	171	9
Bluegill	555	181	45	199	380	286	122	159	68	12
Weakfish	1	259			59	1	1	1606		52
Goldfish	52	71	43	46	158	134	29	47	50	1
American eel	145	131	91	183	98	65	82	78	55	4
Herring family	13	11	36	79	1701	53	18			
Bluefish	23	178		70	7	33	3	734	1	19
Tessellated darter	80	67	67	203	97	68	26	89	45	2
Atlantic menhaden		76	18	7		7	16	1487	8	
Banded killifish	74	77	86	108	99	40	16	42	16	2
Largemouth bass	28	42	20	87	151	33	28	28	29	2
Redbreast sunfish	96	21	12	35	12	14	18	14	15	
Black crappie	51	9	10	12	26	22	29	30	20	1
Common carp	5	33	15	18	54	54	14	28	51	
Fourspine stickleback	2	4	15	189	7	6		3	2	
Channel catfish	1	3		1	15	6	4	6	14	1
White bass				6	1	1	5	10		
Threespine stickleback	10	20	9	14	22	13	2	5	8	
Spot					1					
White sucker	15	5	3	12	1	5	9	1		3
White crappie	3	8	12	7	9	2	3	4	1	2
Morone species					89	6				4
Sunfish family			1	5		23	9			2
Rock bass	4	2	3	11	2	1	2	1	1	1
Smallmouth bass	18	23		1	3	2		3	1	
Crevalle jack	5		1	1	11		11			
Silver perch										
Hickory shad	8		8	8	4		2	5		

(CONTINU

ENDIX TABLE A-2. (CONTINUED)

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
ck bullhead		3	1	2						
head minnow				25	2					5
shwater drum		1				14	5	1	2	6
antic sturgeon	3	1	1	1	1		2		1	
antic needlefish	1	10		1			2			
low bullhead	10	6		3					1	2
in pickerel	3	3			1			1		
tern silvery minnow										
dentified	2									
tral mudminnow			1	2			1			7
wn trout				1				1	1	
rtnose sturgeon	3	2					1		1	
rald shiner				3	2				1	1
gear sunfish										
nichog		1					1		2	
lamprey				1	1	1				
ner flounder	2	1						2		
nouth								1	3	
ed goby					1	1		3		
chern pike						1		1		
ce mullet										
antic silverside										
ntnose minnow			2					2		
ger eel									4	
and silverside					1				1	
oxis species										
fin pickerel				1						
cer flounder		2						1		
ok trout										
snapper										
alurus species	1									
chern hog sucker										
opis species										
nbow trout										
ver lamprey		1								
nish mackerel								2		
antic croaker										
ndled madtom										
ok silverside								1		
cerfish										
and minnow family										
non shiner										
ek chub	1									

(CONTINUED)

APPENDIX TABLE A-2. (CONTINUED)

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Eastern mudminnow										
Fallfish										
Kokanee			1							
Lamprey family				1						
Menidia species					1					
Oncorhynchus species										
Striped searobin										
Sturgeon family										
Sucker family										
TOTAL	104531	78791	48909	99197	73616	39692	50024	65623	27747	4859
SPECIES	43	46	38	47	45	41	42	48	43	4

(CONTINU

APPENDIX TABLE A-2. (CONTINUED)

	1994	1995
White perch	10280	17445
Blueback herring	2106	2168
Atlantic tomcod	122	398
Alewife	3344	2169
Spottail shiner	1424	3049
Gizzard shad	2086	5927
Bay anchovy	131	3807
Pumpkinseed	1091	1941
Striped bass	2227	3632
American shad	1750	458
White catfish	563	510
Golden shiner	393	819
Hogchoker	302	435
Rainbow smelt	1867	55
Brown bullhead	1791	513
Yellow perch	73	122
Bluegill	102	184
Weakfish		643
Goldfish	7	61
American eel	33	87
Herring family	46	97
Bluefish		223
Tessellated darter	71	145
Atlantic menhaden	3	23
Banded killifish	38	73
Largemouth bass	17	38
Redbreast sunfish	16	17
Black crappie	20	70
Common carp	18	33
Fourspine stickleback	8	3
Channel catfish	44	115
White bass		3
Threespine stickleback	29	16
Spot		
White sucker	2	2
White crappie		
Morone species		8
Sunfish family	9	21
Rock bass	3	4
Smallmouth bass	2	2
Crevalle jack	1	6
Silver perch		61
Hickory shad		

(CONTINUED)

APPENDIX TABLE A-2. (CONTINUED)

	1994	1995
Black bullhead		
Fathead minnow	2	
Freshwater drum	3	2
Atlantic sturgeon	1	3
Atlantic needlefish		
Yellow bullhead		
Chain pickerel		
Eastern silvery minnow		
Unidentified		
Central mudminnow	1	
Brown trout		
Shortnose sturgeon		1
Emerald shiner		
Longear sunfish		
Mummichog	1	
Sea lamprey		
Summer flounder		
Warmouth	1	
Naked goby		
Northern pike	1	
White mullet		
Atlantic silverside		4
Bluntnose minnow		
Conger eel		
Inland silverside		
Pomoxis species		
Redfin pickerel		
Winter flounder		
Brook trout	1	
Gray snapper	2	
Ictalurus species		
Northern hog sucker		
Notropis species		
Rainbow trout		1
Silver lamprey		
Spanish mackerel		
Atlantic croaker		1
Brindled madtom		
Brook silverside		
Butterfish		1
Carp and minnow family		
Common shiner		
Creek chub		

(CONTINUED)

APPENDIX TABLE A-2. (CONTINUED)

	1994	1995
Eastern mudminnow		
Fallfish		
Kokanee		
Lamprey family		
Menidia species		
Oncorhynchus species		
Striped searobin		
Sturgeon family		
Sucker family		
TOTAL	30032	45396
SPECIES	42	44

Source of 1973-1988 and 1991-1992 data: LMS (1989) and LMS (1994)
Source of 1989-1990 and 1993-1994 data: NAI (1992) and NAI (1996b)

A higher taxon was not counted as an additional species unless no species from that taxon was recorded that year.

APPENDIX B

LENGTH-FREQUENCY INFORMATION FOR MAJOR TAXA

LIST OF APPENDIX B TABLES

B-1.1. Length-frequency of alewife, Roseton Generating Station, 1995.

B-1.2. Length-frequency of American shad, Roseton Generating Station, 1995.

B-1.3. Length-frequency of Atlantic tomcod, Roseton Generating Station, 1995.

B-1.4. Length-frequency of banded killifish, Roseton Generating Station, 1995.

B-1.5. Length-frequency of bay anchovy, Roseton Generating Station, 1995.

B-1.6. Length-frequency of blueback herring, Roseton Generating Station, 1995.

B-1.7. Length-frequency of gizzard shad, Roseton Generating Station, 1995.

B-1.8. Length-frequency of pumpkinseed, Roseton Generating Station, 1995.

B-1.9. Length-frequency of spottail shiner, Roseton Generating Station, 1995.

B-1.10. Length-frequency of striped bass, Roseton Generating Station, 1995.

B-1.11. Length-frequency of white perch, Roseton Generating Station, 1995.

B-1.12. Frequency distribution of carapace width for blue crab, Roseton Generating Station, 1995.

B-2.1. Length-frequency of alewife, Danskammer Point Generating Station, 1995.

B-2.2. Length-frequency of Atlantic tomcod, Danskammer Point Generating Station, 1995.

B-2.3. Length-frequency of bay anchovy, Danskammer Point Generating Station, 1995.

B-2.4. Length-frequency of blueback herring, Danskammer Point Generating Station, 1995.

B-2.5. Length-frequency of gizzard shad, Danskammer Point Generating Station, 1995.

B-2.6. Length-frequency of golden shiner, Danskammer Point Generating Station, 1995.

B-2.7. Length-frequency of pumpkinseed, Danskammer Point Generating Station, 1995.

B-2.8. Length-frequency of spottail shiner, Danskammer Point Generating Station, 1995.

B-2.9. Length-frequency of striped bass, Danskammer Point Generating Station, 1995.

B-2.10. Length-frequency of weakfish, Danskammer Point Generating Station, 1995.

B-2.11. Length-frequency of white perch, Danskammer Point Generating Station, 1995.

B-2.12. Frequency distribution of carapace width for blue crab, Danskammer Point Generating Station, 1995.

TABLE B-1.1. LENGTH-FREQUENCY OF ALEWIFE, ROSETON GENERATING STATION, 1995.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
3.1 - 4.0	0	0	0	0	0	8	24	0	0	0	0	0
4.1 - 5.0	0	0	0	0	0	1	54	2	0	0	0	0
5.1 - 6.0	0	0	0	0	0	0	105	19	0	0	0	0
6.1 - 7.0	0	0	0	0	0	0	84	67	0	1	1	0
7.1 - 8.0	0	0	0	0	0	0	40	72	1	20	9	0
8.1 - 9.0	0	0	0	0	0	0	4	25	0	12	5	0
9.1 - 10.0	0	0	0	0	2	0	0	6	0	5	2	0
10.1- 11.0	0	0	0	0	6	0	0	0	0	0	0	0
11.1- 12.0	2	0	3	0	0	0	0	1	0	0	0	0
12.1- 13.0	0	0	0	0	0	0	3	1	0	0	0	0
13.1- 14.0	0	0	0	0	0	1	10	6	0	0	0	0
14.1- 15.0	0	0	0	0	0	0	19	10	0	1	0	0
15.1- 16.0	0	0	0	0	0	0	11	14	1	0	0	0
16.1- 17.0	0	0	0	0	0	0	1	5	0	0	0	0
17.1- 18.0	0	0	0	0	0	0	0	1	0	0	0	0
18.1- 19.0	0	0	0	0	0	0	0	0	0	0	0	0
19.1- 20.0	0	0	0	0	0	0	0	0	0	0	0	0
20.1- 21.0	0	0	0	0	0	0	0	0	0	0	0	0
21.1- 22.0	0	0	0	0	0	0	0	0	0	0	0	0
22.1- 23.0	0	0	0	0	0	0	0	0	0	0	0	0
23.1- 24.0	0	0	0	0	0	0	0	0	0	0	0	0
24.1- 25.0	0	0	0	0	0	0	0	0	0	0	0	0
25.1- 26.0	0	0	0	1	1	0	1	0	0	0	0	0
26.1- 27.0	0	0	0	1	0	0	0	0	0	0	0	0
27.1- 28.0	0	0	0	0	0	0	0	0	0	0	0	0
28.1- 29.0	0	0	0	0	0	0	0	1	0	0	0	0
TOTAL ANAL.	2	0	3	2	9	10	356	230	2	39	17	0
MEAN LENGTH	11.5	0	11.5	26.4	12.2	4.5	6.9	8.5	11.6	8.2	7.9	0
MIN. LENGTH	11.4	0	11.1	26.0	9.6	3.1	3.1	4.2	7.1	7.0	6.7	0
MAX. LENGTH	11.6	0	11.9	26.7	25.9	13.4	25.7	28.1	16.0	14.3	9.5	0

TABLE B-1.2. LENGTH-FREQUENCY OF AMERICAN SHAD, ROSETON GENERATING STATION, 1995.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
3.1 - 4.0	0	0	0	0	0	4	6	4	0	0	0	0
4.1 - 5.0	0	0	0	0	0	1	26	3	0	0	0	0
5.1 - 6.0	0	0	0	0	0	0	103	7	0	0	0	0
6.1 - 7.0	0	0	0	0	0	0	69	64	0	0	0	0
7.1 - 8.0	0	0	0	0	0	0	8	54	1	1	0	0
8.1 - 9.0	0	0	0	0	0	0	2	1	0	4	7	0
9.1 - 10.0	0	0	0	0	0	0	0	2	0	1	2	0
10.1- 11.0	0	0	0	0	0	0	0	1	0	1	0	0
11.1- 12.0	0	0	0	0	0	0	0	0	0	0	0	0
12.1- 13.0	0	0	0	0	0	0	0	0	0	1	0	0
13.1- 14.0	0	0	0	0	0	0	0	0	0	0	0	0
14.1- 15.0	0	0	0	0	0	0	0	0	0	0	0	0
15.1- 16.0	0	0	0	0	0	0	0	0	0	0	0	0
16.1- 17.0	0	0	0	0	0	0	0	0	0	0	0	0
17.1- 18.0	0	0	0	0	0	0	0	0	0	0	0	0
18.1- 19.0	0	0	0	0	0	0	0	0	0	0	0	0
19.1- 20.0	0	0	0	0	0	0	0	0	0	0	0	0
20.1- 21.0	0	0	0	0	0	0	0	1	0	0	0	0
21.1- 22.0	0	0	0	0	0	0	0	0	0	0	0	0
22.1- 23.0	0	0	0	0	0	0	0	0	0	0	0	0
23.1- 24.0	0	0	0	0	0	0	0	0	0	0	0	0
24.1- 25.0	0	0	0	0	0	0	0	1	0	0	0	0
TOTAL ANAL.	0	0	0	0	0	5	214	138	1	8	9	0
MEAN LENGTH	0	0	0	0	0	3.8	5.8	7.1	7.8	9.4	8.8	0
MIN. LENGTH	0	0	0	0	0	3.6	3.1	3.6	7.8	8.0	8.3	0
MAX. LENGTH	0	0	0	0	0	4.1	8.5	24.5	7.8	13.0	9.3	0

TABLE B-1.3. LENGTH-FREQUENCY OF ATLANTIC TOMCOD, ROSETON GENERATING STATION, 1995.

INTERVAL (CM)		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2.1 - 3.0		0	0	0	0	2	0	0	0	0	0	0	0
3.1 - 4.0		0	0	0	0	14	3	0	0	0	0	0	0
4.1 - 5.0		0	0	0	0	7	15	0	0	0	0	0	0
5.1 - 6.0		0	0	0	0	1	25	4	0	0	0	0	0
6.1 - 7.0		0	0	0	0	0	18	40	0	0	0	0	0
7.1 - 8.0		0	0	0	0	0	5	54	3	0	0	0	0
8.1 - 9.0		0	0	0	0	0	1	5	0	0	0	0	0
9.1 - 10.0		0	0	0	0	0	0	2	1	0	0	0	0
10.1- 11.0		0	0	0	0	0	0	0	0	0	0	0	0
11.1- 12.0		0	0	0	0	0	0	0	0	0	0	0	0
12.1- 13.0		0	0	0	0	0	0	0	0	0	0	0	0
13.1- 14.0		0	0	0	0	0	0	0	0	0	0	0	0
14.1- 15.0		0	0	0	0	0	0	0	0	0	0	0	0
15.1- 16.0		0	0	0	0	1	0	1	0	0	0	0	0
16.1- 17.0		0	0	0	0	1	0	1	0	0	0	0	0
17.1- 18.0		0	0	0	0	1	0	0	0	0	0	0	0
18.1- 19.0		0	0	0	0	0	1	0	0	0	0	0	0
19.1- 20.0		0	0	0	0	0	0	0	0	0	0	0	0
20.1- 21.0		1	0	0	0	0	0	0	0	0	0	0	0
	TOTAL ANAL.	1	0	0	0	27	68	107	4	0	0	0	0
	MEAN LENGTH	20.2	0	0	0	5.3	5.9	7.4	8.1	0	0	0	0
	MIN. LENGTH	20.2	0	0	0	2.9	3.5	5.6	7.3	0	0	0	0
	MAX. LENGTH	20.2	0	0	0	18.0	18.1	16.2	9.4	0	0	0	0

TABLE B-1.4. LENGTH-FREQUENCY OF BANDED KILLIFISH, ROSETON GENERATING STATION, 1995.

INTERVAL (CM)		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2.1 - 3.0		0	0	0	0	0	0	3	7	0	1	0	0
3.1 - 4.0		11	3	3	1	0	0	1	16	0	10	0	3
4.1 - 5.0		12	1	7	0	0	0	1	3	0	16	3	7
5.1 - 6.0		5	5	7	1	1	7	0	1	0	15	22	22
6.1 - 7.0		10	6	4	0	0	8	0	0	0	10	22	15
7.1 - 8.0		5	2	1	0	0	3	4	1	0	0	10	7
8.1 - 9.0		7	5	5	0	0	0	0	0	0	0	13	8
9.1 - 10.0		9	1	4	0	0	0	0	0	0	1	2	10
10.1- 11.0		0	0	0	0	0	0	0	0	0	0	0	2
	TOTAL ANAL.	59	23	31	2	1	18	9	28	0	53	72	74
	MEAN LENGTH	6.3	6.5	6.3	4.8	5.8	6.4	5.1	3.7	0	5.0	6.7	6.7
	MIN. LENGTH	3.3	3.5	3.2	3.5	5.8	5.2	2.5	2.5	0	2.9	4.3	3.2
	MAX. LENGTH	9.8	9.8	9.4	6.0	5.8	7.9	7.8	7.1	0	9.1	9.5	10.5

TABLE B-1.5. LENGTH-FREQUENCY OF BAY ANCHOVY, ROSETON GENERATING STATION, 1995.

INTERVAL (CM)		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2.1 - 3.0		0	0	0	0	0	0	2	1	0	0	0	0
3.1 - 4.0		0	0	0	0	0	0	27	27	2	11	0	0
4.1 - 5.0		0	0	0	0	0	0	8	209	1	129	0	0
5.1 - 6.0		0	0	0	0	0	0	1	13	0	61	0	0
6.1 - 7.0		0	0	0	0	0	0	8	1	2	47	0	0
7.1 - 8.0		0	0	0	0	0	0	115	29	3	103	0	0
8.1 - 9.0		0	0	0	0	0	0	60	15	3	12	0	0
9.1 - 10.0		0	0	0	0	0	0	2	0	0	1	0	0
	TOTAL ANAL.	0	0	0	0	0	0	223	295	11	364	0	0
	MEAN LENGTH	0	0	0	0	0	0	7.2	5.0	6.8	5.9	0	0
	MIN. LENGTH	0	0	0	0	0	0	2.9	3.0	3.9	3.3	0	0
	MAX. LENGTH	0	0	0	0	0	0	9.5	8.8	8.8	9.3	0	0

TABLE B-1.6. LENGTH-FREQUENCY OF BLUEBACK HERRING, ROSETON GENERATING STATION, 1995.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
3.1 - 4.0	0	0	0	0	0	0	35	65	0	1	0	0
4.1 - 5.0	0	0	0	0	0	0	93	106	0	14	0	0
5.1 - 6.0	0	0	0	0	0	0	13	34	5	147	19	0
6.1 - 7.0	0	0	0	0	0	0	2	14	4	62	78	0
7.1 - 8.0	0	0	0	1	0	0	0	0	0	56	49	0
8.1 - 9.0	0	0	0	0	5	0	0	0	0	3	3	0
9.1 - 10.0	0	0	0	1	15	0	0	0	0	0	0	0
10.1- 11.0	0	0	0	0	1	0	1	0	0	0	0	0
11.1- 12.0	0	0	0	0	0	0	0	0	0	0	0	0
12.1- 13.0	0	0	0	0	0	2	1	1	0	0	0	0
13.1- 14.0	0	0	0	0	0	0	4	1	0	1	0	0
14.1- 15.0	0	0	0	0	0	0	4	0	0	0	0	0
15.1- 16.0	0	0	0	0	0	0	0	0	0	0	0	0
16.1- 17.0	0	0	0	0	0	0	0	0	0	0	0	0
17.1- 18.0	0	0	0	0	0	0	0	0	0	0	0	0
18.1- 19.0	0	0	0	0	0	0	0	0	0	0	0	0
19.1- 20.0	0	0	0	0	0	0	0	0	0	0	0	0
20.1- 21.0	0	0	0	0	0	0	0	0	0	0	0	0
21.1- 22.0	0	0	0	0	0	0	0	0	0	0	0	0
22.1- 23.0	0	0	0	0	0	0	0	0	0	0	0	0
23.1- 24.0	0	0	0	0	0	0	0	0	0	0	0	0
24.1- 25.0	0	0	0	0	0	2	0	2	1	0	0	0
25.1- 26.0	0	0	0	0	0	0	0	0	0	0	0	0
26.1- 27.0	0	0	0	0	0	1	0	1	0	0	0	0
27.1- 28.0	0	0	0	0	0	0	0	0	0	0	0	0
28.1- 29.0	0	0	0	0	0	0	0	0	0	0	0	0
29.1- 30.0	0	0	0	0	0	0	0	0	0	0	0	0
30.1- 31.0	0	0	0	0	0	0	0	0	0	0	0	0
31.1- 32.0	0	0	0	0	1	0	0	0	0	0	0	0
TOTAL ANAL.	0	0	0	2	22	5	153	224	10	284	149	0
MEAN LENGTH	0	0	0	8.6	10.5	20.4	5.0	4.9	7.9	6.2	6.8	0
MIN. LENGTH	0	0	0	7.6	8.5	12.7	3.2	3.2	5.5	3.8	5.4	0
MAX. LENGTH	0	0	0	9.5	31.2	26.6	14.8	26.4	24.2	13.8	8.5	0

TABLE B-1.7. LENGTH-FREQUENCY OF GIZZARD SHAD, ROSETON GENERATING STATION, 1995.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
5.1 - 6.0	0	0	0	0	0	0	54	0	0	0	0	0
6.1 - 7.0	0	0	0	0	0	0	90	2	0	0	3	0
7.1 - 8.0	0	0	0	0	0	0	20	3	0	0	16	2
8.1 - 9.0	0	0	0	0	0	0	2	2	0	0	18	13
9.1 - 10.0	3	0	0	0	0	0	1	0	0	0	12	11
10.1- 11.0	7	0	0	0	0	0	0	0	0	0	15	18
11.1- 12.0	22	1	0	0	0	0	0	0	0	1	21	52
12.1- 13.0	16	4	0	0	0	0	0	0	0	0	22	86
13.1- 14.0	10	3	0	0	0	0	0	0	0	0	11	56
14.1- 15.0	11	3	0	0	0	0	0	0	0	0	6	38
15.1- 16.0	4	2	0	0	0	0	0	0	0	0	4	24
16.1- 17.0	4	3	0	0	0	0	0	0	0	0	1	14
17.1- 18.0	4	0	0	0	0	0	0	0	0	0	0	15
18.1- 19.0	2	3	0	0	0	0	0	0	0	0	0	26
19.1- 20.0	3	5	0	0	0	0	0	0	0	0	1	20
20.1- 21.0	3	4	0	0	0	0	0	0	0	0	0	26
21.1- 22.0	2	4	0	0	0	0	0	0	0	0	0	24
22.1- 23.0	3	4	1	0	0	0	0	0	0	0	0	20
23.1- 24.0	2	8	0	0	0	0	0	0	0	0	0	8
24.1- 25.0	2	5	0	0	0	0	0	0	0	0	2	7
25.1- 26.0	3	4	0	0	0	0	0	0	0	0	0	5
26.1- 27.0	2	3	0	0	0	0	0	0	0	0	0	0
27.1- 28.0	2	1	0	0	0	0	0	0	0	0	0	0
28.1- 29.0	0	0	0	0	0	0	0	0	0	0	0	0
29.1- 30.0	0	0	0	0	0	0	0	0	0	0	0	1
30.1- 31.0	0	0	0	0	0	0	0	0	0	0	1	0
31.1- 32.0	0	0	0	0	0	0	0	0	0	0	0	1
32.1- 33.0	1	0	0	0	0	0	0	0	0	0	0	1
33.1- 34.0	0	0	0	0	0	0	0	0	0	0	0	1
34.1- 35.0	1	0	0	0	0	0	0	0	0	0	0	0
35.1- 36.0	0	0	0	0	0	0	0	0	0	0	0	0
36.1- 37.0	0	0	0	0	0	0	0	0	0	0	0	2
37.1- 38.0	0	0	0	0	0	0	0	0	0	0	1	0
38.1- 39.0	0	0	0	0	0	0	0	0	0	0	1	1
39.1- 40.0	0	0	0	0	0	0	0	1	0	0	0	1
40.1- 41.0	0	0	0	0	0	0	0	0	0	0	0	5
41.1- 42.0	0	0	0	0	0	0	0	0	0	0	0	3
42.1- 43.0	0	0	0	0	0	0	0	0	0	0	0	5
43.1- 44.0	0	0	0	0	0	0	0	0	0	0	1	9
44.1- 45.0	0	0	0	0	0	0	0	0	0	0	0	7
45.1- 46.0	0	0	0	0	0	0	0	0	0	0	0	5
46.1- 47.0	0	0	0	0	0	0	0	0	0	0	0	8
47.1- 48.0	0	0	0	0	0	0	0	0	0	0	1	3
48.1- 49.0	0	1	0	0	0	0	0	0	0	0	0	5
49.1- 50.0	0	0	0	0	0	0	0	0	0	0	0	2
50.1- 51.0	0	0	0	0	0	0	0	0	0	0	0	1
TOTAL ANAL.	107	58	1	0	0	0	167	8	0	1	137	526
MEAN LENGTH	15.6	20.9	22.7	0	0	0	6.4	11.6	0	11.8	12.2	18.6
MIN. LENGTH	9.5	12.0	22.7	0	0	0	5.2	6.6	0	11.8	6.3	7.7
MAX. LENGTH	35.0	48.9	22.7	0	0	0	9.2	39.2	0	11.8	48.0	50.3

TABLE B-1.8. LENGTH-FREQUENCY OF PUMPKINSEED, ROSETON GENERATING STATION, 1995.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2.1 - 3.0	0	0	0	0	0	0	0	0	0	4	0	0
3.1 - 4.0	0	0	0	1	0	0	0	1	1	5	0	0
4.1 - 5.0	1	1	2	0	2	1	0	0	1	30	20	3
5.1 - 6.0	13	3	4	4	1	0	0	0	6	30	40	11
6.1 - 7.0	11	10	1	5	3	4	0	3	5	32	36	26
7.1 - 8.0	12	2	1	4	3	7	1	0	3	20	26	28
8.1 - 9.0	1	0	1	1	0	1	1	0	0	5	6	7
9.1 - 10.0	1	0	1	0	0	2	1	0	0	0	0	1
10.1- 11.0	0	1	1	1	3	1	2	2	0	0	0	3
11.1- 12.0	6	5	2	1	22	7	1	3	0	1	1	12
12.1- 13.0	9	7	4	5	18	6	2	0	1	0	0	21
13.1- 14.0	1	4	2	2	10	0	0	0	0	0	1	10
14.1- 15.0	0	1	0	0	3	2	0	0	0	1	2	10
15.1- 16.0	2	1	2	3	1	2	0	0	0	1	1	9
16.1- 17.0	4	2	0	2	0	0	0	0	0	0	0	1
17.1- 18.0	1	3	3	0	0	1	1	0	0	0	0	1
18.1- 19.0	0	1	0	0	0	0	0	0	0	0	0	1
19.1- 20.0	0	1	0	0	0	0	0	0	0	0	0	0
20.1- 21.0	1	0	0	0	0	0	0	0	0	0	0	0
TOTAL ANAL.	63	42	24	29	66	34	9	9	17	129	133	144
MEAN LENGTH	9.3	11.0	10.7	10.0	11.6	10.5	11.1	8.5	6.5	6.0	6.5	9.9
MIN. LENGTH	4.9	4.7	4.4	3.8	4.4	4.7	7.4	4.0	3.9	2.6	4.1	4.8
MAX. LENGTH	20.9	19.4	18.0	16.9	15.9	17.2	17.1	11.6	12.7	15.1	15.9	18.1

TABLE B-1.9. LENGTH-FREQUENCY OF SPOTTAIL SHINER, ROSETON GENERATING STATION, 1995.

INTERVAL (CM)		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2.1 - 3.0		0	0	0	0	0	0	4	0	0	0	0	0
3.1 - 4.0		0	0	0	0	0	0	63	6	0	0	1	0
4.1 - 5.0		0	0	1	0	1	0	31	41	0	2	0	3
5.1 - 6.0		3	5	13	3	0	0	0	13	2	4	26	21
6.1 - 7.0		16	28	46	19	6	9	2	0	0	8	70	38
7.1 - 8.0		39	30	60	22	15	27	3	1	0	1	35	23
8.1 - 9.0		17	20	29	11	18	22	43	4	0	0	11	14
9.1 - 10.0		4	7	8	2	12	14	20	8	0	0	16	14
10.1- 11.0		11	14	29	1	11	14	4	4	0	0	12	26
11.1- 12.0		5	12	33	4	5	9	2	0	0	0	6	7
12.1- 13.0		0	1	5	1	0	1	0	0	0	0	0	2
13.1- 14.0		0	0	1	0	0	0	0	0	0	0	0	0
	TOTAL ANAL.	95	117	225	63	68	96	172	77	2	15	177	148
	MEAN LENGTH	8.1	8.4	8.6	7.7	8.8	8.9	6.1	5.7	6.0	6.0	7.4	8.0
	MIN. LENGTH	5.1	5.3	4.8	5.5	4.6	6.2	2.8	3.5	5.9	4.4	4.0	4.5
	MAX. LENGTH	11.5	12.6	13.3	12.3	11.5	12.3	11.7	10.9	6.0	7.6	11.7	12.5

TABLE B-1.10. LENGTH-FREQUENCY OF STRIPED BASS, ROSETON GENERATING STATION, 1995.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1.1 - 2.0	0	0	0	0	0	0	1	0	0	0	0	0
2.1 - 3.0	0	0	0	0	0	43	75	18	0	0	0	0
3.1 - 4.0	0	0	0	0	0	7	160	61	0	0	0	0
4.1 - 5.0	0	0	0	0	0	0	79	65	3	11	0	0
5.1 - 6.0	0	0	0	0	0	0	19	49	3	24	3	0
6.1 - 7.0	1	0	0	1	2	0	9	34	0	19	5	0
7.1 - 8.0	16	1	0	1	16	4	2	20	4	13	11	5
8.1 - 9.0	5	2	1	3	9	6	3	4	1	4	11	3
9.1 - 10.0	1	1	0	0	5	3	3	0	0	1	0	0
10.1- 11.0	0	0	0	0	1	0	2	1	0	1	0	0
11.1- 12.0	0	0	0	0	0	0	0	2	1	0	0	0
12.1- 13.0	0	0	0	0	1	0	0	1	1	0	0	0
13.1- 14.0	0	0	0	0	0	1	1	2	0	0	1	0
14.1- 15.0	0	0	1	0	0	0	1	1	0	0	1	0
15.1- 16.0	0	0	0	0	0	0	1	0	0	0	0	0
16.1- 17.0	0	0	0	0	0	0	0	1	0	0	0	0
17.1- 18.0	0	0	0	0	0	0	1	0	0	0	1	0
18.1- 19.0	0	0	0	0	0	0	0	0	0	0	0	0
19.1- 20.0	0	0	0	0	0	0	0	0	0	0	0	0
20.1- 21.0	0	0	0	0	0	0	0	0	0	0	0	0
21.1- 22.0	0	0	0	0	0	0	0	0	0	0	0	0
22.1- 23.0	0	0	0	0	0	0	1	0	0	0	0	0
23.1- 24.0	0	0	0	0	0	0	0	0	0	0	0	0
24.1- 25.0	0	0	0	0	0	0	0	0	0	0	0	0
25.1- 26.0	0	0	0	0	0	0	0	0	0	0	0	0
26.1- 27.0	0	0	0	0	0	0	0	1	0	0	0	0
TOTAL ANAL.	23	4	2	5	34	64	358	260	13	73	33	8
MEAN LENGTH	7.8	8.7	11.3	7.9	8.3	4.0	4.1	5.3	7.2	6.3	8.2	8.2
MIN. LENGTH	6.4	7.1	8.2	6.6	6.4	2.1	2.0	2.2	4.3	4.3	5.5	7.7
MAX. LENGTH	9.4	10.0	14.3	8.6	12.2	13.2	22.7	26.8	12.5	10.3	18.0	8.7

TABLE B-1.11. LENGTH-FREQUENCY OF WHITE PERCH, ROSETON GENERATING STATION, 1995.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2.1 - 3.0	0	0	0	0	0	0	54	4	0	0	0	0
3.1 - 4.0	0	0	0	0	0	0	172	20	0	0	0	0
4.1 - 5.0	0	0	0	0	2	0	51	86	3	5	0	0
5.1 - 6.0	0	2	0	3	24	8	2	132	22	22	15	8
6.1 - 7.0	3	2	4	9	57	54	0	90	20	85	62	28
7.1 - 8.0	4	12	20	23	98	88	16	19	1	62	147	41
8.1 - 9.0	1	3	18	19	67	58	63	1	0	11	77	12
9.1 - 10.0	1	2	1	1	3	3	50	11	0	2	10	1
10.1- 11.0	0	0	1	0	0	1	19	27	0	1	4	3
11.1- 12.0	0	0	2	0	4	1	3	6	0	0	30	6
12.1- 13.0	0	0	2	2	4	5	6	0	0	1	14	3
13.1- 14.0	0	2	1	0	5	8	14	3	0	0	8	3
14.1- 15.0	0	0	1	1	4	16	18	2	0	1	8	0
15.1- 16.0	0	2	2	2	4	8	6	5	0	3	7	2
16.1- 17.0	0	2	1	1	2	11	1	3	0	0	5	3
17.1- 18.0	0	0	0	0	0	4	2	3	2	0	1	0
18.1- 19.0	0	0	0	0	1	3	3	2	0	1	0	1
19.1- 20.0	0	0	0	1	0	0	2	1	0	0	0	1
20.1- 21.0	0	0	0	0	0	0	1	0	0	0	0	0
21.1- 22.0	0	0	0	0	0	0	0	0	0	0	1	0
22.1- 23.0	0	0	0	0	0	0	0	1	0	0	0	0
23.1- 24.0	0	0	0	0	0	0	0	0	0	0	0	0
24.1- 25.0	0	1	0	0	0	0	0	0	0	0	0	0
TOTAL ANAL.	9	28	53	62	275	268	483	416	48	194	389	112
MEAN LENGTH	7.4	9.8	9.0	8.5	8.0	9.1	6.5	6.6	6.4	7.2	8.7	8.4
MIN. LENGTH	6.2	5.6	6.2	5.1	4.7	5.4	2.2	2.8	4.1	4.1	5.2	5.1
MAX. LENGTH	10.0	24.3	16.5	19.7	18.4	18.4	20.4	22.2	17.5	18.1	21.4	19.5

TABLE B-1.12. FREQUENCY DISTRIBUTION OF CARAPACE WIDTH FOR BLUE CRAB, ROSETON GENERATING STATION, 1995.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0.1 - 1.0	0	0	0	0	0	0	0	0	0	19	0	0
1.1 - 2.0	0	0	0	0	1	4	0	10	31	52	8	0
2.1 - 3.0	0	1	0	0	5	4	0	0	25	74	25	0
3.1 - 4.0	0	0	0	0	22	15	0	0	11	32	12	0
4.1 - 5.0	0	0	0	0	37	34	5	0	1	27	15	0
5.1 - 6.0	0	0	0	0	49	73	10	11	1	4	2	0
6.1 - 7.0	0	0	0	0	51	102	48	20	2	0	3	0
7.1 - 8.0	0	0	0	0	32	99	60	39	6	3	0	0
8.1 - 9.0	0	0	0	0	4	44	81	51	8	8	2	0
9.1 - 10.0	0	0	0	0	0	20	74	49	15	14	3	0
10.1- 11.0	0	0	0	0	0	8	62	71	12	6	5	0
11.1- 12.0	0	0	0	0	0	0	32	69	8	8	3	0
12.1- 13.0	0	0	0	0	0	1	16	50	16	10	4	0
13.1- 14.0	0	0	0	0	0	0	9	33	13	6	0	0
14.1- 15.0	0	0	0	0	0	0	1	26	13	9	1	0
15.1- 16.0	0	0	0	0	0	0	1	17	11	12	2	0
16.1- 17.0	0	0	0	0	0	0	1	5	8	5	1	0
17.1- 18.0	0	0	0	0	0	0	0	3	2	0	1	0
18.1- 19.0	0	0	0	0	0	0	0	0	1	0	0	0
TOTAL ANAL.	0	1	0	0	201	404	400	454	184	289	87	0
MEAN LENGTH	0	2.6	0	0	5.7	6.7	9.1	10.6	8.6	5.3	5.5	0
MIN. LENGTH	0	2.6	0	0	2.0	1.4	4.1	1.3	1.2	0.8	1.4	0
MAX. LENGTH	0	2.6	0	0	9.0	12.6	16.5	17.9	18.4	16.9	17.6	0

TABLE B-2.1. LENGTH-FREQUENCY OF ALEWIFE, DANSKAMMER POINT GENERATING STATION, 1995.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
4.1 - 5.0	0	0	0	0	0	0	3	0	0	0	0	0
5.1 - 6.0	0	0	0	0	0	0	13	9	0	0	0	0
6.1 - 7.0	0	0	0	0	0	0	73	49	18	7	3	0
7.1 - 8.0	0	0	0	0	0	0	12	109	101	94	17	0
8.1 - 9.0	0	0	0	0	0	0	7	63	41	99	15	0
9.1 - 10.0	0	0	4	0	1	0	1	22	10	52	4	0
10.1- 11.0	0	0	3	0	0	1	0	4	9	22	0	0
11.1- 12.0	0	0	15	0	1	0	2	1	3	4	0	0
12.1- 13.0	0	0	0	1	0	5	3	1	0	0	0	0
13.1- 14.0	0	0	0	0	0	3	19	14	1	3	0	0
14.1- 15.0	0	0	0	0	0	0	49	61	18	9	0	0
15.1- 16.0	0	0	0	0	0	0	27	66	39	44	0	0
16.1- 17.0	0	0	0	0	0	0	5	23	20	45	0	0
17.1- 18.0	0	0	0	0	0	0	1	0	4	19	2	0
18.1- 19.0	0	0	0	0	0	0	0	0	1	7	1	0
19.1- 20.0	0	0	0	0	0	0	0	0	0	1	0	0
20.1- 21.0	0	0	0	0	0	0	0	0	0	0	0	0
21.1- 22.0	0	0	0	0	0	0	0	0	0	0	0	0
22.1- 23.0	0	0	0	0	0	0	0	1	1	0	0	0
23.1- 24.0	0	0	0	0	0	0	0	2	0	0	0	0
24.1- 25.0	0	0	0	0	1	1	0	0	4	0	0	0
25.1- 26.0	0	0	0	0	0	1	2	3	4	2	0	0
26.1- 27.0	0	0	0	0	1	1	4	18	8	4	0	0
27.1- 28.0	0	0	1	0	1	1	2	4	2	9	0	0
28.1- 29.0	0	0	0	0	2	0	3	3	4	5	0	0
29.1- 30.0	0	0	0	0	0	0	2	2	2	3	0	0
TOTAL ANAL.	0	0	23	1	7	13	228	455	290	429	42	0
MEAN LENGTH	0	0	11.6	12.1	22.4	17.0	11.6	11.8	11.8	11.9	8.8	0
MIN. LENGTH	0	0	9.2	12.1	9.4	10.9	4.3	5.7	6.2	6.3	6.5	0
MAX. LENGTH	0	0	27.3	12.1	28.3	27.7	29.8	29.5	29.7	29.8	18.2	0

TABLE B-2.2. LENGTH-FREQUENCY OF ATLANTIC TOMCOD, DANSKAMMER POINT GENERATING STATION, 1995.

INTERVAL (CM)		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
3.1 - 4.0		0	0	0	0	0	1	0	0	0	0	0	0
4.1 - 5.0		0	0	0	0	1	4	0	0	0	0	0	0
5.1 - 6.0		0	0	0	0	0	13	7	0	0	0	0	0
6.1 - 7.0		0	0	0	0	0	59	42	0	0	0	0	0
7.1 - 8.0		0	0	0	0	0	42	54	2	0	0	0	0
8.1 - 9.0		0	0	0	0	0	4	29	1	1	0	0	0
9.1 - 10.0		0	0	0	0	0	0	9	0	0	0	0	0
10.1- 11.0		0	0	0	0	0	0	2	0	0	0	0	0
11.1- 12.0		0	0	0	0	0	0	0	0	0	0	0	0
12.1- 13.0		1	0	0	0	0	0	0	0	0	0	0	0
13.1- 14.0		0	3	0	0	0	0	1	0	0	0	0	0
14.1- 15.0		6	2	0	0	0	0	0	0	0	0	1	0
15.1- 16.0		3	2	0	0	0	0	0	0	0	0	0	0
16.1- 17.0		3	1	0	0	0	0	1	0	0	0	0	1
17.1- 18.0		1	3	0	0	0	0	1	0	0	0	0	1
18.1- 19.0		0	0	0	0	0	0	0	0	0	0	0	0
19.1- 20.0		1	1	0	0	0	0	1	0	0	0	0	0
20.1- 21.0		0	0	0	0	0	0	0	0	0	0	0	1
21.1- 22.0		1	0	0	0	0	0	0	0	0	0	0	0
22.1- 23.0		1	0	0	0	0	0	0	0	0	0	0	0
	TOTAL ANAL.	17	12	0	0	1	123	147	3	1	0	1	3
	MEAN LENGTH	16.4	15.8	0	0	4.4	6.8	7.8	7.7	8.9	0	14.5	18.5
	MIN. LENGTH	13.0	13.3	0	0	4.4	3.8	5.1	7.2	8.9	0	14.5	17.0
	MAX. LENGTH	23.0	19.2	0	0	4.4	8.8	19.1	8.5	8.9	0	14.5	21.0

TABLE B-2.3. LENGTH-FREQUENCY OF BAY ANCHOVY, DANSKAMMER POINT GENERATING STATION, 1995.

INTERVAL (CM)		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2.1 - 3.0		0	0	0	0	0	0	4	60	27	1	0	0
3.1 - 4.0		0	0	0	0	0	0	10	153	141	19	0	0
4.1 - 5.0		0	0	0	0	0	0	0	64	109	52	0	0
5.1 - 6.0		0	0	0	0	0	0	0	13	20	19	0	0
6.1 - 7.0		0	0	0	0	0	0	0	0	17	28	0	0
7.1 - 8.0		0	0	0	0	0	0	25	11	24	62	0	0
8.1 - 9.0		0	0	0	0	0	0	51	23	78	42	0	0
9.1 - 10.0		0	0	0	0	0	0	6	1	8	15	0	0
10.1- 11.0		0	0	0	0	0	0	0	0	4	0	0	0
	TOTAL ANAL.	0	0	0	0	0	0	96	325	428	238	0	0
	MEAN LENGTH	0	0	0	0	0	0	7.5	4.2	5.3	6.6	0	0
	MIN. LENGTH	0	0	0	0	0	0	2.8	2.5	2.2	2.5	0	0
	MAX. LENGTH	0	0	0	0	0	0	9.7	9.2	10.3	9.7	0	0

TABLE B-2.4. LENGTH-FREQUENCY OF BLUEBACK HERRING, DANSKAMMER POINT GENERATING STATION, 1995.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
3.1 - 4.0	0	0	0	0	0	0	10	9	0	0	0	0
4.1 - 5.0	0	0	0	0	0	0	13	10	10	0	0	0
5.1 - 6.0	0	0	0	0	0	0	4	2	21	37	13	0
6.1 - 7.0	0	0	0	0	0	0	1	9	7	53	48	0
7.1 - 8.0	0	0	1	1	0	0	0	3	4	119	55	0
8.1 - 9.0	0	0	0	0	1	0	0	0	0	12	11	0
9.1 - 10.0	0	0	1	0	0	1	0	0	0	1	0	0
10.1- 11.0	0	0	0	0	0	1	0	1	0	1	0	0
11.1- 12.0	0	0	0	0	0	0	0	0	0	1	0	0
12.1- 13.0	0	0	0	0	0	2	0	0	1	0	0	0
13.1- 14.0	0	0	0	0	0	4	2	1	1	4	0	0
14.1- 15.0	0	0	0	0	0	0	1	3	2	8	0	0
15.1- 16.0	0	0	0	0	0	0	1	0	1	1	0	0
16.1- 17.0	0	0	0	0	0	0	0	0	0	0	0	0
17.1- 18.0	0	0	0	0	0	0	0	0	0	0	0	0
18.1- 19.0	0	0	0	0	0	0	0	0	0	0	0	0
19.1- 20.0	0	0	0	0	0	0	0	0	0	0	0	0
20.1- 21.0	0	0	0	0	0	0	0	0	0	0	0	0
21.1- 22.0	0	0	0	0	0	0	0	0	0	0	0	0
22.1- 23.0	0	0	0	0	0	3	2	0	0	0	0	0
23.1- 24.0	0	0	0	0	0	3	1	0	0	0	0	0
24.1- 25.0	0	0	0	0	1	14	0	2	0	0	0	0
25.1- 26.0	0	0	0	0	0	21	2	2	0	0	0	0
26.1- 27.0	0	0	0	0	0	20	0	0	0	1	0	0
27.1- 28.0	0	0	0	0	0	9	0	0	0	0	0	0
28.1- 29.0	0	0	0	0	0	2	0	2	0	0	0	0
29.1- 30.0	0	0	0	0	0	2	0	0	0	0	0	0
TOTAL ANAL.	0	0	2	1	2	82	37	44	47	238	127	0
MEAN LENGTH	0	0	8.5	7.3	16.6	24.5	8.1	9.0	6.5	7.6	7.1	0
MIN. LENGTH	0	0	7.8	7.3	8.8	9.1	3.1	3.5	4.1	5.3	5.5	0
MAX. LENGTH	0	0	9.2	7.3	24.4	29.9	25.5	28.5	15.8	26.3	8.9	0

TABLE B-2.5. LENGTH-FREQUENCY OF GIZZARD SHAD, DANSKAMMER POINT GENERATING STATION, 1995.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
5.1 - 6.0	0	0	0	0	0	0	24	0	0	0	0	0
6.1 - 7.0	0	0	0	0	0	0	80	0	0	1	5	0
7.1 - 8.0	0	0	0	0	0	0	16	3	0	2	15	2
8.1 - 9.0	2	0	0	0	0	0	1	7	0	5	52	16
9.1 - 10.0	5	0	0	0	0	0	1	9	0	4	56	15
10.1- 11.0	13	1	0	0	0	0	0	3	0	6	102	23
11.1- 12.0	33	13	0	0	0	0	0	2	0	13	171	73
12.1- 13.0	61	16	1	0	0	0	0	0	2	1	140	114
13.1- 14.0	34	11	0	0	0	0	0	1	0	2	87	91
14.1- 15.0	22	10	0	0	0	0	0	0	1	3	36	40
15.1- 16.0	5	9	0	0	0	0	0	0	0	0	11	26
16.1- 17.0	6	3	0	0	0	0	0	0	0	0	8	24
17.1- 18.0	5	6	0	0	0	0	0	0	0	0	12	26
18.1- 19.0	5	7	0	0	0	0	0	0	0	0	9	25
19.1- 20.0	12	11	0	0	0	0	0	0	0	0	15	32
20.1- 21.0	9	14	0	0	0	0	0	0	0	0	6	39
21.1- 22.0	9	18	1	0	0	0	0	0	0	0	11	42
22.1- 23.0	3	22	1	0	0	0	0	0	0	0	7	28
23.1- 24.0	12	11	0	0	0	0	0	0	0	0	8	24
24.1- 25.0	12	14	1	0	0	0	0	0	0	0	3	5
25.1- 26.0	14	7	3	0	0	0	0	0	0	0	2	2
26.1- 27.0	12	7	0	0	0	0	0	0	0	0	0	0
27.1- 28.0	2	2	0	0	0	0	0	0	0	0	0	0
28.1- 29.0	0	2	0	0	0	0	0	0	0	0	0	0
29.1- 30.0	0	2	0	0	0	0	0	0	0	0	0	0
30.1- 31.0	0	0	0	0	0	0	0	0	0	0	0	0
31.1- 32.0	0	0	0	0	0	0	0	0	0	0	0	0
32.1- 33.0	0	0	0	0	0	0	0	0	0	0	2	1
33.1- 34.0	0	1	0	0	0	0	0	0	0	0	0	0
34.1- 35.0	1	0	0	0	0	0	0	0	0	0	0	2
35.1- 36.0	0	1	0	0	0	0	0	0	0	0	1	1
36.1- 37.0	0	1	1	0	0	0	0	0	0	0	0	3
37.1- 38.0	0	0	0	0	0	0	0	0	0	0	0	3
38.1- 39.0	0	1	0	0	0	0	0	0	0	0	1	7
39.1- 40.0	0	0	1	0	0	0	0	0	0	0	1	7
40.1- 41.0	0	2	0	0	0	0	0	0	0	0	0	4
41.1- 42.0	1	2	0	0	0	0	0	0	0	0	0	13
42.1- 43.0	0	0	1	0	0	0	0	0	0	0	3	17
43.1- 44.0	1	1	1	0	0	0	0	0	0	0	3	33
44.1- 45.0	1	9	1	0	0	1	0	0	0	0	5	26
45.1- 46.0	2	7	0	0	0	0	0	0	0	0	5	19
46.1- 47.0	1	8	2	0	0	0	0	0	0	0	4	31
47.1- 48.0	0	6	2	0	0	0	0	0	0	0	2	28
48.1- 49.0	0	5	2	0	0	0	0	0	0	0	5	23
49.1- 50.0	0	2	1	0	0	0	0	0	0	0	2	22
50.1- 51.0	0	2	1	0	0	0	0	0	0	0	3	9
51.1- 52.0	0	2	0	0	0	0	0	0	0	0	0	4
52.1- 53.0	0	0	1	0	0	0	0	0	0	0	0	1
53.1- 54.0	0	0	0	0	0	0	0	0	0	0	2	1
54.1- 55.0	0	1	0	0	0	0	0	0	0	0	0	1
55.1- 56.0	0	0	0	0	0	0	0	0	0	0	0	0
56.1- 57.0	0	1	0	0	0	0	0	0	0	0	0	0
TOTAL ANAL.	283	238	21	0	0	1	122	25	3	37	795	903
MEAN LENGTH	16.9	25.2	38.2	0	0	44.1	6.5	9.5	13.4	10.8	14.1	24.0
MIN. LENGTH	8.3	10.8	12.6	0	0	44.1	5.2	7.3	13.0	6.5	6.7	7.6
MAX. LENGTH	46.3	56.2	52.3	0	0	44.1	9.2	13.5	14.2	14.8	53.6	54.3

TABLE B-2.6. LENGTH-FREQUENCY OF GOLDEN SHINER, DANSKAMMER POINT GENERATING STATION, 1995.

INTERVAL (CM)		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
6.1 - 7.0		2	3	1	0	0	0	0	0	0	0	0	1
7.1 - 8.0		14	12	5	2	0	0	0	0	0	2	1	10
8.1 - 9.0		15	9	13	1	0	0	0	0	0	1	7	7
9.1 - 10.0		7	4	9	0	0	0	0	0	0	0	3	1
10.1- 11.0		3	1	2	0	0	0	1	0	0	0	0	2
11.1- 12.0		1	3	2	0	0	0	0	0	0	0	0	2
12.1- 13.0		8	6	6	0	0	1	0	0	0	0	0	2
13.1- 14.0		18	15	20	1	1	2	0	0	0	0	5	7
14.1- 15.0		21	26	41	1	0	0	0	0	0	0	1	11
15.1- 16.0		22	32	27	3	0	0	0	1	0	0	3	14
16.1- 17.0		12	18	22	1	0	0	0	0	0	0	2	11
17.1- 18.0		6	10	25	1	0	1	0	0	0	0	4	17
18.1- 19.0		8	15	17	0	0	0	0	0	1	0	6	18
19.1- 20.0		7	7	15	0	0	1	0	0	1	0	3	12
20.1- 21.0		2	9	10	0	0	0	0	0	0	0	0	8
21.1- 22.0		3	5	7	0	0	0	0	0	0	0	2	8
22.1- 23.0		0	1	3	0	0	0	0	0	0	0	0	4
23.1- 24.0		0	0	0	0	0	0	0	0	0	0	0	0
24.1- 25.0		1	1	0	0	0	0	0	0	0	0	0	0
25.1- 26.0		0	1	0	0	0	0	0	0	0	0	0	0
	TOTAL ANAL.	150	178	225	10	1	5	1	1	2	3	37	135
	MEAN LENGTH	13.8	15.1	15.5	13.3	13.1	15.3	10.9	15.2	19.0	8.0	14.6	16.1
	MIN. LENGTH	6.5	6.4	6.1	7.1	13.1	12.7	10.9	15.2	18.8	7.5	7.8	6.6
	MAX. LENGTH	24.4	25.5	22.7	18.0	13.1	19.5	10.9	15.2	19.1	8.9	21.7	22.6

TABLE B-2.7. LENGTH-FREQUENCY OF PUMPKINSEED, DANSKAMMER POINT GENERATING STATION, 1995.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
4.1 - 5.0	1	3	3	1	0	0	0	0	1	10	13	1
5.1 - 6.0	4	3	7	1	0	0	0	2	6	37	70	5
6.1 - 7.0	8	2	16	5	3	2	0	3	17	81	84	21
7.1 - 8.0	8	4	7	6	10	7	0	0	4	65	61	17
8.1 - 9.0	3	0	0	2	8	14	4	0	3	17	19	13
9.1 - 10.0	0	0	0	1	6	7	9	3	0	2	1	1
10.1- 11.0	1	0	0	3	12	18	6	7	2	3	3	3
11.1- 12.0	3	1	1	10	38	40	6	9	2	13	11	7
12.1- 13.0	0	1	4	13	34	33	5	5	6	13	7	7
13.1- 14.0	2	3	0	8	9	13	3	3	6	5	4	6
14.1- 15.0	3	3	1	9	0	4	1	5	7	15	4	3
15.1- 16.0	2	4	4	5	1	1	2	0	2	7	1	5
16.1- 17.0	2	3	4	3	1	4	1	0	1	2	2	3
17.1- 18.0	1	1	4	0	0	0	0	0	1	0	0	1
18.1- 19.0	0	0	1	0	0	0	0	0	0	0	0	0
19.1- 20.0	0	0	0	0	1	0	0	0	0	0	0	1
TOTAL ANAL.	38	28	52	67	123	143	37	37	58	270	280	94
MEAN LENGTH	9.6	11.1	9.7	11.9	11.3	11.4	11.3	11.1	9.9	8.2	7.3	9.7
MIN. LENGTH	4.8	4.5	4.9	5.0	6.5	6.6	8.1	5.1	4.8	4.1	4.1	4.6
MAX. LENGTH	17.5	17.4	18.1	16.9	19.1	16.7	17.0	14.7	17.5	17.0	16.5	19.6

TABLE B-2.8. LENGTH-FREQUENCY OF SPOTTAIL SHINER, DANSKAMMER POINT GENERATING STATION, 1995.

INTERVAL (CM)		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
3.1 - 4.0		0	0	0	0	0	0	1	0	0	0	0	0
4.1 - 5.0		0	0	0	0	0	0	0	0	1	0	0	0
5.1 - 6.0		3	2	3	1	0	0	0	1	2	3	18	11
6.1 - 7.0		16	9	20	22	1	2	0	0	4	11	44	42
7.1 - 8.0		41	30	94	85	3	37	5	0	1	12	63	28
8.1 - 9.0		30	48	131	63	6	79	47	11	11	5	43	11
9.1 - 10.0		16	15	50	18	1	15	40	29	46	16	42	32
10.1- 11.0		28	31	113	20	2	14	10	26	20	15	96	57
11.1- 12.0		18	44	134	31	4	26	9	4	5	5	13	24
12.1- 13.0		5	5	11	3	0	2	1	0	1	1	3	2
13.1- 14.0		1	1	1	0	0	1	0	0	0	0	0	0
	TOTAL ANAL.	158	185	557	243	17	176	113	71	91	68	322	207
	MEAN LENGTH	9.0	9.5	9.6	8.7	9.2	9.1	9.2	9.8	9.5	8.9	8.8	8.9
	MIN. LENGTH	5.3	5.4	5.6	5.5	7.0	6.7	3.7	5.4	4.7	5.7	5.2	5.3
	MAX. LENGTH	13.7	13.1	13.2	12.4	11.9	13.1	12.1	12.0	12.2	12.4	12.6	12.5

TABLE B-2.9. LENGTH-FREQUENCY OF STRIPED BASS, DANSKAMMER POINT GENERATING STATION, 1995.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1.1 - 2.0	0	0	0	0	0	1	5	0	0	0	0	0
2.1 - 3.0	0	0	0	0	0	3	17	2	0	0	0	0
3.1 - 4.0	0	0	0	0	0	1	9	4	0	0	0	0
4.1 - 5.0	0	0	0	0	0	0	13	15	3	2	0	0
5.1 - 6.0	0	0	1	0	0	0	30	40	23	16	2	0
6.1 - 7.0	12	0	0	2	5	0	8	104	62	71	14	0
7.1 - 8.0	35	4	1	17	20	20	4	134	99	97	23	2
8.1 - 9.0	20	7	1	5	12	15	5	92	82	56	17	4
9.1 - 10.0	3	1	0	11	4	14	22	30	42	41	8	1
10.1- 11.0	1	0	0	4	2	12	21	18	15	16	6	0
11.1- 12.0	1	0	0	1	1	5	24	46	15	14	9	1
12.1- 13.0	0	0	0	0	0	6	10	39	19	7	2	0
13.1- 14.0	0	0	0	0	0	6	8	18	22	11	6	0
14.1- 15.0	0	0	0	0	0	2	9	14	14	12	9	0
15.1- 16.0	0	0	0	0	0	5	2	5	8	6	5	0
16.1- 17.0	0	0	1	0	0	2	3	4	4	2	5	0
17.1- 18.0	0	0	0	0	0	0	0	4	3	0	9	2
18.1- 19.0	0	0	0	0	0	2	0	1	0	2	6	0
19.1- 20.0	0	0	0	0	0	0	0	0	0	4	2	1
20.1- 21.0	0	0	0	0	0	0	0	2	0	0	1	0
21.1- 22.0	0	0	0	0	0	0	0	1	0	1	1	1
22.1- 23.0	0	0	0	0	0	0	0	0	0	0	2	1
23.1- 24.0	0	0	0	0	0	0	2	0	0	1	2	0
24.1- 25.0	0	0	0	0	0	0	0	0	0	0	0	0
25.1- 26.0	0	0	0	0	0	0	0	0	0	0	2	0
26.1- 27.0	0	0	0	0	0	0	0	0	0	0	1	0
27.1- 28.0	0	0	0	0	0	0	0	0	0	1	0	0
28.1- 29.0	0	0	0	0	0	0	0	0	1	0	1	0
29.1- 30.0	0	0	0	0	0	0	1	0	0	0	0	0
30.1- 31.0	0	0	0	0	0	0	0	1	0	0	1	2
31.1- 32.0	0	0	0	0	0	0	0	0	0	0	0	0
32.1- 33.0	0	0	0	0	0	0	0	0	0	0	0	0
33.1- 34.0	0	0	0	0	0	0	0	1	0	0	0	0
34.1- 35.0	0	0	0	0	0	0	0	0	0	0	0	0
35.1- 36.0	0	0	0	0	0	0	0	0	0	0	0	0
36.1- 37.0	0	0	0	0	0	0	0	0	0	0	2	0
37.1- 38.0	0	0	0	0	0	0	0	0	0	0	1	0
38.1- 39.0	0	0	0	0	0	0	0	0	0	0	0	0
39.1- 40.0	0	0	0	0	0	0	0	0	0	0	0	0
40.1- 41.0	0	0	0	0	0	0	0	0	0	0	0	0
41.1- 42.0	0	0	0	0	0	0	0	0	0	0	0	1
42.1- 43.0	0	0	0	0	0	0	0	0	0	0	0	0
43.1- 44.0	0	0	0	0	0	0	0	0	0	0	1	0
TOTAL ANAL.	72	12	4	40	44	94	193	575	412	360	138	16
MEAN LENGTH	7.9	8.4	10.0	8.5	8.1	10.1	8.6	8.8	9.1	9.0	13.1	17.0
MIN. LENGTH	6.4	7.4	6.0	6.5	6.7	2.0	1.8	2.7	4.6	4.3	5.9	7.2
MAX. LENGTH	11.4	9.9	17.0	11.5	11.7	18.9	29.1	33.9	28.9	27.6	43.2	41.8

TABLE B-2.10. LENGTH-FREQUENCY OF WEAKFISH, DANSKAMMER POINT GENERATING STATION, 1995.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
4.1 - 5.0	0	0	0	0	0	0	0	1	0	0	0	0
5.1 - 6.0	0	0	0	0	0	0	0	1	0	0	0	0
6.1 - 7.0	0	0	0	0	0	0	0	20	2	0	0	0
7.1 - 8.0	0	0	0	0	0	0	0	34	2	1	0	0
8.1 - 9.0	0	0	0	0	0	0	0	26	9	0	0	0
9.1 - 10.0	0	0	0	0	0	0	0	18	29	0	0	0
10.1- 11.0	0	0	0	0	0	0	0	19	34	7	0	0
11.1- 12.0	0	0	0	0	0	0	0	15	43	7	0	0
12.1- 13.0	0	0	0	0	0	0	0	2	13	8	0	0
13.1- 14.0	0	0	0	0	0	0	0	2	4	6	0	0
14.1- 15.0	0	0	0	0	0	0	0	0	5	0	0	0
15.1- 16.0	0	0	0	0	0	0	0	0	1	0	0	0
16.1- 17.0	0	0	0	0	0	0	0	0	1	0	0	0
TOTAL ANAL.	0	0	0	0	0	0	0	138	143	29	0	0
MEAN LENGTH	0	0	0	0	0	0	0	8.8	10.9	11.8	0	0
MIN. LENGTH	0	0	0	0	0	0	0	4.3	6.7	7.9	0	0
MAX. LENGTH	0	0	0	0	0	0	0	14.0	16.1	13.9	0	0

TABLE B-2.11. LENGTH-FREQUENCY OF WHITE PERCH, DANSKAMMER POINT GENERATING STATION, 1995.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2.1 - 3.0	0	0	0	0	0	0	5	0	0	0	0	0
3.1 - 4.0	0	0	0	0	0	0	12	2	0	0	0	0
4.1 - 5.0	1	0	0	0	0	0	4	17	4	0	0	0
5.1 - 6.0	3	1	3	6	10	7	0	114	47	16	11	4
6.1 - 7.0	10	10	16	22	32	47	1	163	89	89	58	22
7.1 - 8.0	28	27	87	78	98	144	17	57	105	206	233	52
8.1 - 9.0	16	26	120	62	50	127	112	5	29	78	179	33
9.1 - 10.0	3	5	39	8	10	39	127	34	0	7	13	2
10.1- 11.0	0	1	1	2	1	7	48	77	27	58	34	2
11.1- 12.0	1	1	24	10	5	28	20	70	45	112	146	20
12.1- 13.0	4	9	45	5	3	57	59	23	25	76	132	26
13.1- 14.0	6	20	58	11	3	60	76	45	26	52	73	25
14.1- 15.0	8	15	55	7	1	66	78	74	40	67	113	26
15.1- 16.0	3	12	35	2	3	54	65	54	34	52	115	19
16.1- 17.0	1	10	34	2	1	20	29	47	39	41	63	9
17.1- 18.0	2	5	12	0	0	25	17	31	28	27	41	6
18.1- 19.0	0	1	11	0	1	10	11	10	26	22	12	6
19.1- 20.0	0	2	3	0	0	9	3	12	11	13	10	1
20.1- 21.0	0	0	5	0	0	5	2	7	5	7	7	0
21.1- 22.0	0	0	1	0	0	1	1	7	6	2	1	0
22.1- 23.0	0	0	0	0	0	0	1	2	2	1	2	1
23.1- 24.0	0	1	1	0	0	1	0	0	1	0	1	0
24.1- 25.0	0	0	0	0	0	1	0	2	1	0	0	1
25.1- 26.0	0	0	0	0	0	0	0	0	0	0	0	0
26.1- 27.0	0	0	0	0	0	1	2	0	0	0	0	0
27.1- 28.0	0	0	0	0	0	0	1	0	0	0	0	0
28.1- 29.0	0	0	1	0	0	0	0	0	0	2	0	0
29.1- 30.0	0	0	0	0	0	0	0	0	0	0	0	0
30.1- 31.0	0	0	0	0	0	0	0	0	0	0	0	0
31.1- 32.0	0	0	0	0	0	0	0	0	1	0	0	0
TOTAL ANAL.	86	146	551	215	218	709	691	853	591	928	1244	255
MEAN LENGTH	9.5	11.6	11.6	8.8	8.1	11.2	11.9	10.7	11.3	11.2	11.6	11.3
MIN. LENGTH	4.6	5.9	5.7	5.2	5.2	5.6	2.4	3.9	4.1	5.2	5.2	5.2
MAX. LENGTH	17.5	23.5	28.2	16.6	18.7	26.3	28.0	24.6	31.2	28.7	23.8	25.0

TABLE B-2.12. FREQUENCY DISTRIBUTION OF CARAPACE WIDTH FOR BLUE CRAB, DANSKAMMER POINT GENERATING STATION, 1995.

INTERVAL (CM)		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0.1 - 1.0		0	0	0	0	0	0	0	1	10	4	0	0
1.1 - 2.0		0	0	0	0	0	1	0	4	42	20	9	0
2.1 - 3.0		0	0	1	0	7	5	0	0	34	110	28	0
3.1 - 4.0		0	0	0	0	26	7	0	0	26	50	25	0
4.1 - 5.0		0	0	0	0	42	39	7	2	3	34	44	0
5.1 - 6.0		0	0	0	0	59	53	16	5	0	15	13	0
6.1 - 7.0		0	0	0	0	28	92	42	9	5	4	6	0
7.1 - 8.0		0	0	0	0	18	87	69	32	11	4	3	0
8.1 - 9.0		0	0	0	0	3	57	96	32	19	4	4	0
9.1 - 10.0		0	0	0	0	0	21	69	38	20	9	5	0
10.1- 11.0		0	0	0	0	0	8	44	63	23	5	6	0
11.1- 12.0		0	0	0	0	0	1	30	88	26	7	7	0
12.1- 13.0		0	0	0	0	0	0	11	78	53	14	5	0
13.1- 14.0		0	0	0	0	0	0	5	68	41	9	3	0
14.1- 15.0		0	0	0	0	0	1	0	53	38	9	2	0
15.1- 16.0		0	0	0	0	0	0	2	23	33	15	6	0
16.1- 17.0		0	0	0	0	0	0	1	4	7	5	6	0
17.1- 18.0		0	0	0	0	0	0	0	0	4	1	0	0
18.1- 19.0		0	0	0	0	0	0	0	0	0	1	0	0
	TOTAL ANAL.	0	0	1	0	183	372	392	500	395	320	172	0
	MEAN LENGTH	0	0	2.7	0	5.3	6.9	8.8	11.6	9.5	5.7	6.1	0
	MIN. LENGTH	0	0	2.7	0	2.2	1.4	4.1	1.0	0.7	0.7	1.2	0
	MAX. LENGTH	0	0	2.7	0	8.9	14.7	16.3	16.6	17.6	18.1	17.0	0

APPENDIX C

ESTIMATED IMPINGEMENT ABUNDANCE

LIST OF APPENDIX C TABLES

C-1.1. Estimated weekly abundance of all fish species, Roseton Generating Station, 1995.

C-1.2. Estimated weekly abundance of alewife, Roseton Generating Station, 1995.

C-1.3. Estimated weekly abundance of American eel, Roseton Generating Station, 1995.

C-1.4. Estimated weekly abundance of American shad, Roseton Generating Station, 1995.

C-1.5. Estimated weekly abundance of Atlantic tomcod, Roseton Generating Station, 1995.

C-1.6. Estimated weekly abundance of banded killifish, Roseton Generating Station, 1995.

C-1.7. Estimated weekly abundance of bay anchovy, Roseton Generating Station, 1995.

C-1.8. Estimated weekly abundance of blueback herring, Roseton Generating Station, 1995.

C-1.9. Estimated weekly abundance of brown bullhead, Roseton Generating Station, 1995.

C-1.10. Estimated weekly abundance of gizzard shad, Roseton Generating Station, 1995.

C-1.11. Estimated weekly abundance of golden shiner, Roseton Generating Station, 1995.

C-1.12. Estimated weekly abundance of pumpkinseed, Roseton Generating Station, 1995.

C-1.13. Estimated weekly abundance of rainbow smelt, Roseton Generating Station, 1995.

C-1.14. Estimated weekly abundance of spottail shiner, Roseton Generating Station, 1995.

C-1.15. Estimated weekly abundance of striped bass, Roseton Generating Station, 1995.

C-1.16. Estimated weekly abundance of white perch, Roseton Generating Station, 1995.

C-1.17. Estimated weekly abundance of blue crab, Roseton Generating Station, 1995.

C-2.1. Estimated weekly abundance of all fish species, Danskammer Point Generating Station, 1995.

C-2.2. Estimated weekly abundance of alewife, Danskammer Point Generating Station, 1995.

C-2.3. Estimated weekly abundance of American shad, Danskammer Point Generating Station, 1995.

C-2.4. Estimated weekly abundance of Atlantic tomcod, Danskammer Point Generating Station, 1995.

C-2.5. Estimated weekly abundance of bay anchovy, Danskammer Point Generating Station, 1995.

C-2.6. Estimated weekly abundance of blueback herring, Danskammer Point Generating Station, 1995.

C-2.7 Estimated weekly abundance of gizzard shad, Danskammer Point Generating Station, 1995.

C-2.8. Estimated weekly abundance of golden shiner, Danskammer Point Generating Station, 1995.

C-2.9. Estimated weekly abundance of pumpkinseed, Danskammer Point Generating Station, 1995.

C-2.10. Estimated weekly abundance of rainbow smelt, Danskammer Point Generating Station, 1995.

C-2.11. Estimated weekly abundance of spottail shiner, Danskammer Point Generating Station, 1995.

C-2.12. Estimated weekly abundance of striped bass, Danskammer Point Generating Station, 1995.

C-2.13. Estimated weekly abundance of weakfish, Danskammer Point Generating Station, 1995.

C-2.14. Estimated weekly abundance of white catfish, Danskammer Point Generating Station, 1995.

C-2.15. Estimated weekly abundance of white perch, Danskammer Point Generating Station, 1995.

C-2.16. Estimated weekly abundance of yellow perch, Danskammer Point Generating Station, 1995.

C-2.17. Estimated weekly abundance of blue crab, Danskammer Point Generating Station, 1995.

APPENDIX TABLE C-1.1. ESTIMATED WEEKLY ABUNDANCE OF ALL FISH SPECIES, ROSETON GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	261	564.00	0.4628	3321.60	1537	
	2	153	547.14	0.2796	3532.80	988	
	3	97	564.00	0.1720	3513.60	604	
	4	22	314.40	0.0700	3144.00	220	
	MONTHLY EST.			0.2461	13512.00		3325
FEBRUARY	1	26	314.40	0.0827	3127.20	259	
	2	118	602.40	0.1959	4116.00	806	
	3	193	542.40	0.3558	3796.80	1351	
	4	75	542.40	0.1383	3796.80	525	
	MONTHLY EST.			0.1932	14836.80		2866
MARCH	1	148	542.40	0.2729	3796.80	1036	
	2	72	302.39	0.2381	2282.40	543	
	3	210	314.40	0.6679	2200.80	1470	
	4	174	617.45	0.2818	3144.00	886	
	MONTHLY EST.			0.3652	11424.00		4172
APRIL	1	105	314.40	0.3340	2200.80	735	
	2	59	311.78	0.1892	2200.80	416	
	3	31	314.40	0.0986	2200.80	217	
	4	78	314.40	0.2481	2829.60	702	
	MONTHLY EST.			0.2175	9432.00		2051
MAY	1	164	542.40	0.3024	2887.20	873	
	2	190	542.40	0.3503	3768.00	1320	
	3	707	567.00	1.2469	4250.40	5300	
	4	267	542.40	0.4923	5419.20	2668	
	MONTHLY EST.			0.5980	16324.80		9762
JUNE	1	384	542.40	0.7080	3796.80	2688	
	2	286	508.80	0.5621	3232.80	1817	
	3	104	542.40	0.1917	3456.00	663	
	4	368	1105.80	0.3328	4509.60	1501	
	MONTHLY EST.			0.4487	14995.20		6728
JULY	1	1565	715.80	2.1864	4137.60	9046	
	2	2994	808.80	3.7018	4677.60	17315	
	3	2825	542.40	5.2083	4144.80	21588	
	4	2702	807.60	3.3457	6655.20	22266	
	MONTHLY EST.			3.6105	19615.20		70822
AUGUST	1	2008	808.80	2.4827	5661.60	14056	
	2	2535	564.00	4.4947	3928.80	17659	
	3	5318	780.60	6.8127	4320.00	29431	
	4	219	856.80	0.2556	4068.00	1040	
	MONTHLY EST.			3.5114	17978.40		63130
SEPTEMBER	1	64	314.40	0.2036	2200.80	448	
	2	22	314.40	0.0700	2200.80	154	
	3	9	314.40	0.0286	2200.80	63	
	4	34	314.40	0.1081	2738.40	296	
	MONTHLY EST.			0.1026	9340.80		958
OCTOBER	1	3133	314.40	9.9650	2200.80	21931	
	2	1106	314.40	3.5178	2200.80	7742	
	3	1665	314.40	5.2958	2200.80	11655	
	4	776	314.40	2.4682	3144.00	7760	
	MONTHLY EST.			5.3117	9746.40		51770
NOVEMBER	1	173	314.40	0.5503	2200.80	1211	
	2	316	314.40	1.0051	2200.80	2212	
	3	982	628.80	1.5617	2200.80	3437	
	4	1109	542.40	2.0446	3777.60	7724	
	MONTHLY EST.			1.2904	10380.00		13395
DECEMBER	1	172	542.40	0.3171	3192.00	1012	
	2	255	585.67	0.4354	3453.60	1504	
	3	954	564.20	1.6909	4195.20	7094	
	4	374	542.40	0.6895	5433.60	3747	
	MONTHLY EST.			0.7832	16274.40		12747

APPENDIX TABLE C-1.2. ESTIMATED WEEKLY ABUNDANCE OF ALEWIFE, ROSETON GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	1	564.00	0.0018	3321.60	6	
	2	1	547.14	0.0018	3532.80	6	
	3	0	564.00	0.0000	3513.60	0	
	4	0	314.40	0.0000	3144.00	0	
	MONTHLY EST.			0.0009	13512.00		12
FEBRUARY	1	0	314.40	0.0000	3127.20	0	
	2	0	602.40	0.0000	4116.00	0	
	3	0	542.40	0.0000	3796.80	0	
	4	0	542.40	0.0000	3796.80	0	
	MONTHLY EST.			0.0000	14836.80		0
MARCH	1	0	542.40	0.0000	3796.80	0	
	2	0	302.39	0.0000	2282.40	0	
	3	3	314.40	0.0095	2200.80	21	
	4	0	617.45	0.0000	3144.00	0	
	MONTHLY EST.			0.0024	11424.00		27
APRIL	1	0	314.40	0.0000	2200.80	0	
	2	0	311.78	0.0000	2200.80	0	
	3	1	314.40	0.0032	2200.80	7	
	4	1	314.40	0.0032	2829.60	9	
	MONTHLY EST.			0.0016	9432.00		15
MAY	1	1	542.40	0.0018	2887.20	5	
	2	4	542.40	0.0074	3768.00	28	
	3	4	567.00	0.0071	4250.40	30	
	4	0	542.40	0.0000	5419.20	0	
	MONTHLY EST.			0.0041	16324.80		66
JUNE	1	0	542.40	0.0000	3796.80	0	
	2	0	508.80	0.0000	3232.80	0	
	3	1	542.40	0.0018	3456.00	6	
	4	9	1105.80	0.0081	4509.60	37	
	MONTHLY EST.			0.0025	14995.20		37
JULY	1	250	715.80	0.3493	4137.60	1445	
	2	695	808.80	0.8593	4677.60	4019	
	3	233	542.40	0.4296	4144.80	1780	
	4	522	807.60	0.6464	6655.20	4302	
	MONTHLY EST.			0.5711	19615.20		11203
AUGUST	1	187	808.80	0.2312	5661.60	1309	
	2	123	564.00	0.2181	3928.80	857	
	3	131	780.60	0.1678	4320.00	725	
	4	13	856.80	0.0152	4068.00	62	
	MONTHLY EST.			0.1581	17978.40		2842
SEPTEMBER	1	2	314.40	0.0064	2200.80	14	
	2	0	314.40	0.0000	2200.80	0	
	3	0	314.40	0.0000	2200.80	0	
	4	0	314.40	0.0000	2738.40	0	
	MONTHLY EST.			0.0016	9340.80		15
OCTOBER	1	11	314.40	0.0350	2200.80	77	
	2	6	314.40	0.0191	2200.80	42	
	3	14	314.40	0.0445	2200.80	98	
	4	8	314.40	0.0254	3144.00	80	
	MONTHLY EST.			0.0310	9746.40		302
NOVEMBER	1	11	314.40	0.0350	2200.80	77	
	2	6	314.40	0.0191	2200.80	42	
	3	1	628.80	0.0016	2200.80	4	
	4	0	542.40	0.0000	3777.60	0	
	MONTHLY EST.			0.0139	10380.00		144
DECEMBER	1	0	542.40	0.0000	3192.00	0	
	2	0	585.67	0.0000	3453.60	0	
	3	0	564.20	0.0000	4195.20	0	
	4	0	542.40	0.0000	5433.60	0	
	MONTHLY EST.			0.0000	16274.40		0

APPENDIX TABLE C-1.3. ESTIMATED WEEKLY ABUNDANCE OF AMERICAN EEL, ROSETON GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	1	564.00	0.0018	3321.60	6	
	2	0	547.14	0.0000	3532.80	0	
	3	0	564.00	0.0000	3513.60	0	
	4	0	314.40	0.0000	3144.00	0	
	MONTHLY EST.			0.0004	13512.00		6
FEBRUARY	1	0	314.40	0.0000	3127.20	0	
	2	0	602.40	0.0000	4116.00	0	
	3	0	542.40	0.0000	3796.80	0	
	4	0	542.40	0.0000	3796.80	0	
	MONTHLY EST.			0.0000	14836.80		0
MARCH	1	0	542.40	0.0000	3796.80	0	
	2	0	302.39	0.0000	2282.40	0	
	3	1	314.40	0.0032	2200.80	7	
	4	3	617.45	0.0049	3144.00	15	
	MONTHLY EST.			0.0020	11424.00		23
APRIL	1	0	314.40	0.0000	2200.80	0	
	2	0	311.78	0.0000	2200.80	0	
	3	0	314.40	0.0000	2200.80	0	
	4	1	314.40	0.0032	2829.60	9	
	MONTHLY EST.			0.0008	9432.00		8
MAY	1	0	542.40	0.0000	2887.20	0	
	2	0	542.40	0.0000	3768.00	0	
	3	3	567.00	0.0053	4250.40	22	
	4	1	542.40	0.0018	5419.20	10	
	MONTHLY EST.			0.0018	16324.80		29
JUNE	1	1	542.40	0.0018	3796.80	7	
	2	0	508.80	0.0000	3232.80	0	
	3	5	542.40	0.0092	3456.00	32	
	4	4	1105.80	0.0036	4509.60	16	
	MONTHLY EST.			0.0037	14995.20		55
JULY	1	5	715.80	0.0070	4137.60	29	
	2	5	808.80	0.0062	4677.60	29	
	3	5	542.40	0.0092	4144.80	38	
	4	7	807.60	0.0087	6655.20	58	
	MONTHLY EST.			0.0078	19615.20		152
AUGUST	1	10	808.80	0.0124	5661.60	70	
	2	4	564.00	0.0071	3928.80	28	
	3	10	780.60	0.0128	4320.00	55	
	4	7	856.80	0.0082	4068.00	33	
	MONTHLY EST.			0.0101	17978.40		182
SEPTEMBER	1	2	314.40	0.0064	2200.80	14	
	2	0	314.40	0.0000	2200.80	0	
	3	0	314.40	0.0000	2200.80	0	
	4	0	314.40	0.0000	2738.40	0	
	MONTHLY EST.			0.0016	9340.80		15
OCTOBER	1	1	314.40	0.0032	2200.80	7	
	2	0	314.40	0.0000	2200.80	0	
	3	2	314.40	0.0064	2200.80	14	
	4	0	314.40	0.0000	3144.00	0	
	MONTHLY EST.			0.0024	9746.40		23
NOVEMBER	1	0	314.40	0.0000	2200.80	0	
	2	0	314.40	0.0000	2200.80	0	
	3	0	628.80	0.0000	2200.80	0	
	4	4	542.40	0.0074	3777.60	28	
	MONTHLY EST.			0.0018	10380.00		19
DECEMBER	1	0	542.40	0.0000	3192.00	0	
	2	1	585.67	0.0017	3453.60	6	
	3	0	564.20	0.0000	4195.20	0	
	4	0	542.40	0.0000	5433.60	0	
	MONTHLY EST.			0.0004	16274.40		7

APPENDIX TABLE C-1.4. ESTIMATED WEEKLY ABUNDANCE OF AMERICAN SHAD, ROSETON GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	564.00	0.0000	3321.60	0	
	2	0	547.14	0.0000	3532.80	0	
	3	0	564.00	0.0000	3513.60	0	
	4	0	314.40	0.0000	3144.00	0	
	MONTHLY EST.			0.0000	13512.00		0
FEBRUARY	1	0	314.40	0.0000	3127.20	0	
	2	0	602.40	0.0000	4116.00	0	
	3	0	542.40	0.0000	3796.80	0	
	4	0	542.40	0.0000	3796.80	0	
	MONTHLY EST.			0.0000	14836.80		0
MARCH	1	0	542.40	0.0000	3796.80	0	
	2	0	302.39	0.0000	2282.40	0	
	3	0	314.40	0.0000	2200.80	0	
	4	0	617.45	0.0000	3144.00	0	
	MONTHLY EST.			0.0000	11424.00		0
APRIL	1	0	314.40	0.0000	2200.80	0	
	2	0	311.78	0.0000	2200.80	0	
	3	0	314.40	0.0000	2200.80	0	
	4	0	314.40	0.0000	2829.60	0	
	MONTHLY EST.			0.0000	9432.00		0
MAY	1	0	542.40	0.0000	2887.20	0	
	2	0	542.40	0.0000	3768.00	0	
	3	0	567.00	0.0000	4250.40	0	
	4	0	542.40	0.0000	5419.20	0	
	MONTHLY EST.			0.0000	16324.80		0
JUNE	1	0	542.40	0.0000	3796.80	0	
	2	0	508.80	0.0000	3232.80	0	
	3	0	542.40	0.0000	3456.00	0	
	4	6	1105.80	0.0054	4509.60	24	
	MONTHLY EST.			0.0014	14995.20		20
JULY	1	364	715.80	0.5085	4137.60	2104	
	2	447	808.80	0.5527	4677.60	2585	
	3	69	542.40	0.1272	4144.80	527	
	4	85	807.60	0.1053	6655.20	700	
	MONTHLY EST.			0.3234	19615.20		6344
AUGUST	1	46	808.80	0.0569	5661.60	322	
	2	51	564.00	0.0904	3928.80	355	
	3	47	780.60	0.0602	4320.00	260	
	4	2	856.80	0.0023	4068.00	9	
	MONTHLY EST.			0.0525	17978.40		943
SEPTEMBER	1	1	314.40	0.0032	2200.80	7	
	2	1	314.40	0.0032	2200.80	7	
	3	0	314.40	0.0000	2200.80	0	
	4	0	314.40	0.0000	2738.40	0	
	MONTHLY EST.			0.0016	9340.80		15
OCTOBER	1	1	314.40	0.0032	2200.80	7	
	2	3	314.40	0.0095	2200.80	21	
	3	1	314.40	0.0032	2200.80	7	
	4	3	314.40	0.0095	3144.00	30	
	MONTHLY EST.			0.0064	9746.40		62
NOVEMBER	1	7	314.40	0.0223	2200.80	49	
	2	2	314.40	0.0064	2200.80	14	
	3	0	628.80	0.0000	2200.80	0	
	4	0	542.40	0.0000	3777.60	0	
	MONTHLY EST.			0.0072	10380.00		74
DECEMBER	1	0	542.40	0.0000	3192.00	0	
	2	0	585.67	0.0000	3453.60	0	
	3	0	564.20	0.0000	4195.20	0	
	4	0	542.40	0.0000	5433.60	0	
	MONTHLY EST.			0.0000	16274.40		0

APPENDIX TABLE C-1.5. ESTIMATED WEEKLY ABUNDANCE OF ATLANTIC TOMCOD, ROSETON GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	564.00	0.0000	3321.60	0	
	2	1	547.14	0.0018	3532.80	6	
	3	0	564.00	0.0000	3513.60	0	
	4	0	314.40	0.0000	3144.00	0	
	MONTHLY EST.			0.0005	13512.00		6
FEBRUARY	1	0	314.40	0.0000	3127.20	0	
	2	0	602.40	0.0000	4116.00	0	
	3	0	542.40	0.0000	3796.80	0	
	4	0	542.40	0.0000	3796.80	0	
	MONTHLY EST.			0.0000	14836.80		0
MARCH	1	0	542.40	0.0000	3796.80	0	
	2	0	302.39	0.0000	2282.40	0	
	3	0	314.40	0.0000	2200.80	0	
	4	0	617.45	0.0000	3144.00	0	
	MONTHLY EST.			0.0000	11424.00		0
APRIL	1	0	314.40	0.0000	2200.80	0	
	2	0	311.78	0.0000	2200.80	0	
	3	0	314.40	0.0000	2200.80	0	
	4	0	314.40	0.0000	2829.60	0	
	MONTHLY EST.			0.0000	9432.00		0
MAY	1	1	542.40	0.0018	2887.20	5	
	2	6	542.40	0.0111	3768.00	42	
	3	8	567.00	0.0141	4250.40	60	
	4	12	542.40	0.0221	5419.20	120	
	MONTHLY EST.			0.0123	16324.80		201
JUNE	1	11	542.40	0.0203	3796.80	77	
	2	29	508.80	0.0570	3232.80	184	
	3	5	542.40	0.0092	3456.00	32	
	4	24	1105.80	0.0217	4509.60	98	
	MONTHLY EST.			0.0270	14995.20		406
JULY	1	51	715.80	0.0712	4137.60	295	
	2	60	808.80	0.0742	4677.60	347	
	3	10	542.40	0.0184	4144.80	76	
	4	36	807.60	0.0446	6655.20	297	
	MONTHLY EST.			0.0521	19615.20		1022
AUGUST	1	4	808.80	0.0049	5661.60	28	
	2	0	564.00	0.0000	3928.80	0	
	3	0	780.60	0.0000	4320.00	0	
	4	0	856.80	0.0000	4068.00	0	
	MONTHLY EST.			0.0012	17978.40		22
SEPTEMBER	1	0	314.40	0.0000	2200.80	0	
	2	0	314.40	0.0000	2200.80	0	
	3	0	314.40	0.0000	2200.80	0	
	4	0	314.40	0.0000	2738.40	0	
	MONTHLY EST.			0.0000	9340.80		0
OCTOBER	1	0	314.40	0.0000	2200.80	0	
	2	0	314.40	0.0000	2200.80	0	
	3	0	314.40	0.0000	2200.80	0	
	4	0	314.40	0.0000	3144.00	0	
	MONTHLY EST.			0.0000	9746.40		0
NOVEMBER	1	0	314.40	0.0000	2200.80	0	
	2	0	314.40	0.0000	2200.80	0	
	3	0	628.80	0.0000	2200.80	0	
	4	0	542.40	0.0000	3777.60	0	
	MONTHLY EST.			0.0000	10380.00		0
DECEMBER	1	0	542.40	0.0000	3192.00	0	
	2	0	585.67	0.0000	3453.60	0	
	3	0	564.20	0.0000	4195.20	0	
	4	0	542.40	0.0000	5433.60	0	
	MONTHLY EST.			0.0000	16274.40		0

APPENDIX TABLE C-1.6. ESTIMATED WEEKLY ABUNDANCE OF BANDED KILLIFISH, ROSETON GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	78	564.00	0.1383	3321.60	459	
	2	5	547.14	0.0091	3532.80	32	
	3	4	564.00	0.0071	3513.60	25	
	4	1	314.40	0.0032	3144.00	10	
	MONTHLY EST.			0.0394	13512.00		533
FEBRUARY	1	2	314.40	0.0064	3127.20	20	
	2	8	602.40	0.0133	4116.00	55	
	3	12	542.40	0.0221	3796.80	84	
	4	2	542.40	0.0037	3796.80	14	
	MONTHLY EST.			0.0114	14836.80		169
MARCH	1	2	542.40	0.0037	3796.80	14	
	2	7	302.39	0.0231	2282.40	53	
	3	12	314.40	0.0382	2200.80	84	
	4	10	617.45	0.0162	3144.00	51	
	MONTHLY EST.			0.0203	11424.00		232
APRIL	1	1	314.40	0.0032	2200.80	7	
	2	0	311.78	0.0000	2200.80	0	
	3	0	314.40	0.0000	2200.80	0	
	4	1	314.40	0.0032	2829.60	9	
	MONTHLY EST.			0.0016	9432.00		15
MAY	1	1	542.40	0.0018	2887.20	5	
	2	0	542.40	0.0000	3768.00	0	
	3	0	567.00	0.0000	4250.40	0	
	4	0	542.40	0.0000	5419.20	0	
	MONTHLY EST.			0.0005	16324.80		8
JUNE	1	7	542.40	0.0129	3796.80	49	
	2	4	508.80	0.0079	3232.80	25	
	3	4	542.40	0.0074	3456.00	25	
	4	3	1105.80	0.0027	4509.60	12	
	MONTHLY EST.			0.0077	14995.20		116
JULY	1	2	715.80	0.0028	4137.60	12	
	2	1	808.80	0.0012	4677.60	6	
	3	0	542.40	0.0000	4144.80	0	
	4	6	807.60	0.0074	6655.20	49	
	MONTHLY EST.			0.0029	19615.20		56
AUGUST	1	13	808.80	0.0161	5661.60	91	
	2	9	564.00	0.0160	3928.80	63	
	3	4	780.60	0.0051	4320.00	22	
	4	2	856.80	0.0023	4068.00	9	
	MONTHLY EST.			0.0099	17978.40		177
SEPTEMBER	1	0	314.40	0.0000	2200.80	0	
	2	0	314.40	0.0000	2200.80	0	
	3	0	314.40	0.0000	2200.80	0	
	4	0	314.40	0.0000	2738.40	0	
	MONTHLY EST.			0.0000	9340.80		0
OCTOBER	1	9	314.40	0.0286	2200.80	63	
	2	12	314.40	0.0382	2200.80	84	
	3	32	314.40	0.1018	2200.80	224	
	4	0	314.40	0.0000	3144.00	0	
	MONTHLY EST.			0.0421	9746.40		411
NOVEMBER	1	0	314.40	0.0000	2200.80	0	
	2	1	314.40	0.0032	2200.80	7	
	3	4	628.80	0.0064	2200.80	14	
	4	635	542.40	1.1707	3777.60	4423	
	MONTHLY EST.			0.2951	10380.00		3063
DECEMBER	1	13	542.40	0.0240	3192.00	77	
	2	24	585.67	0.0410	3453.60	142	
	3	21	564.20	0.0372	4195.20	156	
	4	17	542.40	0.0313	5433.60	170	
	MONTHLY EST.			0.0334	16274.40		543

APPENDIX TABLE C-1.7. ESTIMATED WEEKLY ABUNDANCE OF BAY ANCHOVY, ROSETON GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	564.00	0.0000	3321.60	0	
	2	0	547.14	0.0000	3532.80	0	
	3	0	564.00	0.0000	3513.60	0	
	4	0	314.40	0.0000	3144.00	0	
	MONTHLY EST.			0.0000	13512.00		0
FEBRUARY	1	0	314.40	0.0000	3127.20	0	
	2	0	602.40	0.0000	4116.00	0	
	3	0	542.40	0.0000	3796.80	0	
	4	0	542.40	0.0000	3796.80	0	
	MONTHLY EST.			0.0000	14836.80		0
MARCH	1	0	542.40	0.0000	3796.80	0	
	2	0	302.39	0.0000	2282.40	0	
	3	0	314.40	0.0000	2200.80	0	
	4	0	617.45	0.0000	3144.00	0	
	MONTHLY EST.			0.0000	11424.00		0
APRIL	1	0	314.40	0.0000	2200.80	0	
	2	0	311.78	0.0000	2200.80	0	
	3	0	314.40	0.0000	2200.80	0	
	4	0	314.40	0.0000	2829.60	0	
	MONTHLY EST.			0.0000	9432.00		0
MAY	1	0	542.40	0.0000	2887.20	0	
	2	0	542.40	0.0000	3768.00	0	
	3	0	567.00	0.0000	4250.40	0	
	4	0	542.40	0.0000	5419.20	0	
	MONTHLY EST.			0.0000	16324.80		0
JUNE	1	0	542.40	0.0000	3796.80	0	
	2	0	508.80	0.0000	3232.80	0	
	3	0	542.40	0.0000	3456.00	0	
	4	0	1105.80	0.0000	4509.60	0	
	MONTHLY EST.			0.0000	14995.20		0
JULY	1	10	715.80	0.0140	4137.60	58	
	2	111	808.80	0.1372	4677.60	642	
	3	162	542.40	0.2987	4144.80	1238	
	4	365	807.60	0.4520	6655.20	3008	
	MONTHLY EST.			0.2255	19615.20		4422
AUGUST	1	698	808.80	0.8630	5661.60	4886	
	2	1142	564.00	2.0248	3928.80	7955	
	3	2940	780.60	3.7663	4320.00	16271	
	4	16	856.80	0.0187	4068.00	76	
	MONTHLY EST.			1.6682	17978.40		29992
SEPTEMBER	1	3	314.40	0.0095	2200.80	21	
	2	2	314.40	0.0064	2200.80	14	
	3	0	314.40	0.0000	2200.80	0	
	4	10	314.40	0.0318	2738.40	87	
	MONTHLY EST.			0.0119	9340.80		111
OCTOBER	1	2810	314.40	8.9377	2200.80	19670	
	2	731	314.40	2.3251	2200.80	5117	
	3	539	314.40	1.7144	2200.80	3773	
	4	0	314.40	0.0000	3144.00	0	
	MONTHLY EST.			3.2443	9746.40		31620
NOVEMBER	1	0	314.40	0.0000	2200.80	0	
	2	0	314.40	0.0000	2200.80	0	
	3	0	628.80	0.0000	2200.80	0	
	4	0	542.40	0.0000	3777.60	0	
	MONTHLY EST.			0.0000	10380.00		0
DECEMBER	1	0	542.40	0.0000	3192.00	0	
	2	0	585.67	0.0000	3453.60	0	
	3	0	564.20	0.0000	4195.20	0	
	4	0	542.40	0.0000	5433.60	0	
	MONTHLY EST.			0.0000	16274.40		0

APPENDIX TABLE C-1.8. ESTIMATED WEEKLY ABUNDANCE OF BLUEBACK HERRING, ROSETON GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	564.00	0.0000	3321.60	0	
	2	0	547.14	0.0000	3532.80	0	
	3	0	564.00	0.0000	3513.60	0	
	4	0	314.40	0.0000	3144.00	0	
	MONTHLY EST.			0.0000	13512.00		0
FEBRUARY	1	0	314.40	0.0000	3127.20	0	
	2	0	602.40	0.0000	4116.00	0	
	3	0	542.40	0.0000	3796.80	0	
	4	0	542.40	0.0000	3796.80	0	
	MONTHLY EST.			0.0000	14836.80		0
MARCH	1	0	542.40	0.0000	3796.80	0	
	2	0	302.39	0.0000	2282.40	0	
	3	0	314.40	0.0000	2200.80	0	
	4	0	617.45	0.0000	3144.00	0	
	MONTHLY EST.			0.0000	11424.00		0
APRIL	1	0	314.40	0.0000	2200.80	0	
	2	0	311.78	0.0000	2200.80	0	
	3	1	314.40	0.0032	2200.80	7	
	4	1	314.40	0.0032	2829.60	9	
	MONTHLY EST.			0.0016	9432.00		15
MAY	1	1	542.40	0.0018	2887.20	5	
	2	1	542.40	0.0018	3768.00	7	
	3	18	567.00	0.0317	4250.40	135	
	4	2	542.40	0.0037	5419.20	20	
	MONTHLY EST.			0.0098	16324.80		160
JUNE	1	0	542.40	0.0000	3796.80	0	
	2	2	508.80	0.0039	3232.80	13	
	3	1	542.40	0.0018	3456.00	6	
	4	2	1105.80	0.0018	4509.60	8	
	MONTHLY EST.			0.0019	14995.20		28
JULY	1	3	715.80	0.0042	4137.60	17	
	2	31	808.80	0.0383	4677.60	179	
	3	912	542.40	1.6814	4144.80	6969	
	4	366	807.60	0.4532	6655.20	3016	
	MONTHLY EST.			0.5443	19615.20		10676
AUGUST	1	217	808.80	0.2683	5661.60	1519	
	2	119	564.00	0.2110	3928.80	829	
	3	905	780.60	1.1594	4320.00	5008	
	4	3	856.80	0.0035	4068.00	14	
	MONTHLY EST.			0.4105	17978.40		7381
SEPTEMBER	1	5	314.40	0.0159	2200.80	35	
	2	3	314.40	0.0095	2200.80	21	
	3	0	314.40	0.0000	2200.80	0	
	4	2	314.40	0.0064	2738.40	17	
	MONTHLY EST.			0.0080	9340.80		74
OCTOBER	1	140	314.40	0.4453	2200.80	980	
	2	298	314.40	0.9478	2200.80	2086	
	3	923	314.40	2.9358	2200.80	6461	
	4	533	314.40	1.6953	3144.00	5330	
	MONTHLY EST.			1.5060	9746.40		14679
NOVEMBER	1	91	314.40	0.2894	2200.80	637	
	2	114	314.40	0.3626	2200.80	798	
	3	4	628.80	0.0064	2200.80	14	
	4	0	542.40	0.0000	3777.60	0	
	MONTHLY EST.			0.1646	10380.00		1709
DECEMBER	1	0	542.40	0.0000	3192.00	0	
	2	0	585.67	0.0000	3453.60	0	
	3	0	564.20	0.0000	4195.20	0	
	4	0	542.40	0.0000	5433.60	0	
	MONTHLY EST.			0.0000	16274.40		0

APPENDIX TABLE C-1.9. ESTIMATED WEEKLY ABUNDANCE OF BROWN BULLHEAD, ROSETON GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	3	564.00	0.0053	3321.60	18	
	2	0	547.14	0.0000	3532.80	0	
	3	1	564.00	0.0018	3513.60	6	
	4	0	314.40	0.0000	3144.00	0	
	MONTHLY EST.			0.0018	13512.00		24
FEBRUARY	1	0	314.40	0.0000	3127.20	0	
	2	0	602.40	0.0000	4116.00	0	
	3	1	542.40	0.0018	3796.80	7	
	4	0	542.40	0.0000	3796.80	0	
	MONTHLY EST.			0.0005	14836.80		7
MARCH	1	0	542.40	0.0000	3796.80	0	
	2	0	302.39	0.0000	2282.40	0	
	3	1	314.40	0.0032	2200.80	7	
	4	2	617.45	0.0032	3144.00	10	
	MONTHLY EST.			0.0016	11424.00		18
APRIL	1	4	314.40	0.0127	2200.80	28	
	2	3	311.78	0.0096	2200.80	21	
	3	3	314.40	0.0095	2200.80	21	
	4	6	314.40	0.0191	2829.60	54	
	MONTHLY EST.			0.0127	9432.00		120
MAY	1	28	542.40	0.0516	2887.20	149	
	2	43	542.40	0.0793	3768.00	299	
	3	90	567.00	0.1587	4250.40	675	
	4	36	542.40	0.0664	5419.20	360	
	MONTHLY EST.			0.0890	16324.80		1453
JUNE	1	38	542.40	0.0701	3796.80	266	
	2	23	508.80	0.0452	3232.80	146	
	3	16	542.40	0.0295	3456.00	102	
	4	16	1105.80	0.0145	4509.60	65	
	MONTHLY EST.			0.0398	14995.20		597
JULY	1	23	715.80	0.0321	4137.60	133	
	2	11	808.80	0.0136	4677.60	64	
	3	12	542.40	0.0221	4144.80	92	
	4	12	807.60	0.0149	6655.20	99	
	MONTHLY EST.			0.0207	19615.20		406
AUGUST	1	3	808.80	0.0037	5661.60	21	
	2	6	564.00	0.0106	3928.80	42	
	3	10	780.60	0.0128	4320.00	55	
	4	2	856.80	0.0023	4068.00	9	
	MONTHLY EST.			0.0074	17978.40		133
SEPTEMBER	1	0	314.40	0.0000	2200.80	0	
	2	0	314.40	0.0000	2200.80	0	
	3	2	314.40	0.0064	2200.80	14	
	4	0	314.40	0.0000	2738.40	0	
	MONTHLY EST.			0.0016	9340.80		15
OCTOBER	1	0	314.40	0.0000	2200.80	0	
	2	0	314.40	0.0000	2200.80	0	
	3	0	314.40	0.0000	2200.80	0	
	4	1	314.40	0.0032	3144.00	10	
	MONTHLY EST.			0.0008	9746.40		8
NOVEMBER	1	0	314.40	0.0000	2200.80	0	
	2	1	314.40	0.0032	2200.80	7	
	3	3	628.80	0.0048	2200.80	11	
	4	4	542.40	0.0074	3777.60	28	
	MONTHLY EST.			0.0038	10380.00		40
DECEMBER	1	0	542.40	0.0000	3192.00	0	
	2	0	585.67	0.0000	3453.60	0	
	3	0	564.20	0.0000	4195.20	0	
	4	3	542.40	0.0055	5433.60	30	
	MONTHLY EST.			0.0014	16274.40		23

APPENDIX TABLE C-1.10. ESTIMATED WEEKLY ABUNDANCE OF GIZZARD SHAD, ROSETON GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	32	564.00	0.0567	3321.60	188	
	2	63	547.14	0.1151	3532.80	407	
	3	12	564.00	0.0213	3513.60	75	
	4	0	314.40	0.0000	3144.00	0	
	MONTHLY EST.			0.0483	13512.00		652
FEBRUARY	1	0	314.40	0.0000	3127.20	0	
	2	14	602.40	0.0232	4116.00	96	
	3	40	542.40	0.0737	3796.80	280	
	4	4	542.40	0.0074	3796.80	28	
	MONTHLY EST.			0.0261	14836.80		387
MARCH	1	1	542.40	0.0018	3796.80	7	
	2	0	302.39	0.0000	2282.40	0	
	3	0	314.40	0.0000	2200.80	0	
	4	0	617.45	0.0000	3144.00	0	
	MONTHLY EST.			0.0005	11424.00		5
APRIL	1	0	314.40	0.0000	2200.80	0	
	2	0	311.78	0.0000	2200.80	0	
	3	0	314.40	0.0000	2200.80	0	
	4	0	314.40	0.0000	2829.60	0	
	MONTHLY EST.			0.0000	9432.00		0
MAY	1	0	542.40	0.0000	2887.20	0	
	2	0	542.40	0.0000	3768.00	0	
	3	0	567.00	0.0000	4250.40	0	
	4	0	542.40	0.0000	5419.20	0	
	MONTHLY EST.			0.0000	16324.80		0
JUNE	1	0	542.40	0.0000	3796.80	0	
	2	0	508.80	0.0000	3232.80	0	
	3	0	542.40	0.0000	3456.00	0	
	4	0	1105.80	0.0000	4509.60	0	
	MONTHLY EST.			0.0000	14995.20		0
JULY	1	0	715.80	0.0000	4137.60	0	
	2	27	808.80	0.0334	4677.60	156	
	3	222	542.40	0.4093	4144.80	1696	
	4	41	807.60	0.0508	6655.20	338	
	MONTHLY EST.			0.1234	19615.20		2420
AUGUST	1	5	808.80	0.0062	5661.60	35	
	2	0	564.00	0.0000	3928.80	0	
	3	3	780.60	0.0038	4320.00	17	
	4	1	856.80	0.0012	4068.00	5	
	MONTHLY EST.			0.0028	17978.40		50
SEPTEMBER	1	0	314.40	0.0000	2200.80	0	
	2	0	314.40	0.0000	2200.80	0	
	3	0	314.40	0.0000	2200.80	0	
	4	0	314.40	0.0000	2738.40	0	
	MONTHLY EST.			0.0000	9340.80		0
OCTOBER	1	0	314.40	0.0000	2200.80	0	
	2	1	314.40	0.0032	2200.80	7	
	3	0	314.40	0.0000	2200.80	0	
	4	0	314.40	0.0000	3144.00	0	
	MONTHLY EST.			0.0008	9746.40		8
NOVEMBER	1	0	314.40	0.0000	2200.80	0	
	2	1	314.40	0.0032	2200.80	7	
	3	58	628.80	0.0922	2200.80	203	
	4	80	542.40	0.1475	3777.60	557	
	MONTHLY EST.			0.0607	10380.00		630
DECEMBER	1	38	542.40	0.0701	3192.00	224	
	2	145	585.67	0.2476	3453.60	855	
	3	619	564.20	1.0971	4195.20	4603	
	4	215	542.40	0.3964	5433.60	2154	
	MONTHLY EST.			0.4528	16274.40		7369

APPENDIX TABLE C-1.11. ESTIMATED WEEKLY ABUNDANCE OF GOLDEN SHINER, ROSETON GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	23	564.00	0.0408	3321.60	135	
	2	30	547.14	0.0548	3532.80	194	
	3	23	564.00	0.0408	3513.60	143	
	4	1	314.40	0.0032	3144.00	10	
	MONTHLY EST.			0.0349	13512.00		471
FEBRUARY	1	1	314.40	0.0032	3127.20	10	
	2	28	602.40	0.0465	4116.00	191	
	3	41	542.40	0.0756	3796.80	287	
	4	15	542.40	0.0277	3796.80	105	
	MONTHLY EST.			0.0382	14836.80		567
MARCH	1	62	542.40	0.1143	3796.80	434	
	2	22	302.39	0.0728	2282.40	166	
	3	13	314.40	0.0413	2200.80	91	
	4	2	617.45	0.0032	3144.00	10	
	MONTHLY EST.			0.0579	11424.00		662
APRIL	1	2	314.40	0.0064	2200.80	14	
	2	1	311.78	0.0032	2200.80	7	
	3	0	314.40	0.0000	2200.80	0	
	4	0	314.40	0.0000	2829.60	0	
	MONTHLY EST.			0.0024	9432.00		23
MAY	1	1	542.40	0.0018	2887.20	5	
	2	0	542.40	0.0000	3768.00	0	
	3	1	567.00	0.0018	4250.40	7	
	4	0	542.40	0.0000	5419.20	0	
	MONTHLY EST.			0.0009	16324.80		15
JUNE	1	1	542.40	0.0018	3796.80	7	
	2	0	508.80	0.0000	3232.80	0	
	3	0	542.40	0.0000	3456.00	0	
	4	0	1105.80	0.0000	4509.60	0	
	MONTHLY EST.			0.0005	14995.20		7
JULY	1	0	715.80	0.0000	4137.60	0	
	2	0	808.80	0.0000	4677.60	0	
	3	0	542.40	0.0000	4144.80	0	
	4	0	807.60	0.0000	6655.20	0	
	MONTHLY EST.			0.0000	19615.20		0
AUGUST	1	0	808.80	0.0000	5661.60	0	
	2	0	564.00	0.0000	3928.80	0	
	3	0	780.60	0.0000	4320.00	0	
	4	0	856.80	0.0000	4068.00	0	
	MONTHLY EST.			0.0000	17978.40		0
SEPTEMBER	1	0	314.40	0.0000	2200.80	0	
	2	0	314.40	0.0000	2200.80	0	
	3	0	314.40	0.0000	2200.80	0	
	4	0	314.40	0.0000	2738.40	0	
	MONTHLY EST.			0.0000	9340.80		0
OCTOBER	1	0	314.40	0.0000	2200.80	0	
	2	0	314.40	0.0000	2200.80	0	
	3	0	314.40	0.0000	2200.80	0	
	4	0	314.40	0.0000	3144.00	0	
	MONTHLY EST.			0.0000	9746.40		0
NOVEMBER	1	0	314.40	0.0000	2200.80	0	
	2	0	314.40	0.0000	2200.80	0	
	3	11	628.80	0.0175	2200.80	39	
	4	13	542.40	0.0240	3777.60	91	
	MONTHLY EST.			0.0104	10380.00		108
DECEMBER	1	3	542.40	0.0055	3192.00	18	
	2	8	585.67	0.0137	3453.60	47	
	3	47	564.20	0.0833	4195.20	349	
	4	27	542.40	0.0498	5433.60	270	
	MONTHLY EST.			0.0381	16274.40		620

APPENDIX TABLE C-1.12. ESTIMATED WEEKLY ABUNDANCE OF PUMPKINSEED, ROSETON GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	45	564.00	0.0798	3321.60	265	
	2	14	547.14	0.0256	3532.80	90	
	3	4	564.00	0.0071	3513.60	25	
	4	1	314.40	0.0032	3144.00	10	
	MONTHLY EST.			0.0289	13512.00		391
FEBRUARY	1	1	314.40	0.0032	3127.20	10	
	2	21	602.40	0.0349	4116.00	143	
	3	13	542.40	0.0240	3796.80	91	
	4	7	542.40	0.0129	3796.80	49	
	MONTHLY EST.			0.0187	14836.80		278
MARCH	1	9	542.40	0.0166	3796.80	63	
	2	8	302.39	0.0265	2282.40	60	
	3	4	314.40	0.0127	2200.80	28	
	4	4	617.45	0.0065	3144.00	20	
	MONTHLY EST.			0.0156	11424.00		178
APRIL	1	8	314.40	0.0254	2200.80	56	
	2	3	311.78	0.0096	2200.80	21	
	3	4	314.40	0.0127	2200.80	28	
	4	14	314.40	0.0445	2829.60	126	
	MONTHLY EST.			0.0231	9432.00		218
MAY	1	12	542.40	0.0221	2887.20	64	
	2	23	542.40	0.0424	3768.00	160	
	3	12	567.00	0.0212	4250.40	90	
	4	21	542.40	0.0387	5419.20	210	
	MONTHLY EST.			0.0311	16324.80		508
JUNE	1	27	542.40	0.0498	3796.80	189	
	2	7	508.80	0.0138	3232.80	44	
	3	0	542.40	0.0000	3456.00	0	
	4	0	1105.80	0.0000	4509.60	0	
	MONTHLY EST.			0.0159	14995.20		238
JULY	1	3	715.80	0.0042	4137.60	17	
	2	3	808.80	0.0037	4677.60	17	
	3	0	542.40	0.0000	4144.80	0	
	4	3	807.60	0.0037	6655.20	25	
	MONTHLY EST.			0.0029	19615.20		57
AUGUST	1	0	808.80	0.0000	5661.60	0	
	2	2	564.00	0.0035	3928.80	14	
	3	4	780.60	0.0051	4320.00	22	
	4	3	856.80	0.0035	4068.00	14	
	MONTHLY EST.			0.0030	17978.40		55
SEPTEMBER	1	1	314.40	0.0032	2200.80	7	
	2	1	314.40	0.0032	2200.80	7	
	3	1	314.40	0.0032	2200.80	7	
	4	14	314.40	0.0445	2738.40	122	
	MONTHLY EST.			0.0135	9340.80		126
OCTOBER	1	18	314.40	0.0573	2200.80	126	
	2	9	314.40	0.0286	2200.80	63	
	3	34	314.40	0.1081	2200.80	238	
	4	94	314.40	0.2990	3144.00	940	
	MONTHLY EST.			0.1233	9746.40		1201
NOVEMBER	1	24	314.40	0.0763	2200.80	168	
	2	8	314.40	0.0254	2200.80	56	
	3	106	628.80	0.1686	2200.80	371	
	4	15	542.40	0.0277	3777.60	104	
	MONTHLY EST.			0.0745	10380.00		773
DECEMBER	1	3	542.40	0.0055	3192.00	18	
	2	22	585.67	0.0376	3453.60	130	
	3	85	564.20	0.1507	4195.20	632	
	4	45	542.40	0.0830	5433.60	451	
	MONTHLY EST.			0.0692	16274.40		1126

APPENDIX TABLE C-1.13. ESTIMATED WEEKLY ABUNDANCE OF RAINBOW SMELT, ROSETON GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	564.00	0.0000	3321.60	0	
	2	0	547.14	0.0000	3532.80	0	
	3	0	564.00	0.0000	3513.60	0	
	4	0	314.40	0.0000	3144.00	0	
	MONTHLY EST.			0.0000	13512.00		0
FEBRUARY	1	0	314.40	0.0000	3127.20	0	
	2	0	602.40	0.0000	4116.00	0	
	3	0	542.40	0.0000	3796.80	0	
	4	2	542.40	0.0037	3796.80	14	
	MONTHLY EST.			0.0009	14836.80		14
MARCH	1	1	542.40	0.0018	3796.80	7	
	2	1	302.39	0.0033	2282.40	8	
	3	5	314.40	0.0159	2200.80	35	
	4	1	617.45	0.0016	3144.00	5	
	MONTHLY EST.			0.0057	11424.00		65
APRIL	1	0	314.40	0.0000	2200.80	0	
	2	2	311.78	0.0064	2200.80	14	
	3	0	314.40	0.0000	2200.80	0	
	4	2	314.40	0.0064	2829.60	18	
	MONTHLY EST.			0.0032	9432.00		30
MAY	1	61	542.40	0.1125	2887.20	325	
	2	29	542.40	0.0535	3768.00	201	
	3	2	567.00	0.0035	4250.40	15	
	4	1	542.40	0.0018	5419.20	10	
	MONTHLY EST.			0.0428	16324.80		699
JUNE	1	0	542.40	0.0000	3796.80	0	
	2	0	508.80	0.0000	3232.80	0	
	3	1	542.40	0.0018	3456.00	6	
	4	33	1105.80	0.0298	4509.60	135	
	MONTHLY EST.			0.0079	14995.20		119
JULY	1	5	715.80	0.0070	4137.60	29	
	2	27	808.80	0.0334	4677.60	156	
	3	7	542.40	0.0129	4144.80	53	
	4	7	807.60	0.0087	6655.20	58	
	MONTHLY EST.			0.0155	19615.20		304
AUGUST	1	1	808.80	0.0012	5661.60	7	
	2	21	564.00	0.0372	3928.80	146	
	3	0	780.60	0.0000	4320.00	0	
	4	0	856.80	0.0000	4068.00	0	
	MONTHLY EST.			0.0096	17978.40		173
SEPTEMBER	1	0	314.40	0.0000	2200.80	0	
	2	0	314.40	0.0000	2200.80	0	
	3	0	314.40	0.0000	2200.80	0	
	4	0	314.40	0.0000	2738.40	0	
	MONTHLY EST.			0.0000	9340.80		0
OCTOBER	1	0	314.40	0.0000	2200.80	0	
	2	0	314.40	0.0000	2200.80	0	
	3	0	314.40	0.0000	2200.80	0	
	4	0	314.40	0.0000	3144.00	0	
	MONTHLY EST.			0.0000	9746.40		0
NOVEMBER	1	0	314.40	0.0000	2200.80	0	
	2	0	314.40	0.0000	2200.80	0	
	3	0	628.80	0.0000	2200.80	0	
	4	0	542.40	0.0000	3777.60	0	
	MONTHLY EST.			0.0000	10380.00		0
DECEMBER	1	0	542.40	0.0000	3192.00	0	
	2	0	585.67	0.0000	3453.60	0	
	3	0	564.20	0.0000	4195.20	0	
	4	0	542.40	0.0000	5433.60	0	
	MONTHLY EST.			0.0000	16274.40		0

APPENDIX TABLE C-1.14. ESTIMATED WEEKLY ABUNDANCE OF SPOTTAIL SHINER, ROSETON GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	40	564.00	0.0709	3321.60	236	
	2	14	547.14	0.0256	3532.80	90	
	3	41	564.00	0.0727	3513.60	255	
	4	2	314.40	0.0064	3144.00	20	
	MONTHLY EST.			0.0439	13512.00		593
FEBRUARY	1	12	314.40	0.0382	3127.20	119	
	2	22	602.40	0.0365	4116.00	150	
	3	65	542.40	0.1198	3796.80	455	
	4	27	542.40	0.0498	3796.80	189	
	MONTHLY EST.			0.0611	14836.80		906
MARCH	1	57	542.40	0.1051	3796.80	399	
	2	19	302.39	0.0628	2282.40	143	
	3	121	314.40	0.3849	2200.80	847	
	4	53	617.45	0.0858	3144.00	270	
	MONTHLY EST.			0.1597	11424.00		1824
APRIL	1	49	314.40	0.1559	2200.80	343	
	2	6	311.78	0.0192	2200.80	42	
	3	5	314.40	0.0159	2200.80	35	
	4	12	314.40	0.0382	2829.60	108	
	MONTHLY EST.			0.0573	9432.00		540
MAY	1	12	542.40	0.0221	2887.20	64	
	2	4	542.40	0.0074	3768.00	28	
	3	34	567.00	0.0600	4250.40	255	
	4	18	542.40	0.0332	5419.20	180	
	MONTHLY EST.			0.0307	16324.80		501
JUNE	1	48	542.40	0.0885	3796.80	336	
	2	35	508.80	0.0688	3232.80	222	
	3	13	542.40	0.0240	3456.00	83	
	4	10	1105.80	0.0090	4509.60	41	
	MONTHLY EST.			0.0476	14995.20		713
JULY	1	24	715.80	0.0335	4137.60	139	
	2	45	808.80	0.0556	4677.60	260	
	3	58	542.40	0.1069	4144.80	443	
	4	68	807.60	0.0842	6655.20	560	
	MONTHLY EST.			0.0701	19615.20		1375
AUGUST	1	28	808.80	0.0346	5661.60	196	
	2	7	564.00	0.0124	3928.80	49	
	3	55	780.60	0.0705	4320.00	304	
	4	2	856.80	0.0023	4068.00	9	
	MONTHLY EST.			0.0300	17978.40		539
SEPTEMBER	1	0	314.40	0.0000	2200.80	0	
	2	2	314.40	0.0064	2200.80	14	
	3	0	314.40	0.0000	2200.80	0	
	4	0	314.40	0.0000	2738.40	0	
	MONTHLY EST.			0.0016	9340.80		15
OCTOBER	1	7	314.40	0.0223	2200.80	49	
	2	0	314.40	0.0000	2200.80	0	
	3	1	314.40	0.0032	2200.80	7	
	4	7	314.40	0.0223	3144.00	70	
	MONTHLY EST.			0.0119	9746.40		116
NOVEMBER	1	1	314.40	0.0032	2200.80	7	
	2	14	314.40	0.0445	2200.80	98	
	3	91	628.80	0.1447	2200.80	319	
	4	124	542.40	0.2286	3777.60	864	
	MONTHLY EST.			0.1053	10380.00		1093
DECEMBER	1	17	542.40	0.0313	3192.00	100	
	2	13	585.67	0.0222	3453.60	77	
	3	105	564.20	0.1861	4195.20	781	
	4	36	542.40	0.0664	5433.60	361	
	MONTHLY EST.			0.0765	16274.40		1245

APPENDIX TABLE C-1.15. ESTIMATED WEEKLY ABUNDANCE OF STRIPED BASS, ROSETON GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	10	564.00	0.0177	3321.60	59	
	2	5	547.14	0.0091	3532.80	32	
	3	6	564.00	0.0106	3513.60	37	
	4	2	314.40	0.0064	3144.00	20	
	MONTHLY EST.			0.0110	13512.00		148
FEBRUARY	1	1	314.40	0.0032	3127.20	10	
	2	3	602.40	0.0050	4116.00	20	
	3	0	542.40	0.0000	3796.80	0	
	4	0	542.40	0.0000	3796.80	0	
	MONTHLY EST.			0.0020	14836.80		30
MARCH	1	0	542.40	0.0000	3796.80	0	
	2	0	302.39	0.0000	2282.40	0	
	3	1	314.40	0.0032	2200.80	7	
	4	1	617.45	0.0016	3144.00	5	
	MONTHLY EST.			0.0012	11424.00		14
APRIL	1	1	314.40	0.0032	2200.80	7	
	2	0	311.78	0.0000	2200.80	0	
	3	2	314.40	0.0064	2200.80	14	
	4	2	314.40	0.0064	2829.60	18	
	MONTHLY EST.			0.0040	9432.00		38
MAY	1	2	542.40	0.0037	2887.20	11	
	2	8	542.40	0.0147	3768.00	56	
	3	19	567.00	0.0335	4250.40	142	
	4	5	542.40	0.0092	5419.20	50	
	MONTHLY EST.			0.0153	16324.80		250
JUNE	1	8	542.40	0.0147	3796.80	56	
	2	1	508.80	0.0020	3232.80	6	
	3	2	542.40	0.0037	3456.00	13	
	4	156	1105.80	0.1411	4509.60	636	
	MONTHLY EST.			0.0404	14995.20		605
JULY	1	353	715.80	0.4932	4137.60	2040	
	2	974	808.80	1.2043	4677.60	5633	
	3	591	542.40	1.0896	4144.80	4516	
	4	365	807.60	0.4520	6655.20	3008	
	MONTHLY EST.			0.8097	19615.20		15883
AUGUST	1	340	808.80	0.4204	5661.60	2380	
	2	533	564.00	0.9450	3928.80	3713	
	3	355	780.60	0.4548	4320.00	1965	
	4	14	856.80	0.0163	4068.00	66	
	MONTHLY EST.			0.4591	17978.40		8254
SEPTEMBER	1	7	314.40	0.0223	2200.80	49	
	2	0	314.40	0.0000	2200.80	0	
	3	2	314.40	0.0064	2200.80	14	
	4	4	314.40	0.0127	2738.40	35	
	MONTHLY EST.			0.0103	9340.80		97
OCTOBER	1	49	314.40	0.1559	2200.80	343	
	2	12	314.40	0.0382	2200.80	84	
	3	13	314.40	0.0413	2200.80	91	
	4	3	314.40	0.0095	3144.00	30	
	MONTHLY EST.			0.0612	9746.40		597
NOVEMBER	1	1	314.40	0.0032	2200.80	7	
	2	2	314.40	0.0064	2200.80	14	
	3	23	628.80	0.0366	2200.80	81	
	4	7	542.40	0.0129	3777.60	49	
	MONTHLY EST.			0.0148	10380.00		153
DECEMBER	1	3	542.40	0.0055	3192.00	18	
	2	4	585.67	0.0068	3453.60	24	
	3	1	564.20	0.0018	4195.20	7	
	4	0	542.40	0.0000	5433.60	0	
	MONTHLY EST.			0.0035	16274.40		58

APPENDIX TABLE C-1.16. ESTIMATED WEEKLY ABUNDANCE OF WHITE PERCH, ROSETON GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	3	564.00	0.0053	3321.60	18	
	2	2	547.14	0.0037	3532.80	13	
	3	2	564.00	0.0035	3513.60	12	
	4	2	314.40	0.0064	3144.00	20	
	MONTHLY EST.			0.0047	13512.00		64
FEBRUARY	1	7	314.40	0.0223	3127.20	70	
	2	10	602.40	0.0166	4116.00	68	
	3	7	542.40	0.0129	3796.80	49	
	4	6	542.40	0.0111	3796.80	42	
	MONTHLY EST.			0.0157	14836.80		233
MARCH	1	3	542.40	0.0055	3796.80	21	
	2	6	302.39	0.0198	2282.40	45	
	3	9	314.40	0.0286	2200.80	63	
	4	36	617.45	0.0583	3144.00	183	
	MONTHLY EST.			0.0281	11424.00		321
APRIL	1	11	314.40	0.0350	2200.80	77	
	2	22	311.78	0.0706	2200.80	155	
	3	4	314.40	0.0127	2200.80	28	
	4	25	314.40	0.0795	2829.60	225	
	MONTHLY EST.			0.0494	9432.00		466
MAY	1	33	542.40	0.0608	2887.20	176	
	2	57	542.40	0.1051	3768.00	396	
	3	232	567.00	0.4092	4250.40	1739	
	4	129	542.40	0.2378	5419.20	1289	
	MONTHLY EST.			0.2032	16324.80		3318
JUNE	1	192	542.40	0.3540	3796.80	1344	
	2	161	508.80	0.3164	3232.80	1023	
	3	44	542.40	0.0811	3456.00	280	
	4	30	1105.80	0.0271	4509.60	122	
	MONTHLY EST.			0.1947	14995.20		2919
JULY	1	143	715.80	0.1998	4137.60	827	
	2	305	808.80	0.3771	4677.60	1764	
	3	512	542.40	0.9440	4144.80	3912	
	4	793	807.60	0.9819	6655.20	6535	
	MONTHLY EST.			0.6257	19615.20		12273
AUGUST	1	443	808.80	0.5477	5661.60	3101	
	2	488	564.00	0.8652	3928.80	3399	
	3	832	780.60	1.0658	4320.00	4604	
	4	126	856.80	0.1471	4068.00	598	
	MONTHLY EST.			0.6565	17978.40		11802
SEPTEMBER	1	36	314.40	0.1145	2200.80	252	
	2	9	314.40	0.0286	2200.80	63	
	3	2	314.40	0.0064	2200.80	14	
	4	1	314.40	0.0032	2738.40	9	
	MONTHLY EST.			0.0382	9340.80		357
OCTOBER	1	54	314.40	0.1718	2200.80	378	
	2	26	314.40	0.0827	2200.80	182	
	3	81	314.40	0.2576	2200.80	567	
	4	100	314.40	0.3181	3144.00	1000	
	MONTHLY EST.			0.2075	9746.40		2023
NOVEMBER	1	20	314.40	0.0636	2200.80	140	
	2	151	314.40	0.4803	2200.80	1057	
	3	592	628.80	0.9415	2200.80	2072	
	4	167	542.40	0.3079	3777.60	1163	
	MONTHLY EST.			0.4483	10380.00		4654
DECEMBER	1	83	542.40	0.1530	3192.00	488	
	2	19	585.67	0.0324	3453.60	112	
	3	18	564.20	0.0319	4195.20	134	
	4	17	542.40	0.0313	5433.60	170	
	MONTHLY EST.			0.0622	16274.40		1012

APPENDIX TABLE C-1.17. ESTIMATED WEEKLY ABUNDANCE OF BLUE CRAB, ROSETON GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	564.00	0.0000	3321.60	0	
	2	0	547.14	0.0000	3532.80	0	
	3	0	564.00	0.0000	3513.60	0	
	4	0	314.40	0.0000	3144.00	0	
	MONTHLY EST.			0.0000	13512.00		0
FEBRUARY	1	0	314.40	0.0000	3127.20	0	
	2	0	602.40	0.0000	4116.00	0	
	3	1	542.40	0.0018	3796.80	7	
	4	0	542.40	0.0000	3796.80	0	
	MONTHLY EST.			0.0005	14836.80		7
MARCH	1	0	542.40	0.0000	3796.80	0	
	2	0	302.39	0.0000	2282.40	0	
	3	0	314.40	0.0000	2200.80	0	
	4	0	617.45	0.0000	3144.00	0	
	MONTHLY EST.			0.0000	11424.00		0
APRIL	1	0	314.40	0.0000	2200.80	0	
	2	0	311.78	0.0000	2200.80	0	
	3	0	314.40	0.0000	2200.80	0	
	4	0	314.40	0.0000	2829.60	0	
	MONTHLY EST.			0.0000	9432.00		0
MAY	1	0	542.40	0.0000	2887.20	0	
	2	0	542.40	0.0000	3768.00	0	
	3	857	567.00	1.5115	4250.40	6424	
	4	760	542.40	1.4012	5419.20	7593	
	MONTHLY EST.			0.7282	16324.80		11887
JUNE	1	269	542.40	0.4959	3796.80	1883	
	2	340	508.80	0.6682	3232.80	2160	
	3	164	542.40	0.3024	3456.00	1045	
	4	633	1105.80	0.5724	4509.60	2581	
	MONTHLY EST.			0.5097	14995.20		7644
JULY	1	727	715.80	1.0156	4137.60	4202	
	2	1651	808.80	2.0413	4677.60	9548	
	3	1068	542.40	1.9690	4144.80	8161	
	4	1063	807.60	1.3162	6655.20	8760	
	MONTHLY EST.			1.5856	19615.20		31101
AUGUST	1	1314	808.80	1.6246	5661.60	9198	
	2	475	564.00	0.8422	3928.80	3309	
	3	806	780.60	1.0325	4320.00	4461	
	4	331	856.80	0.3863	4068.00	1572	
	MONTHLY EST.			0.9714	17978.40		17465
SEPTEMBER	1	73	314.40	0.2322	2200.80	511	
	2	33	314.40	0.1050	2200.80	231	
	3	22	314.40	0.0700	2200.80	154	
	4	67	314.40	0.2131	2738.40	584	
	MONTHLY EST.			0.1551	9340.80		1448
OCTOBER	1	171	314.40	0.5439	2200.80	1197	
	2	206	314.40	0.6552	2200.80	1442	
	3	141	314.40	0.4485	2200.80	987	
	4	61	314.40	0.1940	3144.00	610	
	MONTHLY EST.			0.4604	9746.40		4487
NOVEMBER	1	43	314.40	0.1368	2200.80	301	
	2	46	314.40	0.1463	2200.80	322	
	3	3	628.80	0.0048	2200.80	11	
	4	0	542.40	0.0000	3777.60	0	
	MONTHLY EST.			0.0720	10380.00		747
DECEMBER	1	0	542.40	0.0000	3192.00	0	
	2	0	585.67	0.0000	3453.60	0	
	3	0	564.20	0.0000	4195.20	0	
	4	0	542.40	0.0000	5433.60	0	
	MONTHLY EST.			0.0000	16274.40		0

