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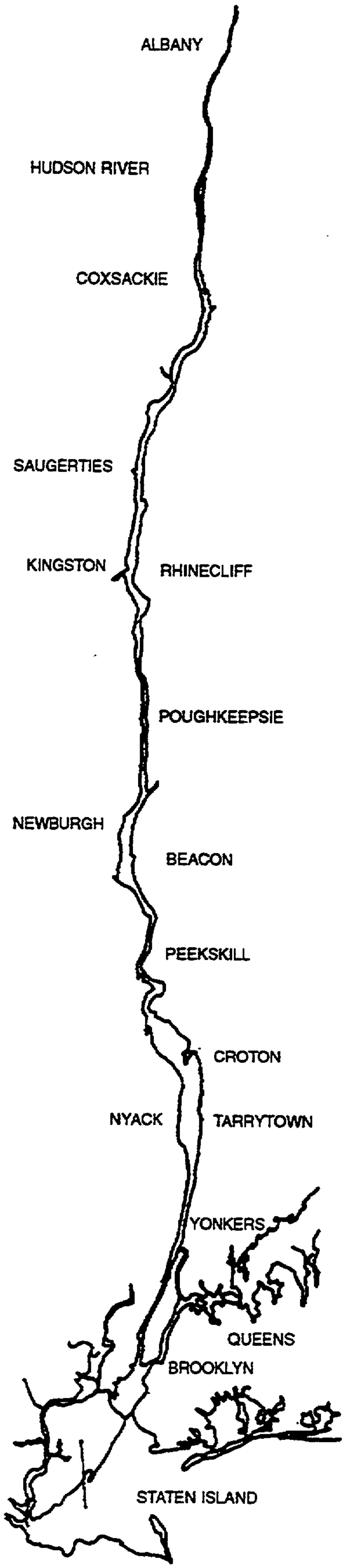

1992

YEAR CLASS REPORT

for the Hudson River Estuary Monitoring Program

Prepared by

Consolidated Edison Company of NewYork, Inc.

Jointly Funded by

Central Hudson Gas and Electric Corporation

Consolidated Edison Company of New York, Inc.

New York Power Authority

Niagara Mohawk Power Corporation

Orange and Rockland Utilities, Inc.

Con Edison

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FOR THE HUDSON RIVER ESTUARY
MONITORING PROGRAM

Prepared by

Consolidated Edison Company of New York, Inc.
New York, New York

April 1996

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CHAPTER 1
INTRODUCTION

Since 1973, an annual Year Class Report has been prepared for five utilities: Central Hudson Gas and Electric Corporation; Consolidated Edison Company of New York, Inc.; New York Power Authority; Niagara Mohawk Power Corporation; and Orange and Rockland Utilities, Inc. The main purpose of the reports has been to present and analyze data on the distribution and abundance of early life stages of selected fish species based on surveys conducted throughout the Hudson River estuary.

The first report, First Multiplant Report (TI 1975), summarized estuary-wide data collected to estimate the impact of five electric generating stations on striped bass, white perch, and Atlantic tomcod. The multiplant effort was refined and renamed the Year Class Report for the 1974 data (TI 1977). Patterns of abundance and distribution of early life stages were examined in greater detail in the 1975 report, but impacts of station operations were not estimated (TI 1978). The 1976 report (TI 1979) expanded the focus to include ecological relationships of selected fish populations. In the 1977 and 1978 reports (TI 1980a,b), the life histories and distributional information on nine additional fish species were included. Data analysis of the 1979 report (TI 1981) was also extended to include predictions of environmental impact based on fish population age structure and age-specific survival. Further statistical analyses of biocharacteristics data available from 1973 to 1979 were included for the three initial key species.

The Hudson River Settlement Agreement among the Utilities, the U.S. Environmental Protection Agency, and other interested parties was announced in 1980 and became effective in May 1981 (Sandler and Schoenhard 1981). The 1980-1981 Year Class Report (Battelle 1983), the first one prepared after execution of the Settlement Agreement, continued the presentation of life history and population dynamics studies of selected Hudson River estuary fish species. The 1981 study program was also the first in which the length of the sampling season was reduced to focus on the period when most Hudson River fish were maturing from the larval to juvenile stage. The 1982 Year Class Report (NAI 1985a) was similar in content to the 1980-1981 report, but the estimation of year class strength was extended to include a fall index. In addition to the basic survey results, the 1983 report (NAI 1985b) included data on the first recaptures of fish released from a striped bass hatchery that began operation in 1983. This report also examined the relationship between environmental variables and the early life histories of striped bass, white perch, and American shad. The 1984 Year Class Report (MMES 1986) contained the types of information presented in 1982 and 1983 reports, but placed additional emphasis on the indices of year class strength and their interpretation.

The 1985 Year Class Report (Versar 1987) described the results from the 1985 Longitudinal River Ichthyoplankton, Fall Shoals, and Beach Seine surveys. This report focused on: (1) the spatiotemporal distributions for 12 fish species with respect to life history and prevailing environmental factors; (2) year class strength indices, including development of a new index of year class strength for white perch, striped bass, American shad, and bay anchovy; and (3) factors that may influence year class strength for these four species.

The 1986 and 1987 Year Class Report (LMS 1989) described the results from the 1986 and 1987 Longitudinal River Ichthyoplankton, Fall Shoals, and Beach Seine surveys. This report continued the description of the spatiotemporal distribution for 12 selected species, as well as an assessment of trends in year class abundance and growth for a limited number of species as in the previous year class reports. In addition, this report described the historical patterns of variability in selected physical/chemical parameters which may influence fish distribution and abundance, estimated the influence of inclusion of previously unsampled regions on abundance and standing crop estimates, and described changes in the fish community of the Hudson River estuary over time.

The 1988, 1989, 1990 and 1991 Year Class Reports (EA 1990, 1991 and LMS 1992, 1996) describe the results of the 1988, 1989, 1990 and 1991 Longitudinal River Ichthyoplankton, Fall Shoals, and Beach Seine surveys. These reports focused on physical/chemical parameter patterns and spatiotemporal distribution for 12 selected species (rainbow smelt was added in the 1991 Year Class Report, for a total of 13 species), as well as assessments of trends in year class abundance and growth for a limited number of species following the pattern established in previous year class reports.

The present report adds to the historical database by describing the results of the Longitudinal River Ichthyoplankton, Fall Shoals, and Beach Seine surveys for 1992. The 1992 Year Class Report presents basic abundance and distribution data with the following objectives:

- Describe the patterns and variability of environmental parameters that may have affected fish distribution and abundance in the Hudson River estuary in 1992.

- Describe the distribution and abundance of 16 selected species of fish (Table 1-1) in the Hudson River estuary in 1992 and provide information on length frequency where applicable. Three additional species (bluefish, hogchoker, and gizzard shad) were added since they have been of interest to the NY State Department of Environmental Conservation (NYSDEC).

This report is organized into four chapters with supporting appendices. Data collection and analysis methods are described in Chapter 2. Physical and chemical parameters are described in Chapter 3 and spatiotemporal distribution of selected fish species is presented in Chapter 4. Detailed data tables supporting report analyses are contained within the appendix section as follows: Appendix A - Quality Assurance Program for the Ichthyoplankton, Fall Shoals and Beach Seine Laboratory Programs ; Appendix B - Physical/ Chemical Parameters; Appendix C - Density and Standing Crop

TABLE 1-1 FISH SPECIES[a] TREATED IN DEPTH IN THE 1992 YEAR CLASS REPORT

Common Name	Scientific Name[b]
Alewife	*Alosa pseudoharengus*
American shad	*Alosa sapidissima*
Atlantic sturgeon	*Acipenser oxyrhynchus*
Atlantic tomcod	*Microgadus tomcod*
Bay anchovy	*Anchoa mitchilli*
Blueback herring	*Alosa aestivalis*
Bluefish	*Pomatomus saltatrix*
Gizzard shad	*Dorosoma cepedianum*
Hogchoker	*Trinectes maculatus*
Rainbow smelt	*Osmerus mordax*
Shortnose sturgeon	*Acipenser brevirostrum*
Spottail shiner	*Notropis hudsonius*
Striped bass	*Morone saxatilis*
Weakfish	*Cynoscion regalis*
White catfish	*Ictalurus catus*
White perch	*Morone americana*

a. Species identified by NYSDEC as of interest for discharge permitting purposes.
b. Names recognized by American Fisheries Society (Robins et al. 1980).

Estimates; Appendix D - Length-Frequency Distribution; and Appendix E - Numbers of fish/species collected in ichthyoplankton, beach seine and fall shoals sampling programs, 1988-1992.

CHAPTER 2
MATERIALS AND METHODS

2.1 SAMPLING DESIGN

Several fishery techniques were employed in three separate sampling programs to obtain comprehensive information on the abundance and distribution of selected larval, young-of-year, and adult fish species in the Hudson River estuary. Temporally, the programs covered spring through fall, the period of greatest biological activity in north temperate waters. Program-specific techniques were employed to adequately sample all habitats and permit the determination of spatial distribution patterns. The three programs followed the same general design and employed gear similar to that of previous Hudson River sampling programs.

The three sampling programs that made up the overall program and their objectives were:

Longitudinal River Ichthyoplankton Survey (LRS). The entire length of the Hudson River estuary, from River Mile (RM) 1 at the Battery to RM 152 at the Federal Dam in Troy, was sampled to provide ichthyoplankton data that would allow calculations of standing crop, mortality, and growth rates for selected Hudson River fish species. The primary species were Atlantic tomcod (*Microgadus tomcod*), American shad (*Alosa sapidissima*), striped bass (*Morone saxatilis*), white perch (*M. americana*) and bay anchovy (*Anchoa mitchilli*). LRS sampling was concentrated during the spring, summer and early fall when eggs and larvae of the primary species were usually abundant.

Fall Shoals Survey (FSS). Samples were collected every other week from the George Washington Bridge to the Troy Dam in midsummer and fall. The objective was to provide data on young-of-year fish that would allow calculation of standing crops and conditional mortality rates for selected Hudson River fish species. The target species were Atlantic tomcod, American shad, striped bass, and white perch.

Beach Seine Survey (BSS). Beach seine samples were collected in alternate weeks with the FSS at stations from the George Washington Bridge to the Troy Dam. The objective was to obtain distribution and relative abundance information on young-of-year American shad, Atlantic tomcod, striped bass, and white perch while they were concentrated primarily in the shallow, near-shore region. The survey was conducted from mid-June through October, when young-of-year of these species were utilizing the shore zone nursery.

Sampling for all programs was conducted according to a stratified random design in which the Hudson River estuary from the George Washington Bridge (River Mile [RM] 12) to the Federal Dam at Troy (RM 152) was divided into 12 regions (Figure 2-1). For LRS, an additional region from the Battery (RM 1) to the George Washington Bridge was sampled

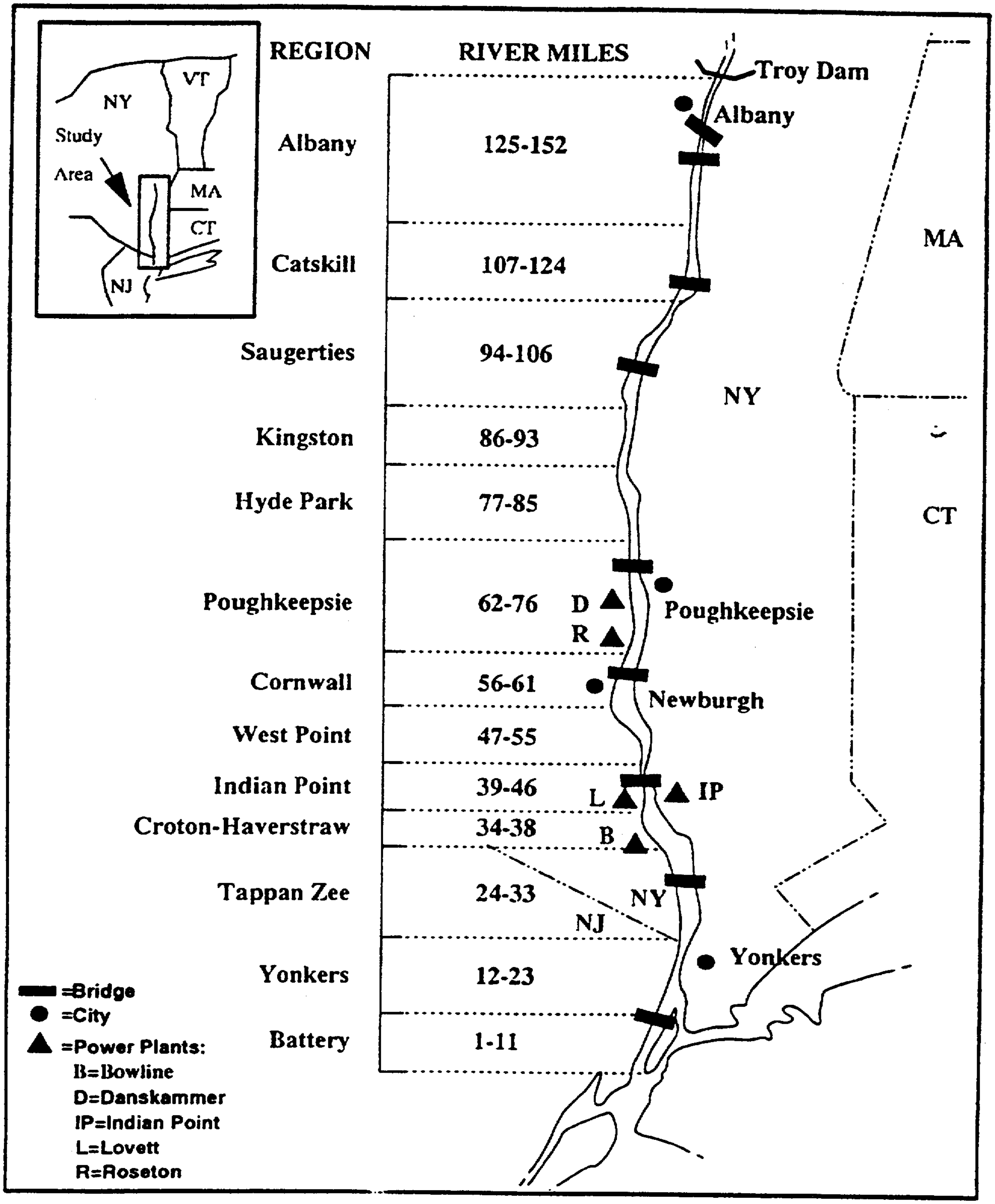


Fig 2-1. Location of 13 geographic regions (with river mile boundaries) sampled during 1992 field sampling programs in the Hudson River estuary.

in 1992. Each region was further divided into "strata" on the basis of river depth. The strata based on river depth are graphically presented in Figure 2-2 and defined below:

- Shore - that portion of the Hudson River estuary extending from the shore to a depth of 10 ft (the stratum defined only for BSS).

- Shoal - that portion of the Hudson River estuary extending from the shore to a depth of 20 ft at mean low tide.

- Bottom - that portion of the Hudson River estuary extending from the bottom to 10 ft above the bottom where river depth is greater than 20 ft at mean low tide.

- Channel - that portion of the Hudson River estuary not considered bottom where river depth is greater than 20 ft at mean low tide.

The proportional relationships of the shoal, bottom, and channel strata vary over the length of the Hudson River estuary. Presented in Figure 2-2 are three types of cross-sectional views. The low relief sectional is characteristic of the Tappan Zee and Croton-Haverstraw regions, the high relief sectional is exemplified by the Yonkers and Poughkeepsie regions, and the fjord relief sectional represents the West Point region.

A minimum of two samples were assigned to each stratum in most regions for the LRS. However, no samples were scheduled in the Battery region during the first half of the LRS (April 12 through June 6) or in the Hyde Park through Albany regions during the final seven weeks of the LRS (July 12 through October 17). A minimum of three samples were assigned to each stratum in each region for the FSS and a minimum of three samples were also taken in each region for the BSS. The strata actually sampled in each region during the 1992 survey period are given in Table 2-1. Shoal strata samples were not assigned in upriver regions nor were shoal or shore strata samples assigned in the Battery region.

A general summary of the three sampling programs for the annual study is presented in Table 2-2. The field and laboratory methods used for each survey are described in detail in the following sections.

2.2 LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY

2.2.1 Field Methods

The 1992 LRS covered 27 weeks from 12 April to 17 October (Table 2-2 and Figure 2-5) with all sampling conducted at night. Sampling was conducted weekly for the first 8 weeks between RM 12 and RM 152. For the next 5 consecutive weeks, sampling encompassed RM 1 - RM 152. Beginning the week of 19 July and ending the week of 11 October, sampling was conducted biweekly between RM 1 and 76. Between 24 May and 11 July an additional 20 trawl (channel strata) samples were collected per week. The samples were preserved so that aging of striped bass larvae using daily otolith rings could be conducted.

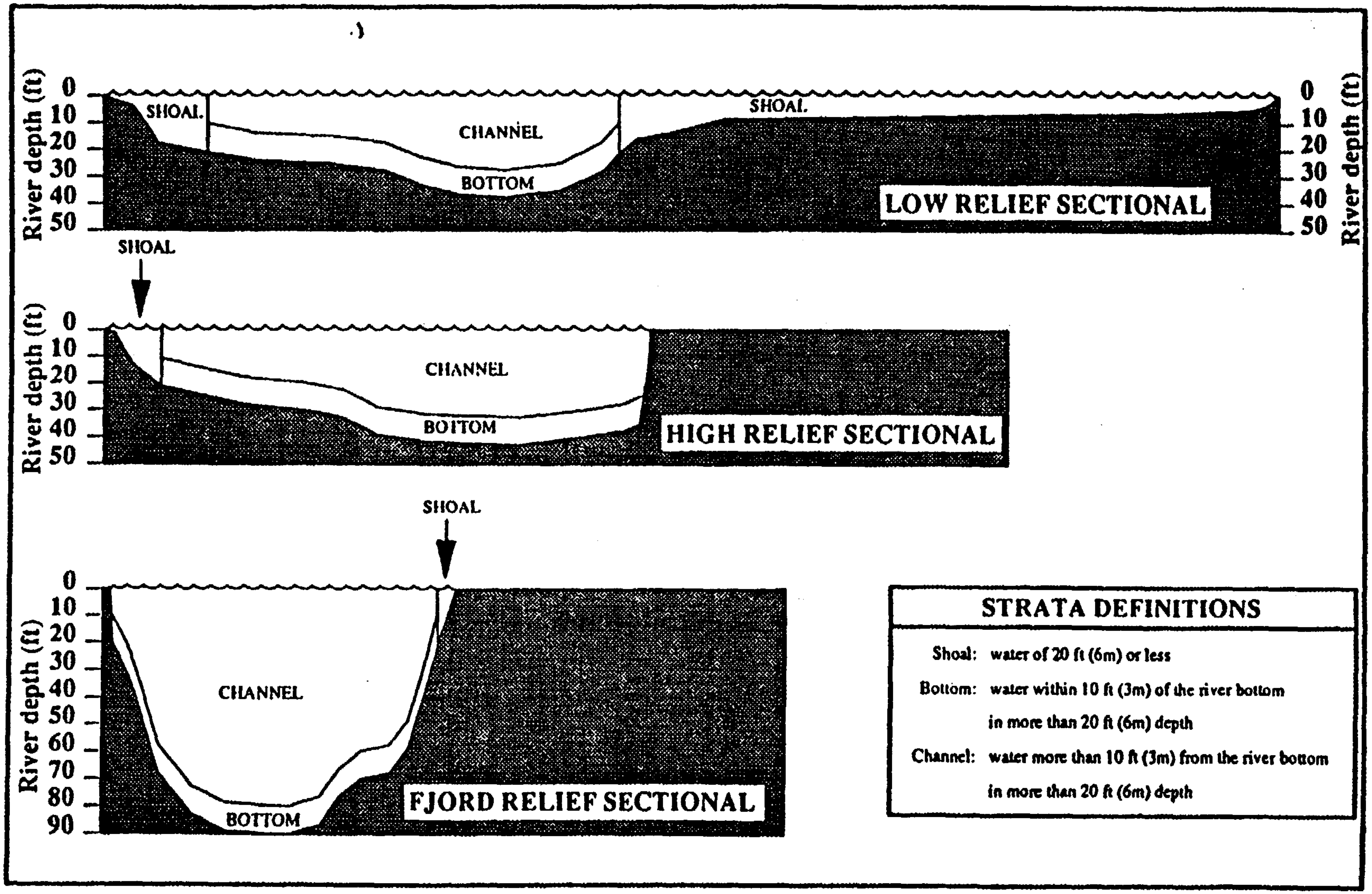


Figure 2-2. Cross sections of the Hudson River estuary showing locations and typical proportional relationships of the shoal, bottom and channel strata.

TABLE 2-1 STRATA SAMPLED WITHIN THE 13 GEOGRAPHIC REGIONS OF THE HUDSON RIVER ESTUARY DURING 1992

Region	Abbreviation	River Miles	River Kilometers	1992 Survey Shore	1992 Survey Shoal	1992 Survey Channel	1992 Survey Bottom
Battery	BT	1-11	1-19	--	--	X	X
Yonkers	YK	12-23	19-39	X	X	X	X
Tappan Zee	TZ	24-33	39-55	X	X	X	X
Croton-Haverstraw	CH	34-38	55-63	X	X	X	X
Indian Point	IP	39-46	63-76	X	X	X	X
West Point	WP	47-55	76-90	X	--	X	X
Cornwall	CW	56-61	90-100	X	X	X	X
Poughkeepsie	PK	62-76	100-124	X	--	X	X
Hyde Park	HP	77-85	124-138	X	--	X	X
Kingston	KG	86-93	138-151	X	--	X	X
Saugerties	SG	94-106	151-172	X	--	X	X
Catskill	CS	107-124	172-201	X	--	X	X
Albany	AL	125-152	201-246	X	--	X	X

NOTE: Dashes (--) indicate no sampling scheduled.

TABLE 2-2 SUMMARY OF 1992 HUDSON RIVER SURVEYS

Program Phase	Sampling Schedule		Number of River Runs	Sampling Frequency	Strata Sampled	Sample Number			Sampling Gear
	Start Date	End Date				Collection Projected	Collection Actual	Lab Analysis	
Longitudinal River Ichthyoplankton Survey	13 APR	15 OCT	20	Weekly/ Biweekly	Shoal	502	502	415	1.0-m^2 net on epibenthic sled or 1.0-m^2 Tucker trawl
					Channel	1,687*	1,685	789	1.0-m^2 Tucker trawl
					Bottom	1157	1,158	782	1.0-m^2 net on epibenthic sled
Fall Shoals Survey	13 JUL	23 OCT	8	Biweekly	Shoal	512	512		3.0-m beam trawl
					Channel	440	440		1.0-m^2 Tucker trawl
					Bottom	728	728		3.0-m beam trawl
Beach Seine Survey	18 JUN	24 OCT	10	Biweekly	Shore	1,000	1,000		30.5-m beach seine

* Includes 141 samples collected for striped bass otolith analysis.

The allocation of sampling effort among river regions and strata was temporally adjusted in response to the projected presence and distribution of target species and life stages. The 1992 LRS sampling program was scheduled as five separate multiweek efforts. The first, which covered the last 3 weeks of April, was directed toward the collection of American shad eggs. The second effort covered the first 2 weeks of May and was designed to collect eggs of *Morone* spp. and American shad. The third effort encompassed the next 3 weeks from the middle of May through the beginning of June and targeted *Morone* spp. and American shad yolk-sac larvae. The fourth effort consisted of 5 weeks extending from the middle of June through the second week in July. This sampling effort was designed to collect *Morone* spp. and American shad post yolk-sac larvae. The LRS sampling program concluded with a 13-week period, sampled biweekly, from the middle of July to the middle of October. The final sampling effort was designed to collect all life stages of bay anchovy.

The allocation of sampling effort among regions and strata is given in Table 2-4. During 1992, 3,346 ichthyoplankton samples (including 141 striped bass otolith aging samples) were scheduled for collection; 3,345 samples were collected, accounting for 99.97 percent of the scheduled total.

Two gear types were used to sample the shoal, channel, and bottom strata in the LRS: a 1.0-m^2 Tucker trawl (Figure 2-3) to sample the channel strata, an epibenthic sled-mounted 1.0-m^2 net similar in design to the Tucker trawl (Figure 2-4) to sample the bottom strata, and both gear types to sample the shoal strata. Table 2-3 presents design specifications for the sampling gear.

Both gear types were towed against the prevailing current for 5 minutes. The tow started with the remote opening of the net and terminated with its remote closing. If the river depth was 20 ft or less, an open set and retrieval of the net was allowed. The tow speed for the trawl was approximately 0.9 m/second; for the epibenthic sled-mounted net, approximately 1.0 m/second. An electronic flowmeter mounted along the side of the research vessel and equipped with an on-deck readout display was used to establish and maintain tow speed. A calibrated digital flowmeter mounted in the center of the net mouth was used to calculate the volume of water filtered for each sample.

Following net washing and sample concentration in the codend bucket, the samples were examined for yearling and older fish. All of these fish were identified, enumerated, and returned to the Hudson River estuary. Special care was taken for sturgeon and for marked and tagged fish. After yearling and older fish were removed, the remaining sample was placed in container(s) so that the sample occupied no more than 25% of the container volume. The containers were filled with 10 percent formalin.

In situ measurements of water temperature (°C), dissolved oxygen (mg/liter), and specific conductance (microsieman/cm at 25 °C) were taken with calibrated meters at fixed river mile and strata stations in conjunction with the biological sampling. Physical/chemical sampling locations, by river mile and strata, are presented in Table 2-5 for the 1992 LRS. Physical/chemical measurements were recorded from surface, middepth, and bottom water depth at channel stations and from the surface and bottom water depth at shoal stations. During the 20 collection weeks of the 1992 LRS, 2,899 samples were scheduled, with 2,901 samples actually collected.

Ichthyoplankton samples collected for striped bass otolith aging were handled in the same manner as regularly scheduled LRS samples except that the preservative was 5 percent buffered formalin. Within 48 hours, the samples were drained and placed in 70 percent ethyl alcohol (ETOH).

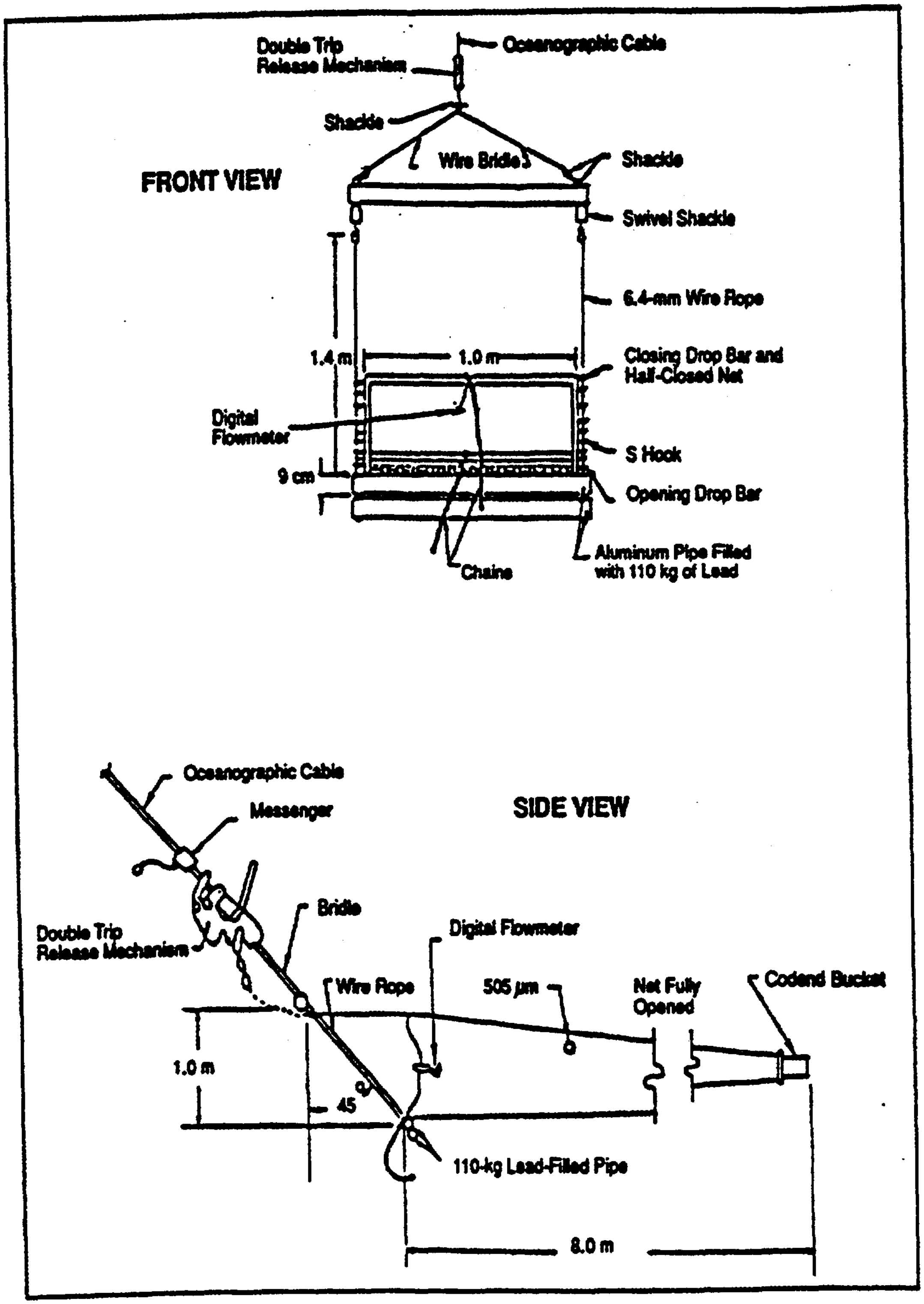


Figure 2-3. Design and dimensions of 1.0 m^2 Tucker trawl.

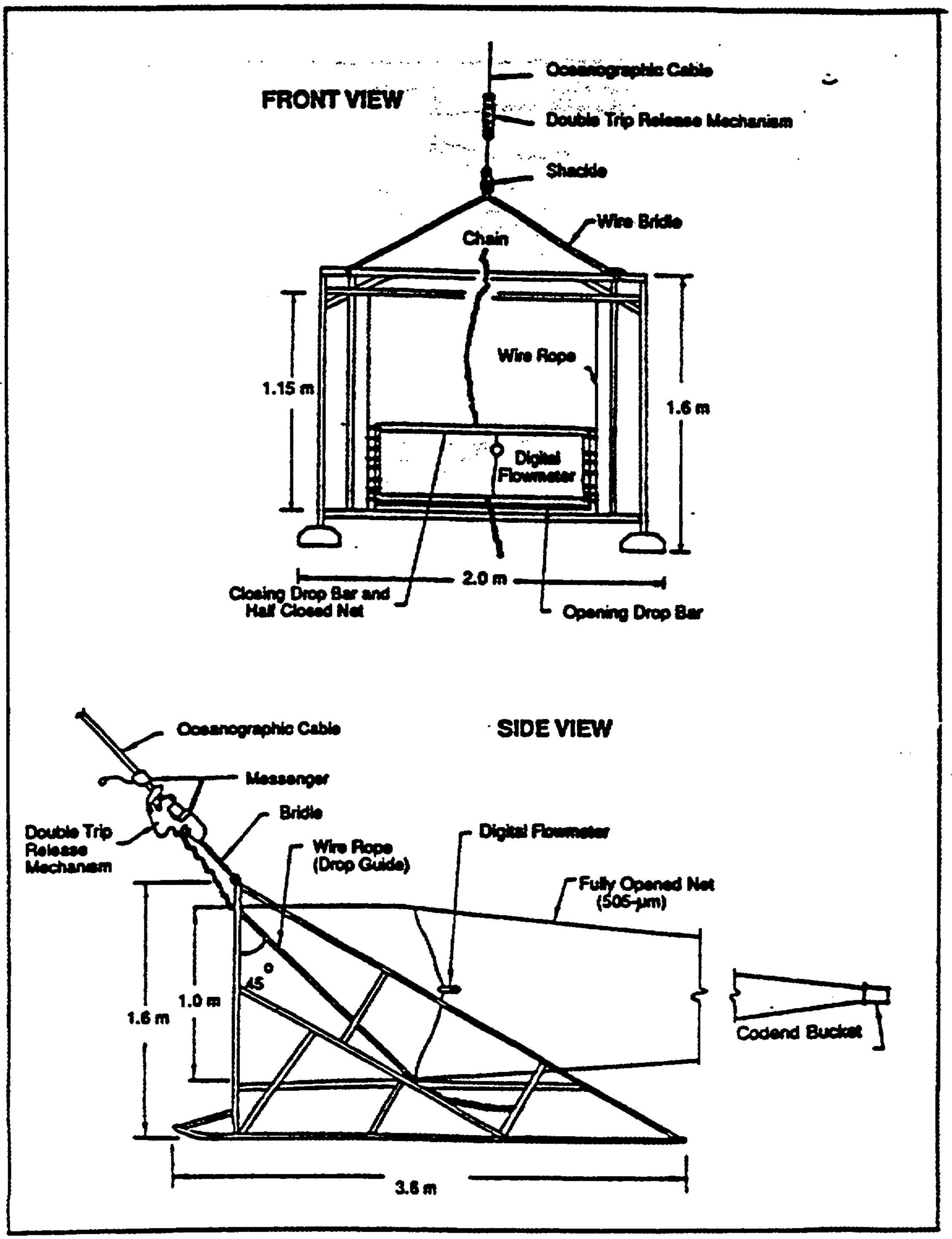


Figure 2-4. Design and dimensions of 1.0 m^2 Tucker trawl mounted on an epibenthic sled.

