1987 ANNUAL REPORT

ARTIFICIAL ISLAND ECOLOGICAL STUDIES

January 1 through December 31, 1987

SALEM GENERATING STATION
UNIT NO. 1 AND UNIT NO. 2

and

HOPE CREEK GENERATING STATION
UNIT NO. 1

For

PUBLIC SERVICE ELECTRIC AND GAS COMPANY
Nuclear Department
P.O. Box 236
Hancocks Bridge, NJ 08038

by

ENVIRONMENTAL CONSULTING SERVICES, INC.
100 South Cass Street
Middletown, DE 19709

January 4, 1989

CONTENTS

LIST OF TABLES

CONTINUED

CONTINUED

CONTINUED

CONTINUED

LIST OF FIGURES

CONTINUED

CONTINUED

CONTINUED

CONTINUED

CONTINUED

CONTINUED

INTRODUCTION

This report presents information and data from the Artificial Island Ecological Studies conducted for Salem and Hope Creek Generating Stations (SGS and HCGS) during the period January 1 through December 31, 1987.

The sampling programs and data presented follow in a continuum of ecological investigations conducted in the vicinity of Artificial Island since mid-1968. Early monitoring (mid-1968 through late-1976), pursuant in part to the production of a 316(a) Demonstration for SGS, concentrated on sampling, using a variety of gears, within 15 miles of Artificial Island, to characterize the seasonal communities and annual utilization of this section of the estuary. SGS Environmental Technical Specification monitoring (late-1976 through 1978) retained the most relevant sampling programs from the earlier monitoring and was directed toward the identification of changes in population characteristics relative to preoperational levels. Monitoring pursuant to production of a 316(b) Demonstration for SGS (1978 through 1983) followed the 316(b) Plan-of-Study and focused on certain "target species" selected for study by a technical advisory group comprised of the U.S. Environmental Protection Agency, New Jersey Department of Environmental Protection (NJDEP), Delaware Department of Natural Resources and Environmental Control, Delaware River Basin Commission (DRBC), U.S. Fish and Wildlife Service, National Marine Fisheries Service, and Nuclear Regulatory Commission (NRC). This sampling, which ranged from the mouth of Delaware Bay to the Delaware River several miles above the Delaware Memorial Bridge, was intensive and attempted to systematically define the species involvement with SGS and any ensuing consequences. This monitoring also provided the background data necessary for evaluating potential environmental impacts of HCGS and was necessary for the NRC to prepare an Environmental Impact Statement.

Post-316(b) monitoring (1984 through 1986) has been comprised of reduced levels of station impingement and entrainment sampling at SGS and restricted riverine sampling of finfish and ichthyoplankton in the immediate area of SGS and HCGS. These programs provide data that can be used to augment the SGS 316(b) Demonstration, if the NJDEP requests additional data after their review, and provide an estimate of the relative impingement and entrainment involvement at SGS for comparison to the historical database. These monitoring programs also serve to satisfy Salem and Hope Creek permit conditions and PSE&G commitments with Lower Alloways Creek Township, DRBC, NRC, and the NJDEP.

Ecological studies during 1987 were comprised of monitoring in eight basic areas: 1) physicochemical parameters, 2) finfish abundance, 3) ichthyoplankton abundance, 4) SGS impingement abundance and survival, 5) SGS entrainment abundance, 6) HCGS impingement abundance, 7) diamondback terrapin nesting, and 8) osprey and bald eagle nesting/abundance. The physicochemical summary presents field collected information on temperature, dissolved oxygen, and salinity patterns within the study period. Finfish and ichthyoplankton monitoring programs are continuations of the daylight portions of the SGS 316(b) monitoring program designed to evaluate plant vs nearfield densities and distributions. The SGS impingement abundance and survival, and entrainment abundance programs involve a less intensive version of the 316(b) sampling. Commencing April 1986, an impingement abundance sampling program at HCGS was initiated and the results herein represent the continuation of the initial database describing involvement of finfish and blue crab with the HCGS service water system. Terrapin and osprey surveys reflect a continuum of these studies which were initiated in the early 1970's. A discussion of the data collected in each area follows.

SECTION 1.0
ON-SITE STUDIES

1.1 IMPINGEMENT ABUNDANCE AND SURVIVAL

1.1.1 Materials and Methods

Impingement abundance and initial survival sampling during 1987 was conducted one day per week during January through mid-April and October through December, and three days per week during mid-April through September. With only two exceptions (January 9 and 22), a total of five samples were collected on each collection date.

The circulating water system and the impingement sampling facilities have been described in detail in the Salem 316(b) Demonstration, Appendix I, Section 5.2 (PSE&G, 1985). Briefly, organisms impinged on the continuously rotating traveling screens at Salem are lifted from the river in water filled baskets fitted at the bottom of each screen panel. These baskets provide a temporary environment during the vertical transport of the screen and prevent most organisms from falling back into the screen well and becoming reimpinged. As the basket travels over the head sprocket, specimens slide onto the screen face and are spray washed into either the fish trough by a low pressure spray or into the trash trough by a high pressure wash. These troughs converge and discharge to the Delaware River either to the north or south of the CWS intake depending on tidal stage to reduce recirculation.

To collect impingement samples, a timed subsample of total flow from the converged fish and trash troughs was diverted into the appropriate fish counting pool (Fig. 1.1-1) as indicated by trough discharge direction. Sample duration ranged from 1 to 10 (typically 3) minutes and was dependent largely on specimen and detrital densities. At the end of the timed interval, trough flow was returned to the river discharge mode, and the sample was allowed a 5-min acclimation period before the pool was drained. As the pool was drained, finfish and blue crab specimens were collected with dip nets and their condition determined according to the following criteria:

Live - Swimming vigorously, no apparent orientation problems, behavior normal

Dead - No vital signs, no body or opercular movement, no response to gentle probing

Damaged - Struggling or swimming on side, evidence or indication of abrasion or laceration

Specimens in each category were sorted by species, and the total number and weight of each was determined. All specimens or a representative subsample (at least 100 specimens) of each species, drawn equally from each condition category, if possible, were measured by 5-mm increment. Individuals or small catches of a species were weighed to the nearest 0.1 g with an Ohaus 1600 Series triple-beam balance. Large species' catches were weighed, in total, to the nearest gram with a Salter suspended scale.

The following parameters were recorded with all samples: the number of pumps and screens in operation, screen speed, tidal stage and elevation, air temperature, sky condition, wind direction, wave height, water temperature, and salinity. Detritus taken with the sample was weighed to the nearest 0.1 kg with a Dillon 5-inch dynomometer (Model AN) or a Salter suspended scale.

1.1.2 Results

A total of 26,165 specimens of 57 finfishes and 10,197 blue crab were taken in 542 samples (1,556 min sampled) at the Salem CWS intake during 1987 (Table 1.1-1). All nine 316(b) Demonstration designated target finfishes were taken and summaries on the period of occurrence and abundance (expressed as a density in terms of the number/million cubic meters of intake water), survival, length, and inferred age for each of these species are presented below (phylogenetic order):

Blueback herring - A total of 231 specimens was taken in impingement samples during 1987; collection frequency was 84 (Table 1.1-1). They were collected in all months except August and November (Table 1.1-2; Fig. 1.1-2); abundance was highest during early spring and late-fall (Fig. 1.1-3). During their period of occurrence, monthly mean density ($n/1E6m^3$) ranged from 0.7 (September) to 229.4 (March). Highest daily density was 470.7 on March 24 (Fig. 1.1-3). Annual percent live, dead, and damaged were 63, 18, and 19, respectively (Table 1.1-3); monthly ($\geq$ 5 specimens taken) initial mortality (percent) ranged from 0 (December) to 50 (June). Length range was 53-283 mm FL (Table 1.1-4); age 0+ specimens comprised over 90 percent of the catch.

Alewife - Ninety-eight specimens were taken; collection frequency was 48 (Table 1.1-1). They were collected during January through May, September, November and December (Table 1.1-2). Monthly mean density ranged from 1.3 (September) to 127.0 (March) (Fig. 1.1-4); highest daily density was 423.1 on March 24 (Fig. 1.1-5). Annual percent live, dead, and

damaged were 68, 12, and 19, respectively (Table 1.1-3); monthly (≥ 5 specimens) initial mortality (percent) ranged from 0 (January) to 50 (May). Length range was 58-218 mm FL (Table 1.1-5); all but perhaps seven were age 0+.

American shad - Fifty-nine specimens were taken; collection frequency was 28 (Table 1.1-1). They were collected during March through May and October (Table 1.1-2). Monthly mean density ranged from 5.7 (October) to 57.0 (March) (Fig. 1.1-6); highest daily density was 259.1 on March 24 (Fig. 1.1-7). Annual percent live, dead, and damaged were 71, 5, and 24, respectively (Table 1.1-3); monthly (≥5 specimens) initial mortality (percent) ranged from 0 (May) to 11 (April). Length range was 83-248 mm FL (Table 1.1-6); all but two were age 0+.

Bay anchovy - A total of 5,891 specimens was taken; collection frequency was 301 (Table 1.1-1). They were taken in January, from April through October, and December (Table 1.1-2; Fig. 1.1-8); abundance was greatest during May through July. Monthly mean density ranged from 3.8 (December) to 4,411.3 (June); highest daily density was 11,951.2 on June 4 (Fig. 1.1-9). Annual percent live, dead, and damaged were 50, 48, and 1, respectively (Table 1.1-3); monthly (≥ 5 specimens) initial mortality (percent) ranged from 29 (October) to 58 (May). Length range was 28 to 98 mm FL (Table 1.1-7); the catch was comprised almost exclusively of age 1+ and older.

White perch - A total of 2,746 specimens was taken; collection frequency was 244 (Table 1.1-1). They were collected in all months (Table 1.1-2; Fig. 1.1-10); abundance was greatest during late fall through early spring (Fig. 1.1-11). Monthly mean density ranged from 4.6 (August) to 2,608.7 (December); highest daily density was 10,053.1 on April 7 (Fig. 1.1-11). Annual percent live, dead, and damaged were 60, 6, and 33, respectively (Table 1.1-3); monthly (≥ 5 specimens) initial mortality (percent) ranged from 0 (August, November) to 71 (September). Length range was 28-283 mm FL (Table 1.1-8); age 0+ specimens comprised nearly 90 percent of the catch.

Striped bass - Seventy-one specimens were taken; collection frequency was 40 (Table 1.1-1). They were collected in all months except June (Table 1.1-2; Fig. 1.1-12). Monthly mean density ranged from 0.7 (May, September) to 130.0 (December); highest daily density was 456.9 on December 15 (Fig. 1.1-13). Annual percent live, dead and damaged were 93, 7, and 0, respectively (Table 1.1-3); monthly (≥ 5 specimens) initial mortality (percent) ranged from 0 (February, April, December) to 17 (January). Length range was 58-253 mm FL (Table 1.1-9); all but three were age 0+.

Weakfish - A total of 6,629 was taken; collection frequency was 232. They were collected from May through October (Table 1.1-2; Fig. 1.1-14); abundance was greatest during July through September during which time more than 90 percent of the total was taken. Monthly mean density ranged from 1.8 (May) to 2,708.3 (September); highest daily density was 18,785.1 on September 3 (Fig. 1.1-15). Annual percent live, dead and damaged were 90, 8, and 2, respectively (Table 1.1-3); monthly ($\geq$ 5 specimens) initial mortality (percent) ranged from 5 (September) to 22 (June). Length range was 28-488 mm TL (Table 1.1-10); all but seven were age 0+.

Spot - A total of nine specimens was taken; collection frequency was 9 (Table 1.1-1). Two were taken in May, two in June, three in July and two in August (Table 1.1-2; Fig. 1.1-17). Annual percent live, dead and damaged were 67, 22, and 11, respectively (Table 1.1-3). Length range was 168-203 mm FL (Table 1.1-11); all were age 1+.

Atlantic croaker - A total of 1,462 specimens was taken; collection frequency was 53 (Table 1.1-1). They were collected only in January and December (Table 1.1-2). Monthly mean density was 4,557.7 in January and 221.5 in December (Fig. 1.1-18); highest daily density was 19,938.0 on January 22 (Fig. 1.1-19). Annual percent live, dead and damaged were 41, 18, and 40, respectively (Table 1.1-3). Length range was 23-88 mm TL (Table 1.1-12); all were age 0+.

Table 1.1-1
Annual catch statistics of finfish and blue crab
taken in impingement sampling at Salem CWS during 1987.

Sampling period - JANUARY THROUGH DECEMBER 1987
No. of samples - 542
Total minutes sampled - 1556
Total pump volume sampled (cubic meters) - 8,876,312
Detritus mean density (kg/million cubic meters) - 249.80

Species	CF	Initial Percent L	0	D*	Total Number Collected	Total Weight Collected (g)	Mean Density (n/1E6 cubic meters)
BLUE CRAB	413	97	3	0	10,197	315,922.6	1,252.39
ATLANTIC STURGEON	1	100	0	0	1	431.6	0.08
AMERICAN EEL	42	44	10	46	48	3,859.1	7.38
CONGER EEL	1	100	0	0	1	50.3	0.08
BLUEBACK HERRING	84	63	18	19	231	144,021.1	29.51
ALEWIFE	48	68	12	19	98	1,341.4	11.60
AMERICAN SHAD	28	71	5	24	59	1,063.4	7.07
ATLANTIC MENHADEN	135	37	30	33	221	19,473.9	27.46 — 83.18
GIZZARD SHAD	47	45	3	52	143	3,322.0	19.74
STRIPED ANCHOVY	1	100	0	0	1	9.2	0.07
BAY ANCHOVY	301	50	48	1	5,891	20,865.2	985.03
SILVERY MINNOW	1	0	100	0	1	8.3	0.13
BROWN BULLHEAD	17	82	0	18	33	289.4	3.38
CHANNEL CATFISH	8	75	0	25	12	331.8	1.09
OYSTER TOADFISH	85	94	5	1	135	4,324.9	16.85
RED HAKE	11	65	26	9	34	428.7	3.41
SPOTTED HAKE	40	86	5	8	177	2,307.3	21.61
WHITE HAKE	1	100	0	0	1	8.4	0.08
STRIPED CUSK-EEL	116	81	14	5	266	5,867.2	29.37
ATLANTIC NEEDLEFISH	1	0	100	0	1	3.9	0.09
SHEEPSHEAD MINNOW	1	100	0	0	2	45.1	0.48 — 1144.71

Table 1.1-1
Continued

Sampling period - JANUARY THROUGH DECEMBER 1987
No. of samples - 542
Total minutes sampled - 1356
Total pump volume sampled (cubic meters) - 8,876,312
Detritus mean density (kg/million cubic meters) - 249.80

Species	CF	Initial Percent L	D	D+	Total Number Collected	Total Weight Collected (g)	Mean Density (n/1E6 cubic meters)
BANDED KILLIFISH	1	100	0	0	1	0.7	0.08
MUMMICHOG	4	100	0	0	4	84.0	0.59
STRIPED KILLIFISH	10	70	0	30	10	278.2	1.67
ROUGH SILVERSIDE	1	100	0	0	1	8.0	0.07
TIDEWATER SILVERSIDE	1	100	0	0	1	0.1	0.15
ATLANTIC SILVERSIDE	118	81	12	7	205	861.0	26.36 — 1173.83
THREESPINE STICKLEBACK	9	100	0	0	9	37.1	1.05
LINED SEAHORSE	1	100	0	0	1	1.6	0.09
NORTHERN PIPEFISH	15	100	0	0	18	45.7	2.45
STRIPED SEAROBIN	2	100	0	0	2	2.1	0.32
WHITE PERCH	244	60	6	33	2,746	41,259.1	455.52
STRIPED BASS	40	93	7	0	71	917.7	12.70 — 1645.96
STRIPED BASS HYBRID	1	0	0	100	1	43.0	0.11
BLACK SEA BASS	3	100	0	0	3	12.8	0.44
BLUEGILL	6	100	0	0	7	80.8	1.06
PUMPKINSEED	17	92	0	8	24	110.3	3.68
WHITE CRAPPIE	3	33	67	0	3	10.5	0.27
BLACK CRAPPIE	32	86	7	7	57	201.2	6.23
YELLOW PERCH	4	100	0	0	4	239.2	0.58 — 1658.33
BLUEFISH	46	60	29	11	65	1,086.6	6.91
CREVALLE JACK	3	67	33	0	3	72.8	1665.24 — 0.26
SILVER PERCH	20	86	0	14	28	170.6	2.96
SPOTTED SEA TROUT	2	50	0	50	2	78.0	0.16
WEAKFISH	232	90	8	2	6,629	35,609.6	644.48
SPOT	9	67	22	11	9	843.7	1.28
NORTHERN KINGFISH	2	50	50	0	2	25.9	0.20

2311.58

Table 1.1-1
Continued

Sampling period - JANUARY THROUGH DECEMBER 1987
No. of samples - 542
Total minutes sampled - 1356
Total pump volume sampled (cubic meters) - 8,875,312
Detritus mean density (kg/million cubic meters) - 249.80

Species	CF	Initial Percent L	D	De	Total Number Collected	Total Weight Collected (g)	Mean Density (n/1E6 cubic meters)
ATLANTIC CROAKER	53	41	18	40	1,462	1,428.0	363.40
BLACK DRUM	6	67	17	17	6	785.6	0.68
STRIPED MULLET	12	67	11	22	18	981.7	3.77
WHITE MULLET	1	0	0	100	1	55.4	0.09
NORTHERN STARGAZER	1	100	0	0	1	3.8	0.08
NAKED GOBY	27	97	3	0	32	31.9	3.37
BUTTERFISH	12	50	31	19	16	173.3	1.37
SUMMER FLOUNDER	83	91	6	3	122	13,848.5	16.92
WINDOWPANE	42	99	1	0	71	719.7	12.10
WINTER FLOUNDER	3	100	0	0	3	198.3	0.33
HOGCHOKER	390	99	1	0	7,168	39,180.5	1,053.13

CF = Catch frequency (number of samples in which the species appeared).
L, D, De = Initial percent live, dead and damaged.

Table 1.1-2
Monthly catch statistics of finfish and blue crab
taken in impingement sampling at Salem CWS during 1987.

Sampling period - JANUARY 1987
No. of samples - 42
Total minutes sampled - 77
Total pump volume sampled (cubic meters) - 425,782
Detritus mean density (kg/million cubic meters) - 407.96

Species	CF	Initial Percent L	D	Dt	Total Number Collected	Total Weight Collected (g)	Mean Density (n/1E6 cubic meters)
AMERICAN EEL	4	75	0	25	6	216.0	14.77
BLUEBACK HERRING	6	71	14	14	14	52.5	31.64
ALEWIFE	7	86	0	14	7	90.6	23.17
ATLANTIC MENHADEN	1	0	100	0	1	10.6	1.42
GIZZARD SHAD	20	46	3	51	80	1,803.4	183.68
BAY ANCHOVY	3	0	67	33	3	3.8	7.02
SILVERY MINNOW	1	0	100	0	1	0.3	1.62
STRIPED KILLIFISH	1	100	0	0	1	43.8	1.42
ATLANTIC SILVERSIDE	19	74	13	13	31	114.7	82.82
THREESPINE STICKLEBACK	3	100	0	0	3	16.4	4.30
WHITE PERCH	36	68	3	30	576	4,396.8	1,457.10
STRIPED BASS	6	83	17	0	6	15.0	14.50
ATLANTIC CROAKER	40	40	19	41	1,392	1,273.2	4,557.74
STRIPED MULLET	12	67	11	22	18	981.7	46.62
HOGCHOKER	1	100	0	0	1	2.4	1.89

CF = Catch frequency (number of samples in which the species appeared).
L, D, Dt = Initial percent live, dead and damaged.

Table 1.1-2
Continued

Sampling period - FEBRUARY 1987
No. of samples - 20
Total minutes sampled - 60
Total pump volume sampled (cubic meters) - 605,474
Detritus mean density (kg/million cubic meters) - 1,204.74

Species	CF	Initial Percent L	D	Dt	Total Number Collected	Total Weight Collected (g)	Mean Density (n/1E6 cubic meters)
AMERICAN EEL	1	0	0	100	1	237.7	2.64
BLUEBACK HERRING	2	100	0	0	2	3.4	4.76
ALEWIFE	3	25	25	50	4	15.9	10.31
BLIZZARD SHAD	11	21	7	71	28	1,111.6	72.72
STRIPED KILLIFISH	1	0	0	100	1	45.6	2.64
ATLANTIC SILVERSIDE	15	81	16	3	31	124.1	78.01
THREESPINE STICKLEBACK	2	100	0	0	2	7.1	4.76
WHITE PERCH	15	0	10	90	67	1,258.5	162.10
STRIPED BASS	5	100	0	0	6	45.8	14.54
YELLOW PERCH	1	100	0	0	1	11.0	2.38

CF = Catch frequency (number of samples in which the species appeared).
L, D, Dt = Initial percent live, dead and damaged.

Table 1.1-2
Continued

Sampling period - MARCH 1987
No. of samples - 25
Total minutes sampled - 73
Total pump volume sampled (cubic meters) - 458,497
Detritus mean density (kg/million cubic meters) - 1,209.58

Species	CF	Initial Percent L	D	Dd	Total Number Collected	Total Weight Collected (g)	Mean Density (n/1E6 cubic meters)
BLUE CRAB	1	100	0	0	1	9.3	2.60
AMERICAN EEL	5	63	13	25	8	363.4	16.15
BLUEBACK HERRING	20	74	14	12	108	548.8	229.42
ALEWIFE	15	81	7	12	57	638.9	126.99
AMERICAN SHAD	8	93	4	11	27	444.5	57.92
GIZZARD SHAD	3	60	0	40	5	107.8	9.42
RED HAKE	7	69	24	7	29	334.9	60.10
SPOTTED HAKE	11	87	10	4	82	783.9	175.93
ATLANTIC SILVERSIDE	12	74	16	11	19	103.2	37.98
THREESPINE STICKLEBACK	2	100	0	0	2	9.2	3.85
NORTHERN PIPEFISH	2	100	0	0	2	10.9	4.23
WHITE PERCH	19	38	6	56	166	5,974.4	331.92
STRIPED BASS	1	100	0	0	2	223.6	4.23
PUMPKINSEED	1	100	0	0	2	8.4	3.19
BLACK CRAPPIE	6	91	0	9	11	55.5	22.89
SUMMER FLOUNDER	3	100	0	0	4	85.1	7.69
WINDOWPANE	5	100	0	0	7	503.9	14.04
HOGCHOKER	5	100	0	0	11	61.0	19.90

CF = Catch frequency (number of samples in which the species appeared).
L, D, Dd = Initial percent live, dead and damaged.

Table 1.1-2
Continued

Sampling period - APRIL 1987
No. of samples - 55
Total minutes sampled - 137
Total pump volume sampled (cubic meters) - 939,102
Detritus mean density (kg/million cubic meters) - 921.93

Species	CF	Initial Percent L	Initial Percent D	Initial Percent DI	Total Number Collected	Total Weight Collected (g)	Mean Density (n/1E6 cubic meters)
BLUE CRAB	45	97	3	0	509	5,197.5	469.82
ATLANTIC STURGEON	1	100	0	0	1	431.6	0.79
AMERICAN EEL	10	40	10	50	10	594.5	14.33
BLUEBACK HERRING	30	41	26	33	66	142,506.8	85.71
ALEWIFE	15	37	21	42	19	274.8	24.15
AMERICAN SHAD	11	28	11	61	18	370.6	26.79
ATLANTIC MENHADEN	7	81	0	19	16	2,907.4	12.84
GIZZARD SHAD	2	0	0	100	2	46.3	3.13
BAY ANCHOVY	17	60	33	6	63	144.6	57.81
BROWN BULLHEAD	4	100	0	0	10	30.7	8.20
CHANNEL CATFISH	4	100	0	0	8	25.8	6.29
RED HAKE	4	40	40	20	5	93.9	6.29
SPOTTED HAKE	10	81	0	19	48	461.8	86.31
STRIPED CUSK-EEL	3	67	0	33	3	64.9	3.25
MUMMICHOG	2	100	0	0	2	18.9	2.16
ATLANTIC SILVERSIDE	5	57	29	14	7	38.4	7.90
LINED SEAHORSE	1	100	0	0	1	1.6	0.87
NORTHERN PIPEFISH	2	100	0	0	2	5.8	1.87
WHITE PERCH	55	58	8	34	978	12,175.8	1,703.28
STRIPED BASS	4	100	0	0	6	50.0	10.52
BLUEGILL	3	100	0	0	4	50.0	5.11
PUMPKINSEED	12	89	0	11	18	82.5	30.06
WHITE CRAPPIE	2	50	50	0	2	8.8	1.87
BLACK CRAPPIE	22	85	10	5	41	127.5	46.92
YELLOW PERCH	1	100	0	0	1	57.1	1.62
SUMMER FLOUNDER	12	94	0	6	17	2,200.1	15.92
WINTER FLOUNDER	3	100	0	0	3	198.3	3.25
HOGCHOKER	45	98	1	1	276	4,322.2	296.33

CF = Catch frequency (number of samples in which the species appeared).
L, D, DI = Initial percent live, dead and damaged

Table 1.1-2
Continued

Sampling period - MAY 1987
No. of samples - 45
Total minutes sampled - 130
Total pump volume sampled (cubic meters) - 1,028,741
Cetritus mean density (No/million cubic meters) - 161.34

Species	CF	Initial Percent L	D	DS	Total Number Collected	Total Weight Collected (g)	Mean Density (n/1E6 cubic meters)
BLUE CRAB	43	98	2	0	1,213	23,500.8	1,522.44
AMERICAN EEL	10	45	18	36	11	981.4	14.90
BLUEBACK HERRING	9	62	15	23	13	719.8	16.56
ALEWIFE	4	50	30	0	6	282.1	3.99
AMERICAN SHAD	8	100	0	0	13	243.4	12.18
ATLANTIC MENHADEN	41	43	17	39	69	6,512.1	81.26
BAY ANCHOVY	42	55	45	1	841	2,658.7	1,236.15
BROWN BULLHEAD	7	69	0	31	16	199.6	13.63
CHANNEL CATFISH	2	0	0	100	2	134.1	2.50
OYSTER TOADFISH	2	100	0	0	2	303.1	2.91
SPOTTED HAKE	19	91	2	6	47	1,061.6	39.33
STRIPED CUSK-EEL	8	82	9	9	11	278.3	15.26
ATLANTIC SILVERSIDE	13	85	0	15	20	136.6	17.33
NORTHERN PIPEFISH	4	100	0	0	6	10.5	10.07
WHITE PERCH	31	49	22	29	164	7,888.1	156.66
STRIPED BASS	1	0	100	0	1	9.4	0.67
BLACK SEA BASS	3	100	0	0	3	12.8	3.86
PUMPKINSEED	4	100	0	0	4	19.4	3.25
WHITE CRAPPIE	1	0	100	0	1	1.7	0.67
BLACK CRAPPIE	4	80	0	20	5	18.2	3.41
WEAKFISH	1	100	0	0	1	119.8	1.83
SPOT	2	50	0	50	2	140.9	2.75
NAKED GOBY	1	100	0	0	1	2.3	1.83
SUMMER FLOUNDER	28	96	2	2	46	6,800.8	59.99
WINDOWPANE	14	95	5	0	22	143.1	26.13
HOGCHOKER	64	97	2	1	677	6,020.3	766.12

CF = Catch frequency (number of samples in which the species appeared).
L, D, DS = Initial percent live, dead and damaged.

Table 1.1-2
Continued

Sampling period - JUNE 1987
No. of samples - 65
Total minutes sampled - 117
Total pump volume sampled (cubic meters) - 884,479
Detritus mean density (kg/million cubic meters) - 138.26

Species	CF	Initial Percent L	D	DI	Total Number Collected	Total Weight Collected (g)	Mean Density (n/1E6 cubic meters)
BLUE CRAB	65	96	3	0	2,735	90,317.6	3,767.04
AMERICAN EEL	3	33	0	67	3	213.0	4.33
BLUEBACK HERRING	8	50	50	0	8	107.7	12.02
ATLANTIC MENHADEN	19	48	37	15	27	1,888.4	42.26
BAY ANCHOVY	65	42	58	0	2,368	9,823.1	4,411.30
BROWN BULLHEAD	5	83	0	17	6	45.3	6.82
CHANNEL CATFISH	2	50	0	50	2	171.9	1.28
OYSTER TOADFISH	26	98	2	0	45	729.2	58.64
STRIPED CUSK-EEL	19	97	0	3	37	1,126.6	51.93
HUMMICHOG	1	100	0	0	1	4.6	2.44
TIDEWATER SILVERSIDE	1	100	0	0	1	0.1	1.22
ATLANTIC SILVERSIDE	7	83	0	17	12	90.7	12.87
NORTHERN PIPEFISH	2	100	0	0	2	12.8	1.53
WHITE PERCH	14	41	41	18	17	1,087.1	17.23
BLUEGILL	2	100	0	0	2	29.4	3.81
BLUEFISH	11	69	23	8	13	38.4	15.22
WEAKFISH	24	78	22	1	179	921.1	199.49
SPOT	2	100	0	0	2	142.9	2.39
NAKED GOBY	2	100	0	0	2	2.5	2.75
SUMMER FLOUNDER	19	90	10	0	30	1,733.9	42.70
WINDOWPANE	18	100	0	0	35	49.5	59.90
HOGCHOKER	64	99	1	0	2,604	7,745.7	3,693.44

CF = Catch frequency (number of samples in which the species appeared).
L, D, DI = Initial percent live, dead and damaged.

Table 1.1-2
Continued

Sampling period - JULY 1987
No. of samples - 70
Total minutes sampled - 159
Total pump volume sampled (cubic meters) - 1,181,406
Detritus mean density (kg/million cubic meters) - 249.75

Species	CF	Initial Percent L	D	DI	Total Number Collected	Total Weight Collected (g)	Mean Density (n/1E6 cubic meters)
BLUE CRAB	70	97	2	0	1,272	84,751.6	1,093.75
AMERICAN EEL	8	30	10	60	10	813.1	10.60
BLUEBACK HERRING	2	50	0	50	2	13.8	1.32
ATLANTIC MENHADEN	24	36	48	15	33	1,896.3	32.50
GIZZARD SHAD	1	0	0	100	1	7.2	0.82
BAY ANCHOVY	60	58	41	1	1,674	5,939.5	3,401.86
BROWN BULLHEAD	1	100	0	0	1	13.8	0.76
OYSTER TOADFISH	33	90	8	2	60	1,789.5	54.17
STRIPED CUSK-EEL	30	83	12	5	51	1,693.3	56.98
SHEEPSHEAD MINNOW	1	100	0	0	2	45.1	3.71
ATLANTIC SILVERSIDE	3	67	33	0	3	13.6	2.64
WHITE PERCH	14	29	43	29	14	1,123.6	11.40
STRIPED BASS	1	100	0	0	1	0.8	0.93
YELLOW PERCH	1	100	0	0	1	32.8	1.85
BLUEFISH	9	70	30	0	10	95.4	12.35
WEAKFISH	70	85	13	2	1,275	8,191.8	1,253.91
SPOT	3	33	67	0	3	309.2	3.61
NAKED GOBY	3	100	0	0	3	2.9	1.80
SUMMER FLOUNDER	9	83	17	0	12	882.3	10.67
MENOMPANE	7	100	0	0	7	23.2	8.82
HOGCHOKER	70	99	1	0	2,452	10,468.9	2,941.19

CF = Catch frequency (number of samples in which the species appeared).
L, D, DI = Initial percent live, dead and damaged.

Table 1.1-2
Continued

Sampling period - AUGUST 1987
No. of samples - 65
Total minutes sampled - 198
Total pump volume sampled (cubic meters) - 1,252,837
Detritus mean density (kg/million cubic meters) - 655.66

Species	CF	Initial Percent L	D	DS	Total Number Collected	Total Weight Collected (g)	Mean Density (n/100 cubic meters)
BLUE CRAB	64	97	3	0	877	69,848.1	736.29
ATLANTIC MENHADEN	23	11	32	57	47	4,896.8	36.98
STRIPED ANCHOVY	1	100	0	0	1	9.2	0.81
BAY ANCHOVY	33	59	35	3	74	211.7	2,310.71
OYSTER TOADFISH	10	100	0	0	10	531.0	7.17
STRIPED CUSK-EEL	15	76	14	10	21	383.4	17.24
MUMMICHOG	1	100	0	0	1	0.5	0.81
ROUGH SILVERSIDE	1	100	0	0	1	8.0	0.81
ATLANTIC SILVERSIDE	3	100	0	0	3	8.0	2.84
NORTHERN PIPEFISH	1	100	0	0	1	0.3	0.81
STRIPED SEAROBIN	1	100	0	0	1	1.6	0.81
WHITE PERCH	5	40	0	60	5	687.1	4.57
STRIPED BASS	1	0	100	0	1	87.0	1.22
BLUEFISH	3	75	25	0	4	70.4	2.55
CREVALLE JACK	1	100	0	0	1	2.0	0.81
WEAKFISH	64	89	9	1	1,317	4,759.5	1,168.39
SPOT	2	100	0	0	2	254.7	1.48
BLACK DRUM	1	100	0	0	1	51.6	0.81
NAKED GOBY	6	100	0	0	11	5.6	8.10
BUTTERFISH	1	0	100	0	1	2.6	1.46
SUMMER FLOUNDER	4	100	0	0	4	827.9	2.81
HOGCHOKER	56	97	1	2	438	4,220.1	373.89

CF = Catch frequency (number of samples in which the species appeared).
L, D, DS = Initial percent live, dead and damaged.

Table 1.1-2
Continued

Sampling period - SEPTEMBER 1987
No. of samples - 65
Total minutes sampled - 189
Total pump volume sampled (cubic meters) - 1,456,024
Detritus mean density (kg/million cubic meters) - 847.47

Species	CF	Initial Percent I	D	DS	Total Number Collected	Total Weight Collected (g)	Mean Density (n/1E6 cubic meters)
BLUE CRAB	45	98	2	0	2,503	52,170.1	1,721.84
CONGER EEL	1	100	0	0	1	30.3	0.67
BLUEBACK HERRING	1	0	0	100	1	2.5	0.67
ALEWIFE	2	50	0	50	2	17.0	1.33
ATLANTIC MENHADEN	15	11	56	33	18	1,010.0	12.12
GIZZARD SHAD	1	100	0	0	1	4.1	0.67
BAY ANCHOVY	47	54	41	5	477	1,447.5	344.14
OYSTER TOADFISH	12	94	6	0	16	902.4	10.85
STRIPED CUSK-EEL	36	76	20	4	130	2,239.5	92.00
ATLANTIC NEEDLEFISH	1	0	100	0	1	3.9	0.73
BANDED KILLIFISH	1	100	0	0	1	0.7	0.67
ATLANTIC SILVERSIDE	19	86	14	0	35	73.4	23.42
NORTHERN PIPEFISH	3	100	0	0	3	2.0	1.94
STRIPED SEAROBIN	1	100	0	0	1	0.7	1.83
WHITE PERCH	5	0	71	29	7	1,171.2	4.73
STRIPED BASS	1	100	0	0	1	6.9	0.67
BLUEGILL	1	100	0	0	1	1.4	0.67
BLUEFISH	18	52	29	19	31	723.0	20.79
CREVALLE JACK	1	0	100	0	1	66.7	0.67
SILVER PERCH	10	87	0	13	15	63.9	10.12
SPOTTED SEATROUT	1	100	0	0	1	40.5	0.67
WEAKFISH	60	94	5	1	3,529	18,815.3	2,708.33
NORTHERN KINGFISH	1	0	100	0	1	2.3	0.67
BLACK DRUM	2	0	50	50	2	242.4	1.33
NAKED GOBY	12	92	8	0	12	11.9	9.53
BUTTERFISH	8	67	17	17	12	105.8	7.98
SUMMER FLOUNDER	5	60	20	20	5	497.9	3.40
HOGCHOKER	59	97	1	1	475	4,679.1	322.33

CF = Catch frequency (number of samples in which the species appeared).

Table 1.1-2
Continued

Sampling period - OCTOBER 1987
No. of samples - 25
Total minutes sampled - 118
Total pump volume sampled (cubic meters) - 366,257
Detritus mean density (kg/million cubic meters) - 167.28

Species	CF	Initial Percent L	D	DI	Total Number Collected	Total Weight Collected (g)	Mean Density (n/1E6 cubic meters)
BLUE CRAB	23	97	3	0	952	9,341.2	2,236.35
BLUEBACK HERRING	2	50	50	0	2	15.3	4.90
AMERICAN SHAD	1	100	0	0	1	4.9	5.71
ATLANTIC MENHADEN	6	70	30	0	10	353.3	24.92
GIZZARD SHAD	1	0	0	100	1	47.6	1.73
BAY ANCHOVY	13	65	29	5	190	632.4	444.20
OYSTER TOADFISH	2	100	0	0	3	69.7	6.63
STRIPED CUSK-EEL	5	100	0	0	5	81.2	15.69
ATLANTIC SILVERSIDE	7	83	8	8	12	28.9	28.44
NORTHERN PIPEFISH	1	100	0	0	1	1.3	1.73
WHITE PERCH	3	75	25	0	4	186.8	10.90
STRIPED BASS	8	89	11	0	9	115.7	21.29
BLUEFISH	5	57	43	0	7	159.4	14.89
CREVALLE JACK	1	100	0	0	1	4.1	1.73
SILVER PERCH	7	100	0	0	10	73.2	20.77
SPOTTED SEATROUT	1	0	0	100	1	17.5	1.73
WEAKFISH	13	85	6	9	278	2,802.1	352.78
NORTHERN KINGFISH	1	100	0	0	1	23.6	2.60
BLACK DRUM	1	100	0	0	1	154.3	2.60
NORTHERN STARGAZER	1	100	0	0	1	3.8	1.73
NAKED GOBY	2	100	0	0	2	2.1	4.50
BUTTERFISH	3	0	67	33	3	84.9	5.37
SUMMER FLOUNDER	2	67	0	33	3	722.8	5.37
HOGCHOKER	18	98	1	1	222	1,370.9	462.26

CF = Catch frequency (number of samples in which the species appeared).
L, D, DI = Initial percent live, dead and damaged.

Table 1.1-2
Continued

Sampling period - NOVEMBER 1987
No. of samples - 20
Total minutes sampled - 200
Total pump volume sampled (cubic meters) - 140,060
Detritus mean density (kg/million cubic meters) - 139.23

Species	CF	Initial Percent L	D	Dt	Total Number Collected	Total Weight Collected (g)	Mean Density (n/100 cubic meters)
BLUE CRAB	15	100	0	0	113	761.3	806.80
AMERICAN EEL	1	0	0	100	1	440.0	7.14
ALEWIFE	1	100	0	0	1	3.4	7.14
STRIPED KILLIFISH	2	100	0	0	2	30.4	14.28
ATLANTIC SILVERSIDE	3	75	25	0	12	27.6	85.68
NORTHERN PIPEFISH	1	100	0	0	1	2.1	7.14
WHITE PERCH	4	88	0	12	25	481.2	178.49
STRIPED BASS	5	89	11	0	9	98.3	64.26
SILVER PERCH	3	33	0	67	3	33.7	21.42
BLACK DRUM	2	100	0	0	2	337.3	14.28
NAKED GOBY	1	100	0	0	1	4.8	7.14
SUMMER FLOUNDER	1	100	0	0	1	97.7	7.14
HOGCHOKER	3	100	0	0	5	37.4	35.70

CF = Catch frequency (number of samples in which the species appeared).
L, D, Dt = Initial percent live, dead and damaged.

Table 1.1-2
Continued

Sampling period - DECEMBER 1987
No. of samples - 25
Total minutes sampled - 100
Total zone volume sampled (cubic meters) - 335,444
Detritus mean density (kg/million cubic meters) - 597.24

Species	CF	Initial Percent L	D	DI	Total Number Collected	Total Weight Collected (g)	Mean Density (n/IE6 cubic meters)
BLUE CRAB	2	100	0	0	2	25.1	7.62
BLUEBACK HERRING	4	87	0	13	15	50.5	82.38
ALEWIFE	1	100	0	0	2	18.7	4.57
GIZZARD SHAD	6	67	0	33	27	194.0	75.52
BAY ANCHOVY	1	100	0	0	1	3.9	3.81
STRIPED KILLIFISH	6	67	0	33	6	138.4	20.29
ATLANTIC SILVERSIDE	12	35	0	5	20	101.8	67.11
THREESPINE STICKLEBACK	2	100	0	0	2	4.4	7.62
WHITE PERCH	21	72	2	27	723	5,728.5	2,608.68
STRIPED BASS	9	100	0	0	29	235.2	130.04
YELLOW PERCH	1	100	0	0	1	138.5	1.90
ATLANTIC CROAKER	13	74	1	24	70	154.8	221.49
WHITE MULLET	1	0	0	100	1	55.4	1.90
HOGCHOKER	5	86	0	14	7	52.5	25.13

CF = Catch frequency (number of samples in which the species appeared).
L, D, DI = Initial percent live, dead and damaged.

Table 1.1-3
Monthly and annual percent of specimens live (L), dead (D), and damaged (D*) for target species taken in impingement sampling at Salem CWS during 1987.

	Blueback Herring				Alewife				American Shad				Bay Anchovy				White Perch			
	n	L	D	D*	n	L	D	D*	n	L	D	D*	n	L	D	D*	n	L	D	D*
January	14	71	14	14	7	86	0	14	-	-	-	-	3	0	67	33	576	68	3	30
February	2	100	0	0	4	25	25	50	-	-	-	-	-	-	-	-	67	0	10	90
March	108	74	14	12	57	81	7	12	27	85	4	11	-	-	-	-	166	38	6	56
April	66	41	26	33	19	37	21	42	18	28	11	61	63	60	33	6	978	58	8	34
May	13	62	15	23	6	50	50	0	13	100	0	0	841	55	45	1	164	49	22	29
June	8	50	50	0	-	-	-	-	-	-	-	-	2,568	42	58	0	17	41	41	18
July	2	50	0	50	-	-	-	-	-	-	-	-	1,674	58	41	1	14	29	43	29
August	-	-	-	-	-	-	-	-	-	-	-	-	74	59	35	5	5	40	0	60
September	1	0	0	100	2	50	0	50	-	-	-	-	477	54	41	5	7	0	71	29
October	2	50	50	0	-	-	-	-	1	100	0	0	190	65	29	5	4	75	25	0
November	-	-	-	-	1	100	0	0	-	-	-	-	-	-	-	-	25	88	0	12
December	15	87	0	13	2	100	0	0	-	-	-	-	1	100	0	0	723	72	2	27
Annual	231	63	18	19	98	68	12	19	59	71	5	24	5,891	50	48	1	2,746	60	6	33

	Striped Bass				Weakfish				Spot				Atlantic Croaker			
	n	L	D	D*	n	L	D	D*	n	L	D	D*	n	L	D	D*
January	6	83	17	0	-	-	-	-	-	-	-	-	1,392	40	19	41
February	6	100	0	0	-	-	-	-	-	-	-	-	-	-	-	-
March	2	100	0	0	-	-	-	-	-	-	-	-	-	-	-	-
April	6	100	0	0	-	-	-	-	-	-	-	-	-	-	-	-
May	1	0	100	0	1	100	0	0	2	50	0	50	-	-	-	-
June	-	-	-	-	179	78	22	1	2	100	0	0	-	-	-	-
July	1	100	0	0	1,275	85	13	2	3	33	67	0	-	-	-	-
August	1	0	100	0	1,317	89	9	1	2	100	0	0	-	-	-	-
September	1	100	0	0	3,579	94	5	1	-	-	-	-	-	-	-	-
October	9	89	11	0	278	85	6	9	-	-	-	-	-	-	-	-
November	9	89	11	0	-	-	-	-	-	-	-	-	-	-	-	-
December	29	100	0	0	-	-	-	-	-	-	-	-	70	74	1	24
Annual	71	93	7	0	6,629	90	8	2	9	67	22	11	1,462	41	18	40

Table 1.1-4
Length frequency of blueback herring taken in impingement sampling at Salem Generating Station in 1987.

Length (mm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
51 - 55	0	0	0	0	0	0	0	0	0	0	0	1
56 - 60	1	0	0	0	0	0	0	0	0	0	0	0
61 - 65	1	0	3	0	0	0	1	0	0	0	0	1
66 - 70	3	2	10	1	0	0	0	0	1	0	0	4
71 - 75	1	0	22	6	0	0	0	0	0	1	0	3
76 - 80	4	0	18	2	0	0	0	0	0	0	0	3
81 - 85	2	0	27	9	0	0	0	0	0	0	0	2
86 - 90	2	0	12	8	1	0	0	0	0	0	0	1
91 - 95	0	0	6	13	3	0	0	0	0	0	0	0
96 - 100	0	0	4	7	1	0	0	0	0	0	0	0
101 - 105	0	0	3	6	1	0	0	0	0	0	0	0
106 - 110	0	0	0	2	0	1	1	0	0	0	0	0
111 - 115	0	0	0	0	0	1	0	0	0	0	0	0
116 - 120	0	0	0	0	0	2	0	0	0	1	0	0
121 - 125	0	0	0	1	0	0	0	0	0	0	0	0
126 - 130	0	0	1	0	0	0	0	0	0	0	0	0
131 - 135	0	0	0	0	0	0	0	0	0	0	0	0
136 - 140	0	0	0	0	0	0	0	0	0	0	0	0
141 - 145	0	0	0	0	0	0	0	0	0	0	0	0
146 - 150	0	0	0	3	0	0	0	0	0	0	0	0
151 - 155	0	0	0	1	1	0	0	0	0	0	0	0
156 - 160	0	0	0	1	0	0	0	0	0	0	0	0
161 - 165	0	0	0	0	0	0	0	0	0	0	0	0
166 - 170	0	0	0	0	0	0	0	0	0	0	0	0
171 - 175	0	0	0	0	0	0	0	0	0	0	0	0
176 - 180	0	0	0	0	1	0	0	0	0	0	0	0
181 - 185	0	0	0	0	1	0	0	0	0	0	0	0
186 - 190	0	0	0	0	0	0	0	0	0	0	0	0
191 - 195	0	0	0	0	0	0	0	0	0	0	0	0
196 - 200	0	0	0	0	0	0	0	0	0	0	0	0
201 - 205	0	0	0	0	0	0	0	0	0	0	0	0
206 - 210	0	0	0	0	0	0	0	0	0	0	0	0
211 - 215	0	0	0	0	2	0	0	0	0	0	0	0
216 - 220	0	0	0	0	1	0	0	0	0	0	0	0
221 - 225	0	0	0	1	0	0	0	0	0	0	0	0
226 - 230	0	0	0	0	0	0	0	0	0	0	0	0
231 - 235	0	0	0	2	0	0	0	0	0	0	0	0
236 - 240	0	0	0	1	0	0	0	0	0	0	0	0
241 - 245	0	0	0	0	0	0	0	0	0	0	0	0
246 - 250	0	0	0	0	0	0	0	0	0	0	0	0
251 - 255	0	0	0	0	0	0	0	0	0	0	0	0
256 - 260	0	0	0	0	0	0	0	0	0	0	0	0
261 - 265	0	0	0	0	0	0	0	0	0	0	0	0
266 - 270	0	0	0	0	0	0	0	0	0	0	0	0
271 - 275	0	0	0	0	0	0	0	0	0	0	0	0
276 - 280	0	0	0	0	0	0	0	0	0	0	0	0
281 - 285	0	0	0	0	1	0	0	0	0	0	0	0

Table 1.1-5
Length frequency of alewife taken in impingement sampling at Salem Generating Station in 1987.

Length (mm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
56 - 60	1	0	0	0	0	0	0	0	0	0	0	0
61 - 65	0	0	0	0	0	0	0	0	0	0	0	0
66 - 70	0	0	3	0	0	0	0	0	0	0	1	0
71 - 75	2	1	2	0	0	0	0	0	0	0	0	1
76 - 80	0	1	1	0	0	0	0	0	0	0	0	0
81 - 85	1	1	6	0	0	0	0	0	0	0	0	1
86 - 90	0	0	5	0	1	0	0	0	1	0	0	0
91 - 95	1	0	6	2	0	0	0	0	0	0	0	0
96 - 100	1	0	1	3	0	0	0	0	0	0	0	0
101 - 105	0	0	4	5	1	0	0	0	0	0	0	0
106 - 110	0	0	5	3	0	0	0	0	0	0	0	0
111 - 115	0	0	4	0	0	0	0	0	1	0	0	0
116 - 120	0	0	2	0	0	0	0	0	0	0	0	0
121 - 125	0	0	3	1	2	0	0	0	0	0	0	0
126 - 130	0	0	1	1	0	0	0	0	0	0	0	0
131 - 135	0	0	0	0	0	0	0	0	0	0	0	0
136 - 140	0	0	0	1	0	0	0	0	0	0	0	0
141 - 145	1	0	0	1	0	0	0	0	0	0	0	0
146 - 150	0	0	1	0	0	0	0	0	0	0	0	0
151 - 155	0	0	0	0	0	0	0	0	0	0	0	0
156 - 160	0	0	0	0	0	0	0	0	0	0	0	0
161 - 165	0	0	0	0	0	0	0	0	0	0	0	0
166 - 170	0	1	0	0	0	0	0	0	0	0	0	0
171 - 175	0	0	0	0	0	0	0	0	0	0	0	0
176 - 180	0	0	0	0	0	0	0	0	0	0	0	0
181 - 185	0	0	0	0	0	0	0	0	0	0	0	0
186 - 190	0	0	1	0	0	0	0	0	0	0	0	0
191 - 195	0	0	0	0	0	0	0	0	0	0	0	0
196 - 200	0	0	1	0	0	0	0	0	0	0	0	0
201 - 205	0	0	0	0	0	0	0	0	0	0	0	0
206 - 210	0	0	0	0	0	0	0	0	0	0	0	0
211 - 215	0	0	0	0	0	0	0	0	0	0	0	0
216 - 220	0	0	0	0	2	0	0	0	0	0	0	0

Table 1.1-6
Length frequency of American shad taken in impingement sampling at Salem Generating Station in 1987.

Length(mm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
81 - 85	0	0	0	0	0	0	0	0	0	1	0	0
86 - 90	0	0	2	2	0	0	0	0	0	0	0	0
91 - 95	0	0	4	5	0	0	0	0	0	0	0	0
96 - 100	0	0	3	3	0	0	0	0	0	0	0	0
101 - 105	0	0	1	2	2	0	0	0	0	0	0	0
106 - 110	0	0	1	1	1	0	0	0	0	0	0	0
111 - 115	0	0	2	0	4	0	0	0	0	0	0	0
116 - 120	0	0	1	0	3	0	0	0	0	0	0	0
121 - 125	0	0	1	0	0	0	0	0	0	0	0	0
126 - 130	0	0	0	0	0	0	0	0	0	0	0	0
131 - 135	0	0	2	0	2	0	0	0	0	0	0	0
136 - 140	0	0	0	1	0	0	0	0	0	0	0	0
141 - 145	0	0	1	0	0	0	0	0	0	0	0	0
146 - 150	0	0	0	0	1	0	0	0	0	0	0	0
151 - 155	0	0	1	0	0	0	0	0	0	0	0	0
-												
-												
216 - 220	0	0	1	0	0	0	0	0	0	0	0	0
221 - 225	0	0	0	0	0	0	0	0	0	0	0	0
226 - 230	0	0	0	0	0	0	0	0	0	0	0	0
231 - 235	0	0	0	0	0	0	0	0	0	0	0	0
236 - 240	0	0	0	0	0	0	0	0	0	0	0	0
241 - 245	0	0	0	0	0	0	0	0	0	0	0	0
246 - 250	0	0	0	1	0	0	0	0	0	0	0	0

Table 1.1-7
Length frequency of bay anchovy taken in impingement sampling at Salem Generating Station in 1987.

Length(mm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
26 - 30	0	0	0	0	0	0	0	1	1	0	0	0
31 - 35	0	0	0	0	0	0	0	1	0	0	0	0
36 - 40	0	0	0	0	0	0	0	0	0	2	0	0
41 - 45	0	0	0	0	1	0	1	1	6	1	0	0
46 - 50	2	0	0	2	7	5	4	1	8	1	0	0
51 - 55	0	0	0	7	24	24	19	4	14	0	0	0
56 - 60	0	0	0	10	67	67	54	1	15	5	0	0
61 - 65	0	0	0	16	115	149	173	17	43	12	0	0
66 - 70	0	0	0	9	149	367	292	19	94	27	0	1
71 - 75	0	0	0	9	145	649	371	13	137	60	0	0
76 - 80	0	0	0	3	141	505	240	8	74	48	0	0
81 - 85	1	0	0	5	83	282	125	2	22	15	0	0
86 - 90	0	0	0	3	30	59	20	0	1	2	0	0
91 - 95	0	0	0	0	1	9	5	0	0	0	0	0
96 - 100	0	0	0	0	0	2	0	0	0	0	0	0

Table 1.1-8
Length frequency of white perch taken in impingement sampling at Salem Generating Station in 1987.

Length (mm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
26 - 30	0	0	0	0	0	1	0	0	0	0	0	0
31 - 35	0	0	0	0	0	0	0	0	0	0	0	0
36 - 40	0	0	0	0	0	0	0	0	0	0	0	0
41 - 45	0	0	0	0	0	0	0	0	0	0	0	0
46 - 50	0	0	2	0	0	0	0	0	0	0	0	10
51 - 55	2	2	0	7	0	0	0	0	0	0	0	26
56 - 60	16	7	3	27	2	0	0	0	0	0	0	46
61 - 65	51	7	7	51	7	0	0	0	0	1	0	83
66 - 70	83	13	5	100	7	0	0	0	0	0	1	134
71 - 75	123	18	10	141	4	0	0	0	0	0	1	132
76 - 80	78	5	12	122	17	0	0	0	0	0	0	78
81 - 85	53	4	17	77	14	0	0	0	0	0	1	52
86 - 90	31	2	11	45	10	0	0	0	0	0	1	29
91 - 95	15	0	10	44	6	0	0	0	0	0	1	32
96 - 100	11	0	7	23	8	0	0	0	0	0	1	11
101 - 105	2	0	7	15	4	0	0	0	0	0	1	7
106 - 110	3	0	3	7	4	0	0	0	0	0	6	22
111 - 115	0	1	1	5	2	0	0	0	0	0	1	17
116 - 120	1	0	2	6	2	0	0	0	0	0	4	9
121 - 125	3	0	2	6	0	1	0	0	0	0	3	10
126 - 130	3	0	6	6	1	0	0	0	0	1	1	6
131 - 135	2	0	5	5	2	0	0	0	0	0	2	10
136 - 140	3	0	5	7	4	0	0	0	0	0	0	1
141 - 145	0	0	5	9	6	1	0	0	0	0	1	2
146 - 150	1	0	5	4	3	1	0	0	0	1	0	0
151 - 155	1	0	3	6	3	2	2	0	0	0	0	2
156 - 160	0	0	10	10	5	1	0	0	1	0	0	2
161 - 165	1	1	3	7	6	3	1	0	0	0	0	1
166 - 170	2	1	6	3	6	0	0	0	0	0	0	0
171 - 175	1	0	6	0	1	0	0	0	0	0	0	0
176 - 180	0	0	1	3	1	0	0	1	0	0	0	0
181 - 185	1	0	0	2	3	0	2	0	0	0	0	0
186 - 190	0	0	2	4	1	1	0	0	0	0	0	0
191 - 195	0	2	2	3	3	0	0	0	1	1	0	0
196 - 200	0	0	3	3	1	0	0	2	0	0	0	0
201 - 205	0	1	0	0	5	2	1	1	0	0	0	1
206 - 210	0	0	0	1	6	0	1	0	0	0	0	0
211 - 215	0	1	1	0	1	0	1	0	1	0	0	0
216 - 220	0	0	0	0	2	0	1	0	0	0	0	0
221 - 225	0	0	0	1	0	0	0	0	1	0	0	0
226 - 230	0	1	0	2	0	0	0	0	1	0	0	0
231 - 235	0	0	0	1	1	0	0	0	0	0	0	0
236 - 240	0	0	0	0	0	0	0	0	0	0	0	0
241 - 245	0	0	0	0	0	0	0	1	0	0	0	0
246 - 250	0	0	0	0	0	0	0	0	0	0	0	0
251 - 255	0	0	0	0	0	0	0	0	0	0	0	0
256 - 260	0	0	0	0	0	0	0	0	1	0	0	0
261 - 265	0	0	0	0	0	0	0	0	0	0	0	0
266 - 270	0	0	0	0	1	0	0	0	0	0	0	0
271 - 275	0	0	0	0	0	0	0	0	0	0	0	0
276 - 280	0	0	0	0	0	0	0	0	0	0	0	0
281 - 285	0	0	0	0	1	0	0	0	0	0	0	0

Table 1.1-9
Length frequency of striped bass taken in impingement sampling at Salem Generating Station in 1987.

Length (mm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
56 - 60	0	0	0	1	0	0	0	0	0	0	0	0
61 - 65	0	1	0	1	0	0	0	0	0	0	0	0
66 - 70	1	1	0	2	0	0	0	0	0	0	0	2
71 - 75	0	1	0	0	0	0	0	0	0	0	1	4
76 - 80	3	0	0	0	0	0	0	0	0	1	1	4
81 - 85	1	2	0	0	0	0	0	0	0	0	2	4
86 - 90	1	0	0	0	1	0	0	0	1	2	0	2
91 - 95	0	0	0	1	0	0	0	0	0	0	1	6
96 - 100	0	0	1	0	0	0	0	0	0	1	1	6
101 - 105	0	0	0	0	0	0	0	0	0	2	0	0
106 - 110	0	0	0	0	0	0	0	0	0	1	1	1
111 - 115	0	0	0	0	0	0	0	0	0	0	1	0
116 - 120	0	0	0	0	0	0	1	0	0	1	0	0
121 - 125	0	1	0	0	0	0	0	0	0	1	1	0
126 - 130	0	0	0	1	0	0	0	0	0	0	0	0
-												
-												
221 - 225	0	0	0	0	0	0	0	1	0	0	0	0
226 - 230	0	0	0	0	0	0	0	0	0	0	0	0
231 - 235	0	0	0	0	0	0	0	0	0	0	0	0
236 - 240	0	0	0	0	0	0	0	0	0	0	0	0
241 - 245	0	0	0	0	0	0	0	0	0	0	0	0
246 - 250	0	0	0	0	0	0	0	0	0	0	0	0
251 - 255	0	0	1	0	0	0	0	0	0	0	0	0

Table 1.1-10
Length frequency of weakfish taken in impingement sampling at Salem Generating Station in 1987.

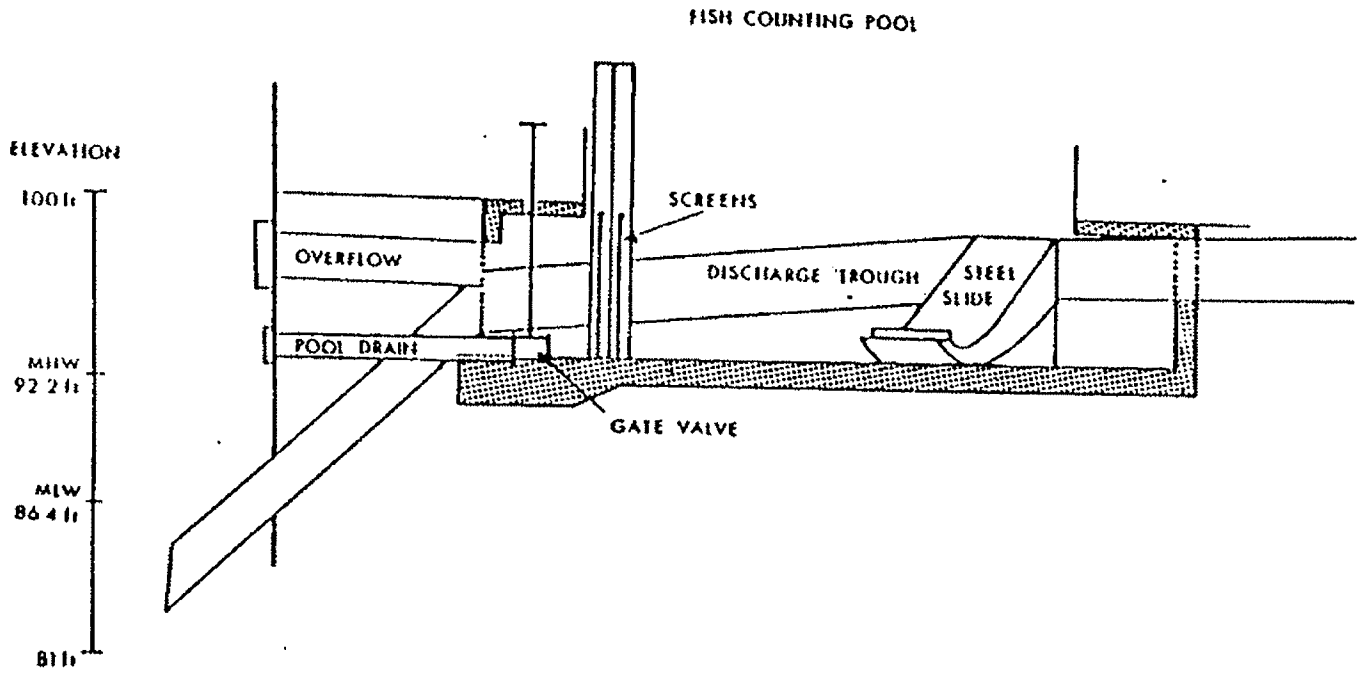
Length(mm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
26 - 30	0	0	0	0	0	1	0	0	0	0	0	0
31 - 35	0	0	0	0	0	0	0	1	0	0	0	0
36 - 40	0	0	0	0	0	2	0	3	1	0	0	0
41 - 45	0	0	0	0	0	0	1	10	1	0	0	0
46 - 50	0	0	0	0	0	3	5	38	5	0	0	0
51 - 55	0	0	0	0	0	13	19	106	11	1	0	0
56 - 60	0	0	0	0	0	29	33	183	25	2	0	0
61 - 65	0	0	0	0	0	54	87	180	62	5	0	0
66 - 70	0	0	0	0	0	51	121	123	98	7	0	0
71 - 75	0	0	0	0	0	15	139	97	114	10	0	0
76 - 80	0	0	0	0	0	6	169	59	125	15	0	0
81 - 85	0	0	0	0	0	0	153	37	149	6	0	0
86 - 90	0	0	0	0	0	0	126	25	167	15	0	0
91 - 95	0	0	0	0	0	0	102	19	182	10	0	0
96 - 100	0	0	0	0	0	0	88	8	140	27	0	0
101 - 105	0	0	0	0	0	0	52	8	78	27	0	0
106 - 110	0	0	0	0	0	0	32	13	38	30	0	0
111 - 115	0	0	0	0	0	0	20	11	31	29	0	0
116 - 120	0	0	0	0	0	0	16	9	14	14	0	0
121 - 125	0	0	0	0	0	1	6	6	5	8	0	0
126 - 130	0	0	0	0	0	0	5	11	9	6	0	0
131 - 135	0	0	0	0	0	0	2	4	1	7	0	0
136 - 140	0	0	0	0	0	0	0	6	1	3	0	0
141 - 145	0	0	0	0	0	0	1	4	3	0	0	0
146 - 150	0	0	0	0	0	0	0	3	3	1	0	0
151 - 155	0	0	0	0	0	1	0	0	1	0	0	0
156 - 160	0	0	0	0	0	2	0	8	1	0	0	0
161 - 165	0	0	0	0	0	0	0	14	6	1	0	0
166 - 170	0	0	0	0	0	0	0	7	13	0	0	0
171 - 175	0	0	0	0	0	0	0	5	11	1	0	0
176 - 180	0	0	0	0	0	0	1	3	15	0	0	0
181 - 185	0	0	0	0	0	0	0	3	14	0	0	0
186 - 190	0	0	0	0	0	0	0	1	4	0	0	0
191 - 195	0	0	0	0	0	0	0	1	2	1	0	0
196 - 200	0	0	0	0	0	0	0	0	0	0	0	0
201 - 205	0	0	0	0	0	2	0	1	0	0	0	0
206 - 210	0	0	0	0	0	1	0	0	0	1	0	0
211 - 215	0	0	0	0	0	0	0	0	0	0	0	0
216 - 220	0	0	0	0	0	0	0	1	0	0	0	0
221 - 225	0	0	0	0	0	0	0	0	0	0	0	0
226 - 230	0	0	0	0	0	0	0	0	0	0	0	0
231 - 235	0	0	0	0	0	0	0	1	0	0	0	0
236 - 240	0	0	0	0	1	1	0	0	0	0	0	0
-												
-												
286 - 290	0	0	0	0	0	0	0	0	1	0	0	0
291 - 295	0	0	0	0	0	0	0	0	0	0	0	0
296 - 300	0	0	0	0	0	0	0	0	0	0	0	0
301 - 305	0	0	0	0	0	0	0	0	0	0	0	0
306 - 310	0	0	0	0	0	0	0	0	0	0	0	0
311 - 315	0	0	0	0	0	0	0	0	0	0	0	0
316 - 320	0	0	0	0	0	0	0	0	1	0	0	0
-												
-												
406 - 410	0	0	0	0	0	0	1	0	0	0	0	0
-												
-												
486 - 490	0	0	0	0	0	0	1	0	0	0	0	0

Table I.1-11
Length frequency of spot taken in impingement sampling at Salem Generating Station in 1987.

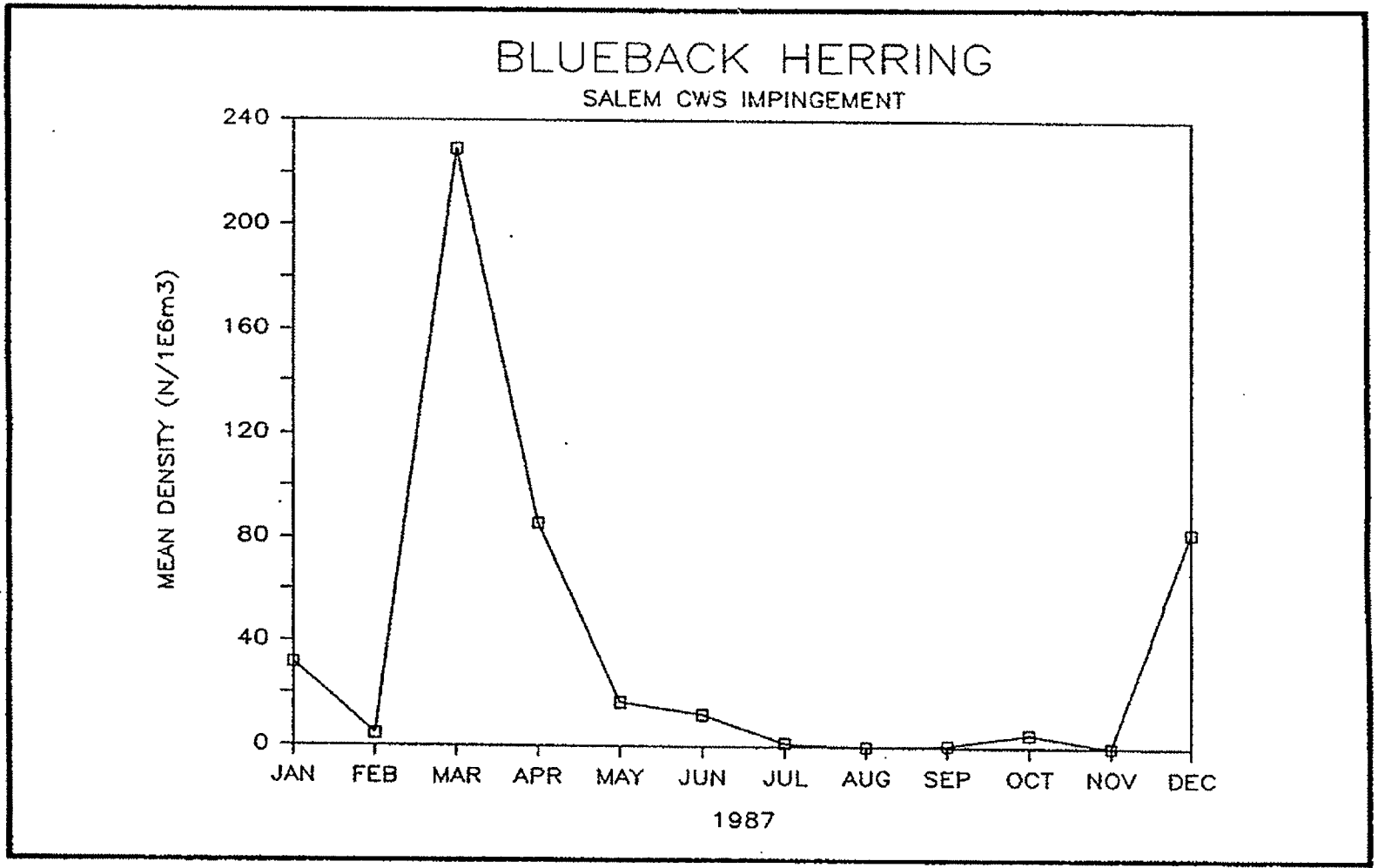
Length (mm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
166 - 170	0	0	0	0	0	1	0	0	0	0	0	0
171 - 175	0	0	0	0	2	0	1	0	0	0	0	0
176 - 180	0	0	0	0	0	1	0	0	0	0	0	0
181 - 185	0	0	0	0	0	0	1	0	0	0	0	0
186 - 190	0	0	0	0	0	0	0	0	0	0	0	0
191 - 195	0	0	0	0	0	0	0	1	0	0	0	0
196 - 200	0	0	0	0	0	0	0	0	0	0	0	0
201 - 205	0	0	0	0	0	0	0	1	0	0	0	0

Table 1.1-12
Length frequency of Atlantic croaker taken in impingement sampling at Salem Generating Station in 1987.