APPENDIX TABLE C-2.1. ESTIMATED WEEKLY ABUNDANCE OF ALL FISH SPECIES, DANSKAMMER POINT GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	293	202.05	1.4501	1378.85	1999	
	2	259	200.93	1.2890	1372.54	1769	
	3	112	203.04	0.5516	1396.97	771	
	4	299	198.81	1.5039	1936.44	2912	
	MONTHLY EST.			1.1987	6084.79		7294
FEBRUARY	1	385	233.01	1.6523	1706.38	2819	
	2	174	246.93	0.7046	1549.70	1092	
	3	253	203.04	1.2461	1421.28	1771	
	4	98	203.04	0.4827	1432.08	691	
	MONTHLY EST.			1.0214	6109.44		6240
MARCH	1	324	234.30	1.3829	1634.88	2261	
	2	108	233.05	0.4634	1636.90	759	
	3	647	227.82	2.8399	1482.60	4210	
	4	1495	446.86	3.3456	2261.11	7565	
	MONTHLY EST.			2.0079	7015.49		14087
APRIL	1	114	188.52	0.6047	1432.37	866	
	2	358	200.36	1.7868	1421.28	2540	
	3	130	195.66	0.6644	1415.90	941	
	4	294	202.34	1.4530	1609.01	2338	
	MONTHLY EST.			1.1272	5878.56		6627
MAY	1	22	118.76	0.1852	790.27	146	
	2	40	89.05	0.4492	670.99	301	
	3	462	178.10	2.5941	1150.68	2985	
	4	236	175.85	1.3421	1577.14	2117	
	MONTHLY EST.			1.1426	4189.08		4787
JUNE	1	179	159.56	1.1218	1510.58	1695	
	2	1968	329.12	5.9796	2233.49	13355	
	3	588	239.70	2.4531	2147.95	5269	
	4	656	651.53	1.0069	2971.01	2991	
	MONTHLY EST.			2.6403	8863.03		23401
JULY	1	727	366.82	1.9819	2223.74	4407	
	2	1289	405.39	3.1797	2642.71	8403	
	3	1542	430.21	3.5843	2858.83	10247	
	4	240	270.60	0.8869	3087.05	2738	
	MONTHLY EST.			2.4082	10812.34		26038
AUGUST	1	443	408.98	1.0832	2567.62	2781	
	2	1882	398.74	4.7198	2308.42	10895	
	3	792	432.10	1.8329	2661.19	4878	
	4	3097	771.72	4.0131	3697.94	14840	
	MONTHLY EST.			2.9123	11235.17		32720
SEPTEMBER	1	2012	411.79	4.8860	2723.42	13307	
	2	1054	404.65	2.6047	2656.85	6920	
	3	576	377.32	1.5266	2531.71	3865	
	4	1297	405.71	3.1968	3085.73	9865	
	MONTHLY EST.			3.0535	10997.71		33582
OCTOBER	1	1517	374.40	4.0518	2364.24	9579	
	2	842	287.53	2.9283	2169.41	6353	
	3	1302	229.68	5.6686	1624.90	9211	
	4	4108	219.54	18.7119	2074.92	38826	
	MONTHLY EST.			7.8402	8233.46		64552
NOVEMBER	1	1351	224.06	6.0297	1559.95	9406	
	2	2643	260.71	10.1379	1853.33	18789	
	3	4563	419.49	10.8774	1525.18	16590	
	4	1069	232.92	4.5895	2290.46	10512	
	MONTHLY EST.			7.9086	7228.92		57171
DECEMBER	1	641	199.94	3.2060	1708.92	5479	
	2	294	178.45	1.6476	1421.45	2342	
	3	1285	203.04	6.3288	1113.07	7044	
	4	1336	185.70	7.1945	1926.10	13857	
	MONTHLY EST.			4.5942	6169.54		28344

APPENDIX TABLE C-2.2. ESTIMATED WEEKLY ABUNDANCE OF ALEWIFE, DANSKAMMER POINT GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	202.05	0.0000	1378.85	0	
	2	0	200.93	0.0000	1372.54	0	
	3	0	203.04	0.0000	1396.97	0	
	4	0	198.81	0.0000	1936.44	0	
	MONTHLY EST.			0.0000	6084.79		0
FEBRUARY	1	0	233.01	0.0000	1706.38	0	
	2	0	246.93	0.0000	1549.70	0	
	3	0	203.04	0.0000	1421.28	0	
	4	0	203.04	0.0000	1432.08	0	
	MONTHLY EST.			0.0000	6109.44		0
MARCH	1	0	234.30	0.0000	1634.88	0	
	2	0	233.05	0.0000	1636.90	0	
	3	20	227.82	0.0878	1482.60	130	
	4	3	446.86	0.0067	2261.11	15	
	MONTHLY EST.			0.0236	7015.49		166
APRIL	1	0	188.52	0.0000	1432.37	0	
	2	0	200.36	0.0000	1421.28	0	
	3	0	195.66	0.0000	1415.90	0	
	4	1	202.34	0.0049	1609.01	8	
	MONTHLY EST.			0.0012	5878.56		7
MAY	1	1	118.76	0.0084	790.27	7	
	2	0	89.05	0.0000	670.99	0	
	3	3	178.10	0.0168	1150.68	19	
	4	4	175.85	0.0227	1577.14	36	
	MONTHLY EST.			0.0120	4189.08		50
JUNE	1	0	159.56	0.0000	1510.58	0	
	2	7	329.12	0.0213	2233.49	48	
	3	3	239.70	0.0125	2147.95	27	
	4	3	651.53	0.0046	2971.01	14	
	MONTHLY EST.			0.0096	8863.03		85
JULY	1	66	366.82	0.1799	2223.74	400	
	2	88	405.39	0.2171	2642.71	574	
	3	123	430.21	0.2859	2858.83	817	
	4	32	270.60	0.1183	3087.05	365	
	MONTHLY EST.			0.2003	10812.34		2166
AUGUST	1	122	408.98	0.2983	2567.62	766	
	2	162	398.74	0.4063	2308.42	938	
	3	175	432.10	0.4050	2661.19	1078	
	4	219	771.72	0.2838	3697.94	1049	
	MONTHLY EST.			0.3483	11235.17		3914
SEPTEMBER	1	200	411.79	0.4857	2723.42	1323	
	2	61	404.65	0.1507	2656.85	401	
	3	88	377.32	0.2332	2531.71	590	
	4	106	405.71	0.2613	3085.73	806	
	MONTHLY EST.			0.2827	10997.71		3109
OCTOBER	1	212	374.40	0.5662	2364.24	1339	
	2	72	287.53	0.2504	2169.41	543	
	3	154	229.68	0.6705	1624.90	1089	
	4	202	219.54	0.9201	2074.92	1909	
	MONTHLY EST.			0.6018	8233.46		4955
NOVEMBER	1	28	224.06	0.1250	1559.95	195	
	2	14	260.71	0.0537	1853.33	100	
	3	0	419.49	0.0000	1525.18	0	
	4	0	232.92	0.0000	2290.46	0	
	MONTHLY EST.			0.0447	7228.92		323
DECEMBER	1	0	199.94	0.0000	1708.92	0	
	2	0	178.45	0.0000	1421.45	0	
	3	0	203.04	0.0000	1113.07	0	
	4	0	185.70	0.0000	1926.10	0	
	MONTHLY EST.			0.0000	6169.54		0

APPENDIX TABLE C-2.3. ESTIMATED WEEKLY ABUNDANCE OF AMERICAN SHAD, DANSKAMMER POINT GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	202.05	0.0000	1378.85	0	
	2	0	200.93	0.0000	1372.54	0	
	3	0	203.04	0.0000	1396.97	0	
	4	0	198.81	0.0000	1936.44	0	
	MONTHLY EST.			0.0000	6084.79		0
FEBRUARY	1	0	233.01	0.0000	1706.38	0	
	2	0	246.93	0.0000	1549.70	0	
	3	0	203.04	0.0000	1421.28	0	
	4	0	203.04	0.0000	1432.08	0	
	MONTHLY EST.			0.0000	6109.44		0
MARCH	1	0	234.30	0.0000	1634.88	0	
	2	0	233.05	0.0000	1636.90	0	
	3	0	227.82	0.0000	1482.60	0	
	4	0	446.86	0.0000	2261.11	0	
	MONTHLY EST.			0.0000	7015.49		0
APRIL	1	0	188.52	0.0000	1432.37	0	
	2	0	200.36	0.0000	1421.28	0	
	3	0	195.66	0.0000	1415.90	0	
	4	0	202.34	0.0000	1609.01	0	
	MONTHLY EST.			0.0000	5878.56		0
MAY	1	0	118.76	0.0000	790.27	0	
	2	0	89.05	0.0000	670.99	0	
	3	0	178.10	0.0000	1150.68	0	
	4	0	175.85	0.0000	1577.14	0	
	MONTHLY EST.			0.0000	4189.08		0
JUNE	1	0	159.56	0.0000	1510.58	0	
	2	0	329.12	0.0000	2233.49	0	
	3	0	239.70	0.0000	2147.95	0	
	4	1	651.53	0.0015	2971.01	5	
	MONTHLY EST.			0.0004	8863.03		3
JULY	1	13	366.82	0.0354	2223.74	79	
	2	14	405.39	0.0345	2642.71	91	
	3	13	430.21	0.0302	2858.83	86	
	4	1	270.60	0.0037	3087.05	11	
	MONTHLY EST.			0.0260	10812.34		281
AUGUST	1	6	408.98	0.0147	2567.62	38	
	2	46	398.74	0.1154	2308.42	266	
	3	13	432.10	0.0301	2661.19	80	
	4	22	771.72	0.0285	3697.94	105	
	MONTHLY EST.			0.0472	11235.17		530
SEPTEMBER	1	47	411.79	0.1141	2723.42	311	
	2	7	404.65	0.0173	2656.85	46	
	3	5	377.32	0.0133	2531.71	34	
	4	56	405.71	0.1380	3085.73	426	
	MONTHLY EST.			0.0707	10997.71		777
OCTOBER	1	82	374.40	0.2190	2364.24	518	
	2	17	287.53	0.0591	2169.41	128	
	3	43	229.68	0.1872	1624.90	304	
	4	54	219.54	0.2460	2074.92	510	
	MONTHLY EST.			0.1778	8233.46		1464
NOVEMBER	1	13	224.06	0.0580	1559.95	91	
	2	5	260.71	0.0192	1853.33	36	
	3	0	419.49	0.0000	1525.18	0	
	4	0	232.92	0.0000	2290.46	0	
	MONTHLY EST.			0.0193	7228.92		140
DECEMBER	1	0	199.94	0.0000	1708.92	0	
	2	0	178.45	0.0000	1421.45	0	
	3	0	203.04	0.0000	1113.07	0	
	4	0	185.70	0.0000	1926.10	0	
	MONTHLY EST.			0.0000	6169.54		0

APPENDIX TABLE C-2.4. ESTIMATED WEEKLY ABUNDANCE OF ATLANTIC TOMCOD, DANSKAMMER POINT GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	1	202.05	0.0049	1378.85	7	
	2	5	200.93	0.0249	1372.54	34	
	3	7	203.04	0.0345	1396.97	48	
	4	4	198.81	0.0201	1936.44	39	
	MONTHLY EST.			0.0211	6084.79		128
FEBRUARY	1	10	233.01	0.0429	1706.38	73	
	2	0	246.93	0.0000	1549.70	0	
	3	2	203.04	0.0099	1421.28	14	
	4	0	203.04	0.0000	1432.08	0	
	MONTHLY EST.			0.0132	6109.44		81
MARCH	1	0	234.30	0.0000	1634.88	0	
	2	0	233.05	0.0000	1636.90	0	
	3	0	227.82	0.0000	1482.60	0	
	4	0	446.86	0.0000	2261.11	0	
	MONTHLY EST.			0.0000	7015.49		0
APRIL	1	0	188.52	0.0000	1432.37	0	
	2	0	200.36	0.0000	1421.28	0	
	3	0	195.66	0.0000	1415.90	0	
	4	0	202.34	0.0000	1609.01	0	
	MONTHLY EST.			0.0000	5878.56		0
MAY	1	0	118.76	0.0000	790.27	0	
	2	0	89.05	0.0000	670.99	0	
	3	0	178.10	0.0000	1150.68	0	
	4	1	175.85	0.0057	1577.14	9	
	MONTHLY EST.			0.0014	4189.08		6
JUNE	1	0	159.56	0.0000	1510.58	0	
	2	10	329.12	0.0304	2233.49	68	
	3	35	239.70	0.1460	2147.95	314	
	4	104	651.53	0.1596	2971.01	474	
	MONTHLY EST.			0.0840	8863.03		745
JULY	1	60	366.82	0.1636	2223.74	364	
	2	98	405.39	0.2417	2642.71	639	
	3	44	430.21	0.1023	2858.83	292	
	4	9	270.60	0.0333	3087.05	103	
	MONTHLY EST.			0.1352	10812.34		1462
AUGUST	1	3	408.98	0.0073	2567.62	19	
	2	0	398.74	0.0000	2308.42	0	
	3	0	432.10	0.0000	2661.19	0	
	4	0	771.72	0.0000	3697.94	0	
	MONTHLY EST.			0.0018	11235.17		21
SEPTEMBER	1	0	411.79	0.0000	2723.42	0	
	2	1	404.65	0.0025	2656.85	7	
	3	0	377.32	0.0000	2531.71	0	
	4	0	405.71	0.0000	3085.73	0	
	MONTHLY EST.			0.0006	10997.71		7
OCTOBER	1	0	374.40	0.0000	2364.24	0	
	2	0	287.53	0.0000	2169.41	0	
	3	0	229.68	0.0000	1624.90	0	
	4	0	219.54	0.0000	2074.92	0	
	MONTHLY EST.			0.0000	8233.46		0
NOVEMBER	1	0	224.06	0.0000	1559.95	0	
	2	0	260.71	0.0000	1853.33	0	
	3	0	419.49	0.0000	1525.18	0	
	4	1	232.92	0.0043	2290.46	10	
	MONTHLY EST.			0.0011	7228.92		8
DECEMBER	1	0	199.94	0.0000	1708.92	0	
	2	0	178.45	0.0000	1421.45	0	
	3	2	203.04	0.0099	1113.07	11	
	4	1	185.70	0.0054	1926.10	10	
	MONTHLY EST.			0.0038	6169.54		23

APPENDIX TABLE C-2.5. ESTIMATED WEEKLY ABUNDANCE OF BAY ANCHOVY, DANSKAMMER POINT GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	202.05	0.0000	1378.85	0	
	2	0	200.93	0.0000	1372.54	0	
	3	0	203.04	0.0000	1396.97	0	
	4	0	198.81	0.0000	1936.44	0	
	MONTHLY EST.			0.0000	6084.79		0
FEBRUARY	1	0	233.01	0.0000	1706.38	0	
	2	0	246.93	0.0000	1549.70	0	
	3	0	203.04	0.0000	1421.28	0	
	4	0	203.04	0.0000	1432.08	0	
	MONTHLY EST.			0.0000	6109.44		0
MARCH	1	0	234.30	0.0000	1634.88	0	
	2	0	233.05	0.0000	1636.90	0	
	3	0	227.82	0.0000	1482.60	0	
	4	0	446.86	0.0000	2261.11	0	
	MONTHLY EST.			0.0000	7015.49		0
APRIL	1	0	188.52	0.0000	1432.37	0	
	2	0	200.36	0.0000	1421.28	0	
	3	0	195.66	0.0000	1415.90	0	
	4	0	202.34	0.0000	1609.01	0	
	MONTHLY EST.			0.0000	5878.56		0
MAY	1	0	118.76	0.0000	790.27	0	
	2	0	89.05	0.0000	670.99	0	
	3	0	178.10	0.0000	1150.68	0	
	4	0	175.85	0.0000	1577.14	0	
	MONTHLY EST.			0.0000	4189.08		0
JUNE	1	0	159.56	0.0000	1510.58	0	
	2	0	329.12	0.0000	2233.49	0	
	3	0	239.70	0.0000	2147.95	0	
	4	0	651.53	0.0000	2971.01	0	
	MONTHLY EST.			0.0000	8863.03		0
JULY	1	6	366.82	0.0164	2223.74	36	
	2	24	405.39	0.0592	2642.71	156	
	3	138	430.21	0.3208	2858.83	917	
	4	17	270.60	0.0628	3087.05	194	
	MONTHLY EST.			0.1148	10812.34		1241
AUGUST	1	12	408.98	0.0293	2567.62	75	
	2	358	398.74	0.8978	2308.42	2073	
	3	110	432.10	0.2546	2661.19	677	
	4	1149	771.72	1.4889	3697.94	5506	
	MONTHLY EST.			0.6677	11235.17		7501
SEPTEMBER	1	312	411.79	0.7577	2723.42	2063	
	2	462	404.65	1.1417	2656.85	3033	
	3	272	377.32	0.7209	2531.71	1825	
	4	588	405.71	1.4493	3085.73	4472	
	MONTHLY EST.			1.0174	10997.71		11189
OCTOBER	1	244	374.40	0.6517	2364.24	1541	
	2	65	287.53	0.2261	2169.41	490	
	3	49	229.68	0.2133	1624.90	347	
	4	1	219.54	0.0046	2074.92	9	
	MONTHLY EST.			0.2739	8233.46		2255
NOVEMBER	1	0	224.06	0.0000	1559.95	0	
	2	0	260.71	0.0000	1853.33	0	
	3	0	419.49	0.0000	1525.18	0	
	4	0	232.92	0.0000	2290.46	0	
	MONTHLY EST.			0.0000	7228.92		0
DECEMBER	1	0	199.94	0.0000	1708.92	0	
	2	0	178.45	0.0000	1421.45	0	
	3	0	203.04	0.0000	1113.07	0	
	4	0	185.70	0.0000	1926.10	0	
	MONTHLY EST.			0.0000	6169.54		0

APPENDIX TABLE C-2.6. ESTIMATED WEEKLY ABUNDANCE OF BLUEBACK HERRING, DANSKAMMER POINT GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	202.05	0.0000	1378.85	0	
	2	0	200.93	0.0000	1372.54	0	
	3	0	203.04	0.0000	1396.97	0	
	4	0	198.81	0.0000	1936.44	0	
	MONTHLY EST.			0.0000	6084.79		0
FEBRUARY	1	0	233.01	0.0000	1706.38	0	
	2	0	246.93	0.0000	1549.70	0	
	3	0	203.04	0.0000	1421.28	0	
	4	0	203.04	0.0000	1432.08	0	
	MONTHLY EST.			0.0000	6109.44		0
MARCH	1	0	234.30	0.0000	1634.88	0	
	2	0	233.05	0.0000	1636.90	0	
	3	2	227.82	0.0088	1482.60	13	
	4	0	446.86	0.0000	2261.11	0	
	MONTHLY EST.			0.0022	7015.49		15
APRIL	1	0	188.52	0.0000	1432.37	0	
	2	0	200.36	0.0000	1421.28	0	
	3	0	195.66	0.0000	1415.90	0	
	4	1	202.34	0.0049	1609.01	8	
	MONTHLY EST.			0.0012	5878.56		7
MAY	1	0	118.76	0.0000	790.27	0	
	2	0	89.05	0.0000	670.99	0	
	3	2	178.10	0.0112	1150.68	13	
	4	0	175.85	0.0000	1577.14	0	
	MONTHLY EST.			0.0028	4189.08		12
JUNE	1	1	159.56	0.0063	1510.58	9	
	2	25	329.12	0.0760	2233.49	170	
	3	32	239.70	0.1335	2147.95	287	
	4	25	651.53	0.0384	2971.01	114	
	MONTHLY EST.			0.0635	8863.03		563
JULY	1	3	366.82	0.0082	2223.74	18	
	2	4	405.39	0.0099	2642.71	26	
	3	36	430.21	0.0837	2858.83	239	
	4	4	270.60	0.0148	3087.05	46	
	MONTHLY EST.			0.0291	10812.34		315
AUGUST	1	14	408.98	0.0342	2567.62	88	
	2	13	398.74	0.0326	2308.42	75	
	3	4	432.10	0.0093	2661.19	25	
	4	17	771.72	0.0220	3697.94	81	
	MONTHLY EST.			0.0245	11235.17		276
SEPTEMBER	1	27	411.79	0.0656	2723.42	179	
	2	7	404.65	0.0173	2656.85	46	
	3	2	377.32	0.0053	2531.71	13	
	4	12	405.71	0.0296	3085.73	91	
	MONTHLY EST.			0.0294	10997.71		324
OCTOBER	1	19	374.40	0.0507	2364.24	120	
	2	104	287.53	0.3617	2169.41	785	
	3	468	229.68	2.0376	1624.90	3311	
	4	926	219.54	4.2179	2074.92	8752	
	MONTHLY EST.			1.6670	8233.46		13725
NOVEMBER	1	115	224.06	0.5133	1559.95	801	
	2	303	260.71	1.1622	1853.33	2154	
	3	1	419.49	0.0024	1525.18	4	
	4	1	232.92	0.0043	2290.46	10	
	MONTHLY EST.			0.4205	7228.92		3040
DECEMBER	1	0	199.94	0.0000	1708.92	0	
	2	0	178.45	0.0000	1421.45	0	
	3	0	203.04	0.0000	1113.07	0	
	4	0	185.70	0.0000	1926.10	0	
	MONTHLY EST.			0.0000	6169.54		0

APPENDIX TABLE C-2.7. ESTIMATED WEEKLY ABUNDANCE OF GIZZARD SHAD, DANSKAMMER POINT GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	123	202.05	0.6088	1378.85	839	
	2	149	200.93	0.7416	1372.54	1018	
	3	33	203.04	0.1625	1396.97	227	
	4	13	198.81	0.0654	1936.44	127	
	MONTHLY EST.			0.3946	6084.79		2401
FEBRUARY	1	78	233.01	0.3348	1706.38	571	
	2	72	246.93	0.2916	1549.70	452	
	3	80	203.04	0.3940	1421.28	560	
	4	22	203.04	0.1084	1432.08	155	
	MONTHLY EST.			0.2822	6109.44		1724
MARCH	1	12	234.30	0.0512	1634.88	84	
	2	1	233.05	0.0043	1636.90	7	
	3	6	227.82	0.0263	1482.60	39	
	4	2	446.86	0.0045	2261.11	10	
	MONTHLY EST.			0.0216	7015.49		151
APRIL	1	0	188.52	0.0000	1432.37	0	
	2	0	200.36	0.0000	1421.28	0	
	3	0	195.66	0.0000	1415.90	0	
	4	0	202.34	0.0000	1609.01	0	
	MONTHLY EST.			0.0000	5878.56		0
MAY	1	0	118.76	0.0000	790.27	0	
	2	0	89.05	0.0000	670.99	0	
	3	0	178.10	0.0000	1150.68	0	
	4	0	175.85	0.0000	1577.14	0	
	MONTHLY EST.			0.0000	4189.08		0
JUNE	1	0	159.56	0.0000	1510.58	0	
	2	1	329.12	0.0030	2233.49	7	
	3	0	239.70	0.0000	2147.95	0	
	4	0	651.53	0.0000	2971.01	0	
	MONTHLY EST.			0.0008	8863.03		7
JULY	1	0	366.82	0.0000	2223.74	0	
	2	23	405.39	0.0567	2642.71	150	
	3	480	430.21	1.1157	2858.83	3190	
	4	6	270.60	0.0222	3087.05	68	
	MONTHLY EST.			0.2987	10812.34		3229
AUGUST	1	5	408.98	0.0122	2567.62	31	
	2	11	398.74	0.0276	2308.42	64	
	3	2	432.10	0.0046	2661.19	12	
	4	11	771.72	0.0143	3697.94	53	
	MONTHLY EST.			0.0147	11235.17		165
SEPTEMBER	1	1	411.79	0.0024	2723.42	7	
	2	2	404.65	0.0049	2656.85	13	
	3	0	377.32	0.0000	2531.71	0	
	4	0	405.71	0.0000	3085.73	0	
	MONTHLY EST.			0.0018	10997.71		20
OCTOBER	1	2	374.40	0.0053	2364.24	13	
	2	3	287.53	0.0104	2169.41	23	
	3	1	229.68	0.0044	1624.90	7	
	4	32	219.54	0.1458	2074.92	302	
	MONTHLY EST.			0.0415	8233.46		341
NOVEMBER	1	95	224.06	0.4240	1559.95	661	
	2	442	260.71	1.6954	1853.33	3142	
	3	1186	419.49	2.8272	1525.18	4312	
	4	442	232.92	1.8976	2290.46	4346	
	MONTHLY EST.			1.7111	7228.92		12369
DECEMBER	1	318	199.94	1.5905	1708.92	2718	
	2	222	178.45	1.2441	1421.45	1768	
	3	887	203.04	4.3686	1113.07	4863	
	4	1164	185.70	6.2683	1926.10	12073	
	MONTHLY EST.			3.3679	6169.54		20778

APPENDIX TABLE C-2.8. ESTIMATED WEEKLY ABUNDANCE OF GOLDEN SHINER, DANSKAMMER POINT GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	32	202.05	0.1584	1378.85	218	
	2	50	200.93	0.2488	1372.54	342	
	3	18	203.04	0.0887	1396.97	124	
	4	50	198.81	0.2515	1936.44	487	
	MONTHLY EST.			0.1868	6084.79		1137
FEBRUARY	1	45	233.01	0.1931	1706.38	330	
	2	43	246.93	0.1741	1549.70	270	
	3	74	203.04	0.3645	1421.28	518	
	4	30	203.04	0.1478	1432.08	212	
	MONTHLY EST.			0.2199	6109.44		1343
MARCH	1	136	234.30	0.5805	1634.88	949	
	2	48	233.05	0.2060	1636.90	337	
	3	46	227.82	0.2019	1482.60	299	
	4	48	446.86	0.1074	2261.11	243	
	MONTHLY EST.			0.2739	7015.49		1922
APRIL	1	1	188.52	0.0053	1432.37	8	
	2	4	200.36	0.0200	1421.28	28	
	3	2	195.66	0.0102	1415.90	14	
	4	3	202.34	0.0148	1609.01	24	
	MONTHLY EST.			0.0126	5878.56		74
MAY	1	0	118.76	0.0000	790.27	0	
	2	0	89.05	0.0000	670.99	0	
	3	1	178.10	0.0056	1150.68	6	
	4	0	175.85	0.0000	1577.14	0	
	MONTHLY EST.			0.0014	4189.08		6
JUNE	1	1	159.56	0.0063	1510.58	9	
	2	4	329.12	0.0122	2233.49	27	
	3	0	239.70	0.0000	2147.95	0	
	4	0	651.53	0.0000	2971.01	0	
	MONTHLY EST.			0.0046	8863.03		41
JULY	1	0	366.82	0.0000	2223.74	0	
	2	1	405.39	0.0025	2642.71	7	
	3	0	430.21	0.0000	2858.83	0	
	4	0	270.60	0.0000	3087.05	0	
	MONTHLY EST.			0.0006	10812.34		7
AUGUST	1	1	408.98	0.0024	2567.62	6	
	2	0	398.74	0.0000	2308.42	0	
	3	0	432.10	0.0000	2661.19	0	
	4	0	771.72	0.0000	3697.94	0	
	MONTHLY EST.			0.0006	11235.17		7
SEPTEMBER	1	1	411.79	0.0024	2723.42	7	
	2	1	404.65	0.0025	2656.85	7	
	3	0	377.32	0.0000	2531.71	0	
	4	1	405.71	0.0025	3085.73	8	
	MONTHLY EST.			0.0018	10997.71		20
OCTOBER	1	0	374.40	0.0000	2364.24	0	
	2	0	287.53	0.0000	2169.41	0	
	3	0	229.68	0.0000	1624.90	0	
	4	3	219.54	0.0137	2074.92	28	
	MONTHLY EST.			0.0034	8233.46		28
NOVEMBER	1	3	224.06	0.0134	1559.95	21	
	2	3	260.71	0.0115	1853.33	21	
	3	20	419.49	0.0477	1525.18	73	
	4	11	232.92	0.0472	2290.46	108	
	MONTHLY EST.			0.0299	7228.92		217
DECEMBER	1	4	199.94	0.0200	1708.92	34	
	2	7	178.45	0.0392	1421.45	56	
	3	91	203.04	0.4482	1113.07	499	
	4	36	185.70	0.1939	1926.10	373	
	MONTHLY EST.			0.1753	6169.54		1082

APPENDIX TABLE C-2.9. ESTIMATED WEEKLY ABUNDANCE OF PUMPKINSEED, DANSKAMMER POINT GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	20	202.05	0.0990	1378.85	136	
	2	7	200.93	0.0348	1372.54	48	
	3	4	203.04	0.0197	1396.97	28	
	4	7	198.81	0.0352	1936.44	68	
	MONTHLY EST.			0.0472	6084.79		287
FEBRUARY	1	12	233.01	0.0515	1706.38	88	
	2	7	246.93	0.0283	1549.70	44	
	3	7	203.04	0.0345	1421.28	49	
	4	3	203.04	0.0148	1432.08	21	
	MONTHLY EST.			0.0323	6109.44		197
MARCH	1	12	234.30	0.0512	1634.88	84	
	2	14	233.05	0.0601	1636.90	98	
	3	8	227.82	0.0351	1482.60	52	
	4	18	446.86	0.0403	2261.11	91	
	MONTHLY EST.			0.0467	7015.49		327
APRIL	1	4	188.52	0.0212	1432.37	30	
	2	5	200.36	0.0250	1421.28	35	
	3	10	195.66	0.0511	1415.90	72	
	4	48	202.34	0.2372	1609.01	382	
	MONTHLY EST.			0.0836	5878.56		492
MAY	1	9	118.76	0.0758	790.27	60	
	2	25	89.05	0.2807	670.99	188	
	3	58	178.10	0.3257	1150.68	375	
	4	32	175.85	0.1820	1577.14	287	
	MONTHLY EST.			0.2160	4189.08		905
JUNE	1	21	159.56	0.1316	1510.58	199	
	2	93	329.12	0.2826	2233.49	631	
	3	27	239.70	0.1126	2147.95	242	
	4	17	651.53	0.0261	2971.01	78	
	MONTHLY EST.			0.1382	8863.03		1225
JULY	1	9	366.82	0.0245	2223.74	55	
	2	20	405.39	0.0493	2642.71	130	
	3	8	430.21	0.0186	2858.83	53	
	4	1	270.60	0.0037	3087.05	11	
	MONTHLY EST.			0.0240	10812.34		260
AUGUST	1	2	408.98	0.0049	2567.62	13	
	2	12	398.74	0.0301	2308.42	69	
	3	8	432.10	0.0185	2661.19	49	
	4	22	771.72	0.0285	3697.94	105	
	MONTHLY EST.			0.0205	11235.17		230
SEPTEMBER	1	15	411.79	0.0364	2723.42	99	
	2	18	404.65	0.0445	2656.85	118	
	3	7	377.32	0.0186	2531.71	47	
	4	19	405.71	0.0468	3085.73	145	
	MONTHLY EST.			0.0366	10997.71		402
OCTOBER	1	68	374.40	0.1816	2364.24	429	
	2	33	287.53	0.1148	2169.41	249	
	3	55	229.68	0.2395	1624.90	389	
	4	560	219.54	2.5508	2074.92	5293	
	MONTHLY EST.			0.7717	8233.46		6353
NOVEMBER	1	187	224.06	0.8346	1559.95	1302	
	2	77	260.71	0.2954	1853.33	547	
	3	254	419.49	0.6055	1525.18	923	
	4	4	232.92	0.0172	2290.46	39	
	MONTHLY EST.			0.4382	7228.92		3167
DECEMBER	1	3	199.94	0.0150	1708.92	26	
	2	4	178.45	0.0224	1421.45	32	
	3	53	203.04	0.2610	1113.07	291	
	4	34	185.70	0.1831	1926.10	353	
	MONTHLY EST.			0.1204	6169.54		743

APPENDIX TABLE C-2.10. ESTIMATED WEEKLY ABUNDANCE OF RAINBOW SMELT, DANSKAMMER POINT GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	202.05	0.0000	1378.85	0	
	2	0	200.93	0.0000	1372.54	0	
	3	0	203.04	0.0000	1396.97	0	
	4	0	198.81	0.0000	1936.44	0	
	MONTHLY EST.			0.0000	6084.79		0
FEBRUARY	1	0	233.01	0.0000	1706.38	0	
	2	0	246.93	0.0000	1549.70	0	
	3	0	203.04	0.0000	1421.28	0	
	4	0	203.04	0.0000	1432.08	0	
	MONTHLY EST.			0.0000	6109.44		0
MARCH	1	4	234.30	0.0171	1634.88	28	
	2	1	233.05	0.0043	1636.90	7	
	3	24	227.82	0.1053	1482.60	156	
	4	6	446.86	0.0134	2261.11	30	
	MONTHLY EST.			0.0350	7015.49		246
APRIL	1	2	188.52	0.0106	1432.37	15	
	2	1	200.36	0.0050	1421.28	7	
	3	1	195.66	0.0051	1415.90	7	
	4	0	202.34	0.0000	1609.01	0	
	MONTHLY EST.			0.0052	5878.56		30
MAY	1	0	118.76	0.0000	790.27	0	
	2	0	89.05	0.0000	670.99	0	
	3	0	178.10	0.0000	1150.68	0	
	4	0	175.85	0.0000	1577.14	0	
	MONTHLY EST.			0.0000	4189.08		0
JUNE	1	0	159.56	0.0000	1510.58	0	
	2	0	329.12	0.0000	2233.49	0	
	3	0	239.70	0.0000	2147.95	0	
	4	9	651.53	0.0138	2971.01	41	
	MONTHLY EST.			0.0035	8863.03		31
JULY	1	2	366.82	0.0055	2223.74	12	
	2	0	405.39	0.0000	2642.71	0	
	3	0	430.21	0.0000	2858.83	0	
	4	0	270.60	0.0000	3087.05	0	
	MONTHLY EST.			0.0014	10812.34		15
AUGUST	1	2	408.98	0.0049	2567.62	13	
	2	2	398.74	0.0050	2308.42	12	
	3	1	432.10	0.0023	2661.19	6	
	4	0	771.72	0.0000	3697.94	0	
	MONTHLY EST.			0.0031	11235.17		34
SEPTEMBER	1	0	411.79	0.0000	2723.42	0	
	2	0	404.65	0.0000	2656.85	0	
	3	0	377.32	0.0000	2531.71	0	
	4	0	405.71	0.0000	3085.73	0	
	MONTHLY EST.			0.0000	10997.71		0
OCTOBER	1	0	374.40	0.0000	2364.24	0	
	2	0	287.53	0.0000	2169.41	0	
	3	0	229.68	0.0000	1624.90	0	
	4	0	219.54	0.0000	2074.92	0	
	MONTHLY EST.			0.0000	8233.46		0
NOVEMBER	1	0	224.06	0.0000	1559.95	0	
	2	0	260.71	0.0000	1853.33	0	
	3	0	419.49	0.0000	1525.18	0	
	4	0	232.92	0.0000	2290.46	0	
	MONTHLY EST.			0.0000	7228.92		0
DECEMBER	1	0	199.94	0.0000	1708.92	0	
	2	0	178.45	0.0000	1421.45	0	
	3	0	203.04	0.0000	1113.07	0	
	4	0	185.70	0.0000	1926.10	0	
	MONTHLY EST.			0.0000	6169.54		0

APPENDIX TABLE C-2.11. ESTIMATED WEEKLY ABUNDANCE OF SPOTTAIL SHINER, DANSKAMMER POINT GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	20	202.05	0.0990	1378.85	136	
	2	9	200.93	0.0448	1372.54	61	
	3	28	203.04	0.1379	1396.97	193	
	4	128	198.81	0.6438	1936.44	1247	
	MONTHLY EST.			0.2314	6084.79		1408
FEBRUARY	1	100	233.01	0.4292	1706.38	732	
	2	23	246.93	0.0931	1549.70	144	
	3	51	203.04	0.2512	1421.28	357	
	4	15	203.04	0.0739	1432.08	106	
	MONTHLY EST.			0.2118	6109.44		1294
MARCH	1	110	234.30	0.4695	1634.88	768	
	2	23	233.05	0.0987	1636.90	162	
	3	218	227.82	0.9569	1482.60	1419	
	4	338	446.86	0.7564	2261.11	1710	
	MONTHLY EST.			0.5704	7015.49		4001
APRIL	1	51	188.52	0.2705	1432.37	388	
	2	97	200.36	0.4841	1421.28	688	
	3	70	195.66	0.3578	1415.90	507	
	4	47	202.34	0.2323	1609.01	374	
	MONTHLY EST.			0.3362	5878.56		1976
MAY	1	0	118.76	0.0000	790.27	0	
	2	1	89.05	0.0112	670.99	8	
	3	12	178.10	0.0674	1150.68	78	
	4	4	175.85	0.0227	1577.14	36	
	MONTHLY EST.			0.0253	4189.08		106
JUNE	1	4	159.56	0.0251	1510.58	38	
	2	482	329.12	1.4645	2233.49	3271	
	3	122	239.70	0.5090	2147.95	1093	
	4	79	651.53	0.1213	2971.01	360	
	MONTHLY EST.			0.5300	8863.03		4697
JULY	1	39	366.82	0.1063	2223.74	236	
	2	110	405.39	0.2713	2642.71	717	
	3	26	430.21	0.0604	2858.83	173	
	4	3	270.60	0.0111	3087.05	34	
	MONTHLY EST.			0.1123	10812.34		1214
AUGUST	1	6	408.98	0.0147	2567.62	38	
	2	16	398.74	0.0401	2308.42	93	
	3	5	432.10	0.0116	2661.19	31	
	4	69	771.72	0.0894	3697.94	331	
	MONTHLY EST.			0.0389	11235.17		438
SEPTEMBER	1	92	411.79	0.2234	2723.42	608	
	2	19	404.65	0.0470	2656.85	125	
	3	3	377.32	0.0080	2531.71	20	
	4	6	405.71	0.0148	3085.73	46	
	MONTHLY EST.			0.0733	10997.71		806
OCTOBER	1	25	374.40	0.0668	2364.24	158	
	2	2	287.53	0.0070	2169.41	15	
	3	1	229.68	0.0044	1624.90	7	
	4	43	219.54	0.1959	2074.92	406	
	MONTHLY EST.			0.0685	8233.46		564
NOVEMBER	1	16	224.06	0.0714	1559.95	111	
	2	86	260.71	0.3299	1853.33	611	
	3	144	419.49	0.3433	1525.18	524	
	4	85	232.92	0.3649	2290.46	836	
	MONTHLY EST.			0.2774	7228.92		2005
DECEMBER	1	43	199.94	0.2151	1708.92	368	
	2	14	178.45	0.0785	1421.45	112	
	3	128	203.04	0.6304	1113.07	702	
	4	36	185.70	0.1939	1926.10	373	
	MONTHLY EST.			0.2795	6169.54		1724

APPENDIX TABLE C-2.12. ESTIMATED WEEKLY ABUNDANCE OF STRIPED BASS, DANSKAMMER POINT GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	48	202.05	0.2376	1378.85	328	
	2	14	200.93	0.0697	1372.54	96	
	3	5	203.04	0.0246	1396.97	34	
	4	5	198.81	0.0251	1936.44	49	
	MONTHLY EST.			0.0893	6084.79		543
FEBRUARY	1	6	233.01	0.0258	1706.38	44	
	2	3	246.93	0.0121	1549.70	19	
	3	2	203.04	0.0099	1421.28	14	
	4	1	203.04	0.0049	1432.08	7	
	MONTHLY EST.			0.0132	6109.44		80
MARCH	1	1	234.30	0.0043	1634.88	7	
	2	0	233.05	0.0000	1636.90	0	
	3	1	227.82	0.0044	1482.60	7	
	4	2	446.86	0.0045	2261.11	10	
	MONTHLY EST.			0.0033	7015.49		23
APRIL	1	0	188.52	0.0000	1432.37	0	
	2	18	200.36	0.0898	1421.28	128	
	3	4	195.66	0.0204	1415.90	29	
	4	18	202.34	0.0890	1609.01	143	
	MONTHLY EST.			0.0498	5878.56		293
MAY	1	1	118.76	0.0084	790.27	7	
	2	1	89.05	0.0112	670.99	8	
	3	30	178.10	0.1684	1150.68	194	
	4	12	175.85	0.0682	1577.14	108	
	MONTHLY EST.			0.0641	4189.08		268
JUNE	1	9	159.56	0.0564	1510.58	85	
	2	37	329.12	0.1124	2233.49	251	
	3	18	239.70	0.0751	2147.95	161	
	4	31	651.53	0.0476	2971.01	141	
	MONTHLY EST.			0.0729	8863.03		646
JULY	1	27	366.82	0.0736	2223.74	164	
	2	67	405.39	0.1653	2642.71	437	
	3	117	430.21	0.2720	2858.83	777	
	4	34	270.60	0.1256	3087.05	388	
	MONTHLY EST.			0.1591	10812.34		1720
AUGUST	1	117	408.98	0.2861	2567.62	735	
	2	471	398.74	1.1812	2308.42	2727	
	3	210	432.10	0.4860	2661.19	1293	
	4	552	771.72	0.7153	3697.94	2645	
	MONTHLY EST.			0.6671	11235.17		7495
SEPTEMBER	1	528	411.79	1.2822	2723.42	3492	
	2	180	404.65	0.4448	2656.85	1182	
	3	85	377.32	0.2253	2531.71	570	
	4	241	405.71	0.5940	3085.73	1833	
	MONTHLY EST.			0.6366	10997.71		7001
OCTOBER	1	292	374.40	0.7799	2364.24	1844	
	2	117	287.53	0.4069	2169.41	883	
	3	68	229.68	0.2961	1624.90	481	
	4	105	219.54	0.4783	2074.92	992	
	MONTHLY EST.			0.4903	8233.46		4037
NOVEMBER	1	27	224.06	0.1205	1559.95	188	
	2	25	260.71	0.0959	1853.33	178	
	3	61	419.49	0.1454	1525.18	222	
	4	25	232.92	0.1073	2290.46	246	
	MONTHLY EST.			0.1173	7228.92		848
DECEMBER	1	8	199.94	0.0400	1708.92	68	
	2	5	178.45	0.0280	1421.45	40	
	3	1	203.04	0.0049	1113.07	5	
	4	2	185.70	0.0108	1926.10	21	
	MONTHLY EST.			0.0209	6169.54		129

APPENDIX TABLE C-2.13. ESTIMATED WEEKLY ABUNDANCE OF WEAKFISH, DANSKAMMER POINT GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	202.05	0.0000	1378.85	0	
	2	0	200.93	0.0000	1372.54	0	
	3	0	203.04	0.0000	1396.97	0	
	4	0	198.81	0.0000	1936.44	0	
	MONTHLY EST.			0.0000	6084.79		0
FEBRUARY	1	0	233.01	0.0000	1706.38	0	
	2	0	246.93	0.0000	1549.70	0	
	3	0	203.04	0.0000	1421.28	0	
	4	0	203.04	0.0000	1432.08	0	
	MONTHLY EST.			0.0000	6109.44		0
MARCH	1	0	234.30	0.0000	1634.88	0	
	2	0	233.05	0.0000	1636.90	0	
	3	0	227.82	0.0000	1482.60	0	
	4	0	446.86	0.0000	2261.11	0	
	MONTHLY EST.			0.0000	7015.49		0
APRIL	1	0	188.52	0.0000	1432.37	0	
	2	0	200.36	0.0000	1421.28	0	
	3	0	195.66	0.0000	1415.90	0	
	4	0	202.34	0.0000	1609.01	0	
	MONTHLY EST.			0.0000	5878.56		0
MAY	1	0	118.76	0.0000	790.27	0	
	2	0	89.05	0.0000	670.99	0	
	3	0	178.10	0.0000	1150.68	0	
	4	0	175.85	0.0000	1577.14	0	
	MONTHLY EST.			0.0000	4189.08		0
JUNE	1	0	159.56	0.0000	1510.58	0	
	2	0	329.12	0.0000	2233.49	0	
	3	0	239.70	0.0000	2147.95	0	
	4	0	651.53	0.0000	2971.01	0	
	MONTHLY EST.			0.0000	8863.03		0
JULY	1	0	366.82	0.0000	2223.74	0	
	2	0	405.39	0.0000	2642.71	0	
	3	0	430.21	0.0000	2858.83	0	
	4	0	270.60	0.0000	3087.05	0	
	MONTHLY EST.			0.0000	10812.34		0
AUGUST	1	0	408.98	0.0000	2567.62	0	
	2	2	398.74	0.0050	2308.42	12	
	3	2	432.10	0.0046	2661.19	12	
	4	388	771.72	0.5028	3697.94	1859	
	MONTHLY EST.			0.1281	11235.17		1439
SEPTEMBER	1	124	411.79	0.3011	2723.42	820	
	2	31	404.65	0.0766	2656.85	204	
	3	9	377.32	0.0239	2531.71	60	
	4	56	405.71	0.1380	3085.73	426	
	MONTHLY EST.			0.1349	10997.71		1484
OCTOBER	1	29	374.40	0.0775	2364.24	183	
	2	2	287.53	0.0070	2169.41	15	
	3	0	229.68	0.0000	1624.90	0	
	4	0	219.54	0.0000	2074.92	0	
	MONTHLY EST.			0.0211	8233.46		174
NOVEMBER	1	0	224.06	0.0000	1559.95	0	
	2	0	260.71	0.0000	1853.33	0	
	3	0	419.49	0.0000	1525.18	0	
	4	0	232.92	0.0000	2290.46	0	
	MONTHLY EST.			0.0000	7228.92		0
DECEMBER	1	0	199.94	0.0000	1708.92	0	
	2	0	178.45	0.0000	1421.45	0	
	3	0	203.04	0.0000	1113.07	0	
	4	0	185.70	0.0000	1926.10	0	
	MONTHLY EST.			0.0000	6169.54		0

APPENDIX TABLE C-2.14. ESTIMATED WEEKLY ABUNDANCE OF WHITE CATFISH, DANSKAMMER POINT GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	3	202.05	0.0148	1378.85	20	
	2	4	200.93	0.0199	1372.54	27	
	3	0	203.04	0.0000	1396.97	0	
	4	2	198.81	0.0101	1936.44	19	
	MONTHLY EST.			0.0112	6084.79		68
FEBRUARY	1	0	233.01	0.0000	1706.38	0	
	2	0	246.93	0.0000	1549.70	0	
	3	0	203.04	0.0000	1421.28	0	
	4	2	203.04	0.0099	1432.08	14	
	MONTHLY EST.			0.0025	6109.44		15
MARCH	1	0	234.30	0.0000	1634.88	0	
	2	0	233.05	0.0000	1636.90	0	
	3	2	227.82	0.0088	1482.60	13	
	4	8	446.86	0.0179	2261.11	40	
	MONTHLY EST.			0.0067	7015.49		47
APRIL	1	4	188.52	0.0212	1432.37	30	
	2	6	200.36	0.0299	1421.28	43	
	3	0	195.66	0.0000	1415.90	0	
	4	3	202.34	0.0148	1609.01	24	
	MONTHLY EST.			0.0165	5878.56		97
MAY	1	1	118.76	0.0084	790.27	7	
	2	1	89.05	0.0112	670.99	8	
	3	3	178.10	0.0168	1150.68	19	
	4	0	175.85	0.0000	1577.14	0	
	MONTHLY EST.			0.0091	4189.08		38
JUNE	1	3	159.56	0.0188	1510.58	28	
	2	43	329.12	0.1307	2233.49	292	
	3	11	239.70	0.0459	2147.95	99	
	4	8	651.53	0.0123	2971.01	36	
	MONTHLY EST.			0.0519	8863.03		460
JULY	1	21	366.82	0.0572	2223.74	127	
	2	44	405.39	0.1085	2642.71	287	
	3	13	430.21	0.0302	2858.83	86	
	4	0	270.60	0.0000	3087.05	0	
	MONTHLY EST.			0.0490	10812.34		530
AUGUST	1	8	408.98	0.0196	2567.62	50	
	2	10	398.74	0.0251	2308.42	58	
	3	6	432.10	0.0139	2661.19	37	
	4	7	771.72	0.0091	3697.94	34	
	MONTHLY EST.			0.0169	11235.17		190
SEPTEMBER	1	3	411.79	0.0073	2723.42	20	
	2	12	404.65	0.0297	2656.85	79	
	3	5	377.32	0.0133	2531.71	34	
	4	2	405.71	0.0049	3085.73	15	
	MONTHLY EST.			0.0138	10997.71		152
OCTOBER	1	1	374.40	0.0027	2364.24	6	
	2	10	287.53	0.0348	2169.41	75	
	3	5	229.68	0.0218	1624.90	35	
	4	70	219.54	0.3188	2074.92	662	
	MONTHLY EST.			0.0945	8233.46		778
NOVEMBER	1	50	224.06	0.2232	1559.95	348	
	2	99	260.71	0.3797	1853.33	704	
	3	24	419.49	0.0572	1525.18	87	
	4	3	232.92	0.0129	2290.46	30	
	MONTHLY EST.			0.1682	7228.92		1216
DECEMBER	1	4	199.94	0.0200	1708.92	34	
	2	0	178.45	0.0000	1421.45	0	
	3	6	203.04	0.0296	1113.07	33	
	4	3	185.70	0.0162	1926.10	31	
	MONTHLY EST.			0.0164	6169.54		101

APPENDIX TABLE C-2.15. ESTIMATED WEEKLY ABUNDANCE OF WHITE PERCH, DANSKAMMER POINT GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	10	202.05	0.0495	1378.85	68	
	2	5	200.93	0.0249	1372.54	34	
	3	8	203.04	0.0394	1396.97	55	
	4	63	198.81	0.3169	1936.44	614	
	MONTHLY EST.			0.1077	6084.79		655
FEBRUARY	1	105	233.01	0.4506	1706.38	769	
	2	17	246.93	0.0688	1549.70	107	
	3	21	203.04	0.1034	1421.28	147	
	4	17	203.04	0.0837	1432.08	120	
	MONTHLY EST.			0.1767	6109.44		1079
MARCH	1	33	234.30	0.1408	1634.88	230	
	2	11	233.05	0.0472	1636.90	77	
	3	283	227.82	1.2422	1482.60	1842	
	4	983	446.86	2.1998	2261.11	4974	
	MONTHLY EST.			0.9075	7015.49		6367
APRIL	1	39	188.52	0.2069	1432.37	296	
	2	186	200.36	0.9283	1421.28	1319	
	3	20	195.66	0.1022	1415.90	145	
	4	116	202.34	0.5733	1609.01	922	
	MONTHLY EST.			0.4527	5878.56		2661
MAY	1	5	118.76	0.0421	790.27	33	
	2	8	89.05	0.0898	670.99	60	
	3	165	178.10	0.9265	1150.68	1066	
	4	127	175.85	0.7222	1577.14	1139	
	MONTHLY EST.			0.4452	4189.08		1865
JUNE	1	128	159.56	0.8022	1510.58	1212	
	2	949	329.12	2.8835	2233.49	6440	
	3	291	239.70	1.2140	2147.95	2608	
	4	329	651.53	0.5050	2971.01	1500	
	MONTHLY EST.			1.3512	8863.03		11975
JULY	1	420	366.82	1.1450	2223.74	2546	
	2	736	405.39	1.8155	2642.71	4798	
	3	438	430.21	1.0181	2858.83	2911	
	4	120	270.60	0.4435	3087.05	1369	
	MONTHLY EST.			1.1055	10812.34		11953
AUGUST	1	131	408.98	0.3203	2567.62	822	
	2	721	398.74	1.8082	2308.42	4174	
	3	236	432.10	0.5462	2661.19	1453	
	4	498	771.72	0.6453	3697.94	2386	
	MONTHLY EST.			0.8300	11235.17		9325
SEPTEMBER	1	571	411.79	1.3866	2723.42	3776	
	2	198	404.65	0.4893	2656.85	1300	
	3	72	377.32	0.1908	2531.71	483	
	4	165	405.71	0.4067	3085.73	1255	
	MONTHLY EST.			0.6184	10997.71		6801
OCTOBER	1	491	374.40	1.3114	2364.24	3101	
	2	393	287.53	1.3668	2169.41	2965	
	3	438	229.68	1.9070	1624.90	3099	
	4	2027	219.54	9.2329	2074.92	19158	
	MONTHLY EST.			3.4545	8233.46		28443
NOVEMBER	1	770	224.06	3.4366	1559.95	5361	
	2	1553	260.71	5.9569	1853.33	11040	
	3	2777	419.49	6.6199	1525.18	10096	
	4	459	232.92	1.9706	2290.46	4514	
	MONTHLY EST.			4.4960	7228.92		32501
DECEMBER	1	238	199.94	1.1904	1708.92	2034	
	2	20	178.45	0.1121	1421.45	159	
	3	33	203.04	0.1625	1113.07	181	
	4	21	185.70	0.1131	1926.10	218	
	MONTHLY EST.			0.3945	6169.54		2434

APPENDIX TABLE C-2.16. ESTIMATED WEEKLY ABUNDANCE OF YELLOW PERCH, DANSKAMMER POINT GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	7	202.05	0.0346	1378.85	48	
	2	1	200.93	0.0050	1372.54	7	
	3	2	203.04	0.0099	1396.97	14	
	4	8	198.81	0.0402	1936.44	78	
	MONTHLY EST.			0.0224	6084.79		136
FEBRUARY	1	8	233.01	0.0343	1706.38	59	
	2	1	246.93	0.0040	1549.70	6	
	3	6	203.04	0.0296	1421.28	42	
	4	2	203.04	0.0099	1432.08	14	
	MONTHLY EST.			0.0194	6109.44		119
MARCH	1	6	234.30	0.0256	1634.88	42	
	2	1	233.05	0.0043	1636.90	7	
	3	17	227.82	0.0746	1482.60	111	
	4	19	446.86	0.0425	2261.11	96	
	MONTHLY EST.			0.0368	7015.49		258
APRIL	1	0	188.52	0.0000	1432.37	0	
	2	1	200.36	0.0050	1421.28	7	
	3	2	195.66	0.0102	1415.90	14	
	4	3	202.34	0.0148	1609.01	24	
	MONTHLY EST.			0.0075	5878.56		44
MAY	1	0	118.76	0.0000	790.27	0	
	2	0	89.05	0.0000	670.99	0	
	3	1	178.10	0.0056	1150.68	6	
	4	0	175.85	0.0000	1577.14	0	
	MONTHLY EST.			0.0014	4189.08		6
JUNE	1	0	159.56	0.0000	1510.58	0	
	2	0	329.12	0.0000	2233.49	0	
	3	0	239.70	0.0000	2147.95	0	
	4	0	651.53	0.0000	2971.01	0	
	MONTHLY EST.			0.0000	8863.03		0
JULY	1	1	366.82	0.0027	2223.74	6	
	2	0	405.39	0.0000	2642.71	0	
	3	0	430.21	0.0000	2858.83	0	
	4	0	270.60	0.0000	3087.05	0	
	MONTHLY EST.			0.0007	10812.34		7
AUGUST	1	0	408.98	0.0000	2567.62	0	
	2	0	398.74	0.0000	2308.42	0	
	3	0	432.10	0.0000	2661.19	0	
	4	0	771.72	0.0000	3697.94	0	
	MONTHLY EST.			0.0000	11235.17		0
SEPTEMBER	1	0	411.79	0.0000	2723.42	0	
	2	0	404.65	0.0000	2656.85	0	
	3	0	377.32	0.0000	2531.71	0	
	4	0	405.71	0.0000	3085.73	0	
	MONTHLY EST.			0.0000	10997.71		0
OCTOBER	1	0	374.40	0.0000	2364.24	0	
	2	0	287.53	0.0000	2169.41	0	
	3	0	229.68	0.0000	1624.90	0	
	4	0	219.54	0.0000	2074.92	0	
	MONTHLY EST.			0.0000	8233.46		0
NOVEMBER	1	1	224.06	0.0045	1559.95	7	
	2	1	260.71	0.0038	1853.33	7	
	3	4	419.49	0.0095	1525.18	15	
	4	4	232.92	0.0172	2290.46	39	
	MONTHLY EST.			0.0088	7228.92		63
DECEMBER	1	4	199.94	0.0200	1708.92	34	
	2	2	178.45	0.0112	1421.45	16	
	3	12	203.04	0.0591	1113.07	66	
	4	8	185.70	0.0431	1926.10	83	
	MONTHLY EST.			0.0333	6169.54		206

APPENDIX TABLE C-2.17. ESTIMATED WEEKLY ABUNDANCE OF BLUE CRAB, DANSKAMMER POINT GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	202.05	0.0000	1378.85	0	
	2	0	200.93	0.0000	1372.54	0	
	3	0	203.04	0.0000	1396.97	0	
	4	0	198.81	0.0000	1936.44	0	
	MONTHLY EST.			0.0000	6084.79		0
FEBRUARY	1	0	233.01	0.0000	1706.38	0	
	2	0	246.93	0.0000	1549.70	0	
	3	0	203.04	0.0000	1421.28	0	
	4	0	203.04	0.0000	1432.08	0	
	MONTHLY EST.			0.0000	6109.44		0
MARCH	1	0	234.30	0.0000	1634.88	0	
	2	0	233.05	0.0000	1636.90	0	
	3	0	227.82	0.0000	1482.60	0	
	4	1	446.86	0.0022	2261.11	5	
	MONTHLY EST.			0.0006	7015.49		4
APRIL	1	0	188.52	0.0000	1432.37	0	
	2	0	200.36	0.0000	1421.28	0	
	3	0	195.66	0.0000	1415.90	0	
	4	0	202.34	0.0000	1609.01	0	
	MONTHLY EST.			0.0000	5878.56		0
MAY	1	0	118.76	0.0000	790.27	0	
	2	0	89.05	0.0000	670.99	0	
	3	102	178.10	0.5727	1150.68	659	
	4	185	175.85	1.0521	1577.14	1659	
	MONTHLY EST.			0.4062	4189.08		1702
JUNE	1	44	159.56	0.2757	1510.58	417	
	2	188	329.12	0.5712	2233.49	1276	
	3	57	239.70	0.2378	2147.95	511	
	4	715	651.53	1.0974	2971.01	3260	
	MONTHLY EST.			0.5455	8863.03		4835
JULY	1	736	366.82	2.0064	2223.74	4462	
	2	871	405.39	2.1485	2642.71	5678	
	3	788	430.21	1.8316	2858.83	5236	
	4	152	270.60	0.5617	3087.05	1734	
	MONTHLY EST.			1.6371	10812.34		17701
AUGUST	1	437	408.98	1.0685	2567.62	2743	
	2	297	398.74	0.7448	2308.42	1719	
	3	241	432.10	0.5577	2661.19	1484	
	4	596	771.72	0.7723	3697.94	2856	
	MONTHLY EST.			0.7858	11235.17		8829
SEPTEMBER	1	261	411.79	0.6338	2723.42	1726	
	2	234	404.65	0.5783	2656.85	1536	
	3	130	377.32	0.3445	2531.71	872	
	4	344	405.71	0.8479	3085.73	2616	
	MONTHLY EST.			0.6011	10997.71		6611
OCTOBER	1	275	374.40	0.7345	2364.24	1737	
	2	161	287.53	0.5599	2169.41	1215	
	3	77	229.68	0.3352	1624.90	545	
	4	90	219.54	0.4099	2074.92	851	
	MONTHLY EST.			0.5099	8233.46		4198
NOVEMBER	1	93	224.06	0.4151	1559.95	647	
	2	264	260.71	1.0126	1853.33	1877	
	3	4	419.49	0.0095	1525.18	15	
	4	0	232.92	0.0000	2290.46	0	
	MONTHLY EST.			0.3593	7228.92		2597
DECEMBER	1	0	199.94	0.0000	1708.92	0	
	2	0	178.45	0.0000	1421.45	0	
	3	0	203.04	0.0000	1113.07	0	
	4	0	185.70	0.0000	1926.10	0	
	MONTHLY EST.			0.0000	6169.54		0

APPENDIX D

ESTIMATED IMPINGEMENT BIOMASS

LIST OF APPENDIX D TABLES

D-1.1. Estimated weekly biomass of all fish species, Roseton Generating Station, 1995.

D-1.2. Estimated weekly biomass of alewife, Roseton Generating Station, 1995.

D-1.3. Estimated weekly biomass of American eel, Roseton Generating Station, 1995.

D-1.4. Estimated weekly biomass of American shad, Roseton Generating Station, 1995.

D-1.5. Estimated weekly biomass of Atlantic tomcod, Roseton Generating Station, 1995.

D-1.6. Estimated weekly biomass of banded killifish, Roseton Generating Station, 1995.

D-1.7. Estimated weekly biomass of bay anchovy, Roseton Generating Station, 1995.

D-1.8. Estimated weekly biomass of blueback herring, Roseton Generating Station, 1995.

D-1.9. Estimated weekly biomass of brown bullhead, Roseton Generating Station, 1995.

D-1.10. Estimated weekly biomass of gizzard shad, Roseton Generating Station, 1995.

D-1.11. Estimated weekly biomass of golden shiner, Roseton Generating Station, 1995.

D-1.12. Estimated weekly biomass of pumpkinseed, Roseton Generating Station, 1995.

D-1.13. Estimated weekly biomass of rainbow smelt, Roseton Generating Station, 1995.

D-1.14. Estimated weekly biomass of spottail shiner, Roseton Generating Station, 1995.

D-1.15. Estimated weekly biomass of striped bass, Roseton Generating Station, 1995.

D-1.16. Estimated weekly biomass of white perch, Roseton Generating Station, 1995.

D-1.17. Estimated weekly biomass of blue crab, Roseton Generating Station, 1995.

D-2.1. Estimated weekly biomass of all fish species, Danskammer Point Generating Station, 1995.

D-2.2. Estimated weekly biomass of alewife, Danskammer Point Generating Station, 1995.

D-2.3. Estimated weekly biomass of American shad, Danskammer Point Generating Station, 1995.

D-2.4. Estimated weekly biomass of Atlantic tomcod, Danskammer Point Generating Station, 1995.

D-2.5. Estimated weekly biomass of bay anchovy, Danskammer Point Generating Station, 1995.

D-2.6. Estimated weekly biomass of blueback herring, Danskammer Point Generating Station, 1995.

D-2.7. Estimated weekly biomass of gizzard shad, Danskammer Point Generating Station, 1995.

D-2.8. Estimated weekly biomass of golden shiner, Danskammer Point Generating Station, 1995.

D-2.9. Estimated weekly biomass of pumpkinseed, Danskammer Point Generating Station, 1995.

D-2.10. Estimated weekly biomass of rainbow smelt, Danskammer Point Generating Station, 1995.

D-2.11. Estimated weekly biomass of spottail shiner, Danskammer Point Generating Station, 1995.

D-2.12. Estimated weekly biomass of striped bass, Danskammer Point Generating Station, 1995.

D-2.13. Estimated weekly biomass of weakfish, Danskammer Point Generating Station, 1995.

D-2.14. Estimated weekly biomass of white catfish, Danskammer Point Generating Station, 1995.

D-2.15. Estimated weekly biomass of white perch, Danskammer Point Generating Station, 1995.

D-2.16. Estimated weekly biomass of yellow perch, Danskammer Point Generating Station, 1995.

D-2.17. Estimated weekly biomass of blue crab, Danskammer Point Generating Station, 1995.

APPENDIX TABLE D-1.1. ESTIMATED WEEKLY BIOMASS OF ALL FISH SPECIES, ROSETON GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	4071.2	564.00	7.2184	3321.60	23976.8	
	2	6260.1	547.14	11.4415	3532.80	40420.4	
	3	1272.6	564.00	2.2564	3513.60	7928.0	
	4	198.2	314.40	0.6304	3144.00	1982.0	
	MONTHLY EST.			5.3867	13512.00		72784.7
FEBRUARY	1	105.7	314.40	0.3362	3127.20	1051.4	
	2	4676.4	602.40	7.7629	4116.00	31952.3	
	3	9223.1	542.40	17.0042	3796.80	64561.7	
	4	1416.3	542.40	2.6112	3796.80	9914.1	
	MONTHLY EST.			6.9286	14836.80		102798.8
MARCH	1	3420.3	542.40	6.3059	3796.80	23942.1	
	2	1060.1	302.39	3.5057	2282.40	8001.5	
	3	1937.9	314.40	6.1638	2200.80	13565.3	
	4	1034.9	617.45	1.6761	3144.00	5269.6	
	MONTHLY EST.			4.4129	11424.00		50412.6
APRIL	1	433.6	314.40	1.3791	2200.80	3035.2	
	2	423.2	311.78	1.3574	2200.80	2987.3	
	3	520.0	314.40	1.6539	2200.80	3640.0	
	4	1279.2	314.40	4.0687	2829.60	11512.8	
	MONTHLY EST.			2.1148	9432.00		19946.7
MAY	1	1408.3	542.40	2.5964	2887.20	7496.4	
	2	1895.7	542.40	3.4950	3768.00	13169.2	
	3	4415.4	567.00	7.7873	4250.40	33099.1	
	4	2236.4	542.40	4.1232	5419.20	22344.2	
	MONTHLY EST.			4.5005	16324.80		73469.4
JUNE	1	2773.4	542.40	5.1132	3796.80	19413.8	
	2	2289.3	508.80	4.4994	3232.80	14545.7	
	3	1918.0	542.40	3.5361	3456.00	12220.9	
	4	1868.6	1105.80	1.6898	4509.60	7620.4	
	MONTHLY EST.			3.7096	14995.20		55626.8
JULY	1	4861.2	715.80	6.7913	4137.60	28099.6	
	2	6440.3	808.80	7.9628	4677.60	37246.7	
	3	3658.9	542.40	6.7458	4144.80	27959.8	
	4	5711.7	807.60	7.0724	6655.20	47068.5	
	MONTHLY EST.			7.1431	19615.20		140112.7
AUGUST	1	5036.1	808.80	6.2266	5661.60	35252.7	
	2	3398.2	564.00	6.0252	3928.80	23671.7	
	3	7943.1	780.60	10.1756	4320.00	43958.7	
	4	2043.8	856.80	2.3854	4068.00	9703.8	
	MONTHLY EST.			6.2032	17978.40		111523.8
SEPTEMBER	1	322.9	314.40	1.0270	2200.80	2260.3	
	2	178.3	314.40	0.5671	2200.80	1248.1	
	3	187.4	314.40	0.5961	2200.80	1311.8	
	4	138.7	314.40	0.4412	2738.40	1208.1	
	MONTHLY EST.			0.6578	9340.80		6144.8
OCTOBER	1	2904.6	314.40	9.2385	2200.80	20332.2	
	2	1468.7	314.40	4.6714	2200.80	10280.9	
	3	2453.1	314.40	7.8025	2200.80	17171.7	
	4	2724.2	314.40	8.6648	3144.00	27242.0	
	MONTHLY EST.			7.5943	9746.40		74017.2
NOVEMBER	1	490.0	314.40	1.5585	2200.80	3430.0	
	2	1033.8	314.40	3.2882	2200.80	7236.6	
	3	5994.8	628.80	9.5337	2200.80	20981.8	
	4	10997.2	542.40	20.2751	3777.60	76591.1	
	MONTHLY EST.			8.6639	10380.00		89931.0
DECEMBER	1	1812.9	542.40	3.3424	3192.00	10668.8	
	2	11053.5	585.67	18.8734	3453.60	65181.0	
	3	118893.5	564.20	210.7294	4195.20	884051.8	
	4	37466.7	542.40	69.0758	5433.60	375330.1	
	MONTHLY EST.			75.5052	16274.40		1228802.1

APPENDIX TABLE D-1.2. ESTIMATED WEEKLY BIOMASS OF ALEWIFE, ROSETON GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	11.4	564.00	0.0202	3321.60	67.1	
	2	10.3	547.14	0.0188	3532.80	66.5	
	3	0.0	564.00	0.0000	3513.60	0.0	
	4	0.0	314.40	0.0000	3144.00	0.0	
	MONTHLY EST.			0.0098	13512.00		131.9
FEBRUARY	1	0.0	314.40	0.0000	3127.20	0.0	
	2	0.0	602.40	0.0000	4116.00	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	0.0	542.40	0.0000	3796.80	0.0	
	MONTHLY EST.			0.0000	14836.80		0.0
MARCH	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	302.39	0.0000	2282.40	0.0	
	3	35.3	314.40	0.1123	2200.80	247.1	
	4	0.0	617.45	0.0000	3144.00	0.0	
	MONTHLY EST.			0.0281	11424.00		320.7
APRIL	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	311.78	0.0000	2200.80	0.0	
	3	178.2	314.40	0.5668	2200.80	1247.4	
	4	209.6	314.40	0.6667	2829.60	1886.4	
	MONTHLY EST.			0.3084	9432.00		2908.5
MAY	1	14.0	542.40	0.0258	2887.20	74.5	
	2	183.0	542.40	0.3374	3768.00	1271.3	
	3	39.5	567.00	0.0697	4250.40	296.1	
	4	0.0	542.40	0.0000	5419.20	0.0	
	MONTHLY EST.			0.1082	16324.80		1766.6
JUNE	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	508.80	0.0000	3232.80	0.0	
	3	22.2	542.40	0.0409	3456.00	141.5	
	4	3.4	1105.80	0.0031	4509.60	13.9	
	MONTHLY EST.			0.0110	14995.20		165.0
JULY	1	634.2	715.80	0.8860	4137.60	3665.9	
	2	1117.6	808.80	1.3818	4677.60	6463.5	
	3	400.1	542.40	0.7376	4144.80	3057.4	
	4	1628.7	807.60	2.0167	6655.20	13421.6	
	MONTHLY EST.			1.2555	19615.20		24627.7
AUGUST	1	688.7	808.80	0.8515	5661.60	4820.9	
	2	563.3	564.00	0.9988	3928.80	3923.9	
	3	1015.7	780.60	1.3012	4320.00	5621.1	
	4	146.4	856.80	0.1709	4068.00	695.1	
	MONTHLY EST.			0.8306	17978.40		14932.5
SEPTEMBER	1	30.7	314.40	0.0976	2200.80	214.9	
	2	0.0	314.40	0.0000	2200.80	0.0	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	0.0	314.40	0.0000	2738.40	0.0	
	MONTHLY EST.			0.0244	9340.80		228.0
OCTOBER	1	54.7	314.40	0.1740	2200.80	382.9	
	2	21.7	314.40	0.0690	2200.80	151.9	
	3	48.1	314.40	0.1530	2200.80	336.7	
	4	42.4	314.40	0.1349	3144.00	424.0	
	MONTHLY EST.			0.1327	9746.40		1293.5
NOVEMBER	1	43.1	314.40	0.1371	2200.80	301.7	
	2	17.2	314.40	0.0547	2200.80	120.4	
	3	9.0	628.80	0.0143	2200.80	31.5	
	4	0.0	542.40	0.0000	3777.60	0.0	
	MONTHLY EST.			0.0515	10380.00		534.8
DECEMBER	1	0.0	542.40	0.0000	3192.00	0.0	
	2	0.0	585.67	0.0000	3453.60	0.0	
	3	0.0	564.20	0.0000	4195.20	0.0	
	4	0.0	542.40	0.0000	5433.60	0.0	
	MONTHLY EST.			0.0000	16274.40		0.0

APPENDIX TABLE D-1.3. ESTIMATED WEEKLY BIOMASS OF AMERICAN EEL, ROSETON GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	390.8	564.00	0.6929	3321.60	2301.6	
	2	0.0	547.14	0.0000	3532.80	0.0	
	3	0.0	564.00	0.0000	3513.60	0.0	
	4	0.0	314.40	0.0000	3144.00	0.0	
	MONTHLY EST.			0.1732	13512.00		2340.6
FEBRUARY	1	0.0	314.40	0.0000	3127.20	0.0	
	2	0.0	602.40	0.0000	4116.00	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	0.0	542.40	0.0000	3796.80	0.0	
	MONTHLY EST.			0.0000	14836.80		0.0
MARCH	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	302.39	0.0000	2282.40	0.0	
	3	171.4	314.40	0.5452	2200.80	1199.8	
	4	63.2	617.45	0.1024	3144.00	321.8	
	MONTHLY EST.			0.1619	11424.00		1849.3
APRIL	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	311.78	0.0000	2200.80	0.0	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	55.6	314.40	0.1768	2829.60	500.4	
	MONTHLY EST.			0.0442	9432.00		417.0
MAY	1	0.0	542.40	0.0000	2887.20	0.0	
	2	0.0	542.40	0.0000	3768.00	0.0	
	3	265.8	567.00	0.4688	4250.40	1992.5	
	4	69.3	542.40	0.1278	5419.20	692.4	
	MONTHLY EST.			0.1491	16324.80		2434.6
JUNE	1	2.4	542.40	0.0044	3796.80	16.8	
	2	0.0	508.80	0.0000	3232.80	0.0	
	3	385.9	542.40	0.7115	3456.00	2458.8	
	4	235.4	1105.80	0.2129	4509.60	960.0	
	MONTHLY EST.			0.2322	14995.20		3481.8
JULY	1	262.5	715.80	0.3667	4137.60	1517.4	
	2	125.1	808.80	0.1547	4677.60	723.5	
	3	211.5	542.40	0.3899	4144.80	1616.2	
	4	192.9	807.60	0.2389	6655.20	1589.6	
	MONTHLY EST.			0.2875	19615.20		5640.3
AUGUST	1	1115.3	808.80	1.3790	5661.60	7807.1	
	2	145.3	564.00	0.2576	3928.80	1012.2	
	3	493.5	780.60	0.6322	4320.00	2731.1	
	4	365.4	856.80	0.4265	4068.00	1734.9	
	MONTHLY EST.			0.6738	17978.40		12114.1
SEPTEMBER	1	53.7	314.40	0.1708	2200.80	375.9	
	2	0.0	314.40	0.0000	2200.80	0.0	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	0.0	314.40	0.0000	2738.40	0.0	
	MONTHLY EST.			0.0427	9340.80		398.9
OCTOBER	1	101.2	314.40	0.3219	2200.80	708.4	
	2	0.0	314.40	0.0000	2200.80	0.0	
	3	35.0	314.40	0.1113	2200.80	245.0	
	4	0.0	314.40	0.0000	3144.00	0.0	
	MONTHLY EST.			0.1083	9746.40		1055.6
NOVEMBER	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	314.40	0.0000	2200.80	0.0	
	3	0.0	628.80	0.0000	2200.80	0.0	
	4	408.0	542.40	0.7522	3777.60	2841.6	
	MONTHLY EST.			0.1881	10380.00		1952.0
DECEMBER	1	0.0	542.40	0.0000	3192.00	0.0	
	2	92.2	585.67	0.1574	3453.60	543.7	
	3	0.0	564.20	0.0000	4195.20	0.0	
	4	0.0	542.40	0.0000	5433.60	0.0	
	MONTHLY EST.			0.0394	16274.40		640.5

APPENDIX TABLE D-1.4. ESTIMATED WEEKLY BIOMASS OF AMERICAN SHAD, ROSETON GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	564.00	0.0000	3321.60	0.0	
	2	0.0	547.14	0.0000	3532.80	0.0	
	3	0.0	564.00	0.0000	3513.60	0.0	
	4	0.0	314.40	0.0000	3144.00	0.0	
	MONTHLY EST.			0.0000	13512.00		0.0
FEBRUARY	1	0.0	314.40	0.0000	3127.20	0.0	
	2	0.0	602.40	0.0000	4116.00	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	0.0	542.40	0.0000	3796.80	0.0	
	MONTHLY EST.			0.0000	14836.80		0.0
MARCH	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	302.39	0.0000	2282.40	0.0	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	0.0	617.45	0.0000	3144.00	0.0	
	MONTHLY EST.			0.0000	11424.00		0.0
APRIL	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	311.78	0.0000	2200.80	0.0	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	0.0	314.40	0.0000	2829.60	0.0	
	MONTHLY EST.			0.0000	9432.00		0.0
MAY	1	0.0	542.40	0.0000	2887.20	0.0	
	2	0.0	542.40	0.0000	3768.00	0.0	
	3	0.0	567.00	0.0000	4250.40	0.0	
	4	0.0	542.40	0.0000	5419.20	0.0	
	MONTHLY EST.			0.0000	16324.80		0.0
JUNE	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	508.80	0.0000	3232.80	0.0	
	3	0.0	542.40	0.0000	3456.00	0.0	
	4	3.4	1105.80	0.0031	4509.60	13.9	
	MONTHLY EST.			0.0008	14995.20		11.5
JULY	1	577.9	715.80	0.8073	4137.60	3340.5	
	2	656.2	808.80	0.8113	4677.60	3795.1	
	3	81.6	542.40	0.1504	4144.80	623.6	
	4	187.6	807.60	0.2323	6655.20	1546.0	
	MONTHLY EST.			0.5004	19615.20		9814.5
AUGUST	1	161.2	808.80	0.1993	5661.60	1128.4	
	2	141.0	564.00	0.2500	3928.80	982.2	
	3	132.6	780.60	0.1699	4320.00	733.8	
	4	68.5	856.80	0.0799	4068.00	325.2	
	MONTHLY EST.			0.1748	17978.40		3142.3
SEPTEMBER	1	3.6	314.40	0.0115	2200.80	25.2	
	2	3.5	314.40	0.0111	2200.80	24.5	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	0.0	314.40	0.0000	2738.40	0.0	
	MONTHLY EST.			0.0056	9340.80		52.7
OCTOBER	1	3.7	314.40	0.0118	2200.80	25.9	
	2	10.9	314.40	0.0347	2200.80	76.3	
	3	5.1	314.40	0.0162	2200.80	35.7	
	4	28.7	314.40	0.0913	3144.00	287.0	
	MONTHLY EST.			0.0385	9746.40		375.1
NOVEMBER	1	30.9	314.40	0.0983	2200.80	216.3	
	2	9.9	314.40	0.0315	2200.80	69.3	
	3	0.0	628.80	0.0000	2200.80	0.0	
	4	0.0	542.40	0.0000	3777.60	0.0	
	MONTHLY EST.			0.0324	10380.00		336.8
DECEMBER	1	0.0	542.40	0.0000	3192.00	0.0	
	2	0.0	585.67	0.0000	3453.60	0.0	
	3	0.0	564.20	0.0000	4195.20	0.0	
	4	0.0	542.40	0.0000	5433.60	0.0	
	MONTHLY EST.			0.0000	16274.40		0.0

APPENDIX TABLE D-1.5. ESTIMATED WEEKLY BIOMASS OF ATLANTIC TOMCOD, ROSETON GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	564.00	0.0000	3321.60	0.0	
	2	54.8	547.14	0.1002	3532.80	353.8	
	3	0.0	564.00	0.0000	3513.60	0.0	
	4	0.0	314.40	0.0000	3144.00	0.0	
	MONTHLY EST.			0.0250	13512.00		338.3
FEBRUARY	1	0.0	314.40	0.0000	3127.20	0.0	
	2	0.0	602.40	0.0000	4116.00	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	0.0	542.40	0.0000	3796.80	0.0	
	MONTHLY EST.			0.0000	14836.80		0.0
MARCH	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	302.39	0.0000	2282.40	0.0	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	0.0	617.45	0.0000	3144.00	0.0	
	MONTHLY EST.			0.0000	11424.00		0.0
APRIL	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	311.78	0.0000	2200.80	0.0	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	0.0	314.40	0.0000	2829.60	0.0	
	MONTHLY EST.			0.0000	9432.00		0.0
MAY	1	0.2	542.40	0.0004	2887.20	1.1	
	2	2.2	542.40	0.0041	3768.00	15.3	
	3	54.6	567.00	0.0963	4250.40	409.3	
	4	79.2	542.40	0.1460	5419.20	791.3	
	MONTHLY EST.			0.0617	16324.80		1007.0
JUNE	1	8.3	542.40	0.0153	3796.80	58.1	
	2	41.0	508.80	0.0806	3232.80	260.5	
	3	9.8	542.40	0.0181	3456.00	62.4	
	4	109.2	1105.80	0.0988	4509.60	445.3	
	MONTHLY EST.			0.0532	14995.20		797.4
JULY	1	161.1	715.80	0.2251	4137.60	931.2	
	2	225.3	808.80	0.2786	4677.60	1303.0	
	3	32.1	542.40	0.0592	4144.80	245.3	
	4	140.7	807.60	0.1742	6655.20	1159.5	
	MONTHLY EST.			0.1843	19615.20		3614.2
AUGUST	1	17.1	808.80	0.0211	5661.60	119.7	
	2	0.0	564.00	0.0000	3928.80	0.0	
	3	0.0	780.60	0.0000	4320.00	0.0	
	4	0.0	856.80	0.0000	4068.00	0.0	
	MONTHLY EST.			0.0053	17978.40		95.0
SEPTEMBER	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	314.40	0.0000	2200.80	0.0	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	0.0	314.40	0.0000	2738.40	0.0	
	MONTHLY EST.			0.0000	9340.80		0.0
OCTOBER	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	314.40	0.0000	2200.80	0.0	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	0.0	314.40	0.0000	3144.00	0.0	
	MONTHLY EST.			0.0000	9746.40		0.0
NOVEMBER	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	314.40	0.0000	2200.80	0.0	
	3	0.0	628.80	0.0000	2200.80	0.0	
	4	0.0	542.40	0.0000	3777.60	0.0	
	MONTHLY EST.			0.0000	10380.00		0.0
DECEMBER	1	0.0	542.40	0.0000	3192.00	0.0	
	2	0.0	585.67	0.0000	3453.60	0.0	
	3	0.0	564.20	0.0000	4195.20	0.0	
	4	0.0	542.40	0.0000	5433.60	0.0	
	MONTHLY EST.			0.0000	16274.40		0.0

APPENDIX TABLE D-1.6. ESTIMATED WEEKLY BIOMASS OF BANDED KILLIFISH, ROSETON GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	149.1	564.00	0.2644	3321.60	878.1	
	2	32.7	547.14	0.0598	3532.80	211.1	
	3	24.4	564.00	0.0433	3513.60	152.0	
	4	0.8	314.40	0.0025	3144.00	8.0	
	MONTHLY EST.			0.0925	13512.00		1249.6
FEBRUARY	1	5.2	314.40	0.0165	3127.20	51.7	
	2	22.2	602.40	0.0369	4116.00	151.7	
	3	39.5	542.40	0.0728	3796.80	276.5	
	4	1.9	542.40	0.0035	3796.80	13.3	
	MONTHLY EST.			0.0324	14836.80		481.2
MARCH	1	8.0	542.40	0.0147	3796.80	56.0	
	2	27.6	302.39	0.0913	2282.40	208.3	
	3	31.4	314.40	0.0999	2200.80	219.8	
	4	23.6	617.45	0.0382	3144.00	120.2	
	MONTHLY EST.			0.0610	11424.00		697.2
APRIL	1	1.8	314.40	0.0057	2200.80	12.6	
	2	0.0	311.78	0.0000	2200.80	0.0	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	0.3	314.40	0.0010	2829.60	2.7	
	MONTHLY EST.			0.0017	9432.00		15.8
MAY	1	1.6	542.40	0.0029	2887.20	8.5	
	2	0.0	542.40	0.0000	3768.00	0.0	
	3	0.0	567.00	0.0000	4250.40	0.0	
	4	0.0	542.40	0.0000	5419.20	0.0	
	MONTHLY EST.			0.0007	16324.80		12.0
JUNE	1	21.3	542.40	0.0393	3796.80	149.1	
	2	10.2	508.80	0.0200	3232.80	64.8	
	3	9.7	542.40	0.0179	3456.00	61.8	
	4	6.5	1105.80	0.0059	4509.60	26.5	
	MONTHLY EST.			0.0208	14995.20		311.4
JULY	1	7.6	715.80	0.0106	4137.60	43.9	
	2	3.5	808.80	0.0043	4677.60	20.2	
	3	0.0	542.40	0.0000	4144.80	0.0	
	4	6.1	807.60	0.0076	6655.20	50.3	
	MONTHLY EST.			0.0056	19615.20		110.3
AUGUST	1	4.0	808.80	0.0049	5661.60	28.0	
	2	7.3	564.00	0.0129	3928.80	50.9	
	3	2.0	780.60	0.0026	4320.00	11.1	
	4	2.0	856.80	0.0023	4068.00	9.5	
	MONTHLY EST.			0.0057	17978.40		102.4
SEPTEMBER	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	314.40	0.0000	2200.80	0.0	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	0.0	314.40	0.0000	2738.40	0.0	
	MONTHLY EST.			0.0000	9340.80		0.0
OCTOBER	1	11.6	314.40	0.0369	2200.80	81.2	
	2	18.4	314.40	0.0585	2200.80	128.8	
	3	37.6	314.40	0.1196	2200.80	263.2	
	4	0.0	314.40	0.0000	3144.00	0.0	
	MONTHLY EST.			0.0538	9746.40		523.9
NOVEMBER	1	0.0	314.40	0.0000	2200.80	0.0	
	2	3.2	314.40	0.0102	2200.80	22.4	
	3	13.4	628.80	0.0213	2200.80	46.9	
	4	1251.5	542.40	2.3073	3777.60	8716.2	
	MONTHLY EST.			0.5847	10380.00		6069.3
DECEMBER	1	28.7	542.40	0.0529	3192.00	168.9	
	2	66.7	585.67	0.1139	3453.60	393.3	
	3	68.1	564.20	0.1207	4195.20	506.4	
	4	82.6	542.40	0.1523	5433.60	827.5	
	MONTHLY EST.			0.1099	16274.40		1789.3

APPENDIX TABLE D-1.7. ESTIMATED WEEKLY BIOMASS OF BAY ANCHOVY, ROSETON GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	564.00	0.0000	3321.60	0.0	
	2	0.0	547.14	0.0000	3532.80	0.0	
	3	0.0	564.00	0.0000	3513.60	0.0	
	4	0.0	314.40	0.0000	3144.00	0.0	
	MONTHLY EST.			0.0000	13512.00		0.0
FEBRUARY	1	0.0	314.40	0.0000	3127.20	0.0	
	2	0.0	602.40	0.0000	4116.00	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	0.0	542.40	0.0000	3796.80	0.0	
	MONTHLY EST.			0.0000	14836.80		0.0
MARCH	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	302.39	0.0000	2282.40	0.0	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	0.0	617.45	0.0000	3144.00	0.0	
	MONTHLY EST.			0.0000	11424.00		0.0
APRIL	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	311.78	0.0000	2200.80	0.0	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	0.0	314.40	0.0000	2829.60	0.0	
	MONTHLY EST.			0.0000	9432.00		0.0
MAY	1	0.0	542.40	0.0000	2887.20	0.0	
	2	0.0	542.40	0.0000	3768.00	0.0	
	3	0.0	567.00	0.0000	4250.40	0.0	
	4	0.0	542.40	0.0000	5419.20	0.0	
	MONTHLY EST.			0.0000	16324.80		0.0
JUNE	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	508.80	0.0000	3232.80	0.0	
	3	0.0	542.40	0.0000	3456.00	0.0	
	4	0.0	1105.80	0.0000	4509.60	0.0	
	MONTHLY EST.			0.0000	14995.20		0.0
JULY	1	37.9	715.80	0.0529	4137.60	219.1	
	2	372.1	808.80	0.4601	4677.60	2152.0	
	3	496.7	542.40	0.9157	4144.80	3795.6	
	4	915.0	807.60	1.1330	6655.20	7540.3	
	MONTHLY EST.			0.6404	19615.20		12562.3
AUGUST	1	418.0	808.80	0.5168	5661.60	2926.0	
	2	736.2	564.00	1.3053	3928.80	5128.3	
	3	2057.3	780.60	2.6355	4320.00	11385.5	
	4	40.7	856.80	0.0475	4068.00	193.2	
	MONTHLY EST.			1.1263	17978.40		20249.0
SEPTEMBER	1	4.5	314.40	0.0143	2200.80	31.5	
	2	6.3	314.40	0.0200	2200.80	44.1	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	23.4	314.40	0.0744	2738.40	203.8	
	MONTHLY EST.			0.0272	9340.80		254.0
OCTOBER	1	1950.7	314.40	6.2045	2200.80	13654.9	
	2	702.3	314.40	2.2338	2200.80	4916.1	
	3	367.2	314.40	1.1679	2200.80	2570.4	
	4	0.0	314.40	0.0000	3144.00	0.0	
	MONTHLY EST.			2.4016	9746.40		23406.6
NOVEMBER	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	314.40	0.0000	2200.80	0.0	
	3	0.0	628.80	0.0000	2200.80	0.0	
	4	0.0	542.40	0.0000	3777.60	0.0	
	MONTHLY EST.			0.0000	10380.00		0.0
DECEMBER	1	0.0	542.40	0.0000	3192.00	0.0	
	2	0.0	585.67	0.0000	3453.60	0.0	
	3	0.0	564.20	0.0000	4195.20	0.0	
	4	0.0	542.40	0.0000	5433.60	0.0	
	MONTHLY EST.			0.0000	16274.40		0.0

APPENDIX TABLE D-1.8. ESTIMATED WEEKLY BIOMASS OF BLUEBACK HERRING, ROSETON GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	564.00	0.0000	3321.60	0.0	
	2	0.0	547.14	0.0000	3532.80	0.0	
	3	0.0	564.00	0.0000	3513.60	0.0	
	4	0.0	314.40	0.0000	3144.00	0.0	
	MONTHLY EST.			0.0000	13512.00		0.0
FEBRUARY	1	0.0	314.40	0.0000	3127.20	0.0	
	2	0.0	602.40	0.0000	4116.00	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	0.0	542.40	0.0000	3796.80	0.0	
	MONTHLY EST.			0.0000	14836.80		0.0
MARCH	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	302.39	0.0000	2282.40	0.0	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	0.0	617.45	0.0000	3144.00	0.0	
	MONTHLY EST.			0.0000	11424.00		0.0
APRIL	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	311.78	0.0000	2200.80	0.0	
	3	3.0	314.40	0.0095	2200.80	21.0	
	4	6.0	314.40	0.0191	2829.60	54.0	
	MONTHLY EST.			0.0072	9432.00		67.5
MAY	1	4.4	542.40	0.0081	2887.20	23.4	
	2	6.8	542.40	0.0125	3768.00	47.2	
	3	341.6	567.00	0.6025	4250.40	2560.7	
	4	14.5	542.40	0.0267	5419.20	144.9	
	MONTHLY EST.			0.1625	16324.80		2652.2
JUNE	1	0.0	542.40	0.0000	3796.80	0.0	
	2	186.0	508.80	0.3656	3232.80	1181.8	
	3	136.1	542.40	0.2509	3456.00	867.2	
	4	31.2	1105.80	0.0282	4509.60	127.2	
	MONTHLY EST.			0.1612	14995.20		2416.9
JULY	1	61.7	715.80	0.0862	4137.60	356.6	
	2	111.0	808.80	0.1372	4677.60	642.0	
	3	506.4	542.40	0.9336	4144.80	3869.7	
	4	333.8	807.60	0.4133	6655.20	2750.8	
	MONTHLY EST.			0.3926	19615.20		7700.9
AUGUST	1	307.5	808.80	0.3802	5661.60	2152.5	
	2	82.4	564.00	0.1461	3928.80	574.0	
	3	625.7	780.60	0.8016	4320.00	3462.8	
	4	4.7	856.80	0.0055	4068.00	22.3	
	MONTHLY EST.			0.3333	17978.40		5992.8
SEPTEMBER	1	7.1	314.40	0.0226	2200.80	49.7	
	2	53.2	314.40	0.1692	2200.80	372.4	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	2.4	314.40	0.0076	2738.40	20.9	
	MONTHLY EST.			0.0499	9340.80		465.7
OCTOBER	1	144.1	314.40	0.4583	2200.80	1008.7	
	2	350.6	314.40	1.1151	2200.80	2454.2	
	3	1293.2	314.40	4.1132	2200.80	9052.4	
	4	1089.8	314.40	3.4663	3144.00	10898.0	
	MONTHLY EST.			2.2882	9746.40		22302.2
NOVEMBER	1	190.1	314.40	0.6046	2200.80	1330.7	
	2	204.8	314.40	0.6514	2200.80	1433.6	
	3	7.2	628.80	0.0115	2200.80	25.2	
	4	0.0	542.40	0.0000	3777.60	0.0	
	MONTHLY EST.			0.3169	10380.00		3289.1
DECEMBER	1	0.0	542.40	0.0000	3192.00	0.0	
	2	0.0	585.67	0.0000	3453.60	0.0	
	3	0.0	564.20	0.0000	4195.20	0.0	
	4	0.0	542.40	0.0000	5433.60	0.0	
	MONTHLY EST.			0.0000	16274.40		0.0

APPENDIX TABLE D-1.9. ESTIMATED WEEKLY BIOMASS OF BROWN BULLHEAD, ROSETON GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	19.1	564.00	0.0339	3321.60	112.5	
	2	0.0	547.14	0.0000	3532.80	0.0	
	3	18.3	564.00	0.0324	3513.60	114.0	
	4	0.0	314.40	0.0000	3144.00	0.0	
	MONTHLY EST.			0.0166	13512.00		224.0
FEBRUARY	1	0.0	314.40	0.0000	3127.20	0.0	
	2	0.0	602.40	0.0000	4116.00	0.0	
	3	209.1	542.40	0.3855	3796.80	1463.7	
	4	0.0	542.40	0.0000	3796.80	0.0	
	MONTHLY EST.			0.0964	14836.80		1429.9
MARCH	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	302.39	0.0000	2282.40	0.0	
	3	67.5	314.40	0.2147	2200.80	472.5	
	4	16.7	617.45	0.0270	3144.00	85.0	
	MONTHLY EST.			0.0604	11424.00		690.4
APRIL	1	41.2	314.40	0.1310	2200.80	288.4	
	2	42.0	311.78	0.1347	2200.80	296.5	
	3	26.5	314.40	0.0843	2200.80	185.5	
	4	71.7	314.40	0.2281	2829.60	645.3	
	MONTHLY EST.			0.1445	9432.00		1363.1
MAY	1	368.6	542.40	0.6796	2887.20	1962.1	
	2	490.4	542.40	0.9041	3768.00	3406.8	
	3	1054.3	567.00	1.8594	4250.40	7903.3	
	4	486.4	542.40	0.8968	5419.20	4859.7	
	MONTHLY EST.			1.0850	16324.80		17712.0
JUNE	1	472.4	542.40	0.8709	3796.80	3306.8	
	2	352.7	508.80	0.6932	3232.80	2241.0	
	3	185.7	542.40	0.3424	3456.00	1183.2	
	4	307.1	1105.80	0.2777	4509.60	1252.4	
	MONTHLY EST.			0.5461	14995.20		8188.2
JULY	1	634.0	715.80	0.8857	4137.60	3664.8	
	2	272.9	808.80	0.3374	4677.60	1578.3	
	3	83.1	542.40	0.1532	4144.80	635.0	
	4	121.5	807.60	0.1504	6655.20	1001.2	
	MONTHLY EST.			0.3817	19615.20		7487.1
AUGUST	1	41.8	808.80	0.0517	5661.60	292.6	
	2	14.2	564.00	0.0252	3928.80	98.9	
	3	90.3	780.60	0.1157	4320.00	499.7	
	4	8.8	856.80	0.0103	4068.00	41.8	
	MONTHLY EST.			0.0507	17978.40		911.5
SEPTEMBER	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	314.40	0.0000	2200.80	0.0	
	3	164.9	314.40	0.5245	2200.80	1154.3	
	4	0.0	314.40	0.0000	2738.40	0.0	
	MONTHLY EST.			0.1311	9340.80		1224.8
OCTOBER	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	314.40	0.0000	2200.80	0.0	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	5.7	314.40	0.0181	3144.00	57.0	
	MONTHLY EST.			0.0045	9746.40		44.2
NOVEMBER	1	0.0	314.40	0.0000	2200.80	0.0	
	2	11.7	314.40	0.0372	2200.80	81.9	
	3	23.6	628.80	0.0375	2200.80	82.6	
	4	299.2	542.40	0.5516	3777.60	2083.8	
	MONTHLY EST.			0.1566	10380.00		1625.4
DECEMBER	1	0.0	542.40	0.0000	3192.00	0.0	
	2	0.0	585.67	0.0000	3453.60	0.0	
	3	0.0	564.20	0.0000	4195.20	0.0	
	4	239.1	542.40	0.4408	5433.60	2395.2	
	MONTHLY EST.			0.1102	16274.40		1793.5

APPENDIX TABLE D-1.10. ESTIMATED WEEKLY BIOMASS OF GIZZARD SHAD, ROSETON GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	1395.7	564.00	2.4746	3321.60	8219.8	
	2	3621.1	547.14	6.6182	3532.80	23380.8	
	3	281.6	564.00	0.4993	3513.60	1754.3	
	4	0.0	314.40	0.0000	3144.00	0.0	
	MONTHLY EST.			2.3980	13512.00		32402.3
FEBRUARY	1	0.0	314.40	0.0000	3127.20	0.0	
	2	1134.9	602.40	1.8840	4116.00	7754.4	
	3	5617.6	542.40	10.3569	3796.80	39323.2	
	4	488.7	542.40	0.9010	3796.80	3420.9	
	MONTHLY EST.			3.2855	14836.80		48745.9
MARCH	1	117.7	542.40	0.2170	3796.80	823.9	
	2	0.0	302.39	0.0000	2282.40	0.0	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	0.0	617.45	0.0000	3144.00	0.0	
	MONTHLY EST.			0.0542	11424.00		619.7
APRIL	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	311.78	0.0000	2200.80	0.0	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	0.0	314.40	0.0000	2829.60	0.0	
	MONTHLY EST.			0.0000	9432.00		0.0
MAY	1	0.0	542.40	0.0000	2887.20	0.0	
	2	0.0	542.40	0.0000	3768.00	0.0	
	3	0.0	567.00	0.0000	4250.40	0.0	
	4	0.0	542.40	0.0000	5419.20	0.0	
	MONTHLY EST.			0.0000	16324.80		0.0
JUNE	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	508.80	0.0000	3232.80	0.0	
	3	0.0	542.40	0.0000	3456.00	0.0	
	4	0.0	1105.80	0.0000	4509.60	0.0	
	MONTHLY EST.			0.0000	14995.20		0.0
JULY	1	0.0	715.80	0.0000	4137.60	0.0	
	2	49.4	808.80	0.0611	4677.60	285.7	
	3	429.2	542.40	0.7913	4144.80	3279.8	
	4	121.5	807.60	0.1504	6655.20	1001.2	
	MONTHLY EST.			0.2507	19615.20		4917.6
AUGUST	1	16.7	808.80	0.0206	5661.60	116.9	
	2	0.0	564.00	0.0000	3928.80	0.0	
	3	13.2	780.60	0.0169	4320.00	73.1	
	4	588.1	856.80	0.6864	4068.00	2792.2	
	MONTHLY EST.			0.1810	17978.40		3253.9
SEPTEMBER	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	314.40	0.0000	2200.80	0.0	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	0.0	314.40	0.0000	2738.40	0.0	
	MONTHLY EST.			0.0000	9340.80		0.0
OCTOBER	1	0.0	314.40	0.0000	2200.80	0.0	
	2	11.2	314.40	0.0356	2200.80	78.4	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	0.0	314.40	0.0000	3144.00	0.0	
	MONTHLY EST.			0.0089	9746.40		86.8
NOVEMBER	1	0.0	314.40	0.0000	2200.80	0.0	
	2	2.6	314.40	0.0083	2200.80	18.2	
	3	485.8	628.80	0.7726	2200.80	1700.3	
	4	5555.6	542.40	10.2426	3777.60	38692.5	
	MONTHLY EST.			2.7559	10380.00		28605.9
DECEMBER	1	748.4	542.40	1.3798	3192.00	4404.3	
	2	9147.5	585.67	15.6190	3453.60	53941.6	
	3	112486.2	564.20	199.3729	4195.20	836409.3	
	4	34086.6	542.40	62.8440	5433.60	341469.3	
	MONTHLY EST.			69.8039	16274.40		1136017.0

APPENDIX TABLE D-1.11. ESTIMATED WEEKLY BIOMASS OF GOLDEN SHINER, ROSETON GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	264.1	564.00	0.4683	3321.60	1555.4	
	2	306.5	547.14	0.5602	3532.80	1979.0	
	3	473.0	564.00	0.8387	3513.60	2946.7	
	4	21.0	314.40	0.0668	3144.00	210.0	
	MONTHLY EST.			0.4835	13512.00		6532.7
FEBRUARY	1	2.8	314.40	0.0089	3127.20	27.9	
	2	746.9	602.40	1.2399	4116.00	5103.3	
	3	1756.9	542.40	3.2391	3796.80	12298.3	
	4	373.0	542.40	0.6877	3796.80	2611.0	
	MONTHLY EST.			1.2939	14836.80		19197.3
MARCH	1	2245.1	542.40	4.1392	3796.80	15715.7	
	2	516.5	302.39	1.7080	2282.40	3898.5	
	3	299.2	314.40	0.9517	2200.80	2094.4	
	4	54.1	617.45	0.0876	3144.00	275.5	
	MONTHLY EST.			1.7216	11424.00		19667.9
APRIL	1	9.5	314.40	0.0302	2200.80	66.5	
	2	4.7	311.78	0.0151	2200.80	33.2	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	0.0	314.40	0.0000	2829.60	0.0	
	MONTHLY EST.			0.0113	9432.00		106.8
MAY	1	3.1	542.40	0.0057	2887.20	16.5	
	2	0.0	542.40	0.0000	3768.00	0.0	
	3	91.6	567.00	0.1616	4250.40	686.7	
	4	0.0	542.40	0.0000	5419.20	0.0	
	MONTHLY EST.			0.0418	16324.80		682.7
JUNE	1	6.2	542.40	0.0114	3796.80	43.4	
	2	0.0	508.80	0.0000	3232.80	0.0	
	3	0.0	542.40	0.0000	3456.00	0.0	
	4	0.0	1105.80	0.0000	4509.60	0.0	
	MONTHLY EST.			0.0029	14995.20		42.9
JULY	1	0.0	715.80	0.0000	4137.60	0.0	
	2	0.0	808.80	0.0000	4677.60	0.0	
	3	0.0	542.40	0.0000	4144.80	0.0	
	4	0.0	807.60	0.0000	6655.20	0.0	
	MONTHLY EST.			0.0000	19615.20		0.0
AUGUST	1	0.0	808.80	0.0000	5661.60	0.0	
	2	0.0	564.00	0.0000	3928.80	0.0	
	3	0.0	780.60	0.0000	4320.00	0.0	
	4	0.0	856.80	0.0000	4068.00	0.0	
	MONTHLY EST.			0.0000	17978.40		0.0
SEPTEMBER	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	314.40	0.0000	2200.80	0.0	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	0.0	314.40	0.0000	2738.40	0.0	
	MONTHLY EST.			0.0000	9340.80		0.0
OCTOBER	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	314.40	0.0000	2200.80	0.0	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	0.0	314.40	0.0000	3144.00	0.0	
	MONTHLY EST.			0.0000	9746.40		0.0
NOVEMBER	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	314.40	0.0000	2200.80	0.0	
	3	29.5	628.80	0.0469	2200.80	103.3	
	4	222.3	542.40	0.4098	3777.60	1548.2	
	MONTHLY EST.			0.1142	10380.00		1185.3
DECEMBER	1	9.7	542.40	0.0179	3192.00	57.1	
	2	207.1	585.67	0.3536	3453.60	1221.2	
	3	1243.0	564.20	2.2031	4195.20	9242.5	
	4	991.8	542.40	1.8285	5433.60	9935.6	
	MONTHLY EST.			1.1008	16274.40		17914.7

APPENDIX TABLE D-1.12. ESTIMATED WEEKLY BIOMASS OF PUMPKINSEED, ROSETON GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	705.3	564.00	1.2505	3321.60	4153.8	
	2	784.2	547.14	1.4333	3532.80	5063.4	
	3	51.3	564.00	0.0910	3513.60	319.6	
	4	3.4	314.40	0.0108	3144.00	34.0	
	MONTHLY EST.			0.6964	13512.00		9409.7
FEBRUARY	1	2.6	314.40	0.0083	3127.20	25.9	
	2	754.1	602.40	1.2518	4116.00	5152.5	
	3	610.0	542.40	1.1246	3796.80	4270.0	
	4	150.4	542.40	0.2773	3796.80	1052.8	
	MONTHLY EST.			0.6655	14836.80		9873.9
MARCH	1	437.6	542.40	0.8068	3796.80	3063.2	
	2	281.9	302.39	0.9322	2282.40	2127.7	
	3	63.4	314.40	0.2017	2200.80	443.8	
	4	12.3	617.45	0.0199	3144.00	62.6	
	MONTHLY EST.			0.4901	11424.00		5599.5
APRIL	1	24.5	314.40	0.0779	2200.80	171.5	
	2	45.6	311.78	0.1463	2200.80	321.9	
	3	128.7	314.40	0.4094	2200.80	900.9	
	4	514.0	314.40	1.6349	2829.60	4626.0	
	MONTHLY EST.			0.5671	9432.00		5348.9
MAY	1	427.4	542.40	0.7880	2887.20	2275.1	
	2	688.4	542.40	1.2692	3768.00	4782.2	
	3	295.2	567.00	0.5206	4250.40	2212.9	
	4	555.8	542.40	1.0247	5419.20	5553.1	
	MONTHLY EST.			0.9006	16324.80		14702.5
JUNE	1	687.7	542.40	1.2679	3796.80	4813.9	
	2	150.0	508.80	0.2948	3232.80	953.1	
	3	0.0	542.40	0.0000	3456.00	0.0	
	4	0.0	1105.80	0.0000	4509.60	0.0	
	MONTHLY EST.			0.3907	14995.20		5858.2
JULY	1	48.4	715.80	0.0676	4137.60	279.8	
	2	72.3	808.80	0.0894	4677.60	418.1	
	3	0.0	542.40	0.0000	4144.80	0.0	
	4	120.3	807.60	0.1490	6655.20	991.4	
	MONTHLY EST.			0.0765	19615.20		1500.4
AUGUST	1	0.0	808.80	0.0000	5661.60	0.0	
	2	39.7	564.00	0.0704	3928.80	276.5	
	3	76.1	780.60	0.0975	4320.00	421.2	
	4	11.5	856.80	0.0134	4068.00	54.6	
	MONTHLY EST.			0.0453	17978.40		814.9
SEPTEMBER	1	3.5	314.40	0.0111	2200.80	24.5	
	2	2.5	314.40	0.0080	2200.80	17.5	
	3	2.9	314.40	0.0092	2200.80	20.3	
	4	89.4	314.40	0.2844	2738.40	778.7	
	MONTHLY EST.			0.0782	9340.80		730.1
OCTOBER	1	58.4	314.40	0.1858	2200.80	408.8	
	2	118.3	314.40	0.3763	2200.80	828.1	
	3	163.6	314.40	0.5204	2200.80	1145.2	
	4	353.5	314.40	1.1244	3144.00	3535.0	
	MONTHLY EST.			0.5517	9746.40		5377.0
NOVEMBER	1	77.1	314.40	0.2452	2200.80	539.7	
	2	23.7	314.40	0.0754	2200.80	165.9	
	3	623.0	628.80	0.9908	2200.80	2180.5	
	4	172.3	542.40	0.3177	3777.60	1200.0	
	MONTHLY EST.			0.4073	10380.00		4227.4
DECEMBER	1	164.2	542.40	0.3027	3192.00	966.3	
	2	692.4	585.67	1.1822	3453.60	4083.0	
	3	1986.4	564.20	3.5207	4195.20	14770.2	
	4	960.2	542.40	1.7703	5433.60	9619.0	
	MONTHLY EST.			1.6940	16274.40		27568.8

APPENDIX TABLE D-1.13. ESTIMATED WEEKLY BIOMASS OF RAINBOW SMELT, ROSETON GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	564.00	0.0000	3321.60	0.0	
	2	0.0	547.14	0.0000	3532.80	0.0	
	3	0.0	564.00	0.0000	3513.60	0.0	
	4	0.0	314.40	0.0000	3144.00	0.0	
	MONTHLY EST.			0.0000	13512.00		0.0
FEBRUARY	1	0.0	314.40	0.0000	3127.20	0.0	
	2	0.0	602.40	0.0000	4116.00	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	37.5	542.40	0.0691	3796.80	262.5	
	MONTHLY EST.			0.0173	14836.80		256.4
MARCH	1	13.6	542.40	0.0251	3796.80	95.2	
	2	8.9	302.39	0.0294	2282.40	67.2	
	3	61.7	314.40	0.1962	2200.80	431.9	
	4	12.1	617.45	0.0196	3144.00	61.6	
	MONTHLY EST.			0.0676	11424.00		772.1
APRIL	1	0.0	314.40	0.0000	2200.80	0.0	
	2	4.9	311.78	0.0157	2200.80	34.6	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	5.4	314.40	0.0172	2829.60	48.6	
	MONTHLY EST.			0.0082	9432.00		77.6
MAY	1	185.2	542.40	0.3414	2887.20	985.8	
	2	77.6	542.40	0.1431	3768.00	539.1	
	3	6.0	567.00	0.0106	4250.40	45.0	
	4	0.1	542.40	0.0002	5419.20	1.0	
	MONTHLY EST.			0.1238	16324.80		2021.3
JUNE	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	508.80	0.0000	3232.80	0.0	
	3	7.6	542.40	0.0140	3456.00	48.4	
	4	23.6	1105.80	0.0213	4509.60	96.2	
	MONTHLY EST.			0.0088	14995.20		132.5
JULY	1	7.5	715.80	0.0105	4137.60	43.4	
	2	9.9	808.80	0.0122	4677.60	57.3	
	3	1.6	542.40	0.0029	4144.80	12.2	
	4	2.5	807.60	0.0031	6655.20	20.6	
	MONTHLY EST.			0.0072	19615.20		141.1
AUGUST	1	0.1	808.80	0.0001	5661.60	0.7	
	2	7.8	564.00	0.0138	3928.80	54.3	
	3	0.0	780.60	0.0000	4320.00	0.0	
	4	0.0	856.80	0.0000	4068.00	0.0	
	MONTHLY EST.			0.0035	17978.40		62.7
SEPTEMBER	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	314.40	0.0000	2200.80	0.0	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	0.0	314.40	0.0000	2738.40	0.0	
	MONTHLY EST.			0.0000	9340.80		0.0
OCTOBER	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	314.40	0.0000	2200.80	0.0	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	0.0	314.40	0.0000	3144.00	0.0	
	MONTHLY EST.			0.0000	9746.40		0.0
NOVEMBER	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	314.40	0.0000	2200.80	0.0	
	3	0.0	628.80	0.0000	2200.80	0.0	
	4	0.0	542.40	0.0000	3777.60	0.0	
	MONTHLY EST.			0.0000	10380.00		0.0
DECEMBER	1	0.0	542.40	0.0000	3192.00	0.0	
	2	0.0	585.67	0.0000	3453.60	0.0	
	3	0.0	564.20	0.0000	4195.20	0.0	
	4	0.0	542.40	0.0000	5433.60	0.0	
	MONTHLY EST.			0.0000	16274.40		0.0

APPENDIX TABLE D-1.14. ESTIMATED WEEKLY BIOMASS OF SPOTTAIL SHINER, ROSETON GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	132.9	564.00	0.2356	3321.60	782.7	
	2	68.7	547.14	0.1256	3532.80	443.6	
	3	243.3	564.00	0.4314	3513.60	1515.7	
	4	9.1	314.40	0.0289	3144.00	91.0	
	MONTHLY EST.			0.2054	13512.00		2775.1
FEBRUARY	1	37.1	314.40	0.1180	3127.20	369.0	
	2	110.0	602.40	0.1826	4116.00	751.6	
	3	300.9	542.40	0.5548	3796.80	2106.3	
	4	204.9	542.40	0.3778	3796.80	1434.3	
	MONTHLY EST.			0.3083	14836.80		4573.9
MARCH	1	314.2	542.40	0.5793	3796.80	2199.4	
	2	138.1	302.39	0.4567	2282.40	1042.4	
	3	772.5	314.40	2.4571	2200.80	5407.5	
	4	167.5	617.45	0.2713	3144.00	852.9	
	MONTHLY EST.			0.9411	11424.00		10750.9
APRIL	1	165.6	314.40	0.5267	2200.80	1159.2	
	2	35.5	311.78	0.1139	2200.80	250.6	
	3	19.1	314.40	0.0608	2200.80	133.7	
	4	43.9	314.40	0.1396	2829.60	395.1	
	MONTHLY EST.			0.2102	9432.00		1983.0
MAY	1	71.2	542.40	0.1313	2887.20	379.0	
	2	22.6	542.40	0.0417	3768.00	157.0	
	3	235.7	567.00	0.4157	4250.40	1766.9	
	4	102.5	542.40	0.1890	5419.20	1024.1	
	MONTHLY EST.			0.1944	16324.80		3173.6
JUNE	1	280.7	542.40	0.5175	3796.80	1964.9	
	2	193.6	508.80	0.3805	3232.80	1230.1	
	3	85.4	542.40	0.1574	3456.00	544.1	
	4	63.4	1105.80	0.0573	4509.60	258.6	
	MONTHLY EST.			0.2782	14995.20		4171.7
JULY	1	121.8	715.80	0.1702	4137.60	704.1	
	2	180.0	808.80	0.2226	4677.60	1041.0	
	3	62.7	542.40	0.1156	4144.80	479.1	
	4	148.2	807.60	0.1835	6655.20	1221.3	
	MONTHLY EST.			0.1730	19615.20		3392.5
AUGUST	1	41.6	808.80	0.0514	5661.60	291.2	
	2	17.2	564.00	0.0305	3928.80	119.8	
	3	106.9	780.60	0.1369	4320.00	591.6	
	4	9.6	856.80	0.0112	4068.00	45.6	
	MONTHLY EST.			0.0575	17978.40		1034.1
SEPTEMBER	1	0.0	314.40	0.0000	2200.80	0.0	
	2	2.5	314.40	0.0080	2200.80	17.5	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	0.0	314.40	0.0000	2738.40	0.0	
	MONTHLY EST.			0.0020	9340.80		18.6
OCTOBER	1	8.7	314.40	0.0277	2200.80	60.9	
	2	0.0	314.40	0.0000	2200.80	0.0	
	3	2.1	314.40	0.0067	2200.80	14.7	
	4	12.6	314.40	0.0401	3144.00	126.0	
	MONTHLY EST.			0.0186	9746.40		181.4
NOVEMBER	1	2.4	314.40	0.0076	2200.80	16.8	
	2	29.5	314.40	0.0938	2200.80	206.5	
	3	236.0	628.80	0.3753	2200.80	826.0	
	4	464.3	542.40	0.8560	3777.60	3233.7	
	MONTHLY EST.			0.3332	10380.00		3458.6
DECEMBER	1	88.3	542.40	0.1628	3192.00	519.6	
	2	68.4	585.67	0.1168	3453.60	403.3	
	3	399.0	564.20	0.7072	4195.20	2966.8	
	4	225.9	542.40	0.4165	5433.60	2263.0	
	MONTHLY EST.			0.3508	16274.40		5709.3

APPENDIX TABLE D-1.15. ESTIMATED WEEKLY BIOMASS OF STRIPED BASS, ROSETON GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	37.5	564.00	0.0665	3321.60	220.9	
	2	21.6	547.14	0.0395	3532.80	139.5	
	3	32.3	564.00	0.0573	3513.60	201.2	
	4	7.6	314.40	0.0242	3144.00	76.0	
	MONTHLY EST.			0.0469	13512.00		633.1
FEBRUARY	1	5.5	314.40	0.0175	3127.20	54.7	
	2	20.7	602.40	0.0344	4116.00	141.4	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	0.0	542.40	0.0000	3796.80	0.0	
	MONTHLY EST.			0.0130	14836.80		192.3
MARCH	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	302.39	0.0000	2282.40	0.0	
	3	26.2	314.40	0.0833	2200.80	183.4	
	4	4.0	617.45	0.0065	3144.00	20.4	
	MONTHLY EST.			0.0225	11424.00		256.5
APRIL	1	5.3	314.40	0.0169	2200.80	37.1	
	2	0.0	311.78	0.0000	2200.80	0.0	
	3	6.3	314.40	0.0200	2200.80	44.1	
	4	8.3	314.40	0.0264	2829.60	74.7	
	MONTHLY EST.			0.0158	9432.00		149.3
MAY	1	7.1	542.40	0.0131	2887.20	37.8	
	2	48.8	542.40	0.0900	3768.00	339.0	
	3	89.8	567.00	0.1584	4250.40	673.2	
	4	17.9	542.40	0.0330	5419.20	178.8	
	MONTHLY EST.			0.0736	16324.80		1201.7
JUNE	1	35.0	542.40	0.0645	3796.80	245.0	
	2	4.2	508.80	0.0083	3232.80	26.7	
	3	12.6	542.40	0.0232	3456.00	80.3	
	4	69.7	1105.80	0.0630	4509.60	284.2	
	MONTHLY EST.			0.0398	14995.20		596.2
JULY	1	196.9	715.80	0.2751	4137.60	1138.2	
	2	522.2	808.80	0.6456	4677.60	3020.1	
	3	388.5	542.40	0.7163	4144.80	2968.8	
	4	273.4	807.60	0.3385	6655.20	2253.0	
	MONTHLY EST.			0.4939	19615.20		9687.6
AUGUST	1	673.2	808.80	0.8323	5661.60	4712.4	
	2	430.9	564.00	0.7640	3928.80	3001.6	
	3	493.0	780.60	0.6316	4320.00	2728.4	
	4	40.3	856.80	0.0470	4068.00	191.3	
	MONTHLY EST.			0.5687	17978.40		10225.0
SEPTEMBER	1	30.3	314.40	0.0964	2200.80	212.1	
	2	0.0	314.40	0.0000	2200.80	0.0	
	3	10.4	314.40	0.0331	2200.80	72.8	
	4	16.7	314.40	0.0531	2738.40	145.5	
	MONTHLY EST.			0.0456	9340.80		426.3
OCTOBER	1	112.9	314.40	0.3591	2200.80	790.3	
	2	35.4	314.40	0.1126	2200.80	247.8	
	3	27.4	314.40	0.0872	2200.80	191.8	
	4	8.9	314.40	0.0283	3144.00	89.0	
	MONTHLY EST.			0.1468	9746.40		1430.7
NOVEMBER	1	1.2	314.40	0.0038	2200.80	8.4	
	2	5.3	314.40	0.0169	2200.80	37.1	
	3	102.4	628.80	0.1628	2200.80	358.4	
	4	111.5	542.40	0.2056	3777.60	776.6	
	MONTHLY EST.			0.0973	10380.00		1009.7
DECEMBER	1	14.6	542.40	0.0269	3192.00	85.9	
	2	16.9	585.67	0.0289	3453.60	99.7	
	3	4.2	564.20	0.0074	4195.20	31.2	
	4	0.0	542.40	0.0000	5433.60	0.0	
	MONTHLY EST.			0.0158	16274.40		257.2

APPENDIX TABLE D-1.16. ESTIMATED WEEKLY BIOMASS OF WHITE PERCH, ROSETON GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	11.4	564.00	0.0202	3321.60	67.1	
	2	6.8	547.14	0.0124	3532.80	43.9	
	3	12.5	564.00	0.0222	3513.60	77.9	
	4	8.5	314.40	0.0270	3144.00	85.0	
	MONTHLY EST.			0.0205	13512.00		276.5
FEBRUARY	1	43.7	314.40	0.1390	3127.20	434.7	
	2	400.7	602.40	0.6652	4116.00	2737.9	
	3	131.2	542.40	0.2419	3796.80	918.4	
	4	32.1	542.40	0.0592	3796.80	224.7	
	MONTHLY EST.			0.2763	14836.80		4099.5
MARCH	1	22.3	542.40	0.0411	3796.80	156.1	
	2	58.4	302.39	0.1931	2282.40	440.8	
	3	104.3	314.40	0.3317	2200.80	730.1	
	4	436.9	617.45	0.7076	3144.00	2224.7	
	MONTHLY EST.			0.3184	11424.00		3637.3
APRIL	1	56.2	314.40	0.1788	2200.80	393.4	
	2	214.7	311.78	0.6886	2200.80	1515.5	
	3	23.9	314.40	0.0760	2200.80	167.3	
	4	295.9	314.40	0.9412	2829.60	2663.1	
	MONTHLY EST.			0.4711	9432.00		4443.8
MAY	1	279.0	542.40	0.5144	2887.20	1485.1	
	2	300.3	542.40	0.5537	3768.00	2086.2	
	3	1344.3	567.00	2.3709	4250.40	10077.3	
	4	799.1	542.40	1.4733	5419.20	7983.9	
	MONTHLY EST.			1.2280	16324.80		20047.7
JUNE	1	1107.4	542.40	2.0417	3796.80	7751.8	
	2	1187.6	508.80	2.3341	3232.80	7545.7	
	3	1030.8	542.40	1.9004	3456.00	6567.9	
	4	882.1	1105.80	0.7977	4509.60	3597.3	
	MONTHLY EST.			1.7685	14995.20		26518.8
JULY	1	1570.2	715.80	2.1936	4137.60	9076.4	
	2	2056.0	808.80	2.5420	4677.60	11890.6	
	3	531.1	542.40	0.9792	4144.80	4058.5	
	4	1370.8	807.60	1.6974	6655.20	11296.4	
	MONTHLY EST.			1.8531	19615.20		36348.0
AUGUST	1	1136.7	808.80	1.4054	5661.60	7956.9	
	2	1179.1	564.00	2.0906	3928.80	8213.6	
	3	2680.0	780.60	3.4333	4320.00	14831.7	
	4	554.1	856.80	0.6467	4068.00	2630.8	
	MONTHLY EST.			1.8940	17978.40		34051.0
SEPTEMBER	1	158.1	314.40	0.5029	2200.80	1106.7	
	2	88.9	314.40	0.2828	2200.80	622.3	
	3	4.5	314.40	0.0143	2200.80	31.5	
	4	2.7	314.40	0.0086	2738.40	23.5	
	MONTHLY EST.			0.2021	9340.80		1888.1
OCTOBER	1	314.9	314.40	1.0016	2200.80	2204.3	
	2	176.0	314.40	0.5598	2200.80	1232.0	
	3	358.6	314.40	1.1406	2200.80	2510.2	
	4	353.4	314.40	1.1240	3144.00	3534.0	
	MONTHLY EST.			0.9565	9746.40		9322.5
NOVEMBER	1	106.4	314.40	0.3384	2200.80	744.8	
	2	627.1	314.40	1.9946	2200.80	4389.7	
	3	3783.7	628.80	6.0173	2200.80	13243.0	
	4	2006.8	542.40	3.6999	3777.60	13976.6	
	MONTHLY EST.			3.0126	10380.00		31270.3
DECEMBER	1	523.4	542.40	0.9650	3192.00	3080.2	
	2	231.5	585.67	0.3953	3453.60	1365.1	
	3	351.9	564.20	0.6237	4195.20	2616.6	
	4	257.6	542.40	0.4749	5433.60	2580.6	
	MONTHLY EST.			0.6147	16274.40		10004.2

APPENDIX TABLE D-1.17. ESTIMATED WEEKLY BIOMASS OF BLUE CRAB, ROSETON GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	564.00	0.0000	3321.60	0.0	
	2	0.0	547.14	0.0000	3532.80	0.0	
	3	0.0	564.00	0.0000	3513.60	0.0	
	4	0.0	314.40	0.0000	3144.00	0.0	
	MONTHLY EST.			0.0000	13512.00		0.0
FEBRUARY	1	0.0	314.40	0.0000	3127.20	0.0	
	2	0.0	602.40	0.0000	4116.00	0.0	
	3	1.2	542.40	0.0022	3796.80	8.4	
	4	0.0	542.40	0.0000	3796.80	0.0	
	MONTHLY EST.			0.0006	14836.80		8.2
MARCH	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	302.39	0.0000	2282.40	0.0	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	0.0	617.45	0.0000	3144.00	0.0	
	MONTHLY EST.			0.0000	11424.00		0.0
APRIL	1	0.0	314.40	0.0000	2200.80	0.0	
	2	0.0	311.78	0.0000	2200.80	0.0	
	3	0.0	314.40	0.0000	2200.80	0.0	
	4	0.0	314.40	0.0000	2829.60	0.0	
	MONTHLY EST.			0.0000	9432.00		0.0
MAY	1	0.0	542.40	0.0000	2887.20	0.0	
	2	0.0	542.40	0.0000	3768.00	0.0	
	3	8258.0	567.00	14.5644	4250.40	61904.4	
	4	7639.7	542.40	14.0850	5419.20	76329.4	
	MONTHLY EST.			7.1623	16324.80		116923.8
JUNE	1	3248.0	542.40	5.9882	3796.80	22736.0	
	2	4487.3	508.80	8.8194	3232.80	28511.3	
	3	2023.1	542.40	3.7299	3456.00	12890.5	
	4	16617.2	1105.80	15.0273	4509.60	67767.2	
	MONTHLY EST.			8.3912	14995.20		125827.7
JULY	1	24823.8	715.80	34.6798	4137.60	143491.1	
	2	66623.8	808.80	82.3736	4677.60	385310.9	
	3	53804.2	542.40	99.1965	4144.80	411149.8	
	4	54929.4	807.60	68.0156	6655.20	452657.4	
	MONTHLY EST.			71.0664	19615.20		1393981.5
AUGUST	1	89783.1	808.80	111.0078	5661.60	628481.7	
	2	35044.6	564.00	62.1358	3928.80	244119.2	
	3	76352.5	780.60	97.8126	4320.00	422550.3	
	4	27903.3	856.80	32.5669	4068.00	132482.1	
	MONTHLY EST.			75.8808	17978.40		1364214.8
SEPTEMBER	1	6022.9	314.40	19.1568	2200.80	42160.3	
	2	3020.0	314.40	9.6056	2200.80	21140.0	
	3	1520.0	314.40	4.8346	2200.80	10640.0	
	4	2719.2	314.40	8.6489	2738.40	23684.0	
	MONTHLY EST.			10.5615	9340.80		98652.5
OCTOBER	1	8468.0	314.40	26.9338	2200.80	59276.0	
	2	2111.3	314.40	6.7153	2200.80	14779.1	
	3	1267.0	314.40	4.0299	2200.80	8869.0	
	4	1960.3	314.40	6.2351	3144.00	19603.0	
	MONTHLY EST.			10.9785	9746.40		107001.2
NOVEMBER	1	1799.0	314.40	5.7220	2200.80	12593.0	
	2	650.7	314.40	2.0697	2200.80	4554.9	
	3	10.6	628.80	0.0169	2200.80	37.1	
	4	0.0	542.40	0.0000	3777.60	0.0	
	MONTHLY EST.			1.9521	10380.00		20263.1
DECEMBER	1	0.0	542.40	0.0000	3192.00	0.0	
	2	0.0	585.67	0.0000	3453.60	0.0	
	3	0.0	564.20	0.0000	4195.20	0.0	
	4	0.0	542.40	0.0000	5433.60	0.0	
	MONTHLY EST.			0.0000	16274.40		0.0

APPENDIX TABLE D-2.1. ESTIMATED WEEKLY BIOMASS OF ALL FISH SPECIES, DANSKAMMER POINT GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	11017.9	202.05	54.5298	1378.85	75188.2	
	2	17706.3	200.93	88.1239	1372.54	120953.3	
	3	3519.3	203.04	17.3330	1396.97	24213.7	
	4	6396.3	198.81	32.1729	1936.44	62300.9	
	MONTHLY EST.			48.0399	6084.79		292312.9
FEBRUARY	1	34542.2	233.01	148.2453	1706.38	252962.3	
	2	25572.4	246.93	103.5597	1549.70	160486.9	
	3	24619.7	203.04	121.2554	1421.28	172337.9	
	4	17094.5	203.04	84.1928	1432.08	120570.8	
	MONTHLY EST.			114.3133	6109.44		698390.3
MARCH	1	20085.9	234.30	85.7284	1634.88	140155.6	
	2	3564.7	233.05	15.2959	1636.90	25037.8	
	3	19672.9	227.82	86.3512	1482.60	128024.4	
	4	38890.6	446.86	87.0316	2261.11	196788.2	
	MONTHLY EST.			68.6018	7015.49		481275.0
APRIL	1	1229.8	188.52	6.5235	1432.37	9344.1	
	2	2758.5	200.36	13.7676	1421.28	19567.7	
	3	1126.1	195.66	5.7554	1415.90	8149.1	
	4	3442.5	202.34	17.0139	1609.01	27375.4	
	MONTHLY EST.			10.7651	5878.56		63283.4
MAY	1	754.1	118.76	6.3496	790.27	5017.9	
	2	714.6	89.05	8.0248	670.99	5384.6	
	3	3777.2	178.10	21.2085	1150.68	24404.3	
	4	2507.8	175.85	14.2613	1577.14	22492.1	
	MONTHLY EST.			12.4611	4189.08		52200.4
JUNE	1	3150.2	159.56	19.7424	1510.58	29822.6	
	2	31695.7	329.12	96.3054	2233.49	215097.0	
	3	13694.5	239.70	57.1318	2147.95	122716.4	
	4	13438.1	651.53	20.6253	2971.01	61278.0	
	MONTHLY EST.			48.4513	8863.03		429425.0
JULY	1	12780.8	366.82	34.8424	2223.74	77480.6	
	2	28073.9	405.39	69.2516	2642.71	183012.0	
	3	21116.0	430.21	49.0826	2858.83	140318.8	
	4	5383.0	270.60	19.8928	3087.05	61410.0	
	MONTHLY EST.			43.2673	10812.34		467821.0
AUGUST	1	11815.7	408.98	28.8903	2567.62	74179.3	
	2	14292.1	398.74	35.8429	2308.42	82740.3	
	3	11137.8	432.10	25.7759	2661.19	68594.6	
	4	24395.0	771.72	31.6114	3697.94	116897.2	
	MONTHLY EST.			30.5301	11235.17		343011.2
SEPTEMBER	1	17680.4	411.79	42.9355	2723.42	116931.5	
	2	11822.3	404.65	29.2162	2656.85	77623.0	
	3	7005.2	377.32	18.5656	2531.71	47002.8	
	4	8838.2	405.71	21.7843	3085.73	67220.6	
	MONTHLY EST.			28.1254	10997.71		309315.1
OCTOBER	1	23019.9	374.40	61.4841	2364.24	145363.3	
	2	12609.2	287.53	43.8529	2169.41	95134.8	
	3	7151.8	229.68	31.1375	1624.90	50595.2	
	4	26175.6	219.54	119.2293	2074.92	247391.3	
	MONTHLY EST.			63.9260	8233.46		526332.1
NOVEMBER	1	20313.6	224.06	90.6625	1559.95	141429.2	
	2	24613.7	260.71	94.4117	1853.33	174975.9	
	3	106122.1	419.49	252.9758	1525.18	385832.7	
	4	56812.4	232.92	243.9106	2290.46	558668.6	
	MONTHLY EST.			170.4902	7228.92		1232459.9
DECEMBER	1	42308.1	199.94	211.6061	1708.92	361617.9	
	2	54785.6	178.45	307.0144	1421.45	436405.1	
	3	266995.6	203.04	1314.9901	1113.07	1463678.7	
	4	1191400.6	185.70	6415.8312	1926.10	12357506.7	
	MONTHLY EST.			2062.3605	6169.54		12723807.1