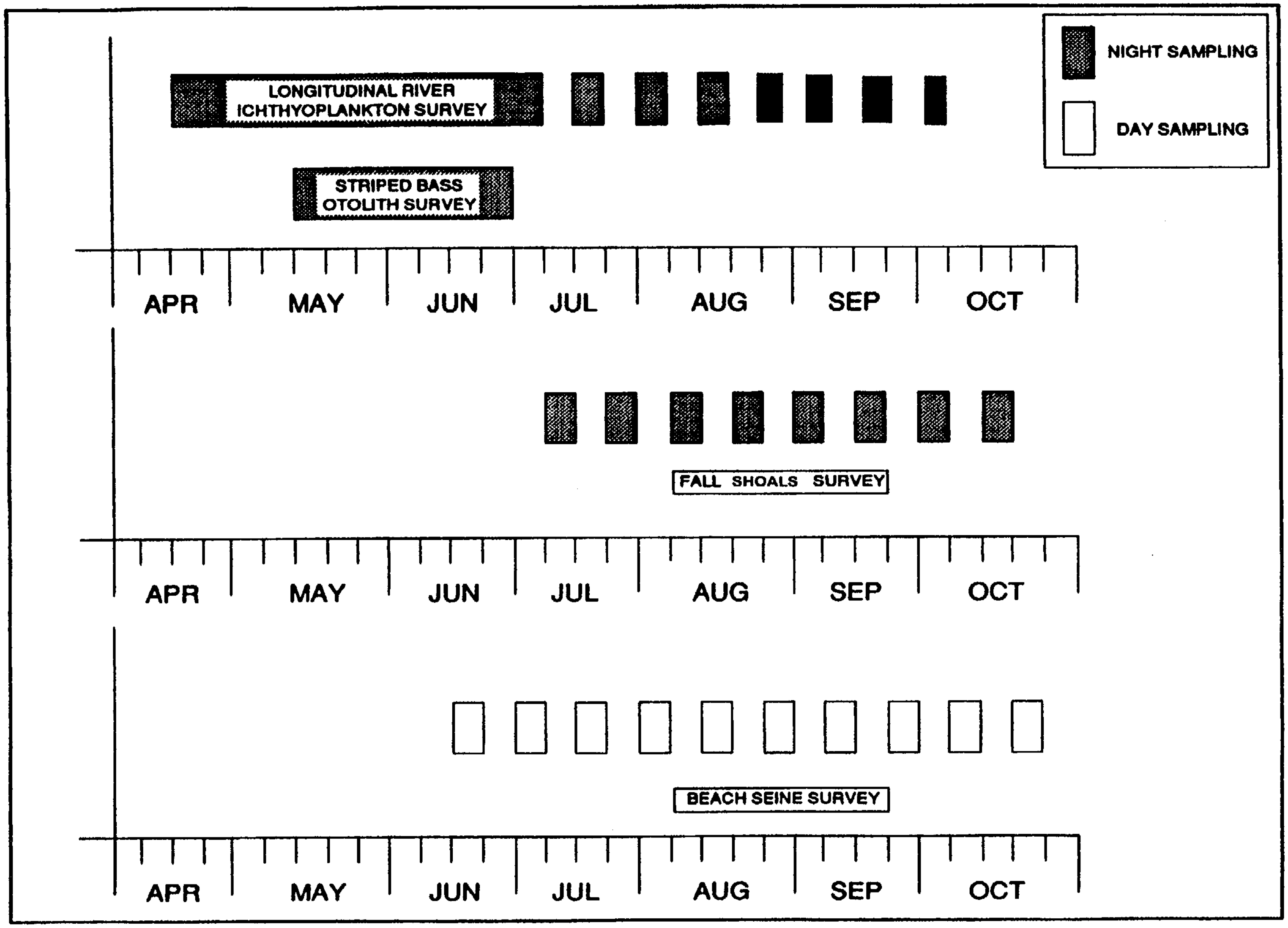


Figure 2-5. Sampling schedule for 1992

TABLE 2-3 SPECIFICATIONS OF SAMPLING GEAR USED DURING THE 1992 LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY

1.0-m^2 Tucker Trawl	
Length	8.0 m
Mouth (width)	1.0 m
Mouth (height)	1.4 m
Mesh size	500 mm
Net material	Nytex (monofilament nylon)
Collection cup	30 cm
Length	30 cm
Length with net-retaining ring	37 cm
Mesh size	500 mm
Net material	Nytex (monofilament nylon)
1.0-m^2 Net Mounted on Epibenthic Sled	
Length	8.0 m
Mouth (width)	1.0 m
Mouth (height)	1.4 m
Mesh size	505 mm
Net material	Nytex (monofilament nylon)
Collection cup	
Length	30 cm
Length with net-retaining ring	37 cm
Mesh size	500 mm
Net material	Nytex (monofilament nylon)

TABLE 2-4 SUMMARY OF 1992 SAMPLE COLLECTION INFORMATION BY RIVER REGION AND STRATUM FOR THE LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY

Region	3-Week Period From 12 APR To 2 MAY					2-Week Period From 3 MAY To 16 MAY					3-Week Period From 17 MAY To 6 JUN				
	Shoal		Channel	Bottom		Shoal		Channel	Bottom		Shoal		Channel	Bottom	
	Sled	Trawl	Trawl	Sled	Total	Sled	Trawl	Trawl	Sled	Total	Sled	Trawl	Trawl	Sled	Total
Battery	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Yonkers	6	6	9	9	30	4	2	6	6	18	6	3	9	9	27
Tappan Zee	12	9	12	12	45	4	2	6	8	20	6	3	12	12	33
Croton-Haverstraw	18	12	12	12	54	8	4	12	6	30	9	6	14	12	41
Indian Point	6	6	9	9	30	9	2	50	14	72	6	3	48	18	75
West Point	--	--	9	9	18	--	--	62	8	70	--	--	79	21	100
Cornwall	9	6	9	9	33	6	4	10	24	44	9	6	19	27	61
Poughkeepsie	--	--	9	9	18	--	--	20	20	40	--	--	76	48	124
Hyde Park	--	--	21	9	30	--	--	22	18	40	--	--	42	21	63
Kingston	--	--	18	24	42	--	--	14	12	26	--	--	18	12	30
Saugerties	--	--	18	30	48	--	--	6	6	12	--	--	9	15	24
Catskill	--	--	30	61	91	--	--	6	6	12	--	--	9	9	18
Albany	--	--	45	96	141	--	--	10	10	20	--	--	9	9	18
Total	51	39	201	289	580	28	14	224	138	404	36	21	344	213	614

Region	5-Week Period From 7 JUN To 11 JUL					13-Week Period From 12 JUL To 17 OCT				
	Shoal		Channel	Bottom		Shoal		Channel	Bottom	
	Sled	Trawl	Trawl	Sled	Total	Sled	Trawl	Trawl	Sled	Total
Battery	--	--	20	10	30	--	--	56	21	77
Yonkers	10	10	35	29	84	14	14	49	21	98
Tappan Zee	10	10	33	25	78	28	21	28	21	98
Croton-Haverstraw	15	10	40	30	95	42	28	28	21	119
Indian Point	15	10	100	25	150	14	14	21	21	70
West Point	--	--	149	40	189	--	--	21	21	42
Cornwall	10	10	79	61	160	14	14	21	21	70
Poughkeepsie	--	--	90	35	125	--	--	21	21	42
Hyde Park	--	--	55	25	80	--	--	--	--	--
Kingston	--	--	30	20	50	--	--	--	--	--
Saugerties	--	--	10	20	30	--	--	--	--	--
Catskill	--	--	15	15	30	--	--	--	--	--
Albany	--	--	15	15	30	--	--	--	--	--
Total	60	50	671	350	1131	112	91	245	168	616

NOTE: Dashes (--) indicate no sampling scheduled.

TABLE 2-5 WATER QUALITY SAMPLING LOCATIONS DURING THE 1992 LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY

River Region	Sampling Locations (RM) Samples Scheduled		Number of Water Quality Samples Collected
	Shoals*	Channel	Per Region Per Run
Yonkers	19	14, 17, 19, 22	16
Tappan Zee	29	25, 27, 29, 32	16
Croton-Haverstraw	36	35, 36, 37, 38	16
Indian Point	43	40, 42, 43, 46	16
West Point	--	49, 51, 53, 55	12
Cornwall	59	56, 57, 59, 61	16
Poughkeepsie	--	63, 67, 71, 75	12
Hyde Park	--	78, 80, 82, 84	12
Kingston	--	87, 89, 91, 93	12
Saugerties	--	96, 99, 102, 105	12
Catskill	--	109, 114, 118, 122	12
Albany	--	126, 131, 135, 138, 142	15
Total			167

* Sample collected from east and west shoals at designated river mile.

NOTE: Dashes (--) indicate no sampling scheduled.

2.2.2 Laboratory Methods

In 1992, approximately 60 percent of the regular LRS samples were scheduled for analysis. Selection of samples for laboratory analysis began with the grouping of all samples according to river run, region, and strata. Based on these groupings, samples were selected based on one of the following criteria:

1. If there were less than 6 samples in the group, then all were selected for analysis.

2. If there were between 6 and 12 samples in the group, then 50 percent of the samples were randomly selected for analysis.

3. If there were more than 12 samples in the group, then 20 percent of the samples were randomly selected for analysis.

The allocation of samples for laboratory analysis among regions, strata, and gear types based on these criteria is listed in Table 2-6. The total number of analyzed samples was 1,986, comprising 61.98 percent of the collected regular samples.

In 1992 as in the previous year, splitting (or subsampling) was permitted. A trained technician first determined if the sample needed splitting. This was done by visual inspection. Any sample containing large numbers of eggs may have been split so that eggs were only sorted from one or more splits containing a total of at least 250 eggs (all species combined).

There were two different sets of criteria for subsampling larvae, depending on the river run. Beginning with the river run in which striped bass post yolk-sac larvae first appeared, and for the next eight river runs (a total of nine consecutive river runs), a minimum of 500 *Morone* larvae (i.e., the combined total of yolk-sac larvae, post yolk-sac larvae, and juveniles of striped bass, white perch, and unidentified *Morone*) were sorted from the entire sample and a minimum of 500 non-*Morone* larvae must be sorted. Because some of the more difficult distinctions between species (e.g., striped bass vs. white perch) or between life stages could not be made reliably during sorting, samples from these nine river runs were usually sorted in their entirety for larvae (i.e., yolk-sac larvae, post yolk-sac larvae, and young of year combined) of all species combined. An exception to this may have been made, at the discretion of the laboratory supervisor, under the following circumstances: when extremely large numbers of non-*Morone* larvae occurred in the sample and a qualified identifier has verified that sufficient numbers of both *Morone* larvae and non-*Morone* larvae are sorted to meet their respective subsampling quotas. The purpose of this exception was to allow splitting before sorting of taxa such as clupeids which could readily be distinguished from *Morone* by sorters.

The second set of criteria for subsampling larvae applied to the six other river runs not covered in the previous paragraph (before and after the period of striped bass abundance). Any sample from these river runs may have been subsampled so that larvae were sorted from one or more splits containing at least 100 larvae (i.e., yolk-sac larvae, post yolk-sac larvae, and young of year combined) of all species combined.

TABLE 2-6 SUMMARY OF 1992 SAMPLE ANALYSIS INFORMATION BY RIVER REGION AND STRATUM FOR THE LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY

Region	3-Week Period From 12 APR To 2 MAY					2-Week Period From 3 MAY To 16 MAY					3-Week Period From 17 MAY To 6 JUN				
	Shoal		Channel	Bottom		Shoal		Channel	Bottom		Shoal		Channel	Bottom	
	Sled	Trawl	Trawl	Sled	Total	Sled	Trawl	Trawl	Sled	Total	Sled	Trawl	Trawl	Sled	Total
Battery	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Yonkers	6	6	9	9	30	4	2	6	6	18	6	3	9	9	27
Tappan Zee	8	4	12	12	36	4	2	6	8	20	6	3	12	12	33
Croton--Haverstraw	11	4	12	12	39	4	2	6	6	18	9	6	12	12	39
Indian Point	6	6	9	8	29	6	2	11	8	26	6	3	9	9	27
West Point	--	--	9	9	18	--	--	12	8	20	--	--	15	12	27
Cornwall	8	6	6	9	32	6	4	10	12	32	9	6	15	15	45
Poughkeepsie	--	--	9	9	18	--	--	10	10	20	--	--	12	9	21
Hyde Park	--	--	12	8	20	--	--	12	10	22	--	--	18	12	30
Kingston	--	--	9	12	21	--	--	8	6	14	--	--	9	12	21
Saugerties	--	--	9	15	24	--	--	6	6	12	--	--	9	15	24
Catskill	--	--	15	13	28	--	--	5	5	11	--	--	9	9	18
Albany	--	--	9	18	27	--	--	10	9	19	--	--	9	9	18
Total	39	26	123	134	322	24	12	103	94	233	36	21	138	135	330

Region	5-Week Period From 7 JUN To 11 JUL					13-Week Period From 12 JUL To 17 OCT				
	Shoal		Channel	Bottom		Shoal		Channel	Bottom	
	Sled	Trawl	Trawl	Sled	Total	Sled	Trawl	Trawl	Sled	Total
Battery	--	--	20	10	30	--	--	28	21	49
Yonkers	10	10	20	15	55	14	14	28	21	77
Tappan Zee	10	10	25	25	70	17	11	28	21	77
Croton-Haverstraw	15	10	15	15	55	21	14	28	21	84
Indian Point	15	10	15	24	64	14	14	21	21	70
West Point	--	--	25	20	45	--	--	21	21	42
Cornwall	10	10	15	30	65	14	14	20	21	69
Poughkeepsie	--	--	15	20	35	--	--	21	21	42
Hyde Park	--	--	25	25	50	--	--	--	--	--
Kingston	--	--	15	20	35	--	--	--	--	--
Saugerties	--	--	10	20	30	--	--	--	--	--
Catskill	--	--	15	13	28	--	--	--	--	--
Albany	--	--	15	14	29	--	--	--	--	--
Total	60	50	230	251	591	80	67	195	168	510

NOTE: Dashes (--) indicate no sampling scheduled.

To eliminate any chance of bias, some steps in the splitting procedure were performed by an assistant so that the sorter had no prior knowledge of which splits were to be used for the analysis. This procedure is explained in Figure 2-6.

Randomness of the splitting procedure was monitored and controlled by testing selected samples to determine whether splits from the same sample differed by more than random variation. Samples were selected to test for randomness by a continuous sampling plan, shown in Figure 2-7 (CSP-V from MIL-STD-1235B, AQL = 10 percent).

For each split sample evaluated, three fractions of the same size were sorted and compared by the chi-square test according to the following procedure. The counts of the three splits (including any quality control [QC] finds) were averaged to obtain the expected value for the sample. Chi-square was calculated as:

$$\text{chi square} = \frac{(O_1 - E)^2}{E} + \frac{(O_2 - E)^2}{E} + \frac{(O_3 - E)^2}{E}$$

where

O_1, O_2, and O_3 = observed counts for splits 1, 2, and 3
E = expected value for the sample (average of O_1, O_2, and O_3).

If the calculated value for chi-square was less than 5.99, then the splits of that sample were considered random, and the sample passed the split QC (5.99 was the critical value of chi-square with two degrees of freedom at an alpha level of 0.05). If a sample was split for both eggs and larvae, then both stages were tested separately. The sample passed the split QC only if chi-square was below the critical value for both life stages.

Eggs and larvae were separated from detrital material, sorted by major taxonomic group and life stage, counted, and placed in vials containing 5 percent formalin or in alcohol. Sorted samples were evaluated by a trained technician under magnification and all organisms were identified and enumerated. The following life stage designations were used in identification:

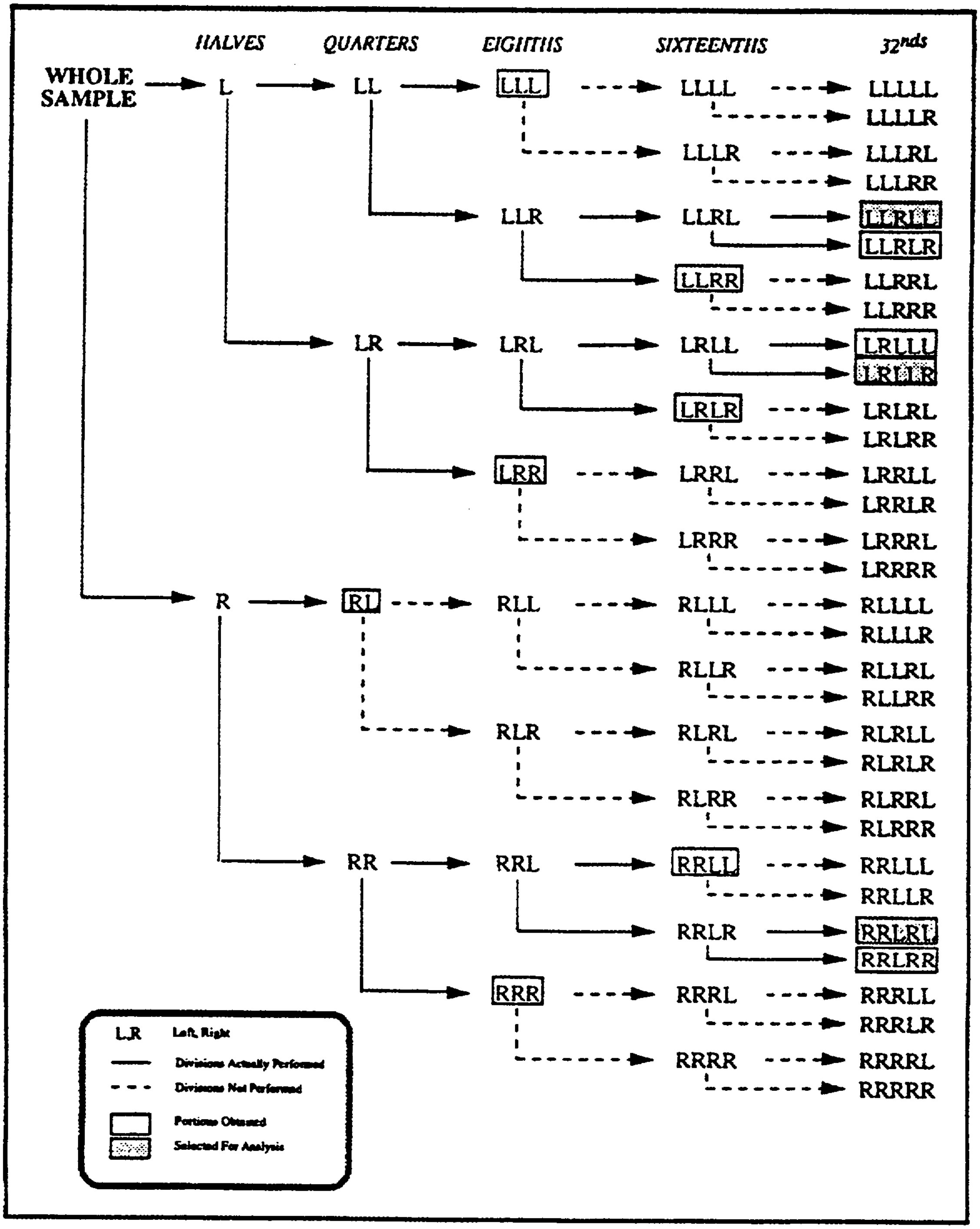


Figure 2-6. Conceptual diagram of the splitting process.

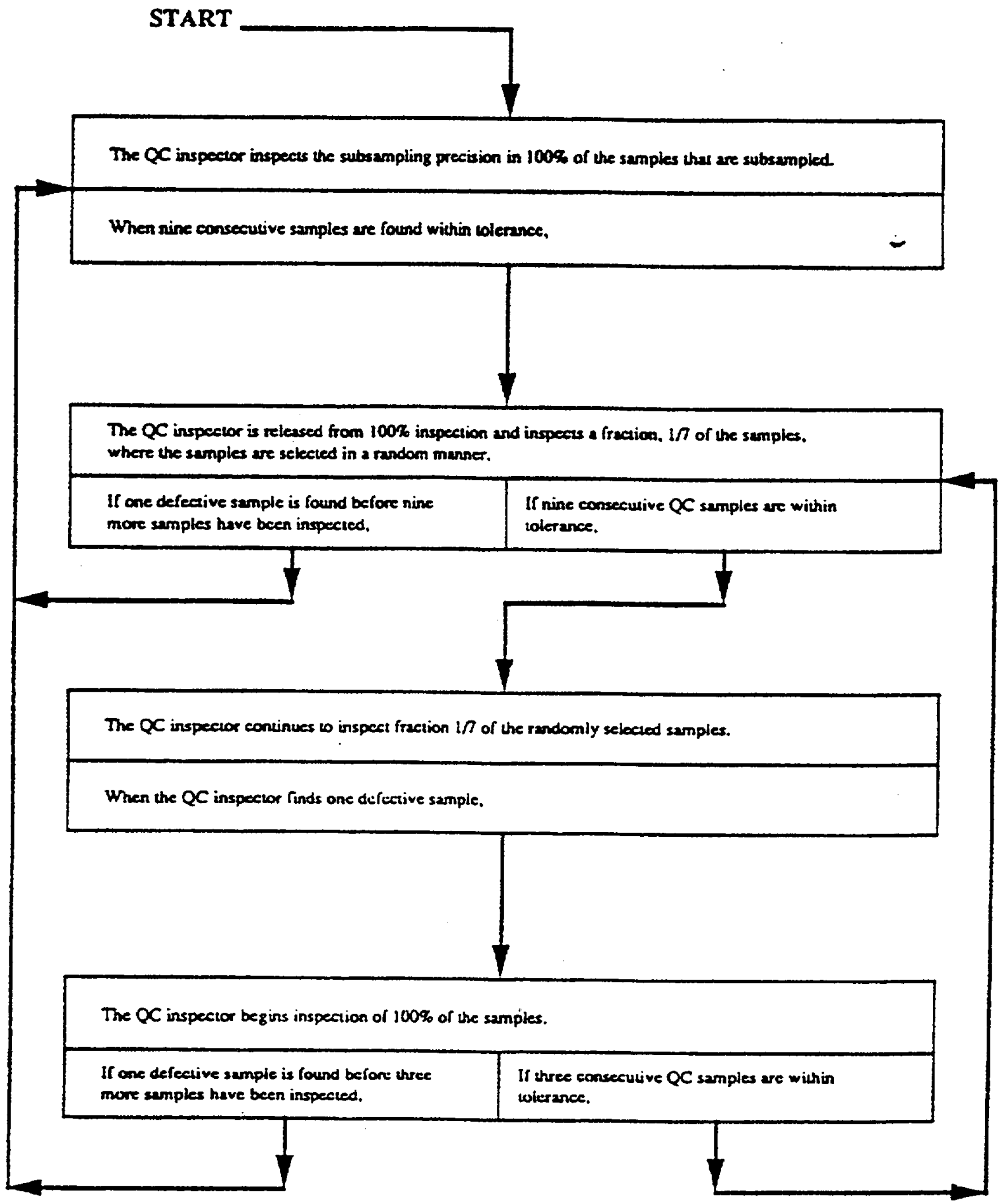


Figure 2-7. Inspection plan for evaluation of splitting precision.

Life Stage	Description
Egg	Embryonic stage from spawning to hatching
Yolk-Sac Larvae	From hatching to development of a complete and functional digestive system
Post Yolk-Sac Larvae	From development of a complete digestive system to acquisition of a full complement of adult fin rays
Young of Year	From acquisition of a full complement of adult fin rays to 31 December of the year spawned

Whenever possible, a maximum of 30 striped bass, 30 white perch, and 30 American shad per sample were measured. Organisms were chosen at random from each taxon regardless of life stage until the required numbers were obtained; life stages to be included were yolk-sac larvae, post yolk-sac larvae, and young of year. In addition, 30 striped bass eggs were measured and an aggregate dry weight taken from each of the five samples with the greatest number of striped bass eggs. Eggs (diameter) and yolk-sac larvae and post yolk-sac larvae (total length) were measured to the nearest 0.1 mm and young of year to the nearest 1 mm. Measurements were recorded on the laboratory data sheet. Selection of specimens for measuring was randomized by spreading them uniformly in a gridded container, selecting a starting point in the grid by means of a random number table, and then measuring the first 30 measurable specimens encountered in a predetermined pattern commencing at the starting point. Every grid space had an equal probability of being selected as the starting point, so every specimen had an equal probability of being included in the subsample.

Continuous sampling inspection was employed during the sort and identification procedures to ensure an average outgoing quality of <0.1. Two sampling modes were required in the continuous sampling plan (CSP-1):

> Mode 1: The first eight samples sorted or analyzed for larval identification by an individual are subject to 100 percent QC reanalysis. If all eight pass the reanalysis, i.e., if ≤10 percent of the ichthyoplankton are missed or misidentified per sample, the individual is placed in CSP Mode 2. If any sample fails during Mode 1, then Mode 1 is continued until eight consecutive samples pass. For example, if a sample with QC No. 7 fails, then samples with QC Nos. 8 through 15 are subject to QC resorting.
>
> Mode 2: Lots of seven consecutive samples per individual are assigned. One sample from each lot is randomly chosen for QC analysis. If a sample fails (>10 percent of organisms missed or misidentified) during Mode 2, that individual is placed back into Mode 1. For example, if a sample with QC No. 6 fails in a lot of seven samples, then samples with QC Nos. 7 through 14 are subject to QC reanalysis. If samples 7 through 14 pass, the individual is again placed in Mode 2.

Results of the 1992 CSP-1 QA/QC Program are contained in Appendix A.1.

2.3 FALL SHOALS SURVEY

2.3.1 Field Methods

A 1.0-m^2 Tucker trawl and a 3.0-m beam trawl were used to collect young-of-year fish in the FSS. The Tucker trawl with 3.0-mm mesh was used to collect samples in the channel strata, while the beam trawl (Figure 2-8) was used to sample the shoal and bottom strata. The latter gear was first used in this capacity in the 1985 FSS; prior to 1985 an epibenthic sled-mounted Tucker trawl was used (see Table 2-7 for design specifications for both trawl types).

Both gear types were towed against the prevailing current for approximately 5 minutes. For the Tucker trawl vessel speed is adjusted as necessary to achieve and maintain a 45° wire angle; the resultant tow speed is recorded. The beam trawl is towed speed of approximately 1.5 m/second. Tow speed was established and maintained by use of an electronic flowmeter mounted along the side of the research vessel and equipped with an ondeck readout display. A calibrated digital flowmeter mounted in the center of the net mouth was used to calculate the volume of water filtered for each sample.

The 1992 FSS biweekly sampling program covered 15 weeks from 9 July to 17 October (Figure 2-5), with all samples collected at night. Table 2-8 presents the distribution of the sampling effort among the 12 river regions by stratum for the 1992 FSS. In 1992, 1,680 samples were scheduled for collection; 1,680 samples, or 100.0 percent of the scheduled number were actually collected.

Calibrated meters were used to measure water temperature (°C), dissolved oxygen (mg/liter), and specific conductance (microsieman/cm at 25°C) at fixed river mile and strata stations in conjunction with field sampling. Sampling locations were the same as those used for the 1992 LRS sampling program (Table 2-5). Measurements of physical/chemical parameters were recorded during each biweekly FSS sampling period from surface, mid, and bottom water depths at channel stations and from surface and bottom water depths at shoal stations. During the 8 collection weeks of the 1992 FSS, 1,336 samples were scheduled and 1,333 samples were actually collected, or 99.8 of the number of samples scheduled for collection..

Samples collected during the first two sampling periods (River Runs 1 and 2) for the 1992 FSS program were preserved with 10 percent formalin at the time of collection and returned to the laboratory for analysis. Before preservation, samples were examined for sturgeon determined to be yearling or older, based on length categorization; live fish were returned to the river. Samples from the first two river runs were returned to the laboratory for analysis because of the difficulty in differentiating some species, especially young-of-year *Morone* (striped bass, white perch) and *Alosa* (alewife, blueback herring).

Samples collected following the second biweekly sampling period were evaluated in the field; only fish required to fill length measurement quotas were returned to the laboratory. The quota was to be 20 specimens of a selected species from each river region per run; because of the necessity of returning fish to the river alive, the first 20 specimens of a selected species were brought to the laboratory for length measurements. In 1992, the Hyde Park through Albany regions were considered one region for the purpose of filling length measurement quotas during the entire FSS and during River Runs 4 through 11 of the BSS. Also for the BSS during River Runs 1 through 3, the Yonkers through West Point regions

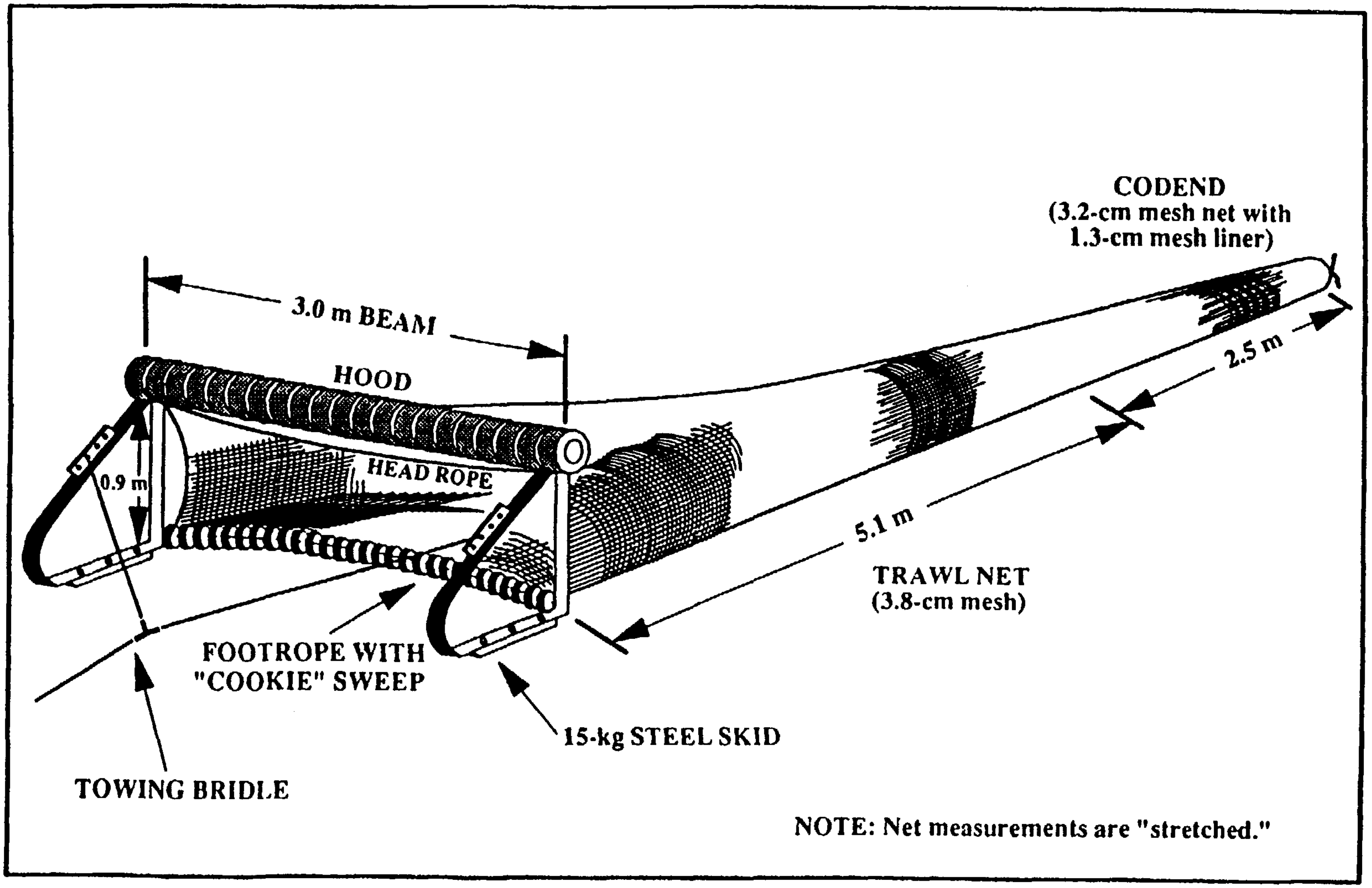


Figure 2-8. Design and dimensions of the 3.0 m beam trawl used in the 1992 Fall Shoals Survey.

TABLE 2-7 SPECIFICATIONS OF SAMPLING GEAR USED DURING THE 1992 FALL JUVENILE SURVEY

1.0-m^2 Tucker Trawl

Length	8.0 m
Mouth (width)	1.0 m
Mesh size	3.0 mm
Collection cage (codend)	
Length	81 cm
Diameter	41 cm
Mesh size	3.0 mm

3.0-m Beam Trawl

Length	7.6 m
Beam width	3.0 m
Net body	3.8-cm mesh (stretch)
Codend	3.2-cm mesh (stretch) net with 1.3-cm mesh (stretch) liner
Hood	3.8-cm mesh (stretch)
Footrope	Equipped with 5.1-cm rollers
Headrope	Equipped with three floats
Mouth area	2.7 m^2

TABLE 2-8 NUMBER OF BIWEEKLY SAMPLES COLLECTED DURING THE 1992 FALL SHOALS SURVEY

13 July - 23 October

Region	Strata			Total
	Shoal (Beam Trawl)	Channel (Tucker Trawl)	Bottom (Beam Trawl)	
Yonkers	56	40	40	136
Tappan Zee	240	64	64	368
Croton-Haverstraw	128	24	64	216
Indian Point	48	24	40	112
West Point	--	24	40	64
Cornwall	40	24	40	104
Poughkeepsie	--	24	40	64
Hyde Park	--	32	48	80
Kingston	--	48	72	120
Saugerties	--	48	96	144
Catskill	--	48	120	168
Albany	--	40	64	104
Total	512	440	728	1,680*

* All samples collected at night.

NOTE: Dashes (--) indicate no sampling scheduled.

were considered as one region for the same purpose. In river regions where fewer than 10 samples were collected per survey, no more than 10 specimens of each selected species from an individual sample were used to fill the length measurement quota. This criterion was used in the following surveys by river region:

Sampling Program	Region
BSS	YK, IP, WP, CW, PK
FSS	WP, PK

In all other regions, when the sample schedule resulted in 10 or more samples per survey, no more than five specimens per species in a sample were used to fill the length measurement quotas. If more specimens of a species were collected than needed, the individuals used to fill the quotas were randomly selected.

All fish not returned to the laboratory were identified and enumerated into length classes as described in the following section.

2.3.2 Laboratory Methods

Fish from the FSS identified and enumerated in both the field and laboratory were separated into the following length classes:

Length Class 1 - Less than or equal to the young-of-year length limit ("Division 1"), obtained on a weekly basis for each species.

Length Class 2 - Greater than Division 1 and less than or equal to the yearling length limit ("Division 2"); set at 150 mm for most species, also obtained weekly from the impingement contractor. From 1 January through 31 May, Division 2 represents the upper length limit for yearling fish for all species. From 1 June through 31 December, Division 2 is assigned a static value of 150 mm TL for all species except alewife, American shad, blueback herring, striped bass, Atlantic tomcod, and white perch. For these species, Division 2 is maintained as a dynamic upper length limit for yearling fish throughout the year.

Length Class 3 - Greater than Division 2 and less than or equal to 250 mm.

Length Class 4 - Greater than 250 mm.