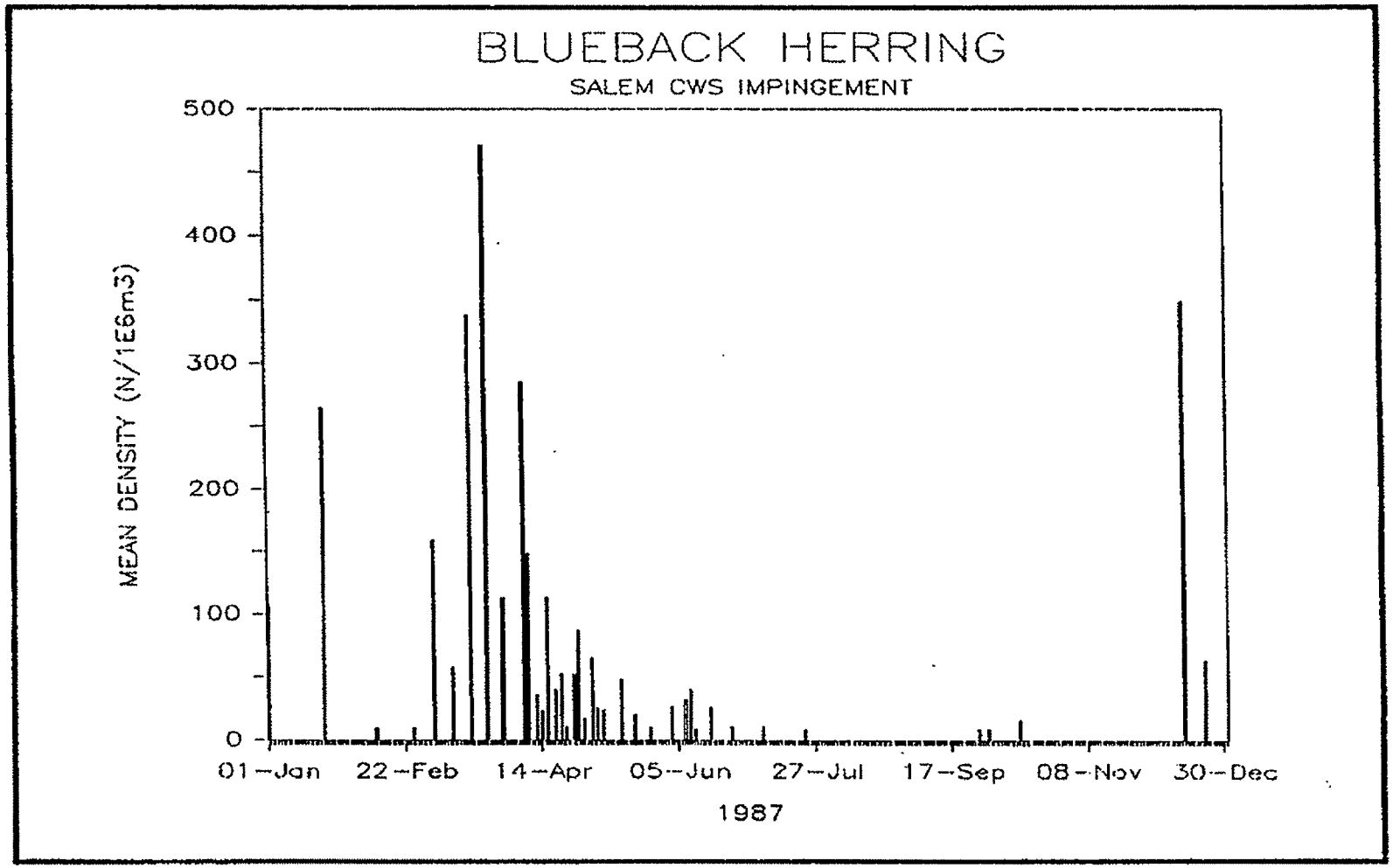
Length (mm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
21 - 25	9	0	0	0	0	0	0	0	0	0	0	0
26 - 30	18	0	0	0	0	0	0	0	0	0	0	1
31 - 35	70	0	0	0	0	0	0	8	0	0	0	0
36 - 40	218	0	0	0	0	0	0	0	0	0	0	0
41 - 45	288	0	0	0	0	0	0	0	0	0	0	2
46 - 50	330	0	0	0	0	0	0	0	0	0	0	2
51 - 55	246	0	0	0	0	0	0	0	0	0	0	12
56 - 60	121	0	0	0	0	0	0	0	0	0	0	27
61 - 65	9	0	0	0	0	0	0	0	0	0	0	14
66 - 70	2	0	0	0	0	0	0	0	0	0	0	3
71 - 75	0	0	0	0	0	0	0	0	0	0	0	4
76 - 80	0	0	0	0	0	0	0	0	0	0	0	1
81 - 85	0	0	0	0	0	0	0	0	0	0	0	2
86 - 90	0	0	0	0	0	0	0	0	0	0	0	1



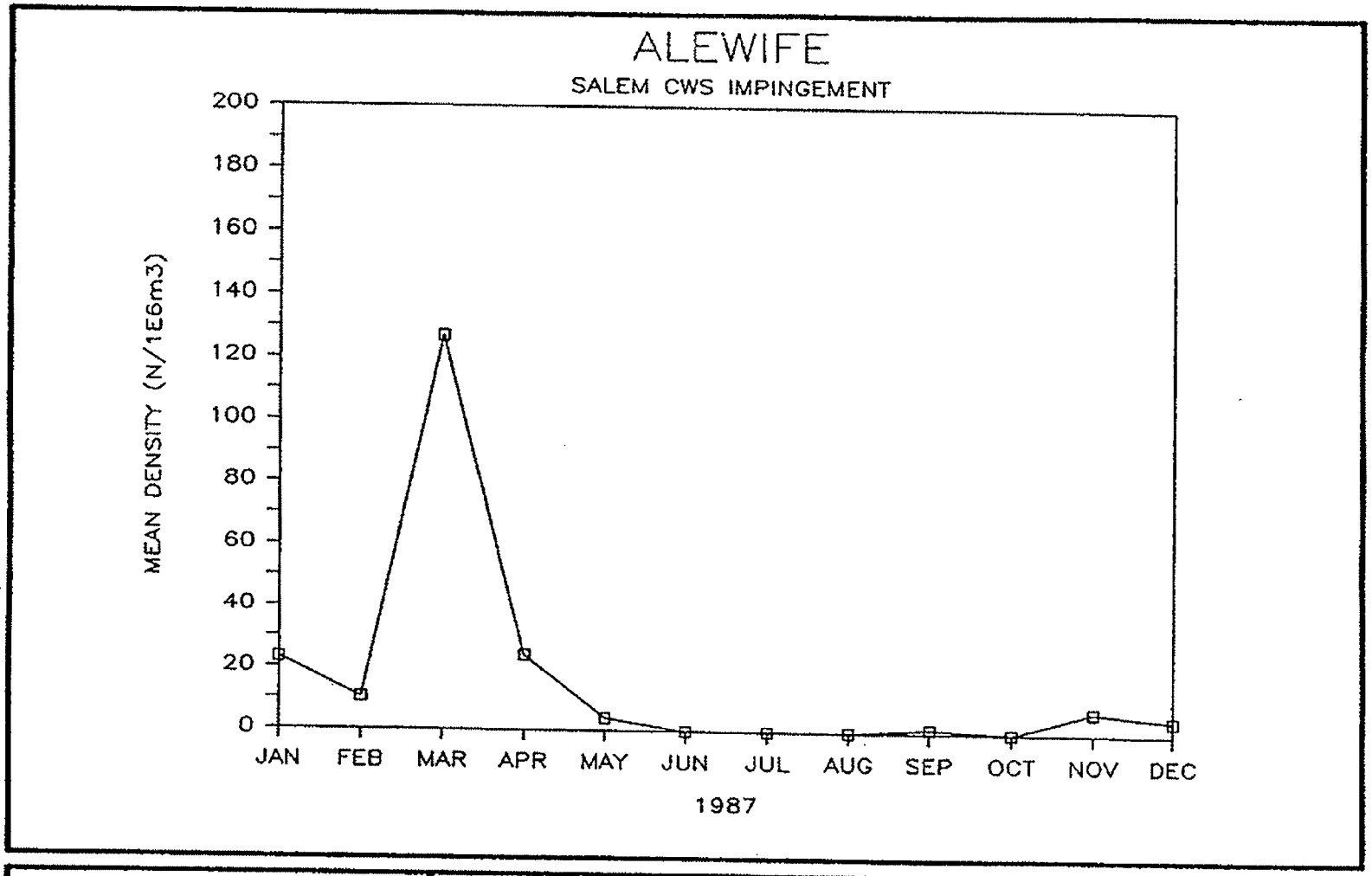
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Fish counting pool.
	Figure 1.1-1



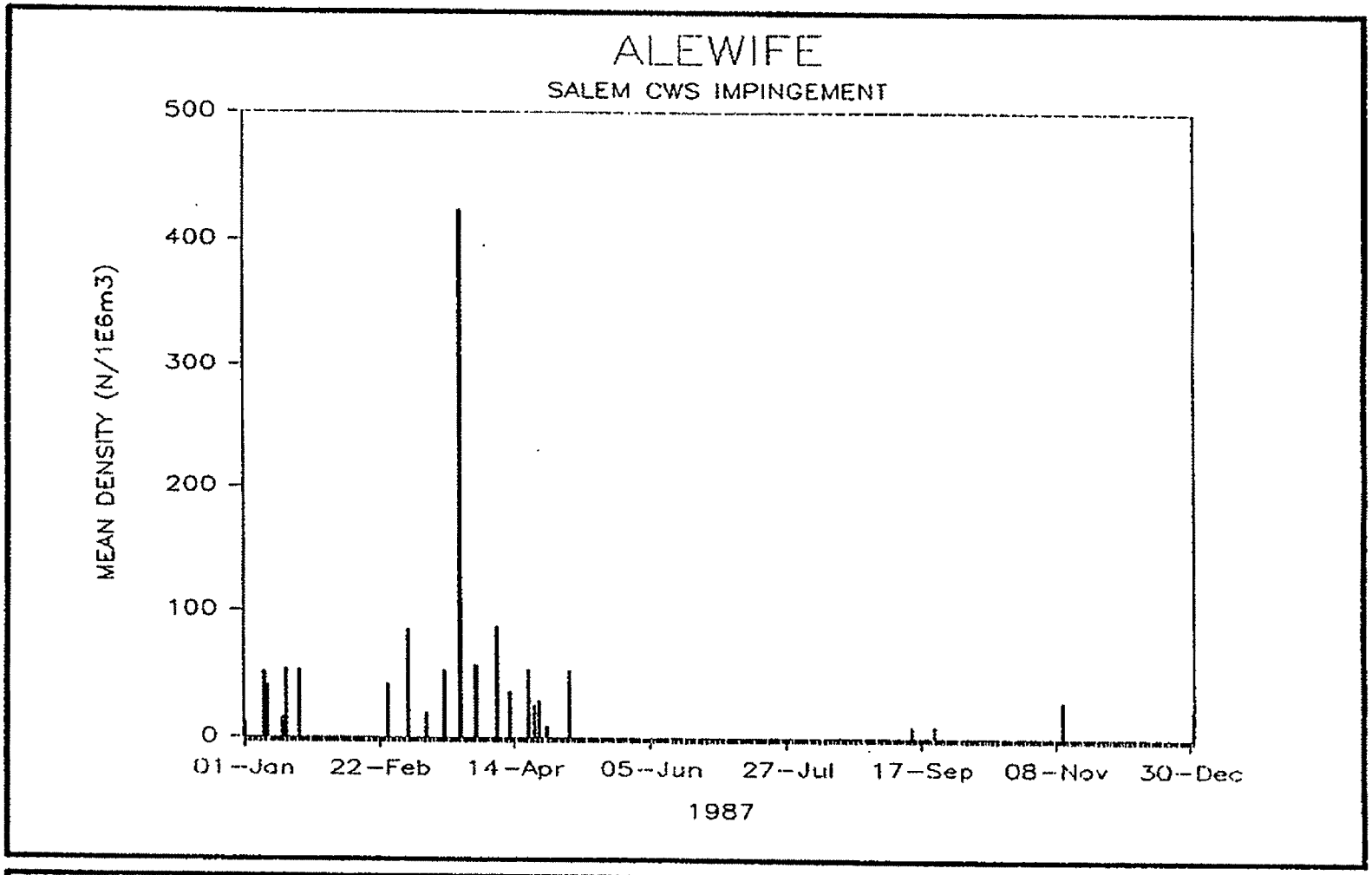
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Monthly mean density (n/1E6m^3) of blueback herring taken in impingement sampling at Salem CWS during 1987.
	Figure 1.1-2



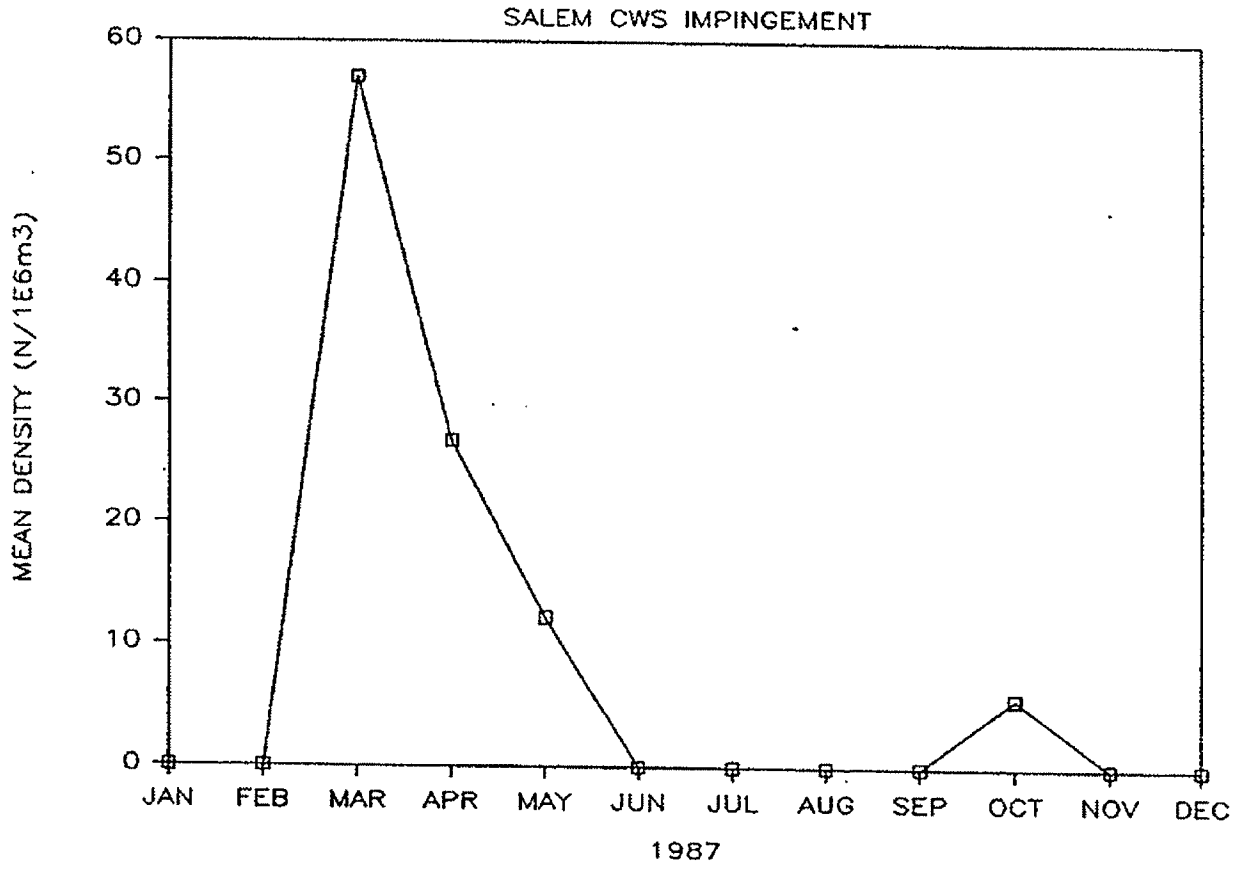
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Mean density, by samling date, of blueback herring taken in impingement sampling at Salem CWS during 1987.
	Figure 1.1-3



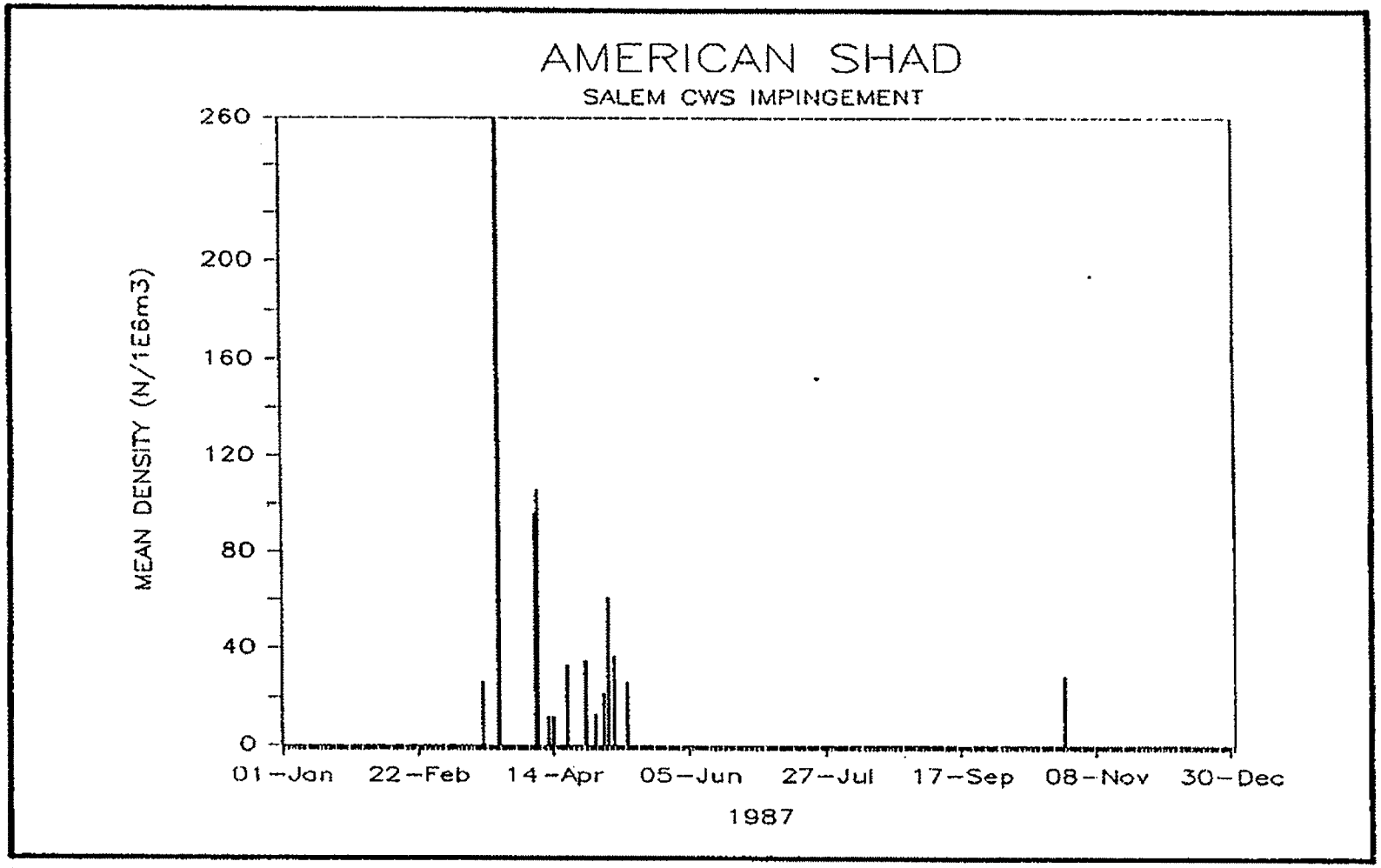
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Monthly mean density (n/1E6m^3) of alewife taken in impingement sampling at Salem CWS during 1987.
	Figure 1.1-4



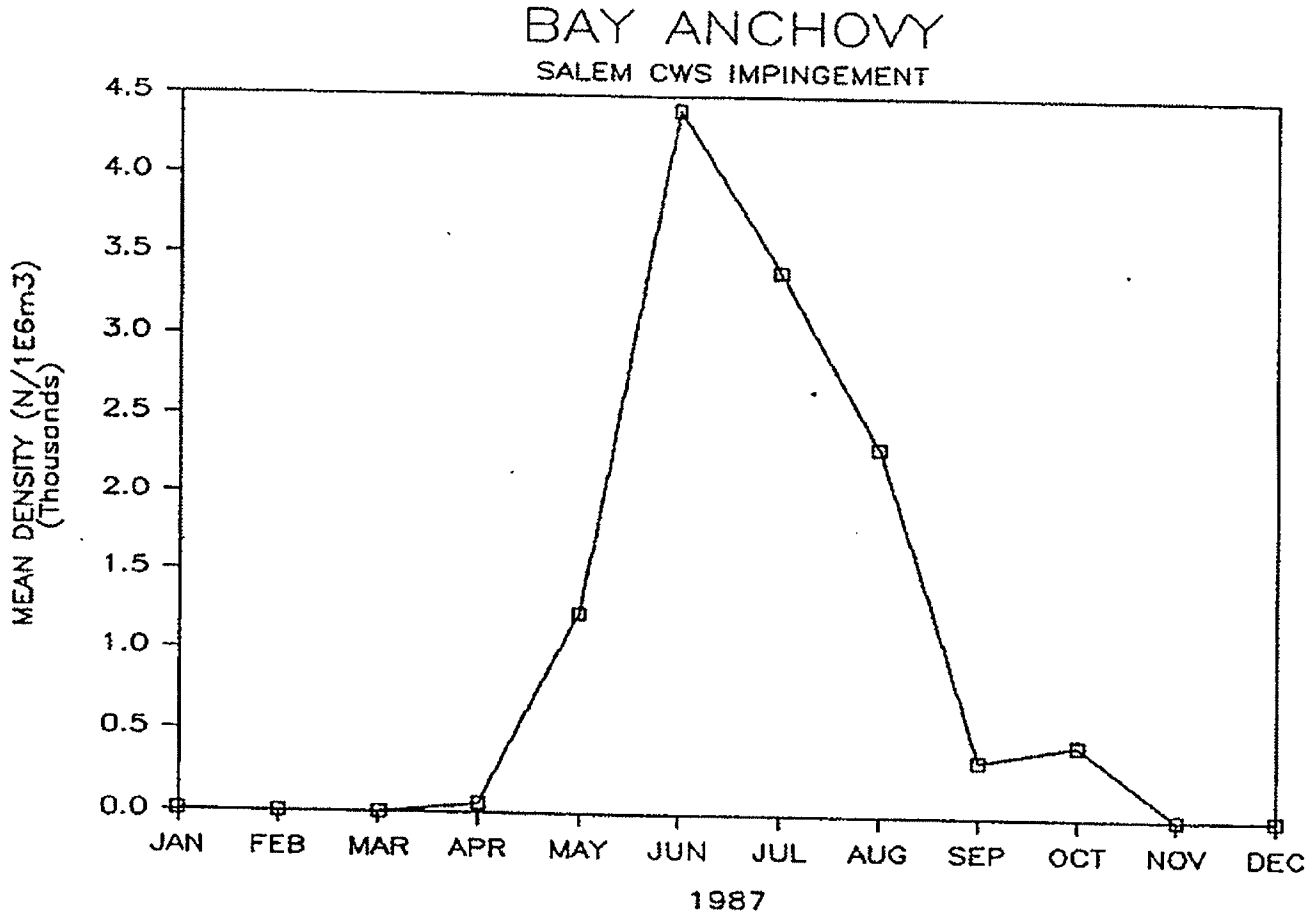
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Mean density, by sampling date, of alewife taken in impingement sampling at Salem CWS during 1987.
	Figure 1.1-5



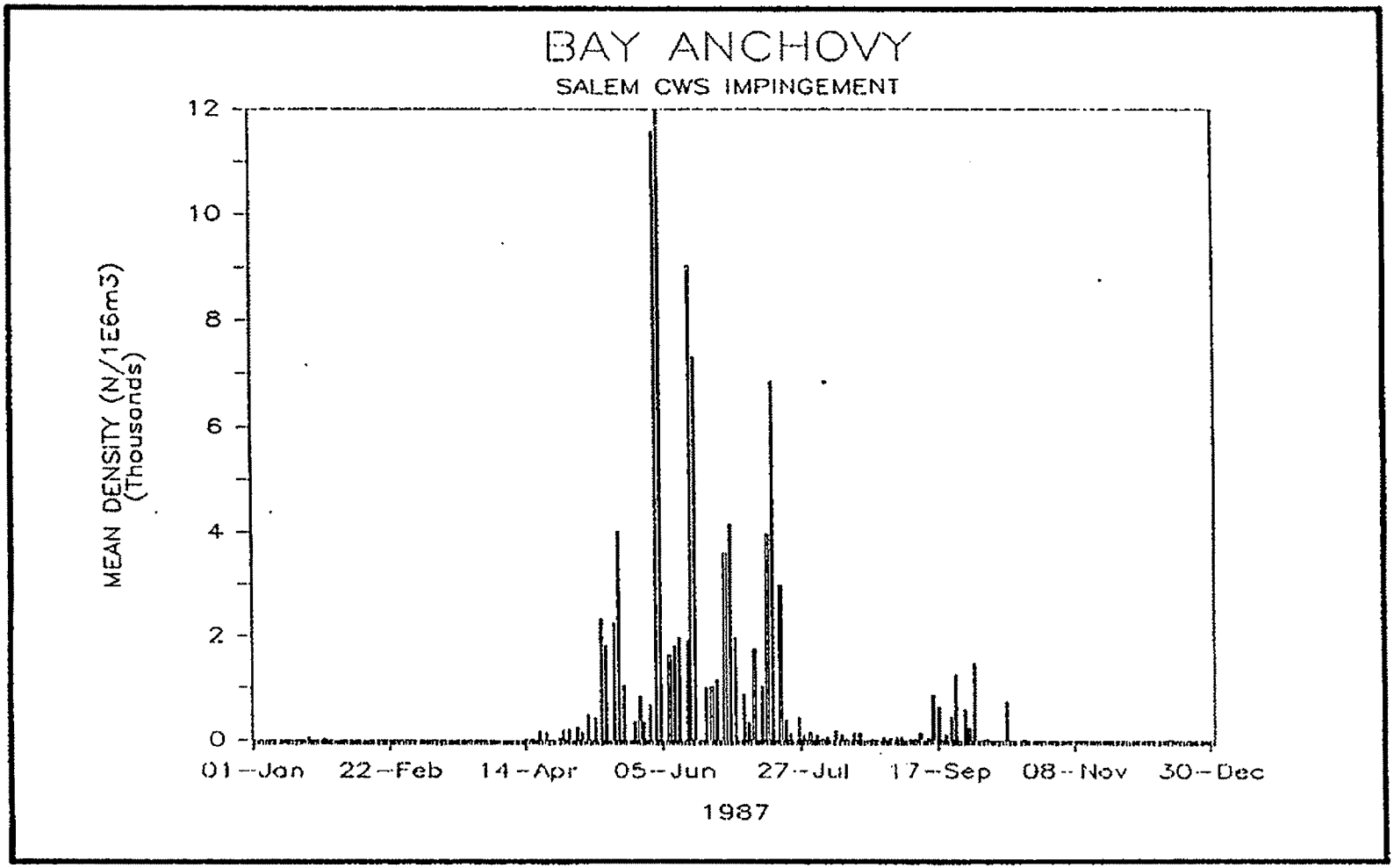
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Monthly mean density (n/1E6m^3) of American shad taken in impingement sampling at Salem CWS during 1987.
	Figure 1.1-6



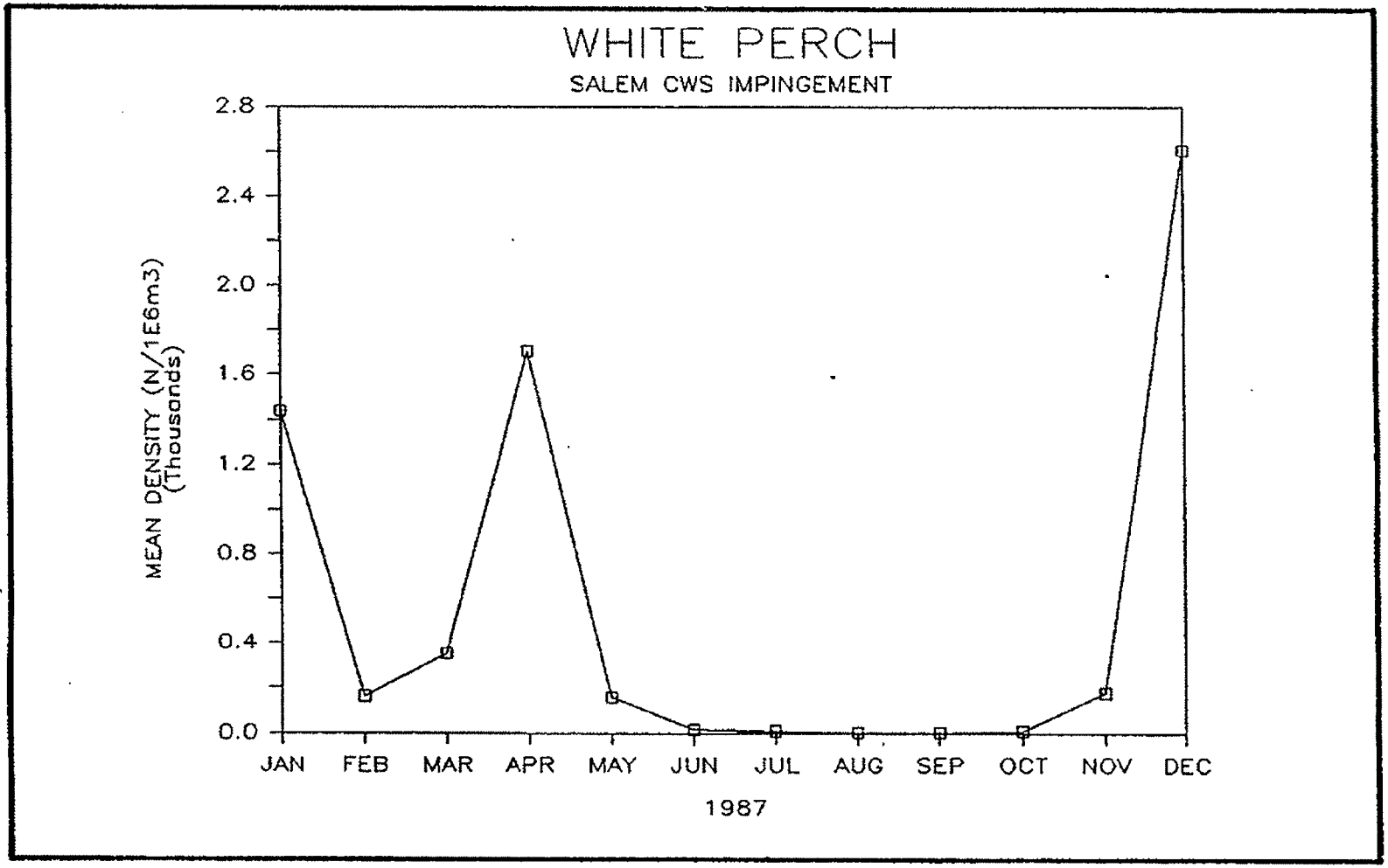
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Mean density, by sampling date, of American shad taken in impingement sampling at Salem CWSduring 1987.
	Figure 1.1-7



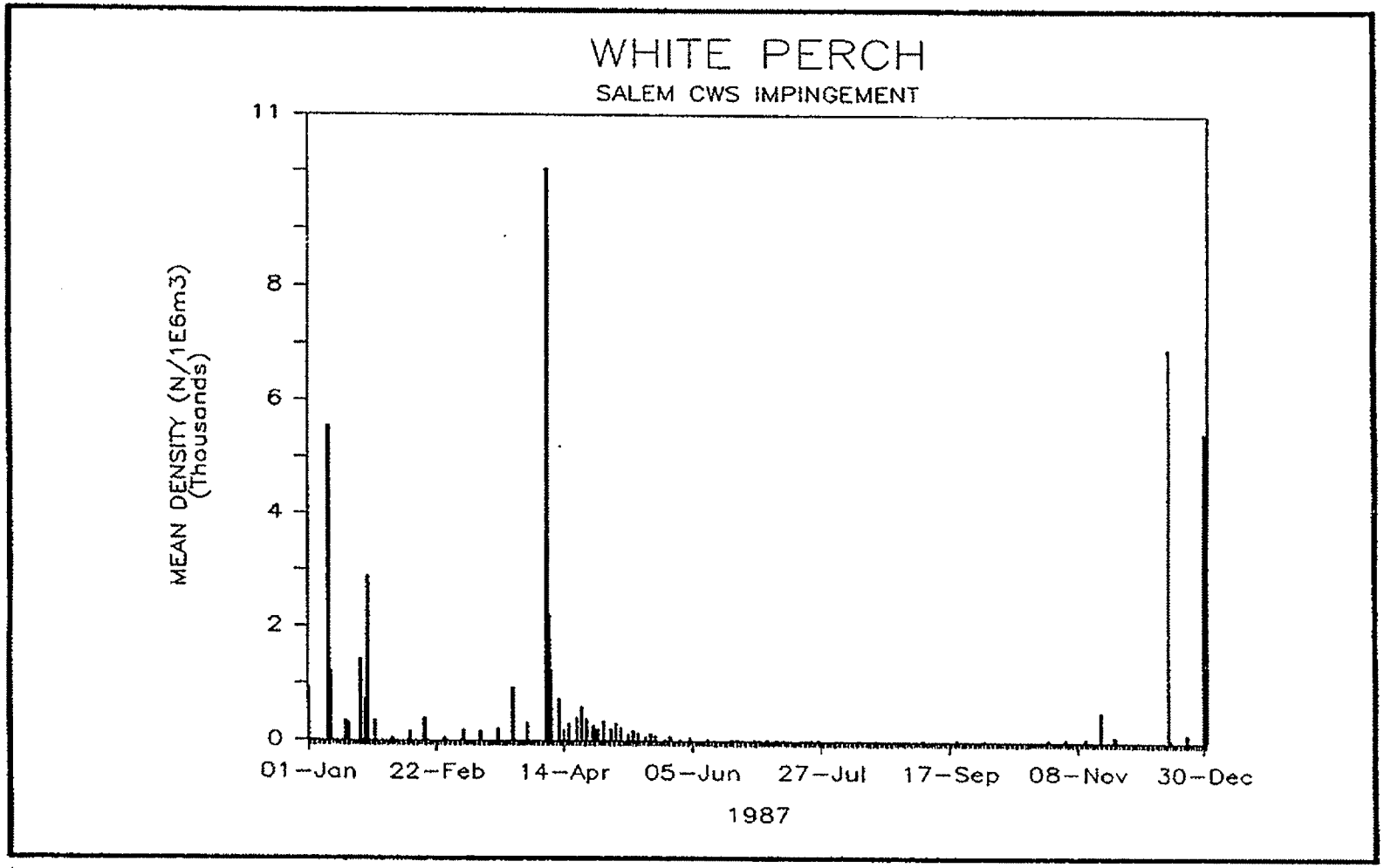
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Monthly mean density ($n/1E6m^3$) of bay anchovy taken in impingement sampling at Salem CWS during 1987.
	Figure 1.1-8



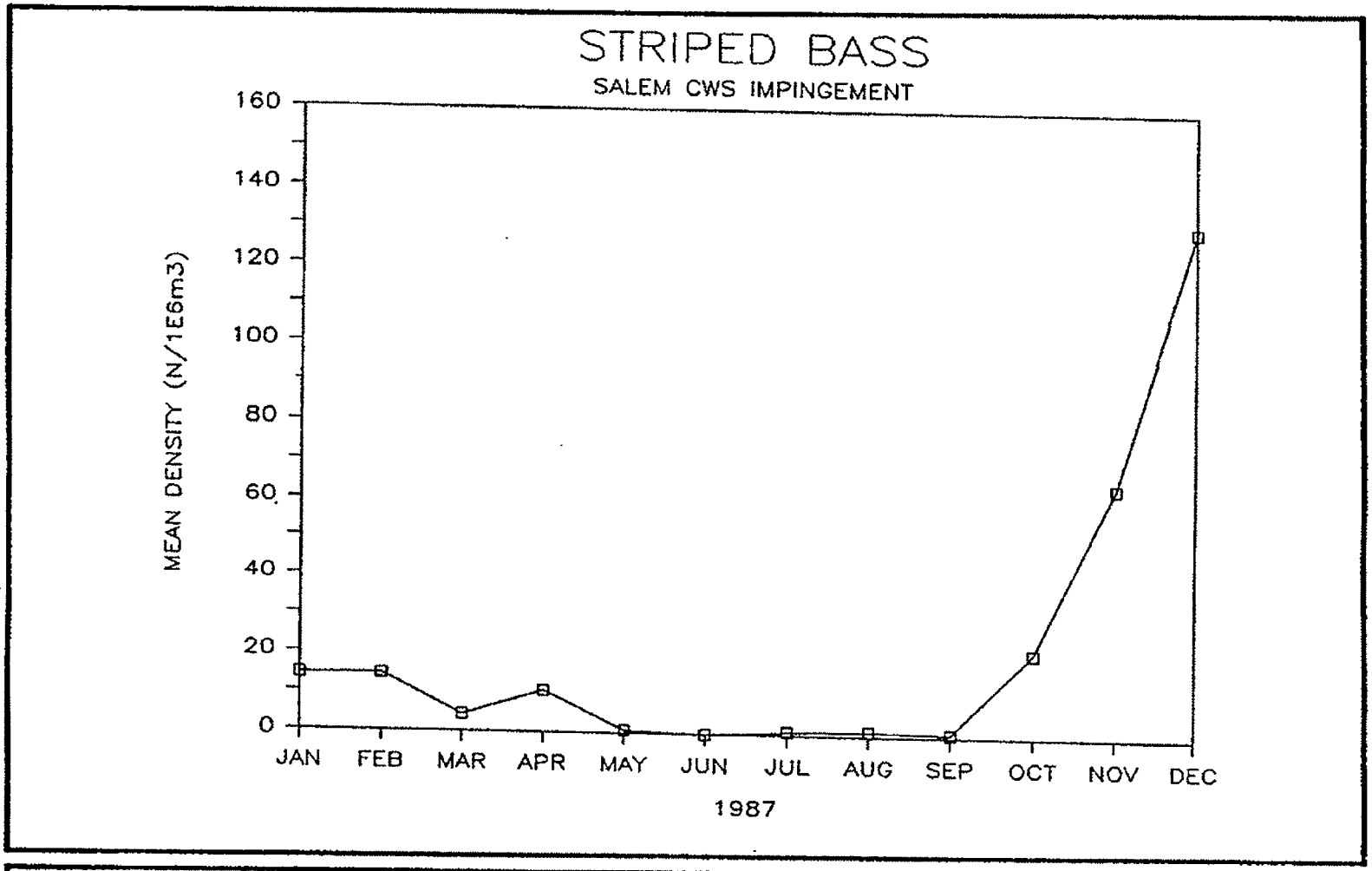
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Mean density, by sampling date, of bay anchovy taken in impingement sampling at Salem CWS during 1987.
	Figure 1.1-9



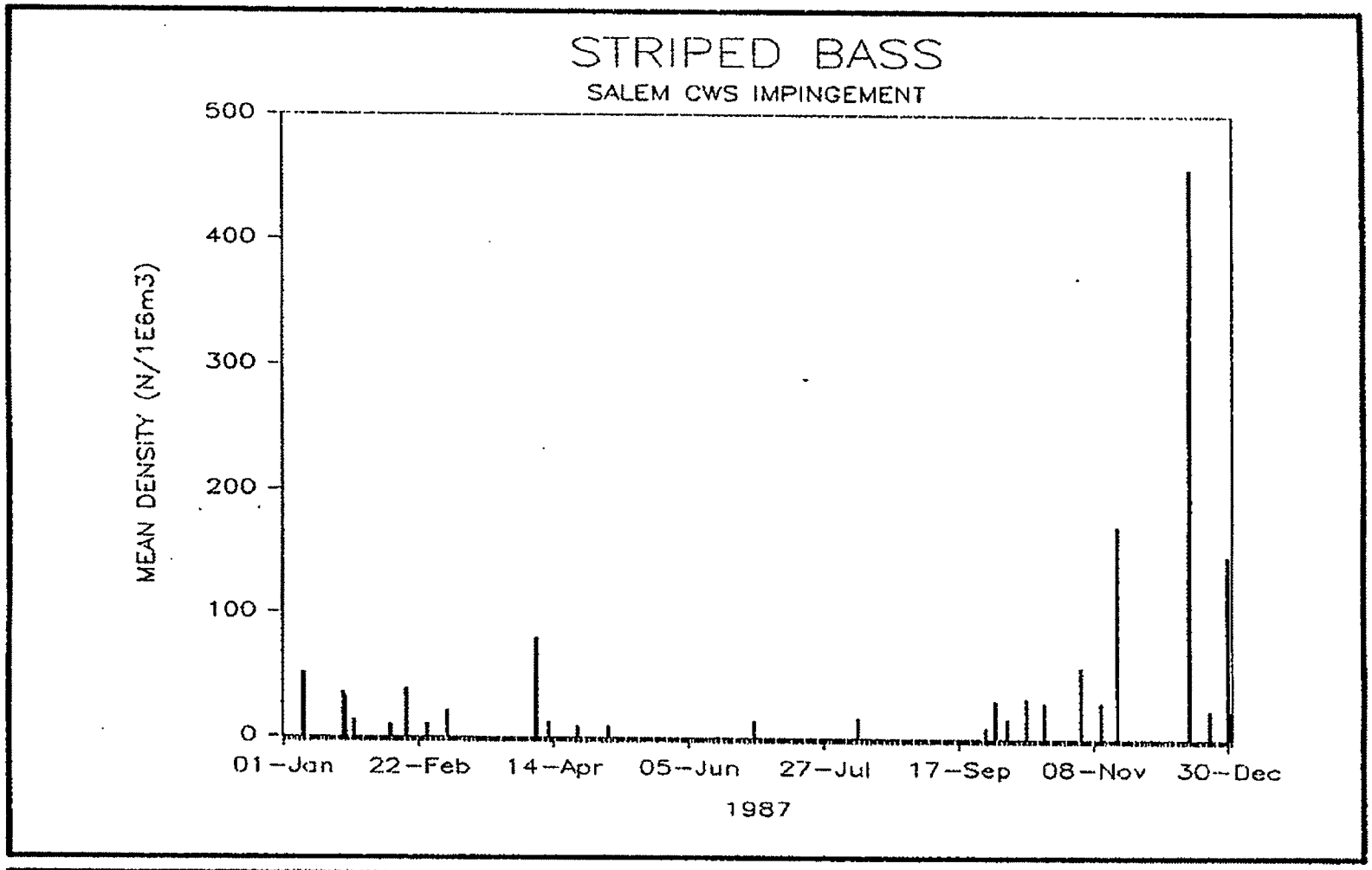
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Monthly mean density (n/1E6m^3) of white perch taken in impingement sampling at Salem CWS during 1987.
	Figure 1.1-10



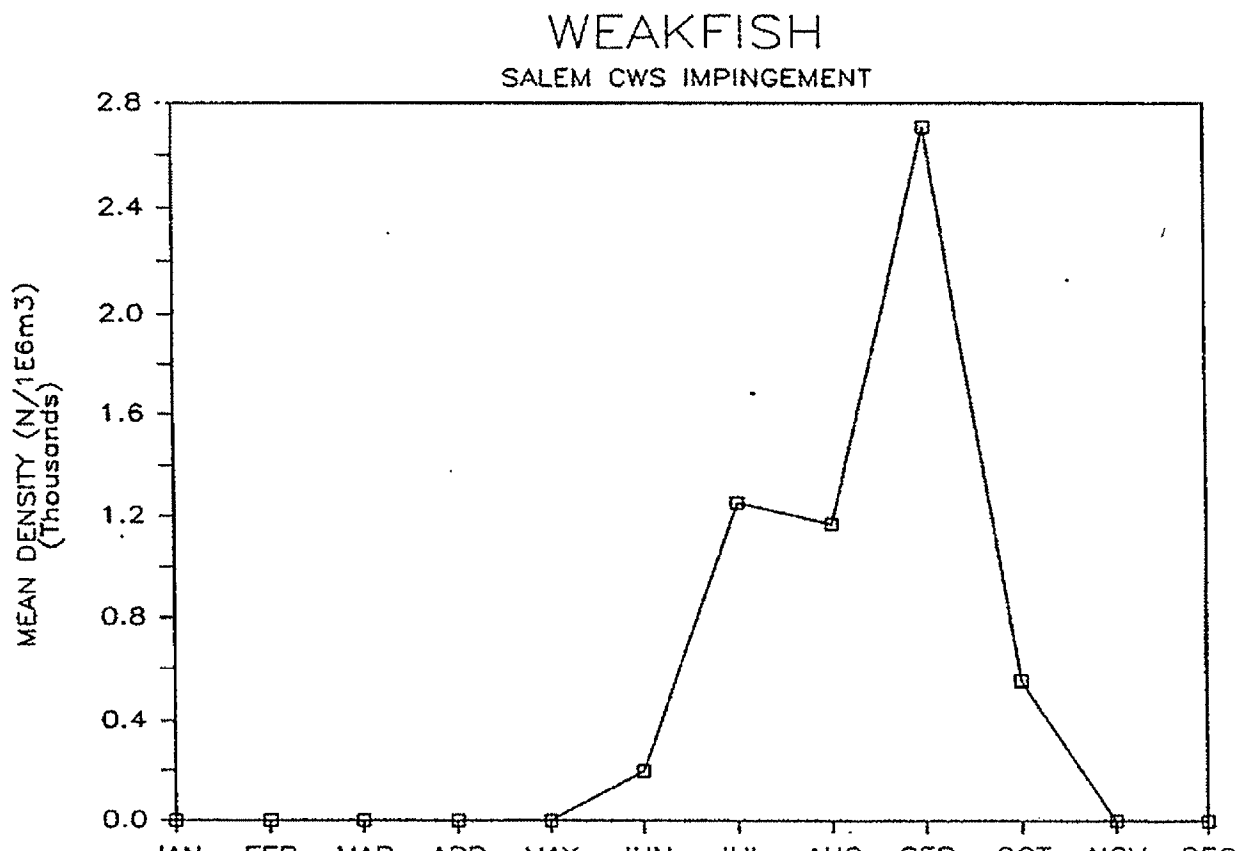
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Mean density, by sampling date, of white perch taken in impingement sampling at Salem CWS during 1987.
	Figure 1.1-11



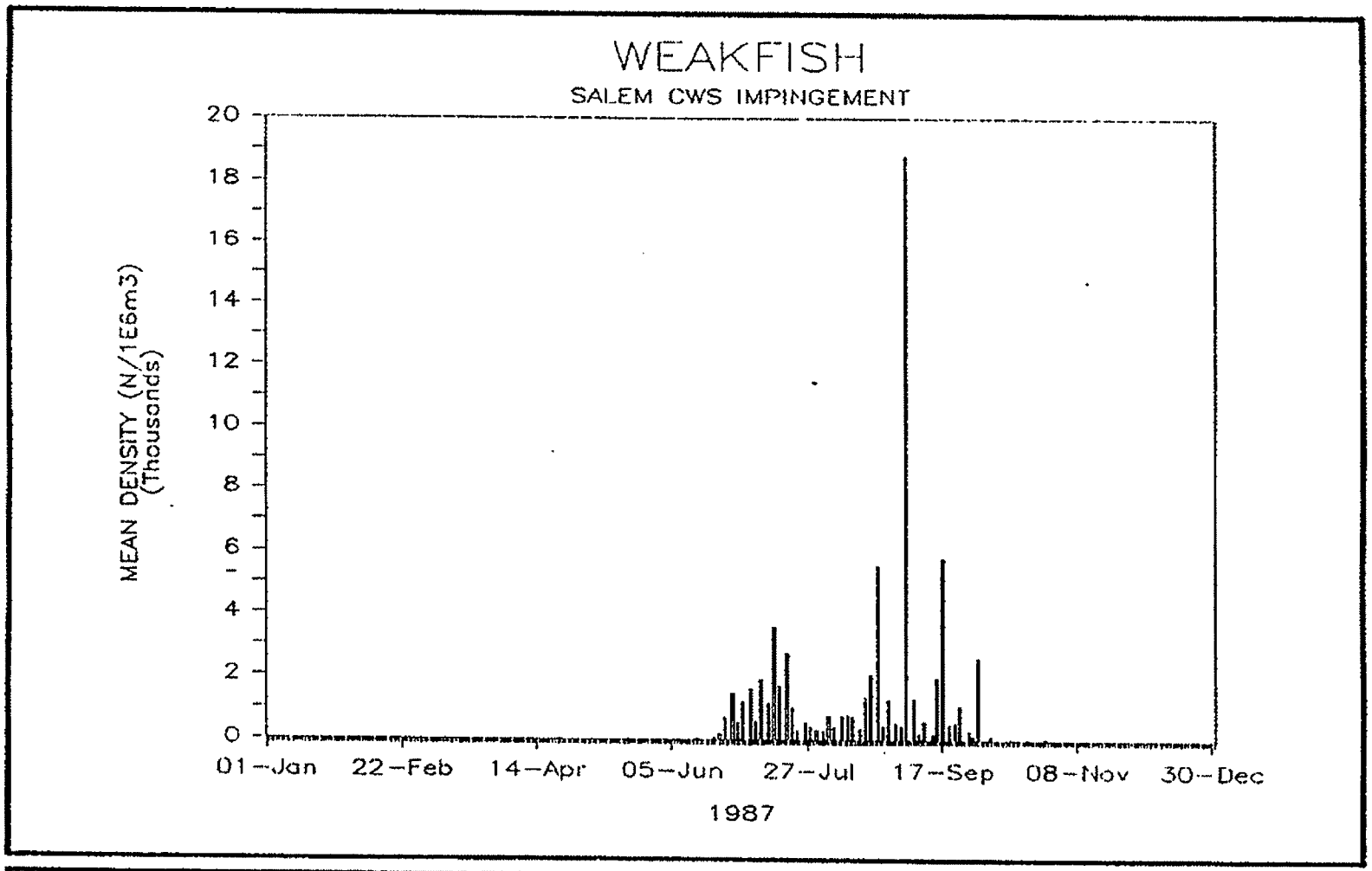
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Monthly mean density (n/1E6m^3) of striped bass taken in impingement sampling at Salem CWS during 1987.
	Figure 1.1-12



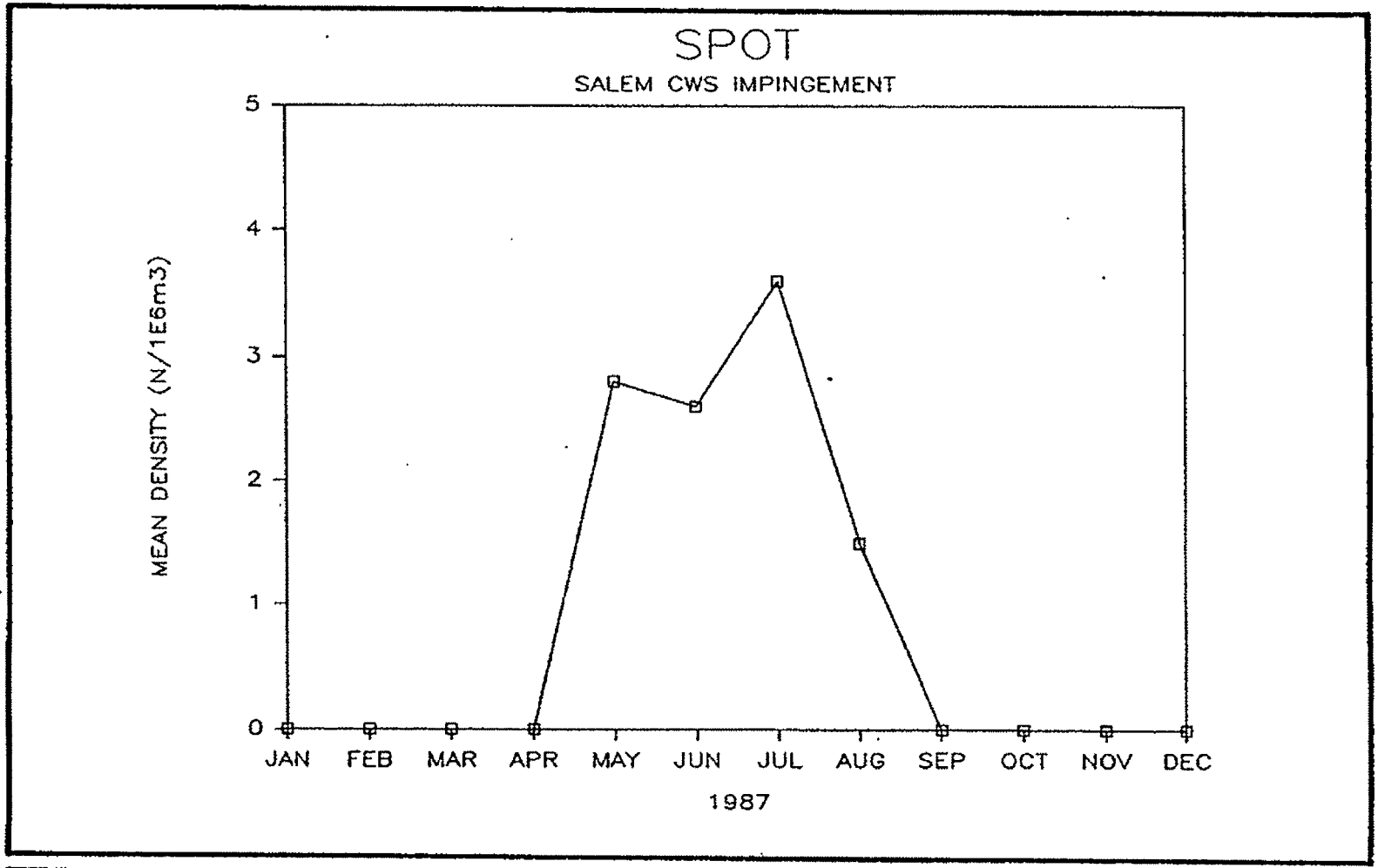
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Mean density, by sampling date, of striped bass taken in impingement sampling at Salem CWS during 1987.
	Figure 1.1-13



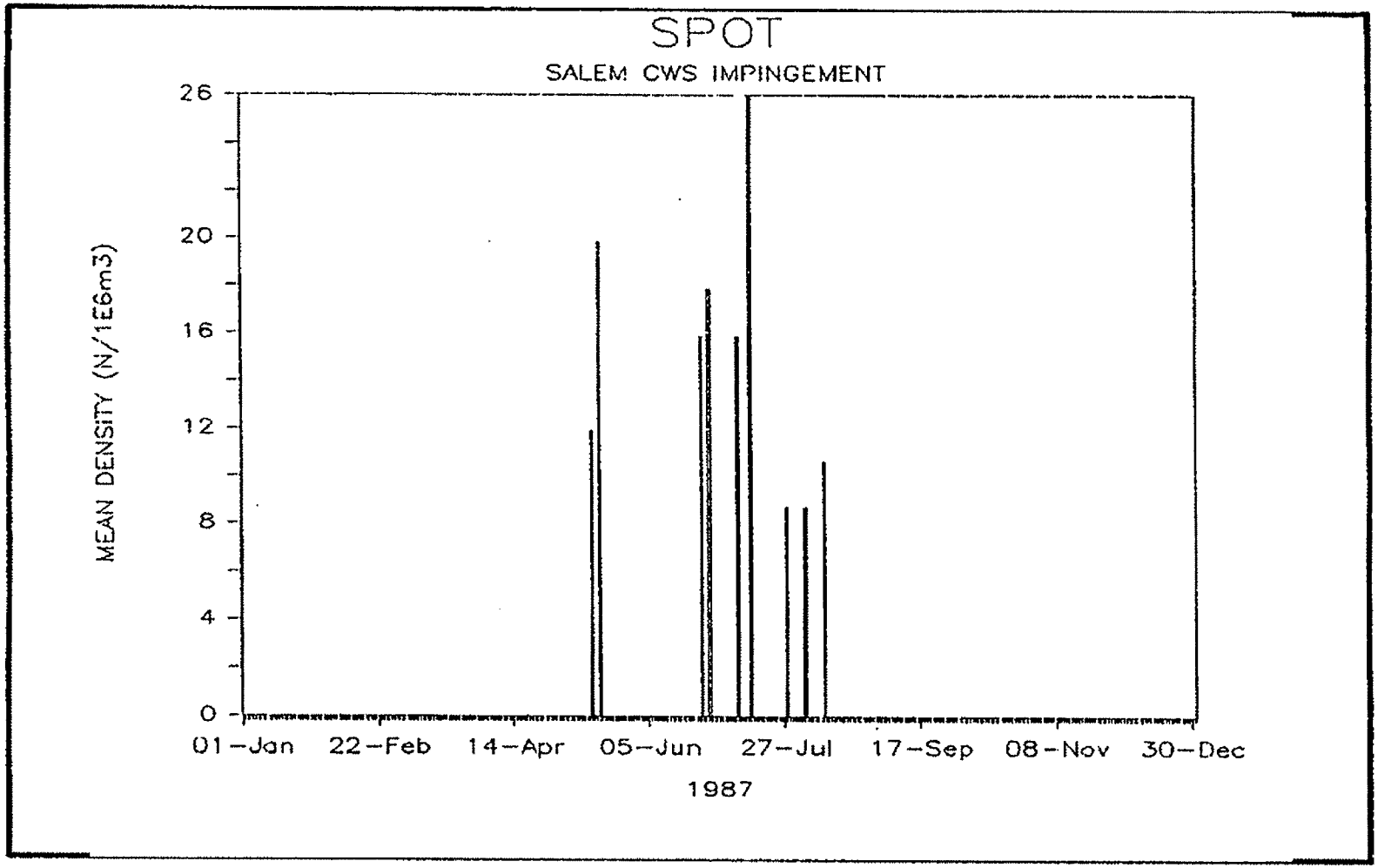
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Monthly mean density (n/1E6m^3) of weakfish taken in impingement sampling at Salem CWS during 1987.
	Figure 1.1-14



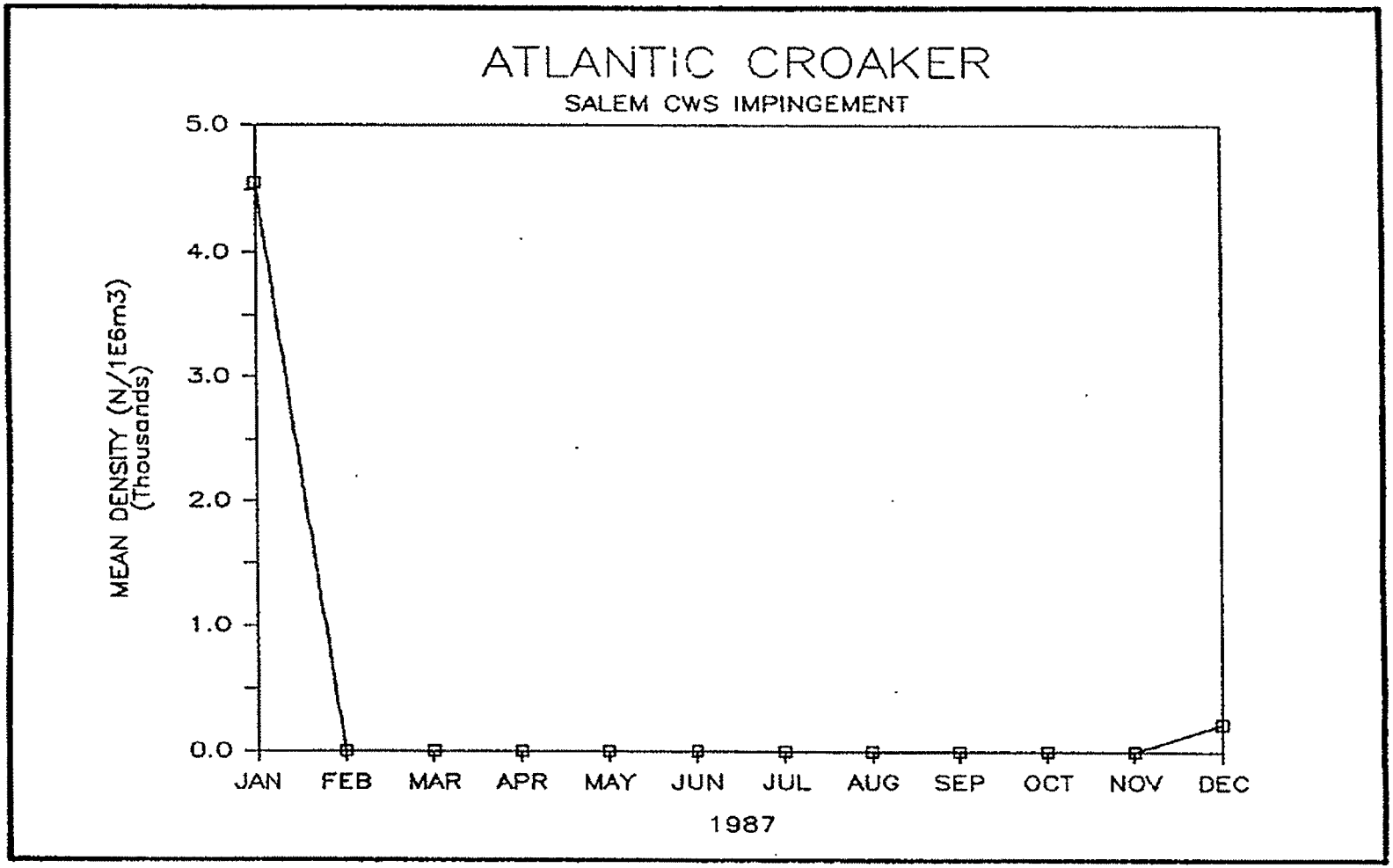
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Mean density, by sampling date, of weakfish taken in impingement sampling at Salem CWS during 1987.
	Figure 1.1-15



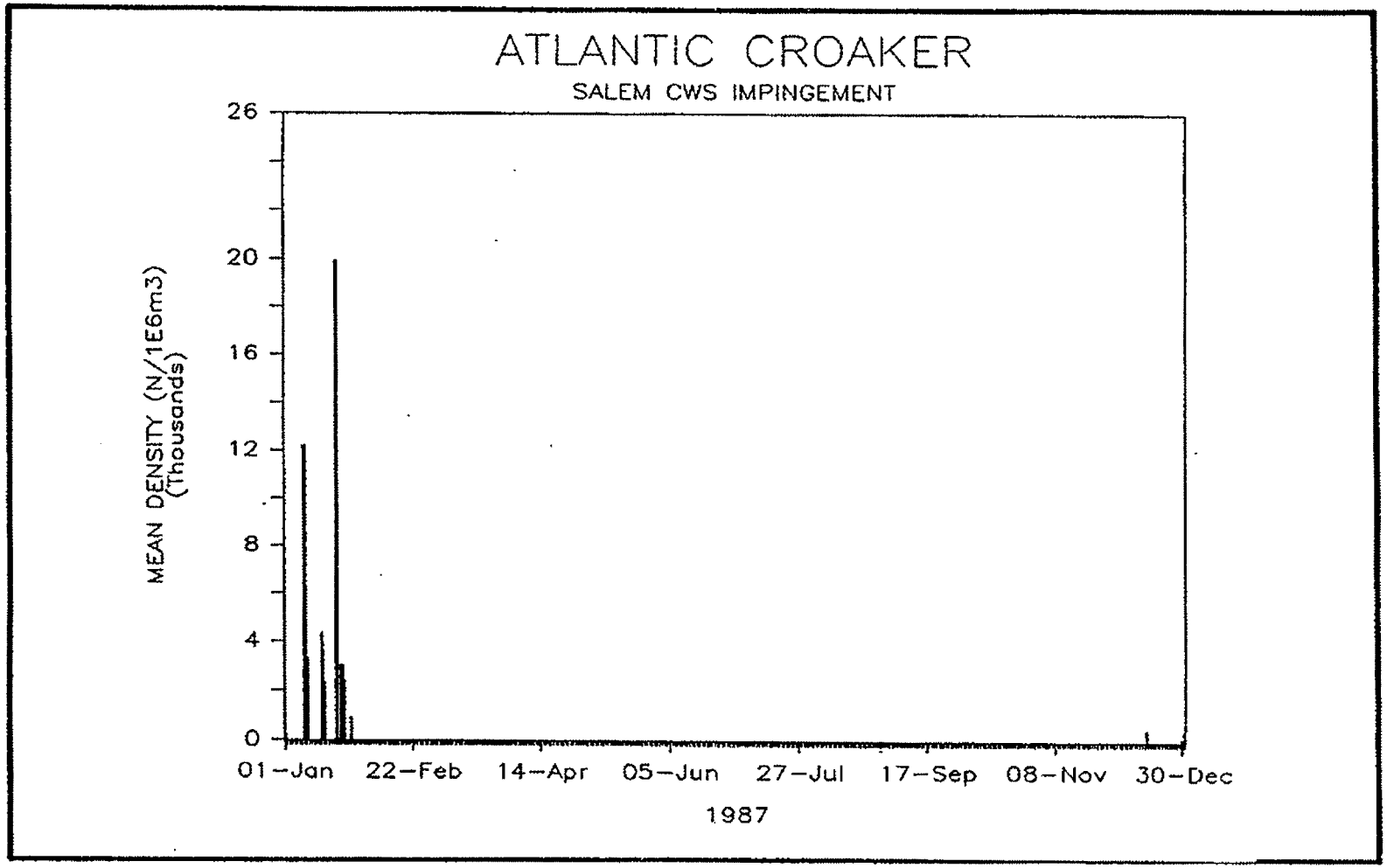
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Monthly mean density (n/1E6m^3) of spot taken in impingement sampling at Salem CWS during 1987.
	Figure 1.1-16



PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Mean density, by sampling date, of spot taken in impingement sampling at Salem CWS during 1987.
	Figure 1.1-17



PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Monthly mean density (n/1E6m^3) of Atlantic croaker taken in impingement sampling at Salem CWS during 1987.
	Figure 1.1-18



PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Mean density, by sampling date, of Atlantic croaker taken in impingement sampling at Salem CWS during 1987.
	Figure 1.1-19

1.2 ENTRAINMENT ABUNDANCE

1.2.1 Materials and Methods

During 1987 entrainment abundance sampling was specified for three samples per day and two days per week during the period mid-April through September, conditions permitting. This schedule should have produced 144 samples taken on 48 days, however, unscheduled reactor shutdowns and/or circulating pump outages during June and August precluded sampling on three scheduled sampling days. On July 17, mechanical problems with the collection equipment resulted in the failure to collect one of the three scheduled samples. A total of 134 samples was taken. On each collection date, samples were collected at approximately 3-hr intervals at the mid-point of the water column in intake bay 22A using the Neilsen fish pump (Model 5-1506) and the entrainment abundance chamber (Figs. 1.2-1 and 1.2-2). The fish pump used for samples had a 6-in centrifugal pump with a single port impeller, and the abundance chamber consisted of a 260 gal cylindrical tank containing a 1.0-m diameter, 0.5-mm mesh, conical plankton net in which the sample was concentrated. The sample rate was about $1.0m^3$/min. Sample volume and flow rate were determined using a Sparling Envirotech flowmeter (Model 115). Prior to the beginning of the 1987 sampling season, the flowmeter was returned to Sparling for factory overhaul and calibration. Additionally, the accuracy of the flowmeter was evaluated twice during the study period and was found to be within the factory specified ± 2 percent on both occasions. A correction factor of 1.0000 was applied to volume filtered measured in the field. Samples were preserved on-site in 10 percent formalin-rose bengal solution. During each sample the following parameters were recorded: water temperature, salinity, tidal elevation and circulating pumps in operation.

In the laboratory, ichthyoplankters were removed from sample detritus. Specimens of the 316(b) Demonstration designated target species were identified to the lowest practicable taxonomic level, enumerated, and up to 25 specimens of each species and life stage (i.e., larvae and juveniles) were measured to the nearest 0.5 mm total length (TL).

Ichthyoplankton densities were expressed as number per $100m^3$, computed by dividing the number of species taken by the volume filtered (m^3) and multiplying that quantity by 100. Mean density was calculated by dividing the total number of specimens in samples by the total sample volume filtered. Entrainment abundance data was summarized by collection week, and the date listed in the table and figures is the mid-point of the collection period. Sample collection and processing procedures are described in greater detail in the Procedures Manual for 316(b) Studies dated April 7, 1982.

1.2.2 Results

A total of 173,424 fish eggs, 7,573 larvae, 82 juveniles and 60 adults representing 3 of 9 target species were taken in 134 entrainment abundance collections at SGS in 1987 (Table 1.2-1). In order of decreasing abundance, target species taken were bay anchovy, weakfish, and white perch. A summary of collection data is presented below for each taxa.

Bay anchovy - A total of 173,228 eggs, 7,545 larvae, 65 juveniles and 60 adults was taken at SGS during 1987 (Table 1.2-1). Eggs were taken from May 22 through August 31 and on September 21 and 25 at water temperature and salinity ranging from 18.5 to 29.0 C and from 2.0 to 12.0 ppt, respectively (Table 1.2-2; Fig. 1.2-3). Weekly mean density of eggs ($n/100m^3$) during the period of occurrence increased from 0.61 on May 20 to 10,275.73 on July 8, and then decreased to 0.29 on September 23 (Table 1.2-3). Mean density was greater than 1,200 during the period from June 3 through August 5.

Larvae were taken from June 12 through September 25 at water temperature and salinity ranging from 21.0 to 29.0 C and from 2.0 to 12.0 ppt, respectively (Table 1.2-2; Fig. 1.2-4). Weekly mean density during the period of occurrence increased from 16.15 on June 10 to 404.75 on July 15, then decreased to 2.04 on September 23 (Table 1.2-3). Mean density was greater than 120 during the period from June 24 through August 5.

Juveniles were taken from June 26 through July 6, from July 17 through July 27, and from August 3 through October 2, (no samples were collected between August 10 and 26) at water temperature and salinity ranging from 20.5 to 29.0 C and from 1.0 to 12.0 ppt, respectively (Table 1.2-2; Fig. 1.2-5). Weekly mean density ranged to 3.85 (September 16, see Table 1.2-3).

Adults were taken from May 1 through May 29, on June 5 and 8, from June 15 through July 3, from July 10 through July 20, and from September 21 through October 2 at water temperature and salinity ranging from 13.0 to 27.5 C and from 1.0 to 8.0 ppt, respectively (Table 1.2-2; Fig. 1.2-6). Weekly mean density ranged to 3.60 (September 30, see Table 1.2-3).

Based on the subsample of specimens measured, larval, juvenile and adult bay anchovy collected during the Entrainment Abundance Program ranged from 1.1 to 83.0 mm TL (Table 1.2-4). Specimens ranging from 2.1 to 10.0 mm TL were predominant.

Weakfish - A total of 196 eggs, 28 larvae and 16 juveniles was taken in entrainment abundance collections at SGS during 1987 (Table 1.2-1). Eggs were taken on June 5, from June 22 through June 29, and on July 10 and 13, at water temperature and salinity ranging from 22.0 to 27.0 C and from 6.0 to 8.0 ppt, respectively (Table 1.2-2; Fig. 1.2-7). Weekly mean density ranged to 56.84 (June 24; see Table 1.2-3).

Larvae were taken from May 29 through June 5, on June 12 and 15, on July 3, 6, 17, 20, 27, and 31, and on August 31 at water temperature and salinity ranging from 20.0 to 28.0 C and from 4.0 to 8.0 ppt, respectively (Table 1.2-2; Fig. 1.2-8). Weekly mean density ranged to 2.44 (June 15; see Table 1.2-3).

Juveniles were taken on June 15 and 22, on July 13, 17, and 20, on August 3 and 10, and on September 18 at water temperature and salinity ranging from 23.5 to 29.0 C and from 4.0 to 8.0 ppt, respectively (Table 1.2-2; Fig. 1.2-9). Weekly mean density ranged to 1.22 (June 15; see Table 1.2-3).

Based on the subsample of specimens measured, larval and juvenile weakfish collected during the Entrainment Abundance Program ranged from 2.1 to 89.0 mm TL (Table 1.2-5). Specimens ranging from 1.1 to 10.0 mm TL were predominant.

White perch - A single juvenile specimen was taken on April 20 at 13.5 C and 2.0 ppt (Tables 1.2-1 and 1.2-2; Fig. 1.2-10). Weekly mean density during the April 22 collection period was 0.25 (Table 1.2-3; Fig. 1.2-10). The specimen was 83.0 mm TL (Table 1.2-6).

Table 1.2-1
Summary of physicochemical data and density of fish eggs, larvae juveniles, and adults taken in entrainment abundance collections at the SGS circulating water system (CWS) intake during 1987.

Date	4/17/87 - 10/2/87
Temperature (C)	11.0 - 29.0
Salinity (ppt)	0.0 - 12.0
Number of samples	134
Volume filtered (m3)	8,072.5

	Number	Density (n/100m3)
Eggs:		
Bay anchovy	173,228	2,145.90
Weakfish	196	2.43
Larvae:		
Bay anchovy	7,545	93.47
Weakfish	28	0.35
Juveniles:		
Bay anchovy	65	0.81
White perch	1	0.01
Weakfish	16	0.20
Adults:		
Bay anchovy	60	0.74
Total eggs	173,424	2,148.33
Total larvae	7,573	93.81
Total juveniles	82	1.02
Total adults	60	0.74

Table 1.2-2
Chronological listing of physicochemical data and density of fish eggs, larvae, juveniles and adults taken in entrainment abundance collections at the SGS circulating water system (CWS) during 1987.