APPENDIX TABLE D-2.2. ESTIMATED WEEKLY BIOMASS OF ALEWIFE, DANSKAMMER POINT GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	202.05	0.0000	1378.85	0.0	
	2	0.0	200.93	0.0000	1372.54	0.0	
	3	0.0	203.04	0.0000	1396.97	0.0	
	4	0.0	198.81	0.0000	1936.44	0.0	
	MONTHLY EST.			0.0000	6084.79		0.0
FEBRUARY	1	0.0	233.01	0.0000	1706.38	0.0	
	2	0.0	246.93	0.0000	1549.70	0.0	
	3	0.0	203.04	0.0000	1421.28	0.0	
	4	0.0	203.04	0.0000	1432.08	0.0	
	MONTHLY EST.			0.0000	6109.44		0.0
MARCH	1	0.0	234.30	0.0000	1634.88	0.0	
	2	0.0	233.05	0.0000	1636.90	0.0	
	3	187.3	227.82	0.8221	1482.60	1218.9	
	4	220.2	446.86	0.4928	2261.11	1114.2	
	MONTHLY EST.			0.3287	7015.49		2306.2
APRIL	1	0.0	188.52	0.0000	1432.37	0.0	
	2	0.0	200.36	0.0000	1421.28	0.0	
	3	0.0	195.66	0.0000	1415.90	0.0	
	4	14.0	202.34	0.0692	1609.01	111.3	
	MONTHLY EST.			0.0173	5878.56		101.7
MAY	1	5.5	118.76	0.0463	790.27	36.6	
	2	0.0	89.05	0.0000	670.99	0.0	
	3	487.2	178.10	2.7356	1150.68	3147.8	
	4	432.1	175.85	2.4573	1577.14	3875.4	
	MONTHLY EST.			1.3098	4189.08		5486.8
JUNE	1	0.0	159.56	0.0000	1510.58	0.0	
	2	454.9	329.12	1.3822	2233.49	3087.1	
	3	49.6	239.70	0.2069	2147.95	444.5	
	4	176.0	651.53	0.2701	2971.01	802.6	
	MONTHLY EST.			0.4648	8863.03		4119.6
JULY	1	1585.0	366.82	4.3210	2223.74	9608.7	
	2	2201.3	405.39	5.4301	2642.71	14350.1	
	3	1379.5	430.21	3.2065	2858.83	9167.0	
	4	749.0	270.60	2.7679	3087.05	8544.7	
	MONTHLY EST.			3.9314	10812.34		42507.3
AUGUST	1	3364.1	408.98	8.2255	2567.62	21119.9	
	2	1552.8	398.74	3.8942	2308.42	8989.5	
	3	3456.9	432.10	8.0002	2661.19	21290.1	
	4	4205.6	771.72	5.4497	3697.94	20152.6	
	MONTHLY EST.			6.3924	11235.17		71819.7
SEPTEMBER	1	2110.3	411.79	5.1247	2723.42	13956.7	
	2	1082.4	404.65	2.6749	2656.85	7106.8	
	3	1826.0	377.32	4.8394	2531.71	12251.9	
	4	2131.2	405.71	5.2530	3085.73	16209.2	
	MONTHLY EST.			4.4730	10997.71		49192.7
OCTOBER	1	5711.1	374.40	15.2539	2364.24	36063.8	
	2	767.0	287.53	2.6675	2169.41	5786.9	
	3	898.9	229.68	3.9136	1624.90	6359.2	
	4	1894.2	219.54	8.6280	2074.92	17902.5	
	MONTHLY EST.			7.6158	8233.46		62704.1
NOVEMBER	1	215.1	224.06	0.9600	1559.95	1497.6	
	2	60.1	260.71	0.2305	1853.33	427.2	
	3	0.0	419.49	0.0000	1525.18	0.0	
	4	0.0	232.92	0.0000	2290.46	0.0	
	MONTHLY EST.			0.2976	7228.92		2151.6
DECEMBER	1	0.0	199.94	0.0000	1708.92	0.0	
	2	0.0	178.45	0.0000	1421.45	0.0	
	3	0.0	203.04	0.0000	1113.07	0.0	
	4	0.0	185.70	0.0000	1926.10	0.0	
	MONTHLY EST.			0.0000	6169.54		0.0

APPENDIX TABLE D-2.3. ESTIMATED WEEKLY BIOMASS OF AMERICAN SHAD, DANSKAMMER POINT GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	202.05	0.0000	1378.85	0.0	
	2	0.0	200.93	0.0000	1372.54	0.0	
	3	0.0	203.04	0.0000	1396.97	0.0	
	4	0.0	198.81	0.0000	1936.44	0.0	
	MONTHLY EST.			0.0000	6084.79		0.0
FEBRUARY	1	0.0	233.01	0.0000	1706.38	0.0	
	2	0.0	246.93	0.0000	1549.70	0.0	
	3	0.0	203.04	0.0000	1421.28	0.0	
	4	0.0	203.04	0.0000	1432.08	0.0	
	MONTHLY EST.			0.0000	6109.44		0.0
MARCH	1	0.0	234.30	0.0000	1634.88	0.0	
	2	0.0	233.05	0.0000	1636.90	0.0	
	3	0.0	227.82	0.0000	1482.60	0.0	
	4	0.0	446.86	0.0000	2261.11	0.0	
	MONTHLY EST.			0.0000	7015.49		0.0
APRIL	1	0.0	188.52	0.0000	1432.37	0.0	
	2	0.0	200.36	0.0000	1421.28	0.0	
	3	0.0	195.66	0.0000	1415.90	0.0	
	4	0.0	202.34	0.0000	1609.01	0.0	
	MONTHLY EST.			0.0000	5878.56		0.0
MAY	1	0.0	118.76	0.0000	790.27	0.0	
	2	0.0	89.05	0.0000	670.99	0.0	
	3	0.0	178.10	0.0000	1150.68	0.0	
	4	0.0	175.85	0.0000	1577.14	0.0	
	MONTHLY EST.			0.0000	4189.08		0.0
JUNE	1	0.0	159.56	0.0000	1510.58	0.0	
	2	0.0	329.12	0.0000	2233.49	0.0	
	3	0.0	239.70	0.0000	2147.95	0.0	
	4	0.3	651.53	0.0005	2971.01	1.4	
	MONTHLY EST.			0.0001	8863.03		1.0
JULY	1	21.4	366.82	0.0583	2223.74	129.7	
	2	27.9	405.39	0.0688	2642.71	181.9	
	3	34.0	430.21	0.0790	2858.83	225.9	
	4	4.0	270.60	0.0148	3087.05	45.6	
	MONTHLY EST.			0.0552	10812.34		597.3
AUGUST	1	82.0	408.98	0.2005	2567.62	514.8	
	2	141.1	398.74	0.3539	2308.42	816.9	
	3	36.6	432.10	0.0847	2661.19	225.4	
	4	99.0	771.72	0.1283	3697.94	474.4	
	MONTHLY EST.			0.1918	11235.17		2155.3
SEPTEMBER	1	208.2	411.79	0.5056	2723.42	1377.0	
	2	35.7	404.65	0.0882	2656.85	234.4	
	3	37.9	377.32	0.1004	2531.71	254.3	
	4	261.5	405.71	0.6445	3085.73	1988.9	
	MONTHLY EST.			0.3347	10997.71		3681.0
OCTOBER	1	424.3	374.40	1.1333	2364.24	2679.3	
	2	84.7	287.53	0.2946	2169.41	639.1	
	3	210.8	229.68	0.9178	1624.90	1491.3	
	4	319.3	219.54	1.4544	2074.92	3017.8	
	MONTHLY EST.			0.9500	8233.46		7821.8
NOVEMBER	1	60.1	224.06	0.2682	1559.95	418.4	
	2	23.0	260.71	0.0882	1853.33	163.5	
	3	0.0	419.49	0.0000	1525.18	0.0	
	4	0.0	232.92	0.0000	2290.46	0.0	
	MONTHLY EST.			0.0891	7228.92		644.2
DECEMBER	1	0.0	199.94	0.0000	1708.92	0.0	
	2	0.0	178.45	0.0000	1421.45	0.0	
	3	0.0	203.04	0.0000	1113.07	0.0	
	4	0.0	185.70	0.0000	1926.10	0.0	
	MONTHLY EST.			0.0000	6169.54		0.0

APPENDIX TABLE D-2.4. ESTIMATED WEEKLY BIOMASS OF ATLANTIC TOMCOD, DANSKAMMER POINT GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	20.9	202.05	0.1034	1378.85	142.6	
	2	158.8	200.93	0.7903	1372.54	1084.8	
	3	286.9	203.04	1.4130	1396.97	1973.9	
	4	92.9	198.81	0.4673	1936.44	904.9	
	MONTHLY EST.			0.6935	6084.79		4219.9
FEBRUARY	1	278.1	233.01	1.1935	1706.38	2036.6	
	2	0.0	246.93	0.0000	1549.70	0.0	
	3	66.1	203.04	0.3256	1421.28	462.7	
	4	0.0	203.04	0.0000	1432.08	0.0	
	MONTHLY EST.			0.3798	6109.44		2320.2
MARCH	1	0.0	234.30	0.0000	1634.88	0.0	
	2	0.0	233.05	0.0000	1636.90	0.0	
	3	0.0	227.82	0.0000	1482.60	0.0	
	4	0.0	446.86	0.0000	2261.11	0.0	
	MONTHLY EST.			0.0000	7015.49		0.0
APRIL	1	0.0	188.52	0.0000	1432.37	0.0	
	2	0.0	200.36	0.0000	1421.28	0.0	
	3	0.0	195.66	0.0000	1415.90	0.0	
	4	0.0	202.34	0.0000	1609.01	0.0	
	MONTHLY EST.			0.0000	5878.56		0.0
MAY	1	0.0	118.76	0.0000	790.27	0.0	
	2	0.0	89.05	0.0000	670.99	0.0	
	3	0.0	178.10	0.0000	1150.68	0.0	
	4	0.8	175.85	0.0045	1577.14	7.2	
	MONTHLY EST.			0.0011	4189.08		4.8
JUNE	1	0.0	159.56	0.0000	1510.58	0.0	
	2	11.5	329.12	0.0349	2233.49	78.0	
	3	101.1	239.70	0.4218	2147.95	906.0	
	4	299.8	651.53	0.4601	2971.01	1367.1	
	MONTHLY EST.			0.2292	8863.03		2031.5
JULY	1	232.5	366.82	0.6338	2223.74	1409.5	
	2	497.5	405.39	1.2272	2642.71	3243.2	
	3	198.1	430.21	0.4605	2858.83	1316.4	
	4	36.6	270.60	0.1353	3087.05	417.5	
	MONTHLY EST.			0.6142	10812.34		6640.8
AUGUST	1	11.8	408.98	0.0289	2567.62	74.1	
	2	0.0	398.74	0.0000	2308.42	0.0	
	3	0.0	432.10	0.0000	2661.19	0.0	
	4	0.0	771.72	0.0000	3697.94	0.0	
	MONTHLY EST.			0.0072	11235.17		81.0
SEPTEMBER	1	0.0	411.79	0.0000	2723.42	0.0	
	2	5.4	404.65	0.0133	2656.85	35.5	
	3	0.0	377.32	0.0000	2531.71	0.0	
	4	0.0	405.71	0.0000	3085.73	0.0	
	MONTHLY EST.			0.0033	10997.71		36.7
OCTOBER	1	0.0	374.40	0.0000	2364.24	0.0	
	2	0.0	287.53	0.0000	2169.41	0.0	
	3	0.0	229.68	0.0000	1624.90	0.0	
	4	0.0	219.54	0.0000	2074.92	0.0	
	MONTHLY EST.			0.0000	8233.46		0.0
NOVEMBER	1	0.0	224.06	0.0000	1559.95	0.0	
	2	0.0	260.71	0.0000	1853.33	0.0	
	3	0.0	419.49	0.0000	1525.18	0.0	
	4	24.2	232.92	0.1039	2290.46	238.0	
	MONTHLY EST.			0.0260	7228.92		187.8
DECEMBER	1	0.0	199.94	0.0000	1708.92	0.0	
	2	0.0	178.45	0.0000	1421.45	0.0	
	3	97.5	203.04	0.4802	1113.07	534.5	
	4	111.0	185.70	0.5977	1926.10	1151.3	
	MONTHLY EST.			0.2695	6169.54		1662.6

APPENDIX TABLE D-2.5. ESTIMATED WEEKLY BIOMASS OF BAY ANCHOVY, DANSKAMMER POINT GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	202.05	0.0000	1378.85	0.0	
	2	0.0	200.93	0.0000	1372.54	0.0	
	3	0.0	203.04	0.0000	1396.97	0.0	
	4	0.0	198.81	0.0000	1936.44	0.0	
	MONTHLY EST.			0.0000	6084.79		0.0
FEBRUARY	1	0.0	233.01	0.0000	1706.38	0.0	
	2	0.0	246.93	0.0000	1549.70	0.0	
	3	0.0	203.04	0.0000	1421.28	0.0	
	4	0.0	203.04	0.0000	1432.08	0.0	
	MONTHLY EST.			0.0000	6109.44		0.0
MARCH	1	0.0	234.30	0.0000	1634.88	0.0	
	2	0.0	233.05	0.0000	1636.90	0.0	
	3	0.0	227.82	0.0000	1482.60	0.0	
	4	0.0	446.86	0.0000	2261.11	0.0	
	MONTHLY EST.			0.0000	7015.49		0.0
APRIL	1	0.0	188.52	0.0000	1432.37	0.0	
	2	0.0	200.36	0.0000	1421.28	0.0	
	3	0.0	195.66	0.0000	1415.90	0.0	
	4	0.0	202.34	0.0000	1609.01	0.0	
	MONTHLY EST.			0.0000	5878.56		0.0
MAY	1	0.0	118.76	0.0000	790.27	0.0	
	2	0.0	89.05	0.0000	670.99	0.0	
	3	0.0	178.10	0.0000	1150.68	0.0	
	4	0.0	175.85	0.0000	1577.14	0.0	
	MONTHLY EST.			0.0000	4189.08		0.0
JUNE	1	0.0	159.56	0.0000	1510.58	0.0	
	2	0.0	329.12	0.0000	2233.49	0.0	
	3	0.0	239.70	0.0000	2147.95	0.0	
	4	0.0	651.53	0.0000	2971.01	0.0	
	MONTHLY EST.			0.0000	8863.03		0.0
JULY	1	24.8	366.82	0.0676	2223.74	150.3	
	2	85.8	405.39	0.2116	2642.71	559.3	
	3	313.6	430.21	0.7289	2858.83	2083.9	
	4	39.2	270.60	0.1449	3087.05	447.2	
	MONTHLY EST.			0.2883	10812.34		3116.8
AUGUST	1	5.5	408.98	0.0134	2567.62	34.5	
	2	141.5	398.74	0.3549	2308.42	819.2	
	3	56.6	432.10	0.1310	2661.19	348.6	
	4	425.9	771.72	0.5519	3697.94	2040.8	
	MONTHLY EST.			0.2628	11235.17		2952.6
SEPTEMBER	1	412.3	411.79	1.0012	2723.42	2726.8	
	2	196.1	404.65	0.4846	2656.85	1287.6	
	3	348.2	377.32	0.9228	2531.71	2336.3	
	4	397.1	405.71	0.9788	3085.73	3020.2	
	MONTHLY EST.			0.8469	10997.71		9313.5
OCTOBER	1	553.8	374.40	1.4792	2364.24	3497.1	
	2	143.6	287.53	0.4994	2169.41	1083.4	
	3	77.1	229.68	0.3357	1624.90	545.4	
	4	1.9	219.54	0.0087	2074.92	18.0	
	MONTHLY EST.			0.5807	8233.46		4781.4
NOVEMBER	1	0.0	224.06	0.0000	1559.95	0.0	
	2	0.0	260.71	0.0000	1853.33	0.0	
	3	0.0	419.49	0.0000	1525.18	0.0	
	4	0.0	232.92	0.0000	2290.46	0.0	
	MONTHLY EST.			0.0000	7228.92		0.0
DECEMBER	1	0.0	199.94	0.0000	1708.92	0.0	
	2	0.0	178.45	0.0000	1421.45	0.0	
	3	0.0	203.04	0.0000	1113.07	0.0	
	4	0.0	185.70	0.0000	1926.10	0.0	
	MONTHLY EST.			0.0000	6169.54		0.0

APPENDIX TABLE D-2.6. ESTIMATED WEEKLY BIOMASS OF BLUEBACK HERRING, DANSKAMMER POINT GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	202.05	0.0000	1378.85	0.0	
	2	0.0	200.93	0.0000	1372.54	0.0	
	3	0.0	203.04	0.0000	1396.97	0.0	
	4	0.0	198.81	0.0000	1936.44	0.0	
	MONTHLY EST.			0.0000	6084.79		0.0
FEBRUARY	1	0.0	233.01	0.0000	1706.38	0.0	
	2	0.0	246.93	0.0000	1549.70	0.0	
	3	0.0	203.04	0.0000	1421.28	0.0	
	4	0.0	203.04	0.0000	1432.08	0.0	
	MONTHLY EST.			0.0000	6109.44		0.0
MARCH	1	0.0	234.30	0.0000	1634.88	0.0	
	2	0.0	233.05	0.0000	1636.90	0.0	
	3	8.2	227.82	0.0360	1482.60	53.4	
	4	0.0	446.86	0.0000	2261.11	0.0	
	MONTHLY EST.			0.0090	7015.49		63.1
APRIL	1	0.0	188.52	0.0000	1432.37	0.0	
	2	0.0	200.36	0.0000	1421.28	0.0	
	3	0.0	195.66	0.0000	1415.90	0.0	
	4	2.7	202.34	0.0133	1609.01	21.5	
	MONTHLY EST.			0.0033	5878.56		19.6
MAY	1	0.0	118.76	0.0000	790.27	0.0	
	2	0.0	89.05	0.0000	670.99	0.0	
	3	113.6	178.10	0.6379	1150.68	734.0	
	4	0.0	175.85	0.0000	1577.14	0.0	
	MONTHLY EST.			0.1595	4189.08		668.0
JUNE	1	96.7	159.56	0.6060	1510.58	915.4	
	2	2578.3	329.12	7.8340	2233.49	17497.2	
	3	3063.1	239.70	12.7789	2147.95	27448.4	
	4	2025.7	651.53	3.1091	2971.01	9237.2	
	MONTHLY EST.			6.0820	8863.03		53905.1
JULY	1	166.2	366.82	0.4531	2223.74	1007.5	
	2	252.8	405.39	0.6236	2642.71	1648.0	
	3	108.3	430.21	0.2517	2858.83	719.7	
	4	25.9	270.60	0.0957	3087.05	295.5	
	MONTHLY EST.			0.3560	10812.34		3849.5
AUGUST	1	43.5	408.98	0.1064	2567.62	273.1	
	2	455.3	398.74	1.1418	2308.42	2635.8	
	3	3.7	432.10	0.0086	2661.19	22.8	
	4	288.5	771.72	0.3738	3697.94	1382.4	
	MONTHLY EST.			0.4077	11235.17		4580.0
SEPTEMBER	1	85.6	411.79	0.2079	2723.42	566.1	
	2	23.0	404.65	0.0568	2656.85	151.0	
	3	2.9	377.32	0.0077	2531.71	19.5	
	4	26.8	405.71	0.0661	3085.73	203.8	
	MONTHLY EST.			0.0846	10997.71		930.6
OCTOBER	1	215.6	374.40	0.5758	2364.24	1361.4	
	2	226.7	287.53	0.7884	2169.41	1710.4	
	3	964.9	229.68	4.2010	1624.90	6826.2	
	4	1939.8	219.54	8.8357	2074.92	18333.5	
	MONTHLY EST.			3.6003	8233.46		29642.5
NOVEMBER	1	255.7	224.06	1.1412	1559.95	1780.3	
	2	585.8	260.71	2.2470	1853.33	4164.4	
	3	1.0	419.49	0.0024	1525.18	3.6	
	4	1.0	232.92	0.0043	2290.46	9.8	
	MONTHLY EST.			0.8487	7228.92		6135.3
DECEMBER	1	0.0	199.94	0.0000	1708.92	0.0	
	2	0.0	178.45	0.0000	1421.45	0.0	
	3	0.0	203.04	0.0000	1113.07	0.0	
	4	0.0	185.70	0.0000	1926.10	0.0	
	MONTHLY EST.			0.0000	6169.54		0.0

APPENDIX TABLE D-2.7. ESTIMATED WEEKLY BIOMASS OF GIZZARD SHAD, DANSKAMMER POINT GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	7228.7	202.05	35.7763	1378.85	49330.0	
	2	14122.2	200.93	70.2859	1372.54	96470.0	
	3	1909.5	203.04	9.4046	1396.97	13137.9	
	4	878.7	198.81	4.4198	1936.44	8558.7	
	MONTHLY EST.			29.9716	6084.79		182371.2
FEBRUARY	1	26551.0	233.01	113.9494	1706.38	194440.5	
	2	22223.3	246.93	89.9970	1549.70	139468.7	
	3	19079.0	203.04	93.9667	1421.28	133553.0	
	4	12470.1	203.04	61.4170	1432.08	87954.0	
	MONTHLY EST.			89.8325	6109.44		548826.3
MARCH	1	11024.5	234.30	47.0535	1634.88	76926.9	
	2	180.9	233.05	0.7762	1636.90	1270.6	
	3	6039.2	227.82	26.5082	1482.60	39301.0	
	4	667.6	446.86	1.4940	2261.11	3378.1	
	MONTHLY EST.			18.9580	7015.49		132999.5
APRIL	1	0.0	188.52	0.0000	1432.37	0.0	
	2	0.0	200.36	0.0000	1421.28	0.0	
	3	0.0	195.66	0.0000	1415.90	0.0	
	4	0.0	202.34	0.0000	1609.01	0.0	
	MONTHLY EST.			0.0000	5878.56		0.0
MAY	1	0.0	118.76	0.0000	790.27	0.0	
	2	0.0	89.05	0.0000	670.99	0.0	
	3	0.0	178.10	0.0000	1150.68	0.0	
	4	0.0	175.85	0.0000	1577.14	0.0	
	MONTHLY EST.			0.0000	4189.08		0.0
JUNE	1	0.0	159.56	0.0000	1510.58	0.0	
	2	834.4	329.12	2.5353	2233.49	5662.5	
	3	0.0	239.70	0.0000	2147.95	0.0	
	4	0.0	651.53	0.0000	2971.01	0.0	
	MONTHLY EST.			0.6338	8863.03		5617.6
JULY	1	0.0	366.82	0.0000	2223.74	0.0	
	2	40.8	405.39	0.1006	2642.71	266.0	
	3	1062.6	430.21	2.4699	2858.83	7061.1	
	4	20.4	270.60	0.0754	3087.05	232.7	
	MONTHLY EST.			0.6615	10812.34		7152.3
AUGUST	1	20.0	408.98	0.0489	2567.62	125.6	
	2	84.3	398.74	0.2114	2308.42	488.0	
	3	12.2	432.10	0.0282	2661.19	75.1	
	4	98.3	771.72	0.1274	3697.94	471.0	
	MONTHLY EST.			0.1040	11235.17		1168.3
SEPTEMBER	1	20.5	411.79	0.0498	2723.42	135.6	
	2	40.2	404.65	0.0993	2656.85	263.9	
	3	0.0	377.32	0.0000	2531.71	0.0	
	4	0.0	405.71	0.0000	3085.73	0.0	
	MONTHLY EST.			0.0373	10997.71		410.0
OCTOBER	1	32.5	374.40	0.0868	2364.24	205.2	
	2	37.6	287.53	0.1308	2169.41	283.7	
	3	16.1	229.68	0.0701	1624.90	113.9	
	4	316.8	219.54	1.4430	2074.92	2994.1	
	MONTHLY EST.			0.4327	8233.46		3562.4
NOVEMBER	1	1017.3	224.06	4.5404	1559.95	7082.7	
	2	5286.6	260.71	20.2780	1853.33	37581.8	
	3	40479.7	419.49	96.4963	1525.18	147173.8	
	4	41013.4	232.92	176.0814	2290.46	403308.0	
	MONTHLY EST.			74.3490	7228.92		537463.0
DECEMBER	1	35029.1	199.94	175.1998	1708.92	299402.5	
	2	52377.7	178.45	293.5207	1421.45	417224.5	
	3	252573.1	203.04	1243.9573	1113.07	1384614.1	
	4	1185608.2	185.70	6384.6384	1926.10	12297426.5	
	MONTHLY EST.			2024.3291	6169.54		12489171.1

APPENDIX TABLE D-2.8. ESTIMATED WEEKLY BIOMASS OF GOLDEN SHINER, DANSKAMMER POINT GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	691.2	202.05	3.4209	1378.85	4716.9	
	2	1319.7	200.93	6.5681	1372.54	9015.0	
	3	616.1	203.04	3.0344	1396.97	4238.9	
	4	1959.5	198.81	9.8561	1936.44	19085.8	
	MONTHLY EST.			5.7199	6084.79		34804.3
FEBRUARY	1	1478.4	233.01	6.3449	1706.38	10826.7	
	2	1580.5	246.93	6.4005	1549.70	9918.9	
	3	3283.6	203.04	16.1722	1421.28	22985.2	
	4	1351.6	203.04	6.6568	1432.08	9533.1	
	MONTHLY EST.			8.8936	6109.44		54334.9
MARCH	1	5650.6	234.30	24.1173	1634.88	39428.8	
	2	1490.3	233.05	6.3948	1636.90	10467.6	
	3	1971.4	227.82	8.6532	1482.60	12829.2	
	4	2146.6	446.86	4.8038	2261.11	10861.9	
	MONTHLY EST.			10.9922	7015.49		77116.0
APRIL	1	24.9	188.52	0.1321	1432.37	189.2	
	2	119.4	200.36	0.5959	1421.28	847.0	
	3	31.8	195.66	0.1625	1415.90	230.1	
	4	76.7	202.34	0.3791	1609.01	609.9	
	MONTHLY EST.			0.3174	5878.56		1865.9
MAY	1	0.0	118.76	0.0000	790.27	0.0	
	2	0.0	89.05	0.0000	670.99	0.0	
	3	17.4	178.10	0.0977	1150.68	112.4	
	4	0.0	175.85	0.0000	1577.14	0.0	
	MONTHLY EST.			0.0244	4189.08		102.3
JUNE	1	17.2	159.56	0.1078	1510.58	162.8	
	2	160.2	329.12	0.4868	2233.49	1087.2	
	3	0.0	239.70	0.0000	2147.95	0.0	
	4	0.0	651.53	0.0000	2971.01	0.0	
	MONTHLY EST.			0.1486	8863.03		1317.4
JULY	1	0.0	366.82	0.0000	2223.74	0.0	
	2	13.6	405.39	0.0335	2642.71	88.7	
	3	0.0	430.21	0.0000	2858.83	0.0	
	4	0.0	270.60	0.0000	3087.05	0.0	
	MONTHLY EST.			0.0084	10812.34		90.7
AUGUST	1	30.6	408.98	0.0748	2567.62	192.1	
	2	0.0	398.74	0.0000	2308.42	0.0	
	3	0.0	432.10	0.0000	2661.19	0.0	
	4	0.0	771.72	0.0000	3697.94	0.0	
	MONTHLY EST.			0.0187	11235.17		210.2
SEPTEMBER	1	44.2	411.79	0.1073	2723.42	292.3	
	2	67.4	404.65	0.1666	2656.85	442.5	
	3	0.0	377.32	0.0000	2531.71	0.0	
	4	65.1	405.71	0.1605	3085.73	495.1	
	MONTHLY EST.			0.1086	10997.71		1194.2
OCTOBER	1	0.0	374.40	0.0000	2364.24	0.0	
	2	0.0	287.53	0.0000	2169.41	0.0	
	3	0.0	229.68	0.0000	1624.90	0.0	
	4	11.2	219.54	0.0510	2074.92	105.9	
	MONTHLY EST.			0.0128	8233.46		105.0
NOVEMBER	1	128.7	224.06	0.5744	1559.95	896.0	
	2	43.5	260.71	0.1669	1853.33	309.2	
	3	705.4	419.49	1.6815	1525.18	2564.7	
	4	559.4	232.92	2.4017	2290.46	5500.9	
	MONTHLY EST.			1.2061	7228.92		8718.9
DECEMBER	1	215.5	199.94	1.0778	1708.92	1841.9	
	2	327.2	178.45	1.8336	1421.45	2606.4	
	3	4377.1	203.04	21.5578	1113.07	23995.4	
	4	1619.6	185.70	8.7217	1926.10	16798.9	
	MONTHLY EST.			8.2977	6169.54		51193.3

APPENDIX TABLE D-2.9. ESTIMATED WEEKLY BIOMASS OF PUMPKINSEED, DANSKAMMER POINT GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	248.3	202.05	1.2289	1378.85	1694.4	
	2	308.3	200.93	1.5344	1372.54	2106.0	
	3	37.6	203.04	0.1852	1396.97	258.7	
	4	366.4	198.81	1.8430	1936.44	3568.8	
	MONTHLY EST.			1.1979	6084.79		7288.7
FEBRUARY	1	306.3	233.01	1.3146	1706.38	2243.1	
	2	413.8	246.93	1.6758	1549.70	2596.9	
	3	324.8	203.04	1.5997	1421.28	2273.6	
	4	16.4	203.04	0.0808	1432.08	115.7	
	MONTHLY EST.			1.1677	6109.44		7133.9
MARCH	1	608.9	234.30	2.5988	1634.88	4248.8	
	2	563.2	233.05	2.4167	1636.90	3955.8	
	3	25.3	227.82	0.1111	1482.60	164.6	
	4	320.9	446.86	0.7181	2261.11	1623.8	
	MONTHLY EST.			1.4612	7015.49		10250.8
APRIL	1	83.3	188.52	0.4419	1432.37	632.9	
	2	126.6	200.36	0.6319	1421.28	898.0	
	3	317.4	195.66	1.6222	1415.90	2296.9	
	4	1788.6	202.34	8.8398	1609.01	14223.3	
	MONTHLY EST.			2.8839	5878.56		16953.4
MAY	1	278.4	118.76	2.3441	790.27	1852.5	
	2	639.6	89.05	7.1826	670.99	4819.4	
	3	1406.9	178.10	7.8996	1150.68	9089.9	
	4	890.8	175.85	5.0658	1577.14	7989.4	
	MONTHLY EST.			5.6230	4189.08		23555.3
JUNE	1	478.3	159.56	2.9975	1510.58	4528.0	
	2	2701.5	329.12	8.2083	2233.49	18333.2	
	3	731.0	239.70	3.0496	2147.95	6550.5	
	4	399.0	651.53	0.6124	2971.01	1819.4	
	MONTHLY EST.			3.7170	8863.03		32943.7
JULY	1	230.4	366.82	0.6281	2223.74	1396.7	
	2	525.5	405.39	1.2963	2642.71	3425.7	
	3	322.8	430.21	0.7503	2858.83	2145.1	
	4	22.6	270.60	0.0835	3087.05	257.8	
	MONTHLY EST.			0.6896	10812.34		7455.7
AUGUST	1	70.1	408.98	0.1714	2567.62	440.1	
	2	351.4	398.74	0.8813	2308.42	2034.3	
	3	258.5	432.10	0.5982	2661.19	1592.0	
	4	674.9	771.72	0.8745	3697.94	3234.0	
	MONTHLY EST.			0.6314	11235.17		7093.5
SEPTEMBER	1	537.7	411.79	1.3058	2723.42	3556.1	
	2	401.8	404.65	0.9930	2656.85	2638.1	
	3	335.9	377.32	0.8902	2531.71	2253.8	
	4	255.3	405.71	0.6293	3085.73	1941.7	
	MONTHLY EST.			0.9546	10997.71		10497.9
OCTOBER	1	1770.0	374.40	4.7275	2364.24	11177.0	
	2	615.4	287.53	2.1403	2169.41	4643.1	
	3	274.6	229.68	1.1956	1624.90	1942.6	
	4	3145.8	219.54	14.3291	2074.92	29731.6	
	MONTHLY EST.			5.5981	8233.46		46091.7
NOVEMBER	1	1192.8	224.06	5.3236	1559.95	8304.6	
	2	581.7	260.71	2.2312	1853.33	4135.2	
	3	1788.6	419.49	4.2637	1525.18	6502.9	
	4	144.0	232.92	0.6182	2290.46	1416.0	
	MONTHLY EST.			3.1092	7228.92		22476.2
DECEMBER	1	235.2	199.94	1.1764	1708.92	2010.3	
	2	225.6	178.45	1.2642	1421.45	1797.1	
	3	1134.2	203.04	5.5861	1113.07	6217.7	
	4	644.3	185.70	3.4696	1926.10	6682.8	
	MONTHLY EST.			2.8741	6169.54		17731.8

APPENDIX TABLE D-2.10. ESTIMATED WEEKLY BIOMASS OF RAINBOW SMELT, DANSKAMMER POINT GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	202.05	0.0000	1378.85	0.0	
	2	0.0	200.93	0.0000	1372.54	0.0	
	3	0.0	203.04	0.0000	1396.97	0.0	
	4	0.0	198.81	0.0000	1936.44	0.0	
	MONTHLY EST.			0.0000	6084.79		0.0
FEBRUARY	1	0.0	233.01	0.0000	1706.38	0.0	
	2	0.0	246.93	0.0000	1549.70	0.0	
	3	0.0	203.04	0.0000	1421.28	0.0	
	4	0.0	203.04	0.0000	1432.08	0.0	
	MONTHLY EST.			0.0000	6109.44		0.0
MARCH	1	60.8	234.30	0.2595	1634.88	424.3	
	2	12.1	233.05	0.0519	1636.90	85.0	
	3	350.6	227.82	1.5389	1482.60	2281.6	
	4	88.0	446.86	0.1969	2261.11	445.3	
	MONTHLY EST.			0.5118	7015.49		3590.6
APRIL	1	18.5	188.52	0.0981	1432.37	140.6	
	2	7.3	200.36	0.0364	1421.28	51.8	
	3	2.5	195.66	0.0128	1415.90	18.1	
	4	0.0	202.34	0.0000	1609.01	0.0	
	MONTHLY EST.			0.0368	5878.56		216.5
MAY	1	0.0	118.76	0.0000	790.27	0.0	
	2	0.0	89.05	0.0000	670.99	0.0	
	3	0.0	178.10	0.0000	1150.68	0.0	
	4	0.0	175.85	0.0000	1577.14	0.0	
	MONTHLY EST.			0.0000	4189.08		0.0
JUNE	1	0.0	159.56	0.0000	1510.58	0.0	
	2	0.0	329.12	0.0000	2233.49	0.0	
	3	0.0	239.70	0.0000	2147.95	0.0	
	4	22.1	651.53	0.0339	2971.01	100.8	
	MONTHLY EST.			0.0085	8863.03		75.2
JULY	1	4.9	366.82	0.0134	2223.74	29.7	
	2	0.0	405.39	0.0000	2642.71	0.0	
	3	0.0	430.21	0.0000	2858.83	0.0	
	4	0.0	270.60	0.0000	3087.05	0.0	
	MONTHLY EST.			0.0033	10812.34		36.1
AUGUST	1	0.3	408.98	0.0007	2567.62	1.9	
	2	0.5	398.74	0.0013	2308.42	2.9	
	3	0.3	432.10	0.0007	2661.19	1.8	
	4	0.0	771.72	0.0000	3697.94	0.0	
	MONTHLY EST.			0.0007	11235.17		7.5
SEPTEMBER	1	0.0	411.79	0.0000	2723.42	0.0	
	2	0.0	404.65	0.0000	2656.85	0.0	
	3	0.0	377.32	0.0000	2531.71	0.0	
	4	0.0	405.71	0.0000	3085.73	0.0	
	MONTHLY EST.			0.0000	10997.71		0.0
OCTOBER	1	0.0	374.40	0.0000	2364.24	0.0	
	2	0.0	287.53	0.0000	2169.41	0.0	
	3	0.0	229.68	0.0000	1624.90	0.0	
	4	0.0	219.54	0.0000	2074.92	0.0	
	MONTHLY EST.			0.0000	8233.46		0.0
NOVEMBER	1	0.0	224.06	0.0000	1559.95	0.0	
	2	0.0	260.71	0.0000	1853.33	0.0	
	3	0.0	419.49	0.0000	1525.18	0.0	
	4	0.0	232.92	0.0000	2290.46	0.0	
	MONTHLY EST.			0.0000	7228.92		0.0
DECEMBER	1	0.0	199.94	0.0000	1708.92	0.0	
	2	0.0	178.45	0.0000	1421.45	0.0	
	3	0.0	203.04	0.0000	1113.07	0.0	
	4	0.0	185.70	0.0000	1926.10	0.0	
	MONTHLY EST.			0.0000	6169.54		0.0

APPENDIX TABLE D-2.11. ESTIMATED WEEKLY BIOMASS OF SPOTTAIL SHINER, DANSKAMMER POINT GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	136.1	202.05	0.6736	1378.85	928.8	
	2	57.4	200.93	0.2857	1372.54	392.1	
	3	156.4	203.04	0.7703	1396.97	1076.1	
	4	744.1	198.81	3.7428	1936.44	7247.6	
	MONTHLY EST.			1.3681	6084.79		8324.5
FEBRUARY	1	664.4	233.01	2.8514	1706.38	4865.6	
	2	188.4	246.93	0.7630	1549.70	1182.4	
	3	407.5	203.04	2.0070	1421.28	2852.5	
	4	94.2	203.04	0.4639	1432.08	664.4	
	MONTHLY EST.			1.5213	6109.44		9294.5
MARCH	1	768.1	234.30	3.2783	1634.88	5359.7	
	2	118.9	233.05	0.5102	1636.90	835.1	
	3	1920.8	227.82	8.4311	1482.60	12499.9	
	4	2343.8	446.86	5.2451	2261.11	11859.7	
	MONTHLY EST.			4.3662	7015.49		30630.8
APRIL	1	314.4	188.52	1.6678	1432.37	2388.8	
	2	523.3	200.36	2.6118	1421.28	3712.1	
	3	314.3	195.66	1.6064	1415.90	2274.4	
	4	224.9	202.34	1.1115	1609.01	1788.4	
	MONTHLY EST.			1.7494	5878.56		10283.7
MAY	1	0.0	118.76	0.0000	790.27	0.0	
	2	5.8	89.05	0.0651	670.99	43.7	
	3	67.2	178.10	0.3773	1150.68	434.2	
	4	45.3	175.85	0.2576	1577.14	406.3	
	MONTHLY EST.			0.1750	4189.08		733.2
JUNE	1	26.8	159.56	0.1680	1510.58	253.7	
	2	3452.0	329.12	10.4887	2233.49	23426.4	
	3	696.9	239.70	2.9074	2147.95	6244.9	
	4	433.2	651.53	0.6649	2971.01	1975.4	
	MONTHLY EST.			3.5572	8863.03		31527.8
JULY	1	238.0	366.82	0.6488	2223.74	1442.8	
	2	742.1	405.39	1.8306	2642.71	4837.7	
	3	164.5	430.21	0.3824	2858.83	1093.1	
	4	11.8	270.60	0.0436	3087.05	134.6	
	MONTHLY EST.			0.7263	10812.34		7853.5
AUGUST	1	38.2	408.98	0.0934	2567.62	239.8	
	2	118.5	398.74	0.2972	2308.42	686.0	
	3	32.9	432.10	0.0761	2661.19	202.6	
	4	576.2	771.72	0.7466	3697.94	2761.1	
	MONTHLY EST.			0.3033	11235.17		3408.1
SEPTEMBER	1	702.8	411.79	1.7067	2723.42	4648.1	
	2	153.1	404.65	0.3784	2656.85	1005.2	
	3	29.7	377.32	0.0787	2531.71	199.3	
	4	39.5	405.71	0.0974	3085.73	300.4	
	MONTHLY EST.			0.5653	10997.71		6216.8
OCTOBER	1	170.0	374.40	0.4541	2364.24	1073.5	
	2	17.9	287.53	0.0623	2169.41	135.1	
	3	8.2	229.68	0.0357	1624.90	58.0	
	4	215.3	219.54	0.9807	2074.92	2034.8	
	MONTHLY EST.			0.3832	8233.46		3154.9
NOVEMBER	1	92.5	224.06	0.4128	1559.95	644.0	
	2	448.3	260.71	1.7196	1853.33	3186.9	
	3	777.2	419.49	1.8527	1525.18	2825.7	
	4	584.9	232.92	2.5111	2290.46	5751.7	
	MONTHLY EST.			1.6241	7228.92		11740.2
DECEMBER	1	295.8	199.94	1.4795	1708.92	2528.3	
	2	61.6	178.45	0.3452	1421.45	490.7	
	3	798.9	203.04	3.9347	1113.07	4379.6	
	4	207.2	185.70	1.1158	1926.10	2149.1	
	MONTHLY EST.			1.7188	6169.54		10604.1

APPENDIX TABLE D-2.12. ESTIMATED WEEKLY BIOMASS OF STRIPED BASS, DANSKAMMER POINT GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	199.2	202.05	0.9859	1378.85	1359.4	
	2	60.7	200.93	0.3021	1372.54	414.6	
	3	19.2	203.04	0.0946	1396.97	132.1	
	4	39.7	198.81	0.1997	1936.44	386.7	
	MONTHLY EST.			0.3956	6084.79		2406.9
FEBRUARY	1	28.6	233.01	0.1227	1706.38	209.4	
	2	14.1	246.93	0.0571	1549.70	88.5	
	3	9.7	203.04	0.0478	1421.28	67.9	
	4	8.4	203.04	0.0414	1432.08	59.2	
	MONTHLY EST.			0.0672	6109.44		410.8
MARCH	1	1.7	234.30	0.0073	1634.88	11.9	
	2	0.0	233.05	0.0000	1636.90	0.0	
	3	5.8	227.82	0.0255	1482.60	37.7	
	4	46.0	446.86	0.1029	2261.11	232.8	
	MONTHLY EST.			0.0339	7015.49		237.9
APRIL	1	0.0	188.52	0.0000	1432.37	0.0	
	2	89.6	200.36	0.4472	1421.28	635.6	
	3	14.6	195.66	0.0746	1415.90	105.7	
	4	98.2	202.34	0.4853	1609.01	780.9	
	MONTHLY EST.			0.2518	5878.56		1480.1
MAY	1	4.7	118.76	0.0396	790.27	31.3	
	2	2.7	89.05	0.0303	670.99	20.3	
	3	141.5	178.10	0.7945	1150.68	914.2	
	4	55.7	175.85	0.3168	1577.14	499.6	
	MONTHLY EST.			0.2953	4189.08		1237.0
JUNE	1	96.1	159.56	0.6023	1510.58	909.8	
	2	491.0	329.12	1.4919	2233.49	3332.1	
	3	185.6	239.70	0.7743	2147.95	1663.2	
	4	267.5	651.53	0.4106	2971.01	1219.8	
	MONTHLY EST.			0.8198	8863.03		7265.5
JULY	1	570.8	366.82	1.5561	2223.74	3460.3	
	2	899.9	405.39	2.2198	2642.71	5866.4	
	3	298.5	430.21	0.6938	2858.83	1983.6	
	4	317.8	270.60	1.1744	3087.05	3625.5	
	MONTHLY EST.			1.4110	10812.34		15256.7
AUGUST	1	911.9	408.98	2.2297	2567.62	5724.9	
	2	2334.8	398.74	5.8554	2308.42	13516.7	
	3	1732.4	432.10	4.0092	2661.19	10669.4	
	4	3337.3	771.72	4.3245	3697.94	15991.8	
	MONTHLY EST.			4.1047	11235.17		46117.1
SEPTEMBER	1	2950.1	411.79	7.1641	2723.42	19510.9	
	2	1330.0	404.65	3.2868	2656.85	8732.5	
	3	639.2	377.32	1.6940	2531.71	4288.8	
	4	1066.6	405.71	2.6289	3085.73	8112.2	
	MONTHLY EST.			3.6935	10997.71		40619.7
OCTOBER	1	1804.7	374.40	4.8202	2364.24	11396.1	
	2	809.9	287.53	2.8167	2169.41	6110.6	
	3	623.2	229.68	2.7133	1624.90	4408.8	
	4	683.2	219.54	3.1120	2074.92	6457.1	
	MONTHLY EST.			3.3655	8233.46		27710.0
NOVEMBER	1	473.0	224.06	2.1111	1559.95	3293.2	
	2	463.9	260.71	1.7794	1853.33	3297.8	
	3	2843.7	419.49	6.7789	1525.18	10339.0	
	4	2745.8	232.92	11.7884	2290.46	27001.0	
	MONTHLY EST.			5.6144	7228.92		40586.4
DECEMBER	1	441.3	199.94	2.2072	1708.92	3771.9	
	2	264.0	178.45	1.4794	1421.45	2102.9	
	3	693.1	203.04	3.4136	1113.07	3799.6	
	4	274.1	185.70	1.4761	1926.10	2843.0	
	MONTHLY EST.			2.1441	6169.54		13227.9

APPENDIX TABLE D-2.13. ESTIMATED WEEKLY BIOMASS OF WEAKFISH, DANSKAMMER POINT GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	202.05	0.0000	1378.85	0.0	
	2	0.0	200.93	0.0000	1372.54	0.0	
	3	0.0	203.04	0.0000	1396.97	0.0	
	4	0.0	198.81	0.0000	1936.44	0.0	
	MONTHLY EST.			0.0000	6084.79		0.0
FEBRUARY	1	0.0	233.01	0.0000	1706.38	0.0	
	2	0.0	246.93	0.0000	1549.70	0.0	
	3	0.0	203.04	0.0000	1421.28	0.0	
	4	0.0	203.04	0.0000	1432.08	0.0	
	MONTHLY EST.			0.0000	6109.44		0.0
MARCH	1	0.0	234.30	0.0000	1634.88	0.0	
	2	0.0	233.05	0.0000	1636.90	0.0	
	3	0.0	227.82	0.0000	1482.60	0.0	
	4	0.0	446.86	0.0000	2261.11	0.0	
	MONTHLY EST.			0.0000	7015.49		0.0
APRIL	1	0.0	188.52	0.0000	1432.37	0.0	
	2	0.0	200.36	0.0000	1421.28	0.0	
	3	0.0	195.66	0.0000	1415.90	0.0	
	4	0.0	202.34	0.0000	1609.01	0.0	
	MONTHLY EST.			0.0000	5878.56		0.0
MAY	1	0.0	118.76	0.0000	790.27	0.0	
	2	0.0	89.05	0.0000	670.99	0.0	
	3	0.0	178.10	0.0000	1150.68	0.0	
	4	0.0	175.85	0.0000	1577.14	0.0	
	MONTHLY EST.			0.0000	4189.08		0.0
JUNE	1	0.0	159.56	0.0000	1510.58	0.0	
	2	0.0	329.12	0.0000	2233.49	0.0	
	3	0.0	239.70	0.0000	2147.95	0.0	
	4	0.0	651.53	0.0000	2971.01	0.0	
	MONTHLY EST.			0.0000	8863.03		0.0
JULY	1	0.0	366.82	0.0000	2223.74	0.0	
	2	0.0	405.39	0.0000	2642.71	0.0	
	3	0.0	430.21	0.0000	2858.83	0.0	
	4	0.0	270.60	0.0000	3087.05	0.0	
	MONTHLY EST.			0.0000	10812.34		0.0
AUGUST	1	0.0	408.98	0.0000	2567.62	0.0	
	2	8.7	398.74	0.0218	2308.42	50.4	
	3	11.8	432.10	0.0273	2661.19	72.7	
	4	2702.7	771.72	3.5022	3697.94	12950.9	
	MONTHLY EST.			0.8878	11235.17		9974.9
SEPTEMBER	1	1301.2	411.79	3.1599	2723.42	8605.6	
	2	318.7	404.65	0.7876	2656.85	2092.5	
	3	91.6	377.32	0.2428	2531.71	614.6	
	4	708.8	405.71	1.7470	3085.73	5390.9	
	MONTHLY EST.			1.4843	10997.71		16324.1
OCTOBER	1	390.0	374.40	1.0417	2364.24	2462.7	
	2	26.2	287.53	0.0911	2169.41	197.7	
	3	0.0	229.68	0.0000	1624.90	0.0	
	4	0.0	219.54	0.0000	2074.92	0.0	
	MONTHLY EST.			0.2832	8233.46		2331.7
NOVEMBER	1	0.0	224.06	0.0000	1559.95	0.0	
	2	0.0	260.71	0.0000	1853.33	0.0	
	3	0.0	419.49	0.0000	1525.18	0.0	
	4	0.0	232.92	0.0000	2290.46	0.0	
	MONTHLY EST.			0.0000	7228.92		0.0
DECEMBER	1	0.0	199.94	0.0000	1708.92	0.0	
	2	0.0	178.45	0.0000	1421.45	0.0	
	3	0.0	203.04	0.0000	1113.07	0.0	
	4	0.0	185.70	0.0000	1926.10	0.0	
	MONTHLY EST.			0.0000	6169.54		0.0

APPENDIX TABLE D-2.14. ESTIMATED WEEKLY BIOMASS OF WHITE CATFISH, DANSKAMMER POINT GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	441.7	202.05	2.1861	1378.85	3014.2	
	2	1118.6	200.93	5.5673	1372.54	7641.3	
	3	0.0	203.04	0.0000	1396.97	0.0	
	4	418.0	198.81	2.1025	1936.44	4071.4	
	MONTHLY EST.			2.4640	6084.79		14992.7
FEBRUARY	1	0.0	233.01	0.0000	1706.38	0.0	
	2	0.0	246.93	0.0000	1549.70	0.0	
	3	0.0	203.04	0.0000	1421.28	0.0	
	4	2310.5	203.04	11.3795	1432.08	16296.4	
	MONTHLY EST.			2.8449	6109.44		17380.6
MARCH	1	0.0	234.30	0.0000	1634.88	0.0	
	2	0.0	233.05	0.0000	1636.90	0.0	
	3	374.8	227.82	1.6451	1482.60	2439.1	
	4	1420.3	446.86	3.1784	2261.11	7186.8	
	MONTHLY EST.			1.2059	7015.49		8459.9
APRIL	1	10.8	188.52	0.0573	1432.37	82.1	
	2	19.7	200.36	0.0983	1421.28	139.7	
	3	0.0	195.66	0.0000	1415.90	0.0	
	4	11.6	202.34	0.0573	1609.01	92.2	
	MONTHLY EST.			0.0532	5878.56		312.9
MAY	1	2.1	118.76	0.0177	790.27	14.0	
	2	18.6	89.05	0.2089	670.99	140.2	
	3	4.9	178.10	0.0275	1150.68	31.7	
	4	0.0	175.85	0.0000	1577.14	0.0	
	MONTHLY EST.			0.0635	4189.08		266.1
JUNE	1	1092.4	159.56	6.8461	1510.58	10341.6	
	2	1421.1	329.12	4.3179	2233.49	9644.0	
	3	47.7	239.70	0.1990	2147.95	427.4	
	4	48.0	651.53	0.0737	2971.01	218.9	
	MONTHLY EST.			2.8592	8863.03		25341.0
JULY	1	289.5	366.82	0.7892	2223.74	1755.0	
	2	993.6	405.39	2.4510	2642.71	6477.2	
	3	2401.4	430.21	5.5819	2858.83	15957.6	
	4	0.0	270.60	0.0000	3087.05	0.0	
	MONTHLY EST.			2.2055	10812.34		23846.8
AUGUST	1	2624.9	408.98	6.4181	2567.62	16479.2	
	2	869.2	398.74	2.1799	2308.42	5032.0	
	3	673.0	432.10	1.5575	2661.19	4144.8	
	4	197.7	771.72	0.2562	3697.94	947.3	
	MONTHLY EST.			2.6029	11235.17		29244.1
SEPTEMBER	1	816.3	411.79	1.9823	2723.42	5398.7	
	2	366.9	404.65	0.9067	2656.85	2409.0	
	3	253.0	377.32	0.6705	2531.71	1697.6	
	4	95.8	405.71	0.2361	3085.73	728.6	
	MONTHLY EST.			0.9489	10997.71		10435.9
OCTOBER	1	29.9	374.40	0.0799	2364.24	188.8	
	2	743.7	287.53	2.5865	2169.41	5611.1	
	3	56.2	229.68	0.2447	1624.90	397.6	
	4	662.2	219.54	3.0163	2074.92	6258.6	
	MONTHLY EST.			1.4818	8233.46		12200.6
NOVEMBER	1	482.3	224.06	2.1526	1559.95	3357.9	
	2	1629.7	260.71	6.2511	1853.33	11585.3	
	3	1379.2	419.49	3.2878	1525.18	5014.4	
	4	287.9	232.92	1.2360	2290.46	2831.1	
	MONTHLY EST.			3.2319	7228.92		23362.9
DECEMBER	1	377.7	199.94	1.8891	1708.92	3228.3	
	2	0.0	178.45	0.0000	1421.45	0.0	
	3	2192.9	203.04	10.8003	1113.07	12021.6	
	4	523.9	185.70	2.8213	1926.10	5434.0	
	MONTHLY EST.			3.8777	6169.54		23923.4

APPENDIX TABLE D-2.15. ESTIMATED WEEKLY BIOMASS OF WHITE PERCH, DANSKAMMER POINT GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	165.8	202.05	0.8206	1378.85	1131.5	
	2	144.4	200.93	0.7187	1372.54	986.4	
	3	149.1	203.04	0.7343	1396.97	1025.8	
	4	852.8	198.81	4.2895	1936.44	8306.4	
	MONTHLY EST.			1.6408	6084.79		9983.8
FEBRUARY	1	2836.6	233.01	12.1739	1706.38	20773.2	
	2	639.8	246.93	2.5910	1549.70	4015.2	
	3	573.1	203.04	2.8226	1421.28	4011.7	
	4	450.5	203.04	2.2188	1432.08	3177.5	
	MONTHLY EST.			4.9516	6109.44		30251.2
MARCH	1	1451.6	234.30	6.1956	1634.88	10129.0	
	2	369.0	233.05	1.5834	1636.90	2591.8	
	3	7151.0	227.82	31.3882	1482.60	46536.2	
	4	28134.5	446.86	62.9610	2261.11	142361.9	
	MONTHLY EST.			25.5320	7015.49		179119.7
APRIL	1	287.8	188.52	1.5267	1432.37	2186.7	
	2	1608.6	200.36	8.0285	1421.28	11410.8	
	3	130.0	195.66	0.6644	1415.90	940.8	
	4	635.1	202.34	3.1389	1609.01	5050.4	
	MONTHLY EST.			3.3396	5878.56		19632.1
MAY	1	45.1	118.76	0.3797	790.27	300.1	
	2	40.8	89.05	0.4582	670.99	307.4	
	3	989.6	178.10	5.5565	1150.68	6393.7	
	4	857.6	175.85	4.8770	1577.14	7691.7	
	MONTHLY EST.			2.8179	4189.08		11804.2
JUNE	1	1173.4	159.56	7.3538	1510.58	11108.5	
	2	15909.8	329.12	48.3409	2233.49	107968.9	
	3	7672.5	239.70	32.0088	2147.95	68753.3	
	4	8832.3	651.53	13.5562	2971.01	40275.5	
	MONTHLY EST.			25.3149	8863.03		224366.8
JULY	1	8363.3	366.82	22.7996	2223.74	50700.5	
	2	20351.9	405.39	50.2033	2642.71	132672.8	
	3	12832.4	430.21	29.8280	2858.83	85273.1	
	4	3936.1	270.60	14.5458	3087.05	44903.5	
	MONTHLY EST.			29.3442	10812.34		317278.9
AUGUST	1	4266.1	408.98	10.4310	2567.62	26782.7	
	2	7629.2	398.74	19.1331	2308.42	44167.2	
	3	4248.5	432.10	9.8322	2661.19	26165.3	
	4	9488.0	771.72	12.2947	3697.94	45465.1	
	MONTHLY EST.			12.9227	11235.17		145189.2
SEPTEMBER	1	7147.0	411.79	17.3559	2723.42	47267.6	
	2	6749.3	404.65	16.6794	2656.85	44314.6	
	3	2899.6	377.32	7.6847	2531.71	19455.4	
	4	2973.9	405.71	7.3301	3085.73	22618.5	
	MONTHLY EST.			12.2625	10997.71		134859.7
OCTOBER	1	10883.5	374.40	29.0689	2364.24	68725.8	
	2	8669.7	287.53	30.1519	2169.41	65411.8	
	3	3883.5	229.68	16.9080	1624.90	27473.7	
	4	16193.5	219.54	73.7610	2074.92	153048.3	
	MONTHLY EST.			37.4725	8233.46		308528.1
NOVEMBER	1	15553.3	224.06	69.4166	1559.95	108286.6	
	2	14753.3	260.71	56.5898	1853.33	104879.5	
	3	54647.6	419.49	130.2700	1525.18	198684.6	
	4	9070.2	232.92	38.9408	2290.46	89192.4	
	MONTHLY EST.			73.8043	7228.92		533525.3
DECEMBER	1	4660.1	199.94	23.3077	1708.92	39831.0	
	2	447.1	178.45	2.5055	1421.45	3561.5	
	3	1247.6	203.04	6.1446	1113.07	6839.4	
	4	360.7	185.70	1.9424	1926.10	3741.3	
	MONTHLY EST.			8.4751	6169.54		52287.2

APPENDIX TABLE D-2.16. ESTIMATED WEEKLY BIOMASS OF YELLOW PERCH, DANSKAMMER POINT GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	636.7	202.05	3.1512	1378.85	4345.0	
	2	15.8	200.93	0.0786	1372.54	107.9	
	3	180.2	203.04	0.8875	1396.97	1239.8	
	4	341.7	198.81	1.7187	1936.44	3328.2	
	MONTHLY EST.			1.4590	6084.79		8877.8
FEBRUARY	1	239.3	233.01	1.0270	1706.38	1752.5	
	2	165.2	246.93	0.6690	1549.70	1036.8	
	3	251.4	203.04	1.2382	1421.28	1759.8	
	4	258.2	203.04	1.2717	1432.08	1821.1	
	MONTHLY EST.			1.0515	6109.44		6423.9
MARCH	1	332.5	234.30	1.4191	1634.88	2320.1	
	2	6.4	233.05	0.0275	1636.90	45.0	
	3	1272.0	227.82	5.5833	1482.60	8277.7	
	4	1903.2	446.86	4.2591	2261.11	9630.3	
	MONTHLY EST.			2.8222	7015.49		19799.4
APRIL	1	0.0	188.52	0.0000	1432.37	0.0	
	2	10.8	200.36	0.0539	1421.28	76.6	
	3	20.4	195.66	0.1043	1415.90	147.6	
	4	39.0	202.34	0.1927	1609.01	310.1	
	MONTHLY EST.			0.0877	5878.56		515.7
MAY	1	0.0	118.76	0.0000	790.27	0.0	
	2	0.0	89.05	0.0000	670.99	0.0	
	3	72.3	178.10	0.4060	1150.68	467.1	
	4	0.0	175.85	0.0000	1577.14	0.0	
	MONTHLY EST.			0.1015	4189.08		425.1
JUNE	1	0.0	159.56	0.0000	1510.58	0.0	
	2	0.0	329.12	0.0000	2233.49	0.0	
	3	0.0	239.70	0.0000	2147.95	0.0	
	4	0.0	651.53	0.0000	2971.01	0.0	
	MONTHLY EST.			0.0000	8863.03		0.0
JULY	1	200.6	366.82	0.5469	2223.74	1216.1	
	2	0.0	405.39	0.0000	2642.71	0.0	
	3	0.0	430.21	0.0000	2858.83	0.0	
	4	0.0	270.60	0.0000	3087.05	0.0	
	MONTHLY EST.			0.1367	10812.34		1478.2
AUGUST	1	0.0	408.98	0.0000	2567.62	0.0	
	2	0.0	398.74	0.0000	2308.42	0.0	
	3	0.0	432.10	0.0000	2661.19	0.0	
	4	0.0	771.72	0.0000	3697.94	0.0	
	MONTHLY EST.			0.0000	11235.17		0.0
SEPTEMBER	1	0.0	411.79	0.0000	2723.42	0.0	
	2	0.0	404.65	0.0000	2656.85	0.0	
	3	0.0	377.32	0.0000	2531.71	0.0	
	4	0.0	405.71	0.0000	3085.73	0.0	
	MONTHLY EST.			0.0000	10997.71		0.0
OCTOBER	1	0.0	374.40	0.0000	2364.24	0.0	
	2	0.0	287.53	0.0000	2169.41	0.0	
	3	0.0	229.68	0.0000	1624.90	0.0	
	4	0.0	219.54	0.0000	2074.92	0.0	
	MONTHLY EST.			0.0000	8233.46		0.0
NOVEMBER	1	57.2	224.06	0.2553	1559.95	398.2	
	2	167.5	260.71	0.6425	1853.33	1190.7	
	3	477.9	419.49	1.1392	1525.18	1737.5	
	4	350.4	232.92	1.5044	2290.46	3445.7	
	MONTHLY EST.			0.8853	7228.92		6400.1
DECEMBER	1	340.2	199.94	1.7015	1708.92	2907.8	
	2	400.5	178.45	2.2444	1421.45	3190.3	
	3	971.4	203.04	4.7843	1113.07	5325.2	
	4	963.4	185.70	5.1880	1926.10	9992.6	
	MONTHLY EST.			3.4796	6169.54		21467.2

APPENDIX TABLE D-2.17. ESTIMATED WEEKLY BIOMASS OF BLUE CRAB, DANSKAMMER POINT GENERATING STATION, 1995.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	202.05	0.0000	1378.85	0.0	
	2	0.0	200.93	0.0000	1372.54	0.0	
	3	0.0	203.04	0.0000	1396.97	0.0	
	4	0.0	198.81	0.0000	1936.44	0.0	
	MONTHLY EST.			0.0000	6084.79		0.0
FEBRUARY	1	0.0	233.01	0.0000	1706.38	0.0	
	2	0.0	246.93	0.0000	1549.70	0.0	
	3	0.0	203.04	0.0000	1421.28	0.0	
	4	0.0	203.04	0.0000	1432.08	0.0	
	MONTHLY EST.			0.0000	6109.44		0.0
MARCH	1	0.0	234.30	0.0000	1634.88	0.0	
	2	0.0	233.05	0.0000	1636.90	0.0	
	3	0.0	227.82	0.0000	1482.60	0.0	
	4	1.6	446.86	0.0036	2261.11	8.1	
	MONTHLY EST.			0.0009	7015.49		6.3
APRIL	1	0.0	188.52	0.0000	1432.37	0.0	
	2	0.0	200.36	0.0000	1421.28	0.0	
	3	0.0	195.66	0.0000	1415.90	0.0	
	4	0.0	202.34	0.0000	1609.01	0.0	
	MONTHLY EST.			0.0000	5878.56		0.0
MAY	1	0.0	118.76	0.0000	790.27	0.0	
	2	0.0	89.05	0.0000	670.99	0.0	
	3	929.3	178.10	5.2179	1150.68	6004.1	
	4	1808.7	175.85	10.2857	1577.14	16221.9	
	MONTHLY EST.			3.8759	4189.08		16236.5
JUNE	1	608.0	159.56	3.8104	1510.58	5755.9	
	2	3054.5	329.12	9.2809	2233.49	20728.8	
	3	884.9	239.70	3.6917	2147.95	7929.6	
	4	20511.7	651.53	31.4822	2971.01	93533.8	
	MONTHLY EST.			12.0663	8863.03		106943.9
JULY	1	26727.2	366.82	72.8624	2223.74	162027.4	
	2	42697.5	405.39	105.3245	2642.71	278342.3	
	3	42790.8	430.21	99.4640	2858.83	284350.9	
	4	7131.5	270.60	26.3543	3087.05	81357.1	
	MONTHLY EST.			76.0013	10812.34		821751.8
AUGUST	1	32278.4	408.98	78.9233	2567.62	202644.7	
	2	27876.9	398.74	69.9120	2308.42	161385.9	
	3	26269.7	432.10	60.7952	2661.19	161787.8	
	4	63959.8	771.72	82.8800	3697.94	306485.7	
	MONTHLY EST.			73.1276	11235.17		821601.2
SEPTEMBER	1	29845.0	411.79	72.4763	2723.42	197383.6	
	2	22473.1	404.65	55.5373	2656.85	147554.1	
	3	13044.7	377.32	34.5719	2531.71	87526.0	
	4	10459.7	405.71	25.7810	3085.73	79553.2	
	MONTHLY EST.			47.0916	10997.71		517899.9
OCTOBER	1	14337.6	374.40	38.2945	2364.24	90537.3	
	2	1270.2	287.53	4.4176	2169.41	9583.5	
	3	2268.7	229.68	9.8775	1624.90	16049.8	
	4	1012.9	219.54	4.6137	2074.92	9573.1	
	MONTHLY EST.			14.3008	8233.46		117745.2
NOVEMBER	1	3684.6	224.06	16.4449	1559.95	25653.3	
	2	2599.0	260.71	9.9691	1853.33	18476.0	
	3	10.9	419.49	0.0260	1525.18	39.6	
	4	0.0	232.92	0.0000	2290.46	0.0	
	MONTHLY EST.			6.6100	7228.92		47783.1
DECEMBER	1	0.0	199.94	0.0000	1708.92	0.0	
	2	0.0	178.45	0.0000	1421.45	0.0	
	3	0.0	203.04	0.0000	1113.07	0.0	
	4	0.0	185.70	0.0000	1926.10	0.0	
	MONTHLY EST.			0.0000	6169.54		0.0

APPENDIX E

IMPINGEMENT COLLECTION EFFICIENCY PROGRAM RESULTS

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E-1. Roseton collection efficiency results, 1995.

E-2. Danskammer Point Units 1 and 2 collection efficiency results, 1995.

E-3. Danskammer Point Units 3 and 4 collection efficiency results, 1995.

APPENDIX E

IMPINGEMENT COLLECTION EFFICIENCY PROGRAM RESULTS

Impingement collection efficiency tests were conducted monthly at Roseton and Danskammer Point during 1995. Normally fifty inconspicuously marked fish (caudal fin clip) of varying sizes were introduced to the screenwash sluiceway before or during a scheduled screen cycle. Collection efficiency was determined for three size groups of fish, <13 cm, 13-25 cm, and >25 cm. Following collection, as part of a normal 6-hr impingement sample, organisms were analyzed without the analysis team being notified. The sample was reexamined for marked fish as a check on analytical techniques, and collection efficiency was calculated according to the following formula:

$$\text{Collection Efficiency} = \frac{\text{Number Recovered}}{\text{Number Released}} \times 100\%$$

All marked fish recovered were identified during the initial analysis phase.

ROSETON GENERATING STATION

The overall 1995 collection efficiency calculated for Roseton was 94%, with values ranging from a low of 72% (in September) to 100% (during six different dates) for all size groups of fish combined (Table E-1). The overall collection efficiency in 1995 was 92% for fish less than 13 cm total length (524 released and 480 recovered), 99% (181 released, 180 recovered) for fish 13-25 cm and 90% for fish greater than 25 cm (10 released and 9 recovered).

Low collection efficiency on 7 September was attributed to crab predation on small fish because of lower than normal water flow in the screenwash sluiceway. Testing was repeated on 14 September and again found to be low. In an attempt to improve the collection efficiency, the conveyor drive chain and vertical gaskets were adjusted and the bottom pads (rubber sheeting) were replaced. Testing was again repeated the following week and collection efficiency after the conveyor repairs was 100%.

APPENDIX TABLE E-1. ROSETON COLLECTION EFFICIENCY RESULTS, 1995.

	REL. LOCATION		SMALL (<13 cm)			MEDIUM (13-25 cm)			LARGE (>25 cm)			TOTAL ALL SIZES		
DATE	UNITS	SCREENS	NO. REL.	NO. REC.	COLL. EFF. (%)	NO. REL.	NO. REC.	COLL. EFF. (%)	NO. REL.	NO. REC.	COLL. EFF. (%)	NO. REL.	NO. REC.	COLL. EFF. (%)
5 Jan	1 & 2	1D/2A	50	46	92	0			0			50	46	92
19 Jan	1 & 2	1D/2A	25	23	92	0			0			25	23	92
9 Feb	1 & 2	1D/2A	40	38	95	10	10	100	0			50	48	96
9 Mar	1 & 2	1D/2A	41	38	93	9	9	100	0			50	47	94
13 Apr	1 & 2	2C/2D	35	32	91	15	14	93	0			50	46	92
18 May	1 & 2	1D/2A	30	30	100	20	20	100	0			50	50	100
8 Jun	1 & 2	1D/2A	40	40	100	10	10	100	0			50	50	100
6 Jul	1 & 2	1D/2A	43	42	98	7	7	100	0			50	49	98
10 Aug	1 & 2	1C/1D	15	15	100	35	35	100	0			50	50	100
7 Sep	1 & 2	2A/2B	35	22	63	15	15	100	0			50	37	74
14 Sep	1 & 2	2B/2C	40	27	68	0			10	9	90	50	36	72
21 Sep	1 & 2	2B/2C	30	30	100	10	10	100	0			40	40	100
5 Oct	1 & 2	2C/2D	40	37	93	10	10	100	0			50	47	94
2 Nov	1 & 2	1C/1D	35	35	100	15	15	100	0			50	50	100
7 Dec	1 & 2	1C/1D	25	25	100	25	25	100	0			50	50	100
TOTAL			524	480	92	181	180	99	10	9	90	715	669	94

DANSKAMMER POINT GENERATING STATION

No collection efficiency sampling was conducted in January, April, or December for Units 1 and 2 because the units were not operating during the collection efficiency test dates in those months. At Danskammer Point Units 1 and 2 the overall 1995 collection efficiency was 98%, with monthly values ranging from 94% (October) to 100% (during three months, Table E-2). Collection efficiency was 97% (290 released, 281 recovered) for fish under 13 cm in total length and 99% for fish 13-25 cm (131 released, 130 recovered). There were no test fish larger than 25 cm released at Danskammer Point Units 1 and 2 in 1995.

At Danskammer Point Units 3 and 4 the overall 1995 collection efficiency was 97%, with monthly values ranging from 92% in July and September to 100% in six different months (Table E-3). Collection efficiency was 95% (427 released, 407 recovered) for fish under 13 cm in total length and 100% (163 released, 163 recovered) for fish 13-25 cm in total length. There were no fish larger than 25 cm in total length released at Danskammer Point Units 3 and 4 in 1995.

APPENDIX TABLE E-2. DANSKAMMER POINT UNITS 1 AND 2 COLLECTION EFFICIENCY RESULTS, 1995.

	REL. LOCATION		SMALL (<13 cm)			MEDIUM (13-25 cm)			LARGE (>25 cm)			TOTAL ALL SIZES		
DATE	UNITS	SCREENS	NO. REL.	NO. REC.	COLL. EFF. (%)	NO. REL.	NO. REC.	COLL. EFF. (%)	NO. REL.	NO. REC.	COLL. EFF. (%)	NO. REL.	NO. REC.	COLL. EFF. (%)
9 Feb	1 & 2	1B/1C	32	31	97	8	7	88	0			40	38	95
9 Mar	1 & 2	2A/2B	35	35	100	5	5	100	0			40	40	100
18 May	1 & 2	1D/2A	25	24	96	16	16	100	0			41	40	98
9 Jun	1 & 2	1A/1B	40	39	98	10	10	100	0			50	49	98
6 Jul	1 & 2	1A/2C	33	33	100	17	17	100	0			50	50	100
10 Aug	1 & 2	1A/1B	15	15	100	35	35	100	0			50	50	100
7 Sep	1 & 2	1A/1B	35	34	97	15	15	100	0			50	49	98
5 Oct	1 & 2	1A/2C	40	37	93	10	10	100	0			50	47	94
2 Nov	1 & 2	1A/2C	35	33	94	15	15	100	0			50	48	96
TOTAL			290	281	97	131	130	99	0			421	411	98

APPENDIX TABLE E-3. DANSKAMMER POINT UNITS 3 AND 4 COLLECTION EFFICIENCY RESULTS, 1995.

	REL. LOCATION		SMALL (<13 cm)			MEDIUM (13-25 cm)			LARGE (>25 cm)			TOTAL ALL SIZES		
DATE	UNITS	SCREENS	NO. REL.	NO. REC.	COLL. EFF. (%)	NO. REL.	NO. REC.	COLL. EFF. (%)	NO. REL.	NO. REC.	COLL. EFF. (%)	NO. REL.	NO. REC.	COLL. EFF. (%)
5 Jan	3 & 4	4B	50	50	100	0			0			50	50	100
9 Feb	3 & 4	4B	41	41	100	9	9	100	0			50	50	100
9 Mar	3 & 4	4C	41	41	100	9	9	100	0			50	50	100
13 Apr	3 & 4	3C/4C	32	29	91	18	18	100	0			50	47	94
18 May	3 & 4	3B/3C	30	28	93	20	20	100	0			50	48	96
8 Jun	3 & 4	3C/4C	40	40	100	10	10	100	0			50	50	100
6 Jul	3 & 4	3C/4C	43	39	91	7	7	100	0			50	46	92
10 Aug	3 & 4	4A/4B	15	15	100	35	35	100	0			50	50	100
7 Sep	3 & 4	4A/4B	35	31	89	15	15	100	0			50	46	92
5 Oct	3 & 4	3C/4C	40	40	100	10	10	100	0			50	50	100
2 Nov	3 & 4	3C/4C	35	33	94	15	15	100	0			50	48	96
7 Dec	3 & 4	4B/4C	25	20	80	25	25	100	0			50	45	90
TOTAL			427	407	95	173	173	100	0			600	580	97

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NORMANDEAU ASSOCIATES
ENVIRONMENTAL CONSULTANTS

ROSETON AND DANSKAMMER POINT GENERATING STATIONS IMPINGEMENT MONITORING PROGRAM 1997 ANNUAL PROGRESS REPORT

Prepared for

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June 1998

ROSETON AND DANSKAMMER POINT GENERATING STATIONS IMPINGEMENT MONITORING PROGRAM 1997 ANNUAL PROGRESS REPORT

Permit (Facility) Numbers:

NY 000 6262 (Danskammer Point)

NY 000 8231 (Roseton)

This annual report is submitted as partial fulfillment of SPDES permit conditions as stipulated within the section entitled Additional Requirements: Number 9 (Biological Monitoring and Reporting) of the Danskammer Point permit; and Number 7 (Biological Monitoring and Reporting) which is embodied in a Memorandum of Agreement (MOA) for Roseton Generating Station.

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1.0 EXECUTIVE SUMMARY

1.0 EXECUTIVE SUMMARY

The 1997 impingement abundance monitoring program conducted at Central Hudson Gas & Electric Corporation's Roseton and Danskammer Point Generating Stations represents a continuation of year-round intake monitoring programs begun in January of 1972 at Danskammer Point and in July of 1973 at Roseton. Weekly sampling consisting of four successive 6-hour diel periods was conducted to quantify the numbers, types, and biomass of Hudson River fish and major invertebrates impinged on the cooling water intake screening system of each station. Based on observed impingement rates on sampling days and recorded plant flow for the entire year, the total impingement for the year was estimated. This report provides the results of studies conducted during 1997 and compares those results with historical patterns of impingement.

Temperature and dissolved oxygen in 1997 exhibited the typical seasonal patterns seen in previous years, with temperature highest from early July to mid-September in the 23-27°C range, and dissolved oxygen at its lowest levels during that same period (about 6-8 mg/l). Weekly averages of specific conductance were below 250 μmhos/cm for more than half the year and were moderately elevated throughout the late summer and early fall. Turbidity and total suspended solids concentrations were at fairly constant levels throughout 1997. Total organic carbon and pH were at normal levels in 1997. Metals were monitored in the nearfield area in a continuation of expanded water quality analysis begun in 1989. Most values for nine of the 14 metals were below detection limits most of the time in 1997, and the data for the other five were similar to previous years' data. Provisional data available for the first nine months of 1997 indicated that freshwater flow rates were typical compared to previous years.

On the 52 sampling dates in 1997, 59,665 fish representing 42 species in 18 families were collected at Roseton. At Danskammer Point the collections on 53 sampling dates totaled 51,489 fish in 45 species and 19 families. At Roseton in 1997, the estimated annual total impingement of 305,523 fish and the annual rate of impingement of 1.7047 fish per million gallons (MG) were higher than the long-term average. The estimated annual total impingement at Danskammer Point of 337,054 fish in 1997 and the annual impingement rate of 3.3104 fish/MG were near the average for the 1974-1997 period. Blue crab impingement, which has been monitored during 1986-1997, was higher than in all but two of the previous 11 years at Roseton and higher than in all but one of the previous 11 years at Danskammer Point. Blueback herring

was the numerically dominant fish species impinged during 1997 at Roseton, contributing 45.1% of the estimated annual total impingement. Bay anchovy was second, accounting for 17.0% of the estimated total at Roseton, followed by white perch (12.3%). White perch was numerically dominant at Danskammer Point in 1997 (29.2% of the estimated annual total impingement), with striped bass second (13.3%), and bay anchovy third (11.6%). Biomass at both Roseton and Danskammer Point in 1997 was dominated by white perch, which often dominated the impingement biomass during the summer and fall. Overall, the 1997 impingement monitoring program at the two generating stations showed abundances, seasonal and diel impingement patterns, and species composition similar to those of the previous 23 years, with only minor shifts in the dominant fish species.

2.0 INTRODUCTION

2.0 INTRODUCTION

2.1 PROGRAM BACKGROUND, DESCRIPTION AND OBJECTIVES

Central Hudson Gas & Electric Corporation operates two fossil-fueled electric generating plants in Newburgh, New York: Roseton Generating Station at river kilometer 106, and Danskammer Point Generating Station at river kilometer 107 upstream from Battery Park in New York City (river kilometer 0). These two power stations, sited on the estuarine portion of the Hudson River, use once-through cooling. The numbers of fish impinged on the intake screens have been monitored continually since January 1972 at Danskammer Point and since July 1973 at Roseton. This report presents the results of the January-December 1997 impingement sampling conducted by Normandeau Associates Inc.. The sampling design, gear, and methods were consistent with those of previous years. Earlier years' impingement programs were presented in a series of annual reports (LMS 1978a, 1978b, 1979a, 1979b, 1980a, 1980b, 1981, 1982, 1983, 1984, 1987, 1988, 1989, 1993, 1994; EA 1985, 1986; NAI 1990, 1992, 1996a, 1996b, 1997a, 1997b).

Impingement sampling in 1997 consisted of weekly 24-hour collections (Thursday morning to Friday morning) from the traveling screen washwater sluiceway discharges at each plant. Water quality data were collected weekly at the two plant intakes and, during open-water periods, at a midchannel river reference station. Key study objectives of the 1997 impingement program included the following:

- Estimate (collectively, by species, and by age/length categories) the total number and biomass of fish impinged weekly, monthly, and annually.
- Monitor and record the diel distribution of selected impinged taxa/life stages.
- Monitor and record pertinent biological data relative to the impingement of invertebrates.
- Provide specific water quality data from predetermined intake and river reference sites.
- Monitor and record specific plant operational data (cooling water pumps/traveling screens in operation during all impingement collections, etc.).

2.2 REPORT FORMAT

Section 3 describes the two plants and general characteristics of the Hudson River in the vicinity of the study site. Section 4 summarizes the field, laboratory, and analytical procedures used. Section 5 presents the water quality results for both in-plant and river reference station data, and also characterizes the patterns of freshwater flow into the estuary. Section 6 provides the biological data from the 1997 program and discusses these results with respect to previous years' data. Section 7 presents a review of the literature cited. Detailed data tables are provided in five appendices:

A - Annual Impingement Abundance by Species
B - Length-Frequency Information for Major Taxa
C - Estimated Impingement Abundance
D - Estimated Impingement Biomass
E - Impingement Collection Efficiency Program Results

3.0 STUDY SITE DESCRIPTION

3.0 STUDY SITE DESCRIPTION

3.1 LOWER HUDSON RIVER ESTUARY - PLANT VICINITY

The lower Hudson River estuary is approximately 247 km (154 miles) long. With its mouth at the southern tip of Manhattan (the Battery), the estuary extends in a northerly direction to the Federal Dam at Troy, New York. The Federal Dam, constructed in 1832 as part of the New York State canal system, forms the boundary between the tidal estuarine lower Hudson River and the riverine upper Hudson River. The lower Hudson River is defined as a drowned river valley or "coastal plain estuary" (Pritchard 1967), with saltwater intrusion generally restricted to the more southerly portion, although it is occasionally reported as far north as Poughkeepsie at km 122 (mile 76) upriver from the Battery in New York City. During extreme drought years the salt front has been reported as far north as Kingston at km 170 (mile 106) (Buckley 1971). Mean freshwater flow measured at the Federal Dam has averaged approximately 387 m^3/sec (13,660 cfs) over a 50-year period.

The northern Newburgh Bay area of the Hudson River, in which Roseton Generating Station and Danskammer Point Generating Station are found, is bounded on the south by the Newburgh-Beacon Bridge (km 100.4) and on the north by New Hamburg (km 109.5). Newburgh Bay south of the bridge is wide with extensive shoals, especially along the eastern shore. The city of Newburgh dominates the western shore of the bay. North of Newburgh Bay the Hudson River flows through a comparatively deep, narrow channel extending upstream past the Mid-Hudson Bridge at Poughkeepsie (km 121) to Esopus Meadows (km 140). The northern Newburgh Bay region of the Hudson River is widest (about 1.5 km) just south of Roseton Generating Station and narrows slightly in the area of the Newburgh-Beacon Bridge. Wappinger Creek is the only major tributary in northern Newburgh Bay, entering on the eastern side of the Hudson River just south of New Hamburg; the area near the confluence is a wide, shallow shelf. Central Hudson Gas & Electric Corporation operates two fossil-fueled steam electric generating stations with once-through cooling on the west shore of northern Newburgh Bay: the Roseton plant at km 106 and the Danskammer Point plant at km 107. Plant locations are illustrated in Figure 3-1. Hydrodynamic and physiographic characteristics of northern Newburgh Bay are presented in Table 3-1.

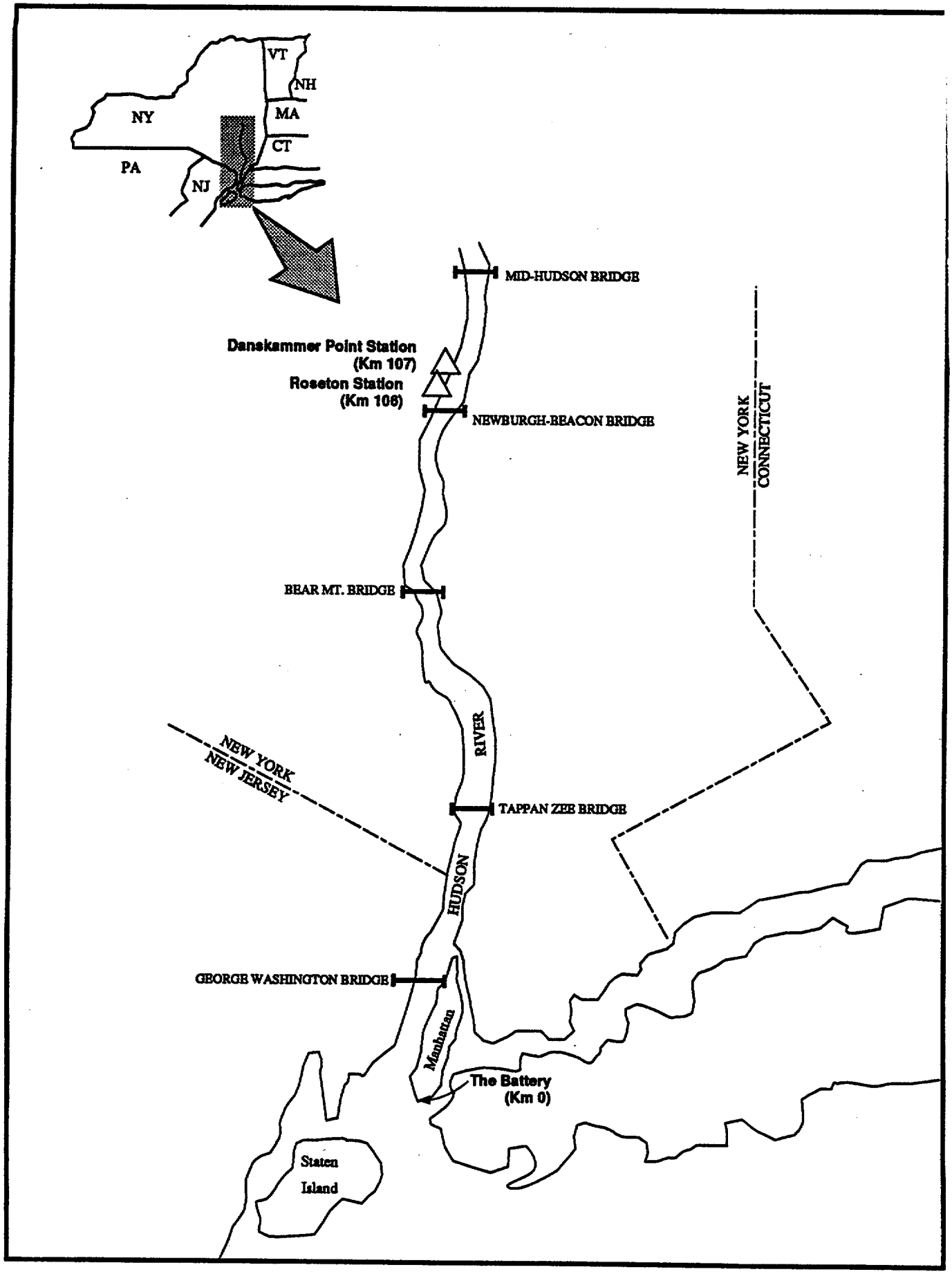


Figure 3-1. Location of the Roseton and Danskammer Point generating stations.

TABLE 3-1. HYDRODYNAMIC AND PHYSIOGRAPHIC CHARACTERISTICS OF NORTHERN NEWBURGH BAY IN THE VICINITY OF ROSETON AND DANSKAMMER POINT GENERATING STATIONS.

PARAMETER	VALUE
Average maximum ebb current velocity	56.64 cm/sec
Average maximum flood current velocity	51.49 cm/sec
Mean high water	0.98 m above mean sea level
Mean low water	0.06 m above mean sea level
Mean tidal level	0.46 m above mean sea level
Mean tidal range	0.88 m
Spring tidal range	1.01 m
Maximum depth	25.0 m
Mean depth	14.8 m
Maximum width	1555 m
Mean width	1335 m
River width at Danskammer Point discharge	1045 m
River width at Roseton discharge	1198 m

(Source: LMS 1989)

3.2 ROSETON GENERATING STATION

Roseton Generating Station is located on the west bank of the Hudson River approximately 106 km north of the New York Battery and 6 km north of the Newburgh-Beacon Bridge. Roseton Station is a fossil-fueled steam electric generating station whose two independent units have a total maximum net generating capacity of 1,200 MWe. Steam is cooled by means of a once-through cooling system that withdraws water from the Hudson River at a shoreline intake structure. The intake consists of four cooling water pumps with a combined rated capacity of 2,426.2 m^3/min, eight vertical traveling screens equipped with 0.95-cm square mesh (six screens) or 0.32-cm x 1.27-cm rectangular mesh (two screens), and 10 vertical trash rack arrays with 7.6-cm spacing between the bars (center to center). Heated effluent is discharged to the river through a single submerged discharge pipe with a multiport diffuser.

Units 1 and 2 of Roseton Generating Station were placed in commercial service on 31 December and 14 September 1974, respectively. Table 3-2 presents plant-specific information related to flow and pump operation.

3.3 DANSKAMMER POINT GENERATING STATION

Danskammer Point Generating Station is located on the west side of the Hudson River, 0.9 km north of the Roseton plant. Danskammer Point Station is a fossil-fueled steam electric generating station. The total maximum net generating capability of its four steam turbine generators ranges from 480 to 491 MWe.

Each of the four generating units at Danskammer Point Station has a separate once-through cooling water system. The cooling water is drawn from a common intake canal, passes through the condensers, and is discharged to the Hudson River through three separate shoreline subsurface pipes on the south side of the plant. The intake, located on the north side of the plant, consists of a debris boom and trash bar racks located at the river shoreline, an intake canal, and a common intake bay from which river water is diverted into the individual cooling systems

TABLE 3-2. COOLING WATER PUMP FLOW RATES FOR ROSETON AND DANSKAMMER POINT GENERATING STATIONS.

PLANT AND UNIT(S)	NUMBER OF PUMPS	NUMBER OF PUMPS OPERATING	COOLING WATER FLOW[a] THOUSANDS OF GALLONS PER MINUTE	CUBIC METERS PER MINUTE	MILLIONS OF GALLONS PER HOUR
Roseton 1 & 2	4	1	213-228	806-863	12.8-13.7
		2	362-418	1370-1580	21.7-25.1
		3	526-561	1990-2120	31.6-33.7
		4	641	2430	38.5
Danskammer Point 1	2	1	21	80	1.3
		2	42	160	2.5
Danskammer Point 2	2	1	21	80	1.3
		2	42	160	2.5
Danskammer Point 3	2	1	41	160	2.5
		2	82	310	4.9
Danskammer Point 4	3	1	50	190	3.0
		2	100	380	6.0
		3	150	570	9.0

[a]Flow rate at Roseton with fewer than four pumps operating varies within the range shown depending on the operating status of the condensers.

through a series of vertical traveling screens. The intake canal is 137 m long and 10.4 m wide. Nine cooling water pumps (Table 3-2) supply a total cooling water flow of 1,196 m^3/min, which results in a mean maximum intake canal velocity at low water of 0.6 m/sec.

Traveling screens for Units 1 and 2 (six traveling screens) and for Unit 4 (three traveling screens) are equipped with 0.95-cm square mesh. The three Unit 3 traveling screens are equipped with interwoven stainless steel wire with a 0.32-cm square mesh.

4.0 MATERIALS AND METHODS

4.0 MATERIALS AND METHODS

4.1 SAMPLE COLLECTION

4.1.1 Schedule

Impingement sampling was conducted once per week throughout 1997. On each sampling date simultaneous 24-hr collections were made at three sites (unless there was no cooling water withdrawal, eliminating the need for sampling at a site): Roseton, Danskammer Point Units 1 and 2, and Danskammer Point Units 3 and 4. Collection typically began at 0900 hrs each Thursday and ended at 0900 hrs the following day (Friday). Each 24-hr sampling effort was subdivided into four consecutive 6-hr periods. In years prior to 1989, additional sampling days were scheduled if fish abundance reached 1,000 at either plant on a regularly scheduled sample date, but this procedure was approved for modification. Additional sampling days were not scheduled after 1988 because the data obtained did not substantially improve the accuracy or precision of impingement estimates (LMS 1989). Furthermore, deleting additional impingement collections provided the opportunity to return impinged fish immediately to the river thus increasing the opportunity for fish survival. Table 4-1 lists the sampling dates and number of samples (6-hr diel periods) collected in 1997.

4.1.2 General Sampling Procedures

All operable traveling screens were prewashed immediately prior to initiation of each 24-hr sampling effort to remove any entrapped organisms accumulated before the sample start time. Screens were inspected and screen housings and sluiceways were cleaned prior to each 24-hr sampling period and, if plant operation permitted, between successive 6-hr samples. The status of pumps and traveling screens and the screenwash duration and pressure were recorded during sampling. Samples were collected over the following time intervals each week: 0900-1500 hrs, 1500-2100 hrs, 2100-0300 hrs, and 0300-0900 hrs.

Impingement samples were collected by intercepting the screenwash discharge with nets, collection baskets, or a 0.6-cm mesh conveyor belt, depending on the site of collection.

TABLE 4-1. SAMPLING DATES AND NUMBER OF SAMPLES COLLECTED, ROSETON AND DANSKAMMER POINT IMPINGEMENT MONITORING PROGRAM, 1997.[a]

	NUMBER OF SAMPLES COLLECTED			NUMBER OF SAMPLES COLLECTED	
SAMPLE DATE	ROSETON	DANSKAMMER POINT	SAMPLE DATE	ROSETON	DANSKAMMER POINT
2 Jan	4	4	2 Jul	4	8
9 Jan	4	4	10 Jul	4	4
16 Jan	4	4	17 Jul	4	8
23 Jan	4	4	24 Jul	4	5
30 Jan	4	4	31 Jul	4	4
6 Feb	4	4	7 Aug	4	8
13 Feb	4	4	14 Aug	4	4
20 Feb	4	4	21 Aug	4	8
27 Feb	4	4	28 Aug	4	8
6 Mar	0	4	4 Sep	4	4
13 Mar	4	4	11 Sep	4	4
20 Mar	4	4	18 Sep	4	4
27 Mar	4	5	25 Sep	4	4
3 Apr	4	4	2 Oct	4	4
10 Apr	4	8	9 Oct	4	8
17 Apr	4	4	16 Oct	4	8
24 Apr	4	4	23 Oct	4	4
			30 Oct	4	4
1 May	4	4	6 Nov	4	4
8 May	4	4	13 Nov	4	4
15 May	4	4	20 Nov	4	4
22 May	4	8	25 Nov	4	4
29 May	4	8			
5 Jun	4	8	4 Dec	4	4
12 Jun	4	8	11 Dec	4	4
19 Jun	4	8	18 Dec	4	4
26 Jun	4	8	23 Dec	4	4
			30 Dec	4	4
			1997 TOTAL	208	270

[a] Sampling dates listed as beginning date of 24-hr collection interval, which ended at 0900 hrs on the following date. Each 6-hr collection at an outfall within the 24 hours is counted as a separate sample.

When possible, organisms alive at the time of sample collection were analyzed immediately and returned to the river alive before completing other sample processing tasks. Fish and invertebrates were separated from the debris for identification, enumeration, and measurements. The volume and weight of the debris were determined, and the debris was categorized as to its major components (leaves, fresh vegetation, decayed vegetation, algae, sticks, plastic, or other).

Any dead sturgeon collected are typically frozen and held for the New York State Department of Environmental Conservation. All striped bass were checked for presence of a magnetic nose or cheek tag, the presence of which would indicate that the specimen was a hatchery-released fish. All striped bass and Atlantic tomcod were checked for tags and fin clips.

The following water quality data were collected at the prewash and near the end of each 6-hr period (five times during each 24-hr weekly sampling effort) at the Roseton intake and the Danskammer intake: surface and bottom temperature, surface and bottom conductivity, surface and bottom dissolved oxygen, tide height, and tide stage. Two additional parameters, pH and total suspended solids, were sampled at surface and bottom once per sampling date at both intakes, at approximately 1500 hrs. Locations of the in-plant water quality sampling locations are shown in Figures 4-1 and 4-2.

Additional water quality sampling was conducted weekly at a reference station located midchannel in the Hudson River directly out from the Roseton plant (Figure 4-3) during the daytime low slack tide on each sampling date (Table 4-2). On one date (1 August) the river water quality sampling was conducted at the end of the Roseton oil dock on the west shore of the river due to boat problems. Temperature and conductivity were measured at 2-m depth intervals. Dissolved oxygen, pH, total suspended solids, turbidity, and total organic carbon were measured or sampled at three depths (surface, mid-depth, and bottom). Once per month an additional sample was collected and analyzed for the following metals: aluminum, arsenic, cadmium, total chromium, hexavalent chromium, copper, iron, lead, manganese, mercury, nickel, selenium, vanadium, and zinc.

Collection efficiency tests were conducted at both Roseton and Danskammer Point at approximately monthly intervals to measure the efficiency of both the gear and the sampling crew (Appendix E). A known number of marked fish were released into the screenwash discharge, and the number found in the sample were counted to determine the percent recovered.

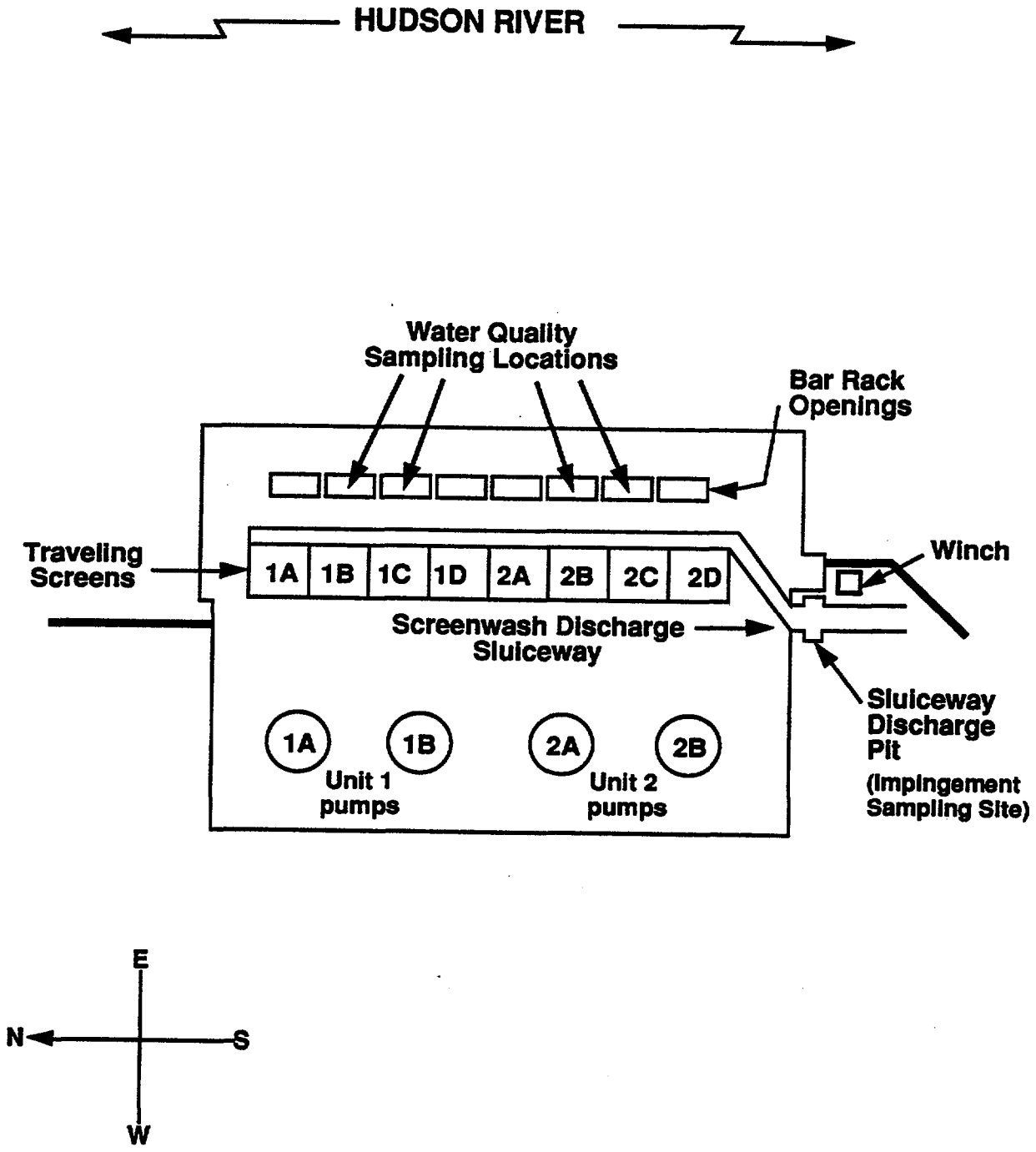


Figure 4-1. Roseton impingement and water quality sampling locations.

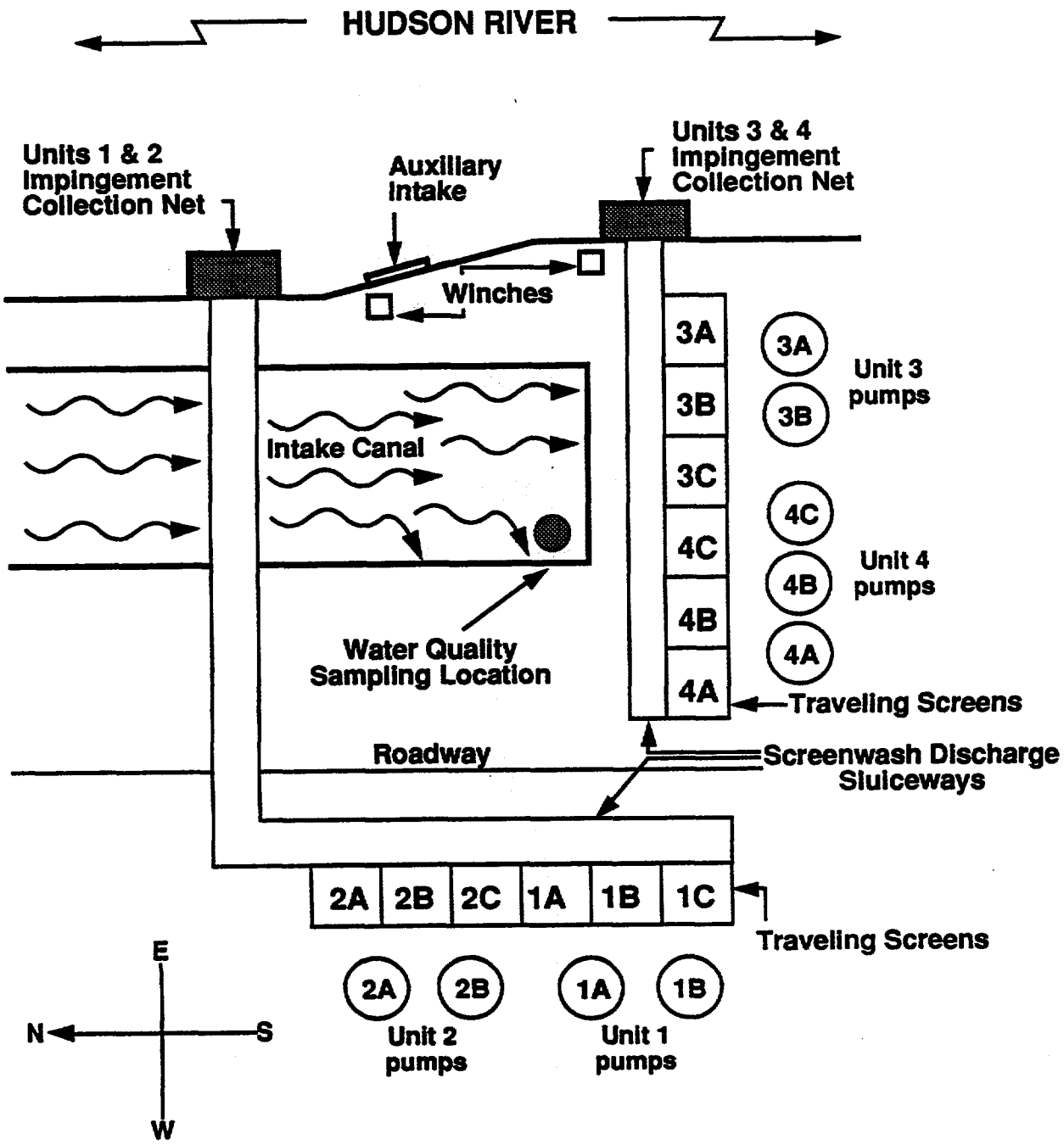


Figure 4-2. Danskammer Point impingement and water quality sampling locations.

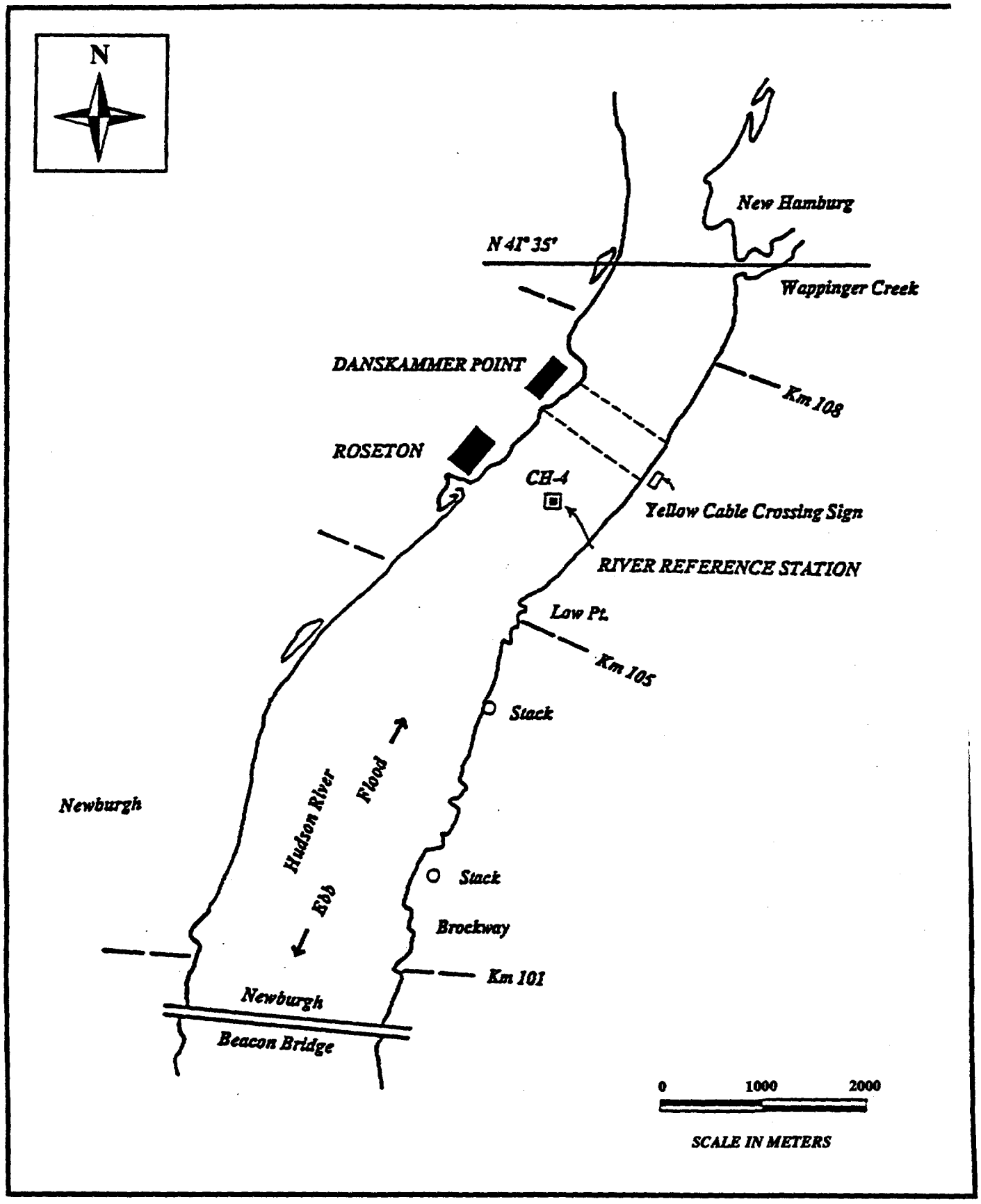


Figure 4-3. River Reference Station CH-4 for water quality sampling in the vicinity of Roseton and Danskammer Point generating stations.

TABLE 4-2. DATES OF WATER QUALITY SAMPLING AT THE RIVER REFERENCE STATION FOR THE 1997 ROSETON AND DANSKAMMER POINT GENERATING STATIONS IMPINGEMENT MONITORING PROGRAM.

2 Jan	24 Jul
28 Feb[b]	1 Aug
7 Mar	7 Aug[b]
13 Mar[b]	14 Aug
21 Mar	21 Aug
27 Mar	29 Aug
3 Apr[b]	5 Sep
11 Apr	11 Sep[b]
17 Apr	18 Sep
24 Apr	25 Sep
1 May[b]	3 Oct
8 May	9 Oct[b]
15 May	17 Oct
22 May	23 Oct
29 May	6 Nov[b]
5 Jun[b]	20 Nov
12 Jun	26 Nov
19 Jun	4 Dec[b]
26 Jun	12 Dec
3 Jul[b]	18 Dec
10 Jul	23 Dec
18 Jul	31 Dec

[a]No sampling was conducted on nine sampling dates due to ice or weather conditions: 9 January, 16 January, 23 January, 30 January, 6 February, 13 February, 20 February, 30 October, and 13 November.

[b]Dates on which monthly samples were collected for analysis of metals.

4.1.3 Procedures Specific to Roseton

The collection apparatus used in 1997 at Roseton was a portable, motorized, conveyor belt positioned to intercept the screenwash discharge as it entered the sluiceway discharge pit. The 0.6-cm mesh belt screened organisms and debris from the discharge flow and dropped them onto a sorting table. Location of the sampling site is shown in Figure 4-1.

4.1.4 Procedures Specific to Danskammer Point

Units 1 and 2 were sampled separately from Units 3 and 4 at Danskammer Point. Sampling nets were hoisted into position by winches to catch the screenwash discharges where they empty into the river (Figure 4-2). Nets with 0.6-cm mesh were used for the Unit 1 and 2 discharge, and 0.3-cm mesh nets were used at Units 3 and 4, corresponding to the mesh size on the respective units' traveling screens.

4.2 SAMPLE PROCESSING PROCEDURES

Total count and weight of each species of fish and of major invertebrate species were determined for each 6-hr sample. For fish, these data were recorded separately by age/length groups (young-of-the-year, yearling, and older) on the basis of cutoff lengths revised weekly for each species. For individual fish and blue crabs, length (carapace width point-to-point for crabs) and weight were recorded to the nearest 1 mm and 0.1 g, respectively. Also, the sex of individual blue crabs was determined. If there were over 25 crabs or over 25 of any age/length group in a 6-hr sample of a fish species at either plant, then that species and group was randomly subsampled for individual length and weight measurements. Subsample sizes were 25 for blue crabs and 25 per length class for fish.

Counts and measurements were subjected to a quality control inspection designed to assure an Average Outgoing Quality Limit of 10% (i.e. ≥90% of the data are within specified accuracy ranges).

Samples for pH were analyzed using a pHTestr 2 pH meter to the nearest 0.1 pH unit. Turbidity analysis was performed with a model 2100A nephelometric turbidimeter, manufac-

tured by Hach Instrument Corporation. Values were recorded to the nearest 0.1 Nephelometric Turbidity Unit (NTU).

All analyses of metals, total suspended solids, and total organic carbon were performed by EnviroTest Laboratories Inc., Newburgh, New York, a New York State certified laboratory. Aluminum, cadmium, total chromium, copper, iron, manganese, nickel, vanadium, and zinc were analyzed by EPA method 200.7. Arsenic was analyzed by EPA method 206.2 or EPA method 200.7, lead by EPA method 239.2, mercury by EPA method 245.1, selenium by EPA method 270.2, total suspended solids by EPA method 160.2, and total organic carbon by American Public Health Association standard method 5310-C. Hexavalent chromium was analyzed by American Public Health Association standard method 3500-CRD.

Water quality parameters measured *in situ* included temperature and conductivity (Yellow Springs Instruments model 33 salinity - conductivity - temperature meter) and dissolved oxygen (Yellow Springs Instruments model 57 dissolved oxygen meter).

4.3 ANALYTICAL PROCEDURES

Impingement rates observed on sampling days were used to estimate rates and totals (of both numbers and biomass) of fish and invertebrates impinged on a weekly, monthly, and annual basis by the following procedure. Each month was divided into four approximately weekly intervals: week 1 = dates 1-7, week 2 = dates 8-14, week 3 = dates 15-21, and week 4 = dates above 21. The weekly impingement rate was estimated as the total count (or biomass) for all samples collected during that week (units combined at Danskammer Point) divided by the total plant flow during the minutes of sample collection. The impingement rate for each month was estimated as the average of the four weekly rates for that month. The estimate of the total number (or biomass) impinged for each month was calculated as the monthly impingement rate multiplied by the total plant flow for the month.

The variance of each monthly estimate was calculated as

$$VAR\ (F_j\ M_j) = F_j^2 \left(\frac{S_j^2}{n_j} \right) \left(\frac{N_j - d_j}{N_j} \right)$$

where F_j = plant flow in month j in millions of gallons,
S_j = standard deviation of the weekly impingement rates in month j,
n_j = number of weeks averaged for month j,
N_j = number of days in month j, and
d_j = number of sampling days in month j.

The annual impingement rate was calculated as the mean of the 12 monthly impingement rates. The estimate of the total number (or biomass) impinged for the year was the sum of the 12 monthly estimates. The variance for the annual estimate was calculated as the sum of the 12 monthly variances. The 95% confidence interval for the annual estimate, assuming normally distributed data, was calculated as 1.96 multiplied by the square root of the variance for the annual estimate (where 1.96 is the Student's t value at $\alpha = 0.05$).

No rounding of data was done prior to the final step in each analysis. This prevented introduction of rounding error in the final result, and may present the appearance in a table that a column of data does not sum exactly to the total shown in the last row. This is because the intermediate values (e.g. estimated numbers of individual species impinged) are rounded for display in the table but the sum (e.g. all species combined) was calculated from the exact (unrounded) values.

5.0 RESULTS OF WATER QUALITY MONITORING PROGRAM

5.0 RESULTS OF WATER QUALITY MONITORING PROGRAM

5.1 HUDSON RIVER FRESHWATER FLOW

During January-September of 1997, the average monthly flow rate for fresh water entering the estuarine portion of the Hudson River at Green Island (river kilometer 247) reached a maximum in April, at 30,840 cubic feet per second (cfs), and the month with the lowest average was August at 4,458 cfs (Table 5-1). (Data for October-December 1997 are not yet available, and data for October 1996-September 1997 are provisional.) In relation to the seasonal pattern observed over the last 52 years, the 1997 freshwater flow was very typical. The January-May means in 1997 were slightly above average and the June-September means were slightly below average (Figure 5-1). The overall mean freshwater flow for January-September 1997 was 3.3% higher than the long-term average for the first nine months of the year.

5.2 REFERENCE STATION WATER QUALITY

Water temperature (°C), specific conductance (μmhos/cm at 25°C), pH, dissolved oxygen (mg/l), total suspended solids (mg/l), turbidity (NTU), and total organic carbon (mg/l) were recorded weekly during the open-water period, at the Hudson River reference station (CH-4) from surface, middle, and bottom depths. Concentrations of 14 metals (mg/l) were determined approximately once per month from mid-depth water samples at the same sampling station on 11 dates. Due to bad weather or extensive ice formations that existed during the coldest months, river water quality sampling was not conducted on four scheduled dates in January, three in February, one in October, and one in November.

Mean water temperature in the river ranged from 0.6 to 26.6°C during 1997 (Table 5-2). The highest mean temperature for 1997 was recorded on 14 August; the lowest was on 2 January. The highest temperatures in 1997 were from early July to mid-September. Water temperature measurements from the three depths were similar, with the surface temperature frequently the highest of the three during the summer (Figure 5-2).

TABLE 5-1. MEAN MONTHLY FRESHWATER FLOW FOR THE LOWER HUDSON RIVER FOR 1988-1997 AND THE LONG-TERM SUMMARY FOR 1946-1997.[a]

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MEAN[b]	MAX	MIN
1988	9468	12340	16280	16830	12620	4340	4627	4910	5779	7437	19970	11630	10496	19970	4340
1989	6870	9030	12060	23890	27060	18490	7985	6853	8831	14470	21390	10600	13955	27060	6853
1990	13530	24850	35110	31590	34980	8839	5553	8746	5604	16990	23100	24330	19414	35110	5553
1991	18130	17560	24620	23200	12270	5154	4027	4448	4908	7629	10660	12850	12089	24620	4027
1992	10730	8340	14430	22910	17720	12180	8968	7181	7680	10140	18780	15490	12876	22910	7181
1993	19110	9746	16010	61820	13250	7157	4706	4935	5573	6787	12110	14230	14582	61820	4706
1994	8194	11920	19850	50060	20130	8223	8777	9361	6720	6268	8853	14010	14339	50060	6268
1995	17320	9279	18170	9073	5577	4590	3339	3426	3587	12750	24500	11580	10272	24500	3339
1996	26010	17810	16270	33190	38200	12470	13570	6766	6553	10170	21650	34940	19825	38200	6553
1997	16430	18230	24120	30840	22720	6350	5397	4458	4477						

LONG-TERM SUMMARY (FEBRUARY 1946-SEPTEMBER 1997)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MEAN[b]
MAX	33970	31260	44240	61820	40520	29630	18380	14630	17030	30140	26150	34940	
MEAN	13543	14107	22104	30789	19085	10045	6730	5820	6458	9017	13126	15074	13809
MIN	4177	4528	9116	9073	5500	3567	3074	2903	2873	2965	3257	6084	
N	51	52	52	52	52	52	52	52	52	51	51	51	

[a]Flows are in ft^3/s (cfs); data for October 1996-September 1997 are provisional; data for October-December 1997 are not yet available.
[b]Mean of monthly means weighted by number of days/month.
N=Number of years.
Source of data: U.S. Geological Survey, Water Resources Div., Troy, N.Y.

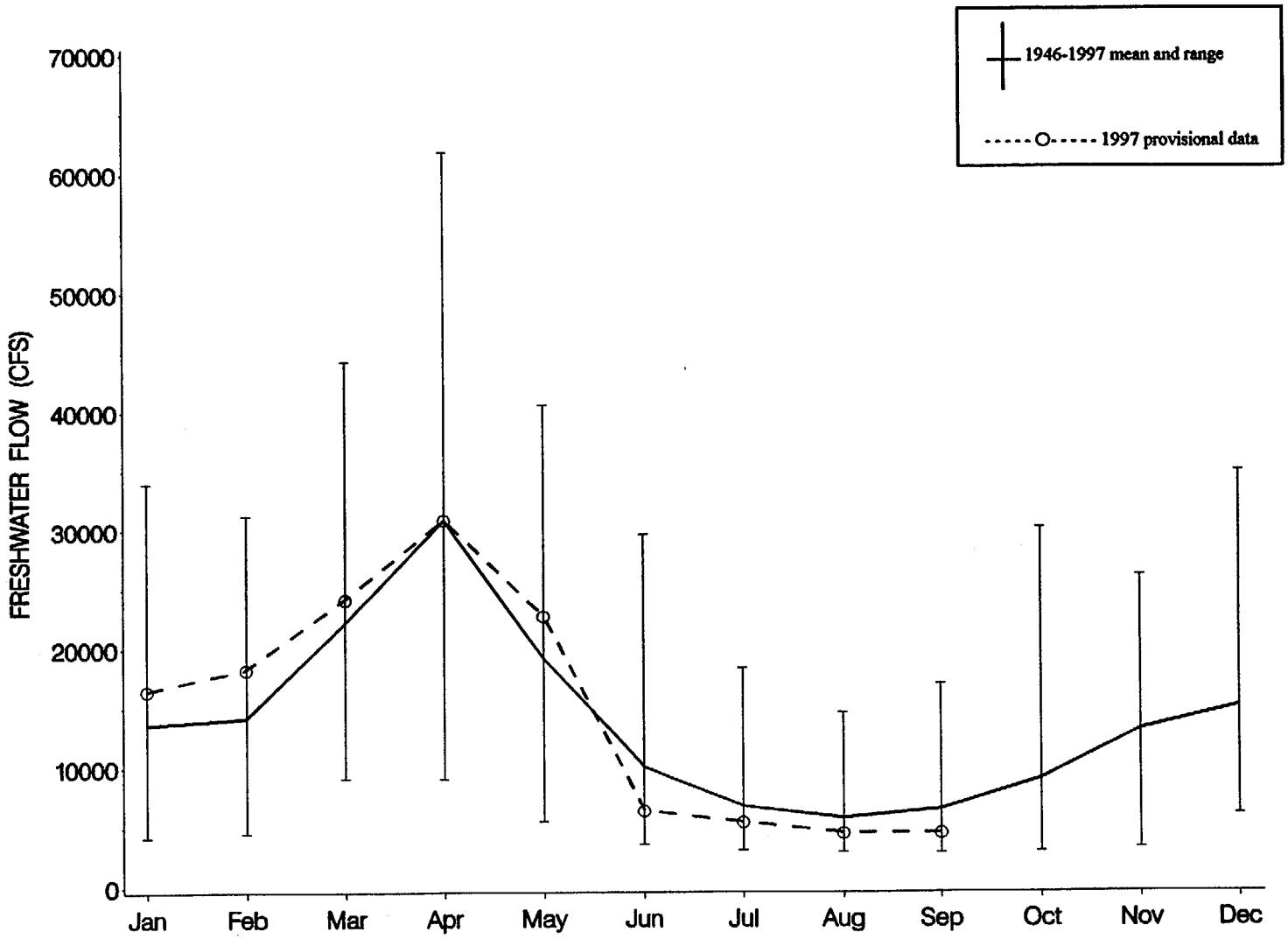


Figure 5-1. Average and range of mean monthly freshwater flow rate for the lower Hudson River for 1946-1997, and provisional monthly means for January - September 1997. (October-December data for 1997 not yet available).

TABLE 5-2. AVERAGE VALUES OF SELECTED WATER QUALITY PARAMETERS AT THE RIVER CHANNEL SAMPLING STATION, 1997.[a]

SAMPLED DATE	MEAN TEMPERATURE (°C)	MEAN D.O. (MG/L)	MEAN CONDUCTIVITY (μMHOS/CM AT 25°C)	MEAN TSS (MG/L)	MEAN pH	MEAN TURB (NTU)	MEAN TOT.ORG.C (MG/L)
01/02/97	0.6	13.8	214	9.0	7.7	7.5	3.0
02/28/97	2.1	13.1	230	16.0	7.5	3.6	3.7
03/07/97	2.2	14.4	197	10.3	7.4	14.7	2.9
03/13/97	2.5	14.4	197	26.3	7.4	16.3	3.0
03/21/97	2.3	13.7	210	22.3	8.3	3.7	3.0
03/27/97	3.0	14.0	221	15.0	7.4	2.2	2.6
04/03/97	4.2	11.0	240	34.7	7.3	18.0	3.1
04/11/97	8.0	11.6	190	22.7	7.6	14.5	3.2
04/17/97	9.0	11.2	175	12.0	7.5	14.3	2.7
04/24/97	8.3	9.8	160	15.0	7.6	8.1	3.1
05/01/97	11.0	11.4	183	9.3	7.5	9.4	2.7
05/08/97	12.2	9.6	160	19.3	7.6	9.9	3.3
05/15/97	13.0	10.5	148	7.7	7.3	7.9	3.3
05/22/97	14.5	9.8	147	15.7	7.6	7.7	2.9
05/29/97	15.2	9.2	170	16.3	7.5	7.0	3.1
06/05/97	21.2	8.6	143	13.7	7.5	8.5	2.9
06/12/97	19.3	10.1	185	3.2	7.7	5.2	3.0
06/19/97	20.6	10.7	191	9.0	7.7	5.8	3.0
06/26/97	22.9	7.9	196	5.7	7.4	8.9	3.5
07/03/97	24.1	7.7	209	23.3	7.3	12.1	2.9
07/10/97	25.0	7.0	227	8.7	7.1	5.9	2.7
07/18/97	26.4	6.8	232	13.3	7.3	5.2	2.9
07/24/97	25.8	6.4	287	14.0	7.5	7.4	3.3
08/01/97	26.2	6.7	399	33.3	7.3	13.0	3.2
08/07/97	26.0	6.9	334	25.0	7.4	19.3	3.4
08/14/97	26.6	7.2	382	9.7	7.5	6.6	6.0
08/21/97	25.1	6.9	609	21.0	7.2	9.9	4.5
08/29/97	24.7	6.9	441	15.0	7.4	8.5	3.6
09/05/97	24.0	7.4	348	10.4	7.1	5.4	7.8
09/11/97	23.1	7.2	423	10.0	7.4	6.0	5.7
09/18/97	23.4	7.3	300	17.7	7.4	8.5	5.8
09/25/97	20.9	7.5	335	6.7	7.7	5.0	7.3
10/03/97	19.8	7.3	289	10.7	7.5	7.9	6.5
10/09/97	20.3	8.0	310	11.3	7.5	6.3	6.0
10/17/97	18.2	8.3	312	12.3	7.2	8.0	5.1
10/23/97	16.8	8.9	333	4.0	7.3	7.9	5.6
11/06/97	13.2	9.1	269	8.7	7.4	6.5	9.0
11/20/97	8.1	10.6	254	13.3	7.4	8.6	7.3
11/26/97	6.1	10.7	248	14.7	7.4	9.0	6.3
12/04/97	4.0	12.0	244	25.7	7.3	11.0	7.0
12/12/97	3.0	12.2	262	25.7	7.4	14.2	4.8
12/18/97	2.2	12.5	273	27.7	7.4	11.2	7.7
12/23/97	2.0	12.9	277	15.7	7.3	12.8	5.5
12/31/97	1.0	12.4	277	16.0	7.4	10.6	5.0

[a]Means are averages of all depths sampled for each parameter.

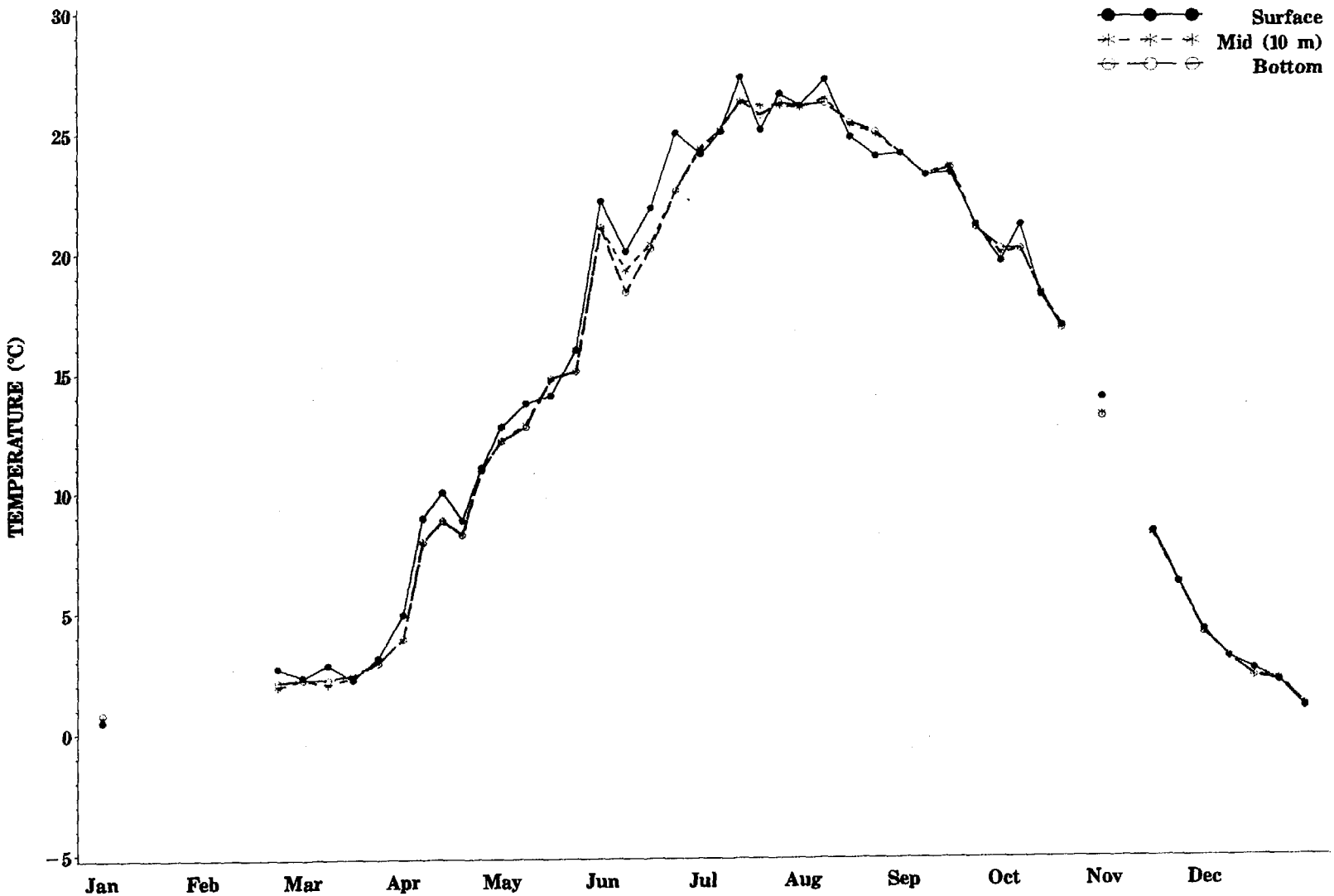


Figure 5–2. Weekly water temperature at river reference station CH–4, Roseton and Danskammer Point vicinity, 1997.