Twenty specimens of the following selected species collected in each river region were measured for total length (nearest millimeter) in the laboratory:

- Alewife
- American shad
- Atlantic sturgeon
- Atlantic tomcod
- Bay anchovy
- Blueback herring
- Shortnose sturgeon
- Spottail shiner
- Striped bass
- Weakfish
- White catfish
- White perch

2.4 BEACH SEINE SURVEY

2.4.1 Field Methods

The BSS utilized a 30.5-m bag beach seine to collect young-of-year fish in the shore zone of each region. Table 2-9 presents specifications for the beach seine. One end of the net was held on shore and the other end was towed perpendicularly away from the shore by boat. The seine was then hauled, clockwise if possible, in a semicircular path toward shore. The complete tow swept an area of approximately 450 m^2 (TI 1981). All BSS samples were collected on a diurnal schedule during alternate weeks of the FSS.

The 1992 BSS biweekly sampling program was conducted from 22 June through 30 October (Figure 2-5). Ten of the 19 weeks in this time period were collection weeks. Allocation of the proposed 100 beach seine samples per river run by river region and the total number of samples collected for the 1992 BSS are presented in Table 2-10. All of the scheduled 1,000 samples projected for collection in 1992 were collected.

Measurements of water temperature (°C), dissolved oxygen (mg/liter), and specific conductance (microsieman/cm at 25°C) were taken with each beach seine sample. Physical/chemical measurements were taken 1 ft below the water surface and approximately 50 ft from the shoreline. During the 10 collection weeks of the 1992 BSS, 1,000 samples were scheduled and 1,000 samples were actually collected.

Young-of-year fishes collected during the first four beach seine river runs in 1992 were processed in the laboratory because of the difficulty in distinguishing species at the young-of-year life stage, adults were processed in the field. All samples collected following River Run 4 were field processed; 20 specimens of the selected species from each region per run were collected (as described in Section 2.3.1) for length determination in the laboratory. Samples maintained for laboratory analysis were preserved using 10 percent formalin.

All sturgeon collected during both the FSS and BSS in 1992 were measured to the nearest 1 mm and weighed to the nearest 1 g. Fish that remained alive were returned to the Hudson River estuary; dead fish were frozen and held for the New York State Department of Environmental Conservation (NYSDEC).

TABLE 2-9 SPECIFICATIONS OF SAMPLING GEAR USED DURING THE 1992 BEACH SEINE SURVEY

30.5-m Beach Seine

Number of wings	2
Length of wings	12.0 m
Depth of wings	2.4 m
Wing mesh (bar)	1.0 cm
Length of bag	6.1 m
Depth of bag	3.0 m
Bag mesh (bar)	0.5 cm
Sample area	450 m^2

TABLE 2-10 NUMBER OF BIWEEKLY SAMPLES COLLECTED DURING THE 1992 BEACH SEINE SURVEY

22 June - 30 October

Region	Number of Beaches Sampled
Yonkers	44
Tappan Zee	201
Croton-Haverstraw	119
Indian Point	44
West Point	44
Cornwall	51
Poughkeepsie	59
Hyde Park	59
Kingston	59
Saugerties	108
Catskill	126
Albany	85
Total	1,000

2.4.2 Laboratory Methods

All fish returned to the laboratory were measured for total length to the nearest 1.0 mm. Laboratory analysis was conducted in the same manner as described for samples collected during the FSS.

2.5 ANALYTICAL METHODS

2.5.1 Physical/Chemical Parameters

To display the spatial and temporal patterns of temperature, salinity, and dissolved oxygen, a mean of each parameter for each sampling location and sampling week, weighted by stratum volume, was calculated. Equation 1 was used to compute these means for the standard physical/chemical stations sampled in conjunction with the LRS and FSS. Equation 2 was used for data taken in conjunction with the BSS. Salinity data were computed from conductivity data (microsieman/cm at 25°C) using Equation 3 (TI 1976). This equation differs from that used in some of the previous Year Class Reports in that pressure data is not required. The maximum deviation between this equation and the previous equation is 0.1 percent (TI 1976).

$$W_{lw} = \sum_{k=1}^{n_{lw}} P_{kr} \left[1/n_{klw} \sum_{d=1}^{n_{klw}} \left(1/n_{dklw} \sum_{i=1}^{n_{dklw}} W_{idklw} \right) \right] \quad (1)$$

where

W_{lw} = Weighted mean of a physical/chemical parameter at sampling location l during week w of the LRS and FSS

W_{idklw} = Physical/chemical measurement for location i at depth d in stratum k at sampling location l during week w

P_{kr} = Proportion of the river volume of region r containing sampling location l that is contained by stratum k (bottom and channel strata were combined for water quality analysis)

n_{dklw} = Number of sites at which measurements were made at depth d in stratum k at sampling location l during week w

n_{klw} = Number of depths sampled in stratum k at sampling location l during week w

n_{lw} = Number of strata sampled at sampling location l during week w.

$$W_{rw} = 1/n_{rw} \sum_{i=1}^{n_{rw}} W_{irw} \qquad (2)$$

where

W_{rw} = Mean of a physical/chemical parameter at river mile r during biweek w of the BSS

W_{irw} = Physical/chemical measurement for location i at river mile r during biweek w

n_{rw} = Number of physical/chemical measurements taken at river mile r during biweek w.

$$\text{Salinity} = -100\, ln\left(1 - \frac{C_{25}}{178.5}\right) \qquad (3)$$

where

C_{25} = Conductivity (millisieman/cm at 25 C).

2.5.2 Spatiotemporal Distribution Indices

2.5.2.1 Density and Catch-Per-Unit-Effort (CPUE) Estimates

Estimates of population densities were made for the LRS and FSS. For these two surveys the number of fish (by species and life stage) in individual samples was first converted to density (no./m^3 of water sampled) using Equation 4. The mean density and the standard error of the mean were calculated for each stratum, region, and sampling week using Equations 5 and 6. To obtain a mean density and standard error for each region during each sampling week, the stratum densities were weighted by the proportion of the regional river volume found in the stratum (Equations 7 and 8). If a stratum was not sampled, its volume was added to the volume of an adjacent stratum that was sampled. Stratum volume adjustments were made according to the following rules:

If This Stratum Was Not Sampled	Its Volume Was Added To This Stratum
Shoal	Bottom
Bottom	Channel

$$D_{ikrw} = \frac{C_{ikrw}}{V_{ikrw}} \qquad (4)$$

where

D_{ikrw}	=	Density (for a life stage and species)/m^3 for sample i in stratum k in region r during week w
C_{ikrw}	=	Number of fish caught in sample i in stratum k in region r during week w
V_{krw}	=	Volume sampled (m^3) by sample i in stratum k in region r during week w.

$$D_{krw} = \frac{1}{n_{krw}} \sum_{i=1}^{n_{krw}} D_{ikrw} \qquad (5)$$

where

D_{krw}	=	Average density in stratum k in region r during week w
D_{ikrw}	=	Sample density calculated in Equation 4
n_{krw}	=	Number of samples taken in stratum k in region r during week w.

$$SE(D_{krw}) = \sqrt{\frac{\sum_{i=1}^{n_{krw}} (D_{ikrw} - D_{krw})^2}{(n_{krw})(n_{krw} - 1)}} \qquad (6)$$

where

$SE(D_{krw})$	=	Standard error of the average density in stratum k in region r during week w
D_{ikrw}	=	Sample density calculated in Equation 4
D_{krw}	=	Average stratum density calculated in Equation 5.

$$D_{rw} = \sum_{k=1}^{n_{rw}} (D_{krw})(P_k) \tag{7}$$

where

D_{rw} = Average density in region r during week w

D_{krw} = Average stratum density calculated in Equation 5

P_k^* = Proportion of the regional river volume found in stratum k (Table 2-11)

n_{rw} = Number of strata sampled in region r during week w.

$$SE(D_{rw}) = \sqrt{\sum_{k=1}^{n_{rw}} \left[SE(D_{krw})^2 (P_k)^2 \right]} \tag{8}$$

where

$SE(D_{rw})$ = Standard error of average density in region r during week w

$SE(D_{krw})$ = Standard error of the average stratum density calculated in Equation 6.

Catches from the BSS were reported as number caught per seine haul (CPUE) by life stage and species. The average CPUE for a region and its standard error were calculated using Equations 9 and 10:

$$C_{rw} = \frac{1}{n_{rw}} \sum_{i=1}^{n_{rw}} C_{irw} \tag{9}$$

where

C_{rw} = Average CPUE in region r during week w

*When a stratum is missing, P_k for the sampled stratum is equal to the sum of the P_k for the sampled stratum and the P_k for the unsampled stratum.

C_{irw} = CPUE for sample i in region r during week w

n_{rw} = Number of samples taken in region r during week w.

$$SE(C_{rw}) = \frac{\sum_{i=1}^{n_{rw}} (C_{irw} - C_{rw})^2}{n_{rw}(n_{rw} - 1)} \qquad (10)$$

where

$SE(C_{rw})$ = Standard error of average CPUE in region r during week w

C_{rw} = Average regional CPUE calculated in Equation 9.

2.5.2.2 Standing Crop Estimates

An index of standing crop (the number of fish in an area at a particular time) was estimated by life stage and species for each of the three surveys. Standing crop indices and the associated standard errors were calculated for each stratum in a region by taking the product of the average stratum density (or the standard error) and the volume of water contained in that stratum (Equations 11 and 12 for the LRS and FSS) (Table 2-11). The regional standing crop index was then estimated as the sum of the stratum index values (Equations 13 and 14). Similarly, an estimate of the standing crop index for the Hudson River estuary for each week was calculated by summing the standing crops for the 12 (13 for the LRS) river regions (Equations 15 and 16). This value is an index rather than an absolute standing crop values because no adjustment was applied for collection efficiency.

$$SC_{krw} = (V_{kr})(D_{krw}) \qquad (11)$$

where

SC_{krw} = Standing crop estimate for stratum k in region r during week w

V_{kr} = River volume contained by stratum k in region r

D_{krw} = Average stratum density calculated in Equation 5.

$$SE(SC_{krw}) = (V_{kr})[SE(D_{krw})] \qquad (12)$$

where

$SE(SC_{krw})$ = Standard error of the standing crop index for stratum k in region r during week w

TABLE 2-11 STRATUM AND REGION VOLUMES (m^3) AND SURFACE AREAS (m^2) USED IN ANALYSIS OF 1992 HUDSON RIVER ESTUARY DATA

Geographic Region	Channel Volume	Bottom Volume	Shoal Volume	Region Volume	Shorezone Surface Area
Battery*	141,809,822	48,455,129	18,747,833	209,012,784	*
Yonkers	143,452,543	59,312,978	26,654,767	229,420,288	3,389,000
Tappan Zee	138,000,768	62,125,705	121,684,992	321,811,465	20,446,000
Croton-Haverstraw	61,309,016	32,517,633	53,910,105	147,736,754	12,101,000
Indian Point	162,269,471	33,418,632	12,648,163	208,336,266	4,147,000
West Point	178,830,022	25,977,862	2,647,885	207,455,769	1,186,000
Cornwall	94,882,267	36,768,629	8,140,123	139,791,019	4,793,000
Poughkeepsie	228,975,052	63,168,132	5,990,260	298,133,444	3,193,000
Hyde Park	131,165,041	32,012,000	2,307,625	165,484,666	558,000
Kingston	93,657,021	35,479,990	12,332,868	141,469,879	3,874,000
Saugerties	113,143,296	42,845,077	20,307,338	176,295,711	7,900,000
Catskill	83,924,081	42,281,206	34,526,456	160,731,743	8,854,000
Albany	32,025,080	13,517,183	25,606,842	71,149,105	6,114,000
Total	1,603,443,480	527,880,156	345,505,257	2,476,828,893	76,555,000

* Shorezone surface area is unknown and not used in data analysis as no beach seine sampling is performed in the Battery region. Estimation of strata volumes for the Battery Region is described in the 1989 year class report (EA 1990).

$SE(D_{krw})$ = Standard error of average stratum density calculated in Equation 6.

$$SC_{rw}^{**} = \sum_{k=1}^{3} SC_{krw} \quad (13)$$

where

SC_{rw} = Standing crop index for region r during week w

SC_{krw} = Stratum standing crop index calculated in Equation 11.

$$SC_{krw} = \sqrt{\sum_{k=1}^{3} [SE(SC_{krw})]^2} \quad (14)$$

where

$SE(SC_{rw})$ = Standard error of standing crop index for region r during week w

$SE(SC_{krw})$ = Standard error of stratum standing crop index calculated in Equation 12.

$$SC_{w} = \sum_{r=1^{**}}^{12} SC_{rw} \quad (15)$$

where

SC_{w} = Standing crop index for week w

SC_{rw} = Regional standing crop index calculated in Equation 13 or 17.

**Volumes of unsampled strata were added to the volumes of an adjacent stratum according to the rules for stratum volumes in Section 2.5.2.

$$SE(SC_w) = \sqrt{\sum_{r=1}^{12} [SE(SC_{rw})]^2} \qquad (16)$$

where

$SE(SC_w)$ = Standard error of standing crop estimate for week w. For the LRS, regional standing crops include the Battery Region (Region 0).

$SE(SC_{rw})$ = Standard error of regional standing crop estimate calculated in Equation 14 or 18.

An index of regional standing crop (and standard error) for the BSS was obtained by multiplying CPUE and the surface area of the shore zone and dividing by the empirically derived estimate of the area sampled by the 30.5-m beach seine (Equations 17 and 18). The weekly index of standing crop for the shore zone was calculated as the sum of the 12 regional index values (Equations 15 and 16).

$$SC_{rw} = (C_{rw} A_r) / A \qquad (17)$$

where

SC_{rw} = Standing crop index for the shore zone in region r during week w

C_{rw} = Average regional CPUE calculated in Equation 9

A_r = Surface area (m^2) of the shore zone in region r

A = Surface area (m^2) sampled by the beach seine (450 m^2) (TI 1981).

$$SE(C_{rw}) = [SE(SC_{rw})](A_r) \qquad (18)$$

where

$SE(SC_{rw})$ = Standard error of standing crop estimate for the shore zone in region r during week w

$SE(C_{rw})$ = Standard error of average regional CPUE calculated in Equation 10.

2.5.2.3 Temporal and Geographic Distribution Indices

Distribution indices were computed to facilitate presentation of changes in distribution of selected species and life stages through time and space. A geographic index that collapses data over weeks was calculated for LRS, FSS and BSS data as the relative density in each region. To allow comparisons of 1992 data with historical data, only data from samples collected from Weeks 18-27 (where Week 1 begins with the first Monday in January) and north of RM 12 were used for LRS; data from Weeks 33-40 were used for the FSS and BSS. In all cases, data were used only when Regions 1-12 were sampled. This geographic index was calculated as follows:

$$G_{ry} = \frac{\sum_{w=1}^{n_y} SC_{rwy}}{\sum_{r=1}^{12} \sum_{w=1}^{n_y} SC_{rwy}} \qquad (19)$$

where

G_{ry} = Geographic index for region r in year y

SC_{rwy} = Regional standing crop for region r in week w in year y calculated in Equation 17

n_y = Number of weeks sampled in year y.

The LRS and BSS were used for calculating the temporal and geographic indices for striped bass, white perch, Atlantic tomcod, bay anchovy, American shad, alewife, and blueback herring. The LRS and FSS were used to calculate the temporal and geographic distribution indices for rainbow smelt. The BSS was to calculate geographical distribution indices for gizzard shad, spottail shiner and bluefish. The FSS was used to calculate geographical distribution indices for hogchoker, white catfish, and weakfish.

The periods used for the LRS and BSS spanned 1974-1992, whereas the time period for the FSS extended from 1979 (when the FSS sampled the entire river, from RM 1-152) through 1992. Temporal and geographic indices for bay anchovy used the period from 1988-1992, when the sampling design for the LRS included the Battery region and extended into mid October.

A temporal index that collapses data for the entire Hudson River estuary was computed for early life stages from LRS standing crops (Equation 20):

$$T_{wy} = \frac{\sum_{w=1}^{n_y} SC_{rwy}}{\sum_{r=1}^{12} \sum_{w=1}^{n_y} SC_{rwy}} \tag{20}$$

where

T_{wy} = Temporal index for week w in year y

SC_{rwy} = Weekly standing crop estimate in year y calculated in Equation 15

n_y = Number of weeks sampled in year y.

CHAPTER 3
PHYSICAL/CHEMICAL PARAMETERS

This chapter provides information on the parameters of temperature, salinity, and dissolved oxygen as measured during the 1992 surveys. Although parameters were measured with the BSS, emphasis will be placed on data from the LRS/FSS because these surveys encompassed the entire fish sampling period. In addition, freshwater flow data obtained from the U.S. Geological Survey (USGS) gauging station at the Green Island Dam near Troy, New York, and daily water temperature data from the Poughkeepsie Water Works (PWW) are discussed. Physical and chemical parameters are presented in Appendix B.

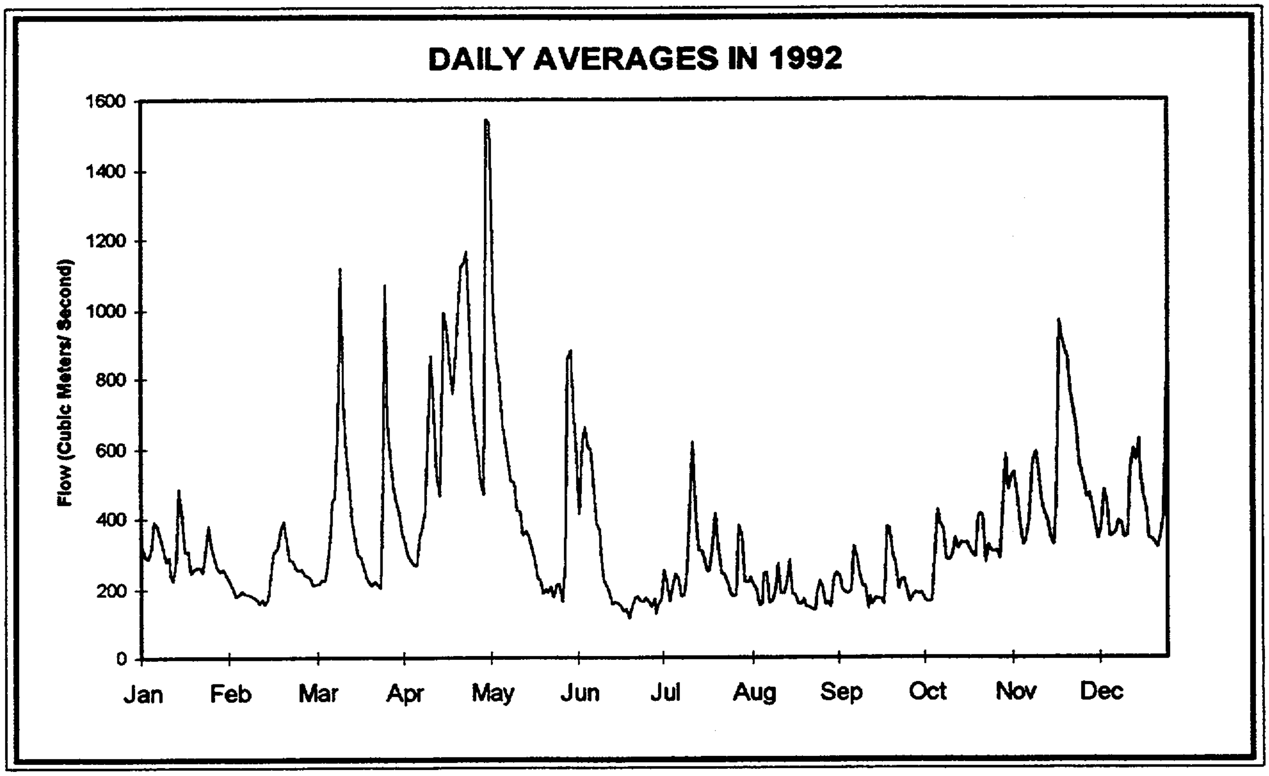
3.1 GREEN ISLAND DAM FLOWS

During 1992, daily freshwater flow as measured at the United States Geological Service (USGS) gauging station at Green Island, N.Y., ranged from approximately 200 to 1,600 m^3/sec/day (Figure 3-1). The primary peak in daily flows occurred between early April and early May with flows of 500 to 1,600 m^3/sec/day. A secondary peak of approximately 1,000 m^3/sec/day occurred in mid November. Periods of low daily flow averages of 200 - 500 m^3/sec/day occurred from mid June through early October (Figure 3-1) (Appendix Table B-1). The 1992 monthly freshwater flow rates differed from the long term monthly average (1947-1991) flow rates with lower than average flows occurring from January through May and higher than average flows evident from June through December (Figure 3-1). Discharge peaked at 1,545 m^3/sec/day on May 3, 1,115 m^3/sec/day on March 12, 1,163 m^3/sec/day on April 26, 880 m^3/sec/day on June 2, and 968 m^3/sec/day on November 23 (Appendix Table B-1).

3.2 POUGHKEEPSIE WATER WORKS TEMPERATURES

Long-term (1951-1992) daily temperature records are available from the Poughkeepsie Water Works (PWW), located just north of the City of Poughkeepsie, New York, at RM 76. The lowest recorded temperature in 1992 was 0.7 °C on January 21 and 29, and February 4. Water temperatures in 1992 remained relatively low (<2.5°C) through early March. Water temperature began increasing in early March and reached a high of 24.6°C on July 21. Temperatures started to decline after late August (Figure 3-2, Table B-4).

The 1992 mean water temperature profile generally resembles the long-term pattern (Figure 3-2). However, from July through mid September water temperatures recorded during 1992 were well below the long term average, particularly during August when the temperature approached the long term minimum. During two short periods (mid March and late September), water temperatures approached the long term maximum.



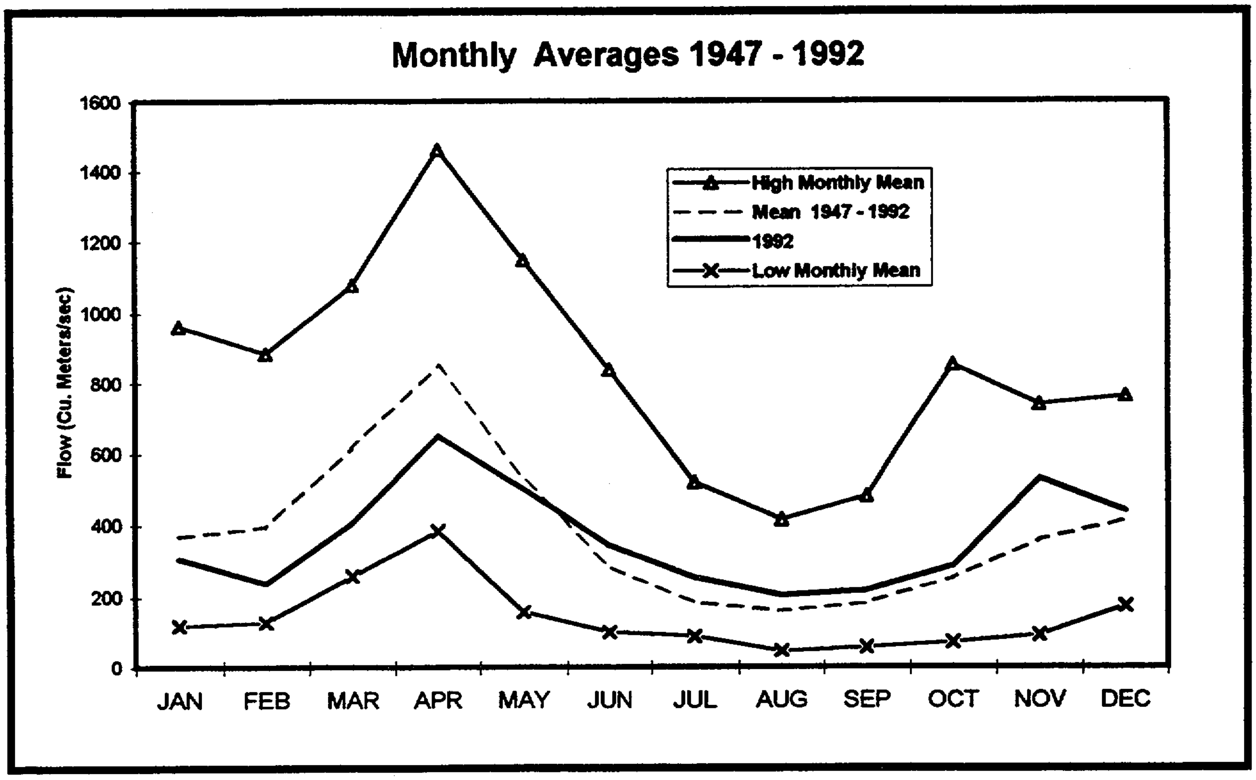


Figure 3-1 Hudson River daily average flow rate in 1992 and monthly average flow rates from 1946 to 1992, Green Island Dam, Troy, NY.

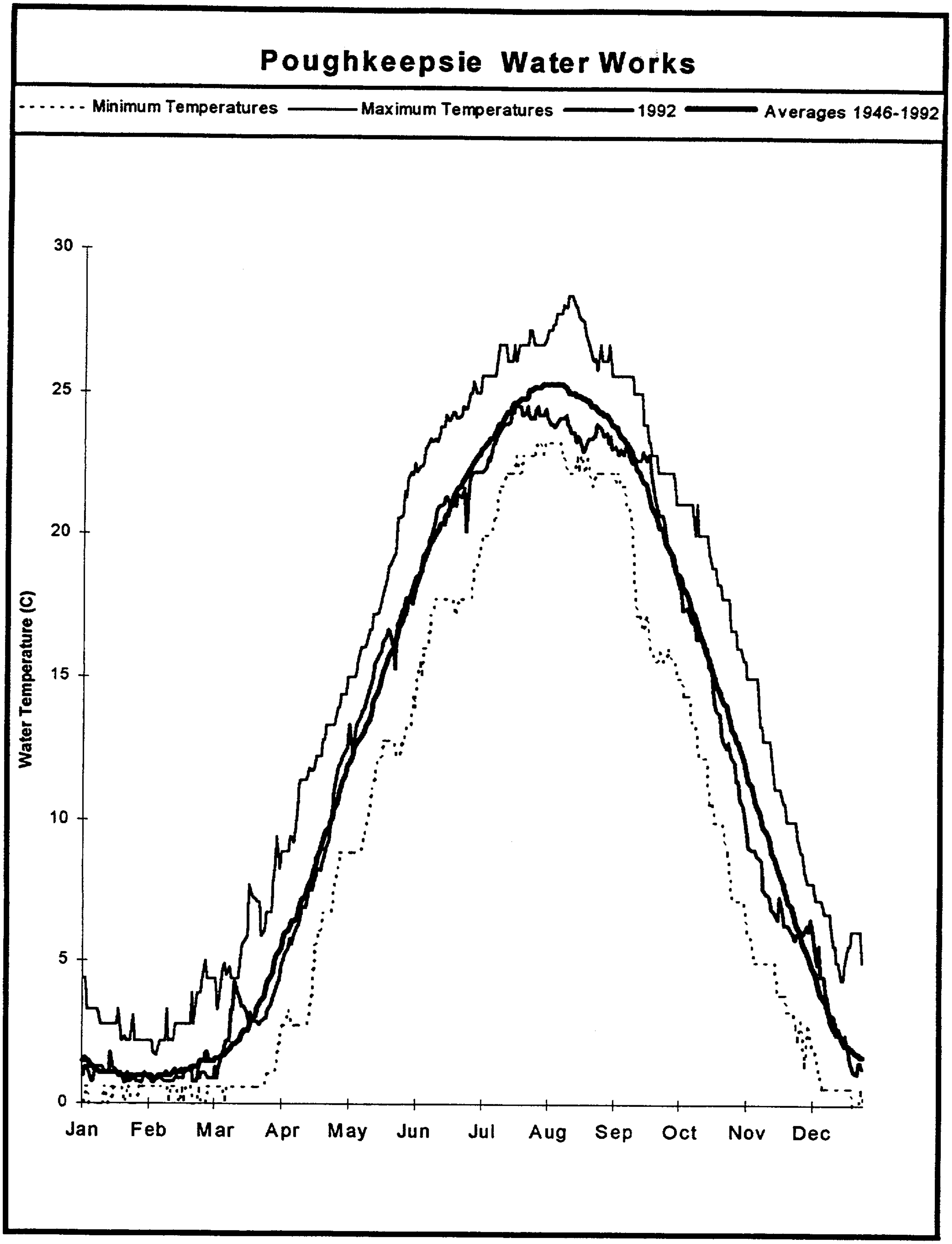


Figure 3-2. Seasonal variations In water temperature from 1951-1992. Source - Poughkeepsie Water Works.

3.3 LONGITUDINAL RIVER ICHTHYOPLANKTON/FALL JUVENILE SURVEYS

3.3.1 Spatiotemporal Pattern in Temperature

Mean weekly water temperature measured during the LRS/FSS increased from the beginning of sampling in April to late July and then decreased steadily until the end of the sampling program in October (Figure 3-3). This temporal pattern observed throughout the Hudson River estuary closely reflected that recorded at PWW. Weekly mean temperatures measured during the LRS/FSS were similar to concurrent PWW temperatures. Peak river temperatures occurred during the week beginning 20 July, as with PWW, when the riverwide mean was 25.4°C and regional mean values were between 24.8 and 26.3°C (Table B-5). Lowest values occurred during the first week of sampling when the mean riverwide temperature was 6.9°C (PWW daily temperatures were 6.9-8.3°C) and regional mean temperatures ranged from 5.8 to 7.5°C.

Temporal patterns in the BSS temperature data are generally in agreement with LRS/FSS measurements, but the shallowness of the shore zone resulted in slightly higher temperatures measured during the BSS than were recorded during the LRS/FSS in the spring and summer (Figure 3-3). Mean weekly regional temperatures increased during the spring and summer to a peak of 26.1°C in the Tappan Zee and Cornwall regions during the 20 July sampling week (Table B-6). BSS mean temperatures decreased steadily through the end of the summer and the fall, generally on par with LRS/FSS temperatures. A minimum mean temperature of 8.0°C was recorded from the Albany region during the last week of sampling that began on 26 October.

3.3.2 Spatiotemporal Pattern in Salinity

Seasonal variations in salinity in 1992 resemble the pattern observed in previous years of the Hudson River surveys; decreased values in spring in response to increased freshwater flows, increasing summer levels as freshwater input slows, and finally, decreased salinity in the fall as freshwater discharges increase again. The lowest salinity encountered riverwide occurred during the week of 20 April when all regions from Croton-Haverstraw through Albany recorded salinities less than or equal to 0.1 ppt. Mean salinity was less than 3 part per thousand (ppt) in the Yonkers and Tappan Zee regions (Figure 3-4 and Table B-7).

Salinity in the lower river regions quickly increased after freshwater flow declined in mid-May and remained high through mid-October. Salinity values generally increase during the summer months, because freshwater flows are often at their lowest point during this time. Low flows resulted in increased salinities in the Cornwall region during late May, mid June through mid July, and in most sampling weeks between late August and mid October. Salinity over 8 ppt reached lower portions of the Tappan Zee region throughout the summer and early fall (Figure 3-4 and Table B-7).

The spatiotemporal pattern of salinity observed during the BSS resembles that observed in the LRS/FSS. Mean weekly regional salinity was highest in the Yonkers region and decreased upstream (Table B-8). Peak salinity measurements (0.2 - 9.5 ppt from Croton-Haverstraw to Yonkers) were recorded during the week of 8 October and lowest values (0.1-2.8 ppt from West Point to Yonkers)

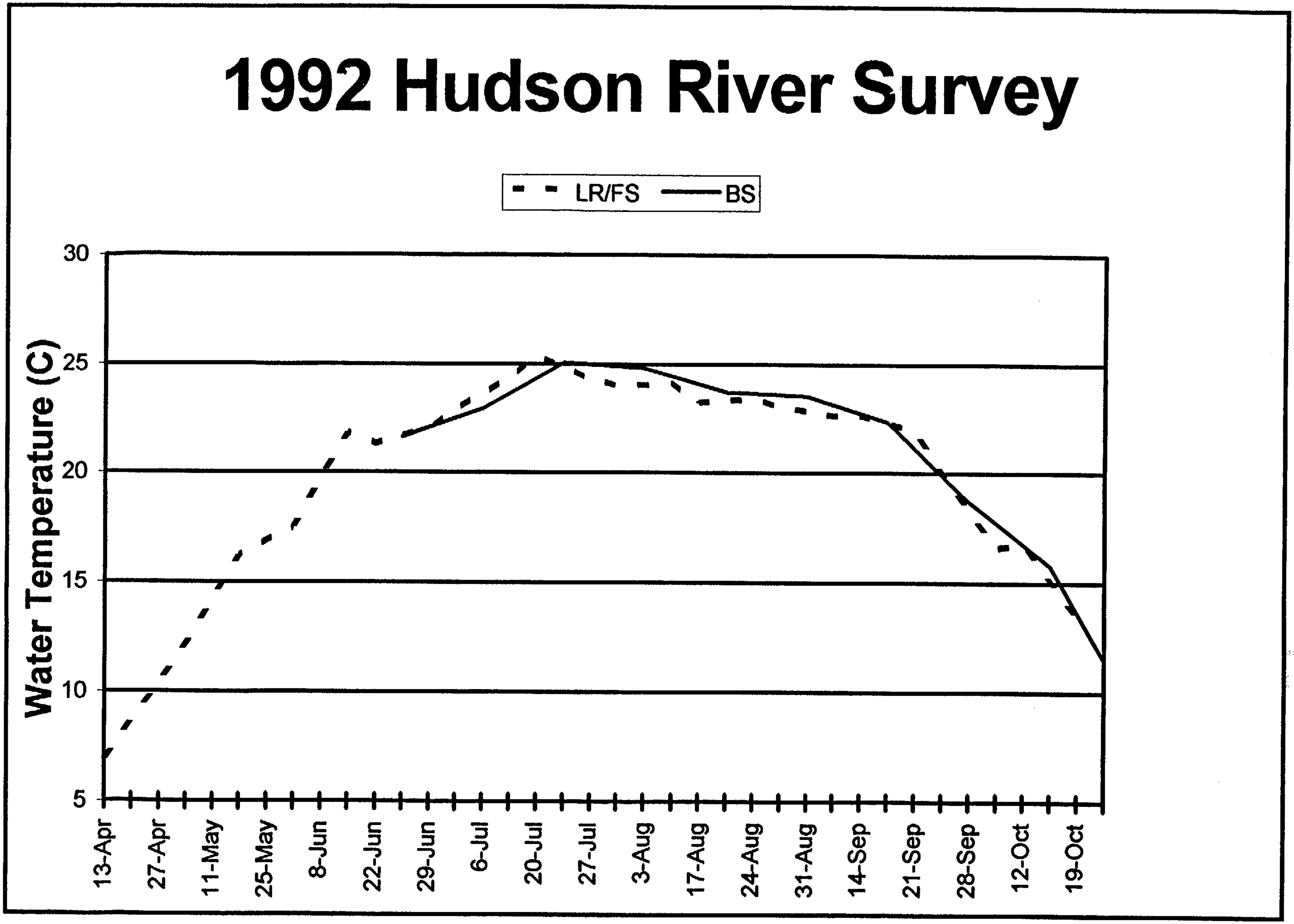


Figure 3-3. Seasonal variations in water temperature from the Hudson River Surveys, average weekly values RM 12 - RM 152.