Date	4/17/87	4/17/87	4/17/87	4/20/87	4/20/87	4/20/87
Time	800	1100	1400	931	1228	1505
Location	I22A	I22A	I22A	I22A	I22A	I22A
Tide	Ebb 2	Flood 2	Flood 2	Ebb 1	Ebb Slack	Flood 1
Tidal El.(ft)	90.5	93.5	94.9	91.0	89.5	92.8
Temp.(C)	11.0	13.0	13.0	13.5	13.5	14.0
Sal.(ppt)	4.0	4.0	4.0	2.0	0.5	2.0
Vol. Filtered(m3)	50.2	70.0	50.0	94.0	73.0	64.0
EGGS:						
LARVAE:						
JUVENILES:						
WHITE PERCH	0.00	0.00	0.00	1.06	0.00	0.00
ADULTS:						

Table 1.2-2
Continued

Date	4/24/87	4/24/87	4/24/87	4/27/87	4/27/87	4/27/87
Time	905	1202	1446	751	1056	1400
Location	I22A	I22A	I22A	I22A	I22A	I22A
Tide	Flood 2	Ebb 1	Ebb 2	Flood 1	Flood 2	Ebb 1
Tidal El.(ft)	94.6	91.3	88.0	89.9	94.5	93.0
Temp.(C)	15.0	14.5	14.0	12.0	13.0	14.0
Sal.(ppt)	2.0	4.0	2.0	0.0	4.0	4.0
Vol. Filtered(m3)	53.0	56.0	59.0	50.0	64.0	55.0

EGGS:

LARVAE:

JUVENILES:

ADULTS:

Table 1.2-2
Continued

Date	5/ 1/87	5/ 1/87	5/ 1/87	5/ 4/87	5/ 4/87	5/ 4/87
Time	836	1206	1517	906	1200	1509
Location	I22A	I22A	I22A	I22A	I22A	I22A
Tide	Ebb 2	Flood 2	Ebb 1	Ebb 2	Flood 1	Flood 2
Tidal El.(ft)	88.0	92.7	93.4	90.0	90.6	93.2
Temp.(C)	13.0	14.0	14.0	14.0	14.0	14.0
Sal.(ppt)	4.0	4.0	4.0	4.0	4.0	4.0
Vol. Filtered(m3)	86.0	53.0	50.0	50.0	67.0	50.0
EGGS:						
LARVAE:						
JUVENILES:						
ADULTS:						
BAY ANCHOVY	3.49	0.00	0.00	2.00	1.49	0.00

Table 1.2-2
Continued

Date	5/ 8/87	5/ 8/87	5/ 8/87	5/11/87	5/11/87	5/11/87
Time	834	1146	1452	823	1115	1421
Location	I22A	I22A	I22A	I22A	I22A	I22A
Tide	Ebb 1	Ebb 2	Flood 1	Flood 2	Ebb 1	Ebb 2
Tidal El.(ft)	92.5	89.9	89.0	92.0	93.0	91.0
Temp.(C)	15.0	15.0	15.0	12.0	12.0	13.0
Sal.(ppt)	6.0	6.0	5.0	8.0	8.0	8.0
Vol. Filtered(m3)	61.0	50.0	56.0	50.0	54.0	57.0
EGGS:						
LARVAE:						
JUVENILES:						
ADULTS:						
BAY ANCHOVY	0.00	4.00	1.79	0.00	1.85	0.00

Table 1.2-2
Continued

Date	5/15/87	5/15/87	5/15/87	5/18/87	5/18/87	5/18/87
Time	715	1015	1315	828	1145	1431
Location	I22A	I22A	I22A	I22A	I22A	I22A
Tide	Ebb 2	Flood 1	Flood 2	Ebb 2	Flood 1	Flood 2
Tidal El.(ft)	88.1	91.5	93.5	88.5	88.5	93.0
Temp.(C)	18.0	18.0	18.0	19.5	20.0	20.5
Sal.(ppt)	6.0	6.0	6.0	5.0	5.0	6.0
Vol. Filtered(m3)	50.0	50.0	50.0	50.0	65.0	58.0
EGGS:						
LARVAE:						
JUVENILES:						
ADULTS:						
BAY ANCHOVY	8.00	4.00	0.00	0.00	1.54	0.00

Table 1.2-2
Continued

Date	5/22/87	5/22/87	5/22/87	5/26/87	5/26/87	5/26/87
Time	832	1129	1342	735	1026	1330
Location	I22A	I22A	I22A	I22A	I22A	I22A
Tide	Ebb 1	Ebb 2	Ebb 2	Flood 1	Flood 2	Ebb 1
Tidal El.(ft)	93.8	89.5	88.0	90.1	93.0	92.0
Temp.(C)	18.5	19.0	19.0	18.0	19.0	19.0
Sal.(ppt)	8.0	6.0	6.0	6.0	8.0	8.0
Vol. Filtered(m3)	56.0	50.0	50.0	50.0	55.0	50.0
EGGS:						
BAY ANCHOVY	3.57	0.00	0.00	120.00	1.82	62.00
LARVAE:						
JUVENILES:						
ADULTS:						
BAY ANCHOVY	1.79	0.00	0.00	6.00	0.00	0.00

Table 1.2-2
Continued

Date	5/29/87	5/29/87	5/29/87	6/ 1/87	6/ 1/87	6/ 1/87
Time	729	1020	1517	1300	1502	1636
Location	I22A	I22A	I22A	I22A	I22A	I22A
Tide	Ebb 2	Flood 1	Flood 2	Flood 1	Ebb 1	Ebb 1
Tidal El.(ft)	87.9	91.0	93.0	91.5	93.0	93.0
Temp.(C)	20.0	20.0	21.0	22.5	22.5	22.0
Sal.(ppt)	4.0	4.0	4.0	6.0	6.0	8.0
Vol. Filtered(m3)	50.0	50.0	50.0	50.0	52.2	50.0
EGGS:						
BAY ANCHOVY	86.00	16.00	50.00	76.00	91.95	140.00
LARVAE:						
WEAKFISH	2.00	0.00	2.00	4.00	0.00	0.00
JUVENILES:						
ADULTS:						
BAY ANCHOVY	4.00	0.00	0.00	0.00	0.00	0.00

Table 1.2-2
Continued

Date	6/ 5/87	6/ 5/87	6/ 5/87	6/ 8/87	6/ 8/87	6/ 8/87
Time	850	1209	1457	822	1119	1424
Location	I22A	I22A	I22A	I22A	I22A	I22A
Tide	Ebb 1	Ebb 2	Flood 1	Flood 2	Ebb 1	Ebb Slack
Tidal El.(ft)	90.6	88.1	91.2	93.4	89.9	88.0
Temp.(C)	22.0	22.0	22.0	21.5	22.5	23.0
Sal.(ppt)	8.0	6.0	6.0	8.0	6.0	4.0
Vol. Filtered(m3)	50.0	50.0	60.0	50.0	50.0	50.0
EGGS:						
BAY ANCHOVY	6232.00	744.00	635.00	274.00	392.00	84.00
WEAKFISH	6.00	0.00	0.00	0.00	0.00	0.00
LARVAE:						
WEAKFISH	2.00	0.00	0.00	0.00	0.00	0.00
JUVENILES:						
ADULTS:						
BAY ANCHOVY	2.00	2.00	1.67	0.00	0.00	4.00

Table 1.2-2
Continued

Date	6/22/87	6/22/87	6/22/87	6/26/87	6/26/87	6/26/87
Time	900	1214	1521	906	1153	1453
Location	I22A	I22A	I22A	I22A	I22A	I22A
Tide	Flood 2	Ebb 2	Ebb 2	Flood 1	Flood 2	Ebb 2
Tidal El.(ft)	94.0	90.5	88.2	91.5	94.0	91.0
Temp.(C)	26.0	25.0	26.0	24.0	25.0	25.0
Sal.(ppt)	8.0	8.0	8.0	6.0	8.0	8.0
Vol. Filtered(m3)	50.0	50.0	50.0	50.0	69.2	51.0
EGGS:						
BAY ANCHOVY	7998.00	5154.00	6448.00	14300.00	13689.31	8482.35
WEAKFISH	40.00	30.00	12.00	98.00	92.49	54.90
LARVAE:						
BAY ANCHOVY	50.00	20.00	88.00	370.00	355.49	33.33
JUVENILES:						
BAY ANCHOVY	0.00	0.00	0.00	0.00	1.45	1.96
WEAKFISH	2.00	2.00	2.00	0.00	0.00	0.00
ADULTS:						
BAY ANCHOVY	2.00	0.00	0.00	2.00	0.00	0.00

Table 1.2-2
Continued

Date	6/29/87	6/29/87	6/29/87	7/ 3/87	7/ 3/87	7/ 3/87
Time	900	1203	1515	848	1158	1508
Location	I22A	I22A	I22A	I22A	I22A	I22A
Tide	Ebb 2	Flood 2	Ebb 1	Ebb 2	Flood 1	Flood 2
Tidal El.(ft)	88.5	92.5	92.1	89.2	83.0	93.2
Temp.(C)	24.0	25.0	25.0	25.5	26.0	27.0
Sal.(ppt)	6.0	6.0	8.0	6.0	4.0	6.0
Vol. Filtered(m3)	122.0	51.0	52.0	58.0	62.0	64.0
EGGS:						
BAY ANCHOVY	2843.44	7076.47	2621.15	19934.48	3279.03	6640.63
WEAKFISH	3.28	7.84	0.00	0.00	0.00	0.00
LARVAE:						
BAY ANCHOVY	105.74	0.00	1107.69	86.21	61.29	85.94
WEAKFISH	0.00	0.00	0.00	1.72	0.00	0.00
JUVENILES:						
BAY ANCHOVY	3.28	0.00	1.92	1.72	0.00	0.00
ADULTS:						
BAY ANCHOVY	2.46	5.88	0.00	0.00	3.23	0.00

Table 1.2-2
Continued

Date	7/ 6/87	7/ 6/87	7/ 6/87	7/10/87	7/10/87	7/10/87
Time	1004	1248	1535	654	959	1302
Location	I22A	I22A	I22A	I22A	I22A	I22A
Tide	Ebb 1	Ebb 2	Flood 1	Ebb 2	Flood 2	Ebb 1
Tidal El.(ft)	91.0	88.5	91.0	88.2	94.0	93.0
Temp.(C)	25.0	25.0	26.0	26.0	26.0	27.0
Sal.(ppt)	8.0	6.0	6.0	4.0	6.0	8.0
Vol. Filtered(m3)	52.1	90.0	87.1	72.2	74.0	58.0
EGGS:						
BAY ANCHOVY	15253.36	26314.44	5083.81	1803.32	6810.81	3681.03
WEAKFISH	0.00	0.00	0.00	0.00	0.00	1.72
LARVAE:						
BAY ANCHOVY	5.76	25.56	78.07	765.93	194.59	222.41
WEAKFISH	0.00	3.33	0.00	0.00	0.00	0.00
JUVENILES:						
BAY ANCHOVY	0.00	1.11	1.15	0.00	0.00	0.00
ADULTS:						
BAY ANCHOVY	0.00	0.00	0.00	1.39	1.35	0.00

Table 1.2-2
Continued

Date	7/13/87	7/13/87	7/13/87	7/17/87	7/17/87	7/20/87
Time	930	1248	1533	1232	1514	908
Location	I22A	I22A	I22A	I22A	I22A	I22A
Tide	Flood 1	Flood 2	Ebb 1	Flood 1	Flood 2	Ebb 1
Tidal El.(ft)	90.0	94.5	92.5	89.3	93.5	93.0
Temp.(C)	27.0	28.0	28.0	26.0	27.0	27.0
Sal.(ppt)	6.0	8.0	8.0	4.0	6.0	6.0
Vol. Filtered(m3)	68.0	67.0	50.0	60.0	50.0	70.0
EGGS:						
BAY ANCHOVY	1585.29	4191.05	6946.00	9841.67	2668.00	9654.29
WEAKFISH	2.94	0.00	0.00	0.00	0.00	0.00
LARVAE:						
BAY ANCHOVY	510.29	725.37	152.00	453.33	26.00	158.57
WEAKFISH	0.00	0.00	0.00	1.67	6.00	0.00
JUVENILES:						
BAY ANCHOVY	0.00	0.00	0.00	1.67	0.00	0.00
WEAKFISH	0.00	0.00	0.00	5.00	0.00	2.86
ADULTS:						
BAY ANCHOVY	1.47	0.00	0.00	1.67	0.00	1.43

Table 1.2-2
Continued

Date	7/20/87	7/20/87	7/24/87	7/24/87	7/24/87	7/27/87
Time	1210	1525	830	1120	1400	807
Location	I22A	I22A	I22A	I22A	I22A	I22A
Tide	Ebb 2	Flood 1	Flood 1	Flood 2	Ebb 2	Ebb 2
Tidal El.(ft)	89.0	91.0	91.0	93.3	91.0	88.0
Temp.(C)	27.5	28.0	28.0	29.0	28.5	28.0
Sal.(ppt)	6.0	6.0	7.0	6.0	6.0	6.0
Vol. Filtered(m3)	87.0	82.0	57.0	61.0	57.0	50.0
EGGS:						
BAY ANCHOVY	13501.15	1820.73	192.98	524.59	4314.04	192.00
LARVAE:						
BAY ANCHOVY	16.09	365.85	952.63	822.95	140.35	530.00
WEAKFISH	1.15	1.22	0.00	0.00	0.00	0.00
JUVENILES:						
BAY ANCHOVY	0.00	1.22	0.00	1.64	0.00	2.00
ADULTS:						
BAY ANCHOVY	3.45	0.00	0.00	0.00	0.00	0.00

Table 1.2-2
Continued

Date	7/27/87	7/27/87	7/31/87	7/31/87	7/31/87	8/ 3/87
Time	1103	1405	817	1112	1414	1038
Location	I22A	I22A	I22A	I22A	I22A	I22A
Tide	Flood 2	Ebb 1	Ebb 2	Flood 1	Flood 2	Ebb 2
Tidal El.(ft)	92.6	92.8	88.5	90.0	93.8	90.5
Temp.(C)	28.0	28.0	28.0	28.0	29.0	28.0
Sal.(ppt)	8.0	8.0	6.0	4.0	6.0	8.0
Vol. Filtered(m3)	62.0	66.0	50.0	32.0	50.0	78.0
EGGS:						
BAY ANCHOVY	1343.55	2424.24	4750.00	2832.69	2556.00	1487.18
LARVAE:						
BAY ANCHOVY	466.13	818.18	90.00	192.31	54.00	144.87
WEAKFISH	4.84	0.00	0.00	1.92	0.00	0.00
JUVENILES:						
BAY ANCHOVY	0.00	0.00	0.00	0.00	0.00	1.28
WEAKFISH	0.00	0.00	0.00	0.00	0.00	1.28
ADULTS:						

Table 1.2-2
Continued

Date	8/ 3/87	8/ 3/87	8/ 7/87	8/ 7/87	8/ 7/87	8/10/87
Time	1324	1528	720	1000	1350	906
Location	I22A	I22A	I22A	I22A	I22A	I22A
Tide	Ebb 2	Flood 2	Flood 2	Flood 2	Ebb 2	Flood 1
Tidal El.(ft)	88.0	92.5	92.0	93.5	89.9	91.1
Temp.(C)	28.0	28.0	26.0	26.0	26.0	29.0
Sal.(ppt)	6.0	8.0	10.0	10.0	8.0	6.0
Vol. Filtered(m3)	83.5	109.0	93.2	60.0	88.0	117.0
EGGS:						
BAY ANCHOVY	1022.75	2376.15	1243.95	1931.67	552.27	537.61
LARVAE:						
BAY ANCHOVY	202.40	28.44	176.41	175.00	47.73	60.68
JUVENILES:						
BAY ANCHOVY	0.00	0.00	0.00	1.67	0.00	0.85
WEAKFISH	0.00	0.00	0.00	0.00	0.00	0.85
ADULTS:						

Table 1.2-2
Continued

Date	8/10/87	8/10/87	8/26/87	8/26/87	8/26/87	8/28/87
Time	1201	1445	1111	1330	1615	804
Location	I22A	I22A	I22A	I22A	I22A	I22A
Tide	Flood 2	Ebb 1	Flood 2	Ebb 1	Ebb 1	Ebb 2
Tidal El.(ft)	94.5	91.8	93.0	93.4	90.0	89.5
Temp.(C)	28.0	28.0	25.0	25.0	24.0	24.5
Sal.(ppt)	8.0	8.0	10.0	10.0	10.0	10;0
Vol. Filtered(m3)	55.0	62.0	67.0	58.0	74.0	50.0
EGGS:						
BAY ANCHOVY	1125.45	1480.65	14.93	108.62	48.65	160.00
LARVAE:						
BAY ANCHOVY	52.73	69.35	91.04	75.86	35.14	92.00
JUVENILES:						
BAY ANCHOVY	1.82	0.00	0.00	5.17	0.00	10.00
WEAKFISH	0.00	1.61	0.00	0.00	0.00	0.00
ADULTS:						

Table 1.2-2
Continued

Date	8/28/87	8/28/87	8/31/87	8/31/87	8/31/87	9/ 4/87
Time	1101	1456	847	1138	1425	808
Location	I22A	I22A	I22A	I22A	I22A	I22A
Tide	Flood 2	Ebb 1	Ebb 2	Flood 1	Flood 2	Flood 2
Tidal El.(ft)	92.6	94.0	83.9	89.9	92.5	93.2
Temp.(C)	25.0	25.0	24.0	24.0	24.0	21.0
Sal.(ppt)	10.0	12.0	10.0	8.0	8.0	12.0
Vol. Filtered(m3)	55.3	52.0	61.0	83.0	72.0	50.0
EGGS:						
BAY ANCHOVY	101.27	384.62	0.00	0.00	6.94	0.00
LARVAE:						
BAY ANCHOVY	79.57	67.31	13.11	35.96	5.56	12.00
WEAKFISH	0.00	0.00	0.00	0.00	1.39	0.00
JUVENILES:						
BAY ANCHOVY	0.00	3.85	1.64	2.25	1.39	0.00
ADULTS:						

Table 1.2-2
Continued

Date	9/ 4/87	9/ 4/87	9/ 7/87	9/ 7/87	9/ 7/87	9/11/87
Time	1109	1401	903	1152	1503	821
Location	I22A	I22A	I22A	I22A	I22A	I22A
Tide	Ebb 1	Ebb 2	Flood 2	Flood 2	Ebb 2	Ebb 2
Tidal El.(ft)	91.0	88.5	93.0	94.5	89.9	88.0
Temp.(C)	23.5	23.0	24.0	24.0	24.0	24.0
Sal.(ppt)	10.0	9.0	8.0	10.0	11.0	5.0
Vol. Filtered(m3)	61.0	52.0	62.0	50.0	50.0	63.0
EGGS:						
LARVAE:						
BAY ANCHOVY	4.92	5.77	1.61	26.00	10.00	4.76
JUVENILES:						
BAY ANCHOVY	0.00	1.92	0.00	0.00	0.00	9.52
ADULTS:						

Table 1.2-2
Continued

Date	9/11/87	9/11/87	9/14/87	9/14/87	9/14/87	9/18/87
Time	1117	1410	749	1030	1312	820
Location	I22A	I22A	I22A	I22A	I22A	I22A
Tide	Flood 2	Flood 2	Ebb 2	Ebb 2	Flood 1	Flood 2
Tidal El.(ft)	92.5	94.5	90.5	88.6	92.0	93.5
Temp.(C)	23.0	23.0	25.0	24.5	23.0	24.0
Sal.(ppt)	6.0	8.0	5.0	3.0	5.0	2.0
Vol. Filtered(m3)	76.0	58.0	76.0	53.0	54.0	54.0
EGGS:						
LARVAE:						
BAY ANCHOVY	10.53	6.90	25.00	15.09	7.41	5.56
JUVENILES:						
BAY ANCHOVY	0.00	0.00	2.63	0.00	0.00	14.81
ADULTS:						

Table 1.2-2
Continued

Date	9/18/87	9/18/87	9/21/87	9/21/87	9/21/87	9/23/87
Time	1054	1436	837	1130	1436	800
Location	I22A	I22A	I22A	I22A	I22A	I22A
Tide	Ebb 1	Ebb 2	Flood 2	Flood Slack	Flood 1	Ebb 2
Tidal El.(ft)	91.6	88.5	93.3	93.8	90.8	89.0
Temp.(C)	25.0	25.0	23.0	23.0	23.5	21.5
Sal.(ppt)	4.0	4.0	6.0	6.0	5.0	1.0
Vol. Filtered(m3)	51.0	50.0	60.0	56.0	50.0	66.0
EGGS:						
LARVAE:						
BAY ANCHOVY	0.00	0.00	5.00	3.57	0.00	3.03
JUVENILES:						
BAY ANCHOVY	0.00	6.00	0.00	5.36	2.00	1.52
WEAKFISH	1.96	4.00	0.00	0.00	0.00	0.00
ADULTS:						
BAY ANCHOVY	0.00	0.00	1.67	0.00	0.00	1.52

Table 1.2--2
Continued

Date	9/25/87	9/25/87	9/28/87	9/28/87	9/28/87	10/ 2/87
Time	1057	1413	857	1200	1457	827
Location	I22A	I22A	I22A	I22A	I22A	I22A
Tide	Flood 2	Ebb 1	Ebb 2	Flood 1	Flood 2	Flood 2
Tidal El.(ft)	93.0	93.5	88.0	91.6	94.3	93.0
Temp.(C)	21.5	21.5	22.0	22.0	23.0	19.0
Sal.(ppt)	2.0	5.0	4.0	3.0	4.0	4.0
Vol. Filtered(m3)	51.0	60.0	50.0	69.0	53.0	56.0
EGGS:						
BAY ANCHOVY	1.96	0.00	0.00	0.00	0.00	0.00
LARVAE:						
JUVENILES:						
BAY ANCHOVY	0.00	1.67	12.00	0.00	0.00	0.00
ADULTS:						
BAY ANCHOVY	0.00	0.00	2.00	1.45	0.00	5.36

Table 1.2-2
Continued

Date	10/ 2/87	10/ 2/87
Time	1132	1443
Location	I22A	I22A
Tide	Ebb 1	Flood 1
Tidal El.(ft)	89.0	89.0
Temp.(C)	20.5	20.5
Sal.(ppt)	5.0	4.0
Vol. Filtered(m3)	49.5	50.0
EGGS:		
LARVAE:		
JUVENILES:		
BAY ANCHOVY	0.00	2.00
ADULTS:		
BAY ANCHOVY	6.06	8.00

Table 1.2-3
Weekly mean density (n/100m^3) of fish eggs, larvae, juveniles, and adults taken in entrainment abundance collections at the SGS circulating water system (CWS) intake during 1987.

Date	Tot. Vol. Filtered	Bay Anchovy				Weakfish			White Perch
		Eggs	Larvae	Young	Adults	Eggs	Larvae	Young	Young
17 Apr	170.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22 Apr	399.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25
29 Apr	358.0	0.00	0.00	0.00	0.84	0.00	0.00	0.00	0.00
06 May	334.0	0.00	0.00	0.00	1.50	0.00	0.00	0.00	0.00
13 May	311.0	0.00	0.00	0.00	2.25	0.00	0.00	0.00	0.00
20 May	329.0	0.61	0.00	0.00	0.61	0.00	0.00	0.00	0.00
27 May	305.0	55.08	0.00	0.00	1.64	0.00	0.66	0.00	0.00
03 Jun	312.2	1,289.24	0.00	0.00	0.96	0.96	0.96	0.00	0.00
10 Jun	322.0	1,789.75	16.15	0.00	0.62	0.00	1.24	0.00	0.00
15 Jun	164.0	3,939.63	14.02	0.00	0.61	0.00	2.44	1.22	0.00
24 Jun	320.2	9,603.06	164.58	0.62	0.62	56.84	0.00	0.94	0.00
01 Jul	409.0	6,426.89	207.33	1.47	1.96	1.96	0.24	0.00	0.00
08 Jul	433.4	10,275.73	212.28	0.46	0.46	0.23	0.69	0.00	0.00
15 Jul	295.0	4,948.47	404.75	0.34	0.68	0.68	1.36	1.02	0.00
22 Jul	414.0	5,528.02	374.40	0.48	0.97	0.00	0.48	0.48	0.00
29 Jul	330.0	2,319.70	383.64	0.30	0.00	0.00	1.21	0.00	0.00
05 Aug	517.7	1,445.43	122.66	0.39	0.00	0.00	0.00	0.19	0.00
10 Aug	234.0	925.64	61.11	0.85	0.00	0.00	0.00	0.85	0.00
27 Aug	356.3	124.89	71.85	2.81	0.00	0.00	0.00	0.00	0.00
02 Sep	385.0	1.30	14.55	1.30	0.00	0.00	0.26	0.00	0.00
09 Sep	359.0	0.00	9.47	1.67	0.00	0.00	0.00	0.00	0.00
16 Sep	338.0	0.00	10.06	3.85	0.00	0.00	0.00	0.89	0.00
23 Sep	343.0	0.29	2.04	1.75	0.58	0.00	0.00	0.00	0.00
30 Sep	333.5	0.00	0.00	2.10	3.60	0.00	0.00	0.00	0.00

Table 1.2-4
Length frequency of subsampled bay anchovy taken in entrainment abundance collections at the SGS circulating water system (CWS) intake during 1987.

Length(mm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.1 - 2.0				0	0	0	40	1	0	0		
2.1 - 3.0				0	0	31	174	29	0	0		
3.1 - 4.0				0	0	66	149	53	0	0		
4.1 - 5.0				0	0	81	113	44	2	0		
5.1 - 6.0				0	0	48	64	33	2	0		
6.1 - 7.0				0	0	16	22	29	2	0		
7.1 - 8.0				0	0	10	16	27	7	0		
8.1 - 9.0				0	0	5	13	26	4	0		
9.1 - 10.0				0	0	4	13	21	7	0		
10.1 - 11.0				0	0	5	8	14	4	0		
11.1 - 12.0				0	0	1	5	18	8	0		
12.1 - 13.0				0	0	4	0	10	4	0		
13.1 - 14.0				0	0	0	3	19	6	0		
14.1 - 15.0				0	0	1	4	18	11	0		
15.1 - 16.0				0	0	0	1	18	4	0		
16.1 - 17.0				0	0	0	1	30	4	0		
17.1 - 18.0				0	0	1	3	14	8	0		
18.1 - 19.0				0	0	1	1	15	9	0		
19.1 - 20.0				0	0	0	3	11	3	0		
20.1 - 21.0				0	0	4	2	6	9	0		
21.1 - 22.0				0	0	0	2	2	4	0		
22.1 - 23.0				0	0	1	1	0	2	0		
23.1 - 24.0				0	0	0	0	0	0	0		
24.1 - 25.0				0	0	1	0	0	2	0		
25.1 - 26.0				0	0	1	0	0	0	0		
26.1 - 27.0				0	0	0	0	1	0	0		
27.1 - 28.0				0	0	0	0	0	0	0		
28.1 - 29.0				0	0	0	0	0	0	0		
29.1 - 30.0				0	0	0	0	1	1	0		
30.1 - 31.0				0	0	0	0	0	0	0		
31.1 - 32.0				0	0	0	0	0	0	0		
32.1 - 33.0				0	0	0	0	0	0	0		
33.1 - 34.0				0	0	0	0	0	0	0		
34.1 - 35.0				0	0	0	0	0	1	0		
35.1 - 36.0				0	0	0	0	0	0	0		
36.1 - 37.0				0	0	0	0	0	0	0		
37.1 - 38.0				0	0	0	0	0	4	0		
38.1 - 39.0				0	0	0	0	0	0	0		
39.1 - 40.0				0	0	0	0	0	1	0		
40.1 - 41.0				0	0	0	0	0	0	0		
41.1 - 42.0				0	0	0	0	0	0	0		
42.1 - 43.0				0	0	0	0	0	2	0		
43.1 - 44.0				0	0	0	0	0	0	0		
44.1 - 45.0				0	0	0	0	0	0	0		
45.1 - 46.0				0	0	0	0	0	0	0		
46.1 - 47.0				0	0	0	0	0	1	0		
47.1 - 48.0				0	1	0	0	0	1	0		
48.1 - 49.0				0	1	0	0	0	2	0		
49.1 - 50.0				0	1	0	0	0	1	0		
50.1 - 51.0				0	1	0	0	0	0	0		

Table 1.2-4
Continued

Length(mm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
51.1 - 52.0				0	1	0	1	0	0	0		
52.1 - 53.0				0	2	0	1	0	0	0		
53.1 - 54.0				0	0	1	0	0	0	1		
54.1 - 55.0				0	0	0	0	0	0	0		
55.1 - 56.0				0	0	0	1	0	0	0		
56.1 - 57.0				0	0	1	0	0	0	0		
57.1 - 58.0				0	1	0	1	0	0	0		
58.1 - 59.0				0	3	0	0	0	0	2		
59.1 - 60.0				0	2	2	0	0	0	0		
60.1 - 61.0				0	2	1	0	0	0	1		
61.1 - 62.0				0	1	0	0	0	0	0		
62.1 - 63.0				0	0	1	1	0	0	0		
63.1 - 64.0				0	2	2	1	0	0	0		
64.1 - 65.0				0	0	0	1	0	0	0		
65.1 - 66.0				0	0	0	0	0	0	0		
66.1 - 67.0				0	1	0	0	0	1	1		
67.1 - 68.0				0	0	2	1	0	0	2		
68.1 - 69.0				0	1	0	0	0	1	0		
69.1 - 70.0				0	1	2	0	0	0	0		
70.1 - 71.0				0	1	1	1	0	1	0		
71.1 - 72.0				0	0	0	0	0	0	0		
72.1 - 73.0				0	0	0	0	0	0	1		
73.1 - 74.0				0	0	0	0	0	1	1		
74.1 - 75.0				0	0	0	0	0	0	1		
75.1 - 76.0				0	0	0	0	0	0	1		
76.1 - 77.0				0	0	0	0	0	0	0		
77.1 - 78.0				0	0	0	0	0	0	0		
78.1 - 79.0				0	0	0	0	0	0	0		
79.1 - 80.0				0	0	0	0	0	0	0		
80.1 - 81.0				0	0	0	0	0	0	0		
81.1 - 82.0				0	0	0	0	0	0	0		
82.1 - 83.0				0	0	0	1	0	0	0		

Table 1.2-5
Length frequency of subsampled weakfish taken in entrainment abundance collections at the SGS circulating water system (CWS) intake during 1987.

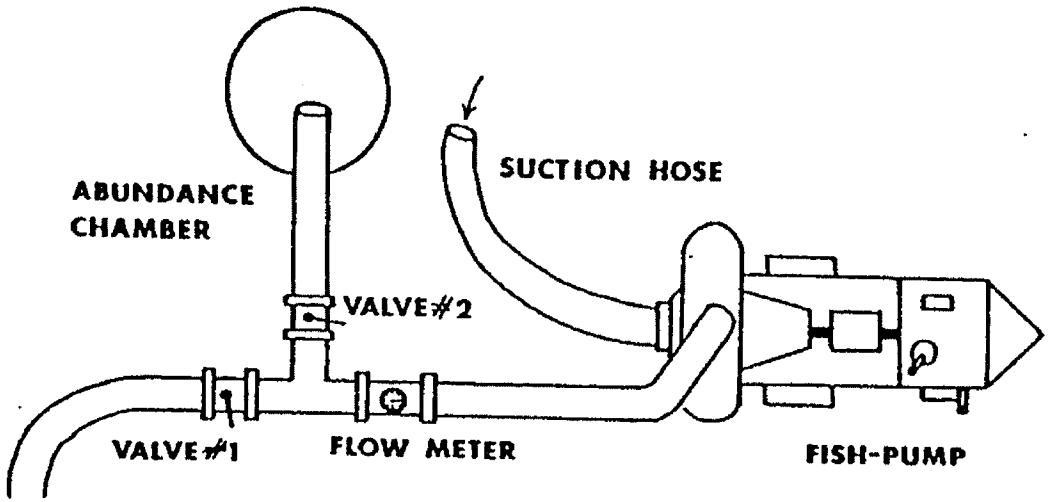
Length(mm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2.1 - 3.0				0	0	0	2	0	0	0		
3.1 - 4.0				0	1	4	0	0	0	0		
4.1 - 5.0				0	1	2	2	0	0	0		
5.1 - 6.0				0	0	1	3	0	0	0		
6.1 - 7.0				0	0	2	2	0	0	0		
7.1 - 8.0				0	0	1	2	0	0	0		
8.1 - 9.0				0	0	0	3	0	0	0		
9.1 - 10.0				0	0	1	0	1	0	0		
10.1 - 11.0				0	0	0	1	0	0	0		
11.1 - 12.0				0	0	1	2	0	0	0		
12.1 - 13.0				0	0	0	0	0	0	0		
13.1 - 14.0				0	0	0	1	0	0	0		
14.1 - 15.0				0	0	0	0	0	0	0		
15.1 - 16.0				0	0	0	1	0	0	0		
16.1 - 17.0				0	0	0	0	0	0	0		
17.1 - 18.0				0	0	0	0	0	0	0		
18.1 - 19.0				0	0	0	0	0	0	0		
19.1 - 20.0				0	0	0	0	0	0	0		
20.1 - 21.0				0	0	0	0	0	0	0		
21.1 - 22.0				0	0	0	0	0	0	0		
22.1 - 23.0				0	0	0	0	0	0	0		
23.1 - 24.0				0	0	1	0	0	0	0		
24.1 - 25.0				0	0	0	0	0	0	0		
25.1 - 26.0				0	0	0	0	0	0	0		
26.1 - 27.0				0	0	0	0	0	0	0		
27.1 - 28.0				0	0	1	0	0	0	0		
28.1 - 29.0				0	0	0	0	0	0	0		
29.1 - 30.0				0	0	0	0	0	0	0		
30.1 - 31.0				0	0	0	0	1	0	0		
31.1 - 32.0				0	0	0	1	0	0	0		
32.1 - 33.0				0	0	1	0	0	0	0		
33.1 - 34.0				0	0	0	0	0	0	0		
34.1 - 35.0				0	0	0	0	0	0	0		
35.1 - 36.0				0	0	0	0	0	0	0		
36.1 - 37.0				0	0	0	0	0	0	0		
37.1 - 38.0				0	0	0	1	1	0	0		
38.1 - 39.0				0	0	1	0	0	0	0		
39.1 - 40.0				0	0	0	0	0	0	0		
40.1 - 41.0				0	0	0	0	0	0	0		
41.1 - 42.0				0	0	0	0	0	0	0		
42.1 - 43.0				0	0	0	0	0	0	0		
43.1 - 44.0				0	0	0	0	0	1	0		
44.1 - 45.0				0	0	0	0	0	0	0		
45.1 - 46.0				0	0	0	0	0	0	0		
46.1 - 47.0				0	0	0	0	0	0	0		
47.1 - 48.0				0	0	0	0	0	0	0		
48.1 - 49.0				0	0	0	0	0	0	0		
49.1 - 50.0				0	0	0	0	1	0	0		
50.1 - 51.0				0	0	0	0	0	0	0		
51.1 - 52.0				0	0	0	0	0	0	0		
52.1 - 53.0				0	0	0	0	0	0	0		
53.1 - 54.0				0	0	0	0	0	1	0		
54.1 - 55.0				0	0	0	0	0	0	0		
55.1 - 56.0				0	0	0	0	0	0	0		

Table 1.2-5
Continued

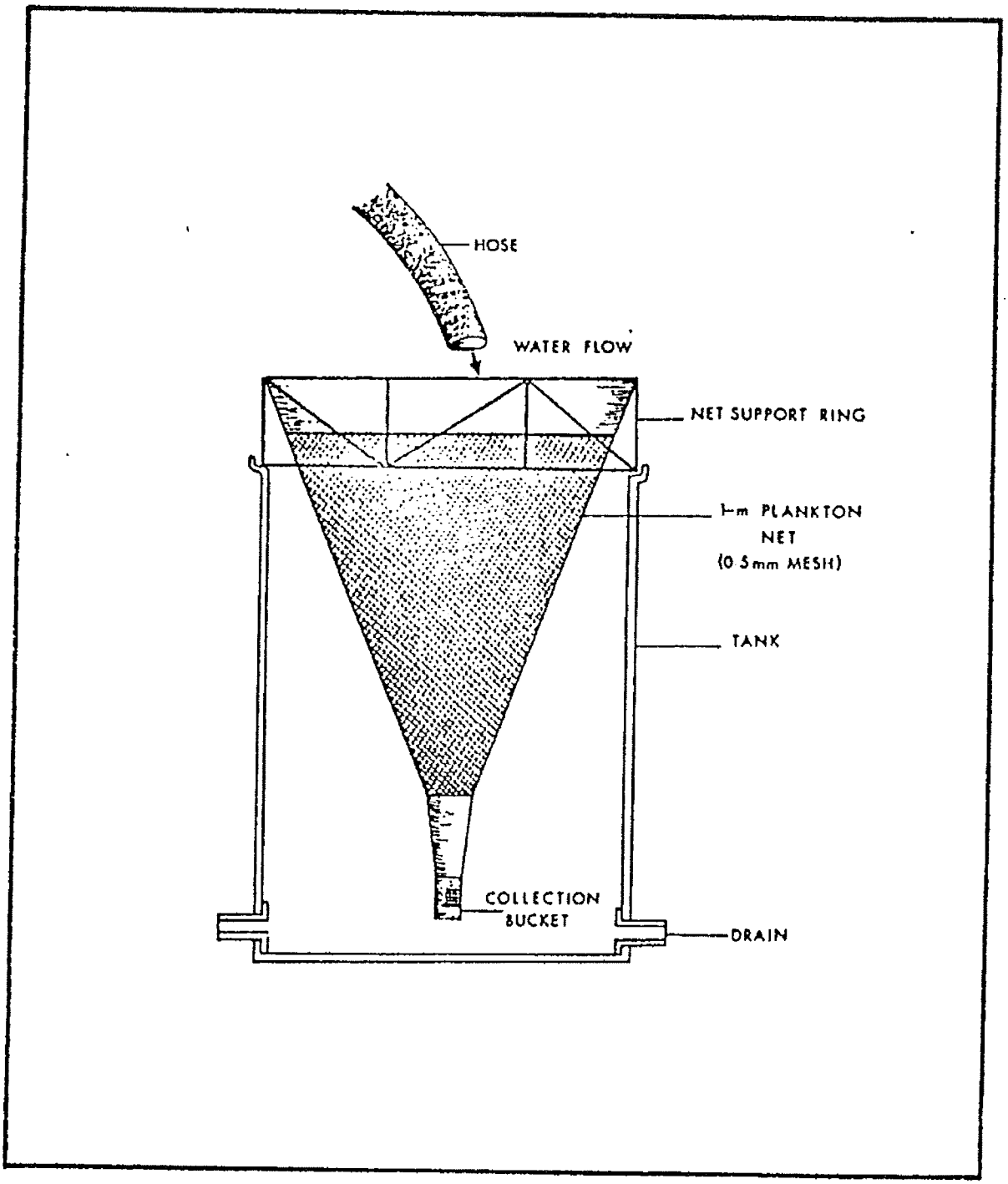
Length(mm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
56.1 - 57.0					0	0	0	0	0	0	0	
57.1 - 58.0					0	0	0	0	0	0	0	
58.1 - 59.0					0	0	0	0	0	0	0	
59.1 - 60.0					0	0	0	0	0	0	0	
60.1 - 61.0					0	0	0	0	0	0	0	
61.1 - 62.0					0	0	0	0	0	0	0	
62.1 - 63.0					0	0	0	0	0	0	0	
63.1 - 64.0					0	0	0	0	0	0	0	
64.1 - 65.0					0	0	0	0	0	0	0	
65.1 - 66.0					0	0	0	0	0	0	0	
66.1 - 67.0					0	0	0	0	0	0	0	
67.1 - 68.0					0	0	0	0	0	0	0	
68.1 - 69.0					0	0	0	0	0	0	0	
69.1 - 70.0					0	0	0	0	0	0	0	
70.1 - 71.0					0	0	0	0	0	0	0	
71.1 - 72.0					0	0	0	0	0	0	0	
72.1 - 73.0					0	0	0	0	0	0	0	
73.1 - 74.0					0	0	0	0	0	0	0	
74.1 - 75.0					0	0	0	0	0	0	0	
75.1 - 76.0					0	0	0	0	0	0	0	
76.1 - 77.0					0	0	0	0	0	0	0	
77.1 - 78.0					0	0	0	0	0	0	0	
78.1 - 79.0					0	0	0	0	0	0	0	
79.1 - 80.0					0	0	0	0	0	0	0	
80.1 - 81.0					0	0	0	0	0	0	0	
81.1 - 82.0					0	0	0	0	0	0	0	
82.1 - 83.0					0	0	0	0	0	0	0	
83.1 - 84.0					0	0	0	0	0	0	0	
84.1 - 85.0					0	0	0	0	0	0	0	
85.1 - 86.0					0	0	0	0	0	0	0	
86.1 - 87.0					0	0	0	0	0	0	0	
87.1 - 88.0					0	0	0	0	0	0	0	
88.1 - 89.0					0	0	0	0	0	1	0	

Table 1.2-6
Length frequency of subsampled white perch taken in entrainment abundance collections at the SGS circulating water system (CWS) intake during 1987.

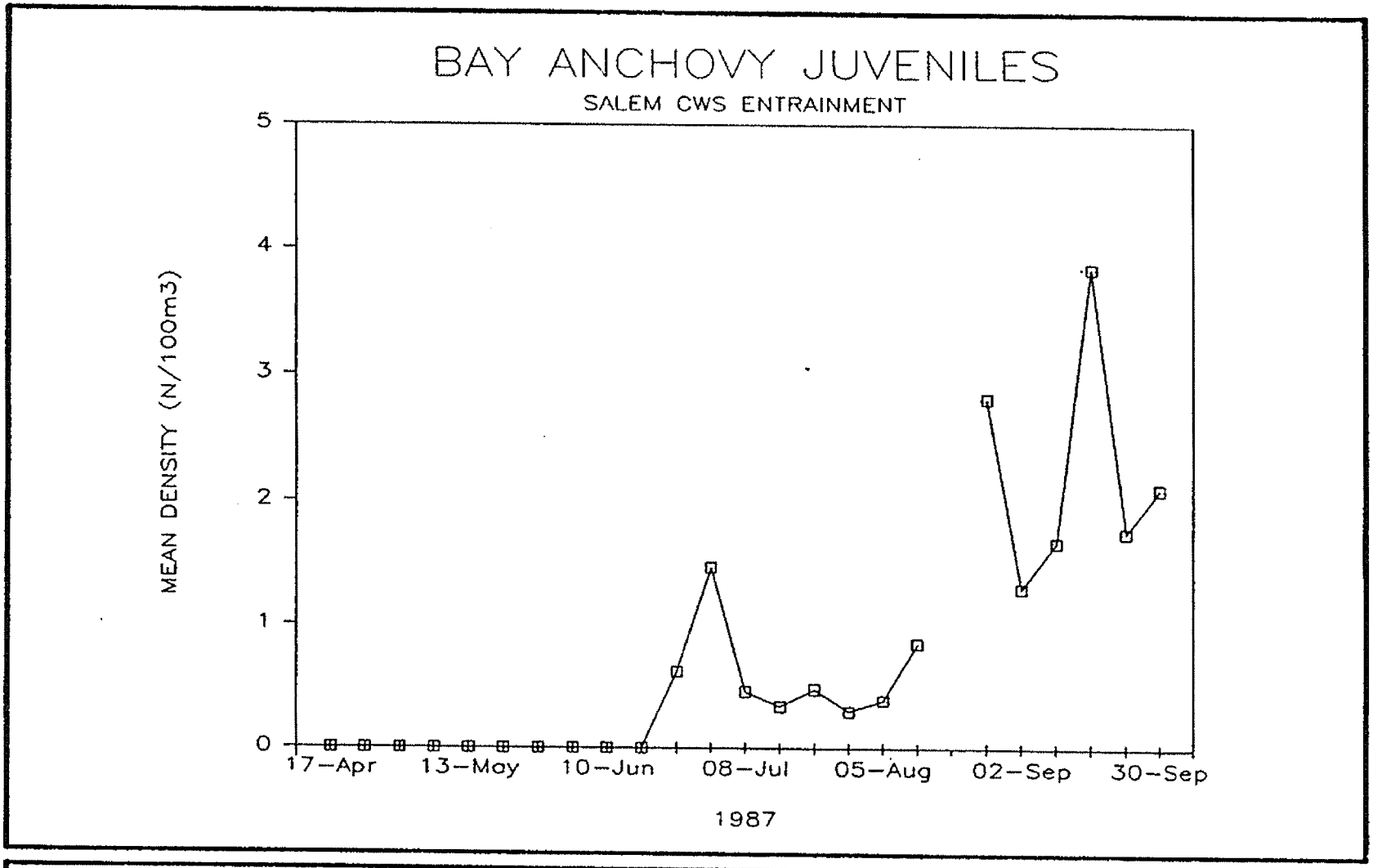
Length(mm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
82.1 - 83.0				1	0	0	0	0	0	0		



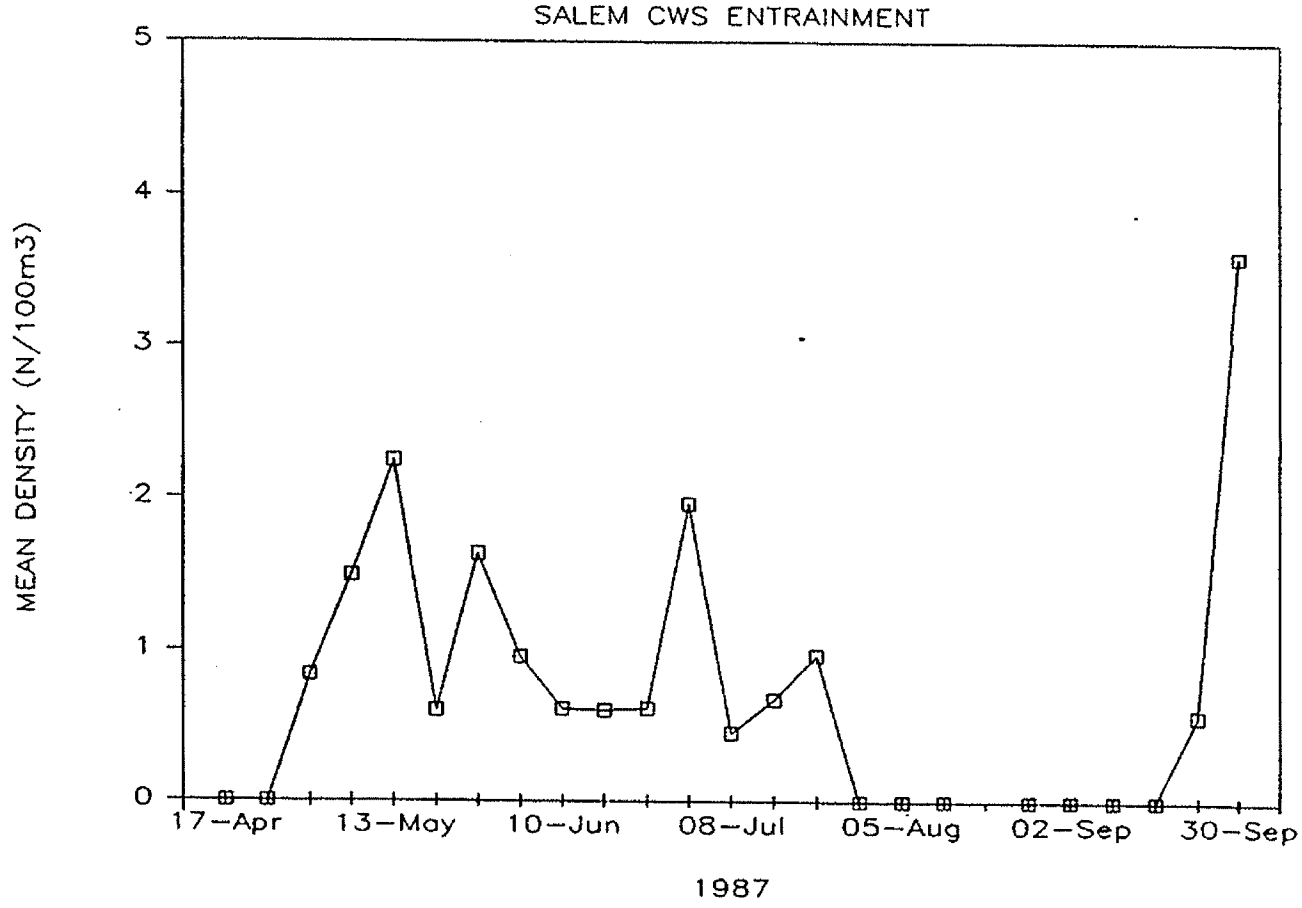
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Plankton pump and abundance chamber used in entrainment sampling.
	Figure 1.2-1



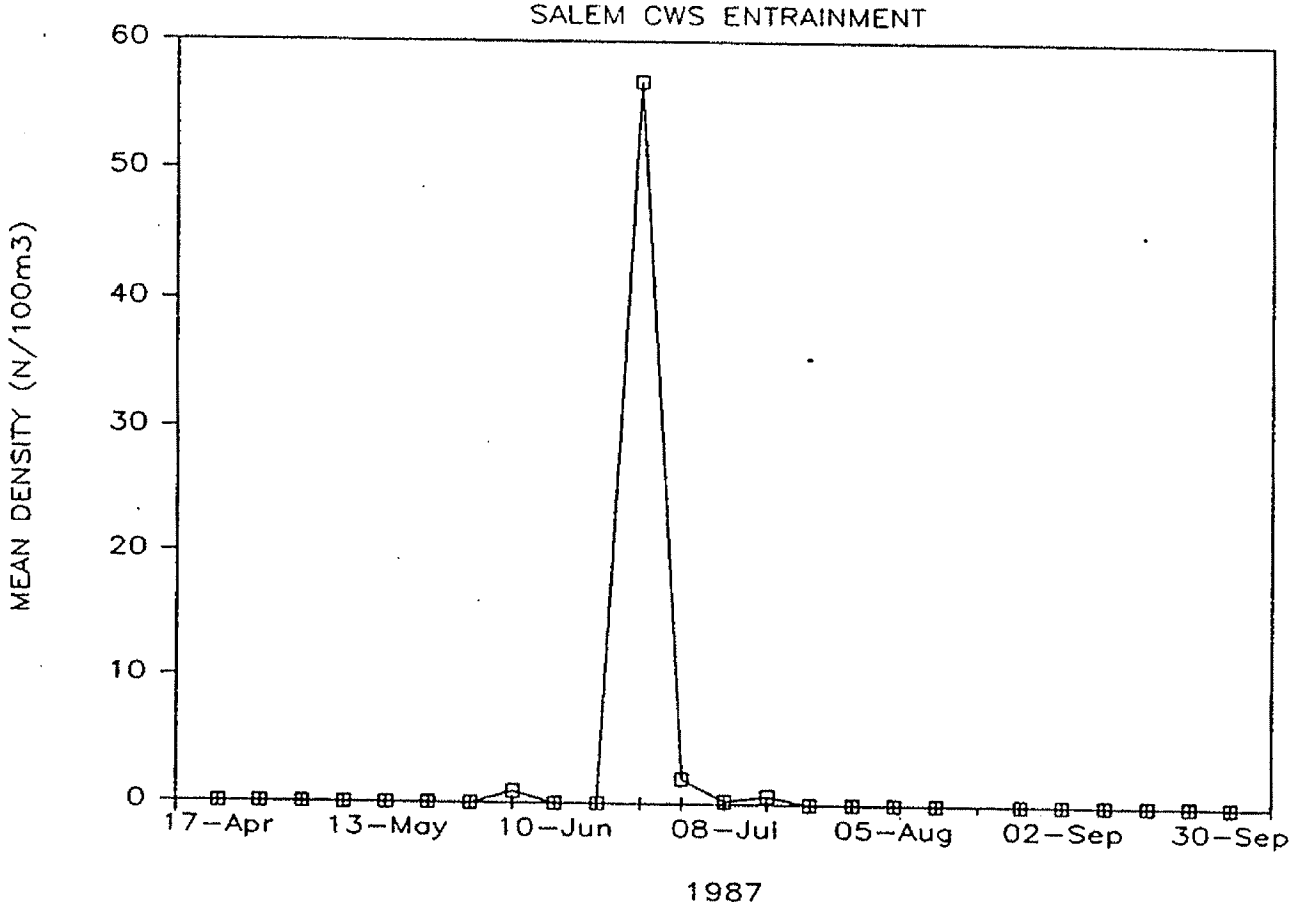
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Entrainment Abundance Chamber
	Figure 1.2-2



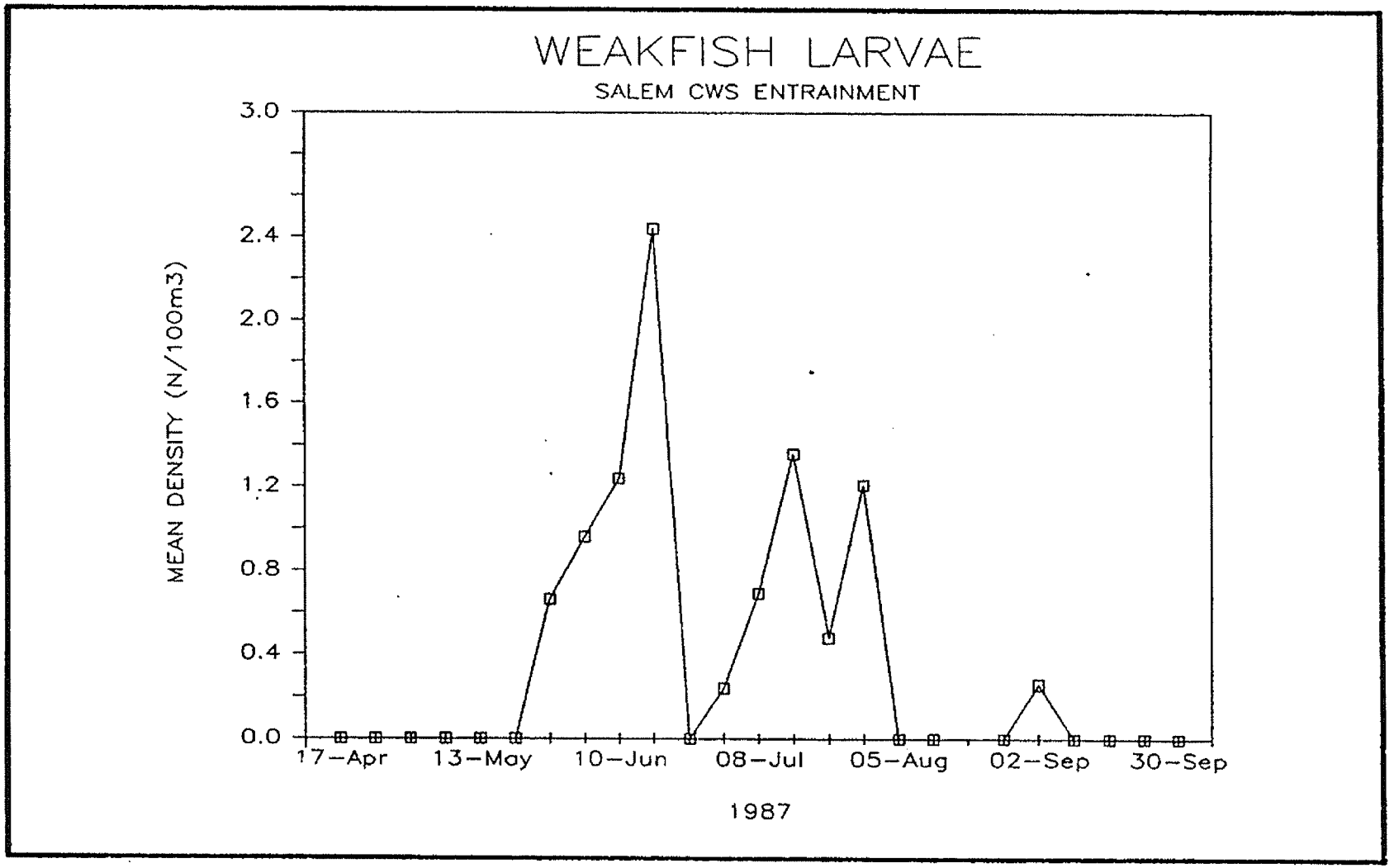
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Weekly mean density of bay anchovy juveniles taken in entrainment sampling at Salem CWS during 1987.
	Figure 1.2-5



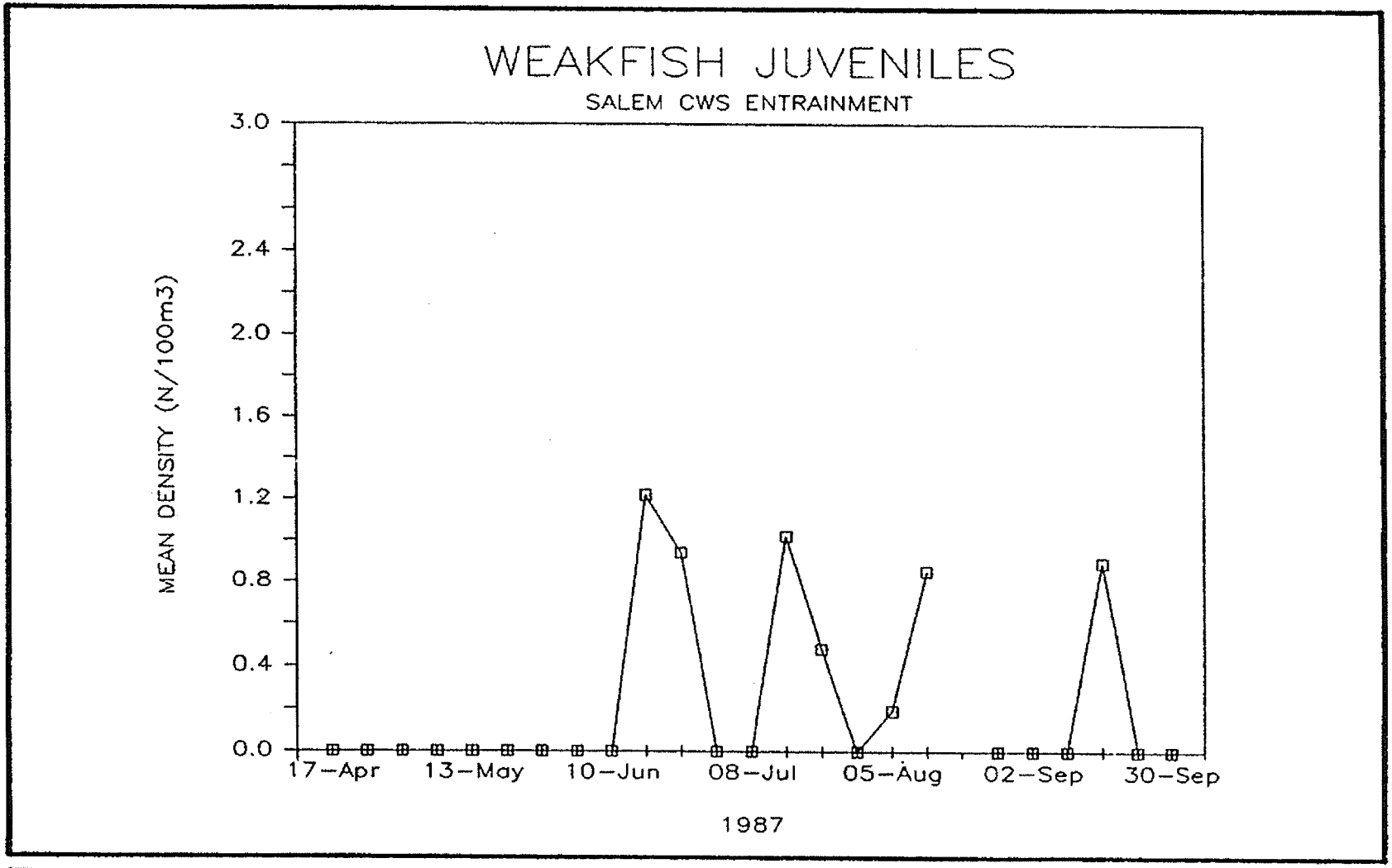
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Weekly mean density of bay anchovy adults taken in entrainment sampling at Salem CWS during 1987.
	Figure 1.2-6



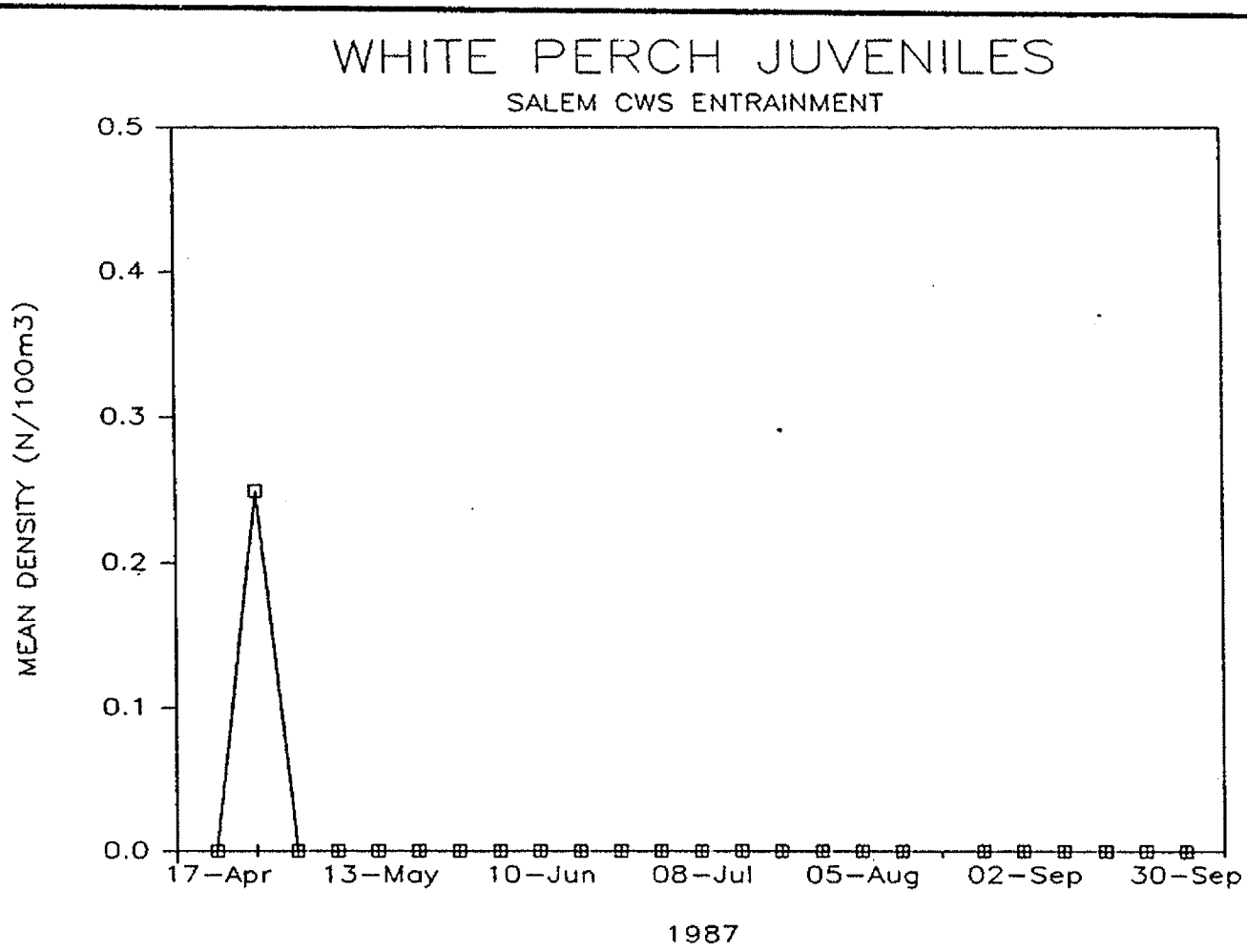
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Weekly mean density of weakfish eggs taken in entrainment sampling at Salem CWS during 1987.
	Figure 1.2-7



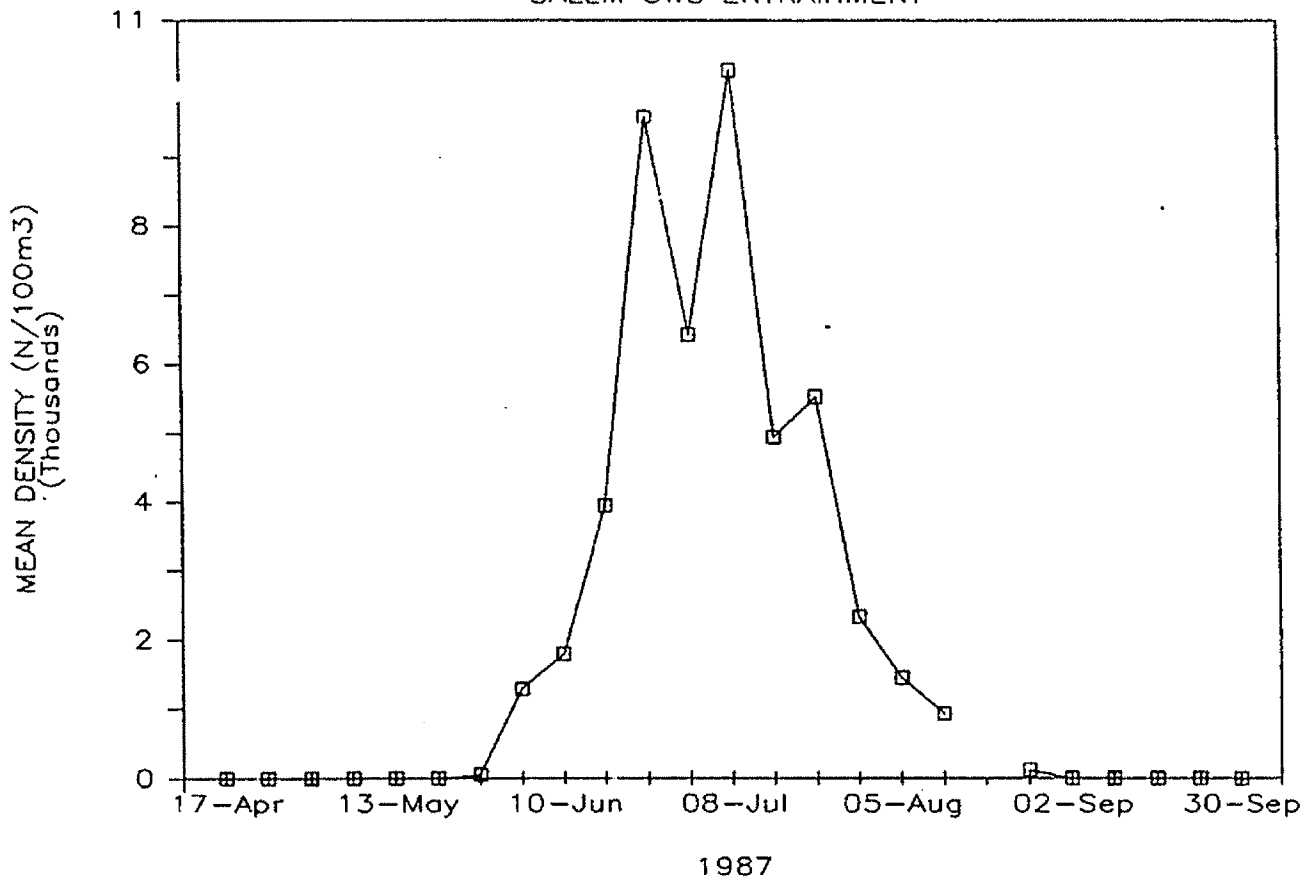
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Weekly mean density of weakfish larvae taken in entrainment sampling at Salem CWS during 1987.
	Figure 1.2-8



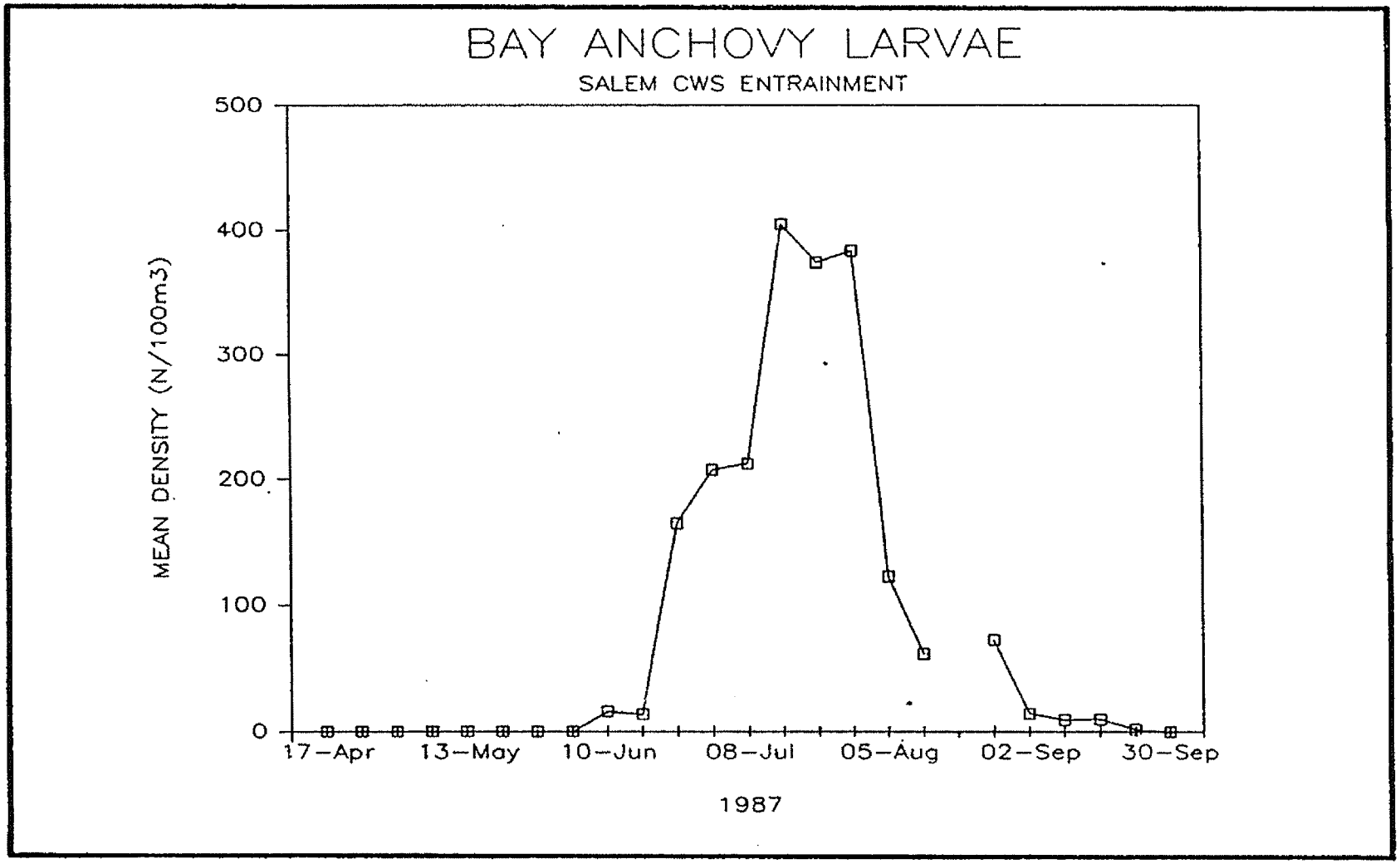
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Weekly mean density of weakfish juveniles taken in entrainment sampling at Salem CWS during 1987.
	Figure 1.2-9



PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Weekly mean density of white perch juveniles taken in entrainment sampling at Salem CWS during 1987.
	Figure 1.2-10



PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Weekly mean density of bay anchovy eggs taken in entrainment sampling at Salem CWS during 1987.
	Figure 1.2-3



PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Weekly mean density of bay anchovy larvae taken in entrainment sampling at Salem CWS during 1987.
	Figure 1.2-4

SECTION 2.0
FIELD STUDIES

2.1 ICHTHYOPLANKTON MONITORING

2.1.1 Materials and Methods

During 1987 ichthyoplankton collections were taken during daylight along a transect between SGS and Appoquinimink Creek, DE (Fig. 2.1-1). Samples were collected as five pairs, each consisting of a discrete inshore sample from immediately in front of the intake (zone W101), and an offshore sample from one of the five horizontal strata (zones W001-W005). The order in which pairs of samples were collected was determined randomly. Collections in zones W101 and W001-W004 were vertically stratified consisting of two stepwise (1.5-m intervals) oblique tows done simultaneously; one from near-surface to mid-depth (SM), and the other from mid-depth to near bottom (MB). A single stepwise oblique collection was taken in zone W005. Sample depth was determined based on the trigonometric relationship between wire angle and tow line deployed. Samples were collected twice per month during April and May, and weekly June through September. A total of 418 samples were collected; however, three were broken in transport.

Samples were collected with a standard bridled 0.5-m diameter, 0.5-mm mesh, conical plankton net fitted with an 8-kg depressor to ensure proper sampling attitude. Sample volume was determined with a General Oceanics (Model 2030 MKII) digital flowmeter positioned slightly off-center in the mouth of the net. Flowmeters were removed from service for repair when damage is noted, and for routine recalibration after use during 4-6 sampling periods. Nets were towed for 6 min in the direction of tidal flow at a boat speed sufficient to maintain a velocity of about 1.0 m/sec. Air and water temperature, dissolved oxygen, and salinity were measured in the field at the time of collection.

In the laboratory, ichthyoplankters were removed from sample detritus. Specimens of the target species were identified to the lowest practicable taxonomic level, enumerated, and up to 25 specimens of each species and life stage (i.e., larvae and juveniles) were measured to the nearest 0.5 mm total length (TL).

Ichthyoplankton densities were expressed as number per $100m^3$, computed by dividing the number of species taken by the volume filtered (m^3) and multiplying that quantity by 100. Mean density was calculated by collection period by dividing the total number of specimens in samples by the total sample volume filtered. Sample collection and processing procedures are discussed in detail in the Procedures Manual for 316(b) Studies dated April 7, 1982.

2.1.2 Results

A total of 564,398 fish eggs, 140,060 larvae, and 81 juveniles, representing at least 6 of 9 target species, was collected in 415 samples during the Ichthyoplankton Monitoring Program in 1987 (Table 2.1-1). In order of decreasing abundance, target species taken were bay anchovy, weakfish, striped bass, Alosa spp. (blueback herring and/or alewife), white perch and Atlantic croaker. A summary of collection data is presented below for each taxa.

Bay anchovy - A total of 564,084 eggs, 139,705 larvae, and 76 juveniles was taken in ichthyoplankton collections near Artificial Island during 1987 (Table 2.1-1). Eggs were taken from May 26 through September 1 at water temperature and salinity ranging from 19.0 to 30.0 C and from 4.0 to 12.0 ppt, respectively (Table 2.1-2; Fig. 2.1-2). During the period of occurrence mean density ($n/100m^3$) ranged to 13,024.82 (July 7); mean density was greater than 1,000 from June 11 through August 17 (Table 2.1-3).

Larvae were taken from May 26 through September 29 at water temperature and salinity ranging from 19.0 to 30.0 C and from 2.0 to 12.0 ppt, respectively (Table 2.1-2; Fig. 2.1-3). Mean density ranged to 3,522.71 (July 16) and was greater than 1,000 from June 23 through July 28 (Table 2.1-3).

Juveniles were taken from June 30 through September 29 at water temperature and salinity ranging from 21.0 to 28.5 C and from 2.0 to 10.0 ppt (Table 2.1-2; Fig. 2.1-4). Mean density ranged to 1.15 (August 25, see Table 2.1-3).

Based on the subsample of specimens measured, larval and juvenile bay anchovy collected during the Ichthyoplankton Monitoring Program ranged from 1.1 to 54.0 mm TL (Table 2.1-4). Specimens ranging from 1.1 to 6.0 mm TL were predominant during May through August, while specimens > 6.0 mm TL were predominant in September.

Weakfish - A total of 312 eggs, 352 larvae, and 4 juveniles were taken in ichthyoplankton collections during 1987 (Table 2.1-1). Eggs were taken from June 11 through June 30 at water temperature ranging from 22.5 to 27.0 C and salinity ranging from 4.0 to 10.0 ppt (Table 2.1-2; Fig. 2.1-5). Mean density ranged to 23.57 (June 11, see Table 2.1-3).

Larvae were taken from May 26 through August 11 at water temperature and salinity ranging from 18.5 to 30.0 C and from 4.0 to 10.0 ppt, respectively (Table 2.1-2; Fig. 2.1-6). Mean density ranged to 11.31 (June 11, see Table 2.1-3).

Juveniles were taken on June 16 and 23, and on July 7 and 23 at water temperature and salinity ranging from 24.5 to 28.0 C and from 6.0 to 10.0 ppt, respectively (Table 2.1-2; Fig. 2.1-7). Mean density ranged to 0.12 (June 16, see Table 2.1-3).

Based on the subsample of specimens measured, larval and juvenile weakfish collected ranged from 1.1 to 53.0 mm TL (Table 2.1-5). Specimens ranging from 1.1 to 5.0 mm TL were predominant.

Striped bass - A total of two eggs and one larvae were taken in ichthyoplankton collections during 1987 (Table 2.1-1). Eggs were taken on April 13 and 28 at water temperatures of 11.5 and 14.0 C and salinities of 0.0 and 2.0 ppt, respectively (Table 2.1-2; Fig. 2.1-8). Mean density was 0.10 during both collection periods (Table 2.1-3).

The larvae was collected on April 28 at water temperature of 14.0 and salinity of 2.0 ppt (Table 2.1-2; Fig. 2.1-9). Mean density was 0.10, and the specimen was 3.5 mm TL (Tables 2.1-3 and 2.1-6).

Alosa spp. - A single larval specimen was taken in ichthyoplankton collections near Artificial Island on April 13 at water temperature and salinity of 12.0 C and 2.0 ppt, respectively (Tables 2.1-1 and 2.1-2; Fig. 2.1-10). Mean density was 0.10 during that collection period, and the specimen was 5.0 mm TL (Tables 2.1-3 and 2.1-7).

White perch - A single larval specimen was collected in ichthyoplankton samples on April 13 at water temperature and salinity of 11.5 C and 2.0 ppt, respectively (Tables 2.1-1 and 2.1-2; Fig. 2.1-11). Mean density was 0.10 during the collection period and the specimen was 4.0 mm TL (Tables 2.1-3 and 2.1-8).

Atlantic croaker - A single juvenile specimen was taken in ichthyoplankton collections near Artificial Island on September 17 at a water temperature of 24.0 C and a salinity of 10.0 ppt (Tables 2.1-1 and 2.1-2; Fig. 2.1-12). Mean density during this collection period was 0.08 (Table 2.1-3). Specimen was 16.0 mm TL (Table 2.1-9).

Table 2.1-1
Summary of physicochemical data and density of fish eggs, larvae, and juveniles taken in half meter plankton net collections in the Delaware River near Artificial Island during 1987.

Date	4/13/87 - 9/29/87
Temperature (C)	11.5 - 30.0
Salinity (ppt)	0.0 - 12.0
Number of samples	415
Volume filtered (m3)	22,329.7

	Number	Density (n/100m3)
Eggs:		
Bay anchovy	564,084	2,526.16
Striped bass	2	0.01
Weakfish	312	1.40
Larvae:		
Alosa spp.	1	0.00
Bay anchovy	139,705	625.65
White perch	1	< 0.01
Striped bass	1	< 0.01
Weakfish	352	1.58
Juveniles:		
Bay anchovy	76	0.34
Weakfish	4	0.02
Atlantic croaker	1	< 0.01
Total eggs	564,398	2,527.57
Total larvae	140,060	627.23
Total juveniles	81	0.36

Table 2.1-2

Physicochemical data and density of fish eggs, larvae, and juveniles taken in ichthyoplankton collections in the Delaware River near Artificial Island in 1987.