Mean specific conductance ranged from 143 to 609 μmhos/cm (corrected to 25°C) throughout the open-water sampling period (Table 5-2). Values were lowest during the spring (May - June). The influence of marine waters on northern Newburgh Bay, which is typically characterized by an increase in specific conductivity, occurred primarily during August and September in 1997 (Figure 5-3). The higher conductivity values reflected the relatively low freshwater flows that are typically characteristic for that time of year (Figure 5-1). The surface value was consistently lowest and the bottom value was consistently highest, reflecting the higher density of the more saline water (Figure 5-3).

The mean pH during 1997 ranged between 7.1 and 8.3 throughout the study period without any particular seasonal pattern (Table 5-2). The highest mean pH value (8.3) was observed on 21 March, and the lowest mean value (7.1) was recorded on 10 July and 5 September. The pH values recorded during 1997 were usually similar among the three depths for each date (Figure 5-4).

Mean dissolved oxygen ranged from 6.4 to 14.4 mg/l and exhibited the typical inverse relationship to water temperature, with the highest values recorded during January-March and in December, and the lowest values occurring in July-September (Table 5-2). Dissolved oxygen levels usually varied little with depth but generally the surface value tended to be the highest among the three depths (Figure 5-5).

In 1997 the mean concentrations of total suspended solids (TSS) ranged from a low of 3.2 mg/l on 12 June to a high of 34.7 mg/l on 3 April (Table 5-2, Figure 5-6). In 1997 the TSS values were generally highest in March-April and in December, with scattered high values in the summer also. The seasonality was less distinct for the TSS data than it was for conductivity, suggesting the influence of factors other than freshwater flow, such as storm events. In general, the TSS levels were highest at the bottom depth and lowest in surface samples.

Turbidity values recorded at the river reference station (Figure 5-7) exhibited a generally decreasing trend from April through June, were fairly consistent during the summer and fall, and increased somewhat during November-December. The average turbidity level (depths combined) ranged from 2.2 NTU on 27 March to 19.3 NTU on 7 August. Throughout much of the year turbidity was usually highest at the bottom and lowest at the surface.

Total organic carbon (TOC) concentrations tended to be higher and more variable in the mid-summer through December period than during the spring and early summer (Figure 5-8). Mean TOC levels ranged from 2.6 mg/l measured on 27 March to 9.0 mg/l on 6 November. Differences in TOC levels among the three sampling depths were typically minor, with none of the three depths tending to be consistently highest or lowest.

Samples from the river reference station CH-4 were also tested for 14 different metals on a monthly basis, except during unfavorable weather or ice conditions. Five metals, including aluminum, iron, lead, manganese, and zinc were at detectable levels on at least five of the 11 sampling dates (Table 5-3 and Figures 5-9 through 5-13). Several of the metals tested were below detection limits during all of the sampling events, including arsenic, cadmium, hexavalent chromium, copper, mercury, and vanadium. Total chromium and selenium were slightly above their detection limits on one date each and nickel was above its detection limit on two of the 11 sampling dates. Highest concentrations were observed on the February sampling date for lead and zinc, in June for iron, July for aluminum, and April and July for manganese. Highest values for some of these metals were observed in the spring during weekly sampling in previous years, but seasonal patterns have not been particularly consistent or distinct.

5.3 IN-PLANT WATER QUALITY

5.3.1 Roseton Generating Station

Mean water temperature, dissolved oxygen, specific conductance, pH, and total suspended solids recorded at the Roseton intake for each impingement monitoring date are presented in Table 5-4. Mean weekly water temperature ranged from 1.4°C, recorded on 16-17 January and 23-24 January to 26.9°C, recorded during 14-15 August. Dissolved oxygen values displayed a typical inverse relationship with water temperature; the lowest values were recorded during summer and the highest values were recorded during the cold-water periods of winter and late fall. The highest mean dissolved oxygen value was 14.4 mg/l on 23-24 January. The lowest mean dissolved oxygen value was 6.4 mg/l on 17-18 July. Specific conductance (μmhos/cm at 25°C) was generally highest in the summer, indicating a higher influx of salt water during that period of low freshwater flow. Weekly averages ranged from 146 μmhos/cm on 22-23 May to 977 μmhos/cm on 21-22 August. Mean total suspended solids ranged from a low of 3.0 mg/l (2-3

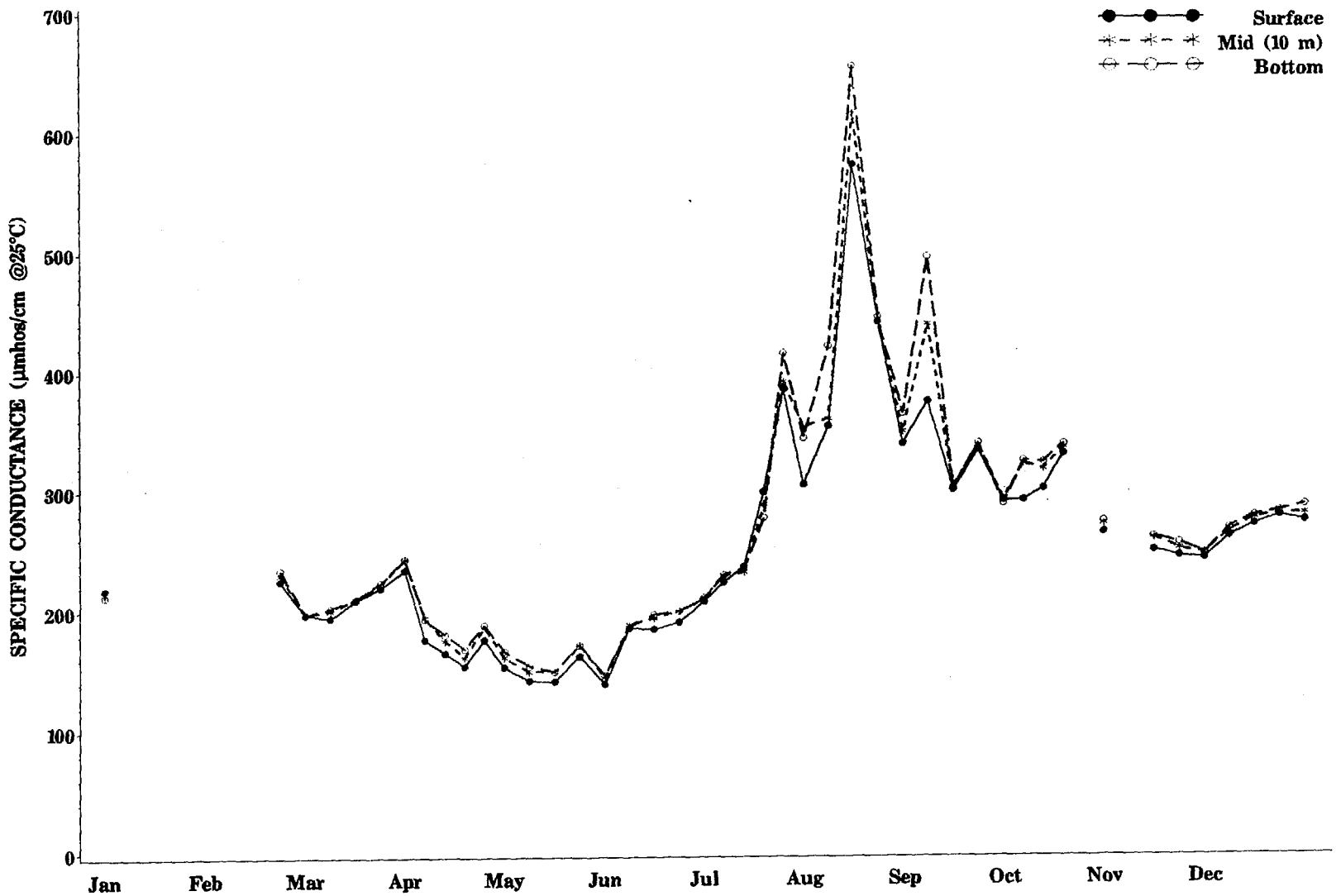


Figure 5-3. Weekly specific conductance at river reference station CH-4, Roseton and Danskammer Point vicinity, 1997.

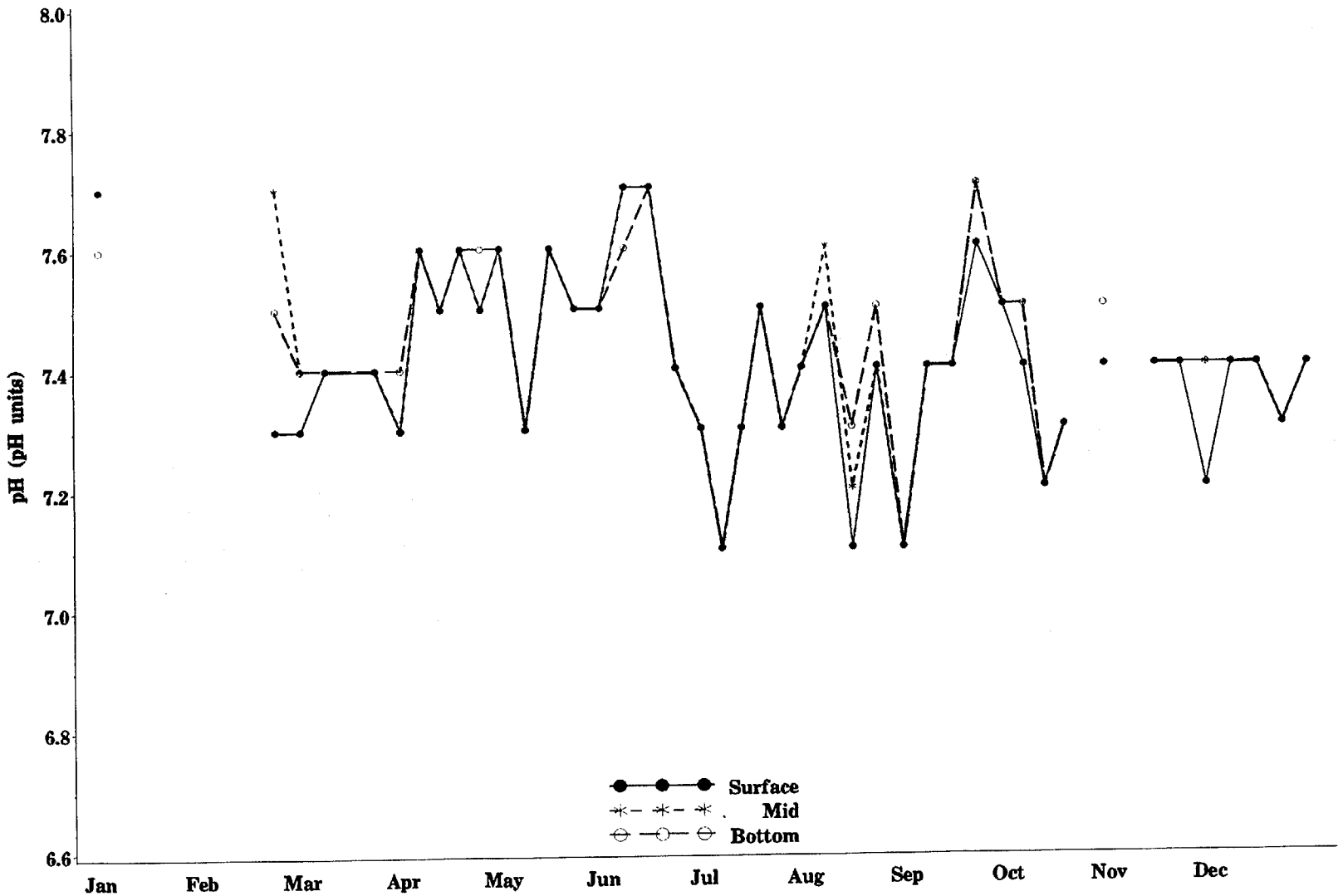


Figure 5-4. Weekly pH at river reference station CH-4, Roseton and Danskammer Point vicinity, 1997.

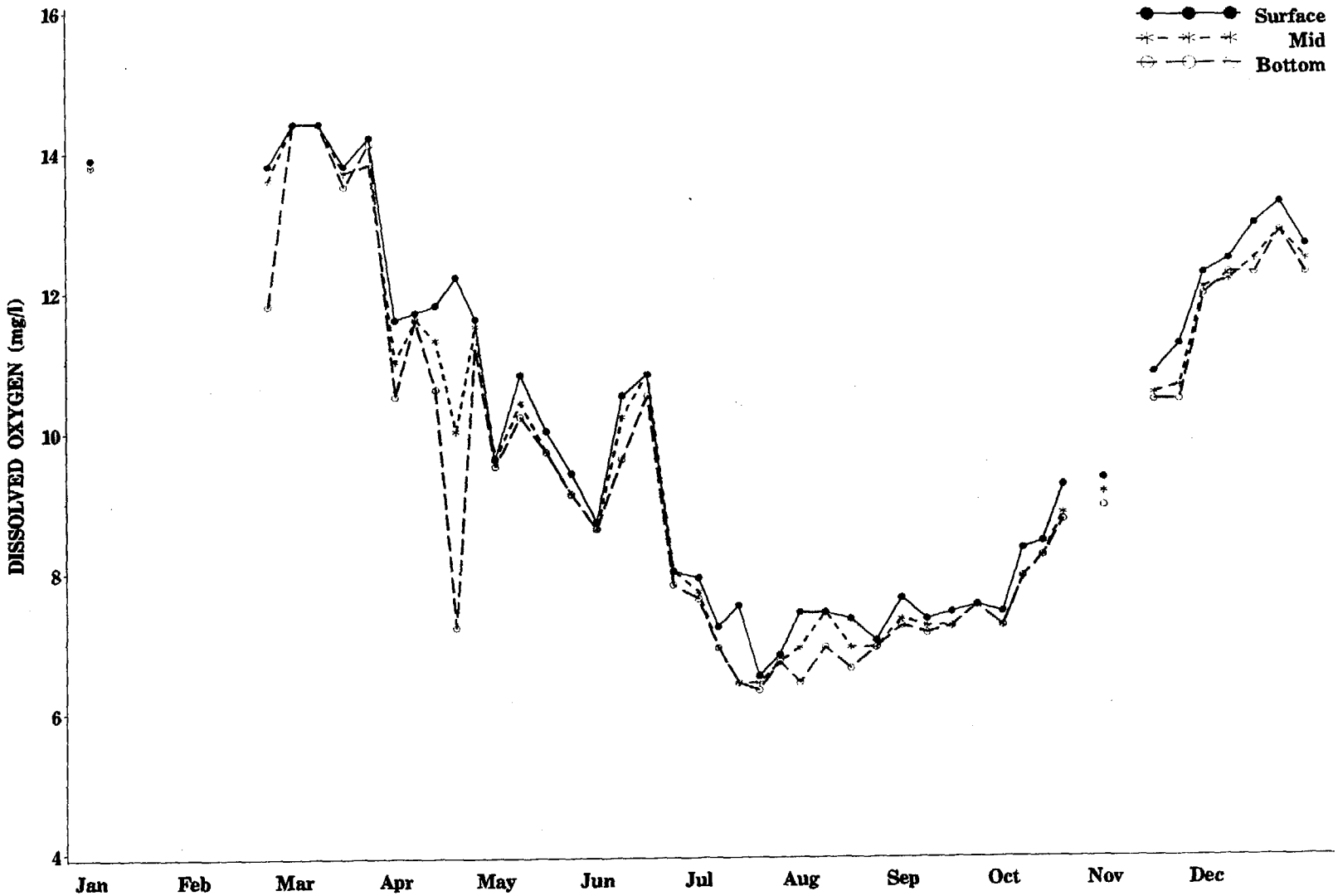


Figure 5–5. Weekly dissolved oxygen at river reference station CH–4, Roseton and Danskammer Point vicinity, 1997.

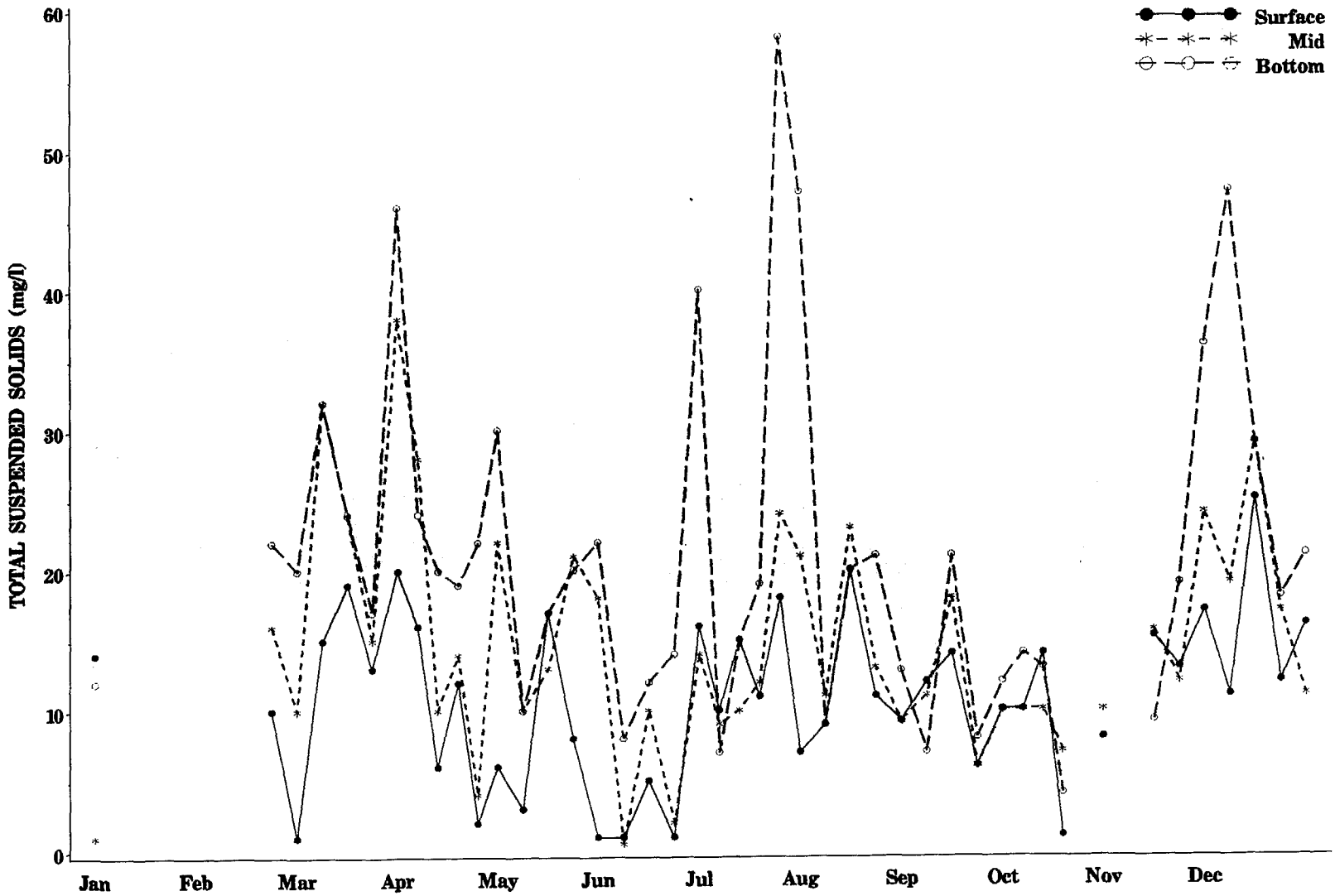


Figure 5–6. Weekly total suspended solids at river reference station CH–4, Roseton and Danskammer Point vicinity, 1997.

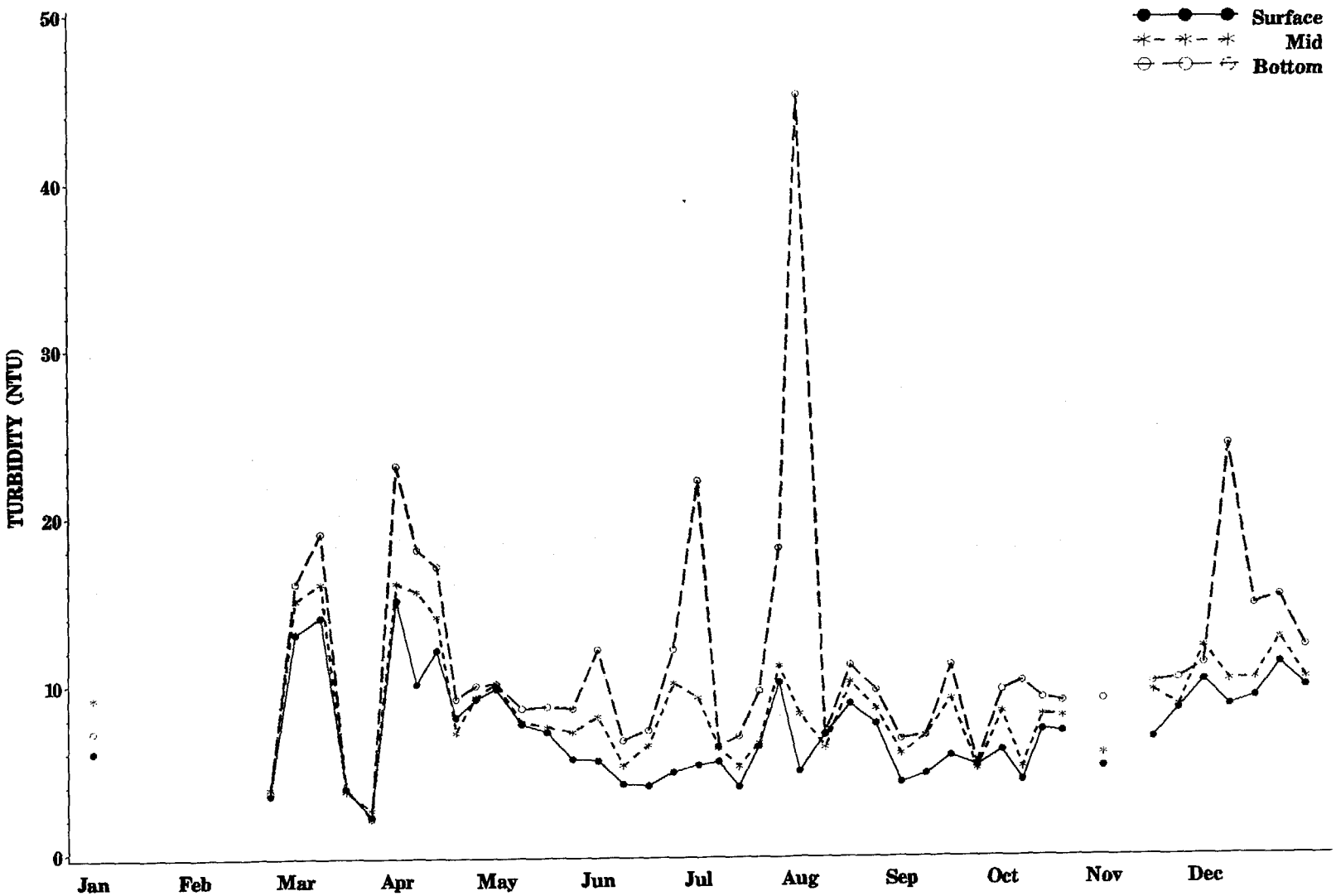


Figure 5-7. Weekly turbidity at river reference station CH-4, Roseton and Danskammer Point vicinity, 1997.

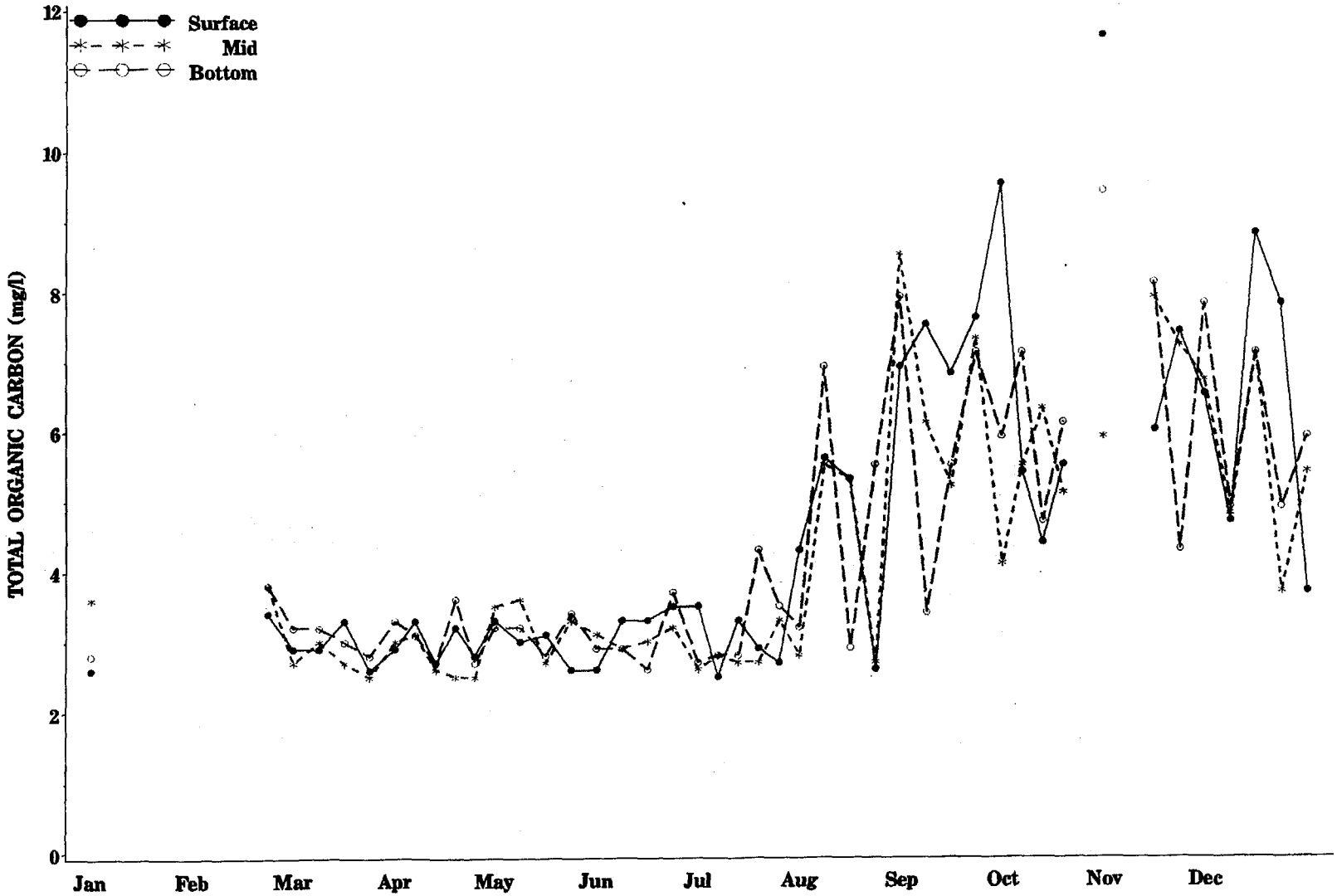


Figure 5–8. Weekly total organic carbon at river reference station CH–4, Roseton and Danskammer Point vicinity, 1997.

TABLE 5-3. CONCENTRATIONS OF METALS AT THE RIVER REFERENCE STATION CH-4, ROSETON AND DANSKAMMER POINT VICINITY, 1997.

METAL	MEAN[a,b] CONCENTRATION (mg/L)	MIN[a] (mg/L)	MAX[a] (mg/L)	NUMBER OF DATES CONCENTRATION WAS MEASURABLE[c]
Aluminum	0.27	<0.22	0.49	9
Arsenic	<0.0111	<0.0056	<0.0111	0
Cadmium	<0.01	<0.0056	<0.01	0
Hexavalent Chromium	<0.01	<0.01	<0.01	0
Total Chromium	<0.01	<0.01	0.0274	1
Copper	<0.0278	<0.01	<0.0278	0
Iron	0.738	0.171	2.10	11
Lead	0.0022	<0.0011	0.0056	5
Manganese	0.0436	0.0209	0.060	11
Mercury	<0.0002	<0.0002	<0.0002	0
Nickel	<0.04	<0.04	0.08	2
Selenium	<0.0056	<0.0056	0.0063	1
Vanadium	<0.06	<0.0056	<0.06	0
Zinc	0.0512	0.0172	0.11	10

[a] < is below the detection limit.

[b] When concentrations were below the detection limit, one-half of the detection limit was used to calculate a mean concentration.

[c] Total number of sampling dates = 11.

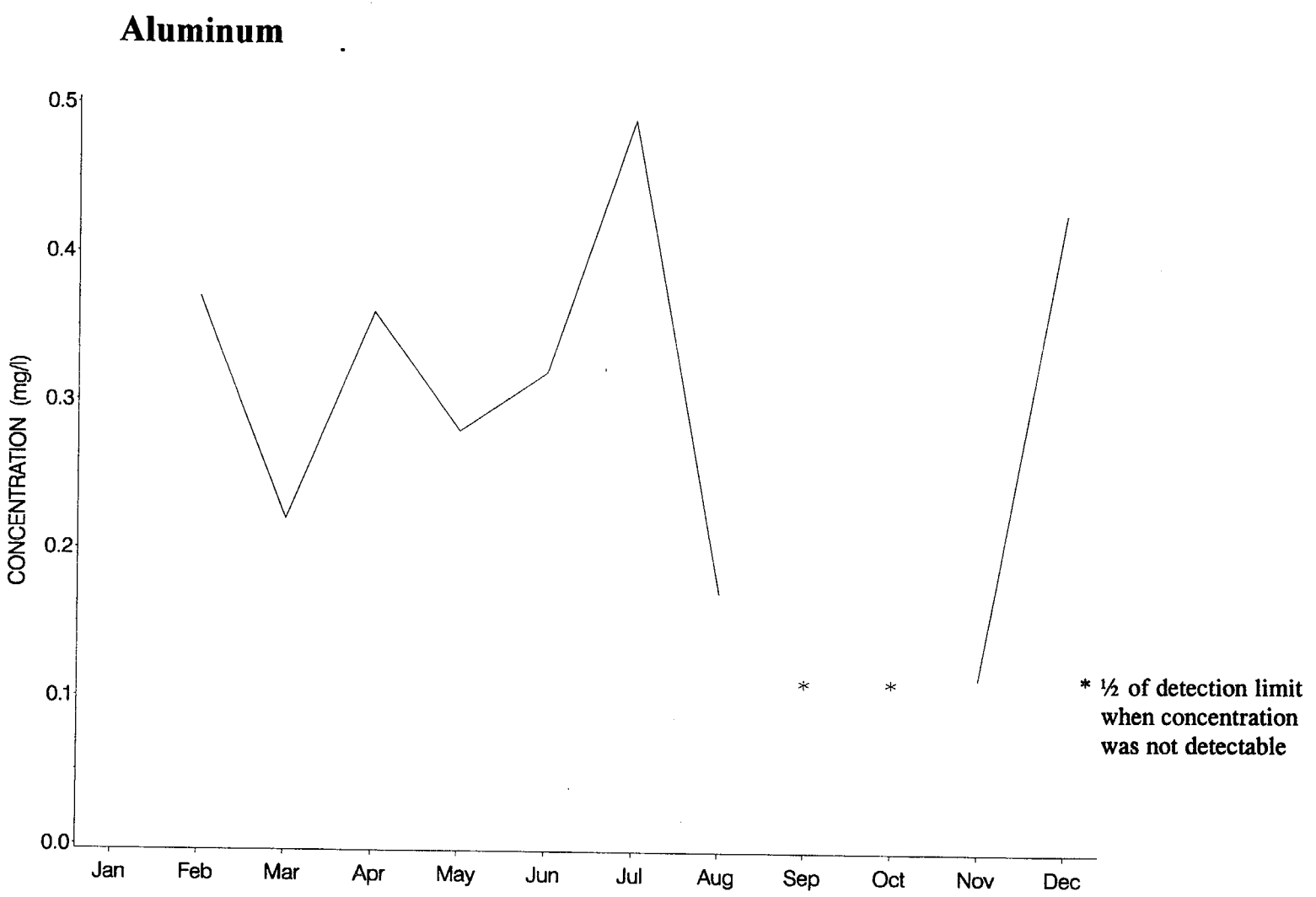


Figure 5-9. Monthly concentration of aluminum at the river reference station CH-4, Roseton and Danskammer Point vicinity, 1997.

Iron

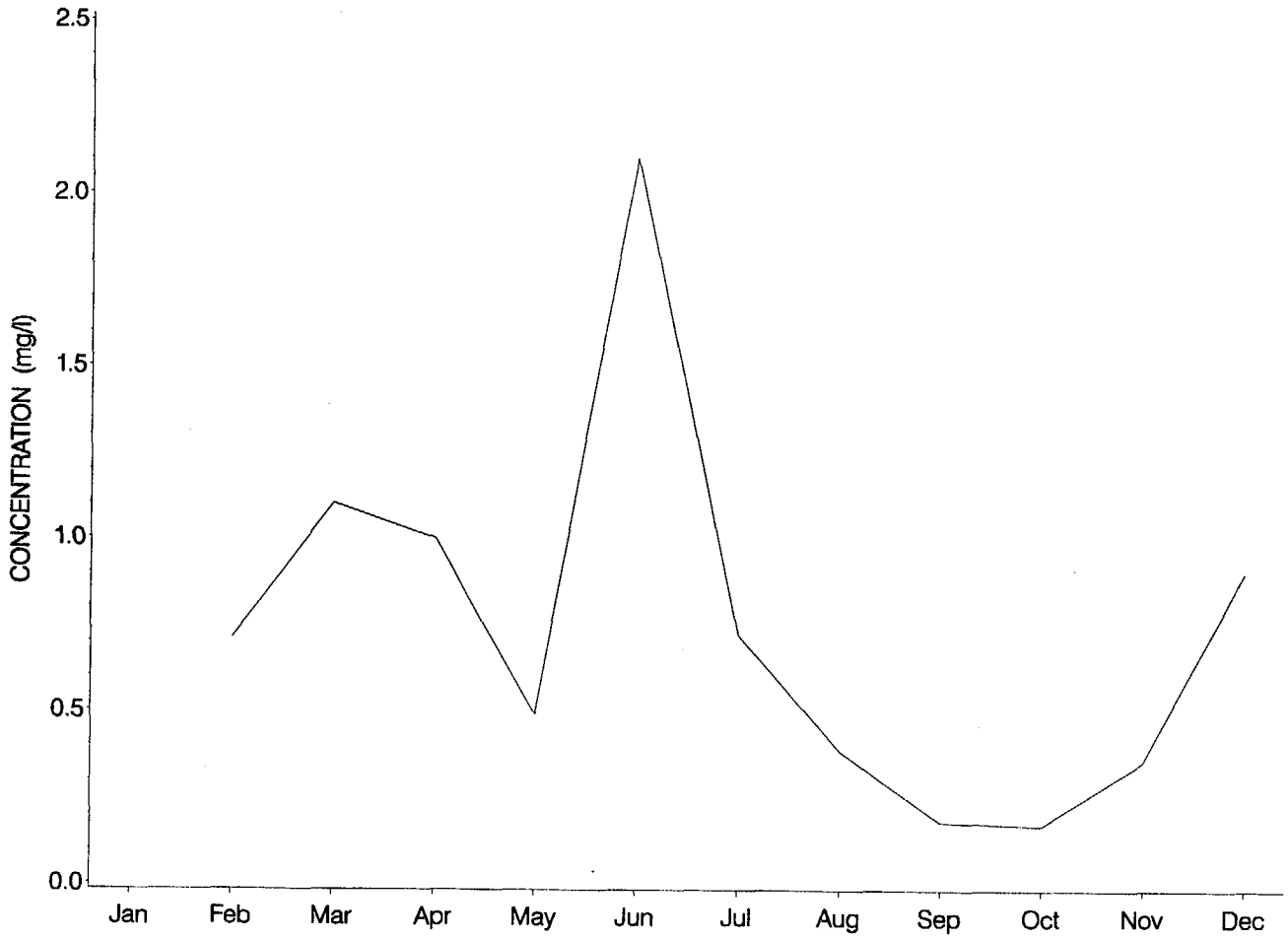


Figure 5-10. Monthly concentration of iron at the river reference station CH-4, Roseton and Danskammer Point vicinity, 1997.

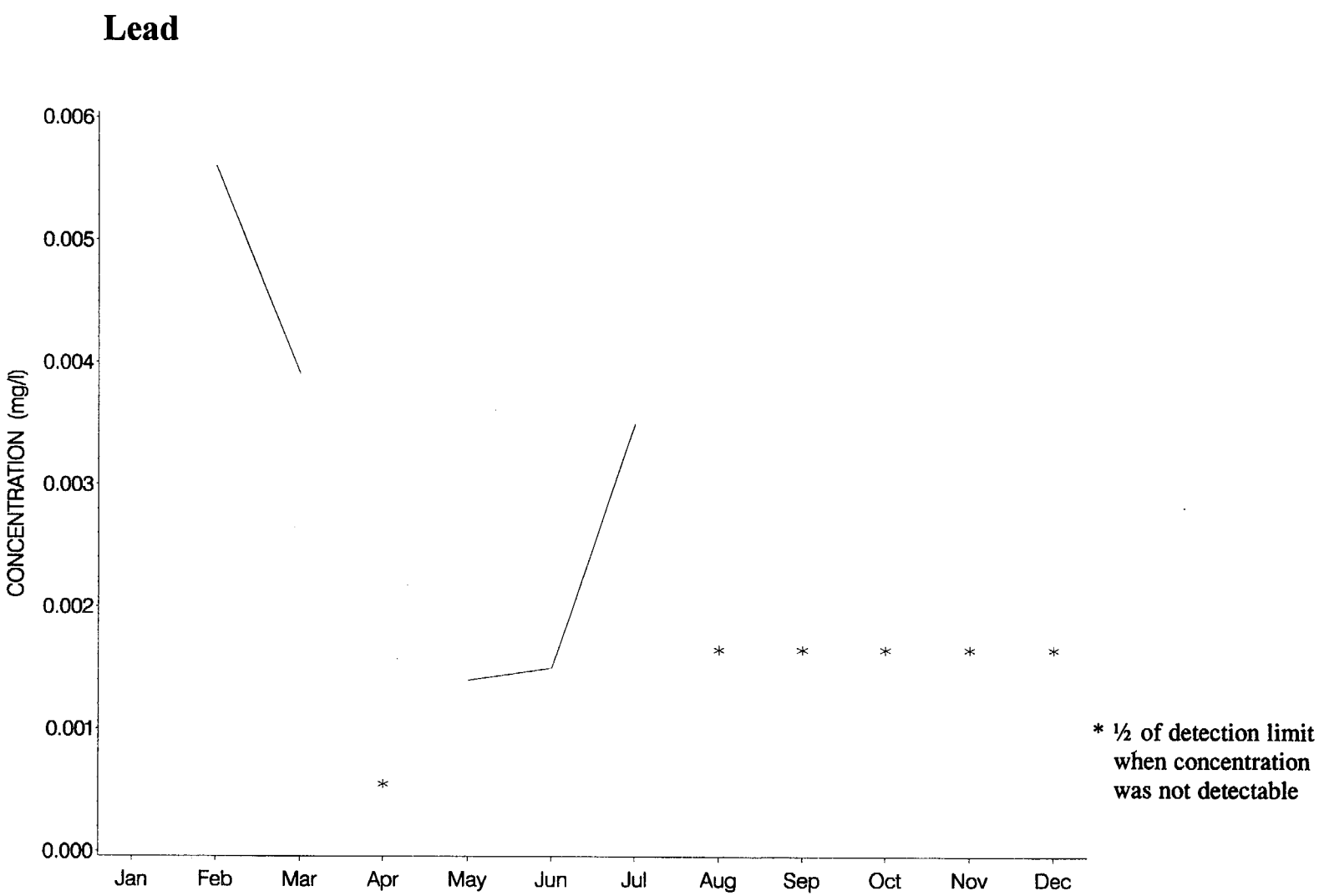


Figure 5-11. Monthly concentration of lead at the river reference station CH-4, Roseton and Danskammer Point vicinity, 1997.

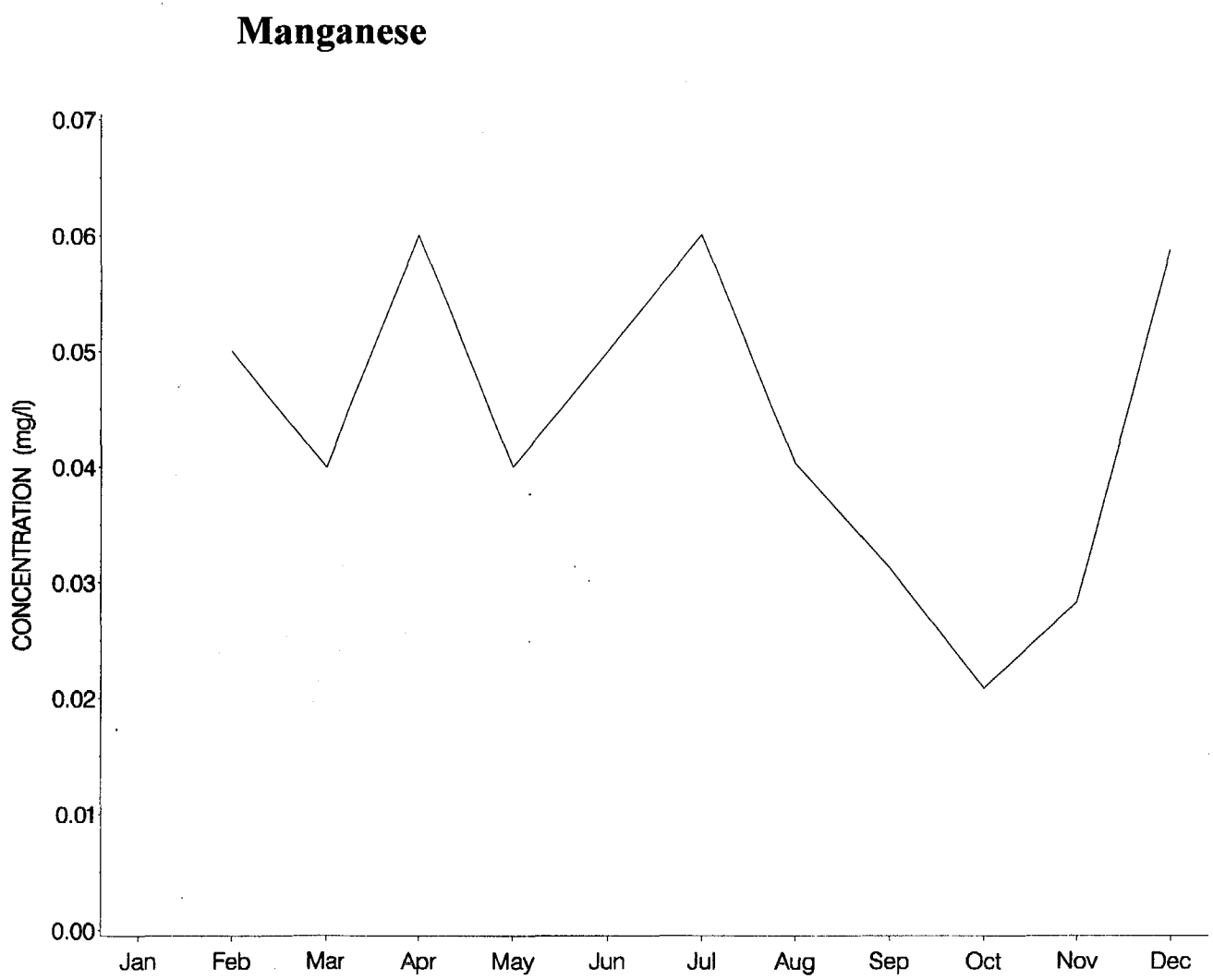


Figure 5-12. Monthly concentration of manganese at the river reference station CH-4, Roseton and Danskammer Point vicinity, 1997.

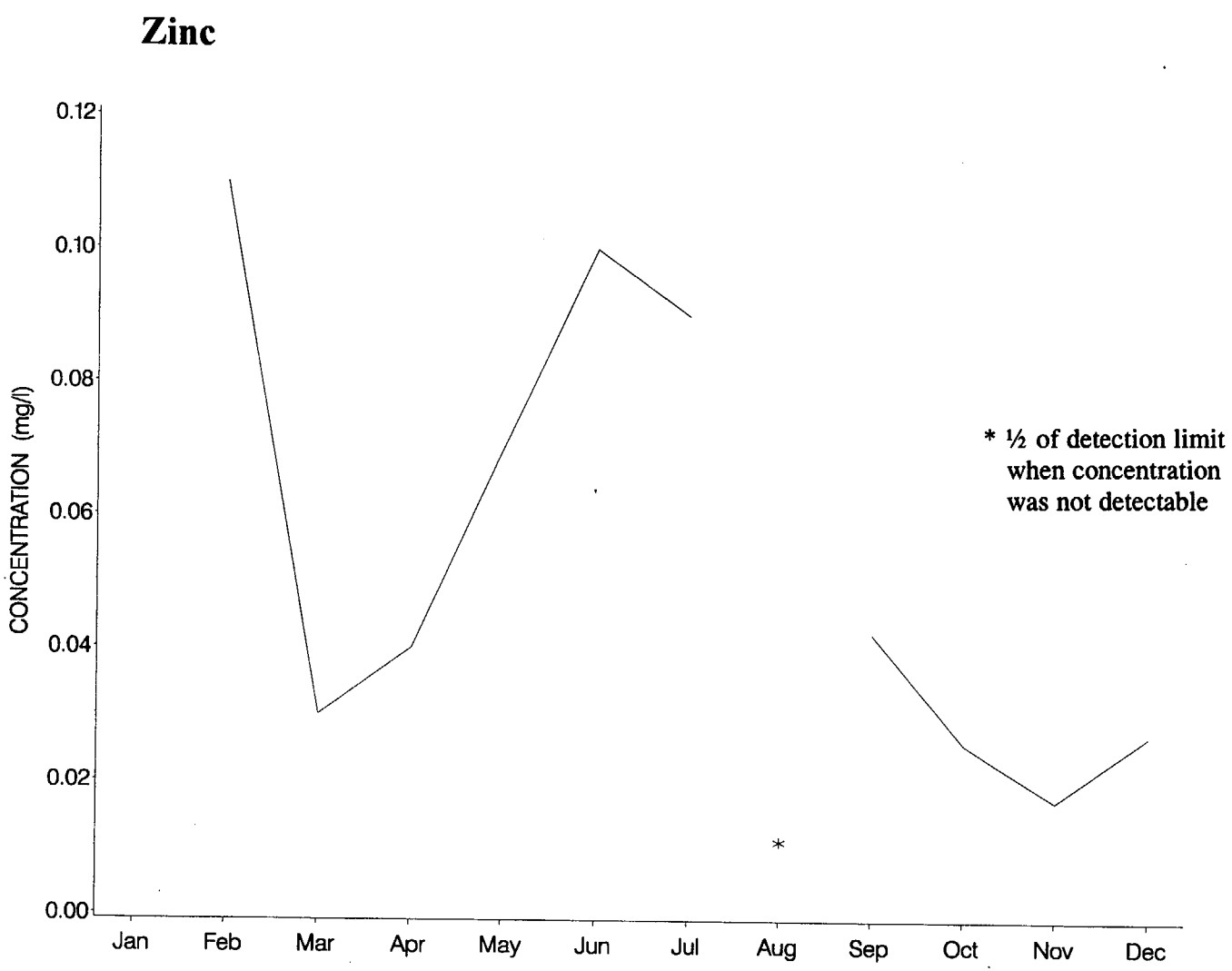


Figure 5-13. Monthly concentration of zinc at the river reference station CH-4, Roseton and Danskammer Point vicinity, 1997.

TABLE 5-4. AVERAGE VALUES OF SELECTED WATER QUALITY PARAMETERS AT THE INTAKE OF ROSETON GENERATING STATION, 1997.[a]

SAMPLE START DATE	SAMPLE END DATE	MEAN TEMPERATURE (°C)	MEAN D.O. (MG/L)	MEAN CONDUCTIVITY (μMHOS/CM AT 25°C)	MEAN TSS (MG/L)	MEAN pH
02JAN97	03JAN97	2.3	13.5	204	21.0	7.6
09JAN97	10JAN97	1.7	14.0	192	32.0	6.8
16JAN97	17JAN97	1.4	13.9	230	19.0	7.1
23JAN97	24JAN97	1.4	14.4	221	4.5	7.3
30JAN97	31JAN97	1.7	14.2	220	11.5	8.0
06FEB97	07FEB97	2.3	13.9	232	13.0	8.0
13FEB97	14FEB97	2.3	13.3	249	19.0	7.4
20FEB97	21FEB97	1.6	12.9	250	13.5	.[b]
27FEB97	28FEB97	3.9	13.9	228	7.0	7.6
13MAR97	14MAR97	4.3	13.4	203	22.0	7.4
20MAR97	21MAR97	4.0	13.2	201	21.0	7.6
27MAR97	28MAR97	4.2	13.7	220	13.5	8.1
03APR97	04APR97	4.7	12.0	249	19.0	7.4
10APR97	11APR97	7.8	12.0	189	22.0	7.6
17APR97	18APR97	9.7	11.5	168	10.0	7.1
24APR97	25APR97	9.1	10.7	160	11.0	7.6
01MAY97	02MAY97	11.7	10.8	185	6.0	7.5
08MAY97	09MAY97	12.4	9.6	166	21.0	7.5
15MAY97	16MAY97	13.8	9.9	152	65.0	7.3
22MAY97	23MAY97	14.0	9.8	146	27.0	7.5
29MAY97	30MAY97	15.7	9.4	168	21.0	7.5
05JUN97	06JUN97	17.6	8.7	168	30.0	7.5
12JUN97	13JUN97	19.7	10.1	186	12.0	7.7
19JUN97	20JUN97	21.1	9.8	188	22.5	7.7
26JUN97	27JUN97	24.4	8.4	217	19.0	7.3
02JUL97	03JUL97	25.3	8.0	241	30.0	7.3
10JUL97	11JUL97	25.0	7.0	242	23.0	7.4
17JUL97	18JUL97	25.4	6.4	260	32.0	7.2
24JUL97	25JUL97	25.0	6.7	530	32.5	7.5
31JUL97	01AUG97	26.2	6.8	518	57.5	7.4
07AUG97	08AUG97	25.9	7.0	543	23.5	7.6
14AUG97	15AUG97	26.9	7.0	637	65.5	7.5
21AUG97	22AUG97	24.2	6.6	977	29.5	7.4
28AUG97	29AUG97	23.9	7.1	613	24.5	7.4
04SEP97	05SEP97	23.8	7.2	410	14.8	7.8
11SEP97	12SEP97	23.4	7.3	518	9.0	7.4
18SEP97	19SEP97	23.5	7.1	338	19.5	7.4
25SEP97	26SEP97	21.3	7.7	366	7.5	7.6
02OCT97	03OCT97	18.6	7.4	326	3.0	7.5
09OCT97	10OCT97	20.4	8.0	340	20.0	7.5
16OCT97	17OCT97	18.4	8.2	343	23.0	7.2
23OCT97	24OCT97	16.7	8.8	384	19.5	7.3
30OCT97	31OCT97	14.8	8.5	363	36.0	7.5
06NOV97	07NOV97	13.4	9.2	270	21.5	7.6
13NOV97	14NOV97	10.6	9.8	254	39.0	7.6
20NOV97	21NOV97	8.8	10.3	246	25.1	7.4
25NOV97	26NOV97	7.1	10.7	243	20.5	7.5
04DEC97	05DEC97	5.1	12.0	244	25.0	7.4
11DEC97	12DEC97	4.5	12.1	252	32.0	7.4
18DEC97	19DEC97	4.0	12.6	265	16.5	.[b]
23DEC97	24DEC97	3.2	12.3	272	29.0	7.3
30DEC97	31DEC97	2.4	12.8	291	28.5	7.6

[a]Means are averages of surface and bottom values for all time periods sampled for each parameter.
[b]Missing pH data for two dates resulted from instrument problems.

October) to a high of 65.5 mg/l (14-15 August). The weekly mean pH values were consistent throughout 1997, ranging from 6.8 on 9-10 January to 8.1 on 27-28 March.

5.3.2 Danskammer Point Generating Station

Water quality values recorded in the Danskammer Point intake canal for each impingement sampling date in 1997 are reported in Table 5-5. Mean water temperature ranged from 0.2°C (23-24 January) to the year's high of 26.0°C (14-15 August). Danskammer Point generally had slightly lower mean temperatures recorded for the same date compared to Roseton. Slightly warmer temperatures at Roseton, particularly during the cold winter months, may be due to the use of a de-icer system which recirculated a small portion of the heated discharge water back into the intake. Danskammer Point dissolved oxygen values were similar to the Roseton values in both the range and seasonal patterns, with values ranging from 6.7 mg/l (17-18 July and 21-22 August) to 14.7 mg/l (6-7 February). Weekly average specific conductance (μmhos/cm at 25°C) ranged from a low of 147 μmhos/cm (15-16 May and 22-23 May) to a high of 838 μmhos/cm (21-22 August). Total suspended solids from the Danskammer Point intake exhibited the same general trend noted for Roseton. Values ranged from a low of 6.0 mg/l on 20-21 February to a high of 53.8 mg/l on 4-5 September. The pH range at Danskammer Point was the same as at Roseton, 6.8 to 8.1.

TABLE 5-5. AVERAGE VALUES OF SELECTED WATER QUALITY PARAMETERS AT THE INTAKE OF DANSKAMMER POINT GENERATING STATION, 1997.[a]

SAMPLE START DATE	SAMPLE END DATE	MEAN TEMPERATURE (°C)	MEAN D.O. (MG/L)	MEAN CONDUCTIVITY (µMHOS/CM AT 25°C)	MEAN TSS (MG/L)	MEAN pH
02JAN97	03JAN97	2.3	13.7	196	14.0	7.5
09JAN97	10JAN97	1.9	14.5	194	24.0	6.8
16JAN97	17JAN97	0.8	14.1	204	20.0	7.4
23JAN97	24JAN97	0.2	14.6	229	16.0	7.4
30JAN97	31JAN97	0.7	14.5	222	21.5	7.9
06FEB97	07FEB97	2.0	14.7	232	12.5	7.9
13FEB97	14FEB97	1.1	14.2	246	19.0	7.4
20FEB97	21FEB97	1.4	13.9	247	6.0	.[b]
27FEB97	28FEB97	3.5	14.2	231	12.0	7.6
06MAR97	07MAR97	3.8	14.1	215	50.0	7.5
13MAR97	14MAR97	4.0	13.5	203	28.5	7.4
20MAR97	21MAR97	3.6	13.6	205	18.0	7.8
27MAR97	28MAR97	4.4	14.0	219	8.5	8.1
03APR97	04APR97	5.5	12.0	243	10.5	7.4
10APR97	11APR97	7.8	12.4	187	32.5	7.6
17APR97	18APR97	10.0	11.5	164	8.0	7.1
24APR97	25APR97	8.6	11.0	166	17.0	7.6
01MAY97	02MAY97	11.6	11.1	183	17.0	7.6
08MAY97	09MAY97	11.9	9.4	163	46.0	7.5
15MAY97	16MAY97	13.9	10.2	147	20.0	7.3
22MAY97	23MAY97	13.6	9.9	147	24.5	7.5
29MAY97	30MAY97	14.8	9.5	169	28.0	7.5
05JUN97	06JUN97	18.3	8.6	162	17.0	7.4
12JUN97	13JUN97	18.6	10.2	184	11.0	7.7
19JUN97	20JUN97	20.4	9.7	185	18.5	7.8
26JUN97	27JUN97	23.1	8.5	305	17.0	7.4
02JUL97	03JUL97	24.3	7.9	220	20.5	7.3
10JUL97	11JUL97	25.1	7.1	236	25.5	7.4
17JUL97	18JUL97	25.1	6.7	238	26.0	7.2
24JUL97	25JUL97	24.5	6.8	453	44.5	7.3
31JUL97	01AUG97	25.7	6.8	365	24.5	7.5
07AUG97	08AUG97	25.2	7.1	422	52.0	7.5
14AUG97	15AUG97	26.0	7.1	507	25.0	7.5
21AUG97	22AUG97	23.9	6.7	838	50.0	7.4
28AUG97	29AUG97	23.5	7.2	542	39.5	7.4
04SEP97	05SEP97	23.6	7.3	386	53.8	7.7
11SEP97	12SEP97	23.2	7.2	476	11.5	7.4
18SEP97	19SEP97	23.2	7.3	327	47.0	7.4
25SEP97	26SEP97	21.1	7.8	340	13.0	7.6
02OCT97	03OCT97	19.0	7.1	297	22.5	7.5
09OCT97	10OCT97	20.0	7.9	309	7.0	7.4
16OCT97	17OCT97	18.4	8.4	310	26.5	7.3
23OCT97	24OCT97	16.1	8.6	348	14.5	7.4
30OCT97	31OCT97	14.6	8.5	310	24.5	7.6
06NOV97	07NOV97	13.0	9.1	270	28.5	7.6
13NOV97	14NOV97	10.6	10.0	253	30.0	7.6
20NOV97	21NOV97	8.3	10.4	248	11.0	7.4
25NOV97	26NOV97	6.9	10.7	240	13.5	7.5
04DEC97	05DEC97	5.7	12.1	243	25.0	7.4
11DEC97	12DEC97	4.5	12.2	254	21.0	7.4
18DEC97	19DEC97	3.7	12.7	267	27.5	.[b]
23DEC97	24DEC97	3.6	12.3	277	30.0	7.3
30DEC97	31DEC97	2.1	13.0	272	20.5	7.6

[a]Means are averages of surface and bottom values for all time periods sampled for each parameter.
[b]Missing pH data for two dates resulted from instrument problems.

6.0 RESULTS OF IMPINGEMENT MONITORING PROGRAM

6.0 RESULTS OF IMPINGEMENT MONITORING PROGRAM

6.1 PROPORTION OF PLANT FLOW SAMPLED

Impingement sampling was conducted on 52 dates in 1997 at Roseton and on 53 dates at Danskammer Point (Section 4.1.1). At Roseton, 14.4% of the total plant flow in 1997 was sampled for impinged organisms. The percentage of plant flow sampled on a monthly basis ranged from 9.7% in March to 16.5% in January (Table 6-1). The variation was primarily due to the number of weekly sampling events that occurred in each month. A total of 208 of the 212 scheduled 6-hr samples were successfully collected during 1997 at Roseton.

At Danskammer Point 14.6% of the total flow for all units combined was sampled in 1997. On a monthly basis the percentage of plant flow sampled ranged from 12.8% in March to 16.2% in July (Table 6-1). A higher proportion of plant flow was sampled in months with five sampling dates than in months with only four. A total of 424 samples (6-hr each) were scheduled to be collected in 1997, with equal numbers at the two sluiceway discharges (Unit 1 and 2 screenwash and Unit 3 and 4 screenwash). However, for much of 1997, Units 1 and 2 did not operate; thus, a total of 270 of the 424 scheduled samples were collected (63.7%)

6.2 SPECIES INVENTORY

Forty-two fish species were collected at Roseton in 1997 (Table 6-2), which is comparable to findings in past years (Appendix Table A-1). Eighteen families of fishes were collected, with Cyprinidae being represented by the most species (eight). One species that was not previously identified at Roseton (blacknose dace) was impinged in 1997 (Appendix Table A-1). No Atlantic sturgeon or shortnose sturgeon were collected in 1997. Rainbow smelt, which had been collected frequently in the past were represented only by a single specimen in 1997. Channel catfish, which were not present at all during the first 12 years of sampling and were only present in low numbers from 1985 to 1994, increased to a new high in 1997 (212 individuals, compared to the previous highs of 14 in 1994, 51 in 1995, and 196 in 1996). Three invertebrate taxa were collected at Roseton: two crab species (blue crab and mud crab) and crayfish.

TABLE 6-1. MONTHLY TOTAL PLANT FLOW AND FLOW SAMPLED AT ROSETON AND DANSKAMMER POINT GENERATING STATIONS, 1997.[a]

	ROSETON GENERATING STATION				DANSKAMMER POINT GENERATING STATION			
MONTH	TOTAL PLANT FLOW	FLOW SAMPLED	PERCENT OF FLOW SAMPLED	NUMBER OF DAYS SAMPLED	TOTAL PLANT FLOW	FLOW SAMPLED	PERCENT OF FLOW SAMPLED	NUMBER OF DAYS SAMPLED
Jan	15,660.0	2,583.76	16.5	5	6,294.43	1,013.79	16.1	5
Feb	11,503.2	1,682.05	14.6	4	5,875.94	810.33	13.8	4
Mar	9,259.2	894.29	9.7	3	6,134.71	783.89	12.8	4
Apr	7,971.6	1,101.16	13.8	4	4,428.43	574.44	13.0	4
May	7,425.6	1,129.90	15.2	5	8,631.26	1,374.79	15.9	5
Jun	20,772.0	2,935.10	14.1	4	11,861.45	1,644.73	13.9	4
Jul	23,496.0	3,617.41	15.4	5	11,431.82	1,846.68	16.2	5
Aug	17,265.6	2,542.61	14.7	4	11,401.13	1,509.01	13.2	4
Sep	9,770.4	1,091.81	11.2	4	9,123.10	1,331.22	14.6	4
Oct	14,757.6	2,227.20	15.1	5	6,090.67	926.06	15.2	5
Nov	16,766.4	2,229.60	13.3	4	6,149.06	811.03	13.2	4
Dec	17,073.6	2,716.27	15.9	5	6,296.14	1,013.37	16.1	5
TOTAL	171,721.2	24,751.16	14.4	52	93,718.14	13,639.34	14.6	53

[a]Flow is in millions of gallons.

TABLE 6-2. SPECIES COMPOSITION OF FISH IN IMPINGEMENT COLLECTIONS AT ROSETON GENERATING STATION IN 1997.

SCIENTIFIC NAME	COMMON NAME	OCCUR-RENCE	TOTAL COUNT
Petromyzontidae	lampreys		
Petromyzon marinus	sea lamprey	E	1
Anguillidae	freshwater eels		
Anguilla rostrata	American eel	E	52
Clupeidae	herrings		
Alosa aestivalis	blueback herring	E	28,374
Alosa mediocris	hickory shad	E	1
Alosa pseudoharengus	alewife	E	5,662
Alosa sapidissima	American shad	E	443
Brevoortia tyrannus	Atlantic menhaden	M	3
Dorosoma cepedianum	gizzard shad	E	2,005
Clupeidae	unidentified clupeid		1
Engraulidae	anchovies		
Anchoa mitchilli	bay anchovy	E	9,907
Cyprinidae	carps and minnows		
Carassius auratus	goldfish	F	24
Cyprinus carpio	common carp	F	24
Hybognathus regius	eastern silvery minnow	F	1
Notemigonus crysoleucas	golden shiner	F	290
Notropis atherinoides	emerald shiner	F	1
Notropis hudsonius	spottail shiner	F	969
Pimephales notatus	bluntnose minnow	F	1
Rhinichthys atratulus	blacknose dace	F	1
Ictaluridae	bullhead catfishes		
Ameiurus catus	white catfish	F	111
Ameiurus nebulosus	brown bullhead	F	856
Ictalurus punctatus	channel catfish	F	212
Osmeridae	smelts		
Osmerus mordax	rainbow smelt	E	1
Gadidae	cods		
Microgadus tomcod	Atlantic tomcod	E	347
Cyprinodontidae	killifishes		
Fundulus diaphanus	banded killifish	F	45
Fundulus heteroclitus	mummichog	E	3
Atherinidae	silversides		
Labidesthes sicculus	brook silverside	F	1
Gasterosteidae	sticklebacks		
Apeltes quadracus	fourspine stickleback	E	10
Gasterosteus aculeatus	threespine stickleback	E	6
Percichthyidae	temperate basses		
Morone americana	white perch	E	6,755
Morone saxatilis	striped bass	E	2,567
Morone sp.	unidentified *Morone*		1

(Continued)

TABLE 6-2. (CONTINUED)

SCIENTIFIC NAME	COMMON NAME	OCCUR-RENCE	TOTAL COUNT
Centrarchidae	sunfishes		
Lepomis auritus	redbreast sunfish	F	9
Lepomis gibbosus	pumpkinseed	F	445
Lepomis macrochirus	bluegill	F	58
Micropterus salmoides	largemouth bass	F	26
Pomoxis nigromaculatus	black crappie	F	23
Centrarchidae	unidentified centrarchid		17
Percidae	perches		
Etheostoma olmstedi	tessellated darter	F	125
Perca flavescens	yellow perch	F	83
Pomatomidae	bluefishes		
Pomatomus saltatrix	bluefish	M	20
Sciaenidae	drums		
Aplodinotus grunniens	freshwater drum	F	5
Bairdiella chrysoura	silver perch	E	1
Cynoscion regalis	weakfish	M	76
Gobiidae	gobies		
Gobiosoma bosc	naked goby	E	2
Soleidae	soles		
Trinectes maculatus	hogchoker	E	100

Species are grouped by family. Scientific names, common names, and occurrence are according to Robins et al. (1991). Occurrence: F=freshwater, M=marine, E=euryhaline (occurring in both fresh and salt waters).

Forty-five fish species representing 19 families were collected at Danskammer Point during 1997 (Table 6-3). The family Cyprinidae (carps and minnows) was represented by eight species, which represents the greatest diversity within a family. One species collected in 1997 was not previously collected from impingement sampling at Danskammer Point: logperch (Appendix Table A-2). One Atlantic sturgeon (present in 18 of 23 previous years) and no shortnose sturgeon (present in eight previous years) were present in the 1997 collections at Danskammer Point. One species that had frequently been collected in the past was limited to a single fish in 1997 (rainbow smelt). Channel catfish, a species that was rarely collected in the early years of sampling (nine individuals over the first 14 years), was relatively abundant in 1997, with 614 individuals collected. Its previous highest annual totals were 44 in 1994, 115 in 1995, and 439 in 1996. A similar increase in channel catfish was observed at Roseton. Three invertebrate taxa were collected: blue crab, mud crab and crayfish.

6.3 ABUNDANCE, BIOMASS, AND PERCENT COMPOSITION

6.3.1 Fish

6.3.1.1 Roseton Generating Station

Fifty-two 24-hr impingement sampling events at Roseton in 1997 resulted in the collection of 59,665 fish, which is higher than in all but five of the previous 24 years since sampling began in 1973 (Appendix Table A-1). Roseton impingement counts increased by a factor of 6.5 from 1996 to 1997. The species with the largest increase was blueback herring, up from 1,283 in 1996 to 28,374 in 1997. It was the most numerous fish in 1997, making up 47.6% of the total abundance, followed by anchovy (16.6%) and white perch (11.3%) (Table 6-4, Figure 6-1). The top ten species (in terms of numerical abundance) accounted for 97.2% of the total collected at Roseton in 1997.

Monthly abundance for fish impinged on collection days at Roseton in 1997 (Table 6-5, Figure 6-2) was similar to the patterns of previous years in that the month of highest abundance was in the second half of the year. In some past years there was also a secondary peak in abundance in the spring, but in 1997 the highest counts were in October and August. The usual

TABLE 6-3. SPECIES COMPOSITION OF FISH IN IMPINGEMENT COLLECTIONS AT DANSKAMMER POINT GENERATING STATION IN 1997.

SCIENTIFIC NAME	COMMON NAME	OCCUR-RENCE	TOTAL COUNT
Acipenseridae	sturgeons		
Acipenser oxyrhynchus	Atlantic sturgeon	E	1
Anguillidae	freshwater eels		
Anguilla rostrata	American eel	E	60
Clupeidae	herrings		
Alosa aestivalis	blueback herring	E	2,310
Alosa mediocris	hickory shad	E	2
Alosa pseudoharengus	alewife	E	3,478
Alosa sapidissima	American shad	E	1,250
Brevoortia tyrannus	Atlantic menhaden	M	8
Dorosoma cepedianum	gizzard shad	E	5,690
Clupeidae	unidentified clupeid		39
Engraulidae	anchovies		
Anchoa mitchilli	bay anchovy	E	5,237
Cyprinidae	carps and minnows		
Carassius auratus	goldfish	F	30
Cyprinus carpio	common carp	F	14
Hybognathus regius	eastern silvery minnow	F	1
Notemigonus crysoleucas	golden shiner	F	450
Notropis atherinoides	emerald shiner	F	3
Notropis hudsonius	spottail shiner	F	2,015
Pimephales promelas	fathead minnow	F	2
Semotilus corporalis	fallfish	F	1
Cyprinidae	unidentified cyprinid		1
Catostomidae	suckers		
Hypentelium nigricans	northern hog sucker	F	1
Ictaluridae	bullhead catfishes		
Ameiurus catus	white catfish	F	515
Ameiurus nebulosus	brown bullhead	F	2,208
Ictalurus punctatus	channel catfish	F	614
Umbridae	mudminnows		
Umbra limi	central mudminnow	F	1
Osmeridae	smelts		
Osmerus mordax	rainbow smelt	E	1
Salmonidae	trouts		
Oncorhynchus nerka	kokanee	F	1
Salmo trutta	brown trout	E	1
Gadidae	cods		
Microgadus tomcod	Atlantic tomcod	E	3,663
Cyprinodontidae	killifishes		
Fundulus diaphanus	banded killifish	F	16
Fundulus heteroclitus	mummichog	E	1

(Continued)

TABLE 6-3. (CONTINUED)

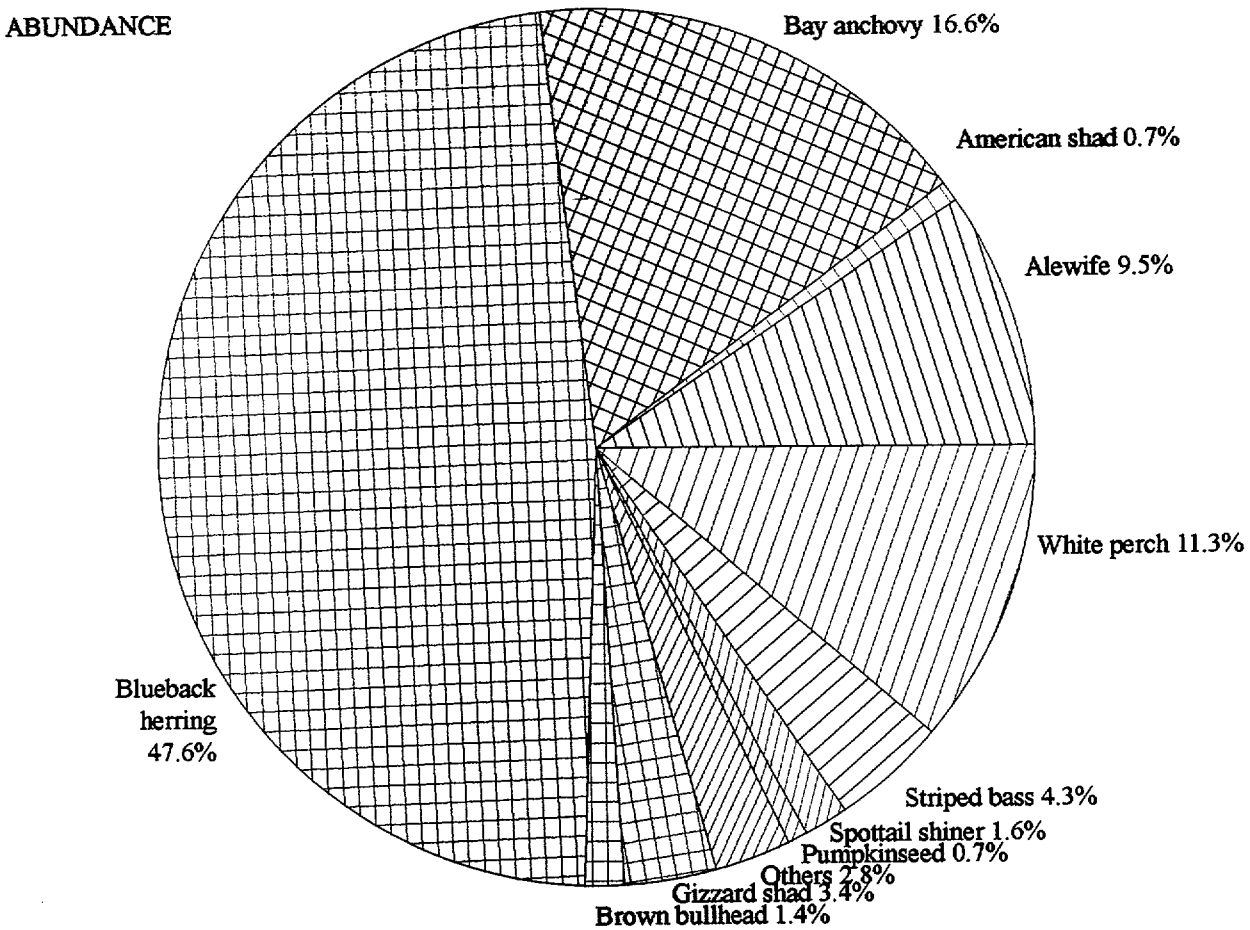
SCIENTIFIC NAME	COMMON NAME	OCCUR-RENCE	TOTAL COUNT
Gasterosteidae	sticklebacks		
Apeltes quadracus	fourspine stickleback	E	6
Gasterosteus aculeatus	threespine stickleback	E	3
Percichthyidae	temperate basses		
Morone americana	white perch	E	15,403
Morone saxatilis	striped bass	E	6,644
Morone sp.	unidentified *Morone*		5
Centrarchidae	sunfishes		
Ambloplites rupestris	rock bass	F	4
Lepomis auritus	redbreast sunfish	F	18
Lepomis gibbosus	pumpkinseed	F	898
Lepomis macrochirus	bluegill	F	48
Micropterus salmoides	largemouth bass	F	28
Pomoxis nigromaculatus	black crappie	F	34
Centrarchidae	unidentified centrarchid		2
Percidae	perches		
Etheostoma olmstedi	tessellated darter	F	57
Perca flavescens	yellow perch	F	137
Percina caprodes	logperch	F	1
Pomatomidae	bluefishes		
Pomatomus saltatrix	bluefish	M	227
Sciaenidae	drums		
Aplodinotus grunniens	freshwater drum	F	10
Cynoscion regalis	weakfish	M	131
Soleidae	soles		
Trinectes maculatus	hogchoker	E	219

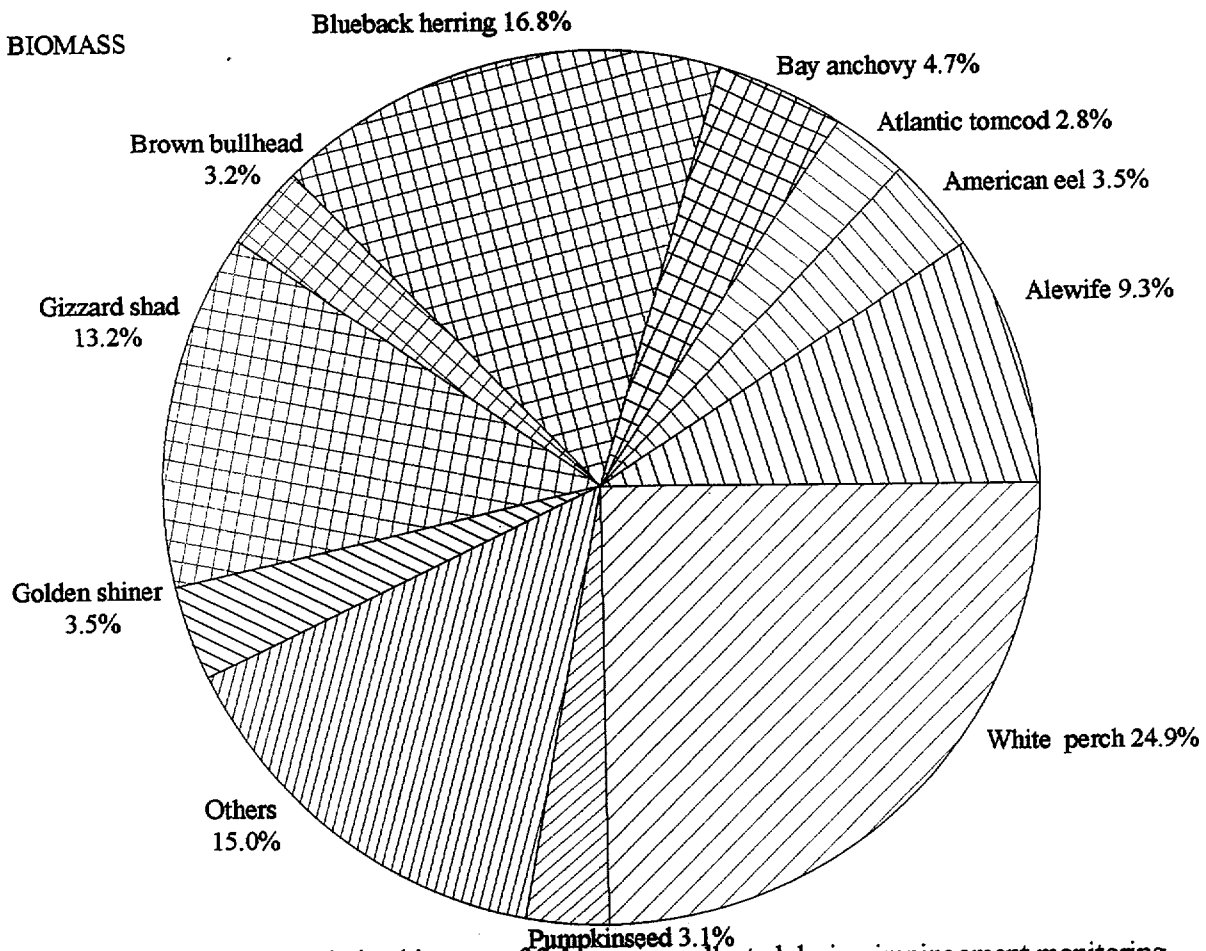
Species are grouped by family. Scientific names, common names, and occurrence are according to Robins et al. (1991). Occurrence: F=freshwater, M=marine, E=euryhaline (occurring in both fresh and salt waters).

TABLE 6-4. ABUNDANCE, BIOMASS, AND PERCENT COMPOSITION OF THE TOP TEN FISH SPECIES AT ROSETON GENERATING STATION, 1997.

	ABUNDANCE	PERCENT OF TOTAL
Blueback herring	28374	47.6
Bay anchovy	9907	16.6
White perch	6755	11.3
Alewife	5662	9.5
Striped bass	2567	4.3
Gizzard shad	2005	3.4
Spottail shiner	969	1.6
Brown bullhead	856	1.4
Pumpkinseed	445	0.7
American shad	443	0.7
Others	1682	2.8
TOTAL	59665	100.0

	BIOMASS (KG)	PERCENT OF TOTAL
White perch	41.51	24.9
Blueback herring	27.99	16.8
Gizzard shad	22.12	13.2
Alewife	15.54	9.3
Bay anchovy	7.91	4.7
American eel	5.88	3.5
Golden shiner	5.78	3.5
Brown bullhead	5.27	3.2
Pumpkinseed	5.12	3.1
Atlantic tomcod	4.74	2.8
Others	25.11	15.0
TOTAL	166.96	100.0





gure 6-1. Relative abundance and relative biomass of fish species collected during impingement monitoring, Roseton Generating Station, 1997.

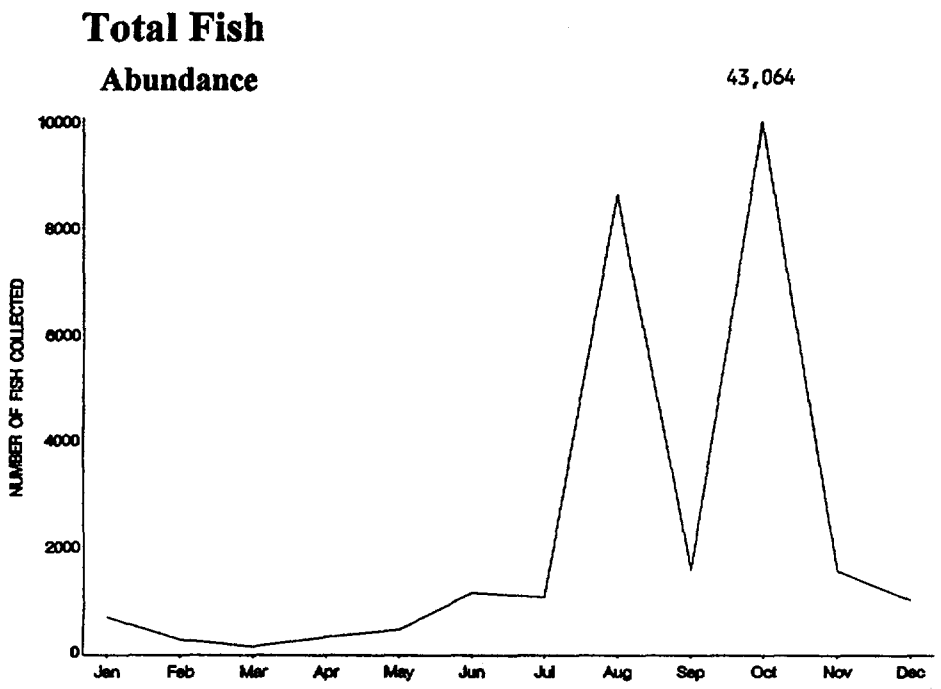
TABLE 6-5. MONTHLY COUNT AND PERCENT COMPOSITION OF FISH SPECIES IN IMPINGEMENT COLLECTIONS, ROSETON GENERATING STATION, 1997.

SPECIES	JAN		FEB		MAR		APR		MAY		JUN	
	NO.	PCNT	NO.	PCNT	NO.	PCNT	NO.	PCNT	NO.	PCNT	NO.	PCNT
Alewife			1	0.4	3	2.9	2	0.7	14	3.3	13	1.2
American eel	2	0.3	2	0.8	4	3.9	5	1.8	4	1.0	6	0.5
American shad											2	0.2
Atlantic menhaden												
Atlantic tomcod	157	23.8	5	2.1					7	1.7	20	1.8
Banded killifish	13	2.0	7	2.9			2	0.7	1	0.2	8	0.7
Bay anchovy												
Black crappie	6	0.9	1	0.4								
Blacknose dace							1	0.4				
Blueback herring									42	10.0	28	2.5
Bluefish												
Bluegill	6	0.9					1	0.4	1	0.2		
Bluntnose minnow							1	0.4				
Brook silverside					1	1.0						
Brown bullhead	5	0.8					2	0.7	15	3.6	24	2.1
Channel catfish	33	5.0	19	7.9	7	6.9	26	9.2	7	1.7	10	0.9
Common carp	2	0.3										
Eastern silvery minnow			1	0.4								
Emerald shiner	1	0.2										
Fourspine stickleback	1	0.2			1	1.0	5	1.8			1	0.1
Freshwater drum	2	0.3	1	0.4								
Gizzard shad	72	10.9	2	0.8								
Golden shiner	112	17.0	68	28.5	16	15.7	8	2.8	1	0.2	9	0.8
Goldfish	9	1.4	1	0.4								
Herring family												
Hickory shad												
Hogchoker							4	1.4	33	7.8	10	0.9
Largemouth bass	1	0.2										
Morone species												
Mummichog											1	0.1
Naked goby												
Pumpkinseed	22	3.3	3	1.3	2	2.0	1	0.4	25	5.9	48	4.3
Rainbow smelt							1	0.4				
Redbreast sunfish					1	1.0	1	0.4			1	0.1
Sea lamprey												
Silver perch												
Spottail shiner	129	19.5	97	40.6	43	42.2	81	28.5	98	23.3	156	13.9
Striped bass			1	0.4					1	0.2	3	0.3
Sunfish family	1	0.2										
Tessellated darter					7	6.9	42	14.8	18	4.3	11	1.0
Threespine stickleback			5	2.1			1	0.4				
Weakfish												
White catfish	3	0.5	2	0.8			13	4.6	17	4.0	16	1.4
White perch	30	4.5	14	5.9	13	12.7	79	27.8	136	32.3	755	67.2
Yellow perch	53	8.0	9	3.8	4	3.9	8	2.8	1	0.2	2	0.2
TOTAL	660	100.0	239	100.0	102	100.0	284	100.0	421	100.0	1124	100.0

(CONTINUED)

TABLE 6-5. (CONTINUED)

SPECIES	JUL		AUG		SEP		OCT		NOV		DEC	
	NO.	PCNT	NO.	PCNT	NO.	PCNT	NO.	PCNT	NO.	PCNT	NO.	PC
Alewife	169	16.1	364	4.2	112	7.2	4812	11.2	171	11.1	1	0
American eel	4	0.4	6	0.1			14	<0.1	1	0.1	4	0
American shad	62	5.9	66	0.8	18	1.2	291	0.7	3	0.2	1	0
Atlantic menhaden					2	0.1	1	<0.1				
Atlantic tomcod	33	3.1	116	1.3	7	0.4					2	0.
Banded killifish	1	0.1	1	<0.1			10	<0.1			2	0.
Bay anchovy	28	2.7	3313	38.4	616	39.4	5950	13.8				
Black crappie							6	<0.1	6	0.4	4	0.
Blacknose dace												
Blueback herring	26	2.5	1042	12.1	615	39.4	26571	61.7	49	3.2	1	0.
Bluefish	5	0.5	13	0.2	2	0.1						
Bluegill							37	0.1	9	0.6	4	0.
Bluntnose minnow												
Brook silverside												
Brown bullhead	33	3.1	534	6.2	12	0.8	194	0.5	30	2.0	7	0.
Channel catfish	4	0.4	14	0.2	17	1.1	15	<0.1	22	1.4	38	3.
Common carp	2	0.2					2	<0.1	5	0.3	13	1.
Eastern silvery minnow												
Emerald shiner												
Fourspine stickleback					1	0.1	1	<0.1				
Freshwater drum											2	0.
Gizzard shad	19	1.8	1238	14.3			322	0.7	48	3.1	304	30.
Golden shiner							3	<0.1	33	2.1	40	4.
Goldfish									4	0.3	10	1.
Herring family							1	<0.1				
Hickory shad			1	<0.1								
Hogchoker	5	0.5	13	0.2	11	0.7	18	<0.1	5	0.3	1	0.
Largemouth bass	2	0.2	4	<0.1	1	0.1	3	<0.1	6	0.4	9	0.
Morone species	1	0.1										
Mummichog					1	0.1	1	<0.1				
Naked goby							2	<0.1				
Pumpkinseed	1	0.1	2	<0.1			299	0.7	36	2.3	6	0.
Rainbow smelt												
Redbreast sunfish			1	<0.1	1	0.1	3	<0.1			1	0.
Sea lamprey	1	0.1										
Silver perch							1	<0.1				
Spottail shiner	8	0.8	36	0.4	13	0.8	156	0.4	73	4.8	79	8.
Striped bass	366	34.8	1377	15.9	70	4.5	492	1.1	128	8.3	129	13.
Sunfish family							16	<0.1				
Tessellated darter	2	0.2	14	0.2	12	0.8	18	<0.1	1	0.1		
Threespine stickleback												
Weakfish	1	0.1	75	0.9								
White catfish	12	1.1	12	0.1			23	0.1	12	0.8	1	0.1
White perch	266	25.3	392	4.5	51	3.3	3802	8.8	894	58.2	323	32.7
Yellow perch	1	0.1									5	0.5
TOTAL	1052	100.0	8634	100.0	1562	100.0	43064	100.0	1536	100.0	987	100.0



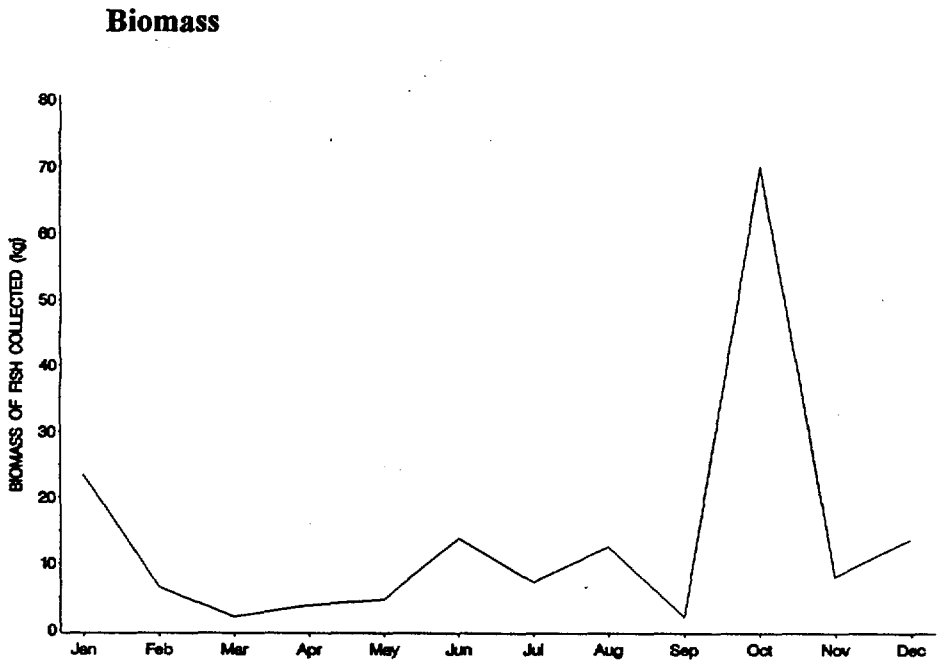


Figure 6-2. Monthly impingement abundance and biomass, Roseton Generating Station, 1997.

summer-fall increase in abundance occurred in August of 1997, mainly due to abrupt increases of bay anchovy, striped bass, gizzard shad, and blueback herring. Abundances decreased greatly in September, then increased again in October. Blueback herring and bay anchovy were the most important contributors to the October total, with a combined total abundance of 32,521 individuals for the month. March had the lowest abundance for the year with 102 individuals collected.

The highest monthly biomass totals for 1997 at Roseton were in October and January, mainly due to blueback herring, white perch, and alewife in October, and to gizzard shad in January (Table 6-6, Figure 6-2). The overall biomass pattern differed from the numerical abundance pattern due to the presence of the relatively large adult gizzard shad impinged in January and the small size of the most abundant species in August (bay anchovy). The top three species in terms of biomass were, in decreasing order, white perch, blueback herring, and gizzard shad. These species made up 54.9% (91.6 kg) of the total biomass measured (167.0 kg) in 1997 (Table 6-4, Figure 6-1).

White perch was the dominant species in terms of biomass for five of the twelve months. The species with the greatest biomass in the remaining months were gizzard shad (January, February, and December), alewife (March), bay anchovy (August), and blueback herring (September and October). For the year, October collections yielded the greatest fish biomass (69.9 kg) and March the least (2.0 kg) (Table 6-6).

Blueback herring, the most abundant species at Roseton in 1997, reached its peak abundance and its greatest biomass during October. It was also the second most abundant species impinged during September (Table 6-5). Young-of-the-year blueback herring were first impinged on collection days in July and were the most abundant life stage of this species collected during 1997 (Table 6-7, Appendix Table B-1.5). Blueback herring ranked second in total biomass (16.8%) during 1997 (Table 6-4).

Bay anchovy, the second most abundant species at Roseton during 1997, with a total of 9,907 fish collected, was the most abundant species in August and September collections (Table 6-5). Young-of-the-year fish were first collected in August and were the most abundant age group of bay anchovy collected in 1997 (Table 6-7, Appendix Table B-1.4). Bay anchovy ranked fifth in total biomass with 7.9 kg (Table 6-4, Figure 6-1).

ABLE 6-6. MONTHLY BIOMASS AND PERCENT COMPOSITION OF FISH SPECIES IN IMPINGEMENT COLLECTIONS, ROSETON GENERATING STATION, 1997.

SPECIES	JAN		FEB		MAR		APR		MAY		JUN	
	GM.	PCNT	GM.	PCNT	GM.	PCNT	GM.	PCNT	GM.	PCNT	GM.	PCNT
Alewife			7	0.1	558	28.1	12	0.3	331	7.2	360	2.6
American eel	653	2.8	611	9.6	68	3.4	873	23.4	57	1.2	447	3.3
American shad											21	0.2
Atlantic menhaden												
Atlantic tomcod	3732	16.0	110	1.7					4	0.1	57	0.4
Banded killifish	76	0.3	32	0.5			4	0.1	5	0.1	28	0.2
Bay anchovy												
Black crappie	242	1.0	67	1.1								
Blacknose dace							4	0.1				
Blueback herring									533	11.6	199	1.4
Bluefish												
Bluegill	250	1.1					83	2.2	1	<0.1		
Bluntnose minnow							3	0.1				
Brook silverside					1	0.1						
Brown bullhead	389	1.7					61	1.6	423	9.2	738	5.4
Channel catfish	185	0.8	136	2.1	58	2.9	188	5.0	44	0.9	92	0.7
Common carp	238	1.0										
Eastern silvery minnow			7	0.1								
Emerald shiner	7	<0.1										
Fourspine stickleback	0	<0.1			0	<0.1	2	0.1			1	<0.1
Freshwater drum	32	0.1	14	0.2								
Gizzard shad	8896	38.1	2512	39.4								
Golden shiner	3438	14.7	1121	17.6	345	17.4	177	4.8	14	0.3	63	0.5
Goldfish	581	2.5	18	0.3								
Herring family												
Hickory shad												
Hogchoker							72	1.9	385	8.3	30	0.2
Largemouth bass	15	0.1										
Morone species												
Mummichog											4	<0.1
Naked goby												
Pumpkinseed	1003	4.3	153	2.4	78	3.9	36	1.0	943	20.5	1031	7.5
Rainbow smelt							7	0.2				
Redbreast sunfish					17	0.9	3	0.1			28	0.2
Sea lamprey												
Silver perch												
Spottail shiner	690	3.0	505	7.9	158	8.0	354	9.5	445	9.7	820	6.0
Striped bass			22	0.3					3	0.1	22	0.2
Sunfish family	1	<0.1										
Tessellated darter					16	0.8	87	2.3	30	0.6	25	0.2
Threespine stickleback			13	0.2			2	0.1				
Weakfish												
White catfish	155	0.7	452	7.1			64	1.7	100	2.2	106	0.8
White perch	960	4.1	303	4.7	384	19.3	1074	28.8	1228	26.7	9643	70.2
Yellow perch	1830	7.8	292	4.6	304	15.3	619	16.6	63	1.4	22	0.2
TOTAL (KG)	23.4	100.0	6.4	100.0	2.0	100.0	3.7	100.0	4.6	100.0	13.7	100.0

(CONTINUED)

TABLE 6-6. (CONTINUED)

SPECIES	JUL		AUG		SEP		OCT		NOV		DEC	
	GM.	PCNT	GM.	PCNT	GM.	PCNT	GM.	PCNT	GM.	PCNT	GM.	P(
Alewife	456	6.3	851	6.9	256	12.6	12267	17.5	433	5.4	4	<(
American eel	294	4.1	154	1.2			880	1.3	263	3.3	1581	1
American shad	87	1.2	144	1.2	47	2.3	961	1.4	10	0.1	4	<(
Atlantic menhaden					3	0.1	2	<0.1				
Atlantic tomcod	191	2.6	589	4.7	28	1.4					26	(
Banded killifish	2	<0.1	0	<0.1			15	<0.1			26	(
Bay anchovy	74	1.0	2849	22.9	388	19.1	4598	6.6				
Black crappie							29	<0.1	18	0.2	109	(
Blacknose dace												
Blueback herring	219	3.0	849	6.8	491	24.1	25596	36.6	108	1.3	2	<(
Bluefish	32	0.4	80	0.6	37	1.8						
Bluegill							66	0.1	65	0.8	59	(
Bluntnose minnow												
Brook silverside												
Brown bullhead	315	4.4	1236	9.9	55	2.7	1558	2.2	228	2.9	272	2
Channel catfish	41	0.6	57	0.5	105	5.1	183	0.3	218	2.7	338	2
Common carp	2	<0.1					44	0.1	56	0.7	511	3
Eastern silvery minnow												
Emerald shiner												
Fourspine stickleback					0	<0.1	0	<0.1				
Freshwater drum											45	0
Gizzard shad	30	0.4	2130	17.1			1929	2.8	524	6.6	6096	44
Golden shiner							10	<0.1	176	2.2	438	3
Goldfish									77	1.0	374	2
Herring family							0	<0.1				
Hickory shad			2	<0.1								
Hogchoker	13	0.2	102	0.8	115	5.6	204	0.3	68	0.9	30	0
Largemouth bass	4	0.1	23	0.2	35	1.7	76	0.1	92	1.2	358	2
Morone species	0	<0.1										
Mummichog					5	0.2	1	<0.1				
Naked goby							1	<0.1				
Pumpkinseed	29	0.4	43	0.3			1461	2.1	202	2.5	139	1
Rainbow smelt												
Redbreast sunfish			97	0.8	4	0.2	10	<0.1			103	0
Sea lamprey	351	4.9										
Silver perch							18	<0.1				
Spottail shiner	44	0.6	67	0.5	43	2.1	454	0.6	253	3.2	439	3.
Striped bass	262	3.6	1396	11.2	194	9.5	1694	2.4	425	5.3	517	3.
Sunfish family							17	<0.1				
Tessellated darter	5	0.1	12	0.1	8	0.4	41	0.1	3	<0.1		
Threespine stickleback												
Weakfish	2	<0.1	325	2.6								
White catfish	1861	25.7	120	1.0			334	0.5	485	6.1	32	0.
White perch	2854	39.4	1298	10.5	225	11.0	17459	25.0	4280	53.6	1798	13.
Yellow perch	75	1.0									271	2.
TOTAL (KG)	7.2	100.0	12.4	100.0	2.0	100.0	69.9	100.0	8.0	100.0	13.6	100.

TABLE 6-7. MONTHLY SUMMARY OF LENGTH DATA FOR SELECTED IMPINGED SPECIES, ROSETON GENERATING STATION, 1997.[a]

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Alewife	TOTAL ANAL.	0	1	3	2	14	13	98	151	81	363	129	1
	MEAN LENGTH	0	10.1	24.3	9.7	12.1	13.2	6.0	6.4	6.3	7.1	7.0	8.4
	MIN. LENGTH	0	10.1	10.9	9.3	8.5	9.5	3.8	3.1	3.4	5.0	5.4	8.4
	MAX. LENGTH	0	10.1	31.4	10.0	26.3	26.3	27.7	16.9	16.2	18.3	17.9	8.4
American shad	TOTAL ANAL.	0	0	0	0	0	2	49	66	18	223	3	1
	MEAN LENGTH	0	0	0	0	0	11.5	5.3	5.8	6.8	8.0	8.1	8.5
	MIN. LENGTH	0	0	0	0	0	11.3	3.7	4.7	4.4	5.2	7.8	8.5
	MAX. LENGTH	0	0	0	0	0	11.7	15.0	19.5	9.3	13.6	8.5	8.5
Atlantic tomcod	TOTAL ANAL.	153	5	0	0	7	20	33	100	7	0	0	2
	MEAN LENGTH	14.2	14.4	0	0	4.2	6.8	7.8	8.5	8.2	0	0	11.9
	MIN. LENGTH	11.2	11.0	0	0	3.2	5.6	5.5	6.2	7.0	0	0	11.1
	MAX. LENGTH	23.2	20.3	0	0	6.2	9.5	19.1	18.9	8.7	0	0	12.6
Bay anchovy	TOTAL ANAL.	0	0	0	0	0	0	24	299	182	427	0	0
	MEAN LENGTH	0	0	0	0	0	0	7.9	5.5	4.6	5.7	0	0
	MIN. LENGTH	0	0	0	0	0	0	7.0	2.6	3.3	4.0	0	0
	MAX. LENGTH	0	0	0	0	0	0	8.9	9.7	8.8	9.9	0	0
Blueback herring	TOTAL ANAL.	0	0	0	0	42	27	24	149	173	368	49	1
	MEAN LENGTH	0	0	0	0	9.7	10.1	8.9	5.1	5.1	5.7	7.1	7.0
	MIN. LENGTH	0	0	0	0	6.7	8.2	3.5	3.9	3.9	4.2	5.5	7.0
	MAX. LENGTH	0	0	0	0	29.4	13.3	13.7	13.1	6.6	16.5	12.9	7.0
Brown bullhead	TOTAL ANAL.	5	0	0	2	15	24	33	190	11	176	30	7
	MEAN LENGTH	16.2	0	0	12.4	11.2	10.8	6.0	5.9	7.4	8.9	8.9	11.6
	MIN. LENGTH	7.9	0	0	7.1	7.0	6.8	3.3	3.7	6.0	6.0	6.7	8.1
	MAX. LENGTH	29.0	0	0	17.6	24.7	28.5	22.2	22.2	8.3	11.9	11.7	26.3
Gizzard shad	TOTAL ANAL.	72	2	0	0	0	0	18	89	0	121	48	203
	MEAN LENGTH	18.9	46.9	0	0	0	0	5.6	6.0	0	9.4	10.6	12.4
	MIN. LENGTH	11.2	45.7	0	0	0	0	4.6	4.7	0	6.8	6.2	6.4
	MAX. LENGTH	47.3	48.0	0	0	0	0	7.4	8.2	0	15.2	18.6	40.2
Pumpkinseed	TOTAL ANAL.	22	3	2	1	25	38	1	2	0	258	36	6
	MEAN LENGTH	12.6	13.1	13.1	12.7	12.9	10.9	12.2	10.3	0	6.3	6.9	9.2
	MIN. LENGTH	4.3	9.7	13.1	12.7	9.7	7.0	12.2	8.7	0	3.9	3.9	6.0
	MAX. LENGTH	18.2	15.7	13.1	12.7	17.9	14.9	12.2	11.9	0	15.1	8.8	14.9
Spottail shiner	TOTAL ANAL.	129	96	42	81	90	118	8	36	12	156	71	77
	MEAN LENGTH	8.4	8.5	7.5	7.7	8.0	8.7	8.6	5.3	6.4	7.0	7.7	8.7
	MIN. LENGTH	4.8	4.7	4.6	4.8	5.2	5.8	3.3	3.6	4.2	5.0	5.7	5.5
	MAX. LENGTH	12.0	11.5	12.4	12.5	12.1	12.6	11.2	11.2	10.6	11.6	10.5	11.6
Striped bass	TOTAL ANAL.	0	1	0	0	1	3	112	205	68	291	118	117
	MEAN LENGTH	0	13.6	0	0	7.7	9.4	4.1	4.6	6.3	7.0	7.2	7.7
	MIN. LENGTH	0	13.6	0	0	7.7	7.0	2.2	2.3	3.4	3.7	5.1	5.5
	MAX. LENGTH	0	13.6	0	0	7.7	12.6	15.5	14.7	10.6	12.4	9.9	10.4
White perch	TOTAL ANAL.	30	14	13	79	101	294	145	223	51	423	338	192
	MEAN LENGTH	11.7	10.8	12.4	10.1	8.6	11.5	9.4	5.8	6.6	8.0	7.6	7.7
	MIN. LENGTH	4.5	5.6	7.0	6.4	4.8	5.5	2.3	2.2	2.8	4.8	4.8	5.0
	MAX. LENGTH	21.3	16.9	18.7	18.2	21.9	25.6	18.7	20.8	15.4	18.7	17.3	17.2
Blue crab	TOTAL ANAL.	0	0	0	0	0	27	91	364	300	402	353	1
	MEAN LENGTH	0	0	0	0	0	6.2	8.5	5.5	5.0	5.5	5.2	3.9
	MIN. LENGTH	0	0	0	0	0	1.2	3.6	0.9	2.0	0.9	1.4	3.9
	MAX. LENGTH	0	0	0	0	0	13.8	16.1	16.9	18.2	17.0	8.8	3.9

[a]Lengths are in centimeters.

White perch, the third most abundant species collected at Roseton in 1997, was the most abundant species in May, June, November, and December, when 2,108 of the year's total of 6,755 were collected (Table 6-5). Young-of-the-year white perch were first impinged on collection days in July, and this was the most abundant age group impinged during the year (Table 6-7, Appendix Table B-1.11).

6.3.1.2 Danskammer Point Generating Station

Fifty-three 24-hr impingement sampling events in 1997 at Danskammer Point resulted in the collection of 51,489 fish (Table 6-8). This total count was 23.5% higher than the number of fish collected in 1996 and was the eleventh highest in the 24-year study (Appendix Table A-2).

The most abundant fish species collected at Danskammer Point in 1997 was white perch, with 15,403 individuals representing 29.9% of the total abundance (Table 6-8, Figure 6-3). The second most abundant species was striped bass (6,644 or 12.9%) and third was gizzard shad (5,690 or 11.1%). The total for striped bass was higher than in 1996 by a factor of 3.9 and the total for gizzard shad was 33.3% higher than in 1996. The ten most abundant species collected at Danskammer Point represented 93.0% of the total abundance in 1997.

The 1997 monthly impingement count at Danskammer Point was highest in August (Table 6-9, Figure 6-4). The month with the lowest total was February, and counts were generally higher in the second half of the year. White perch was numerically dominant in seven of the twelve months, Atlantic tomcod was dominant in January through March, bay anchovy was dominant in August, and striped bass was dominant in September (Table 6-9).

White perch also exhibited the highest biomass impinged on collection days at Danskammer Point in 1997, contributing 32.7% of the total biomass of 677.1 kg collected for the year (Table 6-8, Figure 6-3). The next four dominant fish in decreasing order of contribution to the total biomass collected at Danskammer Point in 1997 were gizzard shad (27.4%), Atlantic tomcod (11.2%), white catfish (4.6%) and striped bass (4.3%) (Table 6-8, Figure 6-3). The monthly biomass trends for 1997 exhibited strong peaks in January, June, and December

TABLE 6-8. ABUNDANCE, BIOMASS, AND PERCENT COMPOSITION OF THE TOP TEN FISH SPECIES AT DANSKAMMER POINT GENERATING STATION, 1997.

	ABUNDANCE	PERCENT OF TOTAL
White perch	15403	29.9
Striped bass	6644	12.9
Gizzard shad	5690	11.1
Bay anchovy	5237	10.2
Atlantic tomcod	3663	7.1
Alewife	3478	6.8
Blueback herring	2310	4.5
Brown bullhead	2208	4.3
Spottail shiner	2015	3.9
American shad	1250	2.4
Others	3591	7.0
TOTAL	51489	100.0

	BIOMASS (KG)	PERCENT OF TOTAL
White perch	221.63	32.7
Gizzard shad	185.50	27.4
Atlantic tomcod	75.73	11.2
White catfish	31.22	4.6
Striped bass	28.79	4.3
Alewife	24.48	3.6
Pumpkinseed	16.47	2.4
Golden shiner	16.40	2.4
Brown bullhead	13.87	2.0
Spottail shiner	12.19	1.8
Others	50.82	7.5
TOTAL	677.10	100.0

(Figure 6-4). These peaks reflect the dominance of large gizzard shad in January and December and white perch in June (Table 6-10). The month with the lowest biomass in impingement collections was April, with 17.2 kg (2.5% of the 1997 total).

White perch, the most abundant species at Danskammer Point in 1997, was present in impingement collections during every month of the year, with its highest abundance occurring in October (Table 6-9). White perch was the species accounting for the most biomass in every month from April through November (Table 6-10). Young-of-the-year white perch were first impinged on collection days in July, and were the dominant age group in August through December (Table 6-11, Appendix Table B-2.10).

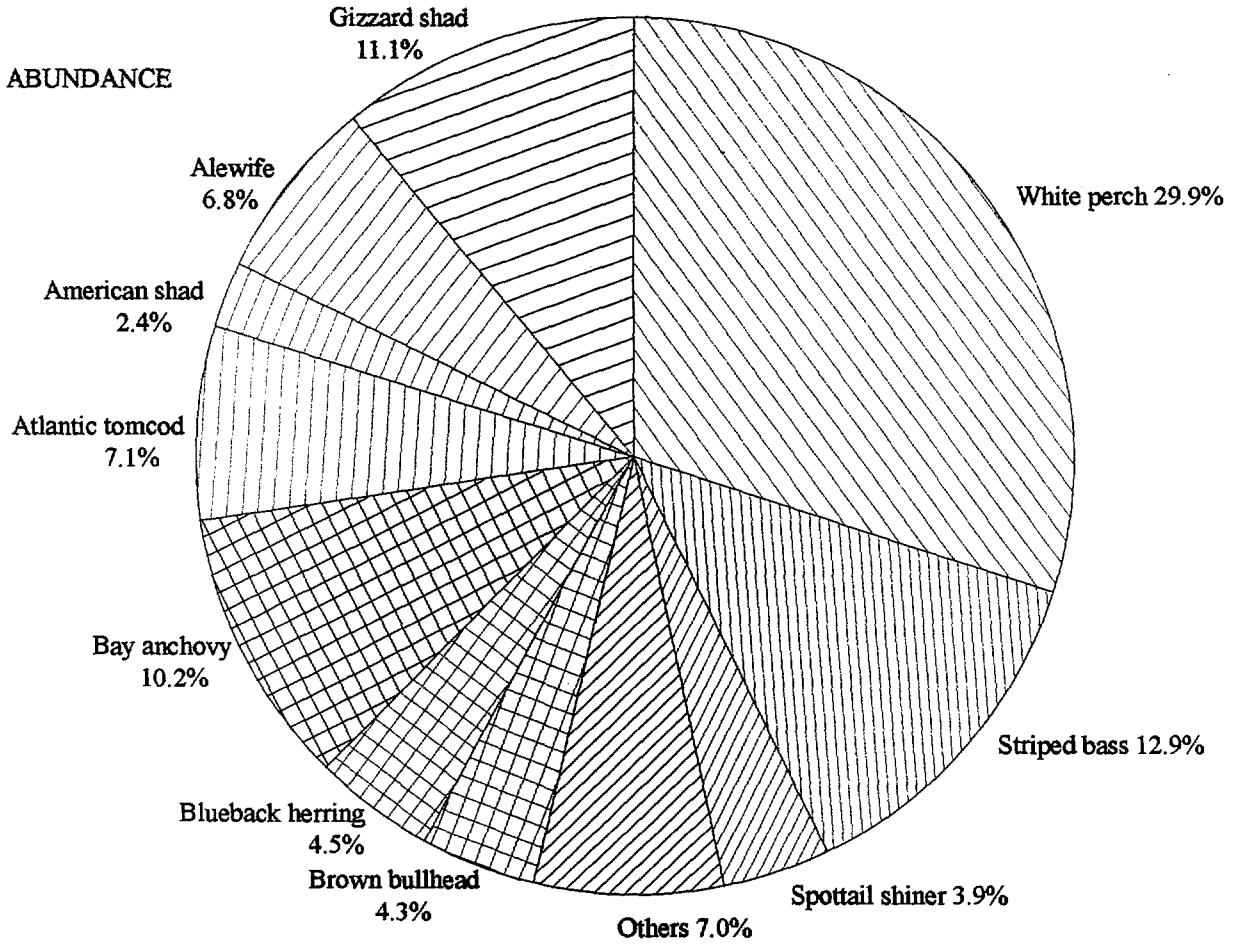
Striped bass, the second most abundant species collected in 1997 at Danskammer Point, was also present in impingement collections during all 12 months of 1997. This species was most abundant during July through December and had its greatest biomass in that same period (Tables 6-9, 6-10). Yearling and adult striped bass were primarily collected during May through August, and young-of-the-year were first impinged on collection days in July, becoming the dominant age class during July through December (Table 6-11, Appendix Table B-2.9).

Gizzard shad, the species ranking third in abundance in 1997 at Danskammer Point, were impinged during every month but June. They were the most abundant in July and August, and moderately abundant in the fall and winter months. Gizzard shad had the greatest biomass impinged of any species in January, February, and December (Table 6-10). Young-of-the-year were the most abundant life stage during July through November, and adults were primarily present in January and December (Table 6-11, Appendix Table B-2.7).

6.3.2 Invertebrates

6.3.2.1 Roseton Generating Station

Three invertebrate taxa (blue crab, mud crab, and crayfish) were identified and counted during the 1997 impingement collections at Roseton (Table 6-12). The total number of invertebrates collected at Roseton in 1997 was 11,980. In 1997, at least one of the three



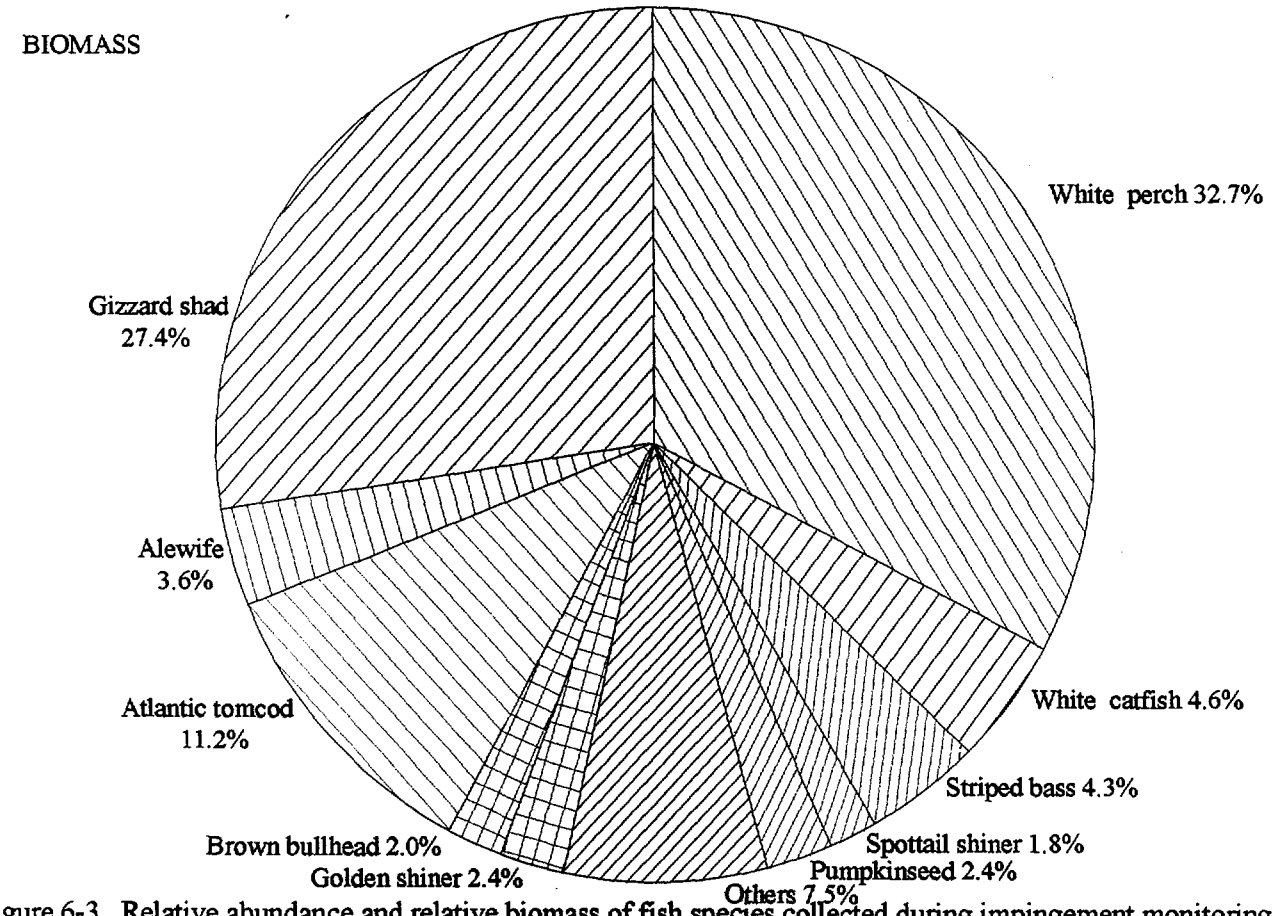


Figure 6-3. Relative abundance and relative biomass of fish species collected during impingement monitoring, Danskammer Point Generating Station, 1997.

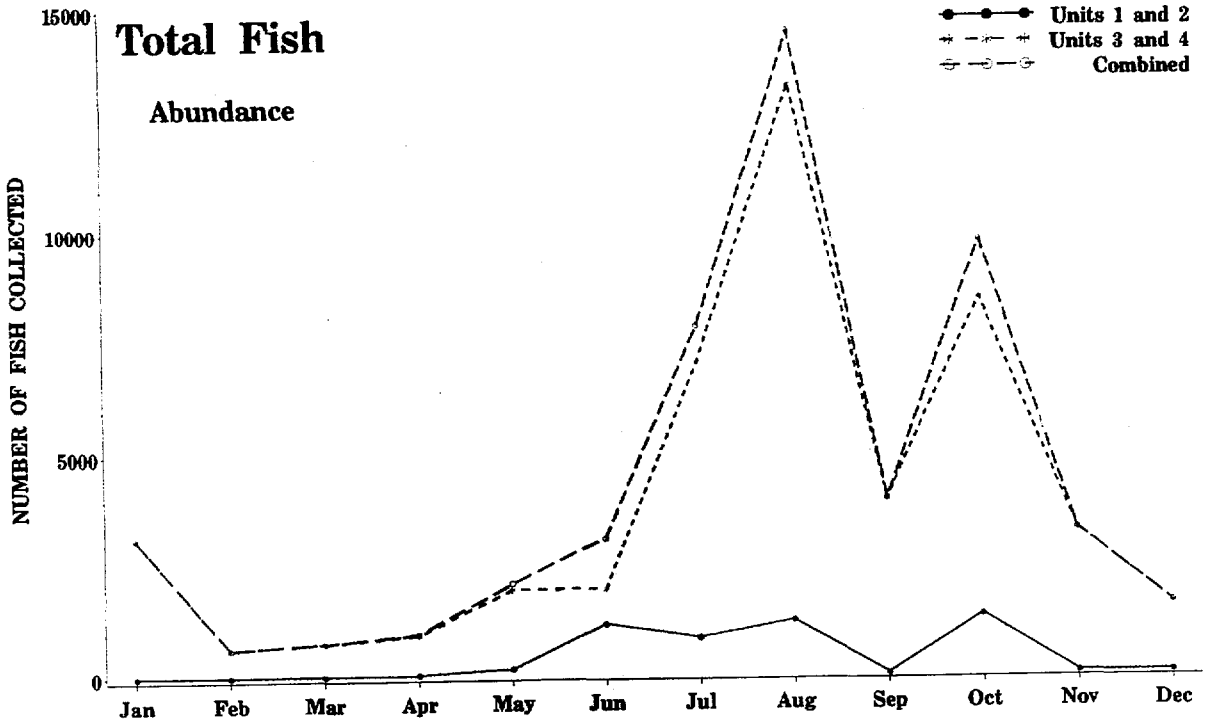
ABLE 6-9. MONTHLY COUNT AND PERCENT COMPOSITION OF FISH SPECIES IN IMPINGEMENT COLLECTIONS, DANSKAMMER POINT GENERATING STATION, 1997.

	JAN		FEB		MAR		APR		MAY		JUN	
SPECIES	NO.	PCNT	NO.	PCNT	NO.	PCNT	NO.	PCNT	NO.	PCNT	NO.	PCNT
Alewife			2	0.3	9	1.2			42	2.0	44	1.4
American eel	2	0.1			2	0.3	10	1.1	10	0.5	7	0.2
American shad									1	<0.1	4	0.1
Atlantic menhaden												
Atlantic sturgeon												
Atlantic tomcod	2163	69.3	314	50.5	370	49.8	36	3.8	10	0.5	120	3.9
Banded killifish	4	0.1	3	0.5	1	0.1	1	0.1	1	<0.1	3	0.1
Bay anchovy												
Black crappie	5	0.2	2	0.3	2	0.3	1	0.1	2	0.1		
Blueback herring							2	0.2	42	2.0	82	2.7
Bluefish												
Bluegill	2	0.1	2	0.3			2	0.2	6	0.3	3	0.1
Brown bullhead	10	0.3	7	1.1	2	0.3	12	1.3	52	2.5	23	0.7
Brown trout											1	<0.1
Carp and minnow family												
Central mudminnow							1	0.1				
Channel catfish	89	2.9	35	5.6	42	5.7	45	4.8	24	1.2	15	0.5
Common carp	1	<0.1	3	0.5							1	<0.1
Eastern silvery minnow			1	0.2								
Emerald shiner	1	<0.1	1	0.2								
Fallfish					1	0.1						
Fathead minnow							2	0.2				
Fourspine stickleback					1	0.1						
Freshwater drum	3	0.1					2	0.2	1	<0.1		
Gizzard shad	352	11.3	22	3.5	4	0.5	1	0.1	1	<0.1		
Golden shiner	190	6.1	83	13.3	27	3.6	20	2.1	54	2.6	33	1.1
Goldfish	12	0.4	1	0.2	2	0.3	3	0.3	6	0.3	2	0.1
Herring family												
Hickory shad												
Hogchoker							2	0.2	43	2.1	13	0.4
Kokanee	1	<0.1										
Largemouth bass	1	<0.1										
Logperch											1	<0.1
Morone species												
Mummichog												
Northern hog sucker									1	<0.1		
Pumpkinseed	9	0.3	8	1.3	4	0.5	8	0.8	193	9.3	120	3.9
Rainbow smelt												
Redbreast sunfish									3	0.1	8	0.3
Rock bass							1	0.1	1	<0.1	1	<0.1
Spottail shiner	144	4.6	72	11.6	65	8.7	108	11.4	373	18.0	587	19.0
Striped bass	5	0.2	1	0.2	1	0.1	1	0.1	24	1.2	94	3.0
Sunfish family												
Tessellated darter					2	0.3	15	1.6	13	0.6	5	0.2
Threespine stickleback	1	<0.1	1	0.2	1	0.1						
Weakfish												
White catfish	9	0.3	7	1.1	14	1.9	46	4.9	83	4.0	52	1.7
White perch	86	2.8	48	7.7	180	24.2	604	63.8	1034	49.9	1861	60.3
Yellow perch	31	1.0	9	1.4	13	1.7	23	2.4	51	2.5	6	0.2
TOTAL	3121	100.0	622	100.0	743	100.0	946	100.0	2071	100.0	3086	100.0

(CONTINUED)

TABLE 6-9. (CONTINUED)

SPECIES	JUL NO.	JUL PCNT	AUG NO.	AUG PCNT	SEP NO.	SEP PCNT	OCT NO.	OCT PCNT	NOV NO.	NOV PCNT	DEC NO.	DEC PCNT
Alewife	706	9.0	677	4.7	588	14.8	1341	13.7	69	2.1		
American eel	13	0.2	7	<0.1	2	0.1	3	<0.1	4	0.1		
American shad	678	8.6	108	0.7	107	2.7	327	3.3	25	0.8		
Atlantic menhaden			3	<0.1	5	0.1						
Atlantic sturgeon	1	<0.1										
Atlantic tomcod	274	3.5	255	1.8	54	1.4	27	0.3	16	0.5	24	1.
Banded killifish	1	<0.1					2	<0.1				
Bay anchovy	411	5.2	4042	27.9	606	15.3	177	1.8	1	<0.1		
Black crappie							11	0.1	5	0.2	6	0.
Blueback herring	73	0.9	128	0.9	207	5.2	1709	17.5	67	2.1		
Bluefish	67	0.9	123	0.8	37	0.9						
Bluegill	4	0.1			9	0.2	4	<0.1	12	0.4	4	0.
Brown bullhead	394	5.0	1356	9.4	107	2.7	212	2.2	30	0.9	3	0.
Brown trout												
Carp and minnow family											1	0.
Central mudminnow												
Channel catfish	41	0.5	186	1.3	49	1.2	16	0.2	11	0.3	61	3.
Common carp	1	<0.1					3	<0.1	2	0.1	3	0.
Eastern silvery minnow												
Emerald shiner	1	<0.1										
Fallfish												
Fathead minnow												
Fourspine stickleback											5	0.
Freshwater drum									2	0.1	2	0.
Gizzard shad	1669	21.2	2526	17.4	26	0.7	478	4.9	113	3.5	498	31.
Golden shiner	3	<0.1	1	<0.1					10	0.3	29	1.
Goldfish	1	<0.1							2	0.1	1	0.
Herring family	34	0.4	5	<0.1								
Hickory shad	1	<0.1					1	<0.1				
Hogchoker	46	0.6	63	0.4	43	1.1	5	0.1	4	0.1		
Kokanee												
Largemouth bass	1	<0.1	3	<0.1			2	<0.1	15	0.5	6	0.4
Logperch												
Morone species	5	0.1										
Mummichog							1	<0.1				
Northern hog sucker												
Pumpkinseed	21	0.3	2	<0.1	117	3.0	335	3.4	69	2.1	12	0.8
Rainbow smelt	1	<0.1										
Redbreast sunfish	3	<0.1	1	<0.1	1	<0.1	2	<0.1				
Rock bass							1	<0.1				
Spottail shiner	278	3.5	105	0.7	11	0.3	78	0.8	78	2.4	116	7.4
Striped bass	962	12.2	3172	21.9	1035	26.1	819	8.4	280	8.6	250	15.9
Sunfish family							1	<0.1	1	<0.1		
Tessellated darter	7	0.1	1	<0.1	2	0.1	7	0.1	3	0.1	2	0.1
Threespine stickleback												
Weakfish	4	0.1	127	0.9								
White catfish	85	1.1	56	0.4	41	1.0	101	1.0	16	0.5	5	0.3
White perch	2067	26.3	1542	10.6	918	23.2	4112	42.1	2413	74.3	538	34.3
Yellow perch	2	<0.1									2	0.1
TOTAL	7855	100.0	14489	100.0	3965	100.0	9775	100.0	3248	100.0	1568	100.0



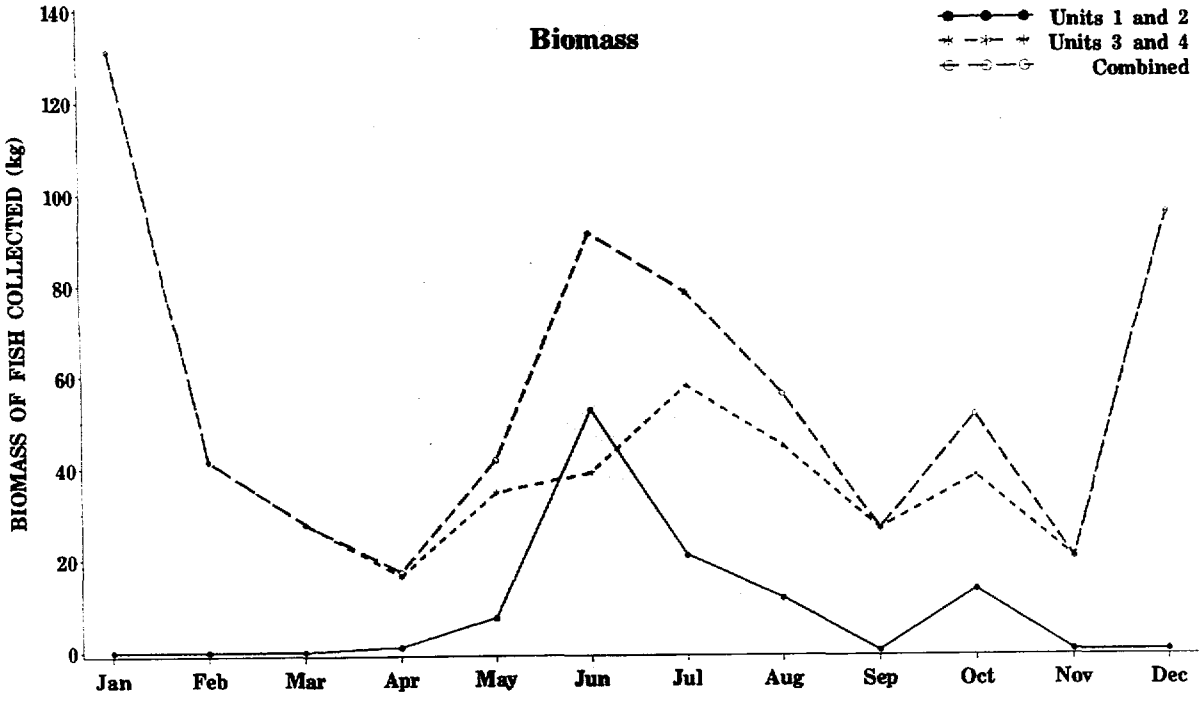


Figure 6–4. Monthly impingement abundance and biomass, Danskammer Point Generating Station, 1997.

TABLE 6-10. MONTHLY BIOMASS AND PERCENT COMPOSITION OF FISH SPECIES IN IMPINGEMENT COLLECTIONS, DANSKAMMER POINT GENERATING STATION, 1997.