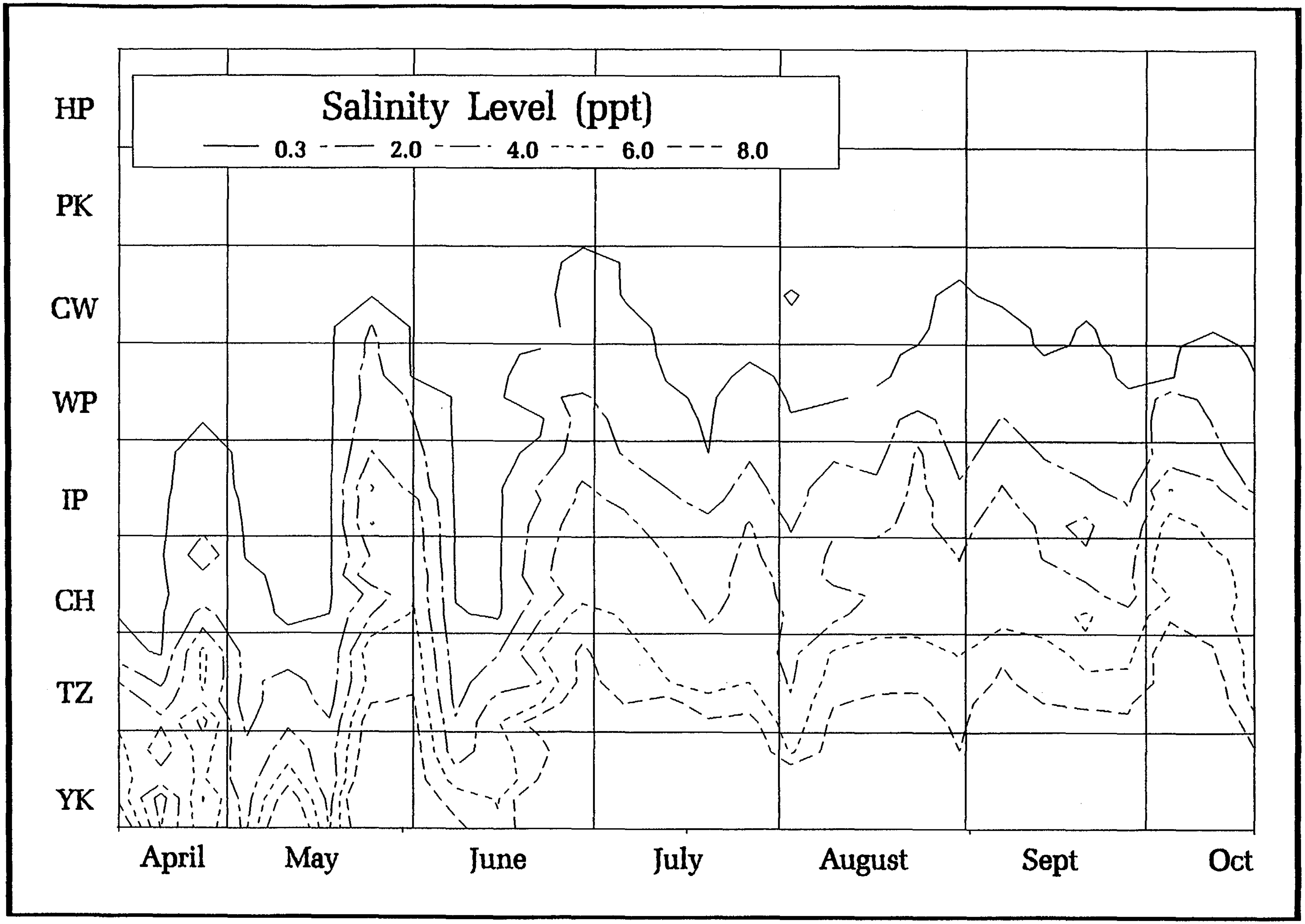


Figure 3-4. Seasonal variations on the 1992 Longitudinal River Icthyoplankton and Fall Juvenile Surveys, average weekly values RM 12 - RM 152.

were observed during the final week of sampling beginning on 26 October. Actual salinity encountered during the BSS was lower than during the LRS/FSS because of the tendency for the denser, saline water to follow the deeper channel rather than the shore zone area. In upriver regions above Poughkeepsie, mean regional salinities in the BSS were recorded as 0.2 ppt (as compared to 0.1 ppt for the LRS/FSS). This difference was probably a result of slightly higher specific conductance measured at shallow beach seine locations compared to deeper channel areas where water quality measurements were taken for the LR/FSS (Tables B-7 and B-8).

3.3.3 Spatiotemporal Pattern in Dissolved Oxygen

As temperatures rose in the spring and summer of 1992, dissolved oxygen (DO), as recorded in the LRS/FSS, declined from peak mean weekly regional values of 11.0 - 12.3 mg/liter on 20 April to minimum mean levels of 5.3-6.0 mg/liter on 17 August when temperatures were elevated (Figure 3-5 and Table B-9).

Percent oxygen saturation relates the theoretical limit of oxygen saturation, based on temperature and salinity, to the observed DO concentrations. Mean weekly regional percent saturation based on measurements taken during the LR/FSS was usually above 90 percent during the spring. Percent saturation declined slightly in the summer, but still generally averaged above 80 percent. Individual mean weekly regional values never dropped below 53.7 percent, the minimum recorded during the week of 6 July from the Yonkers region.

Data collected in the BSS (Figure 3-5 and Table B-12) indicated slightly higher mean regional DO and percent oxygen saturation than recorded in the LR/FSS. In many instances, mean regional percent oxygen saturation indicated supersaturated conditions. Turbulence from wave action and oxygen released as a by-product of photosynthesis could be two causes of this supersaturation.

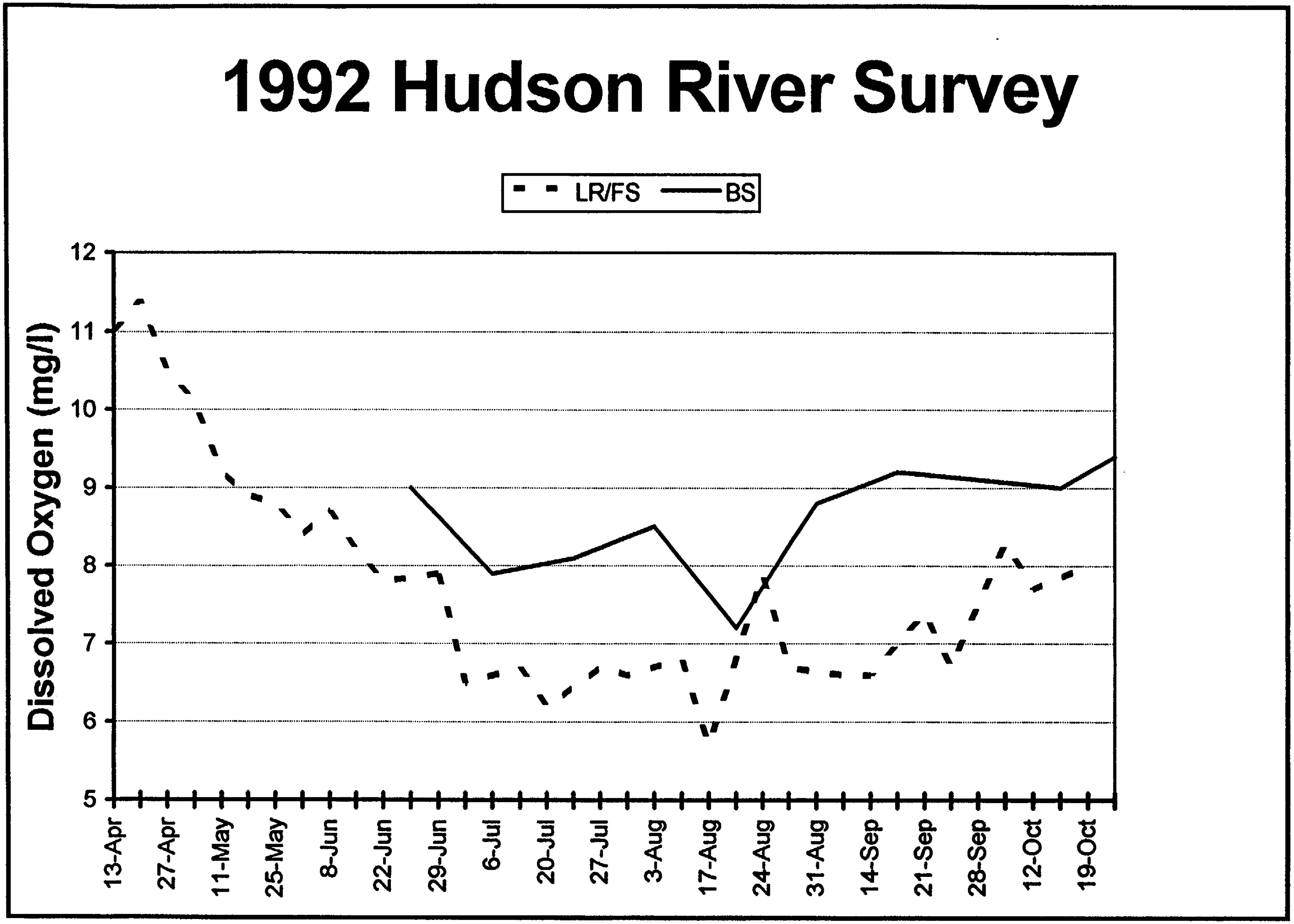


Figure 3-5. Seasonal variations in dissolved oxygen from the Hudson River Surveys, average weekly values RM 12 - RM 152.

CHAPTER 4
SPATIOTEMPORAL DISTRIBUTION OF SELECTED SPECIES OF HUDSON RIVER ESTUARY FISHES

FISH COMMUNITY

4.1.1 General Description of the Fish Community

The fish community of the Hudson estuary reflects the convergence of the two primary fish habitats: fresh water and salt water. Fish are generally confined to one or the other habitat, but a relatively small number of estuarine and migratory species can pass from one to the other, or live in the narrow zone where there is a gradient between fresh and salt water. As a result of this convergence of different habitats in estuaries such as the Hudson, many species can be found in a relatively small area. The Hudson estuary's species diversity is enhanced by its mid-latitude location on the Atlantic coast. Southern tropical marine forms enter the FHudson during the summer, and a number of northern fishes are near their southern limit.

Smith and Lake (1990) documented the Hudson River fish fauna, including the river upstream of the dam at Green Island and the Mohawk River subsystem. They report 201 species, including three known from contiguous waters but not yet reported from the Hudson. Beebe and Savidge (1988), based on sampling through 1980, reported 140 fish species in the Hudson south of the dam at Green Island. Smith and Lake (1990) classified the probable origin of each species, showing that the fish community, particularly in the estuarine reach, is a mixture of both temperate and tropical marine forms, freshwater forms, and intentional and accidental introductions.

The estuary and its tributary streams provide a wide range of chemical, physical, and biological habitat conditions. This diversity is reflected in the range of migratory and movement patterns, reproductive strategies, and food preferences among the members of the fish community. Daniels and Lawrence (1991) grouped 71 Hudson estuary fish species collected in a variety of sampling programs from 1936 through 1991 into 8 trophic categories (feeding behavior) developed by Grossman et al. (1982): surface feeders, water column feeders, soft-bottom benthos feeders, rocky-bottom feeders, ooze feeders, algae feeders, macrocarnivores, and omnivores. Although this analysis did not include all recorded fish species from the estuary, it illustrates the broad range of feeding behaviors among the members of the Hudson estuary fish community. Such an array of feeding behaviors reflects a diversity of habitat conditions.

Carlson (1986) identified assemblages of fish species based on 6 habitat types for the freshwater portion of the Hudson estuary: vegetated backwaters, tributaries, rock pile, shore, offshore shoals and channel, and tailwater. Carlson's assemblages illustrate the diversity of physical habitats in the estuary. A similar analysis for the middle and lower regions of the estuary would show additional physical habitat types, including man-made habitats such as riprap shoreline, bulkheading, and piling clusters associated with piers and docking facilities.

Because many fish species are tolerant of a wide range of habitat conditions and because there are no well-defined boundaries between habitat types, it is useful to classify the fish community into assemblages based on migratory behavior (anadromous and catadromous) and salinity preference (freshwater, estuarine, and marine). In the Hudson only the American eel is catadromous; thus our discussion is focused on the other four assemblages.

4.1.2 Species Occurrence Through Time

The number of species in these assemblages over long periods of time shows broad-scale suitability of the environment for each assemblage. The disappearance of species may indicate some change has taken place, such as degradation of environmental conditions, introduction of competing species, or overexploitation. Although presence or absence data are limited because they do not reveal major shifts in abundance, one can expect to see broad trends in environmental conditions.

The total number of fish species collected in the utilities' monitoring program in the Hudson River estuary has varied from 64 to 93 between 1974 and 1992 (Table 4-1) with no apparent trend. Total number of fish collected by species in the LRS from 1988 - 1992 and the BSS and FSS from 1985 - 1992 are provided in Appendix Tables E-1 through E-3. These summary tables also provide the number of samples collected and total sampling volumes used in calculating densities.

Although the estuarine and anadromous assemblages have fluctuated very little, there have been changes in the freshwater and marine assemblages. The freshwater assemblage has shown fewer species in recent years compared to the years from 1973 to 1980. However, the fewest species in this assemblage occurred in 1982 and 1983, and numbers have increased slowly since then.

When the individual species in the freshwater assemblage are examined, there is only one species, bluntnose minnow, that occurred consistently in the early years and has not been recorded recently. The bluntnose minnow occurred from 1973 through 1980; more than two-thirds of the occurrences were between RM 125 and RM 152, well beyond the influence of Roseton, Indian Point, or Bowline Point. It has not been recorded since then. Swallowtail shiner and tiger muskellunge were new freshwater species recorded in 1992.

Marine species show more year-to-year variation, but overall there is a trend toward more marine species (Table 4-1). As expected, the largest increase in marine species occurred in the downstream sampling segments. The complementary trends in the freshwater and marine assemblages could be related to the shift in annual freshwater inflow. During the 1970s, when the number of freshwater species was relatively high, freshwater flow was higher than normal. In the 1980s freshwater flow was typically below normal, and freshwater species declined while the number of marine species increased. Newly captured marine species in 1992 were the blackcheek tonguefish, oyster toadfish and permit.

TABLE 4-1 - SPECIES COMPOSITION OF FISH COLLECTED DURING HUDSON RIVER STUDIES FROM 1974 TO 1992

Common Name	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
Fresh Water																			
Banded killifish	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Black bullhead				X				X			X	X							
Black crappie	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Blacknose dace	X	X	X	X	X	X	X					X		X	X				
Bluegill		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Bluntnose minnow	X	X	X	X	X	X	X												
Bridle shiner	X		X						X										
Brook stickleback	X	X	X	X				X								X			
Brook trout				X	X													X	
Brown bullhead	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Brown trout			X	X	X	X	X	X				X					X	X	X
Carp			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Central mudminnow			X				X							X					
Chain pickerel	X	X	X	X	X	X	X	X	X		X					X			X
Channel catfish	X							X					X	X	X	X	X	X	X
Comely shiner	X						X												
Common shiner	X	X	X	X	X	X	X	X		X					X		X		X
Creek chub		X	X	X	X	X	X			X		X						X	
Cutlips minnow	X	X	X	X	X	X									X	X			
Eastern mudminnow		X					X												
Emerald shiner	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Fallfish		X	X	X	X	X	X	X	X	X				X				X	X
Fathead minnow	X	X	X	X	X	X	X					X	X			X			
Freshwater drum																X			X
Gizzard shad	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X
Golden shiner	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Goldfish	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Grass pickerel	X				X												X		
Green sunfish		X		X			X								X				
Largemouth bass	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Logperch	X		X	X		X	X			X					X	X			X
Longear sunfish																	X		
Longnose dace		X	X	X	X				X			X							
Margined madtom														X				X	
Mimic shiner	X																		
Northern hog sucker	X		X	X	X		X	X			X			X	X		X	X	X
Northern pike	X	X	X	X	X	X	X		X				X	X	X	X	X	X	X
Pugnose shiner																		X	
Pumpkinseed	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Rainbow trout						X													
Redbreast sunfish	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Redfin pickerel	X	X	X	X	X	X	X	X	X		X				X			X	
Rock bass	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X
Rosyface shiner	X																		
Satinfin shiner	X	X	X	X	X	X	X				X	X	X		X		X		
Shield darter							X												
Silvery minnow	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Common Name	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
Smallmouth bass	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Spotfin shiner	X	X	X	X	X	X	X	X			X	X	X	X	X				
Spottail shiner	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Swallowtail shiner																			X
Tessellated darter	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Tiger muskellunge																			X
Trout perch	X	X	X	X	X	X					X								
Walleye			X	X	X	X				X	X			X		X		X	X
White bass				X															
White catfish	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
White crappie	X	X	X	X	X	X	X	X			X		X	X	X		X	X	X
White sucker	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Yellow bullhead		X						X								X			
Yellow perch	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Total	39	39	42	44	40	38	40	32	25	25	29	28	27	29	32	30	29	31	33
Marine																			
American sandlance													X	X	X	X	X	X	X
Ammodytes sp.		X	X	X	X	X	X	X				X							
Atlantic cod							X							X	X				
Atlantic croaker			X	X		X						X	X	X		X	X		X
Atlantic herring		X	X		X	X			X				X	X	X	X	X	X	X
Atlantic mackerel															X			X	X
Atlantic menhaden	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Atlantic needlefish	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Atlantic silverside	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Bay anchovy	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Black seabass					X							X			X				
Blackcheek tonguefish																			X
Bluefish	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Butterfish	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X
Conger eel						X		X	X	X	X	X	X	X	X	X	X	X	X
Crevalle jack	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Cunner									X	X	X	X	X		X	X	X	X	X
Fourbeard rockling						X	X								X	X	X	X	X
Fourspot flounder	X						X	X			X	X	X		X	X	X		
Goosefish																		X	X
Gray snapper							X					X	X	X				X	
Grubby													X		X	X	X	X	X
Hickory shad		X			X	X				X			X						
Inshore lizardfish	X					X	X	X			X	X			X	X		X	X
Longhorn sculpin	X	X								X						X			
Lookdown	X	X	X	X		X	X	X				X	X	X	X	X	X		
Moonfish			X										X	X		X			X
Naked goby	X		X								X	X	X	X	X	X	X	X	X
Northern kingfish	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
Northern pipefish	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Northern puffer		X		X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Northern searobin			X		X		X	X	X		X		X	X	X	X	X	X	
Northern stargazer	X						X		X	X	X	X			X		X	X	X
Orangespotted filefish													X						
Oyster toadfish																			X

Common Name	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
Permit																			X
Pollack		X																	
Red hake	X		X			X	X	X			X	X			X	X	X		X
Rock gunnel			X	X											X	X	X	X	X
Rough silverside		X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X
Scup	X																		
Seahorse															X		X	X	
Sea raven							X												
Searobin		X	X		X		X	X							X		X	X	
Seaboard goby		X	X				X								X			X	X
Sharptail goby																	X		
Sheepshead								X											
Silver hake	X	X		X									X		X	X	X	X	
Silver perch	X					X					X	X	X		X			X	X
Smallmouth flounder						X	X		X		X	X			X		X	X	X
Spanish mackerel																	X	X	
Speckled worm eel					X		X				X			X	X				
Spot	X	X	X	X			X		X	X		X	X	X	X		X	X	X
Spotfin butterflyfish									X			X							
Spotfin mojarra									X										
Spotted hake							X			X	X	X	X	X	X	X	X	X	X
Striped anchovy		X				X			X			X							X
Striped cuskeel							X					X	X	X	X	X		X	X
Striped killifish			X																X
Striped mullet	X		X	X		X	X	X	X	X	X	X	X	X	X			X	
Striped burrfish													X						
Striped searobin		X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Summer flounder	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X
Tautog		X				X	X	X	X	X	X	X	X	X	X	X	X	X	X
Weakfish	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
White mullet	X	X	X	X	X	X	X		X	X	X	X	X			X	X	X	
Windowpane	X	X		X		X	X	X		X	X	X	X	X	X	X	X	X	X
Winter flounder	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Yellowtail flounder	X																		X
Total	27	29	29	24	22	31	37	28	29	24	32	39	40	32	45	37	40	43	44
Estuarine																			
Fat sleeper													X						
Fourspine stickleback	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Hogchoker	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Inland silverside	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Mummichog	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Shortnose sturgeon	X		X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Threespine stickleback	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
White perch	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Total	7	6	7	7	6	7	7	7	7	7	7	7	8	7	7	7	7	7	7
Catadromous																			
American eel	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Total	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Common Name	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
Anadromous																			
Alewife	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
American shad	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Atlantic sturgeon	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Atlantic tomcod	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Blueback herring	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Rainbow smelt	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sea lamprey	X	X				X	X	X			X				X		X		
Striped bass	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Total	8	8	7	7	7	8	8	8	7	7	8	7	7	7	8	7	8	7	7
All Categories																			
Total	82	83	85	82	75	84	93	75	68	64	76	81	82	75	93	82	85	89	92

TABLE 4-2. SPECIES COMPOSITION OF FISH COLLECTED IN EACH OF THE HUDSON RIVER SURVEYS DURING 1992

Common Name	BSS	FJS	LRS
Anadromous			
Alewife	X	X	X
American shad	X	X	X
Atlantic sturgeon		X	X
Atlantic tomcod	X	X	X
Blueback herring	X	X	X
Rainbow smelt	X	X	X
Striped bass	X	X	X
Total	6	7	7
Catadromous			
American eel	X	X	X
Total	1	1	1
Estuarine			
Fourspine stickleback	X		X
Hogchoker	X	X	X
Inland silverside	X		X
Mummichog	X		
Shortnose sturgeon		X	X
Threespine stickleback	X		
White perch	X	X	X
Total	6	3	5

TABLE 4-2. SPECIES COMPOSITION OF FISH COLLECTED IN EACH OF THE HUDSON RIVER SURVEYS DURING 1992

Common Name	BSS	FJS	LRS
Freshwater			
Banded killifish	X		X
Black crappie	X		
Bluegill	X	X	
Brown bullhead	X	X	X
Brown trout			X
Carp	X	X	X
Chain pickerel	X		
Channel catfish		X	
Common shiner	X		
Emerald shiner	X		
Fallfish	X		
Freshwater drum		X	X
Gizzard shad	X		X
Golden shiner	X	X	
Goldfish	X	X	X
Largemouth bass	X		
Logperch	X		X
Northern hog sucker	X		
Northern pike	X		
Pumpkinseed	X	X	
Redbreast sunfish	X		
Rock bass	X		X
Silvery minnow	X		
Smallmouth bass	X		X
Spottail shiner	X	X	X

TABLE 4-2. SPECIES COMPOSITION OF FISH COLLECTED IN EACH OF THE HUDSON RIVER SURVEYS DURING 1992

Common Name	BSS	FJS	LRS
Freshwater (Cont.)			
Swallowtail shiner	X		
Tesselated darter	X	X	X
Tiger muskellunge	X		
Walleye			X
White catfish	X	X	X
White crappie	X		
White sucker	X		X
Yellow perch	X		X
Total	29	11	16
Marine			
American sand lance			X
Atlantic croaker	X	X	X
Atlantic herring			X
Atlantic mackerel			X
Atlantic menhaden	X	X	X
Atlantic needlefish	X		
Atlantic silverside	X	X	X
Bay anchovy	X	X	X
Blackcheek tonguefish			X
Bluefish	X	X	X
Butterfish	X	X	X
Conger eel			X

TABLE 4-2. SPECIES COMPOSITION OF FISH COLLECTED IN EACH OF THE HUDSON RIVER SURVEYS DURING 1992

Common Name	BSS	FJS	LRS
Marine (Cont.)			
Crevalle jack	X	X	
Cunner	X	X	X
Fourbeard rockling			X
Goosefish			X
Grubby			X
Inshore lizardfish	X	X	X
Moonfish		X	
Naked goby	X	X	X
Northern kingfish	X	X	X
Northern pipefish	X	X	X
Northern puffer		X	
Northern stargazer		X	
Oyster toadfish		X	
Permit	X		
Red hake			X
Rock gunnel			X
Rough silverside	X	X	X
Seabord goby			X
Silver perch	X		
Smallmouth flounder		X	X
Spot	X	X	
Spotted hake		X	X
Striped anchovy		X	
Striped killifish			X
Striped cuskeel		X	X

TABLE 4-2. SPECIES COMPOSITION OF FISH COLLECTED IN EACH OF THE HUDSON RIVER SURVEYS DURING 1992

Common Name	BSS	FJS	LRS
Marine (Cont.)			
Striped searobin	X	X	X
Summer flounder	X	X	X
Swallowtail flounder	X		
Tautog	X	X	X
Weakfish	X	X	X
Windowpane		X	X
Winter flounder	X	X	X
Yellowtail flounder			X
Total	22	27	34
Undetermined			
Acipenseridae			X
Centrarchidae	X		X
Clupeidae	X	X	X
Cyprinidae			X
Fundulus sp.			X
Gobiidae		X	X
Menidia sp.			X
Morone sp.			X
Catostomidae			X
Unidentifiable			X
Total	2	2	10

Thirty-two out of the 92 species recorded during 1992 were collected in all three sampling surveys. Thirty-nine species were collected in only one of the surveys (Table 4-2); of the 33 freshwater species, 13 (39%) of them were collected only in the BSS.

Although all analyses show generally robust fish assemblages that may vary from year to year but have not changed substantially from the mid-1970s to early 1990s, there is a general perception among some Hudson River fishermen and the lay public that abundance of several species of fish, amphibians, and invertebrates in the upper areas of the estuary has declined severely from prior levels. The evidence and possible explanations for the decline were discussed at a public meeting hosted by the Hudson River Foundation in 1990. There was general agreement that data support a decline in some species, but no clear explanation for the declines was apparent. Hypotheses that were considered included chlorine discharges at upriver sewage treatment facilities, improving water quality leading to a subsequent increase in pollution-intolerant predator species, declining nutrient levels, and habitat degradation caused by expansion of water chestnut (Waldman 1991).

The cause for the decline in the number of freshwater species sampled in the estuary since the 1970s is not clear, and in fact may be due to changes in the temporal extent of the sampling. In the 1970s the BSS program began in April and continued through November. In the 1980s the program typically ran from July or August to October. Alternatively, habitat alteration due to the increase in water chestnut or a general decline in freshwater inflow may be responsible for the changes.

Similarly, the increase in marine species may result from changes to the sampling programs and from changes in the more saline areas of the estuary. The lower freshwater flow in the 1980s relative to the 1970s would result in higher salinities in the lower part of the estuary, making it suitable for more obligate saltwater species. Additionally, due to increased treatment of sewage in New York City, dissolved oxygen levels have increased at the mouth of the Hudson, increasing the potential for movement of marine fish into the river.

4.2 STRIPED BASS

Striped bass (*Morone saxatilis*) are anadromous (i.e., they spend most of their life in the marine environment but return to fresh water to reproduce) members of the temperate bass family (the Percichthyidae). They are native to North America and range along the Atlantic coast from the St. Lawrence River in Canada to the St. Johns River in northern Florida and from western Florida to Louisiana along the coast of the Gulf of Mexico. They were introduced in the Sacramento-San Joaquin River system in 1879 and are now found from British Columbia to Ensalada, Mexico. Striped bass have also been successfully introduced into the inland waters of at least 24 states. The U.S. east coast rivers and bays that support the principal spawning populations are the Hudson River; Delaware Bay and Delaware River; Chesapeake Bay and tributaries; the Roanoke and Chowan rivers and Albermarle Sound, North Carolina; the Santee River, South Carolina; and the St. Johns River, Florida. Small spawning populations also occur in several river systems in eastern Canada. Since 1983, the utilities' striped bass hatchery has provided larvae for rearing and stocking by the State of Maine in its efforts to establish striped bass in the Kennebec River.

On the Atlantic coast adult striped bass, which commonly reach 30 lb and can weigh over 50 lb, feed in nearshore waters from summer through late winter. During the warmer months fish typically travel north and return south as the coastal waters cool in the fall. Northward migration of Hudson River fish extends as far north as the Bay of Fundy, Nova Scotia, and older fish tend to travel farther north. Over the winter adult striped bass tend to aggregate near the mouths of their natal rivers. Once water temperatures rise in the spring, native adults (ages 4 and older) begin moving upriver to spawning areas in the freshwater portions of the estuaries.

Spawning begins in the spring when water temperatures are rising rapidly and reach about 57 °F. Peak spawning occurs at about 60 to 65 °F in freshwater areas where currents are moderate to swift (Albrecht 1964; Setzler et al. 1980). In the Hudson River spawning occurs primarily between mid-May and mid-June in the middle portion of the Hudson River estuary (Figure 4-1). Depending on their age and size, females produce up to several million semibuoyant eggs that are suspended by currents. The eggs are relatively large (average 1/10 in. in diameter after water hardening), but vary with the size of the female. Older, larger females tend to have larger eggs.

In 1 to 4 days, depending on temperature, yolk-sac larvae (YSL) hatch from the eggs. Typically 1/8 in. long, they initially drift with the current but can swim for short bursts. During the YSL stage the eyes become pigmented, the jaws and digestive tract form, fin buds appear, and they at least partially absorb the yolk-sac and oil globule. Older YSL are mobile and exhibit a positive phototaxis, or movement toward light (Doroshev 1970). The end of the yolk-sac stage is marked by the completion of the digestive tract, although some of the yolk sac and oil globule may still remain.

During 1992 striped bass YSL were most abundant upriver, where the eggs were most abundant (Figure 4-1). However, a difference in egg and yolk-sac distribution, with the peak in yolk-sac seen further upriver than the peak in eggs, is often seen in the Hudson River. The difference in distribution may mean that YSL migrate upriver using tidal currents, although other explanations have been proposed (Polgar et al. 1976; Fay et al. 1983).

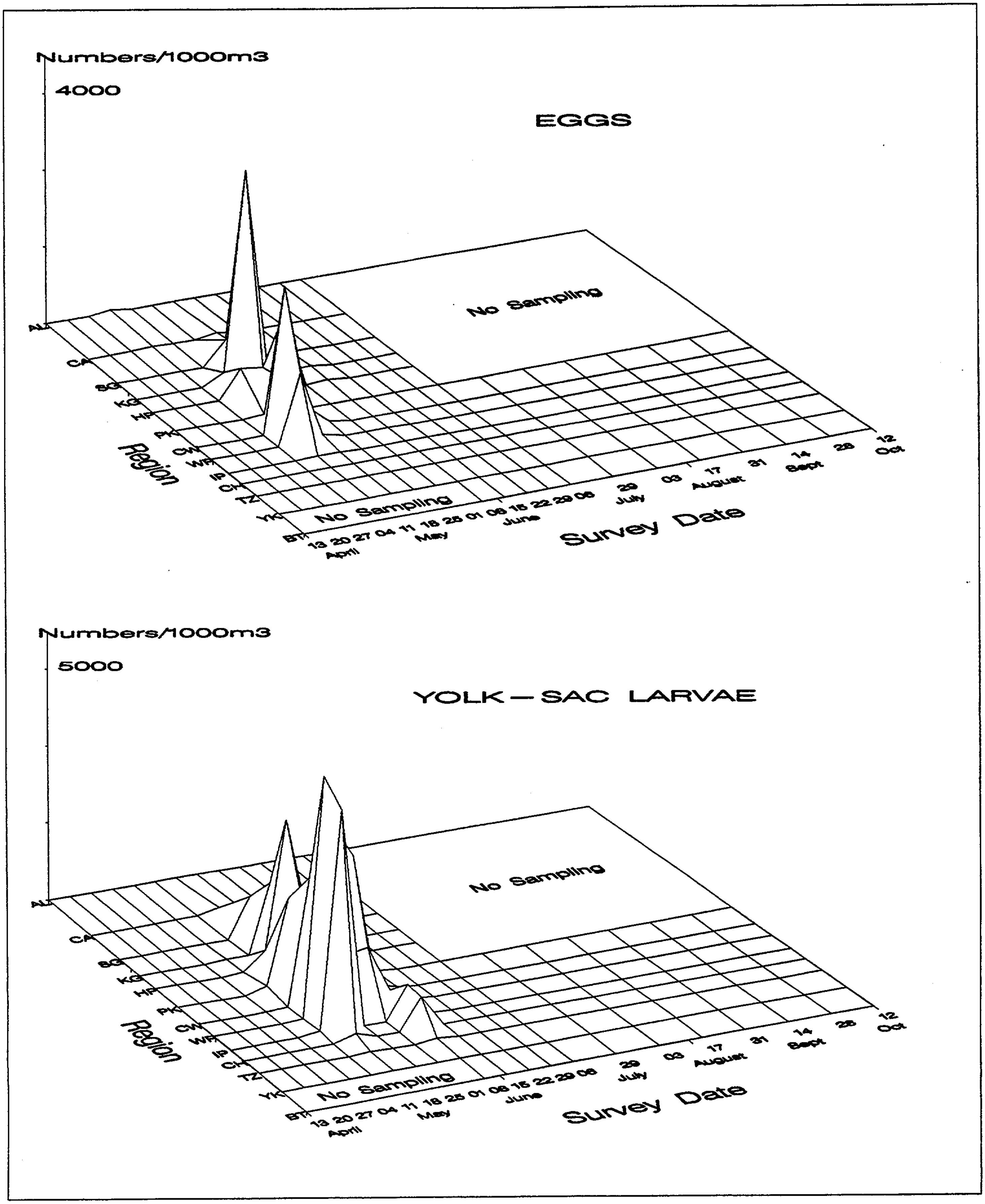


Figure 4–1. Spatiotemporal distribution of egg and yolk–sac stages of striped bass in the Hudson River estuary based on the 1992 Long River Ichthyoplankton Survey.

Transformation to the post-yolk-sac larvae (PYSL) stage occurs from four to nine days after hatching, when the larvae are ¼ in. long. The remainder of the yolk sac and oil globule are absorbed, body pigmentation becomes noticeable, fins begin to form, the gas bladder is inflated, and larvae begin to feed actively on zooplankton. This stage lasts approximately one month or longer, ending when the fin rays are fully developed, which occurs when the fish are just over ½ in. long. During 1992 striped bass PYSL were most abundant in the middle estuary (Figure 4-2), but typically they are found throughout the estuary.