Date		4/13/87	4/13/87	4/13/87	4/13/87	4/13/87
Time		1335	1356	1410	1428	1447
Location		W001	W101	W101	W002	W004
Tide		Ebb 1	Ebb 1	Ebb 1	Ebb 1	Ebb 1
Heading		S	S	S	S	S
Temp.(C)	Air	15.0	15.0	11.5	11.5	-
	Surface	12.0	12.0	12.0	11.5	11.5
	Bottom	12.0	12.0	12.0	11.5	11.5
Sal.(ppt)	Surface	2.0	2.0	2.0	2.0	2.0
	Bottom	2.0	2.0	2.0	4.0	2.0
D.O.(ppm)	Surface	9.9	9.9	9.9	8.7	9.0
	Bottom	11.1	11.1	11.1	8.8	9.9
Depth(feet)		25 TO 26	18 TO 21	18 TO 19	27 TO 28	29 TO 32
Sample Depth		SM MB	SM MB	SM MB	SM MB	SM MB
Vol. Filtered(m3)		54.0 59.9	57.6 62.3	52.8 48.2	61.0 72.6	63.5 73.0

EGGS:

LARVAE:

JUVENILES:

Table 2.1-2
Continued

Date		4/13/87		4/13/87		4/13/87		4/13/87	
Time		1509		1524		1542		1692	
Location		W101		W101		W003		W101	
Tide		Ebb 1		Ebb 1		Ebb 1		Ebb 2	
Heading		S		S		S		S	
Temp.(C)	Air	-		-		-		-	
	Surface	12.0		12.0		12.0		12.0	
	Bottom	12.0		12.0		11.5		12.0	
Sal.(ppt)	Surface	2.0		2.0		0.0		2.0	
	Bottom	2.0		2.0		2.0		2.0	
D.O.(ppm)	Surface	9.2		9.2		10.8		9.5	
	Bottom	10.5		10.5		10.5		10.7	
Depth(feet)		18 TO 20		18 TO 19		41 TO 43		18 TO 20	
Sample Depth		SM	MB	SM	MB	SM	MB	SM	MB
Vol. Filtered(m3)		47.1	44.4	43.2	26.4	63.0	76.5	36.8	33.1

EGGS:										
STRIPED BASS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.81	0.00
LARVAE:										
ALOSA SPP.	0.00	0.00	0.00	0.00	0.00	0.00	2.72	0.00	0.00	0.00
WHITE PERCH	0.00	0.00	0.00	0.00	0.00	1.31	0.00	0.00	0.00	0.00
JUVENILES:										

Table 2.1-2
Continued

Date		4/28/87	4/28/87	4/28/87	4/28/87	4/28/87
Time		920	945	1015	1030	1050
Location		W101	W003	W002	W101	W101
Tide		Flood 1	Flood 1	Flood 2	Flood 2	Flood 2
Heading		N	N	N	N	N
Temp.(C)	Air	12.0	13.0	14.0	12.0	12.0
	Surface	13.5	13.5	13.5	14.0	14.0
	Bottom	13.5	13.5	13.5	14.0	14.0
Sal.(ppt)	Surface	4.0	2.0	2.0	6.0	6.0
	Bottom	4.0	4.0	6.0	6.0	6.0
D.O.(ppm)	Surface	9.0	8.9	9.1	8.8	8.8
	Bottom	9.1	8.7	8.7	9.0	9.0
Depth(feet)		17 TO 19	45 TO 47	29 TO 31	19 TO 22	19 TO 22
Sample Depth		SM MB	SM MB	SM MB	SM MB	SM MB
Vol. Filtered(m3)		49.9 51.0	51.9 50.3	57.7 59.2	59.5 69.8	55.1 37.8

EGGS:

LARVAE:

JUVENILES:

Table 2.1-2
Continued

Date		4/28/87		4/28/87		4/28/87		4/28/87		4/28/87
Time		1106		1130		1155		1210		1223
Location		W001		W004		W101		W101		W005
Tide		Flood 2		Flood 2		Flood 2		Flood 2		Flood 2
Heading		N		N		N		N		N
Temp.(C)	Air	14.0		15.0		16.0		16.0		20.0
	Surface	14.0		13.5		14.0		14.0		14.0
	Bottom	13.5		13.5		14.0		14.0		-
Sal.(ppt)	Surface	4.0		4.0		6.0		6.0		2.0
	Bottom	6.0		6.0		6.0		6.0		-
D.O.(ppm)	Surface	9.0		8.9		9.1		9.1		9.5
	Bottom	8.7		9.0		9.1		9.1		-
Depth(feet)		18 TO 20		29 TO 32		18 TO 20		18 TO 20		8 TO 10
Sample Depth		SM	MB	SM	MB	SM	MB	SM	MB	SB	
Vol. Filtered(m3)		58.8	65.3	44.8	46.4	52.8	60.3	56.3	54.8	63.4	0.0
EGGS:											
STRIPED BASS		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.58	0.00
LARVAE:											
STRIPED BASS		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.58	0.00
JUVENILES:											

Table 2.1-2
Continued

Date		5/11/87	5/11/87	5/11/87	5/11/87	5/11/87
Time		1415	1435	1450	1515	1530
Location		W101	W002	W003	W101	W101
Tide		Ebb 2	Ebb 2	Ebb 2	Ebb 2	Ebb 2
Heading		S	S	S	S	S
Temp.(C)	Air	25.5	23.5	21.0	23.0	23.0
	Surface	17.0	17.0	17.5	17.0	17.0
	Bottom	17.0	17.0	17.0	17.0	17.0
Sal.(ppt)	Surface	6.0	6.0	4.0	4.0	4.0
	Bottom	6.0	6.0	4.0	6.0	6.0
D.O.(ppm)	Surface	9.4	9.0	9.1	9.2	9.2
	Bottom	8.8	8.7	9.1	8.7	8.7
Depth(feet)		18 TO 20	26 TO 30	40 TO 45	18 TO 20	18 TO 20
Sample Depth		SM MB	SM MB	SM MB	SM MB	SM MB
Vol. Filtered(m3)		53.4 59.0	61.4 60.2	71.0 81.4	41.0 33.7	43.8 36.5

EGGS:

LARVAE:

JUVENILES:

Table 2.1-2
Continued

Date		5/11/87	5/11/87	5/11/87	5/11/87	5/11/87
Time		1606	1625	1650	1705	1724
Location		W005	W004	W101	W101	W001
Tide		Ebb 2	Ebb 2	Ebb 2	Ebb Slack	Flood 1
Heading		S	S	S	S	N
Temp.(C)	Air	25.0	21.0	22.5	22.5	20.5
	Surface	18.0	17.5	18.0	18.0	19.0
	Bottom	-	17.5	17.5	17.5	17.0
Sal.(ppt)	Surface	4.0	4.0	4.0.	4.0	4.0
	Bottom	-	4.0	4.0	4.0	6.0
D.O.(ppm)	Surface	9.1	9.4	9.2	9.2	8.8
	Bottom	-	8.8	8.8	8.8	8.8
Depth(feet)		8 TO 10	30 TO 35	18 TO 20	14 TO 18	20 TO 24
Sample Depth		SR	SN MB	SN MB	SN MB	SN MB
Vol. Filtered(m3)		69.1 0.0	51.7 53.3	57.7 57.2	66.6 63.1	65.2 69.5

EGGS:

LARVAE:

JUVENILES:

Table 2.1-2
Continued

Date	5/26/87		5/26/87		5/26/87		5/26/87		5/26/87	
Time	938		959		1015		1030		1045	
Location	W003		W101		W101		W002		W001	
Tide	Flood 2		Flood 2		Flood 2		Flood 2		Flood 2	
Heading	N		N		N		N		N	
Temp.(C) Air	15.0		15.0		15.0		15.0		16.0	
Surface	19.0		19.5		19.5		19.0		19.0	
Bottom	19.0		19.0		19.0		19.0		19.0	
Sal.(ppt) Surface	6.0		8.0		8.0		8.0		8.0	
Bottom	6.0		8.0		8.0		8.0		8.0	
D.O.(ppm) Surface	7.5		7.2		7.2		7.4		7.3	
Bottom	6.7		6.8		6.8		7.2		7.4	
Depth(feet)	48 TO 50		18 TO 21		18 TO 20		27 TO 30		18 TO 20	
Sample Depth	SM	MB	SM	MB	SM	MB	SM	MB	SM	MB
Vol. Filtered(m3)	63.0	56.0	58.7	39.8	58.7	56.2	53.9	61.4	58.5	57.2
EGGS:										
BAY ANCHOVY	239.68	355.36	655.88	1138.19	638.84	893.24	157.70	200.33	594.87	734.27
LARVAE:										
BAY ANCHOVY	0.00	0.00	3.41	2.51	1.70	1.78	0.00	0.00	0.00	0.00
WEAKFISH	1.59	0.00	1.70	2.51	0.00	3.56	0.00	13.03	10.26	5.24
JUVENILES:										

Table 2.1-2
Continued

Date		5/26/87		5/26/87		5/26/87		5/26/87	
Time		1100		1124		1148		1204	
Location		W101		W005		W101		W101	
Tide		Flood 2		Flood 2		Flood Slack		Ebb 1	
Heading		N		N		N		S	
Temp.(C)	Air	16.0		16.5		16.5		17.0	
	Surface	19.0		18.5		19.0		19.5	
	Bottom	19.0		-		19.0		20.0	
Sal.(ppt)	Surface	8.0		6.0		8.0		8.0	
	Bottom	8.0		-		10.0		8.0	
D.O.(ppm)	Surface	7.1		7.6		7.4		7.5	
	Bottom	6.6		-		7.3		7.2	
Depth(feet)		18 TO 20		8 TO 10		17 TO 20		18 TO 20	
Sample Depth .		SM	MB	SB		SM	MB	SM	MB
Vol. Filtered(m3)		65.7	69.9	70.5	0.0	70.0	72.9	66.2	68.9

EGGS:										
BAY ANCHOVY	863.01	885.55	0.00	0.00	705.71	1027.43	114.89	170.13	11.16	72.67
LARVAE:										
BAY ANCHOVY	0.00	0.00	0.00	0.00	0.00	0.00	3.02	1.45	0.00	0.00
WEAKFISH	1.52	10.01	1.42	0.00	1.43	0.00	6.04	15.97	4.78	1.58
JUVENILES:										

Table 2.1-2
Continued

Date		6/ 3/87		6/ 3/87		6/ 3/87		6/ 3/87		6/ 3/87
Time		1100		1135		1155		1220		1235
Location		W003		W101		W101		W005		W004
Tide		Ebb 2		Flood 1		Flood 1		Flood 1		Flood 1
Heading		S		N		N		N		N
Temp.(C)	Air	20.5		21.0		21.0		21.0		20.5
	Surface	22.5		23.0		23.0		22.0		22.0
	Bottom	22.0		22.0		22.0		-		22.0
Sal.(ppt)	Surface	4.0		8.0		8.0		6.0		4.0
	Bottom	6.0		8.0		8.0		-		6.0
D.O.(ppm)	Surface	6.2		6.3		6.3		6.4		6.4
	Bottom	6.7		6.5		6.5		-		6.1
Depth(feet)		40 TO 45		14 TO 20		14 TO 20		6 TO 10		28 TO 31
Sample Depth		SM	MB	SM	MB	SM	MB	SB		SM MB
Vol. Filtered(m3)		56.5	59.6	79.5	74.1	62.6	59.9	71.6	0.0	57.1 53.9
EGGS:										
BAY ANCHOVY		513.27	676.17	401.26	1001.35	233.23	1030.05	26.54	0.00	187.39 306.17
LARVAE:										
BAY ANCHOVY		0.00	0.00	0.00	1.35	0.00	0.00	1.40	0.00	0.00 0.00
WEAKFISH		7.08	3.36	0.00	1.35	0.00	0.00	0.00	0.00	0.00 0.00
JUVENILES:										

Table 2.1-2
Continued

Date		6/ 3/87		6/ 3/87		6/ 3/87		6/ 3/87		6/ 3/87
Time		1316		1340		1357		1420		1445
Location		W101		W101		W002		W101		W001
Tide		Flood 1		Flood 1		Flood 2		Flood 2		Flood 2
Heading		N		N		N		N		N
Temp.(C)	Air	21.0		21.0		21.0		21.5		21.5
	Surface	22.0		22.0		22.0		22.5		22.5
	Bottom	22.5		22.5		22.0		22.0		22.0
Sal.(pot)	Surface	8.0		8.0		6.0		10.0		10.0
	Bottom	8.0		8.0		8.0		8.0		8.0
D.O.(ppm)	Surface	6.8		6.8		6.6		6.7		6.7
	Bottom	6.6		6.6		6.6		6.6		6.7
Depth(feet)		16 TO 21		16 TO 21		29 TO 32		16 TO 18		18 TO 22
Sample Depth		SM	MB	SM	MB	SM	MB	SM	MB	SM	MB
Vol. Filtered(m3)		42.1	56.1	70.2	70.7	73.8	66.6	45.9	87.6	45.7	71.1
EGGS:											
BAY ANCHOVY		755.34	900.18	172.36	516.27	50.14	304.80	930.28	694.06	45.95	486.64
LARVAE:											
BAY ANCHOVY		33.25	12.48	0.00	15.56	2.71	0.00	10.89	7.99	2.19	9.85
WEAKFISH		0.00	1.78	0.00	1.41	0.00	1.50	2.18	0.00	0.00	0.00
JUVENILES:											

Table 2.1-2
Continued

Date		6/11/87		6/11/87		6/11/87		6/11/87		6/11/87
Time		910		930		950		1010		1030
Location		W101		W002		W101		W005		W101
Tide		Flood 1		Flood 1		Flood 1		Flood 2		Flood 2
Heading		N		N		N		N		N
Temp.(C)	Air	20.5		22.0		22.0		21.0		22.0
	Surface	22.5		23.0		23.0		22.5		23.0
	Bottom	23.0		23.0		23.0				23.0
Sal.(ppt)	Surface	10.0		6.0		10.0		8.0		10.0
	Bottom	10.0		8.0		10.0		-		10.0
D.O.(ppm)	Surface	6.4		6.8		7.0		6.7		7.0
	Bottom	6.5		6.6		7.0		-		7.0
Depth(feet)		20 TO 24		30 TO 34		17 TO 23		8 TO 10		19 TO 24
Sample Depth		SM	MB	SM	MB	SM	MB	SB		SM MB
Vol. Filtered(m3)		73.4	50.2	72.4	51.8	71.4	61.4	31.4	0.0	83.3 60.6
EGGS:										
BAY ANCHOVY		2207.08	4545.82	1527.62	6799.23	2456.58	4309.45	5308.92	0.00	2045.62 3830.03
WEAKFISH		1.36	23.90	4.14	0.00	1.40	4.89	9.55	0.00	0.00 18.15
LARVAE:										
BAY ANCHOVY		216.62	101.59	122.93	233.59	359.94	226.38	242.04	0.00	50.42 120.46
WEAKFISH		2.72	0.00	23.48	21.24	18.21	0.00	0.00	0.00	2.46 3.30
JUVENILES:										

Table 2.1-2
Continued

Date		6/11/87		6/11/87		6/11/87		6/11/87		6/11/87
Time		1048		1103		1123		1145		1202
Location		W001		W101		W004		W101		W003
Tide		Flood 2		Flood 2		Flood 2		Flood Slack		Flood Slack
Heading		N		N		N		N		N
Temp.(C)	Air	22.0		24.0		22.0		25.0		24.0
	Surface	23.0		23.5		23.0		24.0		24.0
	Bottom	23.0		23.0		23.0		23.0		23.0
Sal.(ppt)	Surface	10.0		10.0		8.0		10.0		10.0
	Bottom	10.0		10.0		10.0		10.0		10.0
D.O.(ppm)	Surface	7.0		7.0		7.0		7.5		6.9
	Bottom	7.0		6.8		6.6		6.8		6.7
Depth(feet)		20 TO 22		20 TO 25		30 TO 33		20 TO 24		39 TO 42
Sample Depth		SM	MB	SM	MB	SM	MB	SM	MB	SM MB
Vol. Filtered(m3)		67.7	61.7	73.9	68.7	77.8	71.7	69.6	70.9	71.0 75.2
EGGS:										
BAY ANCHOVY		1685.38	2021.07	3592.69	3953.42	13316.20	10125.52	2458.33	3036.67	6371.83 5460.11
WEAKFISH		1.48	27.55	13.53	8.73	0.00	260.81	1.44	14.10	11.27 31.91
LARVAE:										
BAY ANCHOVY		651.40	272.29	341.00	363.90	53.98	29.29	583.33	345.56	5.63 2.66
WEAKFISH		13.29	12.97	5.41	20.38	0.00	1.39	40.23	43.72	0.00 1.33
JUVENILES:										

Table 2.1-2
Continued

Date		6/16/87		6/16/87		6/16/87		6/16/87	6/16/87
Time		1003		1023		1039		1056	1119
Location		W004		W101		W101		W002	W005
Tide		Ebb 2		Ebb 2		Ebb 2		Ebb Slack	Ebb 2
Heading		S		S		S		N	S
Temp.(C)	Air	26.0		25.5		25.5		26.0	27.0
	Surface	24.5		25.0		25.0		25.0	25.0
	Bottom	24.5		25.0		25.0		25.0	-
Sal.(ppt)	Surface	6.0		6.0		6.0		6.0	6.0
	Bottom	6.0		6.0		6.0		6.0	-
D.O.(ppm)	Surface	6.0		6.2		6.2		6.7	6.7
	Bottom	6.5		6.5		6.5		6.5	-
Depth(feet)		28 TO 30		27 TO 30		19 TO 22		29 TO 31	6 TO 10
Sample Depth		SM	MB	SM	MB	SM	MB	SM	MB	SB	
Vol. Filtered(m3)		54.3	22.7	50.0	44.5	38.5	29.4	53.9	53.4	73.0	0.0
EGGS:											
BAY ANCHOVY		5187.85	7845.81	6092.00	5267.42	8496.10	5731.29	784.79	8783.15	372.60	0.00
WEAKFISH		0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.36	0.00	0.00
LARVAE:											
BAY ANCHOVY		473.30	88.11	198.00	69.66	49.35	3.40	105.75	155.43	261.64	0.00
WEAKFISH		5.52	4.41	0.00	8.99	0.00	0.00	0.00	1.87	0.00	0.00
JUVENILES:											
WEAKFISH		1.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 2.1-2
Continued

Date		6/16/87		6/16/87		6/16/87		6/16/87		6/16/87
Time		1136		1214		1240		1300		1319
Location		W101		W101		W003		W001		W101
Tide		Flood 1		Flood 1		Flood 1		Flood 1		Flood 1
Heading		N		N		N		N		N
Temp.(C)	Air	27.0		27.0		29.0		28.0		28.0
	Surface	27.0		26.0		25.5		26.0		26.0
	Bottom	25.0		26.0		26.0		26.0		26.0
Sal.(ppt)	Surface	6.0		6.0		6.0		8.0		8.0
	Bottom	8.0		8.0		6.0		8.0		8.0
D.O.(ppm)	Surface	6.5		6.5		6.7		6.4		6.4
	Bottom	6.1		6.1		6.7		6.2		6.2
Depth(feet)		19 TO 23		18 TO 21		40 TO 46		18 TO 20		18 TO 20
Sample Depth		SM	MB	SM	MB	SM	MB	SM	MB	SM	MB
Vol. Filtered(m3)		60.0	39.9	62.1	40.7	47.6	32.0	36.0	22.8	49.2	26.2
EGGS:											
BAY ANCHOVY		348.33	11746.87	1879.23	2737.10	8359.24	16331.25	1475.00	1250.00	2347.56	2622.14
WEAKFISH		0.00	0.00	0.00	0.00	0.00	3.13	0.00	13.16	0.00	0.00
LARVAE:											
BAY ANCHOVY		30.00	22.56	33.82	63.88	31.51	43.75	27.78	21.93	170.73	34.35
WEAKFISH		0.00	0.00	3.22	0.00	4.20	0.00	11.11	4.39	0.00	0.00
JUVENILES:											

Table 2.1-2
Continued

Date		6/23/87	6/23/87	6/23/87	6/23/87	6/23/87
Time		1025	1046	1103	1118	1136
Location		W004	W101	W101	W001	W003
Tide		Ebb 1	Ebb 1	Ebb 1	Ebb 1	Ebb 1
Heading		S	S	S	S	S
Temp.(C)	Air	27.5	28.0	28.0	28.0	29.0
	Surface	26.5	27.5	27.5	27.0	26.5
	Bottom	26.0	27.0	27.0	27.0	26.0
Sal.(ppt)	Surface	8.0	8.0	8.0	8.0	10.0
	Bottom	8.0	8.0	8.0	8.0	10.0
D.O.(ppm)	Surface	6.6	6.9	6.9	7.0	6.6
	Bottom	6.6	6.7	6.7	6.4	6.1
Depth(feet)		30 TO 35	20 TO 25	18 TO 21	15 TO 20	40 TO 50
Sample Depth		SM MB	SM MB	SM MB	SM MB	SM MB
Vol. Filtered(m3)		55.7 57.9	67.5 67.6	44.8 62.9	61.5 66.6	57.0 64.6
EGGS:						
BAY ANCHOVY		6091.56 35544.04	4485.93 1735.21	4948.66 3839.43	2706.99 2151.65	14671.93 29311.15
LARVAE:						
BAY ANCHOVY		91.56 1093.26	3143.70 5004.44	3573.66 3020.67	976.75 1591.53	156.14 46.44
WEAKFISH		0.00 0.00	1.48 1.48	4.46 0.00	0.00 0.00	0.00 0.00
JUVENILES:						

Table 2.1-2
Continued

Date		6/23/87		6/23/87		6/23/87		6/23/87		6/23/87	
Time		1152		1236		1253		1311		1339	
Location		W101		W101		W002		W005		W101	
Tide		Ebb 1		Ebb 1		Ebb 1		Ebb 2		Ebb 2	
Heading		S		S		S		S		S	
Temp.(C)	Air	30.0		29.0		29.0		29.0		29.5	
	Surface	27.5		27.0		26.5		26.5		27.0	
	Bottom	27.0		27.0		26.0		-		27.0	
Sal.(pot)	Surface	8.0		6.0		8.0		6.0		6.0	
	Bottom	8.0		8.0		8.0		-		6.0	
D.O.(ppm)	Surface	6.6		6.7		6.5		6.6		6.7	
	Bottom	6.6		6.5		6.1		-		6.4	
Depth(feet)		19 TO 22		20 TO 25		25 TO 35		8 TO 11		17 TO 23	
Sample Depth		SM	MB	SM	MB	SM	MB	SB		SM	MB
Vol. Filtered(m3)		66.4	0.0	58.8	61.1	60.6	70.8	66.6	0.0	49.2	48.5
EGGS:											
BAY ANCHOVY		3149.10	0.00	1270.41	1585.92	14597.36	30682.20	25487.99	0.00	4115.85	4973.71
WEAKFISH		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.03	6.19
LARVAE:											
BAY ANCHOVY		3338.86	0.00	3517.01	6242.23	1145.21	2282.49	3942.94	0.00	4215.45	938.14
WEAKFISH		0.00	0.00	0.00	0.00	3.30	0.00	1.50	0.00	0.00	0.00
JUVENILES:											
WEAKFISH		0.00	0.00	0.00	0.00	0.00	1.41	0.00	0.00	0.00	0.00

Table 2.1-2
Continued

Date		6/30/87		6/30/87		6/30/87		6/30/87		6/30/87
Time		920		946		1006		1028		1045
Location		W101		W003		W002		W101		W101
Tide		Ebb 2		Ebb 2		Ebb 2		Ebb Slack		Ebb Slack
Heading		S		S		S		N		N
Temp.(C)	Air	28.0		28.0		28.0		28.0		28.0
	Surface	25.0		25.5		25.0		26.0		26.0
	Bottom	25.5		25.5		25.5		25.5		25.5
Sal.(ppt)	Surface	6.0		4.0		4.0		8.0		9.0
	Bottom	4.0		4.0		4.0		4.0		4.0
D.O.(ppm)	Surface	6.5		6.8		6.8		7.0		7.0
	Bottom	6.6		6.4		6.9		7.0		7.0
Depth(feet)		10 TO 15		30 TO 35		20 TO 22		12 TO 18		12 TO 18
Sample Depth		SM	MB	SM	MB	SM	MB	SM	MB	SM	MB
Vol. Filtered(m3)		51.1	23.7	47.2	45.1	52.5	56.7	79.0	57.6	70.4	61.4
EGGS:											
BAY ANCHOVY		3508.81	3805.91	1144.07	1788.91	1605.71	440.92	893.67	45126.73	392.05	18084.37
LARVAE:											
BAY ANCHOVY		1135.03	594.94	1222.46	348.12	2182.86	160.49	432.91	1176.18	257.10	1130.29
WEAKFISH		1.96	0.00	2.12	0.00	0.00	0.00	0.00	1.74	0.00	0.00
JUVENILES:											
BAY ANCHOVY		1.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 2.1-2
Continued

Date		6/30/87		6/30/87		6/30/87		6/30/87	
Time		1101		1124		1142		1223	
Location		W001		W005		W101		W101	
Tide		Flood 1		Ebb Slack		Flood 1		Flood 1	
Heading		N		N		N		N	
Temp.(C)	Air	29.0		29.5		30.0		30.0	
	Surface	26.0		26.5		26.0		26.0	
	Bottom	26.0		-		26.0		26.0	
Sal.(ppt)	Surface	8.0		4.0		6.0		8.0	
	Bottom	4.0		-		8.0		8.0	
D.O.(ppm)	Surface	7.0		7.4		7.6		7.0	
	Bottom	7.0		-		7.0		7.0	
Depth(feet)		14 TO 20		8 TO 10		14 TO 17		14 TO 17	
Sample Depth		SM	MB	SB		SM	MB	SM	MB
Vol. Filtered(m3)		63.7	61.1	80.2	0.0	63.7	51.3	66.2	34.4
EGGS:									
BAY ANCHOVY		759.81	20936.17	9.98	0.00	296.70	4346.98	4472.81	6819.77
NEARFISH		0.00	1.64	0.00	0.00	0.00	0.00	0.00	0.00
LARVAE:									
BAY ANCHOVY		635.79	952.54	531.17	0.00	973.31	1522.42	3299.09	1415.70
NEARFISH		1.57	0.00	3.74	0.00	0.00	1.95	4.53	0.00
JUVENILES:									

Date		6/30/87							
Time		1245							
Location		W004							
Tide		Flood 1							
Heading		N							
Temp.(C)	Air	30.0							
	Surface	26.0							
	Bottom	26.0							
Sal.(ppt)	Surface	8.0							
	Bottom	6.0							
D.O.(ppm)	Surface	7.2							
	Bottom	7.1							
Depth(feet)		30 TO 32							
Sample Depth		SM	MB						
Vol. Filtered(m3)		60.0	37.7						
EGGS:									
BAY ANCHOVY		185.00	1090.17						
NEARFISH		0.00	0.00						
LARVAE:									
BAY ANCHOVY		2366.67	1992.04						
NEARFISH		10.00	0.00						
JUVENILES:									

Table 2.1-2
Continued

Date		7/ 7/87		7/ 7/87		7/ 7/87		7/ 7/87	
Time		955		1018		1035		1053	
Location		W101		W003		W001		W101	
Tide		Ebb 1		Ebb 1		Ebb 1		Ebb 1	
Heading		S		S		S		S	
Temp.(C)	Air	24.5		25.0		25.0		25.0	
	Surface	26.5		26.0		26.0		26.0	
	Bottom	26.0		26.0		26.0		26.5	
Sal.(ppt)	Surface	8.0		8.0		8.0		8.0	
	Bottom	8.0		8.0		8.0		8.0	
D.O.(ppm)	Surface	6.5		6.6		6.5		6.3	
	Bottom	6.6		6.4		6.5		6.1	
Depth(feet)		20 TO 25		40 TO 44		21 TO 24		18 TO 22	
Sample Depth		SM	MB	SM	MB	SM	MB	SM	MB
Vol. Filtered(m3)		44.4	64.2	47.2	52.0	58.4	67.0	50.3	56.0

EGGS:									
BAY ANCHOVY	5364.86	5403.43	48692.79	80096.16	5772.26	6613.43	3594.43	3701.79	3211.58	2880.21
LARVAE:										
BAY ANCHOVY	1885.14	814.64	408.90	326.92	1239.73	973.13	500.99	508.93	612.47	802.08
WEAKFISH	9.01	4.67	0.00	3.85	1.71	1.49	1.99	0.00	2.23	1.74
JUVENILES:										

Table 2.1-2
Continued

Date		7/ 7/87		7/ 7/87		7/ 7/87		7/ 7/87	
Time		1125		1140		1200		1239	
Location		W004		W005		W101		W101	
Tide		Ebb 1		Ebb 1		Ebb 1		Ebb 2	
Heading		S		S		S		S	
Temp.(C)	Air	25.0		25.0		25.0		25.0	
	Surface	26.0		26.0		26.0		26.0	
	Bottom	26.0		-		26.0		26.0	
Sal.(ppt)	Surface	8.0		6.0		8.0		8.0	
	Bottom	8.0		-		6.0		6.0	
D.O.(ppm)	Surface	6.5		6.7		6.3		6.3	
	Bottom	6.4		-		6.4		6.4	
Depth(feet)		30 TO 32		9 TO 10		18 TO 21		15 TO 20	
Sample Depth		SM	MB	SB		SM	MB	SM	MB
Vol. Filtered(m3)		65.5	71.9	60.4	0.0	57.6	50.3	46.1	47.2

EGGS:											
BAY ANCHOVY	7870.23	17232.27	15057.95	0.00	4192.71	6566.60	8186.55	9368.64	10206.52	9273.42	
LARVAE:											
BAY ANCHOVY	2705.34	748.26	2370.86	0.00	862.85	1133.20	921.91	807.20	2695.65	2558.32	
WEAKFISH	0.00	2.78	0.00	0.00	0.00	0.00	0.00	0.00	2.17	1.91	
JUVENILES:											
BAY ANCHOVY	0.00	0.00	1.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
WEAKFISH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.91	

Table 2.1-2
Continued

Date		7/16/87		7/16/87		7/16/87		7/16/87		7/16/87
Time		903		920		936		952		1011
Location		W101		W004		W005		W101		W101
Tide		Ebb 2		Ebb 2		Ebb 2		Ebb 2		Ebb 2
Heading		S		S		S		S		S
Temp.(C)	Air	23.0		21.5		22.0		22.0		22.0
	Surface	26.0		26.0		26.0		26.0		26.0
	Bottom	26.5		26.5		-		26.0		26.0
Sal.(ppt)	Surface	6.0		6.0		5.0		5.0		5.0
	Bottom	6.0		5.0		-		5.0		5.0
D.O.(ppm)	Surface	5.8		5.8		6.0		5.4		5.4
	Bottom	6.0		5.9		-		5.8		5.8
Depth(feet)		15 TO 20		28 TO 30		6 TO 7		15 TO 19		14 TO 19
Sample Depth		SM	MB	SM	MB	SB		SM	MB	SM	MB
Vol. Filtered(m3)		56.1	54.6	38.0	24.2	83.0	0.0	44.3	25.1	39.4	24.0
EGGS:											
BAY ANCHOVY		9509.80	9857.14	7057.89	7409.09	969.88	0.00	9191.87	7091.63	5038.07	3091.67
LARVAE:											
BAY ANCHOVY		4490.20	3258.24	3002.63	5603.31	8789.16	0.00	1810.38	1207.17	1753.81	562.50
WEAKFISH		7.13	5.49	0.00	4.13	1.20	0.00	0.00	0.00	0.00	0.00
JUVENILES:											
BAY ANCHOVY		0.00	0.00	0.00	0.00	3.61	0.00	2.26	0.00	2.54	0.00

Table 2.1-2
Continued

Date		7/16/87		7/16/87		7/16/87		7/16/87		7/16/87
Time		1030		1045		1104		1117		1211
Location		W003		W101		W001		W101		W002
Tide		Ebb 2		Ebb 2		Ebb 2		Ebb 2		Flood 1
Heading		S		S		S		S		N
Temp.(C)	Air	23.0		24.0		24.5		25.0		26.0
	Surface	27.0		26.0		26.5		26.0		27.0
	Bottom	27.0		26.0		26.5		26.5		27.0
Sal.(ppt)	Surface	4.0		5.0		5.0		6.0		6.0
	Bottom	4.0		5.0		5.0		6.0		5.0
D.O.(ppm)	Surface	5.8		5.4		5.6		5.6		6.1
	Bottom	6.0		5.8		5.9		6.0		5.9
Depth(feet)		40 TO 42		14 TO 18		18 TO 22		14 TO 18		30 TO 32
Sample Depth		SM	MB	SM	MB	SM	MB	SM	MB	SM	MB
Vol. Filtered(m3)		59.7	51.5	31.8	0.0	53.3	49.9	64.7	29.6	67.8	0.0
EGGS:											
BAY ANCHOVY		502.51	1083.50	2132.08	0.00	2484.05	2400.80	2077.28	2408.78	95.87	0.00
LARVAE:											
BAY ANCHOVY		4169.18	2217.48	1833.33	0.00	5251.41	2533.07	1812.98	875.00	3460.18	0.00
WEAKFISH		1.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.47	0.00
JUVENILES:											
BAY ANCHOVY		0.00	0.00	3.14	0.00	0.00	2.60	0.00	0.00	0.00	0.00

Table 2.1-2
Continued

Date		7/23/87		7/23/87		7/23/87		7/23/87		7/23/87
Time		756		818		836		854		917
Location		W101		W001		W101		W004		W101
Tide		Flood 1		Flood 1		Flood 2		Flood 2		Flood 2
Heading		N		N		N		N		N
Temp.(C)	Air	28.0		28.0		29.5		29.0		30.0
	Surface	28.0		28.0		28.5		28.5		28.5
	Bottom	28.0		28.0		28.0		28.5		28.5
Sal.(ppt)	Surface	8.0		8.0		6.0		10.0		8.0
	Bottom	10.0		10.0		10:0		8.0		10.0
D.O.(ppm)	Surface	6.1		6.4		6.3		6.4		6.5
	Bottom	5.8		6.2		5.7		5.9		5.8
Depth(feet)		16 TO 21		20 TO 25		16 TO 21		28 TO 30		17 TO 25
Sample Depth		SM	MB	SM	MB	SM	MB	SM	MB	SM	MB
Vol. Filtered(m3)		54.6	51.0	64.6	61.0	66.6	66.4	54.7	62.0	55.3	43.7
EGGS:											
BAY ANCHOVY		2243.59	3605.88	83.59	2170.49	638.14	2465.36	4495.43	19983.87	1734.18	2826.09
LARVAE:											
BAY ANCHOVY		2939.56	2550.98	1040.25	7142.62	1129.13	2400.60	2020.11	1019.35	614.83	741.42
WEAKFISH		3.66	3.92	4.64	31.15	0.00	1.51	1.83	6.45	0.00	0.00
JUVENILES:											
BAY ANCHOVY		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.81	0.00

Table 2.1-2
Continued

Date		7/23/87		7/23/87		7/23/87		7/23/87		7/23/87
Time		935		952		1010		1041		1057
Location		W002		W101		W003		W101		W005
Tide		Flood 2		Flood 2		Flood 2		Flood Slack		Flood Slack
Heading		N		N		N		N		N
Temp.(C)	Air	30.0		30.0		30.0		30.0		31.0
	Surface	29.0		29.0		28.5		29.0		29.0
	Bottom	28.0		28.5		28.5		28.5		29.0
Sal.(pot)	Surface	8.0		10.0		8.0		10.0		6.0
	Bottom	10.0		10.0		10.0		10.0		6.9
D.O.(ppm)	Surface	6.5		6.5		6.6		6.5		7.1
	Bottom	5.8		6.0		6.1		6.0		6.4
Depth(feet)		30 TO 32		19 TO 26		40 TO 41		20 TO 26		7 TO 8
Sample Depth		SM	MB	SM	MB	SM	MB	SM	MB	SB
Vol. Filtered(m3)		49.6	60.0	56.4	48.6	61.5	69.4	57.2	59.4	74.9 0.0
EGGS:										
BAY ANCHOVY		6411.29	7330.00	1870.07	2607.00	8456.91	16985.59	1945.80	2777.78	22.70 0.00
LARVAE:										
BAY ANCHOVY		2274.19	3731.67	443.26	757.20	479.67	613.83	312.94	872.05	1076.10 0.00
WEAKFISH		8.06	0.00	1.77	2.06	6.50	4.32	1.75	0.00	0.00 0.00
JUVENILES:										
WEAKFISH		0.00	1.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00 0.00

Table 2.1-2
Continued

Date		7/28/87		7/28/87		7/28/87		7/28/87	
Time		943		1001		1025		1049	
Location		W101		W001		W004		W101	
Tide		Flood 1		Flood 1		Flood 1		Flood 1	
Heading		N		N		N		N	
Temp.(C)	Air	28.0		28.0		28.0		28.0	
	Surface	28.0		30.0		28.0		28.0	
	Bottom	28.5		28.5		28.0		28.5	
Sal.(ppt)	Surface	6.0		6.0		6.0		10.0	
	Bottom	6.0		6.0		6.0		10.0	
D.O.(ppm)	Surface	6.2		6.9		5.8		5.9	
	Bottom	5.8		6.0		6.4		5.6	
Depth(feet)		20 TO 22		20 TO 24		28 TO 38		20 TO 25	
Sample Depth		SM	MB	SM	MB	SM	MB	SM	MB
Vol. Filtered(m3)		59.4	61.7	60.8	56.2	50.3	56.3	42.4	35.3

EGGS:										
BAY ANCHOVY	95.96	150.73	351.97	2247.33	117.30	106.57	2306.60	2781.87	3101.52	6567.77
LARVAE:										
BAY ANCHOVY	978.11	2032.41	429.28	2270.46	1355.86	2579.04	2698.11	1711.05	6384.09	11487.18
NEARFISH	0.00	0.00	3.29	3.56	5.96	0.00	0.00	2.83	10.15	7.33
JUVENILES:										
BAY ANCHOVY	1.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 2.1-2
Continued

Date		7/28/87		7/28/87		7/28/87		7/28/87		7/28/87
Time		1127		1206		1230		1247		1305
Location		W002		W003		W101		W101		W005
Tide		Flood 1		Flood 1		Flood 2		Flood 2		Flood 2
Heading		N		N		N		N		N
Temp.(C)	Air	29.0		28.0		28.0		28.0		28.0
	Surface	29.0		29.0		29.0		29.0		29.0
	Bottom	28.5		29.0		29.0		29.0		-
Sal.(ppt)	Surface	6.0		6.0		10.0		10.0		6.0
	Bottom	8.0		8.0		10.0		10.0		-
D.O.(ppm)	Surface	6.0		6.0		6.0		6.0		6.5
	Bottom	5.5		6.1		6.0		6.0		-
Depth(feet)		30 TO 34		45 TO 50		18 TO 22		18 TO 22		8 TO 10
Sample Depth		SM	MB	SM	MB	SM	MB	SM	MB	SB	
Vol. Filtered(m3)		39.3	44.7	38.2	47.0	54.2	51.3	56.3	54.7	49.0	0.0
EGGS:											
BAY ANCHOVY		2249.36	6000.00	3688.48	10636.17	1409.59	4189.08	1273.53	2023.77	508.16	0.00
LARVAE:											
BAY ANCHOVY		1872.77	5098.43	513.09	1555.32	887.45	2729.05	833.04	1272.39	4128.57	0.00
WEAKFISH		5.09	0.00	2.62	4.26	0.00	1.95	0.00	0.00	4.08	0.00
JUVENILES:											

Table 2.1-2
Continued

Date	8/ 6/87	8/ 6/87	8/ 6/87	8/ 6/87	8/ 6/87
Time	1056	1125	1153	1215	1254
Location	W003	W101	W101	W004	W001
Tide	Ebb 1	Ebb 1	Ebb 1	Ebb 1	Ebb 2
Heading	S	S	S	S	S
Temp.(C) Air	23.0	23.5	23.5	24.0	24.5
Surface	27.5	28.5	28.5	28.5	28.0
Bottom	28.0	28.5	28.5	28.0	27.5
Sal.(ppt) Surface	6.0	8.0	8.0	8.0	8.0
Bottom	8.0	8.0	8.0	8.0	8.0
D.O.(ppm) Surface	6.0	5.5	5.5	5.9	5.7
Bottom	6.0	5.7	5.7	5.7	5.9
Depth(feet)	38 TO 40	19 TO 22	19 TO 22	30 TO 34	17 TO 21
Sample Depth	SM MB	SM MB	SM MB	SM MB	SM MB
Vol. Filtered(m3)	51.1 51.5	54.0 42:2	48.5 42.5	54.1 64.5	55.2 55.7
EGGS:					
BAY ANCHOVY	1295.50 5629.13	1194.44 2298.58	1078.35 1185.88	512.01 1477.52	1375.00 1789.95
LARVAE:					
BAY ANCHOVY	3.91 11.65	1381.48 1526.07	845.36 658.92	55.45 336.43	956.52 567.32
WEAKFISH	0.00 0.00	0.00 0.00	2.06 0.00	0.00 0.00	0.00 0.00
JUVENILES:					
BAY ANCHOVY	0.00 0.00	0.00 0.00	0.00 0.00	1.85 0.00	0.00 0.00

Table 2.1-2
Continued

Date		8/ 6/87		8/ 6/87		8/ 6/87		8/ 6/87		8/ 6/87
Time		1315		1339		1400		1422		1446
Location		W101		W101		W005		W002		W101
Tide		Ebb 2		Ebb 2		Ebb 2		Ebb 2		Ebb 2
Heading		S		S		S		S		S
Temp.(C)	Air	25.0		25.0		25.0		25.0		25.5
	Surface	28.0		28.0		28.0		28.0		28.0
	Bottom	28.0		28.0		-		28.0		28.0
Sal.(ppt)	Surface	8.0		8.0		6.0		6.0		6.0
	Bottom	8.0		8.0		- -		8.0		8.0
D.O.(ppm)	Surface	5.8		5.8		6.7		6.0		6.0
	Bottom	5.8		5.8		-		5.7		6.3
Depth(feet)		17 TO 19		17 TO 19		8 TO 11		26 TO 30		16 TO 19
Sample Depth		SM	MB	SM	MB	SB		SM	MB	SM MB
Vol. Filtered(m3)		50.4	38.9	43.0	38.5	64.6	0.0	53.7	54.6	51.2 41.2
EGGS:										
BAY ANCHOVY		470.24	737.79	946.51	940.26	349.85	0.00	417.13	0.00	380.86 492.72
LARVAE:										
BAY ANCHOVY		519.84	452.44	362.79	148.05	944.27	0.00	221.60	302.20	218.75 94.66
WEAKFISH		0.00	0.00	0.00	5.19	0.00	0.00	0.00	0.00	0.00 2.43
JUVENILES:										
BAY ANCHOVY		0.00	0.00	0.00	0.00	1.55	0.00	0.00	0.00	0.00 0.00

Table 2.1-2
Continued

Date		8/11/87		8/11/87		8/11/87		8/11/87		8/11/87
Time		900		933		954		1013		1034
Location		W005		W101		W101		W004		W003
Tide		Ebb 2		Flood 1		Flood 1		Flood 1		Flood 1
Heading		S		N		N		N		N
Temp.(C)	Air	22.5		24.0		24.0		24.5		24.0
	Surface	26.0		27.0		27.0		28.0		27.0
	Bottom	26.0		27.0		27.0		27.5		26.0
Sal.(ppt)	Surface	6.0		8.0		8.0		6.0		6.0
	Bottom	6.0		8.0		8.0		6.0		6.0
D.O.(ppm)	Surface	6.7		6.6		6.6		7.1		6.9
	Bottom	5.3		6.6		6.6		7.1		6.5
Depth(feet)		8 TO 10		20 TO 22		20 TO 22		15 TO 20		55 TO 60
Sample Depth		SB		SM	MB	SM	MB	SM	MB	SM	MB
Vol. Filtered(m3)		79.7	0.0	59.9	14.1	62.5	61.1	51.3	61.1	52.8	53.3
EGGS:											
BAY ANCHOVY		0.00	0.00	66.78	1872.34	579.20	654.66	0.00	16.37	320.08	3043.15
LARVAE:											
BAY ANCHOVY		82.81	0.00	93.49	1602.84	652.80	716.86	292.40	204.58	68.18	296.44
WEAKFISH		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.75
JUVENILES:											
BAY ANCHOVY		1.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 2.1-2
Continued

Date		8/11/87	8/11/87	8/11/87	8/11/87	8/11/87
Time		1103	1120	1141	1207	1238
Location		W101	W101	W002	W001	W101
Tide		Flood 1	Flood 1	Flood 2	Flood 2	Flood 2
Heading		N	N	N	N	N
Temp.(C)	Air	25.0	25.0	27.0	27.0	27.0
	Surface	27.0	27.0	27.0	27.0	27.0
	Bottom	27.0	27.0	27.0	27.0	27.5
Sal.(ppt)	Surface	10.0	10.0	8.0	10.0	10.0
	Bottom	10.0	10.0	8.0	10.0	10.0
D.O.(ppm)	Surface	6.5	6.5	6.8	6.6	7.1
	Bottom	6.4	6.4	6.8	6.9	7.1
Depth(feet)		18 TO 20	18 TO 20	30 TO 35	20 TO 25	20 TO 22
Sample Depth		SM MB	SM MB	SM MB	SM MB	SM MB
Vol. Filtered(m3)		58.1 60.7	45.9 56.6	43.9 52.6	38.0 30.8	53.1 54.0
EGGS:						
BAY ANCHOVY		543.89 1133.44	610.02 660.78	706.15 1754.75	4673.68 4064.94	1457.63 2412.96
LARVAE:						
BAY ANCHOVY		409.64 467.87	1026.14 978.80	441.91 553.23	2221.05 756.49	651.60 600.00
JUVENILES:						

Table 2.1-2
Continued

Date		8/17/87		8/17/87		8/17/87		8/17/87	8/17/87
Time		910		937		954		1015	1035
Location		W101		W005		W003		W101	W101
Tide		Ebb 2		Ebb 2		Ebb 2		Ebb 2	Ebb 2
Heading		S		S		S		S	S
Temp.(C)	Air	27.5		27.5		29.0		28.5	28.5
	Surface	27.0		27.0		27.0		27.5	27.5
	Bottom	27.0		-		28.0		27.5	27.5
Sal.(ppt)	Surface	8.0		6.0		6.0		6.0	6.0
	Bottom	8.0		-		6.0		8.0	8.0
D.O.(ppm)	Surface	7.1		7.4		7.7		7.3	7.3
	Bottom	7.2		-		7.7		7.0	7.0
Depth(feet)		16 TO 19		10 TO 11		40 TO 45		17 TO 18	17 TO 18
Sample Depth		SM	MB	SB		SM	MB	SM MB	SM MB
Vol. Filtered(m3)		47.2	46.2	62.0	0.0	45.5	34.9	50.6 34.1	41.8 25.9
EGGS:									
BAY ANCHOVY		993.64	948.05	61.29	0.00	61.54	0.00	1885.38 3524.93	2535.89 4911.20
LARVAE:									
BAY ANCHOVY		245.76	175.32	440.32	0.00	30.77	28.65	81.03 340.18	160.29 177.61
JUVENILES:									
BAY ANCHOVY		0.00	0.00	0.00	0.00	0.00	0.00	0.00 0.00	0.00 3.86

Table 2.1-2
Continued

Date		8/17/87		8/17/87		8/17/87		8/17/87		8/17/87
Time		1054		1115		1134		1210		1347
Location		W002		W001		W101		W101		W004
Tide		Ebb 2		Ebb 2		Ebb 2		Ebb 2		Ebb 2
Heading		S		S		S		S		S
Temp.(C)	Air	30.5		30.0		30.5		31.0		30.5
	Surface	27.5		27.5		27.5		27.0		27.5
	Bottom	27.5		27.5		27.5		27.5		28.0
Sal.(ppt)	Surface	6.0		6.0		6.0		6.0		6.0
	Bottom	8.0		6.0		6.0		6.0		6.0
D.O.(ppm)	Surface	7.3		7.3		7.2		7.7		-
	Bottom	7.2		7.3		7.4		7.3		-
Depth(feet)		30 TO 35		20 TO 25		20 TO 25		20 TO 25		27 TO 30
Sample Depth		SM	MB	SM	MB	SM	MB	SM	MB	SM	MB
Vol. Filtered(m3)		45.1	43.9	48.7	44.3	39.9	19.8	45.1	21.4	37.3	15.3
EGGS:											
BAY ANCHOVY		507.76	813.21	1406.57	1234.76	333.33	686.87	177.38	490.65	174.26	411.76
LARVAE:											
BAY ANCHOVY		184.04	93.39	254.62	85.78	62.66	65.66	19.96	140.19	107.24	418.30
JUVENILES:											
BAY ANCHOVY		0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.67	0.00	6.54

Table 2.1-2
Continued

Date		8/25/87		8/25/87		8/25/87		8/25/87	8/25/87
Time		909		929		947		1004	1020
Location		W101		W004		W001		W101	W101
Tide		Flood 1		Flood 1		Flood 1		Flood 1	Flood 1
Heading		N		N		N		N	N
Temp.(C)	Air	21.0		21.0		20.0		21.0	21.0
	Surface	25.0		25.0		25.0		25.0	25.0
	Bottom	25.0		25.0		25.0		25.0	25.0
Sal.(ppt)	Surface	10.0		10.0		12.0		12.0	12.0
	Bottom	12.0		8.0		10.0		10.0	12.0
D.O.(ppm)	Surface	6.4		6.6		6.3		6.3	6.5
	Bottom	6.1		6.5		6.4		6.4	6.0
Depth(feet)		15 TO 20		27 TO 30		18 TO 20		15 TO 20	15 TO 20
Sample Depth		SM	MB	SM	MB	SM	MB	SM	MB	SM	MB	SM	MB
Vol. Filtered(m3)		45.9	27.9	42.4	49.1	37.8	42.7	26.2	37.4	37.7	39.3
EGGS:													
BAY ANCHOVY		19.61	10.75	2.36	2.04	52.91	46.84	190.84	40.11	68.97	40.71
LARVAE:													
BAY ANCHOVY		878.00	243.73	120.28	14.26	592.59	288.06	2106.87	88.24	331.57	36.69
JUVENILES:													
BAY ANCHOVY		0.00	0.00	0.00	2.04	0.00	0.00	0.00	0.00	0.00	0.00

Table 2.1-2
Continued

Date		8/25/87		8/25/87		8/25/87		8/25/87	8/25/87
Time		1037		1059		1116		1154	1208
Location		W003		W002		W101		W101	W005
Tide		Flood 1		Flood 2		Flood 2		Flood 2	Flood 2
Heading		N		N		N		N	N
Temp.(C)	Air	21.0		21.5		22.0		22.0	22.0
	Surface	25.0		25.0		25.0		25.0	25.0
	Bottom	25.0		25.0		25.0		25.0	-
Sal.(ppt)	Surface	10.0		10.0		12.0		12.0	10.0
	Bottom	10.0		12.0		10.0		10.0	-
D.O.(ppm)	Surface	6.8		6.9		7.1		7.1	6.9
	Bottom	6.8		6.3		6.8		6.8	-
Depth(feet)		40 TO 45		30 TO 35		18 TO 20		18 TO 20	8 TO 10
Sample Depth		SM	MB	SM	MB	SM	MB	SM MB	SB
Vol. Filtered(m3)		35.6	47.4	37.2	58.3	40.4	37.8	38.8 40.5	63.0 0.0
EGGS:									
BAY ANCHOVY		78.65	97.05	115.59	75.47	205.45	193.12	97.94 155.56	6.35 0.00
LARVAE:									
BAY ANCHOVY		0.00	27.43	338.71	130.36	131.19	60.85	25.77 34.57	41.27 0.00
JUVENILES:									
BAY ANCHOVY		0.00	0.00	0.00	0.00	0.00	0.00	0.00 2.47	11.11 0.00

Table 2.1-2
Continued

Date		9/ 1/87		9/ 1/87		9/ 1/87		9/ 1/87	
Time		906		930		954		1014	
Location		W101		W004		W001		W101	
Tide		Ebb 1		Ebb 1		Ebb 1		Ebb 2	
Heading		S		S		S		S	
Temp.(C)	Air	20.0		20.5		20.5		24.0	
	Surface	23.5		24.0		23.5		23.5	
	Bottom	23.0		23.5		24.0		24.0	
Sal.(ppt)	Surface	8.0		6.0		8.0		6.0	
	Bottom	8.0		8.0		8.0		8.0	
D.O.(ppm)	Surface	7.0		7.9		7.2		7.1	
	Bottom	7.0		7.4		6.4		6.8	
Depth(feet)		16 TO 19		28 TO 32		20 TO 25		17 TO 20	
Sample Depth		SM	MB	SM	MB	SM	MB	SM	MB
Vol. Filtered(m3)		52.7	59.2	55.1	48.6	58.6	61.1	50.1	21.5

EGGS:										
BAY ANCHOVY	1.90	1.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.46
LARVAE:										
BAY ANCHOVY	3.80	3.38	0.00	0.00	1.71	1.64	5.99	18.60	2.46	37.31
JUVENILES:										
BAY ANCHOVY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.65	2.46	7.46

Table 2.1-2
Continued

Date		9/ 1/87		9/ 1/87		9/ 1/87		9/ 1/87		9/ 1/87
Time		1052		1112		1134		1211		1234
Location		W005		W002		W101		W101		W003
Tide		Ebb 2		Ebb 2		Ebb 2		Ebb 2		Ebb 2
Heading		S		S		S		S		S
Temp.(C)	Air	22.0		24.0		23.5		24.5		23.5
	Surface	23.5		24.0		23.0		25.0		24.0
	Bottom	-		24.0		23.5		24.0		24.0
Sal.(ppt)	Surface	8.0		6.0		6.0		8.0		6.0
	Bottom	-		8.0		6.0		8.0		6.0
D.O.(ppm)	Surface	7.0		6.9		7.3		6.6		6.9
	Bottom	-		6.7		6.9		7.1		6.9
Depth(feet)		9 TO 11		20 TO 24		15 TO 17		15 TO 17		30 TO 32
Sample Depth		SB		SM	MB	SM	MB	SM	MB	SM MB
Vol. Filtered(m3)		64.9	0.0	50.5	29.1	48.0	15.4	46.9	10.1	37.0 25.8
EGGS:										
LARVAE:										
BAY ANCHOVY		0.00	0.00	0.00	0.00	2.08	6.49	2.13	0.00	0.00 0.00
JUVENILES:										
BAY ANCHOVY		0.00	0.00	0.00	0.00	0.00	0.00	2.13	0.00	0.00 0.00

Table 2.1-2
Continued

Date		9/ 7/87		9/ 7/87		9/ 7/87		9/ 7/87		9/ 7/87
Time		708		730		753		818		837
Location		W101		W002		W005		W101		W101
Tide		Flood 1		Flood 1		Flood 1		Flood 1		Flood 1
Heading		N		N		N		N		N
Temp.(C)	Air	23.0		23.0		22.5		24.0		24.0
	Surface	25.0		23.5		23.0		24.5		24.5
	Bottom	24.5		23.5		-		24.5		24.5
Sal.(ppt)	Surface	10.0		-		8.0.		10.0		10.0
	Bottom	10.0		8.0		-		10.0		10.0
D.O.(ppm)	Surface	6.4		-		7.0		6.9		6.9
	Bottom	6.8		6.9		-		6.9		6.9
Depth(feet)		20 TO 24		30 TO 32		8 TO 10		20 TO 25		20 TO 25
Sample Depth		SM	MB	SM	MB	SB		SM	MB	SM	MB
Vol. Filtered(m3)		59.7	49.4	63.8	53.0	87.6	0.0	52.8	20.7	45.6	14.9
EGGS:											
LARVAE:											
BAY ANCHOVY		3.35	12.15	3.13	1.89	7.99	0.00	39.77	19.32	74.56	20.13
JUVENILES:											
BAY ANCHOVY		0.00	4.05	0.00	0.00	0.00	0.00	0.00	0.00	2.17	0.00

Table 2.1-2
Continued

Date		9/ 7/87		9/ 7/87		9/ 7/87		9/ 7/87		9/ 7/87	
Time		858		920		942		958		1019	
Location		W004		W001		W101		W101		W003	
Tide		Flood 1		Flood 1		Flood 1		Flood 2		Flood 2	
Heading		N		N		N		N		N	
Temp.(C)	Air	25.0		25.0		25.0		25.0		24.0	
	Surface	24.0		24.0		24.0		24.0		24.0	
	Bottom	24.0		24.0		24.0		24.0		24.0	
Sal.(ppt)	Surface	8.0		-		11.0		11.0		10.0	
	Bottom	8.0		10.0		11.0		11.0		10.0	
D.O.(ppm)	Surface	6.7		-		7.0		7.0		7.3	
	Bottom	6.7		6.9		7.3		7.3		7.5	
Depth(feet)		30 TO 32		25 TO 28		18 TO 20		18 TO 22		38 TO 40	
Sample Depth		SM	MB	SM	MB	SM	MB	SM	MB	SM	MB
Vol. Filtered(m3)		48.2	47.9	37.6	25.3	61.4	60.6	47.7	29.1	46.9	56.9
EGGS:											
LARVAE:											
BAY ANCHOVY		2.07	6.26	39.89	15.81	3.26	0.00	14.68	10.31	2.13	1.76
JUVENILES:											
BAY ANCHOVY		0.00	0.00	2.66	3.95	0.00	0.00	0.00	0.00	0.00	0.00

Table 2.1-2
Continued

Date		9/17/87		9/17/87		9/17/87		9/17/87		9/17/87
Time		717		735		752		808		823
Location		W002		W101		W101		W004		W005
Tide		Flood 2		Flood Slack		Flood Slack		Flood Slack		Flood Slack
Heading		N		N		N		N		S
Temp.(C)	Air	22.0		22.5		22.5		23.0		22.5
	Surface	24.5		24.5		24.5		24.5		25.5
	Bottom	25.0		25.0		25.0		24.5		-
Sal.(ppt)	Surface	2.0		4.0		4.0		4.0		2.0
	Bottom	6.0		6.0		6.0		8.0		-
D.O.(ppm)	Surface	5.9		6.0		6.0		6.0		6.2
	Bottom	6.0		6.4		6.4		5.9		-
Depth(feet)		31 TO 33		18 TO 23		16 TO 22		30 TO 33		7 TO 10
Sample Depth		SM	MB	SM	MB	SM	MB	SM	MB	SB
Vol. Filtered(m3)		65.4	61.7	73.2	72.0	77.1	69.7	74.3	72.3	81.4 0.0
EGGS:										
LARVAE:										
BAY ANCHOVY		0.00	14.59	1.37	4.17	0.00	0.00	4.04	136.93	23.34 0.00
JUVENILES:										
BAY ANCHOVY		0.00	0.00	0.00	1.39	0.00	0.00	1.35	4.15	2.46 0.00

Table 2.1-2
Continued

Date		9/17/87		9/17/87		9/17/87		9/17/87		9/17/87
Time		842		857		912		940		955
Location		W101		W101		W003		W101		W001
Tide		Ebb 1		Ebb 1		Ebb 1		Ebb 1		Ebb 1
Heading		S		S		S		S		S
Temp.(C)	Air	23.0		23.0		24.0		23.5		24.0
	Surface	24.5		24.5		24.5		24.5		24.5
	Bottom	25.0		25.0		24.0		25.0		24.5
Sal.(ppt)	Surface	2.0		2.0		2.0		2.0		2.0
	Bottom	4.0		4.0		10.0		4.0		8.0
D.O.(ppm)	Surface	6.0		6.0		6.5		6.2		6.3
	Bottom	6.1		6.1		5.7		6.2		5.9
Depth(feet)		16 TO 21		16 TO 21		40 TO 42		16 TO 20		20 TO 24
Sample Depth		SM	MB	SM	MB	SM	MB	SM	MB	SM MB
Vol. Filtered(m3)		66.2	67.7	72.1	71.6	71.0	63.1	62.8	73.0	58.8 70.3
EGGS:										
LARVAE:										
BAY ANCHOVY		0.00	4.43	8.32	0.00	1.41	0.00	0.00	0.00	0.00 1.42
JUVENILES:										
BAY ANCHOVY		0.00	1.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00 0.00
ATLANTIC CROAKER		0.00	0.00	0.00	0.00	0.00	1.58	0.00	0.00	0.00 0.00

Table 2.1-2
Continued

Date		9/22/87		9/22/87		9/22/87		9/22/87		9/22/87
Time		924		947		1010		1030		1047
Location		W101		W003		W005		W101		W101
Tide		Flood 2		Flood 2		Flood 2		Flood 2		Flood 2
Heading		N		N		N		N		N
Temp.(C)	Air	19.0		18.0		17.0		19.0		19.0
	Surface	23.0		22.5		22.0		23.0		23.0
	Bottom	22.5		23.0		-		23.0		23.0
Sal.(ppt)	Surface	8.0		4.0		4.0		8.0		8.0
	Bottom	8.0		8.0		-		8.0		8.0
D.O.(ppm)	Surface	5.5		6.3		6.2		5.7		5.7
	Bottom	5.8		5.8		-		5.9		5.9
Depth(feet)		16 TO 20		48 TO 50		9 TO 11		18 TO 22		18 TO 20
Sample Depth		SM	MB	SM	MB	SB		SM	MB	SM	MB
Vol. Filtered(m3)		61.5	73.2	44.2	58.4	44.3	0.0	51.5	74.8	56.1	68.1
EGGS:											
LARVAE:											
BAY ANCHOVY		0.00	0.00	0.00	3.42	13.54	0.00	3.88	0.00	5.35	1.47
JUVENILES:											
BAY ANCHOVY		0.00	0.00	0.00	1.71	0.00	0.00	0.00	0.00	0.00	0.00

Table 2.1-2
Continued

Date		9/22/87	9/22/87	9/22/87	9/22/87	9/22/87
Time		1113	1137	1209	1246	1317
Location		W002	W004	W101	W101	W001
Tide		Flood 2	Flood 2	Ebb 1	Ebb 1	Ebb 1
Heading		N	N	S	S	S
Temp.(C)	Air	21.0	22.5	22.0	23.0	23.0
	Surface	23.0	22.5	25.0	24.0	24.5
	Bottom	23.0	23.0	24.0	23.5	23.5
Sal.(ppt)	Surface	6.0	6.0	8.0	8.0	8.0
	Bottom	8.0	10.0	8.0	8.0	8.0
D.O.(ppm)	Surface	6.0	6.4	5.7	5.9	6.2
	Bottom	6.0	5.9	6.1	6.1	6.1
Depth(feet)		34 TO 36	26 TO 30	18 TO 24	16 TO 22	20 TO 26
Sample Depth		SM MB	SM MB	SM MB	SM MB	SM MB
Vol. Filtered(m3)		51.2 79.8	39.8 54.2	71.7 73.9	52.5 74.1	40.8 73.4
EGGS:						
LARVAE:						
BAY ANCHOVY		0.00 2.51	0.00 0.00	0.00 1.35	0.00 0.00	0.00 0.00
JUVENILES:						

Table 2.1-2
Continued

Date		9/29/87		9/29/87		9/29/87		9/29/87		9/29/87
Time		949		1012		1028		1046		1102
Location		W005		W101		W101		W004		W007
Tide		Ebb 2		Ebb 2		Ebb 2		Flood 1		Flood 1
Heading		S		S		S		N		N
Temp.(C)	Air	18.0		18.0		18.0		22.0		22.0
	Surface	21.0		21.0		21.0		21.5		21.5
	Bottom	-		21.0		21.0		22.0		21.5
Sal.(ppt)	Surface	2.0		2.0		2.0		2.0		2.0
	Bottom	-		2.0		2.0		2.0		2.0
D.O.(ppm)	Surface	7.4		7.2		7.2		7.1		7.1
	Bottom	-		7.5		7.5		7.3		7.3
Depth(feet)		8 TO 10		20 TO 22		20 TO 22		30 TO 35		45 TO 50
Sample Depth		SB		SM	MB	SM	MB	SM	MB	SM MB
Vol. Filtered(m3)		41.5	0.0	27.5	35.6	38.7	34.0	76.5	63.4	59.5 33.0
EGGS:										
LARVAE:										
BAY ANCHOVY		4.82	0.00	0.00	0.00	0.00	0.00	5.23	0.00	0.00 0.00
JUVENILES:										
BAY ANCHOVY		14.46	0.00	3.64	0.00	0.00	2.94	5.23	3.15	0.00 6.06

Table 2.1-2
Continued

Date		9/29/87		9/29/87		9/29/87		9/29/87	9/29/87
Time		1119		1133		1148		1207	1222
Location		W101		W101		W002		W001	W101
Tide		Flood 1		Flood 1		Flood 1		Flood 1	Flood 1
Heading		N		N		N		N	N
Temp.(C)	Air	22.0		22.0		23.0		22.0	22.0
	Surface	23.5		23.5		22.0		22.5	22.5
	Bottom	23.5		23.5		22.0		22.0	22.0
Sal.(ppt)	Surface	2.0		2.0		2.0		2.0	2.0
	Bottom	4.0		4.0		2.0		4.0	4.0
D.O.(ppm)	Surface	7.6		7.6		7.8		7.8	7.8
	Bottom	7.2		7.2		7.5		6.8	6.8
Depth(feet)		12 TO 18		16 TO 22		30 TO 32		15 TO 22	15 TO 22
Sample Depth		SM	MB	SM	MB	SM	MB	SM MB	SM MB
Vol. Filtered(m3)		65.7	68.2	46.2	51.2	68.0	64.4	52.3 57.5	47.3 58.3
EGGS:									
LARVAE:									
BAY ANCHOVY		0.00	0.00	0.00	3.91	4.41	1.55	0.00 1.74	0.00 0.00
JUVENILES:									
BAY ANCHOVY		1.52	1.47	0.00	1.95	5.88	0.00	1.91 12.17	0.00 1.72

Table 2.1-3
Mean density, by collection period, of fish eggs, larvae, and juveniles taken in ichthyoplankton collections in the Delaware River near Artificial Island in 1987.

Date	Tot. Vol. Filtered	Bay Anchovy			Weakfish			Striped Bass		Alosa spp.	White Perch	Atlantic Croaker
		Eggs	Larvae	Juveniles	Eggs	Larvae	Juveniles	Eggs	Larvae	Larvae	Larvae	Juveniles
13 Apr	1,030.5	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.10	0.10	0.00
28 Apr	1,045.1	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.00	0.00	0.00
11 May	1,094.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26 May	1,173.5	488.28	0.68	0.00	0.00	4.35	0.00	0.00	0.00	0.00	0.00	0.00
03 Jun	1,204.6	478.08	4.65	0.00	0.00	0.91	0.00	0.00	0.00	0.00	0.00	0.00
11 Jun	1,264.1	4,469.19	224.51	0.00	23.57	11.31	0.00	0.00	0.00	0.00	0.00	0.00
16 Jun	836.2	4,720.88	115.88	0.00	1.08	2.15	0.12	0.00	0.00	0.00	0.00	0.00
23 Jun	1,088.1	10,937.87	2,485.62	0.00	0.37	0.64	0.09	0.00	0.00	0.00	0.00	0.00
30 Jun	1,063.0	6,145.53	1,152.78	0.09	0.09	1.60	0.00	0.00	0.00	0.00	0.00	0.00
07 Jul	1,039.3	13,024.82	1,209.08	0.10	0.00	1.73	0.10	0.00	0.00	0.00	0.00	0.00
16 Jul	797.0	3,858.97	3,522.71	0.88	0.00	1.38	0.00	0.00	0.00	0.00	0.00	0.00
23 Jul	1,116.9	4,765.60	1,691.38	0.09	0.00	4.12	0.09	0.00	0.00	0.00	0.00	0.00
28 Jul	943.5	2,362.69	2,456.17	0.11	0.00	2.54	0.00	0.00	0.00	0.00	0.00	0.00
06 Aug	955.4	1,185.89	510.26	0.21	0.00	0.42	0.00	0.00	0.00	0.00	0.00	0.00
11 Aug	989.5	1,097.83	549.97	0.10	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00
17 Aug	749.0	1,049.53	164.35	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25 Aug	785.4	74.23	250.19	1.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01 Sep	788.7	0.38	2.79	0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07 Sep	909.1	0.00	12.87	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17 Sep	1,323.7	0.00	10.95	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
22 Sep	1,143.5	0.00	1.49	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29 Sep	988.8	0.00	1.31	3.24	0.00	0.00	0 00	0.00	0.00	0.00	0.00	0.00

Table 2.1-4
Length frequency of subsampled bay anchovy taken in ichthyoplankton collections in the Delaware River near Artificial Island during 1987.

Length(mm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.0 - 0.0				0	0	8	0	0	0			
0.1 - 1.0				0	0	0	0	0	0			
1.1 - 2.0				0	0	290	146	199	0			
2.1 - 3.0				0	1	766	1190	1109	0			
3.1 - 4.0				0	2	386	356	257	3			
4.1 - 5.0				0	4	181	134	81	5			
5.1 - 6.0				0	1	122	59	24	11			
6.1 - 7.0				0	0	36	16	21	7			
7.1 - 8.0				0	0	26	20	11	16			
8.1 - 9.0				0	0	10	12	20	9			
9.1 - 10.0				0	0	3	11	19	20			
10.1 - 11.0				0	0	1	10	11	13			
11.1 - 12.0				0	0	2	4	9	11			
12.1 - 13.0				0	0	2	2	17	14			
13.1 - 14.0				0	0	0	8	11	20			
14.1 - 15.0				0	0	0	4	7	21			
15.1 - 16.0				0	0	0	0	15	26			
16.1 - 17.0				0	0	0	1	11	26			
17.1 - 18.0				0	0	0	4	9	17			
18.1 - 19.0				0	0	0	4	8	9			
19.1 - 20.0				0	0	0	2	3	8			
20.1 - 21.0				0	0	0	3	0	7			
21.1 - 22.0				0	0	1	2	5	12			
22.1 - 23.0				0	0	0	0	0	5			
23.1 - 24.0				0	0	0	0	0	0			
24.1 - 25.0				0	0	0	1	1	4			
25.1 - 26.0				0	0	0	1	3	2			
26.1 - 27.0				0	0	0	0	0	0			
27.1 - 28.0				0	0	0	1	0	1			
28.1 - 29.0				0	0	0	0	0	1			
29.1 - 30.0				0	0	0	1	1	0			
30.1 - 31.0				0	0	0	0	1	0			
31.1 - 32.0				0	0	0	0	0	0			
32.1 - 33.0				0	0	0	0	0	1			
33.1 - 34.0				0	0	0	0	0	1			
34.1 - 35.0				0	0	0	1	1	2			
35.1 - 36.0				0	0	0	0	0	1			
36.1 - 37.0				0	0	0	0	0	1			
37.1 - 38.0				0	0	0	0	0	1			
38.1 - 39.0				0	0	0	0	0	1			
39.1 - 40.0				0	0	0	0	1	0			
40.1 - 41.0				0	0	0	0	0	2			
41.1 - 42.0				0	0	0	0	0	0			
42.1 - 43.0				0	0	0	0	0	1			
43.1 - 44.0				0	0	0	0	0	0			
44.1 - 45.0				0	0	0	0	0	0			
45.1 - 46.0				0	0	0	0	0	0			
46.1 - 47.0				0	0	0	0	0	0			
47.1 - 48.0				0	0	0	0	0	0			
48.1 - 49.0				0	0	0	0	0	0			
49.1 - 50.0				0	0	0	0	0	0			
50.1 - 51.0				0	0	0	0	0	0			
51.1 - 52.0				0	0	0	0	0	1			
52.1 - 53.0				0	0	0	0	0	1			
53.1 - 54.0				0	0	0	0	0	1			

Table 2.1-5
Length frequency of subsampled weakfish taken in ichthyoplankton collections in the Delaware River near Artificial Island during 1987.

Length(mm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.1 - 2.0				0	0	9	0	0	0			
2.1 - 3.0				0	1	38	62	2	0			
3.1 - 4.0				0	44	105	19	0	0			
4.1 - 5.0				0	5	18	8	0	0			
5.1 - 6.0				0	0	9	4	0	0			
6.1 - 7.0				0	0	5	3	0	0			
7.1 - 8.0				0	0	1	1	0	0			
8.1 - 9.0				0	0	1	1	1	0			
9.1 - 10.0				0	0	0	0	0	0			
10.1 - 11.0				0	0	0	0	1	0			
11.1 - 12.0				0	0	1	0	0	0			
12.1 - 13.0				0	0	0	0	0	0			
13.1 - 14.0				0	0	0	0	0	0			
14.1 - 15.0				0	0	0	0	0	0			
15.1 - 16.0				0	0	0	0	0	0			
16.1 - 17.0				0	0	0	0	0	0			
17.1 - 18.0				0	0	0	0	0	0			
18.1 - 19.0				0	0	0	0	1	0			
19.1 - 20.0				0	0	0	0	0	0			
20.1 - 21.0				0	0	0	0	0	0			
21.1 - 22.0				0	0	0	0	0	0			
22.1 - 23.0				0	0	0	0	0	0			
23.1 - 24.0				0	0	0	1	0	0			
24.1 - 25.0				0	0	0	0	0	0			
25.1 - 26.0				0	0	0	1	0	0			
26.1 - 27.0				0	0	0	0	0	0			
27.1 - 28.0				0	0	0	0	0	0			
28.1 - 29.0				0	0	0	0	0	0			
29.1 - 30.0				0	0	0	0	0	0			
30.1 - 31.0				0	0	0	0	0	0			
31.1 - 32.0				0	0	0	0	0	0			
32.1 - 33.0				0	0	0	0	0	0			
33.1 - 34.0				0	0	0	0	0	0			
34.1 - 35.0				0	0	1	0	0	0			
35.1 - 36.0				0	0	0	0	0	0			
36.1 - 37.0				0	0	0	0	0	0			
37.1 - 38.0				0	0	0	0	0	0			
38.1 - 39.0				0	0	0	0	0	0			
39.1 - 40.0				0	0	0	0	0	0			
40.1 - 41.0				0	0	0	0	0	0			
41.1 - 42.0				0	0	0	0	0	0			
42.1 - 43.0				0	0	0	0	0	0			
43.1 - 44.0				0	0	0	0	0	0			
44.1 - 45.0				0	0	0	0	0	0			
45.1 - 46.0				0	0	0	0	0	0			
46.1 - 47.0				0	0	0	0	0	0			
47.1 - 48.0				0	0	0	0	0	0			
48.1 - 49.0				0	0	0	0	0	0			
49.1 - 50.0				0	0	0	0	0	0			
50.1 - 51.0				0	0	0	0	0	0			
51.1 - 52.0				0	0	0	0	0	0			
52.1 - 53.0				0	0	0	1	0	0			

Table 2.1-6
Length frequency of subsampled striped bass taken in ichthyoplankton collections in the Delaware River near Artificial Island during 1987.

Length(mm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.1 - 4.0				1	0	0	0	0	0			

Table 2.1-7
Length frequency of subsampled Alosa spp. taken in ichthyoplankton collections in the Delaware River Artificial Island during 1987.

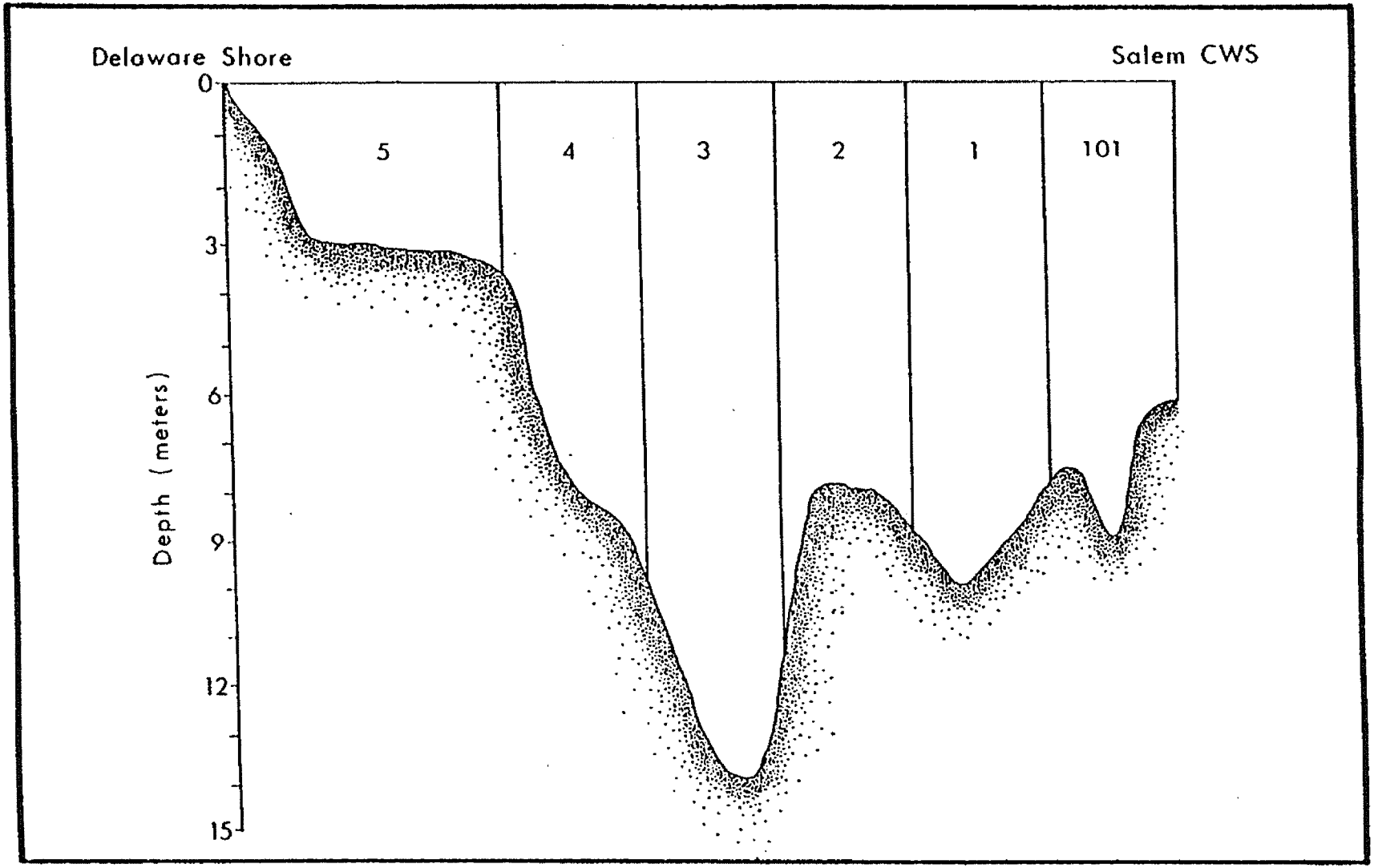
Length(mm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
4.1 - 5.0				1	0	0	0	0	0			

Table 2.1-8
Length frequency of subsampled white perch taken in ichthyoplankton collections in the Delaware River near Artificial Island during 1987.