	JAN		FEB		MAR		APR		MAY		JUN	
SPECIES	GM.	PCNT	GM.	PCNT	GM.	PCNT	GM.	PCNT	GM.	PCNT	GM.	PCNT
Alewife			13	<0.1	1187	4.3			2977	7.1	2357	2.6
American eel	139	0.1			231	0.8	214	1.2	822	2.0	381	0.4
American shad									12	<0.1	63	0.1
Atlantic menhaden												
Atlantic sturgeon												
Atlantic tomcod	52693	40.2	8034	19.3	9592	34.6	727	4.2	57	0.1	423	0.5
Banded killifish	24	<0.1	19	<0.1	12	<0.1	9	0.1	2	<0.1	20	<0.1
Bay anchovy												
Black crappie	452	0.3	186	0.4	183	0.7	2	<0.1	135	0.3		
Blueback herring							7	<0.1	563	1.4	3542	3.9
Bluefish												
Bluegill	139	0.1	267	0.6			12	0.1	394	0.9	385	0.4
Brown bullhead	1256	1.0	1130	2.7	328	1.2	294	1.7	482	1.2	2067	2.3
Brown trout											19	<0.1
Carp and minnow family												
Central mudminnow							4	<0.1				
Channel catfish	585	0.4	215	0.5	281	1.0	245	1.4	238	0.6	416	0.5
Common carp	344	0.3	168	0.4							847	0.9
Eastern silvery minnow			7	<0.1								
Emerald shiner	6	<0.1	5	<0.1								
Fallfish					11	<0.1						
Fathead minnow							6	<0.1				
Fourspine stickleback					0	<0.1						
Freshwater drum	41	<0.1					219	1.3	19	<0.1		
Gizzard shad	56058	42.7	23704	57.1	1503	5.4	561	3.3	778	1.9		
Golden shiner	7842	6.0	2507	6.0	1185	4.3	719	4.2	1704	4.1	1080	1.2
Goldfish	230	0.2	233	0.6	397	1.4	413	2.4	1123	2.7	143	0.2
Herring family												
Hickory shad												
Hogchoker							32	0.2	487	1.2	14	<0.1
Kokanee	257	0.2										
Largemouth bass	32	<0.1										
Logperch											11	<0.1
Morone species												
Mummichog												
Northern hog sucker									91	0.2		
Pumpkinseed	250	0.2	279	0.7	128	0.5	223	1.3	7335	17.6	3696	4.1
Rainbow smelt												
Redbreast sunfish									135	0.3	445	0.5
Rock bass							27	0.2	27	0.1	136	0.1
Spottail shiner	948	0.7	508	1.2	431	1.6	684	4.0	2467	5.9	3465	3.8
Striped bass	1287	1.0	920	2.2	316	1.1	17	0.1	222	0.5	1831	2.0
Sunfish family												
Tessellated darter					5	<0.1	53	0.3	41	0.1	10	<0.1
Threespine stickleback	2	<0.1	3	<0.1	2	<0.1						
Weakfish												
White catfish	3040	2.3	890	2.1	5164	18.6	1967	11.4	1086	2.6	5197	5.7
White perch	3619	2.8	2015	4.9	5585	20.1	10105	58.7	18146	43.6	64189	70.5
Yellow perch	1902	1.5	438	1.1	1206	4.3	666	3.9	2293	5.5	343	0.4
TOTAL (KG)	131.1	100.0	41.5	100.0	27.7	100.0	17.2	100.0	41.6	100.0	91.1	100.0

(CONTINUED)

TABLE 6-10. (CONTINUED)

	JUL		AUG		SEP		OCT		NOV		DEC	
SPECIES	GM.	PCNT	GM.	PCNT	GM.	PCNT	GM.	PCNT	GM.	PCNT	GM.	P
Alewife	2509	3.2	3009	5.4	2476	9.3	9614	18.8	340	1.7		
American eel	1158	1.5	279	0.5	36	0.1	194	0.4	373	1.9		
American shad	1132	1.4	283	0.5	362	1.4	1789	3.5	106	0.5		
Atlantic menhaden			453	0.8	18	0.1						
Atlantic sturgeon	4	<0.1										
Atlantic tomcod	1386	1.8	1238	2.2	364	1.4	263	0.5	242	1.2	711	(
Banded killifish	3	<0.1					10	<0.1				
Bay anchovy	957	1.2	2145	3.8	580	2.2	177	0.3	1	<0.1		
Black crappie							53	0.1	20	0.1	275	(
Blueback herring	451	0.6	626	1.1	459	1.7	2683	5.2	102	0.5		
Bluefish	929	1.2	2802	5.0	797	3.0						
Bluegill	227	0.3			170	0.6	85	0.2	48	0.2	379	(
Brown bullhead	1468	1.9	4321	7.8	841	3.2	1287	2.5	364	1.8	28	<(
Brown trout												
Carp and minnow family											27	<(
Central mudminnow												
Channel catfish	85	0.1	616	1.1	397	1.5	116	0.2	115	0.6	547	(
Common carp	911	1.2					58	0.1	13	0.1	99	(
Eastern silvery minnow												
Emerald shiner	3	<0.1										
Fallfish												
Fathead minnow												
Fourspine stickleback											20	<(
Freshwater drum									32	0.2	35	<(
Gizzard shad	4068	5.2	6882	12.3	257	1.0	3324	6.5	1827	9.2	86541	9(
Golden shiner	87	0.1	38	0.1					255	1.3	983	1
Goldfish	344	0.4							27	0.1	14	<(
Herring family	19	<0.1	4	<0.1								
Hickory shad	219	0.3					200	0.4				
Hogchoker	158	0.2	713	1.3	485	1.8	50	0.1	65	0.3		
Kokanee												
Largemouth bass	1	<0.1	23	<0.1			142	0.3	330	1.7	69	0
Logperch												
Morone species	0	<0.1										
Mummichog							3	<0.1				
Northern hog sucker												
Pumpkinseed	829	1.1	19	<0.1	1001	3.8	1892	3.7	524	2.6	297	0
Rainbow smelt	4	<0.1										
Redbreast sunfish	105	0.1	69	0.1	64	0.2	4	<0.1				
Rock bass							54	0.1				
Spottail shiner	1714	2.2	758	1.4	92	0.3	307	0.6	290	1.5	530	0
Striped bass	3159	4.0	9965	17.9	4515	17.0	4073	8.0	1301	6.5	1180	1
Sunfish family							1	<0.1	1	<0.1		
Tessellated darter	14	<0.1	0	<0.1	6	<0.1	16	<0.1	5	<0.1	8	<0
Threespine stickleback												
Weakfish	13	<0.1	720	1.3								
White catfish	5690	7.3	2331	4.2	4204	15.8	1293	2.5	271	1.4	88	C
White perch	50151	64.2	18453	33.1	9406	35.5	23463	45.9	13310	66.7	3189	[illegible]
Yellow perch	302	0.4									242	C
TOTAL (KG)	78.1	100.0	55.7	100.0	26.5	100.0	51.2	100.0	20.0	100.0	95.3	10C

TABLE 6-11. MONTHLY SUMMARY OF LENGTH DATA FOR SELECTED IMPINGED SPECIES, DANSKAMMER POINT GENERATING STATION, 1997.[a]

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Alewife	TOTAL ANAL.	0	2	9	0	42	43	263	349	316	396	69	0
	MEAN LENGTH	0	9.8	20.1	0	17.8	17.2	7.6	7.9	8.0	9.8	7.9	0
	MIN. LENGTH	0	9.4	9.8	0	7.9	10.0	4.1	4.7	5.0	5.2	5.1	0
	MAX. LENGTH	0	10.2	29.4	0	29.8	29.3	29.1	17.0	26.1	19.8	27.0	0
American shad	TOTAL ANAL.	0	0	0	0	1	4	128	105	102	213	22	0
	MEAN LENGTH	0	0	0	0	12.0	13.1	5.5	6.6	7.5	9.0	8.7	0
	MIN. LENGTH	0	0	0	0	12.0	11.8	3.2	5.0	6.2	6.6	7.3	0
	MAX. LENGTH	0	0	0	0	12.0	14.3	8.5	17.4	19.7	19.9	10.7	0
Atlantic tomcod	TOTAL ANAL.	497	220	214	36	10	101	141	187	51	27	16	23
	MEAN LENGTH	14.7	15.3	16.5	16.4	7.8	7.3	8.3	8.5	8.5	10.4	11.8	13.8
	MIN. LENGTH	10.5	11.0	12.0	12.9	3.0	5.7	6.3	6.2	6.1	7.8	10.3	10.7
	MAX. LENGTH	31.5	29.4	29.4	22.2	18.5	16.4	16.1	19.0	19.2	13.3	14.4	27.5
Bay anchovy	TOTAL ANAL.	0	0	0	0	0	0	163	438	226	148	1	0
	MEAN LENGTH	0	0	0	0	0	0	5.6	5.1	5.6	5.3	5.6	0
	MIN. LENGTH	0	0	0	0	0	0	2.1	2.1	2.9	2.9	5.6	0
	MAX. LENGTH	0	0	0	0	0	0	9.9	10.1	9.7	9.8	5.6	0
Blueback herring	TOTAL ANAL.	0	0	0	2	42	76	65	122	178	289	60	0
	MEAN LENGTH	0	0	0	8.3	10.1	15.9	6.1	7.0	6.4	6.3	6.4	0
	MIN. LENGTH	0	0	0	7.6	7.7	7.8	2.3	2.8	3.7	4.5	5.1	0
	MAX. LENGTH	0	0	0	8.9	29.1	28.5	26.3	25.8	15.9	18.9	8.1	0
Brown bullhead	TOTAL ANAL.	10	7	2	12	52	22	105	336	104	141	30	3
	MEAN LENGTH	20.1	23.0	24.5	10.9	9.0	17.1	6.1	6.4	8.1	8.8	9.5	9.5
	MIN. LENGTH	7.4	9.7	22.6	6.9	6.5	7.7	3.2	4.6	5.6	5.3	7.5	7.9
	MAX. LENGTH	30.1	28.7	26.4	25.2	21.3	28.2	26.8	27.8	25.5	11.6	26.2	10.9
Gizzard shad	TOTAL ANAL.	316	22	4	1	1	0	251	254	26	191	112	456
	MEAN LENGTH	19.3	44.6	25.6	39.4	42.0	0	6.7	7.6	10.1	9.7	11.0	18.0
	MIN. LENGTH	9.0	16.6	16.9	39.4	42.0	0	4.6	4.9	5.3	6.7	6.4	6.2
	MAX. LENGTH	51.4	52.4	47.3	39.4	42.0	0	38.2	45.8	14.8	15.3	43.3	53.9
Spottail shiner	TOTAL ANAL.	144	72	65	108	332	197	165	99	10	78	78	116
	MEAN LENGTH	9.2	9.5	9.3	9.1	9.1	9.4	8.9	9.4	10.1	7.7	7.8	8.1
	MIN. LENGTH	5.3	4.7	5.1	5.2	5.1	5.4	2.8	4.4	8.7	5.5	5.6	4.8
	MAX. LENGTH	13.2	11.8	12.1	12.3	12.5	12.5	11.8	12.1	12.3	11.0	11.6	11.4
Striped bass	TOTAL ANAL.	5	1	1	1	24	94	377	399	333	276	180	149
	MEAN LENGTH	26.1	44.7	32.6	12.8	10.1	11.6	5.5	7.0	7.9	8.0	8.0	8.0
	MIN. LENGTH	9.5	44.7	32.6	12.8	7.1	7.1	1.8	2.4	4.3	4.0	5.1	5.6
	MAX. LENGTH	39.7	44.7	32.6	12.8	14.2	29.0	41.1	20.6	21.9	18.5	14.9	15.6
White perch	TOTAL ANAL.	86	48	171	321	554	606	933	638	405	447	322	199
	MEAN LENGTH	14.0	13.8	12.8	10.5	10.8	13.3	11.2	10.4	10.0	9.3	8.7	8.3
	MIN. LENGTH	6.3	6.2	6.7	5.8	5.2	5.6	1.8	2.0	4.4	5.0	4.8	4.6
	MAX. LENGTH	28.4	22.7	21.0	23.7	30.1	27.7	27.4	26.8	21.6	19.3	18.8	18.9
Blue crab	TOTAL ANAL.	0	0	0	0	0	3	192	378	398	429	252	3
	MEAN LENGTH	0	0	0	0	0	2.3	10.9	5.4	5.4	4.7	4.6	3.8
	MIN. LENGTH	0	0	0	0	0	1.9	3.8	0.6	1.1	0.8	0.8	2.8
	MAX. LENGTH	0	0	0	0	0	2.5	17.1	18.3	17.5	17.7	12.1	4.6

[a]Lengths are in centimeters.

TABLE 6-12. INVERTEBRATE ABUNDANCE AND PERCENT COMPOSITION, ROSETON AND DANSKAMMER POINT GENERATING STATIONS, 1997.

		BLUE CRAB		CRAYFISH		MUD CRAB		TOTAL	
PLANT	MONTH	NO.	%	NO.	%	NO.	%	NO.	%
ROSETON	JAN								
	FEB								
	MAR					1	100.0	1	100.0
	APR					2	100.0	2	100.0
	MAY					1	100.0	1	100.0
	JUN	27	75.0	1	2.8	8	22.2	36	100.0
	JUL	94	94.9	2	2.0	3	3.0	99	100.0
	AUG	3190	99.9	1	0.0	2	0.1	3193	100.0
	SEP	3568	99.5	3	0.1	14	0.4	3585	100.0
	OCT	3587	99.7	1	0.0	9	0.3	3597	100.0
	NOV	1444	98.6			20	1.4	1464	100.0
	DEC	1	50.0			1	50.0	2	100.0
	TOTAL	11911	99.4	8	0.1	61	0.5	11980	100.0
DANSKAMMER	JAN								
	FEB								
	MAR								
	APR			1	3.3	29	96.7	30	100.0
	MAY					34	100.0	34	100.0
	JUN	3	27.3			8	72.7	11	100.0
	JUL	213	92.2	5	2.2	13	5.6	231	100.0
	AUG	5038	99.8	11	0.2	1	0.0	5050	100.0
	SEP	3986	99.6	9	0.2	7	0.2	4002	100.0
	OCT	1045	98.4	1	0.1	16	1.5	1062	100.0
	NOV	580	92.7			46	7.3	626	100.0
	DEC	3	100.0					3	100.0
	TOTAL	10868	98.4	27	0.2	154	1.4	11049	100.0

invertebrate taxa appeared in the impingement collections at Roseton in all months except January and February. The highest monthly impingement count for invertebrates occurred during October with 3,597 individuals, or 30.0% of the total collected in 1997. In 1997 at Roseton, blue crab ranked first among invertebrates in overall abundance with 11,911 individuals (99.4%); mud crabs followed with 61 individuals and crayfish were third, with only eight individuals collected (Table 6-12).

Abundance of blue crab in 1997 ranked third among the 12 years of invertebrate collections (Table 6-13). At Roseton there was a trend of increasing blue crab counts in four of the five years from 1987-1991. This was followed by declines in both 1992 and 1993, increases in 1994 and 1995, an abrupt decrease in 1996, and a sharp increase in 1997.

The blue crab impingement collections at Roseton were dominated by males in a ratio of 3.6:1 (78.1% males, 21.9% females; Table 6-14), which is to be expected due to the tendency for males to be more abundant than females in higher reaches of estuaries where salinity is lower (Hamer 1955, Williams 1984).

6.3.2.2 Danskammer Point Generating Station

A total of 11,049 invertebrates representing three taxa were collected at Danskammer Point in 1997. Blue crab accounted for 10,868 individuals or 98.4% of the total, followed by mud crab (154, 1.4%) and crayfish with 27 individuals (Table 6-12). Blue crab was the dominant species from July through November.

At least one of the three invertebrate taxa appeared in the Danskammer Point impingement collections in every month from April through December in 1997 and were most abundant in August (5,050 or 45.7% of the annual total). Mud crab reached peaks in May (34) and November (46) and crayfish were collected sporadically from April through October (Table 6-12).

The number of blue crabs impinged at Danskammer Point followed a similar pattern among years to the Roseton counts, peaking at 15,944 individuals in 1991 and 9,036 individuals in

TABLE 6-13. MONTHLY BLUE CRAB IMPINGEMENT COUNTS, ROSETON AND DANSKAMMER POINT GENERATING STATIONS, 1986-1997.

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
ROSETON													
1986	0	0	0	0	0	0	0	9	3	3	0	0	15
1987	0	0	0	0	1	0	2	62	119	157	11	0	352
1988	0	0	0	0	2	57	129	388	862	464	69	1	1,972
1989	0	1	0	0	2	783	490	999	1,615	845	196	0	4,931
1990	0	0	0	0	0	31	214	257	235	198	76	2	1,013
1991	0	0	0	0	28	624	1,084	19,180	40,522	4,072	929	0	66,439
1992	0	0	1	0	947	5,147	7,402	6,348	4,758	1,193	111	3	25,910
1993	0	0	0	0	0	5	409	229	374	111	74	2	1,204
1994	0	0	0	0	1	4	40	2,221	1,006	394	337	26	4,029
1995	0	1	0	0	1,617	1,406	4,509	2,926	195	579	92	0	11,325
1996	0	0	0	0	0	11	64	129	38	63	37	1	343
1997	0	0	0	0	0	27	94	3,190	3,568	3,587	1,444	1	11,911
DANSKAMMER POINT													
1986	0	0	0	0	1	0	1	17	15	2	2	0	38
1987	0	0	0	0	2	3	5	40	64	91	29	0	234
1988	0	0	0	0	0	37	287	415	383	783	500	1	2,406
1989	0	0	0	0	1	238	272	640	706	422	312	1	2,592
1990	0	0	0	0	0	7	58	152	123	167	28	0	535
1991	0	0	0	0	0	155	309	2,976	8,361	3,326	810	7	15,944
1992	0	0	0	1	64	871	4,071	2,239	946	791	52	1	9,036
1993	0	2	0	0	0	4	276	297	306	138	73	0	1,096
1994	1	1	0	0	0	6	37	1,442	1,436	213	164	31	3,331
1995	0	0	1	0	287	1,004	2,547	1,571	969	603	361	0	7,343
1996	0	0	0	0	0	7	78	118	125	132	60	0	520
1997	0	0	0	0	0	3	213	5,038	3,986	1,045	580	3	10,868

TABLE 6-14. MONTHLY BLUE CRAB IMPINGEMENT COUNTS BY SEX, ROSETON AND DANSKAMMER POINT GENERATING STATIONS, 1997.[a]

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
ROSETON	SEX													
	MALE						23	79	280	232	305	271	1	1191
	FEMALE						4	12	71	68	96	82		333
	UNKNOWN								13		1			14
	TOTAL						27	91	364	300	402	353	1	1538
DANSKAMMER POINT	SEX													
	MALE						2	174	282	310	311	196	2	1277
	FEMALE						1	18	62	88	115	56	1	341
	UNKNOWN								34		3			37
	TOTAL						3	192	378	398	429	252	3	1655

[a]Sex determinations were done on a subsample of the total impingement count.

1992 (Table 6-13). The blue crab abundance approximately doubled from 1994 to 1995, then decreased by 92.9% from 1995 to 1996 before rebounding to 10,868 in 1997.

The 1997 blue crab population at Danskammer Point was dominated by males (78.9%) in a 3.7:1 ratio (Table 6-14).

6.4 DIEL IMPINGEMENT PATTERNS

The 6-hr impingement sampling intervals during each 24-hr collection period at Roseton and Danskammer Point permitted the data to be grouped into periods characterized as day (0900-1500 hrs), dusk (1500-2100 hrs), night (2100-0300 hrs) and dawn (0300-0900 hrs). Annual impingement counts for two age groups, young-of-the-year and older (yearling through adult), were examined in impingement collections for the four most abundant fish species at each plant to describe diel impingement patterns. Specimens that could not be measured due to damage were excluded from this analysis, because age categories were based on length.

6.4.1 Roseton Generating Station

The four most abundant species in impingement collections at Roseton in 1997 were examined for diel impingement patterns. Blueback herring, bay anchovy, white perch, and alewife accounted for 85.0% of the total abundance in 1997. Diel impingement collection information for Roseton is presented in Figure 6-5.

Blueback herring was the most abundant species in impingement collections at Roseton in 1997. Slightly over 40% of the young-of-the-year blueback herring were collected during the dawn diel period, and nearly as many were collected during night samples. The remainder were nearly all impinged in the dusk period, with very few occurring in day collections. Over 50% of the yearlings and adults were collected during the night, with successively smaller numbers impinged during dawn, dusk, and day collections.

Bay anchovy ranked second in impingement collections at Roseton in 1997. Young-of-the-year and yearling/adult bay anchovy had similar diel impingement patterns. Both age groups

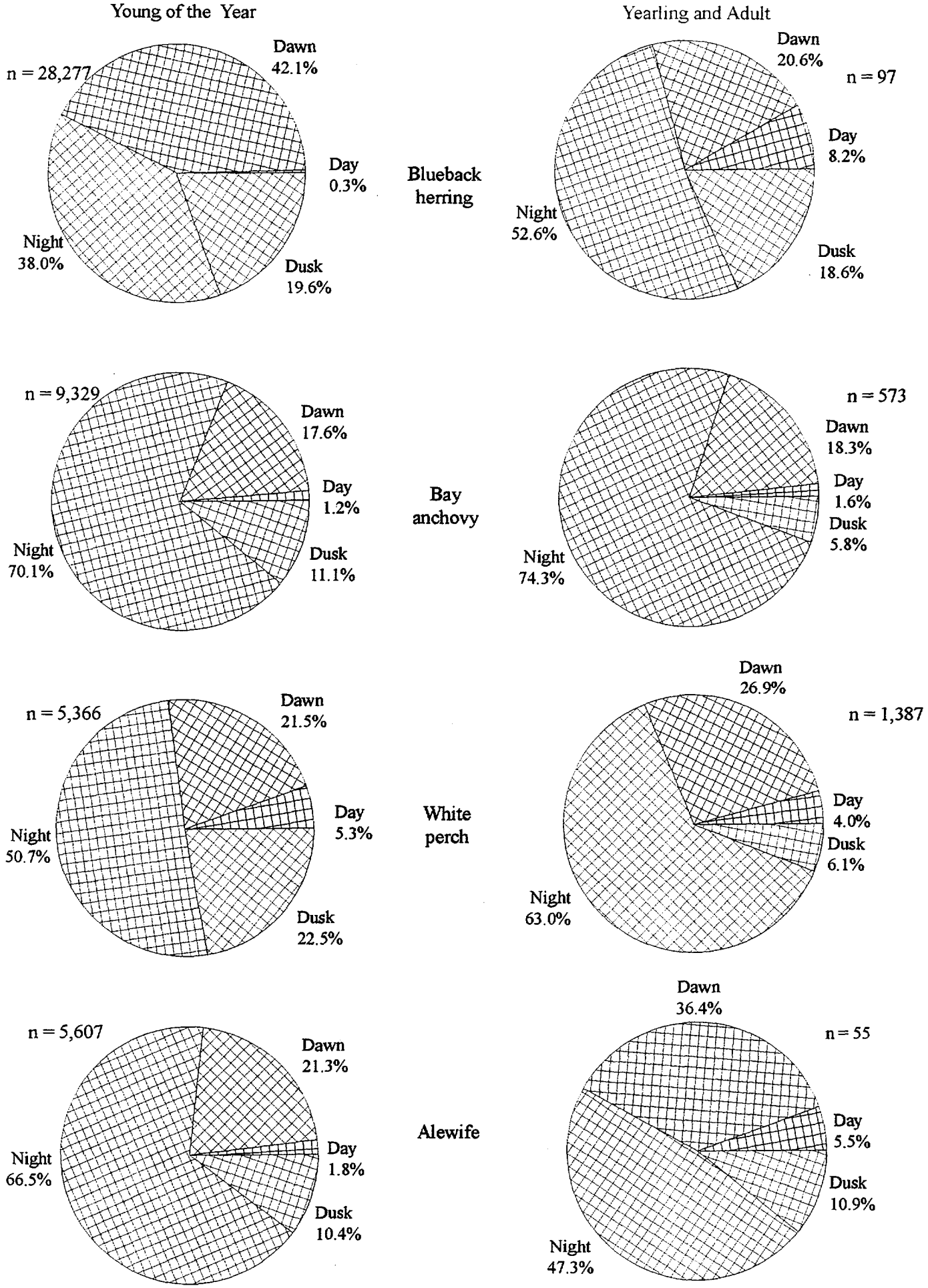


Figure 6-5. Diel collection for the four most abundant species by age class, Roseton Generating Station, 1997.

were most commonly collected in night impingement samples, and least commonly collected in day samples.

White perch was the third most abundant species in impingement collections at Roseton in 1997. Over half of each age group was collected at night, with relatively few collected in the day samples (Figure 6-5). Young-of-the-year white perch were about equally common in dusk and dawn samples, whereas the yearling/adult group was more frequently collected in the dawn sample than in the dusk sample.

Alewife was the fourth most abundant species in impingement collections at Roseton in 1997. The majority of the young-of-the-year appeared in night collections. Yearlings and adult alewife were also most often collected at night, but they were also fairly abundant in dawn impingement samples. Both age groups were least often collected during the day, similar to the other three species.

6.4.2 Danskammer Point Generating Station

The four most abundant species in impingement collections at Danskammer Point Station in 1997 were examined for diel abundance patterns. At Danskammer, white perch, striped bass, gizzard shad, and bay anchovy represented 64.0% of the total abundance in 1997 (Table 6-8, Figure 6-2). Diel impingement collection information for these four species at Danskammer Point is presented by age group in Figure 6-6.

White perch was the most abundant species in impingement collections at Danskammer Point in 1997. The two age classes (young-of-the-year and yearling/adult) were similar in their diel impingement patterns. Between 40 and 45% were collected at night, and most of the others were in dusk or dawn samples (Figure 6-6). During the day diel sampling period, the lowest numbers were collected, between 8 and 12%.

Striped bass was the second most abundant species in impingement collections at Danskammer Point in 1997. Young-of-the-year were most abundant in the night diel period and least abundant in the day period. Yearling and adult striped bass were impinged in approximately

the same diel pattern, except that somewhat more were collected during the day collections than was the case for young-of-the-year fish.

Gizzard shad was the third most abundant species in impingement collections at Danskammer Point in 1997. Nearly two-thirds of the young-of-the-year were collected in night samples, and only 2.4% were collected in day samples. Over 35% of the yearlings and adults were collected at night, with day accounting for the smallest numbers collected.

Bay anchovy ranked fourth in impingement collections at Danskammer Point in 1997. Young-of-the-year, which represented the majority of the year's catch, were most numerous at night (over 65%) and least numerous in the day (only 1%). The yearlings and adults showed a similar pattern.

6.5 IMPINGEMENT PATTERNS FOR SELECTED TAXA

Impingement data for total fish and for selected individual species extrapolated from collection dates to include all dates ("estimated impingement") are used for comparisons among age classes and among years in Section 6.5.1 and for analysis of seasonal patterns in Section 6.5.2. Estimated impingement abundance and biomass are presented in Appendices C and D, respectively, for total fish, selected fish species, and blue crabs on a weekly and monthly basis by plant. Selected fish species included in Appendices C and D for both plants include eight species that have historically been considered key species for this program: alewife, American shad, Atlantic tomcod, bay anchovy, blueback herring, rainbow smelt, striped bass, and white perch. Any fish species that ranked in the top 10 in abundance or biomass collected in 1997 at one of the two plants is included in Appendices C and D for that plant.

6.5.1 Estimated Impingement by Age Class and Comparison to Historical Impingement Rates

Estimated numbers of fish impinged during each month in 1997 are shown for the historically abundant species alewife, American shad, Atlantic tomcod, bay anchovy, blueback herring, spottail shiner, striped bass, and white perch by age class in Table 6-15 (Roseton) and Table 6-16 (Danskammer Point). The monthly totals for all age classes combined (including any that could not be assigned to length class due to damage) are shown in Appendix C. In the

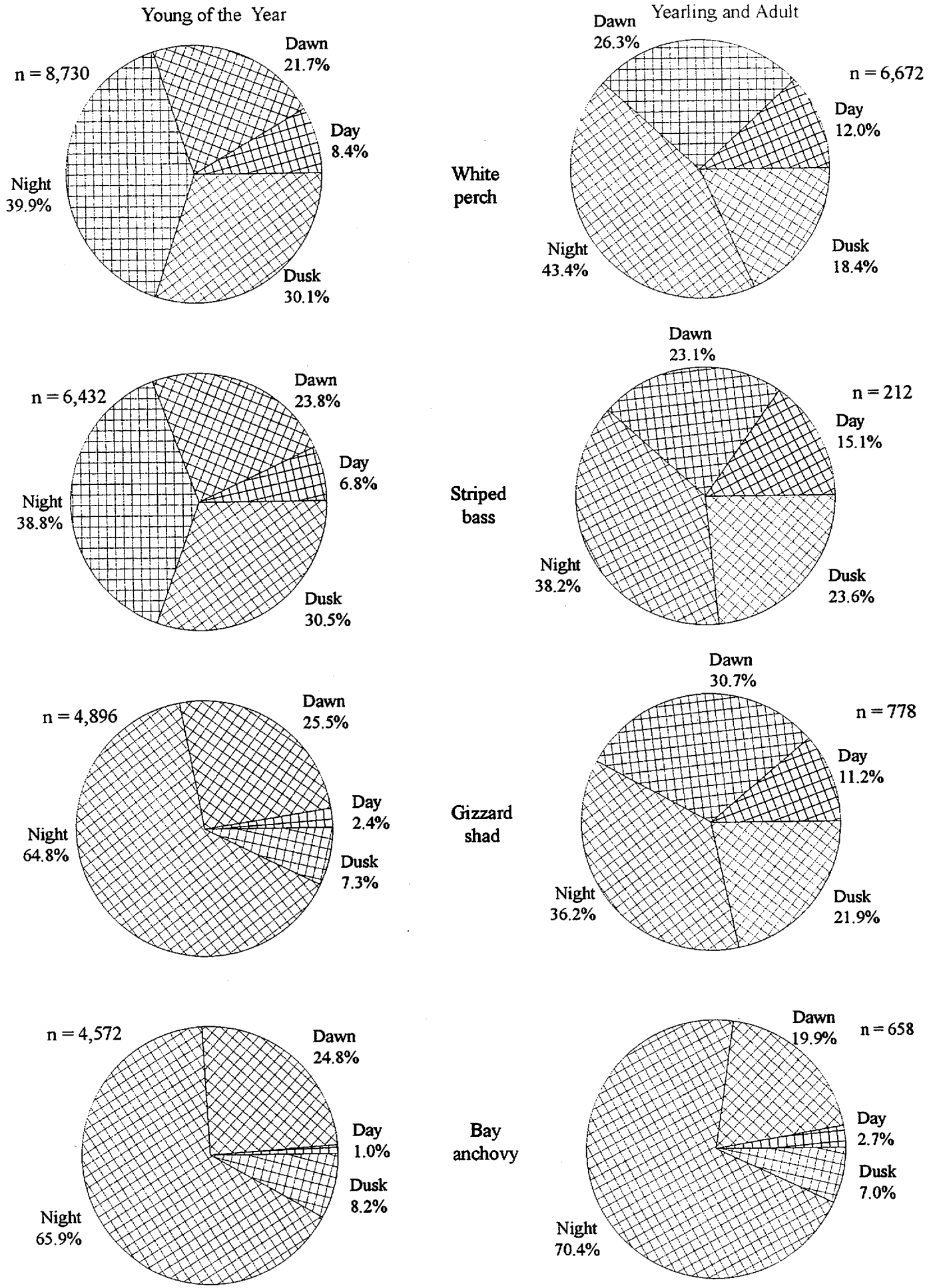


Figure 6-6. Diel collection for the four most abundant species by age class, Danskammer Point Generating Station, 1997.

TABLE 6-15. ESTIMATED MONTHLY IMPINGEMENT BY AGE CLASS FOR SELECTED SPECIES AT ROSETON GENERATING STATION, 1997.

	Alewife			American shad			Atlantic tomcod			Bay anchovy		
	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT
JAN	0	0	0	0	0	0	0	1008	4	0	0	0
FEB	0	9	0	0	0	0	0	35	0	0	0	0
MAR	0	11	21	0	0	0	0	0	0	0	0	0
APR	0	20	0	0	0	0	0	0	0	0	0	0
MAY	0	41	7	0	0	0	24	0	0	0	0	0
JUN	0	87	16	0	19	0	157	0	0	0	0	0
JUL	1005	43	7	395	7	0	232	7	0	0	142	0
AUG	1881	29	0	351	5	0	666	9	0	13646	2316	0
SEP	706	14	0	129	0	0	50	0	0	4082	21	0
OCT	21931	23	0	1350	0	0	0	0	0	31338	397	0
NOV	1309	8	0	23	0	0	0	0	0	0	0	0
DEC	8	0	0	8	0	0	8	0	0	0	0	0
TOTAL	26841	286	50	2256	31	0	1137	1059	4	49067	2876	0

	Blueback herring			Spottail shiner			Striped bass			White perch		
	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT
JAN	0	0	0	0	441	333	0	0	0	0	72	109
FEB	0	0	0	0	405	319	0	5	0	0	59	53
MAR	0	0	0	0	332	115	0	0	0	0	41	94
APR	0	0	0	0	526	225	0	0	0	0	382	279
MAY	0	136	7	0	252	82	0	3	0	0	378	82
JUN	10	210	0	0	1259	0	0	22	0	0	5162	1268
JUL	63	109	0	5	47	0	2371	29	0	124	1421	364
AUG	5074	20	0	153	32	0	6971	5	0	2113	46	73
SEP	4072	0	0	56	27	0	466	0	0	311	27	6
OCT	127606	51	0	571	114	0	2555	0	0	15820	154	91
NOV	376	0	0	437	86	0	940	0	0	6488	135	8
DEC	8	0	0	264	209	0	890	0	0	2304	116	24
TOTAL	137210	527	7	1485	3730	1075	14194	65	0	27160	7995	2449

YOY - YOUNG-OF-THE-YEAR

TABLE 6-16. ESTIMATED MONTHLY IMPINGEMENT BY AGE CLASS FOR SELECTED SPECIES AT DANSKAMMER POINT GENERATING STATION, 1997.

	Alewife			American shad			Atlantic tomcod			Bay anchovy		
	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT
JAN	0	0	0	0	0	0	0	14223	85	0	0	0
FEB	0	14	0	0	0	0	0	2217	65	0	0	0
MAR	0	30	40	0	0	0	0	2721	114	0	0	0
APR	0	0	0	0	0	0	0	289	0	0	0	0
MAY	0	120	74	0	3	0	46	32	0	0	0	0
JUN	0	208	105	0	28	0	865	8	0	0	0	0
JUL	3648	362	7	4329	0	0	1284	7	0	510	1277	0
AUG	4709	433	0	765	14	0	1899	15	0	29394	2207	0
SEP	3845	164	14	725	7	0	363	7	0	3656	492	0
OCT	4811	1141	0	1356	80	0	112	0	0	1369	107	0
NOV	515	0	8	189	0	0	121	0	0	8	0	0
DEC	0	0	0	0	0	0	136	4	0	0	0	0
TOTAL	17528	2473	246	7365	133	0	4826	19522	265	34937	4083	0

	Blueback herring			Spottail shiner			Striped bass			White perch		
	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT	YOY	YEARLING	ADULT
JAN	0	0	0	0	368	500	0	8	23	0	89	438
FEB	0	0	0	0	174	349	0	0	7	0	87	261
MAR	0	0	0	0	201	300	0	0	8	0	282	1092
APR	0	15	0	0	354	435	0	8	0	0	2150	2213
MAY	0	277	7	0	1568	1083	0	145	0	0	5150	3824
JUN	0	368	221	0	4159	0	0	601	79	0	4838	8602
JUL	360	87	14	26	1387	0	4801	385	38	509	5649	6024
AUG	736	212	7	32	769	0	23862	82	7	8149	1002	2063
SEP	1320	96	0	7	69	0	7056	28	14	4995	759	527
OCT	7647	48	0	254	94	0	3695	6	0	16530	618	154
NOV	507	0	0	463	129	0	2121	0	0	17616	538	121
DEC	0	0	0	514	229	0	1806	8	0	3843	140	78
TOTAL	10570	1103	248	1295	9502	2667	43342	1269	175	51641	21304	25397

YOY - YOUNG-OF-THE-YEAR

following sections, percentages by age class refer to the percentages among the total number of those fish that could be assigned to an age class, as presented in Tables 6-15 and 6-16. Annual impingement rates presented graphically for the same eight historically abundant species are for all age classes combined.

6.5.1.1 Alewife

An estimated total number of 27,177 alewife were impinged at Roseton in 1997, and 20,255 at Danskammer Point, of which all 27,177 were classified by life stage at Roseton (Table 6-15) and 20,247 were classified by life stage at Danskammer Point (Table 6-16). During July to December, 99.5% of the estimated alewife impinged at Roseton were young-of-the-year. During January to June, 79.2% were yearlings and the rest were adults. Adults accounted for only 0.2% of the alewife impinged at Roseton over the entire year.

At Danskammer Point the proportion of alewife that were yearlings and adults was greater than at Roseton but otherwise the seasonal patterns were similar, with young-of-the-year dominating the second half of the year. Yearlings accounted for a larger proportion of the alewife impingement (12.2%) than did adults, which accounted for 1.2%. Adults were impinged in larger numbers at Danskammer Point than at Roseton.

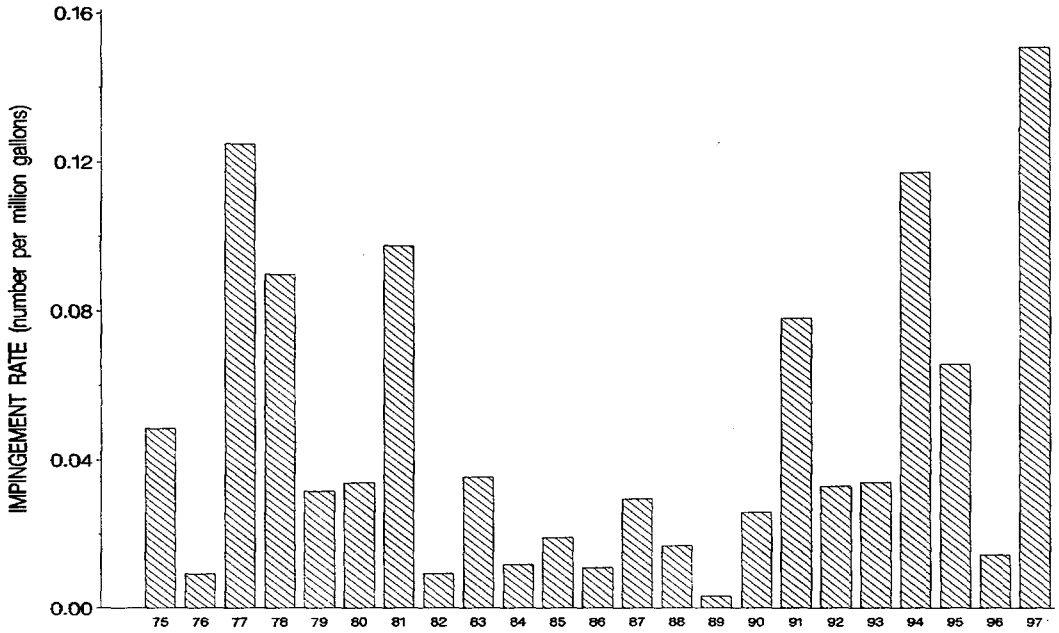
The annual impingement rate for alewife in 1997 at Roseton was the highest during the entire 1975-1997 period of record (Figure 6-7). The Danskammer Point annual alewife impingement rate in 1997 was the eleventh highest for the 24-year period of record.

6.5.1.2 American Shad

The estimated total numbers of American shad impinged in 1997 were 2,287 at Roseton and 7,505 at Danskammer Point, of which all 2,287 were classified by life stage at Roseton (Table 6-15) and 7,498 were classified by life stage at Danskammer Point (Table 6-16). All American shad impinged in 1997 at both plants were young-of-the-year or yearlings. The young-of-the-year shad first were impinged during July at both plants and were present through December at Roseton and through November at Danskammer Point. The greatest numbers were impinged in October at Roseton and in July at Danskammer Point.

Alewife

Roseton



Danskammer Point

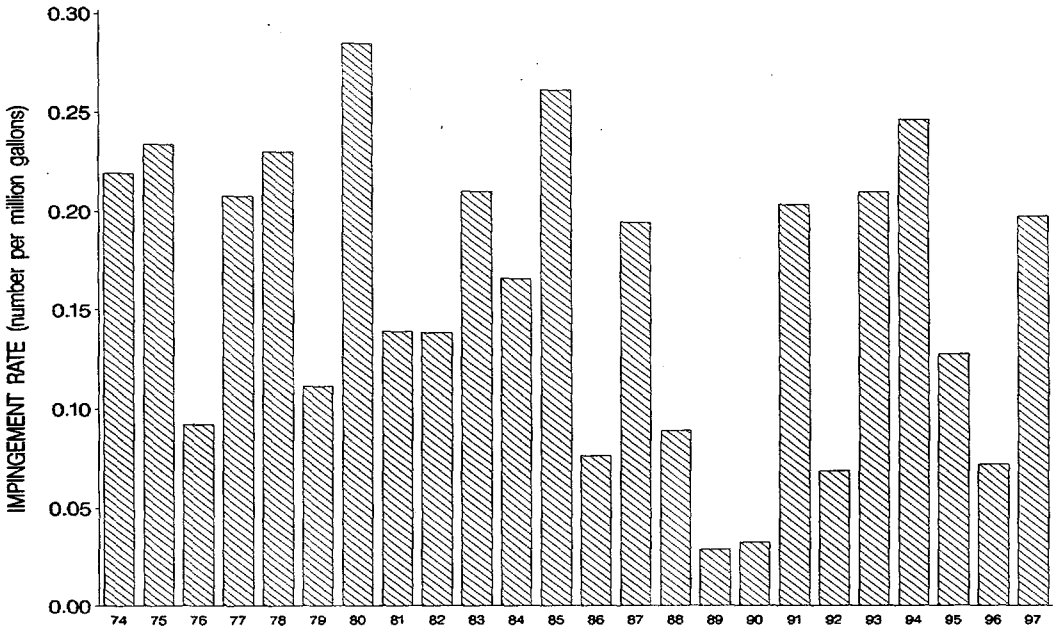


Figure 6-7. Annual impingement rate for alewife at Roseton and Danskammer Point generating stations, 1974-1997.

Compared with previous years' annual impingement rates of American shad, the 1997 rate was the thirteenth highest in 23 years at Roseton, and the seventh highest for the entire 24-year period at Danskammer Point (Figure 6-8).

6.5.1.3 Atlantic Tomcod

Total impingement of Atlantic tomcod during 1997 was estimated at 2,200 fish at Roseton and 24,613 at Danskammer Point, of which all were classified by life stage (Tables 6-15 and 6-16). The predominant life stages were yearling in the early part of the year and young-of-the-year in the summer. Adults were only occasionally impinged. The young-of-the-year Atlantic tomcod first appeared in May at both plants. The highest young-of-the-year impingement occurred in August at each plant. Yearling Atlantic tomcod, which are sexually mature, were impinged in greatest numbers in January at both plants.

Annual mean impingement rate of Atlantic tomcod in 1997 was higher than in most recent years but not as high as in the mid-to-late 1970s (Figure 6-9). The impingement in 1997 was the ninth highest in 23 years at Roseton and the fifth highest in 24 years at Danskammer Point.

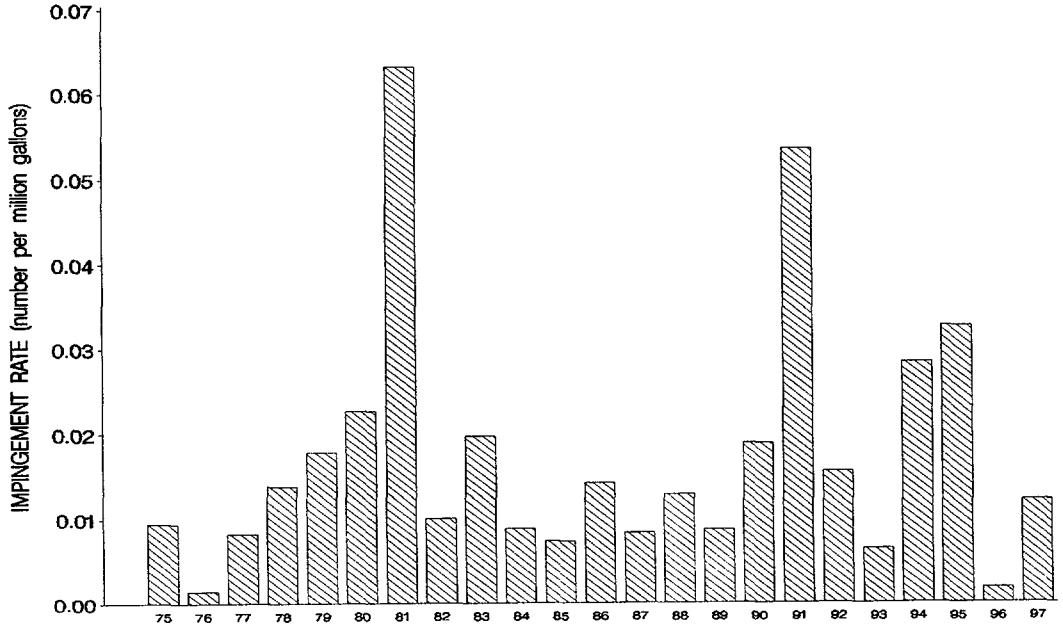
6.5.1.4 Bay Anchovy

The estimated total numbers of bay anchovy impinged during 1997 were 51,969 at Roseton and 39,056 at Danskammer Point, of which 51,943 were classified by life stage at Roseton (Table 6-15) and 39,020 were classified by life stage at Danskammer Point (Table 6-16). At Roseton about 94.5% were young-of-the-year and at Danskammer Point 89.5% were young-of-the-year. The remaining fish at both plants were all yearlings. All of the young-of-the-year bay anchovy impingement was observed during July through October or November, and yearling bay anchovies (which are sexually mature) were generally impinged during the same months as the young-of-the-year.

The annual impingement rates for bay anchovy at Roseton (Figure 6-10) indicate two low years (1975-1976) followed by several moderate years (1977-1984), and then a declining trend

American Shad

Roseton



Danskammer Point

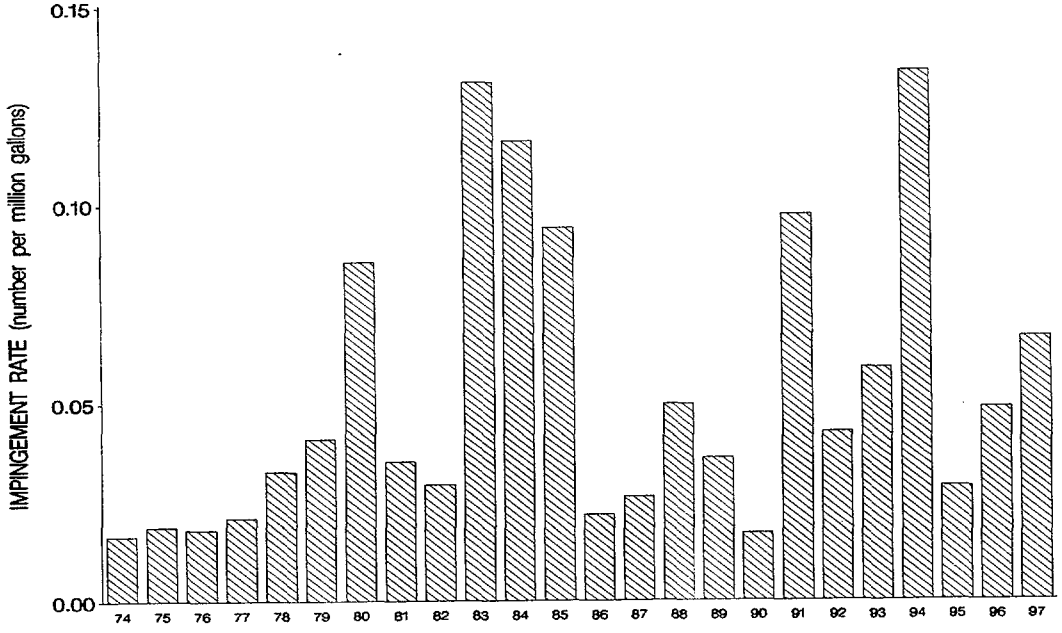
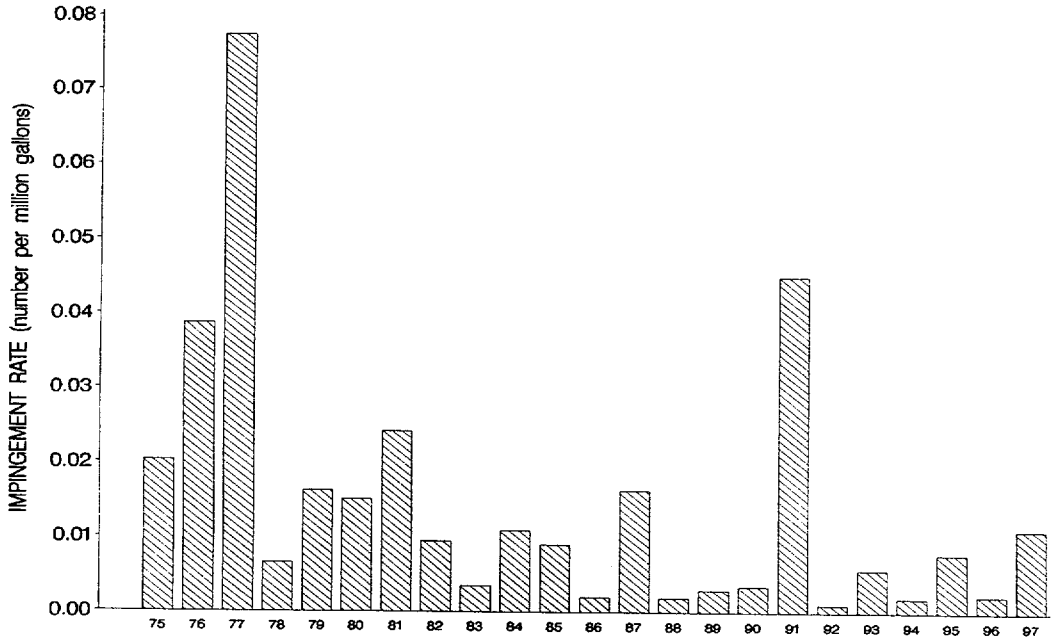


Figure 6-8. Annual impingement rate for American shad at Roseton and Danskammer Point generating stations, 1974-1997.

Atlantic Tomcod

Roseton



Danskammer Point

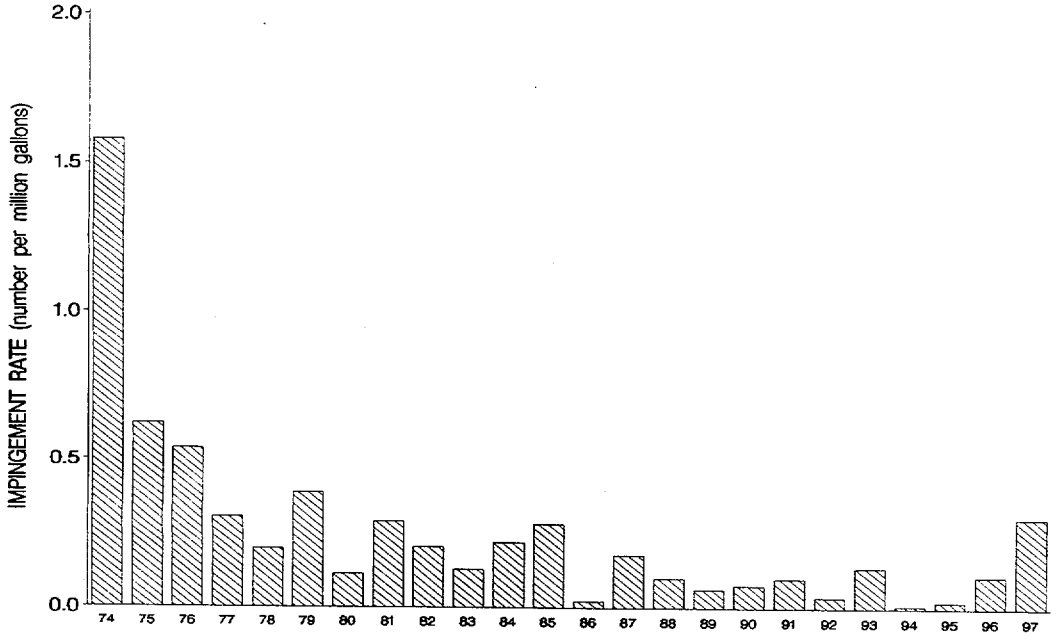
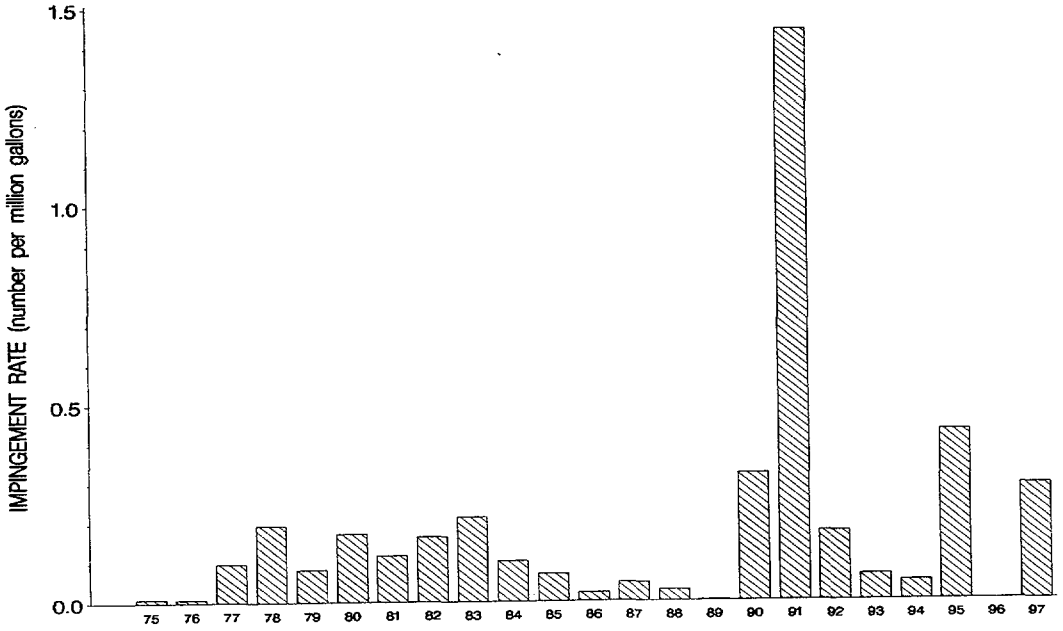


Figure 6-9. Annual impingement rate for Atlantic tomcod at Roseton and Danskammer Point generating stations, 1974-1997.

Bay Anchovy

Roseton



Danskammer Point

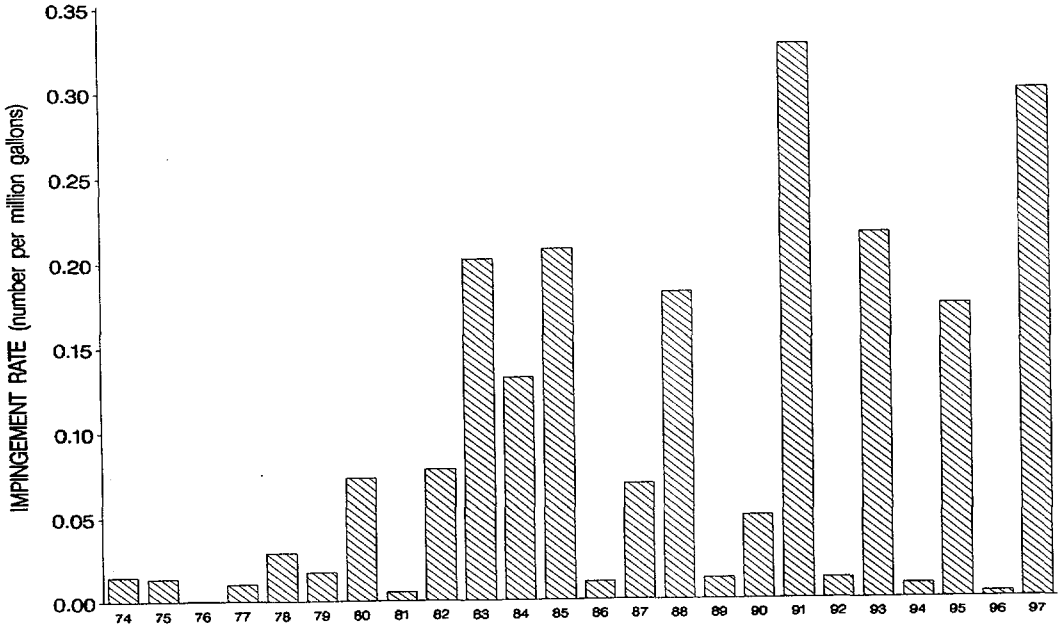


Figure 6-10. Annual impingement rate for bay anchovy at Roseton and Danskammer Point generating stations, 1974-1997.

through 1989. In 1991 the highest annual impingement rate recorded over the 23-year data base occurred. The annual impingement in 1997 was the fourth highest for the period of record.

The historical pattern of bay anchovy impingement rates at Danskammer Point also exhibited a general cycle of increasing then decreasing values from year-to-year (Figure 6-10). The years of highest abundances at Danskammer Point were 1983-1985, 1988, 1991, 1993, 1995, and 1997. The 1997 annual impingement rate for bay anchovy was the second highest recorded at Danskammer Point since 1974.

6.5.1.5 Blueback Herring

The total numbers of blueback herring estimated to have been impinged during 1997 were 137,743 at Roseton and 11,922 at Danskammer Point, of which all were classified by life stage (Tables 6-15 and 6-16). Of these, young-of-the-year fish made up the vast majority: 99.6% at Roseton and 88.7% at Danskammer Point. This 1997 year class first appeared in impingement collections in June at Roseton and in July at Danskammer Point. The greatest numbers impinged were in October at both plants. Both yearlings and adults were also impinged at both plants, although adults occurred in very low numbers, particularly at Roseton. Adults were a somewhat greater component at Danskammer Point (2.1% for the whole year) than at Roseton (<0.1%). Most impingement of yearlings and adults occurred in spring and summer.

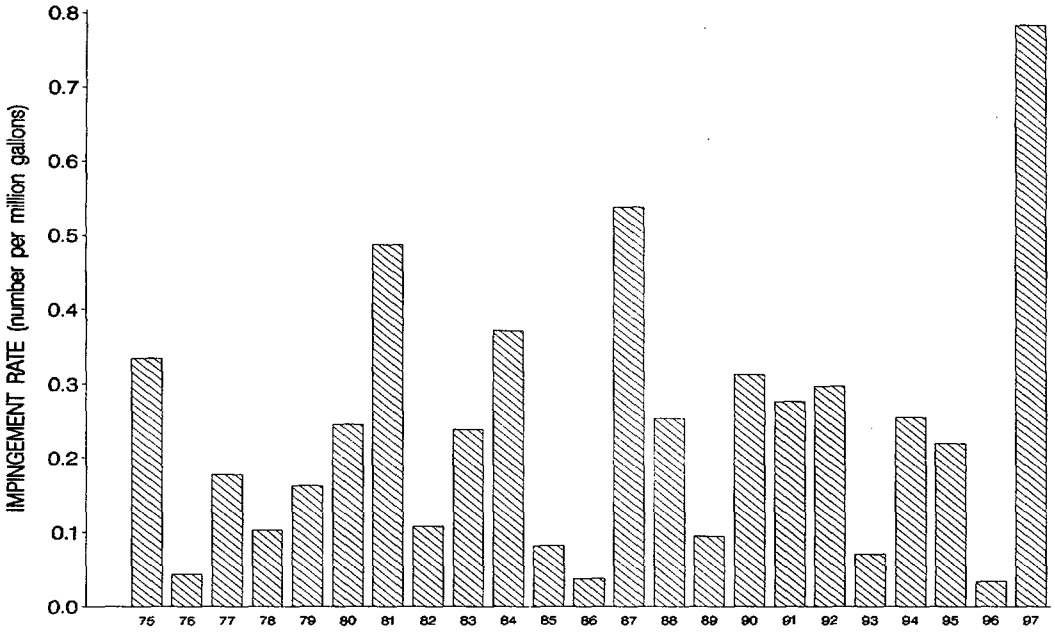
Compared to the previous 22-23 years, the annual blueback herring impingement rate during 1997 was the highest on record at Roseton and only the sixteenth highest at Danskammer Point (Figure 6-11). Rates have varied considerably among years and between the two plants.

6.5.1.6 Spottail Shiner

At Roseton an estimated total of 6,290 spottail shiner were impinged and at Danskammer Point the estimate was 13,468 of which all 6,290 were classified by life stage at Roseton (Table 6-15) and 13,464 were classified by life stage at Danskammer Point (Table 6-16). Each of the three life stages was abundant for at least part of the year. Yearlings were the most abundant life stage impinged at both plants in 1997. Adults were impinged only during January-

Blueback Herring

Roseton



Danskammer Point

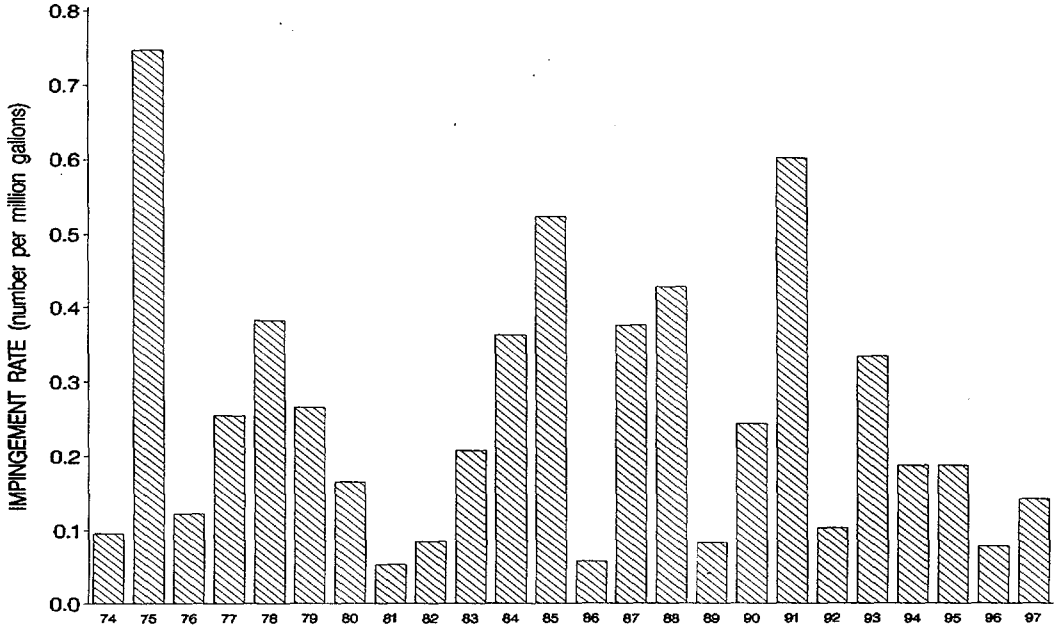


Figure 6-11. Annual impingement rate for blueback herring at Roseton and Danskammer Point generating stations, 1974-1997.

May, and young-of-the-year were impinged only during July through December. Yearlings were present in every month of the year.

Annual impingement rates for spottail shiner (Figure 6-12) have not been characterized by such wide fluctuations among years as were those of clupeids and bay anchovy. The 1997 impingement rates were about average compared to past years.

6.5.1.7 Striped Bass

The estimated total numbers of striped bass impinged in 1997 were 14,259 at Roseton and 44,786 at Danskammer Point, all of which were classified by life stage (Table 6-15 and Table 6-16). The age composition at Roseton was dominated by young-of-the-year (99.5%), with yearlings making up all of the remaining impingement. At Danskammer Point 96.8% were young-of-the-year, 2.8% yearlings, and 0.4% adults. Young-of-the-year striped bass were first impinged in July at both Roseton and Danskammer Point, and impingement of this early life stage reached a maximum in August at both plants. Striped bass older than yearlings, which were not observed at Roseton, were present in Danskammer impingement collections in seven of the 12 months, in no particular seasonal pattern.

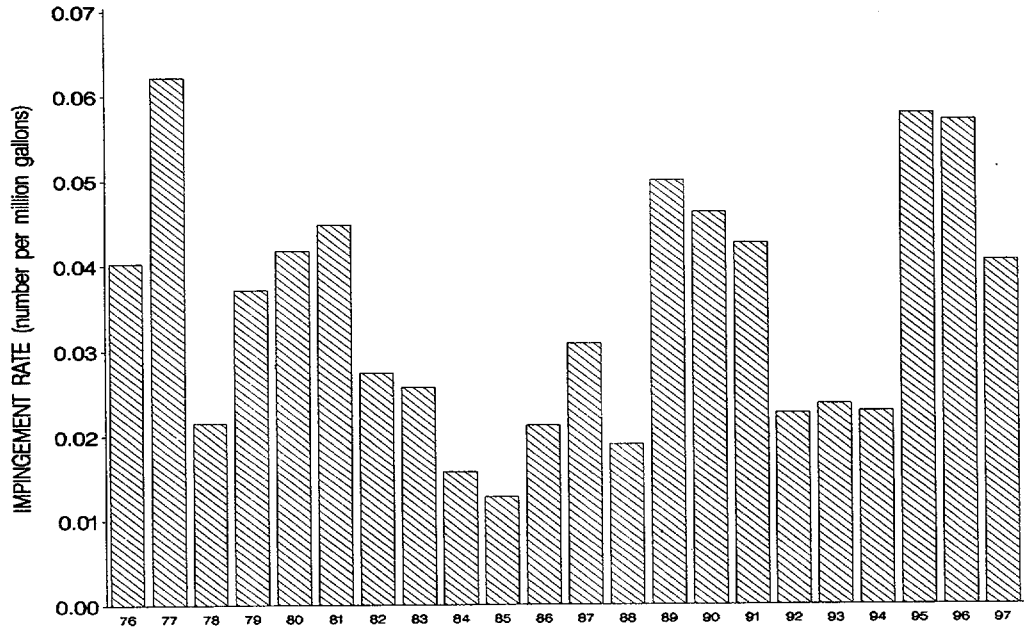
Annual impingement rates for striped bass in 1997 were high compared to most of the 1974-1996 data for both Roseton and Danskammer Point (Figure 6-13). The striped bass annual impingement rate for 1997 was the third highest in 23 years at Roseton and higher than in all previous years at Danskammer Point.

6.5.1.8 White Perch

Total numbers of white perch estimated to have been impinged in 1997 were 37,613 at Roseton and 98,350 at Danskammer Point, of which 37,604 were classified by life stage at Roseton (Table 6-15) and 98,342 were classified by life stage at Danskammer Point (Table 6-16). Young-of-the-year white perch represented 72.2% of the estimated total impinged at Roseton and 52.5% at Danskammer Point. At both plants they first appeared in July, reaching a maximum in October at Roseton and November at Danskammer Point. Yearling fish constituted 21.3% of the Roseton

Spottail Shiner

Roseton



Danskammer Point

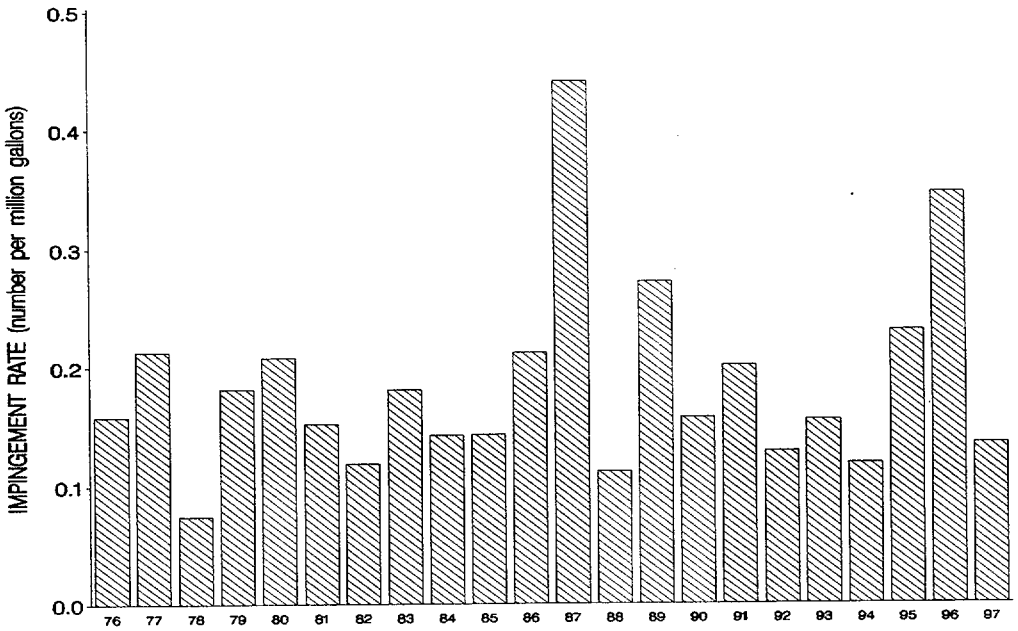
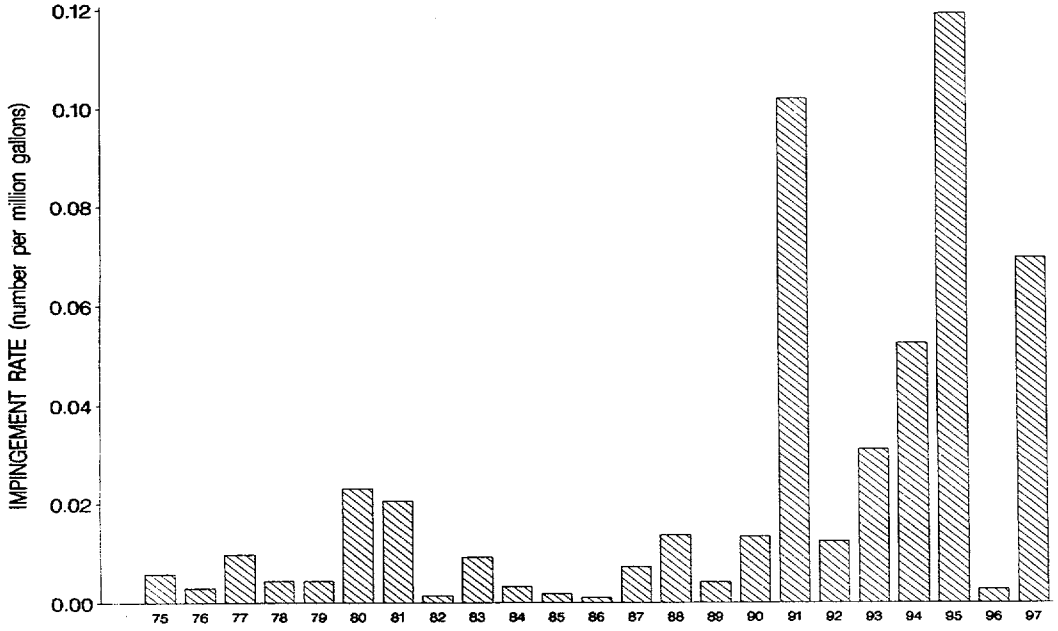


Figure 6-12. Annual impingement rate for spottail shiner at Roseton and Danskammer Point generating stations, 1976-1997.

Striped Bass

Roseton



Danskammer Point

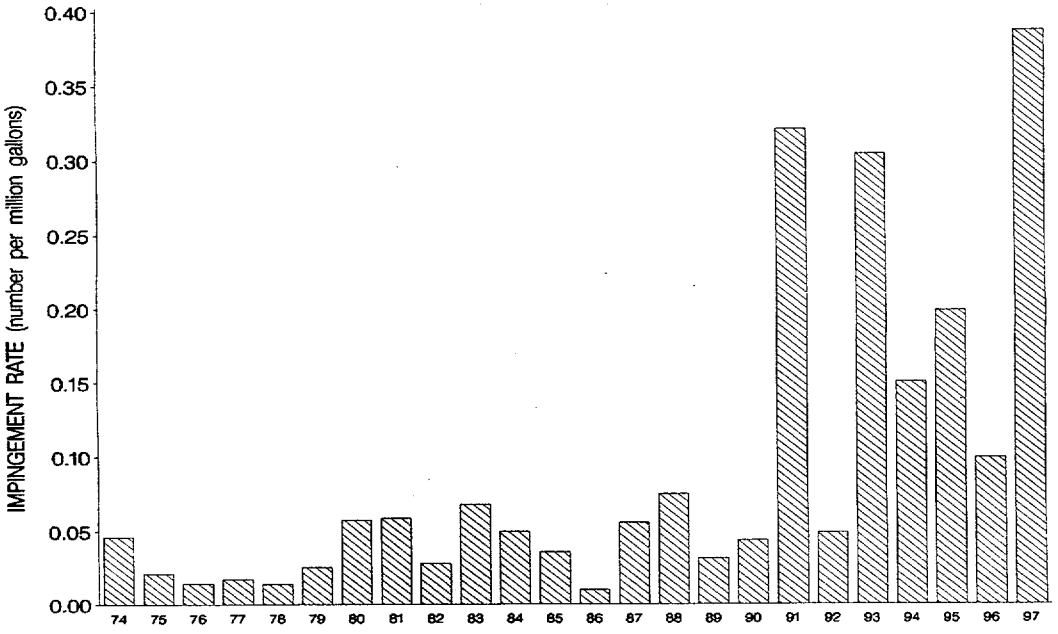


Figure 6-13. Annual impingement rate for striped bass at Roseton and Danskammer Point generating stations, 1974-1997.

impingement and 21.7% at Danskammer Point. Yearling white perch were present in impingement collections in every month at both plants. Yearlings reached peaks in June at Roseton and July at Danskammer Point. Adults were 6.5% of estimated impingement at Roseton and 25.8% at Danskammer Point. Their seasonal abundance pattern at both plants was similar to that of the yearlings. In comparison with the previous 23 years, the 1997 white perch impingement rates were somewhat lower than average at both plants (Figure 6-14).

6.5.2 Seasonal Impingement Patterns

6.5.2.1 Total Fish

Roseton Generating Station

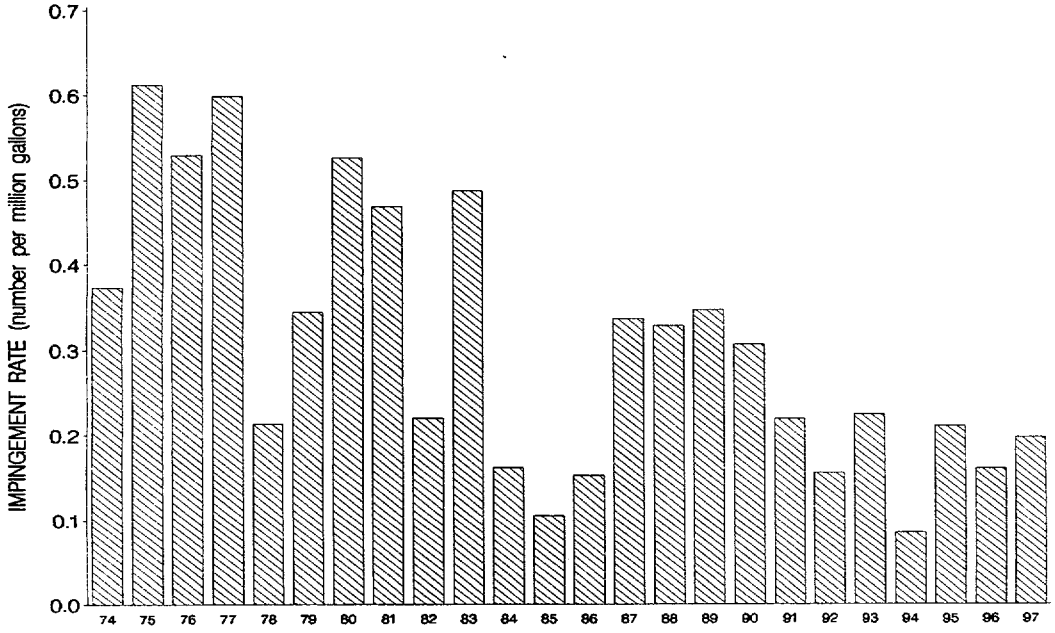
The monthly estimated total impingement of all fish species combined is shown in Figure 6-15 (abundance and biomass) and Table 6-17 (abundance and percent composition) for Roseton in 1997. The months of highest estimated impingement abundance were August (43,182) and October (206,315). The lowest monthly total impingement estimate was for March (1,061).

An abundance of bay anchovy was primarily responsible for the high estimated impingement in August, and the high impingement in October was largely due to abundant blueback herring.

The seasonal trend of estimated biomass at Roseton was characterized by one major peak, in October when 33.3% of the estimated impingement for the year occurred (Figure 6-15). The peak in October in estimated biomass was mainly due to blueback herring and white perch, which together accounted for 61.5% of the total during that month (Table 6-18). The next highest monthly estimated biomass impinged was in January, when gizzard shad and three other species combined accounted for 85.5% of the total biomass. White perch accounted for the greatest percentage of biomass impinged in June, July, and November; gizzard shad ranked first in January, February, and December; alewife ranked first in March; American eel ranked first in April; pumpkinseed ranked first in May; bay anchovy ranked first in August; and blueback herring ranked first in September and October in estimated biomass impinged at Roseton.

White Perch

Roseton



Danskammer Point

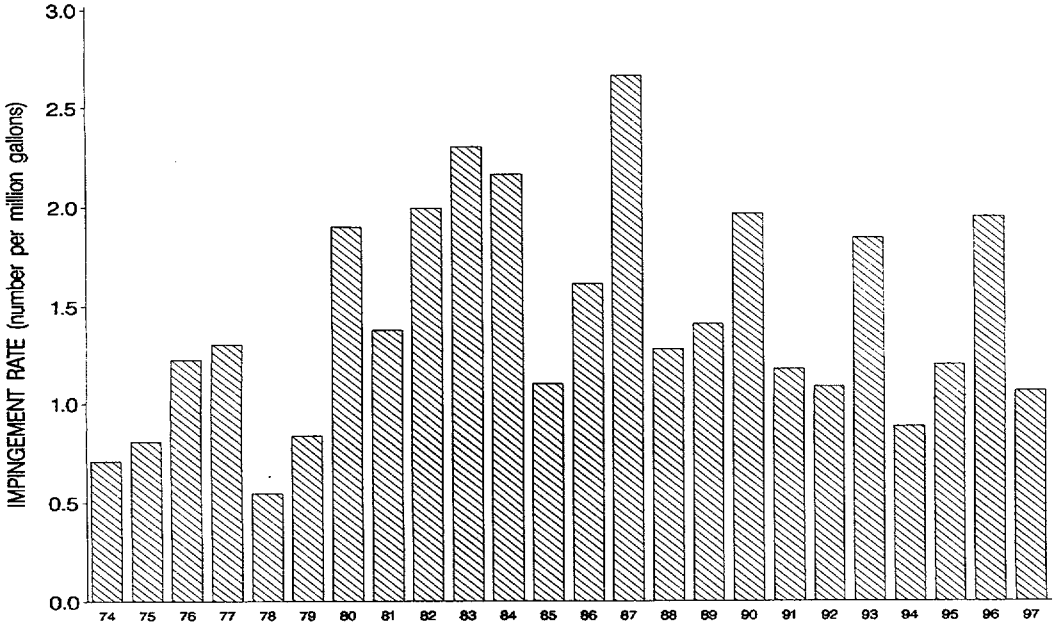
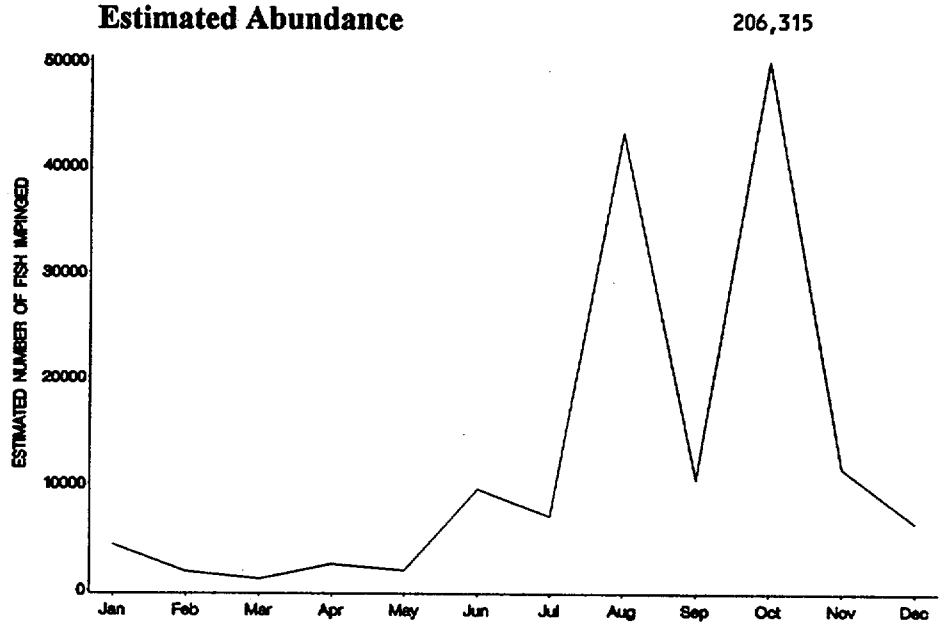


Figure 6-14. Annual impingement rate for white perch at Roseton and Danskammer Point generating stations, 1974-1997.

Total Fish

Estimated Abundance



Estimated Biomass

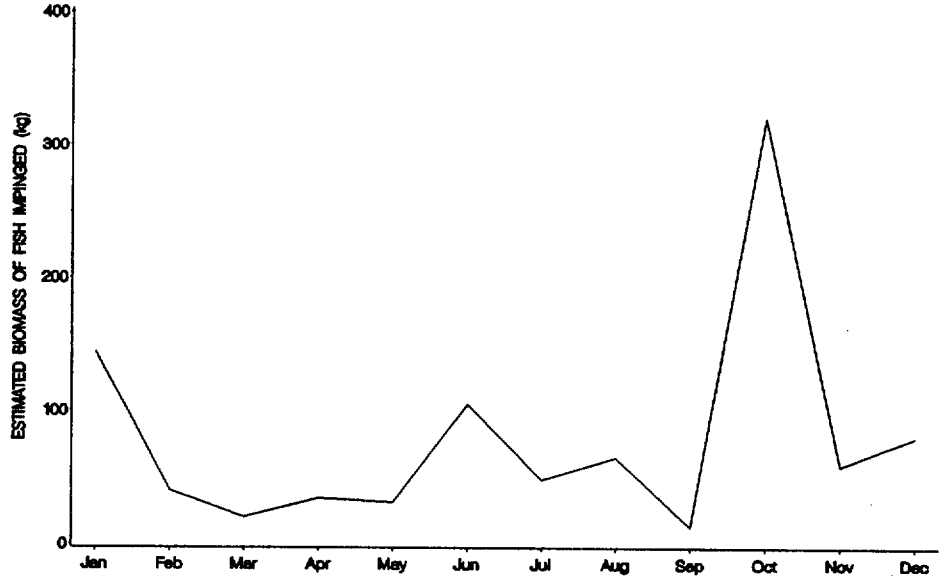


Figure 6-15. Monthly estimated impingement of all fish species combined, Roseton Generating Station, 1997.

TABLE 6-17. ESTIMATED MONTHLY ABUNDANCE AND PERCENT COMPOSITION OF THE TEN MOST ABUNDANT SPECIES COLLECTED IN IMPINGEMENT SAMPLES, ROSETON GENERATING STATION, 1997.

	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE	
	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%
Alewife	0	0.0	9	0.5	31	3.0	20	0.8	48	2.5	103	1.1
American shad	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	19	0.2
Bay anchovy	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Blueback herring	0	0.0	0	0.0	0	0.0	0	0.0	143	7.5	220	2.3
Brown bullhead	38	0.9	0	0.0	0	0.0	19	0.8	51	2.7	178	1.9
Gizzard shad	502	11.7	11	0.6	0	0.0	0	0.0	0	0.0	0	0.0
Pumpkinseed	146	3.4	28	1.6	21	2.0	6	0.3	365	19.1	441	4.7
Spottail shiner	774	18.1	724	41.1	447	42.1	751	30.1	334	17.5	1259	13.3
Striped bass	0	0.0	5	0.3	0	0.0	0	0.0	3	0.2	22	0.2
White perch	181	4.2	112	6.3	135	12.7	661	26.5	463	24.3	6430	68.0
Others	2634	61.6	873	49.5	427	40.2	1039	41.6	500	26.2	777	8.2
TOTAL	4276	100.0	1763	100.0	1061	100.0	2497	100.0	1908	100.0	9450	100.0

	JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%
Alewife	1055	15.2	1910	4.4	721	6.9	21954	10.6	1317	11.5	8	0.1
American shad	402	5.8	355	0.8	129	1.2	1350	0.7	23	0.2	8	0.1
Bay anchovy	152	2.2	15979	37.0	4103	39.5	31735	15.4	0	0.0	0	0.0
Blueback herring	172	2.5	5095	11.8	4072	39.2	127657	61.9	376	3.3	8	0.1
Brown bullhead	174	2.5	3120	7.2	84	0.8	869	0.4	226	2.0	50	0.8
Gizzard shad	109	1.6	5799	13.4	0	0.0	1065	0.5	342	3.0	1546	24.4
Pumpkinseed	5	0.1	19	0.0	0	0.0	1489	0.7	271	2.4	31	0.5
Spottail shiner	52	0.7	185	0.4	83	0.8	685	0.3	523	4.6	473	7.5
Striped bass	2400	34.6	6976	16.2	466	4.5	2555	1.2	940	8.2	890	14.0
White perch	1909	27.5	2237	5.2	345	3.3	16066	7.8	6630	58.1	2444	38.5
Others	510	7.4	1507	3.5	378	3.6	891	0.4	759	6.7	882	13.9
TOTAL	6942	100.0	43182	100.0	10381	100.0	206315	100.0	11406	100.0	6341	100.0

	ANNUAL TOTAL	
	ESTIM. NUMBER	%
Alewife	27177	8.9
American shad	2287	0.7
Bay anchovy	51969	17.0
Blueback herring	137743	45.1
Brown bullhead	4810	1.6
Gizzard shad	9373	3.1
Pumpkinseed	2823	0.9
Spottail shiner	6290	2.1
Striped bass	14259	4.7
White perch	37613	12.3
Others	11179	3.7
TOTAL	305523	100.0

TABLE 6-18. ESTIMATED MONTHLY BIOMASS (KILOGRAMS) AND PERCENT COMPOSITION OF THE TEN MOST ABUNDANT SPECIES COLLECTED IN IMPINGEMENT SAMPLES, ROSETON GENERATING STATION, 1997.

	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE	
	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%
Alewife	0.0	0.0	0.1	0.2	5.8	27.9	0.1	0.4	1.1	3.6	2.9	2.8
American eel	5.3	3.7	3.3	8.1	0.7	3.5	9.5	27.7	0.2	0.6	3.0	2.9
Atlantic tomcod	24.2	16.7	0.7	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4
Bay anchovy	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Blueback herring	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	5.8	1.5	1.5
Brown bullhead	3.1	2.1	0.0	0.0	0.0	0.0	0.4	1.1	1.4	4.6	4.9	4.7
Gizzard shad	50.1	34.6	13.5	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Golden shiner	22.0	15.2	7.8	19.3	3.6	17.4	1.6	4.7	0.0	0.1	0.6	0.6
Pumpkinseed	6.4	4.4	1.5	3.6	0.8	3.9	0.2	0.7	14.6	46.6	9.5	9.0
White perch	6.2	4.2	2.6	6.5	4.0	19.2	8.6	25.0	4.2	13.4	72.7	69.2
Others	27.5	19.0	11.0	27.2	5.8	28.1	13.9	40.5	7.9	25.2	9.4	9.0
TOTAL	144.8	100.0	40.5	100.0	20.7	100.0	34.2	100.0	31.3	100.0	105.0	100.0

	JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%
Alewife	3.0	6.3	4.4	6.7	1.7	12.4	55.1	17.2	3.3	5.7	0.0	0.0
American eel	2.1	4.3	0.8	1.2	0.0	0.0	3.4	1.1	2.0	3.5	7.0	8.8
Atlantic tomcod	1.3	2.8	3.2	5.0	0.2	1.5	0.0	0.0	0.0	0.0	0.1	0.1
Bay anchovy	0.4	0.9	13.7	21.1	2.6	18.8	24.4	7.6	0.0	0.0	0.0	0.0
Blueback herring	1.6	3.3	4.2	6.4	3.2	23.8	122.8	38.3	0.8	1.4	0.0	0.0
Brown bullhead	2.2	4.5	7.9	12.2	0.4	2.8	6.8	2.1	1.7	2.9	2.0	2.5
Gizzard shad	0.2	0.4	10.0	15.4	0.0	0.0	6.4	2.0	3.7	6.3	33.1	41.3
Golden shiner	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	2.1	2.3	2.9
Pumpkinseed	0.1	0.3	0.3	0.5	0.0	0.0	7.3	2.3	1.5	2.6	0.6	0.7
White perch	20.8	43.2	7.5	11.5	1.5	10.9	74.4	23.2	31.7	53.8	13.6	16.9
Others	16.4	34.1	13.0	20.0	4.1	29.8	20.2	6.3	12.8	21.7	21.3	26.6
TOTAL	48.1	100.0	65.0	100.0	13.6	100.0	320.9	100.0	58.8	100.0	80.1	100.0

	ANNUAL TOTAL	
	ESTIM. BIOMASS	%
Alewife	77.6	8.1
American eel	37.4	3.9
Atlantic tomcod	30.3	3.1
Bay anchovy	41.1	4.3
Blueback herring	136.0	14.1
Brown bullhead	30.8	3.2
Gizzard shad	117.0	12.1
Golden shiner	39.3	4.1
Pumpkinseed	42.9	4.5
White perch	247.6	25.7
Others	163.3	17.0
TOTAL	963.2	100.0

Danskammer Point Generating Station

At Danskammer Point, the highest monthly estimated total fish impingement in 1997 occurred in August (Table 6-19 and Figure 6-16), when the total number impinged for all units combined was estimated at 112,379. The lowest total was in February at 4,518 fish. The peak impingement in August of 1997 was mainly due to bay anchovy and striped bass (totaling 49.4% of the estimated impingement for the month).

The seasonal trend of estimated biomass followed a different pattern to that of the estimated numerical abundance in 1997 at Danskammer Point. January, June, and December were the months when the greatest biomass was impinged, together accounting for 46.7% of the biomass impinged for the year (Figure 6-16). Gizzard shad was responsible for 61.4% of the combined biomass for January and December, and white perch was responsible for 70.6% of the June peak (Table 6-20). Gizzard or white perch had the greatest biomass impinged in every month except for March, when Atlantic tomcod ranked first.

6.5.2.2 Selected Species

The typical seasonal patterns of impingement for key species can be seen by examining the mean and range of impingement rates for each month over a period of several years. Alewife impingement rates were historically highest in the summer and fall when young-of-the-year predominate (Figure 6-17). A secondary peak in the historical means can be clearly seen in the spring at Danskammer Point, but this peak was not evident in the means at Roseton. The earlier spring peak primarily represents adults. The season of abundance tends to be longer at Danskammer Point than at Roseton. In 1997 the alewife impingement followed a seasonal pattern similar to that observed in past years, except that there was no spring peak at Danskammer Point. The impingement rate in October of 1997 at Roseton was the highest rate for that month of all years sampled.

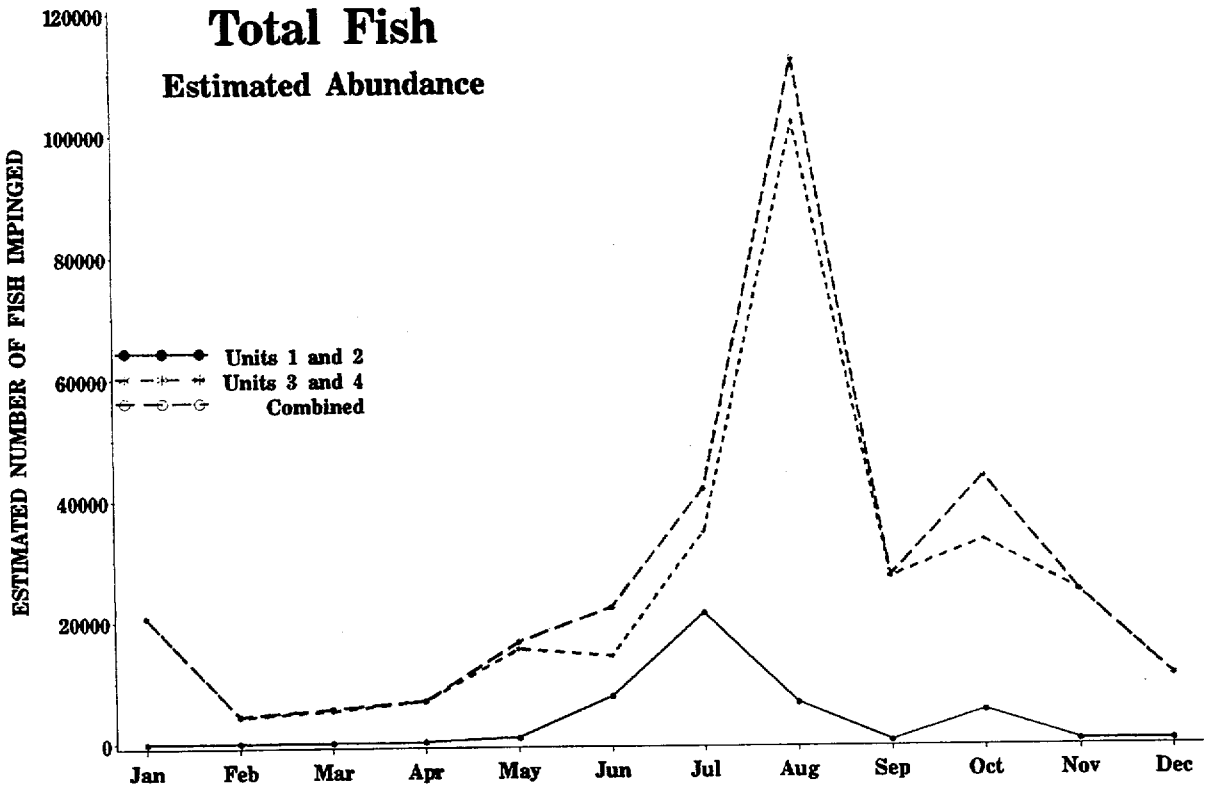
American shad impingement has generally been restricted to summer and fall (Figure 6-18), and has consisted almost entirely of young-of-the-year fish. Peaks have usually occurred either in summer or fall at Roseton or Danskammer Point, resulting in an average with a bimodal

TABLE 6-19. ESTIMATED MONTHLY ABUNDANCE AND PERCENT COMPOSITION OF THE TEN MOST ABUNDANT SPECIES COLLECTED IN IMPINGEMENT SAMPLES, DANSKAMMER POINT GENERATING STATION, 1997.

	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE	
	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%
Alewife	0	0.0	14	0.3	70	1.2	0	0.0	193	1.2	313	1.4
American shad	0	0.0	0	0.0	0	0.0	0	0.0	3	0.0	28	0.1
Atlantic tomcod	14309	68.8	2282	50.5	2835	49.8	289	4.2	78	0.5	873	3.9
Bay anchovy	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Blueback herring	0	0.0	0	0.0	0	0.0	15	0.2	284	1.7	589	2.7
Brown bullhead	70	0.3	51	1.1	15	0.3	90	1.3	411	2.5	166	0.7
Gizzard shad	2659	12.8	159	3.5	30	0.5	8	0.1	11	0.1	0	0.0
Spottail shiner	868	4.2	523	11.6	502	8.8	790	11.4	2654	16.0	4159	18.7
Striped bass	31	0.1	7	0.2	8	0.1	8	0.1	145	0.9	679	3.1
White perch	527	2.5	348	7.7	1374	24.1	4363	63.0	8974	54.2	13440	60.5
Others	2319	11.2	1132	25.1	860	15.1	1359	19.6	3810	23.0	1957	8.8
TOTAL	20783	100.0	4518	100.0	5693	100.0	6923	100.0	16562	100.0	22207	100.0

	JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%	ESTIM. NUMBER	%
Alewife	4017	9.6	5149	4.6	4023	14.8	5952	13.6	523	2.1	0	0.0
American shad	4329	10.4	787	0.7	732	2.7	1436	3.3	189	0.8	0	0.0
Atlantic tomcod	1290	3.1	1914	1.7	370	1.4	112	0.3	121	0.5	140	1.3
Bay anchovy	1808	4.3	31617	28.1	4148	15.3	1476	3.4	8	0.0	0	0.0
Blueback herring	461	1.1	954	0.8	1416	5.2	7695	17.6	507	2.1	0	0.0
Brown bullhead	1718	4.1	10237	9.1	735	2.7	878	2.0	227	0.9	23	0.2
Gizzard shad	7403	17.7	21370	19.0	179	0.7	1815	4.2	857	3.5	3097	28.9
Spottail shiner	1413	3.4	801	0.7	76	0.3	348	0.8	592	2.4	743	6.9
Striped bass	5224	12.5	23951	21.3	7097	26.1	3701	8.5	2121	8.6	1814	16.9
White perch	12182	29.2	11221	10.0	6281	23.1	17302	39.6	18275	74.3	4061	37.8
Others	1936	4.6	4377	3.9	2095	7.7	3005	6.9	1182	4.8	854	8.0
TOTAL	41782	100.0	112379	100.0	27152	100.0	43721	100.0	24602	100.0	10732	100.0

	ANNUAL TOTAL	
	ESTIM. NUMBER	%
Alewife	20255	6.0
American shad	7505	2.2
Atlantic tomcod	24613	7.3
Bay anchovy	39056	11.6
Blueback herring	11922	3.5
Brown bullhead	14623	4.3
Gizzard shad	37589	11.2
Spottail shiner	13468	4.0
Striped bass	44786	13.3
White perch	98350	29.2
Others	24888	7.4
TOTAL	337054	100.0



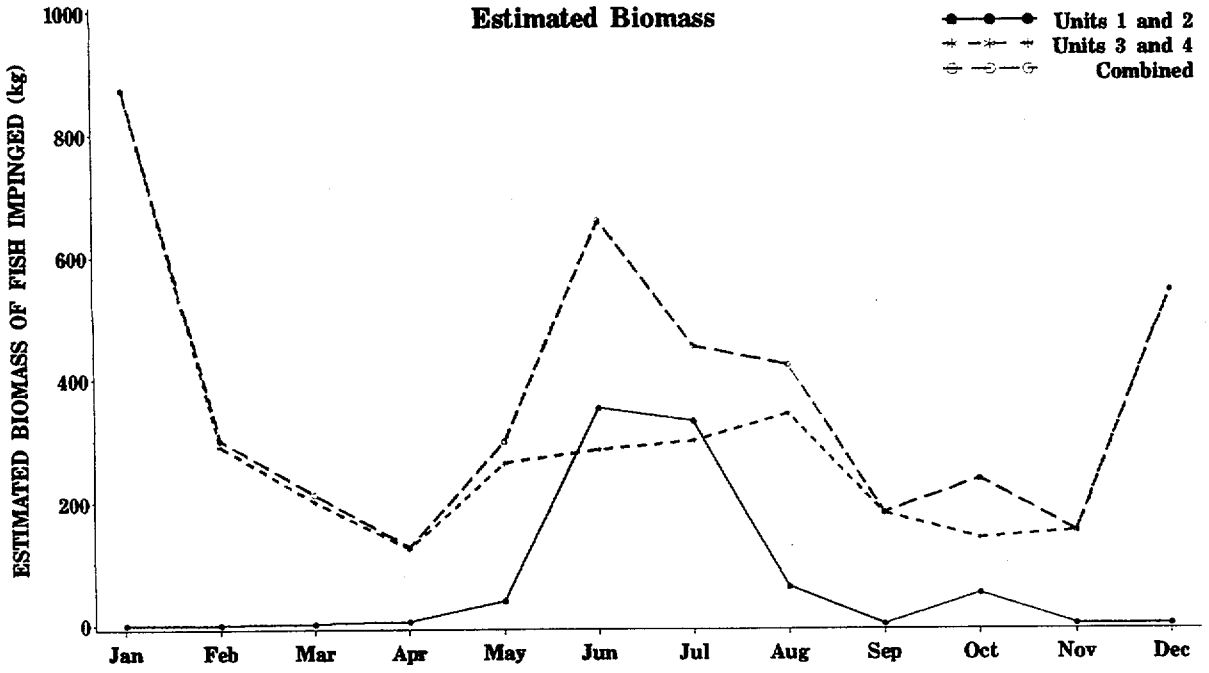


Figure 6-16. Monthly estimated impingement of all fish species combined, Danskammer Point Generating Station, 1997.

TABLE 6-20. ESTIMATED MONTHLY BIOMASS (KILOGRAMS) AND PERCENT COMPOSITION OF THE TEN MOST ABUNDANT SPECIES COLLECTED IN IMPINGEMENT SAMPLES, DANSKAMMER POINT GENERATING STATION, 1997.

	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE	
	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%
Alewife	0.0	0.0	0.1	0.0	9.4	4.4	0.0	0.0	12.1	4.1	16.6	2.5
Atlantic tomcod	350.2	40.1	58.4	19.4	73.4	34.5	5.9	4.7	0.6	0.2	3.1	0.5
Brown bullhead	8.6	1.0	8.2	2.7	2.5	1.2	2.1	1.7	3.9	1.3	15.0	2.3
Gizzard shad	383.5	43.9	171.7	57.0	11.4	5.3	4.3	3.4	8.4	2.8	0.0	0.0
Golden shiner	47.7	5.5	18.2	6.0	9.0	4.2	5.0	3.9	12.1	4.1	7.8	1.2
Pumpkinseed	1.9	0.2	2.0	0.7	1.0	0.5	1.6	1.3	58.5	19.6	26.4	4.0
Spottail shiner	5.6	0.6	3.7	1.2	3.3	1.6	4.9	3.9	16.9	5.7	24.6	3.7
Striped bass	6.2	0.7	6.7	2.2	2.4	1.1	0.1	0.1	1.6	0.5	13.2	2.0
White catfish	17.5	2.0	6.5	2.2	39.9	18.8	16.8	13.3	9.8	3.3	38.5	5.8
White perch	21.8	2.5	14.6	4.9	42.7	20.1	71.8	57.0	136.3	45.8	465.4	70.6
Others	30.6	3.5	11.2	3.7	17.7	8.3	13.4	10.7	37.8	12.7	49.1	7.4
TOTAL	873.7	100.0	301.2	100.0	212.6	100.0	126.0	100.0	297.8	100.0	659.7	100.0

	JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%	ESTIM. BIOMASS	%
Alewife	15.1	3.3	22.6	5.4	16.9	9.3	51.0	21.6	2.6	1.7	0.0	0.0
Atlantic tomcod	6.5	1.4	9.3	2.2	2.5	1.4	1.0	0.4	1.8	1.2	3.7	0.7
Brown bullhead	8.6	1.9	32.3	7.7	5.8	3.2	5.4	2.3	2.8	1.8	0.2	0.0
Gizzard shad	17.9	4.0	56.1	13.3	1.8	1.0	12.9	5.5	13.9	9.2	485.8	89.5
Golden shiner	0.6	0.1	0.3	0.1	0.0	0.0	0.0	0.0	1.9	1.3	4.8	0.9
Pumpkinseed	5.2	1.2	0.1	0.0	6.8	3.8	12.9	5.5	4.0	2.6	1.3	0.2
Spottail shiner	8.7	1.9	5.8	1.4	0.6	0.3	1.4	0.6	2.2	1.5	3.4	0.6
Striped bass	19.6	4.3	74.5	17.7	30.9	17.0	18.7	7.9	9.9	6.5	8.6	1.6
White catfish	35.5	7.9	17.5	4.2	29.0	16.0	6.7	2.8	2.1	1.4	0.4	0.1
White perch	295.2	65.3	136.6	32.4	64.4	35.4	99.2	42.1	100.8	66.7	24.1	4.4
Others	39.2	8.7	66.5	15.8	23.1	12.7	26.7	11.3	9.4	6.2	10.4	1.9
TOTAL	452.1	100.0	421.6	100.0	181.9	100.0	235.9	100.0	151.2	100.0	542.9	100.0

	ANNUAL TOTAL	
	ESTIM. BIOMASS	%
Alewife	146.3	3.3
Atlantic tomcod	516.4	11.6
Brown bullhead	95.3	2.1
Gizzard shad	1167.8	26.2
Golden shiner	107.3	2.4
Pumpkinseed	121.8	2.7
Spottail shiner	81.2	1.8
Striped bass	192.4	4.3
White catfish	220.1	4.9
White perch	1472.9	33.0
Others	335.0	7.5
TOTAL	4456.6	100.0

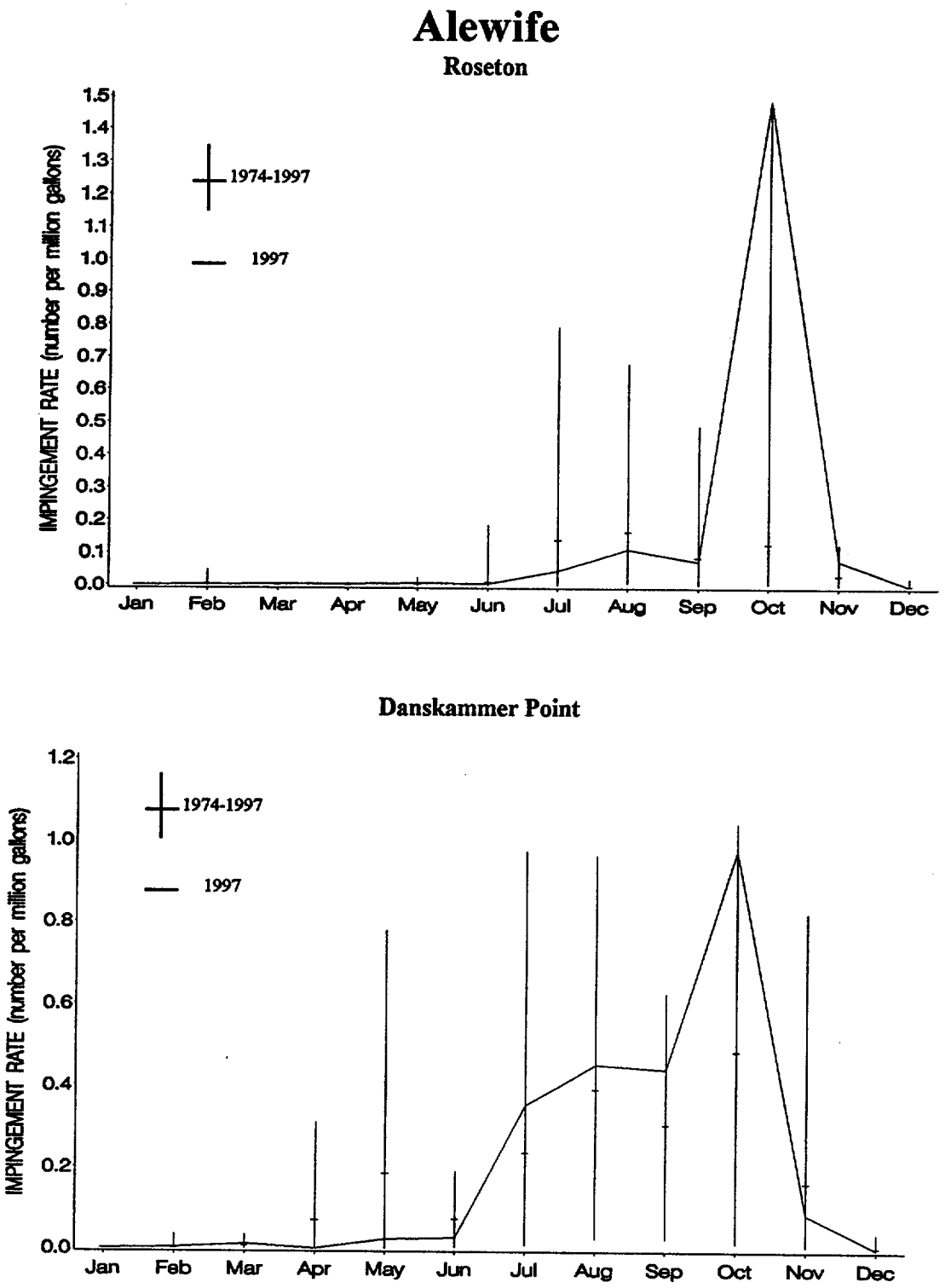
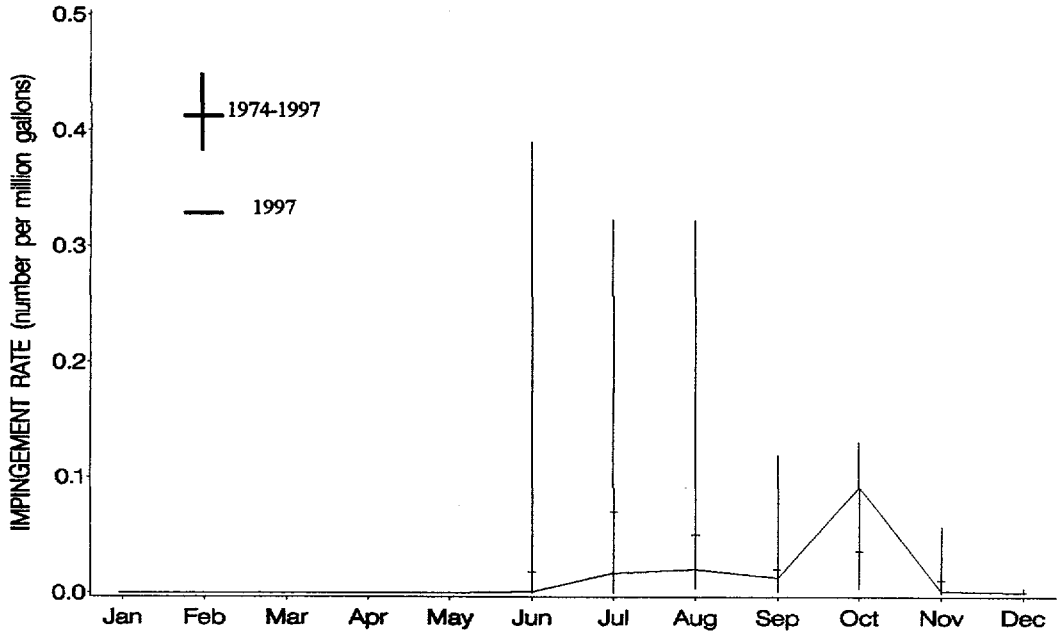


Figure 6-17. Monthly average impingement rate in 1997 for alewife at Roseton and Danskammer Point generating stations and the long-term monthly average and range for 1974-1997.

American Shad

Roseton



Danskammer Point

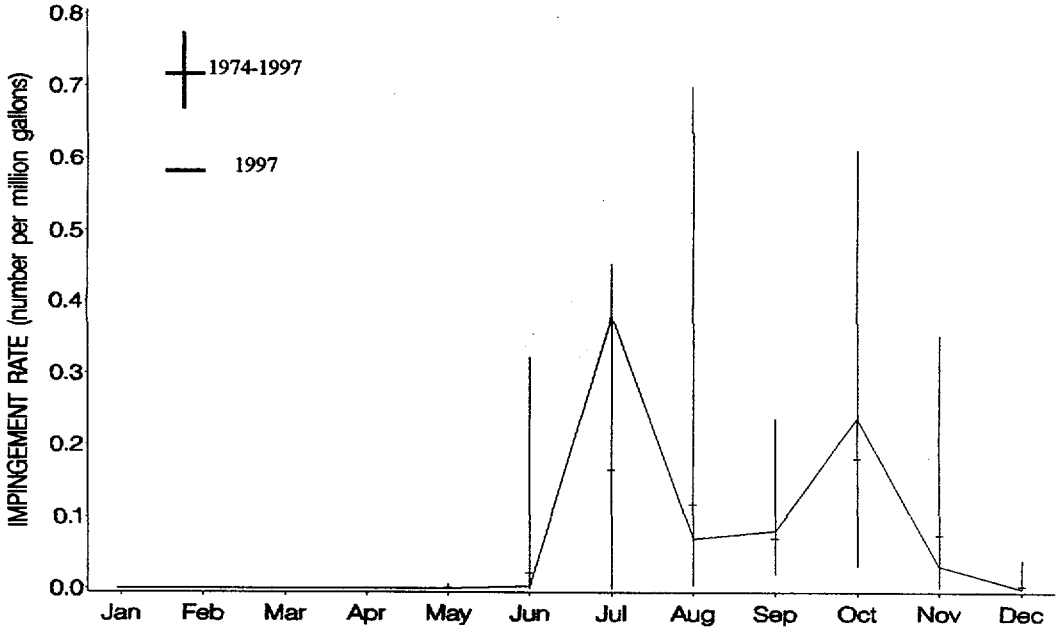


Figure 6-18. Monthly average impingement rate in 1997 for American shad at Roseton and Danskammer Point generating stations and the long-term monthly average and range for 1974-1997.

pattern at both plants. In 1997 the peaks were in October at Roseton and in July and October at Danskammer Point.

Atlantic tomcod impingement has usually been at its highest levels in December and January, which is during the spawning season, and normally higher at Danskammer Point than at Roseton (Figure 6-19, Table 6-21). These are primarily one-year-old fish (classified as young-of-the-year fish in December and yearlings in January), with some impingement of two-year-olds occurring at the same time (classified as yearlings in December and adults in January, though tomcod are sexually mature at one year of age) (Tables 6-22, 6-23, 6-24, and 6-25). There has often been another peak in impingement in the spring or summer consisting of young-of-the-year, which was again evident in 1997, particularly at Roseton. The 1997 tomcod data indicated average impingement at both plants in January, with impingement rates below average in December at both plants (Figure 6-19).

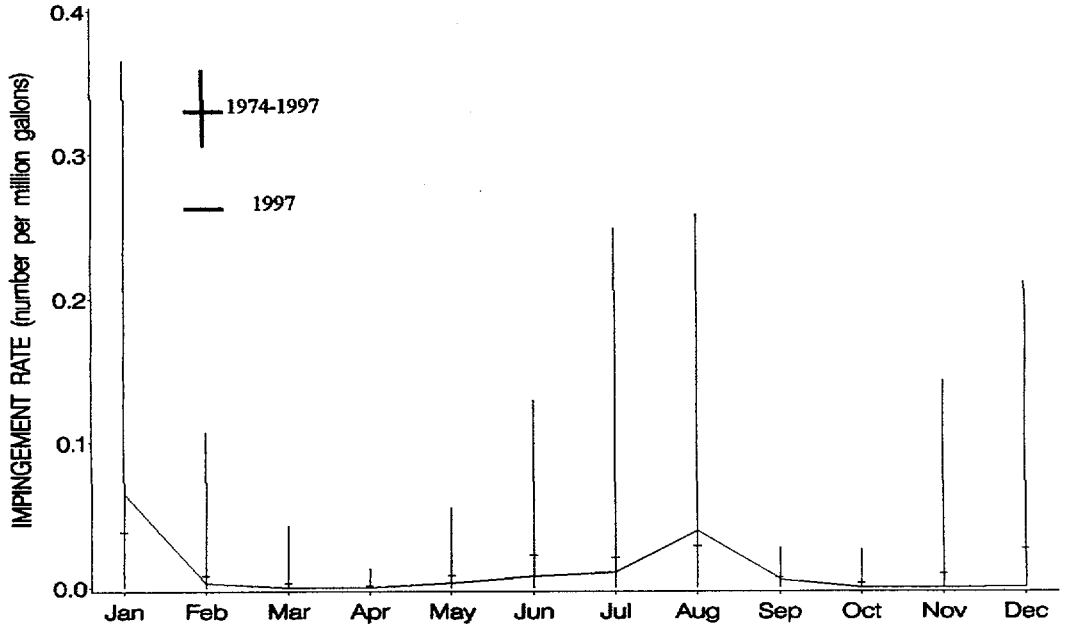
Bay anchovy impingement has been restricted almost entirely to the period June - October in each year (Figure 6-20), with the peak typically occurring in August-September at both plants. In August of 1997 the bay anchovy impingement rate at Danskammer Point reached a new historical high.

Blueback herring seasonal impingement patterns have been similar at the two stations, with a well defined peak occurring in the fall of each year, typically in October (Figure 6-21). The October peak represents the seaward migration of young-of-the-year fish from inland waters and the upper estuary. The 1997 data were consistent with this pattern, with the peak occurring in October at both plants. The October 1997 peak at Roseton was the highest monthly rate yet observed for blueback herring at either plant.

The seasonal patterns of spottail shiner impingement rates have been similar at the two stations, with generally higher rates at Danskammer Point (Figure 6-22). The greatest numbers of spottail shiner are typically impinged in the winter and spring. Although spottail shiners are usually impinged in every month, July through September represents the period of lowest impingement rates. There is usually a significant contribution by multiple age classes of spottail shiner to the impingement totals at Roseton and Danskammer Point Stations, with yearling and adults

Atlantic Tomcod

Roseton



Danskammer Point

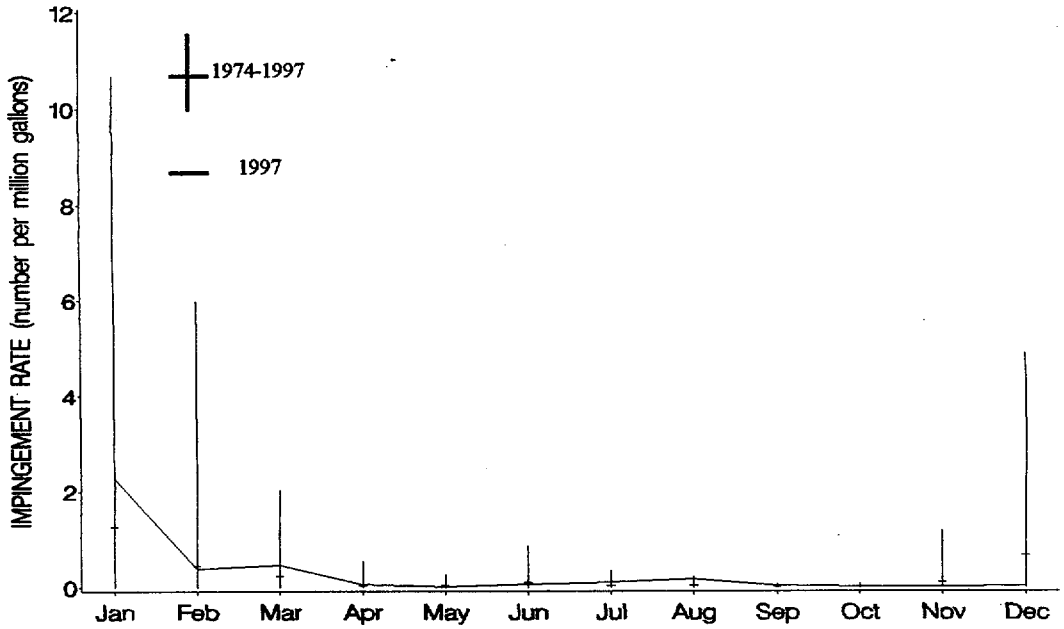


Figure 6-19. Monthly average impingement rate in 1997 for Atlantic tomcod at Roseton and Danskammer Point generating stations and the long-term monthly average and range for 1974-1997.

TABLE 6-21. MONTHLY ABUNDANCE AND BIOMASS OF ATLANTIC TOMCOD, ROSETON AND DANSKAMMER POINT GENERATING STATIONS, MAY 1996 - APRIL 1997.

			ABUNDANCE		BIOMASS	
		MONTHLY FLOW SAMPLED (10^6 gal)	NUMBER COLLECTED	PERCENT OF ANNUAL TOTAL	BIOMASS COLLECTED (g)	PERCENT OF ANNUAL TOTAL
ROSETON						
1996	May	1,746.00	0	0.0	0	0.0
	Jun	1,624.20	2	0.9	10	0.2
	Jul	1,454.89	0	0.0	0	0.0
	Aug	1,974.33	5	2.3	28	0.5
	Sep	1,256.40	3	1.4	14	0.3
	Oct	1,567.63	0	0.0	0	0.0
	Nov	1,496.23	1	0.5	9	0.2
	Dec	2,205.26	44	20.3	1,221	23.8
1997	Jan	2,583.76	157	72.4	3,732	72.8
	Feb	1,682.05	5	2.3	110	2.1
	Mar	894.29	0	0.0	0	0.0
	Apr	1,101.16	0	0.0	0	0.0
TOTAL		19,586.20	217	100.0	5,124	100.0
DANSKAMMER POINT						
1996	May	607.28	3	0.1	6	<0.1
	Jun	1,064.24	255	6.0	926	1.0
	Jul	1,316.52	145	3.4	920	1.0
	Aug	1,851.66	336	7.9	2,272	2.5
	Sep	1,303.11	117	2.8	657	0.7
	Oct	1,074.83	19	0.4	167	0.2
	Nov	812.16	85	2.0	2,032	2.3
	Dec	778.59	402	9.5	11,720	13.1
1997	Jan	1,013.79	2,163	51.0	52,693	58.7
	Feb	810.33	314	7.4	8,034	9.0
	Mar	783.89	370	8.7	9,592	10.7
	Apr	574.44	36	0.8	727	0.8
TOTAL		11,990.84	4,245	100.0	89,746	100.0

TABLE 6-22. LENGTH FREQUENCY OF ATLANTIC TOMCOD, ROSETON GENERATING STATION, MAY 1996 - APRIL 1997.

	1996								1997			
INTERVAL (cm)	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR
6.1-7.0				1								
7.1-8.0		1		1								
8.1-9.0		1		1	2							
9.1-10.0				1	1		1					
10.1-11.0				1				1		1		
11.1-12.0									17	1		
12.1-13.0								6	35	1		
13.1-14.0								13	35			
14.1-15.0								9	23			
15.1-16.0								9	16	1		
16.1-17.0								2	13			
17.1-18.0								1	7			
18.1-19.0								1	3			
19.1-20.0								2	1			
20.1-21.0										1		
21.1-22.0									2			
23.1-24.0									1			
Total Analyzed	0	2	0	5	3	0	1	44	153	5	0	0
Mean Length		8.1		8.4	8.8		9.8	14.5	14.2	14.4		
Minimum Length		7.8		6.4	8.5		9.8	10.9	11.2	11.0		
Maximum Length		8.4		10.3	9.1		9.8	19.9	23.2	20.3		

TABLE 6-23. LENGTH FREQUENCY OF ATLANTIC TOMCOD, DANSKAMMER POINT GENERATING STATION, MAY 1996 - APRIL 1997.

	1996								1997			
INTERVAL (cm)	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR
5.1-6.0	2	1										
6.1-7.0	1	26	2	3								
7.1-8.0		76	25	22	14	1						
8.1-9.0		29	55	85	29	2						
9.1-10.0		4	33	96	35	5						
10.1-11.0			5	20	8	6	7		3	1		
11.1-12.0						4	5	6	28	9	1	
12.1-13.0						1	21	33	110	40	14	2
13.1-14.0							21	53	118	46	31	4
14.1-15.0					1		12	58	84	28	31	4
15.1-16.0							5	24	51	28	35	10
16.1-17.0							3	9	36	21	31	1
17.1-18.0								14	21	23	24	7
18.1-19.0								3	20	7	15	3
19.1-20.0								2	6	2	11	3
20.1-21.0								1	3	2	2	1
21.1-22.0									2	2	3	
22.1-23.0								1	3	3	3	1
23.1-24.0								1		1	3	
24.1-25.0									4	1	3	
25.1-26.0									1	2		
26.1-27.0								1	4	1	3	
27.1-28.0									2	1	2	
28.1-29.0								1		1	1	
29.1-30.0										1	1	
31.1-32.0									1			
Total Analyzed	3	136	120	226	87	19	74	207	497	220	214	36
Mean Length	6.0	7.6	8.7	9.0	9.1	10.3	13.3	14.6	14.7	15.3	16.5	16.4
Minimum Length	5.9	5.6	7.0	6.5	7.2	7.8	10.5	11.1	10.5	11.0	12.0	12.9
Maximum Length	6.2	9.3	10.4	11.0	14.2	12.7	16.7	28.1	31.5	29.4	29.4	22.2

TABLE 6-24. ESTIMATED MONTHLY IMPINGEMENT OF ATLANTIC TOMCOD BY AGE CLASS, ROSETON AND DANSKAMMER POINT GENERATING STATIONS, MAY 1996-APRIL 1997.

DATE		ROSETON				DANSKAMMER POINT			
		YOY[a]	YEARLING	ADULT	TOTAL[b]	YOY[a]	YEARLING	ADULT	TOTAL[b]
1996	May	0	0	0	0	11	0	0	11
	Jun	11	0	0	11	2324	0	0	2324
	Jul	0	0	0	0	1116	0	0	1116
	Aug	25	0	0	25	2179	0	0	2193
	Sep	22	0	0	22	813	0	0	820
	Oct	0	0	0	0	99	0	0	99
	Nov	6	0	0	6	612	22	0	634
	Dec	306	0	0	306	3125	31	0	3156
1997	Jan	0	1008	4	1011	0	14223	85	14309
	Feb	0	35	0	35	0	2217	65	2282
	Mar	0	0	0	0	0	2721	114	2835
	Apr	0	0	0	0	0	289	0	289
TOTAL		370	1043	4	1416	10279	19503	264	30068

[a]YOY = Young-of-the-year.

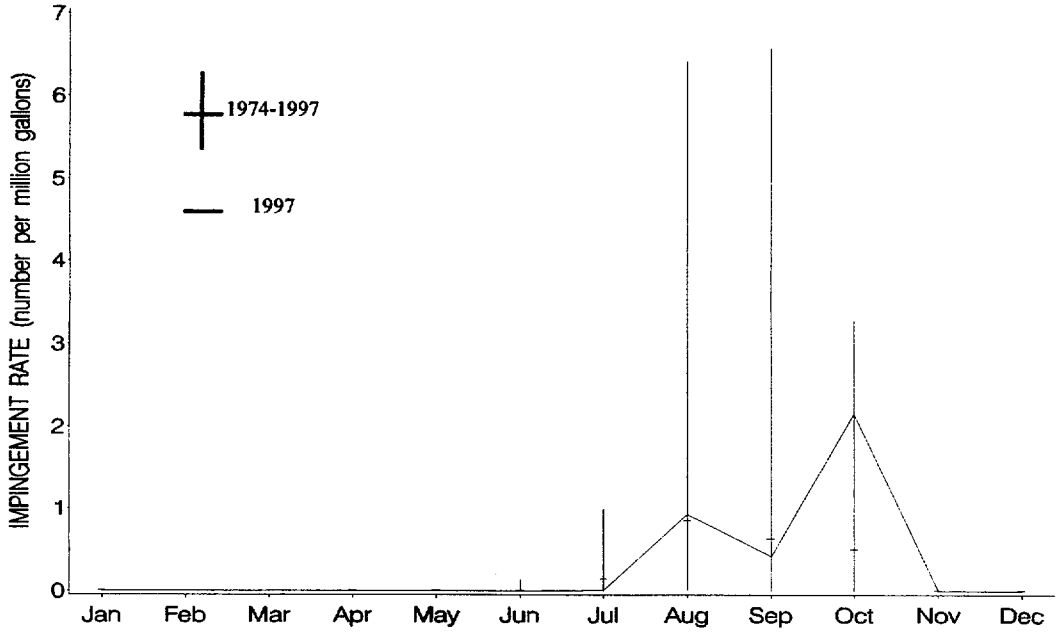
[b]Totals in some cases may exceed sum of age groups due to damaged specimens that could not be assigned to age groups.

TABLE 6-25. MONTHLY IMPINGEMENT RATE AND ESTIMATED TOTAL IMPINGEMENT ABUNDANCE AND BIOMASS OF ATLANTIC TOMCOD, ROSETON AND DANSKAMMER POINT GENERATING STATIONS, MAY 1996-APRIL 1997.