Toward the end of the PYSL stage young striped bass begin moving out of the middle estuary into the lower estuary, which is broader, shallower, and may be more productive, and they feed on copepods and amphipods. This downriver movement of juveniles is evident in the 1992 spatiotemporal distribution pattern seen in both the LRS (Figure 4-2), and BSS and FSS (Figure 4-3). Larger juveniles, over 2½ in. long, feed on insect larvae, worms, opossum shrimps, crabs, and small fish (Gardinier and Hoff 1982). Low numbers of yearling striped bass (and rarely older than yearling fish) were collected in the BSS and FSS during 1992, with larger numbers evident in the middle estuary (Figure 4-4).

Comparing the temporal distribution of early life stages of striped bass in 1992 with previous years (1974-1991), it is apparent that in 1992 close to 90% of striped bass eggs occurred in weeks 19-20, or May 10-22, which is early in the period of occurrence recorded for eggs (Figure 4-5). Yolk-sac larvae (YSL) in 1992 likewise tended to be somewhat early, whereas post yolk-sac larvae (PYSL) tended to more highly concentrated towards the middle of the historical trend.

Striped bass eggs in the 1992 LRS were primarily in the Cornwall, Hyde Park and Kingston regions (Figure 4-6). The proportions of eggs in the Cornwall and Kingston regions were substantially higher than those observed in the historical trend. However, YSL and PYSL distribution was generally consistent with patterns seen across years.

The 1992 geographical distribution of young-of-the-year, or juvenile, striped bass in the BSS was consistent with the long term trend, with the main distribution centered in the Tappan Zee and Croton-Haverstraw regions (Figure 4-7). At the end of their first summer, many of the juvenile striped bass move to the southern extreme of the estuary and are found in New York Harbor, western Long Island Sound, and along the south shore of Long Island (McKown 1992a).

Weekly length statistics for striped bass from yolk sac through juvenile life stages collected in 1992 show a rapid growth period in early July and steady growth thereafter through the end of BSS/FSS collections in mid October (Figure 4-8 and Appendix Tables D-1 through D-3). As striped bass grow, fish become an increasingly important component of their diet. Juvenile striped bass are also preyed upon by some marine and estuarine predator species.

At age 2 or 3 striped bass leave Atlantic coast estuaries and begin the typical seasonal migration, northward during the spring and summer and southward during the fall. Adult striped bass are at the top of the food chain and have few natural enemies other than man. Since they rarely go more than 10 miles offshore, they are typically available to sport and commercial fishermen all along their migration route.

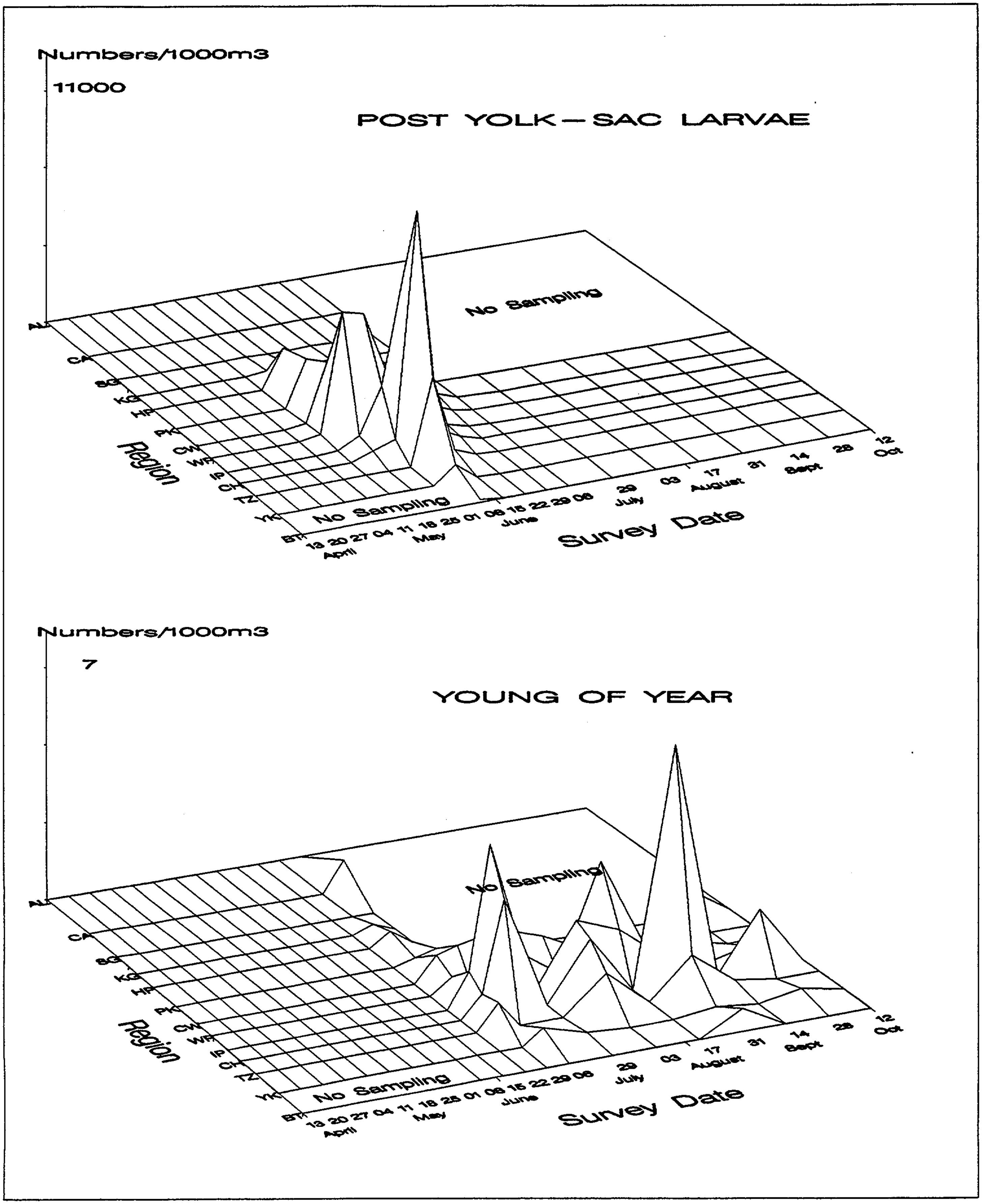


Figure 4-2. Spatiotemporal distribution of post yolk-sac and young-of-year stages of striped bass in the Hudson River estuary based on the 1992 Long River Ichthyoplankton Survey.

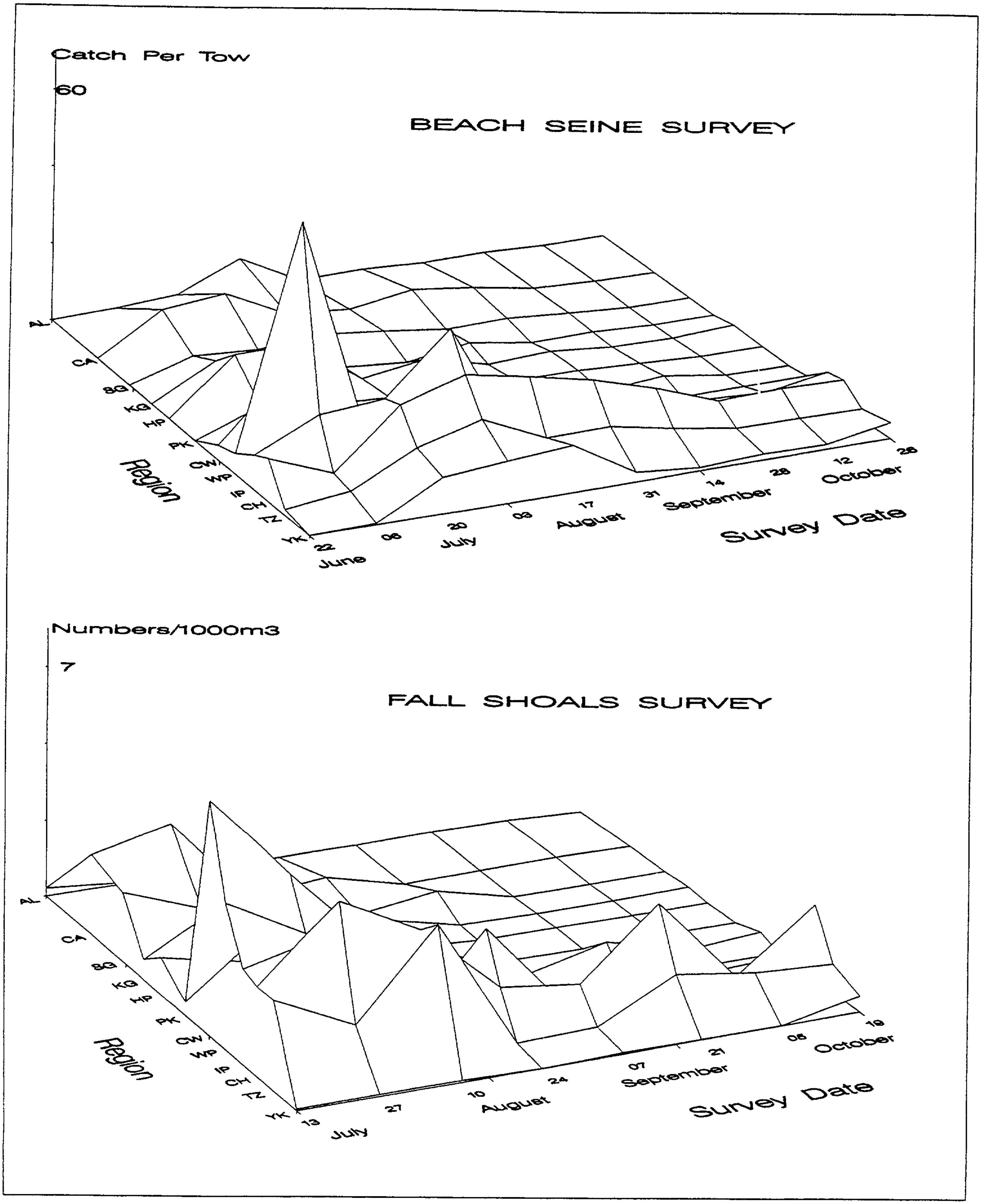


Figure 4–3. Spatiotemporal distribution of young–of–year striped bass in the Hudson River estuary based on the 1992 Fall Shoals and Beach Seine Surveys.

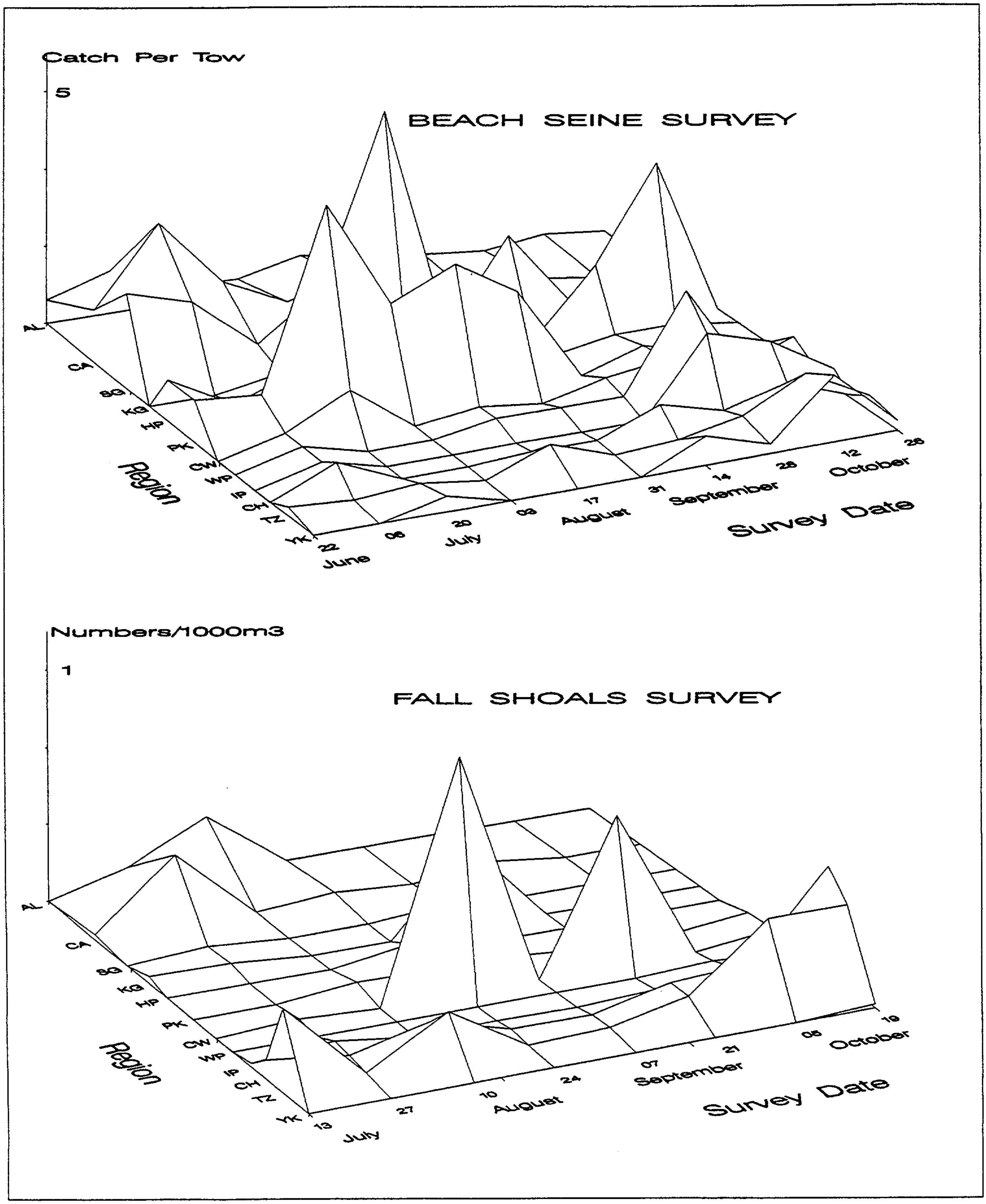


Figure 4–4. Spatiotemporal distribution of yearling and older striped bass in the Hudson River estuary based on the 1992 Fall Shoals and Beach Seine Surveys.

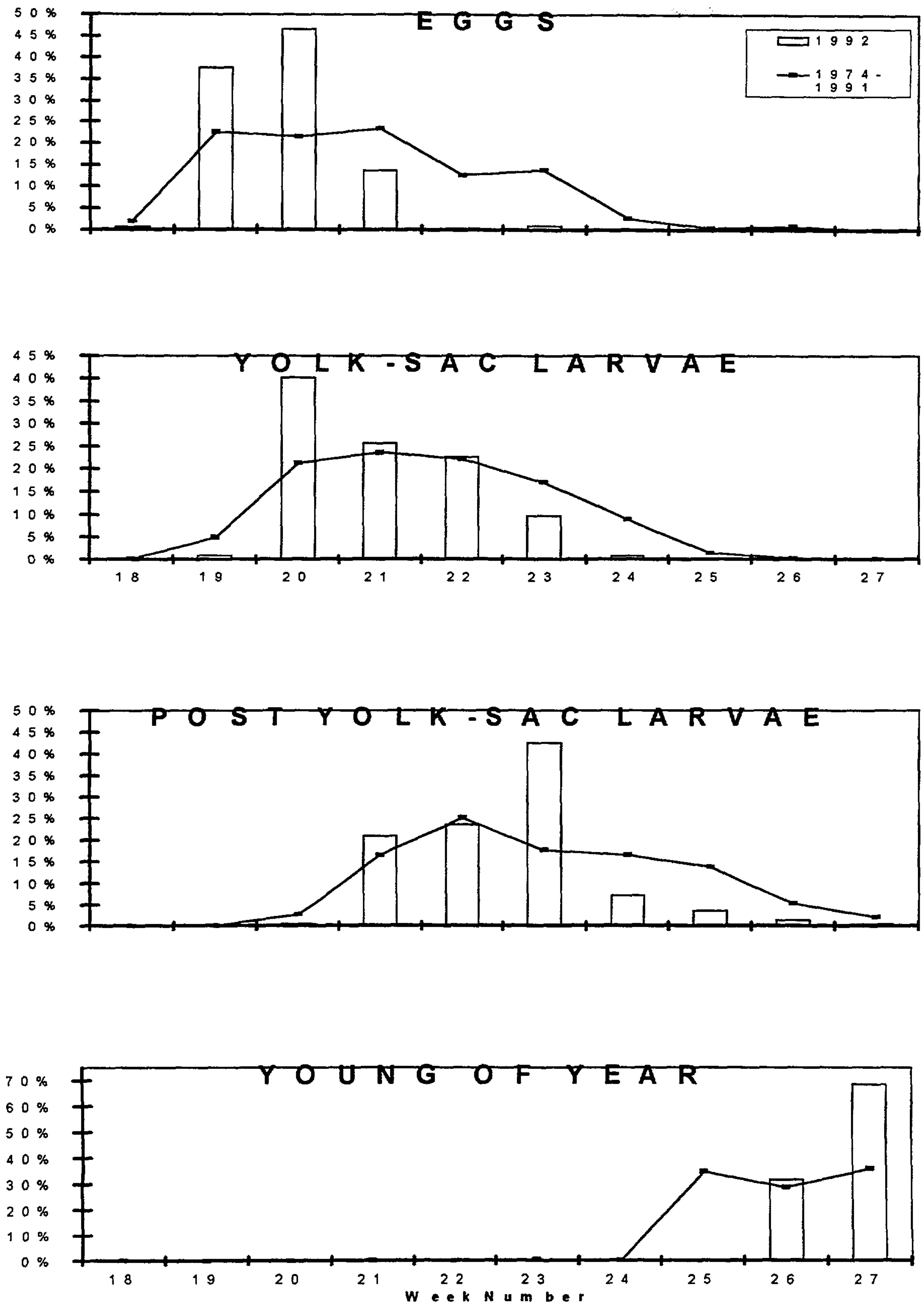


Figure 4-5 Temporal distribution indices for striped bass collected during Longitudinal Ichthyoplankton surveys of the Hudson River Estuary, 1974 - 1992.

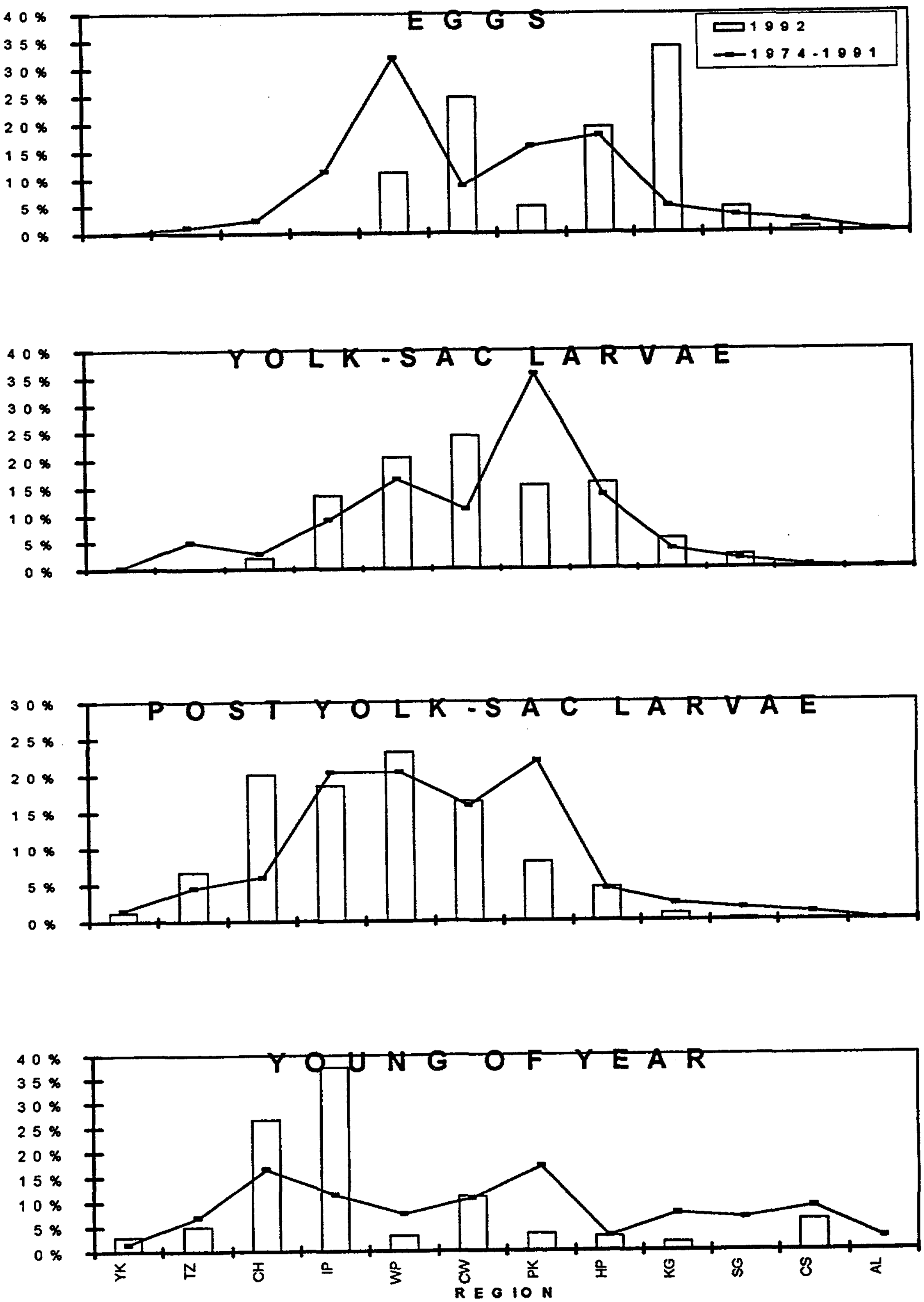


Figure 4-6 Geographical distribution indices for early life stages of striped bass collected during Longitudinal River Ichthyoplankton surveys of the Hudson River Estuary, 1974 - 1992.

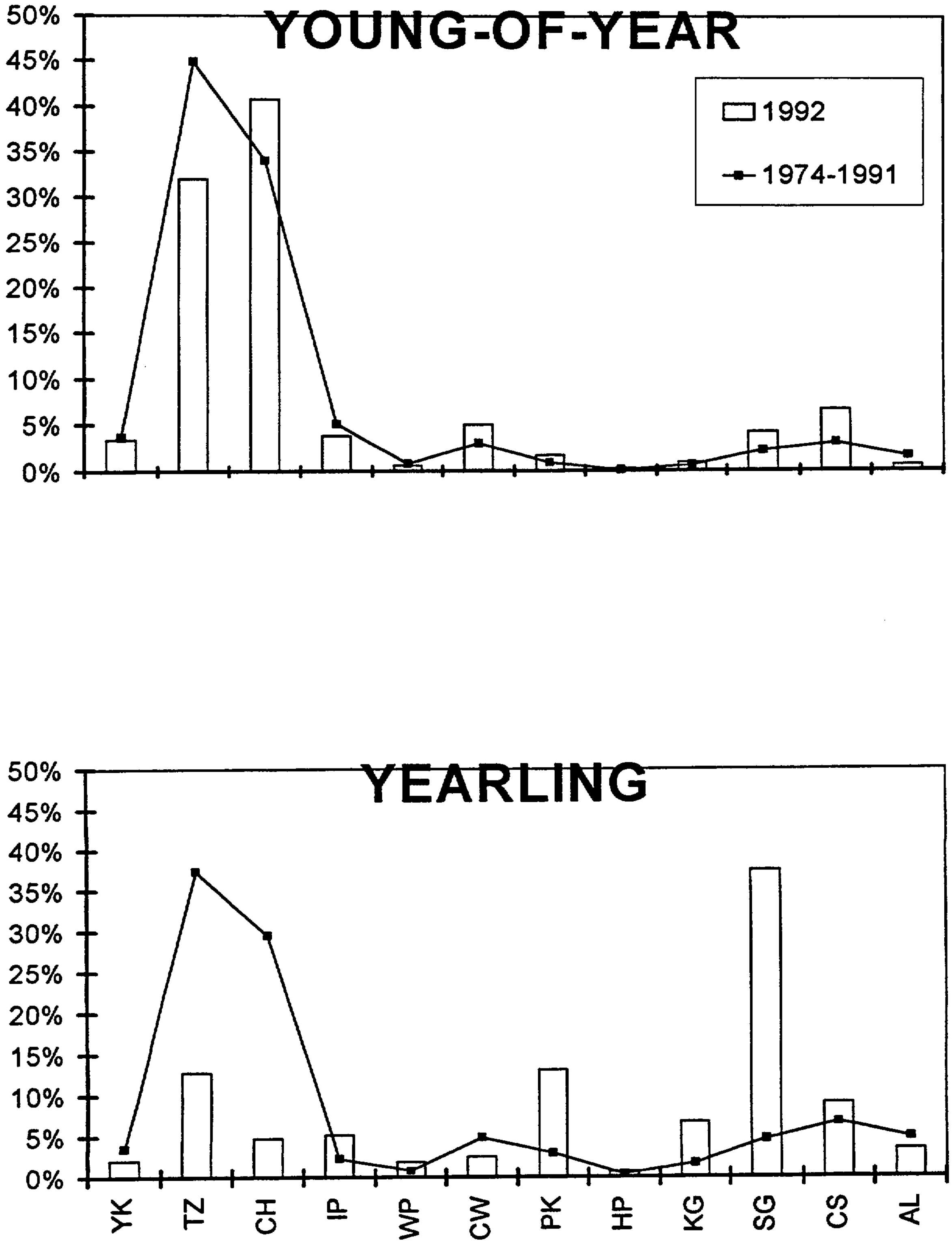


Figure 4-7 Geographical distribution indices for young-of-year and yearling striped bass collected during Beach Seine surveys of the Hudson River Estuary, 1979 - 1992.

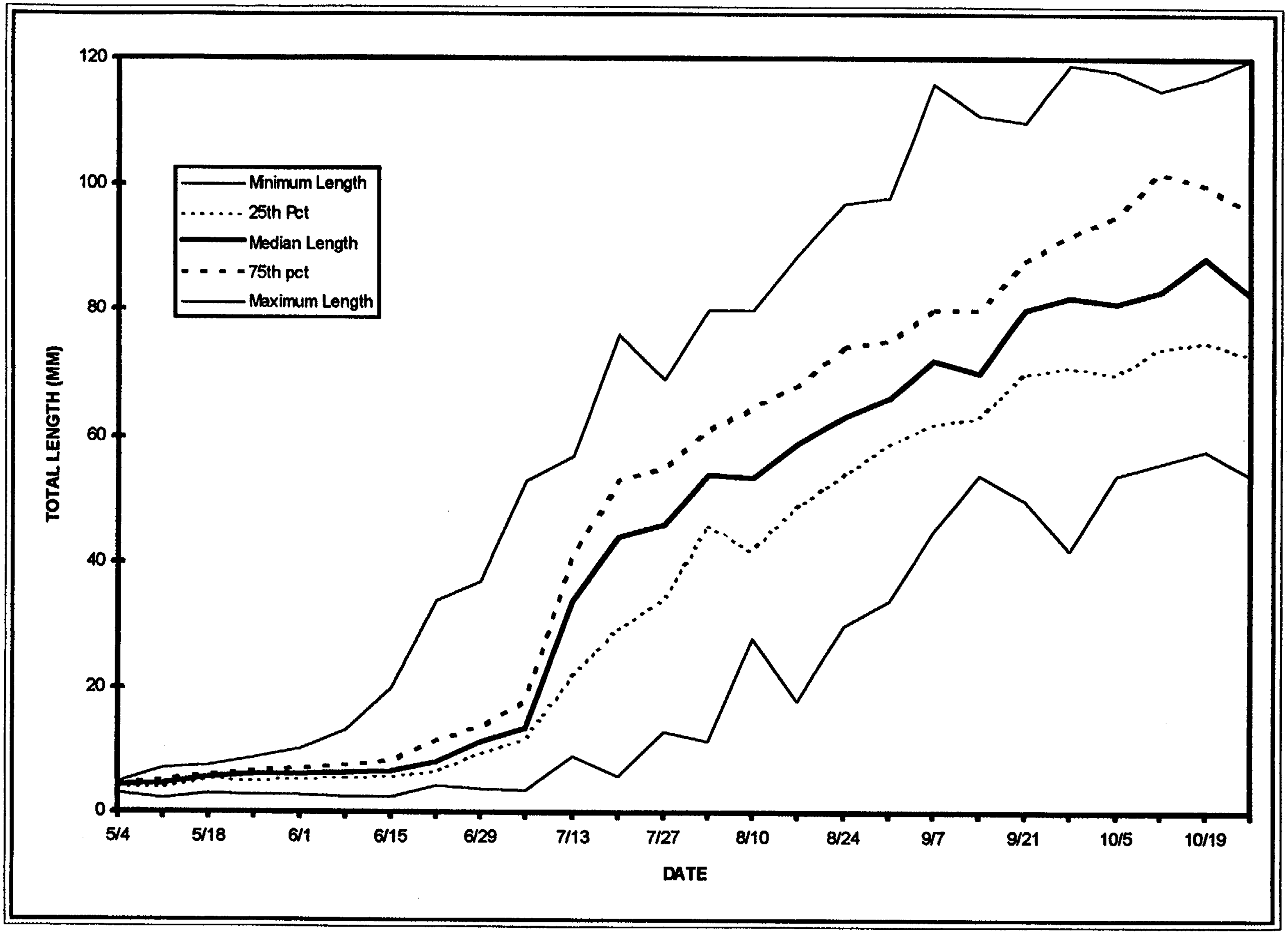


Figure 4-8 Weekly length statistics for striped bass larvae and young-of-the year in the Hudson River Estuary, 1992

4.3 WHITE PERCH

White perch (*Morone americana*) resemble the closely related striped bass in general form and structure but are deeper bodied, more laterally compressed, and have no stripes. Adult white perch are much smaller than adult striped bass, averaging less than 10 in. in length and less than 3 lb in weight. Coloration ranges from dark olive to dark gray on the dorsal surface, shading to silvery white on the belly.

The natural range of this species extends along the Atlantic coast of North America from the southern Maritime Provinces of Canada and the St. Lawrence River to South Carolina in brackish and freshwater areas near the coast. White perch are essentially estuarine, but landlocked populations exist in fresh water throughout their range (Mansueti 1964). Freshwater populations predominate in the northern part of the range and white perch are uncommon in salt water north of Cape Cod (Rounsefell 1975). Probably as a result of dispersal through canals, they are now found in Lakes Ontario and Erie (Hubbs and Lagler 1958). They have also been introduced accidentally into the Missouri River drainage (Hergenrader and Bliss 1971).

Coastal populations overwinter in the deeper waters of middle and lower estuaries (Mansueti 1957; Markle 1976). White perch spawn in shallow water following upstream migrations to areas of fresh or slightly brackish waters during the spring and early summer. Spawning also occurs in tributary streams. After spawning, adult white perch generally return to the lower reaches of estuaries. In the Hudson River estuary spawning occurs from early May to early July, primarily north of Croton Bay. After spawning, many adults move downriver to areas of higher salinity in Haverstraw Bay and the Tappan Zee region.

Female Hudson River white perch produce from 16,000 to 161,000 eggs (Bath and O'Connor 1982). White perch eggs do not contain an oil globule and are small, 1/16 in. in diameter. They sink to the bottom and, because they are very adhesive, stick to each other and to anything else they contact (Mansueti 1964). In the Hudson River during 1992 white perch eggs were most abundant in the upper estuary (Figure 4-9).

Hatching occurs in 1.5 to 6 days, with development occurring faster at higher temperatures. Newly hatched YSL are 1/16 to 1/8 in. long. They remain on or near the bottom for three to five days and do not move about actively until the yolk sac is absorbed (Mansueti 1964). White perch YSL larvae were most abundant in the upper estuary during 1992 but extended somewhat downriver of the area where eggs were most abundant (Figure 4-9).

The yolk sac is completely absorbed when the larvae are a little over 1/8 in. long; the end of the PYSL stage occurs when the adult fin complement develops, usually about one month after hatching and when the young white perch are about 1 in. in length. During 1992 white perch PYSL were most abundant in the upper estuary but also were found in the middle estuary, from Poughkeepsie south to Indian Point (Figure 4-10). In the middle estuary white perch PYSL co-occur extensively with striped bass PYSL.

White perch reach the juvenile stage beginning in mid June and during 1992 young-of-the-year fish were found primarily in the middle estuary between the Hyde Park and Cornwall regions (Figure 4-11).

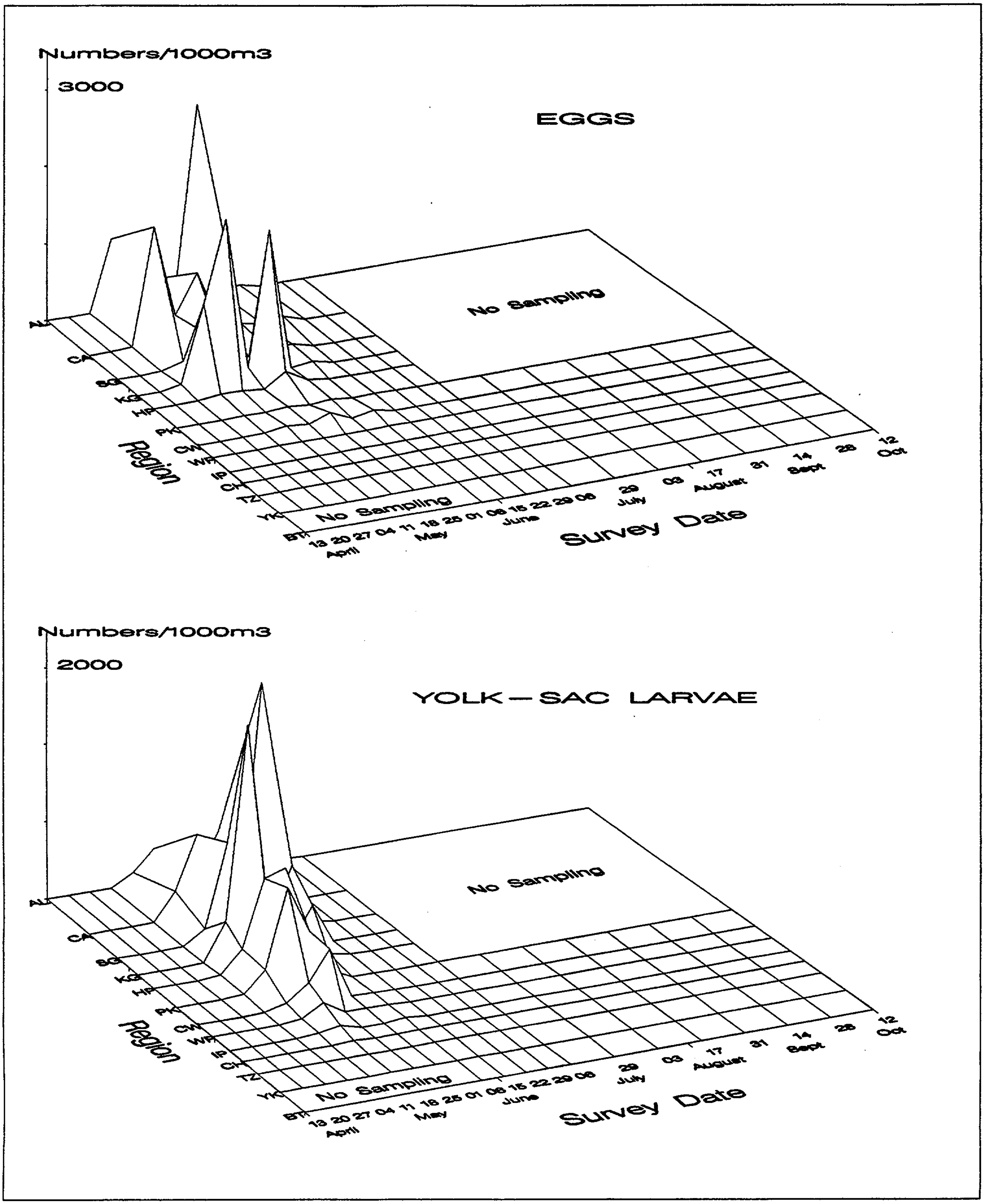


Figure 4–9. Spatiotemporal distribution of egg and yolk–sac stages of white perch in the Hudson River estuary based on the 1992 Long River Ichthyoplankton Survey.