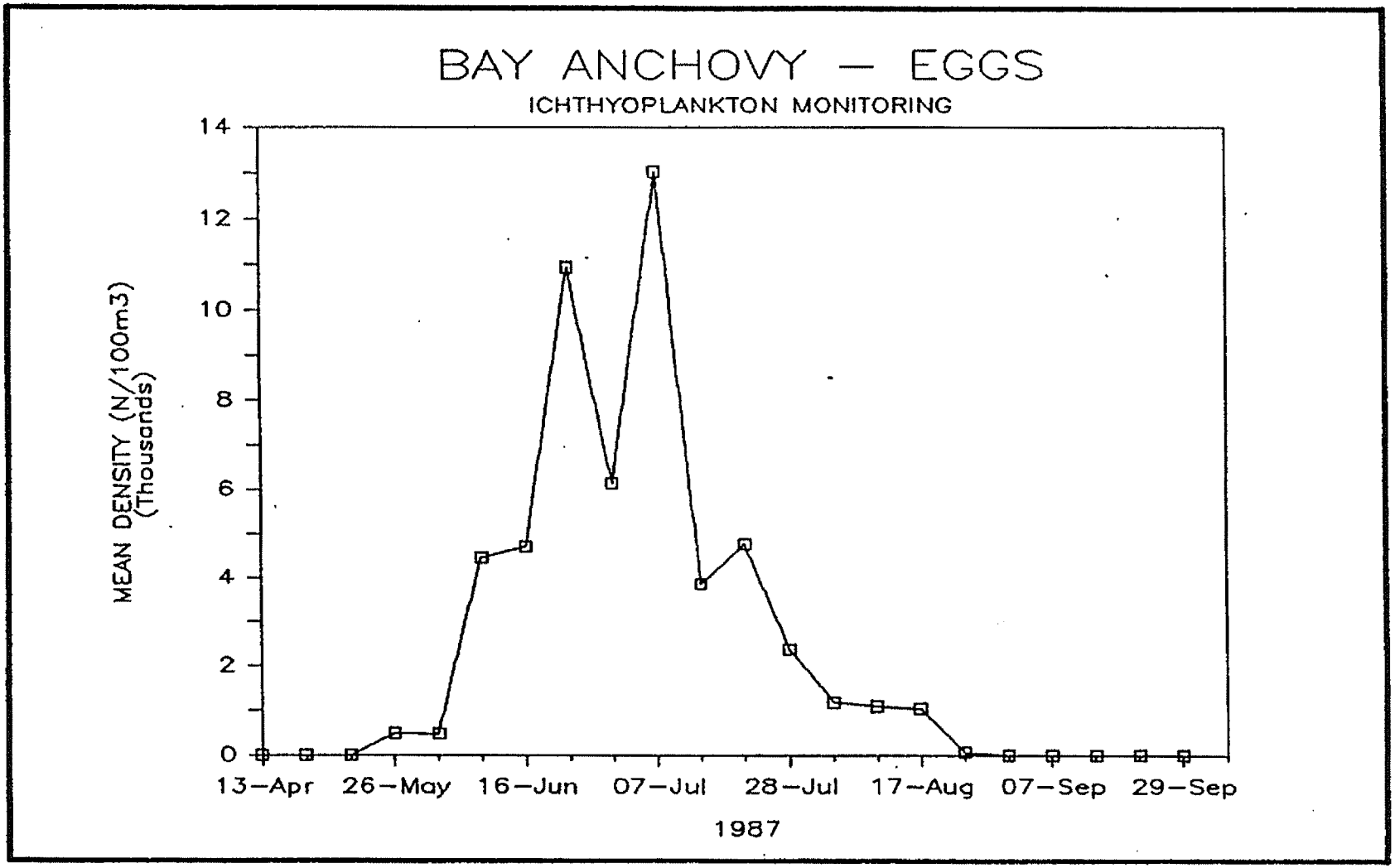
Length(mm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.1 - 4.0				1	0	0	0	0	0			

Table 2.1-9
Length frequency of subsampled Atlantic croaker taken in ichthyoplankton collections in the Delaware River near Artificial Island during 1987.

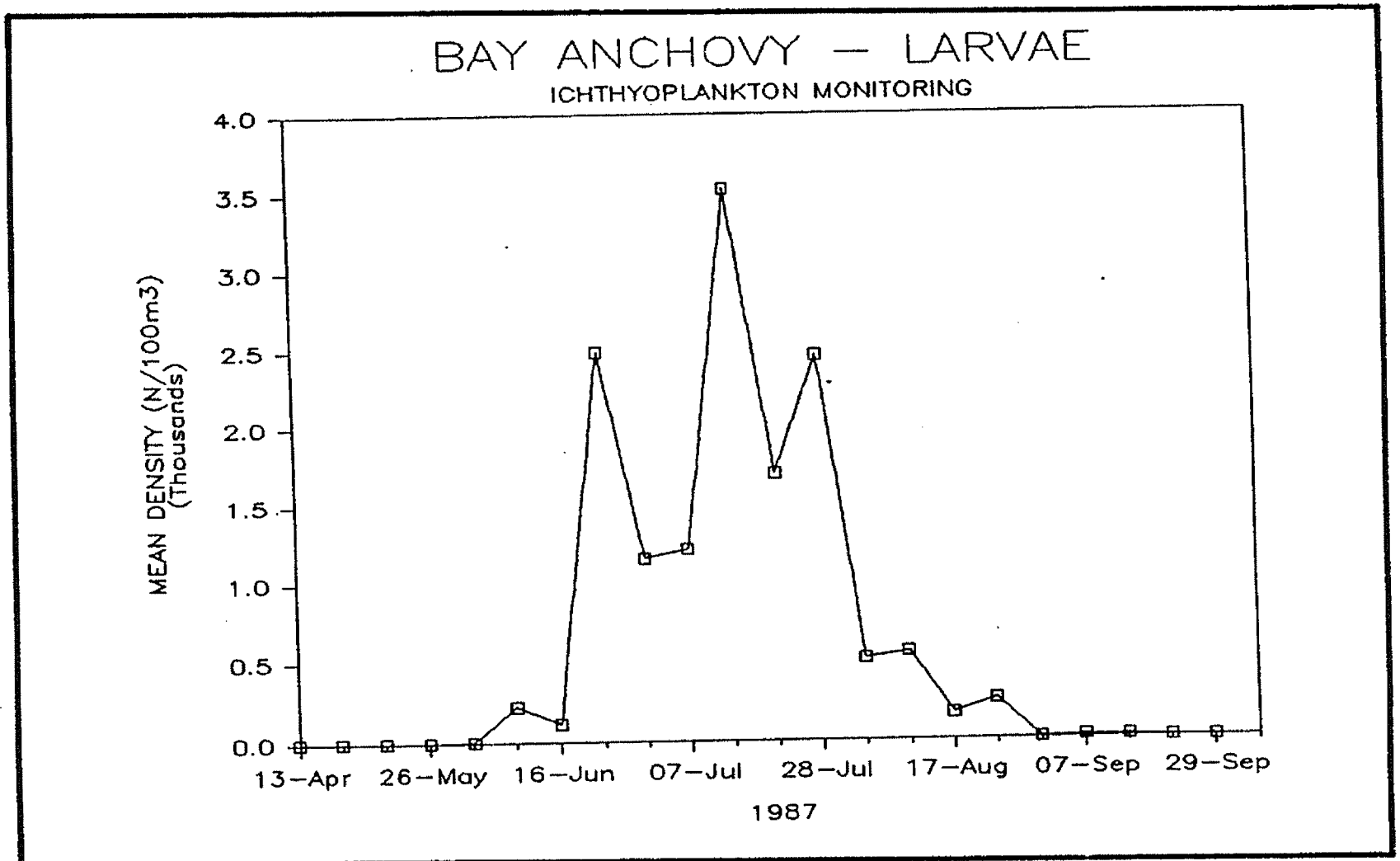
Length(mm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
15.1 - 16.0				0	0	0	0	0	1			



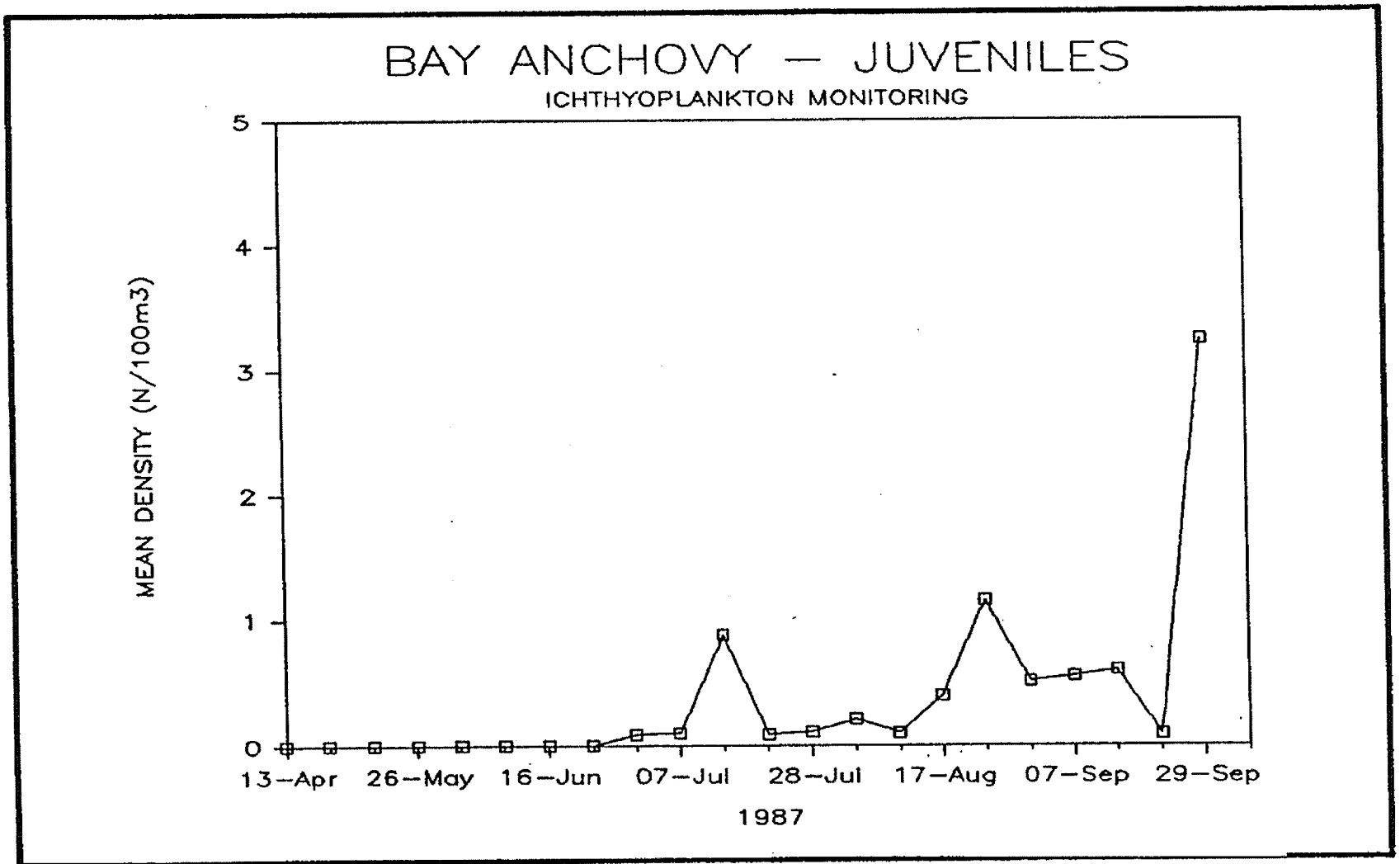
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Collection strata in ichthyoplankton transect - rkm 80. (Note: river depth vs width distortion)
	Figure 2.1-1



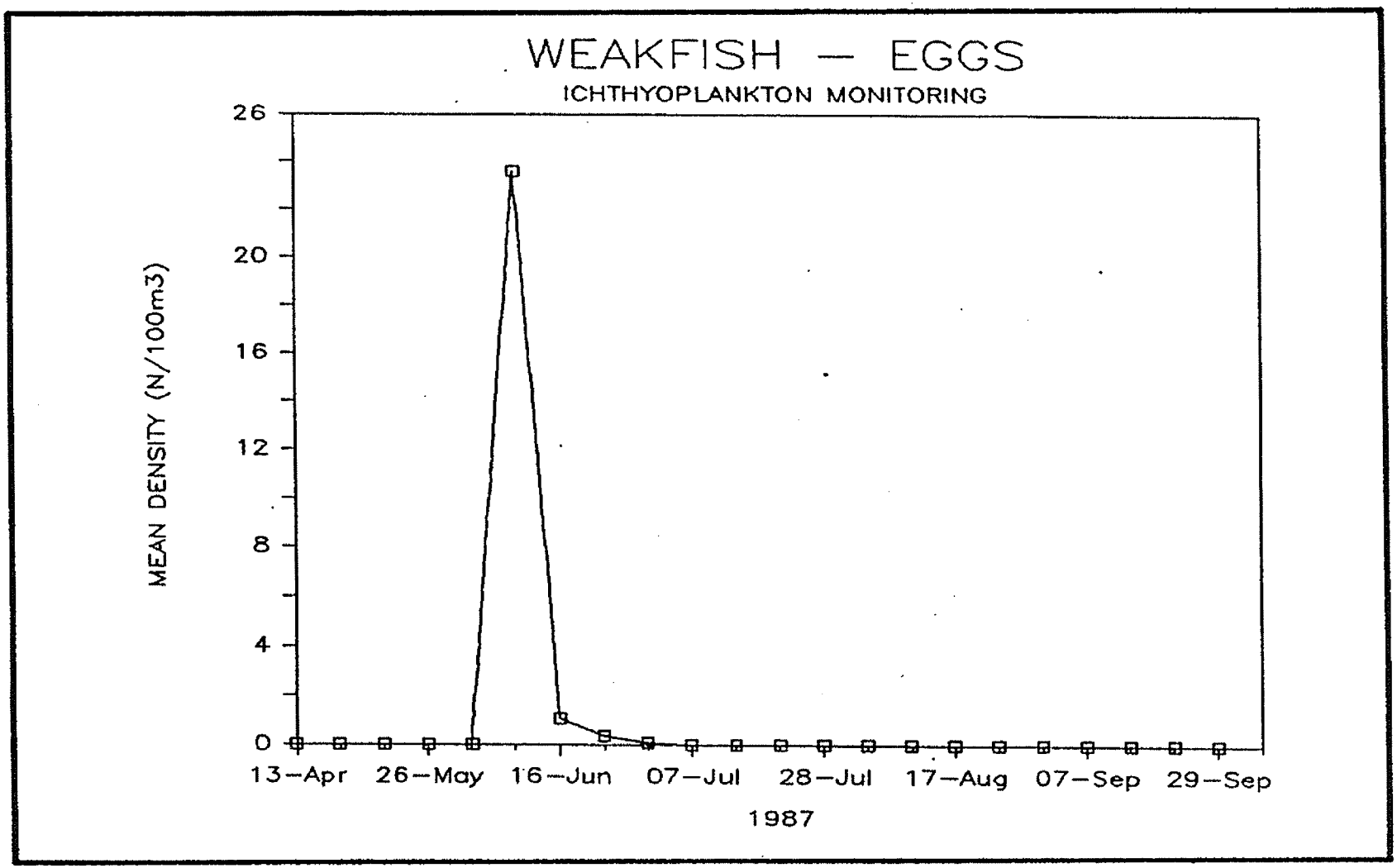
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Mean density of bay anchovy eggs taken in ichthyoplankton collections from the Delaware River off SGS in 1987.
	Figure 2.1-2



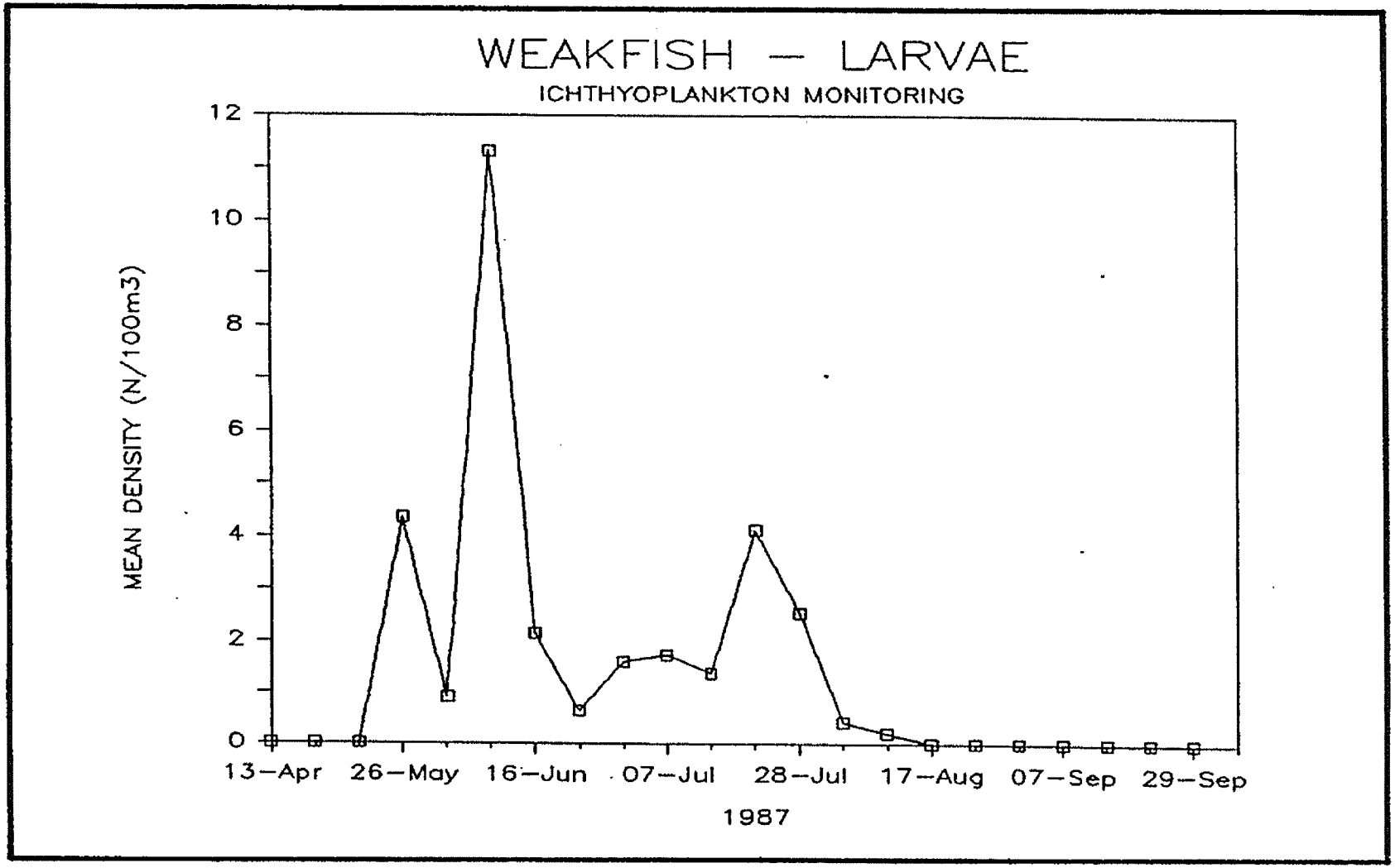
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Mean density of bay anchovy larvae taken in ichthyoplankton collections from the Delaware River off SGS in 1987.
	Figure 2.1-3



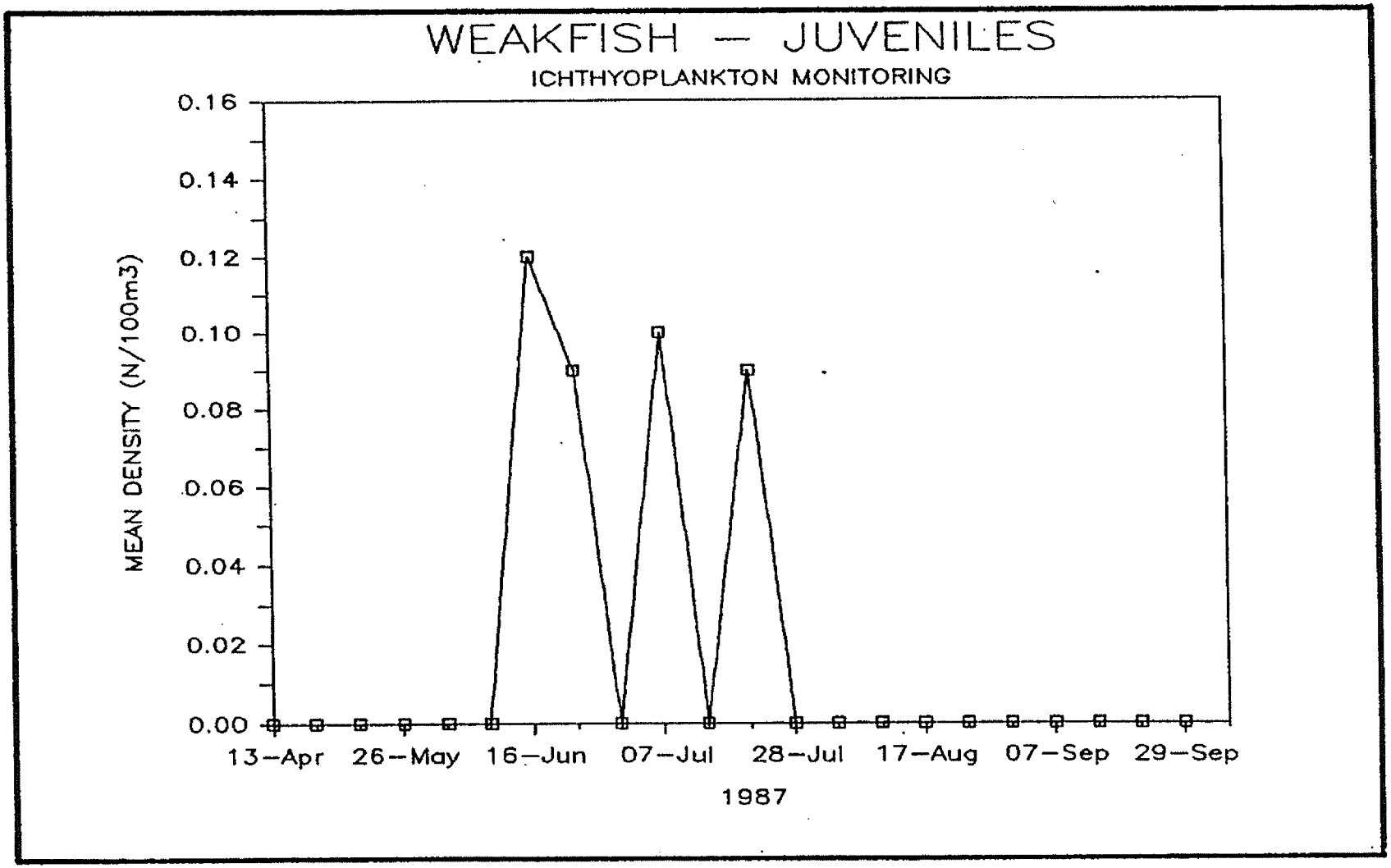
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Mean density of bay anchovy juveniles taken in ichthyoplankton collections from the Delaware River off SGS in 1987.
	Figure 2.1-4



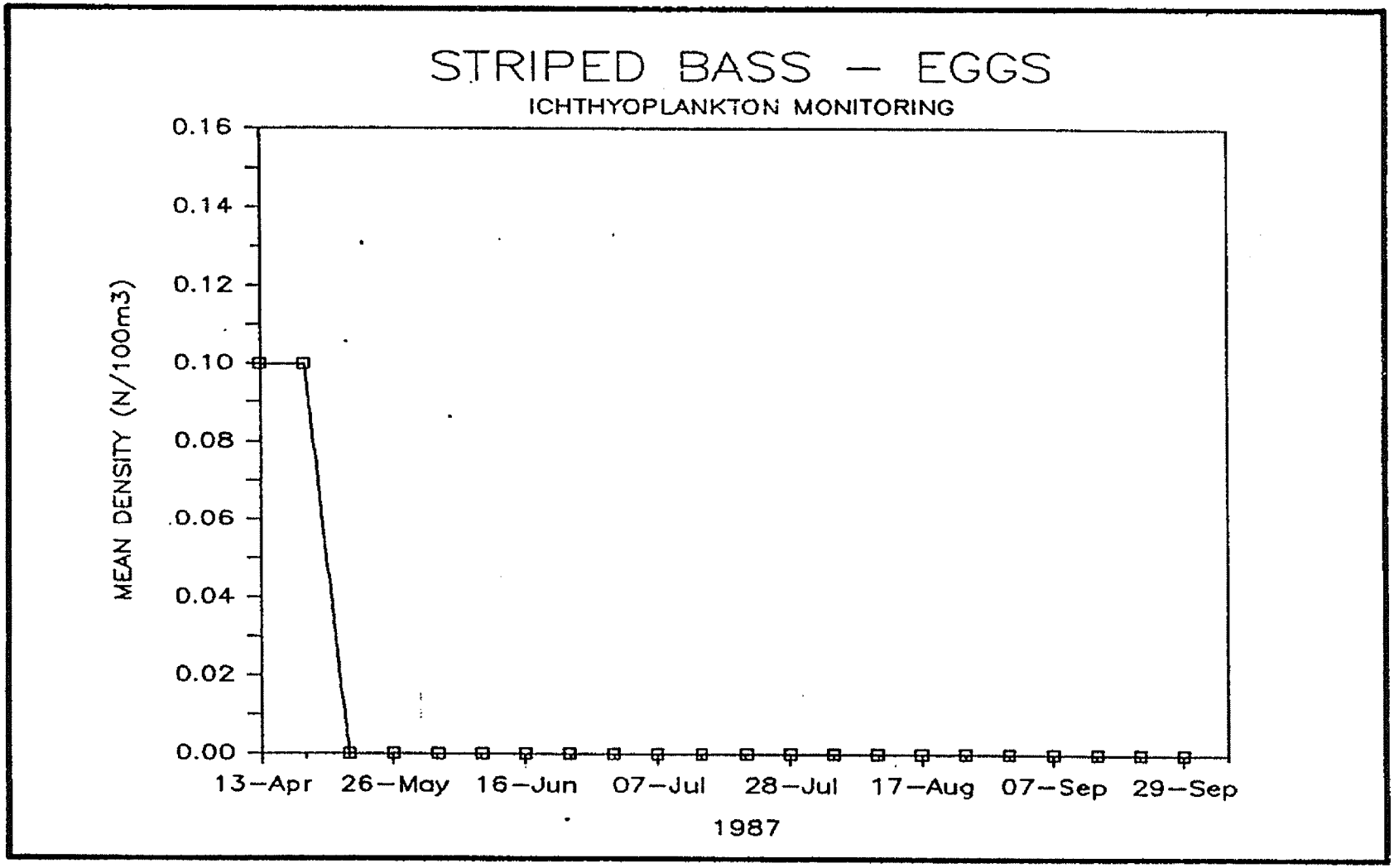
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Mean density of weakfish eggs taken in ichthyoplankton collections from the Delaware River off SGS in 1987.
	Figure 2.1-5



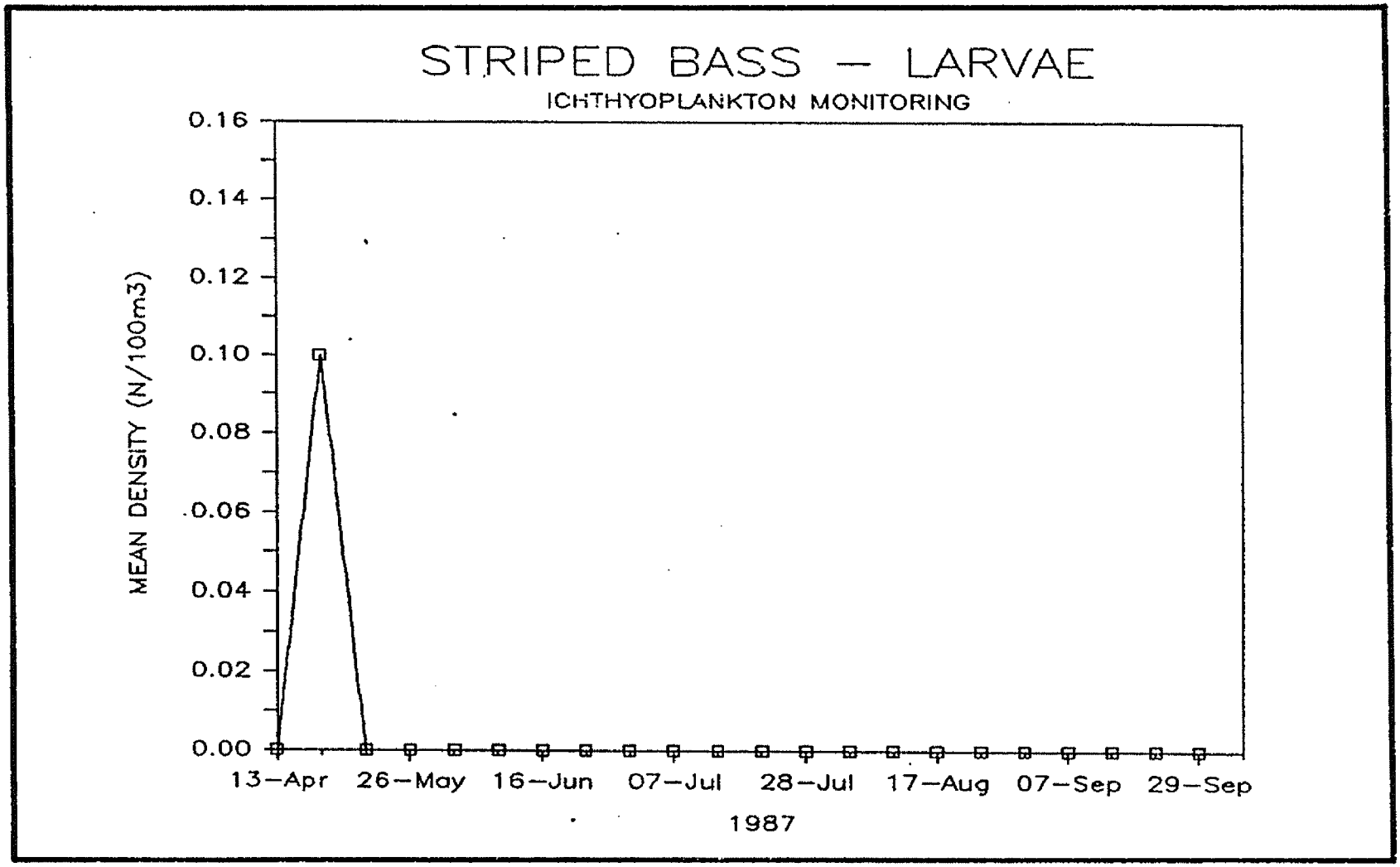
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Mean density of weakfish larvae taken in ichthyoplankton collections from the Delaware River off SGS in 1987.
	Figure 2.1-6



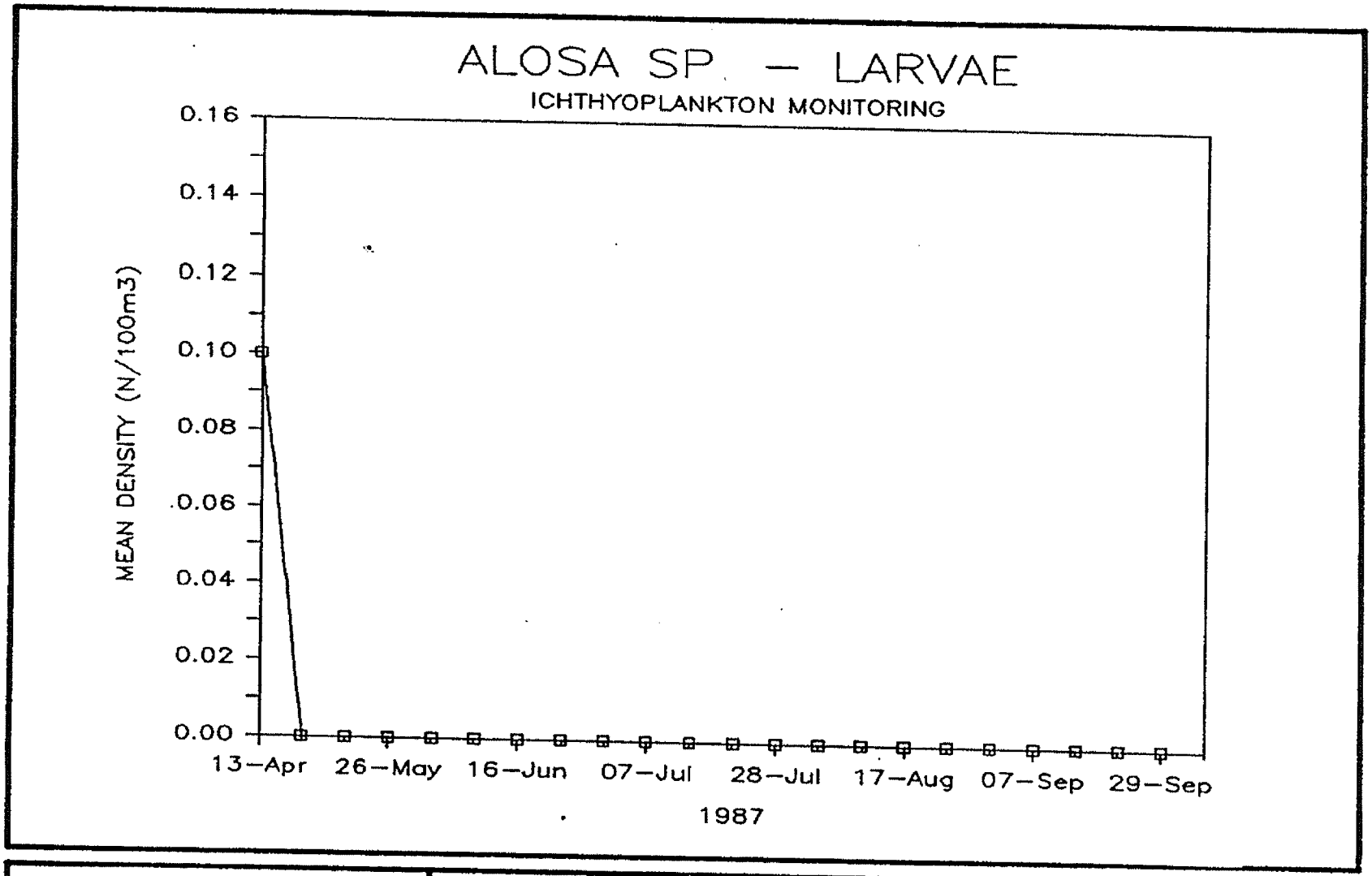
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Mean density of weakfish juveniles taken in ichthyoplankton collections from the Delaware River off SGS in 1987.
	Figure 2.1-7



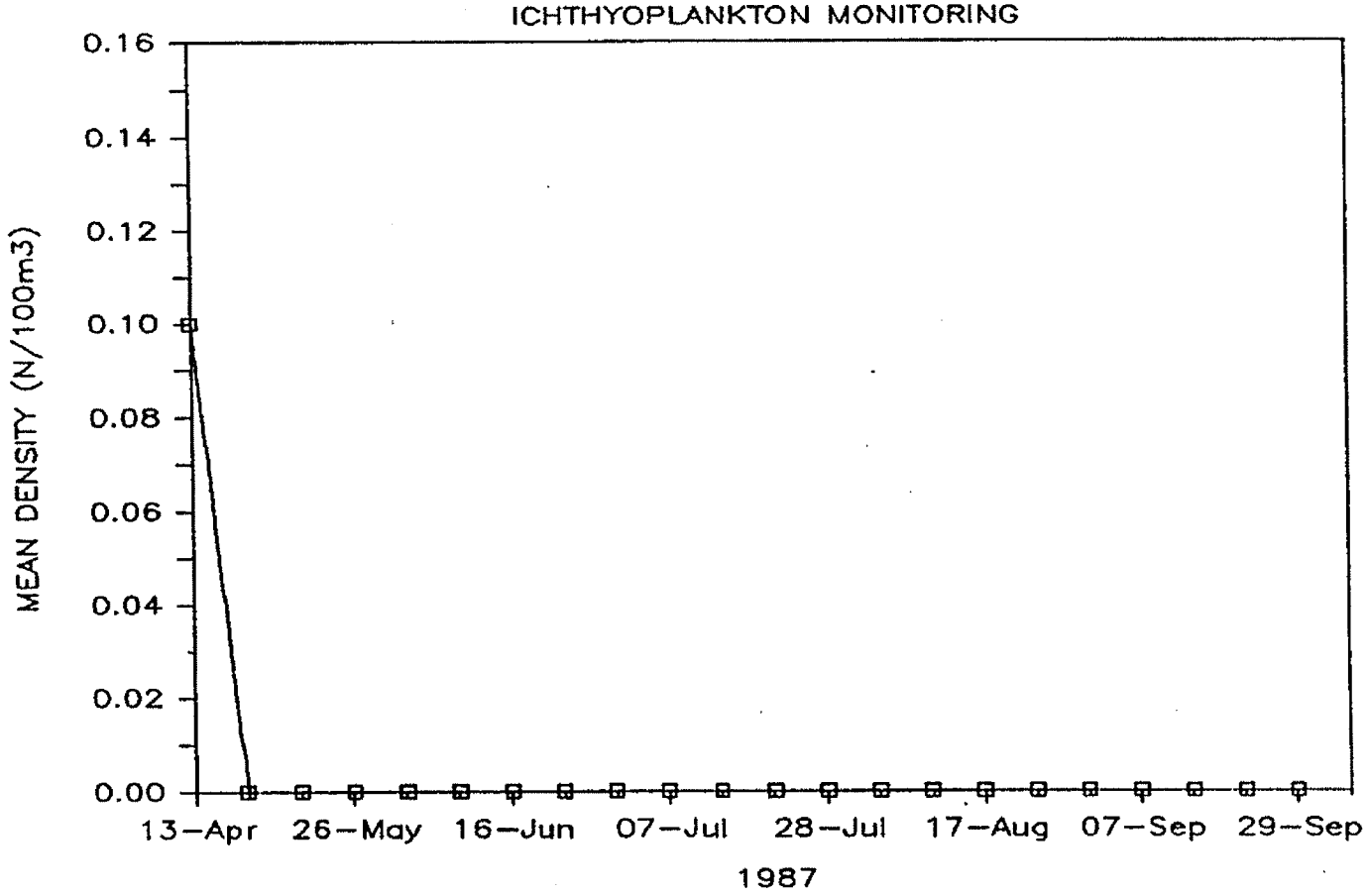
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Mean density of striped bass eggs taken in ichthyoplankton collections from the Delaware River off SGS in 1987.
	Figure 2.1-8



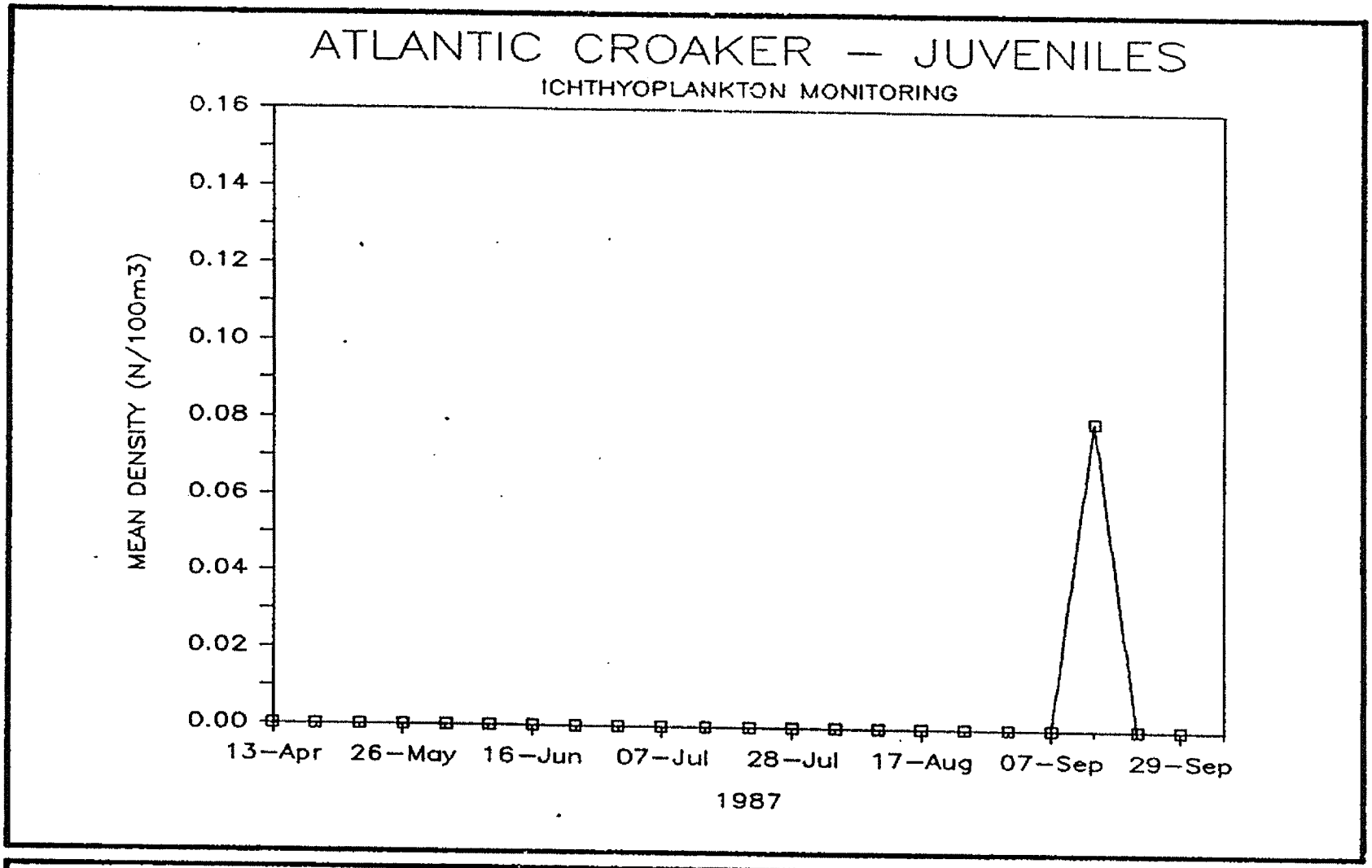
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Mean density of striped bass larvae taken in ichthyoplankton collections from the Delaware River off SGS in 1987.
	Figure 2.1-9



PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Mean density of Alosa spp. larvae taken in ichthyoplankton collections from the Delaware River off SGS in 1987.
	Figure 2.1-10



PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Mean density of white perch larvae taken in ichthyoplankton collections from the Delaware River off SGS in 1987.
	Figure 2.1-11



PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Mean density of Atlantic croaker juveniles taken in ichthyoplankton collections from the Delaware River off SGS in 1987.
	Figure 2.1-12

2.2 FINFISH MONITORING

2.2.1 Materials and Methods

Finfish monitoring during 1987 consisted of trawl sampling during daylight along a transect between SGS and Appoquinimink Creek, DE (Fig. 2.2-1). Sampling was conducted semimonthly during late March through May and October through December, and weekly from June through September. During each collection period a total of six samples were collected, in pairs which consisted of a discrete inshore sample from immediately in front of the CWS intake and an offshore sample from one of five horizontal strata (Fig. 2.2-1). One sample pair was collected from each of the surface, mid-depth, and bottom vertical strata. The order in which strata were sampled and the selection of the offshore station within a strata to be sampled were determined randomly.

A 4.9-m otter trawl was used for bottom collections and a 1.2- x 1.8-m fixed-frame, pelagic trawl was employed for surface and midwater collections (see PSE&G 1985 for description of gear specifications and deployment). All samples were of 10-minute duration and taken in the direction of the tide at a standard speed.

With each collection, finfish specimens were identified to species and enumerated. Extremely large samples of a species were subsampled and total number was estimated. For each target species, length measurements were taken on up to 100 specimens. If more than 100 specimens of a target species were captured, a random subsample of 100 was selected for measurement. Lengths were recorded in 5-mm increments. Minimum and maximum lengths were recorded for non-target species. Blue crab were enumerated and a subsample of 30 specimens were sexed and measured.

Water temperature, dissolved oxygen, salinity and transparency were measured with each collection. Measurements of temperature and dissolved oxygen were taken with a Yellow Springs Instruments Model 51 (or 51A) oxygen analyzer. Salinity was measured with an American Optical Corp. Model 10419 salinity refractometer. Water transparency was measured with a standard eight-inch secchi disk.

2.2.2 Results

A total of 42,408 specimens of 39 finfish species and 1,339 blue crab were taken in the 174 trawl collections during 1987 (Tables 2.2-1 and 2.2-2). All nine target finfishes were represented in the catch. A summary of the period of occurrence and abundance

(density expressed as number/100m^3), length, and inferred age for each of these species is presented below (phylogenetic order):

Blueback herring - A total of 59 blueback herring was taken in 1987 (Table 2.2-1). Length range was 53-243 mm FL (Table 2.2-3); all but two were age 0+. They were taken during late March through early May, November and December (Fig. 2.2-2); peak mean density (n/100m^3) during each of these two periods was 0.20 on April 10 and 0.13 on December 21, respectively.

Alewife - A total of 48 alewife was taken (Table 2.2-1). Length range was 78-148 mm FL (Table 2.2-4); all but perhaps one were age 0+. They were taken principally during late March through early May, and mid-October through December (Fig. 2.2-3); peak mean density during each of these two periods was about 0.08.

American shad - A total of 10 American shad was taken (Table 2.2-1). Length range was 58-138 mm FL (Table 2.2-5); all were age 0+. They were taken during late March through May and October (Fig. 2.2-4); peak mean density was about 0.04 on October 29.

Bay anchovy - A total of 34,119 bay anchovy was taken (Table 2.2-1). Length range was 13-93 mm FL (Table 2.2-6); the catch was dominated by age 0+ and 1+ specimens. They were taken during all sampling dates except March 23 (Fig. 2.2-5). The catch curve was marked with two primary pulses in abundance which occurred during May/June and September/October (Fig. 2.2-5); peak mean density during each of these two periods was 29.32 on June 4 and 49.53 on September 17, respectively.

White perch - A total of 274 white perch was taken (Table 2.2-1). Length range was 33-288 mm FL (Table 2.2-7); the catch was comprised largely of age 0+, 1+ and 2+ specimens. They were taken principally during late March through early May and mid October through December (Fig. 2.2-6); peak mean density was 0.91 on November 23.

Striped bass - A total of 10 striped bass was taken (Table 2.2-1). Length range was 33-298 mm TL (Table 2.2-8); all but one was age 0+. They were taken during early April, early July and late October through December (Fig. 2.2-7); peak mean density was about 0.03 on December 21.

Weakfish - A total of 1,277 weakfish was taken (Table 2.2-1). Length range was 13-353 mm TL (Table 2.2-9); all but perhaps nine were age 0+. They were taken during early June through mid October; the catch curve is marked by multiple spikes in abundance (Fig. 2.2-8). Peak mean density was 2.45 on August 24.

Spot - Two spot were taken, one (198 mm) on May 21 and one (83 mm) on June 29 (Tables 2.2-1 and 2.2-10; Fig. 2.2-9).

Atlantic croaker - A total of 43 Atlantic croaker was taken (Table 2.2-1). Length range was 8-73 mm TL (Table 2.2-11); all were age 0+. They were taken during mid September through December (Fig. 2.2-10); peak mean density was 0.20 on December 21.

Table 2.2-1
Total number of fishes and blue crabs taken in trawl collections in the Delaware River near Artificial Island in 1987.

Date Range	3/23/87 TO 12/31/87
No. of Collections	174
No. of Species	40
No. of Specimens	42408

Species	
BLUE CRAB	1339
ATLANTIC STURGEON	2
AMERICAN EEL	58
BLUEBACK HERRING	59
ALEWIFE	48
AMERICAN SHAD	10
ATLANTIC MENHADEN	22
ATLANTIC HERRING	1
GIZZARD SHAD	1
BAY ANCHOVY	34119
WHITE CATFISH	1
BROWN BULLHEAD	4
CHANNEL CATFISH	5
OYSTER TOADFISH	56
RED HAKE	1
SPOTTED HAKE	52
STRIPED CUSK-EEL	138
STRIPED KILLIFISH	1
ATLANTIC SILVERSIDE	59
NORTHERN PIPEFISH	6
WHITE PERCH	274
STRIPED BASS	10
BLACK SEA BASS	1
PUMPKINSEED	1
BLACK CRAPPIE	1
BLUEFISH	21
SILVER PERCH	3
WEAKFISH	1277
SPOT	2
NORTHERN KINGFISH	2
ATLANTIC CROAKER	43
BLACK DRUM	1
STRIPED MULLET	1
NORTHERN STARGAZER	1
NAKED GOBY	32
BUTTERFISH	2
SMALLMOUTH FLOUNDER	1
SUMMER FLOUNDER	27
WINDOWPANE	9
HOGCHOKER	6056

Table 2.2-2
Physicochemical data, numbers of crabs and number of fishes in trawl collections in the Delaware River near Artificial Island in 1987.

Date	3/23/87	3/23/87	3/23/87	3/23/87	3/23/87	3/23/87
Time	1100	1134	1238	1308	1338	1416
Location	W011	W103	W102	W009	W004	W101
Gear	Bottom Trawl	Bottom Trawl	Midwater Trawl	Midwater Trawl	Surface Trawl	Surface Trawl
Vol. Filtered(m3)	2519	2519	2027	2085	2037	1896
Tide	Ebb 2	Ebb 2	Ebb 2	Ebb 2	Ebb Slack	Flood 1
Temp.(C) Air	13.5	13.5	13.5	15.0	16.0	15.5
Surface	7.0	7.5	8.0	8.0	8.0	8.0
Bottom	6.5	7.0	7.5	7.0	-	-
Sal.(ppt) Surface	6.0	6.0	6.0	4.0	4.0	10.0
Bottom	8.0	8.0	8.0	6.0	-	-
Oxy.(ppm) Surface	13.0	12.7	13.1	12.5	12.5	13.7
Bottom	12.8	12.9	13.0	12.8	-	-
Depth(feet)	29 10 31	20 10 25	18 10 22	29 10 31	27 10 31	18 10 25
Species						
BLUEBACK HERRING	1	0	4	0	0	0
ALEWIFE	1	0	0	0	0	0
AMERICAN SHAD	0	1	0	0	0	0
SPOTTED HAKE	0	8	0	0	0	0
STRIPED KILLIFISH	0	1	0	0	0	0
ATLANTIC SILVERSIDE	1	0	0	0	0	0
WHITE PERCH	1	6	1	0	6	0
NAKED GOBY	0	0	1	0	0	0
SUMMER FLOUNDER	3	1	0	0	0	0
HOGCHOKER	29	39	0	0	0	0

Table 2.2-2
Continued

Date	4/10/87	4/10/87	4/10/87	4/10/87	4/10/87	4/10/87
Time	1110	1135	1200	1218	1244	1320
Location	W008	W102	W002	W101	W010	W103
Gear	Midwater Trawl	Midwater Trawl	Surface Trawl	Surface Trawl	Bottom Trawl	Bottom Trawl
Vol. Filtered(m3)	1875	1915	2122	1916	2519	2519
Tide	Ebb 1	Ebb 1	Ebb 1	Ebb 1	Ebb 1	Ebb 2
Temp.(C) Air	11.0	12.0	12.0	13.0	13.0	13.0
Surface	12.0	12.0	12.0	11.0	11.5	11.5
Bottom	11.0	12.0	-	-	11.0	11.0
Sal.(ppt) Surface	4.0	4.0	2.0	6.0	4.0	4.0
Bottom	10.0	10.0	-	-	10.0	10.0
Oxy.(ppm) Surface	9.8	10.3	9.9	9.2	9.0	9.0
Bottom	9.4	10.0	-	-	9.0	9.0
Depth(feet)	45 TO 50	19 TO 25	30 TO 34	19 TO 25	24 TO 26	17 TO 22
Species						
BLUE CRAB	0	0	0	0	3	0
AMERICAN EEL	0	0	0	0	8	1
BLUEBACK HERRING	0	10	0	13	0	0
ALEWIFE	0	0	0	2	3	0
ATLANTIC MENHADEN	0	4	0	1	0	0
BAY ANCHOVY	0	14	0	6	0	0
SPOTTED HAKE	0	0	0	0	4	2
STRIPED CUSK-EEL	0	0	0	0	1	0
WHITE PERCH	0	0	0	0	7	6
STRIPED BASS	0	0	0	0	0	1
BLACK SEA BASS	0	0	0	0	0	1
PUMPKINSEED	0	0	0	0	0	1
NAKED GOBY	0	0	0	0	0	1
SUMMER FLOUNDER	0	0	0	0	1	2
HOGCHOKER	0	0	0	1	205	40

Table 2.2-2
Continued

Date	4/21/87	4/21/87	4/21/87	4/21/87	4/21/87	4/21/87
Time	950	1017	1051	1123	1214	1255
Location	W006	W102	W012	W103	W101	W005
Gear	Midwater Trawl	Midwater Trawl	Midwater Trawl	Bottom Trawl	Surface Trawl	Surface Trawl
Vol. Filtered(m3)	2006	1889	2110	2519	1567	1848
Tide	Ebb 1	Ebb 1	Ebb 1	Ebb 2	Ebb 2	Ebb 2
Temp.(C) Air	-	-	-	-	-	-
Surface	13.0	13.5	13.5	14.0	14.0	14.0
Bottom	14.0	14.0	13.0	14.0	-	-
Sal.(ppt) Surface	2.0	2.0	2.0	2.0	2.0	0.0
Bottom	2.0	2.0	2.0	2.0	-	-
Oxy.(ppm) Surface	9.1	8.6	9.5	8.6	8.7	9.3
Bottom	9.2	8.8	8.6	8.6	-	-
Depth(feet)	20 TO 23	20 TO 23	48 TO 50	15 TO 20	15 TO 20	6 TO 10
Species						
BLUE CRAB	5	15	0	0	0	0
AMERICAN EEL	0	0	0	1	0	0
BLUEBACK HERRING	3	0	0	2	5	1
ALEWIFE	4	2	0	0	2	1
AMERICAN SHAD	1	0	0	0	0	0
ATLANTIC MENHADEN	0	1	0	0	0	0
BAY ANCHOVY	55	142	2	6	230	13
WHITE CATFISH	0	0	0	1	0	0
WHITE PERCH	0	1	8	7	2	2
BLACK CRAPPIE	0	0	1	0	0	0
HOGCHOKER	0	0	0	3	0	4

Table 2.2-2
Continued

Date	5/ 5/87	5/ 5/87	5/ 5/87	5/ 5/87	5/ 5/87	5/ 5/87
Time	1338	1400	1422	1443	1510	1554
Location	W101	W003	W102	W006	W103	W011
Gear	Surface Trawl	Surface Trawl	Midwater Trawl	Midwater Trawl	Bottom Trawl	Bottom Trawl
Vol. Filtered(m3)	1842	1808	1851	1725	2519	2519
Tide	Flood 1	Flood 1	Flood 1	Flood 1	Flood 1	Flood 2
Temp.(C) Air	17.0	18.5	18.0	18.0	16.5	15.0
Surface	15.0	15.0	14.0	14.0	14.0	14.0
Bottom	-	-	14.5	14.5	14.0	14.0
Sal.(ppt) Surface	4.0	2.0	6.0	6.0	2.0	2.0
Bottom	-	-	4.0	4.0	6.0	6.0
Oxy.(ppm) Surface	9.6	9.1	9.2	9.2	9.5	9.4
Bottom	-	-	9.4	9.4	9.1	8.8
Depth(feet)	15 TO 22	39 TO 40	18 TO 25	24 TO 29	19 TO 28	31 TO 35
Species						
BLUE CRAB	1	0	5	0	12	17
AMERICAN EEL	0	0	0	0	11	3
BLUEBACK HERRING	0	0	0	0	0	1
ALEWIFE	4	0	1	2	0	0
AMERICAN SHAD	1	0	0	0	0	0
BAY ANCHOVY	38	29	29	87	0	1
SPOTTED HAKE	0	0	0	0	4	15
WHITE PERCH	0	0	0	0	6	2
SUMMER FLOUNDER	0	0	0	0	5	0
WINDOWPANE	0	0	0	0	2	0
HOGCHOKER	0	0	0	0	316	9

Table 2.2-2
Continued

Date	5/21/87	5/21/87	5/21/87	5/21/87	5/21/87	5/21/87
Time	935	1010	1340	1410	1512	1540
Location	W013	W103	W101	W004	W006	W102
Gear	Bottom Trawl	Bottom Trawl	Surface Trawl	Surface Trawl	Midwater Trawl	Midwater Trawl
Vol. Filtered(m3)	2519	2519	1543	1553	1671	1704
Tide	Ebb 1	Ebb 1	Ebb 2	Ebb 2	Flood 1	Ebb Slack
Temp.(C) Air	17.5	19.5	21.0	21.0	20.5	20.5
Surface	17.0	18.0	18.0	18.0	18.0	18.0
Bottom	-	-	-	-	18.5	18.5
Sal.(ppt) Surface	8.0	8.0	6.0	4.0	6.0	6.0
Bottom	-	-	-	-	6.0	6.0
Oxy.(ppm) Surface	8.2	7.7	8.0	8.2	8.1	8.1
Bottom	-	-	-	-	8.2	8.2
Depth(feet)	28 TO 30	19 TO 22	16 TO 21	30 TO 33	25 TO 28	16 TO 21
Species						
BLUE CRAB	18	10	3	0	8	2
AMERICAN EEL	1	9	0	0	0	0
AMERICAN SHAD	0	0	0	0	0	1
BAY ANCHOVY	0	0	146	97	824	105
SPOTTED HAKE	13	0	0	0	0	0
STRIPED CUSK-EEL	3	0	0	0	0	0
SPOT	0	1	0	0	0	0
BUTTERFISH	0	0	0	0	1	0
SUMMER FLOUNDER	0	1	0	0	0	0
WINDOWPANE	1	0	0	0	0	0
HOGCHOKER	7	110	3	0	0	1

Table 2.2-2
Continued

Date		6/ 4/87	6/ 4/87	6/ 4/87	6/ 4/87	6/ 4/87	6/ 4/87
Time		950	1015	1050	1140	1150	1255
Location		W008	W102	W101	W003	W103	W019
Gear		Midwater Trawl	Midwater Trawl	Surface Trawl	Surface Trawl	Bottom Trawl	Bottom Trawl
Vol. Filtered(m3)		1630	1518	1362	1393	2519	2519
Tide		Ebb 2	Ebb 2	Ebb 2	Ebb 2	Ebb 2	Flood 1
Temp.(C)	Air	21.0	21.0	21.0	22.5	22.0	21.5
	Surface	22.0	22.0	22.0	22.0	22.5	22.5
	Bottom	22.0	22.0	22.0	23.0	22.5	22.5
Sal.(ppt)	Surface	6.0	6.0	6.0	6.0	6.9	6.9
	Bottom	6.0	6.0	6.0	6.0	6.9	6.9
Oxy.(ppm)	Surface	6.6	6.5	6.5	6.3	6.3	6.3
	Bottom	7.2	6.9	6.9	6.6	6.5	6.5
Depth(feet)		40 TO 42	14 TO 22	14 TO 22	40 TO 42	16 TO 21	20 TO 26
Species							
BLUE CRAB		0	2	5	2	33	65
AMERICAN EEL		0	0	0	0	2	2
BAY ANCHOVY		47	1747	666	122	4	3
OYSTER TOADFISH		0	0	0	0	1	0
SPOTTED HAKE		0	0	0	0	1	4
STRIPED CUSK-EEL		0	0	0	0	8	8
WEAKFISH		0	0	0	0	1	0
HOGCHOKER		0	0	0	0	62	11

Table 2.2-2
Continued

Date	6/ 9/87	6/ 9/87	6/ 9/87	6/ 9/87	6/ 9/87	6/ 9/87
Time	950	1022	1047	1115	1150	1225
Location	W009	W102	W101	W005	W013	W103
Gear	Midwater Trawl	Midwater Trawl	Surface Trawl	Bottom Trawl	Bottom Trawl	Bottom Trawl
Vol. Filtered(m3)	1608	1538	1606	2519	2519	2519
Tide	Flood Slack	Ebb 1	Ebb 1	Ebb 1	Ebb 1	Ebb 1
Temp.(C) Air	22.5	22.0	22.0	22.5	23.0	23.0
Surface	23.0	23.0	23.0	23.0	23.0	23.5
Bottom	23.0	23.0	23.0	-	22.5	23.5
Sal.(ppt) Surface	8.0	8.0	8.0	6.0	6.0	8.0
Bottom	10.0	10.0	10.0	-	10.0	8.0
Oxy.(ppm) Surface	6.7	6.8	6.8	6.6	6.7	6.7
Bottom	6.5	6.9	6.9	-	6.8	6.8
Depth(feet)	30 TO 35	19 TO 24	19 TO 24	9 TO 11	35 TO 36	20 TO 23
Species						
BLUE CRAB	1	0	0	5	1	21
AMERICAN EEL	0	0	0	0	0	1
BAY ANCHOVY	584	191	85	1191	5	1
OYSTER TOADFISH	0	0	0	0	2	2
SPOTTED HAKE	0	0	0	0	1	0
STRIPED CUSK-EEL	0	0	0	0	2	0
WHITE PERCH	0	0	0	0	0	1
SUMMER FLOUNDER	0	0	0	2	0	0
WINDOWPANE	0	0	0	3	0	0
HOGCHOKER	0	0	0	2	7	68

Table 2.2-2
Continued

Date	6/15/87	6/15/87	6/15/87	6/15/87	6/15/87	6/15/87
Time	935	1059	1140	1210	1235	1345
Location	W103	N012	W101	N004	R102	N007
Gear	Bottom Trawl	Midwater Trawl	Surface Trawl	Surface Trawl	Midwater Trawl	Midwater Trawl
Vol. Filtered(m3)	2519	1389	1344	1478	1275	1415
Tide	Ebb 2	Flood 1	Flood 1	Flood 1	Flood 1	Flood 2
Temp.(C) Air	22.0	27.9	30.0	30.0	30.0	30.0
Surface	25.0	25.0	26.0	25.0	26.0	25.0
Bottom	25.0	24.0	25.5	24.5	26.0	25.0
Sal.(ppt) Surface	8.0	4.0	8.0	4.0	10.0	8.0
Bottom	8.0	6.0	8.0	8.0	8.0	8.0
Oxy.(ppm) Surface	5.5	6.8	6.5	7.2	6.6	6.6
Bottom	6.2	6.6	6.8	7.0	6.7	6.5
Depth(feet)	16 TO 22	40 TO 42	16 TO 25	33 TO 35	20 TO 26	28 TO 32
Species						
BLUE CRAB	28	0	3	1	3	2
ALEWIFE	0	0	1	0	0	0
ATLANTIC MENHADEN	0	4	0	0	0	0
BAY ANCHOVY	1	102	176	117	60	649
BROWN BULLHEAD	1	0	0	0	0	0
OYSTER TOADFISH	1	0	0	0	0	0
STRIPED CUSK-EEL	13	1	0	0	0	0
WEAKFISH	0	29	0	0	2	2
SUMMER FLOUNDER	2	0	0	0	0	0
WINDOWPANE	0	2	0	0	0	0
HOGCHOKER	2	1	0	0	0	0

Table 2.2-2
Continued

Date	6/22/87	6/22/87	6/22/87	6/22/87	6/22/87	6/22/87
Time	1225	1255	1325	1355	1425	1455
Location	W101	W005	W011	W103	W102	W007
Gear	Surface Trawl	Bottom Trawl	Bottom Trawl	Bottom Trawl	Midwater Trawl	Midwater Trawl
Vol. Filtered(m3)	1432	2519	2519	2519	1446	1517
Tide	Ebb 1	Ebb 1	Ebb 2	Ebb 2	Ebb 2	Ebb 2
Temp.(C) Air	27.0	27.0	28.0	28.5	28.5	28.5
Surface	27.0	26.0	26.0	26.5	26.5	26.5
Bottom	27.0	26.5	26.0	27.0	27.0	26.5
Sal.(ppt) Surface	8.0	6.0	8.0	8.0	8.0	6.0
Bottom	8.0	6.0	8.0	8.0	8.0	6.0
Oxy.(ppm) Surface	6.4	6.6	6.1	6.1	6.1	6.2
Bottom	6.4	6.6	6.2	6.2	6.2	6.2
Depth(feet)	20 TO 24	7 TO 10	30 TO 31	17 TO 22	17 TO 22	28 TO 30
Species						
BLUE CRAB	1	4	11	13	1	1
AMERICAN EEL	0	0	0	3	0	0
BAY ANCHOVY	525	54	0	1	150	100
OYSTER TOADFISH	0	0	0	9	0	0
STRIPED CUSK-EEL	0	0	20	8	0	0
WHITE PERCH	0	2	1	3	1	0
WEAKFISH	2	6	1	6	5	2
SUMMER FLOUNDER	0	3	0	1	0	0
WINDOWPANE	0	1	0	0	0	0
HOGCHOKER	0	5	1	13	1	0

Table 2.2-2
Continued

Date		6/29/87	6/29/87	6/29/87	6/29/87	6/29/87	6/29/87
Time		1020	1115	1148	1218	1308	1334
Location		W103	W010	W102	W009	W101	W003
Gear		Bottom Trawl	Bottom Trawl	Midwater Trawl	Midwater Trawl	Surface Trawl	Surface Trawl
Vol. Filtered(m3)		2519	2519	1029	957	1017	1266
Tide		Flood 1	Flood 1	Flood 1	Flood 1	Flood 2	Flood 2
Temp.(C)	Air	28.0	27.5	27.0	27.5	28.5	28.5
	Surface	26.0	26.0	25.0	26.0	26.0	26.0
	Bottom	25.5	25.0	25.0	25.0	25.0	25.0
Sal.(ppt)	Surface	6.0	6.0	10.0	6.0	8.0	8.0
	Bottom	8.0	8.0	10.0	6.9	10.0	10.0
Oxy.(ppm)	Surface	7.1	6.9	6.8	7.2	8.4	7.6
	Bottom	6.7	6.3	6.4	6.5	6.6	6.0
Depth(feet)		10 TO 20	20 TO 26	14 TO 20	28 TO 32	16 TO 20	35 TO 40
Species							
BLUE CRAB		95	4	0	1	0	0
BAY ANCHOVY		0	0	17	14	3	9
OYSTER TOADFISH		2	1	0	1	0	0
STRIPED CUSK-EEL		8	0	0	1	0	0
WEAKFISH		51	0	6	2	0	0
SPOT		1	0	0	0	0	0
HOGCHOKER		151	2	1	0	0	0

Table 2.2-2
Continued

Date		7/ 8/87	7/ 8/87	7/ 8/87	7/ 8/87	7/ 8/87	7/ 8/87
Time		920	950	1020	1042	1110	1202
Location		W101	W002	W102	W007	W103	W011
Gear		Surface Trawl	Surface Trawl	Midwater Trawl	Midwater Trawl	Bottom Trawl	Bottom Trawl
Vol. Filtered(m3)		2033	2010	2018	2041	2519	2519
Tide		Flood 2	Flood 2	Ebb 1	Ebb 1	Ebb 1	Ebb 1
Temp.(C)	Air	26.0	26.0	26.5	27.0	28.0	28.0
	Surface	26.0	26.0	26.5	26.0	26.5	26.5
	Bottom	26.0	26.0	26.5	26.5	26.5	26.5
Sal.(ppt)	Surface	8.0	8.0	8.0	8.0	6.0	8.0
	Bottom	8.0	8.0	8.0	8.0	8.0	8.0
Oxy.(ppm)	Surface	6.4	6.6	6.7	6.3	6.5	6.5
	Bottom	6.5	6.8	6.5	6.3	6.4	6.5
Depth(feet)		18 TO 28	32 TO 34	17 TO 26	26 TO 32	18 TO 25	30 TO 32
Species							
BLUE CRAB		1	0	0	0	2	14
BAY ANCHOVY		515	154	28	45	1	2
CHANNEL CATFISH		0	0	0	0	2	0
OYSTER TOADFISH		0	0	0	0	1	1
STRIPED CUSK-EEL		0	0	0	0	0	8
STRIPED BASS		0	0	1	0	0	0
BLUEFISH		0	0	3	0	0	0
WEAKFISH		0	0	0	0	0	6
HOGCHOKER		0	0	0	0	14	11

Table 2.2-2
Continued

Date	7/15/87	7/15/87	7/15/87	7/15/87	7/15/87	7/15/87
Time	913	950	1023	1047	1123	1155
Location	W101	W003	W012	W103	W102	W007
Gear	Surface Trawl	Surface Trawl	Midwater Trawl	Bottom Trawl	Midwater Trawl	Midwater Trawl
Vol. Filtered(m3)	1690	1891	2070	2519	1884	1963
Tide	Ebb 2	Ebb 2	Ebb 2	Ebb 2	Flood 1	Flood 1
Temp.(C) Air	21.0	21.0	21.0	20.5	23.0	23.0
Surface	25.0	27.0	27.0	25.0	26.5	27.5
Bottom	25.5	26.5	26.5	25.0	27.3	27.0
Sal.(ppt) Surface	4.0	4.0	4.0	4.0	4.0	4.0
Bottom	4.0	4.0	4.0	4.0	4.0	4.0
Oxy.(ppm) Surface	5.8	5.6	5.6	5.8	6.0	5.8
Bottom	6.0	5.8	5.8	6.1	6.1	5.6
Depth(feet)	12 TO 18	40 TO 45	40 TO 45	15 TO 20	15 TO 26	30 TO 35
Species						
BLUE CRAB	3	2	1	2	4	0
ATLANTIC STURGEON	0	0	0	1	0	0
ATLANTIC MENHADEN	0	3	6	0	1	0
BAY ANCHOVY	174	79	30	0	781	128
OYSTER TOADFISH	1	0	0	2	0	0
STRIPED CUSK-EEL	0	0	0	1	0	0
ATLANTIC SILVERSIDE	1	0	0	0	0	0
NORTHERN PIPEFISH	1	0	0	0	0	0
BLUEFISH	0	0	0	0	2	0
WEAKFISH	19	47	21	7	1	0
HOGCHOKER	164	7	6	234	4	0

Table 2.2-2
Continued

Date	7/21/87	7/21/87	7/21/87	7/21/87	7/21/87	7/21/87
Time	1015	1100	1130	1155	1222	1315
Location	W101	W001	W102	W007	W103	W010
Gear	Surface Trawl	Surface Trawl	Midwater Trawl	Midwater Trawl	Bottom Trawl	Bottom Trawl
Vol. Filtered(m3)	1590	1627	1719	1917	2519	2519
Tide	Ebb 1	Ebb 1	Ebb 1	Ebb 1	Ebb 2	Ebb 2
Temp.(C) Air	31.0	32.0	33.0	33.5	33.5	33.5
Surface	29.0	29.0	29.0	29.0	28.5	28.5
Bottom	28.0	28.0	28.0	28.0	28.5	28.5
Sal.(ppt) Surface	6.0	6.0	5.0	6.0	6.0	6.0
Bottom	7.0	10.0	8.0	9.0	8.0	8.0
Oxy.(ppm) Surface	6.4	6.0	5.8	5.8	5.6	5.6
Bottom	6.0	5.7	5.9	5.7	6.0	6.0
Depth(feet)	13 TO 24	20 TO 25	13 TO 22	28 TO 30	16 TO 21	21 TO 27
Species						
BLUE CRAB	0	0	0	1	22	18
AMERICAN EEL	0	0	0	0	1	0
BAY ANCHOVY	282	110	552	103	3	2
CHANNEL CATFISH	0	0	0	0	2	0
OYSTER TOADFISH	0	0	0	0	2	0
STRIPED CUSK-EEL	0	0	0	0	0	10
NORTHERN PIPEFISH	0	1	0	0	0	0
BLUEFISH	1	0	0	0	0	0
WEAKFISH	0	0	0	0	2	4
HOGCHOKER	0	0	0	0	48	10

Table 2.2-2
Continued

Date	7/27/87	7/27/87	7/27/87	7/27/87	7/27/87	7/27/87
Time	935	1035	1103	1130	1210	1242
Location	W103	W012	W004	W101	W102	W008
Gear	Bottom Trawl	Midwater Trawl	Surface Trawl	Surface Trawl	Midwater Trawl	Midwater Trawl
Vol. Filtered(m3)	2519	1658	1564	1538	1674	1816
Tide	Flood 1	Flood 1	Flood 2	Flood 2	Flood 2	Flood 2
Temp.(C) Air	27.0	28.0	28.0	29.0	30.5	31.0
Surface	29.0	29.0	29.0	30.0	30.0	30.5
Bottom	29.0	29.0	29.0	29.0	29.0	29.0
Sal.(ppt) Surface	6.0	6.0	6.0	10.0	8.0	6.0
Bottom	8.0	6.0	6.0	8.0	8.0	10.0
Oxy.(ppm) Surface	6.2	6.1	6.1	7.1	7.2	6.7
Bottom	6.0	6.4	6.4	6.5	6.1	5.7
Depth(feet)	17 TO 23	40 TO 42	31 TO 33	18 TO 25	18 TO 25	39 TO 42
Species						
BLUE CRAB	59	4	2	2	3	0
AMERICAN EEL	3	0	0	0	0	0
ATLANTIC MENHADEN	0	1	0	0	0	9
BAY ANCHOVY	1	79	59	27	398	261
OYSTER TOADFISH	7	0	0	0	0	0
STRIPED CUSK-EEL	5	0	0	0	0	0
WEAKFISH	37	9	0	2	0	9
SUMMER FLOUNDER	1	0	0	0	0	0
HOGCHOKER	275	0	0	0	0	0

Table 2.2-2
Continued

Date	8/ 4/87	8/ 4/87	8/ 4/87	8/ 4/87	8/ 4/87	8/ 4/87
Time	1146	1217	1240	1305	1348	1447
Location	W101	W004	W009	W102	W103	W013
Gear	Surface Trawl	Surface Trawl	Midwater Trawl	Midwater Trawl	Bottom Trawl	Bottom Trawl
Vol. Filtered(m3)	1492	1921	1569	1471	2519	2519
Tide	Ebb 2	Ebb 2	Ebb 2	Ebb 2	Flood 1	Flood 1
Temp.(C) Air	32.5	32.0	32.0	32.0	32.0	29.0
Surface	29.0	29.0	29.0	29.0	29.0	29.5
Bottom	29.0	28.5	28.5	29.0	29.0	29.0
Sal.(ppt) Surface	6.0	4.0	4.0	6.0	6.0	4.0
Bottom	6.0	6.0	6.0	6.0	6.0	4.0
Oxy.(ppm) Surface	7.1	7.6	7.6	7.0	7.0	7.8
Bottom	6.9	7.5	7.5	7.0	7.0	7.3
Depth(feet)	11 TO 20	28 TO 30	28 TO 39	13 TO 19	14 TO 20	28 TO 39
Species						
BLUE CRAB	2	0	1	2	67	5
AMERICAN EEL	0	0	0	0	0	2
BAY ANCHOVY	65	99	22	171	2	0
OYSTER TOADFISH	0	0	0	0	5	8
STRIPED CUSK-EEL	0	0	0	0	11	0
NORTHERN PIPEFISH	0	0	0	0	1	0
WEAKFISH	13	3	43	17	109	2
NAKED GOBY	1	0	1	0	0	0
SUMMER FLOUNDER	0	0	0	0	1	0
HOGCHOKER	2	0	3	2	218	53

Table 2.2-2
Continued

Date	8/10/87	8/10/87	8/10/87	8/10/87	8/10/87	8/10/87
Time	1036	1110	1151	1306	1340	1414
Location	W102	W007	W103	W012	W101	W004
Gear	Midwater Trawl	Midwater Trawl	Bottom Trawl	Midwater Trawl	Surface Trawl	Surface Trawl
Vol. Filtered(m3)	1455	1396	2519	1492	1515	1547
Tide	Flood 2	Flood 2	Flood 2	Flood 2	Ebb 1	Ebb 1
Temp.(C) Air	28.5	29.5	29.5	30.0	30.0	28.0
Surface	28.0	28.0	28.0	28.0	29.0	28.0
Bottom	28.0	28.0	28.0	28.0	28.0	28.0
Sal.(ppt) Surface	8.0	6.0	8.0	8.0	10.0	8.0
Bottom	8.0	8.0	10.0	10.0	10.0	10.0
Oxy.(ppm) Surface	6.6	6.9	6.9	7.3	7.4	7.1
Bottom	6.8	6.8	6.8	6.8	7.0	6.8
Depth(feet)	18 TO 26	30 TO 32	19 TO 28	40 TO 42	13 TO 21	32 TO 33
Species						
BLUE CRAB	3	2	19	1	0	0
BAY ANCHOVY	457	316	2	19	354	399
OYSTER TOADFISH	0	0	1	0	0	0
STRIPED CUSK-EEL	0	0	6	0	0	0
ATLANTIC SILVERSIDE	0	0	0	0	2	0
WEAKFISH	1	10	32	16	5	0
SUMMER FLOUNDER	0	0	1	0	0	0
HOGCHOKER	0	0	468	0	0	0