	ESTIMATED NUMBER		ESTIMATED BIOMASS	
	RATE (No./10^6 Gal)	ESTIMATED NUMBER	RATE (g/10^6 Gal)	ESTIMATED GRAMS
ROSETON				
1996 May	0.0000	0	0.0000	0
Jun	0.0009	11	0.0046	53
Jul	0.0000	0	0.0000	0
Aug	0.0020	25	0.0108	134
Sep	0.0024	22	0.0110	104
Oct	0.0000	0	0.0000	0
Nov	0.0006	6	0.0053	60
Dec	0.0201	306	0.5577	8,488
1997 Jan	0.0646	1,011	1.5472	24,229
Feb	0.0030	35	0.0647	744
Mar	0.0000	0	0.0000	0
Apr	0.0000	0	0.0000	0
TOTAL		1,416		33,812
DANSKAMMER POINT				
1996 May	0.0032	11	0.0059	20
Jun	0.2666	2,324	0.9566	8,338
Jul	0.1079	1,116	0.6820	7,053
Aug	0.1945	2,193	1.3217	14,897
Sep	0.0880	820	0.5006	4,668
Oct	0.0156	99	0.1329	846
Nov	0.1047	634	2.5018	15,156
Dec	0.5043	3,156	14.7098	92,070
1997 Jan	2.2732	14,309	55.6291	350,154
Feb	0.3884	2,282	9.9340	58,372
Mar	0.4621	2,835	11.9643	73,397
Apr	0.0653	289	1.3292	5,886
TOTAL		30,068		630,857

Bay Anchovy

Roseton



Danskammer Point

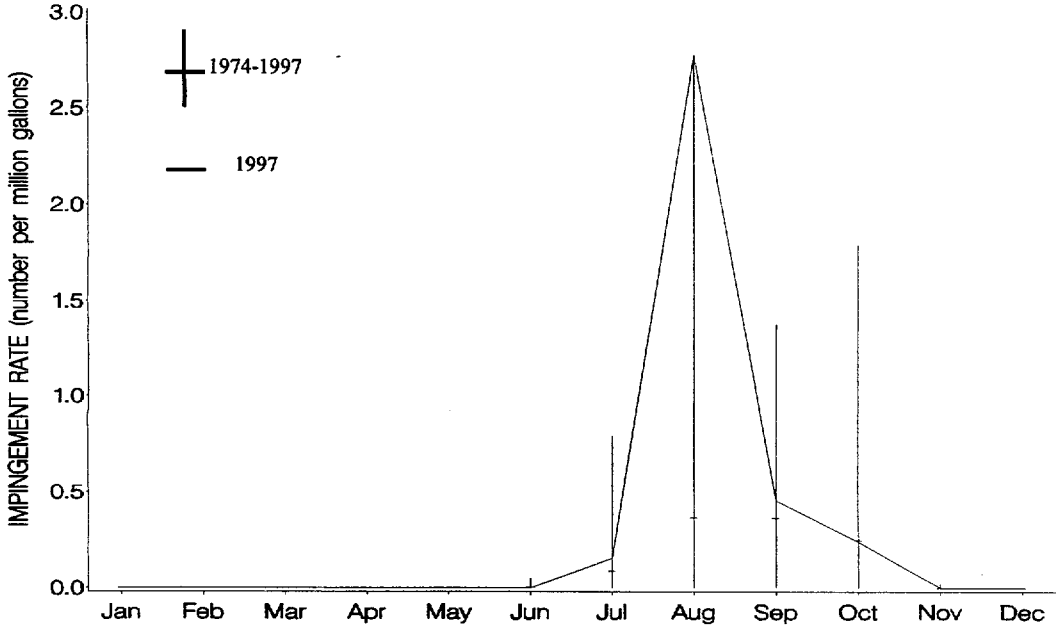
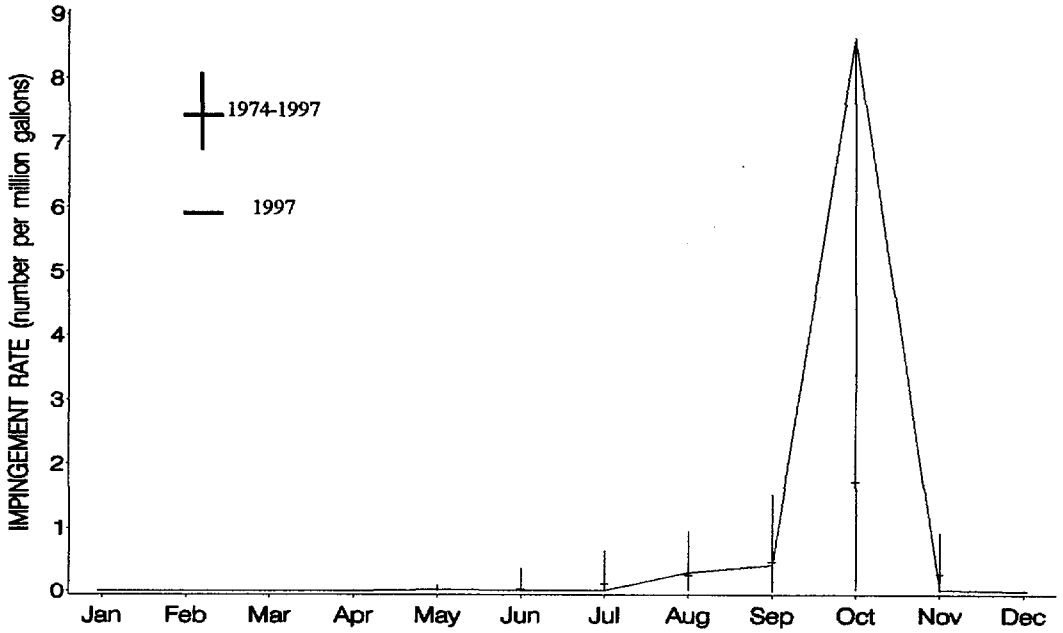


Figure 6-20. Monthly average impingement rate in 1997 for bay anchovy at Roseton and Danskammer Point generating stations and the long-term monthly average and range for 1974-1997.

Blueback Herring

Roseton



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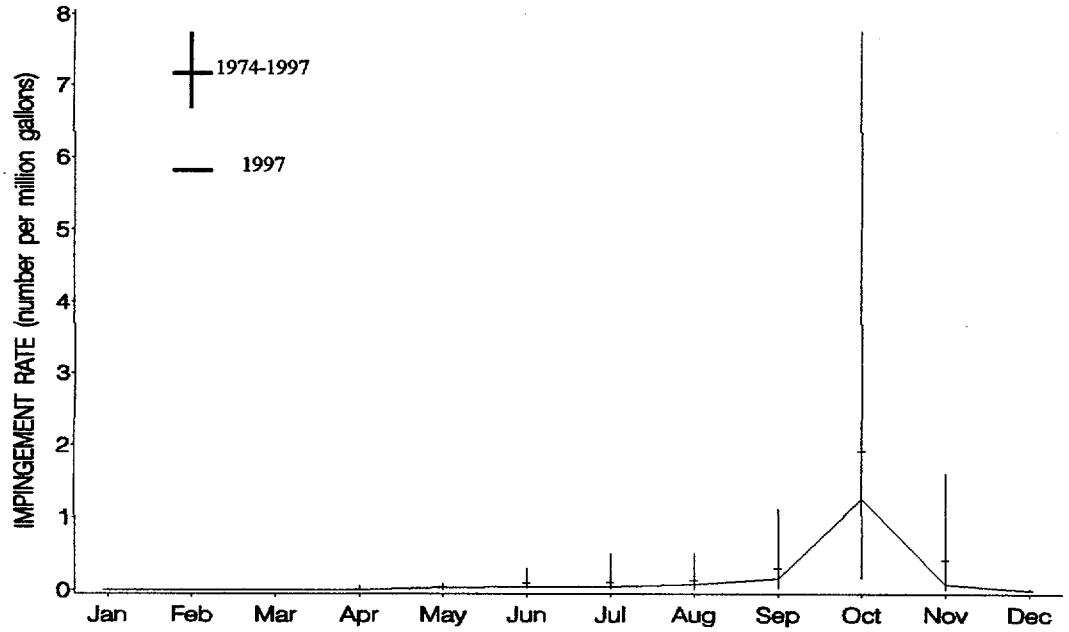
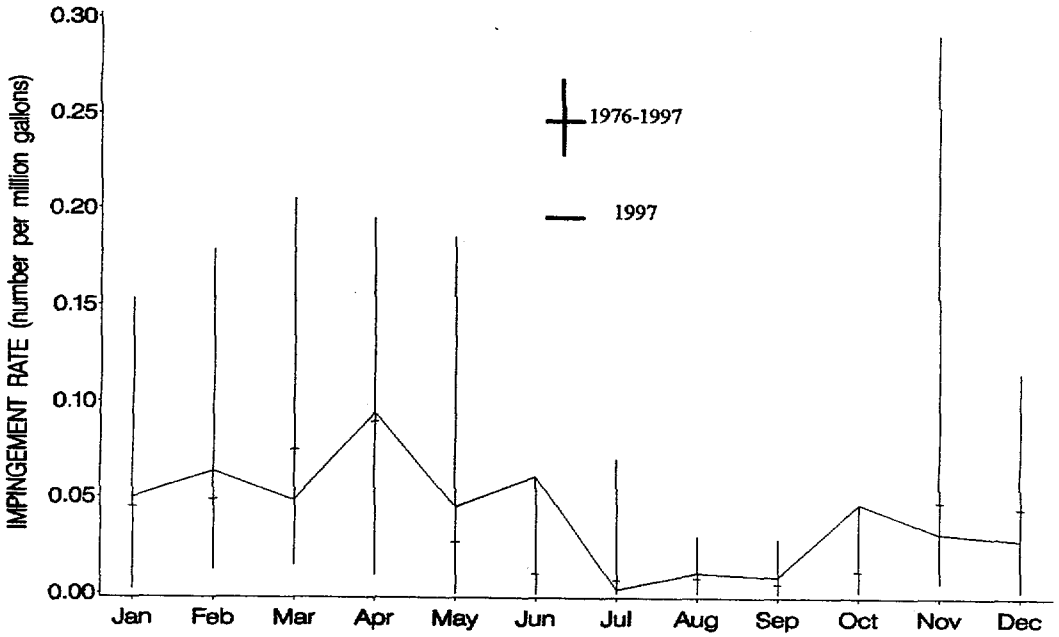


Figure 6-21. Monthly average impingement rate in 1997 for blueback herring at Roseton and Danskammer Point generating stations and the long-term monthly average and range for 1974-1997.

Spottail Shiner

Roseton



Danskammer Point

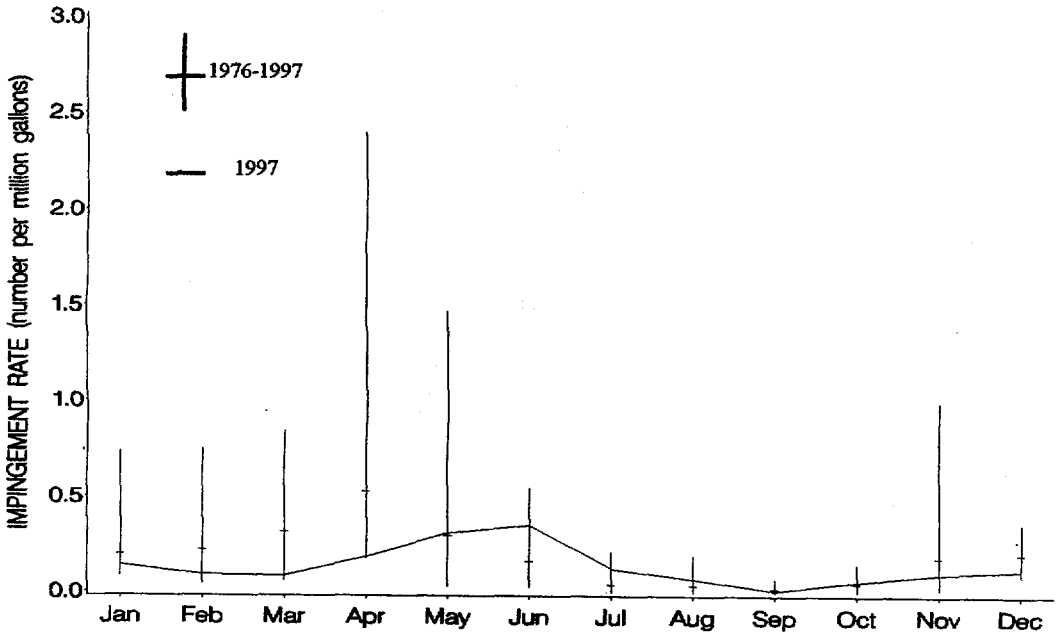


Figure 6-22. Monthly average impingement rate in 1997 for spottail shiner at Roseton and Danskammer Point generating stations and the long-term monthly average and range for 1976-1997.

contributing in the early part of the year, and young-of-the-year and yearlings in the later months. The 1997 data were consistent with this long-term seasonal pattern.

Striped bass impingement can be characterized as lowest in the spring and highest in the summer and fall (Figure 6-23). Multi-year means for all months are higher at Danskammer Point than at Roseton. Yearlings have typically predominated during the first half of the year, and young-of-the-year in the second half of the year. The 1997 impingement levels generally followed a similar seasonal pattern, with high numbers of young-of-the-year in July-December at both plants.

White perch have generally exhibited a bimodal seasonal impingement pattern (Figure 6-24). The spring peak consists of yearlings and adults, whereas the fall peak is dominated by young-of-the-year with significant contributions of yearlings and adults as well. The spring peak coincides with spawning activity, and there is usually a distinct low period in the summer. In 1997, white perch impingement was generally lower in the spring and higher in the fall compared to the historical pattern.

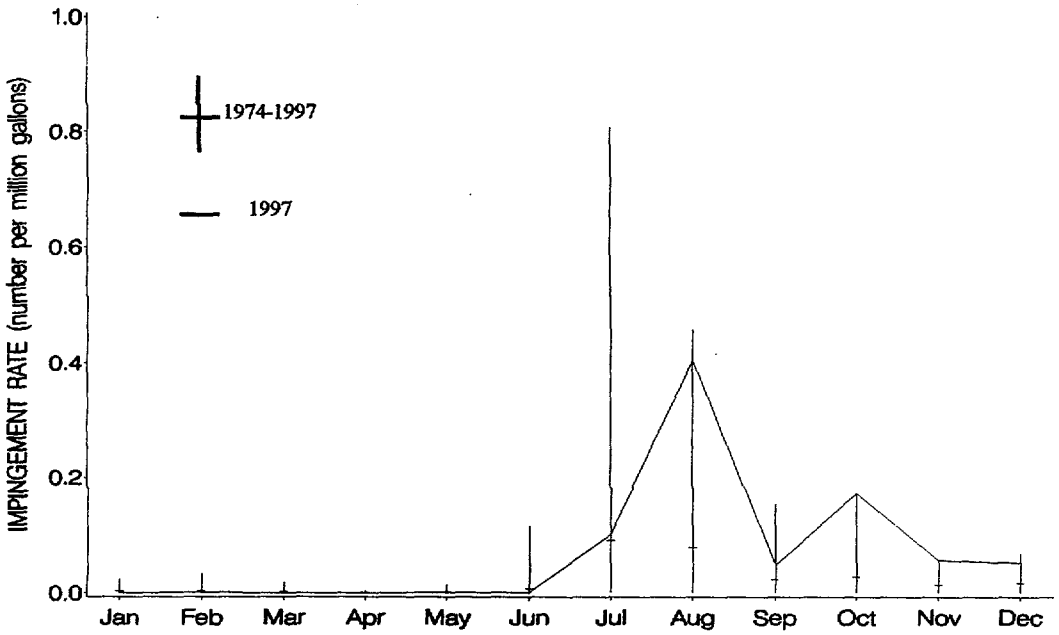
6.6 IMPINGEMENT RELATED TO ABIOTIC FACTORS

During 1997 the influence of marine waters in the northern Newburgh Bay area of the Hudson River, characterized by an increase in specific conductance, occurred primarily in the summer. Typically during the summer and fall a number of species typically associated with marine waters are impinged, such as weakfish and bluefish. Those two species were present in moderate numbers in 1997, which was consistent with the freshwater flow being at average levels compared to previous years. This was in contrast to some previous years (for example, 1994 and 1996) when there was very little intrusion of saline water upriver as far as Roseton and Danskammer Point, but the abundance of marine species in 1997 was not as great as in years such as 1980 and 1991, for example.

The unusually low salinity in 1996 must not have been the only factor responsible for the increased abundance of channel catfish noted in that year (NAI 1997b), as this primarily freshwater species occurred in even greater numbers in 1997. The increase in numbers of impinged channel catfish appears to be a long-term trend rather than merely a response to annual fluctuations in salinity.

Striped Bass

Roseton



Danskammer Point

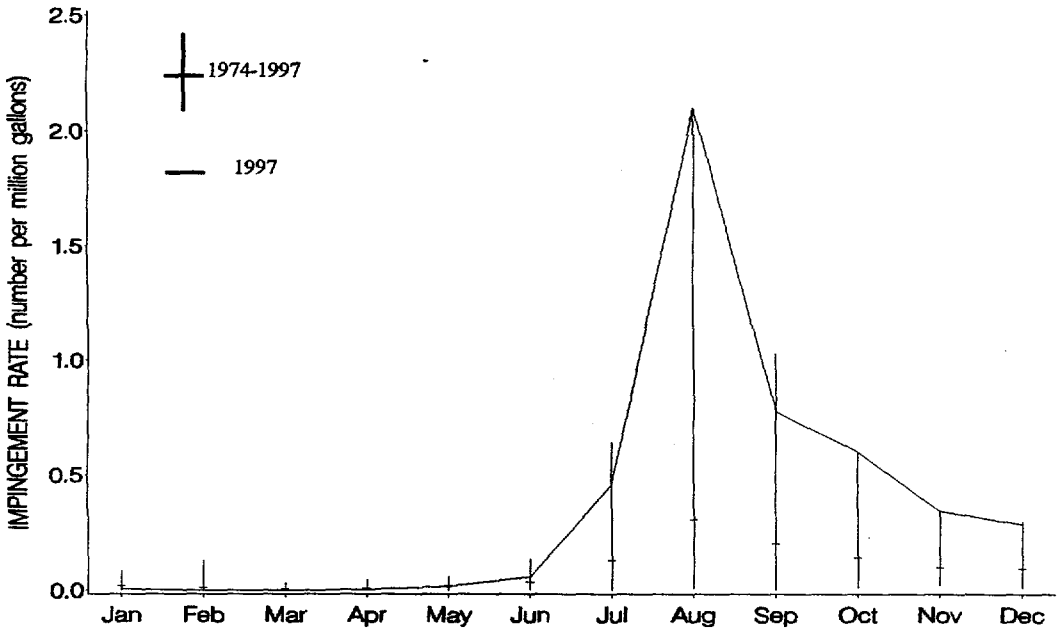
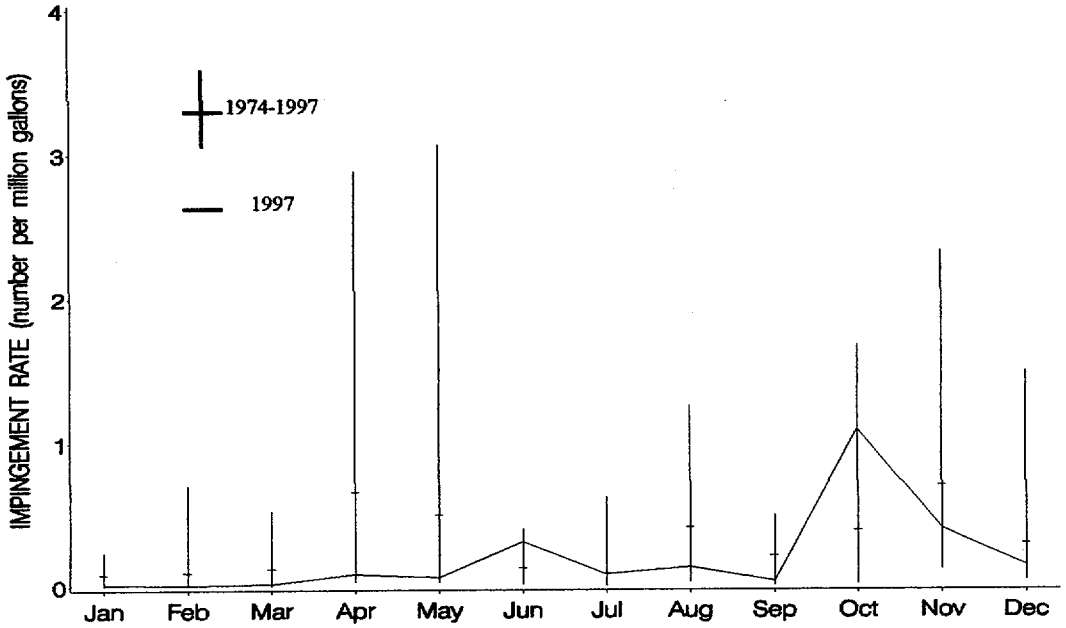


Figure 6-23. Monthly average impingement rate in 1997 for striped bass at Roseton and Danskammer Point generating stations and the long-term monthly average and range for 1974-1997.

White Perch

Roseton



Danskammer Point

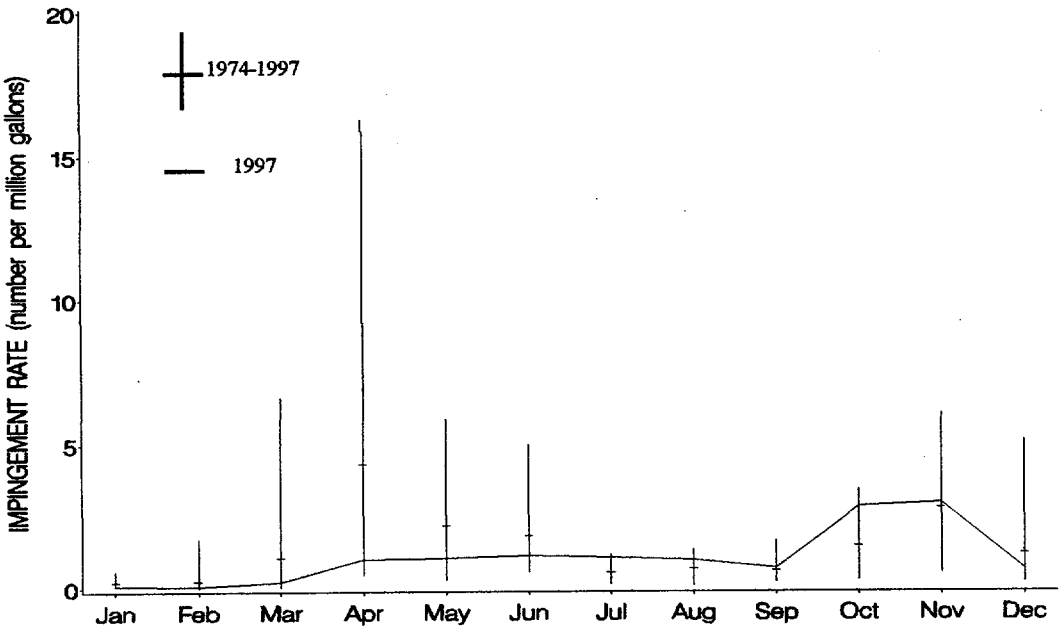


Figure 6-24. Monthly average impingement rate in 1997 for white perch at Roseton and Danskammer Point generating stations and the long-term monthly average and range for 1974-1997.

6.7 COMPARISON BETWEEN PLANTS

The cooling water flow, sampling effort, and a summary of impingement results for 1997 at Roseton and Danskammer Point are compared in Table 6-26. The annual mean rates of impingement were 1.7047 fish per million gallons (MG) at Roseton and 3.3104 fish/MG at Danskammer Point. The total number of fish estimated to have been impinged at Roseton (305,523±140,353) was less than the estimated number for Danskammer Point (337,054±75,494), despite the plant flow at Roseton being 83.2% greater than the flow at Danskammer Point.

Seasonal patterns in 1997 were generally similar at the two plants, with the highest abundances occurring in August and October. Estimated total impingement at Roseton was lowest in March. Impingement at Danskammer Point in 1997 was lowest in February.

There was a difference between the two plants in the average weight of fish impinged. Impinged fish at Roseton weighed an average of about 3 g compared to 13 g at Danskammer Point. Part of that difference was because the proportion of gizzard shad, Atlantic tomcod, white perch, and brown bullhead in the samples was higher at Danskammer Point than at Roseton. Those four relatively large species (averaging over 5 g per fish) accounted for over half of the fish in the Danskammer Point samples (Table 6-8). At Roseton, the two relatively small species blueback herring and bay anchovy (averaging less than 5 g per fish) accounted for over 50% of the fish in the samples. Danskammer Point average fish weights have consistently been noted as being heavier in previous years, for example 1988 (LMS 1989), 1989 (NAI 1990), 1990 (NAI 1992), 1991 (LMS 1993), 1992 (LMS 1994), 1993 (NAI 1996a), 1994 (NAI 1996b), 1995 (NAI 1997a), and 1996 (NAI 1997b). The difference between the plants was also partly due to differences in average weight for the same species. White perch, gizzard shad, Atlantic tomcod, striped bass, blueback herring, and alewife were all heavier on average at Danskammer Point than at Roseton.

The number of species and families present at the two plants was similar, and the species composition was also similar. Two species new to the Roseton/Danskammer impingement program were collected in 1997: blacknose dace, which was collected in April at Roseton, and logperch, which was collected in early June at Danskammer Point (Appendix Tables A-1 and A-2). Both are freshwater species and their presence in impingement samples reflects the lower than

TABLE 6-26. SUMMARY OF IMPINGEMENT SAMPLING RESULTS, ROSETON AND DANSKAMMER POINT GENERATING STATIONS, 1997.

	ROSETON	DANSKAMMER POINT[a]
Number of dates sampled	52	53
Percent of dates sampled	14.2%	14.5%
Total plant cooling water flow	171,721.2 MG	93,718.1 MG
Volume of flow sampled	24,751.16 MG	13,639.34 MG
Percent of total plant flow sampled	14.4%	14.6%
Annual rate of impingement	1.7047/MG	3.3104/MG
Total number of fish collected (A)	59,665	51,489
Number of fish species identified[b]	42	45
Number of fish families represented	18	19
Estimated annual number of fish impinged (B)	305,523 ±140,353[c]	337,054 ±75,494[c]
Total fish biomass collected (C)	167.0 kg	677.1 kg
Estimated annual fish biomass impinged (D)	963.2 kg	4,456.6 kg
C/A = average weight of fish impinged	2.8 g	13.2 g
D/B = average weight of estimated number of fish	3.2 g	13.2 g

[a]Danskammer Point data for 1997 represent only Unit 3 and Unit 4 for most of the year, because Unit 1 and Unit 2 were off line for 37 of 53 sampling dates.
[b]Excluding the taxa unidentified clupeids, unidentified cyprinids, unidentified *Morone*, and unidentified centrarchids.
[c]95% confidence interval
MG = million gallons
kg = kilograms
g = grams

average salinities that occurred in those sampling weeks. Their presence has previously been recorded in the lower Hudson River region (Smith 1985).

6.8 LONG-TERM IMPINGEMENT PATTERNS

Annual impingement rates and estimates of the total number impinged each year during 1973-1997 are presented in Table 6-27 (Roseton) and Table 6-28 (Danskammer Point).

6.8.1 Roseton Generating Station

The estimated total impingement at Roseton in 1997 for all species combined was 305,523. This total was the fifth highest estimate in the 24-year period of record (excluding 1973 when impingement sampling was only conducted for six months). The numerically dominant species, blueback herring, was impinged in higher numbers in only one previous year. In most of the 23 previous years at Roseton, white perch was the dominant species, except for five years in which blueback herring predominated, and four years when bay anchovy was the most abundant species impinged. Striped bass and alewife were impinged in higher than usual numbers compared to most previous years. White perch and American shad were impinged in lower numbers in 1997 than in most previous years.

6.8.2 Danskammer Point Generating Station

The 1997 total estimated impingement at Danskammer Point of 337,054 fish was average compared to the previous 23 years. Striped bass and bay anchovy were impinged in higher numbers than usual at Danskammer Point. The total number estimated to have been impinged during 1997 was the highest in 24 years for striped bass and the second highest for bay anchovy. Blueback herring and white perch were each impinged in lower numbers than in most previous years. The dominant species in 1997 was white perch, as it has been in all but two of the previous 23 years. In 1974 unusually high numbers of Atlantic tomcod were impinged, and in 1975 blueback herring were particularly abundant.

TABLE 6-27. ANNUAL MEAN IMPINGEMENT RATE,[a] ESTIMATED TOTAL NUMBER,[b] AND PERCENTAGE OF THE TOTAL ESTIMATED NUMBER IMPINGED FOR SELECTED SPECIES, ROSETON GENERATING STATION, 1973-1997.

	WHITE PERCH			STRIPED BASS			ATLANTIC TOMCOD			ALEWIFE		
YEAR	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED
1973[c]	0.898	9,157	41.4	0.039	490	2.2	0.014	259	1.2	1.187	1,873	8.5
1974	0.3733	37,330	64.6	0.0051	642	1.1	0.0445	4,296	7.4	0.0125	1,464	2.5
1975	0.6123	139,400	48.4	0.0058	1,388	0.5	0.0203	4,755	1.7	0.0484	12,214	4.2
1976	0.5290	104,183	69.4	0.0030	607	0.4	0.0388	7,208	4.8	0.0093	2,424	1.6
1977	0.5988	131,747	43.1	0.0098	2,730	0.9	0.0775	19,424	6.3	0.1248	37,251	12.2
1978	0.2135	57,980	28.2	0.0045	1,220	0.6	0.0065	1,670	0.8	0.0896	25,971	12.6
1979	0.3443	93,391	45.5	0.0044	1,187	0.6	0.0163	3,770	1.8	0.0314	9,578	4.7
1980	0.5259	131,259	41.2	0.0230	5,657	1.8	0.0151	3,637	1.1	0.0335	9,300	2.9
1981	0.4689	111,693	30.8	0.0205	5,091	1.4	0.0242	5,662	1.6	0.0975	27,611	7.6
1982	0.2195	47,252	31.7	0.0014	332	0.2	0.0094	2,044	1.4	0.0092	2,307	1.5
1983	0.4876	109,723	42.1	0.0092	2,181	0.8	0.0035	884	0.3	0.0351	10,101	3.9
1984	0.1614	38,362	21.4	0.0036	848	0.5	0.0114	2,698	1.5	0.0133	3,164	1.8
1985	0.1727	26,219	29.3	0.0020	427	0.5	0.0164	2,298	2.6	0.0300	5,144	5.8
1986	0.1525	35,833	49.3	0.0011	259	0.4	0.0020	439	0.6	0.0108	2,828	3.9
1987	0.3367	82,723	29.1	0.0073	2,019	0.7	0.0164	3,926	1.4	0.0292	8,951	3.2
1988	0.3285	80,358	44.9	0.0136	3,264	1.8	0.0020	478	0.3	0.0167	5,148	2.9
1989	0.3476	78,608	50.9	0.0042	1,030	0.7	0.0029	726	0.5	0.0032	946	0.6
1990	0.3069	68,224	24.3	0.0133	4,070	1.5	0.0035	804	0.3	0.0257	7,580	2.7
1991	0.2189	61,223	8.1	0.1021	33,159	4.4	0.0451	15,201	2.0	0.0782	25,320	3.4
1992	0.1560	40,328	19.0	0.0124	3,580	1.7	0.0011	290	0.1	0.0327	9,454	4.5
1993	0.2247	45,435	39.1	0.0311	6,226	5.4	0.0057	1,152	1.0	0.0338	6,743	5.8
1994	0.0845	17,441	11.5	0.0525	13,420	8.9	0.0019	411	0.3	0.1174	28,668	19.0
1995	0.2112	39,441	16.3	0.1194	26,126	10.8	0.0078	1,657	0.7	0.0656	14,664	6.1
1996	0.1609	23,528	40.8	0.0027	387	0.7	0.0022	382	0.7	0.0142	2,287	4.0
1997	0.1970	37,613	12.3	0.0698	14,259	4.7	0.0111	2,200	0.7	0.1512	27,177	8.9

(Continued)

TABLE 6-27. (CONTINUED)

YEAR	AMERICAN SHAD			BAY ANCHOVY			BLUEBACK HERRING			SPOTTAIL SHINER			TOTAL SPECIES	
	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER
1973[c]	0.0016	21	0.1	0.176	1,107	5.0	0.599	6,377	28.8	0.064	1,515	6.9	2.062	22,105
1974	0.0025	337	0.6	0.0211	3,414	5.9	0.0257	2,764	4.8	0.0543	3,661	6.3	0.5944	57,775
1975	0.0094	2,348	0.8	0.0097	2,348	0.8	0.3338	78,854	27.4	0.0698	14,999	5.2	1.2518	288,149
1976	0.0015	367	0.2	0.0085	2,380	1.6	0.0444	10,447	7.0	0.0403	8,502	5.7	0.7449	150,069
1977	0.0082	2,426	0.8	0.0970	31,184	10.2	0.1777	46,066	15.1	0.0623	13,205	4.3	1.2578	305,956
1978	0.0137	4,138	2.0	0.1947	59,265	28.9	0.1081	28,984	14.1	0.0215	5,464	2.7	0.7297	205,341
1979	0.0177	5,397	2.6	0.0829	28,120	13.7	0.1629	40,936	19.9	0.0372	8,537	4.2	0.7541	205,320
1980	0.0226	6,435	2.0	0.1714	44,937	14.1	0.2461	62,909	19.8	0.0417	9,873	3.1	1.2690	318,528
1981	0.0632	17,543	4.8	0.1168	33,756	9.3	0.4874	125,914	34.7	0.0448	9,793	2.7	1.4366	362,734
1982	0.0100	2,649	1.8	0.1631	46,964	31.5	0.1082	23,703	15.9	0.0274	5,553	3.7	0.6336	148,904
1983	0.0197	5,209	2.0	0.2147	63,188	24.3	0.2390	43,554	16.7	0.0257	5,741	2.2	1.1280	260,513
1984	0.0090	2,131	1.2	0.1286	30,576	17.0	0.3778	89,792	50.0	0.0147	3,502	2.0	0.7554	179,544
1985	0.0118	1,927	2.2	0.1194	19,124	21.4	0.1031	18,740	20.0	0.0105	2,757	3.1	0.5338	89,343
1986	0.0141	4,008	5.5	0.0214	6,101	8.4	0.0384	9,707	13.4	0.0213	4,651	6.4	0.3004	72,627
1987	0.082	2,407	0.8	0.0470	15,884	5.6	0.5389	138,756	48.9	0.0308	6,802	2.4	1.1109	284,038
1988	0.0128	3,748	2.1	0.0272	6,706	3.7	0.2546	52,530	29.4	0.0190	4,131	2.3	0.7728	178,900
1989	0.0087	2,496	1.6	0.0027	800	0.5	0.0951	24,755	16.0	0.0500	10,861	7.0	0.6681	154,515
1990	0.0188	5,476	2.0	0.3207	86,700	30.9	0.3135	79,660	28.4	0.0463	10,264	3.7	1.1275	280,478
1991	0.0536	17,107	2.3	1.4419	446,100	59.1	0.2774	74,417	9.9	0.0427	9,889	1.3	2.5101	754,486
1992	0.0155	4,596	2.2	0.1743	45,735	21.6	0.2975	82,680	30.0	0.0227	5,060	2.4	0.7975	212,089
1993	0.0063	1,271	1.1	0.0658	13,062	11.2	0.0706	14,056	12.1	0.0237	3,762	3.2	0.6007	116,325
1994	0.0283	7,404	4.9	0.0491	7,400	4.9	0.2569	48,175	31.9	0.0229	4,580	3.0	0.7273	151,080
1995	0.0327	7,458	3.1	0.4292	66,146	27.4	0.2206	34,721	14.4	0.0580	9,459	3.9	1.3899	241,724
1996	0.0018	250	0.4	0.0004	65	0.1	0.0351	5,175	9.0	0.0573	8,645	15.0	0.3834	57,676
1997	0.0121	2,287	0.7	0.2919	51,969	17.0	0.7852	137,743	45.1	0.0406	6,290	2.1	1.7047	305,523

[a]Mean of the monthly rates (number of fish per million gallons).
[b]Computed from the sum of the monthly estimates.
[c]Impingement samples began July 1973.
Source of 1973-1988 and 1991-1992 data: LMS (1989) and LMS (1994)
Source of 1989-1990 and 1993-1996 data: NAI (1992) and NAI (1997b)

TABLE 6-28. ANNUAL MEAN IMPINGEMENT RATE,[a] ESTIMATED TOTAL NUMBER,[b] AND PERCENTAGE OF THE TOTAL ESTIMATED NUMBER IMPINGED FOR SELECTED SPECIES, DANSKAMMER POINT GENERATING STATION, 1973-1997.

	WHITE PERCH			STRIPED BASS			ATLANTIC TOMCOD			ALEWIFE		
YEAR	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED
1973[c]	0.8015	110,545	10.8	0.1451	18,992	1.8	6.9843	647,076	63.0	1.0048	148,912	14.5
1974	0.7105	84,253	25.5	0.0464	6,293	1.9	1.5781	155,908	47.1	0.2190	31,379	9.5
1975	0.8054	98,230	30.3	0.0214	2,588	0.8	0.6212	46,926	14.5	0.2338	29,755	9.2
1976	1.2230	117,738	47.8	0.0142	1,421	0.6	0.5373	54,637	22.2	0.0921	9,920	4.0
1977	1.3002	140,835	47.4	0.0175	1,859	0.6	0.3041	26,879	9.1	0.2076	24,633	8.3
1978	0.5456	52,240	29.3	0.0141	1,495	0.8	0.1976	18,395	10.3	0.2298	24,343	13.7
1979	0.8349	79,089	40.6	0.0257	2,087	1.1	0.3874	32,174	16.5	0.1112	10,841	5.6
1980	1.8991	175,055	51.1	0.0575	6,401	1.9	0.1125	8,498	2.5	0.2845	33,740	9.9
1981	1.3767	139,865	54.6	0.0586	5,443	2.1	0.2914	27,649	10.8	0.1387	18,086	7.1
1982	1.9937	221,359	65.5	0.0281	2,982	0.9	0.2034	19,453	5.6	0.1379	16,085	4.8
1983	2.3047	226,752	51.3	0.0677	7,576	1.7	0.1273	12,945	2.9	0.2097	26,205	5.9
1984	2.1701	243,465	56.2	0.0522	5,858	1.4	0.2132	23,916	5.5	0.1884	21,132	4.9
1985	1.2503	117,662	34.2	0.0437	4,145	1.2	0.2541	25,622	7.5	0.3980	32,812	9.5
1986	1.6122	157,880	70.0	0.0103	933	0.4	0.0211	1,774	0.8	0.0761	8,460	3.7
1987	2.6613	233,444	55.9	0.0558	6,091	1.5	0.1765	16,319	3.9	0.1942	22,393	5.4
1988	1.2841	148,803	42.9	0.0752	9,780	2.8	0.0984	10,868	3.1	0.0886	12,643	3.6
1989	1.4074	157,697	54.6	0.0315	3,808	1.3	0.0622	6,617	2.3	0.0289	3,693	1.3
1990	1.9640	187,977	62.8	0.0438	5,338	1.8	0.0758	6,832	2.3	0.0325	4,530	1.5
1991	1.1710	138,101	30.2	0.3212	43,482	9.5	0.0989	12,232	2.7	0.2030	27,570	6.0
1992	1.0800	112,707	57.9	0.0489	5,760	3.0	0.0371	3,187	1.6	0.0684	8,010	4.1
1993	1.8431	135,887	41.1	0.3040	29,498	8.9	0.1371	10,637	3.2	0.2095	18,561	5.6
1994	0.8807	66,688	33.3	0.1504	14,994	7.5	0.0084	722	0.4	0.2458	23,864	11.9
1995	1.1950	116,059	38.1	0.1987	23,084	7.6	0.0219	2,480	0.8	0.1270	14,775	4.8
1996	1.9479	153,146	50.8	0.0987	11,305	3.7	0.1079	10,409	3.5	0.0716	7,143	2.4
1997	1.0601	98,350	29.2	0.3883	44,786	13.3	0.3044	24,613	7.3	0.1974	20,255	6.0

(Continued)

TABLE 6-28. (CONTINUED)

YEAR	AMERICAN SHAD			BAY ANCHOVY			BLUEBACK HERRING			SPOTTAIL SHINER			TOTAL SPECIES	
	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER	PERCENT OF TOTAL IMPINGED	ANNUAL MEAN RATE	ESTIMATED ANNUAL NUMBER
1973[c]	0.0089	1,266	0.1	0.1540	1,852	0.2	0.2230	29,234	2.8	0.1499	16,137	1.6	9.7541	1,027,304
1974	0.0164	2,444	0.7	0.0148	2,252	0.7	0.0959	13,339	4.0	0.0886	9,672	2.9	3.0032	330,788
1975	0.0186	2,456	0.8	0.0138	2,047	0.6	0.7473	100,111	30.9	0.0967	9,855	3.0	2.8647	323,874
1976	0.0180	2,011	0.8	0.0005	69	<0.1	0.1224	14,176	5.8	0.1584	14,279	5.8	2.4985	246,258
1977	0.0209	2,600	0.9	0.0102	1,253	0.4	0.2546	30,096	10.1	0.2127	21,547	7.3	2.8116	296,947
1978	0.0325	3,624	2.0	0.0292	2,829	1.6	0.3826	40,526	22.7	0.0743	6,856	3.8	1.7946	178,155
1979	0.0409	4,201	2.2	0.0174	1,962	1.0	0.2662	26,397	13.6	0.1814	15,170	7.8	2.1290	194,879
1980	0.0857	11,502	3.4	0.0730	9,833	2.9	0.1648	19,615	5.7	0.2080	15,756	4.6	3.4804	342,353
1981	0.0351	4,628	1.8	0.0052	620	0.2	0.0527	6,563	2.6	0.1521	13,783	5.4	2.5185	256,371
1982	0.0291	3,305	1.0	0.0780	9,456	2.8	0.0850	9,980	3.0	0.1186	12,566	3.7	3.0828	337,976
1983	0.1310	16,814	3.8	0.2016	25,128	5.7	0.2071	23,288	5.3	0.1810	17,688	4.0	4.2397	442,392
1984	0.1286	14,426	3.3	0.1315	16,601	3.8	0.3600	40,390	9.3	0.1401	15,715	3.6	3.8611	433,174
1985	0.1256	11,632	3.4	0.2072	26,310	7.7	0.7605	62,182	18.1	0.1227	13,689	4.0	3.7039	343,824
1986	0.0216	2,179	1.0	0.0107	1,350	0.6	0.0571	6,217	2.8	0.2114	19,642	8.7	2.3160	225,685
1987	0.0260	2,911	0.7	0.0684	8,928	2.1	0.3750	42,879	10.3	0.4409	37,702	9.0	4.5056	417,367
1988	0.0498	7,094	2.0	0.1811	25,115	7.2	0.4292	58,149	16.8	0.1124	12,035	3.5	2.8443	346,490
1989	0.0359	4,648	1.6	0.0126	1,400	0.5	0.0832	9,586	3.3	0.2717	28,595	9.9	2.5984	288,595
1990	0.0169	2,212	0.7	0.0497	7,320	2.4	0.2427	30,743	10.3	0.1572	14,522	4.9	2.9967	299,126
1991	0.0974	13,646	3.0	0.3265	45,938	10.1	0.6018	69,471	15.2	0.2007	20,655	4.5	3.7839	456,672
1992	0.0426	5,198	2.7	0.0121	1,452	0.7	0.1033	12,334	6.3	0.1286	11,973	6.1	1.8891	194,771
1993	0.0587	5,756	1.7	0.2156	22,359	6.8	0.3329	26,355	8.0	0.1550	11,149	3.4	4.2743	330,259
1994	0.1338	12,056	6.0	0.0084	918	0.5	0.1868	14,799	7.4	0.1181	8,884	4.4	2.4302	200,390
1995	0.0284	3,195	1.0	0.1728	22,187	7.3	0.1867	18,277	6.0	0.2296	20,234	6.6	3.1546	304,842
1996	0.0488	5,021	1.7	0.0030	361	0.1	0.0782	6,740	2.2	0.3461	28,140	9.3	3.7041	301,615
1997	0.0664	7,505	2.2	0.3025	39,056	11.6	0.1426	11,922	3.5	0.1349	13,468	4.0	3.3104	337,054

[a]Mean of the monthly rates (number of fish per million gallons).
[b]Computed from the sum of the monthly estimates.
[c]Impingement samples began July 1973.
Source of 1973-1988 and 1991-1992 data: LMS (1989) and LMS (1994)
Source of 1989-1990 and 1993-1996 data: NAI (1992) and NAI (1997b)

6.9 RELEASED FISH AND INVERTEBRATES

Efforts were made at both plants to return living fish and invertebrates to the Hudson River following analysis. Living organisms were placed in a container of river water as soon as possible after the sample was collected. Following analysis, living organisms were returned to the river south of the Roseton seal well. During times when access or lack of water prevented release at this location, organisms were released at a nearby shoreline location.

At Roseton 604 fish (2.1% of the total collected during the year) and 9,857 invertebrates (82.3% of the total collected) were released alive (Table 6-29). Predominant fish species released alive were brown bullhead, channel catfish, Atlantic tomcod, hogchoker, and white catfish, representing 31.0% (187), 12.7% (77), 12.4% (75), 9.1% (55), and 7.5% (45) of the total released, respectively. Blue crabs accounted for most of the invertebrates, representing 99.4% (9,801) of the invertebrates released.

At Danskammer Point in 1997, 3,347 fish (6.5% of the total collected in 1997) were released alive and 9,321 invertebrates (84.4% of the total collected) were released alive (Table 6-30). Predominant fish species released alive were Atlantic tomcod, brown bullhead, white catfish, channel catfish, and pumpkinseed, representing 56.6% (1,895), 11.0% (369), 6.6% (220), 5.8% (194), and 4.9% (165) of the total released, respectively. Blue crab was the predominant invertebrate released alive, representing 98.3% (9,166) of the total released.

Overall, the number of fish released alive was generally highest in January (mainly Atlantic tomcod) and in October (mainly brown bullhead) at both plants. At Roseton, the greatest number of fish released alive in one month was 160, in October (26.5% of the total released during the year), and the lowest number of fish released alive in one month was three, in July. At Danskammer Point, the most fish released alive in a month was 1,566, in January (46.8% of the year's total), and the lowest number of fish released alive in one month was 22, in July (0.7% of the year's total). The greatest number of invertebrates were released in September-October at Roseton and August-September at Danskammer Point. Overall, the seasonal pattern of numbers of fish and invertebrates released alive corresponded with the seasonal pattern of abundances impinged of some of the hardier species, and with cooler water temperatures and higher dissolved oxygen content.

TABLE 6-29. NUMBER OF FISH AND INVERTEBRATES RELEASED ALIVE FOLLOWING ANALYSIS, ROSETON GENERATING STATION, 1997.

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
Fish													
American eel	1	1	1	3	2	1	1	1		4		2	17
Atlantic tomcod	71	4											75
Banded killifish	5	3		1								1	10
Black crappie	2											1	3
Blueback herring										1			1
Bluegill	1										1		2
Bluntnose minnow				1									1
Brown bullhead	1			2	11	9		8		125	26	5	187
Channel catfish	13	10		16						4	13	21	77
Common carp											1	5	6
Fourspine stickleback	1		1	4									6
Golden shiner	14	1	1								1	1	18
Goldfish	3										2	3	8
Hogchoker				2	21	5	1	4	6	11	5		55
Largemouth bass												1	1
Pumpkinseed	7		1		3	1					3	1	16
Redbreast sunfish			1									1	2
Sea lamprey							1						1
Spottail shiner	2	1	3	4									10
Tessellated darter			4	16									20
Threespine stickleback		4											4
White catfish				11	13					14	7		45
White perch				7						1			8
Yellow perch	14	7	4	4								2	31
TOTAL	135	31	16	71	50	16	3	13	6	160	59	44	604
Invertebrates													
Blue crab						26	81	1828	3298	3352	1215	1	9801
Crayfish						1		1	3	1			6
Mud crab			1	2	1	5	3	2	9	7	19	1	50
TOTAL			1	2	1	32	84	1831	3310	3360	1234	2	9857

TABLE 6-30. NUMBER OF FISH AND INVERTEBRATES RELEASED ALIVE FOLLOWING ANALYSIS, DANSKAMMER POINT GENERATING STATION, 1997.

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
Fish													
American eel				4	2	2	9	2	1	2	4		26
Atlantic tomcod	1378	248	251	4					1		4	9	1895
Banded killifish	4	2											6
Black crappie	3	1	1		1						1	1	8
Bluegill					1				1	1	4	1	8
Brown bullhead	7	5	2	10	30	7	4	165	34	77	27	1	369
Central mudminnow				1									1
Channel catfish	63	18	20	31	14	4			3	1	8	32	194
Common carp		3								1	1	2	7
Fallfish			1										1
Freshwater drum	1											1	2
Gizzard shad										1			1
Golden shiner	44	5	8	5	2						1	2	67
Goldfish	10	1	1	1	1	1							15
Hogchoker				2	27	6	7	34	32	3	4		115
Largemouth bass	1									1	5	1	8
Pumpkinseed	9	2	1	5	45	1			6	64	28	4	165
Rock bass				1									1
Spottail shiner	2		6	10	1				1			3	23
Striped bass	2										11		13
Tessellated darter			2	13	1							1	17
Threespine stickleback	1		1										2
White catfish	7	7	5	39	52	22	2	6	6	60	14		220
White perch	3		22	34	5	1					21		86
Yellow perch	31	9	12	19	26								97
TOTAL	1566	301	333	179	208	44	22	207	85	211	133	58	3347
Invertebrates													
Blue crab						3	212	3779	3639	967	563	3	9166
Crayfish				1			5	6	7	1			20
Mud crab				29	22	7	9	1	5	16	46		135
TOTAL				30	22	10	226	3786	3651	984	609	3	9321

6.10 LOW CAPACITY PUMP EVALUATION

During 1997, Roseton Generating Station operated a new auxiliary service water pump (SWP) when the station was off line and no circulating water pump (CWP) was operating. Prior to installation of the SWP, one CWP would be required to supply service water during periods when both units were off line. The low capacity SWP is rated at approximately 12,000 gallons per minute, compared to approximately 218,000 gpm for one CWP. One of the goals of using the SWP is to reduce the impingement and entrainment impacts by reducing the flow through the plant at times when both Roseton units are off line and a CWP is not needed.

During six impingement sampling dates in 1997, samples were collected when the only flow through Roseton was from the SWP. This affords an opportunity to observe the levels of impingement during reduced flow conditions. Table 6-31 shows flow and impingement totals for those six dates in the context of comparable data from other sampling dates within two weeks of the dates of reduced flow. Although results from different weeks may not be strictly comparable because of natural variation in impingement levels from one week to the next, it is readily apparent that the numbers of fish impinged during low flow conditions were very low compared to typical impingement counts from a similar time of year. The highest number of impinged fish collected during a 6-hour sample with only SWP flow was two, and in 17 of 22 six-hour samples with SWP flow there were no fish impinged. The total number of fish impinged during the 22 SWP-flow-only samples was eight, compared to a total of 21,055 fish in the 38 CWP-flow impingement samples collected within two weeks of the reduced flow samples (Table 6-31).

The highest numbers of this comparison were from the 9-10 October and 16-17 October samples, when large numbers of young-of-the-year blueback herring, bay anchovy, and alewife were collected. If those two weeks were omitted from the comparison under the assumption that they unfairly included a seasonal peak that wasn't present in the reduced flow sampling dates, the total number of fish impinged in the remaining 30 CWP-flow samples in Table 6-31 would be 2,614 fish (87.1 fish per sample), still far higher than the eight fish (0.4 per sample) in the reduced flow samples.

TABLE 6-31. NUMBERS OF FISH IMPINGED AT ROSETON GENERATING STATION IN 1997 ON SAMPLING DATES WITH SERVICE WATER FLOW ONLY, COMPARED TO PRECEDING AND FOLLOWING WEEKS WHEN VARIOUS NUMBERS OF CIRCULATING WATER PUMPS WERE OPERATING.

SAMPLE START DATE	NUMBER OF CIRCULATING WATER PUMPS OPERATING				TOTAL PLANT FLOW DURING EACH SAMPLE (MILLIONS OF GALLONS)				TOTAL NUMBER OF FISH IMPINGED				IMPINGEMENT RATE (FISH PER MILLION GALLONS)			
	Day	Dusk	Night	Dawn	Day	Dusk	Night	Dawn	Day	Dusk	Night	Dawn	Day	Dusk	Night	Dawn
10 Apr	1	1	1	1	70.2	74.9	73.4	73.8	11	28	41	19	0.16	0.37	0.56	0.26
17 Apr	1	1	1	1	76.8	76.8	76.8	76.8	1	16	23	16	0.01	0.21	0.30	0.21
24 Apr	0	0	0-1	1	4.8	4.8	61.2	76.8	0	0	67	26	0.00	0.00	1.09	0.34
1 May	0	0	0	0	4.8	4.8	4.8	4.8	2	0	0	2	0.42	0.00	0.00	0.42
8 May	2	2	2	2	135.6	135.6	135.6	135.6	16	36	193	50	0.12	0.27	1.42	0.37
15 May	0	0	0	0	3.6	4.8	4.8	4.8	0	0	0	1	0.00	0.00	0.00	0.21
22 May	0	0	0	0	4.8	4.8	4.8	4.8	1	2	0	0	0.21	0.42	0.00	0.00
29 May	2	2	2	2	124.3	135.6	135.6	135.6	6	8	46	58	0.05	0.06	0.34	0.43
5 Jun	2	2	2	2	135.6	135.6	135.6	135.6	10	10	528	149	0.07	0.07	3.89	1.10
11 Sep	1	1	1-2	2	78.6	78.6	83.4	135.6	13	5	40	347	0.17	0.06	0.48	2.56
18 Sep	1	1	1-2	2	78.6	78.6	100.2	135.6	8	124	116	603	0.10	1.58	1.16	4.45
25 Sep	0	0	0	0	4.6	4.8	4.8	4.8	0	0	0	0	0.00	0.00	0.00	0.00
2 Oct	0	0	0	0	4.8	4.8	4.8	4.8	0	0	0	0	0.00	0.00	0.00	0.00
9 Oct	2	2	2	2	135.6	135.6	135.6	135.6	118	2,062	5,358	615	0.87	15.21	39.51	4.54
16 Oct	2	2	2	2	135.6	135.6	135.6	135.6	252	2,018	1,595	6,423	1.86	14.88	11.76	47.37

7.0 LITERATURE CITED

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APPENDIX A

ANNUAL IMPINGEMENT ABUNDANCE BY SPECIES

LIST OF APPENDIX A TABLES

A-1. Species representation and abundance in the impingement monitoring program, Roseton Generating Station, 1973-1997.

A-2. Species representation and abundance in the impingement monitoring program, Danskammer Point Generating Station, 1974-1997.

APPENDIX TABLE A-1. SPECIES REPRESENTATION AND ABUNDANCE IN THE IMPINGEMENT MONITORING PROGRAM, ROSETON GENERATING STATION, 1973-1997.

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
perch	8798	5654	18411	15136	24616	12566	22212	28112	26824	8731
ack herring	7676	485	9549	1404	11022	5421	8422	18094	33590	4761
nchovy	1248	515	408	333	9007	14199	6406	11675	9260	7124
'e	1435	254	1967	329	9201	5711	2208	2125	7719	455
ail shiner	334	700	1902	1107	1934	873	1453	1652	1816	742
ed bass	416	86	207	89	604	242	207	1128	1174	60
can shad	19	28	342	51	551	843	1097	1372	4662	502
d shad	15	25	736	333	395	444	191	714	2497	144
nseed	16	77	267	273	336	231	607	5146	864	1397
ic tomcod	78	860	613	1126	3484	293	542	601	1102	282
ker	74	40	243	129	233	198	151	719	177	206
w smelt	97	14	445	74	630	1920	400	572	53	58
catfish	190	234	1059	406	679	214	140	149	101	251
bullhead	3	16	35	32	25	14	74	159	309	96
shiner	29	38	57	35	111	64	57	78	84	64
sh					3			641	19	26
ll	118	20	729	53	204	33	79	302	81	142
killifish	3	6	31	34	24	39	103	582	228	90
ic menhaden						1	2	5	25	2
lated darter	6	19	101	153	69	309	450	246	54	54
perch		11	52	31	65	86	83	105	273	126
g family					332	5	5	62	547	22
sh	12	23	51	47	126	266	206	63	135	17
an eel	5	27	134	85	150	57	59	59	54	22
sh		1	109		9	8	1	30	12	5
l catfish										
outh bass		2	14	6	5	2	11	53	44	10
crappie	3	2		3	8	3	2	4	8	1
ine stickleback				1	2	1	9	52	27	18
oine stickleback		2	4	1	4	1	8	7	2	5
carp			4		1	9	11	13	6	
n family							1		1	
ast sunfish		4	6	4	7	17	8	16	21	10
crappie					41	2			1	
bass			1	4	32	12				
ic sturgeon	3	4	9	2	11	5		1	3	1
ater drum										
				2	24					
ass	1		3	2	1		6		4	
nog				1		3		4	1	1
e jack								3	4	1
ic silverside										
goby										
. mudminnow				1	9	1		4		
silverside										
outh bass					1					2
c croaker										
ullhead					2	10	1	2		
l minnow						1	1			
bullhead			3		2		4		1	
c needlefish								1		
sucker		2			1	1	1		2	1

(CONTINUED)

APPENDIX TABLE A-1. (CONTINUED)

	1973	1974	1975	1976	1977	1978	1979	1980	1981	198
Summer flounder								2		
Hickory shad							2	1		
Northern pipefish								1		
Spanish mackerel										
Bluntnose minnow										
Sea lamprey										
Shortnose sturgeon		1								
Morone species										
Brown trout							1			
Chain pickerel									2	
Eastern silvery minnow					1					
White mullet								1		
Winter flounder										
Emerald shiner				1						
Ictalurus species								1		
Silver perch										
Striped searobin										
Blacknose dace										
Brook stickleback										
Butterfish										
Carp and minnow family					1					
Conger eel										
Creek chub										
Eastern mudminnow										
Fat sleeper										
Kokanee										
Lepomis species										
Longnose gar										
Northern pike										
Northern stargazer								1		
Pimephales species										
Redfin pickerel										
Spotfin shiner			1							
Warmouth			1							
TOTAL	20579	9150	37494	21288	63963	44105	45221	74558	91787	2543
SPECIES	23	29	32	33	40	37	36	41	38	37

(CONTINUED

IX TABLE A-1. (CONTINUED)

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
perch	22141	7934	6308	5172	16351	14423	11506	11596	8742	5497
ack herring	7041	23083	3764	1500	40512	9849	3670	11248	10725	11479
nchovy	14367	7255	4360	1009	2763	1413	113	13129	68080	5740
fe	2138	617	1097	430	1913	793	137	1051	3509	1322
ail shiner	1102	492	383	659	1040	659	1547	1717	1457	681
ed bass	422	196	74	36	462	635	145	553	4584	504
can shad	1031	525	430	601	521	569	353	728	2369	616
d shad	616	52	208	249	423	658	2392	571	959	303
inseed	731	667	464	322	639	1025	554	452	484	267
tic tomcod	168	524	598	65	585	68	97	117	1993	42
oker	589	193	855	75	1018	703	860	467	2234	572
ow smelt	94	56	105	124	1444	125	14	59	393	540
catfish	499	270	85	65	170	177	173	244	59	75
bullhead	305	85	106	144	93	272	74	120	160	335
n shiner	73	58	31	94	120	137	389	158	372	206
ish	46	1	352			68	10		1946	
ill	59	81	20	8	80	244	100	107	87	23
d killifish	70	25	52	63	64	96	24	62	106	78
tic menhaden	1		4	5	6		3	46	2684	52
lated darter	128	22	43	24	46	58	66	20	195	184
r perch	118	54	34	45	47	36	71	93	89	76
ng family			2	8	10	7	5	55		
sh	10	8	9	5	8	22	34	15	23	19
an eel	39	17	16	5	31	36	15	35	44	27
sh	42	2	62		67	9	9	2	609	3
l catfish			1		1	4	5	4	3	11
outh bass	9	4	3	19	18	34	14	24	16	20
crappie	8	4	2	6	6	2	7	14	15	11
ine stickleback	15	1		5	12	2	2	2	3	10
pine stickleback	2	4	15	2	10	13	20	3	13	16
carp	1		2	8	8	3	2	4	15	26
h family				1		2	27	61		
ast sunfish	3			2	6	1	6	8	1	6
crappie	2	3	4	3	2	4	2	2	4	5
bass					1		1	2	2	
ic sturgeon	3	2		1	1				1	
ater drum							10	6	1	
ass				2	1					
hog	1						1	3		
le jack	2				2	3		4		
ic silverside				1					7	
goby									15	1
l mudminnow								1		
silverside										1
outh bass	3	3	1	2			1		2	1
ic croaker										
oullhead					1					
d minnow	1				4	1	1	2		1
bullhead		3			1	1				
ic needlefish				1	3		1	3	2	1
sucker	2		1							1

(CONTINUED)

APPENDIX TABLE A-1. (CONTINUED)

	1983	1984	1985	1986	1987	1988	1989	1990	1991	199
Summer flounder				2					5	
Hickory shad					3	1			1	
Northern pipefish									3	
Spanish mackerel									7	
Bluntnose minnow	5									
Sea lamprey						1		2		
Shortnose sturgeon		1	1			1				
Morone species										
Brown trout										
Chain pickerel									1	
Eastern silvery minnow	1									
White mullet			1							
Winter flounder										
Emerald shiner										
Ictalurus species				1						
Silver perch										
Striped searobin										
Blacknose dace										
Brook stickleback										
Butterfish										
Carp and minnow family										
Conger eel										
Creek chub		1								
Eastern mudminnow	1									
Fat sleeper										
Kokanee				1						
Lepomis species									1	
Longnose gar							1			
Northern pike									1	
Northern stargazer										
Pimephales species	1									
Redfin pickerel								1		
Spotfin shiner										
Warmouth										
TOTAL	51890	42243	19493	10765	68493	32155	22462	42791	112022	287
SPECIES	40	33	34	36	40	37	39	40	45	3

(CONTINUED

APPENDIX TABLE A-1. (CONTINUED)

	1993	1994	1995	1996	1997
White perch	6540	2435	6051	3409	6755
Blueback herring	2245	7458	4698	1283	28374
Bay anchovy	2028	1232	9539	16	9907
Alewife	1049	4177	2239	384	5662
Spottail shiner	536	689	1424	1293	969
Striped bass	1092	1849	3891	63	2567
American shad	223	1107	1136	56	443
Gizzard shad	986	509	1622	441	2005
Pumpkinseed	503	346	760	305	445
Atlantic tomcod	160	55	258	57	347
Hogchoker	384	315	462	169	100
Rainbow smelt	924	599	209		1
White catfish	289	159	131	252	111
Brown bullhead	109	921	407	103	856
Golden shiner	128	163	376	446	290
Weakfish	178		9		76
Bluegill	217	67	117	91	58
Banded killifish	14	169	969	134	45
Atlantic menhaden		4	79	6	3
Tessellated darter	12	76	245	41	125
Yellow perch	50	38	39	84	83
Herring family	1		464	121	1
Goldfish	10	4	42	27	24
American eel	11	20	83	22	52
Bluefish	31		54		20
Channel catfish	9	14	51	196	212
Largemouth bass	20	4	23	9	26
Black crappie	13	13	67	39	23
Fourspine stickleback		14	31	10	10
Threespine stickleback	7	49	17	8	6
Common carp	17	12	15	16	24
Sunfish family	2	13	36	9	17
Redbreast sunfish	3	7	9	4	9
White crappie					
White bass			2	1	
Atlantic sturgeon					
Freshwater drum	4	5		1	5
Spot			1		
Rock bass	4		1	1	
Mummichog		1	2	4	3
Crevalle jack	1		1		
Atlantic silverside			11		
Naked goby			1		2
Central mudminnow		1	1		
Brook silverside			5	10	1
Smallmouth bass				1	
Atlantic croaker			16		
Black bullhead					
Fathead minnow	2	1			
Yellow bullhead					
Atlantic needlefish		1			

(CONTINUED)

APPENDIX TABLE A-1. (CONTINUED)

	1993	1994	1995	1996	1997
White sucker		1			
Summer flounder	1				
Hickory shad					1
Northern pipefish	1		2		
Spanish mackerel					
Bluntnose minnow					1
Sea lamprey				2	1
Shortnose sturgeon		1	1		
Morone species	1		3		1
Brown trout	1			2	
Chain pickerel					
Eastern silvery minnow					1
White mullet	1				
Winter flounder	2	1			
Emerald shiner					1
Ictalurus species					
Silver perch			1		1
Striped searobin					
Blacknose dace					1
Brook stickleback				1	
Butterfish			1		
Carp and minnow family					
Conger eel					
Creek chub					
Eastern mudminnow					
Fat sleeper		1			
Kokanee					
Lepomis species					
Longnose gar					
Northern pike					
Northern stargazer					
Pimephales species					
Redfin pickerel					
Spotfin shiner					
Warmouth					
TOTAL	17809	22531	35602	9117	59665
SPECIES	38	38	45	37	42

Source of 1973-1996 data: NAI (1997b).
A higher taxon was not counted as an additional species unless no species from that taxon was recorded that year.

APPENDIX TABLE A-2. SPECIES REPRESENTATION AND ABUNDANCE IN THE IMPINGEMENT MONITORING PROGRAM, DANSKAMMER POINT GENERATING STATION, 1974-1997.

	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
perch	10396	14152	18875	28415	11106	16095	42961	34019	57323	62672
ack herring	1869	9711	1997	5633	10298	6241	5089	1318	2369	5919
tic tomcod	12629	5849	9830	3784	3312	5282	1999	10545	3890	3623
fe	4519	4314	1478	4294	6333	2474	8543	3751	4215	6528
rd shad	205	2997	1231	3580	953	234	4981	2903	1857	8637
ail shiner	948	1457	2318	4151	1248	2636	3608	2624	3312	5370
nchovy	301	278	10	200	589	278	2095	107	2580	7082
ed bass	908	362	228	342	270	341	1364	1164	665	1982
inseed	384	380	600	1009	548	767	3227	1922	4097	3881
can shad	359	342	359	408	922	889	2938	827	738	3968
catfish	595	678	826	1079	293	201	687	432	533	4599
n shiner	599	197	398	531	344	565	288	412	435	672
bullhead	92	62	43	46	38	63	336	306	429	1759
oker	33	60	74	88	46	40	390	159	409	580
ow smelt	46	44	493	277	1074	727	135	21	39	125
w perch	40	34	73	134	115	147	306	353	642	965
ill	117	274	105	317	80	130	273	457	285	409
ish							1162	2	22	151
ish	191	127	173	557	749	758	198	308	108	75
ng family	63	11	6	147	30	53	111	88	20	96
can eel	117	88	229	245	123	97	184	135	168	222
sh	5	6		2			390	22	27	457
lated darter	24	18	26	28	56	116	98	35	129	152
ic menhaden		1	5				6	2	2	1
l killifish	14	10	25	45	37	121	146	175	112	82
el catfish						3	1			
outh bass	9	16	27	20	7	54	351	82	47	51
east sunfish	23	14	18	48	17	28	57	97	65	107
crappie	15	10	26	32	20	21	13	13	35	34
n carp	8	2	1	11	7	29	28	28	11	15
ine stickleback		1	2	2		7	10	7	25	78
bass	1	8	2	129	12			2		
pine stickleback				1	1	2	2	2		
			20	120	20				2	
sucker	25		1	12	3	10	5	12	9	14
crappie	4			51	2	4		1	2	8
species				1						
ass	2		4	11	2	2	6	7	6	7
h family	4	2	3	2		3	1		1	
outh bass	9		1	1				2		
le jack					1		3	4	7	11
perch										
ater drum										1
y shad					4		1		1	7
bullhead			4	17	15	4				
d minnow				1						
ic sturgeon	5	1	1	6	1	1		1	1	2
ic needlefish							1	5	1	10
bullhead				1				4		
pickerel	1		2	1		1	2	2		2
n silvery minnow	5		6	4	3					

(CONTINUED)

APPENDIX TABLE A-2. (CONTINUED)

	1974	1975	1976	1977	1978	1979	1980	1981	1982	198
Central mudminnow	1			4						
Emerald shiner	1		2		1					
Unidentified	13		2						1	
Brown trout	2			3		2	1			
Shortnose sturgeon				1					3	
Longear sunfish			3	7						
Mummichog					1		1	2		
Sea lamprey						1		3		
Brook silverside										
Summer flounder							2			
Warmouth		1								
Naked goby										
Northern pike						2				
White mullet		1					3	1		
Atlantic silverside										
Bluntnose minnow										
Conger eel										
Redfin pickerel				1			1			
Inland silverside							1			
Northern hog sucker				1	1					
Pomoxis species		1		2						
Winter flounder										
Brook trout				1						
Carp and minnow family										
Fallfish				1						
Gray snapper										
Ictalurus species	1									
Kokanee										
Notropis species		1		1						
Rainbow trout								1		
Silver lamprey								1		
Spanish mackerel										
Atlantic croaker										
Brindled madtom						1				
Butterfish										
Common shiner						1				
Creek chub										
Cutlips minnow										
Eastern mudminnow				1						
Lamprey family										
Logperch										
Menidia species										
Oncorhynchus species	1									
Striped searobin									1	
Sturgeon family		1								
Sucker family				1						
TOTAL	34584	41511	39527	55807	38682	38431	82005	62364	84624	12035
SPECIES	38	32	38	49	39	39	43	45	39	41

(CONTINUED

IX TABLE A-2. (CONTINUED)

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
perch	61361	26597	36583	59487	31907	21898	33849	19458	15775	19509
ack herring	9112	16178	1142	10128	11971	1412	3882	10878	1744	4095
tic tomcod	4678	5405	309	2970	3179	830	1333	1643	607	1443
fe	4789	8466	1503	4581	2608	554	664	3807	1184	2696
d shad	1280	3445	411	2581	4382	4769	1903	3288	1873	4127
il shiner	3641	2610	3955	8502	2422	3885	2382	3038	1753	1636
chovy	4172	6358	219	1869	4489	211	1033	7050	204	3381
d bass	1448	930	168	1211	2117	555	786	6008	820	4726
nseed	3385	1436	1437	1437	1396	904	689	1447	588	1923
an shad	4021	2672	355	602	1691	672	296	1933	800	867
catfish	2346	552	174	620	855	748	913	210	186	1144
shiner	866	718	636	911	1048	1284	608	861	480	240
bullhead	429	229	189	416	1125	253	253	268	344	275
ker	860	1477	323	625	939	588	373	912	561	528
w smelt	259	121	628	1404	309	20	432	251	255	823
perch	669	345	376	510	161	217	167	175	171	98
ll	555	181	45	199	380	286	122	159	68	129
sh	1	259			59	1	1	1606		529
sh	52	71	43	46	158	134	29	47	50	18
g family	13	11	36	79	1701	53	18			7
an eel	145	131	91	183	98	65	82	78	55	45
sh	23	178		70	7	33	3	734	1	196
lated darter	80	67	67	203	97	68	26	89	45	26
ic menhaden		76	18	7		7	16	1487	8	2
killifish	74	77	86	108	99	40	16	42	16	20
l catfish	1	3		1	15	6	4	6	14	15
outh bass	28	42	20	87	151	33	28	28	29	23
ast sunfish	96	21	12	35	12	14	18	14	15	8
crappie	51	9	10	12	26	22	29	30	20	11
carp	5	33	15	18	54	54	14	28	51	7
ine stickleback	2	4	15	189	7	6		3	2	4
bass				6	1	1	5	10		
bine stickleback	10	20	9	14	22	13	2	5	8	9
					1					
sucker	15	5	3	12	1	5	9	1		3
crappie	3	8	12	7	9	2	3	4	1	2
species					89	6				4
ass	4	2	3	11	2	1	2	1	1	1
family			1	5		23	9			2
outh bass	18	23		1	3	2		3	1	
e jack	5		1	1	11		11			
perch										
ater drum		1				14	5	1	2	6
shad	8		8	8	4		2	5		
ullhead		3	1	2						
minnow				25	2					5
c sturgeon	3	1	1	1	1		2		1	
c needlefish	1	10		1			2			
bullhead	10	6		3					1	2
ickerel	3	3			1			1		
silvery minnow										
mudminnow			1	2			1			7
shiner				3	2				1	1

(CONTINUED)

APPENDIX TABLE A-2. (CONTINUED)

	1984	1985	1986	1987	1988	1989	1990	1991	1992	199
Unidentified	2									
Brown trout				1				1	1	
Shortnose sturgeon	3	2					1		1	
Longear sunfish										
Mummichog		1					1		2	
Sea lamprey				1	1	1				
Brook silverside								1		
Summer flounder	2	1						2		
Warmouth								1	3	
Naked goby					1	1		3		
Northern pike						1		1		
White mullet										
Atlantic silverside										
Bluntnose minnow			2					2		
Conger eel									4	
Redfin pickerel				1						
Inland silverside					1				1	
Northern hog sucker										
Pomoxis species										
Winter flounder		2						1		
Brook trout										
Carp and minnow family										
Fallfish										
Gray snapper										
Ictalurus species	1									
Kokanee			1							
Notropis species										
Rainbow trout										
Silver lamprey		1								
Spanish mackerel								2		
Atlantic croaker										
Brindled madtom										
Butterfish										
Common shiner										
Creek chub	1									
Cutlips minnow										
Eastern mudminnow										
Lamprey family				1						
Logperch										
Menidia species					1					
Oncorhynchus species										
Striped searobin										
Sturgeon family										
Sucker family										
TOTAL	104531	78791	48909	99197	73616	39692	50024	65623	27747	485
SPECIES	43	46	38	47	45	41	42	48	43	4

(CONTINUE

APPENDIX TABLE A-2. (CONTINUED)

	1994	1995	1996	1997
White perch	10280	17445	20649	15403
Blueback herring	2106	2168	1151	2310
Atlantic tomcod	122	398	1370	3663
Alewife	3344	2169	1076	3478
Gizzard shad	2086	5927	4268	5690
Spottail shiner	1424	3049	3768	2015
Bay anchovy	131	3807	59	5237
Striped bass	2227	3632	1702	6644
Pumpkinseed	1091	1941	791	898
American shad	1750	458	780	1250
White catfish	563	510	2552	515
Golden shiner	393	819	676	450
Brown bullhead	1791	513	585	2208
Hogchoker	302	435	215	219
Rainbow smelt	1867	55		1
Yellow perch	73	122	175	137
Bluegill	102	184	207	48
Weakfish		643	1	131
Goldfish	7	61	53	30
Herring family	46	97	815	39
American eel	33	87	49	60
Bluefish		223		227
Tessellated darter	71	145	66	57
Atlantic menhaden	3	23	39	8
Banded killifish	38	73	54	16
Channel catfish	44	115	439	614
Largemouth bass	17	38	23	28
Redbreast sunfish	16	17	15	18
Black crappie	20	70	24	34
Common carp	18	33	34	14
Fourspine stickleback	8	3	4	6
White bass		3	3	
Threespine stickleback	29	16	1	3
Spot				
White sucker	2	2	2	
White crappie			1	
Morone species		8		5
Rock bass	3	4	9	4
Sunfish family	9	21	4	2
Smallmouth bass	2	2	1	
Crevalle jack	1	6		
Silver perch		61		
Freshwater drum	3	2	12	10
Hickory shad			1	2
Black bullhead				
Fathead minnow	2		1	2
Atlantic sturgeon	1	3		1
Atlantic needlefish				
Yellow bullhead				
Chain pickerel			1	
Eastern silvery minnow				1
Central mudminnow	1			1

(CONTINUED)

APPENDIX TABLE A-2. (CONTINUED)

	1994	1995	1996	1997
Emerald shiner			4	3
Unidentified				
Brown trout			2	1
Shortnose sturgeon		1		
Longear sunfish				
Mummichog	1			1
Sea lamprey				
Brook silverside			6	
Summer flounder				
Warmouth	1		1	
Naked goby				
Northern pike	1			
White mullet				
Atlantic silverside		4		
Bluntnose minnow				
Conger eel				
Redfin pickerel			1	
Inland silverside				
Northern hog sucker				1
Pomoxis species				
Winter flounder				
Brook trout	1			
Carp and minnow family				1
Fallfish				1
Gray snapper	2			
Ictalurus species				
Kokanee				1
Notropis species				
Rainbow trout		1		
Silver lamprey				
Spanish mackerel				
Atlantic croaker		1		
Brindled madtom				
Butterfish		1		
Common shiner				
Creek chub				
Cutlips minnow			1	
Eastern mudminnow				
Lamprey family				
Logperch				1
Menidia species				
Oncorhynchus species				
Striped searobin				
Sturgeon family				
Sucker family				
TOTAL	30032	45396	41691	51489
SPECIES	42	44	44	45

Source of 1973-1996 data: NAI (1997b).
A higher taxon was not counted as an additional species unless no species from that taxon was recorded that year.

APPENDIX B

LENGTH-FREQUENCY INFORMATION FOR MAJOR TAXA

LIST OF APPENDIX B TABLES

B-1.1. Length-frequency of alewife, Roseton Generating Station, 1997.

B-1.2. Length-frequency of American shad, Roseton Generating Station, 1997.

B-1.3. Length-frequency of Atlantic tomcod, Roseton Generating Station, 1997.

B-1.4. Length-frequency of bay anchovy, Roseton Generating Station, 1997.

B-1.5. Length-frequency of blueback herring, Roseton Generating Station, 1997.

B-1.6. Length-frequency of brown bullhead, Roseton Generating Station, 1997.

B-1.7. Length-frequency of gizzard shad, Roseton Generating Station, 1997.

B-1.8. Length-frequency of pumpkinseed, Roseton Generating Station, 1997.

B-1.9. Length-frequency of spottail shiner, Roseton Generating Station, 1997.

B-1.10. Length-frequency of striped bass, Roseton Generating Station, 1997.

B-1.11. Length-frequency of white perch, Roseton Generating Station, 1997.

B-1.12. Frequency distribution of carapace width for blue crab, Roseton Generating Station, 1997.

B-2.1. Length-frequency of alewife, Danskammer Point Generating Station, 1997.

B-2.2. Length-frequency of American shad, Danskammer Point Generating Station, 1997.

B-2.3. Length-frequency of Atlantic tomcod, Danskammer Point Generating Station, 1997.

B-2.4. Length-frequency of bay anchovy, Danskammer Point Generating Station, 1997.

B-2.5. Length-frequency of blueback herring, Danskammer Point Generating Station, 1997.

B-2.6. Length-frequency of brown bullhead, Danskammer Point Generating Station, 1997.

B-2.7. Length-frequency of gizzard shad, Danskammer Point Generating Station, 1997.

B-2.8. Length-frequency of spottail shiner, Danskammer Point Generating Station, 1997.

B-2.9. Length-frequency of striped bass, Danskammer Point Generating Station, 1997.

B-2.10. Length-frequency of white perch, Danskammer Point Generating Station, 1997.

B-2.11. Frequency distribution of carapace width for blue crab, Danskammer Point Generating Station, 1997.

TABLE B-1.1 LENGTH-FREQUENCY OF ALEWIFE, ROSETON GENERATING STATION, 1997.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
3.1 - 4.0	0	0	0	0	0	0	4	12	3	0	0	0
4.1 - 5.0	0	0	0	0	0	0	26	6	9	2	0	0
5.1 - 6.0	0	0	0	0	0	0	49	64	26	48	15	0
6.1 - 7.0	0	0	0	0	0	0	13	46	30	161	64	0
7.1 - 8.0	0	0	0	0	0	0	1	10	9	113	35	0
8.1 - 9.0	0	0	0	0	2	0	0	3	2	25	11	1
9.1 - 10.0	0	0	0	2	6	2	0	2	0	6	2	0
10.1- 11.0	0	1	1	0	2	6	0	1	0	1	1	0
11.1- 12.0	0	0	0	0	2	1	0	0	0	0	0	0
12.1- 13.0	0	0	0	0	0	1	0	1	0	1	0	0
13.1- 14.0	0	0	0	0	0	1	2	1	0	0	0	0
14.1- 15.0	0	0	0	0	0	0	1	1	0	1	0	0
15.1- 16.0	0	0	0	0	0	0	0	2	1	3	0	0
16.1- 17.0	0	0	0	0	0	0	1	2	1	0	0	0
17.1- 18.0	0	0	0	0	0	0	0	0	0	0	1	0
18.1- 19.0	0	0	0	0	0	0	0	0	0	2	0	0
19.1- 20.0	0	0	0	0	0	0	0	0	0	0	0	0
20.1- 21.0	0	0	0	0	0	0	0	0	0	0	0	0
21.1- 22.0	0	0	0	0	0	0	0	0	0	0	0	0
22.1- 23.0	0	0	0	0	0	0	0	0	0	0	0	0
23.1- 24.0	0	0	0	0	0	0	0	0	0	0	0	0
24.1- 25.0	0	0	0	0	1	1	0	0	0	0	0	0
25.1- 26.0	0	0	0	0	0	0	0	0	0	0	0	0
26.1- 27.0	0	0	0	0	1	1	0	0	0	0	0	0
27.1- 28.0	0	0	0	0	0	0	1	0	0	0	0	0
28.1- 29.0	0	0	0	0	0	0	0	0	0	0	0	0
29.1- 30.0	0	0	0	0	0	0	0	0	0	0	0	0
30.1- 31.0	0	0	1	0	0	0	0	0	0	0	0	0
31.1- 32.0	0	0	1	0	0	0	0	0	0	0	0	0
TOTAL ANAL.	0	1	3	2	14	13	98	151	81	363	129	1
MEAN LENGTH	0	10.1	24.3	9.7	12.1	13.2	6.0	6.4	6.3	7.1	7.0	8.4
MIN. LENGTH	0	10.1	10.9	9.3	8.5	9.5	3.8	3.1	3.4	5.0	5.4	8.4
MAX. LENGTH	0	10.1	31.4	10.0	26.3	26.3	27.7	16.9	16.2	18.3	17.9	8.4

TABLE B-1.2 LENGTH-FREQUENCY OF AMERICAN SHAD, ROSETON GENERATING STATION, 1997.

INTERVAL (CM)		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
3.1 - 4.0		0	0	0	0	0	0	2	0	0	0	0	0
4.1 - 5.0		0	0	0	0	0	0	18	4	3	0	0	0
5.1 - 6.0		0	0	0	0	0	0	27	50	0	2	0	0
6.1 - 7.0		0	0	0	0	0	0	1	9	10	13	0	0
7.1 - 8.0		0	0	0	0	0	0	0	2	2	115	1	0
8.1 - 9.0		0	0	0	0	0	0	0	0	2	76	2	1
9.1 - 10.0		0	0	0	0	0	0	0	0	1	15	0	0
10.1- 11.0		0	0	0	0	0	0	0	0	0	0	0	0
11.1- 12.0		0	0	0	0	0	2	0	0	0	1	0	0
12.1- 13.0		0	0	0	0	0	0	0	0	0	0	0	0
13.1- 14.0		0	0	0	0	0	0	0	0	0	1	0	0
14.1- 15.0		0	0	0	0	0	0	1	0	0	0	0	0
15.1- 16.0		0	0	0	0	0	0	0	0	0	0	0	0
16.1- 17.0		0	0	0	0	0	0	0	0	0	0	0	0
17.1- 18.0		0	0	0	0	0	0	0	0	0	0	0	0
18.1- 19.0		0	0	0	0	0	0	0	0	0	0	0	0
19.1- 20.0		0	0	0	0	0	0	0	1	0	0	0	0
	TOTAL ANAL.	0	0	0	0	0	2	49	66	18	223	3	1
	MEAN LENGTH	0	0	0	0	0	11.5	5.3	5.8	6.8	8.0	8.1	8.5
	MIN. LENGTH	0	0	0	0	0	11.3	3.7	4.7	4.4	5.2	7.8	8.5
	MAX. LENGTH	0	0	0	0	0	11.7	15.0	19.5	9.3	13.6	8.5	8.5

TABLE B-1.3 LENGTH-FREQUENCY OF ATLANTIC TOMCOD, ROSETON GENERATING STATION, 1997.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
3.1 - 4.0	0	0	0	0	4	0	0	0	0	0	0	0
4.1 - 5.0	0	0	0	0	2	0	0	0	0	0	0	0
5.1 - 6.0	0	0	0	0	0	4	2	0	0	0	0	0
6.1 - 7.0	0	0	0	0	1	11	10	7	1	0	0	0
7.1 - 8.0	0	0	0	0	0	2	11	37	1	0	0	0
8.1 - 9.0	0	0	0	0	0	1	7	35	5	0	0	0
9.1 - 10.0	0	0	0	0	0	2	2	14	0	0	0	0
10.1- 11.0	0	1	0	0	0	0	0	4	0	0	0	0
11.1- 12.0	17	1	0	0	0	0	0	1	0	0	0	1
12.1- 13.0	35	1	0	0	0	0	0	0	0	0	0	1
13.1- 14.0	35	0	0	0	0	0	0	0	0	0	0	0
14.1- 15.0	23	0	0	0	0	0	0	0	0	0	0	0
15.1- 16.0	16	1	0	0	0	0	0	0	0	0	0	0
16.1- 17.0	13	0	0	0	0	0	0	0	0	0	0	0
17.1- 18.0	7	0	0	0	0	0	0	1	0	0	0	0
18.1- 19.0	3	0	0	0	0	0	0	1	0	0	0	0
19.1- 20.0	1	0	0	0	0	0	1	0	0	0	0	0
20.1- 21.0	0	1	0	0	0	0	0	0	0	0	0	0
21.1- 22.0	2	0	0	0	0	0	0	0	0	0	0	0
22.1- 23.0	0	0	0	0	0	0	0	0	0	0	0	0
23.1- 24.0	1	0	0	0	0	0	0	0	0	0	0	0
TOTAL ANAL.	153	5	0	0	7	20	33	100	7	0	0	2
MEAN LENGTH	14.2	14.4	0	0	4.2	6.8	7.8	8.5	8.2	0	0	11.9
MIN. LENGTH	11.2	11.0	0	0	3.2	5.6	5.5	6.2	7.0	0	0	11.1
MAX. LENGTH	23.2	20.3	0	0	6.2	9.5	19.1	18.9	8.7	0	0	12.6

TABLE B-1.4 LENGTH-FREQUENCY OF BAY ANCHOVY, ROSETON GENERATING STATION, 1997.

INTERVAL (CM)		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2.1 - 3.0		0	0	0	0	0	0	0	5	0	0	0	0
3.1 - 4.0		0	0	0	0	0	0	0	80	21	1	0	0
4.1 - 5.0		0	0	0	0	0	0	0	99	130	126	0	0
5.1 - 6.0		0	0	0	0	0	0	0	0	26	218	0	0
6.1 - 7.0		0	0	0	0	0	0	1	6	2	18	0	0
7.1 - 8.0		0	0	0	0	0	0	15	80	1	26	0	0
8.1 - 9.0		0	0	0	0	0	0	8	25	2	29	0	0
9.1 - 10.0		0	0	0	0	0	0	0	4	0	9	0	0
	TOTAL ANAL.	0	0	0	0	0	0	24	299	182	427	0	0
	MEAN LENGTH	0	0	0	0	0	0	7.9	5.5	4.6	5.7	0	0
	MIN. LENGTH	0	0	0	0	0	0	7.0	2.6	3.3	4.0	0	0
	MAX. LENGTH	0	0	0	0	0	0	8.9	9.7	8.8	9.9	0	0

TABLE B-1.5 LENGTH-FREQUENCY OF BLUEBACK HERRING, ROSETON GENERATING STATION, 1997.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
3.1 - 4.0	0	0	0	0	0	0	4	3	2	0	0	0
4.1 - 5.0	0	0	0	0	0	0	4	93	81	76	0	0
5.1 - 6.0	0	0	0	0	0	0	3	45	83	213	7	0
6.1 - 7.0	0	0	0	0	1	0	0	4	7	63	16	1
7.1 - 8.0	0	0	0	0	7	0	0	0	0	6	24	0
8.1 - 9.0	0	0	0	0	12	4	0	0	0	0	1	0
9.1 - 10.0	0	0	0	0	15	11	0	0	0	1	0	0
10.1- 11.0	0	0	0	0	5	7	0	0	0	0	0	0
11.1- 12.0	0	0	0	0	0	3	1	0	0	0	0	0
12.1- 13.0	0	0	0	0	0	1	6	3	0	4	1	0
13.1- 14.0	0	0	0	0	0	1	6	1	0	3	0	0
14.1- 15.0	0	0	0	0	0	0	0	0	0	1	0	0
15.1- 16.0	0	0	0	0	0	0	0	0	0	0	0	0
16.1- 17.0	0	0	0	0	0	0	0	0	0	1	0	0
17.1- 18.0	0	0	0	0	0	0	0	0	0	0	0	0
18.1- 19.0	0	0	0	0	0	0	0	0	0	0	0	0
19.1- 20.0	0	0	0	0	0	0	0	0	0	0	0	0
20.1- 21.0	0	0	0	0	0	0	0	0	0	0	0	0
21.1- 22.0	0	0	0	0	0	0	0	0	0	0	0	0
22.1- 23.0	0	0	0	0	0	0	0	0	0	0	0	0
23.1- 24.0	0	0	0	0	0	0	0	0	0	0	0	0
24.1- 25.0	0	0	0	0	1	0	0	0	0	0	0	0
25.1- 26.0	0	0	0	0	0	0	0	0	0	0	0	0
26.1- 27.0	0	0	0	0	0	0	0	0	0	0	0	0
27.1- 28.0	0	0	0	0	0	0	0	0	0	0	0	0
28.1- 29.0	0	0	0	0	0	0	0	0	0	0	0	0
29.1- 30.0	0	0	0	0	1	0	0	0	0	0	0	0
TOTAL ANAL.	0	0	0	0	42	27	24	149	173	368	49	1
MEAN LENGTH	0	0	0	0	9.7	10.1	8.9	5.1	5.1	5.7	7.1	7.0
MIN. LENGTH	0	0	0	0	6.7	8.2	3.5	3.9	3.9	4.2	5.5	7.0
MAX. LENGTH	0	0	0	0	29.4	13.3	13.7	13.1	6.6	16.5	12.9	7.0

TABLE B-1.6 LENGTH-FREQUENCY OF BROWN BULLHEAD, ROSETON GENERATING STATION, 1997.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
3.1 - 4.0	0	0	0	0	0	0	2	1	0	0	0	0
4.1 - 5.0	0	0	0	0	0	0	21	26	0	0	0	0
5.1 - 6.0	0	0	0	0	0	0	7	98	1	2	0	0
6.1 - 7.0	0	0	0	0	1	4	0	56	2	10	1	0
7.1 - 8.0	1	0	0	1	2	2	0	7	5	26	5	0
8.1 - 9.0	1	0	0	0	1	6	0	0	3	64	12	3
9.1 - 10.0	0	0	0	0	7	4	0	0	0	50	7	2
10.1- 11.0	1	0	0	0	1	4	0	0	0	17	4	1
11.1- 12.0	0	0	0	0	1	1	1	0	0	7	1	0
12.1- 13.0	0	0	0	0	0	0	0	0	0	0	0	0
13.1- 14.0	0	0	0	0	0	0	0	1	0	0	0	0
14.1- 15.0	0	0	0	0	0	0	0	0	0	0	0	0
15.1- 16.0	0	0	0	0	0	0	0	0	0	0	0	0
16.1- 17.0	0	0	0	0	0	1	0	0	0	0	0	0
17.1- 18.0	0	0	0	1	0	0	0	0	0	0	0	0
18.1- 19.0	0	0	0	0	0	0	0	0	0	0	0	0
19.1- 20.0	0	0	0	0	0	0	0	0	0	0	0	0
20.1- 21.0	0	0	0	0	0	0	0	0	0	0	0	0
21.1- 22.0	0	0	0	0	0	0	1	0	0	0	0	0
22.1- 23.0	0	0	0	0	1	0	1	1	0	0	0	0
23.1- 24.0	0	0	0	0	0	0	0	0	0	0	0	0
24.1- 25.0	1	0	0	0	1	0	0	0	0	0	0	0
25.1- 26.0	0	0	0	0	0	1	0	0	0	0	0	0
26.1- 27.0	0	0	0	0	0	0	0	0	0	0	0	1
27.1- 28.0	0	0	0	0	0	0	0	0	0	0	0	0
28.1- 29.0	1	0	0	0	0	1	0	0	0	0	0	0
TOTAL ANAL.	5	0	0	2	15	24	33	190	11	176	30	7
MEAN LENGTH	16.2	0	0	12.4	11.2	10.8	6.0	5.9	7.4	8.9	8.9	11.6
MIN. LENGTH	7.9	0	0	7.1	7.0	6.8	3.3	3.7	6.0	6.0	6.7	8.1
MAX. LENGTH	29.0	0	0	17.6	24.7	28.5	22.2	22.2	8.3	11.9	11.7	26.3

TABLE B-1.7 LENGTH-FREQUENCY OF GIZZARD SHAD, ROSETON GENERATING STATION, 1997.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
4.1 - 5.0	0	0	0	0	0	0	5	4	0	0	0	0
5.1 - 6.0	0	0	0	0	0	0	10	42	0	0	0	0
6.1 - 7.0	0	0	0	0	0	0	1	39	0	1	4	3
7.1 - 8.0	0	0	0	0	0	0	2	3	0	15	1	1
8.1 - 9.0	0	0	0	0	0	0	0	1	0	37	6	18
9.1 - 10.0	0	0	0	0	0	0	0	0	0	42	10	42
10.1- 11.0	0	0	0	0	0	0	0	0	0	16	11	36
11.1- 12.0	4	0	0	0	0	0	0	0	0	5	8	21
12.1- 13.0	7	0	0	0	0	0	0	0	0	2	2	16
13.1- 14.0	5	0	0	0	0	0	0	0	0	1	1	6
14.1- 15.0	3	0	0	0	0	0	0	0	0	1	2	8
15.1- 16.0	4	0	0	0	0	0	0	0	0	1	1	21
16.1- 17.0	7	0	0	0	0	0	0	0	0	0	1	16
17.1- 18.0	9	0	0	0	0	0	0	0	0	0	0	3
18.1- 19.0	10	0	0	0	0	0	0	0	0	0	1	3
19.1- 20.0	10	0	0	0	0	0	0	0	0	0	0	1
20.1- 21.0	4	0	0	0	0	0	0	0	0	0	0	3
21.1- 22.0	1	0	0	0	0	0	0	0	0	0	0	1
22.1- 23.0	3	0	0	0	0	0	0	0	0	0	0	1
23.1- 24.0	0	0	0	0	0	0	0	0	0	0	0	0
24.1- 25.0	0	0	0	0	0	0	0	0	0	0	0	0
25.1- 26.0	0	0	0	0	0	0	0	0	0	0	0	1
26.1- 27.0	0	0	0	0	0	0	0	0	0	0	0	0
27.1- 28.0	0	0	0	0	0	0	0	0	0	0	0	0
28.1- 29.0	0	0	0	0	0	0	0	0	0	0	0	1
29.1- 30.0	0	0	0	0	0	0	0	0	0	0	0	0
30.1- 31.0	0	0	0	0	0	0	0	0	0	0	0	0
31.1- 32.0	0	0	0	0	0	0	0	0	0	0	0	0
32.1- 33.0	0	0	0	0	0	0	0	0	0	0	0	0
33.1- 34.0	0	0	0	0	0	0	0	0	0	0	0	0
34.1- 35.0	0	0	0	0	0	0	0	0	0	0	0	0
35.1- 36.0	0	0	0	0	0	0	0	0	0	0	0	0
36.1- 37.0	0	0	0	0	0	0	0	0	0	0	0	0
37.1- 38.0	0	0	0	0	0	0	0	0	0	0	0	0
38.1- 39.0	0	0	0	0	0	0	0	0	0	0	0	0
39.1- 40.0	1	0	0	0	0	0	0	0	0	0	0	0
40.1- 41.0	0	0	0	0	0	0	0	0	0	0	0	1
41.1- 42.0	0	0	0	0	0	0	0	0	0	0	0	0
42.1- 43.0	0	0	0	0	0	0	0	0	0	0	0	0
43.1- 44.0	0	0	0	0	0	0	0	0	0	0	0	0
44.1- 45.0	2	0	0	0	0	0	0	0	0	0	0	0
45.1- 46.0	0	1	0	0	0	0	0	0	0	0	0	0
46.1- 47.0	1	0	0	0	0	0	0	0	0	0	0	0
47.1- 48.0	1	1	0	0	0	0	0	0	0	0	0	0
TOTAL ANAL.	72	2	0	0	0	0	18	89	0	121	48	203
MEAN LENGTH	18.9	46.9	0	0	0	0	5.6	6.0	0	9.4	10.6	12.4
MIN. LENGTH	11.2	45.7	0	0	0	0	4.6	4.7	0	6.8	6.2	6.4
MAX. LENGTH	47.3	48.0	0	0	0	0	7.4	8.2	0	15.2	18.6	40.2

TABLE B-1.8 LENGTH-FREQUENCY OF PUMPKINSEED, ROSETON GENERATING STATION, 1997.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
3.1 - 4.0	0	0	0	0	0	0	0	0	0	2	1	0
4.1 - 5.0	1	0	0	0	0	0	0	0	0	40	1	0
5.1 - 6.0	1	0	0	0	0	0	0	0	0	88	4	1
6.1 - 7.0	1	0	0	0	0	1	0	0	0	75	17	2
7.1 - 8.0	0	0	0	0	0	3	0	0	0	36	8	1
8.1 - 9.0	0	0	0	0	0	1	0	1	0	9	5	0
9.1 - 10.0	0	1	0	0	1	6	0	0	0	1	0	0
10.1- 11.0	0	0	0	0	1	10	0	0	0	0	0	0
11.1- 12.0	6	0	0	0	9	7	0	1	0	0	0	0
12.1- 13.0	3	0	0	1	5	7	1	0	0	2	0	0
13.1- 14.0	3	1	2	0	3	2	0	0	0	2	0	1
14.1- 15.0	2	0	0	0	2	1	0	0	0	2	0	1
15.1- 16.0	2	1	0	0	3	0	0	0	0	1	0	0
16.1- 17.0	0	0	0	0	0	0	0	0	0	0	0	0
17.1- 18.0	2	0	0	0	1	0	0	0	0	0	0	0
18.1- 19.0	1	0	0	0	0	0	0	0	0	0	0	0
TOTAL ANAL.	22	3	2	1	25	38	1	2	0	258	36	6
MEAN LENGTH	12.6	13.1	13.1	12.7	12.9	10.9	12.2	10.3	0	6.3	6.9	9.2
MIN. LENGTH	4.3	9.7	13.1	12.7	9.7	7.0	12.2	8.7	0	3.9	3.9	6.0
MAX. LENGTH	18.2	15.7	13.1	12.7	17.9	14.9	12.2	11.9	0	15.1	8.8	14.9

TABLE B-1.9 LENGTH-FREQUENCY OF SPOTTAIL SHINER, ROSETON GENERATING STATION, 1997.

INTERVAL (CM)		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
3.1 - 4.0		0	0	0	0	0	0	1	9	0	0	0	0
4.1 - 5.0		1	2	2	2	0	0	0	16	4	2	0	0
5.1 - 6.0		18	10	9	17	8	7	0	5	3	32	2	4
6.1 - 7.0		21	23	15	26	33	21	0	0	2	77	23	14
7.1 - 8.0		20	9	3	6	15	32	2	0	0	19	27	13
8.1 - 9.0		6	5	1	3	4	10	0	0	0	5	7	11
9.1 - 10.0		32	20	5	7	8	4	3	4	2	8	4	7
10.1- 11.0		25	20	6	12	17	27	1	1	1	10	8	22
11.1- 12.0		6	7	0	7	4	14	1	1	0	3	0	6
12.1- 13.0		0	0	1	1	1	3	0	0	0	0	0	0
	TOTAL ANAL.	129	96	42	81	90	118	8	36	12	156	71	77
	MEAN LENGTH	8.4	8.5	7.5	7.7	8.0	8.7	8.6	5.3	6.4	7.0	7.7	8.7
	MIN. LENGTH	4.8	4.7	4.6	4.8	5.2	5.8	3.3	3.6	4.2	5.0	5.7	5.5
	MAX. LENGTH	12.0	11.5	12.4	12.5	12.1	12.6	11.2	11.2	10.6	11.6	10.5	11.6

TABLE B-1.10 LENGTH-FREQUENCY OF STRIPED BASS, ROSETON GENERATING STATION, 1997.

INTERVAL (CM)		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2.1 - 3.0		0	0	0	0	0	0	21	32	0	0	0	0
3.1 - 4.0		0	0	0	0	0	0	46	49	6	3	0	0
4.1 - 5.0		0	0	0	0	0	0	34	54	12	19	0	0
5.1 - 6.0		0	0	0	0	0	0	3	44	17	74	9	2
6.1 - 7.0		0	0	0	0	0	1	2	18	9	71	46	28
7.1 - 8.0		0	0	0	0	1	0	2	5	13	52	41	50
8.1 - 9.0		0	0	0	0	0	1	1	2	8	42	15	29
9.1 - 10.0		0	0	0	0	0	0	1	0	2	22	7	6
10.1- 11.0		0	0	0	0	0	0	0	0	1	6	0	2
11.1- 12.0		0	0	0	0	0	0	0	0	0	1	0	0
12.1- 13.0		0	0	0	0	0	1	0	0	0	1	0	0
13.1- 14.0		0	1	0	0	0	0	0	0	0	0	0	0
14.1- 15.0		0	0	0	0	0	0	1	1	0	0	0	0
15.1- 16.0		0	0	0	0	0	0	1	0	0	0	0	0
	TOTAL ANAL.	0	1	0	0	1	3	112	205	68	291	118	117
	MEAN LENGTH	0	13.6	0	0	7.7	9.4	4.1	4.6	6.3	7.0	7.2	7.7
	MIN. LENGTH	0	13.6	0	0	7.7	7.0	2.2	2.3	3.4	3.7	5.1	5.5
	MAX. LENGTH	0	13.6	0	0	7.7	12.6	15.5	14.7	10.6	12.4	9.9	10.4

TABLE B-1.11 LENGTH-FREQUENCY OF WHITE PERCH, ROSETON GENERATING STATION, 1997.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2.1 - 3.0	0	0	0	0	0	0	8	21	1	0	0	0
3.1 - 4.0	0	0	0	0	0	0	11	33	1	0	0	0
4.1 - 5.0	1	0	0	0	1	0	3	34	5	5	3	1
5.1 - 6.0	5	1	0	0	8	5	0	76	12	39	30	32
6.1 - 7.0	3	1	1	4	28	27	0	29	17	89	78	45
7.1 - 8.0	1	4	2	17	32	49	10	8	9	176	123	57
8.1 - 9.0	2	1	1	15	6	36	32	1	1	61	82	31
9.1 - 10.0	0	1	0	1	2	7	27	3	2	4	3	6
10.1- 11.0	2	0	0	13	6	20	4	3	1	8	3	4
11.1- 12.0	1	0	0	18	2	26	21	2	1	10	13	4
12.1- 13.0	2	0	2	2	3	19	15	3	0	8	2	4
13.1- 14.0	3	2	5	4	4	22	5	1	0	5	0	2
14.1- 15.0	0	1	0	0	2	21	5	1	0	8	0	3
15.1- 16.0	3	2	0	1	6	21	1	2	1	2	0	1
16.1- 17.0	2	1	0	3	0	16	2	3	0	4	0	0
17.1- 18.0	0	0	0	0	0	9	0	2	0	1	1	2
18.1- 19.0	3	0	2	1	0	7	1	0	0	3	0	0
19.1- 20.0	1	0	0	0	0	2	0	0	0	0	0	0
20.1- 21.0	0	0	0	0	0	4	0	1	0	0	0	0
21.1- 22.0	1	0	0	0	1	1	0	0	0	0	0	0
22.1- 23.0	0	0	0	0	0	0	0	0	0	0	0	0
23.1- 24.0	0	0	0	0	0	1	0	0	0	0	0	0
24.1- 25.0	0	0	0	0	0	0	0	0	0	0	0	0
25.1- 26.0	0	0	0	0	0	1	0	0	0	0	0	0
TOTAL ANAL.	30	14	13	79	101	294	145	223	51	423	338	192
MEAN LENGTH	11.7	10.8	12.4	10.1	8.6	11.5	9.4	5.8	6.6	8.0	7.6	7.7
MIN. LENGTH	4.5	5.6	7.0	6.4	4.8	5.5	2.3	2.2	2.8	4.8	4.8	5.0
MAX. LENGTH	21.3	16.9	18.7	18.2	21.9	25.6	18.7	20.8	15.4	18.7	17.3	17.2

TABLE B-1.12 FREQUENCY DISTRIBUTION OF CARAPACE WIDTH FOR BLUE CRAB, ROSETON GENERATING STATION, 1997.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0.1 - 1.0	0	0	0	0	0	0	0	8	0	1	0	0
1.1 - 2.0	0	0	0	0	0	5	0	100	1	23	10	0
2.1 - 3.0	0	0	0	0	0	7	0	65	29	15	22	0
3.1 - 4.0	0	0	0	0	0	2	2	36	87	28	58	1
4.1 - 5.0	0	0	0	0	0	0	6	3	117	103	73	0
5.1 - 6.0	0	0	0	0	0	0	14	3	25	99	63	0
6.1 - 7.0	0	0	0	0	0	1	9	11	8	65	77	0
7.1 - 8.0	0	0	0	0	0	1	18	14	1	43	43	0
8.1 - 9.0	0	0	0	0	0	2	11	26	1	14	7	0
9.1 - 10.0	0	0	0	0	0	1	6	32	6	2	0	0
10.1- 11.0	0	0	0	0	0	3	8	22	6	0	0	0
11.1- 12.0	0	0	0	0	0	3	3	16	5	0	0	0
12.1- 13.0	0	0	0	0	0	1	3	5	4	3	0	0
13.1- 14.0	0	0	0	0	0	1	3	9	4	1	0	0
14.1- 15.0	0	0	0	0	0	0	6	8	0	3	0	0
15.1- 16.0	0	0	0	0	0	0	1	2	4	1	0	0
16.1- 17.0	0	0	0	0	0	0	1	4	0	1	0	0
17.1- 18.0	0	0	0	0	0	0	0	0	0	0	0	0
18.1- 19.0	0	0	0	0	0	0	0	0	2	0	0	0
TOTAL ANAL.	0	0	0	0	0	27	91	364	300	402	353	1
MEAN LENGTH	0	0	0	0	0	6.2	8.5	5.5	5.0	5.5	5.2	3.9
MIN. LENGTH	0	0	0	0	0	1.2	3.6	0.9	2.0	0.9	1.4	3.9
MAX. LENGTH	0	0	0	0	0	13.8	16.1	16.9	18.2	17.0	8.8	3.9

TABLE B-2.1 LENGTH-FREQUENCY OF ALEWIFE, DANSKAMMER POINT GENERATING STATION, 1997.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
4.1 - 5.0	0	0	0	0	0	0	33	3	1	0	0	0
5.1 - 6.0	0	0	0	0	0	0	102	70	31	8	6	0
6.1 - 7.0	0	0	0	0	0	0	48	162	113	82	16	0
7.1 - 8.0	0	0	0	0	1	0	20	40	91	123	18	0
8.1 - 9.0	0	0	0	0	2	0	6	8	27	59	20	0
9.1 - 10.0	0	1	1	0	4	1	0	6	18	17	7	0
10.1- 11.0	0	1	3	0	8	4	1	2	5	3	1	0
11.1- 12.0	0	0	0	0	2	4	1	0	2	1	0	0
12.1- 13.0	0	0	0	0	3	6	7	3	2	3	0	0
13.1- 14.0	0	0	0	0	2	6	23	7	4	1	0	0
14.1- 15.0	0	0	0	0	1	4	16	24	8	15	0	0
15.1- 16.0	0	0	0	0	0	2	5	16	9	23	0	0
16.1- 17.0	0	0	0	0	0	1	0	8	3	32	0	0
17.1- 18.0	0	0	0	0	0	0	0	0	0	25	0	0
18.1- 19.0	0	0	0	0	0	0	0	0	0	3	0	0
19.1- 20.0	0	0	0	0	0	0	0	0	0	1	0	0
20.1- 21.0	0	0	0	0	0	0	0	0	0	0	0	0
21.1- 22.0	0	0	0	0	0	0	0	0	0	0	0	0
22.1- 23.0	0	0	0	0	0	2	0	0	0	0	0	0
23.1- 24.0	0	0	0	0	3	4	0	0	0	0	0	0
24.1- 25.0	0	0	0	0	5	3	0	0	1	0	0	0
25.1- 26.0	0	0	0	0	2	2	0	0	0	0	0	0
26.1- 27.0	0	0	1	0	2	2	0	0	1	0	1	0
27.1- 28.0	0	0	2	0	4	0	0	0	0	0	0	0
28.1- 29.0	0	0	0	0	2	1	0	0	0	0	0	0
29.1- 30.0	0	0	2	0	1	1	1	0	0	0	0	0
TOTAL ANAL.	0	2	9	0	42	43	263	349	316	396	69	0
MEAN LENGTH	0	9.8	20.1	0	17.8	17.2	7.6	7.9	8.0	9.8	7.9	0
MIN. LENGTH	0	9.4	9.8	0	7.9	10.0	4.1	4.7	5.0	5.2	5.1	0
MAX. LENGTH	0	10.2	29.4	0	29.8	29.3	29.1	17.0	26.1	19.8	27.0	0

TABLE B-2.2 LENGTH-FREQUENCY OF AMERICAN SHAD, DANSKAMMER POINT GENERATING STATION, 1997.

INTERVAL (CM)		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
3.1 - 4.0		0	0	0	0	0	0	2	0	0	0	0	0
4.1 - 5.0		0	0	0	0	0	0	35	1	0	0	0	0
5.1 - 6.0		0	0	0	0	0	0	65	30	0	0	0	0
6.1 - 7.0		0	0	0	0	0	0	21	56	42	3	0	0
7.1 - 8.0		0	0	0	0	0	0	4	10	44	72	4	0
8.1 - 9.0		0	0	0	0	0	0	1	6	12	87	11	0
9.1 - 10.0		0	0	0	0	0	0	0	0	3	25	6	0
10.1- 11.0		0	0	0	0	0	0	0	0	0	8	1	0
11.1- 12.0		0	0	0	0	1	1	0	0	0	5	0	0
12.1- 13.0		0	0	0	0	0	1	0	0	0	0	0	0
13.1- 14.0		0	0	0	0	0	1	0	0	0	0	0	0
14.1- 15.0		0	0	0	0	0	1	0	0	0	0	0	0
15.1- 16.0		0	0	0	0	0	0	0	0	0	0	0	0
16.1- 17.0		0	0	0	0	0	0	0	1	0	2	0	0
17.1- 18.0		0	0	0	0	0	0	0	1	0	3	0	0
18.1- 19.0		0	0	0	0	0	0	0	0	0	6	0	0
19.1- 20.0		0	0	0	0	0	0	0	0	1	2	0	0
	TOTAL ANAL.	0	0	0	0	1	4	128	105	102	213	22	0
	MEAN LENGTH	0	0	0	0	12.0	13.1	5.5	6.6	7.5	9.0	8.7	0
	MIN. LENGTH	0	0	0	0	12.0	11.8	3.2	5.0	6.2	6.6	7.3	0
	MAX. LENGTH	0	0	0	0	12.0	14.3	8.5	17.4	19.7	19.9	10.7	0

TABLE B-2.3 LENGTH-FREQUENCY OF ATLANTIC TOMCOD, DANSKAMMER POINT GENERATING STATION, 1997.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2.1 - 3.0	0	0	0	0	1	0	0	0	0	0	0	0
3.1 - 4.0	0	0	0	0	0	0	0	0	0	0	0	0
4.1 - 5.0	0	0	0	0	4	0	0	0	0	0	0	0
5.1 - 6.0	0	0	0	0	2	6	0	0	0	0	0	0
6.1 - 7.0	0	0	0	0	0	39	12	20	8	0	0	0
7.1 - 8.0	0	0	0	0	0	39	53	64	20	2	0	0
8.1 - 9.0	0	0	0	0	0	13	47	48	12	4	0	0
9.1 - 10.0	0	0	0	0	0	3	26	38	6	3	0	0
10.1- 11.0	3	1	0	0	0	0	2	14	1	9	7	1
11.1- 12.0	28	9	1	0	0	0	0	1	1	5	2	7
12.1- 13.0	110	40	14	2	0	0	0	0	0	3	4	6
13.1- 14.0	118	46	31	4	2	0	0	0	1	1	2	3
14.1- 15.0	84	28	31	4	0	0	0	0	1	0	1	2
15.1- 16.0	51	28	35	10	0	0	0	1	0	0	0	1
16.1- 17.0	36	21	31	1	0	1	1	0	0	0	0	1
17.1- 18.0	21	23	24	7	0	0	0	0	0	0	0	0
18.1- 19.0	20	7	15	3	1	0	0	1	0	0	0	1
19.1- 20.0	6	2	11	3	0	0	0	0	1	0	0	0
20.1- 21.0	3	2	2	1	0	0	0	0	0	0	0	0
21.1- 22.0	2	2	3	0	0	0	0	0	0	0	0	0
22.1- 23.0	3	3	3	1	0	0	0	0	0	0	0	0
23.1- 24.0	0	1	3	0	0	0	0	0	0	0	0	0
24.1- 25.0	4	1	3	0	0	0	0	0	0	0	0	0
25.1- 26.0	1	2	0	0	0	0	0	0	0	0	0	0
26.1- 27.0	4	1	3	0	0	0	0	0	0	0	0	0
27.1- 28.0	2	1	2	0	0	0	0	0	0	0	0	1
28.1- 29.0	0	1	1	0	0	0	0	0	0	0	0	0
29.1- 30.0	0	1	1	0	0	0	0	0	0	0	0	0
30.1- 31.0	0	0	0	0	0	0	0	0	0	0	0	0
31.1- 32.0	1	0	0	0	0	0	0	0	0	0	0	0
TOTAL ANAL.	497	220	214	36	10	101	141	187	51	27	16	23
MEAN LENGTH	14.7	15.3	16.5	16.4	7.8	7.3	8.3	8.5	8.5	10.4	11.8	13.8
MIN. LENGTH	10.5	11.0	12.0	12.9	3.0	5.7	6.3	6.2	6.1	7.8	10.3	10.7
MAX. LENGTH	31.5	29.4	29.4	22.2	18.5	16.4	16.1	19.0	19.2	13.3	14.4	27.5

TABLE B-2.4 LENGTH-FREQUENCY OF BAY ANCHOVY, DANSKAMMER POINT GENERATING STATION, 1997.

INTERVAL (CM)		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2.1 - 3.0		0	0	0	0	0	0	53	25	2	2	0	0
3.1 - 4.0		0	0	0	0	0	0	26	184	42	22	0	0
4.1 - 5.0		0	0	0	0	0	0	0	92	91	51	0	0
5.1 - 6.0		0	0	0	0	0	0	0	5	20	46	1	0
6.1 - 7.0		0	0	0	0	0	0	1	4	4	8	0	0
7.1 - 8.0		0	0	0	0	0	0	38	66	19	4	0	0
8.1 - 9.0		0	0	0	0	0	0	31	51	41	13	0	0
9.1 - 10.0		0	0	0	0	0	0	14	10	7	2	0	0
10.1- 11.0		0	0	0	0	0	0	0	1	0	0	0	0
	TOTAL ANAL.	0	0	0	0	0	0	163	438	226	148	1	0
	MEAN LENGTH	0	0	0	0	0	0	5.6	5.1	5.6	5.3	5.6	0
	MIN. LENGTH	0	0	0	0	0	0	2.1	2.1	2.9	2.9	5.6	0
	MAX. LENGTH	0	0	0	0	0	0	9.9	10.1	9.7	9.8	5.6	0

TABLE B-2.5 LENGTH-FREQUENCY OF BLUEBACK HERRING, DANSKAMMER POINT GENERATING STATION, 1997.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2.1 - 3.0	0	0	0	0	0	0	24	1	0	0	0	0
3.1 - 4.0	0	0	0	0	0	0	13	4	1	0	0	0
4.1 - 5.0	0	0	0	0	0	0	6	34	26	25	0	0
5.1 - 6.0	0	0	0	0	0	0	5	43	88	136	19	0
6.1 - 7.0	0	0	0	0	0	0	1	15	41	89	33	0
7.1 - 8.0	0	0	0	1	3	1	0	0	7	24	7	0
8.1 - 9.0	0	0	0	1	14	7	0	0	1	5	1	0
9.1 - 10.0	0	0	0	0	18	15	0	0	0	1	0	0
10.1- 11.0	0	0	0	0	4	16	0	0	0	1	0	0
11.1- 12.0	0	0	0	0	1	5	2	1	1	0	0	0
12.1- 13.0	0	0	0	0	0	3	8	10	2	0	0	0
13.1- 14.0	0	0	0	0	0	0	3	7	3	3	0	0
14.1- 15.0	0	0	0	0	0	0	1	5	5	3	0	0
15.1- 16.0	0	0	0	0	0	0	0	1	3	0	0	0
16.1- 17.0	0	0	0	0	0	0	0	0	0	1	0	0
17.1- 18.0	0	0	0	0	0	1	0	0	0	0	0	0
18.1- 19.0	0	0	0	0	0	0	0	0	0	1	0	0
19.1- 20.0	0	0	0	0	0	0	0	0	0	0	0	0
20.1- 21.0	0	0	0	0	0	0	0	0	0	0	0	0
21.1- 22.0	0	0	0	0	0	0	0	0	0	0	0	0
22.1- 23.0	0	0	0	0	0	1	0	0	0	0	0	0
23.1- 24.0	0	0	0	0	0	2	0	0	0	0	0	0
24.1- 25.0	0	0	0	0	0	5	0	0	0	0	0	0
25.1- 26.0	0	0	0	0	0	6	1	1	0	0	0	0
26.1- 27.0	0	0	0	0	0	10	1	0	0	0	0	0
27.1- 28.0	0	0	0	0	1	1	0	0	0	0	0	0
28.1- 29.0	0	0	0	0	0	3	0	0	0	0	0	0
29.1- 30.0	0	0	0	0	1	0	0	0	0	0	0	0
TOTAL ANAL.	0	0	0	2	42	76	65	122	178	289	60	0
MEAN LENGTH	0	0	0	8.3	10.1	15.9	6.1	7.0	6.4	6.3	6.4	0
MIN. LENGTH	0	0	0	7.6	7.7	7.8	2.3	2.8	3.7	4.5	5.1	0
MAX. LENGTH	0	0	0	8.9	29.1	28.5	26.3	25.8	15.9	18.9	8.1	0

TABLE B-2.6 LENGTH-FREQUENCY OF BROWN BULLHEAD, DANSKAMMER POINT GENERATING STATION, 1997.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
3.1 - 4.0	0	0	0	0	0	0	5	0	0	0	0	0
4.1 - 5.0	0	0	0	0	0	0	67	10	0	0	0	0
5.1 - 6.0	0	0	0	0	0	0	21	121	4	3	0	0
6.1 - 7.0	0	0	0	1	4	0	0	145	20	7	0	0
7.1 - 8.0	1	0	0	1	16	2	0	54	39	27	6	1
8.1 - 9.0	2	0	0	5	13	0	0	3	22	46	12	0
9.1 - 10.0	0	1	0	3	8	3	2	0	14	44	9	1
10.1- 11.0	0	0	0	0	9	3	1	0	3	11	2	1
11.1- 12.0	0	0	0	0	0	3	1	1	0	3	0	0
12.1- 13.0	0	0	0	0	0	0	0	0	0	0	0	0
13.1- 14.0	0	0	0	0	0	0	1	0	0	0	0	0
14.1- 15.0	0	0	0	0	1	0	2	0	0	0	0	0
15.1- 16.0	0	0	0	0	0	0	0	0	0	0	0	0
16.1- 17.0	0	0	0	0	0	1	1	0	0	0	0	0
17.1- 18.0	0	0	0	0	0	0	0	0	0	0	0	0
18.1- 19.0	0	0	0	0	0	0	0	0	1	0	0	0
19.1- 20.0	0	1	0	0	0	0	0	0	0	0	0	0
20.1- 21.0	1	0	0	1	0	1	0	0	0	0	0	0
21.1- 22.0	0	0	0	0	1	1	0	0	0	0	0	0
22.1- 23.0	1	1	1	0	0	1	0	0	0	0	0	0
23.1- 24.0	2	0	0	0	0	0	0	0	0	0	0	0
24.1- 25.0	0	0	0	0	0	1	2	0	0	0	0	0
25.1- 26.0	0	1	0	1	0	2	1	1	1	0	0	0
26.1- 27.0	0	1	1	0	0	2	1	0	0	0	1	0
27.1- 28.0	2	0	0	0	0	1	0	1	0	0	0	0
28.1- 29.0	0	2	0	0	0	1	0	0	0	0	0	0
29.1- 30.0	0	0	0	0	0	0	0	0	0	0	0	0
30.1- 31.0	1	0	0	0	0	0	0	0	0	0	0	0
TOTAL ANAL.	10	7	2	12	52	22	105	336	104	141	30	3
MEAN LENGTH	20.1	23.0	24.5	10.9	9.0	17.1	6.1	6.4	8.1	8.8	9.5	9.5
MIN. LENGTH	7.4	9.7	22.6	6.9	6.5	7.7	3.2	4.6	5.6	5.3	7.5	7.9
MAX. LENGTH	30.1	28.7	26.4	25.2	21.3	28.2	26.8	27.8	25.5	11.6	26.2	10.9

TABLE B-2.7 LENGTH-FREQUENCY OF GIZZARD SHAD, DANSKAMMER POINT GENERATING STATION, 1997.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
4.1 - 5.0	0	0	0	0	0	0	3	1	0	0	0	0
5.1 - 6.0	0	0	0	0	0	0	107	40	1	0	0	0
6.1 - 7.0	0	0	0	0	0	0	66	98	1	3	5	3
7.1 - 8.0	0	0	0	0	0	0	31	43	2	11	1	7
8.1 - 9.0	1	0	0	0	0	0	32	34	3	59	12	11
9.1 - 10.0	0	0	0	0	0	0	11	15	6	54	30	39
10.1- 11.0	6	0	0	0	0	0	0	7	5	39	28	60
11.1- 12.0	21	0	0	0	0	0	0	6	4	11	12	49
12.1- 13.0	32	0	0	0	0	0	0	4	2	6	12	23
13.1- 14.0	27	0	0	0	0	0	0	3	1	5	3	9
14.1- 15.0	25	0	0	0	0	0	0	2	1	2	5	23
15.1- 16.0	19	0	0	0	0	0	0	0	0	1	2	23
16.1- 17.0	26	1	1	0	0	0	0	0	0	0	0	31
17.1- 18.0	29	0	0	0	0	0	0	0	0	0	0	23
18.1- 19.0	19	0	1	0	0	0	0	0	0	0	0	17
19.1- 20.0	37	0	1	0	0	0	0	0	0	0	0	16
20.1- 21.0	18	0	0	0	0	0	0	0	0	0	0	11
21.1- 22.0	15	0	0	0	0	0	0	0	0	0	0	18
22.1- 23.0	5	0	0	0	0	0	0	0	0	0	1	8
23.1- 24.0	1	0	0	0	0	0	0	0	0	0	0	15
24.1- 25.0	2	0	0	0	0	0	0	0	0	0	0	11
25.1- 26.0	2	0	0	0	0	0	0	0	0	0	0	4
26.1- 27.0	0	0	0	0	0	0	0	0	0	0	0	4
27.1- 28.0	1	0	0	0	0	0	0	0	0	0	0	5
28.1- 29.0	0	0	0	0	0	0	0	0	0	0	0	1
29.1- 30.0	0	0	0	0	0	0	0	0	0	0	0	0
30.1- 31.0	0	0	0	0	0	0	0	0	0	0	0	0
31.1- 32.0	0	0	0	0	0	0	0	0	0	0	0	0
32.1- 33.0	0	0	0	0	0	0	0	0	0	0	0	0
33.1- 34.0	0	0	0	0	0	0	0	0	0	0	0	0
34.1- 35.0	0	0	0	0	0	0	0	0	0	0	0	1
35.1- 36.0	0	0	0	0	0	0	0	0	0	0	0	0
36.1- 37.0	0	0	0	0	0	0	0	0	0	0	0	2
37.1- 38.0	0	0	0	0	0	0	0	0	0	0	0	1
38.1- 39.0	1	1	0	0	0	0	1	0	0	0	0	1
39.1- 40.0	1	1	0	1	0	0	0	0	0	0	0	1
40.1- 41.0	3	1	0	0	0	0	0	0	0	0	0	3
41.1- 42.0	0	0	0	0	1	0	0	0	0	0	0	0
42.1- 43.0	2	0	0	0	0	0	0	0	0	0	0	3
43.1- 44.0	3	3	0	0	0	0	0	0	0	0	1	8
44.1- 45.0	3	2	0	0	0	0	0	0	0	0	0	2
45.1- 46.0	3	2	0	0	0	0	0	1	0	0	0	5
46.1- 47.0	3	4	0	0	0	0	0	0	0	0	0	5
47.1- 48.0	2	0	1	0	0	0	0	0	0	0	0	3
48.1- 49.0	3	2	0	0	0	0	0	0	0	0	0	3
49.1- 50.0	4	2	0	0	0	0	0	0	0	0	0	1
50.1- 51.0	1	2	0	0	0	0	0	0	0	0	0	1
51.1- 52.0	1	0	0	0	0	0	0	0	0	0	0	2
52.1- 53.0	0	1	0	0	0	0	0	0	0	0	0	2
53.1- 54.0	0	0	0	0	0	0	0	0	0	0	0	1
TOTAL ANAL.	316	22	4	1	1	0	251	254	26	191	112	456
MEAN LENGTH	19.3	44.6	25.6	39.4	42.0	0	6.7	7.6	10.1	9.7	11.0	18.0
MIN. LENGTH	9.0	16.6	16.9	39.4	42.0	0	4.6	4.9	5.3	6.7	6.4	6.2
MAX. LENGTH	51.4	52.4	47.3	39.4	42.0	0	38.2	45.8	14.8	15.3	43.3	53.9

TABLE B-2.8 LENGTH-FREQUENCY OF SPOTTAIL SHINER, DANSKAMMER POINT GENERATING STATION, 1997.

INTERVAL (CM)		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2.1 - 3.0		0	0	0	0	0	0	2	0	0	0	0	0
3.1 - 4.0		0	0	0	0	0	0	1	0	0	0	0	0
4.1 - 5.0		0	1	0	0	0	0	0	3	0	0	0	2
5.1 - 6.0		4	1	1	8	13	1	1	0	0	5	4	8
6.1 - 7.0		26	7	7	15	45	4	2	1	0	32	27	26
7.1 - 8.0		20	8	10	15	67	41	15	1	0	18	28	30
8.1 - 9.0		5	2	2	4	24	42	79	29	3	5	2	15
9.1 - 10.0		25	16	16	21	36	17	42	45	3	9	4	8
10.1- 11.0		50	26	20	33	98	65	16	11	1	9	8	25
11.1- 12.0		12	11	8	11	46	24	7	7	2	0	5	2
12.1- 13.0		1	0	1	1	3	3	0	2	1	0	0	0
13.1- 14.0		1	0	0	0	0	0	0	0	0	0	0	0
	TOTAL ANAL.	144	72	65	108	332	197	165	99	10	78	78	116
	MEAN LENGTH	9.2	9.5	9.3	9.1	9.1	9.4	8.9	9.4	10.1	7.7	7.8	8.1
	MIN. LENGTH	5.3	4.7	5.1	5.2	5.1	5.4	2.8	4.4	8.7	5.5	5.6	4.8
	MAX. LENGTH	13.2	11.8	12.1	12.3	12.5	12.5	11.8	12.1	12.3	11.0	11.6	11.4

TABLE B-2.9 LENGTH-FREQUENCY OF STRIPED BASS, DANSKAMMER POINT GENERATING STATION, 1997.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1.1 - 2.0	0	0	0	0	0	0	18	0	0	0	0	0
2.1 - 3.0	0	0	0	0	0	0	112	3	0	0	0	0
3.1 - 4.0	0	0	0	0	0	0	51	21	0	1	0	0
4.1 - 5.0	0	0	0	0	0	0	48	29	13	4	0	0
5.1 - 6.0	0	0	0	0	0	0	47	55	33	31	8	3
6.1 - 7.0	0	0	0	0	0	0	29	102	60	64	55	27
7.1 - 8.0	0	0	0	0	3	8	5	113	83	60	58	57
8.1 - 9.0	0	0	0	0	5	12	2	50	87	48	23	43
9.1 - 10.0	1	0	0	0	5	27	11	11	35	32	14	12
10.1- 11.0	0	0	0	0	4	15	10	3	12	20	9	2
11.1- 12.0	0	0	0	0	4	4	15	1	4	7	3	1
12.1- 13.0	0	0	0	1	1	8	11	2	1	7	5	2
13.1- 14.0	0	0	0	0	1	4	4	2	0	1	1	1
14.1- 15.0	0	0	0	0	1	3	2	4	2	0	4	0
15.1- 16.0	0	0	0	0	0	2	5	2	0	0	0	1
16.1- 17.0	0	0	0	0	0	1	0	0	1	0	0	0
17.1- 18.0	0	0	0	0	0	1	2	0	0	0	0	0
18.1- 19.0	0	0	0	0	0	1	1	0	0	1	0	0
19.1- 20.0	0	0	0	0	0	2	0	0	0	0	0	0
20.1- 21.0	0	0	0	0	0	1	0	1	1	0	0	0
21.1- 22.0	0	0	0	0	0	1	0	0	1	0	0	0
22.1- 23.0	1	0	0	0	0	0	1	0	0	0	0	0
23.1- 24.0	0	0	0	0	0	3	1	0	0	0	0	0
24.1- 25.0	0	0	0	0	0	0	0	0	0	0	0	0
25.1- 26.0	1	0	0	0	0	0	0	0	0	0	0	0
26.1- 27.0	0	0	0	0	0	0	0	0	0	0	0	0
27.1- 28.0	0	0	0	0	0	0	0	0	0	0	0	0
28.1- 29.0	0	0	0	0	0	1	0	0	0	0	0	0
29.1- 30.0	0	0	0	0	0	0	0	0	0	0	0	0
30.1- 31.0	0	0	0	0	0	0	0	0	0	0	0	0
31.1- 32.0	0	0	0	0	0	0	0	0	0	0	0	0
32.1- 33.0	1	0	1	0	0	0	0	0	0	0	0	0
33.1- 34.0	0	0	0	0	0	0	1	0	0	0	0	0
34.1- 35.0	0	0	0	0	0	0	0	0	0	0	0	0
35.1- 36.0	0	0	0	0	0	0	0	0	0	0	0	0
36.1- 37.0	0	0	0	0	0	0	0	0	0	0	0	0
37.1- 38.0	0	0	0	0	0	0	0	0	0	0	0	0
38.1- 39.0	0	0	0	0	0	0	0	0	0	0	0	0
39.1- 40.0	1	0	0	0	0	0	0	0	0	0	0	0
40.1- 41.0	0	0	0	0	0	0	0	0	0	0	0	0
41.1- 42.0	0	0	0	0	0	0	1	0	0	0	0	0
42.1- 43.0	0	0	0	0	0	0	0	0	0	0	0	0
43.1- 44.0	0	0	0	0	0	0	0	0	0	0	0	0
44.1- 45.0	0	1	0	0	0	0	0	0	0	0	0	0
TOTAL ANAL.	5	1	1	1	24	94	377	399	333	276	180	149
MEAN LENGTH	26.1	44.7	32.6	12.8	10.1	11.6	5.5	7.0	7.9	8.0	8.0	8.0
MIN. LENGTH	9.5	44.7	32.6	12.8	7.1	7.1	1.8	2.4	4.3	4.0	5.1	5.6
MAX. LENGTH	39.7	44.7	32.6	12.8	14.2	29.0	41.1	20.6	21.9	18.5	14.9	15.6

TABLE B-2.10 LENGTH-FREQUENCY OF WHITE PERCH, DANSKAMMER POINT GENERATING STATION, 1997.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1.1 - 2.0	0	0	0	0	0	0	7	1	0	0	0	0
2.1 - 3.0	0	0	0	0	0	0	20	2	0	0	0	0
3.1 - 4.0	0	0	0	0	0	0	25	1	0	0	0	0
4.1 - 5.0	0	0	0	0	0	0	21	23	5	1	5	1
5.1 - 6.0	0	0	0	2	14	3	5	100	34	28	15	18
6.1 - 7.0	3	3	3	22	70	20	0	108	72	60	57	45
7.1 - 8.0	7	5	22	76	110	76	20	38	85	142	108	67
8.1 - 9.0	2	2	12	43	29	56	102	4	23	54	63	34
9.1 - 10.0	1	2	0	9	9	24	191	25	7	3	3	5
10.1- 11.0	4	1	11	54	68	39	93	63	30	25	10	5
11.1- 12.0	4	0	11	34	63	30	60	36	27	44	19	4
12.1- 13.0	9	2	13	25	48	46	106	37	19	33	11	2
13.1- 14.0	11	3	21	11	37	46	78	47	39	21	9	6
14.1- 15.0	11	10	30	8	28	43	72	40	19	20	10	3
15.1- 16.0	11	5	29	8	27	36	54	51	13	7	3	5
16.1- 17.0	7	6	11	10	21	46	35	21	11	6	3	3
17.1- 18.0	9	3	6	6	15	34	18	18	7	1	5	0
18.1- 19.0	1	2	0	6	5	35	11	13	9	1	1	1
19.1- 20.0	4	2	1	3	3	37	6	1	1	1	0	0
20.1- 21.0	0	0	1	2	4	8	5	4	1	0	0	0
21.1- 22.0	0	1	0	1	1	17	2	2	3	0	0	0
22.1- 23.0	0	1	0	0	0	5	0	0	0	0	0	0
23.1- 24.0	1	0	0	1	0	2	0	0	0	0	0	0
24.1- 25.0	0	0	0	0	0	1	0	2	0	0	0	0
25.1- 26.0	0	0	0	0	1	1	1	0	0	0	0	0
26.1- 27.0	0	0	0	0	0	0	0	1	0	0	0	0
27.1- 28.0	0	0	0	0	0	1	1	0	0	0	0	0
28.1- 29.0	1	0	0	0	0	0	0	0	0	0	0	0
29.1- 30.0	0	0	0	0	0	0	0	0	0	0	0	0
30.1- 31.0	0	0	0	0	1	0	0	0	0	0	0	0
TOTAL ANAL.	86	48	171	321	554	606	933	638	405	447	322	199
MEAN LENGTH	14.0	13.8	12.8	10.5	10.8	13.3	11.2	10.4	10.0	9.3	8.7	8.3
MIN. LENGTH	6.3	6.2	6.7	5.8	5.2	5.6	1.8	2.0	4.4	5.0	4.8	4.6
MAX. LENGTH	28.4	22.7	21.0	23.7	30.1	27.7	27.4	26.8	21.6	19.3	18.8	18.9

TABLE B-2.11 FREQUENCY DISTRIBUTION OF CARAPACE WIDTH FOR BLUE CRAB, DANSKAMMER POINT GENERATING STATION, 1997.