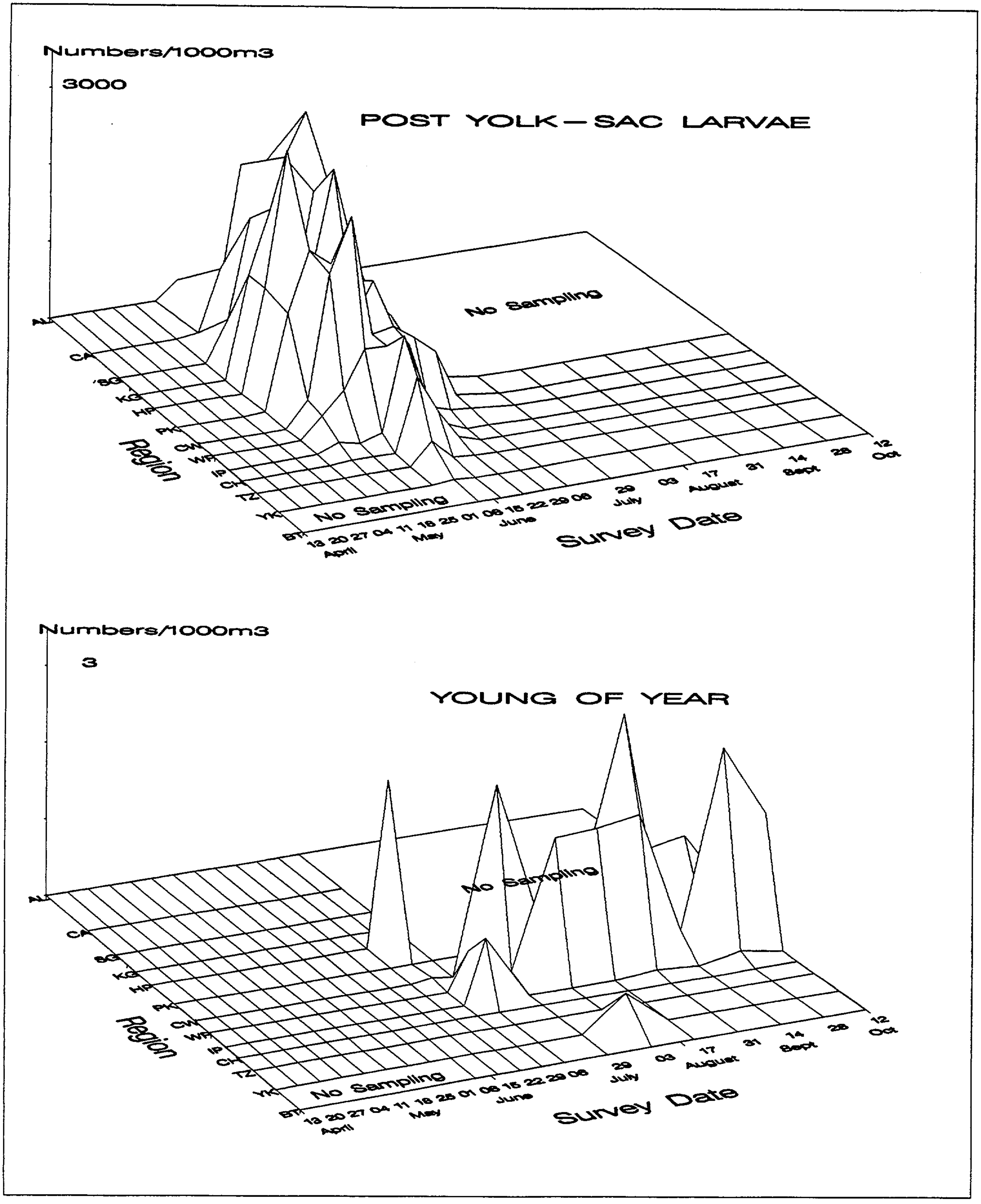


Figure 4-10. Spatiotemporal distribution of post yolk-sac and young-of-year stages of white perch in the Hudson River estuary based on the 1992 Long River Ichthyoplankton Survey.

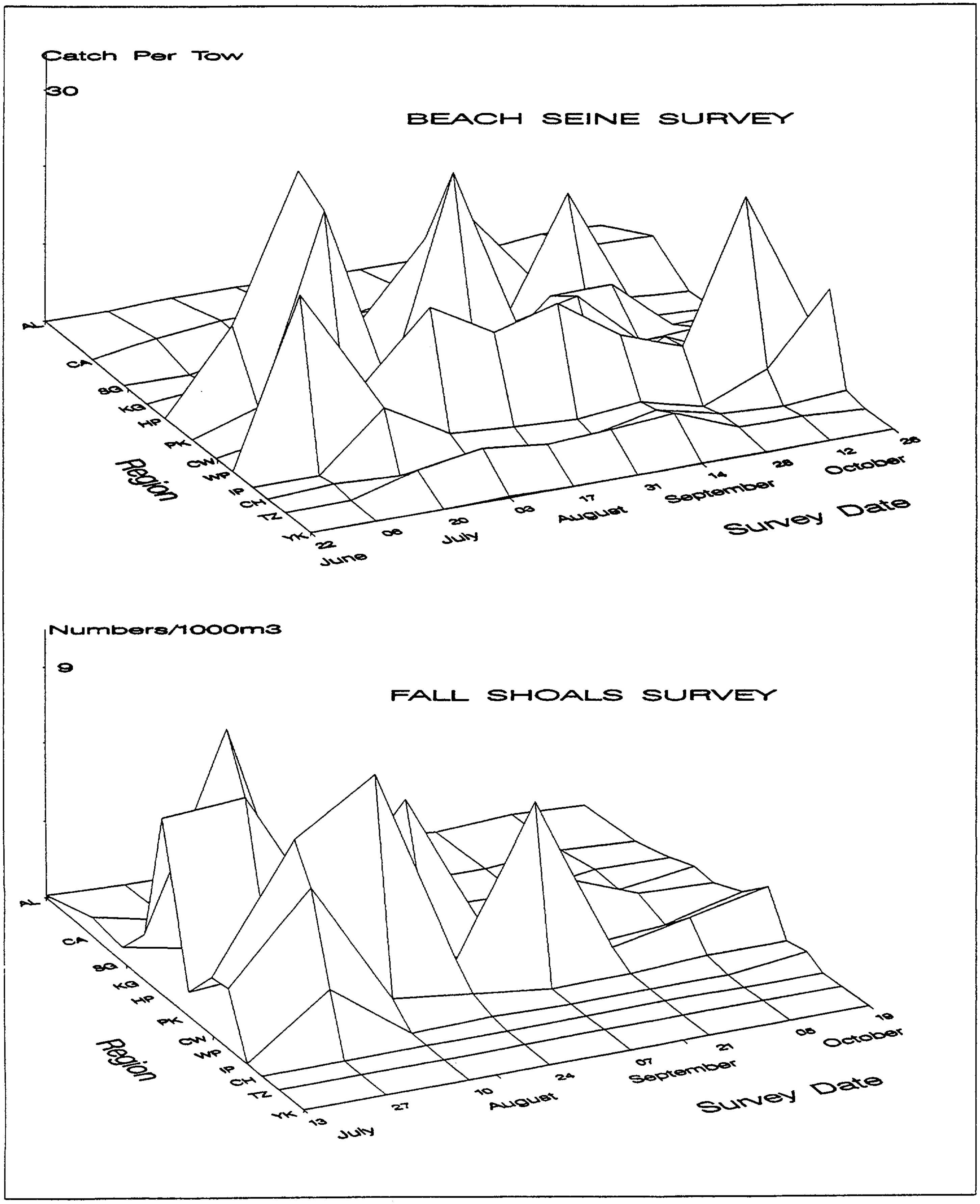


Figure 4-11. Spatiotemporal distribution of young-of-year white perch in the Hudson River estuary based on the 1992 Fall Shoals and Beach Seine Surveys.

Juvenile white perch are about 3 in. long by the end of their first summer (Klauda et al. 1988a). They are prey for larger predators (including adult white perch and striped bass). Based on the 1992 BSS and FSS, yearling and older white perch were more evenly distributed throughout the Hudson River than juveniles (Figure 4-12). In the Hudson River estuary some white perch of both sexes become sexually mature at age 2, but all males and females are mature by ages 4 and 5, respectively (Klauda et al. 1988a).

Comparing the temporal distribution of early life stages of white perch in 1992 with previous years (1974-1991), it is apparent that in 1992 white perch eggs were generally evenly distributed over weeks 18-22 (May through the first week in June), which is somewhat early in the period of occurrence recorded for eggs (Figure 4-13). YSL temporal distribution tended not to be as evenly distributed in 1992 as seen in the long term record, whereas PYSL distribution was generally consistent with the historical trend (Figure 4-13).

White perch eggs in the 1992 LRS were primarily in the Kingston, Catskill and Albany regions and the proportions of eggs in the Kingston region was substantially higher than observed in the historical trend. However, YSL and PYSL distributions were generally consistent with patterns seen across years (Figure 4-14).

The 1992 geographical distribution of young-of-the-year and yearling white perch in the BSS was not consistent with the long term trend, since the main distribution was not centered in the Tappan Zee and Croton-Haverstraw regions but tended to be more evenly distributed with a larger proportion found in upriver regions, such as Saugerties and Catskill (Figure 4-15).

Weekly length statistics for white perch from yolk sac through juvenile life stages collected in 1992 show a rapid growth period beginning in early July and steady growth through the end of BSS/FSS collections in mid October (Figure 4-16 and Appendix Tables D-4 through D-6).

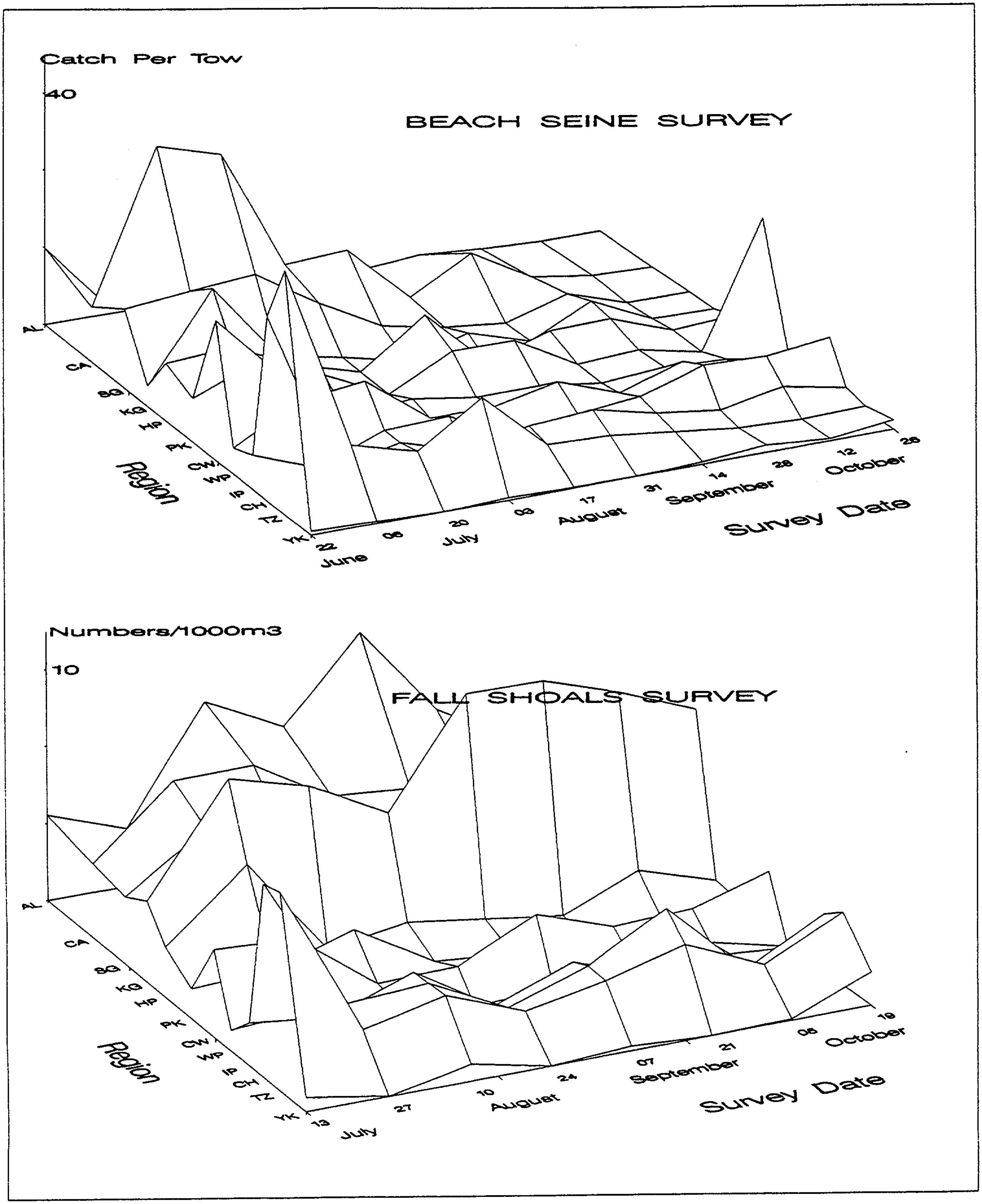


Figure 4 – 12. Spatiotemporal distribution of yearling and older white perch in the Hudson River estuary based on the 1992 Fall Shoals and Beach Seine Surveys.

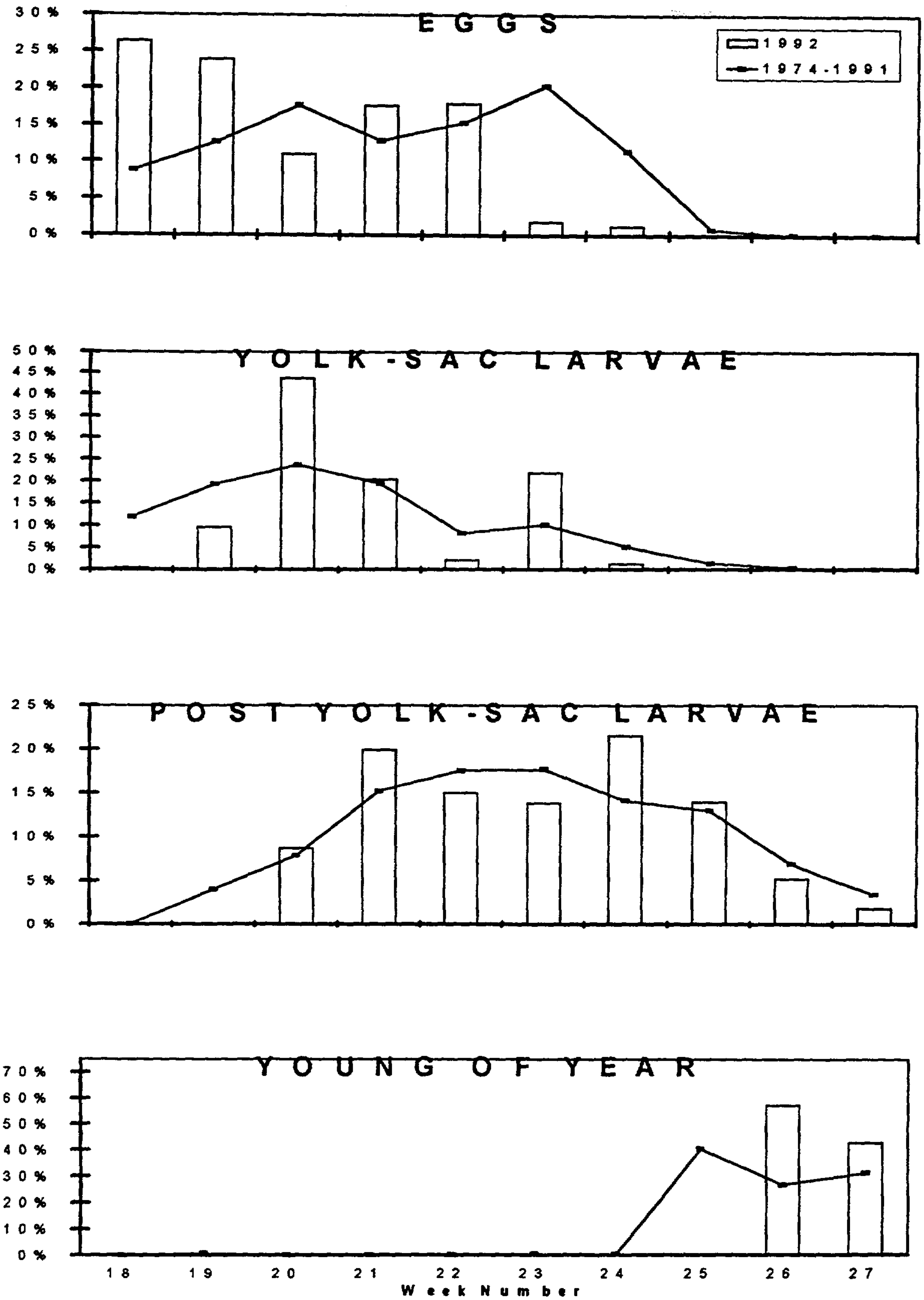


Figure 4-13 Temporal distribution indices for early life stages of white perch collected during Longitudinal River Ichthyoplankton Surveys of the Hudson River Estuary, 1974 - 1992.

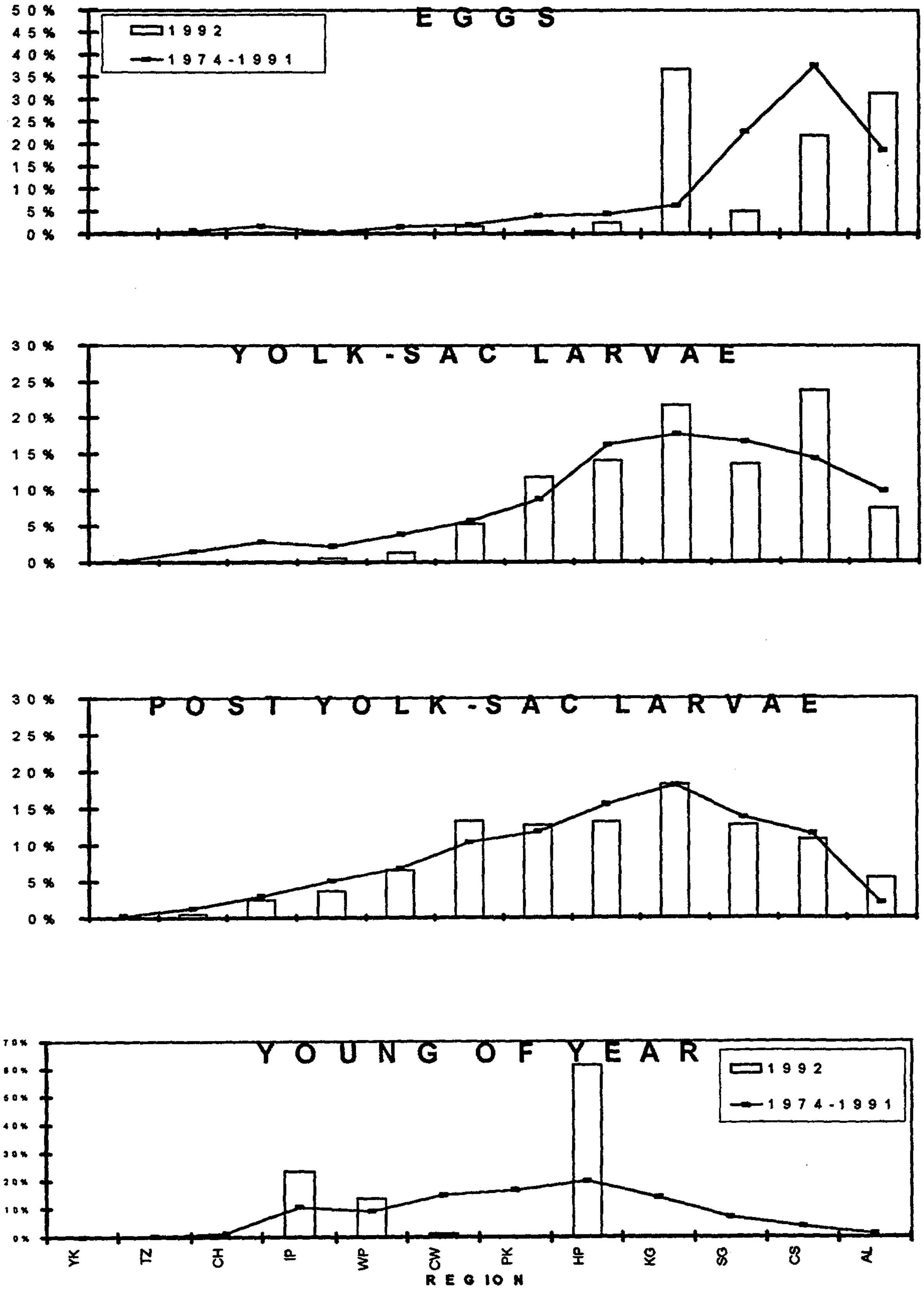


Figure 4-14 Geographical distribution indices for early life stages of white perch collected during Longitudinal River Ichthyoplankton surveys of the Hudson River Estuary, 1974 - 1992.

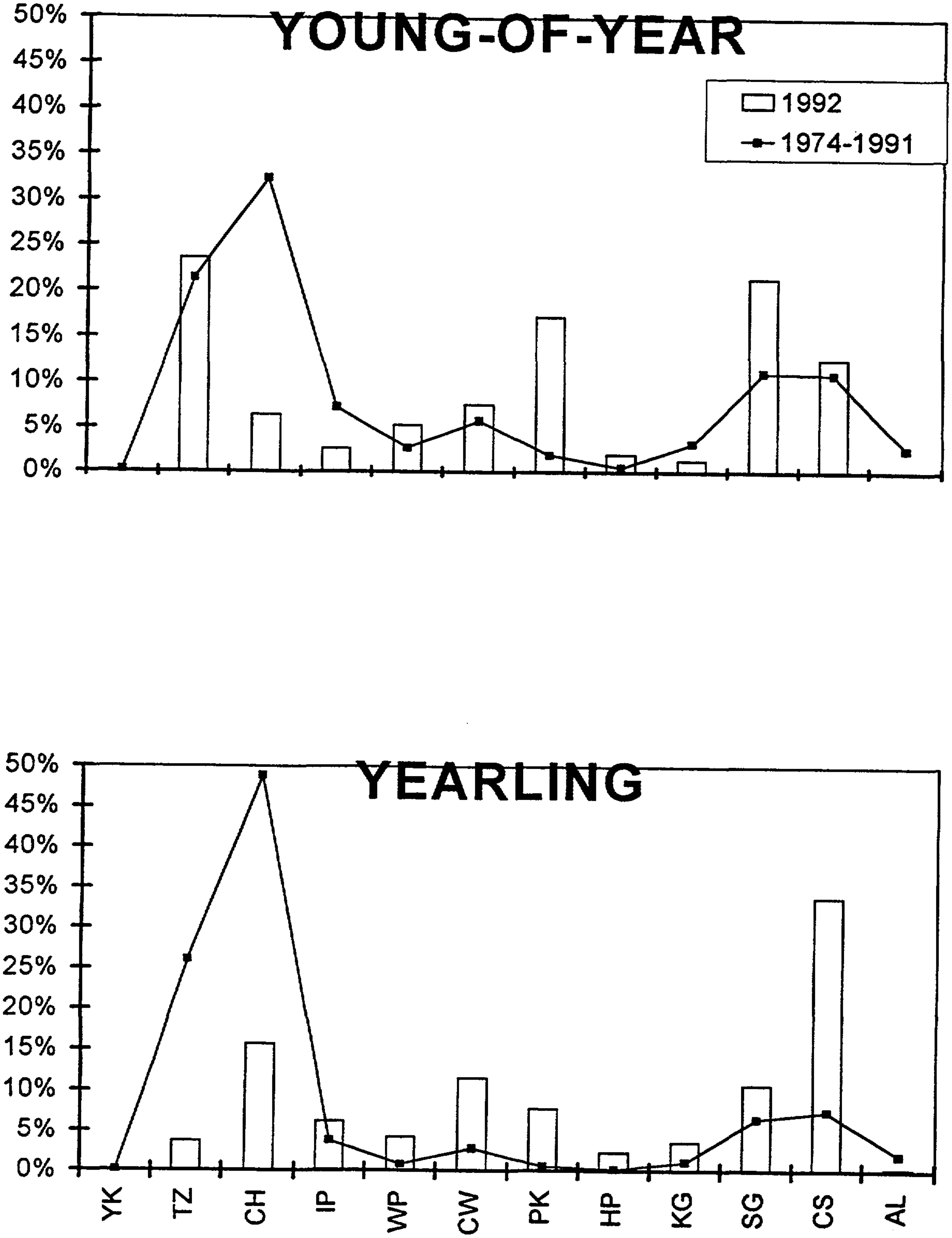


Figure 4-15 Geographical distribution indices for young-of-year and yearling white perch collected during Beach Seine Surveys of the Hudson River Estuary, 1974 - 1992.

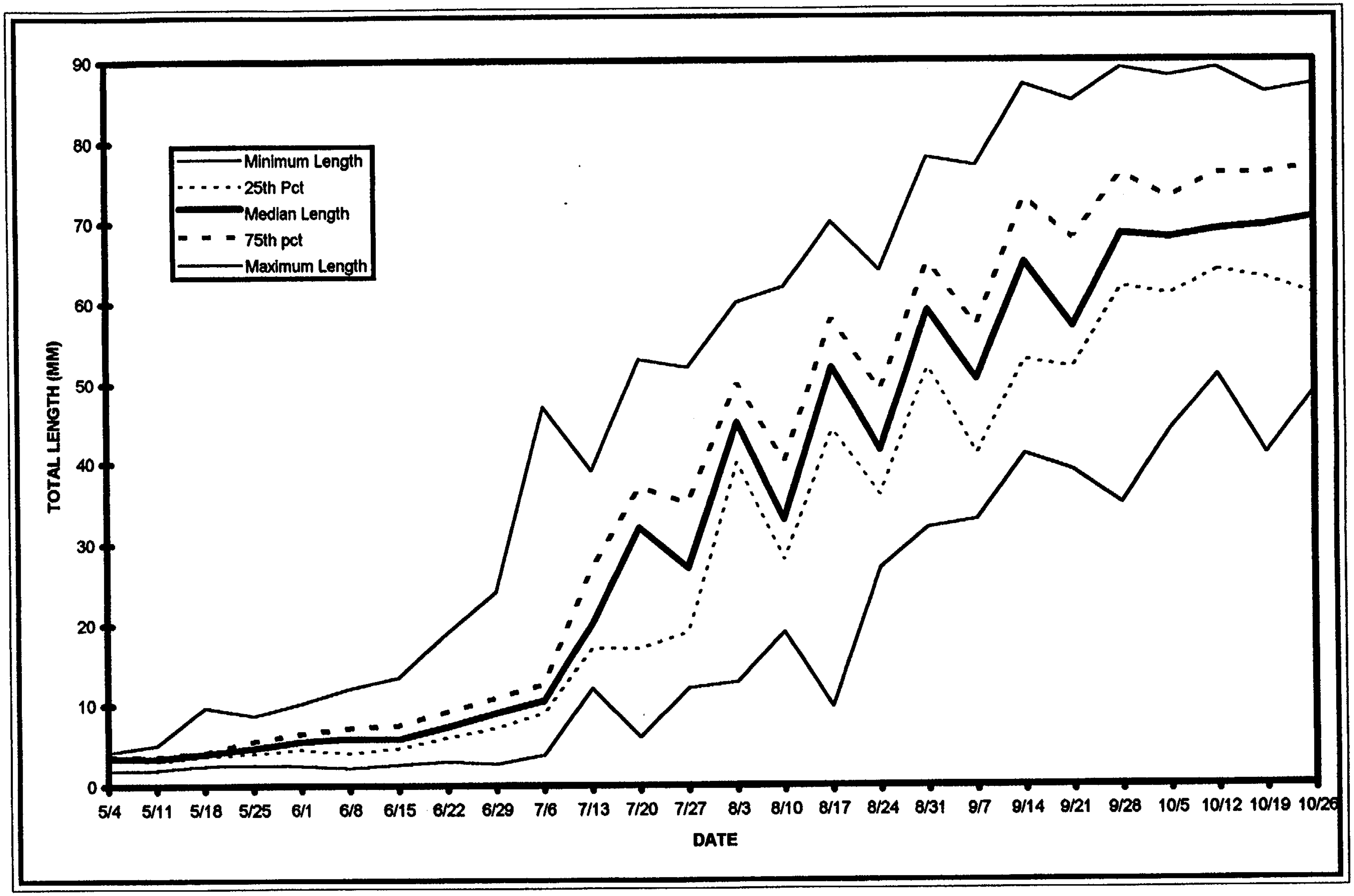


Figure 4-16 Weekly length statistics for white perch larvae and young-of-the year in the Hudson River Estuary, 1992

4.4 ATLANTIC TOMCOD

Nineteen members of the codfish family (Gadidae) are found along the Atlantic coast of Canada and the United States, but only the Atlantic tomcod (*Microgadus tomcod*), an inshore species that ranges from Labrador to the Chesapeake Bay, is anadromous; the southern limit of its spawning range is the Hudson River (Grabe 1978). In Canada the Atlantic tomcod occurs in the mid- to lower St. Lawrence River and is landlocked in at least two freshwater lakes (Scott and Crossman 1973).

Atlantic tomcod enter coastal estuaries and rivers to spawn in shallow fresh or brackish water during midwinter. In the Hudson River estuary adult Atlantic tomcod occur at least as far north as the Saugerties region during spawning runs; the largest concentrations, however, are consistently found in the middle estuary between West Point and Poughkeepsie. After spawning in late December or early January, Atlantic tomcod return to coastal waters.

The Hudson River population is the southernmost major breeding population (Dew and Hecht 1976). No spawning has been documented in either the Connecticut River (Marcy 1976) or Long Island Sound (Richards 1959), and limited spawning may occur in the Raritan River and/or Raritan Bay (IA 1977). Unlike more northern populations, age 1 fish constitute most of the Hudson River spawning stock.

Atlantic tomcod eggs are about 1/16 in. in diameter and nonadhesive. The average number of eggs per female in the Hudson River population has ranged from 12,400 to 22,500 eggs at age 1 and from 32,500 to 53,100 eggs at age 2 (NAI 1992). In the Hudson River water temperatures are generally less than 37 °F when spawning occurs, and the eggs take at least a month to hatch.

Tomcod larvae are about 1/5 in. long at hatching. YSL are pelagic and move downstream as they develop. The yolk sac is absorbed by ¼ in., and onset of feeding by PYSL may depend on water temperatures. In the Hudson River the abundance of YSL peaks in March. YSL are found throughout the lower half of the estuary, whereas PYSL are concentrated in the Yonkers and Tappan Zee regions.

Since the LRS began in mid April during 1992, no YSL were collected in ichthyoplankton samples. However, during 1992 PYSL were collected from mid April through early May between the West Point and Yonkers regions (Figure 4-17). Juvenile Atlantic tomcod collected in the LRS reached their peak numbers in mid-May 1992, mainly in the Indian Point through Tappan Zee regions. Although some juvenile tomcod remain in the Hudson River throughout the summer, some proportion of the population may move out of the lower estuary into New York Bay and Raritan Bay when water temperatures rise during late May and June. Throughout summer and fall 1992, the BSS collected juvenile Atlantic tomcod primarily in the Tappan Zee and Croton-Haverstraw regions whereas in the FSS they were collected primarily in the Cornwall and West Point regions (Figure 4-18). Few yearling and older Atlantic tomcod were collected in the BSS or FSS; however, a rapid increase in catch effort in the FSS is evident in October in the Yonkers region (Figure 4-19). This increase in catch may reflect the beginning of the upriver spawning migration which occurs in late fall and early winter.