Table 2.2-2
Continued

Date		8/18/87	8/18/87	8/18/87	8/18/87	8/18/87	8/18/87
Time		908	945	1023	1106	1208	1247
Location		N013	N103	N101	N003	N007	N102
Gear		Bottom Trawl	Bottom Trawl	Surface Trawl	Surface Trawl	Midwater Trawl	Midwater Trawl
Vol. Filtered(m3)		2519	2519	1731	1965	1971	1899
Tide		Ebb 1	Ebb 1	Ebb 1	Ebb 2	Ebb 2	Ebb 2
Temp.(C)	Air	29.0	29.0	30.0	30.0	30.0	31.0
	Surface	28.0	28.0	28.0	28.0	28.0	28.0
	Bottom	27.5	28.0	28.0	28.0	28.0	28.0
Sal.(ppt)	Surface	-	6.0	6.0	6.0	6.0	6.0
	Bottom	10.0	8.0	8.0	8.0	6.0	6.0
Oxy.(ppm)	Surface	-	7.0	6.7	7.5	7.3	7.3
	Bottom	6.6	6.8	6.8	6.9	6.9	7.1
Depth(feet)		30 TO 35	20 TO 30	20 TO 30	40 TO 50	25 TO 30	17 TO 30
Species							
BLUE CRAB		0	1	3	2	2	4
BAY ANCHOVY		0	3	494	297	163	329
OYSTER TOADFISH		0	2	0	0	0	0
WEAKFISH		1	18	18	0	20	3
HOGCHOKER		10	26	0	0	0	0

Table 2.2-2
Continued

Date		8/24/87	8/24/87	8/24/87	8/24/87	8/24/87	8/24/87
Time		915	946	1028	1100	1139	1200
Location		W004	W101	W006	W102	W011	W103
Gear		Surface Trawl	Surface Trawl	Midwater Trawl	Midwater Trawl	Bottom Trawl	Bottom Trawl
Vol. Filtered(m3)		1573	1445	1605	1656	2519	2519
Tide		Flood 1	Flood 1	Flood 1	Flood 2	Flood 2	Flood 2
Temp.(C)	Air	22.0	22.5	22.0	23.0	23.0	23.0
	Surface	25.5	24.0	24.0	25.0	25.5	25.0
	Bottom	25.0	25.0	25.0	25.0	25.5	25.0
Sal.(ppt)	Surface	8.0	10.0	10.0	10.0	10.0	10.0
	Bottom	8.0	10.0	10.0	10.0	10.0	12.0
Oxy.(ppm)	Surface	6.8	6.8	6.8	-	-	7.1
	Bottom	7.0	7.3	7.3	-	-	6.8
Depth(feet)		30 TO 33	16 TO 23	20 TO 25	17 TO 24	30 TO 33	17 TO 24
Species							
BLUE CRAB		0	6	0	0	3	8
BAY ANCHOVY		110	688	617	703	0	480
OYSTER TOADFISH		0	0	0	0	0	2
WEAKFISH		0	46	4	14	11	251
NAKED GOBY		0	0	0	0	1	1
BUTTERFISH		0	0	0	1	0	0
HOGCHOKER		0	0	0	0	10	200

Table 2.2-2
Continued

Date	8/31/87	8/31/87	8/31/87	8/31/87	8/31/87	8/31/87
Time	947	1027	1050	1123	1200	1253
Location	W101	W001	W102	W008	W103	W010
Gear	Surface Trawl	Surface Trawl	Midwater Trawl	Midwater Trawl	Bottom Trawl	Bottom Trawl
Vol. Filtered(m3)	1426	1528	1541	1678	2519	2519
Tide	Ebb 2	Ebb 2	Ebb 2	Flood 1	Flood 1	Flood 1
Temp.(C) Air	23.0	23.5	24.0	22.0	23.0	23.5
Surface	24.0	24.0	24.0	24.0	25.0	24.5
Bottom	24.0	24.0	24.0	24.0	25.0	25.0
Sal.(ppt) Surface	8.0	8.0	8.0	6.0	10.0	8.0
Bottom	10.0	8.0	8.0	10.0	10.0	8.0
Oxy.(ppm) Surface	7.7	8.0	7.6	7.9	7.4	7.6
Bottom	7.8	8.2	7.6	7.3	7.5	7.5
Depth(feet)	16 TO 22	19 TO 25	16 TO 22	38 TO 40	15 TO 25	24 TO 27
Species						
BLUE CRAB	6	0	3	1	31	31
BAY ANCHOVY	1241	54	849	170	2	3
OYSTER TOADFISH	0	0	0	0	1	1
STRIPED CUSK-EEL	0	0	0	0	4	7
BLUEFISH	0	0	1	0	0	0
WEAKFISH	4	0	0	0	50	127
SUMMER FLOUNDER	0	0	0	0	1	0
HOGCHOKER	0	0	0	0	423	57

Table 2.2-2
Continued

Date		9/10/87	9/10/87	9/10/87	9/10/87	9/10/87	9/10/87
Time		1153	1236	1312	1347	1417	1442
Location		W103	W012	W003	W101	W102	W006
Gear		Bottom Trawl	Midwater Trawl	Surface Trawl	Surface Trawl	Midwater Trawl	Midwater Trawl
Vol. Filtered(m3)		2519	1561	1290	1363	1412	1476
Tide		Flood 1	Flood 1	Flood 2	Flood 2	Ebb 1	Ebb 1
Temp.(C)	Air	28.0	27.0	28.0	28.0	28.0	29.0
	Surface	26.0	25.0	25.0	26.0	27.0	26.0
	Bottom	25.0	24.5	24.5	-	25.0	25.0
Sal.(ppt)	Surface	8.0	8.0	10.0	10.0	10.0	10.0
	Bottom	10.0	8.0	8.0	-	10.0	10.0
Oxy.(ppm)	Surface	7.2	7.2	6.8	7.3	6.9	6.9
	Bottom	6.6	7.0	7.0	-	7.1	7.1
Depth(feet)		13 TO 20	40 TO 45	40 TO 45	18 TO 22	20 TO 22	25 TO 29
Species							
BLUE CRAB		48	23	3	0	0	2
BAY ANCHOVY		27	16	311	440	116	473
STRIPED CUSK-EEL		0	1	0	0	0	0
BLUEFISH		0	0	0	0	1	1
WEAKFISH		12	16	0	0	0	0
NORTHERN STARGAZER		0	0	0	0	0	1
SUMMER FLOUNDER		1	0	0	0	0	0
HOGCHOKER		144	2	0	0	0	0

Table 2.2-2
Continued

Date	9/17/87	9/17/87	9/17/87	9/17/87	9/17/87	9/17/87
Time	1404	1446	1535	1614	1648	1730
Location	W010	W103	W102	W006	W101	W005
Gear	Bottom Trawl	Bottom Trawl	Midwater Trawl	Midwater Trawl	Surface Trawl	Bottom Trawl
Vol. Filtered(m3)	2519	2519	1545	1612	1645	2519
Tide	Ebb 2	Flood 1	Flood 1	Flood 2	Flood 2	Flood 2
Temp.(C) Air	26.0	27.0	28.0	26.0	26.0	26.0
Surface	25.5	27.0	26.5	26.0	26.0	25.0
Bottom	25.0	25.0	26.0	25.0	-	-
Sal.(ppt) Surface	2.0	4.0	4.0	2.0	6.0	2.0
Bottom	2.0	4.0	4.0	4.0	-	-
Oxy.(ppm) Surface	5.9	6.4	6.8	5.9	6.4	6.5
Bottom	5.5	5.8	6.2	6.1	-	-
Depth(feet)	20 TO 25	12 TO 25	14 TO 26	22 TO 26	20 TO 30	8 TO 10
Species						
BLUE CRAB	35	24	2	10	4	17
BAY ANCHOVY	1	5	2192	1076	1446	11
STRIPED CUSK-EEL	0	1	0	0	0	0
NORTHERN PIPEFISH	0	1	0	0	0	0
BLUEFISH	0	0	2	2	0	0
WEAKFISH	4	47	0	3	0	9
ATLANTIC CROAKER	0	1	0	0	0	1
NAKED GOBY	2	1	0	0	0	0
HOGCHOKER	14	174	5	0	0	38

Table 2.2-2
Continued

Date		9/24/87	9/24/87	9/24/87	9/24/87	9/24/87	9/24/87
Time		1035	1132	1214	1305	1343	1412
Location		W102	W008	W013	W103	W101	W002
Gear		Midwater Trawl	Midwater Trawl	Bottom Trawl	Bottom Trawl	Surface Trawl	Surface Trawl
Vol. Filtered(m3)		1284	1314	2519	2519	1399	1379
Tide		Flood 1	Flood 2	Flood 2	Flood 2	Ebb 1	Ebb 1
Temp.(C)	Air	23.0	22.0	23.0	24.0	24.0	24.0
	Surface	22.5	22.0	22.5	23.0	23.0	23.0
	Bottom	23.0	22.5	23.0	23.0	23.0	23.0
Sal.(ppt)	Surface	6.0	4.0	6.0	6.0	6.0	6.0
	Bottom	6.0	6.0	8.0	6.0	6.0	6.0
Oxy.(ppm)	Surface	6.7	7.0	6.9	6.7	6.7	6.9
	Bottom	6.7	6.5	6.7	7.4	7.4	7.4
Depth(feet)		18 TO 25	39 TO 42	27 TO 30	19 TO 26	14 TO 21	28 TO 39
Species							
BLUE CRAB		9	12	128	10	3	0
AMERICAN EEL		0	0	3	0	0	0
BAY ANCHOVY		250	645	12	5	114	69
OYSTER TOADFISH		0	0	3	0	0	0
STRIPED CUSK-EEL		0	0	1	0	0	0
BLUEFISH		2	2	0	1	1	1
SILVER PERCH		0	0	0	1	0	0
WEAKFISH		0	0	62	13	0	0
NORTHERN KINGFISH		0	0	0	1	0	0
ATLANTIC CROAKER		0	0	1	0	0	0
NAKED GOBY		0	0	4	1	0	0
HOGCHOKER		0	0	74	122	0	0

Table 2.2-2
Continued

Date	10/ 2/87	10/ 2/87	10/ 2/87	10/ 2/87	10/ 2/87	10/ 2/87
Time	725	757	827	943	1003	1052
Location	W102	W007	W103	W012	W101	W004
Gear	Midwater Trawl	Midwater Trawl	Bottom Trawl	Midwater Trawl	Surface Trawl	Surface Trawl
Vol. Filtered(m3)	1513	1556	2519	1271	1551	1391
Tide	Flood 2	Flood 2	Ebb 1	Ebb 1	Ebb 1	Ebb 1
Temp.(C) Air	14.0	14.0	19.5	15.0	-	19.0
Surface	19.5	19.0	20.0	20.0	20.0	20.0
Bottom	19.0	19.5	19.0	20.0	-	20.0
Sal.(ppt) Surface	6.0	6.0	4.0	6.0	6.0	4.0
Bottom	6.0	6.0	-	8.0	-	6.0
Oxy.(ppm) Surface	7.3	7.7	7.8	7.3	7.9	7.6
Bottom	7.4	7.5	-	7.6	-	7.8
Depth(feet)	18 TO 20	29 TO 30	17 TO 23	39 TO 41	-	-
Species						
BLUE CRAB	5	9	25	5	31	0
AMERICAN EEL	0	0	0	1	0	0
BAY ANCHOVY	425	920	0	260	587	549
BROWN BULLHEAD	0	0	1	0	0	0
STRIPED CUSK-EEL	0	0	0	1	0	0
NORTHERN PIPEFISH	0	0	0	0	2	0
WHITE PERCH	0	0	1	0	0	0
BLUEFISH	1	0	0	0	0	0
WEAKFISH	0	0	1	4	4	0
NAKED GOBY	0	1	2	0	0	0
HOGCHOKER	0	0	133	2	0	0

Table 2.2-2
Continued

Date	10/13/87	10/13/87	10/13/87	10/13/87	10/13/87	10/13/87
Time	950	1025	1230	1302	1338	1417
Location	W007	W102	W101	W005	W103	W011
Gear	Midwater Trawl	Midwater Trawl	Surface Trawl	Bottom Trawl	Bottom Trawl	Bottom Trawl
Vol. Filtered(m3)	1890	1877	1725	2519	2519	2519
Tide	Ebb 2	Ebb 2	Flood 1	Flood 1	Flood 1	Flood 1
Temp.(C) Air	11.0	13.0	14.5	18.0	16.0	17.0
Surface	15.0	14.5	15.0	15.0	15.0	15.5
Bottom	15.0	14.5	-	15.0	15.0	15.0
Sal.(ppt) Surface	4.0	4.0	8.0	4.0	8.0	6.0
Bottom	4.0	4.0	-	4.0	8.0	6.0
Oxy.(ppm) Surface	9.0	8.8	9.0	8.9	9.1	8.7
Bottom	8.5	8.7	-	8.9	9.0	9.1
Depth(feet)	28 TO 30	18 TO 21	15 TO 20	7 TO 10	15 TO 22	30 TO 35
Species						
BLUE CRAB	5	3	4	6	28	34
AMERICAN EEL	0	0	0	0	0	1
ALEWIFE	0	0	0	1	0	0
AMERICAN SHAD	1	2	0	0	0	0
BAY ANCHOVY	316	546	410	6	2	5
CHANNEL CATFISH	0	0	0	0	1	0
STRIPED CUSK-EEL	0	0	0	0	0	7
ATLANTIC SILVERSIDE	0	0	0	1	0	0
WHITE PERCH	1	0	0	4	1	1
SILVER PERCH	0	0	0	0	0	1
WEAKFISH	0	0	0	0	2	3
ATLANTIC CROAKER	0	0	0	0	0	2
NAKED GOBY	4	0	0	1	1	1
SUMMER FLOUNDER	0	0	0	0	1	0
HOGCHOKER	0	1	0	69	371	40

Table 2.2-2
Continued

Date	10/29/87	10/29/87	10/29/87	10/29/87	10/29/87	10/29/87
Time	914	947	1030	1056	1121	1145
Location	W013	W103	W102	W009	W003	W101
Gear	Bottom Trawl	Bottom Trawl	Midwater Trawl	Midwater Trawl	Surface Trawl	Surface Trawl
Vol. Filtered(m3)	2519	2519	1443	1486	1638	1377
Tide	Ebb 1	Ebb 2	Ebb Slack	Flood 1	Flood 1	Flood 1
Temp.(C) Air	9.0	9.0	11.0	13.0	13.0	13.5
Surface	13.0	13.0	13.0	13.0	13.0	13.5
Bottom	13.0	13.0	13.0	13.0	13.0	13.5
Sal.(ppt) Surface	6.0	4.0	4.0	4.0	4.0	6.0
Bottom	6.0	4.0	4.0	4.0	4.0	8.0
Oxy.(ppm) Surface	9.8	9.4	9.4	9.2	9.2	10.0
Bottom	9.7	9.4	9.4	9.8	9.8	9.7
Depth(feet)	30 TO 32	15 TO 20	16 TO 20	30 TO 32	47 TO 50	16 TO 20
Species						
BLUE CRAB	10	27	0	3	1	0
ATLANTIC STURGEON	0	1	0	0	0	0
AMERICAN EEL	0	2	0	0	0	0
ALEWIFE	0	0	0	4	0	0
AMERICAN SHAD	0	0	3	0	0	0
BAY ANCHOVY	10	5	214	217	472	169
STRIPED CUSK-EEL	2	0	0	0	0	0
WHITE PERCH	8	27	0	0	0	0
STRIPED BASS	0	2	0	0	0	0
SILVER PERCH	1	0	0	0	0	0
NORTHERN KINGFISH	0	1	0	0	0	0
ATLANTIC CROAKER	1	1	0	0	0	0
NAKED GOBY	0	4	2	1	0	0
HOGCHOKER	94	91	1	0	0	0

Table 2.2-2
Continued

Date	11/ 9/87	11/ 9/87	11/ 9/87	11/ 9/87	11/ 9/87	11/ 9/87
Time	1347	1420	1525	1610	1634	1654
Location	W101	W001	W103	W010	W102	W006
Gear	Surface Trawl	Surface Trawl	Bottom Trawl	Bottom Trawl	Midwater Trawl	Midwater Trawl
Vol. Filtered(m3)	1791	1884	2519	2519	1605	1668
Tide	Ebb 1	Ebb 1	Ebb 1	Ebb 1	Ebb 2	Ebb 2
Temp.(C) Air	21.0	21.0	19.0	19.0	18.0	18.0
Surface	12.5	12.5	13.0	13.0	12.5	12.5
Bottom	12.0	12.0	12.5	12.5	12.0	12.0
Sal.(ppt) Surface	4.0	4.0	6.0	6.0	4.0	4.0
Bottom	6.0	6.0	6.0	6.0	6.0	6.0
Oxy.(ppm) Surface	10.0	10.0	10.1	10.1	10.5	10.5
Bottom	9.8	9.8	10.0	10.0	10.5	10.5
Depth(feet)	15 TO 23	20 TO 26	17 TO 24	20 TO 25	15 TO 21	20 TO 25
Species						
BLUE CRAB	1	0	13	2	5	6
AMERICAN EEL	0	0	3	0	0	0
BLUEBACK HERRING	2	0	0	0	1	0
ALEWIFE	1	1	1	0	0	5
BAY ANCHOVY	120	123	0	2	89	100
BROWN BULLHEAD	0	0	2	0	0	0
WHITE PERCH	0	0	0	4	3	0
BLACK DRUM	0	0	1	0	0	0
NAKED GOBY	0	0	0	0	0	1
HOGCHOKER	0	0	68	165	14	3

Table 2.2-2
Continued

Date	11/23/87	11/23/87	11/23/87	11/23/87	11/23/87	11/23/87
Time	948	1027	1046	1112	1146	1238
Location	W007	W102	W101	W005	W103	W011
Gear	Midwater Trawl	Midwater Trawl	Surface Trawl	Bottom Trawl	Bottom Trawl	Bottom Trawl
Vol. Filtered(m3)	1717	1504	1367	2519	2519	2519
Tide	Flood 1	Flood 1	Flood 2	Flood 2	Flood 2	Flood 2
Temp.(C) Air	7.0	9.0	9.0	9.0	10.0	13.0
Surface	7.0	7.0	7.0	7.0	7.0	7.0
Bottom	7.0	7.0	-	7.5	7.0	7.5
Sal.(ppt) Surface	6.0	8.0	8.0	10.0	6.0	10.0
Bottom	8.0	8.0	-	10.0	10.0	10.0
Oxy.(ppm) Surface	11.6	10.8	10.8	11.1	11.0	11.3
Bottom	11.4	11.6	-	11.5	11.2	11.2
Depth(feet)	32 TO 35	16 TO 18	15 TO 20	10 TO 11	16 TO 23	32 TO 36
Species						
BLUE CRAB	0	0	0	3	30	3
BLUEBACK HERRING	0	0	2	0	0	0
ALEWIFE	1	1	0	0	1	7
ATLANTIC MENHADEN	0	1	0	0	0	0
GIZZARD SHAD	0	0	1	0	0	0
BAY ANCHOVY	218	1	0	0	0	0
ATLANTIC SILVERSIDE	0	22	1	0	0	0
WHITE PERCH	1	0	0	82	50	4
STRIPED BASS	0	0	0	0	1	0
ATLANTIC CROAKER	0	0	0	0	1	2
STRIPED MULLET	0	0	0	1	0	0
HOGCHOKER	0	0	0	43	42	637

Table 2.2-2
Continued

Date	12/ 9/87	12/ 9/87	12/ 9/87	12/ 9/87	12/ 9/87	12/ 9/87
Time	927	956	1017	1048	1116	1209
Location	W101	W004	W009	W102	W103	W010
Gear	Surface Trawl	Surface Trawl	Midwater Trawl	Midwater Trawl	Bottom Trawl	Bottom Trawl
Vol. Filtered(m3)	1619	1793	1711	1655	2519	2519
Tide	Flood 1	Flood 1	Flood 1	Flood 1	Flood 2	Flood 2
Temp.(C) Air	8.0	9.0	11.0	13.5	14.5	16.0
Surface	6.5	6.0	6.0	7.0	7.0	7.0
Bottom	6.0	6.0	6.0	6.5	6.5	6.5
Sal.(ppt) Surface	4.0	2.0	2.0	8.0	8.0	6.0
Bottom	4.0	2.0	2.0	4.0	4.0	6.0
Oxy.(ppm) Surface	12.0	12.2	12.0	11.6	11.6	11.7
Bottom	12.5	11.8	11.8	12.1	12.1	11.8
Depth(feet)	16 TO 23	30 TO 33	30 TO 33	17 TO 24	17 TO 25	22 TO 28
Species						
BLUE CRAB	0	0	0	0	3	1
BLUEBACK HERRING	3	0	0	0	0	0
BAY ANCHOVY	25	36	16	1	0	0
ATLANTIC SILVERSIDE	4	0	0	13	0	0
WHITE PERCH	0	0	3	0	1	1
STRIPED BASS	0	0	0	0	0	1
ATLANTIC CROAKER	0	0	14	1	0	0
HOGCHOKER	0	0	0	0	110	76

Table 2.2-2
Continued

Date	12/21/87	12/21/87	12/21/87	12/21/87	12/21/87	12/21/87
Time	1108	1139	1212	1235	1301	1330
Location	W103	W010	W102	W007	W101	W002
Gear	Bottom Trawl	Bottom Trawl	Midwater Trawl	Midwater Trawl	Surface Trawl	Surface Trawl
Vol. Filtered(m3)	2519	2519	1342	1709	1401	1599
Tide	Flood 2	Flood 2	Flood 2	Ebb 1	Ebb 1	Ebb 1
Temp.(C) Air	10.0	10.0	7.0	7.0	7.0	6.0
Surface	6.0	5.5	6.0	6.0	5.5	5.5
Bottom	6.0	6.5	5.0	5.0	5.0	5.0
Sal.(ppt) Surface	8.0	10.0	10.0	8.0	8.0	8.0
Bottom	10.0	10.0	10.0	10.0	10.0	10.0
Oxy.(ppm) Surface	-	-	-	-	-	-
Bottom	-	-	-	-	-	-
Depth(feet)	18 TO 27	26 TO 32	18 TO 0	28 TO 30	15 TO 22	28 TO 30
Species						
BLUE CRAB	0	1	0	0	0	0
BLUEBACK HERRING	0	0	1	1	9	0
ALEWIFE	0	2	0	0	0	0
ATLANTIC HERRING	0	0	0	0	1	0
BAY ANCHOVY	0	0	5	56	6	8
RED HAKE	0	1	0	0	0	0
ATLANTIC SILVERSIDE	0	0	4	1	9	0
WHITE PERCH	16	3	0	0	0	0
STRIPED BASS	3	1	0	0	0	0
ATLANTIC CROAKER	0	2	3	2	11	0
SMALLMOUTH FLOUNDER	0	1	0	0	0	0
HOGCHOKER	60	127	0	0	0	0

Table 2.2-3
Length frequency of blueback herring taken in trawl collections in the Delaware River off SGS during 1987.

Length(mm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
51 - 55			0	0	0	0	0	0	0	0	0	1
56 - 60			0	0	0	0	0	0	0	0	0	2
61 - 65			0	0	0	0	0	0	0	0	1	1
66 - 70			1	0	0	0	0	0	0	0	0	2
71 - 75			1	1	0	0	0	0	0	0	3	3
76 - 80			0	4	0	0	0	0	0	0	1	1
81 - 85			0	6	0	0	0	0	0	0	0	1
86 - 90			2	12	0	0	0	0	0	0	0	1
91 - 95			1	3	0	0	0	0	0	0	0	2
96 - 100			0	5	0	0	0	0	0	0	0	0
101 - 105			0	2	0	0	0	0	0	0	0	0
106 - 110			0	0	0	0	0	0	0	0	0	0
111 - 115			0	0	0	0	0	0	0	0	0	0
116 - 120			0	0	0	0	0	0	0	0	0	0
121 - 125			0	1	0	0	0	0	0	0	0	0
-												
-												
241 - 245			0	0	1	0	0	0	0	0	0	0

Table 2.2-4
Length frequency of alewife taken in trawl collections in the Delaware River off SGS during 1987.

Length(mm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
76 - 80			0	0	0	0	0	0	0	0	1	0
81 - 85			0	0	0	0	0	0	0	0	0	0
86 - 90			0	2	0	0	0	0	0	0	1	0
91 - 95			0	2	0	0	0	0	0	0	2	1
96 - 100			0	1	0	0	0	0	0	4	2	0
101 - 105			1	2	1	0	0	0	0	0	7	0
106 - 110			0	4	1	0	0	0	0	0	3	0
111 - 115			0	2	3	0	0	0	0	1	2	1
116 - 120			0	1	0	0	0	0	0	0	0	0
121 - 125			0	0	1	0	0	0	0	0	0	0
126 - 130			0	0	1	0	0	0	0	0	0	0
131 - 135			0	0	0	0	0	0	0	0	0	0
136 - 140			0	0	0	0	0	0	0	0	0	0
141 - 145			0	0	0	0	0	0	0	0	0	0
146 - 150			0	0	0	1	0	0	0	0	0	0

Table 2.2-5
Length frequency of American shad taken in trawl collections in the Delaware River off SGS during 1987.

Length(mm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
56 - 60			0	0	0	0	0	0	0	1	0	0
61 - 65			0	0	0	0	0	0	0	0	0	0
66 - 70			0	0	0	0	0	0	0	1	0	0
71 - 75			0	0	0	0	0	0	0	0	0	0
76 - 80			0	0	0	0	0	0	0	0	0	0
81 - 85			1	0	0	0	0	0	0	0	0	0
86 - 90			0	0	0	0	0	0	0	2	0	0
91 - 95			0	0	0	0	0	0	0	1	0	0
96 - 100			0	0	0	0	0	0	0	0	0	0
101 - 105			0	0	0	0	0	0	0	0	0	0
106 - 110			0	0	0	0	0	0	0	1	0	0
111 - 115			0	0	0	0	0	0	0	0	0	0
116 - 120			0	1	1	0	0	0	0	0	0	0
121 - 125			0	0	0	0	0	0	0	0	0	0
126 - 130			0	0	0	0	0	0	0	0	0	0
131 - 135			0	0	0	0	0	0	0	0	0	0
136 - 140			0	0	1	0	0	0	0	0	0	0

Table 2.2-6
Length frequency of bay anchovy taken in trawl colections in the Delaware River off SGS during 1987.

Length(mm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
11 - 15			0	0	0	0	3	4	1	0	0	0
16 - 20			0	0	0	0	26	27	10	4	0	0
21 - 25			0	0	0	1	38	114	29	15	0	1
26 - 30			0	0	0	0	56	442	107	59	3	11
31 - 35			0	1	0	0	54	487	257	128	27	53
36 - 40			0	4	0	0	32	265	216	174	74	44
41 - 45			0	2	6	9	13	146	245	255	133	33
46 - 50			0	7	20	86	33	71	121	202	137	7
51 - 55			0	34	73	224	296	117	101	167	88	4
56 - 60			0	74	152	260	329	136	41	108	32	0
61 - 65			0	94	191	364	278	144	29	74	19	0
66 - 70			0	54	77	302	136	75	15	36	7	0
71 - 75			0	16	31	207	79	52	16	26	11	0
76 - 80			0	7	15	107	37	14	5	18	1	0
81 - 85			0	3	6	64	18	1	2	5	1	0
86 - 90			0	0	6	13	4	3	0	2	0	0
91 - 95			0	0	0	2	0	1	0	0	0	0

Table 2.2-7
Length frequency of white perch taken in trawl collections in the Delaware River off SGS during 1987.

Length(mm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
31 - 35			0	0	0	6	0	0	0	0	0	0
36 - 40			0	0	0	1	0	0	0	0	0	0
41 - 45			0	0	0	0	0	0	0	0	0	0
46 - 50			0	1	0	0	0	0	0	0	0	0
51 - 55			0	0	0	0	0	0	0	0	0	0
56 - 60			0	2	0	0	0	0	0	0	0	1
61 - 65			0	0	0	0	0	0	0	0	5	1
66 - 70			3	3	0	0	0	0	0	0	5	1
71 - 75			1	3	0	0	0	0	0	0	4	0
76 - 80			4	5	0	0	0	0	0	0	6	0
81 - 85			0	3	0	0	0	0	0	0	6	1
86 - 90			2	1	0	0	0	0	0	0	7	1
91 - 95			1	0	0	0	0	0	0	0	9	1
96 - 100			0	0	0	0	0	0	0	0	7	1
101 - 105			0	0	0	0	0	0	0	1	10	1
106 - 110			0	0	0	0	0	0	0	0	11	0
111 - 115			0	1	0	0	0	0	0	0	12	1
116 - 120			0	0	0	0	0	0	0	0	9	4
121 - 125			0	0	0	0	0	0	0	2	16	5
126 - 130			0	1	0	0	0	0	0	0	8	2
131 - 135			0	0	0	0	0	0	0	1	8	1
136 - 140			0	0	0	0	0	0	0	3	5	1
141 - 145			2	1	0	1	0	0	0	1	4	0
146 - 150			0	1	0	0	0	0	0	4	2	1
151 - 155			0	2	1	0	0	0	0	5	2	0
156 - 160			0	2	0	0	0	0	0	3	1	0
161 - 165			0	0	0	0	0	0	0	4	0	0
166 - 170			0	3	0	0	0	0	0	3	1	0
171 - 175			1	0	0	0	0	0	0	5	0	1
176 - 180			0	1	0	0	0	0	0	4	1	0
181 - 185			0	2	0	0	0	0	0	5	0	0
186 - 190			0	0	0	0	0	0	0	0	0	0
191 - 195			0	0	1	0	0	0	0	0	1	0
196 - 200			0	0	3	0	0	0	0	0	1	0
201 - 205			0	0	2	0	0	0	0	0	1	0
206 - 210			0	0	1	0	0	0	0	2	1	0
211 - 215			0	0	0	0	0	0	0	0	0	0
216 - 220			0	0	0	0	0	0	0	0	0	0
221 - 225			0	0	0	0	0	0	0	0	1	0
-												
-												
286 - 290			0	1	0	0	0	0	0	0	0	0

Table 2.2-8
Length frequency of striped bass taken in trawl colelctions
in the Delaware River off SGS during 1987.

Length(mm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
31 - 35			0	0	0	0	1	0	0	0	0	0
36 - 40			0	0	0	0	0	0	0	0	0	0
41 - 45			0	0	0	0	0	0	0	0	0	0
46 - 50			0	0	0	0	0	0	0	0	0	0
51 - 55			0	0	0	0	0	0	0	0	0	0
56 - 60			0	0	0	0	0	0	0	0	0	0
61 - 65			0	0	0	0	0	0	0	0	1	0
66 - 70			0	0	0	0	0	0	0	0	0	0
71 - 75			0	0	0	0	0	0	0	0	0	0
76 - 80			0	0	0	0	0.	0	0	0	0	0
81 - 85			0	0	0	0	0	0	0	0	0	0
86 - 90			0	0	0	0	0	0	0	0	0	0
91 - 95			0	0	0	0	0	0	0	1	0	0
96 - 100			0	0	0	0	0	0	0	0	0	0
101 - 105			0	0	0	0	0	0	0	1	0	1
106 - 110			0	0	0	0	0	0	0	0	0	0
111 - 115			0	0	0	0	0	0	0	0	0	1
116 - 120			0	0	0	0	0	0	0	0	0	1
121 - 125			0	0	0	0	0	0	0	0	0	0
126 - 130			0	0	0	0	0	0	0	0	0	1
131 - 135			0	0	0	0	0	0	0	0	0	0
136 - 140			0	0	0	0	0	0	0	0	0	1
-												
-												
296 - 300			0	1	0	0	0	0	0	0	0	0

Table 2.2-9
Length frequency of weakfish taken in trawl collections
in the Delaware River off SGS during 1987.

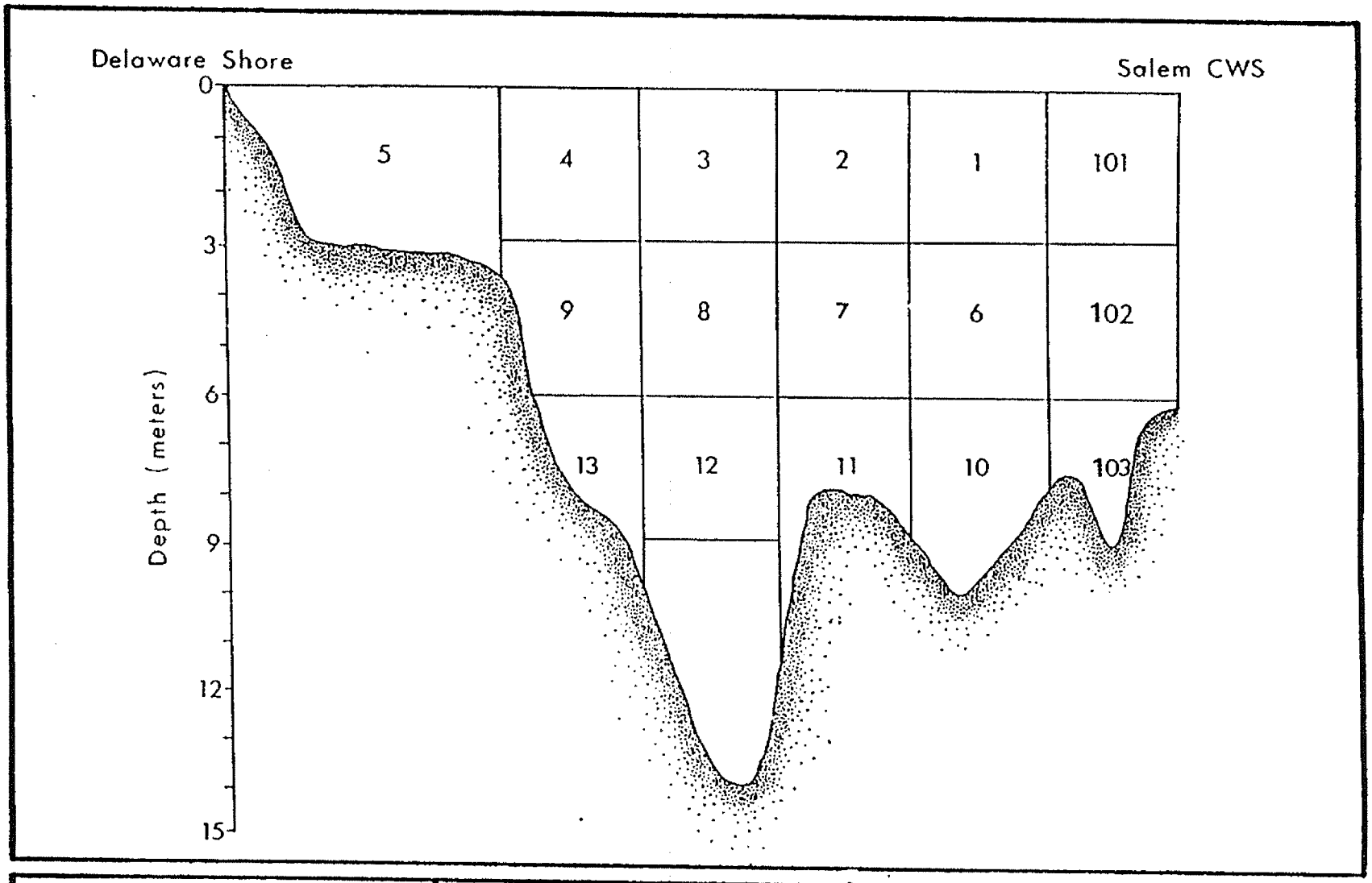
Length(mm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
11 - 15			0	0	0	1	0	7	0	0	0	0
16 - 20			0	0	0	5	1	7	0	0	0	0
21 - 25			0	0	0	6	1	9	0	0	0	0
26 - 30			0	0	0	12	3	11	0	0	0	0
31 - 35			0	0	0	11	1	27	0	0	0	0
36 - 40			0	0	0	17	1	36	1	0	0	0
41 - 45			0	0	0	12	4	29	2	0	0	0
46 - 50			0	0	0	9	8	44	1	0	0	0
51 - 55			0	0	0	11	3	71	8	0	0	0
56 - 60			0	0	0	9	6	86	12	0	0	0
61 - 65			0	0	0	5	10	81	5	2	0	0
66 - 70			0	0	0	9	17	74	10	1	0	0
71 - 75			0	0	0	2	15	44	8	0	0	0
76 - 80			0	0	0	4	10	33	8	1	0	0
81 - 85			0	0	0	0	11	20	15	1	0	0
86 - 90			0	0	0	0	8	16	25	0	0	0
91 - 95			0	0	0	0	14	14	17	0	0	0
96 - 100			0	0	0	0	18	11	20	0	0	0
101 - 105			0	0	0	0	8	8	9	0	0	0
106 - 110			0	0	0	0	7	7	7	2	0	0
111 - 115			0	0	0	0	5	6	1	1	0	0
116 - 120			0	0	0	0	2	7	7	0	0	0
121 - 125			0	0	0	0	3	5	1	1	0	0
126 - 130			0	0	0	0	2	6	0	1	0	0
131 - 135			0	0	0	0	2	1	0	0	0	0
136 - 140			0	0	0	0	1	3	0	2	0	0
141 - 145			0	0	0	0	2	1	0	0	0	0
146 - 150			0	0	0	0	0	0	0	0	0	0
151 - 155			0	0	0	0	0	2	0	0	0	0
156 - 160			0	0	0	0	0	0	1	0	0	0
161 - 165			0	0	0	0	0	0	0	0	0	0
166 - 170			0	0	0	0	0	0	1	0	0	0
171 - 175			0	0	0	0	0	1	1	0	0	0
176 - 180			0	0	0	0	0	1	0	0	0	0
181 - 185			0	0	0	0	0	0	0	0	0	0
186 - 190			0	0	0	1	0	1	0	0	0	0
191 - 195			0	0	0	0	0	0	0	0	0	0
196 - 200			0	0	0	1	0	0	0	1	0	0
201 - 205			0	0	0	0	0	0	0	0	0	0
206 - 210			0	0	0	0	0	0	0	0	0	0
211 - 215			0	0	0	0	0	0	0	0	0	0
216 - 220			0	0	0	0	0	0	1	0	0	0
221 - 225			0	0	0	0	0	0	0	1	0	0
-												
-												
331 - 335			0	0	0	0	0	1	0	0	0	0

Table 2.2-10
Length frequency of spot taken in trawl collections
in the Delaware River off SGS during 1987.

Length(mm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
81 - 85			0	0	0	1	0	0	0	0	0	0
-												
-												
196 - 200			0	0	1	0	0	0	0	0	0	0

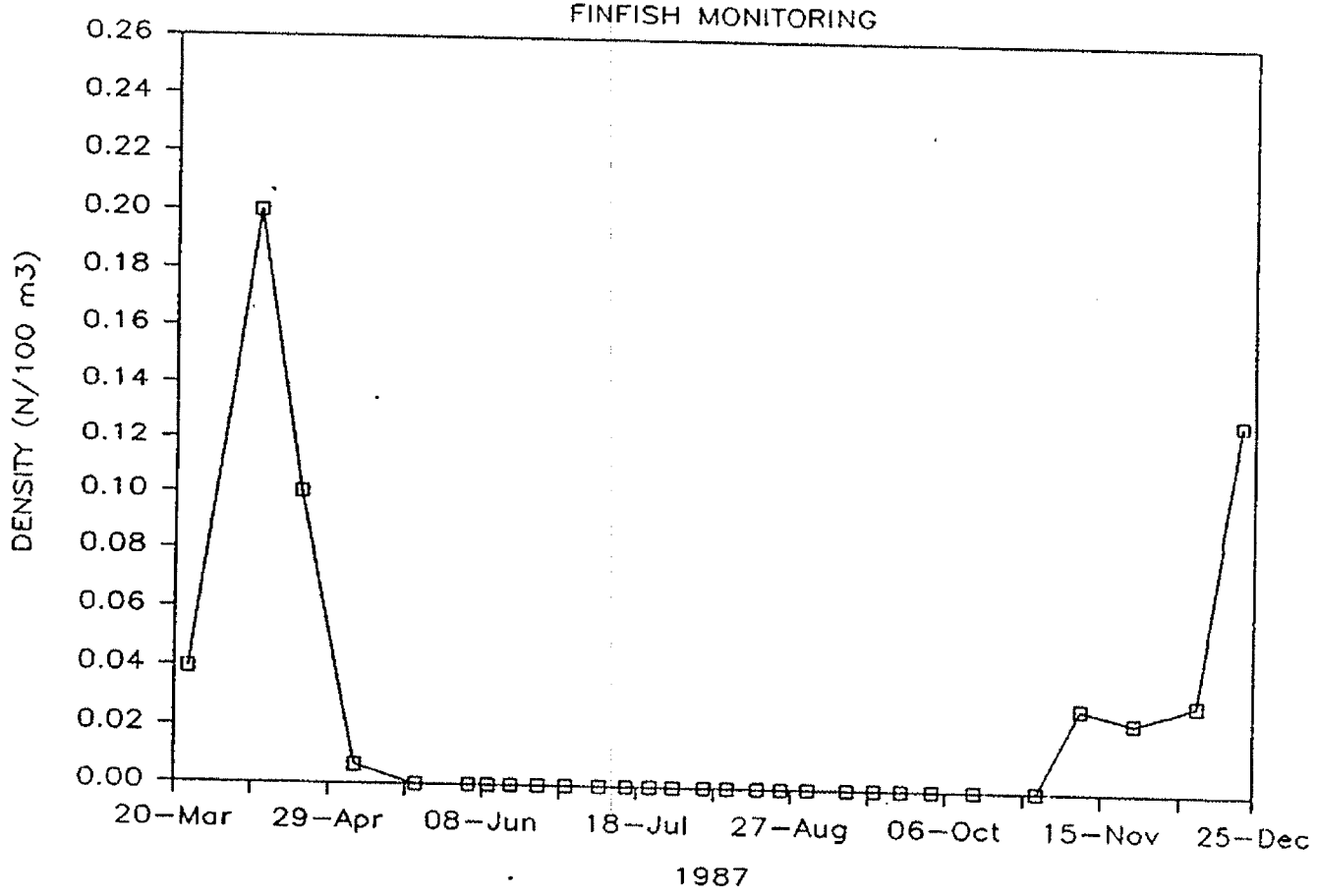
Table 2.2-11
Length frequency of Atlantic croaker taken in trawl collections
in the Delaware River off SGS during 1987.

Length(mm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
6 - 10			0	0	0	0	0	0	0	0	0	2
11 - 15			0	0	0	0	0	0	0	0	0	17
16 - 20			0	0	0	0	0	0	0	0	0	5
21 - 25			0	0	0	0	0	0	0	0	0	5
26 - 30			0	0	0	0	0	0	2	0	0	5
31 - 35			0	0	0	0	0	0	1	0	0	2
36 - 40			0	0	0	0	0	0	0	0	0	0
41 - 45			0	0	0	0	0	0	0	1	0	0
46 - 50			0	0	0	0	0	0	0	1	0	0
51 - 55			0	0	0	0	0	0	0	0	1	0
56 - 60			0	0	0	0	0	0	0	0	2	0
61 - 65			0	0	0	0	0	0	0	1	0	1
66 - 70			0	0	0	0	0	0	0	0	0	0
71 - 75			0	0	0	0	0	0	0	0	0	1
										1	0	0

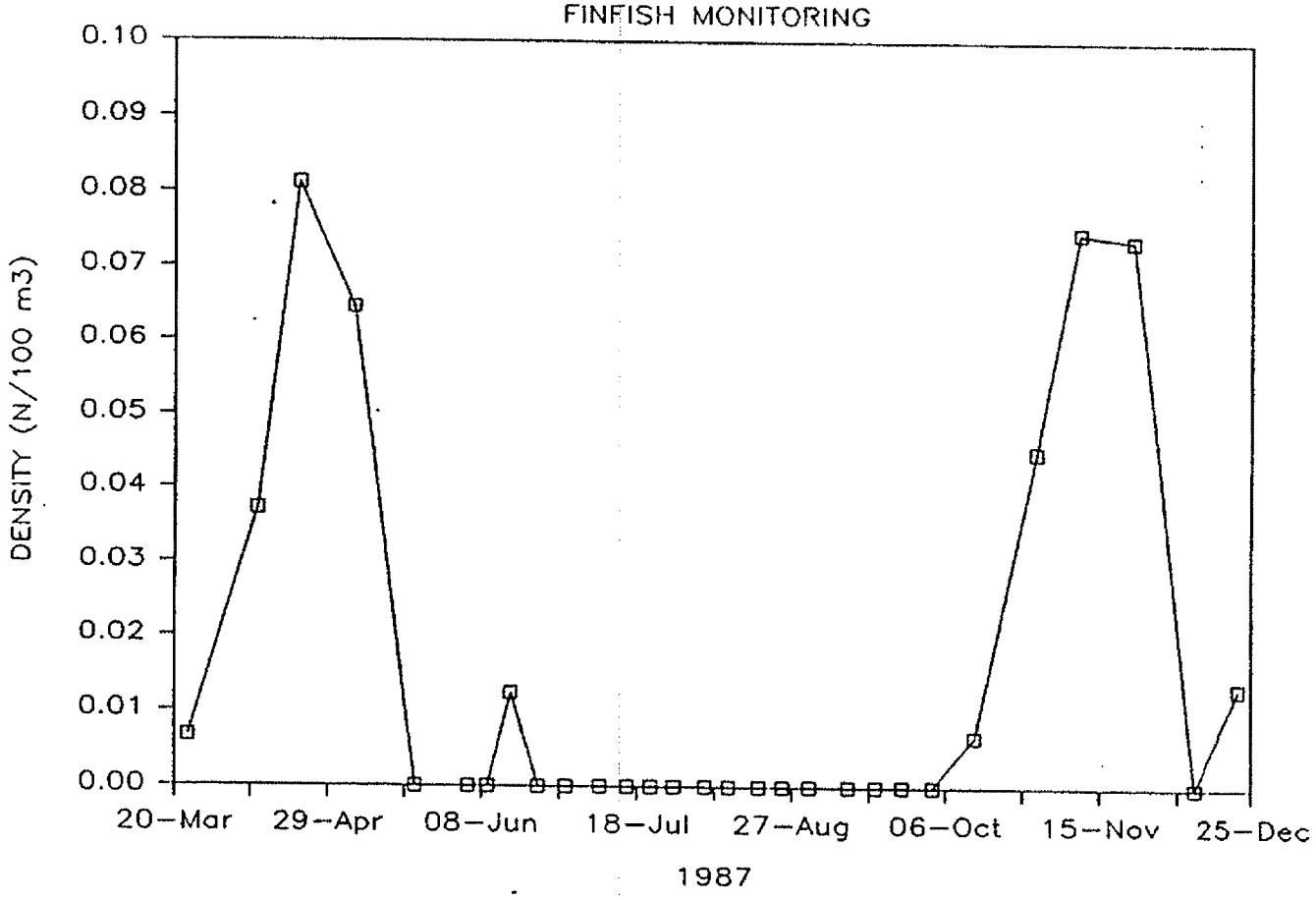


PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Collection strata in finfish transect - rkm 80. (Note: river depth vs width distortion).

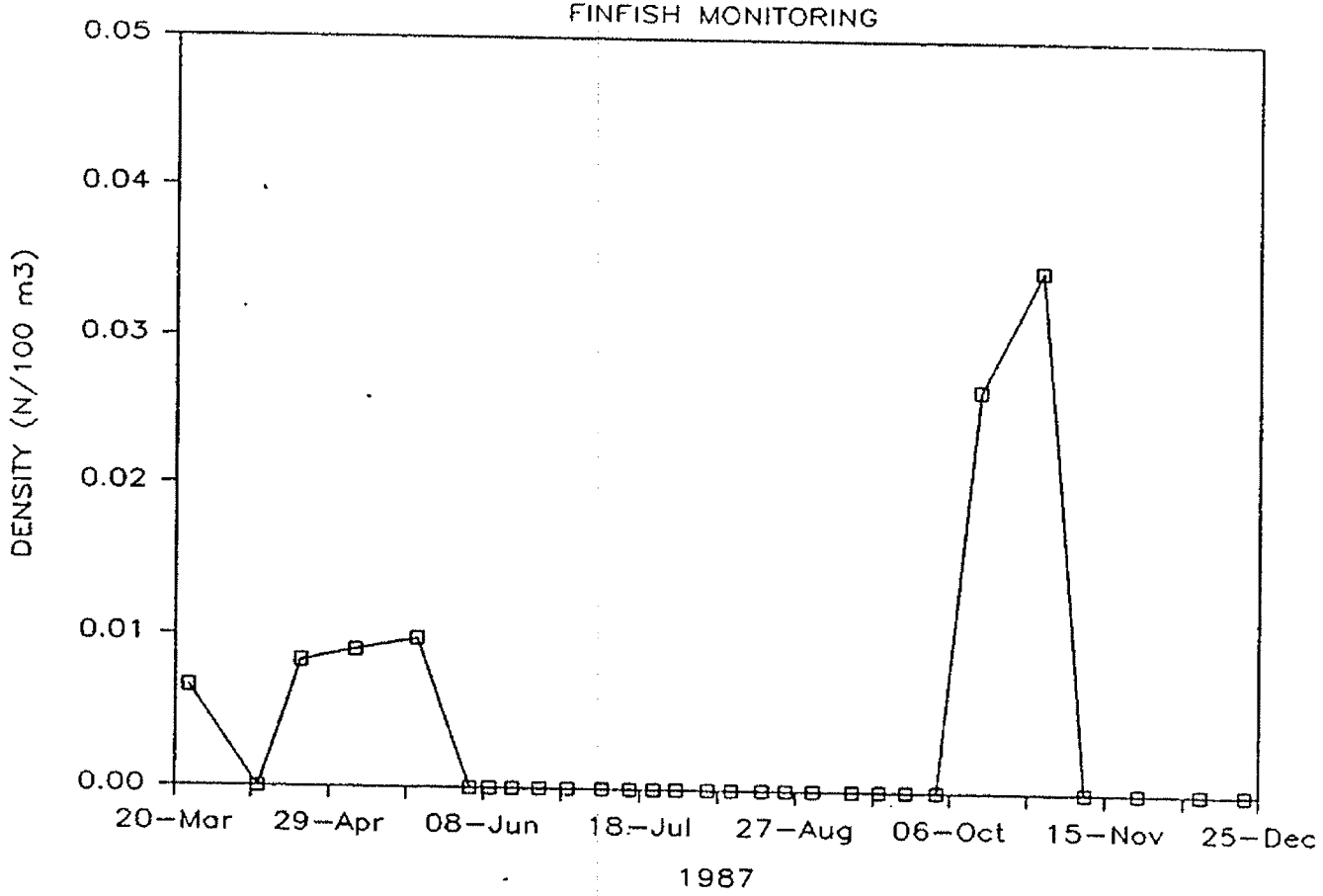
Figure 2.2-1



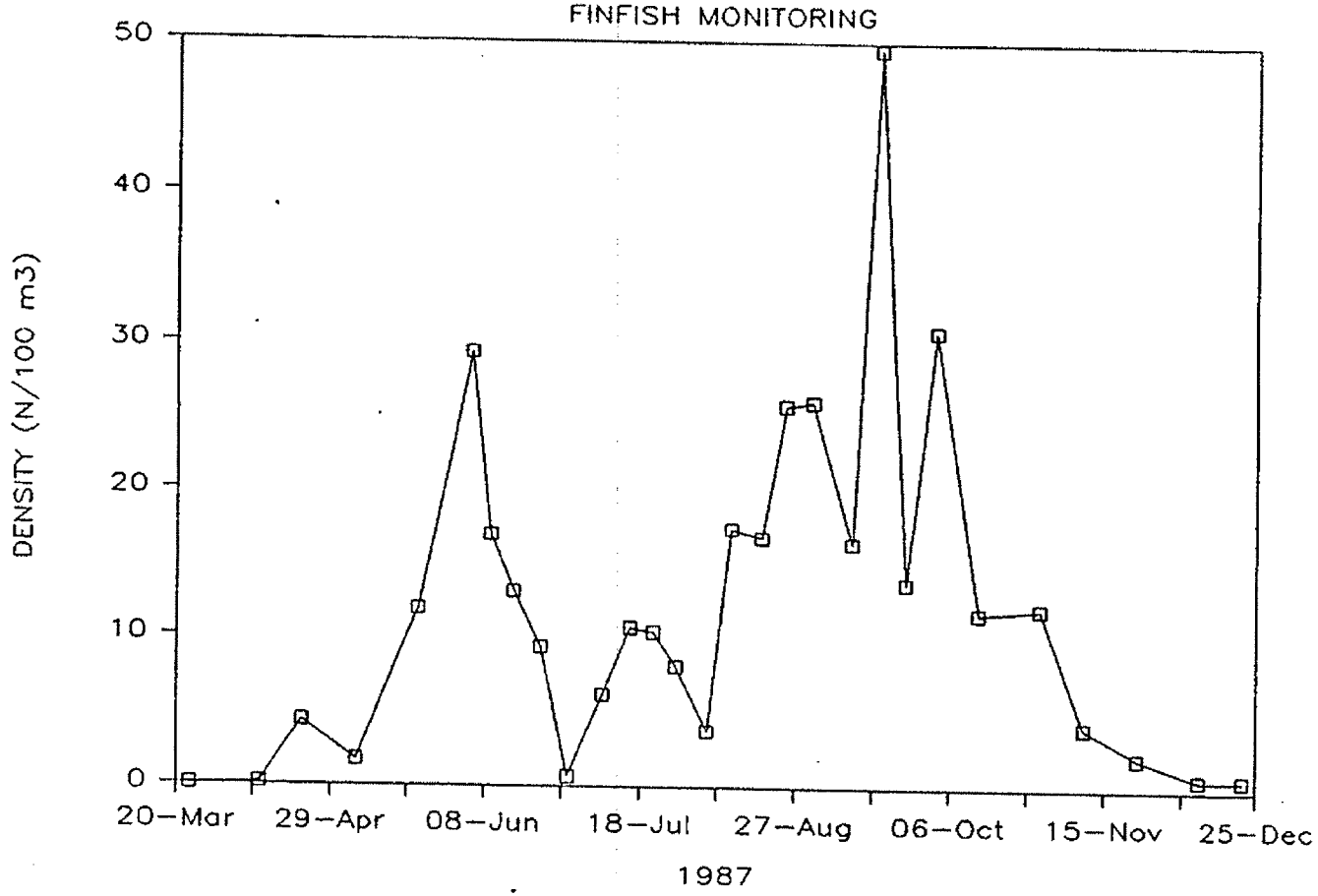
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Mean density, by sampling date, of blueback herring taken in trawl collections in the Delaware River off SGS during 1987.
	Figure 2.2-2



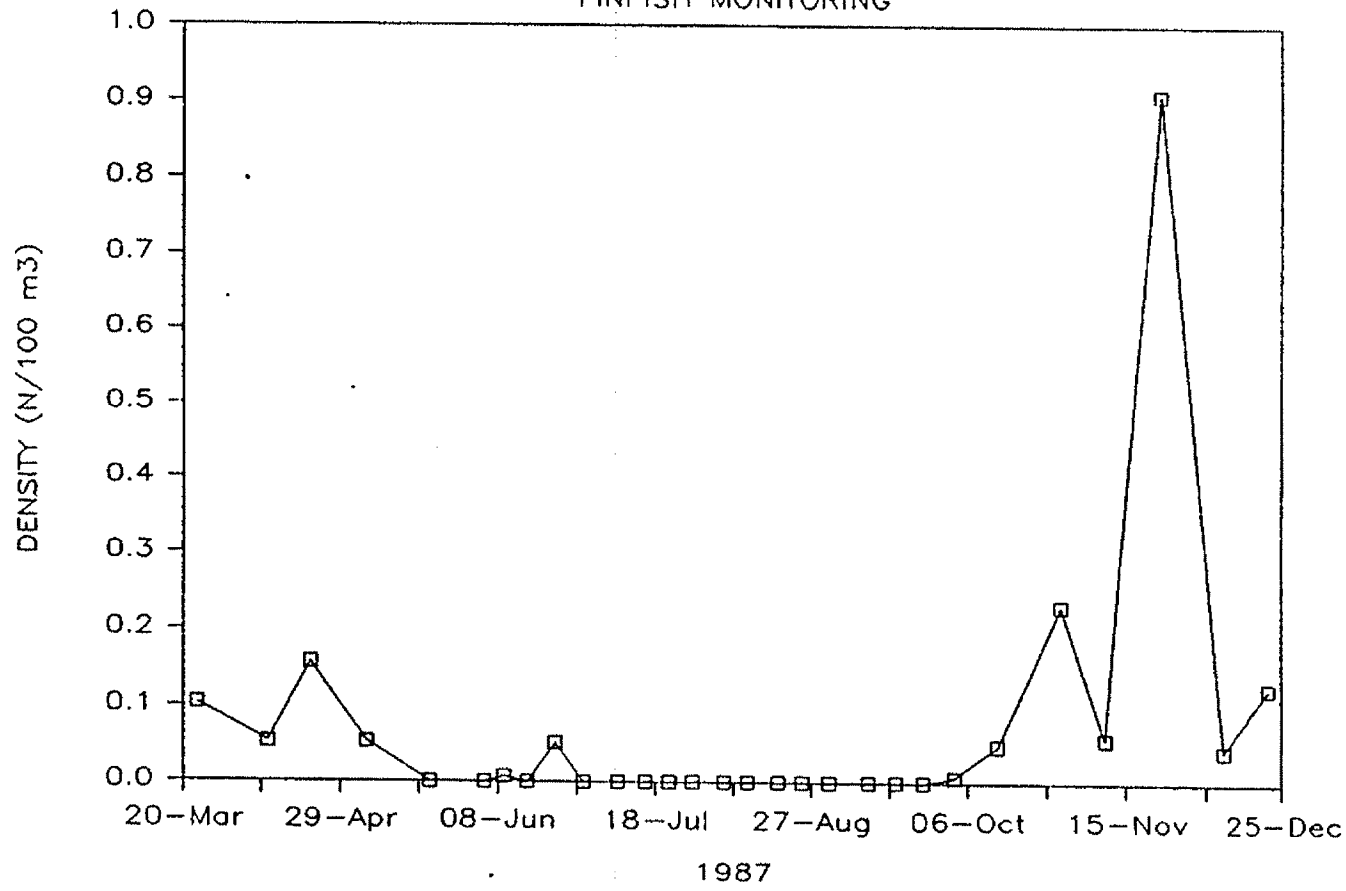
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Mean density, by sampling date, of alewife taken in trawl collections in the Delaware River off SGS during 1987.
	Figure 2.2-3



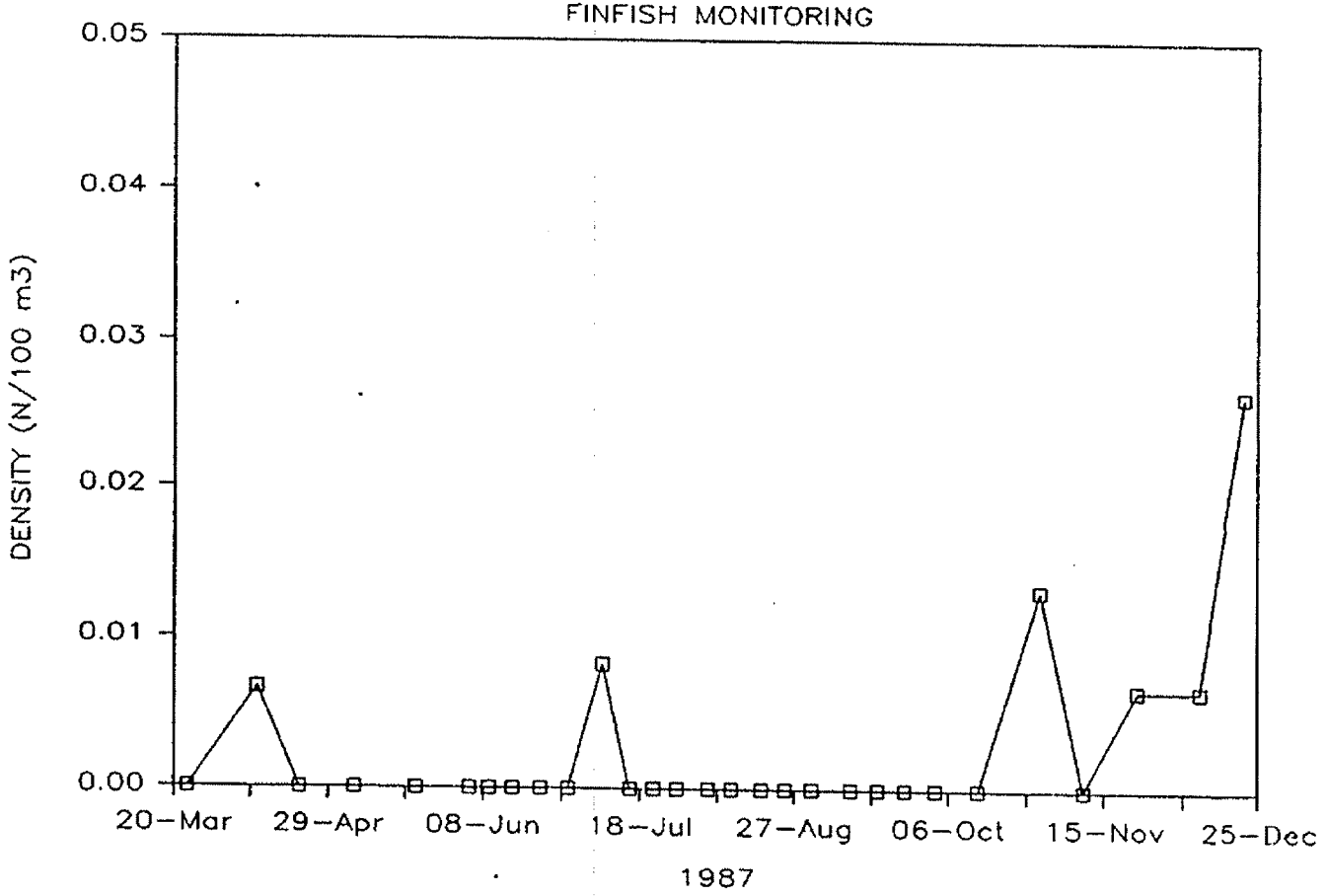
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Mean density, by sampling date, of American shad taken in trawl collections in the Delaware River off SGS during 1987.
	Figure 2.2-4



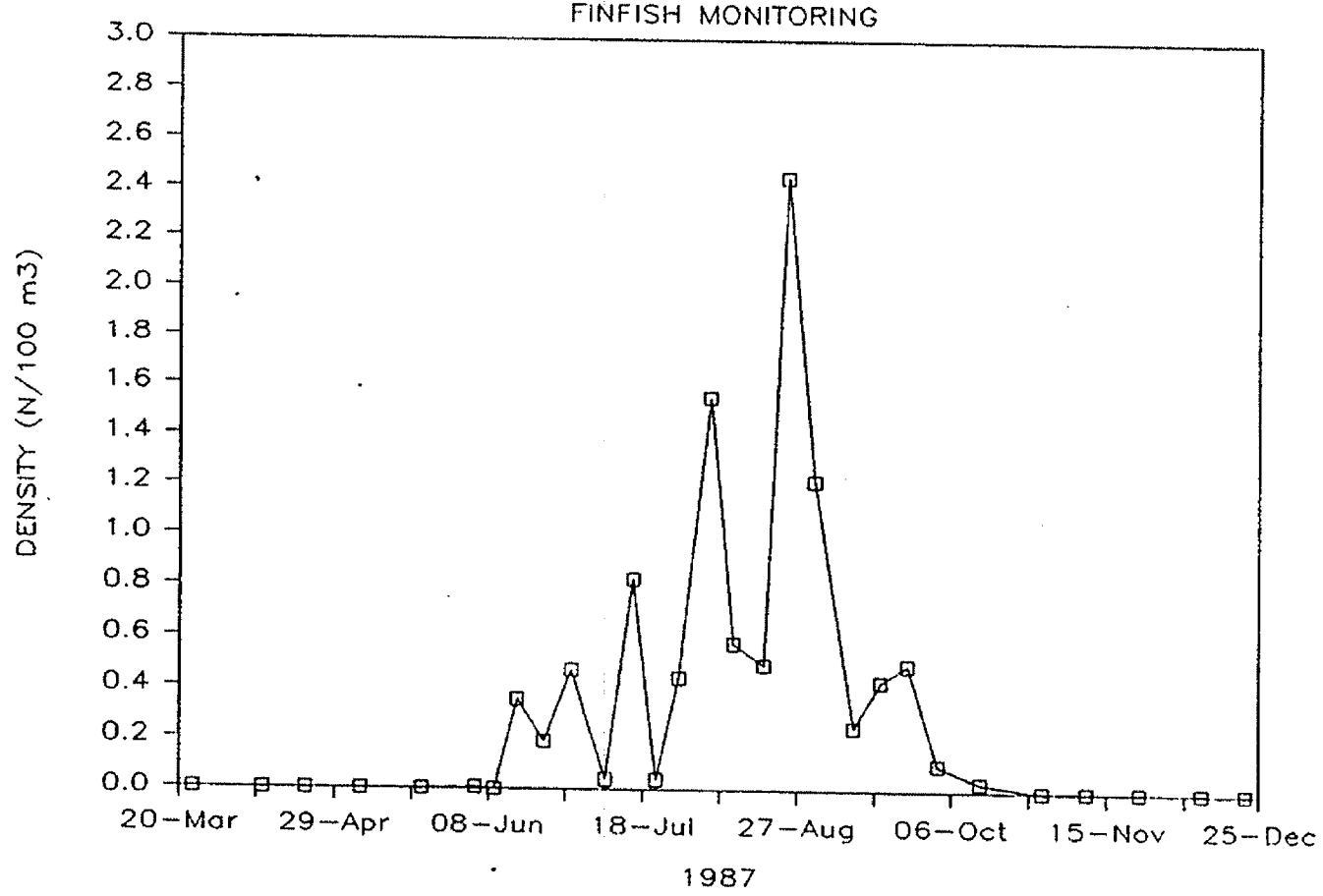
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Mean density, by sampling date, of bay anchovy taken in trawl collections in the Delaware River off SGS during 1987.
	Figure 2.2-5



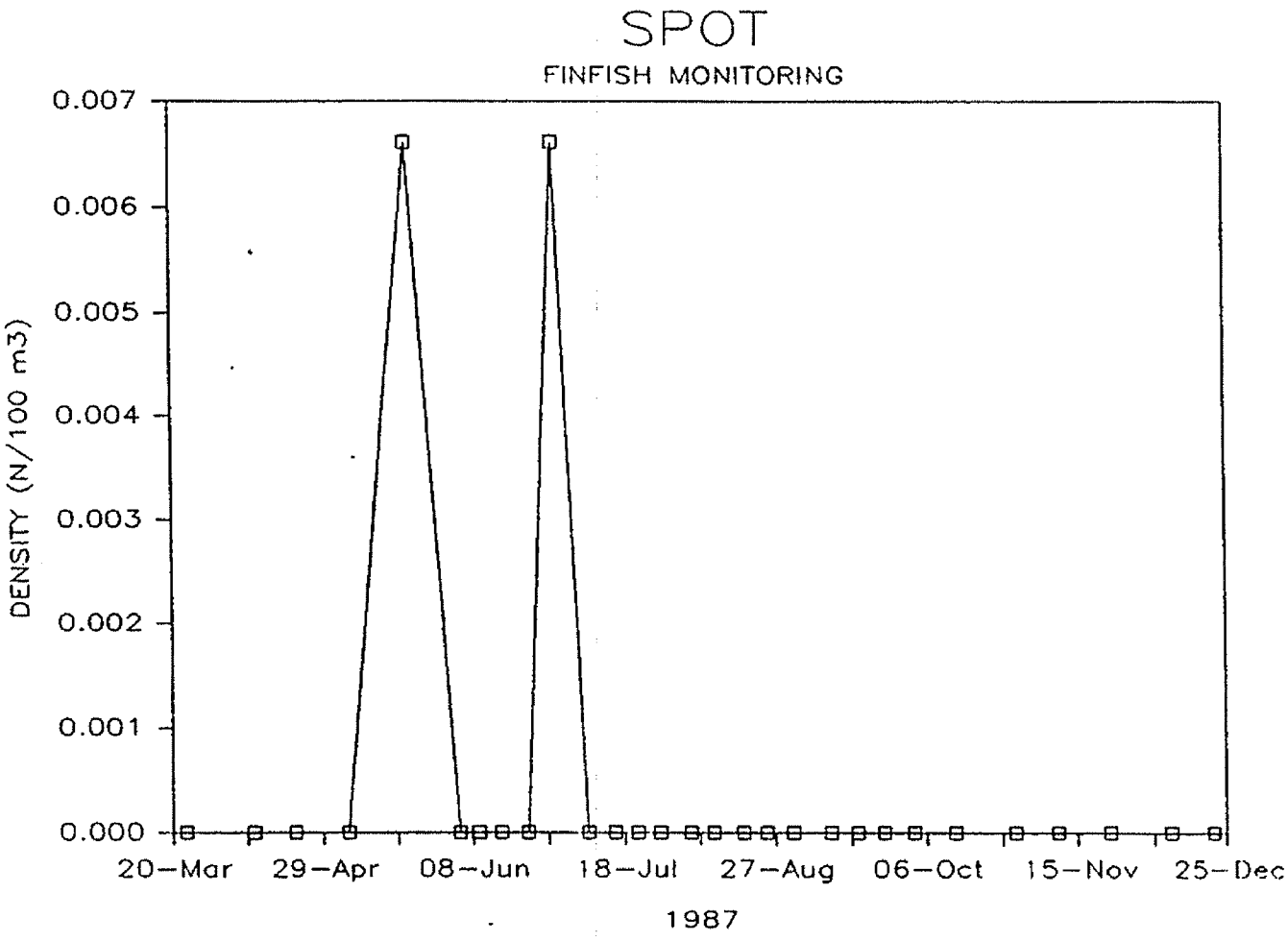
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Mean density, by sampling date, of white perch taken in trawl collections in the Delaware River off SGS during 1987.
	Figure 2.2-6



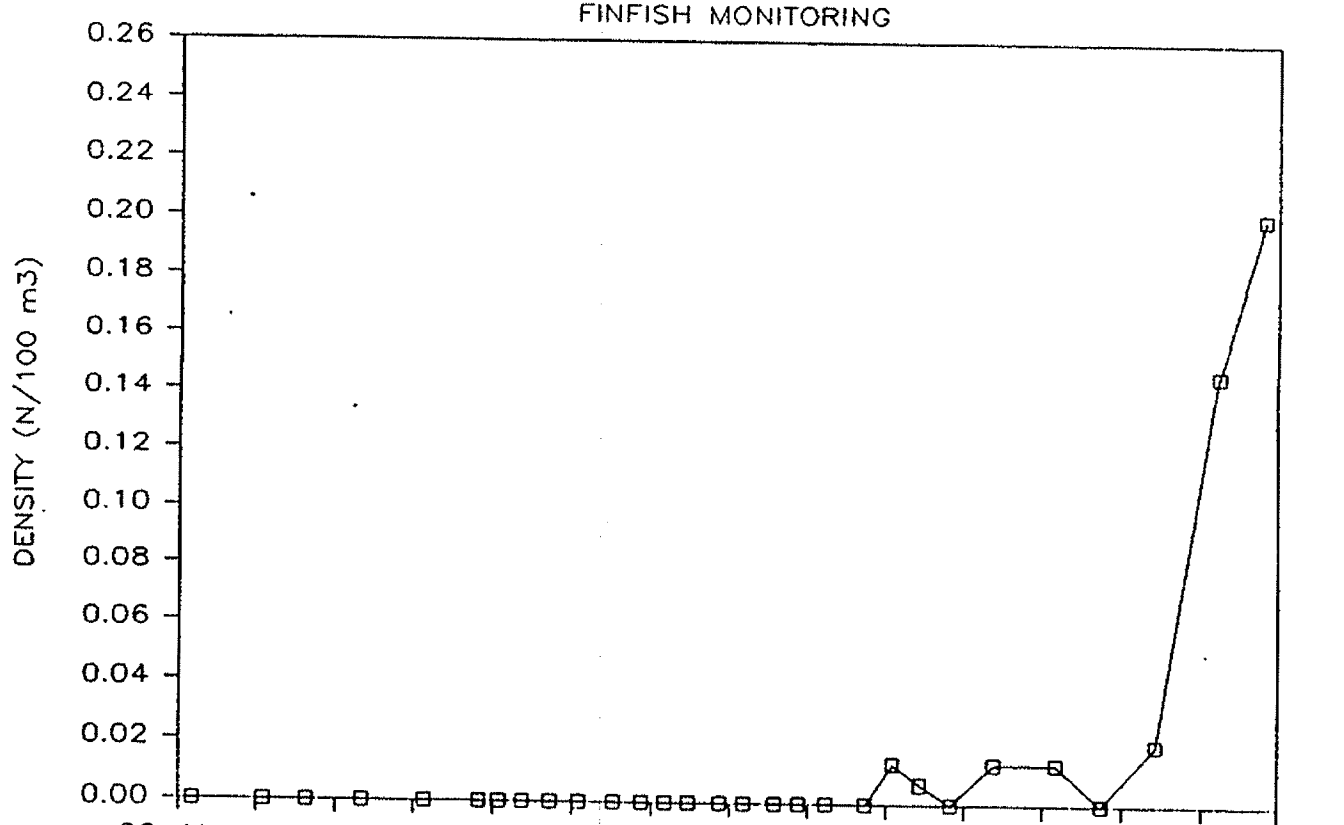
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Mean density, by sampling date, of striped bass taken in trawl collections in the Delaware River off SGS during 1987.
	Figure 2.2-7



PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Mean density, by sampling date, of weakfish taken in trawl collections in the Delaware River off SGS during 1987.
	Figure 2.2-8



PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Mean density, by sampling date, of spot taken in trawl collections in the Delaware River off SGS during 1987.
	Figure 2.2-9



PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Mean density, by sampling date, of Atlantic croaker taken in trawl collections in the Delaware River off SGS during 1987.
	Figure 2.2-10

2.3 DIAMONDBACK TERRAPIN MONITORING

The study objective is to monitor nesting by diamondback terrapin at typical beaches in the vicinity of Artificial Island.

Northern diamondback terrapin, Malaclemys terrapin terrapin, inhabit brackish water along the Atlantic Coast from Cape Cod to Cape Hatteras. Nesting usually begins by early to mid-June and continues through July. Hatching usually begins in mid- to late August and may continue through November. With the onset of cold weather, hatchlings which have not emerged from the nest will hibernate and emerge the following spring (Carr, 1952; Lawler and Musick, 1972).

In 1987, diamondback terrapin nesting activity was monitored at two beaches on the Delaware River within 4.8 km of Salem during the period May 28 through November 5. Nesting was recorded from June 4 through late July and evidence suggests greatest activity in late June. The level of activity varied greatly between sites but remained within the range recorded annually since 1975. Number of females estimated to utilize each beach was 140 at Liston Point beach and 54 at Sunken Ship Cove beach.

Three females were marked at Liston Point beach and none were marked at Sunken Ship Cove beach. Age of the marked turtles probably exceeded 20 years. One previously marked turtle was recaptured at Liston Point beach.

Tracks of hatchlings from nests laid in 1987 were noted in August, September, and early October. The occurrence of hatchling tracks at both beaches in May and June is evidence of eggs and/or hatchlings which overwintered in or near nests laid in 1986.