INTERVAL (CM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0.1 - 1.0	0	0	0	0	0	0	0	31	0	4	1	0
1.1 - 2.0	0	0	0	0	0	1	0	96	6	31	30	0
2.1 - 3.0	0	0	0	0	0	2	0	80	45	52	24	1
3.1 - 4.0	0	0	0	0	0	0	1	19	127	73	35	1
4.1 - 5.0	0	0	0	0	0	0	3	1	96	82	58	1
5.1 - 6.0	0	0	0	0	0	0	4	1	41	110	53	0
6.1 - 7.0	0	0	0	0	0	0	19	10	18	45	27	0
7.1 - 8.0	0	0	0	0	0	0	18	11	2	19	18	0
8.1 - 9.0	0	0	0	0	0	0	18	23	1	5	4	0
9.1 - 10.0	0	0	0	0	0	0	14	31	5	0	1	0
10.1- 11.0	0	0	0	0	0	0	11	26	11	0	0	0
11.1- 12.0	0	0	0	0	0	0	17	13	12	1	0	0
12.1- 13.0	0	0	0	0	0	0	28	11	10	0	1	0
13.1- 14.0	0	0	0	0	0	0	24	7	11	0	0	0
14.1- 15.0	0	0	0	0	0	0	23	9	4	3	0	0
15.1- 16.0	0	0	0	0	0	0	6	5	4	2	0	0
16.1- 17.0	0	0	0	0	0	0	5	2	3	1	0	0
17.1- 18.0	0	0	0	0	0	0	1	1	2	1	0	0
18.1- 19.0	0	0	0	0	0	0	0	1	0	0	0	0
TOTAL ANAL.	0	0	0	0	0	3	192	378	398	429	252	3
MEAN LENGTH	0	0	0	0	0	2.3	10.9	5.4	5.4	4.7	4.6	3.8
MIN. LENGTH	0	0	0	0	0	1.9	3.8	0.6	1.1	0.8	0.8	2.8
MAX. LENGTH	0	0	0	0	0	2.5	17.1	18.3	17.5	17.7	12.1	4.6

APPENDIX C

ESTIMATED IMPINGEMENT ABUNDANCE

LIST OF APPENDIX C TABLES

C-1.1. Estimated weekly abundance of all fish species, Roseton Generating Station, 1997.

C-1.2. Estimated weekly abundance of alewife, Roseton Generating Station, 1997.

C-1.3. Estimated weekly abundance of American eel, Roseton Generating Station, 1997.

C-1.4. Estimated weekly abundance of American shad, Roseton Generating Station, 1997.

C-1.5. Estimated weekly abundance of Atlantic tomcod, Roseton Generating Station, 1997.

C-1.6. Estimated weekly abundance of bay anchovy, Roseton Generating Station, 1997.

C-1.7. Estimated weekly abundance of blueback herring, Roseton Generating Station, 1997.

C-1.8. Estimated weekly abundance of brown bullhead, Roseton Generating Station, 1997.

C-1.9. Estimated weekly abundance of gizzard shad, Roseton Generating Station, 1997.

C-1.10. Estimated weekly abundance of golden shiner, Roseton Generating Station, 1997.

C-1.11. Estimated weekly abundance of pumpkinseed, Roseton Generating Station, 1997.

C-1.12. Estimated weekly abundance of rainbow smelt, Roseton Generating Station, 1997.

C-1.13. Estimated weekly abundance of spottail shiner, Roseton Generating Station, 1997.

C-1.14. Estimated weekly abundance of striped bass, Roseton Generating Station, 1997.

C-1.15. Estimated weekly abundance of white perch, Roseton Generating Station, 1997.

C-1.16. Estimated weekly abundance of blue crab, Roseton Generating Station, 1997.

C-2.1. Estimated weekly abundance of all fish species, Danskammer Point Generating Station, 1997.

C-2.2. Estimated weekly abundance of alewife, Danskammer Point Generating Station, 1997.

C-2.3. Estimated weekly abundance of American shad, Danskammer Point Generating Station, 1997.

C-2.4. Estimated weekly abundance of Atlantic tomcod, Danskammer Point Generating Station, 1997.

C-2.5. Estimated weekly abundance of bay anchovy, Danskammer Point Generating Station, 1997.

C-2.6. Estimated weekly abundance of blueback herring, Danskammer Point Generating Station, 1997.

C-2.7. Estimated weekly abundance of gizzard shad, Danskammer Point Generating Station, 1997.

C-2.8 Estimated weekly abundance of brown bullhead, Danskammer Point Generating Station, 1997.

C-2.9. Estimated weekly abundance of golden shiner, Danskammer Point Generating Station, 1997.

C-2.10. Estimated weekly abundance of pumpkinseed, Danskammer Point Generating Station, 1997.

C-2.11. Estimated weekly abundance of rainbow smelt, Danskammer Point Generating Station, 1997.

C-2.12. Estimated weekly abundance of spottail shiner, Danskammer Point Generating Station, 1997.

C-2.13. Estimated weekly abundance of striped bass, Danskammer Point Generating Station, 1997.

C-2.14. Estimated weekly abundance of white catfish, Danskammer Point Generating Station, 1997.

C-2.15. Estimated weekly abundance of white perch, Danskammer Point Generating Station, 1997.

C-2.16. Estimated weekly abundance of blue crab, Danskammer Point Generating Station, 1997.

APPENDIX TABLE C-1.1. ESTIMATED WEEKLY ABUNDANCE OF ALL FISH SPECIES, ROSETON GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	73	429.60	0.1699	3050.40	518	
	2	259	542.40	0.4775	3796.80	1813	
	3	152	542.40	0.2802	3796.80	1064	
	4	176	1069.36	0.1646	5016.00	826	
	MONTHLY EST.			0.2731	15660.00		4276
FEBRUARY	1	40	536.37	0.0746	3338.40	249	
	2	81	536.00	0.1511	3796.80	574	
	3	73	303.79	0.2403	2193.60	527	
	4	45	305.89	0.1471	2174.40	320	
	MONTHLY EST.			0.1533	11503.20		1763
MARCH	1		0.00		1598.40		
	2	46	291.41	0.1579	2152.80	340	
	3	24	304.00	0.0789	2150.40	170	
	4	32	298.88	0.1071	3357.60	359	
	MONTHLY EST.			0.1146	9259.20		1061
APRIL	1	36	354.09	0.1017	2774.40	282	
	2	99	292.27	0.3387	2152.80	729	
	3	56	307.20	0.1823	2150.40	392	
	4	93	147.60	0.6301	894.00	563	
	MONTHLY EST.			0.3132	7971.60		2497
MAY	1	4	19.20	0.2083	2824.80	589	
	2	295	542.40	0.5439	1605.60	873	
	3	1	18.00	0.0556	134.40	7	
	4	121	550.30	0.2199	2860.80	629	
	MONTHLY EST.			0.2569	7425.60		1908
JUNE	1	697	542.40	1.2850	3796.80	4879	
	2	175	791.95	0.2210	4500.00	994	
	3	84	791.95	0.1061	5196.00	551	
	4	168	808.80	0.2077	7279.20	1512	
	MONTHLY EST.			0.4549	20772.00		9450
JULY	1	308	802.29	0.3839	5750.40	2208	
	2	17	741.60	0.0229	5517.60	126	
	3	556	880.12	0.6317	5500.80	3475	
	4	171	1193.40	0.1433	6727.20	964	
	MONTHLY EST.			0.2955	23496.00		6942
AUGUST	1	1603	783.70	2.0454	4072.80	8331	
	2	6802	921.60	7.3806	5896.80	43522	
	3	108	309.60	0.3488	4605.60	1607	
	4	121	527.71	0.2293	2690.40	617	
	MONTHLY EST.			2.5010	17265.60		43182
SEPTEMBER	1	306	303.61	1.0079	2889.60	2912	
	2	405	376.20	1.0766	3288.00	3540	
	3	851	393.00	2.1654	3259.20	7057	
	4	0	19.00	0.0000	333.60	0	
	MONTHLY EST.			1.0625	9770.40		10381
OCTOBER	1	0	19.20	0.0000	1180.80	0	
	2	8153	542.40	15.0313	3796.80	57071	
	3	10288	542.40	18.9676	3796.80	72016	
	4	24623	1123.20	21.9222	5983.20	131165	
	MONTHLY EST.			13.9803	14757.60		206315
NOVEMBER	1	224	542.40	0.4130	3796.80	1568	
	2	500	542.40	0.9218	3796.80	3500	
	3	209	542.40	0.3853	3796.80	1463	
	4	603	602.40	1.0010	5376.00	5381	
	MONTHLY EST.			0.6803	16766.40		11406
DECEMBER	1	344	508.27	0.6768	4216.80	2854	
	2	193	580.80	0.3323	4053.60	1347	
	3	67	542.40	0.1235	3796.80	469	
	4	383	1084.80	0.3531	5006.40	1768	
	MONTHLY EST.			0.3714	17073.60		6341

APPENDIX TABLE C-1.2. ESTIMATED WEEKLY ABUNDANCE OF ALEWIFE, ROSETON GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	429.60	0.0000	3050.40	0	
	2	0	542.40	0.0000	3796.80	0	
	3	0	542.40	0.0000	3796.80	0	
	4	0	1069.36	0.0000	5016.00	0	
	MONTHLY EST.			0.0000	15660.00		0
FEBRUARY	1	0	536.37	0.0000	3338.40	0	
	2	0	536.00	0.0000	3796.80	0	
	3	1	303.79	0.0033	2193.60	7	
	4	0	305.89	0.0000	2174.40	0	
	MONTHLY EST.			0.0008	11503.20		9
MARCH	1		0.00		1598.40		
	2	2	291.41	0.0069	2152.80	15	
	3	1	304.00	0.0033	2150.40	7	
	4	0	298.88	0.0000	3357.60	0	
	MONTHLY EST.			0.0034	9259.20		31
APRIL	1	0	354.09	0.0000	2774.40	0	
	2	0	292.27	0.0000	2152.80	0	
	3	1	307.20	0.0033	2150.40	7	
	4	1	147.60	0.0068	894.00	6	
	MONTHLY EST.			0.0025	7971.60		20
MAY	1	0	19.20	0.0000	2824.80	0	
	2	11	542.40	0.0203	1605.60	33	
	3	0	18.00	0.0000	134.40	0	
	4	3	550.30	0.0055	2860.80	16	
	MONTHLY EST.			0.0064	7425.60		48
JUNE	1	6	542.40	0.0111	3796.80	42	
	2	6	791.95	0.0076	4500.00	34	
	3	1	791.95	0.0013	5196.00	7	
	4	0	808.80	0.0000	7279.20	0	
	MONTHLY EST.			0.0050	20772.00		103
JULY	1	5	802.29	0.0062	5750.40	36	
	2	1	741.60	0.0013	5517.60	7	
	3	119	880.12	0.1352	5500.80	744	
	4	44	1193.40	0.0369	6727.20	248	
	MONTHLY EST.			0.0449	23496.00		1055
AUGUST	1	140	783.70	0.1786	4072.80	728	
	2	205	921.60	0.2224	5896.80	1312	
	3	4	309.60	0.0129	4605.60	60	
	4	15	527.71	0.0284	2690.40	76	
	MONTHLY EST.			0.1106	17265.60		1910
SEPTEMBER	1	11	303.61	0.0362	2889.60	105	
	2	16	376.20	0.0425	3288.00	140	
	3	85	393.00	0.2163	3259.20	705	
	4	0	19.00	0.0000	333.60	0	
	MONTHLY EST.			0.0738	9770.40		721
OCTOBER	1	0	19.20	0.0000	1180.80	0	
	2	1143	542.40	2.1073	3796.80	8001	
	3	605	542.40	1.1154	3796.80	4235	
	4	3064	1123.20	2.7279	5983.20	16322	
	MONTHLY EST.			1.4877	14757.60		21954
NOVEMBER	1	92	542.40	0.1696	3796.80	644	
	2	65	542.40	0.1198	3796.80	455	
	3	8	542.40	0.0147	3796.80	56	
	4	6	602.40	0.0100	5376.00	54	
	MONTHLY EST.			0.0785	16766.40		1317
DECEMBER	1	1	508.27	0.0020	4216.80	8	
	2	0	580.80	0.0000	4053.60	0	
	3	0	542.40	0.0000	3796.80	0	
	4	0	1084.80	0.0000	5006.40	0	
	MONTHLY EST.			0.0005	17073.60		8

APPENDIX TABLE C-1.3. ESTIMATED WEEKLY ABUNDANCE OF AMERICAN EEL, ROSETON GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	1	429.60	0.0023	3050.40	7	
	2	0	542.40	0.0000	3796.80	0	
	3	0	542.40	0.0000	3796.80	0	
	4	1	1069.36	0.0009	5016.00	5	
	MONTHLY EST.			0.0008	15660.00		13
FEBRUARY	1	1	536.37	0.0019	3338.40	6	
	2	1	536.00	0.0019	3796.80	7	
	3	0	303.79	0.0000	2193.60	0	
	4	0	305.89	0.0000	2174.40	0	
	MONTHLY EST.			0.0009	11503.20		11
MARCH	1		0.00		1598.40		
	2	1	291.41	0.0034	2152.80	7	
	3	0	304.00	0.0000	2150.40	0	
	4	3	298.88	0.0100	3357.60	34	
	MONTHLY EST.			0.0045	9259.20		42
APRIL	1	2	354.09	0.0056	2774.40	16	
	2	2	292.27	0.0068	2152.80	15	
	3	0	307.20	0.0000	2150.40	0	
	4	1	147.60	0.0068	894.00	6	
	MONTHLY EST.			0.0048	7971.60		38
MAY	1	0	19.20	0.0000	2824.80	0	
	2	3	542.40	0.0055	1605.60	9	
	3	0	18.00	0.0000	134.40	0	
	4	1	550.30	0.0018	2860.80	5	
	MONTHLY EST.			0.0018	7425.60		14
JUNE	1	1	542.40	0.0018	3796.80	7	
	2	2	791.95	0.0025	4500.00	11	
	3	1	791.95	0.0013	5196.00	7	
	4	2	808.80	0.0025	7279.20	18	
	MONTHLY EST.			0.0020	20772.00		42
JULY	1	2	802.29	0.0025	5750.40	14	
	2	0	741.60	0.0000	5517.60	0	
	3	2	880.12	0.0023	5500.80	13	
	4	0	1193.40	0.0000	6727.20	0	
	MONTHLY EST.			0.0012	23496.00		28
AUGUST	1	2	783.70	0.0026	4072.80	10	
	2	4	921.60	0.0043	5896.80	26	
	3	0	309.60	0.0000	4605.60	0	
	4	0	527.71	0.0000	2690.40	0	
	MONTHLY EST.			0.0017	17265.60		30
SEPTEMBER	1	0	303.61	0.0000	2889.60	0	
	2	0	376.20	0.0000	3288.00	0	
	3	0	393.00	0.0000	3259.20	0	
	4	0	19.00	0.0000	333.60	0	
	MONTHLY EST.			0.0000	9770.40		0
OCTOBER	1	0	19.20	0.0000	1180.80	0	
	2	1	542.40	0.0018	3796.80	7	
	3	3	542.40	0.0055	3796.80	21	
	4	10	1123.20	0.0089	5983.20	53	
	MONTHLY EST.			0.0041	14757.60		60
NOVEMBER	1	0	542.40	0.0000	3796.80	0	
	2	0	542.40	0.0000	3796.80	0	
	3	1	542.40	0.0018	3796.80	7	
	4	0	602.40	0.0000	5376.00	0	
	MONTHLY EST.			0.0005	16766.40		8
DECEMBER	1	0	508.27	0.0000	4216.80	0	
	2	0	580.80	0.0000	4053.60	0	
	3	1	542.40	0.0018	3796.80	7	
	4	3	1084.80	0.0028	5006.40	14	
	MONTHLY EST.			0.0012	17073.60		20

APPENDIX TABLE C-1.4. ESTIMATED WEEKLY ABUNDANCE OF AMERICAN SHAD, ROSETON GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	429.60	0.0000	3050.40	0	
	2	0	542.40	0.0000	3796.80	0	
	3	0	542.40	0.0000	3796.80	0	
	4	0	1069.36	0.0000	5016.00	0	
	MONTHLY EST.			0.0000	15660.00		0
FEBRUARY	1	0	536.37	0.0000	3338.40	0	
	2	0	536.00	0.0000	3796.80	0	
	3	0	303.79	0.0000	2193.60	0	
	4	0	305.89	0.0000	2174.40	0	
	MONTHLY EST.			0.0000	11503.20		0
MARCH	1		0.00		1598.40		
	2	0	291.41	0.0000	2152.80	0	
	3	0	304.00	0.0000	2150.40	0	
	4	0	298.88	0.0000	3357.60	0	
	MONTHLY EST.			0.0000	9259.20		0
APRIL	1	0	354.09	0.0000	2774.40	0	
	2	0	292.27	0.0000	2152.80	0	
	3	0	307.20	0.0000	2150.40	0	
	4	0	147.60	0.0000	894.00	0	
	MONTHLY EST.			0.0000	7971.60		0
MAY	1	0	19.20	0.0000	2824.80	0	
	2	0	542.40	0.0000	1605.60	0	
	3	0	18.00	0.0000	134.40	0	
	4	0	550.30	0.0000	2860.80	0	
	MONTHLY EST.			0.0000	7425.60		0
JUNE	1	2	542.40	0.0037	3796.80	14	
	2	0	791.95	0.0000	4500.00	0	
	3	0	791.95	0.0000	5196.00	0	
	4	0	808.80	0.0000	7279.20	0	
	MONTHLY EST.			0.0009	20772.00		19
JULY	1	1	802.29	0.0012	5750.40	7	
	2	0	741.60	0.0000	5517.60	0	
	3	54	880.12	0.0614	5500.80	338	
	4	7	1193.40	0.0059	6727.20	39	
	MONTHLY EST.			0.0171	23496.00		402
AUGUST	1	45	783.70	0.0574	4072.80	234	
	2	20	921.60	0.0217	5896.80	128	
	3	1	309.60	0.0032	4605.60	15	
	4	0	527.71	0.0000	2690.40	0	
	MONTHLY EST.			0.0206	17265.60		355
SEPTEMBER	1	9	303.61	0.0296	2889.60	86	
	2	2	376.20	0.0053	3288.00	17	
	3	7	393.00	0.0178	3259.20	58	
	4	0	19.00	0.0000	333.60	0	
	MONTHLY EST.			0.0132	9770.40		129
OCTOBER	1	0	19.20	0.0000	1180.80	0	
	2	33	542.40	0.0608	3796.80	231	
	3	79	542.40	0.1456	3796.80	553	
	4	179	1123.20	0.1594	5983.20	954	
	MONTHLY EST.			0.0915	14757.60		1350
NOVEMBER	1	3	542.40	0.0055	3796.80	21	
	2	0	542.40	0.0000	3796.80	0	
	3	0	542.40	0.0000	3796.80	0	
	4	0	602.40	0.0000	5376.00	0	
	MONTHLY EST.			0.0014	16766.40		23
DECEMBER	1	1	508.27	0.0020	4216.80	8	
	2	0	580.80	0.0000	4053.60	0	
	3	0	542.40	0.0000	3796.80	0	
	4	0	1084.80	0.0000	5006.40	0	
	MONTHLY EST.			0.0005	17073.60		8

APPENDIX TABLE C-1.5. ESTIMATED WEEKLY ABUNDANCE OF ATLANTIC TOMCOD, ROSETON GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	22	429.60	0.0512	3050.40	156	
	2	60	542.40	0.1106	3796.80	420	
	3	29	542.40	0.0535	3796.80	203	
	4	46	1069.36	0.0430	5016.00	216	
	MONTHLY EST.			0.0646	15660.00		1011
FEBRUARY	1	1	536.37	0.0019	3338.40	6	
	2	2	536.00	0.0037	3796.80	14	
	3	2	303.79	0.0066	2193.60	14	
	4	0	305.89	0.0000	2174.40	0	
	MONTHLY EST.			0.0030	11503.20		35
MARCH	1		0.00		1598.40		
	2	0	291.41	0.0000	2152.80	0	
	3	0	304.00	0.0000	2150.40	0	
	4	0	298.88	0.0000	3357.60	0	
	MONTHLY EST.			0.0000	9259.20		0
APRIL	1	0	354.09	0.0000	2774.40	0	
	2	0	292.27	0.0000	2152.80	0	
	3	0	307.20	0.0000	2150.40	0	
	4	0	147.60	0.0000	894.00	0	
	MONTHLY EST.			0.0000	7971.60		0
MAY	1	0	19.20	0.0000	2824.80	0	
	2	6	542.40	0.0111	1605.60	18	
	3	0	18.00	0.0000	134.40	0	
	4	1	550.30	0.0018	2860.80	5	
	MONTHLY EST.			0.0032	7425.60		24
JUNE	1	9	542.40	0.0166	3796.80	63	
	2	2	791.95	0.0025	4500.00	11	
	3	3	791.95	0.0038	5196.00	20	
	4	6	808.80	0.0074	7279.20	54	
	MONTHLY EST.			0.0076	20772.00		157
JULY	1	28	802.29	0.0349	5750.40	201	
	2	2	741.60	0.0027	5517.60	15	
	3	2	880.12	0.0023	5500.80	13	
	4	1	1193.40	0.0008	6727.20	6	
	MONTHLY EST.			0.0102	23496.00		239
AUGUST	1	39	783.70	0.0498	4072.80	203	
	2	60	921.60	0.0651	5896.80	384	
	3	7	309.60	0.0226	4605.60	104	
	4	10	527.71	0.0189	2690.40	51	
	MONTHLY EST.			0.0391	17265.60		675
SEPTEMBER	1	3	303.61	0.0099	2889.60	29	
	2	3	376.20	0.0080	3288.00	26	
	3	1	393.00	0.0025	3259.20	8	
	4	0	19.00	0.0000	333.60	0	
	MONTHLY EST.			0.0051	9770.40		50
OCTOBER	1	0	19.20	0.0000	1180.80	0	
	2	0	542.40	0.0000	3796.80	0	
	3	0	542.40	0.0000	3796.80	0	
	4	0	1123.20	0.0000	5983.20	0	
	MONTHLY EST.			0.0000	14757.60		0
NOVEMBER	1	0	542.40	0.0000	3796.80	0	
	2	0	542.40	0.0000	3796.80	0	
	3	0	542.40	0.0000	3796.80	0	
	4	0	602.40	0.0000	5376.00	0	
	MONTHLY EST.			0.0000	16766.40		0
DECEMBER	1	0	508.27	0.0000	4216.80	0	
	2	0	580.80	0.0000	4053.60	0	
	3	0	542.40	0.0000	3796.80	0	
	4	2	1084.80	0.0018	5006.40	9	
	MONTHLY EST.			0.0005	17073.60		8

APPENDIX TABLE C-1.6. ESTIMATED WEEKLY ABUNDANCE OF BAY ANCHOVY, ROSETON GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	429.60	0.0000	3050.40	0	
	2	0	542.40	0.0000	3796.80	0	
	3	0	542.40	0.0000	3796.80	0	
	4	0	1069.36	0.0000	5016.00	0	
	MONTHLY EST.			0.0000	15660.00		0
FEBRUARY	1	0	536.37	0.0000	3338.40	0	
	2	0	536.00	0.0000	3796.80	0	
	3	0	303.79	0.0000	2193.60	0	
	4	0	305.89	0.0000	2174.40	0	
	MONTHLY EST.			0.0000	11503.20		0
MARCH	1		0.00		1598.40		
	2	0	291.41	0.0000	2152.80	0	
	3	0	304.00	0.0000	2150.40	0	
	4	0	298.88	0.0000	3357.60	0	
	MONTHLY EST.			0.0000	9259.20		0
APRIL	1	0	354.09	0.0000	2774.40	0	
	2	0	292.27	0.0000	2152.80	0	
	3	0	307.20	0.0000	2150.40	0	
	4	0	147.60	0.0000	894.00	0	
	MONTHLY EST.			0.0000	7971.60		0
MAY	1	0	19.20	0.0000	2824.80	0	
	2	0	542.40	0.0000	1605.60	0	
	3	0	18.00	0.0000	134.40	0	
	4	0	550.30	0.0000	2860.80	0	
	MONTHLY EST.			0.0000	7425.60		0
JUNE	1	0	542.40	0.0000	3796.80	0	
	2	0	791.95	0.0000	4500.00	0	
	3	0	791.95	0.0000	5196.00	0	
	4	0	808.80	0.0000	7279.20	0	
	MONTHLY EST.			0.0000	20772.00		0
JULY	1	3	802.29	0.0037	5750.40	22	
	2	0	741.60	0.0000	5517.60	0	
	3	4	880.12	0.0045	5500.80	25	
	4	21	1193.40	0.0176	6727.20	118	
	MONTHLY EST.			0.0065	23496.00		152
AUGUST	1	188	783.70	0.2399	4072.80	977	
	2	3085	921.60	3.3474	5896.80	19739	
	3	29	309.60	0.0937	4605.60	431	
	4	11	527.71	0.0208	2690.40	56	
	MONTHLY EST.			0.9255	17265.60		15979
SEPTEMBER	1	124	303.61	0.4084	2889.60	1180	
	2	171	376.20	0.4545	3288.00	1495	
	3	321	393.00	0.8168	3259.20	2662	
	4	0	19.00	0.0000	333.60	0	
	MONTHLY EST.			0.4199	9770.40		4103
OCTOBER	1	0	19.20	0.0000	1180.80	0	
	2	2728	542.40	5.0295	3796.80	19096	
	3	738	542.40	1.3606	3796.80	5166	
	4	2484	1123.20	2.2115	5983.20	13232	
	MONTHLY EST.			2.1504	14757.60		31735
NOVEMBER	1	0	542.40	0.0000	3796.80	0	
	2	0	542.40	0.0000	3796.80	0	
	3	0	542.40	0.0000	3796.80	0	
	4	0	602.40	0.0000	5376.00	0	
	MONTHLY EST.			0.0000	16766.40		0
DECEMBER	1	0	508.27	0.0000	4216.80	0	
	2	0	580.80	0.0000	4053.60	0	
	3	0	542.40	0.0000	3796.80	0	
	4	0	1084.80	0.0000	5006.40	0	
	MONTHLY EST.			0.0000	17073.60		0

APPENDIX TABLE C-1.7. ESTIMATED WEEKLY ABUNDANCE OF BLUEBACK HERRING, ROSETON GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	429.60	0.0000	3050.40	0	
	2	0	542.40	0.0000	3796.80	0	
	3	0	542.40	0.0000	3796.80	0	
	4	0	1069.36	0.0000	5016.00	0	
	MONTHLY EST.			0.0000	15660.00		0
FEBRUARY	1	0	536.37	0.0000	3338.40	0	
	2	0	536.00	0.0000	3796.80	0	
	3	0	303.79	0.0000	2193.60	0	
	4	0	305.89	0.0000	2174.40	0	
	MONTHLY EST.			0.0000	11503.20		0
MARCH	1		0.00		1598.40		
	2	0	291.41	0.0000	2152.80	0	
	3	0	304.00	0.0000	2150.40	0	
	4	0	298.88	0.0000	3357.60	0	
	MONTHLY EST.			0.0000	9259.20		0
APRIL	1	0	354.09	0.0000	2774.40	0	
	2	0	292.27	0.0000	2152.80	0	
	3	0	307.20	0.0000	2150.40	0	
	4	0	147.60	0.0000	894.00	0	
	MONTHLY EST.			0.0000	7971.60		0
MAY	1	0	19.20	0.0000	2824.80	0	
	2	33	542.40	0.0608	1605.60	98	
	3	0	18.00	0.0000	134.40	0	
	4	9	550.30	0.0164	2860.80	47	
	MONTHLY EST.			0.0193	7425.60		143
JUNE	1	12	542.40	0.0221	3796.80	84	
	2	14	791.95	0.0177	4500.00	80	
	3	0	791.95	0.0000	5196.00	0	
	4	2	808.80	0.0025	7279.20	18	
	MONTHLY EST.			0.0106	20772.00		220
JULY	1	14	802.29	0.0175	5750.40	100	
	2	0	741.60	0.0000	5517.60	0	
	3	6	880.12	0.0068	5500.80	38	
	4	6	1193.40	0.0050	6727.20	34	
	MONTHLY EST.			0.0073	23496.00		172
AUGUST	1	239	783.70	0.3050	4072.80	1242	
	2	798	921.60	0.8659	5896.80	5106	
	3	0	309.60	0.0000	4605.60	0	
	4	5	527.71	0.0095	2690.40	25	
	MONTHLY EST.			0.2951	17265.60		5095
SEPTEMBER	1	112	303.61	0.3689	2889.60	1066	
	2	161	376.20	0.4280	3288.00	1407	
	3	342	393.00	0.8702	3259.20	2836	
	4	0	19.00	0.0000	333.60	0	
	MONTHLY EST.			0.4168	9770.40		4072
OCTOBER	1	0	19.20	0.0000	1180.80	0	
	2	3406	542.40	6.2795	3796.80	23842	
	3	8074	542.40	14.8857	3796.80	56518	
	4	15091	1123.20	13.4357	5983.20	80389	
	MONTHLY EST.			8.6502	14757.60		127657
NOVEMBER	1	19	542.40	0.0350	3796.80	133	
	2	27	542.40	0.0498	3796.80	189	
	3	0	542.40	0.0000	3796.80	0	
	4	3	602.40	0.0050	5376.00	27	
	MONTHLY EST.			0.0224	16766.40		376
DECEMBER	1	1	508.27	0.0020	4216.80	8	
	2	0	580.80	0.0000	4053.60	0	
	3	0	542.40	0.0000	3796.80	0	
	4	0	1084.80	0.0000	5006.40	0	
	MONTHLY EST.			0.0005	17073.60		8

APPENDIX TABLE C-1.8. ESTIMATED WEEKLY ABUNDANCE OF BROWN BULLHEAD, ROSETON GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	1	429.60	0.0023	3050.40	7	
	2	4	542.40	0.0074	3796.80	28	
	3	0	542.40	0.0000	3796.80	0	
	4	0	1069.36	0.0000	5016.00	0	
	MONTHLY EST.			0.0024	15660.00		38
FEBRUARY	1	0	536.37	0.0000	3338.40	0	
	2	0	536.00	0.0000	3796.80	0	
	3	0	303.79	0.0000	2193.60	0	
	4	0	305.89	0.0000	2174.40	0	
	MONTHLY EST.			0.0000	11503.20		0
MARCH	1		0.00		1598.40		
	2	0	291.41	0.0000	2152.80	0	
	3	0	304.00	0.0000	2150.40	0	
	4	0	298.88	0.0000	3357.60	0	
	MONTHLY EST.			0.0000	9259.20		0
APRIL	1	1	354.09	0.0028	2774.40	8	
	2	0	292.27	0.0000	2152.80	0	
	3	0	307.20	0.0000	2150.40	0	
	4	1	147.60	0.0068	894.00	6	
	MONTHLY EST.			0.0024	7971.60		19
MAY	1	0	19.20	0.0000	2824.80	0	
	2	11	542.40	0.0203	1605.60	33	
	3	0	18.00	0.0000	134.40	0	
	4	4	550.30	0.0073	2860.80	21	
	MONTHLY EST.			0.0069	7425.60		51
JUNE	1	7	542.40	0.0129	3796.80	49	
	2	5	791.95	0.0063	4500.00	28	
	3	8	791.95	0.0101	5196.00	52	
	4	4	808.80	0.0049	7279.20	36	
	MONTHLY EST.			0.0086	20772.00		178
JULY	1	2	802.29	0.0025	5750.40	14	
	2	0	741.60	0.0000	5517.60	0	
	3	4	880.12	0.0045	5500.80	25	
	4	27	1193.40	0.0226	6727.20	152	
	MONTHLY EST.			0.0074	23496.00		174
AUGUST	1	325	783.70	0.4147	4072.80	1689	
	2	163	921.60	0.1769	5896.80	1043	
	3	33	309.60	0.1066	4605.60	491	
	4	13	527.71	0.0246	2690.40	66	
	MONTHLY EST.			0.1807	17265.60		3120
SEPTEMBER	1	5	303.61	0.0165	2889.60	48	
	2	2	376.20	0.0053	3288.00	17	
	3	5	393.00	0.0127	3259.20	41	
	4	0	19.00	0.0000	333.60	0	
	MONTHLY EST.			0.0086	9770.40		84
OCTOBER	1	0	19.20	0.0000	1180.80	0	
	2	43	542.40	0.0793	3796.80	301	
	3	23	542.40	0.0424	3796.80	161	
	4	128	1123.20	0.1140	5983.20	682	
	MONTHLY EST.			0.0589	14757.60		869
NOVEMBER	1	13	542.40	0.0240	3796.80	91	
	2	8	542.40	0.0147	3796.80	56	
	3	1	542.40	0.0018	3796.80	7	
	4	8	602.40	0.0133	5376.00	71	
	MONTHLY EST.			0.0135	16766.40		226
DECEMBER	1	1	508.27	0.0020	4216.80	8	
	2	3	580.80	0.0052	4053.60	21	
	3	2	542.40	0.0037	3796.80	14	
	4	1	1084.80	0.0009	5006.40	5	
	MONTHLY EST.			0.0029	17073.60		50

APPENDIX TABLE C-1.9. ESTIMATED WEEKLY ABUNDANCE OF GIZZARD SHAD, ROSETON GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	4	429.60	0.0093	3050.40	28	
	2	39	542.40	0.0719	3796.80	273	
	3	22	542.40	0.0406	3796.80	154	
	4	7	1069.36	0.0065	5016.00	33	
	MONTHLY EST.			0.0321	15660.00		502
FEBRUARY	1	1	536.37	0.0019	3338.40	6	
	2	1	536.00	0.0019	3796.80	7	
	3	0	303.79	0.0000	2193.60	0	
	4	0	305.89	0.0000	2174.40	0	
	MONTHLY EST.			0.0009	11503.20		11
MARCH	1		0.00		1598.40		
	2	0	291.41	0.0000	2152.80	0	
	3	0	304.00	0.0000	2150.40	0	
	4	0	298.88	0.0000	3357.60	0	
	MONTHLY EST.			0.0000	9259.20		0
APRIL	1	0	354.09	0.0000	2774.40	0	
	2	0	292.27	0.0000	2152.80	0	
	3	0	307.20	0.0000	2150.40	0	
	4	0	147.60	0.0000	894.00	0	
	MONTHLY EST.			0.0000	7971.60		0
MAY	1	0	19.20	0.0000	2824.80	0	
	2	0	542.40	0.0000	1605.60	0	
	3	0	18.00	0.0000	134.40	0	
	4	0	550.30	0.0000	2860.80	0	
	MONTHLY EST.			0.0000	7425.60		0
JUNE	1	0	542.40	0.0000	3796.80	0	
	2	0	791.95	0.0000	4500.00	0	
	3	0	791.95	0.0000	5196.00	0	
	4	0	808.80	0.0000	7279.20	0	
	MONTHLY EST.			0.0000	20772.00		0
JULY	1	0	802.29	0.0000	5750.40	0	
	2	0	741.60	0.0000	5517.60	0	
	3	9	880.12	0.0102	5500.80	56	
	4	10	1193.40	0.0084	6727.20	56	
	MONTHLY EST.			0.0047	23496.00		109
AUGUST	1	1	783.70	0.0013	4072.80	5	
	2	1237	921.60	1.3422	5896.80	7915	
	3	0	309.60	0.0000	4605.60	0	
	4	0	527.71	0.0000	2690.40	0	
	MONTHLY EST.			0.3359	17265.60		5799
SEPTEMBER	1	0	303.61	0.0000	2889.60	0	
	2	0	376.20	0.0000	3288.00	0	
	3	0	393.00	0.0000	3259.20	0	
	4	0	19.00	0.0000	333.60	0	
	MONTHLY EST.			0.0000	9770.40		0
OCTOBER	1	0	19.20	0.0000	1180.80	0	
	2	0	542.40	0.0000	3796.80	0	
	3	2	542.40	0.0037	3796.80	14	
	4	320	1123.20	0.2849	5983.20	1705	
	MONTHLY EST.			0.0721	14757.60		1065
NOVEMBER	1	0	542.40	0.0000	3796.80	0	
	2	2	542.40	0.0037	3796.80	14	
	3	8	542.40	0.0147	3796.80	56	
	4	38	602.40	0.0631	5376.00	339	
	MONTHLY EST.			0.0204	16766.40		342
DECEMBER	1	41	508.27	0.0807	4216.80	340	
	2	28	580.80	0.0482	4053.60	195	
	3	18	542.40	0.0332	3796.80	126	
	4	217	1084.80	0.2000	5006.40	1001	
	MONTHLY EST.			0.0905	17073.60		1546

APPENDIX TABLE C-1.10. ESTIMATED WEEKLY ABUNDANCE OF GOLDEN SHINER, ROSETON GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	10	429.60	0.0233	3050.40	71	
	2	56	542.40	0.1032	3796.80	392	
	3	18	542.40	0.0332	3796.80	126	
	4	28	1069.36	0.0262	5016.00	131	
	MONTHLY EST.			0.0465	15660.00		728
FEBRUARY	1	7	536.37	0.0131	3338.40	44	
	2	31	536.00	0.0578	3796.80	220	
	3	21	303.79	0.0691	2193.60	152	
	4	9	305.89	0.0294	2174.40	64	
	MONTHLY EST.			0.0424	11503.20		487
MARCH	1		0.00		1598.40		
	2	7	291.41	0.0240	2152.80	52	
	3	5	304.00	0.0164	2150.40	35	
	4	4	298.88	0.0134	3357.60	45	
	MONTHLY EST.			0.0180	9259.20		166
APRIL	1	1	354.09	0.0028	2774.40	8	
	2	1	292.27	0.0034	2152.80	7	
	3	2	307.20	0.0065	2150.40	14	
	4	4	147.60	0.0271	894.00	24	
	MONTHLY EST.			0.0100	7971.60		79
MAY	1	0	19.20	0.0000	2824.80	0	
	2	1	542.40	0.0018	1605.60	3	
	3	0	18.00	0.0000	134.40	0	
	4	0	550.30	0.0000	2860.80	0	
	MONTHLY EST.			0.0005	7425.60		3
JUNE	1	9	542.40	0.0166	3796.80	63	
	2	0	791.95	0.0000	4500.00	0	
	3	0	791.95	0.0000	5196.00	0	
	4	0	808.80	0.0000	7279.20	0	
	MONTHLY EST.			0.0041	20772.00		86
JULY	1	0	802.29	0.0000	5750.40	0	
	2	0	741.60	0.0000	5517.60	0	
	3	0	880.12	0.0000	5500.80	0	
	4	0	1193.40	0.0000	6727.20	0	
	MONTHLY EST.			0.0000	23496.00		0
AUGUST	1	0	783.70	0.0000	4072.80	0	
	2	0	921.60	0.0000	5896.80	0	
	3	0	309.60	0.0000	4605.60	0	
	4	0	527.71	0.0000	2690.40	0	
	MONTHLY EST.			0.0000	17265.60		0
SEPTEMBER	1	0	303.61	0.0000	2889.60	0	
	2	0	376.20	0.0000	3288.00	0	
	3	0	393.00	0.0000	3259.20	0	
	4	0	19.00	0.0000	333.60	0	
	MONTHLY EST.			0.0000	9770.40		0
OCTOBER	1	0	19.20	0.0000	1180.80	0	
	2	0	542.40	0.0000	3796.80	0	
	3	0	542.40	0.0000	3796.80	0	
	4	3	1123.20	0.0027	5983.20	16	
	MONTHLY EST.			0.0007	14757.60		10
NOVEMBER	1	0	542.40	0.0000	3796.80	0	
	2	3	542.40	0.0055	3796.80	21	
	3	0	542.40	0.0000	3796.80	0	
	4	30	602.40	0.0498	5376.00	268	
	MONTHLY EST.			0.0138	16766.40		232
DECEMBER	1	10	508.27	0.0197	4216.80	83	
	2	1	580.80	0.0017	4053.60	7	
	3	3	542.40	0.0055	3796.80	21	
	4	26	1084.80	0.0240	5006.40	120	
	MONTHLY EST.			0.0127	17073.60		217

APPENDIX TABLE C-1.11. ESTIMATED WEEKLY ABUNDANCE OF PUMPKINSEED, ROSETON GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	1	429.60	0.0023	3050.40	7	
	2	10	542.40	0.0184	3796.80	70	
	3	7	542.40	0.0129	3796.80	49	
	4	4	1069.36	0.0037	5016.00	19	
	MONTHLY EST.			0.0094	15660.00		146
FEBRUARY	1	0	536.37	0.0000	3338.40	0	
	2	0	536.00	0.0000	3796.80	0	
	3	3	303.79	0.0099	2193.60	22	
	4	0	305.89	0.0000	2174.40	0	
	MONTHLY EST.			0.0025	11503.20		28
MARCH	1		0.00		1598.40		
	2	1	291.41	0.0034	2152.80	7	
	3	0	304.00	0.0000	2150.40	0	
	4	1	298.88	0.0033	3357.60	11	
	MONTHLY EST.			0.0023	9259.20		21
APRIL	1	0	354.09	0.0000	2774.40	0	
	2	0	292.27	0.0000	2152.80	0	
	3	1	307.20	0.0033	2150.40	7	
	4	0	147.60	0.0000	894.00	0	
	MONTHLY EST.			0.0008	7971.60		6
MAY	1	3	19.20	0.1562	2824.80	441	
	2	13	542.40	0.0240	1605.60	38	
	3	0	18.00	0.0000	134.40	0	
	4	9	550.30	0.0164	2860.80	47	
	MONTHLY EST.			0.0491	7425.60		365
JUNE	1	42	542.40	0.0774	3796.80	294	
	2	3	791.95	0.0038	4500.00	17	
	3	3	791.95	0.0038	5196.00	20	
	4	0	808.80	0.0000	7279.20	0	
	MONTHLY EST.			0.0213	20772.00		441
JULY	1	0	802.29	0.0000	5750.40	0	
	2	0	741.60	0.0000	5517.60	0	
	3	0	880.12	0.0000	5500.80	0	
	4	1	1193.40	0.0008	6727.20	6	
	MONTHLY EST.			0.0002	23496.00		5
AUGUST	1	1	783.70	0.0013	4072.80	5	
	2	0	921.60	0.0000	5896.80	0	
	3	1	309.60	0.0032	4605.60	15	
	4	0	527.71	0.0000	2690.40	0	
	MONTHLY EST.			0.0011	17265.60		19
SEPTEMBER	1	0	303.61	0.0000	2889.60	0	
	2	0	376.20	0.0000	3288.00	0	
	3	0	393.00	0.0000	3259.20	0	
	4	0	19.00	0.0000	333.60	0	
	MONTHLY EST.			0.0000	9770.40		0
OCTOBER	1	0	19.20	0.0000	1180.80	0	
	2	69	542.40	0.1272	3796.80	483	
	3	75	542.40	0.1383	3796.80	525	
	4	155	1123.20	0.1380	5983.20	826	
	MONTHLY EST.			0.1009	14757.60		1489
NOVEMBER	1	14	542.40	0.0258	3796.80	98	
	2	7	542.40	0.0129	3796.80	49	
	3	5	542.40	0.0092	3796.80	35	
	4	10	602.40	0.0166	5376.00	89	
	MONTHLY EST.			0.0161	16766.40		271
DECEMBER	1	0	508.27	0.0000	4216.80	0	
	2	1	580.80	0.0017	4053.60	7	
	3	1	542.40	0.0018	3796.80	7	
	4	4	1084.80	0.0037	5006.40	18	
	MONTHLY EST.			0.0018	17073.60		31

APPENDIX TABLE C-1.12. ESTIMATED WEEKLY ABUNDANCE OF RAINBOW SMELT, ROSETON GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	429.60	0.0000	3050.40	0	
	2	0	542.40	0.0000	3796.80	0	
	3	0	542.40	0.0000	3796.80	0	
	4	0	1069.36	0.0000	5016.00	0	
	MONTHLY EST.			0.0000	15660.00		0
FEBRUARY	1	0	536.37	0.0000	3338.40	0	
	2	0	536.00	0.0000	3796.80	0	
	3	0	303.79	0.0000	2193.60	0	
	4	0	305.89	0.0000	2174.40	0	
	MONTHLY EST.			0.0000	11503.20		0
MARCH	1		0.00		1598.40		
	2	0	291.41	0.0000	2152.80	0	
	3	0	304.00	0.0000	2150.40	0	
	4	0	298.88	0.0000	3357.60	0	
	MONTHLY EST.			0.0000	9259.20		0
APRIL	1	0	354.09	0.0000	2774.40	0	
	2	0	292.27	0.0000	2152.80	0	
	3	0	307.20	0.0000	2150.40	0	
	4	1	147.60	0.0068	894.00	6	
	MONTHLY EST.			0.0017	7971.60		14
MAY	1	0	19.20	0.0000	2824.80	0	
	2	0	542.40	0.0000	1605.60	0	
	3	0	18.00	0.0000	134.40	0	
	4	0	550.30	0.0000	2860.80	0	
	MONTHLY EST.			0.0000	7425.60		0
JUNE	1	0	542.40	0.0000	3796.80	0	
	2	0	791.95	0.0000	4500.00	0	
	3	0	791.95	0.0000	5196.00	0	
	4	0	808.80	0.0000	7279.20	0	
	MONTHLY EST.			0.0000	20772.00		0
JULY	1	0	802.29	0.0000	5750.40	0	
	2	0	741.60	0.0000	5517.60	0	
	3	0	880.12	0.0000	5500.80	0	
	4	0	1193.40	0.0000	6727.20	0	
	MONTHLY EST.			0.0000	23496.00		0
AUGUST	1	0	783.70	0.0000	4072.80	0	
	2	0	921.60	0.0000	5896.80	0	
	3	0	309.60	0.0000	4605.60	0	
	4	0	527.71	0.0000	2690.40	0	
	MONTHLY EST.			0.0000	17265.60		0
SEPTEMBER	1	0	303.61	0.0000	2889.60	0	
	2	0	376.20	0.0000	3288.00	0	
	3	0	393.00	0.0000	3259.20	0	
	4	0	19.00	0.0000	333.60	0	
	MONTHLY EST.			0.0000	9770.40		0
OCTOBER	1	0	19.20	0.0000	1180.80	0	
	2	0	542.40	0.0000	3796.80	0	
	3	0	542.40	0.0000	3796.80	0	
	4	0	1123.20	0.0000	5983.20	0	
	MONTHLY EST.			0.0000	14757.60		0
NOVEMBER	1	0	542.40	0.0000	3796.80	0	
	2	0	542.40	0.0000	3796.80	0	
	3	0	542.40	0.0000	3796.80	0	
	4	0	602.40	0.0000	5376.00	0	
	MONTHLY EST.			0.0000	16766.40		0
DECEMBER	1	0	508.27	0.0000	4216.80	0	
	2	0	580.80	0.0000	4053.60	0	
	3	0	542.40	0.0000	3796.80	0	
	4	0	1084.80	0.0000	5006.40	0	
	MONTHLY EST.			0.0000	17073.60		0

APPENDIX TABLE C-1.13. ESTIMATED WEEKLY ABUNDANCE OF SPOTTAIL SHINER, ROSETON GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	13	429.60	0.0303	3050.40	92	
	2	35	542.40	0.0645	3796.80	245	
	3	30	542.40	0.0553	3796.80	210	
	4	51	1069.36	0.0477	5016.00	239	
	MONTHLY EST.			0.0494	15660.00		774
FEBRUARY	1	19	536.37	0.0354	3338.40	118	
	2	28	536.00	0.0522	3796.80	198	
	3	34	303.79	0.1119	2193.60	246	
	4	16	305.89	0.0523	2174.40	114	
	MONTHLY EST.			0.0630	11503.20		724
MARCH	1		0.00		1598.40		
	2	19	291.41	0.0652	2152.80	140	
	3	11	304.00	0.0362	2150.40	78	
	4	13	298.88	0.0435	3357.60	146	
	MONTHLY EST.			0.0483	9259.20		447
APRIL	1	12	354.09	0.0339	2774.40	94	
	2	33	292.27	0.1129	2152.80	243	
	3	4	307.20	0.0130	2150.40	28	
	4	32	147.60	0.2168	894.00	194	
	MONTHLY EST.			0.0942	7971.60		751
MAY	1	0	19.20	0.0000	2824.80	0	
	2	67	542.40	0.1235	1605.60	198	
	3	0	18.00	0.0000	134.40	0	
	4	31	550.30	0.0563	2860.80	161	
	MONTHLY EST.			0.0450	7425.60		334
JUNE	1	79	542.40	0.1456	3796.80	553	
	2	51	791.95	0.0644	4500.00	290	
	3	11	791.95	0.0139	5196.00	72	
	4	15	808.80	0.0185	7279.20	135	
	MONTHLY EST.			0.0606	20772.00		1259
JULY	1	3	802.29	0.0037	5750.40	22	
	2	0	741.60	0.0000	5517.60	0	
	3	3	880.12	0.0034	5500.80	19	
	4	2	1193.40	0.0017	6727.20	11	
	MONTHLY EST.			0.0022	23496.00		52
AUGUST	1	16	783.70	0.0204	4072.80	83	
	2	19	921.60	0.0206	5896.80	122	
	3	0	309.60	0.0000	4605.60	0	
	4	1	527.71	0.0019	2690.40	5	
	MONTHLY EST.			0.0107	17265.60		185
SEPTEMBER	1	1	303.61	0.0033	2889.60	10	
	2	0	376.20	0.0000	3288.00	0	
	3	12	393.00	0.0305	3259.20	100	
	4	0	19.00	0.0000	333.60	0	
	MONTHLY EST.			0.0085	9770.40		83
OCTOBER	1	0	19.20	0.0000	1180.80	0	
	2	5	542.40	0.0092	3796.80	35	
	3	44	542.40	0.0811	3796.80	308	
	4	107	1123.20	0.0953	5983.20	570	
	MONTHLY EST.			0.0464	14757.60		685
NOVEMBER	1	4	542.40	0.0074	3796.80	28	
	2	11	542.40	0.0203	3796.80	77	
	3	4	542.40	0.0074	3796.80	28	
	4	54	602.40	0.0896	5376.00	482	
	MONTHLY EST.			0.0312	16766.40		523
DECEMBER	1	12	508.27	0.0236	4216.80	100	
	2	25	580.80	0.0430	4053.60	174	
	3	6	542.40	0.0111	3796.80	42	
	4	36	1084.80	0.0332	5006.40	166	
	MONTHLY EST.			0.0277	17073.60		473

APPENDIX TABLE C-1.14. ESTIMATED WEEKLY ABUNDANCE OF STRIPED BASS, ROSETON GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	429.60	0.0000	3050.40	0	
	2	0	542.40	0.0000	3796.80	0	
	3	0	542.40	0.0000	3796.80	0	
	4	0	1069.36	0.0000	5016.00	0	
	MONTHLY EST.			0.0000	15660.00		0
FEBRUARY	1	1	536.37	0.0019	3338.40	6	
	2	0	536.00	0.0000	3796.80	0	
	3	0	303.79	0.0000	2193.60	0	
	4	0	305.89	0.0000	2174.40	0	
	MONTHLY EST.			0.0005	11503.20		5
MARCH	1		0.00		1598.40		
	2	0	291.41	0.0000	2152.80	0	
	3	0	304.00	0.0000	2150.40	0	
	4	0	298.88	0.0000	3357.60	0	
	MONTHLY EST.			0.0000	9259.20		0
APRIL	1	0	354.09	0.0000	2774.40	0	
	2	0	292.27	0.0000	2152.80	0	
	3	0	307.20	0.0000	2150.40	0	
	4	0	147.60	0.0000	894.00	0	
	MONTHLY EST.			0.0000	7971.60		0
MAY	1	0	19.20	0.0000	2824.80	0	
	2	1	542.40	0.0018	1605.60	3	
	3	0	18.00	0.0000	134.40	0	
	4	0	550.30	0.0000	2860.80	0	
	MONTHLY EST.			0.0005	7425.60		3
JUNE	1	1	542.40	0.0018	3796.80	7	
	2	0	791.95	0.0000	4500.00	0	
	3	0	791.95	0.0000	5196.00	0	
	4	2	808.80	0.0025	7279.20	18	
	MONTHLY EST.			0.0011	20772.00		22
JULY	1	14	802.29	0.0175	5750.40	100	
	2	1	741.60	0.0013	5517.60	7	
	3	321	880.12	0.3647	5500.80	2006	
	4	30	1193.40	0.0251	6727.20	169	
	MONTHLY EST.			0.1022	23496.00		2400
AUGUST	1	424	783.70	0.5410	4072.80	2203	
	2	927	921.60	1.0059	5896.80	5931	
	3	15	309.60	0.0484	4605.60	223	
	4	11	527.71	0.0208	2690.40	56	
	MONTHLY EST.			0.4040	17265.60		6976
SEPTEMBER	1	14	303.61	0.0461	2889.60	133	
	2	20	376.20	0.0532	3288.00	175	
	3	36	393.00	0.0916	3259.20	299	
	4	0	19.00	0.0000	333.60	0	
	MONTHLY EST.			0.0477	9770.40		466
OCTOBER	1	0	19.20	0.0000	1180.80	0	
	2	125	542.40	0.2305	3796.80	875	
	3	142	542.40	0.2618	3796.80	994	
	4	225	1123.20	0.2003	5983.20	1199	
	MONTHLY EST.			0.1731	14757.60		2555
NOVEMBER	1	14	542.40	0.0258	3796.80	98	
	2	18	542.40	0.0332	3796.80	126	
	3	32	542.40	0.0590	3796.80	224	
	4	64	602.40	0.1062	5376.00	571	
	MONTHLY EST.			0.0561	16766.40		940
DECEMBER	1	44	508.27	0.0866	4216.80	365	
	2	44	580.80	0.0758	4053.60	307	
	3	9	542.40	0.0166	3796.80	63	
	4	32	1084.80	0.0295	5006.40	148	
	MONTHLY EST.			0.0521	17073.60		890

APPENDIX TABLE C-1.15. ESTIMATED WEEKLY ABUNDANCE OF WHITE PERCH, ROSETON GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	429.60	0.0000	3050.40	0	
	2	11	542.40	0.0203	3796.80	77	
	3	9	542.40	0.0166	3796.80	63	
	4	10	1069.36	0.0094	5016.00	47	
	MONTHLY EST.			0.0116	15660.00		181
FEBRUARY	1	2	536.37	0.0037	3338.40	12	
	2	3	536.00	0.0056	3796.80	21	
	3	5	303.79	0.0165	2193.60	36	
	4	4	305.89	0.0131	2174.40	28	
	MONTHLY EST.			0.0097	11503.20		112
MARCH	1		0.00		1598.40		
	2	6	291.41	0.0206	2152.80	44	
	3	3	304.00	0.0099	2150.40	21	
	4	4	298.88	0.0134	3357.60	45	
	MONTHLY EST.			0.0146	9259.20		135
APRIL	1	4	354.09	0.0113	2774.40	31	
	2	36	292.27	0.1232	2152.80	265	
	3	19	307.20	0.0618	2150.40	133	
	4	20	147.60	0.1355	894.00	121	
	MONTHLY EST.			0.0830	7971.60		661
MAY	1	0	19.20	0.0000	2824.80	0	
	2	87	542.40	0.1604	1605.60	258	
	3	0	18.00	0.0000	134.40	0	
	4	49	550.30	0.0890	2860.80	255	
	MONTHLY EST.			0.0624	7425.60		463
JUNE	1	496	542.40	0.9145	3796.80	3472	
	2	89	791.95	0.1124	4500.00	506	
	3	45	791.95	0.0568	5196.00	295	
	4	125	808.80	0.1545	7279.20	1125	
	MONTHLY EST.			0.3096	20772.00		6430
JULY	1	223	802.29	0.2780	5750.40	1598	
	2	10	741.60	0.0135	5517.60	74	
	3	20	880.12	0.0227	5500.80	125	
	4	13	1193.40	0.0109	6727.20	73	
	MONTHLY EST.			0.0813	23496.00		1909
AUGUST	1	131	783.70	0.1672	4072.80	681	
	2	202	921.60	0.2192	5896.80	1292	
	3	15	309.60	0.0484	4605.60	223	
	4	44	527.71	0.0834	2690.40	224	
	MONTHLY EST.			0.1295	17265.60		2237
SEPTEMBER	1	13	303.61	0.0428	2889.60	124	
	2	14	376.20	0.0372	3288.00	122	
	3	24	393.00	0.0611	3259.20	199	
	4	0	19.00	0.0000	333.60	0	
	MONTHLY EST.			0.0353	9770.40		345
OCTOBER	1	0	19.20	0.0000	1180.80	0	
	2	564	542.40	1.0398	3796.80	3948	
	3	453	542.40	0.8352	3796.80	3171	
	4	2785	1123.20	2.4795	5983.20	14835	
	MONTHLY EST.			1.0886	14757.60		16066
NOVEMBER	1	59	542.40	0.1088	3796.80	413	
	2	343	542.40	0.6324	3796.80	2401	
	3	130	542.40	0.2397	3796.80	910	
	4	362	602.40	0.6009	5376.00	3231	
	MONTHLY EST.			0.3954	16766.40		6630
DECEMBER	1	203	508.27	0.3994	4216.80	1684	
	2	61	580.80	0.1050	4053.60	426	
	3	15	542.40	0.0277	3796.80	105	
	4	44	1084.80	0.0406	5006.40	203	
	MONTHLY EST.			0.1432	17073.60		2444

APPENDIX TABLE C-1.16. ESTIMATED WEEKLY ABUNDANCE OF BLUE CRAB, ROSETON GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	429.60	0.0000	3050.40	0	
	2	0	542.40	0.0000	3796.80	0	
	3	0	542.40	0.0000	3796.80	0	
	4	0	1069.36	0.0000	5016.00	0	
	MONTHLY EST.			0.0000	15660.00		0
FEBRUARY	1	0	536.37	0.0000	3338.40	0	
	2	0	536.00	0.0000	3796.80	0	
	3	0	303.79	0.0000	2193.60	0	
	4	0	305.89	0.0000	2174.40	0	
	MONTHLY EST.			0.0000	11503.20		0
MARCH	1		0.00		1598.40		
	2	0	291.41	0.0000	2152.80	0	
	3	0	304.00	0.0000	2150.40	0	
	4	0	298.88	0.0000	3357.60	0	
	MONTHLY EST.			0.0000	9259.20		0
APRIL	1	0	354.09	0.0000	2774.40	0	
	2	0	292.27	0.0000	2152.80	0	
	3	0	307.20	0.0000	2150.40	0	
	4	0	147.60	0.0000	894.00	0	
	MONTHLY EST.			0.0000	7971.60		0
MAY	1	0	19.20	0.0000	2824.80	0	
	2	0	542.40	0.0000	1605.60	0	
	3	0	18.00	0.0000	134.40	0	
	4	0	550.30	0.0000	2860.80	0	
	MONTHLY EST.			0.0000	7425.60		0
JUNE	1	15	542.40	0.0277	3796.80	105	
	2	0	791.95	0.0000	4500.00	0	
	3	5	791.95	0.0063	5196.00	33	
	4	7	808.80	0.0087	7279.20	63	
	MONTHLY EST.			0.0107	20772.00		221
JULY	1	12	802.29	0.0150	5750.40	86	
	2	16	741.60	0.0216	5517.60	119	
	3	12	880.12	0.0136	5500.80	75	
	4	54	1193.40	0.0452	6727.20	304	
	MONTHLY EST.			0.0239	23496.00		560
AUGUST	1	150	783.70	0.1914	4072.80	780	
	2	1771	921.60	1.9217	5896.80	11332	
	3	548	309.60	1.7700	4605.60	8152	
	4	721	527.71	1.3663	2690.40	3676	
	MONTHLY EST.			1.3123	17265.60		22658
SEPTEMBER	1	1149	303.61	3.7845	2889.60	10936	
	2	1018	376.20	2.7060	3288.00	8897	
	3	1401	393.00	3.5649	3259.20	11619	
	4	0	19.00	0.0000	333.60	0	
	MONTHLY EST.			2.5138	9770.40		24561
OCTOBER	1	2	19.20	0.1042	1180.80	123	
	2	1103	542.40	2.0336	3796.80	7721	
	3	619	542.40	1.1412	3796.80	4333	
	4	1863	1123.20	1.6587	5983.20	9924	
	MONTHLY EST.			1.2344	14757.60		18217
NOVEMBER	1	673	542.40	1.2408	3796.80	4711	
	2	583	542.40	1.0749	3796.80	4081	
	3	126	542.40	0.2323	3796.80	882	
	4	62	602.40	0.1029	5376.00	553	
	MONTHLY EST.			0.6627	16766.40		11111
DECEMBER	1	1	508.27	0.0020	4216.80	8	
	2	0	580.80	0.0000	4053.60	0	
	3	0	542.40	0.0000	3796.80	0	
	4	0	1084.80	0.0000	5006.40	0	
	MONTHLY EST.			0.0005	17073.60		8

APPENDIX TABLE C-2.1. ESTIMATED WEEKLY ABUNDANCE OF ALL FISH SPECIES, DANSKAMMER POINT GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	442	201.63	2.1921	1421.28	3116	
	2	1293	203.04	6.3682	1421.28	9051	
	3	501	203.04	2.4675	1421.30	3507	
	4	885	406.08	2.1794	2030.57	4425	
	MONTHLY EST.			3.3018	6294.43		20783
FEBRUARY	1	264	201.21	1.3121	1410.46	1851	
	2	191	203.04	0.9407	1421.28	1337	
	3	97	203.04	0.4777	1521.67	727	
	4	70	203.04	0.3448	1522.54	525	
	MONTHLY EST.			0.7688	5875.94		4518
MARCH	1	427	203.04	2.1030	1421.30	2989	
	2	165	197.40	0.8359	1421.45	1188	
	3	103	203.04	0.5073	1582.10	803	
	4	48	180.41	0.2661	1709.86	455	
	MONTHLY EST.			0.9281	6134.71		5693
APRIL	1	52	113.36	0.4587	966.24	443	
	2	355	173.08	2.0510	1143.43	2345	
	3	388	144.00	2.6944	1008.00	2716	
	4	151	144.00	1.0486	1310.76	1374	
	MONTHLY EST.			1.5632	4428.43		6923
MAY	1	422	203.04	2.0784	1421.30	2954	
	2	732	198.81	3.6819	1512.55	5569	
	3	318	317.68	1.0010	2291.28	2294	
	4	599	655.26	0.9141	3406.13	3114	
	MONTHLY EST.			1.9189	8631.26		16562
JUNE	1	1462	419.88	3.4819	2723.21	9482	
	2	365	431.88	0.8451	2718.07	2297	
	3	500	386.99	1.2920	2598.46	3357	
	4	759	405.98	1.8695	3821.71	7145	
	MONTHLY EST.			1.8722	11861.45		22207
JULY	1	885	411.44	2.1510	2570.62	5529	
	2	252	334.08	0.7543	2444.83	1844	
	3	2043	435.12	4.6952	2827.82	13277	
	4	4675	666.04	7.0191	3588.55	25188	
	MONTHLY EST.			3.6549	11431.82		41782
AUGUST	1	2285	381.32	5.9924	2536.01	15197	
	2	5480	331.76	16.5180	2399.42	39634	
	3	3348	383.11	8.7391	2528.14	22094	
	4	3376	412.82	8.1779	3937.56	32201	
	MONTHLY EST.			9.8568	11401.13		112379
SEPTEMBER	1	782	328.98	2.3771	2381.90	5662	
	2	1068	334.08	3.1968	2338.56	7476	
	3	871	334.08	2.6072	2272.15	5924	
	4	1244	334.08	3.7237	2130.48	7933	
	MONTHLY EST.			2.9762	9123.10		27152
OCTOBER	1	130	118.08	1.1009	843.22	928	
	2	241	147.50	1.6339	1302.55	2128	
	3	1921	254.40	7.5511	1756.30	13262	
	4	7483	406.08	18.4274	2188.61	40330	
	MONTHLY EST.			7.1783	6090.67		43721
NOVEMBER	1	807	203.04	3.9746	1644.17	6535	
	2	1076	203.04	5.2994	1404.24	7442	
	3	257	201.91	1.2728	1415.81	1802	
	4	1108	203.04	5.4571	1684.85	9194	
	MONTHLY EST.			4.0010	6149.06		24602
DECEMBER	1	817	201.91	4.0463	1421.28	5751	
	2	271	203.04	1.3347	1421.42	1897	
	3	103	203.04	0.5073	1421.28	721	
	4	377	405.38	0.9300	2032.15	1890	
	MONTHLY EST.			1.7046	6296.14		10732

APPENDIX TABLE C-2.2. ESTIMATED WEEKLY ABUNDANCE OF ALEWIFE, DANSKAMMER POINT GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	201.63	0.0000	1421.28	0	
	2	0	203.04	0.0000	1421.28	0	
	3	0	203.04	0.0000	1421.30	0	
	4	0	406.08	0.0000	2030.57	0	
	MONTHLY EST.			0.0000	6294.43		0
FEBRUARY	1	0	201.21	0.0000	1410.46	0	
	2	0	203.04	0.0000	1421.28	0	
	3	1	203.04	0.0049	1521.67	7	
	4	1	203.04	0.0049	1522.54	7	
	MONTHLY EST.			0.0025	5875.94		14
MARCH	1	4	203.04	0.0197	1421.30	28	
	2	4	197.40	0.0203	1421.45	29	
	3	0	203.04	0.0000	1582.10	0	
	4	1	180.41	0.0055	1709.86	9	
	MONTHLY EST.			0.0114	6134.71		70
APRIL	1	0	113.36	0.0000	966.24	0	
	2	0	173.08	0.0000	1143.43	0	
	3	0	144.00	0.0000	1008.00	0	
	4	0	144.00	0.0000	1310.76	0	
	MONTHLY EST.			0.0000	4428.43		0
MAY	1	1	203.04	0.0049	1421.30	7	
	2	4	198.81	0.0201	1512.55	30	
	3	5	317.68	0.0157	2291.28	36	
	4	32	655.26	0.0488	3406.13	166	
	MONTHLY EST.			0.0224	8631.26		193
JUNE	1	12	419.88	0.0286	2723.21	78	
	2	15	431.88	0.0347	2718.07	94	
	3	4	386.99	0.0103	2598.46	27	
	4	13	405.98	0.0320	3821.71	122	
	MONTHLY EST.			0.0264	11861.45		313
JULY	1	15	411.44	0.0365	2570.62	94	
	2	8	334.08	0.0239	2444.83	59	
	3	401	435.12	0.9216	2827.82	2606	
	4	282	666.04	0.4234	3588.55	1519	
	MONTHLY EST.			0.3513	11431.82		4017
AUGUST	1	102	381.32	0.2675	2536.01	678	
	2	192	331.76	0.5787	2399.42	1389	
	3	173	383.11	0.4516	2528.14	1142	
	4	210	412.82	0.5087	3937.56	2003	
	MONTHLY EST.			0.4516	11401.13		5149
SEPTEMBER	1	86	328.98	0.2614	2381.90	623	
	2	118	334.08	0.3532	2338.56	826	
	3	184	334.08	0.5508	2272.15	1251	
	4	200	334.08	0.5987	2130.48	1275	
	MONTHLY EST.			0.4410	9123.10		4023
OCTOBER	1	2	118.08	0.0169	843.22	14	
	2	16	147.50	0.1085	1302.55	141	
	3	358	254.40	1.4072	1756.30	2472	
	4	965	406.08	2.3764	2188.61	5201	
	MONTHLY EST.			0.9773	6090.67		5952
NOVEMBER	1	23	203.04	0.1133	1644.17	186	
	2	40	203.04	0.1970	1404.24	277	
	3	6	201.91	0.0297	1415.81	42	
	4	0	203.04	0.0000	1684.85	0	
	MONTHLY EST.			0.0850	6149.06		523
DECEMBER	1	0	201.91	0.0000	1421.28	0	
	2	0	203.04	0.0000	1421.42	0	
	3	0	203.04	0.0000	1421.28	0	
	4	0	405.38	0.0000	2032.15	0	
	MONTHLY EST.			0.0000	6296.14		0

APPENDIX TABLE C-2.3. ESTIMATED WEEKLY ABUNDANCE OF AMERICAN SHAD, DANSKAMMER POINT GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	201.63	0.0000	1421.28	0	
	2	0	203.04	0.0000	1421.28	0	
	3	0	203.04	0.0000	1421.30	0	
	4	0	406.08	0.0000	2030.57	0	
	MONTHLY EST.			0.0000	6294.43		0
FEBRUARY	1	0	201.21	0.0000	1410.46	0	
	2	0	203.04	0.0000	1421.28	0	
	3	0	203.04	0.0000	1521.67	0	
	4	0	203.04	0.0000	1522.54	0	
	MONTHLY EST.			0.0000	5875.94		0
MARCH	1	0	203.04	0.0000	1421.30	0	
	2	0	197.40	0.0000	1421.45	0	
	3	0	203.04	0.0000	1582.10	0	
	4	0	180.41	0.0000	1709.86	0	
	MONTHLY EST.			0.0000	6134.71		0
APRIL	1	0	113.36	0.0000	966.24	0	
	2	0	173.08	0.0000	1143.43	0	
	3	0	144.00	0.0000	1008.00	0	
	4	0	144.00	0.0000	1310.76	0	
	MONTHLY EST.			0.0000	4428.43		0
MAY	1	0	203.04	0.0000	1421.30	0	
	2	0	198.81	0.0000	1512.55	0	
	3	0	317.68	0.0000	2291.28	0	
	4	1	655.26	0.0015	3406.13	5	
	MONTHLY EST.			0.0004	8631.26		3
JUNE	1	0	419.88	0.0000	2723.21	0	
	2	2	431.88	0.0046	2718.07	13	
	3	0	386.99	0.0000	2598.46	0	
	4	2	405.98	0.0049	3821.71	19	
	MONTHLY EST.			0.0024	11861.45		28
JULY	1	0	411.44	0.0000	2570.62	0	
	2	5	334.08	0.0150	2444.83	37	
	3	614	435.12	1.4111	2827.82	3990	
	4	59	666.04	0.0886	3588.55	318	
	MONTHLY EST.			0.3787	11431.82		4329
AUGUST	1	20	381.32	0.0524	2536.01	133	
	2	5	331.76	0.0151	2399.42	36	
	3	40	383.11	0.1044	2528.14	264	
	4	43	412.82	0.1042	3937.56	410	
	MONTHLY EST.			0.0690	11401.13		787
SEPTEMBER	1	16	328.98	0.0486	2381.90	116	
	2	37	334.08	0.1108	2338.56	259	
	3	26	334.08	0.0778	2272.15	177	
	4	28	334.08	0.0838	2130.48	179	
	MONTHLY EST.			0.0803	9123.10		732
OCTOBER	1	0	118.08	0.0000	843.22	0	
	2	2	147.50	0.0136	1302.55	18	
	3	88	254.40	0.3459	1756.30	608	
	4	237	406.08	0.5836	2188.61	1277	
	MONTHLY EST.			0.2358	6090.67		1436
NOVEMBER	1	6	203.04	0.0296	1644.17	49	
	2	16	203.04	0.0788	1404.24	111	
	3	3	201.91	0.0149	1415.81	21	
	4	0	203.04	0.0000	1684.85	0	
	MONTHLY EST.			0.0308	6149.06		189
DECEMBER	1	0	201.91	0.0000	1421.28	0	
	2	0	203.04	0.0000	1421.42	0	
	3	0	203.04	0.0000	1421.28	0	
	4	0	405.38	0.0000	2032.15	0	
	MONTHLY EST.			0.0000	6296.14		0

APPENDIX TABLE C-2.4. ESTIMATED WEEKLY ABUNDANCE OF ATLANTIC TOMCOD, DANSKAMMER POINT GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	316	201.63	1.5672	1421.28	2227	
	2	914	203.04	4.5016	1421.28	6398	
	3	295	203.04	1.4529	1421.30	2065	
	4	638	406.08	1.5711	2030.57	3190	
	MONTHLY EST.			2.2732	6294.43		14309
FEBRUARY	1	155	201.21	0.7704	1410.46	1087	
	2	91	203.04	0.4482	1421.28	637	
	3	24	203.04	0.1182	1521.67	180	
	4	44	203.04	0.2167	1522.54	330	
	MONTHLY EST.			0.3884	5875.94		2282
MARCH	1	252	203.04	1.2411	1421.30	1764	
	2	49	197.40	0.2482	1421.45	353	
	3	38	203.04	0.1872	1582.10	296	
	4	31	180.41	0.1718	1709.86	294	
	MONTHLY EST.			0.4621	6134.71		2835
APRIL	1	11	113.36	0.0970	966.24	94	
	2	8	173.08	0.0462	1143.43	53	
	3	12	144.00	0.0833	1008.00	84	
	4	5	144.00	0.0347	1310.76	46	
	MONTHLY EST.			0.0653	4428.43		289
MAY	1	3	203.04	0.0148	1421.30	21	
	2	3	198.81	0.0151	1512.55	23	
	3	0	317.68	0.0000	2291.28	0	
	4	4	655.26	0.0061	3406.13	21	
	MONTHLY EST.			0.0090	8631.26		78
JUNE	1	52	419.88	0.1238	2723.21	337	
	2	2	431.88	0.0046	2718.07	13	
	3	28	386.99	0.0724	2598.46	188	
	4	38	405.98	0.0936	3821.71	358	
	MONTHLY EST.			0.0736	11861.45		873
JULY	1	34	411.44	0.0826	2570.62	212	
	2	2	334.08	0.0060	2444.83	15	
	3	7	435.12	0.0161	2827.82	45	
	4	231	666.04	0.3468	3588.55	1245	
	MONTHLY EST.			0.1129	11431.82		1290
AUGUST	1	31	381.32	0.0813	2536.01	206	
	2	42	331.76	0.1266	2399.42	304	
	3	121	383.11	0.3158	2528.14	798	
	4	61	412.82	0.1478	3937.56	582	
	MONTHLY EST.			0.1679	11401.13		1914
SEPTEMBER	1	11	328.98	0.0334	2381.90	80	
	2	17	334.08	0.0509	2338.56	119	
	3	15	334.08	0.0449	2272.15	102	
	4	11	334.08	0.0329	2130.48	70	
	MONTHLY EST.			0.0405	9123.10		370
OCTOBER	1	0	118.08	0.0000	843.22	0	
	2	0	147.50	0.0000	1302.55	0	
	3	5	254.40	0.0197	1756.30	35	
	4	22	406.08	0.0542	2188.61	119	
	MONTHLY EST.			0.0185	6090.67		112
NOVEMBER	1	1	203.04	0.0049	1644.17	8	
	2	13	203.04	0.0640	1404.24	90	
	3	0	201.91	0.0000	1415.81	0	
	4	2	203.04	0.0099	1684.85	17	
	MONTHLY EST.			0.0197	6149.06		121
DECEMBER	1	5	201.91	0.0248	1421.28	35	
	2	5	203.04	0.0246	1421.42	35	
	3	2	203.04	0.0099	1421.28	14	
	4	12	405.38	0.0296	2032.15	60	
	MONTHLY EST.			0.0222	6296.14		140

APPENDIX TABLE C-2.5. ESTIMATED WEEKLY ABUNDANCE OF BAY ANCHOVY, DANSKAMMER POINT GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	201.63	0.0000	1421.28	0	
	2	0	203.04	0.0000	1421.28	0	
	3	0	203.04	0.0000	1421.30	0	
	4	0	406.08	0.0000	2030.57	0	
	MONTHLY EST.			0.0000	6294.43		0
FEBRUARY	1	0	201.21	0.0000	1410.46	0	
	2	0	203.04	0.0000	1421.28	0	
	3	0	203.04	0.0000	1521.67	0	
	4	0	203.04	0.0000	1522.54	0	
	MONTHLY EST.			0.0000	5875.94		0
MARCH	1	0	203.04	0.0000	1421.30	0	
	2	0	197.40	0.0000	1421.45	0	
	3	0	203.04	0.0000	1582.10	0	
	4	0	180.41	0.0000	1709.86	0	
	MONTHLY EST.			0.0000	6134.71		0
APRIL	1	0	113.36	0.0000	966.24	0	
	2	0	173.08	0.0000	1143.43	0	
	3	0	144.00	0.0000	1008.00	0	
	4	0	144.00	0.0000	1310.76	0	
	MONTHLY EST.			0.0000	4428.43		0
MAY	1	0	203.04	0.0000	1421.30	0	
	2	0	198.81	0.0000	1512.55	0	
	3	0	317.68	0.0000	2291.28	0	
	4	0	655.26	0.0000	3406.13	0	
	MONTHLY EST.			0.0000	8631.26		0
JUNE	1	0	419.88	0.0000	2723.21	0	
	2	0	431.88	0.0000	2718.07	0	
	3	0	386.99	0.0000	2598.46	0	
	4	0	405.98	0.0000	3821.71	0	
	MONTHLY EST.			0.0000	11861.45		0
JULY	1	3	411.44	0.0073	2570.62	19	
	2	0	334.08	0.0000	2444.83	0	
	3	16	435.12	0.0368	2827.82	104	
	4	392	666.04	0.5886	3588.55	2112	
	MONTHLY EST.			0.1582	11431.82		1808
AUGUST	1	787	381.32	2.0639	2536.01	5234	
	2	1715	331.76	5.1694	2399.42	12404	
	3	685	383.11	1.7880	2528.14	4520	
	4	855	412.82	2.0711	3937.56	8155	
	MONTHLY EST.			2.7731	11401.13		31617
SEPTEMBER	1	103	328.98	0.3131	2381.90	746	
	2	352	334.08	1.0536	2338.56	2464	
	3	21	334.08	0.0629	2272.15	143	
	4	130	334.08	0.3891	2130.48	829	
	MONTHLY EST.			0.4547	9123.10		4148
OCTOBER	1	26	118.08	0.2202	843.22	186	
	2	68	147.50	0.4610	1302.55	600	
	3	57	254.40	0.2241	1756.30	394	
	4	26	406.08	0.0640	2188.61	140	
	MONTHLY EST.			0.2423	6090.67		1476
NOVEMBER	1	1	203.04	0.0049	1644.17	8	
	2	0	203.04	0.0000	1404.24	0	
	3	0	201.91	0.0000	1415.81	0	
	4	0	203.04	0.0000	1684.85	0	
	MONTHLY EST.			0.0012	6149.06		8
DECEMBER	1	0	201.91	0.0000	1421.28	0	
	2	0	203.04	0.0000	1421.42	0	
	3	0	203.04	0.0000	1421.28	0	
	4	0	405.38	0.0000	2032.15	0	
	MONTHLY EST.			0.0000	6296.14		0

APPENDIX TABLE C-2.6. ESTIMATED WEEKLY ABUNDANCE OF BLUEBACK HERRING, DANSKAMMER POINT GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	201.63	0.0000	1421.28	0	
	2	0	203.04	0.0000	1421.28	0	
	3	0	203.04	0.0000	1421.30	0	
	4	0	406.08	0.0000	2030.57	0	
	MONTHLY EST.			0.0000	6294.43		0
FEBRUARY	1	0	201.21	0.0000	1410.46	0	
	2	0	203.04	0.0000	1421.28	0	
	3	0	203.04	0.0000	1521.67	0	
	4	0	203.04	0.0000	1522.54	0	
	MONTHLY EST.			0.0000	5875.94		0
MARCH	1	0	203.04	0.0000	1421.30	0	
	2	0	197.40	0.0000	1421.45	0	
	3	0	203.04	0.0000	1582.10	0	
	4	0	180.41	0.0000	1709.86	0	
	MONTHLY EST.			0.0000	6134.71		0
APRIL	1	0	113.36	0.0000	966.24	0	
	2	0	173.08	0.0000	1143.43	0	
	3	0	144.00	0.0000	1008.00	0	
	4	2	144.00	0.0139	1310.76	18	
	MONTHLY EST.			0.0035	4428.43		15
MAY	1	0	203.04	0.0000	1421.30	0	
	2	10	198.81	0.0503	1512.55	76	
	3	20	317.68	0.0630	2291.28	144	
	4	12	655.26	0.0183	3406.13	62	
	MONTHLY EST.			0.0329	8631.26		284
JUNE	1	41	419.88	0.0976	2723.21	266	
	2	14	431.88	0.0324	2718.07	88	
	3	17	386.99	0.0439	2598.46	114	
	4	10	405.98	0.0246	3821.71	94	
	MONTHLY EST.			0.0497	11861.45		589
JULY	1	7	411.44	0.0170	2570.62	44	
	2	1	334.08	0.0030	2444.83	7	
	3	55	435.12	0.1264	2827.82	357	
	4	10	666.04	0.0150	3588.55	54	
	MONTHLY EST.			0.0404	11431.82		461
AUGUST	1	26	381.32	0.0682	2536.01	173	
	2	26	331.76	0.0784	2399.42	188	
	3	22	383.11	0.0574	2528.14	145	
	4	54	412.82	0.1308	3937.56	515	
	MONTHLY EST.			0.0837	11401.13		954
SEPTEMBER	1	25	328.98	0.0760	2381.90	181	
	2	39	334.08	0.1167	2338.56	273	
	3	57	334.08	0.1706	2272.15	388	
	4	86	334.08	0.2574	2130.48	548	
	MONTHLY EST.			0.1552	9123.10		1416
OCTOBER	1	4	118.08	0.0339	843.22	29	
	2	98	147.50	0.6644	1302.55	865	
	3	271	254.40	1.0653	1756.30	1871	
	4	1336	406.08	3.2900	2188.61	7201	
	MONTHLY EST.			1.2634	6090.67		7695
NOVEMBER	1	47	203.04	0.2315	1644.17	381	
	2	20	203.04	0.0985	1404.24	138	
	3	0	201.91	0.0000	1415.81	0	
	4	0	203.04	0.0000	1684.85	0	
	MONTHLY EST.			0.0825	6149.06		507
DECEMBER	1	0	201.91	0.0000	1421.28	0	
	2	0	203.04	0.0000	1421.42	0	
	3	0	203.04	0.0000	1421.28	0	
	4	0	405.38	0.0000	2032.15	0	
	MONTHLY EST.			0.0000	6296.14		0

APPENDIX TABLE C-2.7. ESTIMATED WEEKLY ABUNDANCE OF BROWN BULLHEAD, DANSKAMMER POINT GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	201.63	0.0000	1421.28	0	
	2	6	203.04	0.0296	1421.28	42	
	3	2	203.04	0.0099	1421.30	14	
	4	2	406.08	0.0049	2030.57	10	
	MONTHLY EST.			0.0111	6294.43		70
FEBRUARY	1	2	201.21	0.0099	1410.46	14	
	2	5	203.04	0.0246	1421.28	35	
	3	0	203.04	0.0000	1521.67	0	
	4	0	203.04	0.0000	1522.54	0	
	MONTHLY EST.			0.0086	5875.94		51
MARCH	1	0	203.04	0.0000	1421.30	0	
	2	1	197.40	0.0051	1421.45	7	
	3	1	203.04	0.0049	1582.10	8	
	4	0	180.41	0.0000	1709.86	0	
	MONTHLY EST.			0.0025	6134.71		15
APRIL	1	1	113.36	0.0088	966.24	9	
	2	3	173.08	0.0173	1143.43	20	
	3	5	144.00	0.0347	1008.00	35	
	4	3	144.00	0.0208	1310.76	27	
	MONTHLY EST.			0.0204	4428.43		90
MAY	1	4	203.04	0.0197	1421.30	28	
	2	25	198.81	0.1257	1512.55	190	
	3	6	317.68	0.0189	2291.28	43	
	4	17	655.26	0.0259	3406.13	88	
	MONTHLY EST.			0.0476	8631.26		411
JUNE	1	9	419.88	0.0214	2723.21	58	
	2	3	431.88	0.0069	2718.07	19	
	3	5	386.99	0.0129	2598.46	34	
	4	6	405.98	0.0148	3821.71	56	
	MONTHLY EST.			0.0140	11861.45		166
JULY	1	7	411.44	0.0170	2570.62	44	
	2	0	334.08	0.0000	2444.83	0	
	3	4	435.12	0.0092	2827.82	26	
	4	383	666.04	0.5750	3588.55	2064	
	MONTHLY EST.			0.1503	11431.82		1718
AUGUST	1	220	381.32	0.5769	2536.01	1463	
	2	209	331.76	0.6300	2399.42	1512	
	3	741	383.11	1.9342	2528.14	4890	
	4	186	412.82	0.4506	3937.56	1774	
	MONTHLY EST.			0.8979	11401.13		10237
SEPTEMBER	1	45	328.98	0.1368	2381.90	326	
	2	19	334.08	0.0569	2338.56	133	
	3	21	334.08	0.0629	2272.15	143	
	4	22	334.08	0.0659	2130.48	140	
	MONTHLY EST.			0.0806	9123.10		735
OCTOBER	1	1	118.08	0.0085	843.22	7	
	2	0	147.50	0.0000	1302.55	0	
	3	33	254.40	0.1297	1756.30	228	
	4	178	406.08	0.4383	2188.61	959	
	MONTHLY EST.			0.1441	6090.67		878
NOVEMBER	1	15	203.04	0.0739	1644.17	121	
	2	8	203.04	0.0394	1404.24	55	
	3	7	201.91	0.0347	1415.81	49	
	4	0	203.04	0.0000	1684.85	0	
	MONTHLY EST.			0.0370	6149.06		227
DECEMBER	1	3	201.91	0.0149	1421.28	21	
	2	0	203.04	0.0000	1421.42	0	
	3	0	203.04	0.0000	1421.28	0	
	4	0	405.38	0.0000	2032.15	0	
	MONTHLY EST.			0.0037	6296.14		23

APPENDIX TABLE C-2.8. ESTIMATED WEEKLY ABUNDANCE OF GIZZARD SHAD, DANSKAMMER POINT GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	92	201.63	0.4563	1421.28	649	
	2	148	203.04	0.7289	1421.28	1036	
	3	93	203.04	0.4580	1421.30	651	
	4	19	406.08	0.0468	2030.57	95	
	MONTHLY EST.			0.4225	6294.43		2659
FEBRUARY	1	4	201.21	0.0199	1410.46	28	
	2	10	203.04	0.0493	1421.28	70	
	3	8	203.04	0.0394	1521.67	60	
	4	0	203.04	0.0000	1522.54	0	
	MONTHLY EST.			0.0271	5875.94		159
MARCH	1	0	203.04	0.0000	1421.30	0	
	2	0	197.40	0.0000	1421.45	0	
	3	4	203.04	0.0197	1582.10	31	
	4	0	180.41	0.0000	1709.86	0	
	MONTHLY EST.			0.0049	6134.71		30
APRIL	1	0	113.36	0.0000	966.24	0	
	2	0	173.08	0.0000	1143.43	0	
	3	0	144.00	0.0000	1008.00	0	
	4	1	144.00	0.0069	1310.76	9	
	MONTHLY EST.			0.0017	4428.43		8
MAY	1	0	203.04	0.0000	1421.30	0	
	2	1	198.81	0.0050	1512.55	8	
	3	0	317.68	0.0000	2291.28	0	
	4	0	655.26	0.0000	3406.13	0	
	MONTHLY EST.			0.0013	8631.26		11
JUNE	1	0	419.88	0.0000	2723.21	0	
	2	0	431.88	0.0000	2718.07	0	
	3	0	386.99	0.0000	2598.46	0	
	4	0	405.98	0.0000	3821.71	0	
	MONTHLY EST.			0.0000	11861.45		0
JULY	1	0	411.44	0.0000	2570.62	0	
	2	0	334.08	0.0000	2444.83	0	
	3	106	435.12	0.2436	2827.82	689	
	4	1563	666.04	2.3467	3588.55	8421	
	MONTHLY EST.			0.6476	11431.82		7403
AUGUST	1	27	381.32	0.0708	2536.01	180	
	2	2276	331.76	6.8604	2399.42	16461	
	3	140	383.11	0.3654	2528.14	924	
	4	83	412.82	0.2011	3937.56	792	
	MONTHLY EST.			1.8744	11401.13		21370
SEPTEMBER	1	14	328.98	0.0426	2381.90	101	
	2	5	334.08	0.0150	2338.56	35	
	3	4	334.08	0.0120	2272.15	27	
	4	3	334.08	0.0090	2130.48	19	
	MONTHLY EST.			0.0196	9123.10		179
OCTOBER	1	0	118.08	0.0000	843.22	0	
	2	0	147.50	0.0000	1302.55	0	
	3	10	254.40	0.0393	1756.30	69	
	4	468	406.08	1.1525	2188.61	2522	
	MONTHLY EST.			0.2979	6090.67		1815
NOVEMBER	1	11	203.04	0.0542	1644.17	89	
	2	37	203.04	0.1822	1404.24	256	
	3	27	201.91	0.1337	1415.81	189	
	4	38	203.04	0.1872	1684.85	315	
	MONTHLY EST.			0.1393	6149.06		857
DECEMBER	1	147	201.91	0.7280	1421.28	1035	
	2	94	203.04	0.4630	1421.42	658	
	3	58	203.04	0.2857	1421.28	406	
	4	199	405.38	0.4909	2032.15	998	
	MONTHLY EST.			0.4919	6296.14		3097

APPENDIX TABLE C-2.9. ESTIMATED WEEKLY ABUNDANCE OF GOLDEN SHINER, DANSKAMMER POINT GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	14	201.63	0.0694	1421.28	99	
	2	68	203.04	0.3349	1421.28	476	
	3	25	203.04	0.1231	1421.30	175	
	4	83	406.08	0.2044	2030.57	415	
	MONTHLY EST.			0.1830	6294.43		1152
FEBRUARY	1	31	201.21	0.1541	1410.46	217	
	2	24	203.04	0.1182	1421.28	168	
	3	24	203.04	0.1182	1521.67	180	
	4	4	203.04	0.0197	1522.54	30	
	MONTHLY EST.			0.1025	5875.94		603
MARCH	1	16	203.04	0.0788	1421.30	112	
	2	2	197.40	0.0101	1421.45	14	
	3	9	203.04	0.0443	1582.10	70	
	4	0	180.41	0.0000	1709.86	0	
	MONTHLY EST.			0.0333	6134.71		204
APRIL	1	0	113.36	0.0000	966.24	0	
	2	12	173.08	0.0693	1143.43	79	
	3	7	144.00	0.0486	1008.00	49	
	4	1	144.00	0.0069	1310.76	9	
	MONTHLY EST.			0.0312	4428.43		138
MAY	1	18	203.04	0.0887	1421.30	126	
	2	4	198.81	0.0201	1512.55	30	
	3	17	317.68	0.0535	2291.28	123	
	4	15	655.26	0.0229	3406.13	78	
	MONTHLY EST.			0.0463	8631.26		400
JUNE	1	16	419.88	0.0381	2723.21	104	
	2	9	431.88	0.0208	2718.07	57	
	3	7	386.99	0.0181	2598.46	47	
	4	1	405.98	0.0025	3821.71	9	
	MONTHLY EST.			0.0199	11861.45		236
JULY	1	2	411.44	0.0049	2570.62	12	
	2	0	334.08	0.0000	2444.83	0	
	3	1	435.12	0.0023	2827.82	6	
	4	0	666.04	0.0000	3588.55	0	
	MONTHLY EST.			0.0018	11431.82		20
AUGUST	1	1	381.32	0.0026	2536.01	7	
	2	0	331.76	0.0000	2399.42	0	
	3	0	383.11	0.0000	2528.14	0	
	4	0	412.82	0.0000	3937.56	0	
	MONTHLY EST.			0.0007	11401.13		7
SEPTEMBER	1	0	328.98	0.0000	2381.90	0	
	2	0	334.08	0.0000	2338.56	0	
	3	0	334.08	0.0000	2272.15	0	
	4	0	334.08	0.0000	2130.48	0	
	MONTHLY EST.			0.0000	9123.10		0
OCTOBER	1	0	118.08	0.0000	843.22	0	
	2	0	147.50	0.0000	1302.55	0	
	3	0	254.40	0.0000	1756.30	0	
	4	0	406.08	0.0000	2188.61	0	
	MONTHLY EST.			0.0000	6090.67		0
NOVEMBER	1	0	203.04	0.0000	1644.17	0	
	2	7	203.04	0.0345	1404.24	48	
	3	0	201.91	0.0000	1415.81	0	
	4	3	203.04	0.0148	1684.85	25	
	MONTHLY EST.			0.0123	6149.06		76
DECEMBER	1	1	201.91	0.0050	1421.28	7	
	2	3	203.04	0.0148	1421.42	21	
	3	3	203.04	0.0148	1421.28	21	
	4	22	405.38	0.0543	2032.15	110	
	MONTHLY EST.			0.0222	6296.14		140

APPENDIX TABLE C-2.10. ESTIMATED WEEKLY ABUNDANCE OF PUMPKINSEED, DANSKAMMER POINT GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	201.63	0.0000	1421.28	0	
	2	5	203.04	0.0246	1421.28	35	
	3	4	203.04	0.0197	1421.30	28	
	4	0	406.08	0.0000	2030.57	0	
	MONTHLY EST.			0.0111	6294.43		70
FEBRUARY	1	0	201.21	0.0000	1410.46	0	
	2	4	203.04	0.0197	1421.28	28	
	3	4	203.04	0.0197	1521.67	30	
	4	0	203.04	0.0000	1522.54	0	
	MONTHLY EST.			0.0099	5875.94		58
MARCH	1	1	203.04	0.0049	1421.30	7	
	2	2	197.40	0.0101	1421.45	14	
	3	1	203.04	0.0049	1582.10	8	
	4	0	180.41	0.0000	1709.86	0	
	MONTHLY EST.			0.0050	6134.71		31
APRIL	1	1	113.36	0.0088	966.24	9	
	2	5	173.08	0.0289	1143.43	33	
	3	1	144.00	0.0069	1008.00	7	
	4	1	144.00	0.0069	1310.76	9	
	MONTHLY EST.			0.0129	4428.43		57
MAY	1	23	203.04	0.1133	1421.30	161	
	2	69	198.81	0.3471	1512.55	525	
	3	31	317.68	0.0976	2291.28	224	
	4	70	655.26	0.1068	3406.13	364	
	MONTHLY EST.			0.1662	8631.26		1434
JUNE	1	73	419.88	0.1739	2723.21	473	
	2	15	431.88	0.0347	2718.07	94	
	3	17	386.99	0.0439	2598.46	114	
	4	15	405.98	0.0369	3821.71	141	
	MONTHLY EST.			0.0724	11861.45		858
JULY	1	8	411.44	0.0194	2570.62	50	
	2	2	334.08	0.0060	2444.83	15	
	3	7	435.12	0.0161	2827.82	45	
	4	4	666.04	0.0060	3588.55	22	
	MONTHLY EST.			0.0119	11431.82		136
AUGUST	1	0	381.32	0.0000	2536.01	0	
	2	0	331.76	0.0000	2399.42	0	
	3	1	383.11	0.0026	2528.14	7	
	4	1	412.82	0.0024	3937.56	10	
	MONTHLY EST.			0.0013	11401.13		14
SEPTEMBER	1	1	328.98	0.0030	2381.90	7	
	2	2	334.08	0.0060	2338.56	14	
	3	8	334.08	0.0239	2272.15	54	
	4	106	334.08	0.3173	2130.48	676	
	MONTHLY EST.			0.0876	9123.10		799
OCTOBER	1	84	118.08	0.7114	843.22	600	
	2	11	147.50	0.0746	1302.55	97	
	3	89	254.40	0.3498	1756.30	614	
	4	151	406.08	0.3718	2188.61	814	
	MONTHLY EST.			0.3769	6090.67		2296
NOVEMBER	1	40	203.04	0.1970	1644.17	324	
	2	24	203.04	0.1182	1404.24	166	
	3	1	201.91	0.0050	1415.81	7	
	4	4	203.04	0.0197	1684.85	33	
	MONTHLY EST.			0.0850	6149.06		522
DECEMBER	1	1	201.91	0.0050	1421.28	7	
	2	3	203.04	0.0148	1421.42	21	
	3	1	203.04	0.0049	1421.28	7	
	4	7	405.38	0.0173	2032.15	35	
	MONTHLY EST.			0.0105	6296.14		66

APPENDIX TABLE C-2.11. ESTIMATED WEEKLY ABUNDANCE OF RAINBOW SMELT, DANSKAMMER POINT GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	201.63	0.0000	1421.28	0	
	2	0	203.04	0.0000	1421.28	0	
	3	0	203.04	0.0000	1421.30	0	
	4	0	406.08	0.0000	2030.57	0	
	MONTHLY EST.			0.0000	6294.43		0
FEBRUARY	1	0	201.21	0.0000	1410.46	0	
	2	0	203.04	0.0000	1421.28	0	
	3	0	203.04	0.0000	1521.67	0	
	4	0	203.04	0.0000	1522.54	0	
	MONTHLY EST.			0.0000	5875.94		0
MARCH	1	0	203.04	0.0000	1421.30	0	
	2	0	197.40	0.0000	1421.45	0	
	3	0	203.04	0.0000	1582.10	0	
	4	0	180.41	0.0000	1709.86	0	
	MONTHLY EST.			0.0000	6134.71		0
APRIL	1	0	113.36	0.0000	966.24	0	
	2	0	173.08	0.0000	1143.43	0	
	3	0	144.00	0.0000	1008.00	0	
	4	0	144.00	0.0000	1310.76	0	
	MONTHLY EST.			0.0000	4428.43		0
MAY	1	0	203.04	0.0000	1421.30	0	
	2	0	198.81	0.0000	1512.55	0	
	3	0	317.68	0.0000	2291.28	0	
	4	0	655.26	0.0000	3406.13	0	
	MONTHLY EST.			0.0000	8631.26		0
JUNE	1	0	419.88	0.0000	2723.21	0	
	2	0	431.88	0.0000	2718.07	0	
	3	0	386.99	0.0000	2598.46	0	
	4	0	405.98	0.0000	3821.71	0	
	MONTHLY EST.			0.0000	11861.45		0
JULY	1	0	411.44	0.0000	2570.62	0	
	2	0	334.08	0.0000	2444.83	0	
	3	0	435.12	0.0000	2827.82	0	
	4	1	666.04	0.0015	3588.55	5	
	MONTHLY EST.			0.0004	11431.82		4
AUGUST	1	0	381.32	0.0000	2536.01	0	
	2	0	331.76	0.0000	2399.42	0	
	3	0	383.11	0.0000	2528.14	0	
	4	0	412.82	0.0000	3937.56	0	
	MONTHLY EST.			0.0000	11401.13		0
SEPTEMBER	1	0	328.98	0.0000	2381.90	0	
	2	0	334.08	0.0000	2338.56	0	
	3	0	334.08	0.0000	2272.15	0	
	4	0	334.08	0.0000	2130.48	0	
	MONTHLY EST.			0.0000	9123.10		0
OCTOBER	1	0	118.08	0.0000	843.22	0	
	2	0	147.50	0.0000	1302.55	0	
	3	0	254.40	0.0000	1756.30	0	
	4	0	406.08	0.0000	2188.61	0	
	MONTHLY EST.			0.0000	6090.67		0
NOVEMBER	1	0	203.04	0.0000	1644.17	0	
	2	0	203.04	0.0000	1404.24	0	
	3	0	201.91	0.0000	1415.81	0	
	4	0	203.04	0.0000	1684.85	0	
	MONTHLY EST.			0.0000	6149.06		0
DECEMBER	1	0	201.91	0.0000	1421.28	0	
	2	0	203.04	0.0000	1421.42	0	
	3	0	203.04	0.0000	1421.28	0	
	4	0	405.38	0.0000	2032.15	0	
	MONTHLY EST.			0.0000	6296.14		0

APPENDIX TABLE C-2.12. ESTIMATED WEEKLY ABUNDANCE OF SPOTTAIL SHINER, DANSKAMMER POINT GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	8	201.63	0.0397	1421.28	56	
	2	49	203.04	0.2413	1421.28	343	
	3	23	203.04	0.1133	1421.30	161	
	4	64	406.08	0.1576	2030.57	320	
	MONTHLY EST.			0.1380	6294.43		868
FEBRUARY	1	27	201.21	0.1342	1410.46	189	
	2	22	203.04	0.1084	1421.28	154	
	3	19	203.04	0.0936	1521.67	142	
	4	4	203.04	0.0197	1522.54	30	
	MONTHLY EST.			0.0890	5875.94		523
MARCH	1	26	203.04	0.1281	1421.30	182	
	2	27	197.40	0.1368	1421.45	194	
	3	7	203.04	0.0345	1582.10	55	
	4	5	180.41	0.0277	1709.86	47	
	MONTHLY EST.			0.0818	6134.71		502
APRIL	1	4	113.36	0.0353	966.24	34	
	2	38	173.08	0.2195	1143.43	251	
	3	52	144.00	0.3611	1008.00	364	
	4	14	144.00	0.0972	1310.76	127	
	MONTHLY EST.			0.1783	4428.43		790
MAY	1	49	203.04	0.2413	1421.30	343	
	2	110	198.81	0.5533	1512.55	837	
	3	67	317.68	0.2109	2291.28	483	
	4	147	655.26	0.2243	3406.13	764	
	MONTHLY EST.			0.3075	8631.26		2654
JUNE	1	458	419.88	1.0908	2723.21	2970	
	2	59	431.88	0.1366	2718.07	371	
	3	23	386.99	0.0594	2598.46	154	
	4	47	405.98	0.1158	3821.71	442	
	MONTHLY EST.			0.3506	11861.45		4159
JULY	1	45	411.44	0.1094	2570.62	281	
	2	5	334.08	0.0150	2444.83	37	
	3	35	435.12	0.0804	2827.82	227	
	4	193	666.04	0.2898	3588.55	1040	
	MONTHLY EST.			0.1236	11431.82		1413
AUGUST	1	59	381.32	0.1547	2536.01	392	
	2	21	331.76	0.0633	2399.42	152	
	3	13	383.11	0.0339	2528.14	86	
	4	12	412.82	0.0291	3937.56	114	
	MONTHLY EST.			0.0703	11401.13		801
SEPTEMBER	1	4	328.98	0.0122	2381.90	29	
	2	0	334.08	0.0000	2338.56	0	
	3	5	334.08	0.0150	2272.15	34	
	4	2	334.08	0.0060	2130.48	13	
	MONTHLY EST.			0.0083	9123.10		76
OCTOBER	1	0	118.08	0.0000	843.22	0	
	2	0	147.50	0.0000	1302.55	0	
	3	25	254.40	0.0983	1756.30	173	
	4	53	406.08	0.1305	2188.61	286	
	MONTHLY EST.			0.0572	6090.67		348
NOVEMBER	1	5	203.04	0.0246	1644.17	40	
	2	15	203.04	0.0739	1404.24	104	
	3	28	201.91	0.1387	1415.81	196	
	4	30	203.04	0.1478	1684.85	249	
	MONTHLY EST.			0.0962	6149.06		592
DECEMBER	1	54	201.91	0.2674	1421.28	380	
	2	16	203.04	0.0788	1421.42	112	
	3	5	203.04	0.0246	1421.28	35	
	4	41	405.38	0.1011	2032.15	206	
	MONTHLY EST.			0.1180	6296.14		743

APPENDIX TABLE C-2.13. ESTIMATED WEEKLY ABUNDANCE OF STRIPED BASS, DANSKAMMER POINT GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	201.63	0.0000	1421.28	0	
	2	1	203.04	0.0049	1421.28	7	
	3	2	203.04	0.0099	1421.30	14	
	4	2	406.08	0.0049	2030.57	10	
	MONTHLY EST.			0.0049	6294.43		31
FEBRUARY	1	0	201.21	0.0000	1410.46	0	
	2	0	203.04	0.0000	1421.28	0	
	3	1	203.04	0.0049	1521.67	7	
	4	0	203.04	0.0000	1522.54	0	
	MONTHLY EST.			0.0012	5875.94		7
MARCH	1	1	203.04	0.0049	1421.30	7	
	2	0	197.40	0.0000	1421.45	0	
	3	0	203.04	0.0000	1582.10	0	
	4	0	180.41	0.0000	1709.86	0	
	MONTHLY EST.			0.0012	6134.71		8
APRIL	1	0	113.36	0.0000	966.24	0	
	2	0	173.08	0.0000	1143.43	0	
	3	0	144.00	0.0000	1008.00	0	
	4	1	144.00	0.0069	1310.76	9	
	MONTHLY EST.			0.0017	4428.43		8
MAY	1	3	203.04	0.0148	1421.30	21	
	2	3	198.81	0.0151	1512.55	23	
	3	6	317.68	0.0189	2291.28	43	
	4	12	655.26	0.0183	3406.13	62	
	MONTHLY EST.			0.0168	8631.26		145
JUNE	1	32	419.88	0.0762	2723.21	208	
	2	10	431.88	0.0232	2718.07	63	
	3	14	386.99	0.0362	2598.46	94	
	4	38	405.98	0.0936	3821.71	358	
	MONTHLY EST.			0.0573	11861.45		679
JULY	1	85	411.44	0.2066	2570.62	531	
	2	92	334.08	0.2754	2444.83	673	
	3	210	435.12	0.4826	2827.82	1365	
	4	575	666.04	0.8633	3588.55	3098	
	MONTHLY EST.			0.4570	11431.82		5224
AUGUST	1	771	381.32	2.0219	2536.01	5128	
	2	665	331.76	2.0045	2399.42	4810	
	3	913	383.11	2.3832	2528.14	6025	
	4	823	412.82	1.9936	3937.56	7850	
	MONTHLY EST.			2.1008	11401.13		23951
SEPTEMBER	1	291	328.98	0.8846	2381.90	2107	
	2	277	334.08	0.8291	2338.56	1939	
	3	256	334.08	0.7663	2272.15	1741	
	4	211	334.08	0.6316	2130.48	1346	
	MONTHLY EST.			0.7779	9123.10		7097
OCTOBER	1	7	118.08	0.0593	843.22	50	
	2	30	147.50	0.2034	1302.55	265	
	3	165	254.40	0.6486	1756.30	1139	
	4	617	406.08	1.5194	2188.61	3325	
	MONTHLY EST.			0.6077	6090.67		3701
NOVEMBER	1	73	203.04	0.3595	1644.17	591	
	2	58	203.04	0.2857	1404.24	401	
	3	33	201.91	0.1634	1415.81	231	
	4	116	203.04	0.5713	1684.85	963	
	MONTHLY EST.			0.3450	6149.06		2121
DECEMBER	1	173	201.91	0.8568	1421.28	1218	
	2	37	203.04	0.1822	1421.42	259	
	3	6	203.04	0.0296	1421.28	42	
	4	34	405.38	0.0839	2032.15	170	
	MONTHLY EST.			0.2881	6296.14		1814

APPENDIX TABLE C-2.14. ESTIMATED WEEKLY ABUNDANCE OF WHITE CATFISH, DANSKAMMER POINT GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	2	201.63	0.0099	1421.28	14	
	2	2	203.04	0.0099	1421.28	14	
	3	1	203.04	0.0049	1421.30	7	
	4	4	406.08	0.0099	2030.57	20	
	MONTHLY EST.			0.0086	6294.43		54
FEBRUARY	1	5	201.21	0.0249	1410.46	35	
	2	1	203.04	0.0049	1421.28	7	
	3	1	203.04	0.0049	1521.67	7	
	4	0	203.04	0.0000	1522.54	0	
	MONTHLY EST.			0.0087	5875.94		51
MARCH	1	9	203.04	0.0443	1421.30	63	
	2	1	197.40	0.0051	1421.45	7	
	3	0	203.04	0.0000	1582.10	0	
	4	4	180.41	0.0222	1709.86	38	
	MONTHLY EST.			0.0179	6134.71		110
APRIL	1	9	113.36	0.0794	966.24	77	
	2	25	173.08	0.1444	1143.43	165	
	3	4	144.00	0.0278	1008.00	28	
	4	8	144.00	0.0556	1310.76	73	
	MONTHLY EST.			0.0768	4428.43		340
MAY	1	20	203.04	0.0985	1421.30	140	
	2	35	198.81	0.1760	1512.55	266	
	3	9	317.68	0.0283	2291.28	65	
	4	19	655.26	0.0290	3406.13	99	
	MONTHLY EST.			0.0830	8631.26		716
JUNE	1	8	419.88	0.0191	2723.21	52	
	2	1	431.88	0.0023	2718.07	6	
	3	29	386.99	0.0749	2598.46	195	
	4	14	405.98	0.0345	3821.71	132	
	MONTHLY EST.			0.0327	11861.45		388
JULY	1	31	411.44	0.0753	2570.62	194	
	2	7	334.08	0.0210	2444.83	51	
	3	15	435.12	0.0345	2827.82	97	
	4	32	666.04	0.0480	3588.55	172	
	MONTHLY EST.			0.0447	11431.82		511
AUGUST	1	16	381.32	0.0420	2536.01	106	
	2	9	331.76	0.0271	2399.42	65	
	3	9	383.11	0.0235	2528.14	59	
	4	22	412.82	0.0533	3937.56	210	
	MONTHLY EST.			0.0365	11401.13		416
SEPTEMBER	1	11	328.98	0.0334	2381.90	80	
	2	5	334.08	0.0150	2338.56	35	
	3	23	334.08	0.0688	2272.15	156	
	4	2	334.08	0.0060	2130.48	13	
	MONTHLY EST.			0.0308	9123.10		281
OCTOBER	1	2	118.08	0.0169	843.22	14	
	2	0	147.50	0.0000	1302.55	0	
	3	7	254.40	0.0275	1756.30	48	
	4	92	406.08	0.2266	2188.61	496	
	MONTHLY EST.			0.0678	6090.67		413
NOVEMBER	1	4	203.04	0.0197	1644.17	32	
	2	8	203.04	0.0394	1404.24	55	
	3	4	201.91	0.0198	1415.81	28	
	4	0	203.04	0.0000	1684.85	0	
	MONTHLY EST.			0.0197	6149.06		121
DECEMBER	1	1	201.91	0.0050	1421.28	7	
	2	0	203.04	0.0000	1421.42	0	
	3	0	203.04	0.0000	1421.28	0	
	4	4	405.38	0.0099	2032.15	20	
	MONTHLY EST.			0.0037	6296.14		23

APPENDIX TABLE C-2.15. ESTIMATED WEEKLY ABUNDANCE OF WHITE PERCH, DANSKAMMER POINT GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	2	201.63	0.0099	1421.28	14	
	2	30	203.04	0.1478	1421.28	210	
	3	18	203.04	0.0887	1421.30	126	
	4	36	406.08	0.0887	2030.57	180	
	MONTHLY EST.			0.0837	6294.43		527
FEBRUARY	1	18	201.21	0.0895	1410.46	126	
	2	13	203.04	0.0640	1421.28	91	
	3	6	203.04	0.0296	1521.67	45	
	4	11	203.04	0.0542	1522.54	82	
	MONTHLY EST.			0.0593	5875.94		348
MARCH	1	81	203.04	0.3989	1421.30	567	
	2	64	197.40	0.3242	1421.45	461	
	3	34	203.04	0.1675	1582.10	265	
	4	1	180.41	0.0055	1709.86	9	
	MONTHLY EST.			0.2240	6134.71		1374
APRIL	1	3	113.36	0.0265	966.24	26	
	2	222	173.08	1.2826	1143.43	1467	
	3	276	144.00	1.9167	1008.00	1932	
	4	103	144.00	0.7153	1310.76	938	
	MONTHLY EST.			0.9853	4428.43		4363
MAY	1	261	203.04	1.2855	1421.30	1827	
	2	420	198.81	2.1126	1512.55	3195	
	3	137	317.68	0.4313	2291.28	988	
	4	216	655.26	0.3296	3406.13	1123	
	MONTHLY EST.			1.0397	8631.26		8974
JUNE	1	731	419.88	1.7410	2723.21	4741	
	2	228	431.88	0.5279	2718.07	1435	
	3	346	386.99	0.8941	2598.46	2323	
	4	556	405.98	1.3695	3821.71	5234	
	MONTHLY EST.			1.1331	11861.45		13440
JULY	1	626	411.44	1.5215	2570.62	3911	
	2	119	334.08	0.3562	2444.83	871	
	3	502	435.12	1.1537	2827.82	3262	
	4	820	666.04	1.2312	3588.55	4418	
	MONTHLY EST.			1.0656	11431.82		12182
AUGUST	1	110	381.32	0.2885	2536.01	732	
	2	202	331.76	0.6089	2399.42	1461	
	3	319	383.11	0.8327	2528.14	2105	
	4	911	412.82	2.2068	3937.56	8689	
	MONTHLY EST.			0.9842	11401.13		11221
SEPTEMBER	1	131	328.98	0.3982	2381.90	948	
	2	156	334.08	0.4670	2338.56	1092	
	3	226	334.08	0.6765	2272.15	1537	
	4	405	334.08	1.2123	2130.48	2583	
	MONTHLY EST.			0.6885	9123.10		6281
OCTOBER	1	3	118.08	0.0254	843.22	21	
	2	14	147.50	0.0949	1302.55	124	
	3	789	254.40	3.1014	1756.30	5447	
	4	3306	406.08	8.1413	2188.61	17818	
	MONTHLY EST.			2.8407	6090.67		17302
NOVEMBER	1	571	203.04	2.8123	1644.17	4624	
	2	805	203.04	3.9647	1404.24	5567	
	3	132	201.91	0.6538	1415.81	926	
	4	905	203.04	4.4572	1684.85	7510	
	MONTHLY EST.			2.9720	6149.06		18275
DECEMBER	1	406	201.91	2.0108	1421.28	2858	
	2	86	203.04	0.4236	1421.42	602	
	3	13	203.04	0.0640	1421.28	91	
	4	33	405.38	0.0814	2032.15	165	
	MONTHLY EST.			0.6449	6296.14		4061

APPENDIX TABLE C-2.16. ESTIMATED WEEKLY ABUNDANCE OF BLUE CRAB, DANSKAMMER POINT GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	NUMBER OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (NO./MG)	WEEKLY FLOW (MG)	ESTIMATED NUMBER (RATExFLOW)	MONTHLY ESTIMATED NUMBER
JANUARY	1	0	201.63	0.0000	1421.28	0	
	2	0	203.04	0.0000	1421.28	0	
	3	0	203.04	0.0000	1421.30	0	
	4	0	406.08	0.0000	2030.57	0	
	MONTHLY EST.			0.0000	6294.43		0
FEBRUARY	1	0	201.21	0.0000	1410.46	0	
	2	0	203.04	0.0000	1421.28	0	
	3	0	203.04	0.0000	1521.67	0	
	4	0	203.04	0.0000	1522.54	0	
	MONTHLY EST.			0.0000	5875.94		0
MARCH	1	0	203.04	0.0000	1421.30	0	
	2	0	197.40	0.0000	1421.45	0	
	3	0	203.04	0.0000	1582.10	0	
	4	0	180.41	0.0000	1709.86	0	
	MONTHLY EST.			0.0000	6134.71		0
APRIL	1	0	113.36	0.0000	966.24	0	
	2	0	173.08	0.0000	1143.43	0	
	3	0	144.00	0.0000	1008.00	0	
	4	0	144.00	0.0000	1310.76	0	
	MONTHLY EST.			0.0000	4428.43		0
MAY	1	0	203.04	0.0000	1421.30	0	
	2	0	198.81	0.0000	1512.55	0	
	3	0	317.68	0.0000	2291.28	0	
	4	0	655.26	0.0000	3406.13	0	
	MONTHLY EST.			0.0000	8631.26		0
JUNE	1	3	419.88	0.0071	2723.21	19	
	2	0	431.88	0.0000	2718.07	0	
	3	0	386.99	0.0000	2598.46	0	
	4	0	405.98	0.0000	3821.71	0	
	MONTHLY EST.			0.0018	11861.45		21
JULY	1	4	411.44	0.0097	2570.62	25	
	2	20	334.08	0.0599	2444.83	146	
	3	21	435.12	0.0483	2827.82	136	
	4	168	666.04	0.2522	3588.55	905	
	MONTHLY EST.			0.0925	11431.82		1058
AUGUST	1	194	381.32	0.5088	2536.01	1290	
	2	465	331.76	1.4016	2399.42	3363	
	3	1947	383.11	5.0822	2528.14	12848	
	4	2432	412.82	5.8912	3937.56	23197	
	MONTHLY EST.			3.2209	11401.13		36722
SEPTEMBER	1	998	328.98	3.0337	2381.90	7226	
	2	1243	334.08	3.7207	2338.56	8701	
	3	769	334.08	2.3018	2272.15	5230	
	4	976	334.08	2.9215	2130.48	6224	
	MONTHLY EST.			2.9944	9123.10		27318
OCTOBER	1	278	118.08	2.3543	843.22	1985	
	2	169	147.50	1.1458	1302.55	1492	
	3	250	254.40	0.9827	1756.30	1726	
	4	348	406.08	0.8570	2188.61	1876	
	MONTHLY EST.			1.3349	6090.67		8131
NOVEMBER	1	206	203.04	1.0146	1644.17	1668	
	2	307	203.04	1.5120	1404.24	2123	
	3	50	201.91	0.2476	1415.81	351	
	4	17	203.04	0.0837	1684.85	141	
	MONTHLY EST.			0.7145	6149.06		4393
DECEMBER	1	0	201.91	0.0000	1421.28	0	
	2	1	203.04	0.0049	1421.42	7	
	3	2	203.04	0.0099	1421.28	14	
	4	0	405.38	0.0000	2032.15	0	
	MONTHLY EST.			0.0037	6296.14		23

APPENDIX D

ESTIMATED IMPINGEMENT BIOMASS

LIST OF APPENDIX D TABLES

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D-1.3. Estimated weekly biomass of American eel, Roseton Generating Station, 1997.

D-1.4. Estimated weekly biomass of American shad, Roseton Generating Station, 1997.

D-1.5. Estimated weekly biomass of Atlantic tomcod, Roseton Generating Station, 1997.

D-1.6. Estimated weekly biomass of bay anchovy, Roseton Generating Station, 1997.

D-1.7. Estimated weekly biomass of blueback herring, Roseton Generating Station, 1997.

D-1.8. Estimated weekly biomass of brown bullhead, Roseton Generating Station, 1997.

D-1.9. Estimated weekly biomass of gizzard shad, Roseton Generating Station, 1997.

D-1.10. Estimated weekly biomass of golden shiner, Roseton Generating Station, 1997.

D-1.11. Estimated weekly biomass of pumpkinseed, Roseton Generating Station, 1997.

D-1.12. Estimated weekly biomass of rainbow smelt, Roseton Generating Station, 1997.

D-1.13. Estimated weekly biomass of spottail shiner, Roseton Generating Station, 1997.

D-1.14. Estimated weekly biomass of striped bass, Roseton Generating Station, 1997.

D-1.15. Estimated weekly biomass of white perch, Roseton Generating Station, 1997.

D-1.16. Estimated weekly biomass of blue crab, Roseton Generating Station, 1997.

D-2.1. Estimated weekly biomass of all fish species, Danskammer Point Generating Station, 1997.

D-2.2. Estimated weekly biomass of alewife, Danskammer Point Generating Station, 1997.

D-2.3. Estimated weekly biomass of American shad, Danskammer Point Generating Station, 1997.

D-2.4. Estimated weekly biomass of Atlantic tomcod, Danskammer Point Generating Station, 1997.

D-2.5. Estimated weekly biomass of bay anchovy, Danskammer Point Generating Station, 1997.

D-2.6. Estimated weekly biomass of blueback herring, Danskammer Point Generating Station, 1997.

D-2.7. Estimated weekly biomass of brown bullhead, Danskammer Point Generating Station, 1997.

D-2.8. Estimated weekly biomass of gizzard shad, Danskammer Point Generating Station, 1997.

D-2.9. Estimated weekly biomass of golden shiner, Danskammer Point Generating Station, 1997.

D-2.10. Estimated weekly biomass of pumpkinseed, Danskammer Point Generating Station, 1997.

D-2.11. Estimated weekly biomass of rainbow smelt, Danskammer Point Generating Station, 1997.

D-2.12. Estimated weekly biomass of spottail shiner, Danskammer Point Generating Station, 1997.

D-2.13. Estimated weekly biomass of striped bass, Danskammer Point Generating Station, 1997.

D-2.14. Estimated weekly biomass of white catfish, Danskammer Point Generating Station, 1997.

D-2.15. Estimated weekly biomass of white perch, Danskammer Point Generating Station, 1997.

D-2.16. Estimated weekly biomass of blue crab, Danskammer Point Generating Station, 1997.