Comparing the temporal distribution of early life stages of Atlantic tomcod in 1992 with the long term data base (beginning in early May) available from previous years (1974-1991), it is apparent that in 1992 post yolk-sac and young-of-the-year distributions were consistent with the long term record (Figure 4-20). The geographical distributions of post yolk-sac and juveniles collected in the 1992 LRS

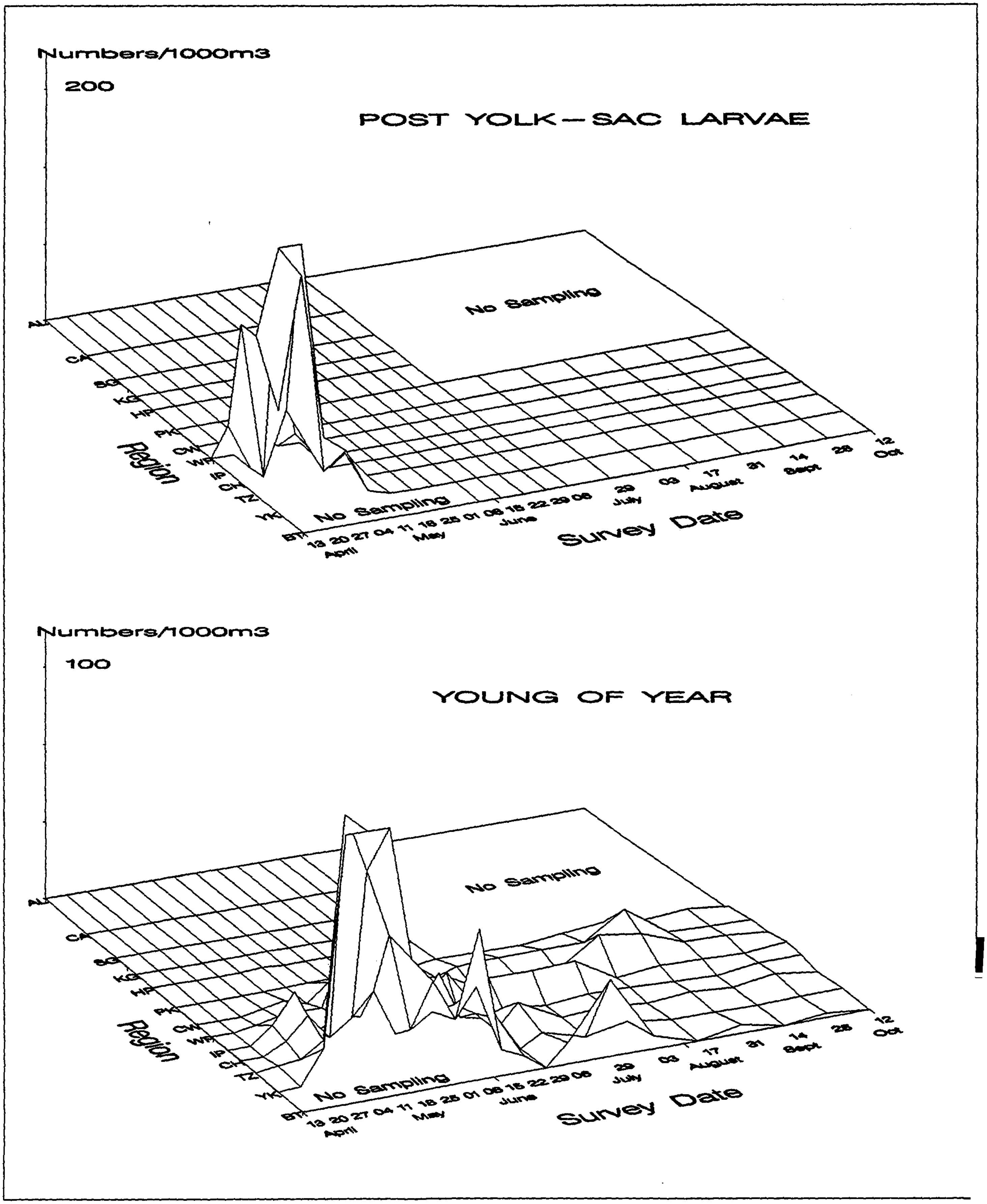


Figure 4-17. Spatiotemporal distribution of post yolk-sac and young-of-year stages of Atlantic tomcod in the Hudson River estuary based on the 1992 Long River Ichthyoplankton Survey.

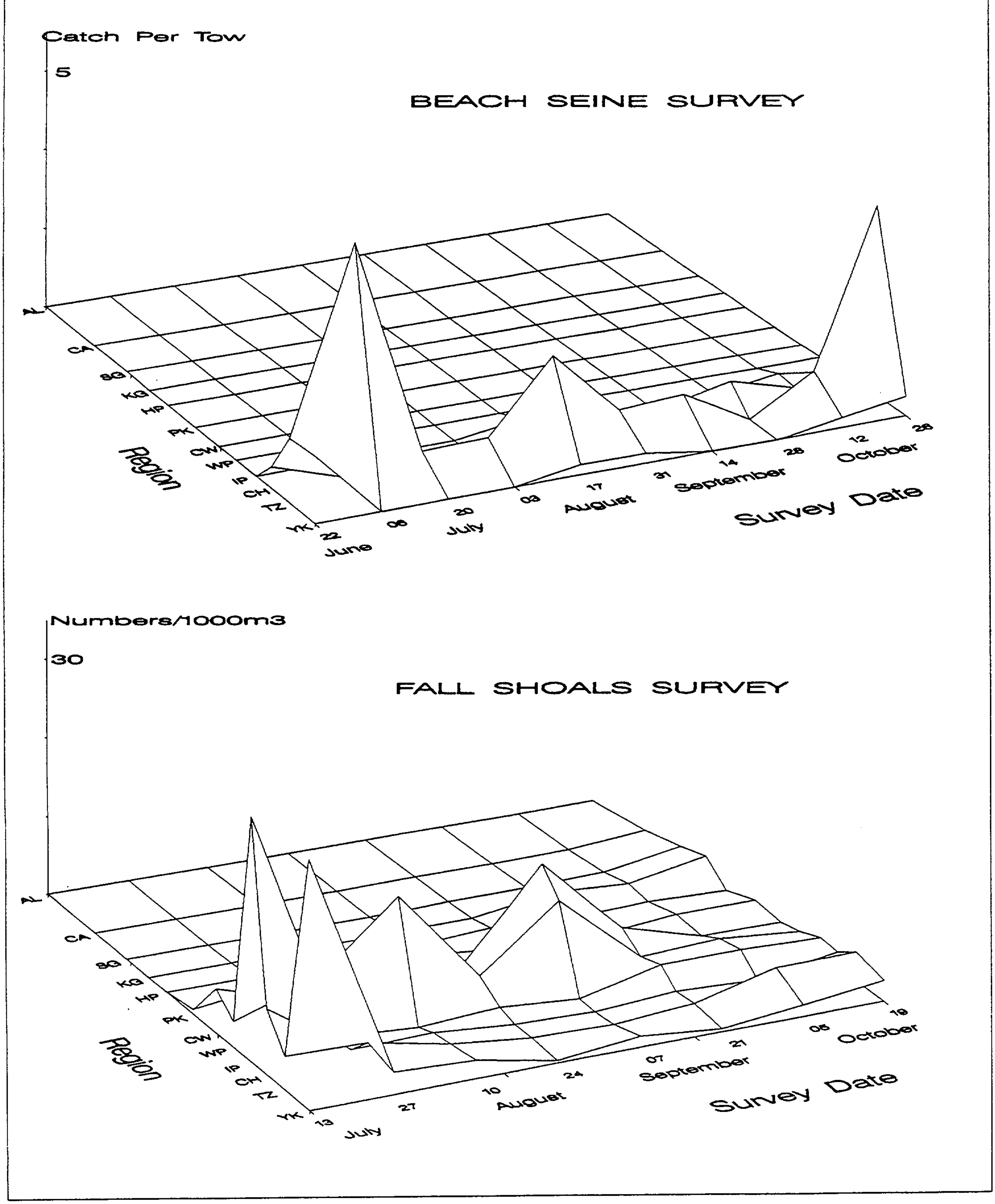


Figure 4–18. Spatiotemporal distribution of young–of–year Atlantic tomcod in the Hudson River estuary based on the 1992 Fall Shoals and Beach Seine Surveys.

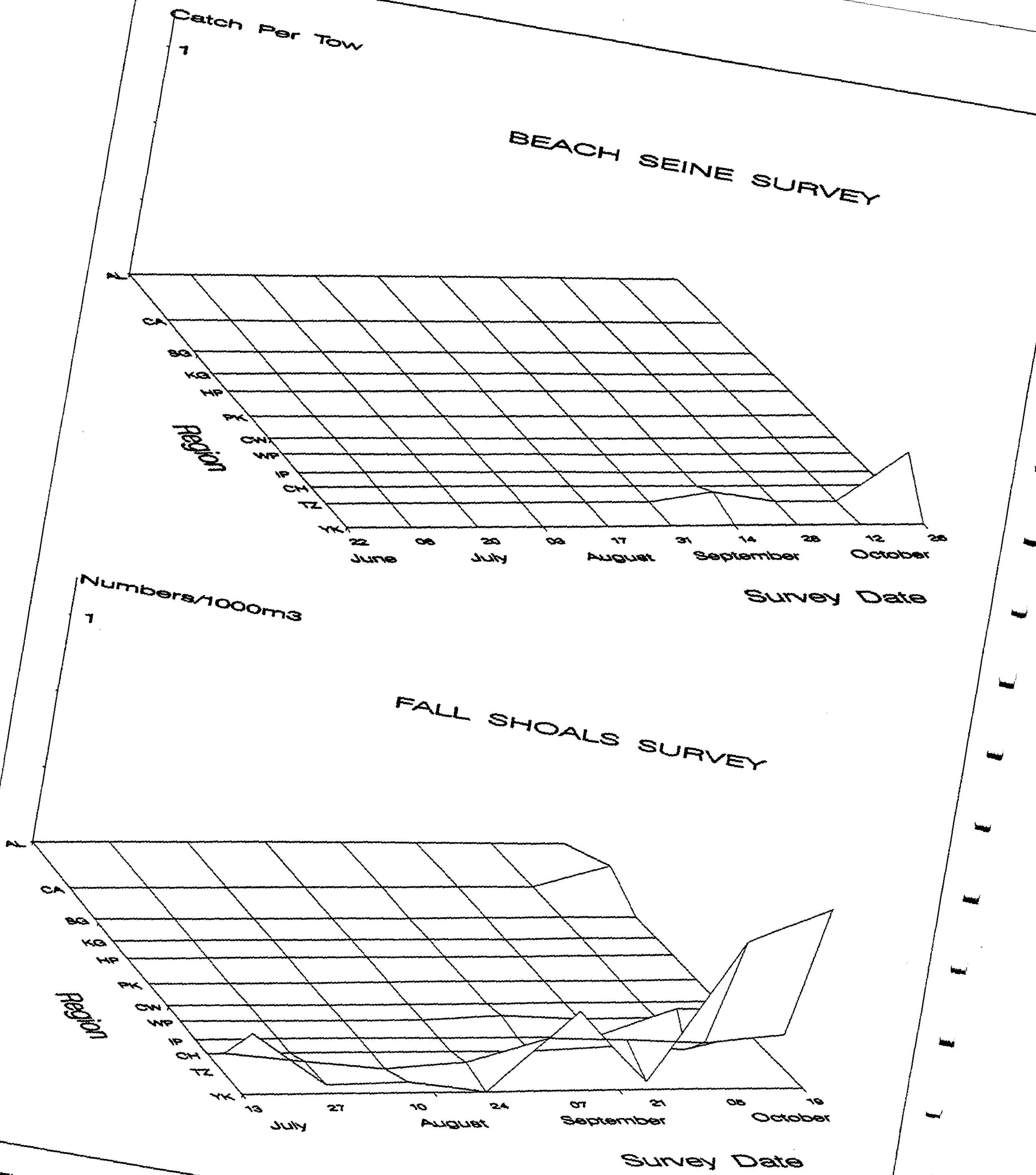
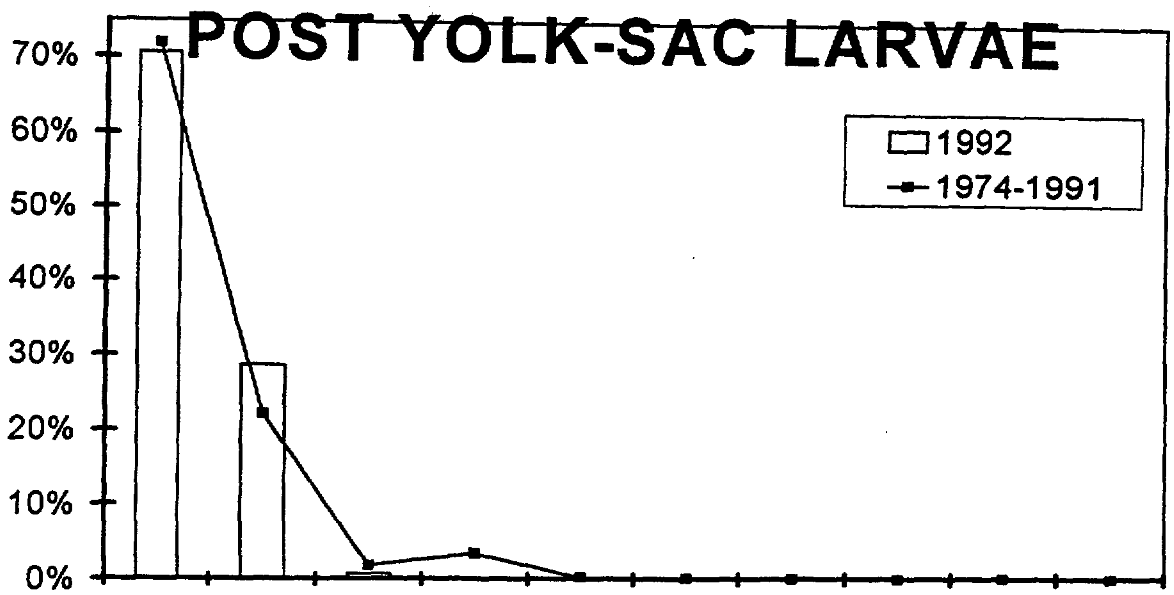


Figure 4–19. Spatiotemporal distribution of yearling and older Atlantic tomcod in the Hudson River estuary based on the 1992 Fall Shoals and Beach Surveys.



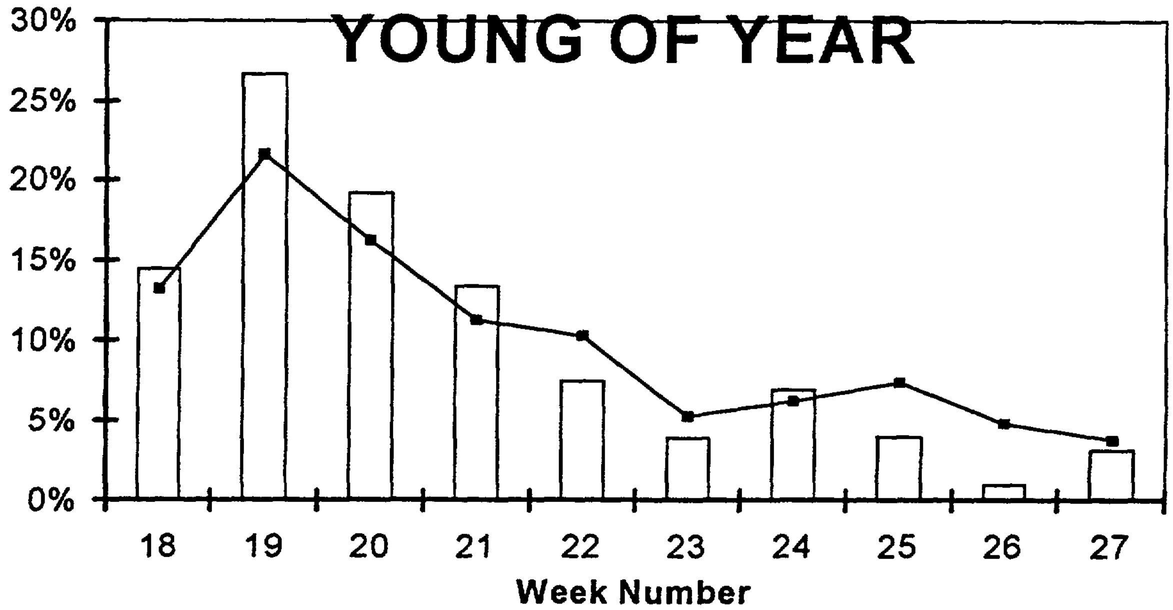
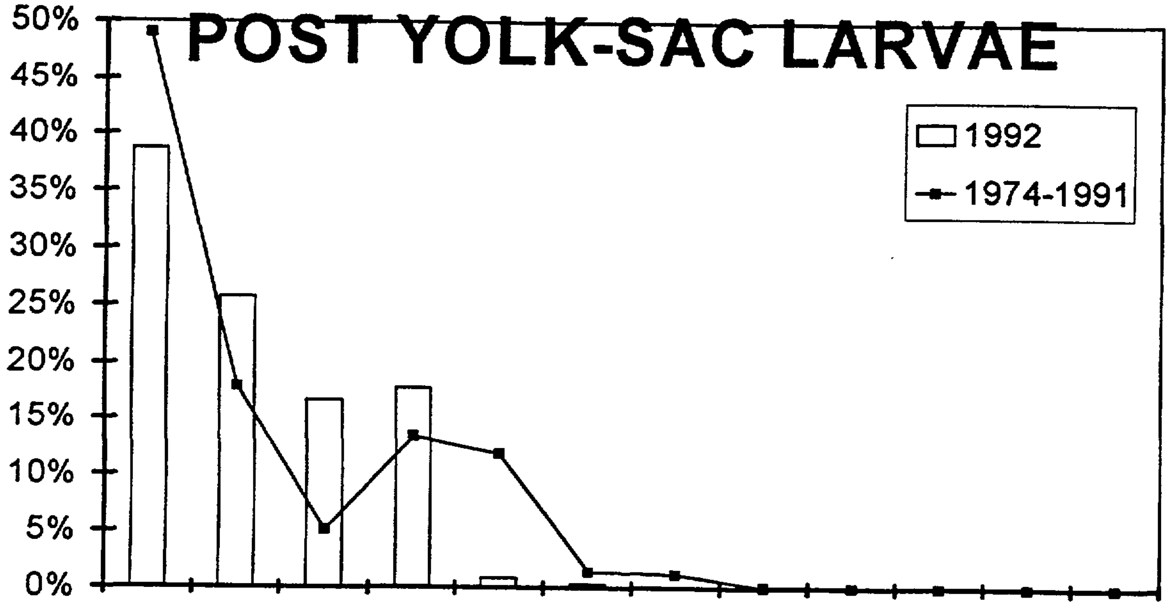


Figure 4-20 Temporal distribution indices for early lifestages of Atlantic tomcod collected during Longitudinal Ichthyoplankton Surveys of the Hudson River Estuary, 1974 - 1992.

were also consistent with the long term trend with the bulk of the population found in the Yonkers and Tappan Zee regions (Figure 4-21). Geographical distribution indices based on the beach seine survey program indicated that 1992 was very consistent with the long term record, with a high proportion of all juveniles and older Atlantic tomcod found in the Tappan Zee region (Figure 4-22).

Juvenile growth slows or ceases in summer (Grabe 1978; Klauda et al. 1988b). Growth slows at temperatures above 66 °F and essentially stops in early July when temperatures exceed 71 °F. It begins again when water temperatures fall below 77 °F during late August and early September (TI 1978). During 1992, cessation of growth in the summer is evident from weekly length statistics obtained from BSS and FSS collections (Figure 4-23 and Appendix Tables D-7 and D-8). Following a period of rapid growth during the fall, mature young-of-year (YOY) migrate upriver to spawn. Juvenile tomcod generally double their summer length by December to a mean total length about 6 in. Most of the juvenile Atlantic tomcod in the Hudson River are sexually mature by the end of December and reproduce in early January.



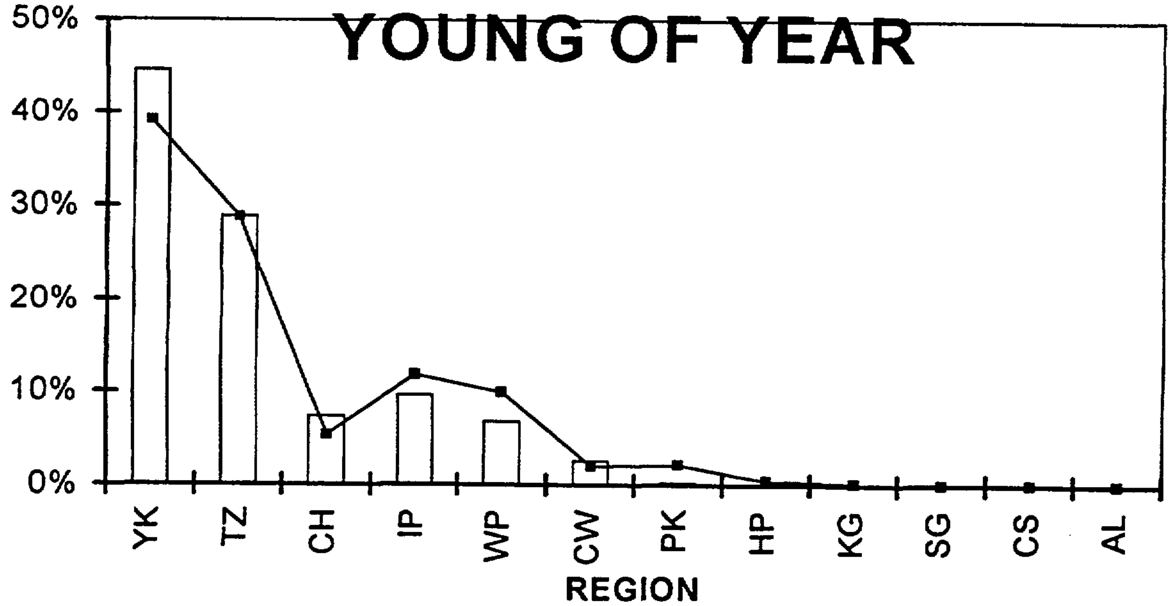


Figure 4-21 Geographical distribution indices for early lifestages of Atlantic tomcod collected during Longitudinal Ichthyoplankton Surveys of the Hudson River Estuary, 1974 - 1992.

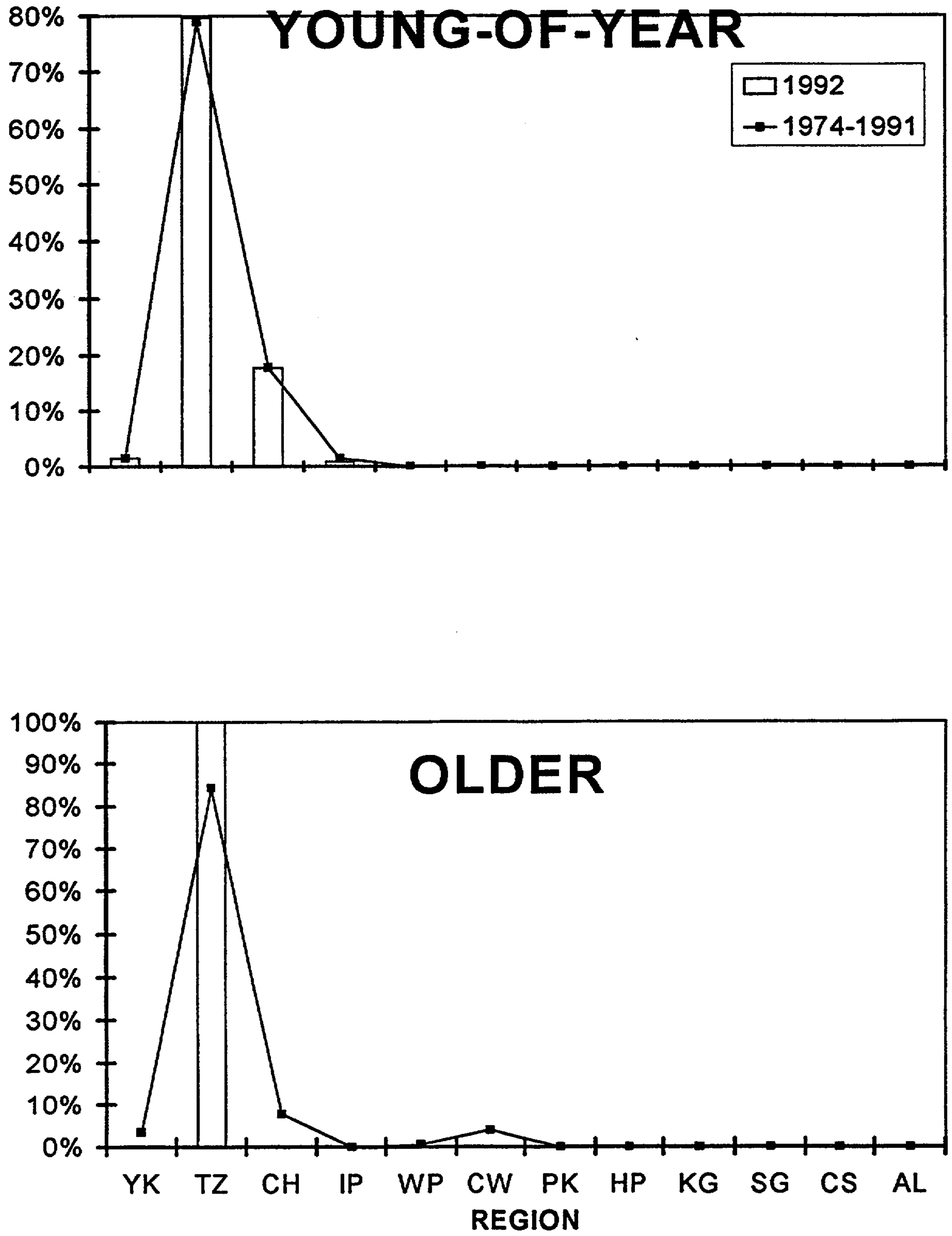


Figure 4-22 Geographical distribution indices for young-of-year and older Atlantic tomcod collected during Beach Seine Surveys of the Hudson River Estuary, 1974 - 1992.

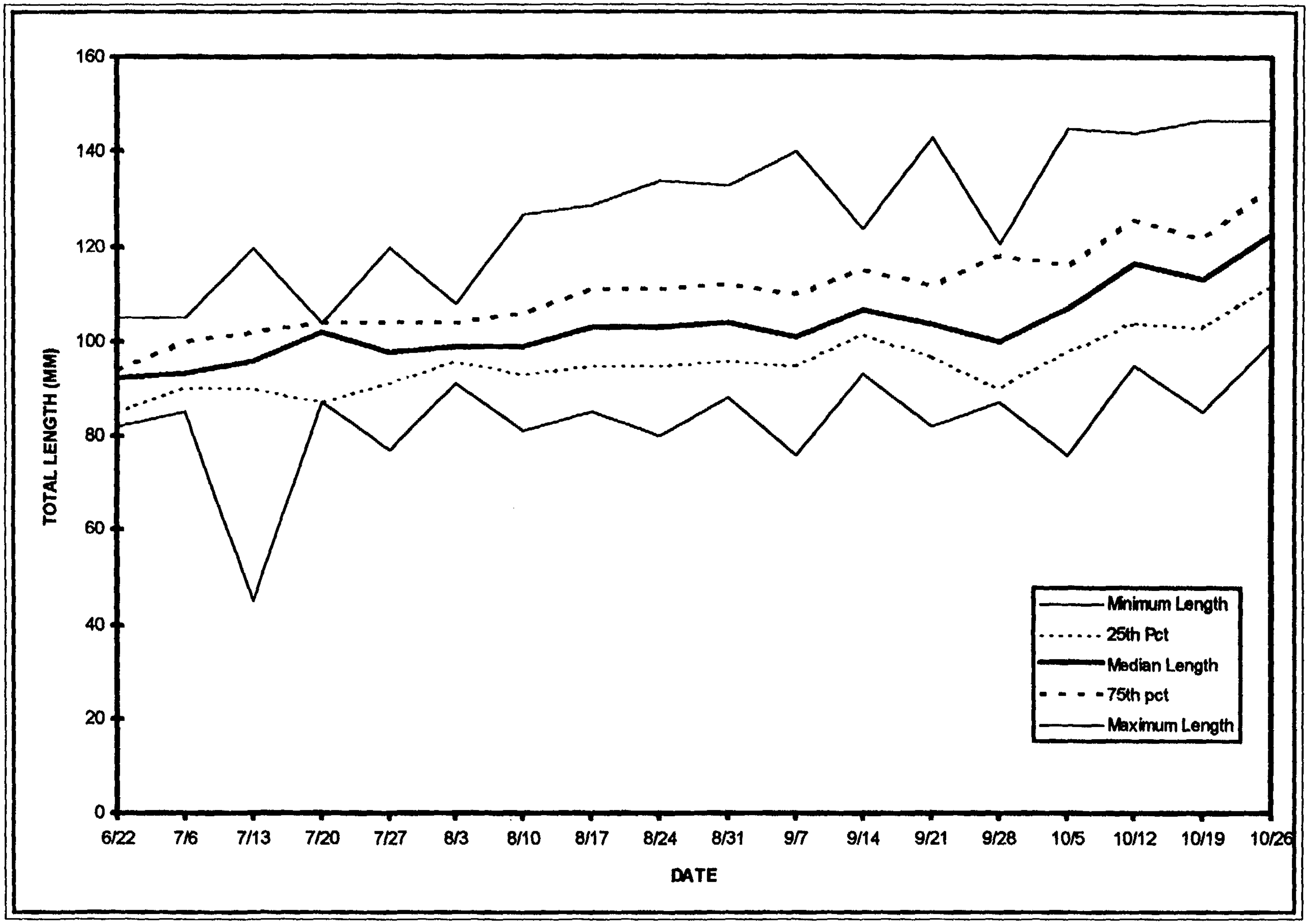


Figure 4-23 Weekly length statistics for Atlantic tomcod larvae and young-of-the year in the Hudson River Estuary, 1992

4.5 BAY ANCHOVY

Bay anchovies (*Anchoa mitchilli*) are small, slender fish, 1½ to 4 in. long, that are ubiquitous in shallow coastal waters of North America from southern Maine to the Yucatan Peninsula. They have a wide salinity tolerance from fresh water to more than twice the salinity of normal sea water, but they prefer salinities found at seaward ends of estuaries. Where temperatures do not drop below 41 F during the winter, bay anchovies remain in the estuaries throughout the year (Wang and Kernehan 1979).

However, north of Delaware Bay, where water temperatures do go below 41°F during the winter, NMFS trawl data indicate that a movement of bay anchovies out of coastal estuaries and southward during the fall, resulting in an overwintering distribution ranging from Cape Hatteras to Delaware Bay and the virtual absence of bay anchovy from the inshore continental shelf of New York and New Jersey during the winter months (Vouglitois et al. 1987).

Bay anchovy school in large numbers and feed on plankton as they swim. Their mouths are large relative to their small size, which enables them to pass relatively large quantities of water through their gill rakers (long, slender projections on their gills) and filter out their prey. They feed throughout the water column and primarily eat invertebrates. Larval anchovies feed on a variety of microzooplankton, including the larval stages of crustaceans and mollusks. Juvenile and adult bay anchovy feed on larger macrozooplankton, including copepods, cladocerans, amphipods, and mysids.

Bay anchovies rarely survive more than two years. They grow rapidly and mature at a size of 1 to 2 in. In warm waters they may mature within three months of hatching, but in cooler, northern waters they usually mature in their second summer, 11 to 14 months after hatching. They are also very prolific: individual females may spawn 50 or more times per year, averaging about 1100 eggs per spawn (Houde and Zastrow 1991). Partially as a result of this early maturity and high fecundity, bay anchovies may be the most abundant fish species in the western north Atlantic (McHugh 1967).

Bay anchovies spawn in lower estuarine and inshore coastal waters throughout the warmer months of the year. In the New York Bight spawning occurs from May through August and September, with peak egg abundance occurring in late June or early July when water temperatures exceed 70 °F. Adults spawn in areas where the salinity is greater than 10 ppt. Egg abundance is typically highest in waters with salinities greater than 20 ppt, and egg viability apparently declines at salinities lower than 8 ppt. Spawning occurs throughout all areas of the Hudson-Raritan Bay complex, including Raritan and Newark bays, Arthur Kill, Kill Van Kill, and the upper and lower bays as well as throughout Long Island Sound.

Within the Hudson River, bay anchovy eggs are most abundant in the Yonkers and Tappan Zee Regions (Figure 4-24). The eggs, which are about 1/16 in. long, are transparent and initially buoyant, but sink after 12 to 16 hrs of floating. Hatching occurs approximately 24 hrs after spawning. Newly hatched YSL are about 1/16 to 1/8 in. long, transparent, and drift along the bottom with the tidal currents. The YSL stage is very brief, and typically lasts less than one day. Due to their small size, short duration, and epibenthic nature, few YSL are collected in the utilities' ichthyoplankton samples. The PYSL stage is longer, and lasts about a month. In the Hudson River the peak abundance of PYSL occurs during early July and the center of their distribution shifts slightly upriver compared to that of eggs and yolk-sac larvae (Figure 4-25).