Track evidence indicated a similar assemblage of predators as recorded in previous years, with raccoon, red and/or gray fox and striped skunk and/or mink accounting for most nest depredation.

2.3.1 Study Area

Observations were made from May 28 through November 5, 1987 at Sunken Ship Cove beach, New Jersey, and Liston Point beach, Delaware (Fig. 2.3-1). For a description of these locations see Volume 2 of the 1977 Annual Environmental Operating Report (PSE&G, 1978).

2.3.2 Materials and Methods

Searches for evidence of nesting were conducted during daylight hours weekly from late May through August, bi-weekly in September

and October and once in November. Effort was made to minimize site disturbance and to allow females to finish nesting before being examined.

Nesting females were caught by hand, and the length and width of the carapace and plastron were measured. Each turtle was marked with an individual binary-code which consisted of holes drilled in one or more of the 10 post-dorsal marginal laminae. These plates are situated so that they can be easily drilled with little or no injury to the turtle. The marking program provides information on nesting-beach fidelity, growth and movements. For further description of the study methods see Volume 2 of the 1977 Annual Environmental Operating Report (PSE&G, 1978).

2.3.3 Data Reduction

The following formula was developed to provide a relative estimate of the number of nesting females (N) utilizing each site:

$$N = \frac{(S+\frac{R-S}{2})\ D}{3V}$$

where S is the number of turtles sighted, R is the number of pairs of tracks counted, D is the estimated number of days of nesting activity, 3 is the estimated mean number of nests laid per female during the nesting season (based on Hildebrand, 1932), and V is the number of times the beach was visited over the nesting period.

2.3.4 Results and Discussion

Nesting, as inferred from the presence of adult tracks, in 1987 at Sunken Ship Cove beach was first noted on June 4 and last noted on July 9 (Table 2.3-1). At Liston Point beach, adult tracks were first noted on June 4 and were last noted on July 21 (Table 2.3-2).

Nesting activity, also inferred from the number of adult tracks, varied over time but generally was highest in late June. Daily and seasonal nesting activity remained within the range recorded in previous years.

A total of 58 sets of hatchling tracks were noted from May 28 to October 13; 24 at Liston Point beach and 34 at Sunken Ship Cove beach. The hatchling tracks noted in May and June at both beaches came from hatchlings which overwintered in nests laid during the 1986 nesting season (Table 2.3-1).

Tracks of terrapin hatched from nests laid in 1987 were first noted on August 13 at both beaches and last noted on October 13, again at both beaches.

Incubation period for a nest laid at Sunken Ship Cove beach on or before June 17 was at least 52 days. A nest laid at Liston Point beach on or before June 23 was incubated for at least 42 days. Mean length and width of the 11 hatchlings found at Sunken Ship Cove beach was 2.56 cm and 2.29 cm on the carapace, respectively, and 2.25 cm and 1.58 cm on the plastron, respectively.

On September 10, one young snapping turtle was found on Liston Point beach just above the high tide line. This turtle recently had hatched from a nest laid somewhere in this general area. It should be noted that snapping turtle tracks can be easily differentiated from terrapin tracks by the prominent drag mark left by the snappers much larger tail.

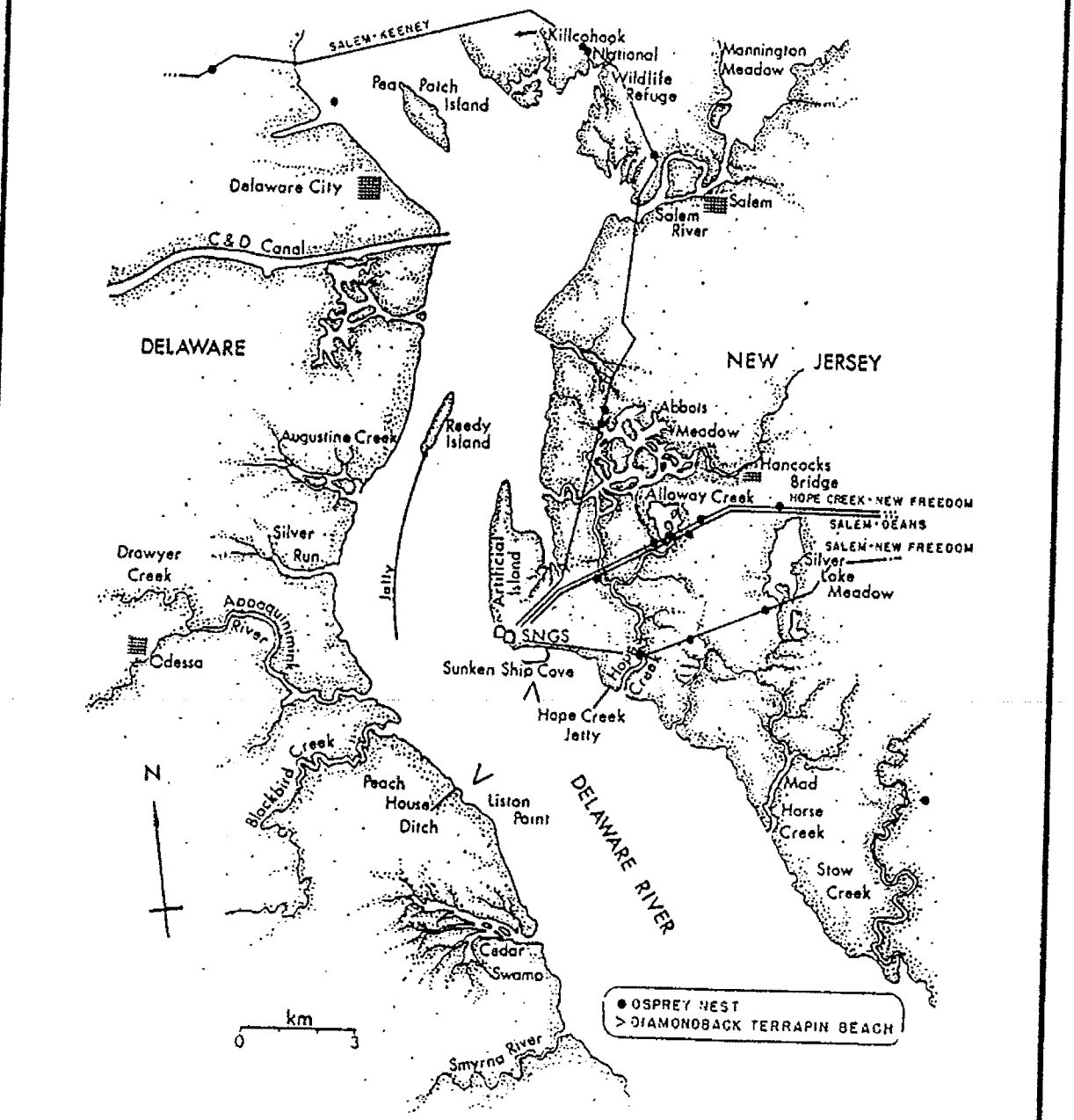
Table 2.3-1
Summary of nesting, depredation, and hatching data for diamondback terrapin on Sunken Ship Cove Beach, New Jersey in 1987.

Period of Observation	No. Visits	NESTS: Non-Depredated	NESTS: Depredated Partial	NESTS: Depredated Total	EGGS (Hatchlings): Non-Depredated	EGGS (Hatchlings): Depredated	Turtles in Area	Turtle Tracks Observed: Adult	Turtle Tracks Observed: Hatchling
Nesting Period									
May									
16-31	1	0	0	0	0	0	0	0	3
June									
1-15	2	0	0	0	0	0	0	13	0
16-30	3	2	0	0	19	0	0	39	1
July									
1-15	2	0	0	0	0	0	0	2	0
16-31	2	0	0	0	0	0	0	0	0
Subtotal	10	2	0	0	19	0	0	54	4
Hatching Period									
August									
1-15	2	0	0	0	0	0	0	0	6
16-31	2	(1)*	(1)	0	(8)*	(3)	0	0	21
September									
1-15	1	0	0	0	0	0	0	0	0
16-30	1	0	0	0	0	0	0	0	2
October									
1-15	1	0	0	0	0	0	0	0	1
16-31	1	0	0	0	0	0	0	0	0
November									
1-15	1	0	0	0	0	0	0	0	0
Subtotal	9	1	1	0	(8)	(3)	0	0	30
Total	19	2 (1)	(1)	0	19 (8)	0 (3)	0	54	34

* Numbers in parentheses indicate nests which contained hatchlings or number of hatchlings in a nest.

Table 2.3-2
Summary of nesting, depredation, and hatching data for diamondback terrapin on Liston Point Beach, Delaware in 1987.

Period of Observation	No. Visits	NESTS			EGGS (Hatchlings)		Turtles in Area	Turtle Tracks Observed	
		Non-Depredated	Depredated						
			Partial	Total	Non-Depredated	Depredated		Adult	Hatchling
Nesting Period									
May									
16-31	1	0	0	0	0	0	0	0	1
June									
1-15	2	0	0	10	0	75	0	29	5
16-30	3	3	0	210	36	1,918	0	104	0
July									
1-15	2	0	0	74	0	581	0	5	0
16-31	2	0	0	7	0	45	0	2	0
Subtotal	10	3	0	301	36	2,619	0	140	6
Hatching Period									
August									
1-15	2	0	0	0	0	0	0	0	5
16-31	2	0	0	27	0	163	0	0	5
September									
1-15	1	0	0	0	0	0	0	0	4
16-30	1	0	0	0	0	0	0	0	2
October									
1-15	1	0	0	0	0	0	0	0	2
16-31	1	0	0	0	0	0	0	0	0
November									
1-15	1	0	0	0	0	0	0	0	0
Subtotal	9	0	0	27	0	163	0	0	18
Total	19	3	0	328	36	2,782	0	140	24



PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Locations of diamondback terrapin study beaches and osprey nests, 1987.
	Figure 2.3-1

2.4 OSPREY AND BALD EAGLE SURVEY

The study objectives are to record the occurrence of osprey and bald eagle and to monitor nesting of osprey in the vicinity of Artificial Island.

The North American osprey, Pandion haliaetus carolinensis, had been federally classified as "status undetermined" (USDI, 1973) but has since been deleted from the list. It was historically listed as endangered by the State of New Jersey but was down-listed to threatened in 1985 (NJAC 7:25-4.17 as amended May 6, 1985). The State of Delaware does not include osprey on its Endangered and Threatened species list (DE DNREC 1981). The southern bald eagle, Haliaeetus leucocephalus leucocephalus, is federally classified as "endangered" (USDI, 1979).

Osprey were observed in the study area from March 26 through August 17. Twelve nests were occupied and appeared active, eight of which fledged a total of 15 young.

Due to the absence of bald eagle nesting in the study area, no special study program was established. In 1987, no bald eagles were observed in the survey area.

2.4.1 Study Area

Observations were made at and in the vicinity of actual and potential osprey nesting sites in the general area shown in Figure 2.3-1. The region extends roughly 16 km north, 13 km south, and 8 km east and west from Salem Generating Station. The area features bay, riverine, marsh, upland field and wooded habitats. Duck blinds, pilings, navigation range markers and powerline towers are common features.

2.4.2 Materials and Methods

Known osprey nests were observed by helicopter monthly in March, April, July and August and twice in June. During flights the area was surveyed for new osprey nesting sites. The numbers of adults and eggs or young in each nest were recorded. To avoid undue stress on the birds, the helicopter approached to a discrete distance (> 50 yds) from the nest and paused only briefly to allow the nest to be viewed with binoculars.

Bald eagle sighted during the course of osprey nesting flights were recorded. Sightings of osprey and bald eagle were also recorded in the course of other field work throughout the year and are included in this report.

2.4.3 Results and Discussion

In 1987, osprey were sighted in the area from March 26 through August 17, typically on or near nesting structures. The greatest numbers of adults sighted during monthly flights were in April (n=23) and July (n=22) at the height of the egg laying and fledging periods, respectively.

Twenty nests were located; 12 were occupied and appeared active, two were occupied by nesting great horned owls with a total of 4 young, while the remainder may have been constructed as housekeeping nests by sexually immature birds or as secondary nests by adjacent breeding adults (Table 2.4-1). Of the total number of nests, 18 were in electrical transmission-line towers, one was in a navigational rangelight tower and one was in a dead cedar tree (Fig. 2.3-1).

Of the 12 active nests, it is estimated that 8 were successful and fledged a total of 15 young. This compared with 9 fledged in 1986 and is well within the range (4 to 23) and substantially above the mean (9.8) for the previous 13 years of study (1974 through 1986).

Osprey nesting activity on towers in the new Salem-Deans Transmission line has increased each year since its completion in the latter part of 1984. In 1985, the first breeding season the line was available to osprey, no nesting activity was observed. In 1986, one osprey nest was built on a line tower but no young were fledged. In 1987, two nests were observed which fledged a total of 3 young.

The addition of the Deans lines has increased the number of potential nesting sites for osprey in the Salem, New Jersey area and may in time facilitate an increase in the number of osprey nests and the number of young osprey fledged in the study area.

No bald eagles were sighted in the study area during 1987.

Table 2.4-1. Summary of osprey nesting activity near Artificial Island in 1987. Numbers indicate young fledged; N=Nest present, may have been active or constructed as housekeeping nests; A=Active nest, eggs observed or adults appeared to be incubating eggs and defending nest. Owl=great horned owl nesting in former osprey nest. Number in parenthesis indicate number of owls fledged.

NEST LOCATION	Activity
NEW JERSEY	
Transmission-Line Towers	
Salem Keeney:	
Tower #12/1	1
11/3	N.
9/3	N,N
4/3	2
4/2	Owl(2)
Hope Creek-New Freedom[1]:	
Tower #6/1	N,A
4/2	N
3/4	3
3/3	A
Salem-Deans[2]:	
Tower #4/1	1
2/3	2
Salem-New Freedom[3]:	
Tower #5/1	N,3
3/2	Owl(2)
2/3	A
Raccoon Ditch/Stow Creek:	
Dead Cedar Tree	A
DELAWARE	
Transmission Line Towers:	
DP&L #5015/47	1
Delaware River:	
Texaco-Rangelight Tower	2
SUMMARY	
Total Osprey Nests	18
Active Nests	12
Successful (i.e., young fledged) nests	8
Fledglings	15
Fledglings/active nest	1.25
Successful/active nest	0.67

[1]Formally referred to as New Freedom:North.
[2]New transmission line, completed in 1984.
[3]Formally referred to as New Freedom:South.

SECTION 3.0
HOPE CREEK GENERATING STATION ON-SITE STUDIES

3.1 IMPINGEMENT ABUNDANCE

3.1.1 Materials and Methods

Impingement sampling to determine the abundance of fishes and blue crab on HCGS service water intake screens was conducted on 39 collection dates during 1987. Samples were taken on one day per week from January through September 1987. As specified, total screen wash flow was sampled for at least 12 hrs during all collection dates except January 14. Samples of less than 12 hr occurred as a result of extremely heavy detrital loading and/or high specimen abundance.

The HCGS Service Water System (SWS), as it relates to impingement monitoring, basically consists of four service water pumps rated at 62,500 liters per minute (16,500 gpm), and four continuously operating traveling screen units. Under normal circumstances, two pumps operate, and two act as spares. Each traveling screen unit is an endless linkage of framed baskets. Each basket is approximately 0.75 meter (2-1/2 feet) high and 2.5 meters (8 feet, 4 inches) wide, and each holds a panel of 0.16 millimeter (0.063 inch) diameter monel wire mesh with openings that are 1.27 centimeters high by 0.32 centimeter wide (1/2 by 1/8 inch).

Each basket has a trough on the lower lip. This "fish bucket" is designed to prevent reimpingement of fish by reducing the number which flip off the baskets as they rise from the water. The baskets allow organisms to remain in water while being lifted to fish return troughs. The screens are intended for continuous rotation. The formed baskets are washed by a dual spray system consisting of a low pressure system which initially removes fish and some detritus from the screen draining into the fish trough, and a high pressure spray which removes the remaining fish and detritus draining into the trash trough. The fish and trash troughs join into a common trough at a point outside of the SWS building and prior to discharging into the Delaware River at the south end of the intake structure.

Impingement samples were collected separately but concurrently in the fish and trash troughs at the location just before they exit the SWS building (Fig. 3.1-1). Samples were collected with a trough sampling net which consisted of an aluminum net frame fitted with a four-foot long cod-end type net of 1/8" Delta nylon mesh. To collect an impingement sample, a sampling net was placed in each trough and the sample start time was recorded. Sample duration, as it related to the specified 12-hr minimum was based on a series of continuous or cumulative

subsamples where the sampling net being used was replaced with a clean net as was indicated by detrital load or specimen abundance. Subsampling was used to avoid specimen damage and to facilitate sample processing. The minimum number of subsamples per collection period was three; however, more subsamples were required during periods of heavy detritus loading and/or high specimen abundance. Because of the undefined duration of subsamples, physicochemical parameters and pump operational status were measured or recorded at approximately 2-hr intervals independently from the trough collections.

Upon the termination of a subsample the contents of the sampling net were removed and fish and blue crabs were sorted from the attendant sample detritus. Specimens were identified to the lowest practicable taxonomic level, typically species. Total number, weight and length frequency distributions were determined for each species. Fish and blue crab were weighed to the nearest 0.1 g and sample detritus was weighed to the nearest 0.1 kg. Length frequency distributions were based on a maximum random subsample of 100 specimens of each species during each collection period measured to the nearest 5-mm interval.

3.1.2 Results

A total of 11,220 specimens representing 46 species of finfish and 11,677 blue crab were taken during 39 collection periods from January through September (Table 3.1-1). Total volume filtered was 4.334E6m^3. Seven species of fish together comprised 95 percent of the finfish catch (Table 3.1-1; Figs. 3.1-2 and 3.1-3). For each of these species and blue crab, a summary of data on period of occurrence, abundance (density expressed as number/1E6m^3 of intake water), length, and age is presented below in order of decreasing abundance:

Blue crab - A total of 11,677 blue crab comprising 51.2 percent of the catch, was taken during March through September (Table 3.1-1 and 3.1-2; Fig. 3.1-2). Abundance was high during April through June, but reached the seasonal maximum in September. Monthly mean density ranged from 2.2 in March to 8,064.8 (n/1E6m^3) in September (Table 3.1-2; Fig. 3.1-4). Maximum daily density was 8,598.9 on June 2 (Fig. 3.1-5). Specimen size (carapace width) ranged from 8 mm to 178 mm (Table 3.1-3); over 90 percent of the catch was less than 100 mm; indicating involvement of primarily immature crab.

Atlantic croaker - A total of 5,320 Atlantic croaker comprising 47.4 percent of the finfish catch, was taken in January, February and September (Table 3.1-1 and 3.1-2; Fig. 3.1-3). Monthly mean density ranged from 4.4 in September

to 15,887.4 in January (Table 3.1-2; Fig. 3.1-6). Maximum daily density was 38,179.6 on January 14 (Fig. 3.1-7). Length ranged from 18 - 58 mm TL (Table 3.1-4); all were age 0+.

Bay anchovy - A total of 1,936 bay anchovy, comprising 17.3 percent of the finfish catch, was taken in January and February and from April through September (Table 3.1-1 and 3.1-2; Fig. 3.1-3). A bimodal pattern of abundance was observed; monthly mean density increased to the first seasonal maximum of 1,092.2 in June, decreased to 468.9 in July and increased to the second seasonal peak of 1,483.6 in August (Table 3.1-2; Fig. 3.1-8). Maximum daily density was 3,183.0 on June 23 (Fig. 3.1-9). Length range was 18 - 88 mm FL (Table 3.1-5) and the bimodal pattern of abundance resulted from the seasonal vulnerability of age classes 1+ and older and 0+, respectively. Age 1+ and older specimens dominated the catch from April through July, and age 0+ dominated the catch in August and September.

Naked goby - A total of 1,711 naked goby, comprising 15.2 percent of the finfish catch was taken in January and from March through September (Table 3.1-1 and 3.1-2; Fig. 3.1-3). Monthly mean density ranged to 1,645.9 in August, and was greater than 300 from June through September (Table 3.1-2; Fig. 3.1-10). Maximum daily density was 4,341.9 on August 18 (Fig. 3.1-11). Length ranged from 8 - 63 mm TL (Table 3.1-6) and the catch was dominated by age 1+ and older individuals.

Weakfish - A total of 806 weakfish, comprising 7.2 percent of the finfish catch, was taken from June through September (Table 3.1-1 and 3.1-2; Fig. 3.1-3). Maximum monthly mean density occurred in August and was 1,293.9 (Table 3.1-2; Fig. 3.1-12). Maximum daily density was 2,529.1 on August 18 (Fig. 3.1-13). Length ranged from 13 - 248 mm TL (Table 3.1-7); all but one were 0+.

Hogchoker - A total of 539 hogchoker, comprising 4.8 percent of the finfish catch, was taken in January and from March through September (Table 3.1-1 and 3.1-2; Fig. 3.1-3). Abundance increased during the spring and early summer to a seasonal maximum in June when monthly mean density was 359.5 (Table 3.1-2; Fig. 3.1-14). Maximum daily density of 1,233.1 occurred on June 9 (Fig 3.1-15). Length ranged from 13 - 143 mm TL (Table 3.1-8); age 1+ and older individuals dominated the catch.

Northern pipefish - A total of 228 northern pipefish, comprising 2.0 percent of the finfish catch, was taken from March through September (Table 3.1-1 and 3.1-2; Fig. 3.1-3). Monthly mean density ranged from 4.6 in April to 182.4 in September (Table 3.1-2; Fig. 3.1-16). Maximum

daily density of 525.3 occurred on September 15 (Fig. 3.1-17). Length ranged from 48 - 233 mm TL (Table 3.1-9), and the catch was dominated by age 1+ specimens.

Oyster toadfish - A total of 166 oyster toadfish, comprising 1.5 percent of the finfish catch, was taken from June through September (Table 3.1-1 and 3.1-2; Fig. 3.1-3). Monthly mean density ranged from 7.3 in September to 150.6 in July (Table 3.1-2; Fig. 3.1-18). Maximum daily density was 251.7 on June 30 (Fig. 3.1-19). Length ranged from 23 - 178 mm TL (Table 3.1-10); age 1+ and older fish dominated the catch.

Table 3.1-1
Annual catch statistics of finfish and blue crab taken in impingement sampling at Hope Creek SWS during 1987.

Sampling period -	JANUARY - SEPTEMBER 1987	
Location -	HCFT	HCTT
No. of subsamples -	123	120
Total minutes sampled -	28030	28032
Total pump volume sampled (cubic meters) -	4,333,384	
Detritus mean density (kg/million cubic meters) -	150.52	

Species	Total Number Collected	Total Weight Collected (g)	Mean Density (n/185 cubic meters)
BLUE CRAB	11,677	42,600.8	2,477.78
AMERICAN EEL	46	1,287.2	11.99
CONGER EEL	1	1.1	0.18
BLUEBACK HERRING	23	234.3	6.22
ALEWIFE	5	37.4	1.36
AMERICAN SHAD	1	9.4	0.27
ATLANTIC MENHADEN	14	2,399.4	3.33
GIZZARD SHAD	14	193.1	3.73
BAY ANCHOVY	1,936	2,302.5	451.77
EASTERN MUDMINNOW	7	15.5	2.05
BROWN BULLHEAD	20	271.3	4.04
CHANNEL CATFISH	9	55.9	2.07
OYSTER TOADFISH	166	1,542.5	38.61
RED HAKE	1	7.7	0.27
SPOTTED HAKE	20	146.3	5.69
SILVER HAKE	1	4.5	0.27
STRIPED CUSK-EEL	14	259.7	2.79
SHEEPSHEAD MINNOW	2	2.3	0.36

Table 3.1-1
Continued

Sampling period -		JANUARY - SEPTEMBER 1987	
Location -		HCFT	HCTT
No. of subsamples -		123	120
Total minutes sampled -		28030	28032
Total pump volume sampled (cubic meters) -		4,333,384	
Detritus mean density (kg/million cubic meters) -		550.52	
Species	Total Number Collected	Total Weight Collected (g)	Mean Density (n/1E6 cubic meters)
BANDED KILLIFISH	13	29.0	3.14
MUMMICHOG	7	30.6	1.90
STRIPED KILLIFISH	3	5.4	0.81
TIDEWATER SILVERSIDE	4	1.9	1.26
ATLANTIC SILVERSIDE	73	180.5	18.81
THREESPINE STICKLEBACK	13	31.5	3.51
LINED SEAHORSE	2	3.8	0.54
NORTHERN PIPEFISH	228	222.1	48.82
WHITE PERCH	95	1,218.0	21.48
STRIPED BASS	4	7.2	0.90
BLACK SEA BASS	1	9.4	0.27
BLUEGILL	12	49.9	3.23
PUMPKINSEED	13	47.1	3.69
BLACK CRAPPIE	25	76.0	6.57
YELLOW PERCH	1	56.1	0.27

Table 3.1-1
Continued

Sampling period -	JANUARY - SEPTEMBER 1987		
Location -	HCFT	HCTT	
No. of subsamples -	123	120	
Total minutes sampled -	28030	29032	
Total pump volume sampled (cubic meters) -	4,333,984		
Detritus mean density (kg/million cubic meters) -	550.52		
Species	Total Number Collected	Total Weight Collected (g)	Mean Density (n/1E6 cubic meters)
BLUEFISH	4	16.0	0.72
CREVALLE JACK	1	3.0	0.38
SILVER PERCH	7	14.5	1.35
WEAKFISH	806	1,260.8	194.99
ATLANTIC CROAKER	5,320	2,563.3	1,570.20
SPOTFIN BUTTERFLYFISH	1	0.4	0.18
NORTHERN STARGAZER	6	10.7	1.08
NAKED GOBY	1,711	758.6	403.02
SMALLMOUTH FLOUNDER	3	0.8	0.81
SUMMER FLOUNDER	33	280.5	8.53
WINDOWPANE	12	14.9	2.25
WINTER FLOUNDER	2	0.2	0.36
HOGCHOKER	539	1,281.6	114.23
NORTHERN PUFFER	1	0.4	0.14

Table 3.1-2
Monthly catch statistics of finfish and blue crab taken in impingement sampling at Hope Creek SWS during 1987.

Sampling period -	JANUARY 1987		
Location -	HCFT	HCTT	
No. of subsamples -	12	12	
Total minutes sampled -	2820	2820	
Total pump volume sampled (cubic meters) -	357,858⁄		
Detritus mean density (kg/million cubic meters) -	794.27		
Species	Total Number Collected	Total Weight Collected (g)	Mean Density (n/1E6 cubic meters)
AMERICAN EEL	8	351.4	22.07
BLUEBACK HERRING	4	7.6	10.94
GIZZARD SHAD	8	100.3	21.89
BAY ANCHOVY	44	19.0	121.39
EASTERN MUDMINNOW	7	26.5	20.78
SPOTTED HAKE	1	14.3	2.92
BANDED KILLIFISH	2	1.2	5.47
MUMMICHOG	1	2.7	2.74
TIDEWATER SILVERSIDE	1	0.5	2.74
ATLANTIC SILVERSIDE	26	56.1	74.93
THREESPINE STICKLEBACK	5	11.1	13.68
WHITE PERCH	13	78.8	37.46
BLUEGILL	2	9.5	5.47
SILVER PERCH	1	3.7	2.74
ATLANTIC CROAKER	5,315	2,960.9	15,987.37
NAKED GOBY	3	2.9	8.21
SMALLMOUTH FLOUNDER	1	0.1	2.74
HOGCHOKER	2	10.4	5.47

Table 3.1-2
Continued

Sampling period -		FEBRUARY 1987	
Location -		HCFT	HCTT
No. of subsamples -		12	12
Total minutes sampled -		2880	2880
Total pump volume sampled (cubic meters) -		365,472	
Detritus mean density (kg/million cubic meters) -		642.18	
Species	Total Number Collected	Total Weight Collected (g)	Mean Density (n/1E6 cubic meters)
AMERICAN EEL	3	281.8	8.21
BLUEBACK HERRING	1	3.2	2.74
GIZZARD SHAD	5	56.1	13.68
BAY ANCHOVY	4	1.9	10.94
BANDED KILLIFISH	1	0.7	2.74
STRIPED KILLIFISH	2	3.2	5.47
TIDEWATER SILVERSIDE	1	0.4	2.74
ATLANTIC SILVERSIDE	16	42.6	43.78
THREESPINE STICKLEBACK	7	18.2	19.15
WHITE PERCH	11	47.7	30.10
ATLANTIC CROAKER	2	1.9	5.47
SMALLMOUTH FLOUNDER	1	0.1	2.74

Table 3.1-2
Continued

Sampling period -		MARCH 1987	
Location -		HCFT	HCTT
No. of subsamples -		15	15
Total minutes sampled -		3600	3600
Total pump volume sampled (cubic meters) -		456,840	
Detritus mean density (kg/million cubic meters) -		683.61	
Species	Total Number Collected	Total Weight Collected (g)	Mean Density (n/1E6 cubic meters)
BLUE CRAB	1	0.8	2.19
AMERICAN EEL	14	84.1	30.65
BLUEBACK HERRING	13	115.3	28.46
ALEWIFE	5	37.4	10.98
AMERICAN SHAD	1	9.4	2.19
GIZZARD SHAD	1	26.7	2.19
RED HAKE	1	7.7	2.19
SPOTTED HAKE	15	72.4	32.80
BANDED KILLIFISH	5	21.7	10.91
MUMMICHOG	6	27.9	13.17
STRIPED KILLIFISH	1	2.2	2.19
ATLANTIC SILVERSIDE	12	32.4	26.11
THREESPINE STICKLEBACK	1	2.2	2.19
LINED SEAHORSE	2	3.8	4.34
NORTHERN PIPEFISH	5	8.8	11.02
WHITE PERCH	11	344.7	24.19
STRIPED BASS	1	5.7	2.19
BLUEGILL	6	23.0	13.06
PUMPKINSEED	1	2.7	2.19
BLACK CRAPPIE	5	11.2	10.91
NAKED GOBY	4	2.2	8.79
SUMMER FLOUNDER	25	60.5	54.47
WINDOWPANE	1	4.9	2.19
HOGCHOKER	26	52.6	56.59

Table 3.1-2
Continued

Sampling period -		APRIL 1987	
Location -		HCFT	HCTT
No. of subsamples -		12	12
Total minutes sampled -		2880	2880
Total pump volume sampled (cubic meters) -		411,156	
Detritus mean density (kg/million cubic meters) -		882.84	
Species	Total Number Collected	Total Weight Collected (g)	Mean Density (n/1E6 cubic meters)
BLUE CRAB	1,489	1,865.5	3,646.43
AMERICAN EEL	11	290.6	30.10
BLUEBACK HERRING	3	15.8	8.21
BAY ANCHOVY	14	21.1	31.92
SILVER HAKE	1	4.5	2.74
STRIPED CUSK-EEL	1	0.8	2.74
SHEEPSHEAD MINNOW	1	0.9	1.82
BANDED KILLIFISH	1	0.6	2.74
ATLANTIC SILVERSIDE	7	27.1	15.51
NORTHERN PIPEFISH	2	2.3	4.56
WHITE PERCH	8	100.7	20.98
BLUEGILL	4	17.4	10.94
PUMPKINSEED	11	41.4	29.19
BLACK CRAPPIE	16	52.9	42.87
YELLOW PERCH	1	56.1	2.74
NAKED GOBY	30	15.9	72.05
SMALLMOUTH FLOUNDER	1	0.6	2.74
HOGCHOKER	26	178.6	65.67

Table 3.1-2
Continued

Sampling period -		MAY 1987	
Location -		HCFT	HCTT
No. of subsamples -		12	12
Total minutes sampled -		2880	2880
Total pump volume sampled (cubic meters) -		365,472	
Detritus mean density (kg/million cubic meters) -		391.18	
Species	Total Number Collected	Total Weight Collected (g)	Mean Density (n/1E6 cubic meters)
BLUE CRAB	1,272	2,985.7	3,976.59
AMERICAN EEL	1	38.4	2.74
BLUEBACK HERRING	2	92.4	5.47
ATLANTIC MENHADEN	9	1,628.9	23.71
BAY ANCHOVY	71	135.1	211.60
BROWN BULLHEAD	4	21.8	10.94
CHANNEL CATFISH	7	41.2	17.33
SPOTTED HAKE	4	60.1	13.68
STRIPED CUSK-EEL	1	38.4	1.82
ATLANTIC SILVERSIDE	1	5.0	2.74
NORTHERN PIPEFISH	10	14.5	34.66
WHITE PERCH	3	62.4	6.38
BLACK SEA BASS	1	9.4	2.74
PUMPKINSEED	1	3.0	5.47
BLACK CRAPPIE	3	9.7	8.21
NAKED GOBY	57	38.8	169.64
SUMMER FLOUNDER	1	1.8	2.74
HOGCHOKER	35	202.0	113.10

Table 3.1-2
Continued

Sampling period -		JUNE 1987	
Location -		MCFT	MCTT
No. of subsamples -		12	12
Total minutes sampled -		2880	2880
Total pump volume sampled (cubic meters) -		532,980	
Detritus mean density (kg/million cubic meters) -		417.33	
Species	Total Number Collected	Total Weight Collected (g)	Mean Density (n/1E6 cubic meters)
BLUE CRAB	2,760	9,934.6	5,223.97
AMERICAN EEL	3	37.9	5.47
ATLANTIC MENHADEN	4	598.7	7.30
BAY ANCHOVY	595	1,288.2	1,092.17
BROWN BULLHEAD	10	114.7	18.11
CHANNEL CATFISH	2	15.7	3.65
OYSTER TOADFISH	26	282.8	47.51
STRIPED CUSK-EEL	8	148.9	14.60
BANDED KILLIFISH	1	1.8	1.76
ATLANTIC SILVERSIDE	4	0.1	7.10
NORTHERN PIPEFISH	8	14.7	17.33
WHITE PERCH	42	236.4	76.79
BLACK CRAPPIE	1	2.2	1.82
BLUEFISH	3	6.2	5.47
WEAKFISH	45	162.0	83.15
NAKED GOBY	191	150.6	356.40
SUMMER FLOUNDER	7	218.2	15.51
WINDOWPANE	11	10.0	20.07
WINTER FLOUNDER	2	0.2	3.65
HOGCHOKER	196	336.7	359.49

Table 3.1-2
Continued

Sampling period -		JULY 1987	
Location -		HCFT	HCTT
No. of subsamples -		16	16
Total minutes sampled -		3600	3602
Total pump volume sampled (cubic meters) -		639,766	
Detritus mean density (kg/million cubic meters) -		288.30	
Species	Total Number Collected	Total Weight Collected (g)	Mean Density (n/1E6 cubic meters)
BLUE CRAB	644	10,094.9	1,026.69
AMERICAN EEL	4	165.3	8.16
CONGER EEL	1	1.1	1.37
BAY ANCHOVY	275	378.4	468.92
BROWN BULLHEAD	5	58.8	7.52
OYSTER TOADFISH	95	895.9	150.57
STRIPED CUSK-EEL	4	71.6	6.84
SHEEPSHEAD MINNOW	1	1.9	1.37
ATLANTIC SILVERSIDE	1	4.4	1.37
NORTHERN PIPEFISH	42	32.4	62.93
WHITE PERCH	4	102.4	7.54
STRIPED BASS	3	1.5	4.79
BLUEFISH	1	9.8	1.37
WEAKFISH	91	216.7	145.76
NAKED GOBY	354	112.5	539.93
HOGCHOKER	78	253.3	113.57

Table 3.1-2
Continued

Sampling period -		AUGUST 1987	
Location -		HCFT	HCTT
No. of subsamples -		17	14
Total minutes sampled -		2890	2890
Total pump volume sampled (cubic meters) -		564,864	
Detritus mean density (kg/million cubic meters) -		649.99	
Species	Total Number Collected	Total Weight Collected (g)	Mean Density (n/1E6 cubic meters)
BLUE CRAB	300	7,842.2	609.95
AMERICAN EEL	2	37.7	2.82
BAY ANCHOVY	629	294.1	1,483.62
OYSTER TOADFISH	40	255.7	103.35
TIDEWATER SILVERSIDE	1	0.4	4.24
ATLANTIC SILVERSIDE	2	5.0	3.61
NORTHERN PIPEFISH	44	28.7	86.74
CREVALLE JACK	1	3.0	2.95
WEAKFISH	656	802.6	1,293.89
SPOTFIN BUTTERFLYFISH	1	0.4	1.41
NAKED GOBY	752	267.6	1,645.89
HOGCHOKER	29	102.2	75.07
NORTHERN PUFFER	1	0.4	1.13

Table 3.1-2
Continued

Sampling period -		SEPTEMBER 1987	
Location -		HCFT	HCTT
No. of subsamples -		15	15
Total minutes sampled -		3600	3600
Total pump volume sampled (cubic meters) -		639,576	
Detritus mean density (kg/million cubic meters) -		293.98	
Species	Total Number Collected	Total Weight Collected (g)	Mean Density (n/1E6 cubic meters)
BLUE CRAB	5,211	9,877.1	8,064.82
ATLANTIC MENHADEN	1	61.8	2.19
BAY ANCHOVY	304	164.7	451.65
BROWN BULLHEAD	1	76.5	1.46
OYSTER TOADFISH	5	108.1	7.30
BANDED KILLIFISH	3	3.0	4.38
TIDEWATER SILVERSIDE	1	0.6	1.46
ATLANTIC SILVERSIDE	4	7.8	5.84
NORTHERN PIPEFISH	117	120.7	182.41
WHITE PERCH	3	244.9	4.38
SILVER PERCH	6	10.8	8.76
WEAKFISH	14	79.5	20.43
ATLANTIC CROAKER	3	0.5	4.38
NORTHERN STARGAZER	6	10.7	8.76
NAKED GOBY	320	168.1	493.97
HOGCHOKER	147	145.8	234.95

Table 3.1-3
Length frequency of blue crab taken in impingement sampling at Hope Creek Generating Station in 1987.

Length(mm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
6 - 10	0	0	0	0	4	0	0	14	4			
11 - 15	0	0	0	49	45	5	0	66	95			
16 - 20	0	0	1	101	122	26	2	17	163			
21 - 25	0	0	0	60	115	101	15	3	123			
26 - 30	0	0	0	29	38	88	21	0	66			
31 - 35	0	0	0	26	30	60	36	1	30			
36 - 40	0	0	0	17	9	41	42	0	17			
41 - 45	0	0	0	13	20	22	50	1	7			
46 - 50	0	0	0	8	4	19	61	2	3			
51 - 55	0	0	0	4	5	15	56	2	1			
56 - 60	0	0	0	1	2	7	38	4	0			
61 - 65	0	0	0	2	5	4	38	16	0			
66 - 70	0	0	0	0	0	5	32	14	0			
71 - 75	0	0	0	3	1	4	28	14	0			
76 - 80	0	0	0	1	3	3	15	14	2			
81 - 85	0	0	0	0	2	2	11	7	3			
86 - 90	0	0	0	1	0	1	9	10	0			
91 - 95	0	0	0	1	1	1	8	8	0			
96 - 100	0	0	0	0	1	0	3	12	2			
101 - 105	0	0	0	0	0	0	2	9	1			
106 - 110	0	0	0	0	1	0	5	11	1			
111 - 115	0	0	0	0	1	0	5	9	1			
116 - 120	0	0	0	0	0	1	3	9	0			
121 - 125	0	0	0	0	0	1	2	5	0			
126 - 130	0	0	0	0	0	0	0	3	0			
131 - 135	0	0	0	0	0	1	2	1	0			
136 - 140	0	0	0	0	0	0	0	0	0			
141 - 145	0	0	0	0	0	0	0	1	0			
146 - 150	0	0	0	0	0	1	0	0	0			
151 - 155	0	0	0	0	0	0	0	1	0			
156 - 160	0	0	0	0	0	0	1	1	0			
161 - 165	0	0	0	0	0	0	0	0	0			
166 - 170	0	0	0	0	0	0	0	0	0			
171 - 175	0	0	0	0	0	0	0	1	0			
176 - 180	0	0	0	0	0	0	0	1	0			

Table 3.1-4
Length frequency of Atlantic croaker taken in impingement sampling at Hope Creek Generating Station in 1987.

Length(mm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
16 - 20	1	0	0	0	0	0	0	0	2			
21 - 25	14	0	0	0	0	0	0	0	0			
26 - 30	39	0	0	0	0	0	0	0	1			
31 - 35	99	0	0	0	0	0	0	0	0			
36 - 40	111	0	0	0	0	0	0	0	0			
41 - 45	99	1	0	0	0	0	0	0	0			
46 - 50	30	1	0	0	0	0	0	0	0			
51 - 55	14	0	0	0	0	0	0	0	0			
56 - 60	4	0	0	0	0	0	0	0	0			

Table 3.1-5
Length frequency of bay anchovy taken in impingement sampling at Hope Creek Generating Station in 1987.

Length(mm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
16 - 20	0	0	0	0	0	0	0	0	2			
21 - 25	0	0	0	0	0	0	3	10	22			
26 - 30	0	0	0	0	0	0	17	65	25			
31 - 35	5	1	0	0	0	0	47	140	34			
36 - 40	17	2	0	0	0	0	29	92	53			
41 - 45	11	0	0	2	0	3	10	33	34			
46 - 50	3	0	0	1	11	15	4	16	22			
51 - 55	2	1	0	4	12	43	28	9	13			
56 - 60	0	0	0	3	11	66	18	11	4			
61 - 65	0	0	0	3	18	66	39	7	6			
66 - 70	0	0	0	0	13	37	19	2	2			
71 - 75	0	0	0	0	5	21	8	1	1			
76 - 80	0	0	0	0	1	3	2	1	0			
81 - 85	0	0	0	0	0	2	2	0	0			
86 - 90	0	0	0	0	0	1	0	0	0			

Table 3.1-6
Length frequency of naked goby taken in impingement sampling at Hope Creek Generating Station in 1987.

Length(mm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
6 - 10	0	0	0	0	0	0	1	0	0			
11 - 15	0	0	0	0	0	0	2	1	0			
16 - 20	0	0	0	0	0	0	25	18	1			
21 - 25	0	0	0	0	1	0	137	60	32			
26 - 30	0	0	0	6	4	2	60	97	56			
31 - 35	1	0	1	12	18	49	18	79	83			
36 - 40	0	0	3	9	14	69	16	35	75			
41 - 45	2	0	0	2	14	43	10	10	30			
46 - 50	0	0	0	1	8	17	2	1	6			
51 - 55	0	0	0	0	2	11	0	0	0			
56 - 60	0	0	0	0	0	0	1	0	0			
61 - 65	0	0	0	0	0	1	0	0	0			

Table 3.1-7
Length frequency of weakfish taken in impingement sampling at Hope Creek Generating Station in 1987.

Length(mm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
11 - 15	0	0	0	0	0	0	3	0	0			
16 - 20	0	0	0	0	0	1	2	2	0			
21 - 25	0	0	0	0	0	1	9	18	0			
26 - 30	0	0	0	0	0	3	8	37	1			
31 - 35	0	0	0	0	0	11	5	63	0			
36 - 40	0	0	0	0	0	9	7	65	1			
41 - 45	0	0	0	0	0	8	5	61	2			
46 - 50	0	0	0	0	0	3	11	45	0			
51 - 55	0	0	0	0	0	4	4	27	0			
56 - 60	0	0	0	0	0	4	6	32	0			
61 - 65	0	0	0	0	0	0	6	15	0			
66 - 70	0	0	0	0	0	0	2	11	0			
71 - 75	0	0	0	0	0	0	4	8	1			
76 - 80	0	0	0	0	0	0	7	4	0			
81 - 85	0	0	0	0	0	0	4	6	2			
86 - 90	0	0	0	0	0	0	2	2	1			
91 - 95	0	0	0	0	0	0	3	2	1			
96 - 100	0	0	0	0	0	0	0	0	1			
101 - 105	0	0	0	0	0	0	2	1	0			
106 - 110	0	0	0	0	0	0	0	0	2			
111 - 115	0	0	0	0	0	0	1	0	0			
116 - 120	0	0	0	0	0	0	1	1	1			
.												
.												
246 - 250	0	0	0	0	0	1	0	0	0			

Table 3.1-8
Length frequency of hogchoker taken in impingement sampling at Hope Creek Generating Station in 1987.

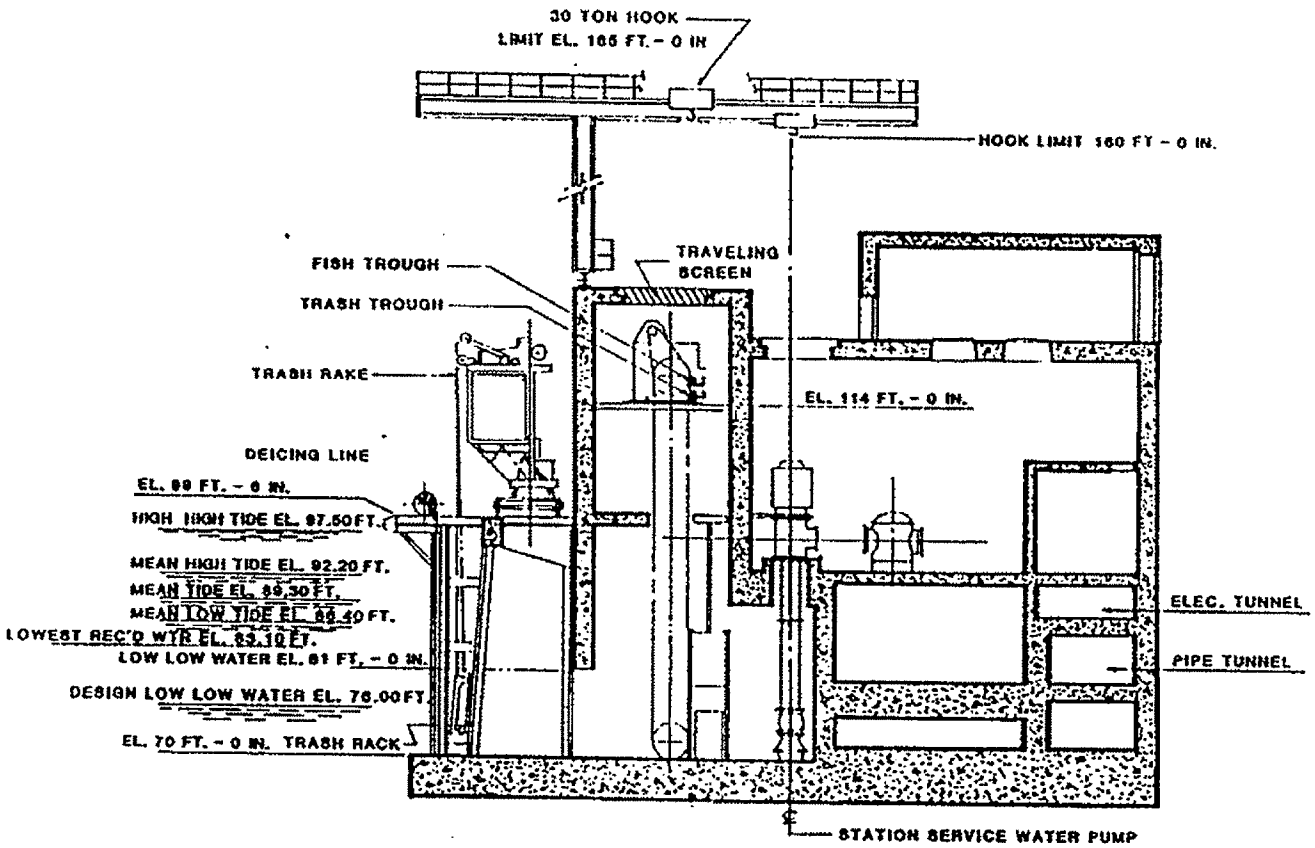
Length(mm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
11 - 15	0	0	0	0	0	0	0	1	0			
16 - 20	0	0	0	0	0	0	0	5	1			
21 - 25	0	0	0	0	0	0	0	4	32			
26 - 30	0	0	2	1	2	5	0	1	54			
31 - 35	0	0	4	1	6	21	0	2	32			
36 - 40	1	0	7	3	5	33	0	0	16			
41 - 45	0	0	5	3	7	33	7	0	3			
46 - 50	0	0	5	1	7	14	16	0	1			
51 - 55	0	0	1	3	1	9	22	0	0			
56 - 60	0	0	0	1	0	2	17	1	0			
61 - 65	0	0	0	0	0	1	7	3	0			
66 - 70	0	0	0	1	1	3	4	9	1			
71 - 75	0	0	0	3	2	1	0	0	1			
76 - 80	1	0	1	0	2	2	1	1	1			
81 - 85	0	0	1	2	2	1	1	0	1			
86 - 90	0	0	0	1	0	3	2	0	0			
91 - 95	0	0	0	2	0	1	0	0	0			
96 - 100	0	0	0	0	0	1	0	0	0			
101 - 105	0	0	0	0	0	0	0	0	0			
106 - 110	0	0	0	0	0	0	0	0	0			
111 - 115	0	0	0	0	0	0	0	0	1			
116 - 120	0	0	0	1	1	0	0	0	1			
121 - 125	0	0	0	0	0	0	0	0	0			
126 - 130	0	0	0	0	0	0	0	0	0			
131 - 135	0	0	0	0	0	0	0	2	0			
136 - 140	0	0	0	0	0	0	0	0	0			
141 - 145	0	0	0	0	1	0	0	0	0			

Table 3.1-9
Length frequency of northern pipefish taken in impingement sampling at Hope Creek Generating Station in 1987.

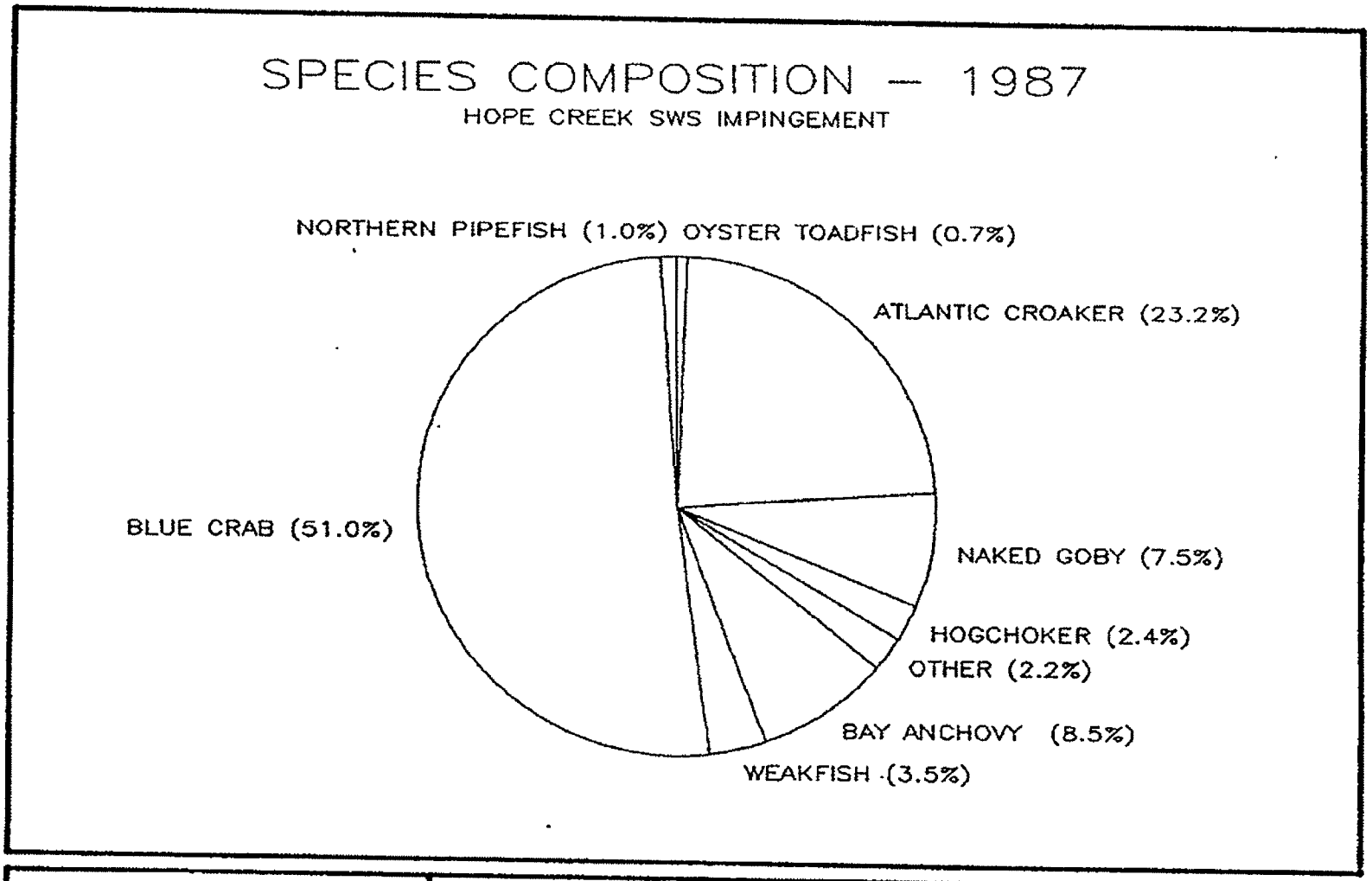
Length(mm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
46 - 50	0	0	0	0	0	0	2	0	0			
51 - 55	0	0	0	0	0	0	0	0	0			
56 - 60	0	0	0	0	0	0	1	0	0			
61 - 65	0	0	0	0	0	0	0	0	0			
66 - 70	0	0	0	0	0	0	1	0	2			
71 - 75	0	0	0	0	0	0	0	0	3			
76 - 80	0	0	0	0	0	0	1	0	0			
81 - 85	0	0	0	0	0	0	0	0	1			
86 - 90	0	0	0	0	0	0	2	3	1			
91 - 95	0	0	0	0	0	0	2	1	0			
96 - 100	0	0	0	0	0	0	7	1	1			
101 - 105	0	0	0	0	0	0	3	5	4			
106 - 110	0	0	1	0	0	0	4	1	4			
111 - 115	0	0	1	0	0	0	5	7	4			
116 - 120	0	0	0	0	1	0	3	4	9			
121 - 125	0	0	0	0	0	1	2	6	10			
126 - 130	0	0	0	0	1	0	7	6	10			
131 - 135	0	0	0	0	2	0	0	2	13			
136 - 140	0	0	0	0	0	0	0	1	7			
141 - 145	0	0	0	1	0	0	0	4	12			
146 - 150	0	0	0	0	2	1	2	0	9			
151 - 155	0	0	0	0	1	0	0	0	7			
156 - 160	0	0	1	1	0	1	0	0	5			
161 - 165	0	0	0	0	1	2	0	2	3			
166 - 170	0	0	0	0	0	1	0	0	2			
171 - 175	0	0	0	0	0	0	0	0	1			
176 - 180	0	0	0	0	1	0	0	0	3			
181 - 185	0	0	0	0	1	0	0	0	1			
186 - 190	0	0	0	0	0	0	0	0	0			
191 - 195	0	0	1	0	0	0	0	0	0			
196 - 200	0	0	0	0	0	1	0	0	1			
201 - 205	0	0	0	0	0	0	0	0	2			
206 - 210	0	0	0	0	0	0	0	0	0			
211 - 215	0	0	0	0	0	0	0	0	0			
216 - 220	0	0	0	0	0	0	0	0	0			
221 - 225	0	0	0	0	0	0	0	0	0			
226 - 230	0	0	0	0	0	0	0	0	0			
231 - 235	0	0	1	0	0	0	0	0	0			

Table 3.1-10
Length frequency of oyster toadfish taken in impingement sampling at Hope Creek Generating Station in 1987.

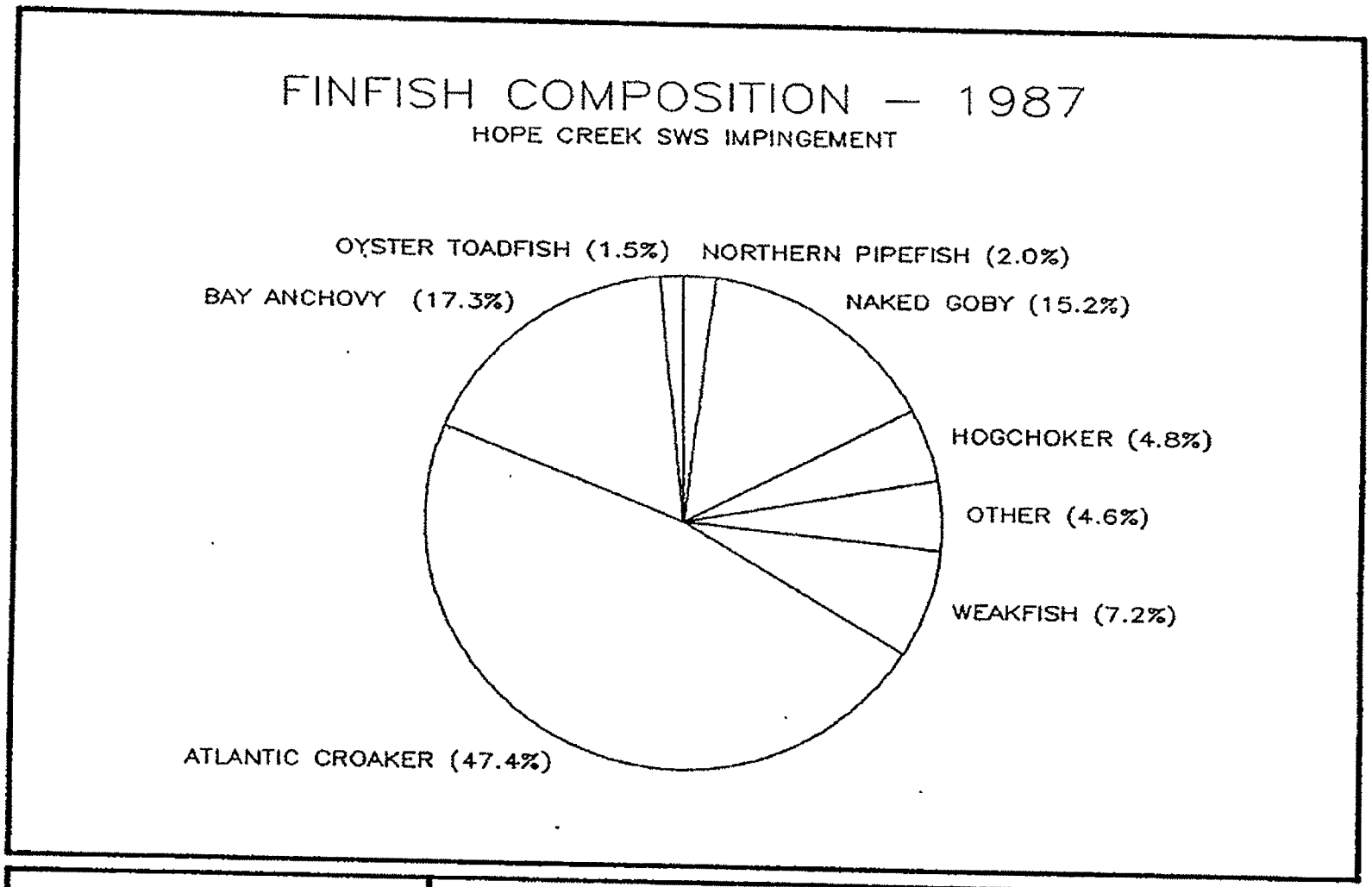
Length(mm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
21 - 25	0	0	0	0	0	0	9	1	0			
26 - 30	0	0	0	0	0	0	14	2	1			
31 - 35	0	0	0	0	0	0	15	6	0			
36 - 40	0	0	0	0	0	0	11	3	0			
41 - 45	0	0	0	0	0	0	2	6	0			
46 - 50	0	0	0	0	0	0	0	8	1			
51 - 55	0	0	0	0	0	1	0	3	0			
56 - 60	0	0	0	0	0	1	0	1	0			
61 - 65	0	0	0	0	0	3	0	1	0			
66 - 70	0	0	0	0	0	3	1	1	1			
71 - 75	0	0	0	0	0	8	4	0	0			
76 - 80	0	0	0	0	0	2	7	0	0			
81 - 85	0	0	0	0	0	3	7	0	0			
86 - 90	0	0	0	0	0	0	8	1	0			
91 - 95	0	0	0	0	0	0	3	1	1			
96 - 100	0	0	0	0	0	0	2	1	0			
101 - 105	0	0	0	0	0	0	2	0	0			
106 - 110	0	0	0	0	0	1	1	1	0			
111 - 115	0	0	0	0	0	1	0	0	0			
116 - 120	0	0	0	0	0	0	1	0	0			
121 - 125	0	0	0	0	0	1	0	0	0			
126 - 130	0	0	0	0	0	1	0	0	0			
131 - 135	0	0	0	0	0	0	1	1	0			
136 - 140	0	0	0	0	0	1	1	0	0			
141 - 145	0	0	0	0	0	0	1	0	0			
146 - 150	0	0	0	0	0	0	2	0	0			
151 - 155	0	0	0	0	0	0	1	2	0			
156 - 160	0	0	0	0	0	0	1	0	0			
161 - 165	0	0	0	0	0	0	0	0	0			
166 - 170	0	0	0	0	0	0	0	1	0			
171 - 175	0	0	0	0	0	0	0	0	0			
176 - 180	0	0	0	0	0	0	1	0	1			



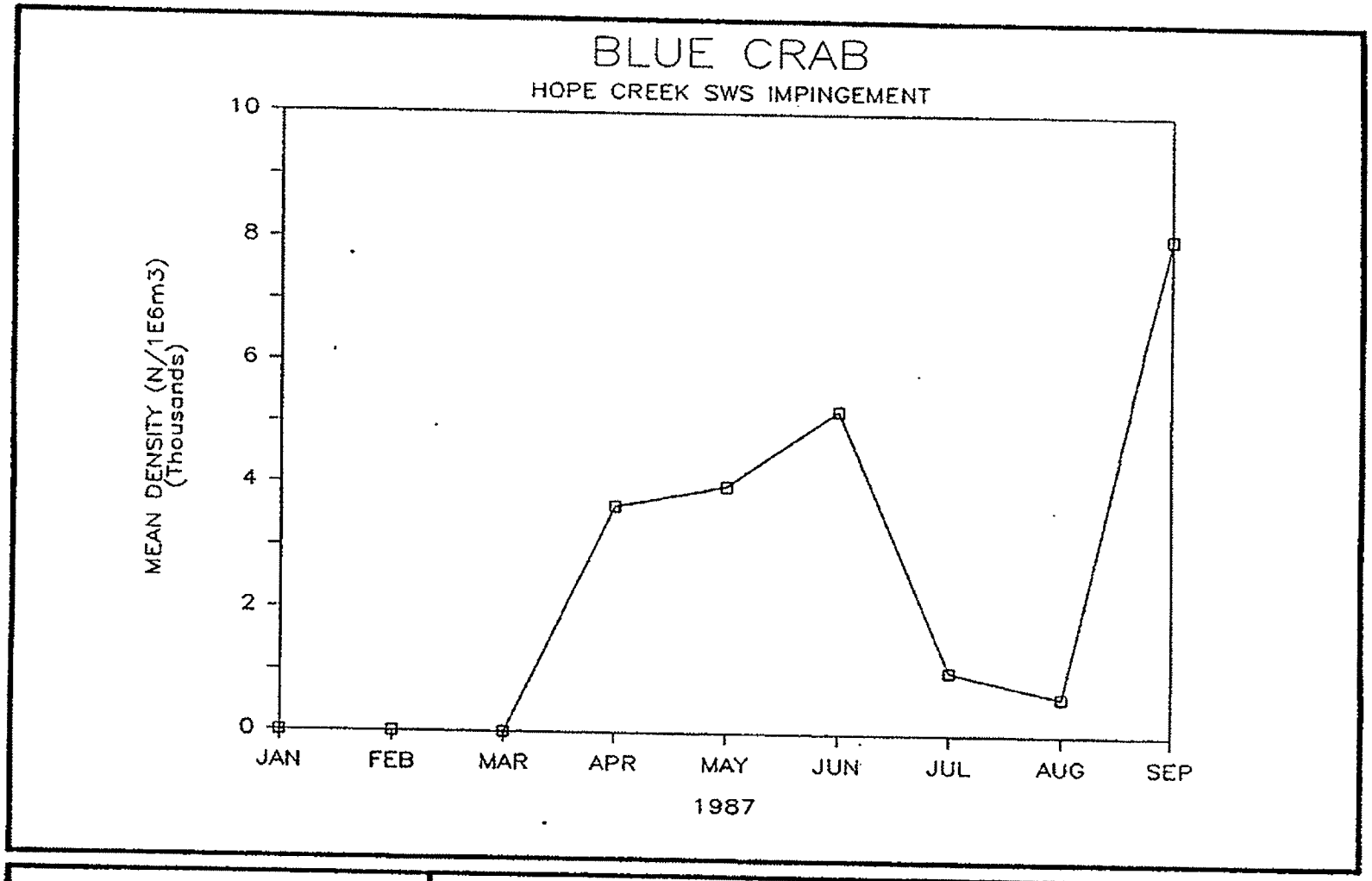
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Hope Creek Service Water Intake System.
	Figure 3.1-1



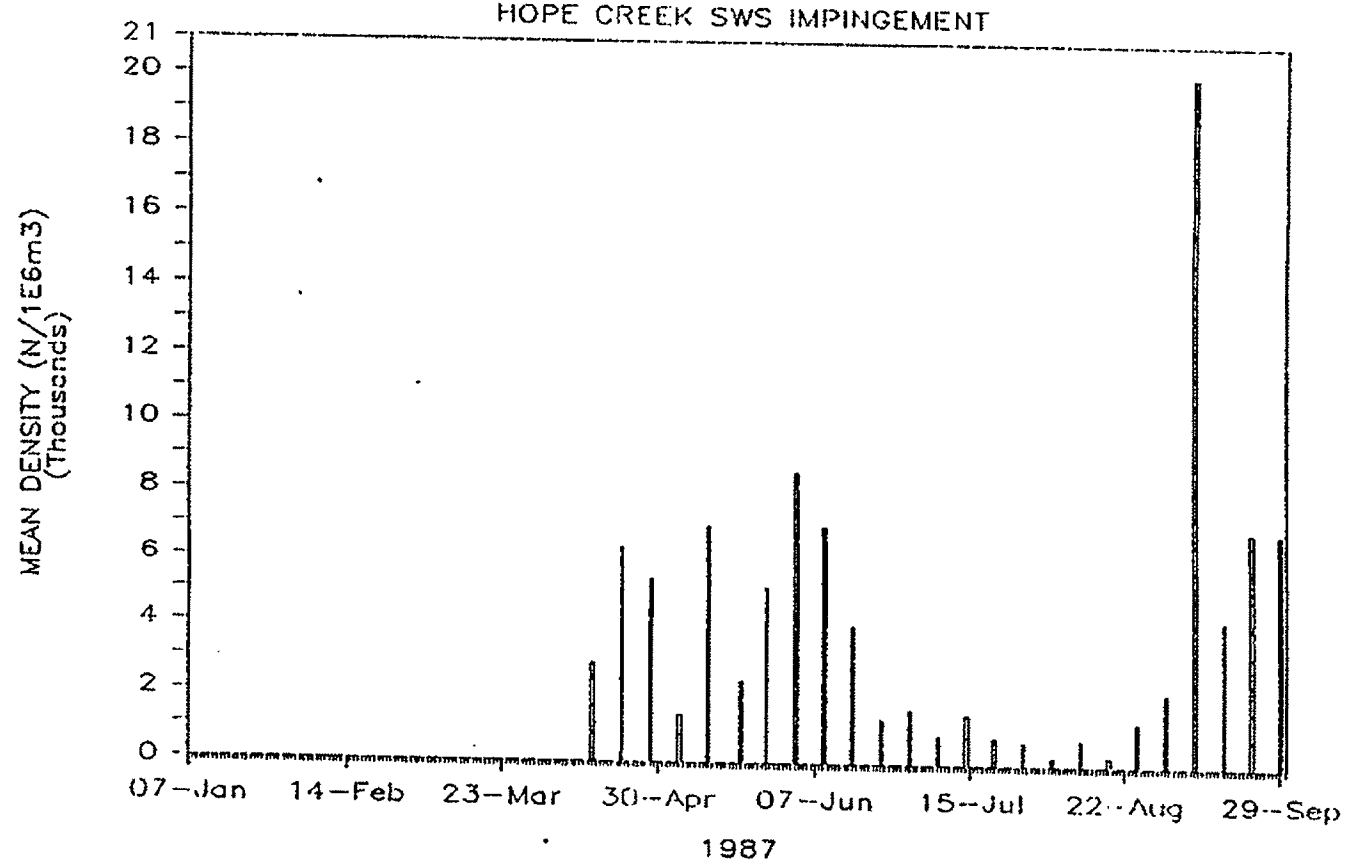
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Species composition of finfish and blue crab taken in impingement sampling at Hope Creek SWS during 1987.
	Figure 3.1-2



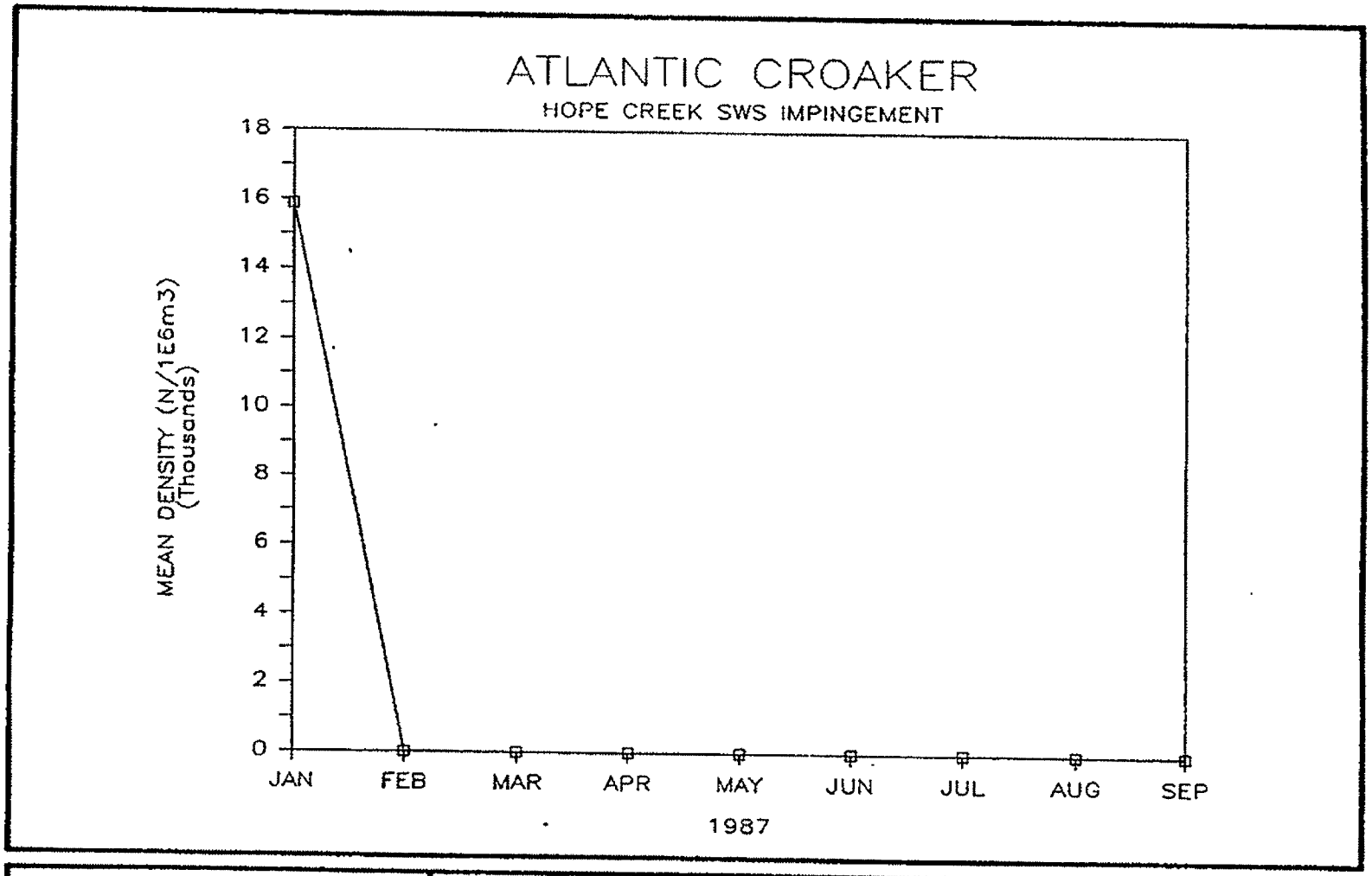
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Finfish composition taken in impingement sampling at Hope Creek SWS during 1987.
	Figure 3.1-3



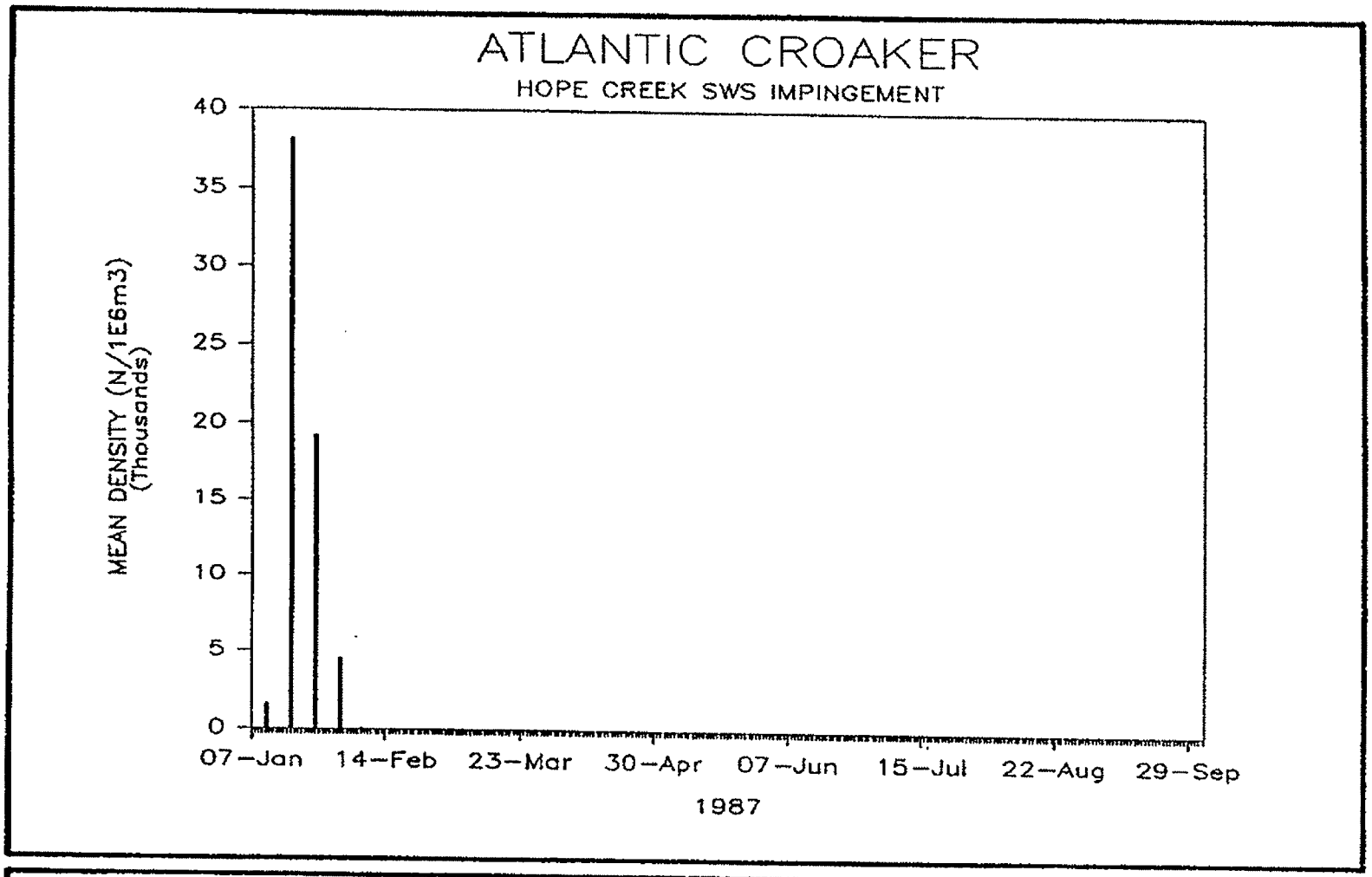
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Monthly mean density (n/1E6m^3) of blue crab taken in impingement sampling at Hope Creek SWS during 1987.
	Figure 3.1-4