APPENDIX TABLE D-1.1. ESTIMATED WEEKLY BIOMASS OF ALL FISH SPECIES, ROSETON GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	1799.3	429.60	4.1883	3050.40	12776.0	
	2	9040.5	542.40	16.6676	3796.80	63283.5	
	3	4868.8	542.40	8.9764	3796.80	34081.6	
	4	7662.9	1069.36	7.1659	5016.00	35944.1	
	MONTHLY EST.			9.2496	15660.00		144848.0
FEBRUARY	1	2263.0	536.37	4.2191	3338.40	14085.0	
	2	2572.9	536.00	4.8002	3796.80	18225.5	
	3	897.2	303.79	2.9534	2193.60	6478.6	
	4	643.3	305.89	2.1031	2174.40	4572.9	
	MONTHLY EST.			3.5189	11503.20		40479.1
MARCH	1		0.00		1598.40		
	2	1086.2	291.41	3.7274	2152.80	8024.2	
	3	549.1	304.00	1.8063	2150.40	3884.2	
	4	352.8	298.88	1.1804	3357.60	3963.3	
	MONTHLY EST.			2.2380	9259.20		20722.1
APRIL	1	575.5	354.09	1.6253	2774.40	4509.2	
	2	1064.2	292.27	3.6412	2152.80	7838.8	
	3	627.9	307.20	2.0439	2150.40	4395.3	
	4	1457.1	147.60	9.8720	894.00	8825.5	
	MONTHLY EST.			4.2956	7971.60		34242.7
MAY	1	147.4	19.20	7.6771	2824.80	21686.2	
	2	3106.0	542.40	5.7264	1605.60	9194.3	
	3	18.5	18.00	1.0278	134.40	138.1	
	4	1334.5	550.30	2.4250	2860.80	6937.6	
	MONTHLY EST.			4.2141	7425.60		31292.0
JUNE	1	5061.6	542.40	9.3319	3796.80	35431.2	
	2	4446.1	791.95	5.6141	4500.00	25263.5	
	3	1893.6	791.95	2.3911	5196.00	12423.9	
	4	2334.2	808.80	2.8860	7279.20	21007.8	
	MONTHLY EST.			5.0558	20772.00		105018.2
JULY	1	3928.8	802.29	4.8970	5750.40	28159.6	
	2	131.2	741.60	0.1769	5517.60	976.1	
	3	1502.8	880.12	1.7075	5500.80	9392.6	
	4	1678.1	1193.40	1.4062	6727.20	9459.5	
	MONTHLY EST.			2.0469	23496.00		48093.6
AUGUST	1	2452.3	783.70	3.1291	4072.80	12744.3	
	2	9049.3	921.60	9.8191	5896.80	57901.4	
	3	272.0	309.60	0.8786	4605.60	4046.3	
	4	646.9	527.71	1.2259	2690.40	3298.1	
	MONTHLY EST.			3.7632	17265.60		64973.3
SEPTEMBER	1	447.0	303.61	1.4723	2889.60	4254.3	
	2	500.6	376.20	1.3307	3288.00	4375.3	
	3	1087.9	393.00	2.7682	3259.20	9022.1	
	4	0.0	19.00	0.0000	333.60	0.0	
	MONTHLY EST.			1.3928	9770.40		13608.1
OCTOBER	1	0.0	19.20	0.0000	1180.80	0.0	
	2	11599.8	542.40	21.3861	3796.80	81198.6	
	3	14364.3	542.40	26.4829	3796.80	100550.1	
	4	43942.8	1123.20	39.1229	5983.20	234079.9	
	MONTHLY EST.			21.7479	14757.60		320947.5
NOVEMBER	1	682.8	542.40	1.2588	3796.80	4779.6	
	2	2236.6	542.40	4.1235	3796.80	15656.2	
	3	1307.9	542.40	2.4113	3796.80	9155.3	
	4	3757.0	602.40	6.2367	5376.00	33528.6	
	MONTHLY EST.			3.5076	16766.40		58809.9
DECEMBER	1	2913.0	508.27	5.7311	4216.80	24167.1	
	2	2507.0	580.80	4.3165	4053.60	17497.2	
	3	1315.5	542.40	2.4253	3796.80	9208.5	
	4	6834.9	1084.80	6.3006	5006.40	31543.4	
	MONTHLY EST.			4.6934	17073.60		80133.0

APPENDIX TABLE D-1.2. ESTIMATED WEEKLY BIOMASS OF ALEWIFE, ROSETON GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	429.60	0.0000	3050.40	0.0	
	2	0.0	542.40	0.0000	3796.80	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	0.0	1069.36	0.0000	5016.00	0.0	
	MONTHLY EST.			0.0000	15660.00		0.0
FEBRUARY	1	0.0	536.37	0.0000	3338.40	0.0	
	2	0.0	536.00	0.0000	3796.80	0.0	
	3	7.3	303.79	0.0240	2193.60	52.7	
	4	0.0	305.89	0.0000	2174.40	0.0	
	MONTHLY EST.			0.0060	11503.20		69.1
MARCH	1		0.00		1598.40		
	2	256.0	291.41	0.8785	2152.80	1891.2	
	3	302.4	304.00	0.9947	2150.40	2139.1	
	4	0.0	298.88	0.0000	3357.60	0.0	
	MONTHLY EST.			0.6244	9259.20		5781.5
APRIL	1	0.0	354.09	0.0000	2774.40	0.0	
	2	0.0	292.27	0.0000	2152.80	0.0	
	3	5.3	307.20	0.0173	2150.40	37.1	
	4	6.8	147.60	0.0461	894.00	41.2	
	MONTHLY EST.			0.0158	7971.60		126.2
MAY	1	0.0	19.20	0.0000	2824.80	0.0	
	2	79.8	542.40	0.1471	1605.60	236.2	
	3	0.0	18.00	0.0000	134.40	0.0	
	4	251.5	550.30	0.4570	2860.80	1307.5	
	MONTHLY EST.			0.1510	7425.60		1121.5
JUNE	1	180.6	542.40	0.3330	3796.80	1264.2	
	2	169.8	791.95	0.2144	4500.00	964.8	
	3	9.8	791.95	0.0124	5196.00	64.3	
	4	0.0	808.80	0.0000	7279.20	0.0	
	MONTHLY EST.			0.1399	20772.00		2906.8
JULY	1	74.2	802.29	0.0925	5750.40	531.8	
	2	18.1	741.60	0.0244	5517.60	134.7	
	3	310.6	880.12	0.3529	5500.80	1941.3	
	4	53.1	1193.40	0.0445	6727.20	299.3	
	MONTHLY EST.			0.1286	23496.00		3021.0
AUGUST	1	249.5	783.70	0.3184	4072.80	1296.6	
	2	560.0	921.60	0.6076	5896.80	3583.1	
	3	7.4	309.60	0.0239	4605.60	110.1	
	4	34.4	527.71	0.0652	2690.40	175.4	
	MONTHLY EST.			0.2538	17265.60		4381.5
SEPTEMBER	1	46.9	303.61	0.1545	2889.60	446.4	
	2	34.4	376.20	0.0914	3288.00	300.7	
	3	174.9	393.00	0.4450	3259.20	1450.5	
	4	0.0	19.00	0.0000	333.60	0.0	
	MONTHLY EST.			0.1727	9770.40		1687.7
OCTOBER	1	0.0	19.20	0.0000	1180.80	0.0	
	2	2746.6	542.40	5.0638	3796.80	19226.2	
	3	1465.5	542.40	2.7019	3796.80	10258.5	
	4	8055.1	1123.20	7.1716	5983.20	42908.9	
	MONTHLY EST.			3.7343	14757.60		55109.4
NOVEMBER	1	211.9	542.40	0.3907	3796.80	1483.3	
	2	150.1	542.40	0.2767	3796.80	1050.7	
	3	50.5	542.40	0.0931	3796.80	353.5	
	4	20.7	602.40	0.0344	5376.00	184.7	
	MONTHLY EST.			0.1987	16766.40		3331.8
DECEMBER	1	3.8	508.27	0.0075	4216.80	31.5	
	2	0.0	580.80	0.0000	4053.60	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	0.0	1084.80	0.0000	5006.40	0.0	
	MONTHLY EST.			0.0019	17073.60		31.9

APPENDIX TABLE D-1.3. ESTIMATED WEEKLY BIOMASS OF AMERICAN EEL, ROSETON GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	536.0	429.60	1.2477	3050.40	3805.9	
	2	0.0	542.40	0.0000	3796.80	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	116.6	1069.36	0.1090	5016.00	546.9	
	MONTHLY EST.			0.3392	15660.00		5311.5
FEBRUARY	1	133.6	536.37	0.2491	3338.40	831.5	
	2	477.3	536.00	0.8905	3796.80	3381.0	
	3	0.0	303.79	0.0000	2193.60	0.0	
	4	0.0	305.89	0.0000	2174.40	0.0	
	MONTHLY EST.			0.2849	11503.20		3277.2
MARCH	1		0.00		1598.40		
	2	62.9	291.41	0.2158	2152.80	464.7	
	3	0.0	304.00	0.0000	2150.40	0.0	
	4	4.8	298.88	0.0161	3357.60	53.9	
	MONTHLY EST.			0.0773	9259.20		715.8
APRIL	1	245.4	354.09	0.6930	2774.40	1922.8	
	2	56.9	292.27	0.1947	2152.80	419.1	
	3	0.0	307.20	0.0000	2150.40	0.0	
	4	570.7	147.60	3.8665	894.00	3456.7	
	MONTHLY EST.			1.1886	7971.60		9474.8
MAY	1	0.0	19.20	0.0000	2824.80	0.0	
	2	16.1	542.40	0.0297	1605.60	47.7	
	3	0.0	18.00	0.0000	134.40	0.0	
	4	40.7	550.30	0.0740	2860.80	211.6	
	MONTHLY EST.			0.0259	7425.60		192.4
JUNE	1	35.1	542.40	0.0647	3796.80	245.7	
	2	106.8	791.95	0.1349	4500.00	606.9	
	3	152.9	791.95	0.1931	5196.00	1003.2	
	4	152.6	808.80	0.1887	7279.20	1373.4	
	MONTHLY EST.			0.1453	20772.00		3018.8
JULY	1	194.1	802.29	0.2419	5750.40	1391.2	
	2	0.0	741.60	0.0000	5517.60	0.0	
	3	99.7	880.12	0.1133	5500.80	623.1	
	4	0.0	1193.40	0.0000	6727.20	0.0	
	MONTHLY EST.			0.0888	23496.00		2086.5
AUGUST	1	83.7	783.70	0.1068	4072.80	435.0	
	2	70.1	921.60	0.0761	5896.80	448.5	
	3	0.0	309.60	0.0000	4605.60	0.0	
	4	0.0	527.71	0.0000	2690.40	0.0	
	MONTHLY EST.			0.0457	17265.60		789.3
SEPTEMBER	1	0.0	303.61	0.0000	2889.60	0.0	
	2	0.0	376.20	0.0000	3288.00	0.0	
	3	0.0	393.00	0.0000	3259.20	0.0	
	4	0.0	19.00	0.0000	333.60	0.0	
	MONTHLY EST.			0.0000	9770.40		0.0
OCTOBER	1	0.0	19.20	0.0000	1180.80	0.0	
	2	21.0	542.40	0.0387	3796.80	147.0	
	3	128.4	542.40	0.2367	3796.80	898.8	
	4	731.0	1123.20	0.6508	5983.20	3894.0	
	MONTHLY EST.			0.2316	14757.60		3417.3
NOVEMBER	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	542.40	0.0000	3796.80	0.0	
	3	262.7	542.40	0.4843	3796.80	1838.9	
	4	0.0	602.40	0.0000	5376.00	0.0	
	MONTHLY EST.			0.1211	16766.40		2030.1
DECEMBER	1	0.0	508.27	0.0000	4216.80	0.0	
	2	0.0	580.80	0.0000	4053.60	0.0	
	3	209.1	542.40	0.3855	3796.80	1463.7	
	4	1371.6	1084.80	1.2644	5006.40	6330.0	
	MONTHLY EST.			0.4125	17073.60		7042.4

APPENDIX TABLE D-1.4. ESTIMATED WEEKLY BIOMASS OF AMERICAN SHAD, ROSETON GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	429.60	0.0000	3050.40	0.0	
	2	0.0	542.40	0.0000	3796.80	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	0.0	1069.36	0.0000	5016.00	0.0	
	MONTHLY EST.			0.0000	15660.00		0.0
FEBRUARY	1	0.0	536.37	0.0000	3338.40	0.0	
	2	0.0	536.00	0.0000	3796.80	0.0	
	3	0.0	303.79	0.0000	2193.60	0.0	
	4	0.0	305.89	0.0000	2174.40	0.0	
	MONTHLY EST.			0.0000	11503.20		0.0
MARCH	1		0.00		1598.40		
	2	0.0	291.41	0.0000	2152.80	0.0	
	3	0.0	304.00	0.0000	2150.40	0.0	
	4	0.0	298.88	0.0000	3357.60	0.0	
	MONTHLY EST.			0.0000	9259.20		0.0
APRIL	1	0.0	354.09	0.0000	2774.40	0.0	
	2	0.0	292.27	0.0000	2152.80	0.0	
	3	0.0	307.20	0.0000	2150.40	0.0	
	4	0.0	147.60	0.0000	894.00	0.0	
	MONTHLY EST.			0.0000	7971.60		0.0
MAY	1	0.0	19.20	0.0000	2824.80	0.0	
	2	0.0	542.40	0.0000	1605.60	0.0	
	3	0.0	18.00	0.0000	134.40	0.0	
	4	0.0	550.30	0.0000	2860.80	0.0	
	MONTHLY EST.			0.0000	7425.60		0.0
JUNE	1	20.9	542.40	0.0385	3796.80	146.3	
	2	0.0	791.95	0.0000	4500.00	0.0	
	3	0.0	791.95	0.0000	5196.00	0.0	
	4	0.0	808.80	0.0000	7279.20	0.0	
	MONTHLY EST.			0.0096	20772.00		200.1
JULY	1	23.1	802.29	0.0288	5750.40	165.6	
	2	0.0	741.60	0.0000	5517.60	0.0	
	3	57.3	880.12	0.0651	5500.80	358.1	
	4	6.2	1193.40	0.0052	6727.20	34.9	
	MONTHLY EST.			0.0248	23496.00		582.1
AUGUST	1	57.8	783.70	0.0738	4072.80	300.4	
	2	83.8	921.60	0.0909	5896.80	536.2	
	3	2.3	309.60	0.0074	4605.60	34.2	
	4	0.0	527.71	0.0000	2690.40	0.0	
	MONTHLY EST.			0.0430	17265.60		742.9
SEPTEMBER	1	22.8	303.61	0.0751	2889.60	217.0	
	2	5.1	376.20	0.0136	3288.00	44.6	
	3	18.6	393.00	0.0473	3259.20	154.3	
	4	0.0	19.00	0.0000	333.60	0.0	
	MONTHLY EST.			0.0340	9770.40		332.1
OCTOBER	1	0.0	19.20	0.0000	1180.80	0.0	
	2	105.5	542.40	0.1945	3796.80	738.5	
	3	242.9	542.40	0.4478	3796.80	1700.3	
	4	612.7	1123.20	0.5455	5983.20	3263.8	
	MONTHLY EST.			0.2970	14757.60		4382.4
NOVEMBER	1	10.0	542.40	0.0184	3796.80	70.0	
	2	0.0	542.40	0.0000	3796.80	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	0.0	602.40	0.0000	5376.00	0.0	
	MONTHLY EST.			0.0046	16766.40		77.3
DECEMBER	1	3.7	508.27	0.0073	4216.80	30.7	
	2	0.0	580.80	0.0000	4053.60	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	0.0	1084.80	0.0000	5006.40	0.0	
	MONTHLY EST.			0.0018	17073.60		31.1

APPENDIX TABLE D-1.5. ESTIMATED WEEKLY BIOMASS OF ATLANTIC TOMCOD, ROSETON GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	563.2	429.60	1.3110	3050.40	3999.0	
	2	1439.9	542.40	2.6547	3796.80	10079.3	
	3	667.8	542.40	1.2312	3796.80	4674.6	
	4	1060.6	1069.36	0.9918	5016.00	4974.9	
	MONTHLY EST.			1.5472	15660.00		24228.7
FEBRUARY	1	47.5	536.37	0.0886	3338.40	295.6	
	2	25.6	536.00	0.0478	3796.80	181.3	
	3	37.2	303.79	0.1225	2193.60	268.6	
	4	0.0	305.89	0.0000	2174.40	0.0	
	MONTHLY EST.			0.0647	11503.20		744.2
MARCH	1		0.00		1598.40		
	2	0.0	291.41	0.0000	2152.80	0.0	
	3	0.0	304.00	0.0000	2150.40	0.0	
	4	0.0	298.88	0.0000	3357.60	0.0	
	MONTHLY EST.			0.0000	9259.20		0.0
APRIL	1	0.0	354.09	0.0000	2774.40	0.0	
	2	0.0	292.27	0.0000	2152.80	0.0	
	3	0.0	307.20	0.0000	2150.40	0.0	
	4	0.0	147.60	0.0000	894.00	0.0	
	MONTHLY EST.			0.0000	7971.60		0.0
MAY	1	0.0	19.20	0.0000	2824.80	0.0	
	2	2.2	542.40	0.0041	1605.60	6.5	
	3	0.0	18.00	0.0000	134.40	0.0	
	4	1.8	550.30	0.0033	2860.80	9.4	
	MONTHLY EST.			0.0018	7425.60		13.6
JUNE	1	16.2	542.40	0.0299	3796.80	113.4	
	2	4.3	791.95	0.0054	4500.00	24.4	
	3	7.6	791.95	0.0096	5196.00	49.9	
	4	28.5	808.80	0.0352	7279.20	256.5	
	MONTHLY EST.			0.0200	20772.00		416.1
JULY	1	107.7	802.29	0.1342	5750.40	771.9	
	2	6.9	741.60	0.0093	5517.60	51.3	
	3	71.5	880.12	0.0812	5500.80	446.9	
	4	4.4	1193.40	0.0037	6727.20	24.8	
	MONTHLY EST.			0.0571	23496.00		1342.0
AUGUST	1	170.7	783.70	0.2178	4072.80	887.1	
	2	358.2	921.60	0.3887	5896.80	2291.9	
	3	22.8	309.60	0.0736	4605.60	339.2	
	4	37.4	527.71	0.0709	2690.40	190.7	
	MONTHLY EST.			0.1878	17265.60		3241.6
SEPTEMBER	1	11.0	303.61	0.0362	2889.60	104.7	
	2	12.3	376.20	0.0327	3288.00	107.5	
	3	4.8	393.00	0.0122	3259.20	39.8	
	4	0.0	19.00	0.0000	333.60	0.0	
	MONTHLY EST.			0.0203	9770.40		198.2
OCTOBER	1	0.0	19.20	0.0000	1180.80	0.0	
	2	0.0	542.40	0.0000	3796.80	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	0.0	1123.20	0.0000	5983.20	0.0	
	MONTHLY EST.			0.0000	14757.60		0.0
NOVEMBER	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	542.40	0.0000	3796.80	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	0.0	602.40	0.0000	5376.00	0.0	
	MONTHLY EST.			0.0000	16766.40		0.0
DECEMBER	1	0.0	508.27	0.0000	4216.80	0.0	
	2	0.0	580.80	0.0000	4053.60	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	26.3	1084.80	0.0242	5006.40	121.4	
	MONTHLY EST.			0.0061	17073.60		103.5

APPENDIX TABLE D-1.6. ESTIMATED WEEKLY BIOMASS OF BAY ANCHOVY, ROSETON GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	429.60	0.0000	3050.40	0.0	
	2	0.0	542.40	0.0000	3796.80	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	0.0	1069.36	0.0000	5016.00	0.0	
	MONTHLY EST.			0.0000	15660.00		0.0
FEBRUARY	1	0.0	536.37	0.0000	3338.40	0.0	
	2	0.0	536.00	0.0000	3796.80	0.0	
	3	0.0	303.79	0.0000	2193.60	0.0	
	4	0.0	305.89	0.0000	2174.40	0.0	
	MONTHLY EST.			0.0000	11503.20		0.0
MARCH	1		0.00		1598.40		
	2	0.0	291.41	0.0000	2152.80	0.0	
	3	0.0	304.00	0.0000	2150.40	0.0	
	4	0.0	298.88	0.0000	3357.60	0.0	
	MONTHLY EST.			0.0000	9259.20		0.0
APRIL	1	0.0	354.09	0.0000	2774.40	0.0	
	2	0.0	292.27	0.0000	2152.80	0.0	
	3	0.0	307.20	0.0000	2150.40	0.0	
	4	0.0	147.60	0.0000	894.00	0.0	
	MONTHLY EST.			0.0000	7971.60		0.0
MAY	1	0.0	19.20	0.0000	2824.80	0.0	
	2	0.0	542.40	0.0000	1605.60	0.0	
	3	0.0	18.00	0.0000	134.40	0.0	
	4	0.0	550.30	0.0000	2860.80	0.0	
	MONTHLY EST.			0.0000	7425.60		0.0
JUNE	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	791.95	0.0000	4500.00	0.0	
	3	0.0	791.95	0.0000	5196.00	0.0	
	4	0.0	808.80	0.0000	7279.20	0.0	
	MONTHLY EST.			0.0000	20772.00		0.0
JULY	1	9.6	802.29	0.0120	5750.40	68.8	
	2	0.0	741.60	0.0000	5517.60	0.0	
	3	14.1	880.12	0.0160	5500.80	88.1	
	4	50.2	1193.40	0.0421	6727.20	283.0	
	MONTHLY EST.			0.0175	23496.00		411.5
AUGUST	1	256.4	783.70	0.3272	4072.80	1332.5	
	2	2571.4	921.60	2.7901	5896.80	16452.9	
	3	13.5	309.60	0.0436	4605.60	200.8	
	4	7.6	527.71	0.0144	2690.40	38.7	
	MONTHLY EST.			0.7938	17265.60		13706.0
SEPTEMBER	1	67.3	303.61	0.2217	2889.60	640.5	
	2	98.6	376.20	0.2621	3288.00	861.8	
	3	222.0	393.00	0.5649	3259.20	1841.1	
	4	0.0	19.00	0.0000	333.60	0.0	
	MONTHLY EST.			0.2622	9770.40		2561.4
OCTOBER	1	0.0	19.20	0.0000	1180.80	0.0	
	2	1965.3	542.40	3.6233	3796.80	13757.1	
	3	683.9	542.40	1.2609	3796.80	4787.3	
	4	1948.4	1123.20	1.7347	5983.20	10379.0	
	MONTHLY EST.			1.6547	14757.60		24419.8
NOVEMBER	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	542.40	0.0000	3796.80	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	0.0	602.40	0.0000	5376.00	0.0	
	MONTHLY EST.			0.0000	16766.40		0.0
DECEMBER	1	0.0	508.27	0.0000	4216.80	0.0	
	2	0.0	580.80	0.0000	4053.60	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	0.0	1084.80	0.0000	5006.40	0.0	
	MONTHLY EST.			0.0000	17073.60		0.0

APPENDIX TABLE D-1.7. ESTIMATED WEEKLY BIOMASS OF BLUEBACK HERRING, ROSETON GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	429.60	0.0000	3050.40	0.0	
	2	0.0	542.40	0.0000	3796.80	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	0.0	1069.36	0.0000	5016.00	0.0	
	MONTHLY EST.			0.0000	15660.00		0.0
FEBRUARY	1	0.0	536.37	0.0000	3338.40	0.0	
	2	0.0	536.00	0.0000	3796.80	0.0	
	3	0.0	303.79	0.0000	2193.60	0.0	
	4	0.0	305.89	0.0000	2174.40	0.0	
	MONTHLY EST.			0.0000	11503.20		0.0
MARCH	1		0.00		1598.40		
	2	0.0	291.41	0.0000	2152.80	0.0	
	3	0.0	304.00	0.0000	2150.40	0.0	
	4	0.0	298.88	0.0000	3357.60	0.0	
	MONTHLY EST.			0.0000	9259.20		0.0
APRIL	1	0.0	354.09	0.0000	2774.40	0.0	
	2	0.0	292.27	0.0000	2152.80	0.0	
	3	0.0	307.20	0.0000	2150.40	0.0	
	4	0.0	147.60	0.0000	894.00	0.0	
	MONTHLY EST.			0.0000	7971.60		0.0
MAY	1	0.0	19.20	0.0000	2824.80	0.0	
	2	482.0	542.40	0.8886	1605.60	1426.8	
	3	0.0	18.00	0.0000	134.40	0.0	
	4	50.8	550.30	0.0923	2860.80	264.1	
	MONTHLY EST.			0.2452	7425.60		1821.0
JUNE	1	73.5	542.40	0.1355	3796.80	514.5	
	2	103.6	791.95	0.1308	4500.00	588.7	
	3	0.0	791.95	0.0000	5196.00	0.0	
	4	21.8	808.80	0.0270	7279.20	196.2	
	MONTHLY EST.			0.0733	20772.00		1523.0
JULY	1	198.2	802.29	0.2470	5750.40	1420.6	
	2	0.0	741.60	0.0000	5517.60	0.0	
	3	15.9	880.12	0.0181	5500.80	99.4	
	4	4.4	1193.40	0.0037	6727.20	24.8	
	MONTHLY EST.			0.0672	23496.00		1578.9
AUGUST	1	193.3	783.70	0.2467	4072.80	1004.6	
	2	646.8	921.60	0.7018	5896.80	4138.5	
	3	0.0	309.60	0.0000	4605.60	0.0	
	4	8.8	527.71	0.0167	2690.40	44.9	
	MONTHLY EST.			0.2413	17265.60		4166.0
SEPTEMBER	1	88.8	303.61	0.2925	2889.60	845.2	
	2	119.3	376.20	0.3171	3288.00	1042.7	
	3	282.5	393.00	0.7188	3259.20	2342.8	
	4	0.0	19.00	0.0000	333.60	0.0	
	MONTHLY EST.			0.3321	9770.40		3244.8
OCTOBER	1	0.0	19.20	0.0000	1180.80	0.0	
	2	2716.3	542.40	5.0079	3796.80	19014.1	
	3	8296.0	542.40	15.2950	3796.80	58072.0	
	4	14583.6	1123.20	12.9840	5983.20	77685.7	
	MONTHLY EST.			8.3217	14757.60		122808.6
NOVEMBER	1	44.6	542.40	0.0822	3796.80	312.2	
	2	55.3	542.40	0.1020	3796.80	387.1	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	7.6	602.40	0.0126	5376.00	67.8	
	MONTHLY EST.			0.0492	16766.40		824.9
DECEMBER	1	1.6	508.27	0.0031	4216.80	13.3	
	2	0.0	580.80	0.0000	4053.60	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	0.0	1084.80	0.0000	5006.40	0.0	
	MONTHLY EST.			0.0008	17073.60		13.4

APPENDIX TABLE D-1.8. ESTIMATED WEEKLY BIOMASS OF BROWN BULLHEAD, ROSETON GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	141.0	429.60	0.3282	3050.40	1001.2	
	2	247.7	542.40	0.4567	3796.80	1733.9	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	0.0	1069.36	0.0000	5016.00	0.0	
	MONTHLY EST.			0.1962	15660.00		3072.8
FEBRUARY	1	0.0	536.37	0.0000	3338.40	0.0	
	2	0.0	536.00	0.0000	3796.80	0.0	
	3	0.0	303.79	0.0000	2193.60	0.0	
	4	0.0	305.89	0.0000	2174.40	0.0	
	MONTHLY EST.			0.0000	11503.20		0.0
MARCH	1		0.00		1598.40		
	2	0.0	291.41	0.0000	2152.80	0.0	
	3	0.0	304.00	0.0000	2150.40	0.0	
	4	0.0	298.88	0.0000	3357.60	0.0	
	MONTHLY EST.			0.0000	9259.20		0.0
APRIL	1	57.1	354.09	0.1613	2774.40	447.4	
	2	0.0	292.27	0.0000	2152.80	0.0	
	3	0.0	307.20	0.0000	2150.40	0.0	
	4	3.8	147.60	0.0257	894.00	23.0	
	MONTHLY EST.			0.0468	7971.60		372.7
MAY	1	0.0	19.20	0.0000	2824.80	0.0	
	2	392.1	542.40	0.7229	1605.60	1160.7	
	3	0.0	18.00	0.0000	134.40	0.0	
	4	30.6	550.30	0.0556	2860.80	159.1	
	MONTHLY EST.			0.1946	7425.60		1445.2
JUNE	1	37.7	542.40	0.0695	3796.80	263.9	
	2	523.9	791.95	0.6615	4500.00	2976.9	
	3	134.5	791.95	0.1698	5196.00	882.5	
	4	41.8	808.80	0.0517	7279.20	376.2	
	MONTHLY EST.			0.2381	20772.00		4946.6
JULY	1	186.0	802.29	0.2318	5750.40	1333.2	
	2	0.0	741.60	0.0000	5517.60	0.0	
	3	96.4	880.12	0.1095	5500.80	602.5	
	4	32.9	1193.40	0.0276	6727.20	185.5	
	MONTHLY EST.			0.0922	23496.00		2167.1
AUGUST	1	546.2	783.70	0.6970	4072.80	2838.5	
	2	377.8	921.60	0.4099	5896.80	2417.3	
	3	102.8	309.60	0.3320	4605.60	1529.2	
	4	208.9	527.71	0.3959	2690.40	1065.0	
	MONTHLY EST.			0.4587	17265.60		7919.7
SEPTEMBER	1	20.3	303.61	0.0669	2889.60	193.2	
	2	8.4	376.20	0.0223	3288.00	73.4	
	3	25.9	393.00	0.0659	3259.20	214.8	
	4	0.0	19.00	0.0000	333.60	0.0	
	MONTHLY EST.			0.0388	9770.40		378.8
OCTOBER	1	0.0	19.20	0.0000	1180.80	0.0	
	2	305.6	542.40	0.5634	3796.80	2139.2	
	3	183.0	542.40	0.3374	3796.80	1281.0	
	4	1069.6	1123.20	0.9523	5983.20	5697.7	
	MONTHLY EST.			0.4633	14757.60		6836.8
NOVEMBER	1	83.0	542.40	0.1530	3796.80	581.0	
	2	66.6	542.40	0.1228	3796.80	466.2	
	3	9.0	542.40	0.0166	3796.80	63.0	
	4	69.8	602.40	0.1159	5376.00	622.9	
	MONTHLY EST.			0.1021	16766.40		1711.3
DECEMBER	1	8.4	508.27	0.0165	4216.80	69.7	
	2	238.7	580.80	0.4110	4053.60	1666.0	
	3	12.6	542.40	0.0232	3796.80	88.2	
	4	12.7	1084.80	0.0117	5006.40	58.6	
	MONTHLY EST.			0.1156	17073.60		1973.9

APPENDIX TABLE D-1.9. ESTIMATED WEEKLY BIOMASS OF GIZZARD SHAD, ROSETON GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	128.6	429.60	0.2993	3050.40	913.1	
	2	3359.6	542.40	6.1940	3796.80	23517.2	
	3	1379.1	542.40	2.5426	3796.80	9653.7	
	4	4028.8	1069.36	3.7675	5016.00	18897.8	
	MONTHLY EST.			3.2008	15660.00		50125.3
FEBRUARY	1	1406.3	536.37	2.6219	3338.40	8752.8	
	2	1106.1	536.00	2.0636	3796.80	7835.2	
	3	0.0	303.79	0.0000	2193.60	0.0	
	4	0.0	305.89	0.0000	2174.40	0.0	
	MONTHLY EST.			1.1714	11503.20		13474.6
MARCH	1		0.00		1598.40		
	2	0.0	291.41	0.0000	2152.80	0.0	
	3	0.0	304.00	0.0000	2150.40	0.0	
	4	0.0	298.88	0.0000	3357.60	0.0	
	MONTHLY EST.			0.0000	9259.20		0.0
APRIL	1	0.0	354.09	0.0000	2774.40	0.0	
	2	0.0	292.27	0.0000	2152.80	0.0	
	3	0.0	307.20	0.0000	2150.40	0.0	
	4	0.0	147.60	0.0000	894.00	0.0	
	MONTHLY EST.			0.0000	7971.60		0.0
MAY	1	0.0	19.20	0.0000	2824.80	0.0	
	2	0.0	542.40	0.0000	1605.60	0.0	
	3	0.0	18.00	0.0000	134.40	0.0	
	4	0.0	550.30	0.0000	2860.80	0.0	
	MONTHLY EST.			0.0000	7425.60		0.0
JUNE	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	791.95	0.0000	4500.00	0.0	
	3	0.0	791.95	0.0000	5196.00	0.0	
	4	0.0	808.80	0.0000	7279.20	0.0	
	MONTHLY EST.			0.0000	20772.00		0.0
JULY	1	0.0	802.29	0.0000	5750.40	0.0	
	2	0.0	741.60	0.0000	5517.60	0.0	
	3	12.8	880.12	0.0145	5500.80	80.0	
	4	16.9	1193.40	0.0142	6727.20	95.3	
	MONTHLY EST.			0.0072	23496.00		168.6
AUGUST	1	3.2	783.70	0.0041	4072.80	16.6	
	2	2126.3	921.60	2.3072	5896.80	13605.0	
	3	0.0	309.60	0.0000	4605.60	0.0	
	4	0.0	527.71	0.0000	2690.40	0.0	
	MONTHLY EST.			0.5778	17265.60		9976.4
SEPTEMBER	1	0.0	303.61	0.0000	2889.60	0.0	
	2	0.0	376.20	0.0000	3288.00	0.0	
	3	0.0	393.00	0.0000	3259.20	0.0	
	4	0.0	19.00	0.0000	333.60	0.0	
	MONTHLY EST.			0.0000	9770.40		0.0
OCTOBER	1	0.0	19.20	0.0000	1180.80	0.0	
	2	0.0	542.40	0.0000	3796.80	0.0	
	3	13.7	542.40	0.0253	3796.80	95.9	
	4	1915.7	1123.20	1.7056	5983.20	10204.8	
	MONTHLY EST.			0.4327	14757.60		6385.7
NOVEMBER	1	0.0	542.40	0.0000	3796.80	0.0	
	2	18.9	542.40	0.0348	3796.80	132.3	
	3	46.6	542.40	0.0859	3796.80	326.2	
	4	458.9	602.40	0.7618	5376.00	4095.4	
	MONTHLY EST.			0.2206	16766.40		3699.3
DECEMBER	1	864.3	508.27	1.7005	4216.80	7170.5	
	2	662.2	580.80	1.1402	4053.60	4621.7	
	3	767.2	542.40	1.4145	3796.80	5370.4	
	4	3802.1	1084.80	3.5049	5006.40	17546.9	
	MONTHLY EST.			1.9400	17073.60		33122.6

APPENDIX TABLE D-1.10. ESTIMATED WEEKLY BIOMASS OF GOLDEN SHINER, ROSETON GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	171.9	429.60	0.4001	3050.40	1220.6	
	2	1818.6	542.40	3.3529	3796.80	12730.2	
	3	554.3	542.40	1.0219	3796.80	3880.1	
	4	893.4	1069.36	0.8355	5016.00	4190.6	
	MONTHLY EST.			1.4026	15660.00		21964.8
FEBRUARY	1	66.0	536.37	0.1230	3338.40	410.8	
	2	616.5	536.00	1.1502	3796.80	4367.1	
	3	303.6	303.79	0.9994	2193.60	2192.3	
	4	135.2	305.89	0.4420	2174.40	961.1	
	MONTHLY EST.			0.6787	11503.20		7806.7
MARCH	1		0.00		1598.40		
	2	184.1	291.41	0.6317	2152.80	1360.0	
	3	88.4	304.00	0.2908	2150.40	625.3	
	4	72.7	298.88	0.2432	3357.60	816.7	
	MONTHLY EST.			0.3886	9259.20		3598.1
APRIL	1	1.9	354.09	0.0054	2774.40	14.9	
	2	31.9	292.27	0.1091	2152.80	235.0	
	3	77.6	307.20	0.2526	2150.40	543.2	
	4	65.9	147.60	0.4465	894.00	399.2	
	MONTHLY EST.			0.2034	7971.60		1621.4
MAY	1	0.0	19.20	0.0000	2824.80	0.0	
	2	13.5	542.40	0.0249	1605.60	40.0	
	3	0.0	18.00	0.0000	134.40	0.0	
	4	0.0	550.30	0.0000	2860.80	0.0	
	MONTHLY EST.			0.0062	7425.60		46.2
JUNE	1	62.7	542.40	0.1156	3796.80	438.9	
	2	0.0	791.95	0.0000	4500.00	0.0	
	3	0.0	791.95	0.0000	5196.00	0.0	
	4	0.0	808.80	0.0000	7279.20	0.0	
	MONTHLY EST.			0.0289	20772.00		600.3
JULY	1	0.0	802.29	0.0000	5750.40	0.0	
	2	0.0	741.60	0.0000	5517.60	0.0	
	3	0.0	880.12	0.0000	5500.80	0.0	
	4	0.0	1193.40	0.0000	6727.20	0.0	
	MONTHLY EST.			0.0000	23496.00		0.0
AUGUST	1	0.0	783.70	0.0000	4072.80	0.0	
	2	0.0	921.60	0.0000	5896.80	0.0	
	3	0.0	309.60	0.0000	4605.60	0.0	
	4	0.0	527.71	0.0000	2690.40	0.0	
	MONTHLY EST.			0.0000	17265.60		0.0
SEPTEMBER	1	0.0	303.61	0.0000	2889.60	0.0	
	2	0.0	376.20	0.0000	3288.00	0.0	
	3	0.0	393.00	0.0000	3259.20	0.0	
	4	0.0	19.00	0.0000	333.60	0.0	
	MONTHLY EST.			0.0000	9770.40		0.0
OCTOBER	1	0.0	19.20	0.0000	1180.80	0.0	
	2	0.0	542.40	0.0000	3796.80	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	9.8	1123.20	0.0087	5983.20	52.2	
	MONTHLY EST.			0.0022	14757.60		32.2
NOVEMBER	1	0.0	542.40	0.0000	3796.80	0.0	
	2	29.5	542.40	0.0544	3796.80	206.5	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	146.3	602.40	0.2429	5376.00	1305.6	
	MONTHLY EST.			0.0743	16766.40		1246.0
DECEMBER	1	110.1	508.27	0.2166	4216.80	913.4	
	2	22.6	580.80	0.0389	4053.60	157.7	
	3	12.2	542.40	0.0225	3796.80	85.4	
	4	292.8	1084.80	0.2699	5006.40	1351.3	
	MONTHLY EST.			0.1370	17073.60		2338.8

APPENDIX TABLE D-1.11. ESTIMATED WEEKLY BIOMASS OF PUMPKINSEED, ROSETON GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	1.0	429.60	0.0023	3050.40	7.1	
	2	401.2	542.40	0.7397	3796.80	2808.4	
	3	376.3	542.40	0.6938	3796.80	2634.1	
	4	224.0	1069.36	0.2095	5016.00	1050.7	
	MONTHLY EST.			0.4113	15660.00		6441.1
FEBRUARY	1	0.0	536.37	0.0000	3338.40	0.0	
	2	0.0	536.00	0.0000	3796.80	0.0	
	3	153.2	303.79	0.5043	2193.60	1106.2	
	4	0.0	305.89	0.0000	2174.40	0.0	
	MONTHLY EST.			0.1261	11503.20		1450.3
MARCH	1		0.00		1598.40		
	2	38.6	291.41	0.1325	2152.80	285.2	
	3	0.0	304.00	0.0000	2150.40	0.0	
	4	39.2	298.88	0.1312	3357.60	440.4	
	MONTHLY EST.			0.0879	9259.20		813.6
APRIL	1	0.0	354.09	0.0000	2774.40	0.0	
	2	0.0	292.27	0.0000	2152.80	0.0	
	3	35.8	307.20	0.1165	2150.40	250.6	
	4	0.0	147.60	0.0000	894.00	0.0	
	MONTHLY EST.			0.0291	7971.60		232.2
MAY	1	122.0	19.20	6.3542	2824.80	17949.3	
	2	418.9	542.40	0.7723	1605.60	1240.0	
	3	0.0	18.00	0.0000	134.40	0.0	
	4	401.8	550.30	0.7301	2860.80	2088.8	
	MONTHLY EST.			1.9642	7425.60		14585.0
JUNE	1	905.1	542.40	1.6687	3796.80	6335.7	
	2	73.4	791.95	0.0927	4500.00	417.1	
	3	52.6	791.95	0.0664	5196.00	345.1	
	4	0.0	808.80	0.0000	7279.20	0.0	
	MONTHLY EST.			0.4569	20772.00		9491.7
JULY	1	0.0	802.29	0.0000	5750.40	0.0	
	2	0.0	741.60	0.0000	5517.60	0.0	
	3	0.0	880.12	0.0000	5500.80	0.0	
	4	28.6	1193.40	0.0240	6727.20	161.2	
	MONTHLY EST.			0.0060	23496.00		140.8
AUGUST	1	31.0	783.70	0.0396	4072.80	161.1	
	2	0.0	921.60	0.0000	5896.80	0.0	
	3	12.3	309.60	0.0397	4605.60	183.0	
	4	0.0	527.71	0.0000	2690.40	0.0	
	MONTHLY EST.			0.0198	17265.60		342.2
SEPTEMBER	1	0.0	303.61	0.0000	2889.60	0.0	
	2	0.0	376.20	0.0000	3288.00	0.0	
	3	0.0	393.00	0.0000	3259.20	0.0	
	4	0.0	19.00	0.0000	333.60	0.0	
	MONTHLY EST.			0.0000	9770.40		0.0
OCTOBER	1	0.0	19.20	0.0000	1180.80	0.0	
	2	272.5	542.40	0.5024	3796.80	1907.5	
	3	446.9	542.40	0.8239	3796.80	3128.3	
	4	741.2	1123.20	0.6599	5983.20	3948.3	
	MONTHLY EST.			0.4966	14757.60		7328.0
NOVEMBER	1	60.2	542.40	0.1110	3796.80	421.4	
	2	43.3	542.40	0.0798	3796.80	303.1	
	3	40.8	542.40	0.0752	3796.80	285.6	
	4	57.6	602.40	0.0956	5376.00	514.0	
	MONTHLY EST.			0.0904	16766.40		1515.9
DECEMBER	1	0.0	508.27	0.0000	4216.80	0.0	
	2	6.4	580.80	0.0110	4053.60	44.7	
	3	4.5	542.40	0.0083	3796.80	31.5	
	4	128.4	1084.80	0.1184	5006.40	592.6	
	MONTHLY EST.			0.0344	17073.60		587.7

APPENDIX TABLE D-1.12. ESTIMATED WEEKLY BIOMASS OF RAINBOW SMELT, ROSETON GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	429.60	0.0000	3050.40	0.0	
	2	0.0	542.40	0.0000	3796.80	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	0.0	1069.36	0.0000	5016.00	0.0	
	MONTHLY EST.			0.0000	15660.00		0.0
FEBRUARY	1	0.0	536.37	0.0000	3338.40	0.0	
	2	0.0	536.00	0.0000	3796.80	0.0	
	3	0.0	303.79	0.0000	2193.60	0.0	
	4	0.0	305.89	0.0000	2174.40	0.0	
	MONTHLY EST.			0.0000	11503.20		0.0
MARCH	1		0.00		1598.40		
	2	0.0	291.41	0.0000	2152.80	0.0	
	3	0.0	304.00	0.0000	2150.40	0.0	
	4	0.0	298.88	0.0000	3357.60	0.0	
	MONTHLY EST.			0.0000	9259.20		0.0
APRIL	1	0.0	354.09	0.0000	2774.40	0.0	
	2	0.0	292.27	0.0000	2152.80	0.0	
	3	0.0	307.20	0.0000	2150.40	0.0	
	4	6.9	147.60	0.0467	894.00	41.8	
	MONTHLY EST.			0.0117	7971.60		93.2
MAY	1	0.0	19.20	0.0000	2824.80	0.0	
	2	0.0	542.40	0.0000	1605.60	0.0	
	3	0.0	18.00	0.0000	134.40	0.0	
	4	0.0	550.30	0.0000	2860.80	0.0	
	MONTHLY EST.			0.0000	7425.60		0.0
JUNE	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	791.95	0.0000	4500.00	0.0	
	3	0.0	791.95	0.0000	5196.00	0.0	
	4	0.0	808.80	0.0000	7279.20	0.0	
	MONTHLY EST.			0.0000	20772.00		0.0
JULY	1	0.0	802.29	0.0000	5750.40	0.0	
	2	0.0	741.60	0.0000	5517.60	0.0	
	3	0.0	880.12	0.0000	5500.80	0.0	
	4	0.0	1193.40	0.0000	6727.20	0.0	
	MONTHLY EST.			0.0000	23496.00		0.0
AUGUST	1	0.0	783.70	0.0000	4072.80	0.0	
	2	0.0	921.60	0.0000	5896.80	0.0	
	3	0.0	309.60	0.0000	4605.60	0.0	
	4	0.0	527.71	0.0000	2690.40	0.0	
	MONTHLY EST.			0.0000	17265.60		0.0
SEPTEMBER	1	0.0	303.61	0.0000	2889.60	0.0	
	2	0.0	376.20	0.0000	3288.00	0.0	
	3	0.0	393.00	0.0000	3259.20	0.0	
	4	0.0	19.00	0.0000	333.60	0.0	
	MONTHLY EST.			0.0000	9770.40		0.0
OCTOBER	1	0.0	19.20	0.0000	1180.80	0.0	
	2	0.0	542.40	0.0000	3796.80	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	0.0	1123.20	0.0000	5983.20	0.0	
	MONTHLY EST.			0.0000	14757.60		0.0
NOVEMBER	1	0.0	542.40	0.0000	3796.80	0.0	
	2	0.0	542.40	0.0000	3796.80	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	0.0	602.40	0.0000	5376.00	0.0	
	MONTHLY EST.			0.0000	16766.40		0.0
DECEMBER	1	0.0	508.27	0.0000	4216.80	0.0	
	2	0.0	580.80	0.0000	4053.60	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	0.0	1084.80	0.0000	5006.40	0.0	
	MONTHLY EST.			0.0000	17073.60		0.0

APPENDIX TABLE D-1.13. ESTIMATED WEEKLY BIOMASS OF SPOTTAIL SHINER, ROSETON GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	63.2	429.60	0.1471	3050.40	448.8	
	2	221.7	542.40	0.4087	3796.80	1551.9	
	3	170.4	542.40	0.3142	3796.80	1192.8	
	4	234.3	1069.36	0.2191	5016.00	1099.0	
	MONTHLY EST.			0.2723	15660.00		4263.9
FEBRUARY	1	100.4	536.37	0.1872	3338.40	624.9	
	2	119.1	536.00	0.2222	3796.80	843.7	
	3	210.0	303.79	0.6913	2193.60	1516.4	
	4	75.9	305.89	0.2481	2174.40	539.5	
	MONTHLY EST.			0.3372	11503.20		3878.9
MARCH	1		0.00		1598.40		
	2	78.4	291.41	0.2690	2152.80	579.2	
	3	37.7	304.00	0.1240	2150.40	266.7	
	4	42.2	298.88	0.1412	3357.60	474.1	
	MONTHLY EST.			0.1781	9259.20		1648.9
APRIL	1	53.2	354.09	0.1502	2774.40	416.8	
	2	148.9	292.27	0.5095	2152.80	1096.8	
	3	29.7	307.20	0.0967	2150.40	207.9	
	4	122.6	147.60	0.8306	894.00	742.6	
	MONTHLY EST.			0.3968	7971.60		3162.8
MAY	1	0.0	19.20	0.0000	2824.80	0.0	
	2	332.2	542.40	0.6125	1605.60	983.4	
	3	0.0	18.00	0.0000	134.40	0.0	
	4	112.5	550.30	0.2044	2860.80	584.8	
	MONTHLY EST.			0.2042	7425.60		1516.5
JUNE	1	306.3	542.40	0.5647	3796.80	2144.1	
	2	356.6	791.95	0.4503	4500.00	2026.3	
	3	83.0	791.95	0.1048	5196.00	544.6	
	4	74.3	808.80	0.0919	7279.20	668.7	
	MONTHLY EST.			0.3029	20772.00		6292.2
JULY	1	17.8	802.29	0.0222	5750.40	127.6	
	2	0.0	741.60	0.0000	5517.60	0.0	
	3	20.4	880.12	0.0232	5500.80	127.5	
	4	5.5	1193.40	0.0046	6727.20	31.0	
	MONTHLY EST.			0.0125	23496.00		293.5
AUGUST	1	15.4	783.70	0.0197	4072.80	80.0	
	2	45.5	921.60	0.0494	5896.80	291.1	
	3	0.0	309.60	0.0000	4605.60	0.0	
	4	5.9	527.71	0.0112	2690.40	30.1	
	MONTHLY EST.			0.0201	17265.60		346.2
SEPTEMBER	1	8.2	303.61	0.0270	2889.60	78.0	
	2	0.0	376.20	0.0000	3288.00	0.0	
	3	34.5	393.00	0.0878	3259.20	286.1	
	4	0.0	19.00	0.0000	333.60	0.0	
	MONTHLY EST.			0.0287	9770.40		280.4
OCTOBER	1	0.0	19.20	0.0000	1180.80	0.0	
	2	33.2	542.40	0.0612	3796.80	232.4	
	3	116.7	542.40	0.2152	3796.80	816.9	
	4	303.8	1123.20	0.2705	5983.20	1618.3	
	MONTHLY EST.			0.1367	14757.60		2017.5
NOVEMBER	1	7.1	542.40	0.0131	3796.80	49.7	
	2	39.2	542.40	0.0723	3796.80	274.4	
	3	11.7	542.40	0.0216	3796.80	81.9	
	4	194.6	602.40	0.3230	5376.00	1736.7	
	MONTHLY EST.			0.1075	16766.40		1802.3
DECEMBER	1	59.4	508.27	0.1169	4216.80	492.8	
	2	145.2	580.80	0.2500	4053.60	1013.4	
	3	30.7	542.40	0.0566	3796.80	214.9	
	4	204.1	1084.80	0.1881	5006.40	941.9	
	MONTHLY EST.			0.1529	17073.60		2610.6

APPENDIX TABLE D-1.14. ESTIMATED WEEKLY BIOMASS OF STRIPED BASS, ROSETON GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	429.60	0.0000	3050.40	0.0	
	2	0.0	542.40	0.0000	3796.80	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	0.0	1069.36	0.0000	5016.00	0.0	
	MONTHLY EST.			0.0000	15660.00		0.0
FEBRUARY	1	22.0	536.37	0.0410	3338.40	136.9	
	2	0.0	536.00	0.0000	3796.80	0.0	
	3	0.0	303.79	0.0000	2193.60	0.0	
	4	0.0	305.89	0.0000	2174.40	0.0	
	MONTHLY EST.			0.0103	11503.20		118.0
MARCH	1		0.00		1598.40		
	2	0.0	291.41	0.0000	2152.80	0.0	
	3	0.0	304.00	0.0000	2150.40	0.0	
	4	0.0	298.88	0.0000	3357.60	0.0	
	MONTHLY EST.			0.0000	9259.20		0.0
APRIL	1	0.0	354.09	0.0000	2774.40	0.0	
	2	0.0	292.27	0.0000	2152.80	0.0	
	3	0.0	307.20	0.0000	2150.40	0.0	
	4	0.0	147.60	0.0000	894.00	0.0	
	MONTHLY EST.			0.0000	7971.60		0.0
MAY	1	0.0	19.20	0.0000	2824.80	0.0	
	2	3.4	542.40	0.0063	1605.60	10.1	
	3	0.0	18.00	0.0000	134.40	0.0	
	4	0.0	550.30	0.0000	2860.80	0.0	
	MONTHLY EST.			0.0016	7425.60		11.6
JUNE	1	14.7	542.40	0.0271	3796.80	102.9	
	2	0.0	791.95	0.0000	4500.00	0.0	
	3	0.0	791.95	0.0000	5196.00	0.0	
	4	7.6	808.80	0.0094	7279.20	68.4	
	MONTHLY EST.			0.0091	20772.00		189.5
JULY	1	64.4	802.29	0.0803	5750.40	461.6	
	2	0.4	741.60	0.0005	5517.60	3.0	
	3	169.9	880.12	0.1930	5500.80	1061.9	
	4	26.9	1193.40	0.0225	6727.20	151.6	
	MONTHLY EST.			0.0741	23496.00		1741.0
AUGUST	1	388.8	783.70	0.4961	4072.80	2020.5	
	2	970.2	921.60	1.0527	5896.80	6207.8	
	3	22.3	309.60	0.0720	4605.60	331.7	
	4	14.2	527.71	0.0269	2690.40	72.4	
	MONTHLY EST.			0.4119	17265.60		7112.5
SEPTEMBER	1	32.0	303.61	0.1054	2889.60	304.6	
	2	42.6	376.20	0.1132	3288.00	372.3	
	3	119.2	393.00	0.3033	3259.20	988.5	
	4	0.0	19.00	0.0000	333.60	0.0	
	MONTHLY EST.			0.1305	9770.40		1274.9
OCTOBER	1	0.0	19.20	0.0000	1180.80	0.0	
	2	373.6	542.40	0.6888	3796.80	2615.2	
	3	492.3	542.40	0.9076	3796.80	3446.1	
	4	827.6	1123.20	0.7368	5983.20	4408.6	
	MONTHLY EST.			0.5833	14757.60		8608.3
NOVEMBER	1	35.9	542.40	0.0662	3796.80	251.3	
	2	47.2	542.40	0.0870	3796.80	330.4	
	3	102.6	542.40	0.1892	3796.80	718.2	
	4	239.0	602.40	0.3967	5376.00	2132.9	
	MONTHLY EST.			0.1848	16766.40		3098.1
DECEMBER	1	178.7	508.27	0.3516	4216.80	1482.5	
	2	164.5	580.80	0.2832	4053.60	1148.1	
	3	39.6	542.40	0.0730	3796.80	277.2	
	4	133.7	1084.80	0.1232	5006.40	617.0	
	MONTHLY EST.			0.2078	17073.60		3547.3

APPENDIX TABLE D-1.15. ESTIMATED WEEKLY BIOMASS OF WHITE PERCH, ROSETON GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	429.60	0.0000	3050.40	0.0	
	2	421.9	542.40	0.7778	3796.80	2953.3	
	3	320.3	542.40	0.5905	3796.80	2242.1	
	4	218.1	1069.36	0.2040	5016.00	1023.0	
	MONTHLY EST.			0.3931	15660.00		6155.6
FEBRUARY	1	7.9	536.37	0.0147	3338.40	49.2	
	2	42.7	536.00	0.0797	3796.80	302.5	
	3	138.2	303.79	0.4549	2193.60	997.9	
	4	113.8	305.89	0.3720	2174.40	809.0	
	MONTHLY EST.			0.2303	11503.20		2649.6
MARCH	1		0.00		1598.40		
	2	126.3	291.41	0.4334	2152.80	933.0	
	3	82.2	304.00	0.2704	2150.40	581.5	
	4	175.3	298.88	0.5865	3357.60	1969.3	
	MONTHLY EST.			0.4301	9259.20		3982.5
APRIL	1	56.2	354.09	0.1587	2774.40	440.3	
	2	517.8	292.27	1.7717	2152.80	3814.1	
	3	291.0	307.20	0.9473	2150.40	2037.0	
	4	209.3	147.60	1.4180	894.00	1267.7	
	MONTHLY EST.			1.0739	7971.60		8560.8
MAY	1	0.0	19.20	0.0000	2824.80	0.0	
	2	853.5	542.40	1.5736	1605.60	2526.5	
	3	0.0	18.00	0.0000	134.40	0.0	
	4	374.6	550.30	0.6807	2860.80	1947.4	
	MONTHLY EST.			0.5636	7425.60		4184.8
JUNE	1	3217.4	542.40	5.9318	3796.80	22521.8	
	2	3091.4	791.95	3.9035	4500.00	17565.9	
	3	1385.5	791.95	1.7495	5196.00	9090.3	
	4	1948.2	808.80	2.4088	7279.20	17533.8	
	MONTHLY EST.			3.4984	20772.00		72668.5
JULY	1	2538.2	802.29	3.1637	5750.40	18192.5	
	2	95.3	741.60	0.1285	5517.60	709.0	
	3	213.2	880.12	0.2422	5500.80	1332.5	
	4	7.1	1193.40	0.0059	6727.20	40.0	
	MONTHLY EST.			0.8851	23496.00		20796.2
AUGUST	1	286.0	783.70	0.3649	4072.80	1486.3	
	2	812.5	921.60	0.8816	5896.80	5198.7	
	3	80.8	309.60	0.2610	4605.60	1202.0	
	4	119.1	527.71	0.2257	2690.40	607.2	
	MONTHLY EST.			0.4333	17265.60		7481.3
SEPTEMBER	1	43.1	303.61	0.1420	2889.60	410.2	
	2	37.9	376.20	0.1007	3288.00	331.2	
	3	143.6	393.00	0.3654	3259.20	1190.9	
	4	0.0	19.00	0.0000	333.60	0.0	
	MONTHLY EST.			0.1520	9770.40		1485.3
OCTOBER	1	0.0	19.20	0.0000	1180.80	0.0	
	2	2836.6	542.40	5.2297	3796.80	19856.2	
	3	2003.2	542.40	3.6932	3796.80	14022.4	
	4	12619.0	1123.20	11.2349	5983.20	67220.4	
	MONTHLY EST.			5.0394	14757.60		74370.2
NOVEMBER	1	206.5	542.40	0.3807	3796.80	1445.5	
	2	1650.6	542.40	3.0431	3796.80	11554.2	
	3	585.5	542.40	1.0795	3796.80	4098.5	
	4	1837.7	602.40	3.0506	5376.00	16400.2	
	MONTHLY EST.			1.8885	16766.40		31663.1
DECEMBER	1	1132.6	508.27	2.2283	4216.80	9396.4	
	2	354.4	580.80	0.6102	4053.60	2473.5	
	3	60.4	542.40	0.1114	3796.80	422.8	
	4	251.0	1084.80	0.2314	5006.40	1158.4	
	MONTHLY EST.			0.7953	17073.60		13578.8

APPENDIX TABLE D-1.16. ESTIMATED WEEKLY BIOMASS OF BLUE CRAB, ROSETON GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	429.60	0.0000	3050.40	0.0	
	2	0.0	542.40	0.0000	3796.80	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	0.0	1069.36	0.0000	5016.00	0.0	
	MONTHLY EST.			0.0000	15660.00		0.0
FEBRUARY	1	0.0	536.37	0.0000	3338.40	0.0	
	2	0.0	536.00	0.0000	3796.80	0.0	
	3	0.0	303.79	0.0000	2193.60	0.0	
	4	0.0	305.89	0.0000	2174.40	0.0	
	MONTHLY EST.			0.0000	11503.20		0.0
MARCH	1		0.00		1598.40		
	2	0.0	291.41	0.0000	2152.80	0.0	
	3	0.0	304.00	0.0000	2150.40	0.0	
	4	0.0	298.88	0.0000	3357.60	0.0	
	MONTHLY EST.			0.0000	9259.20		0.0
APRIL	1	0.0	354.09	0.0000	2774.40	0.0	
	2	0.0	292.27	0.0000	2152.80	0.0	
	3	0.0	307.20	0.0000	2150.40	0.0	
	4	0.0	147.60	0.0000	894.00	0.0	
	MONTHLY EST.			0.0000	7971.60		0.0
MAY	1	0.0	19.20	0.0000	2824.80	0.0	
	2	0.0	542.40	0.0000	1605.60	0.0	
	3	0.0	18.00	0.0000	134.40	0.0	
	4	0.0	550.30	0.0000	2860.80	0.0	
	MONTHLY EST.			0.0000	7425.60		0.0
JUNE	1	94.1	542.40	0.1735	3796.80	658.7	
	2	0.0	791.95	0.0000	4500.00	0.0	
	3	310.1	791.95	0.3916	5196.00	2034.6	
	4	423.0	808.80	0.5230	7279.20	3807.0	
	MONTHLY EST.			0.2720	20772.00		5650.2
JULY	1	707.2	802.29	0.8815	5750.40	5068.8	
	2	1104.1	741.60	1.4888	5517.60	8214.6	
	3	685.1	880.12	0.7784	5500.80	4281.9	
	4	1976.3	1193.40	1.6560	6727.20	11140.4	
	MONTHLY EST.			1.2012	23496.00		28223.0
AUGUST	1	7221.3	783.70	9.2144	4072.80	37528.3	
	2	14081.3	921.60	15.2792	5896.80	90098.3	
	3	2654.6	309.60	8.5743	4605.60	39489.7	
	4	3917.2	527.71	7.4230	2690.40	19970.9	
	MONTHLY EST.			10.1227	17265.60		174774.8
SEPTEMBER	1	5203.0	303.61	17.1371	2889.60	49519.4	
	2	7911.4	376.20	21.0298	3288.00	69145.9	
	3	8676.3	393.00	22.0771	3259.20	71953.7	
	4	0.0	19.00	0.0000	333.60	0.0	
	MONTHLY EST.			15.0610	9770.40		147152.0
OCTOBER	1	12.1	19.20	0.6302	1180.80	744.2	
	2	9257.2	542.40	17.0671	3796.80	64800.4	
	3	5919.9	542.40	10.9143	3796.80	41439.3	
	4	15536.9	1123.20	13.8327	5983.20	82763.9	
	MONTHLY EST.			10.6111	14757.60		156594.0
NOVEMBER	1	4633.1	542.40	8.5419	3796.80	32431.7	
	2	4371.1	542.40	8.0588	3796.80	30597.7	
	3	1167.8	542.40	2.1530	3796.80	8174.6	
	4	471.4	602.40	0.7825	5376.00	4206.9	
	MONTHLY EST.			4.8841	16766.40		81888.0
DECEMBER	1	3.6	508.27	0.0071	4216.80	29.9	
	2	0.0	580.80	0.0000	4053.60	0.0	
	3	0.0	542.40	0.0000	3796.80	0.0	
	4	0.0	1084.80	0.0000	5006.40	0.0	
	MONTHLY EST.			0.0018	17073.60		30.2

APPENDIX TABLE D-2.1. ESTIMATED WEEKLY BIOMASS OF ALL FISH SPECIES, DANSKAMMER POINT GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	16736.2	201.63	83.0045	1421.28	117972.7	
	2	56064.5	203.04	276.1254	1421.28	392451.5	
	3	21280.3	203.04	104.8084	1421.30	148964.6	
	4	37063.9	406.08	91.2724	2030.57	185334.8	
	MONTHLY EST.			138.8027	6294.43		873684.0
FEBRUARY	1	9685.5	201.21	48.1370	1410.46	67895.1	
	2	16860.9	203.04	83.0423	1421.28	118026.3	
	3	13288.6	203.04	65.4482	1521.67	99590.7	
	4	1703.7	203.04	8.3910	1522.54	12775.5	
	MONTHLY EST.			51.2546	5875.94		301169.2
MARCH	1	15953.0	203.04	78.5707	1421.30	111672.9	
	2	5318.0	197.40	26.9402	1421.45	38294.1	
	3	4542.1	203.04	22.3705	1582.10	35392.4	
	4	1932.8	180.41	10.7131	1709.86	18317.9	
	MONTHLY EST.			34.6486	6134.71		212559.4
APRIL	1	1537.7	113.36	13.5653	966.24	13107.3	
	2	7305.6	173.08	42.2087	1143.43	48262.7	
	3	6155.6	144.00	42.7472	1008.00	43089.2	
	4	2207.4	144.00	15.3292	1310.76	20092.9	
	MONTHLY EST.			28.4626	4428.43		126044.6
MAY	1	6601.9	203.04	32.5153	1421.30	46214.1	
	2	12064.5	198.81	60.6836	1512.55	91787.1	
	3	6004.2	317.68	18.9004	2291.28	43306.1	
	4	16963.9	655.26	25.8889	3406.13	88180.9	
	MONTHLY EST.			34.4970	8631.26		297753.0
JUNE	1	24144.6	419.88	57.5033	2723.21	156593.3	
	2	17719.6	431.88	41.0288	2718.07	111519.2	
	3	22425.4	386.99	57.9486	2598.46	150576.9	
	4	26788.9	405.98	65.9857	3821.71	252178.4	
	MONTHLY EST.			55.6166	11861.45		659693.3
JULY	1	22185.5	411.44	53.9211	2570.62	138610.4	
	2	4416.3	334.08	13.2193	2444.83	32318.9	
	3	17240.0	435.12	39.6209	2827.82	112040.8	
	4	34258.0	666.04	51.4356	3588.55	184579.1	
	MONTHLY EST.			39.5492	11431.82		452119.4
AUGUST	1	8797.5	381.32	23.0712	2536.01	58508.9	
	2	14446.2	331.76	43.5441	2399.42	104480.8	
	3	13693.2	383.11	35.7426	2528.14	90362.2	
	4	18809.3	412.82	45.5630	3937.56	179406.9	
	MONTHLY EST.			36.9802	11401.13		421616.5
SEPTEMBER	1	7072.5	328.98	21.4985	2381.90	51207.4	
	2	5379.3	334.08	16.1018	2338.56	37655.1	
	3	7525.3	334.08	22.5254	2272.15	51181.2	
	4	6551.0	334.08	19.6091	2130.48	41776.7	
	MONTHLY EST.			19.9337	9123.10		181857.2
OCTOBER	1	770.9	118.08	6.5286	843.22	5505.0	
	2	470.4	147.50	3.1891	1302.55	4154.0	
	3	15199.8	254.40	59.7476	1756.30	104934.4	
	4	34711.7	406.08	85.4800	2188.61	187082.1	
	MONTHLY EST.			38.7363	6090.67		235930.2
NOVEMBER	1	3735.8	203.04	18.3993	1644.17	30251.6	
	2	8534.3	203.04	42.0326	1404.24	59023.9	
	3	2271.4	201.91	11.2495	1415.81	15927.1	
	4	5420.3	203.04	26.6957	1684.85	44978.2	
	MONTHLY EST.			24.5943	6149.06		151231.8
DECEMBER	1	11241.6	201.91	55.6757	1421.28	79130.8	
	2	24822.2	203.04	122.2528	1421.42	173773.0	
	3	8523.8	203.04	41.9809	1421.28	59666.6	
	4	50673.8	405.38	125.0047	2032.15	254028.7	
	MONTHLY EST.			86.2285	6296.14		542906.6

APPENDIX TABLE D-2.2. ESTIMATED WEEKLY BIOMASS OF ALEWIFE, DANSKAMMER POINT GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	201.63	0.0000	1421.28	0.0	
	2	0.0	203.04	0.0000	1421.28	0.0	
	3	0.0	203.04	0.0000	1421.30	0.0	
	4	0.0	406.08	0.0000	2030.57	0.0	
	MONTHLY EST.			0.0000	6294.43		0.0
FEBRUARY	1	0.0	201.21	0.0000	1410.46	0.0	
	2	0.0	203.04	0.0000	1421.28	0.0	
	3	5.2	203.04	0.0256	1521.67	39.0	
	4	8.0	203.04	0.0394	1522.54	60.0	
	MONTHLY EST.			0.0163	5875.94		95.5
MARCH	1	29.4	203.04	0.1448	1421.30	205.8	
	2	904.4	197.40	4.5816	1421.45	6512.4	
	3	0.0	203.04	0.0000	1582.10	0.0	
	4	253.1	180.41	1.4029	1709.86	2398.7	
	MONTHLY EST.			1.5323	6134.71		9400.3
APRIL	1	0.0	113.36	0.0000	966.24	0.0	
	2	0.0	173.08	0.0000	1143.43	0.0	
	3	0.0	144.00	0.0000	1008.00	0.0	
	4	0.0	144.00	0.0000	1310.76	0.0	
	MONTHLY EST.			0.0000	4428.43		0.0
MAY	1	7.5	203.04	0.0369	1421.30	52.5	
	2	209.9	198.81	1.0558	1512.55	1596.9	
	3	177.2	317.68	0.5578	2291.28	1278.1	
	4	2582.2	655.26	3.9407	3406.13	13422.7	
	MONTHLY EST.			1.3978	8631.26		12064.9
JUNE	1	623.1	419.88	1.4840	2723.21	4041.2	
	2	1133.7	431.88	2.6250	2718.07	7135.0	
	3	187.9	386.99	0.4855	2598.46	1261.7	
	4	412.0	405.98	1.0148	3821.71	3878.4	
	MONTHLY EST.			1.4023	11861.45		16633.8
JULY	1	276.1	411.44	0.6711	2570.62	1725.0	
	2	129.0	334.08	0.3861	2444.83	944.0	
	3	1323.3	435.12	3.0412	2827.82	8600.0	
	4	780.4	666.04	1.1717	3588.55	4204.7	
	MONTHLY EST.			1.3175	11431.82		15061.7
AUGUST	1	503.8	381.32	1.3212	2536.01	3350.6	
	2	691.6	331.76	2.0846	2399.42	5001.9	
	3	670.0	383.11	1.7489	2528.14	4421.4	
	4	1143.1	412.82	2.7690	3937.56	10903.1	
	MONTHLY EST.			1.9809	11401.13		22584.8
SEPTEMBER	1	336.7	328.98	1.0235	2381.90	2437.8	
	2	659.1	334.08	1.9729	2338.56	4613.7	
	3	728.7	334.08	2.1812	2272.15	4956.0	
	4	751.6	334.08	2.2498	2130.48	4793.1	
	MONTHLY EST.			1.8568	9123.10		16940.1
OCTOBER	1	61.4	118.08	0.5200	843.22	438.5	
	2	47.0	147.50	0.3186	1302.55	415.0	
	3	6275.9	254.40	24.6694	1756.30	43326.8	
	4	3230.0	406.08	7.9541	2188.61	17408.4	
	MONTHLY EST.			8.3655	6090.67		50951.7
NOVEMBER	1	55.9	203.04	0.2753	1644.17	452.7	
	2	263.7	203.04	1.2988	1404.24	1823.8	
	3	20.8	201.91	0.1030	1415.81	145.8	
	4	0.0	203.04	0.0000	1684.85	0.0	
	MONTHLY EST.			0.4193	6149.06		2578.1
DECEMBER	1	0.0	201.91	0.0000	1421.28	0.0	
	2	0.0	203.04	0.0000	1421.42	0.0	
	3	0.0	203.04	0.0000	1421.28	0.0	
	4	0.0	405.38	0.0000	2032.15	0.0	
	MONTHLY EST.			0.0000	6296.14		0.0

APPENDIX TABLE D-2.3. ESTIMATED WEEKLY BIOMASS OF AMERICAN SHAD, DANSKAMMER POINT GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	201.63	0.0000	1421.28	0.0	
	2	0.0	203.04	0.0000	1421.28	0.0	
	3	0.0	203.04	0.0000	1421.30	0.0	
	4	0.0	406.08	0.0000	2030.57	0.0	
	MONTHLY EST.			0.0000	6294.43		0.0
FEBRUARY	1	0.0	201.21	0.0000	1410.46	0.0	
	2	0.0	203.04	0.0000	1421.28	0.0	
	3	0.0	203.04	0.0000	1521.67	0.0	
	4	0.0	203.04	0.0000	1522.54	0.0	
	MONTHLY EST.			0.0000	5875.94		0.0
MARCH	1	0.0	203.04	0.0000	1421.30	0.0	
	2	0.0	197.40	0.0000	1421.45	0.0	
	3	0.0	203.04	0.0000	1582.10	0.0	
	4	0.0	180.41	0.0000	1709.86	0.0	
	MONTHLY EST.			0.0000	6134.71		0.0
APRIL	1	0.0	113.36	0.0000	966.24	0.0	
	2	0.0	173.08	0.0000	1143.43	0.0	
	3	0.0	144.00	0.0000	1008.00	0.0	
	4	0.0	144.00	0.0000	1310.76	0.0	
	MONTHLY EST.			0.0000	4428.43		0.0
MAY	1	0.0	203.04	0.0000	1421.30	0.0	
	2	0.0	198.81	0.0000	1512.55	0.0	
	3	0.0	317.68	0.0000	2291.28	0.0	
	4	12.4	655.26	0.0189	3406.13	64.5	
	MONTHLY EST.			0.0047	8631.26		40.8
JUNE	1	0.0	419.88	0.0000	2723.21	0.0	
	2	24.4	431.88	0.0565	2718.07	153.6	
	3	0.0	386.99	0.0000	2598.46	0.0	
	4	38.5	405.98	0.0948	3821.71	362.4	
	MONTHLY EST.			0.0378	11861.45		448.7
JULY	1	0.0	411.44	0.0000	2570.62	0.0	
	2	5.9	334.08	0.0177	2444.83	43.2	
	3	1046.9	435.12	2.4060	2827.82	6803.7	
	4	79.1	666.04	0.1188	3588.55	426.2	
	MONTHLY EST.			0.6356	11431.82		7266.1
AUGUST	1	67.2	381.32	0.1762	2536.01	446.9	
	2	9.0	331.76	0.0271	2399.42	65.1	
	3	75.7	383.11	0.1976	2528.14	499.5	
	4	130.9	412.82	0.3171	3937.56	1248.6	
	MONTHLY EST.			0.1795	11401.13		2046.6
SEPTEMBER	1	84.7	328.98	0.2575	2381.90	613.3	
	2	107.7	334.08	0.3224	2338.56	753.9	
	3	83.6	334.08	0.2502	2272.15	568.6	
	4	85.7	334.08	0.2565	2130.48	546.5	
	MONTHLY EST.			0.2717	9123.10		2478.3
OCTOBER	1	0.0	118.08	0.0000	843.22	0.0	
	2	37.7	147.50	0.2556	1302.55	332.9	
	3	803.7	254.40	3.1592	1756.30	5548.5	
	4	947.8	406.08	2.3340	2188.61	5108.3	
	MONTHLY EST.			1.4372	6090.67		8753.5
NOVEMBER	1	17.4	203.04	0.0857	1644.17	140.9	
	2	74.3	203.04	0.3659	1404.24	513.9	
	3	13.9	201.91	0.0688	1415.81	97.5	
	4	0.0	203.04	0.0000	1684.85	0.0	
	MONTHLY EST.			0.1301	6149.06		800.1
DECEMBER	1	0.0	201.91	0.0000	1421.28	0.0	
	2	0.0	203.04	0.0000	1421.42	0.0	
	3	0.0	203.04	0.0000	1421.28	0.0	
	4	0.0	405.38	0.0000	2032.15	0.0	
	MONTHLY EST.			0.0000	6296.14		0.0

APPENDIX TABLE D-2.4. ESTIMATED WEEKLY BIOMASS OF ATLANTIC TOMCOD, DANSKAMMER POINT GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	7977.5	201.63	39.5650	1421.28	56233.0	
	2	21610.1	203.04	106.4327	1421.28	151270.7	
	3	7966.9	203.04	39.2381	1421.30	55769.2	
	4	15138.9	406.08	37.2806	2030.57	75700.8	
	MONTHLY EST.			55.6291	6294.43		350153.6
FEBRUARY	1	3774.4	201.21	18.7588	1410.46	26458.4	
	2	2568.2	203.04	12.6487	1421.28	17977.4	
	3	585.9	203.04	2.8856	1521.67	4391.0	
	4	1105.1	203.04	5.4428	1522.54	8286.8	
	MONTHLY EST.			9.9340	5875.94		58371.5
MARCH	1	6760.6	203.04	33.2969	1421.30	47325.0	
	2	1273.4	197.40	6.4509	1421.45	9169.6	
	3	854.8	203.04	4.2100	1582.10	6660.7	
	4	703.5	180.41	3.8994	1709.86	6667.4	
	MONTHLY EST.			11.9643	6134.71		73397.4
APRIL	1	256.2	113.36	2.2601	966.24	2183.8	
	2	184.9	173.08	1.0683	1143.43	1221.5	
	3	229.2	144.00	1.5917	1008.00	1604.4	
	4	57.1	144.00	0.3965	1310.76	519.8	
	MONTHLY EST.			1.3292	4428.43		5886.1
MAY	1	51.2	203.04	0.2522	1421.30	358.4	
	2	1.5	198.81	0.0075	1512.55	11.4	
	3	0.0	317.68	0.0000	2291.28	0.0	
	4	4.0	655.26	0.0061	3406.13	20.8	
	MONTHLY EST.			0.0665	8631.26		573.6
JUNE	1	144.6	419.88	0.3444	2723.21	937.8	
	2	6.4	431.88	0.0148	2718.07	40.3	
	3	147.9	386.99	0.3822	2598.46	993.1	
	4	124.2	405.98	0.3059	3821.71	1169.2	
	MONTHLY EST.			0.2618	11861.45		3105.7
JULY	1	183.2	411.44	0.4453	2570.62	1144.6	
	2	6.4	334.08	0.0192	2444.83	46.8	
	3	29.3	435.12	0.0673	2827.82	190.4	
	4	1167.4	666.04	1.7528	3588.55	6289.9	
	MONTHLY EST.			0.5711	11431.82		6529.0
AUGUST	1	168.7	381.32	0.4424	2536.01	1122.0	
	2	220.9	331.76	0.6658	2399.42	1597.6	
	3	611.8	383.11	1.5969	2528.14	4037.3	
	4	236.3	412.82	0.5724	3937.56	2253.9	
	MONTHLY EST.			0.8194	11401.13		9342.1
SEPTEMBER	1	38.1	328.98	0.1158	2381.90	275.9	
	2	66.7	334.08	0.1997	2338.56	466.9	
	3	78.4	334.08	0.2347	2272.15	533.2	
	4	180.6	334.08	0.5406	2130.48	1151.7	
	MONTHLY EST.			0.2727	9123.10		2487.7
OCTOBER	1	0.0	118.08	0.0000	843.22	0.0	
	2	0.0	147.50	0.0000	1302.55	0.0	
	3	29.0	254.40	0.1140	1756.30	200.2	
	4	233.5	406.08	0.5750	2188.61	1258.5	
	MONTHLY EST.			0.1723	6090.67		1049.1
NOVEMBER	1	9.9	203.04	0.0488	1644.17	80.2	
	2	208.3	203.04	1.0259	1404.24	1440.6	
	3	0.0	201.91	0.0000	1415.81	0.0	
	4	24.2	203.04	0.1192	1684.85	200.8	
	MONTHLY EST.			0.2985	6149.06		1835.3
DECEMBER	1	69.0	201.91	0.3417	1421.28	485.7	
	2	91.9	203.04	0.4526	1421.42	643.4	
	3	77.7	203.04	0.3827	1421.28	543.9	
	4	472.5	405.38	1.1656	2032.15	2368.7	
	MONTHLY EST.			0.5857	6296.14		3687.4

APPENDIX TABLE D-2.5. ESTIMATED WEEKLY BIOMASS OF BAY ANCHOVY, DANSKAMMER POINT GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	201.63	0.0000	1421.28	0.0	
	2	0.0	203.04	0.0000	1421.28	0.0	
	3	0.0	203.04	0.0000	1421.30	0.0	
	4	0.0	406.08	0.0000	2030.57	0.0	
	MONTHLY EST.			0.0000	6294.43		0.0
FEBRUARY	1	0.0	201.21	0.0000	1410.46	0.0	
	2	0.0	203.04	0.0000	1421.28	0.0	
	3	0.0	203.04	0.0000	1521.67	0.0	
	4	0.0	203.04	0.0000	1522.54	0.0	
	MONTHLY EST.			0.0000	5875.94		0.0
MARCH	1	0.0	203.04	0.0000	1421.30	0.0	
	2	0.0	197.40	0.0000	1421.45	0.0	
	3	0.0	203.04	0.0000	1582.10	0.0	
	4	0.0	180.41	0.0000	1709.86	0.0	
	MONTHLY EST.			0.0000	6134.71		0.0
APRIL	1	0.0	113.36	0.0000	966.24	0.0	
	2	0.0	173.08	0.0000	1143.43	0.0	
	3	0.0	144.00	0.0000	1008.00	0.0	
	4	0.0	144.00	0.0000	1310.76	0.0	
	MONTHLY EST.			0.0000	4428.43		0.0
MAY	1	0.0	203.04	0.0000	1421.30	0.0	
	2	0.0	198.81	0.0000	1512.55	0.0	
	3	0.0	317.68	0.0000	2291.28	0.0	
	4	0.0	655.26	0.0000	3406.13	0.0	
	MONTHLY EST.			0.0000	8631.26		0.0
JUNE	1	0.0	419.88	0.0000	2723.21	0.0	
	2	0.0	431.88	0.0000	2718.07	0.0	
	3	0.0	386.99	0.0000	2598.46	0.0	
	4	0.0	405.98	0.0000	3821.71	0.0	
	MONTHLY EST.			0.0000	11861.45		0.0
JULY	1	13.8	411.44	0.0335	2570.62	86.2	
	2	0.0	334.08	0.0000	2444.83	0.0	
	3	27.6	435.12	0.0634	2827.82	179.4	
	4	916.0	666.04	1.3753	3588.55	4935.3	
	MONTHLY EST.			0.3681	11431.82		4207.7
AUGUST	1	341.7	381.32	0.8961	2536.01	2272.5	
	2	1013.5	331.76	3.0549	2399.42	7330.0	
	3	323.5	383.11	0.8444	2528.14	2134.8	
	4	466.3	412.82	1.1295	3937.56	4447.7	
	MONTHLY EST.			1.4812	11401.13		16887.9
SEPTEMBER	1	62.6	328.98	0.1903	2381.90	453.2	
	2	297.7	334.08	0.8911	2338.56	2083.9	
	3	49.3	334.08	0.1476	2272.15	335.3	
	4	169.9	334.08	0.5086	2130.48	1083.5	
	MONTHLY EST.			0.4344	9123.10		3962.9
OCTOBER	1	19.1	118.08	0.1618	843.22	136.4	
	2	40.2	147.50	0.2725	1302.55	355.0	
	3	77.9	254.40	0.3062	1756.30	537.8	
	4	39.5	406.08	0.0973	2188.61	212.9	
	MONTHLY EST.			0.2094	6090.67		1275.7
NOVEMBER	1	1.0	203.04	0.0049	1644.17	8.1	
	2	0.0	203.04	0.0000	1404.24	0.0	
	3	0.0	201.91	0.0000	1415.81	0.0	
	4	0.0	203.04	0.0000	1684.85	0.0	
	MONTHLY EST.			0.0012	6149.06		7.6
DECEMBER	1	0.0	201.91	0.0000	1421.28	0.0	
	2	0.0	203.04	0.0000	1421.42	0.0	
	3	0.0	203.04	0.0000	1421.28	0.0	
	4	0.0	405.38	0.0000	2032.15	0.0	
	MONTHLY EST.			0.0000	6296.14		0.0

APPENDIX TABLE D-2.6. ESTIMATED WEEKLY BIOMASS OF BLUEBACK HERRING, DANSKAMMER POINT GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	201.63	0.0000	1421.28	0.0	
	2	0.0	203.04	0.0000	1421.28	0.0	
	3	0.0	203.04	0.0000	1421.30	0.0	
	4	0.0	406.08	0.0000	2030.57	0.0	
	MONTHLY EST.			0.0000	6294.43		0.0
FEBRUARY	1	0.0	201.21	0.0000	1410.46	0.0	
	2	0.0	203.04	0.0000	1421.28	0.0	
	3	0.0	203.04	0.0000	1521.67	0.0	
	4	0.0	203.04	0.0000	1522.54	0.0	
	MONTHLY EST.			0.0000	5875.94		0.0
MARCH	1	0.0	203.04	0.0000	1421.30	0.0	
	2	0.0	197.40	0.0000	1421.45	0.0	
	3	0.0	203.04	0.0000	1582.10	0.0	
	4	0.0	180.41	0.0000	1709.86	0.0	
	MONTHLY EST.			0.0000	6134.71		0.0
APRIL	1	0.0	113.36	0.0000	966.24	0.0	
	2	0.0	173.08	0.0000	1143.43	0.0	
	3	0.0	144.00	0.0000	1008.00	0.0	
	4	6.7	144.00	0.0465	1310.76	61.0	
	MONTHLY EST.			0.0116	4428.43		51.5
MAY	1	0.0	203.04	0.0000	1421.30	0.0	
	2	56.7	198.81	0.2852	1512.55	431.4	
	3	102.0	317.68	0.3211	2291.28	735.7	
	4	404.3	655.26	0.6170	3406.13	2101.6	
	MONTHLY EST.			0.3058	8631.26		2639.6
JUNE	1	596.6	419.88	1.4209	2723.21	3869.3	
	2	586.7	431.88	1.3585	2718.07	3692.4	
	3	1394.5	386.99	3.6035	2598.46	9363.5	
	4	964.4	405.98	2.3755	3821.71	9078.4	
	MONTHLY EST.			2.1896	11861.45		25971.5
JULY	1	295.5	411.44	0.7182	2570.62	1846.2	
	2	2.1	334.08	0.0063	2444.83	15.4	
	3	96.3	435.12	0.2213	2827.82	625.8	
	4	56.8	666.04	0.0853	3588.55	306.0	
	MONTHLY EST.			0.2578	11431.82		2946.8
AUGUST	1	128.6	381.32	0.3373	2536.01	855.3	
	2	178.5	331.76	0.5380	2399.42	1291.0	
	3	88.4	383.11	0.2307	2528.14	583.4	
	4	230.3	412.82	0.5579	3937.56	2196.6	
	MONTHLY EST.			0.4160	11401.13		4742.6
SEPTEMBER	1	59.9	328.98	0.1821	2381.90	433.7	
	2	125.6	334.08	0.3760	2338.56	879.2	
	3	106.9	334.08	0.3200	2272.15	727.1	
	4	166.3	334.08	0.4978	2130.48	1060.5	
	MONTHLY EST.			0.3440	9123.10		3137.9
OCTOBER	1	4.4	118.08	0.0373	843.22	31.4	
	2	90.0	147.50	0.6102	1302.55	794.8	
	3	511.3	254.40	2.0098	1756.30	3529.8	
	4	2077.7	406.08	5.1165	2188.61	11198.0	
	MONTHLY EST.			1.9434	6090.67		11836.8
NOVEMBER	1	72.3	203.04	0.3561	1644.17	585.5	
	2	29.6	203.04	0.1458	1404.24	204.7	
	3	0.0	201.91	0.0000	1415.81	0.0	
	4	0.0	203.04	0.0000	1684.85	0.0	
	MONTHLY EST.			0.1255	6149.06		771.5
DECEMBER	1	0.0	201.91	0.0000	1421.28	0.0	
	2	0.0	203.04	0.0000	1421.42	0.0	
	3	0.0	203.04	0.0000	1421.28	0.0	
	4	0.0	405.38	0.0000	2032.15	0.0	
	MONTHLY EST.			0.0000	6296.14		0.0

APPENDIX TABLE D-2.7. ESTIMATED WEEKLY BIOMASS OF BROWN BULLHEAD, DANSKAMMER POINT GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	201.63	0.0000	1421.28	0.0	
	2	731.0	203.04	3.6003	1421.28	5117.0	
	3	220.3	203.04	1.0850	1421.30	1542.1	
	4	305.1	406.08	0.7513	2030.57	1525.6	
	MONTHLY EST.			1.3592	6294.43		8555.1
FEBRUARY	1	206.7	201.21	1.0273	1410.46	1449.0	
	2	923.0	203.04	4.5459	1421.28	6461.0	
	3	0.0	203.04	0.0000	1521.67	0.0	
	4	0.0	203.04	0.0000	1522.54	0.0	
	MONTHLY EST.			1.3933	5875.94		8187.0
MARCH	1	0.0	203.04	0.0000	1421.30	0.0	
	2	152.9	197.40	0.7746	1421.45	1101.0	
	3	174.6	203.04	0.8599	1582.10	1360.5	
	4	0.0	180.41	0.0000	1709.86	0.0	
	MONTHLY EST.			0.4086	6134.71		2506.8
APRIL	1	7.0	113.36	0.0618	966.24	59.7	
	2	100.6	173.08	0.5812	1143.43	664.6	
	3	27.7	144.00	0.1924	1008.00	193.9	
	4	158.8	144.00	1.1028	1310.76	1445.5	
	MONTHLY EST.			0.4845	4428.43		2145.7
MAY	1	21.4	203.04	0.1054	1421.30	149.8	
	2	256.6	198.81	1.2907	1512.55	1952.2	
	3	48.6	317.68	0.1530	2291.28	350.5	
	4	155.3	655.26	0.2370	3406.13	807.3	
	MONTHLY EST.			0.4465	8631.26		3854.0
JUNE	1	617.9	419.88	1.4716	2723.21	4007.5	
	2	252.0	431.88	0.5835	2718.07	1586.0	
	3	350.0	386.99	0.9044	2598.46	2350.1	
	4	846.6	405.98	2.0853	3821.71	7969.5	
	MONTHLY EST.			1.2612	11861.45		14959.8
JULY	1	846.5	411.44	2.0574	2570.62	5288.8	
	2	0.0	334.08	0.0000	2444.83	0.0	
	3	34.9	435.12	0.0802	2827.82	226.8	
	4	586.4	666.04	0.8804	3588.55	3159.5	
	MONTHLY EST.			0.7545	11431.82		8625.4
AUGUST	1	652.8	381.32	1.7120	2536.01	4341.5	
	2	467.7	331.76	1.4098	2399.42	3382.6	
	3	2527.4	383.11	6.5971	2528.14	16678.5	
	4	672.8	412.82	1.6298	3937.56	6417.3	
	MONTHLY EST.			2.8372	11401.13		32346.7
SEPTEMBER	1	270.9	328.98	0.8235	2381.90	1961.4	
	2	78.3	334.08	0.2344	2338.56	548.1	
	3	322.7	334.08	0.9659	2272.15	2194.8	
	4	169.5	334.08	0.5074	2130.48	1080.9	
	MONTHLY EST.			0.6328	9123.10		5773.0
OCTOBER	1	6.8	118.08	0.0576	843.22	48.6	
	2	0.0	147.50	0.0000	1302.55	0.0	
	3	237.1	254.40	0.9320	1756.30	1636.9	
	4	1043.3	406.08	2.5692	2188.61	5623.0	
	MONTHLY EST.			0.8897	6090.67		5418.8
NOVEMBER	1	117.3	203.04	0.5777	1644.17	949.9	
	2	195.1	203.04	0.9609	1404.24	1349.3	
	3	51.5	201.91	0.2551	1415.81	361.1	
	4	0.0	203.04	0.0000	1684.85	0.0	
	MONTHLY EST.			0.4484	6149.06		2757.4
DECEMBER	1	28.0	201.91	0.1387	1421.28	197.1	
	2	0.0	203.04	0.0000	1421.42	0.0	
	3	0.0	203.04	0.0000	1421.28	0.0	
	4	0.0	405.38	0.0000	2032.15	0.0	
	MONTHLY EST.			0.0347	6296.14		218.3

APPENDIX TABLE D-2.8. ESTIMATED WEEKLY BIOMASS OF GIZZARD SHAD, DANSKAMMER POINT GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	7044.7	201.63	34.9387	1421.28	49657.7	
	2	26979.7	203.04	132.8787	1421.28	188857.9	
	3	8791.5	203.04	43.2993	1421.30	61541.5	
	4	13242.5	406.08	32.6106	2030.57	66218.0	
	MONTHLY EST.			60.9319	6294.43		383531.4
FEBRUARY	1	2821.3	201.21	14.0219	1410.46	19777.2	
	2	11238.1	203.04	55.3492	1421.28	78666.7	
	3	9644.7	203.04	47.5015	1521.67	72281.7	
	4	0.0	203.04	0.0000	1522.54	0.0	
	MONTHLY EST.			29.2181	5875.94		171684.1
MARCH	1	0.0	203.04	0.0000	1421.30	0.0	
	2	0.0	197.40	0.0000	1421.45	0.0	
	3	1502.6	203.04	7.4005	1582.10	11708.4	
	4	0.0	180.41	0.0000	1709.86	0.0	
	MONTHLY EST.			1.8501	6134.71		11350.0
APRIL	1	0.0	113.36	0.0000	966.24	0.0	
	2	0.0	173.08	0.0000	1143.43	0.0	
	3	0.0	144.00	0.0000	1008.00	0.0	
	4	561.4	144.00	3.8986	1310.76	5110.1	
	MONTHLY EST.			0.9747	4428.43		4316.2
MAY	1	0.0	203.04	0.0000	1421.30	0.0	
	2	778.4	198.81	3.9153	1512.55	5922.1	
	3	0.0	317.68	0.0000	2291.28	0.0	
	4	0.0	655.26	0.0000	3406.13	0.0	
	MONTHLY EST.			0.9788	8631.26		8448.5
JUNE	1	0.0	419.88	0.0000	2723.21	0.0	
	2	0.0	431.88	0.0000	2718.07	0.0	
	3	0.0	386.99	0.0000	2598.46	0.0	
	4	0.0	405.98	0.0000	3821.71	0.0	
	MONTHLY EST.			0.0000	11861.45		0.0
JULY	1	0.0	411.44	0.0000	2570.62	0.0	
	2	0.0	334.08	0.0000	2444.83	0.0	
	3	214.0	435.12	0.4918	2827.82	1390.8	
	4	3854.3	666.04	5.7869	3588.55	20766.6	
	MONTHLY EST.			1.5697	11431.82		17944.3
AUGUST	1	102.3	381.32	0.2683	2536.01	680.4	
	2	4547.5	331.76	13.7072	2399.42	32889.4	
	3	1636.2	383.11	4.2709	2528.14	10797.4	
	4	595.8	412.82	1.4432	3937.56	5682.9	
	MONTHLY EST.			4.9224	11401.13		56120.9
SEPTEMBER	1	111.4	328.98	0.3386	2381.90	806.6	
	2	56.6	334.08	0.1694	2338.56	396.2	
	3	56.6	334.08	0.1694	2272.15	384.9	
	4	32.5	334.08	0.0973	2130.48	207.3	
	MONTHLY EST.			0.1937	9123.10		1767.0
OCTOBER	1	0.0	118.08	0.0000	843.22	0.0	
	2	0.0	147.50	0.0000	1302.55	0.0	
	3	185.6	254.40	0.7296	1756.30	1281.3	
	4	3138.5	406.08	7.7288	2188.61	16915.3	
	MONTHLY EST.			2.1146	6090.67		12879.2
NOVEMBER	1	79.4	203.04	0.3911	1644.17	643.0	
	2	443.6	203.04	2.1848	1404.24	3068.0	
	3	854.4	201.91	4.2315	1415.81	5991.1	
	4	449.9	203.04	2.2158	1684.85	3733.3	
	MONTHLY EST.			2.2558	6149.06		13871.1
DECEMBER	1	6893.5	201.91	34.1411	1421.28	48524.1	
	2	23770.8	203.04	117.0745	1421.42	166412.5	
	3	7977.0	203.04	39.2878	1421.28	55839.0	
	4	47899.7	405.38	118.1615	2032.15	240122.0	
	MONTHLY EST.			77.1662	6296.14		485849.0

APPENDIX TABLE D-2.9. ESTIMATED WEEKLY BIOMASS OF GOLDEN SHINER, DANSKAMMER POINT GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	411.0	201.63	2.0384	1421.28	2897.1	
	2	3061.4	203.04	15.0778	1421.28	21429.8	
	3	991.3	203.04	4.8823	1421.30	6939.2	
	4	3377.8	406.08	8.3181	2030.57	16890.4	
	MONTHLY EST.			7.5791	6294.43		47706.4
FEBRUARY	1	819.2	201.21	4.0714	1410.46	5742.6	
	2	674.5	203.04	3.3220	1421.28	4721.5	
	3	921.3	203.04	4.5375	1521.67	6904.6	
	4	91.5	203.04	0.4507	1522.54	686.1	
	MONTHLY EST.			3.0954	5875.94		18188.4
MARCH	1	783.5	203.04	3.8588	1421.30	5484.6	
	2	113.2	197.40	0.5735	1421.45	815.1	
	3	288.6	203.04	1.4214	1582.10	2248.8	
	4	0.0	180.41	0.0000	1709.86	0.0	
	MONTHLY EST.			1.4634	6134.71		8977.7
APRIL	1	0.0	113.36	0.0000	966.24	0.0	
	2	442.4	173.08	2.5560	1143.43	2922.6	
	3	232.2	144.00	1.6125	1008.00	1625.4	
	4	44.5	144.00	0.3090	1310.76	405.1	
	MONTHLY EST.			1.1194	4428.43		4957.1
MAY	1	500.5	203.04	2.4650	1421.30	3503.6	
	2	82.7	198.81	0.4160	1512.55	629.2	
	3	619.6	317.68	1.9504	2291.28	4468.9	
	4	501.2	655.26	0.7649	3406.13	2605.3	
	MONTHLY EST.			1.3991	8631.26		12075.8
JUNE	1	314.1	419.88	0.7481	2723.21	2037.1	
	2	366.1	431.88	0.8477	2718.07	2304.1	
	3	331.9	386.99	0.8576	2598.46	2228.6	
	4	67.9	405.98	0.1672	3821.71	639.2	
	MONTHLY EST.			0.6552	11861.45		7771.2
JULY	1	66.0	411.44	0.1604	2570.62	412.4	
	2	0.0	334.08	0.0000	2444.83	0.0	
	3	21.3	435.12	0.0490	2827.82	138.4	
	4	0.0	666.04	0.0000	3588.55	0.0	
	MONTHLY EST.			0.0523	11431.82		598.3
AUGUST	1	38.1	381.32	0.0999	2536.01	253.4	
	2	0.0	331.76	0.0000	2399.42	0.0	
	3	0.0	383.11	0.0000	2528.14	0.0	
	4	0.0	412.82	0.0000	3937.56	0.0	
	MONTHLY EST.			0.0250	11401.13		284.8
SEPTEMBER	1	0.0	328.98	0.0000	2381.90	0.0	
	2	0.0	334.08	0.0000	2338.56	0.0	
	3	0.0	334.08	0.0000	2272.15	0.0	
	4	0.0	334.08	0.0000	2130.48	0.0	
	MONTHLY EST.			0.0000	9123.10		0.0
OCTOBER	1	0.0	118.08	0.0000	843.22	0.0	
	2	0.0	147.50	0.0000	1302.55	0.0	
	3	0.0	254.40	0.0000	1756.30	0.0	
	4	0.0	406.08	0.0000	2188.61	0.0	
	MONTHLY EST.			0.0000	6090.67		0.0
NOVEMBER	1	0.0	203.04	0.0000	1644.17	0.0	
	2	247.3	203.04	1.2180	1404.24	1710.3	
	3	0.0	201.91	0.0000	1415.81	0.0	
	4	7.9	203.04	0.0389	1684.85	65.6	
	MONTHLY EST.			0.3142	6149.06		1932.2
DECEMBER	1	2.1	201.91	0.0104	1421.28	14.8	
	2	50.5	203.04	0.2487	1421.42	353.5	
	3	209.7	203.04	1.0328	1421.28	1467.9	
	4	720.3	405.38	1.7769	2032.15	3610.9	
	MONTHLY EST.			0.7672	6296.14		4830.4

APPENDIX TABLE D-2.10. ESTIMATED WEEKLY BIOMASS OF PUMPKINSEED, DANSKAMMER POINT GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	201.63	0.0000	1421.28	0.0	
	2	154.5	203.04	0.7609	1421.28	1081.5	
	3	95.5	203.04	0.4704	1421.30	668.5	
	4	0.0	406.08	0.0000	2030.57	0.0	
	MONTHLY EST.			0.3078	6294.43		1937.6
FEBRUARY	1	0.0	201.21	0.0000	1410.46	0.0	
	2	156.8	203.04	0.7723	1421.28	1097.6	
	3	122.0	203.04	0.6009	1521.67	914.3	
	4	0.0	203.04	0.0000	1522.54	0.0	
	MONTHLY EST.			0.3433	5875.94		2017.1
MARCH	1	37.5	203.04	0.1847	1421.30	262.5	
	2	63.5	197.40	0.3217	1421.45	457.3	
	3	26.5	203.04	0.1305	1582.10	206.5	
	4	0.0	180.41	0.0000	1709.86	0.0	
	MONTHLY EST.			0.1592	6134.71		976.8
APRIL	1	30.3	113.36	0.2673	966.24	258.3	
	2	102.9	173.08	0.5945	1143.43	679.8	
	3	61.0	144.00	0.4236	1008.00	427.0	
	4	28.4	144.00	0.1972	1310.76	258.5	
	MONTHLY EST.			0.3707	4428.43		1641.4
MAY	1	919.7	203.04	4.5296	1421.30	6438.0	
	2	3068.6	198.81	15.4348	1512.55	23346.0	
	3	1253.9	317.68	3.9471	2291.28	9043.9	
	4	2092.8	655.26	3.1939	3406.13	10878.7	
	MONTHLY EST.			6.7764	8631.26		58488.6
JUNE	1	2321.7	419.88	5.5294	2723.21	15057.7	
	2	487.7	431.88	1.1292	2718.07	3069.4	
	3	505.6	386.99	1.3065	2598.46	3394.9	
	4	380.6	405.98	0.9375	3821.71	3582.8	
	MONTHLY EST.			2.2257	11861.45		26399.5
JULY	1	301.7	411.44	0.7333	2570.62	1885.0	
	2	48.2	334.08	0.1443	2444.83	352.7	
	3	286.6	435.12	0.6587	2827.82	1862.6	
	4	192.3	666.04	0.2887	3588.55	1036.1	
	MONTHLY EST.			0.4562	11431.82		5215.6
AUGUST	1	0.0	381.32	0.0000	2536.01	0.0	
	2	0.0	331.76	0.0000	2399.42	0.0	
	3	2.1	383.11	0.0055	2528.14	13.9	
	4	16.8	412.82	0.0407	3937.56	160.2	
	MONTHLY EST.			0.0115	11401.13		131.6
SEPTEMBER	1	28.6	328.98	0.0869	2381.90	207.1	
	2	62.9	334.08	0.1883	2338.56	440.3	
	3	117.8	334.08	0.3526	2272.15	801.2	
	4	791.2	334.08	2.3683	2130.48	5045.6	
	MONTHLY EST.			0.7490	9123.10		6833.5
OCTOBER	1	450.0	118.08	3.8110	843.22	3213.5	
	2	52.2	147.50	0.3539	1302.55	461.0	
	3	594.6	254.40	2.3373	1756.30	4104.9	
	4	794.9	406.08	1.9575	2188.61	4284.2	
	MONTHLY EST.			2.1149	6090.67		12881.2
NOVEMBER	1	290.9	203.04	1.4327	1644.17	2355.6	
	2	167.7	203.04	0.8259	1404.24	1159.8	
	3	8.5	201.91	0.0421	1415.81	59.6	
	4	56.9	203.04	0.2802	1684.85	472.2	
	MONTHLY EST.			0.6453	6149.06		3967.7
DECEMBER	1	5.0	201.91	0.0248	1421.28	35.2	
	2	39.5	203.04	0.1945	1421.42	276.5	
	3	5.3	203.04	0.0261	1421.28	37.1	
	4	247.2	405.38	0.6098	2032.15	1239.2	
	MONTHLY EST.			0.2138	6296.14		1346.1

APPENDIX TABLE D-2.11. ESTIMATED WEEKLY BIOMASS OF RAINBOW SMELT, DANSKAMMER POINT GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	201.63	0.0000	1421.28	0.0	
	2	0.0	203.04	0.0000	1421.28	0.0	
	3	0.0	203.04	0.0000	1421.30	0.0	
	4	0.0	406.08	0.0000	2030.57	0.0	
	MONTHLY EST.			0.0000	6294.43		0.0
FEBRUARY	1	0.0	201.21	0.0000	1410.46	0.0	
	2	0.0	203.04	0.0000	1421.28	0.0	
	3	0.0	203.04	0.0000	1521.67	0.0	
	4	0.0	203.04	0.0000	1522.54	0.0	
	MONTHLY EST.			0.0000	5875.94		0.0
MARCH	1	0.0	203.04	0.0000	1421.30	0.0	
	2	0.0	197.40	0.0000	1421.45	0.0	
	3	0.0	203.04	0.0000	1582.10	0.0	
	4	0.0	180.41	0.0000	1709.86	0.0	
	MONTHLY EST.			0.0000	6134.71		0.0
APRIL	1	0.0	113.36	0.0000	966.24	0.0	
	2	0.0	173.08	0.0000	1143.43	0.0	
	3	0.0	144.00	0.0000	1008.00	0.0	
	4	0.0	144.00	0.0000	1310.76	0.0	
	MONTHLY EST.			0.0000	4428.43		0.0
MAY	1	0.0	203.04	0.0000	1421.30	0.0	
	2	0.0	198.81	0.0000	1512.55	0.0	
	3	0.0	317.68	0.0000	2291.28	0.0	
	4	0.0	655.26	0.0000	3406.13	0.0	
	MONTHLY EST.			0.0000	8631.26		0.0
JUNE	1	0.0	419.88	0.0000	2723.21	0.0	
	2	0.0	431.88	0.0000	2718.07	0.0	
	3	0.0	386.99	0.0000	2598.46	0.0	
	4	0.0	405.98	0.0000	3821.71	0.0	
	MONTHLY EST.			0.0000	11861.45		0.0
JULY	1	0.0	411.44	0.0000	2570.62	0.0	
	2	0.0	334.08	0.0000	2444.83	0.0	
	3	0.0	435.12	0.0000	2827.82	0.0	
	4	3.8	666.04	0.0057	3588.55	20.5	
	MONTHLY EST.			0.0014	11431.82		16.3
AUGUST	1	0.0	381.32	0.0000	2536.01	0.0	
	2	0.0	331.76	0.0000	2399.42	0.0	
	3	0.0	383.11	0.0000	2528.14	0.0	
	4	0.0	412.82	0.0000	3937.56	0.0	
	MONTHLY EST.			0.0000	11401.13		0.0
SEPTEMBER	1	0.0	328.98	0.0000	2381.90	0.0	
	2	0.0	334.08	0.0000	2338.56	0.0	
	3	0.0	334.08	0.0000	2272.15	0.0	
	4	0.0	334.08	0.0000	2130.48	0.0	
	MONTHLY EST.			0.0000	9123.10		0.0
OCTOBER	1	0.0	118.08	0.0000	843.22	0.0	
	2	0.0	147.50	0.0000	1302.55	0.0	
	3	0.0	254.40	0.0000	1756.30	0.0	
	4	0.0	406.08	0.0000	2188.61	0.0	
	MONTHLY EST.			0.0000	6090.67		0.0
NOVEMBER	1	0.0	203.04	0.0000	1644.17	0.0	
	2	0.0	203.04	0.0000	1404.24	0.0	
	3	0.0	201.91	0.0000	1415.81	0.0	
	4	0.0	203.04	0.0000	1684.85	0.0	
	MONTHLY EST.			0.0000	6149.06		0.0
DECEMBER	1	0.0	201.91	0.0000	1421.28	0.0	
	2	0.0	203.04	0.0000	1421.42	0.0	
	3	0.0	203.04	0.0000	1421.28	0.0	
	4	0.0	405.38	0.0000	2032.15	0.0	
	MONTHLY EST.			0.0000	6296.14		0.0

APPENDIX TABLE D-2.12. ESTIMATED WEEKLY BIOMASS OF SPOTTAIL SHINER, DANSKAMMER POINT GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	53.2	201.63	0.2638	1421.28	375.0	
	2	300.3	203.04	1.4790	1421.28	2102.1	
	3	153.3	203.04	0.7550	1421.30	1073.1	
	4	441.5	406.08	1.0872	2030.57	2207.7	
	MONTHLY EST.			0.8963	6294.43		5641.6
FEBRUARY	1	209.7	201.21	1.0422	1410.46	1470.0	
	2	141.4	203.04	0.6964	1421.28	989.8	
	3	130.7	203.04	0.6437	1521.67	979.5	
	4	25.7	203.04	0.1266	1522.54	192.7	
	MONTHLY EST.			0.6272	5875.94		3685.6
MARCH	1	195.9	203.04	0.9648	1421.30	1371.3	
	2	144.1	197.40	0.7300	1421.45	1037.6	
	3	52.0	203.04	0.2561	1582.10	405.2	
	4	38.6	180.41	0.2140	1709.86	365.8	
	MONTHLY EST.			0.5412	6134.71		3320.2
APRIL	1	8.9	113.36	0.0785	966.24	75.9	
	2	264.1	173.08	1.5259	1143.43	1744.7	
	3	334.1	144.00	2.3201	1008.00	2338.7	
	4	76.6	144.00	0.5319	1310.76	697.3	
	MONTHLY EST.			1.1141	4428.43		4933.8
MAY	1	291.7	203.04	1.4367	1421.30	2041.9	
	2	689.3	198.81	3.4671	1512.55	5244.2	
	3	401.2	317.68	1.2629	2291.28	2893.7	
	4	1085.2	655.26	1.6561	3406.13	5641.0	
	MONTHLY EST.			1.9557	8631.26		16880.3
JUNE	1	2516.5	419.88	5.9933	2723.21	16321.1	
	2	463.0	431.88	1.0721	2718.07	2913.9	
	3	189.9	386.99	0.4907	2598.46	1275.1	
	4	295.9	405.98	0.7289	3821.71	2785.5	
	MONTHLY EST.			2.0712	11861.45		24567.9
JULY	1	264.1	411.44	0.6419	2570.62	1650.0	
	2	27.3	334.08	0.0817	2444.83	199.8	
	3	219.7	435.12	0.5049	2827.82	1427.8	
	4	1202.5	666.04	1.8055	3588.55	6479.0	
	MONTHLY EST.			0.7585	11431.82		8671.0
AUGUST	1	411.6	381.32	1.0794	2536.01	2737.4	
	2	143.3	331.76	0.4319	2399.42	1036.4	
	3	100.0	383.11	0.2610	2528.14	659.9	
	4	103.0	412.82	0.2495	3937.56	982.4	
	MONTHLY EST.			0.5055	11401.13		5762.9
SEPTEMBER	1	30.3	328.98	0.0921	2381.90	219.4	
	2	0.0	334.08	0.0000	2338.56	0.0	
	3	45.2	334.08	0.1353	2272.15	307.4	
	4	16.7	334.08	0.0500	2130.48	106.5	
	MONTHLY EST.			0.0693	9123.10		632.7
OCTOBER	1	0.0	118.08	0.0000	843.22	0.0	
	2	0.0	147.50	0.0000	1302.55	0.0	
	3	132.0	254.40	0.5189	1756.30	911.3	
	4	174.6	406.08	0.4300	2188.61	941.0	
	MONTHLY EST.			0.2372	6090.67		1444.8
NOVEMBER	1	15.4	203.04	0.0758	1644.17	124.7	
	2	87.1	203.04	0.4290	1404.24	602.4	
	3	97.7	201.91	0.4839	1415.81	685.1	
	4	90.2	203.04	0.4442	1684.85	748.5	
	MONTHLY EST.			0.3582	6149.06		2202.8
DECEMBER	1	252.2	201.91	1.2491	1421.28	1775.3	
	2	77.5	203.04	0.3817	1421.42	542.6	
	3	24.0	203.04	0.1182	1421.28	168.0	
	4	176.3	405.38	0.4349	2032.15	883.8	
	MONTHLY EST.			0.5460	6296.14		3437.5

APPENDIX TABLE D-2.13. ESTIMATED WEEKLY BIOMASS OF STRIPED BASS, DANSKAMMER POINT GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	201.63	0.0000	1421.28	0.0	
	2	6.8	203.04	0.0335	1421.28	47.6	
	3	314.1	203.04	1.5470	1421.30	2198.7	
	4	966.4	406.08	2.3798	2030.57	4832.4	
	MONTHLY EST.			0.9901	6294.43		6232.0
FEBRUARY	1	0.0	201.21	0.0000	1410.46	0.0	
	2	0.0	203.04	0.0000	1421.28	0.0	
	3	919.7	203.04	4.5296	1521.67	6892.6	
	4	0.0	203.04	0.0000	1522.54	0.0	
	MONTHLY EST.			1.1324	5875.94		6654.0
MARCH	1	315.9	203.04	1.5559	1421.30	2211.3	
	2	0.0	197.40	0.0000	1421.45	0.0	
	3	0.0	203.04	0.0000	1582.10	0.0	
	4	0.0	180.41	0.0000	1709.86	0.0	
	MONTHLY EST.			0.3890	6134.71		2386.2
APRIL	1	0.0	113.36	0.0000	966.24	0.0	
	2	0.0	173.08	0.0000	1143.43	0.0	
	3	0.0	144.00	0.0000	1008.00	0.0	
	4	16.8	144.00	0.1167	1310.76	152.9	
	MONTHLY EST.			0.0292	4428.43		129.2
MAY	1	46.7	203.04	0.2300	1421.30	326.9	
	2	45.8	198.81	0.2304	1512.55	348.4	
	3	44.6	317.68	0.1404	2291.28	321.7	
	4	84.9	655.26	0.1296	3406.13	441.3	
	MONTHLY EST.			0.1826	8631.26		1575.9
JUNE	1	445.5	419.88	1.0610	2723.21	2889.4	
	2	267.3	431.88	0.6189	2718.07	1682.3	
	3	167.2	386.99	0.4321	2598.46	1122.7	
	4	950.8	405.98	2.3420	3821.71	8950.4	
	MONTHLY EST.			1.1135	11861.45		13207.6
JULY	1	757.3	411.44	1.8406	2570.62	4731.5	
	2	771.8	334.08	2.3102	2444.83	5648.1	
	3	305.0	435.12	0.7009	2827.82	1982.2	
	4	1325.1	666.04	1.9895	3588.55	7139.5	
	MONTHLY EST.			1.7103	11431.82		19552.1
AUGUST	1	1686.6	381.32	4.4231	2536.01	11216.9	
	2	2017.6	331.76	6.0815	2399.42	14592.1	
	3	2490.0	383.11	6.4995	2528.14	16431.7	
	4	3771.1	412.82	9.1350	3937.56	35969.5	
	MONTHLY EST.			6.5348	11401.13		74503.7
SEPTEMBER	1	1062.8	328.98	3.2306	2381.90	7695.1	
	2	1252.4	334.08	3.7488	2338.56	8766.8	
	3	1329.2	334.08	3.9787	2272.15	9040.2	
	4	871.0	334.08	2.6072	2130.48	5554.5	
	MONTHLY EST.			3.3913	9123.10		30939.3
OCTOBER	1	31.7	118.08	0.2685	843.22	226.4	
	2	88.9	147.50	0.6027	1302.55	785.1	
	3	1164.1	254.40	4.5759	1756.30	8036.6	
	4	2788.2	406.08	6.8661	2188.61	15027.3	
	MONTHLY EST.			3.0783	6090.67		18748.9
NOVEMBER	1	280.3	203.04	1.3805	1644.17	2269.8	
	2	446.0	203.04	2.1966	1404.24	3084.6	
	3	147.9	201.91	0.7325	1415.81	1037.1	
	4	426.4	203.04	2.1001	1684.85	3538.3	
	MONTHLY EST.			1.6024	6149.06		9853.4
DECEMBER	1	886.3	201.91	4.3895	1421.28	6238.8	
	2	126.9	203.04	0.6250	1421.42	888.4	
	3	28.0	203.04	0.1379	1421.28	196.0	
	4	138.6	405.38	0.3419	2032.15	694.8	
	MONTHLY EST.			1.3736	6296.14		8648.3

APPENDIX TABLE D-2.14. ESTIMATED WEEKLY BIOMASS OF WHITE CATFISH, DANSKAMMER POINT GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	832.1	201.63	4.1269	1421.28	5865.4	
	2	14.4	203.04	0.0709	1421.28	100.8	
	3	627.6	203.04	3.0910	1421.30	4393.3	
	4	1565.5	406.08	3.8552	2030.57	7828.1	
	MONTHLY EST.			2.7860	6294.43		17536.2
FEBRUARY	1	825.0	201.21	4.1003	1410.46	5783.2	
	2	60.1	203.04	0.2960	1421.28	420.7	
	3	5.2	203.04	0.0256	1521.67	39.0	
	4	0.0	203.04	0.0000	1522.54	0.0	
	MONTHLY EST.			1.1055	5875.94		6495.7
MARCH	1	4236.8	203.04	20.8668	1421.30	29658.1	
	2	34.3	197.40	0.1738	1421.45	247.0	
	3	0.0	203.04	0.0000	1582.10	0.0	
	4	892.9	180.41	4.9492	1709.86	8462.4	
	MONTHLY EST.			6.4974	6134.71		39859.9
APRIL	1	962.6	113.36	8.4919	966.24	8205.2	
	2	288.2	173.08	1.6651	1143.43	1903.9	
	3	586.1	144.00	4.0701	1008.00	4102.7	
	4	130.2	144.00	0.9042	1310.76	1185.1	
	MONTHLY EST.			3.7828	4428.43		16752.0
MAY	1	118.8	203.04	0.5851	1421.30	831.6	
	2	644.2	198.81	3.2403	1512.55	4901.1	
	3	125.5	317.68	0.3951	2291.28	905.2	
	4	197.5	655.26	0.3014	3406.13	1026.6	
	MONTHLY EST.			1.1305	8631.26		9757.3
JUNE	1	644.1	419.88	1.5340	2723.21	4177.4	
	2	555.5	431.88	1.2862	2718.07	3496.1	
	3	2639.9	386.99	6.8217	2598.46	17725.8	
	4	1357.1	405.98	3.3428	3821.71	12775.1	
	MONTHLY EST.			3.2462	11861.45		38504.2
JULY	1	2766.0	411.44	6.7227	2570.62	17281.4	
	2	419.3	334.08	1.2551	2444.83	3068.5	
	3	873.2	435.12	2.0068	2827.82	5674.8	
	4	1631.3	666.04	2.4493	3588.55	8789.3	
	MONTHLY EST.			3.1084	11431.82		35535.3
AUGUST	1	720.2	381.32	1.8887	2536.01	4789.8	
	2	553.7	331.76	1.6690	2399.42	4004.6	
	3	170.4	383.11	0.4448	2528.14	1124.5	
	4	887.0	412.82	2.1486	3937.56	8460.4	
	MONTHLY EST.			1.5378	11401.13		17532.4
SEPTEMBER	1	2948.1	328.98	8.9614	2381.90	21345.3	
	2	137.3	334.08	0.4110	2338.56	961.1	
	3	974.1	334.08	2.9158	2272.15	6625.1	
	4	144.1	334.08	0.4313	2130.48	918.9	
	MONTHLY EST.			3.1799	9123.10		29010.4
OCTOBER	1	150.8	118.08	1.2771	843.22	1076.9	
	2	0.0	147.50	0.0000	1302.55	0.0	
	3	197.5	254.40	0.7763	1756.30	1363.5	
	4	945.1	406.08	2.3274	2188.61	5093.7	
	MONTHLY EST.			1.0952	6090.67		6670.5
NOVEMBER	1	12.7	203.04	0.0625	1644.17	102.8	
	2	111.2	203.04	0.5477	1404.24	769.1	
	3	147.5	201.91	0.7305	1415.81	1034.3	
	4	0.0	203.04	0.0000	1684.85	0.0	
	MONTHLY EST.			0.3352	6149.06		2061.1
DECEMBER	1	3.6	201.91	0.0178	1421.28	25.3	
	2	0.0	203.04	0.0000	1421.42	0.0	
	3	0.0	203.04	0.0000	1421.28	0.0	
	4	84.7	405.38	0.2089	2032.15	424.6	
	MONTHLY EST.			0.0567	6296.14		356.9

APPENDIX TABLE D-2.15. ESTIMATED WEEKLY BIOMASS OF WHITE PERCH, DANSKAMMER POINT GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	136.8	201.63	0.6785	1421.28	964.3	
	2	1251.7	203.04	6.1648	1421.28	8761.9	
	3	604.0	203.04	2.9748	1421.30	4228.1	
	4	1626.5	406.08	4.0054	2030.57	8133.2	
	MONTHLY EST.			3.4559	6294.43		21752.6
FEBRUARY	1	713.3	201.21	3.5451	1410.46	5000.2	
	2	452.8	203.04	2.2301	1421.28	3169.6	
	3	418.5	203.04	2.0612	1521.67	3136.4	
	4	430.4	203.04	2.1198	1522.54	3227.4	
	MONTHLY EST.			2.4890	5875.94		14625.5
MARCH	1	2081.6	203.04	10.2522	1421.30	14571.4	
	2	2162.9	197.40	10.9569	1421.45	15574.7	
	3	1334.3	203.04	6.5716	1582.10	10397.0	
	4	6.4	180.41	0.0355	1709.86	60.7	
	MONTHLY EST.			6.9540	6134.71		42661.1
APRIL	1	181.9	113.36	1.6047	966.24	1550.5	
	2	4821.4	173.08	27.8560	1143.43	31851.4	
	3	4089.6	144.00	28.4000	1008.00	28627.2	
	4	1011.9	144.00	7.0271	1310.76	9210.8	
	MONTHLY EST.			16.2219	4428.43		71837.8
MAY	1	3782.5	203.04	18.6293	1421.30	26477.9	
	2	5459.1	198.81	27.4589	1512.55	41533.0	
	3	2140.0	317.68	6.7364	2291.28	15435.0	
	4	6764.0	655.26	10.3227	3406.13	35160.3	
	MONTHLY EST.			15.7868	8631.26		136260.2
JUNE	1	15401.4	419.88	36.6803	2723.21	99888.0	
	2	12419.6	431.88	28.7569	2718.07	78163.4	
	3	16003.1	386.99	41.3530	2598.46	107453.9	
	4	20365.2	405.98	50.1630	3821.71	191708.6	
	MONTHLY EST.			39.2383	11861.45		465423.1
JULY	1	16052.6	411.44	39.0153	2570.62	100293.3	
	2	2422.7	334.08	7.2519	2444.83	17729.6	
	3	11895.5	435.12	27.3382	2827.82	77307.5	
	4	19779.8	666.04	29.6977	3588.55	106571.9	
	MONTHLY EST.			25.8258	11431.82		295235.5
AUGUST	1	2884.0	381.32	7.5632	2536.01	19180.4	
	2	3437.6	331.76	10.3617	2399.42	24862.1	
	3	3179.7	383.11	8.2998	2528.14	20983.0	
	4	8952.0	412.82	21.6850	3937.56	85386.0	
	MONTHLY EST.			11.9774	11401.13		136556.3
SEPTEMBER	1	1463.6	328.98	4.4490	2381.90	10597.0	
	2	2116.0	334.08	6.3338	2338.56	14812.0	
	3	3313.3	334.08	9.9177	2272.15	22534.5	
	4	2513.3	334.08	7.5230	2130.48	16027.7	
	MONTHLY EST.			7.0559	9123.10		64371.4
OCTOBER	1	45.4	118.08	0.3845	843.22	324.2	
	2	59.6	147.50	0.4041	1302.55	526.3	
	3	4671.9	254.40	18.3644	1756.30	32253.3	
	4	18686.1	406.08	46.0158	2188.61	100710.6	
	MONTHLY EST.			16.2922	6090.67		99230.3
NOVEMBER	1	2724.3	203.04	13.4176	1644.17	22060.7	
	2	5752.7	203.04	28.3328	1404.24	39786.1	
	3	598.2	201.91	2.9627	1415.81	4194.6	
	4	4235.1	203.04	20.8585	1684.85	35143.3	
	MONTHLY EST.			16.3929	6149.06		100800.9
DECEMBER	1	2475.0	201.91	12.2578	1421.28	17421.8	
	2	417.3	203.04	2.0553	1421.42	2921.4	
	3	116.0	203.04	0.5713	1421.28	812.0	
	4	180.5	405.38	0.4453	2032.15	904.8	
	MONTHLY EST.			3.8324	6296.14		24129.4

APPENDIX TABLE D-2.16. ESTIMATED WEEKLY BIOMASS OF BLUE CRAB, DANSKAMMER POINT GENERATING STATION, 1997.

MONTH	WEEKLY INTERVAL	WEIGHT(G) OF FISH COLLECTED	FLOW SAMPLED (MG)	RATE (G/MG)	WEEKLY FLOW (MG)	ESTIMATED WEIGHT (RATExFLOW)	MONTHLY ESTIMATED WEIGHT(G)
JANUARY	1	0.0	201.63	0.0000	1421.28	0.0	
	2	0.0	203.04	0.0000	1421.28	0.0	
	3	0.0	203.04	0.0000	1421.30	0.0	
	4	0.0	406.08	0.0000	2030.57	0.0	
	MONTHLY EST.			0.0000	6294.43		0.0
FEBRUARY	1	0.0	201.21	0.0000	1410.46	0.0	
	2	0.0	203.04	0.0000	1421.28	0.0	
	3	0.0	203.04	0.0000	1521.67	0.0	
	4	0.0	203.04	0.0000	1522.54	0.0	
	MONTHLY EST.			0.0000	5875.94		0.0
MARCH	1	0.0	203.04	0.0000	1421.30	0.0	
	2	0.0	197.40	0.0000	1421.45	0.0	
	3	0.0	203.04	0.0000	1582.10	0.0	
	4	0.0	180.41	0.0000	1709.86	0.0	
	MONTHLY EST.			0.0000	6134.71		0.0
APRIL	1	0.0	113.36	0.0000	966.24	0.0	
	2	0.0	173.08	0.0000	1143.43	0.0	
	3	0.0	144.00	0.0000	1008.00	0.0	
	4	0.0	144.00	0.0000	1310.76	0.0	
	MONTHLY EST.			0.0000	4428.43		0.0
MAY	1	0.0	203.04	0.0000	1421.30	0.0	
	2	0.0	198.81	0.0000	1512.55	0.0	
	3	0.0	317.68	0.0000	2291.28	0.0	
	4	0.0	655.26	0.0000	3406.13	0.0	
	MONTHLY EST.			0.0000	8631.26		0.0
JUNE	1	2.4	419.88	0.0057	2723.21	15.6	
	2	0.0	431.88	0.0000	2718.07	0.0	
	3	0.0	386.99	0.0000	2598.46	0.0	
	4	0.0	405.98	0.0000	3821.71	0.0	
	MONTHLY EST.			0.0014	11861.45		16.9
JULY	1	372.4	411.44	0.9051	2570.62	2326.7	
	2	1823.6	334.08	5.4586	2444.83	13345.3	
	3	1840.1	435.12	4.2289	2827.82	11958.6	
	4	15076.8	666.04	22.6366	3588.55	81232.5	
	MONTHLY EST.			8.3073	11431.82		94967.5
AUGUST	1	6308.3	381.32	16.5434	2536.01	41954.1	
	2	6668.0	331.76	20.0989	2399.42	48225.7	
	3	11735.1	383.11	30.6315	2528.14	77440.6	
	4	13097.6	412.82	31.7272	3937.56	124927.6	
	MONTHLY EST.			24.7502	11401.13		282180.5
SEPTEMBER	1	8572.2	328.98	26.0572	2381.90	62065.8	
	2	10411.4	334.08	31.1644	2338.56	72879.8	
	3	7471.7	334.08	22.3650	2272.15	50816.7	
	4	9799.4	334.08	29.3325	2130.48	62492.3	
	MONTHLY EST.			27.2298	9123.10		248419.9
OCTOBER	1	2282.4	118.08	19.3293	843.22	16298.7	
	2	989.4	147.50	6.7078	1302.55	8737.2	
	3	1950.2	254.40	7.6659	1756.30	13463.5	
	4	2659.4	406.08	6.5490	2188.61	14333.1	
	MONTHLY EST.			10.0630	6090.67		61290.2
NOVEMBER	1	1398.4	203.04	6.8873	1644.17	11323.9	
	2	1519.0	203.04	7.4813	1404.24	10505.5	
	3	345.3	201.91	1.7102	1415.81	2421.2	
	4	103.5	203.04	0.5098	1684.85	858.9	
	MONTHLY EST.			4.1471	6149.06		25500.9
DECEMBER	1	0.0	201.91	0.0000	1421.28	0.0	
	2	1.8	203.04	0.0089	1421.42	12.6	
	3	9.7	203.04	0.0478	1421.28	67.9	
	4	0.0	405.38	0.0000	2032.15	0.0	
	MONTHLY EST.			0.0142	6296.14		89.2

APPENDIX E

IMPINGEMENT COLLECTION EFFICIENCY PROGRAM RESULTS

LIST OF APPENDIX E TABLES

E-1. Roseton collection efficiency results, 1997.

E-2. Danskammer Point Units 1 and 2 collection efficiency results, 1997.

E-3. Danskammer Point Units 3 and 4 collection efficiency results, 1997.

APPENDIX E

IMPINGEMENT COLLECTION EFFICIENCY PROGRAM RESULTS

Impingement collection efficiency tests were conducted monthly at Roseton and Danskammer Point during 1997. Normally fifty inconspicuously marked fish (caudal fin clip) of varying sizes were introduced to the screenwash sluiceway before or during a scheduled screen cycle. Collection efficiency was determined separately by size group (< 13 cm, 13-25 cm, or >25 cm). Following collection, as part of a normal 6-hr impingement sample, organisms were analyzed without the analysis team being notified. The sample was reexamined for marked fish as a check on analytical techniques, and collection efficiency was calculated according to the following formula:

$$\text{Collection Efficiency} = \frac{\text{Number Recovered}}{\text{Number Released}} \times 100\%$$

All marked fish recovered were identified during the initial analysis phase.

ROSETON GENERATING STATION

The overall 1997 collection efficiency calculated for Roseton was 96%, with values ranging from a low of 78% (on 11 September) to 100% (during five different dates) for all size groups of fish combined (Table E-1). Following the low return rate of 78% on 11 September, the test was repeated during the same 6-hour sampling period. Recovery was 87% in the second test. In both cases, the lower than normal recovery was due to young striped bass, 40 to 90 mm in length. The cause is thought to be crab predation in the sluice, which may have been because of reduced flow in the sluice (only one circulating water pump was operating). The overall collection efficiency in 1997 was 94% for fish less than 13 cm total length (528 released and 497 recovered) and >99% (307 released, 306 recovered) for fish 13-25 cm. None of the fish tested in 1997 fell into the greater than 25 cm size group.

DANSKAMMER POINT GENERATING STATION

Collection efficiency sampling at Units 1 and 2 was only conducted in June, August, and October because the units were not operating during the collection efficiency test dates in other months. At Danskammer Point Units 1 and 2 the overall 1997 collection efficiency was 99%, with monthly values ranging from 98% (June) to 100% (August and October, Table E-2). Collection efficiency was 99% (113 released, 112 recovered) for fish under 13 cm in total length and 100% for fish 13-25 cm (37 released, 37 recovered). There were no test fish larger than 25 cm released at Danskammer Point Units 1 and 2 in 1997.

At Danskammer Point Units 3 and 4 the overall 1997 collection efficiency was 97%, with monthly values ranging from 80% on 6 November to 100% in eight different months (Table E-3). Following the low return rate of 80% during Period 1 on 6 November, the test was repeated during Period 3. In the second test the recovery was 100%. Collection efficiency was 95% (488 released, 466 recovered) for fish under 13 cm in total length and 100% (287% released, 287 recovered) for fish 13-25 cm in total length. There were no fish larger than 25 cm in total length released at Danskammer Point Units 3 and 4 in 1997.

APPENDIX TABLE E-1. ROSETON COLLECTION EFFICIENCY RESULTS, 1997.

	REL. LOCATION		SMALL (<13 cm)			MEDIUM (13-25 cm)			LARGE (>25 cm)			TOTAL ALL SIZES		
DATE	UNITS	SCREENS	NO. REL.	NO. REC.	COLL. EFF. (%)	NO. REL.	NO. REC.	COLL. EFF. (%)	NO. REL.	NO. REC.	COLL. EFF. (%)	NO. REL.	NO. REC.	COLL. EFF. (%)
2 Jan	1 & 2	1B	25	23	92	25	25	100				50	48	96
6 Feb	1 & 2	1B	25	25	100	25	25	100				50	50	100
20 Mar	1 & 2	1B	25	24	96	25	25	100				50	49	98
3 Apr	1 & 2		25	25	100	25	24	96				50	49	98
1 May	1 & 2	1B/1C	25	25	100	25	25	100				50	50	100
5 Jun	1 & 2	1A/1B	33	32	97	17	17	100				50	49	98
10 Jul	1 & 2	1A/1B	45	45	100	20	20	100				65	65	100
7 Aug	1 & 2	1B/1C	40	40	100	10	10	100				50	50	100
11 Sep	1 & 2	1A/1B	45	32	71	15	15	100				60	47	78
11 Sep	1 & 2	1A/1B	45	37	82	15	15	100				60	52	87
25 Sep	1 & 2	1A/1B	35	33	94	15	15	100				50	48	96
25 Sep	1 & 2	1A/1B	40	38	95	10	10	100				50	48	96
9 Oct	1 & 2	1A/1B	40	40	100	10	10	100				50	50	100
6 Nov	1 & 2	1A/1B	30	29	97	20	20	100				50	49	98
4 Dec	1 & 2	1A/1B	50	49	98	50	50	100				100	99	99
TOTAL	1 & 2		528	497	94	307	306	>99				835	803	96

APPENDIX TABLE E-2. DANSKAMMER POINT UNITS 1 AND 2 COLLECTION EFFICIENCY RESULTS, 1997.

	REL. LOCATION		SMALL (<13 cm)			MEDIUM (13-25 cm)			LARGE (>25 cm)			TOTAL ALL SIZES		
DATE	UNITS	SCREENS	NO. REL.	NO. REC.	COLL. EFF. (%)	NO. REL.	NO. REC.	COLL. EFF. (%)	NO. REL.	NO. REC.	COLL. EFF. (%)	NO. REL.	NO. REC.	COLL. EFF. (%)
5 Jun	1 & 2	1A/1B	33	32	97	17	17	100				50	49	98
7 Aug	1 & 2	1B/1C	40	40	100	10	10	100				50	50	100
9 Oct	1 & 2	1A/2C	40	40	100	10	10	100				50	50	100
TOTAL	1 & 2		113	112	99	37	37	100				150	149	99

APPENDIX TABLE E-3. DANSKAMMER POINT UNITS 3 AND 4 COLLECTION EFFICIENCY RESULTS, 1997.

	REL. LOCATION		SMALL (<13 cm)			MEDIUM (13-25 cm)			LARGE (>25 cm)			TOTAL ALL SIZES		
DATE	UNITS	SCREENS	NO. REL.	NO. REC.	COLL. EFF. (%)	NO. REL.	NO. REC.	COLL. EFF. (%)	NO. REL.	NO. REC.	COLL. EFF. (%)	NO. REL.	NO. REC.	COLL. EFF. (%)
2 Jan	3 & 4	4B	25	25	100	25	25	100				50	50	100
6 Feb	3 & 4	4B	25	24	96	25	25	100				50	49	98
6 Mar	3 & 4	3C/4C	40	39	98	10	10	100				50	49	98
3 Apr	3 & 4		25	25	100	25	25	100				50	50	100
1 May	3 & 4	4A/4B	25	21	84	25	25	100				50	46	92
5 Jun	3 & 4	4A/4B	33	33	100	17	17	100				50	50	100
10 Jul	3 & 4	4A/4B	45	45	100	20	20	100				65	65	100
7 Aug	3 & 4	4A/4B	40	40	100	10	10	100				50	50	100
11 Sep	3 & 4		45	40	89	15	15	100				60	55	92
25 Sep	3 & 4	4A/4B	35	35	100	15	15	100				50	50	100
9 Oct	3 & 4	3B/3C	40	40	100	10	10	100				50	50	100
6 Nov	3 & 4	4A/4B	30	20	67	20	20	100				50	40	80
6 Nov	3 & 4	4A/4B	30	30	100	20	20	100				50	50	100
4 Dec	3 & 4	4A/4B	50	49	98	50	50	100				100	99	99
TOTAL	3 & 4		488	466	95	287	287	100				775	753	97