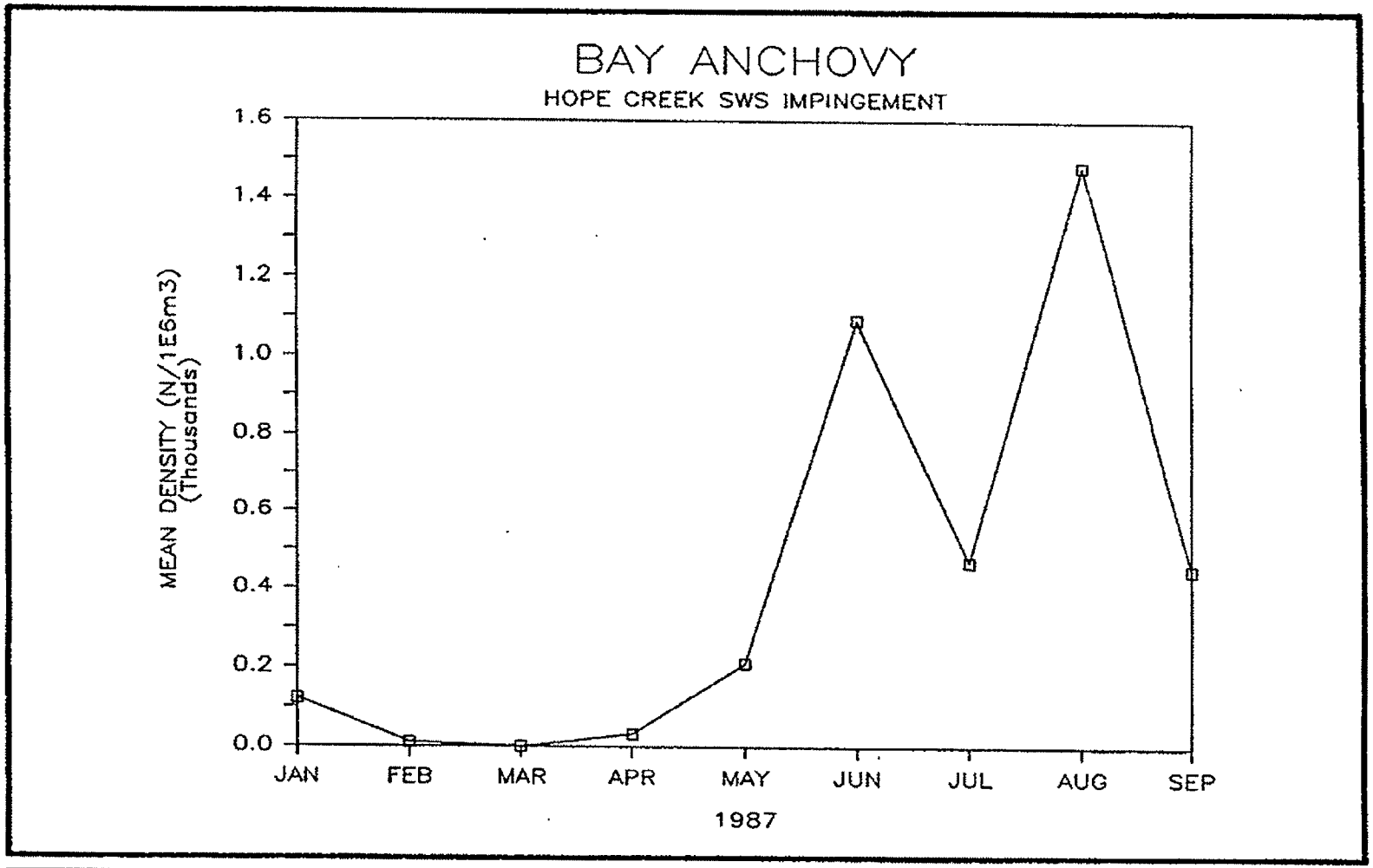
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Mean density, by sampling date, of blue crab taken in impingement sampling at Hope Creek SWS during 1987.
	Figure 3.1-5



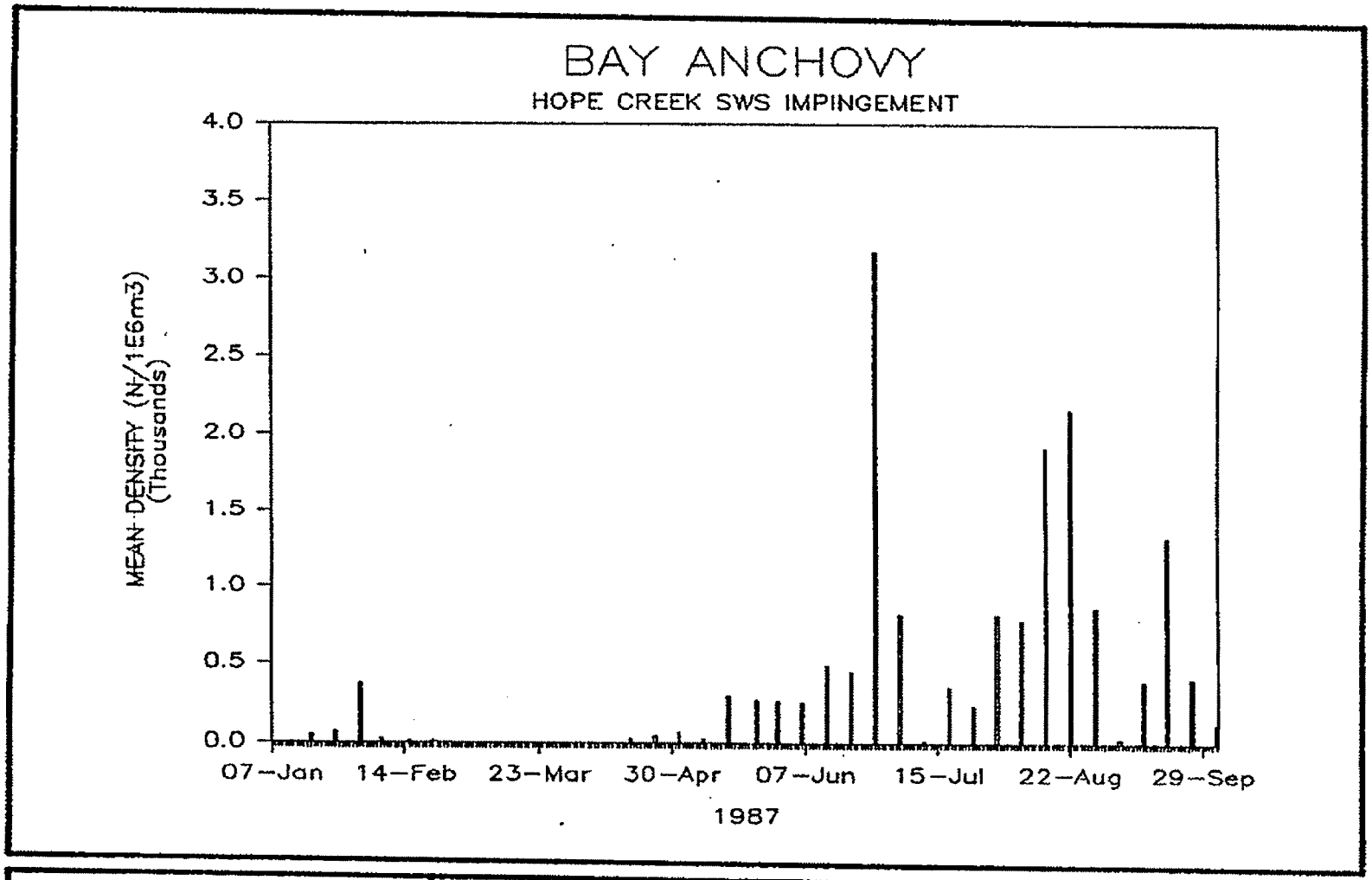
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Monthly mean density (n/1E6m^3) of Atlantic croaker taken in impingement sampling at Hope Creek SWS during 1987.
	Figure 3.1-6



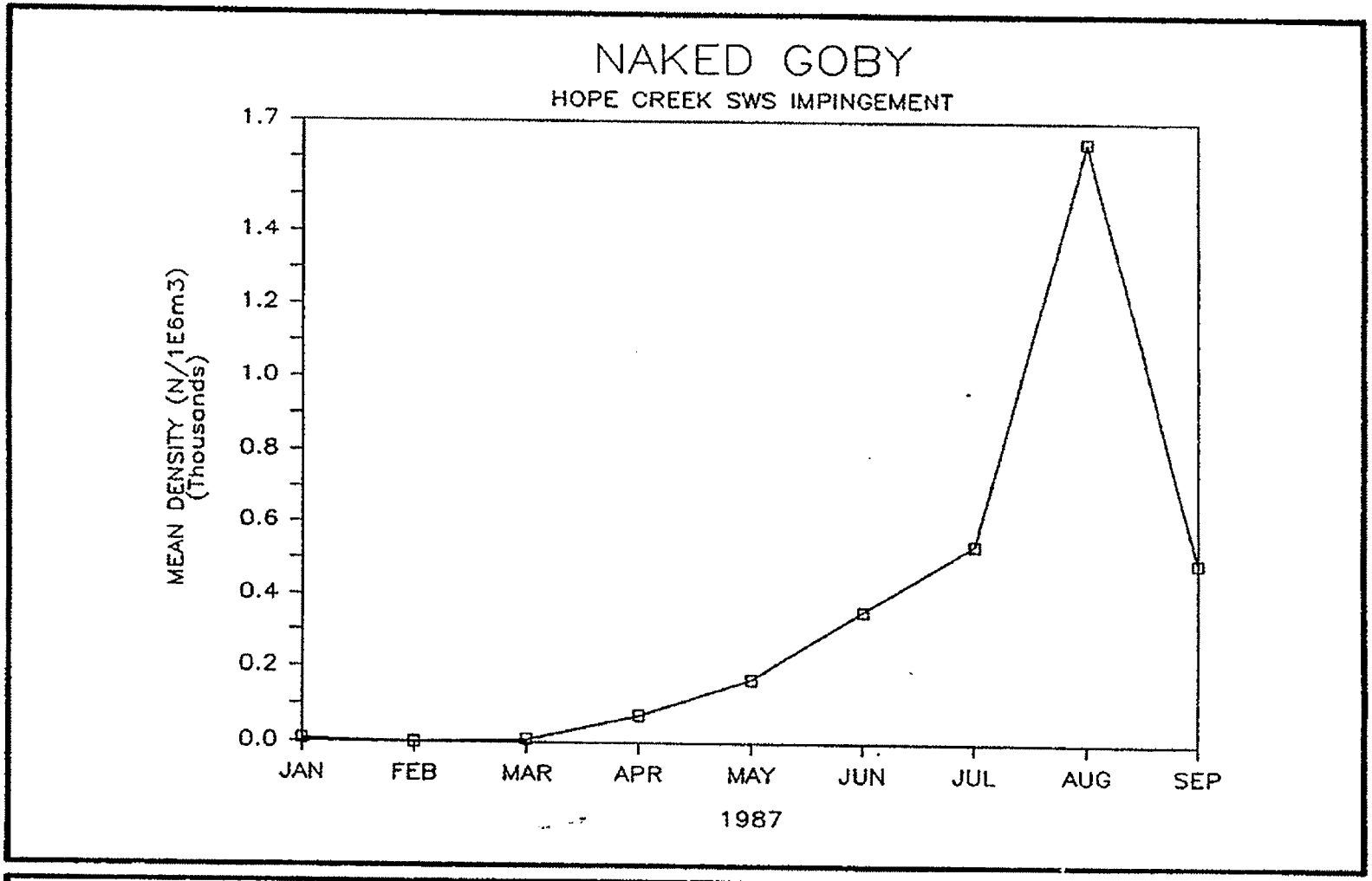
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Mean density, by sampling date, of Atlantic croaker taken in impingement sampling at Hope Creek SWS during 1987.
	Figure 3.1-7



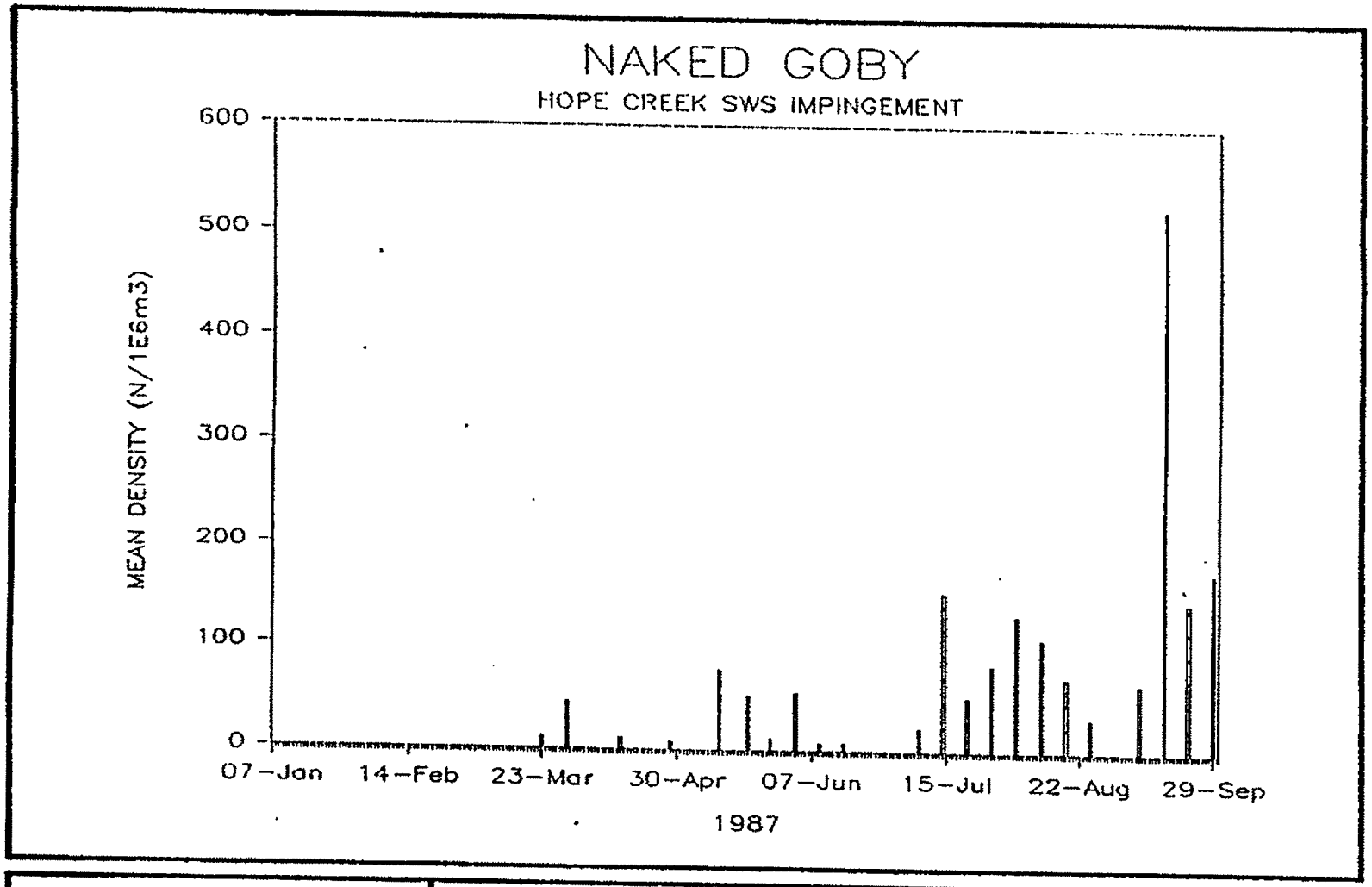
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Monthly mean density (n/1E6m^3) of bay anchovy taken in impingement sampling at Hope Creek SWS during 1987.
	Figure 3.1-8



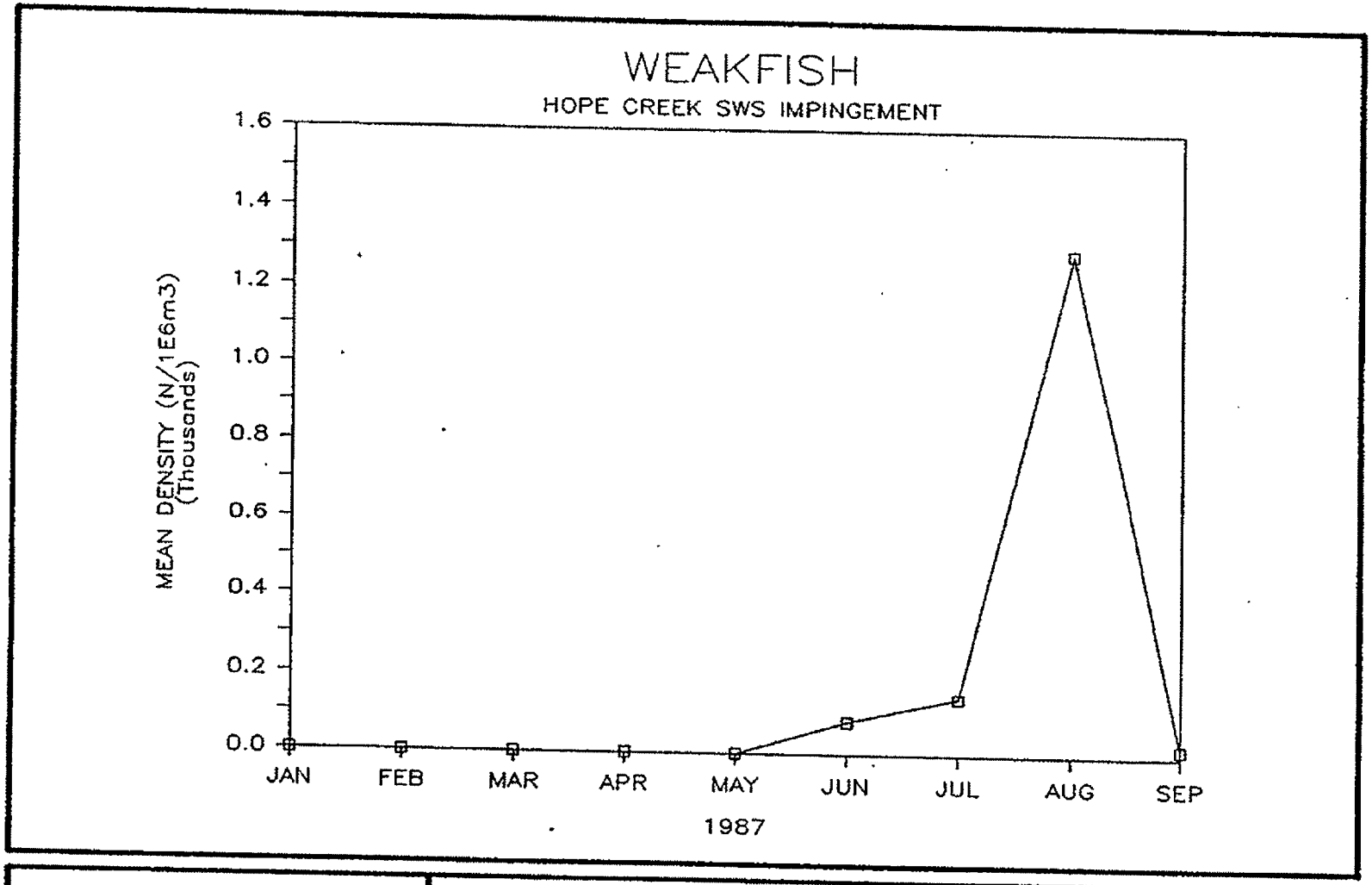
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Mean density, by sampling date, of bay anchovy taken in impingement sampling at Hope Creek SWS during 1987.
	Figure 3.1-9



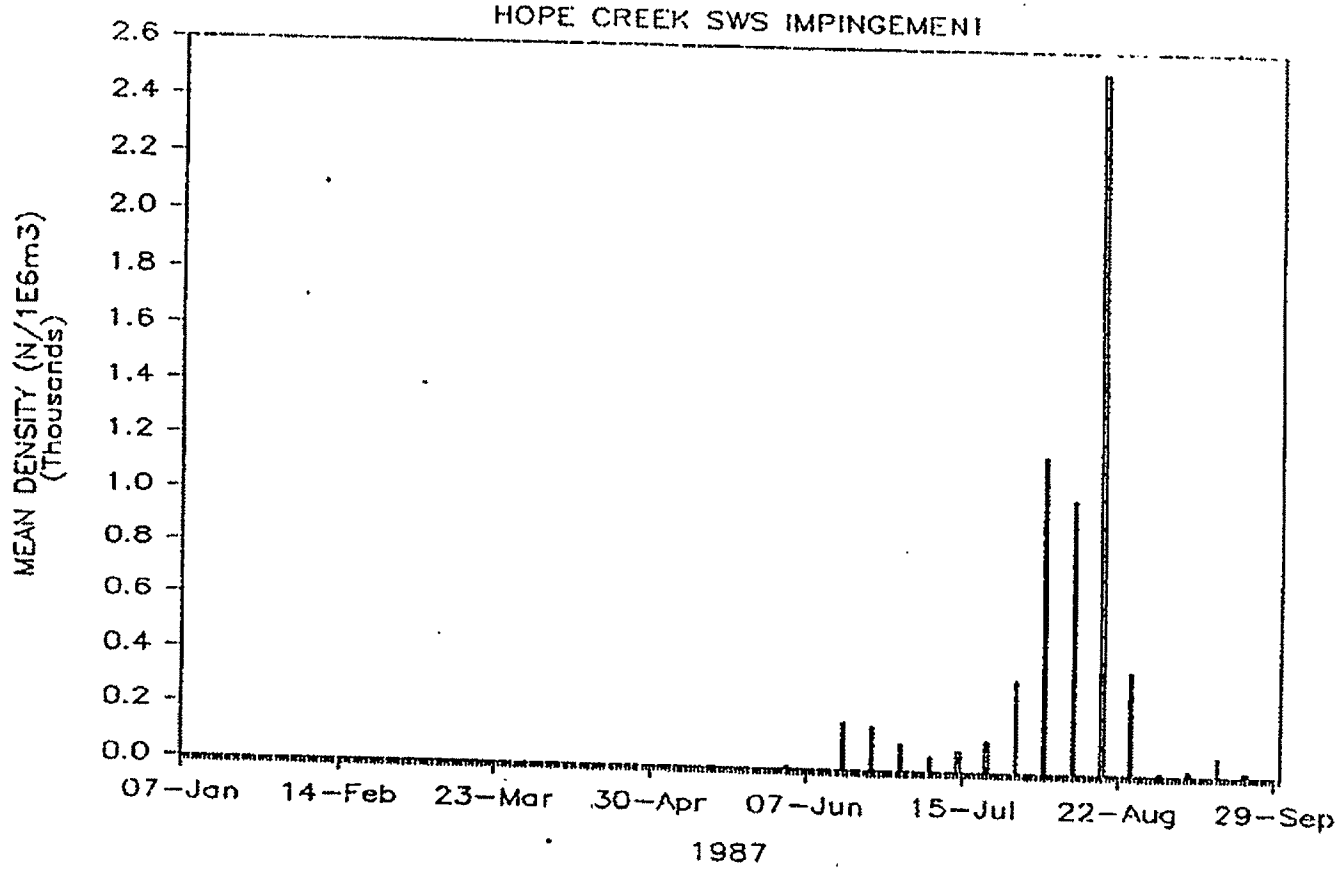
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Monthly mean density (n/1E6m^3) of naked goby taken in impingement sampling at Hope Creek SWS during 1987.
	Figure 3.1-10



PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Mean density, by sampling date, of naked goby taken in impingement sampling at Hope Creek SWS during 1987.
	Figure 3.1-11

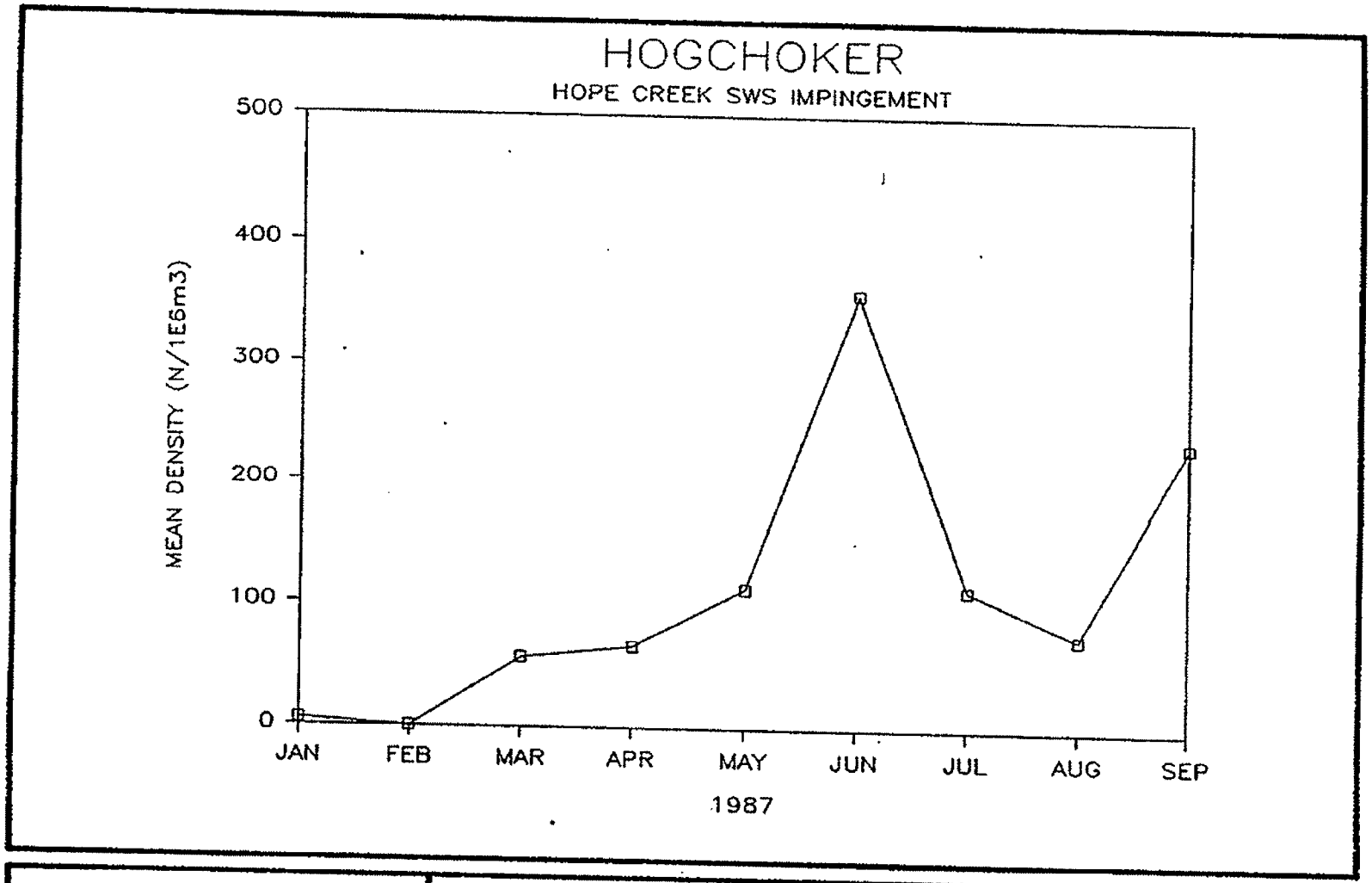


PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Monthly mean density (n/1E6m^3) of weakfish taken in impingement sampling at Hope Creek SWS during 1987.
	Figure 3.1-12

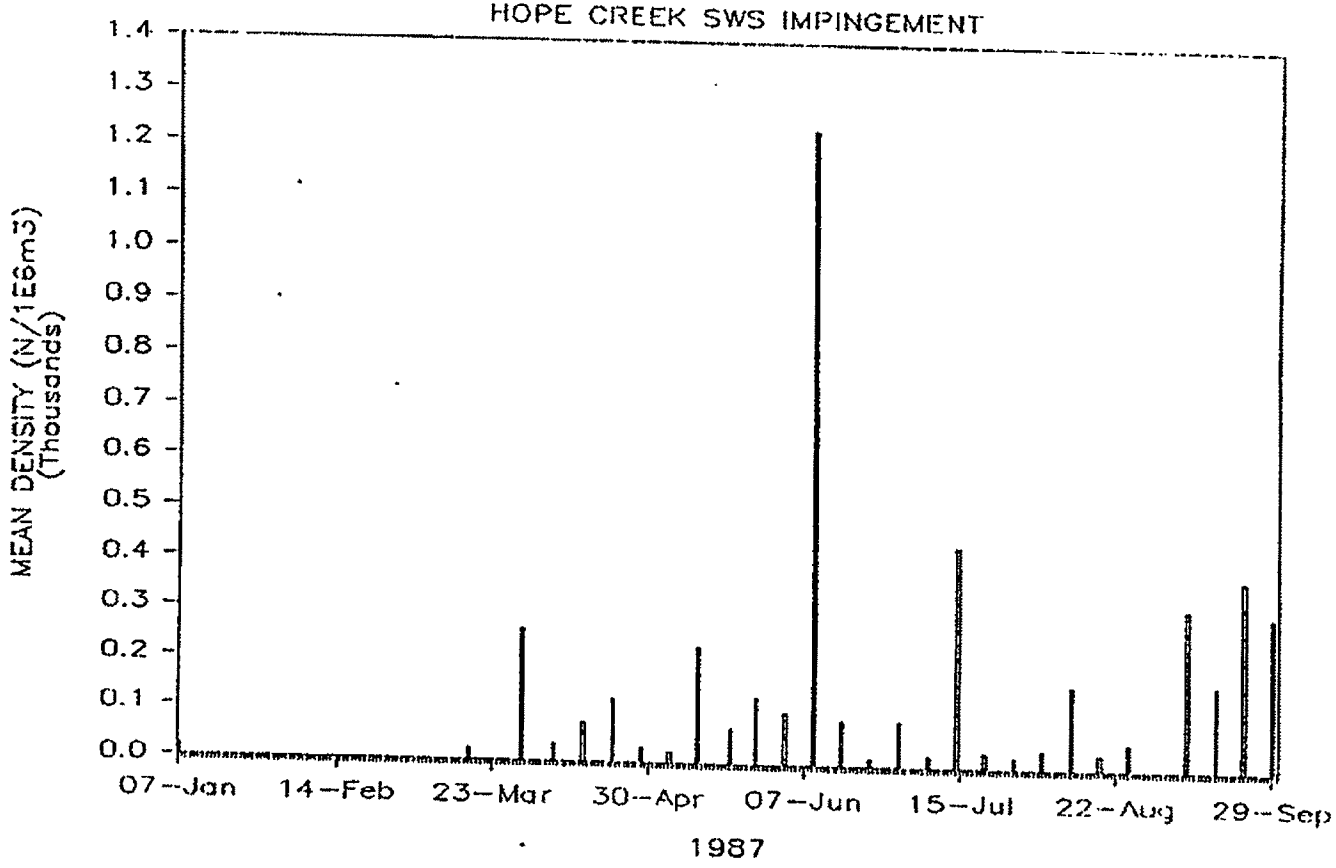


PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Mean density, by sampling date, of weakfish taken in impingement sampling at Hope Creek SWS during 1987.

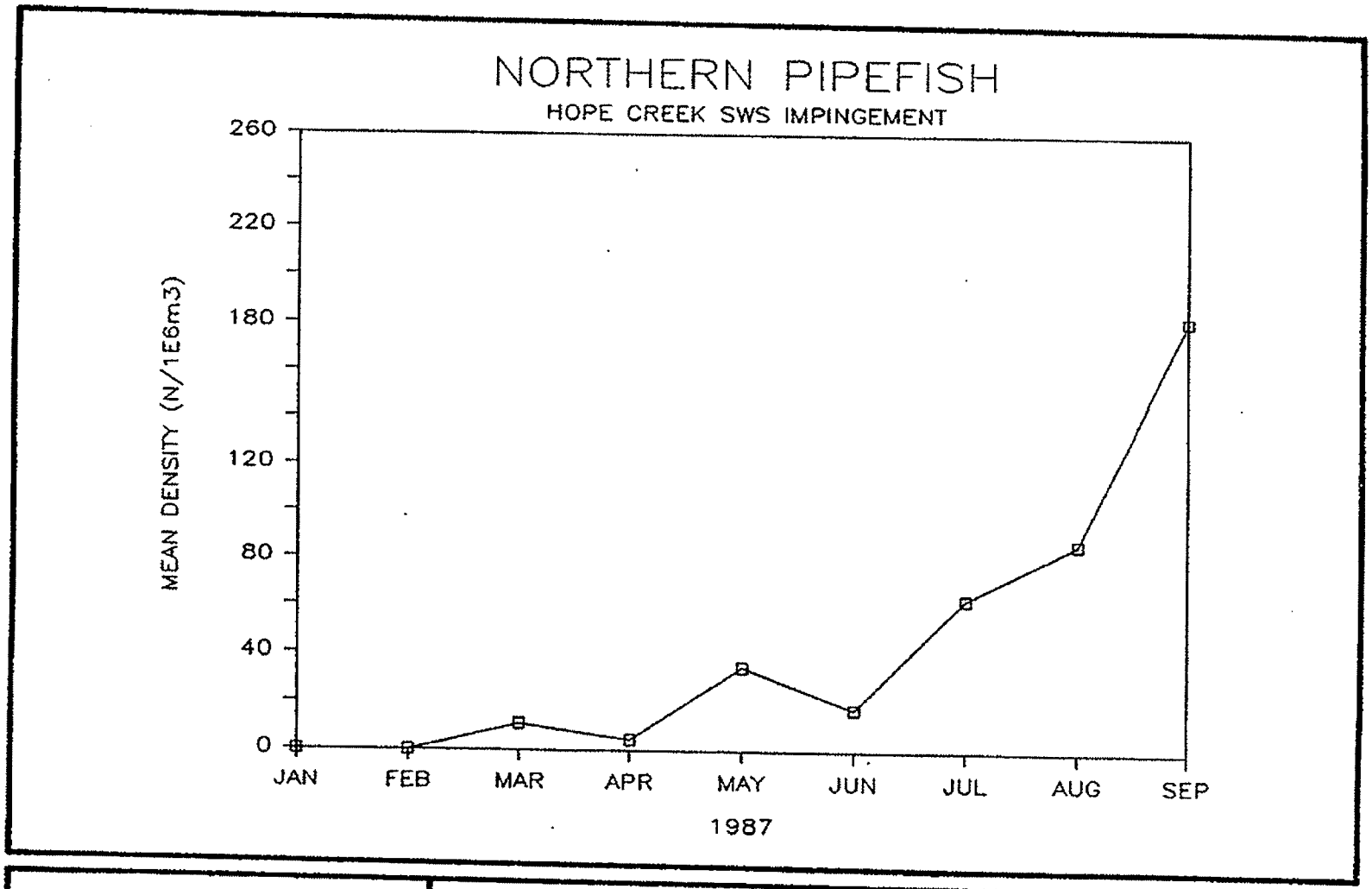
Figure 3.1-13



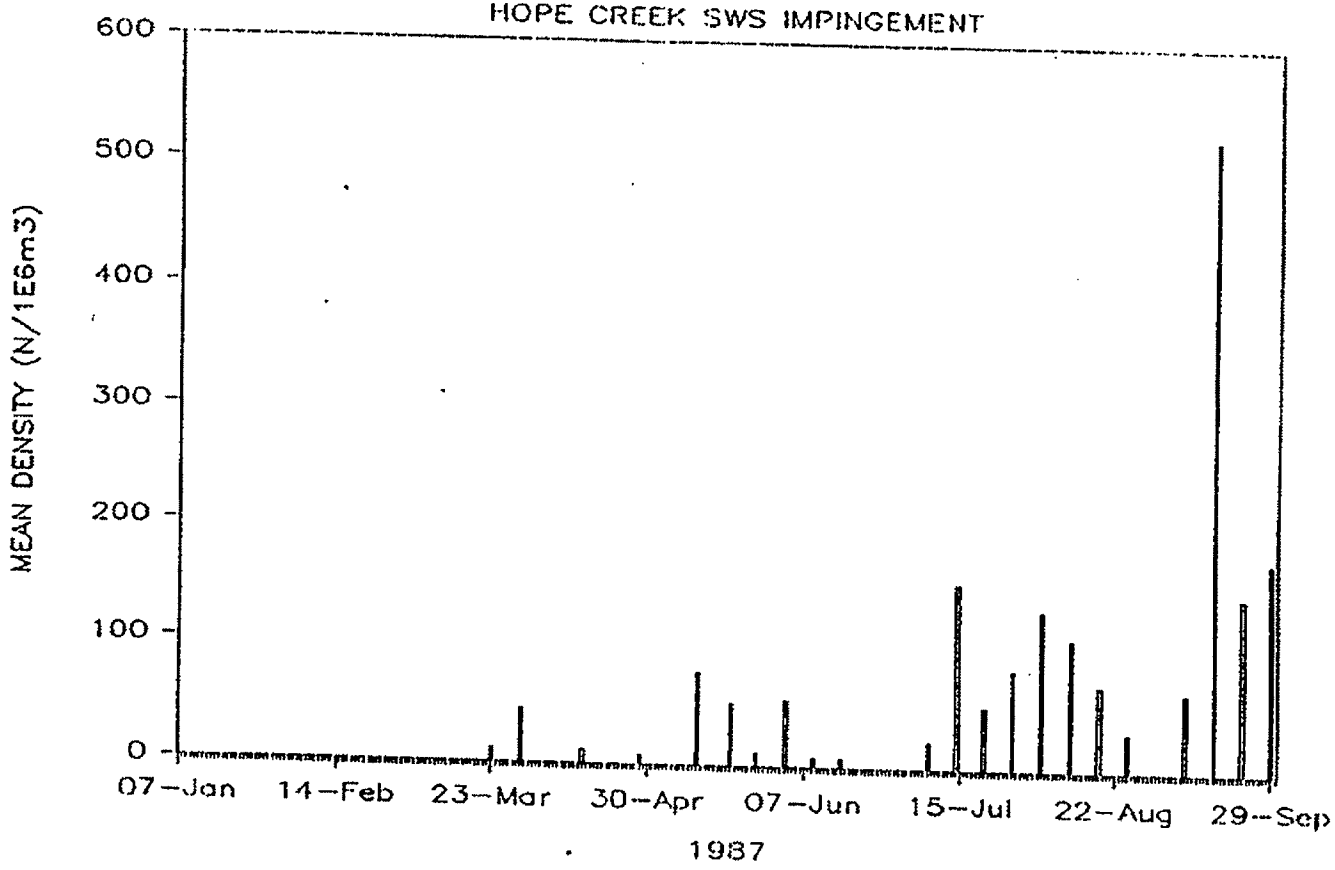
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Monthly mean density (n/1E6m^3) of hogchoker taken in impingement sampling at Hope Creek SWS during 1987.
	Figure 3.1-14



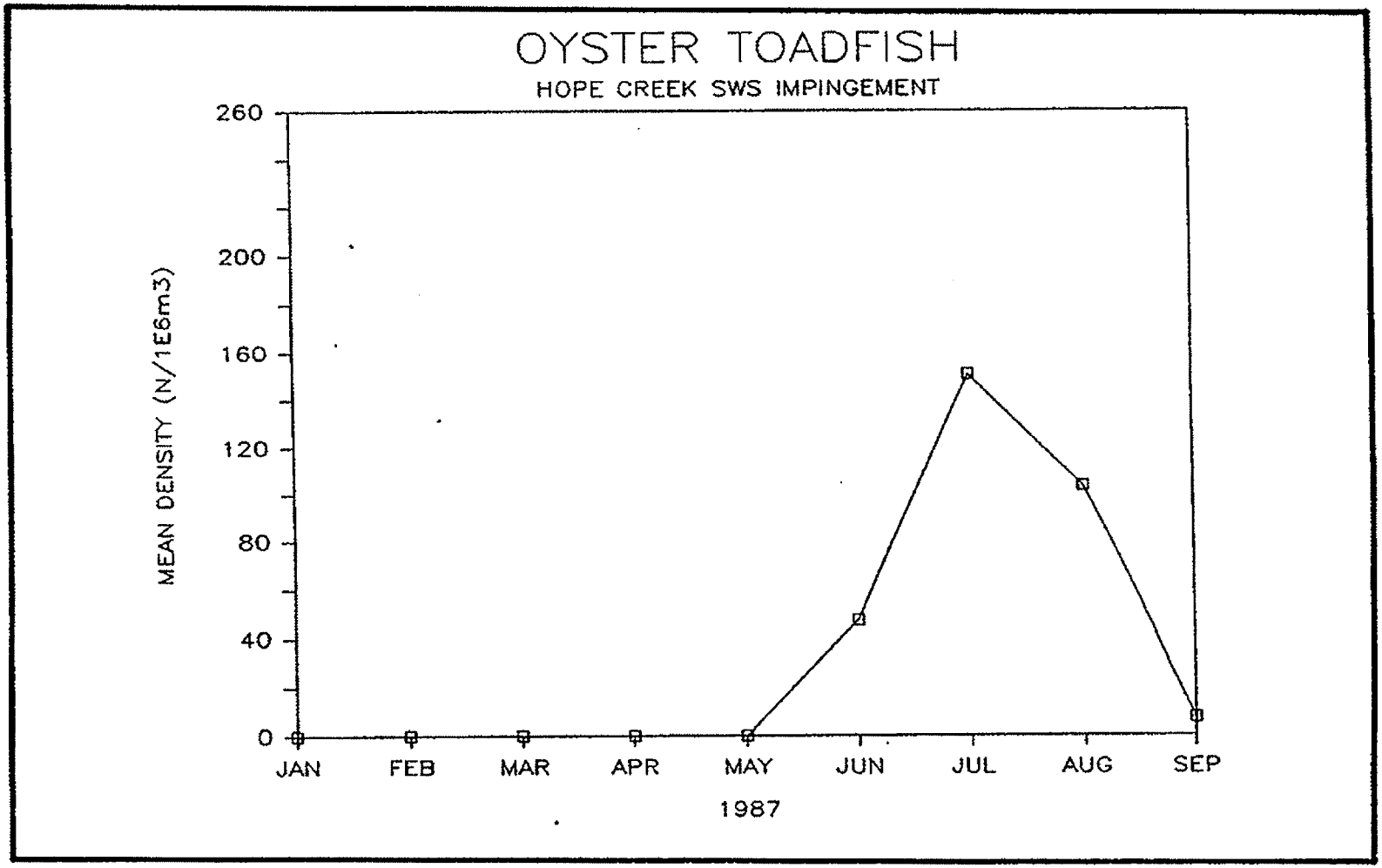
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Mean density, by sampling date, of hogchoker taken in impingement sampling at Hope Creek SWS during 1987.
	Figure 3.1-15



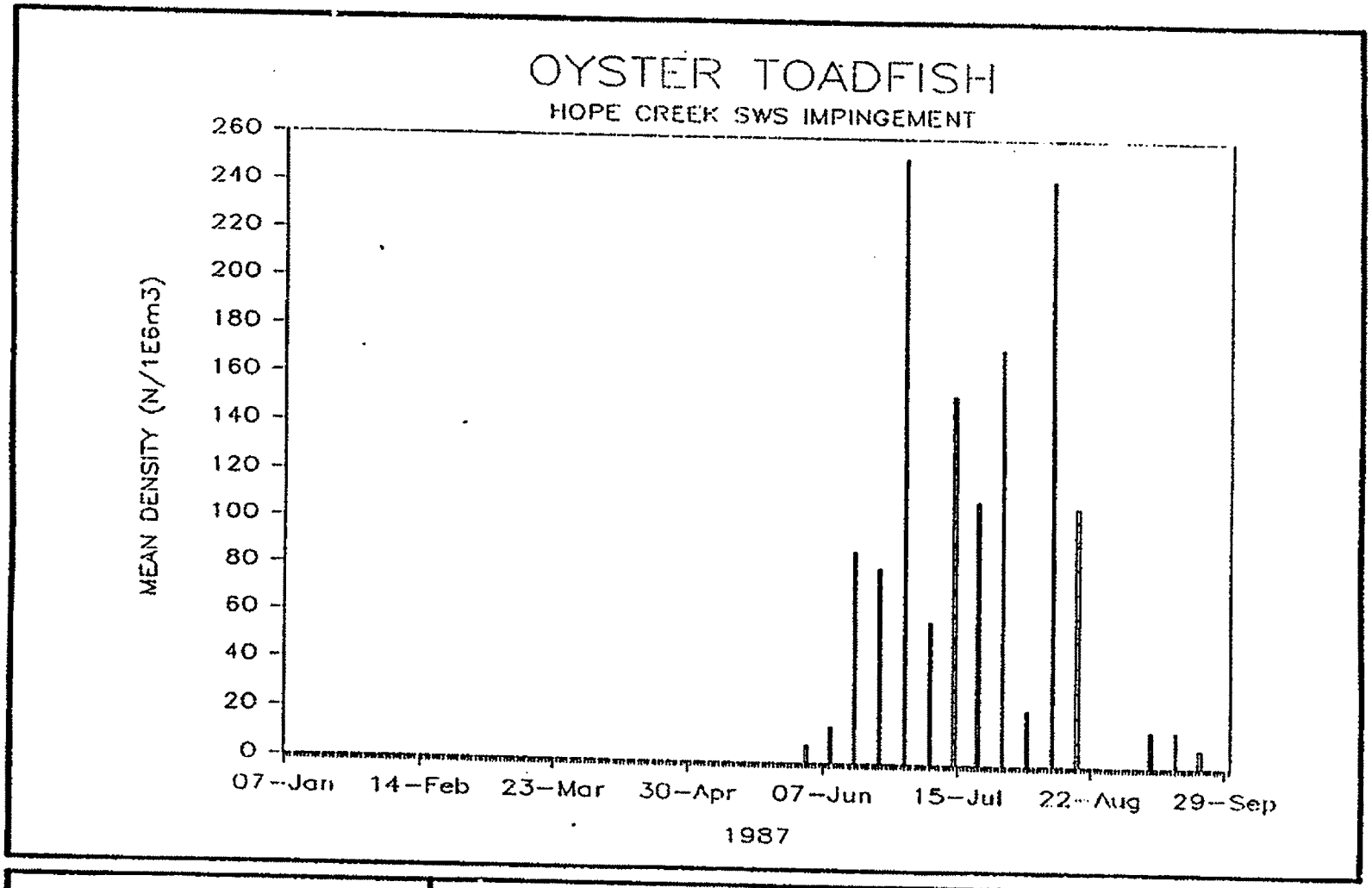
PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Monthly mean density (n/1E6m^3) of northern pipefish taken in impingement sampling at Hope Creek SWS during 1987.
	Figure 3.1-16



PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Mean density, by sampling date, of northern pipefish taken in impingement sampling at Hope Creek SWS during 1987.
	Figure 3.1-17



PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Monthly mean density (n/1E6m^3) of oyster toadfish taken in impingement sampling at Hope Creek SWS during 1987.
	Figure 3.1-18



PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Mean density, by sampling date, of oyster toadfish taken in impingement sampling at Hope Creek SWS during 1987.
	Figure 3.1-19

SECTION 4.0
PHYSICOCHEMICAL DESCRIPTION

Temperature

Daily mean water temperature (^{o}C) in the Delaware River off SGS during 1987, as measured during field sampling excursions (late March-December), ranged from 5.4 on December 21 to 29.6 on July 27 (Fig. 4.0-1). Monthly mean water temperature was about 7.5 during March, increased to 17.5 in May and continued to rise to a maximum of 27.5 during July (Table 4.0-1; Fig. 4.0-2). Thereafter, water temperature decreased slightly through September and much more sharply (4-8 degrees/month) through December. Vertical gradients were generally less than one-half degree.

Dissolved Oxygen

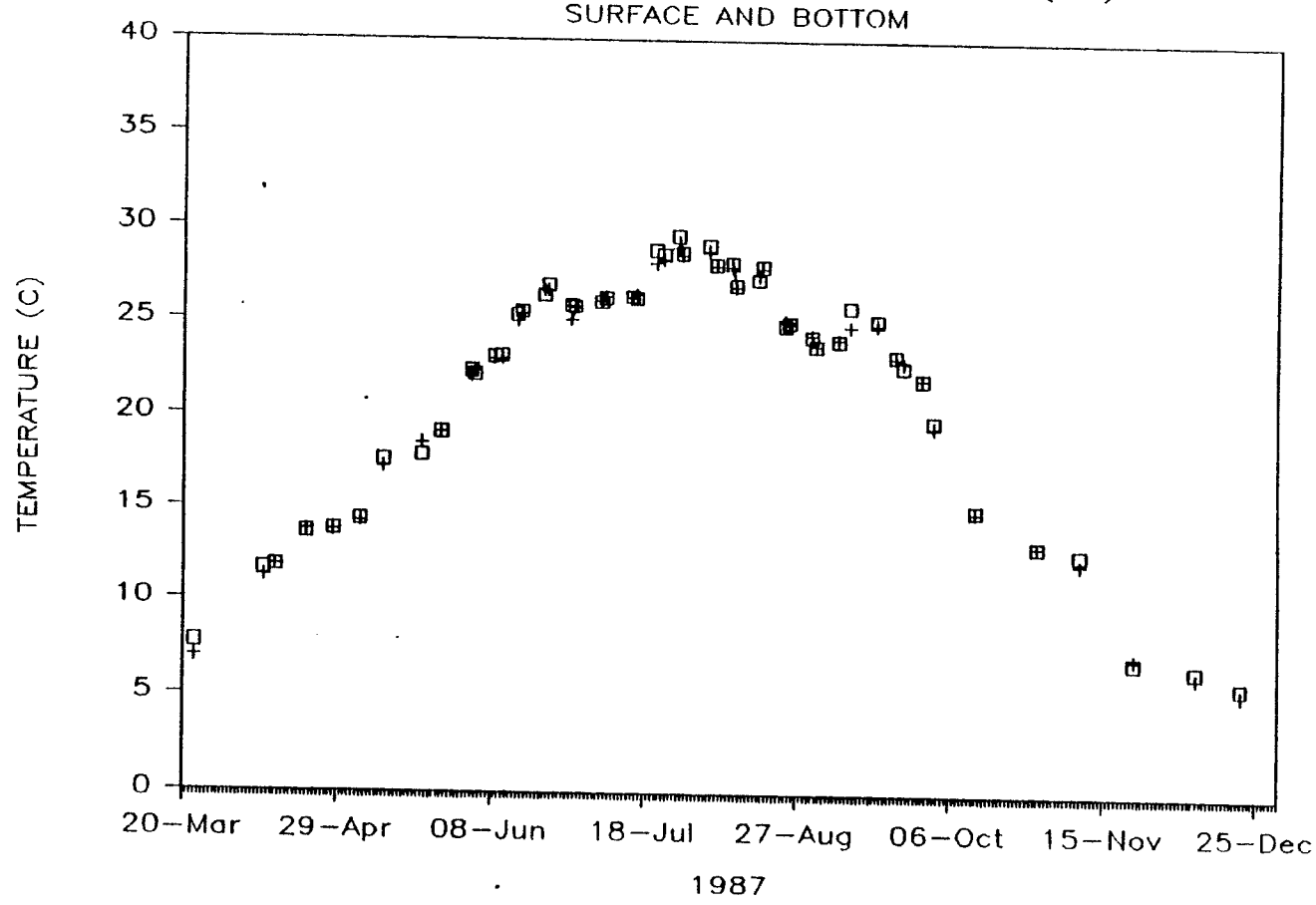
Daily mean dissolved oxygen (mg/l) ranged from 5.7 on July 16 to 12.9 on March 23 (Fig. 4.0-3). Monthly mean dissolved oxygen exceeded 9.0 during early spring and late fall and ranged from 6.1 to 6.8 during the period June-September (Table 4.0-1; Fig. 4.0-4). Dissolved oxygen concentration was essentially homogenous through the water column.

Salinity

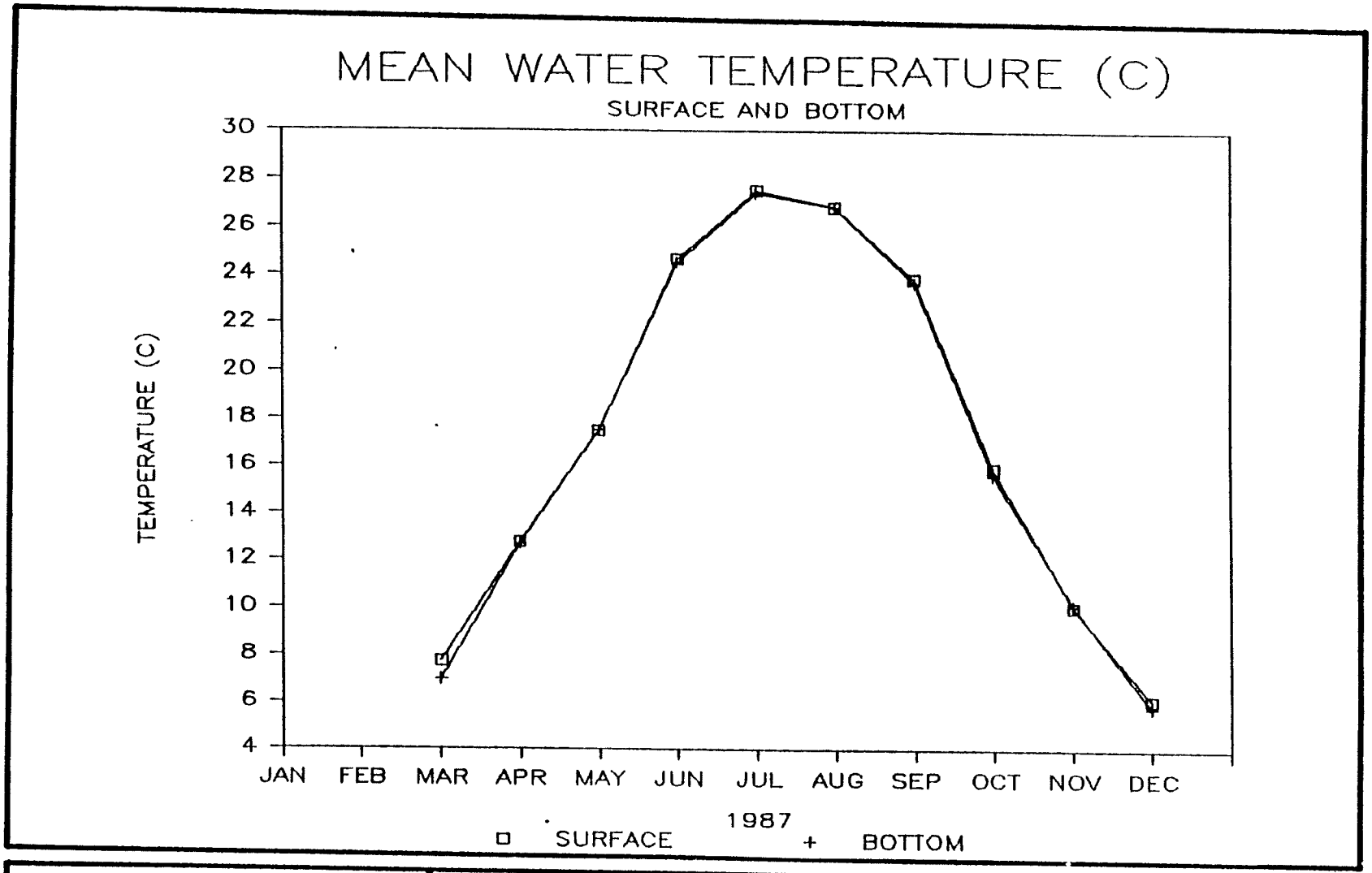
Daily mean salinity (ppt) ranged from 1.6 on April 13 to 11.0 on August 25 (Fig. 4.0-5). In April monthly mean salinity decreased from the initial value observed in March to the seasonal low values of 2.9 and 4.5 for surface and bottom measurements, respectively. Thereafter, it generally ranged between 5 and 8 ppt (Table 4.0-1; Fig. 4.0-6). Typically, mean surface and bottom salinities differed by less than 2 ppt.

Table 4.0-1
Monthly mean and standard deviation for water temperature, salinity and dissolved oxygen, as measured during field sampling excursions, in the Delaware River off SGS during 1987.

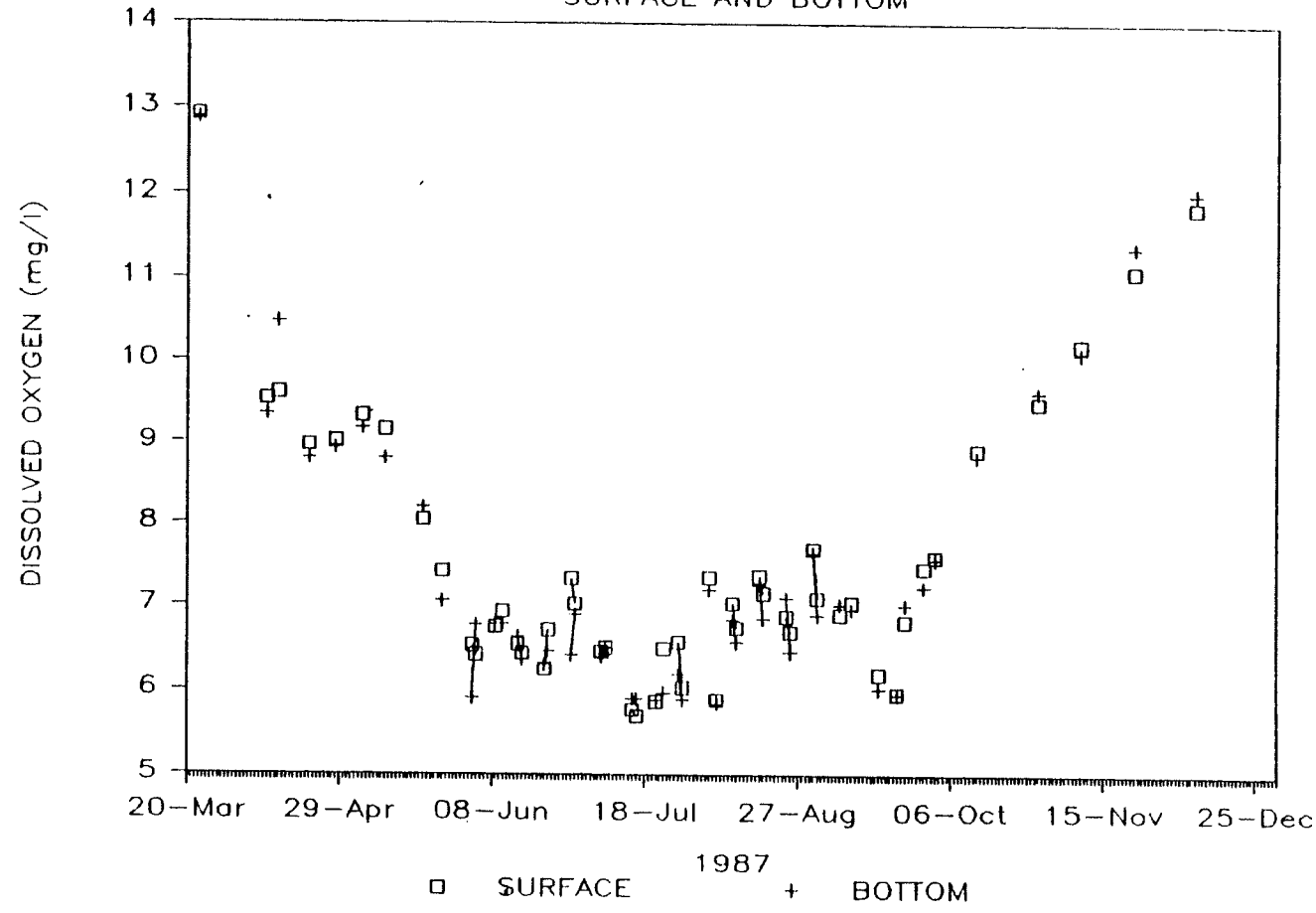
	TEMPERATURE (C)				SALINITY (PPT)				DISSOLVED OXYGEN (mg/l)			
	SURFACE		BOTTOM		SURFACE		BOTTOM		SURFACE		BOTTOM	
MONTH	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
MARCH	7.8	0.4	7.0	0.4	6.0	2.2	7.5	1.0	12.9	0.5	12.9	0.1
APRIL	12.8	1.0	12.7	1.1	2.9	1.8	4.5	2.9	9.3	0.5	9.5	0.9
MAY	17.5	1.7	17.5	1.7	5.6	1.9	6.3	1.7	8.4	0.9	8.2	0.9
JUNE	24.7	1.8	24.5	1.7	7.2	1.7	7.6	1.8	6.7	0.4	6.5	0.8
JULY	27.5	1.5	27.4	1.2	6.8	1.8	7.3	2.0	6.2	0.4	6.1	0.3
AUGUST	26.9	1.6	26.9	1.5	7.8	2.1	8.4	1.8	6.9	0.6	6.8	0.6
SEPTEMBER	23.3	1.4	23.7	1.1	5.6	3.0	6.8	2.6	6.7	0.6	6.7	0.6
OCTOBER	15.9	2.9	15.7	2.8	5.2	1.4	5.5	1.6	8.7	0.9	8.8	0.9
NOVEMBER	10.1	3.0	10.2	2.6	6.3	2.2	7.3	1.8	10.6	0.5	10.6	0.7
DECEMBER	6.2	0.6	5.8	0.7	6.8	2.8	6.8	3.5	11.9	0.3	12.0	0.3



PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Daily mean temperature values measured during field sampling excursions in the Delaware River off SGS during 1987.
	Figure 4.0-1

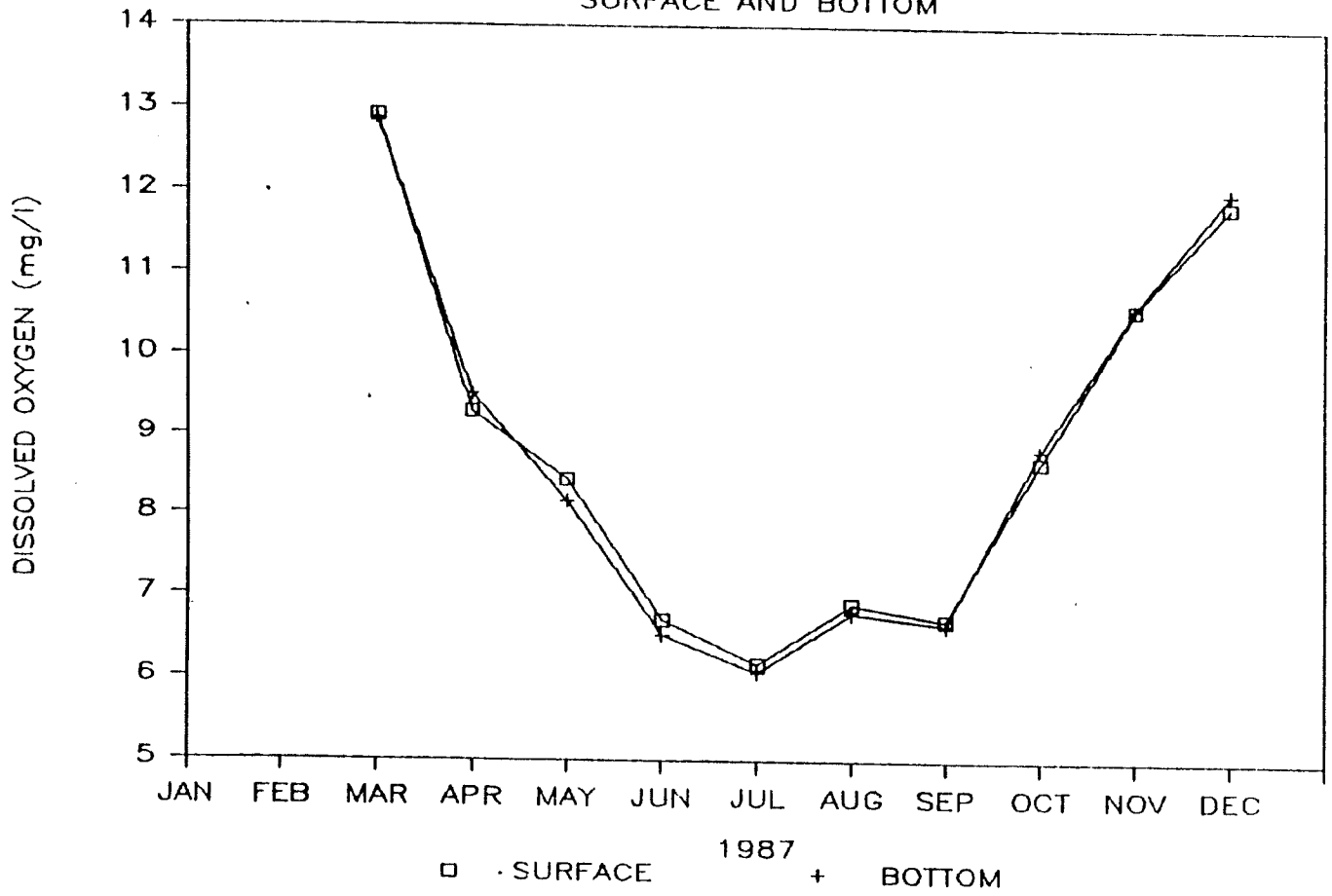


PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Monthly mean temperature, as measured during field sampling excursions in the Delaware River off SGS during 1987.
	Figure 4.0-2

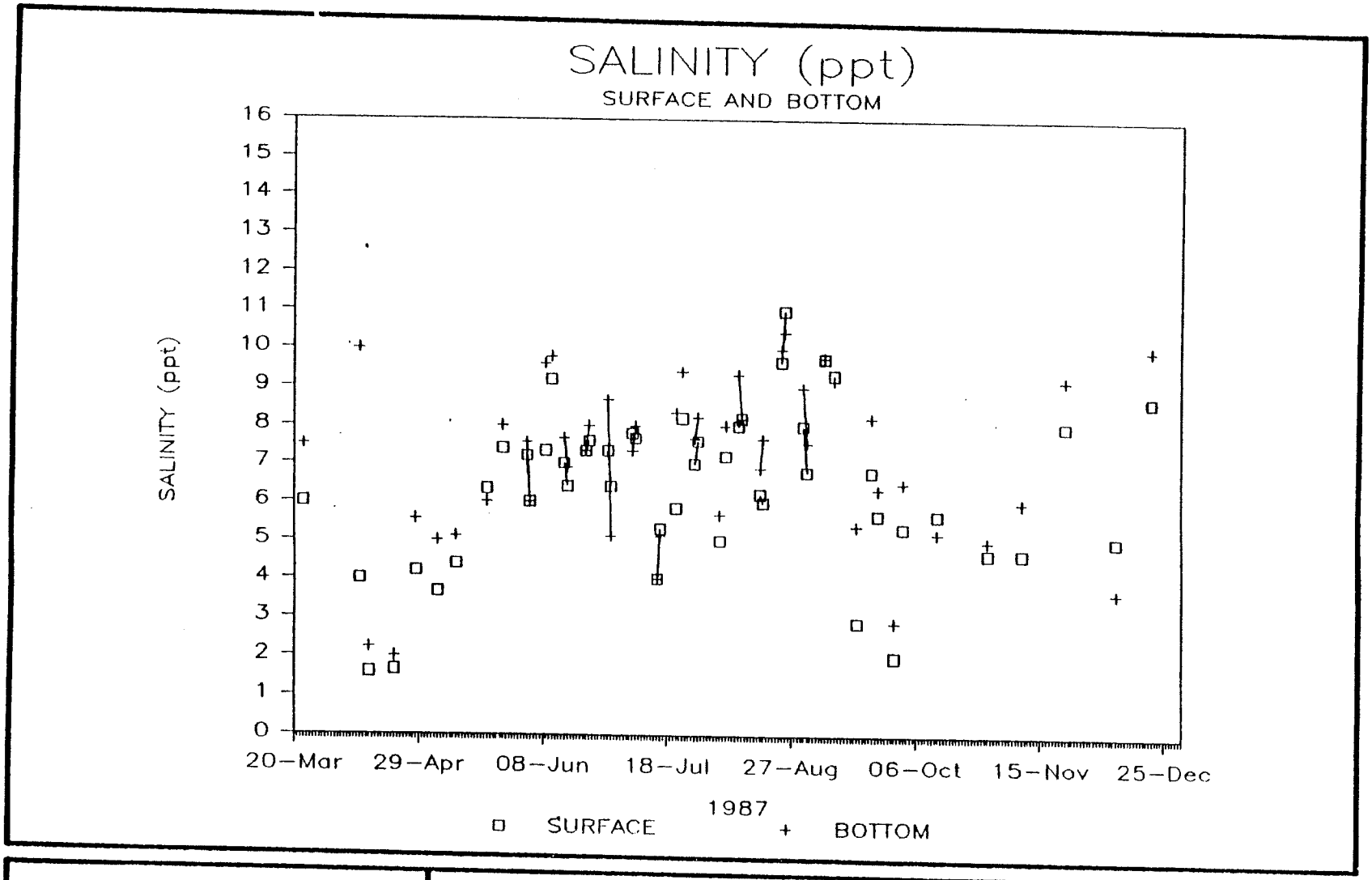


PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Daily mean dissolved oxygen values measured during field sampling excursions in the Delaware River off SGS during 1987.

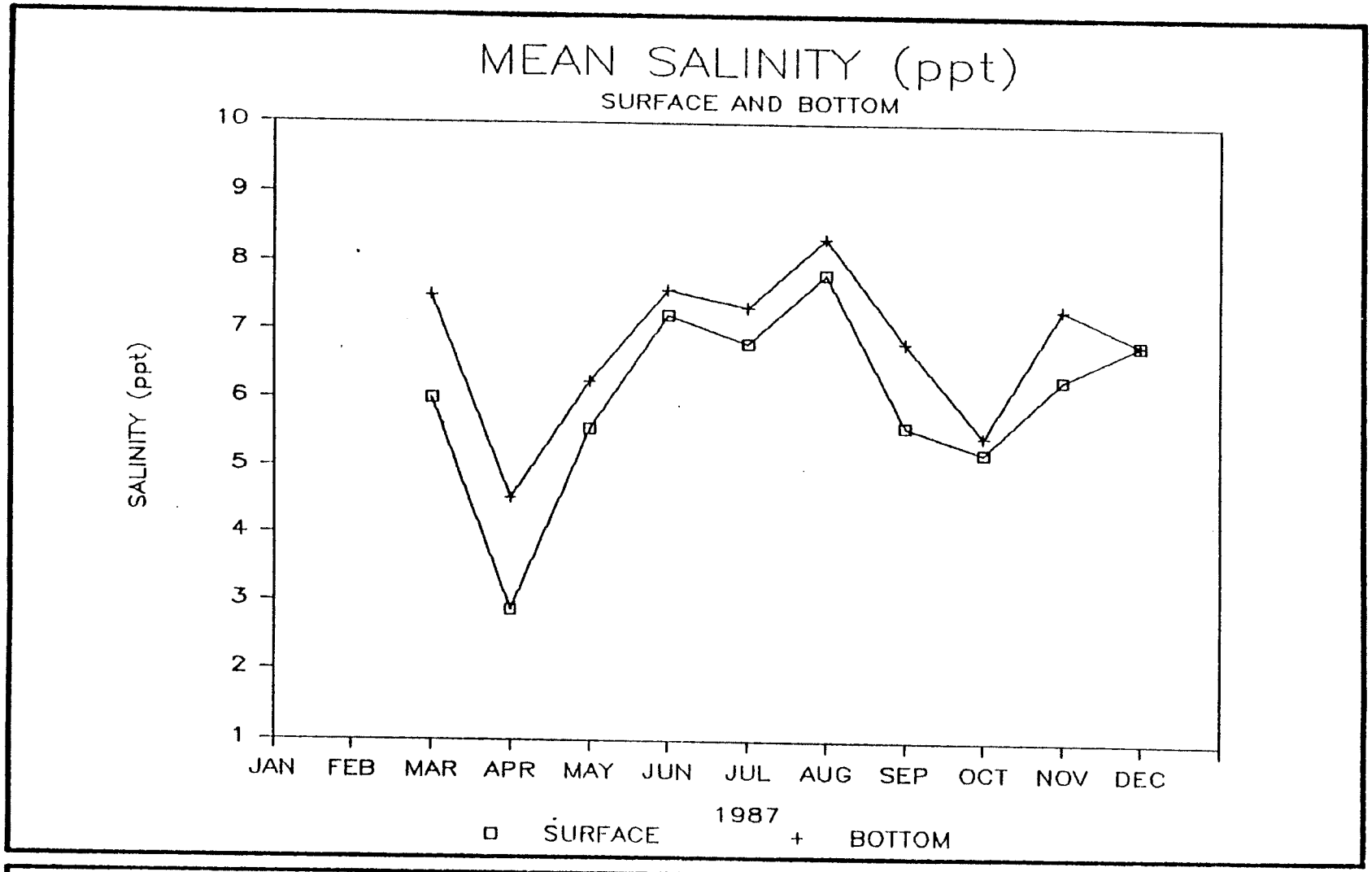
Figure 4.0-3



PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Monthly mean dissolved oxygen, as measured during field sampling excursions, in the Delaware River off SGS during 1987.
	Figure 4.0-4



PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Daily mean salinity values measured during field sampling excursions in the Delaware River off SGS during 1987.
	Figure 4.0-5



PUBLIC SERVICE ELECTRIC AND GAS COMPANY	Monthly mean salinity, as measured during field sampling excursions, in the Delaware River off SGS during 1987.
	Figure 4.0-6

SECTION 5.0
LITERATURE CITED

Carr, A. 1952. Handbook of turtles. Comstock Publishing Assoc., Cornell Univ. Press, Ithaca, NY. 542 p.

DEDNREC (Delaware Department of Natural Resources and Environmental Control). 1981. List of endangered and threatened species (potentially found) in Delaware. 1 p.

Hildebrand, S. F. 1932. Growth of diamondback terrapins, size attained, sex ratios and longevity. Zoologica 9(15):551-563.

Lawler, A. R. and J. A. Musick. 1972. Sand beach hibernation by a northern diamondback terrapin, Malaclemys terrapin terrapin (Schoepff). Copeia 1972(3):389-390.

NJAC. 1984. New Jersey Administrative Code 7:25-4.17 as amended May 6, 1985.

PSE&G (Public Service Electric and Gas Co.). 1978. Biotic environmental surveillance. Vol. 2 of 3, Annual environmental operating report (nonradiological). SNGS - Unit No. 1, January 1 through December 31, 1977. 679 p.

_____. 1985. Methods, Materials, and Rationale. Appendix I in Salem Generating Station 316(b) Demonstration. Public Service Electric & Gas Co., Newark, NJ.

USDI (U.S. Department of Interior). 1973. Threatened wildlife of the U.S. Bur. Sport Fish and Wildlife Resource Publ. 114. 289 p.

_____. 1979. List of endangered and threatened wildlife and plants. 50 CFR 17.11 and 17.12.