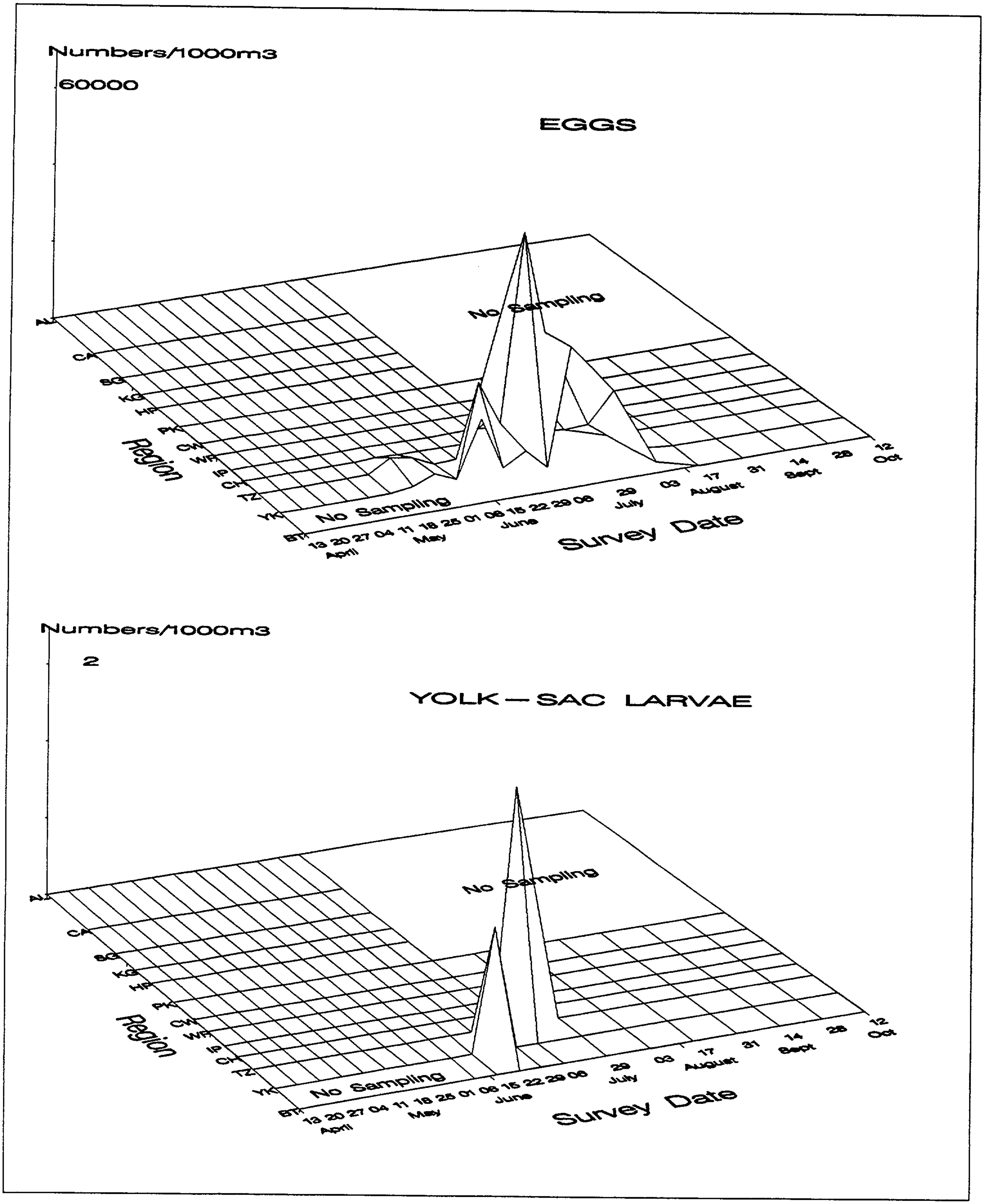
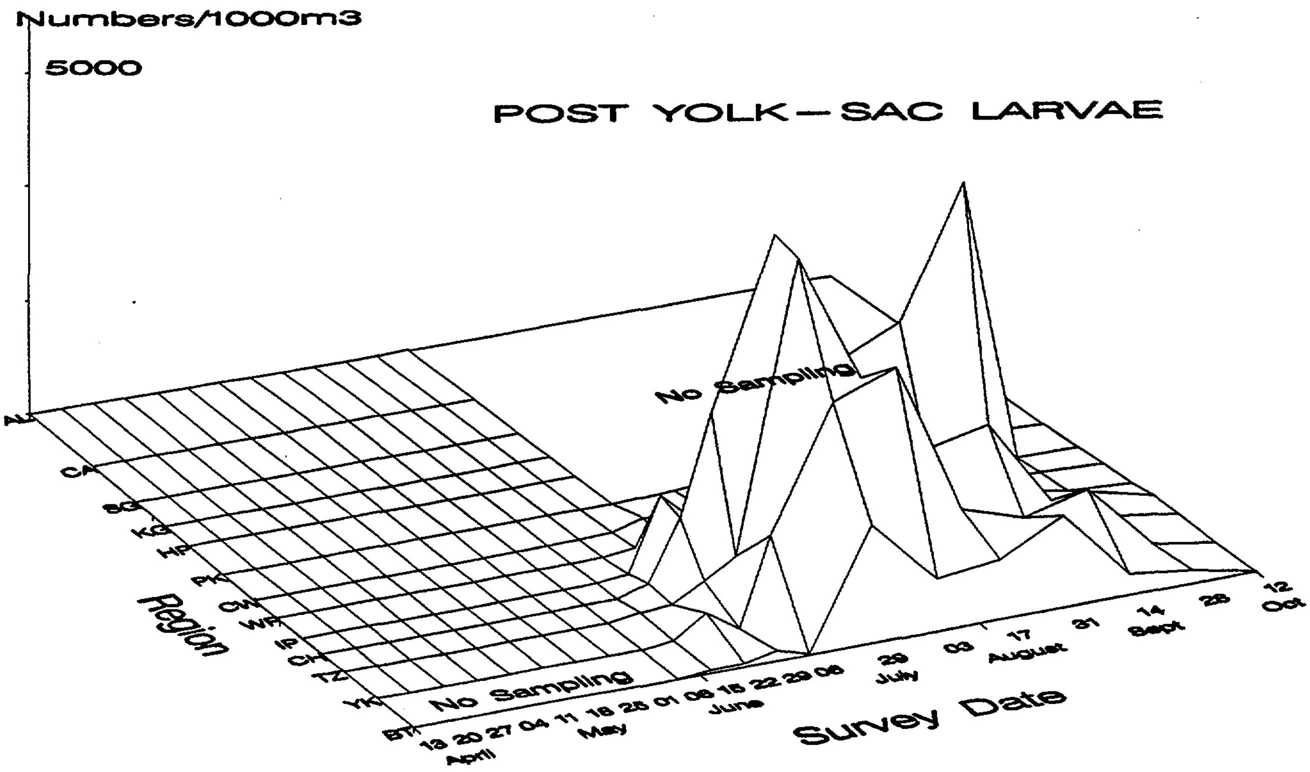


Figure 4–24. Spatiotemporal distribution of egg and yolk–sac stages of bay anchovy in the the Hudson River estuary based on the 1992 Long River Ichthyoplankton Survey.



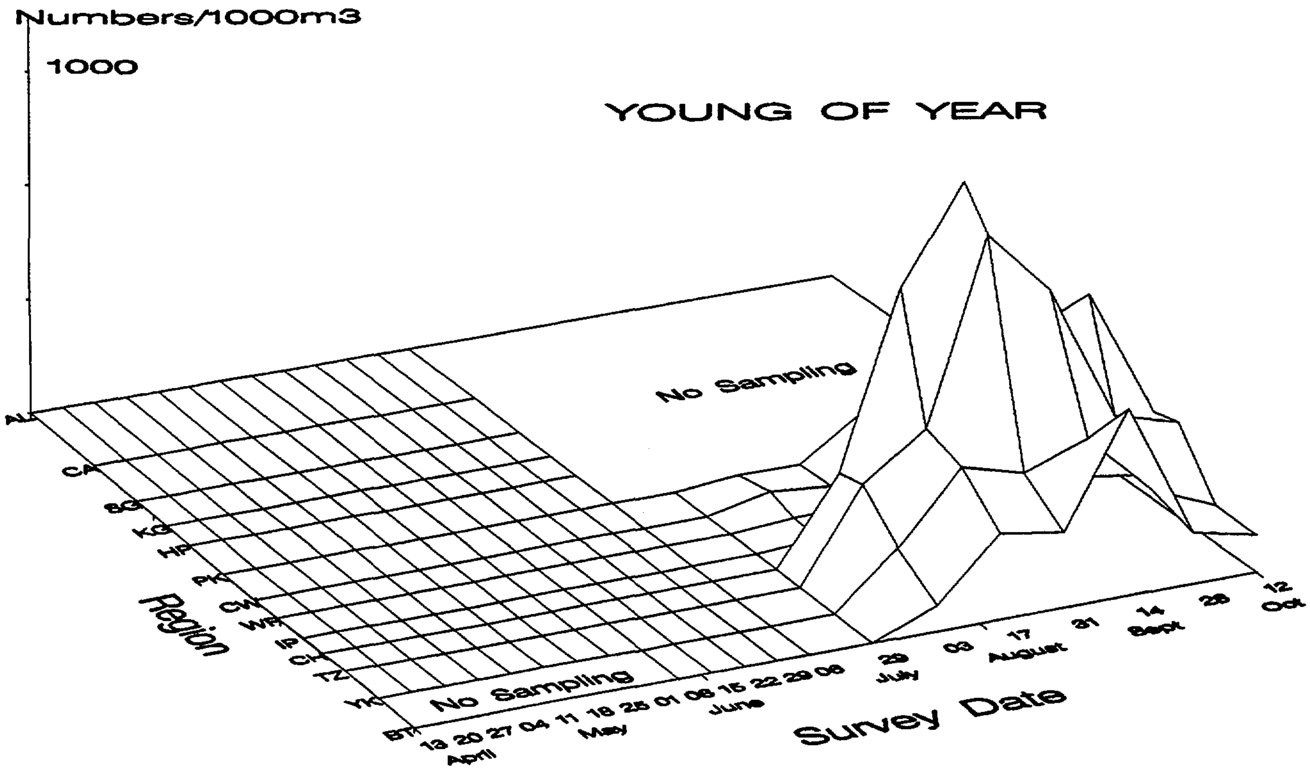


Figure 4-25. Spatiotemporal distribution of post yolk-sac and young-of-year stages of bay anchovy in the Hudson River estuary based on the 1992 Long River Ichthyoplankton Survey.

Bay anchovies are about ½ in. long at the beginning of the juvenile stage. Juvenile anchovies are found in the Hudson River estuary from mid-August through October and as far upriver as Albany (Schmidt 1992). During 1992, most of the juvenile population was located downstream of the West Point region (Figures 4-25 and 4-26). Yearling and older Atlantic tomcod were much less abundant than juveniles and they were more abundant early in the summer, compared to juveniles whose abundance was relatively constant throughout the summer and early fall (Figure 4-27).

Comparing the temporal distribution of early life stages of bay anchovy in 1992 with the prior four year period (1988-1991) when LRS sampling included the Battery region (River Miles 0-12), it is apparent that in 1992 bay anchovy egg distribution generally coincided with the long term trend where peak egg distribution was in mid June to early July (Figure 4-28). Peak post yolk-sac occurrence was somewhat later than normal with the peak distribution between late July and mid August. Peak juvenile distribution in the 1992 LRS also occurred later than seen over the four years that LRS sampling has been conducted in the Battery region and extended to mid October (Figure 4-28).

The geographical distribution of bay anchovy eggs in 1992 was consistent with the distribution pattern seen over the 1988-1991 period (Figure 4-29). The proportions of both post yolk-sac and young-of-the-year in the Croton-Haverstraw region during the 1992 LRS were somewhat higher than in the long term period.

The 1992 geographical distribution of young-of-the-year anchovy in the BSS was not consistent with the 1974-1991 long term trend, since the main distribution was not centered in the Tappan Zee but located a little further south in the Yonkers region. The long term trend in yearling and older fish indicated that over 80 % of these life stages are expected to be located in Yonkers region, but in 1992 almost 80 % are found further north in the Tappan Zee region (Figure 4-30).

Weekly length statistics for bay anchovy juvenile life stages collected in 1992 show a steady growth throughout the BSS/FSS collection period, but a wide range in size (up to 60 mm) reflecting the protracted spawning period (Figure 4-31 and Appendix Tables D-16 and D-17).

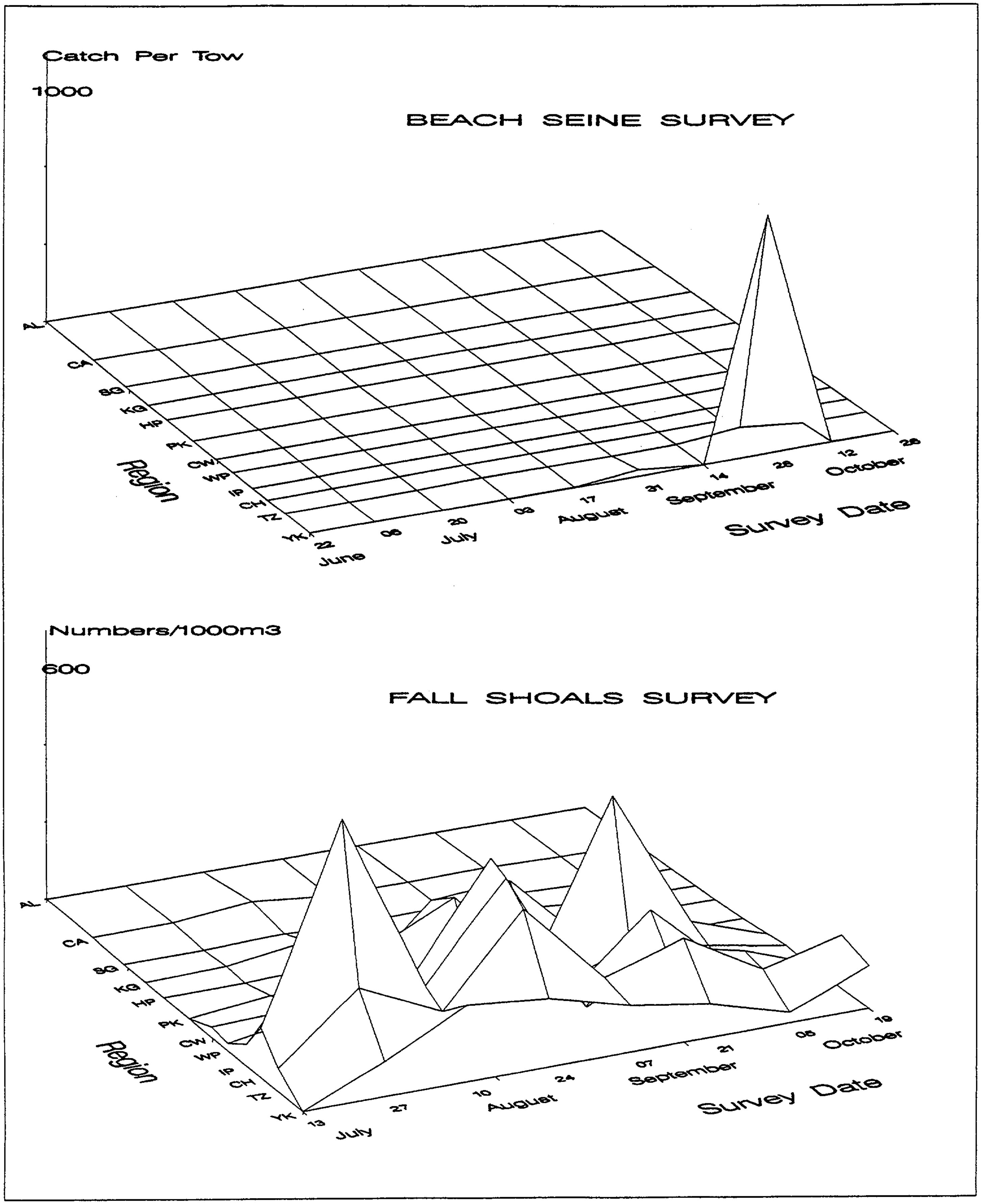


Figure 4-26. Spatiotemporal distribution of young-of-year bay anchovy in the Hudson River estuary based on the 1992 Fall Shoals and Beach Seine Surveys.

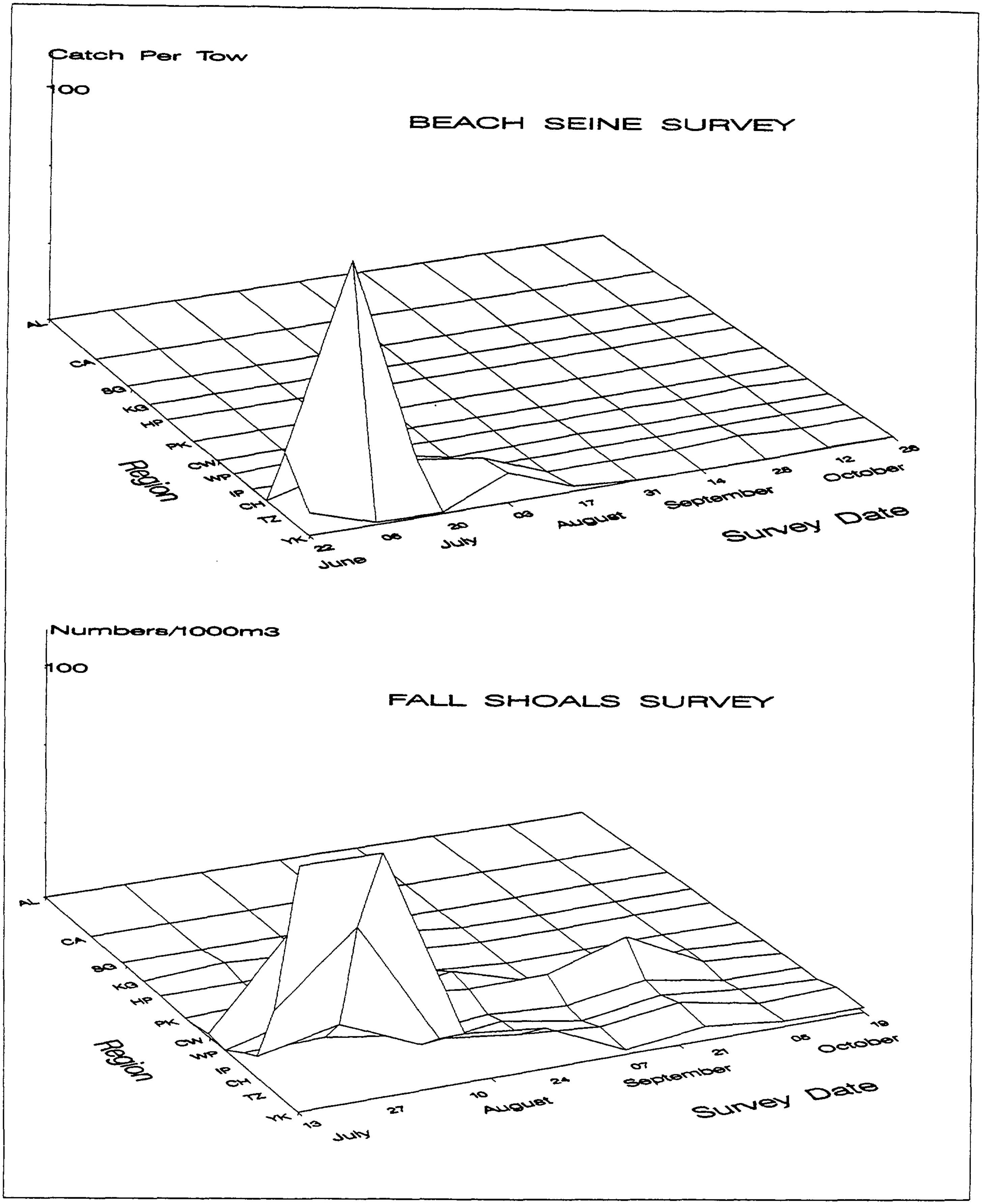


Figure 4-27. Spatiotemporal distribution of yearling and older bay anchovy in the Hudson River estuary based on the 1992 Fall Shoals and Beach Seine Surveys.

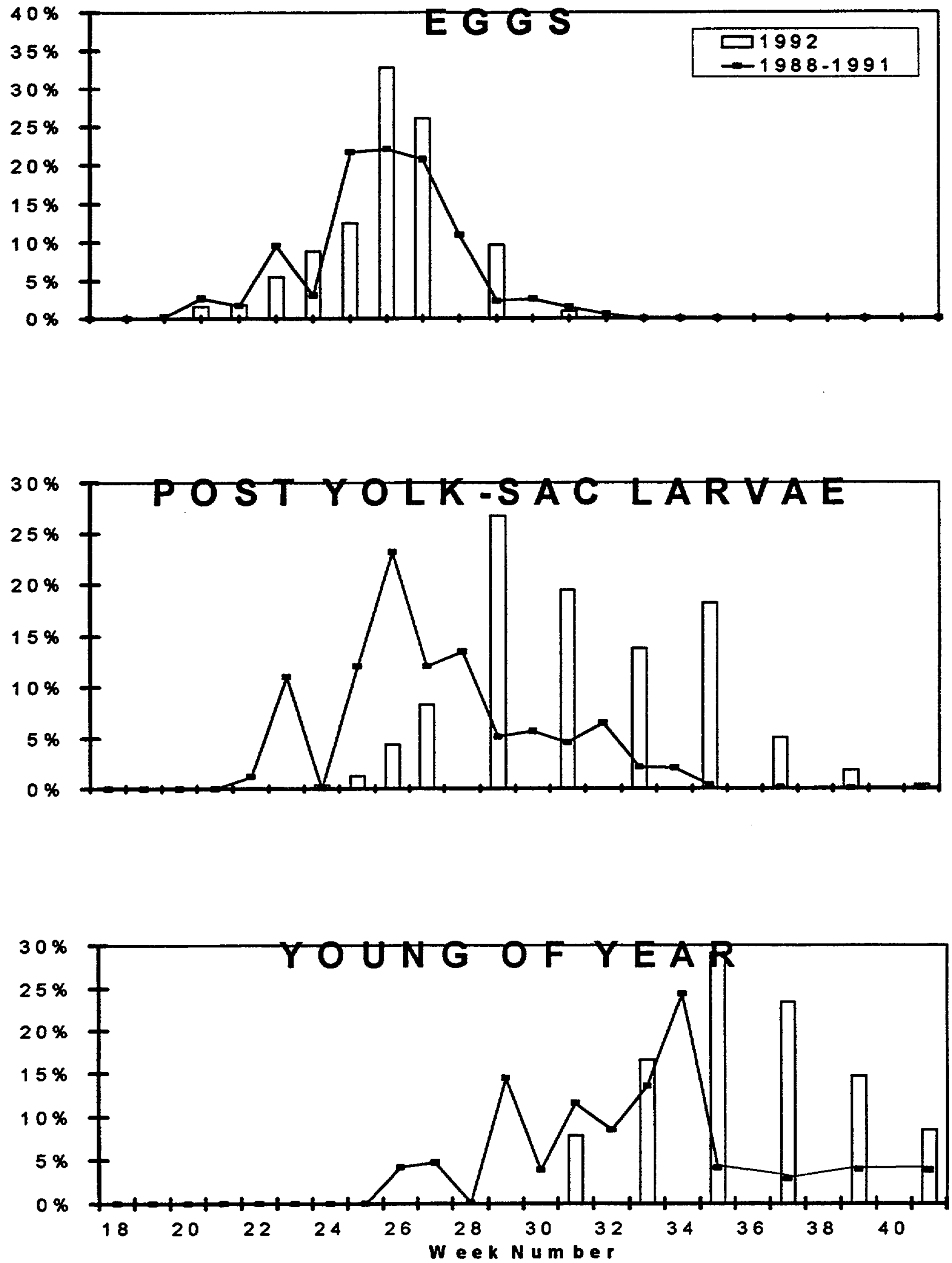


Figure 4-28 Temporal distribution indices for early lifestages of bay anchovy collected during Longitudinal Ichthyoplankton Surveys of the Hudson River Estuary, 1988 - 1992.

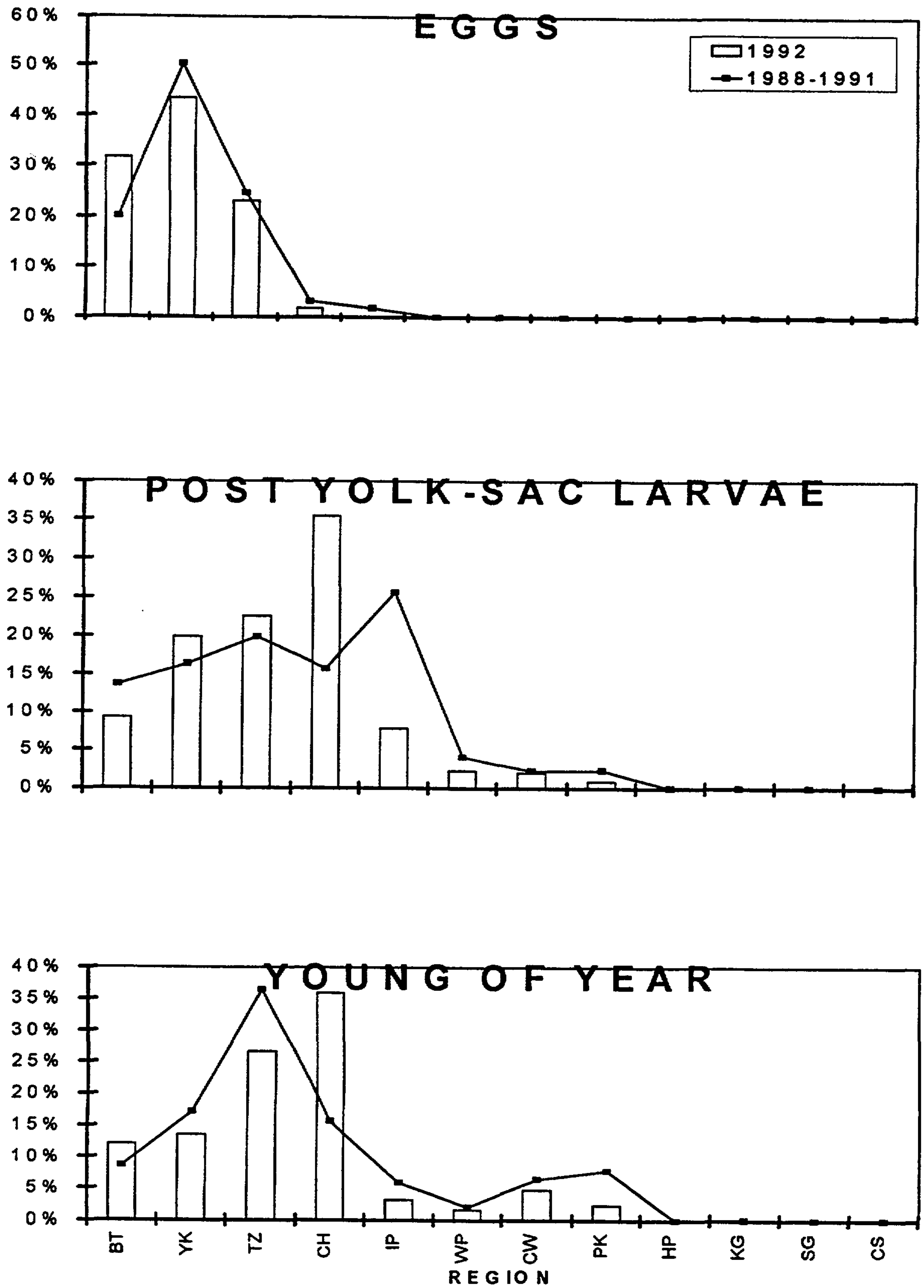


Figure 4-29 Geographical distribution indices for early lifestages of bay anchovy collected during Longitudinal Ichthyoplankton Surveys of the Hudson River Estuary, 1988 - 1992.

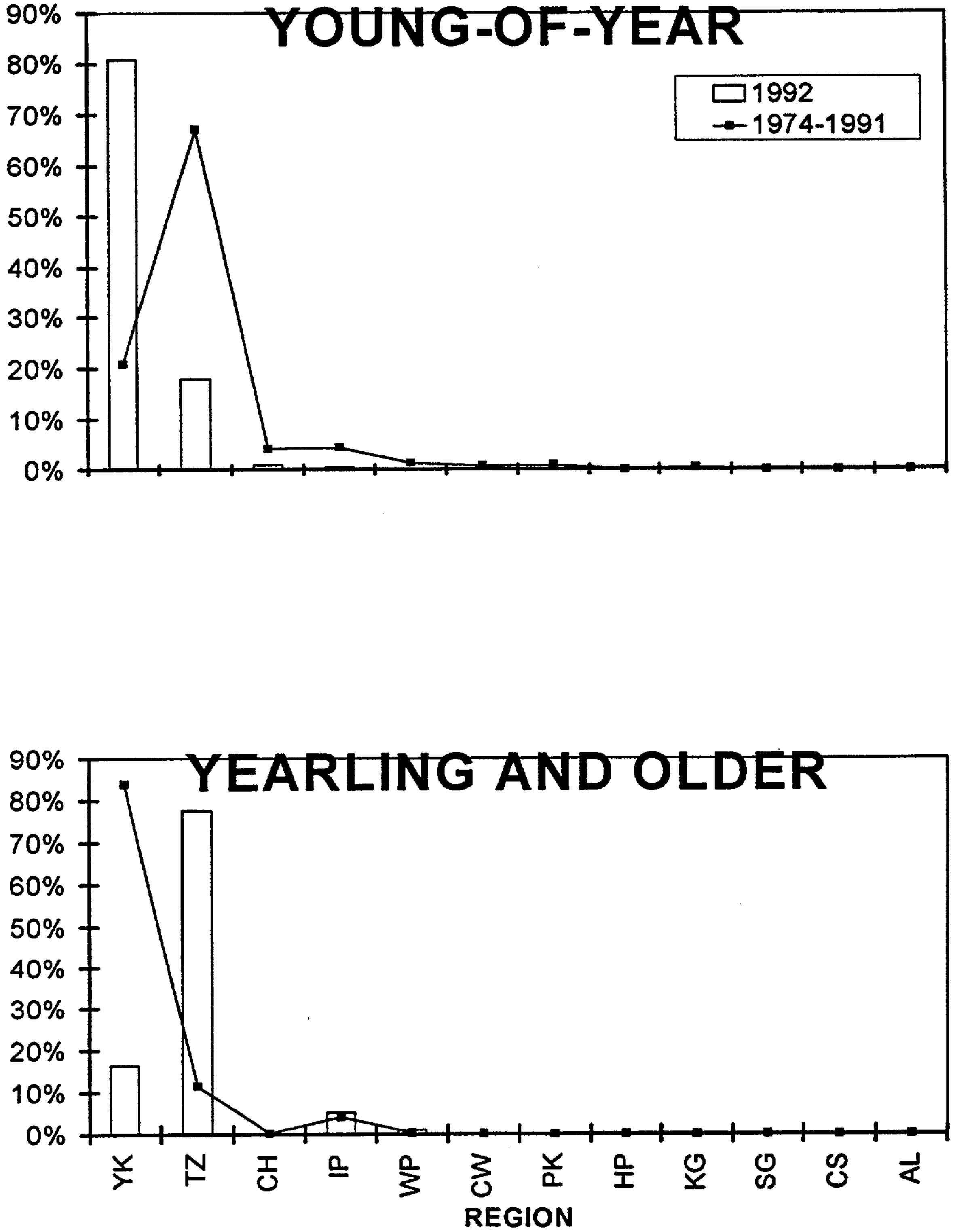


Figure 4-30 Geographical distribution indices for young-of-year and older bay anchovy collected during Beach Seine Surveys of the Hudson River Estuary, 1974 - 1992.

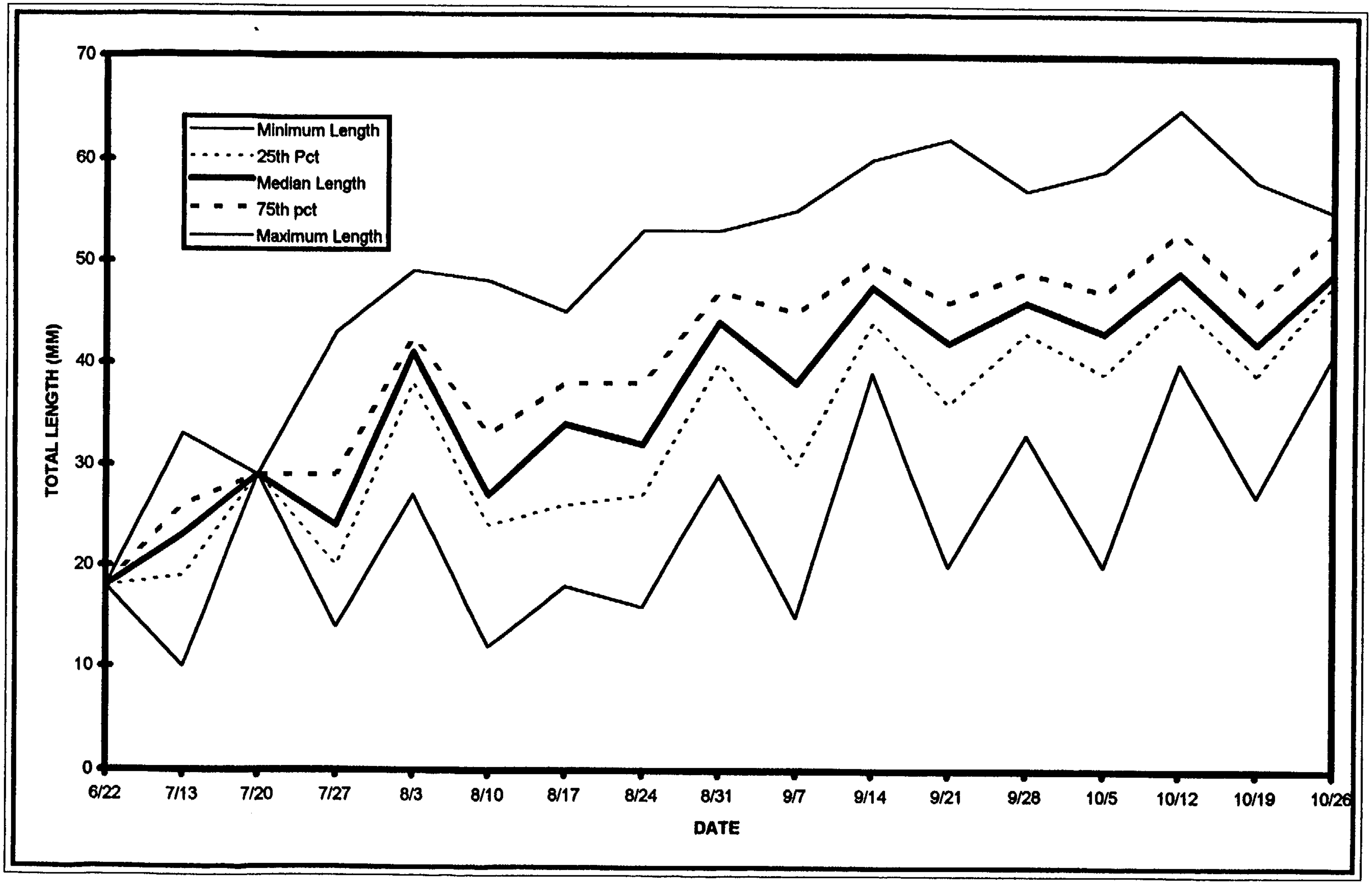


Figure 4-31 Weekly length statistics for bay anchovy young-of-the year in the Hudson River Estuary, 1992

4.6 AMERICAN SHAD

American shad (*Alosa sapidissima*) are the largest of the North American species of anadromous herrings. They range from Newfoundland to northern Florida along the Atlantic coast and over the continental shelf. They may live to 13 years, attain a length of 30 in., and weigh up to 12 lb. American shad usually become sexually mature after three to six years at sea, although some males may mature within two years. Most females mature by their fourth or fifth year.

Shad, like many anadromous herrings, have well-developed homing abilities and are capable of returning to their natal rivers and tributaries from far off the coast. After spawning, the adults soon return to the ocean. They can repeat their annual spawning sequence up to eight times. In more southerly rivers along the Atlantic coast increasing percentages of the adult population die after spawning; south of Cape Fear, North Carolina, all spawners die on their first run.

In the spring, American shad migrate north, and by summer they are feeding in the Gulf of Maine, the Bay of Fundy, Georges Bank, and the Gulf of the St. Lawrence (Neves and Depres 1979; Dadswell et al. 1987). In fall they move south again along the perimeter of the Gulf of Maine and Georges Bank at depths greater than 60 m (Neves and Depres 1979); by winter they may congregate along the edge of the continental shelf. Based on tagging experiments conducted in 1950 and 1951, Talbot (1954) reported that American shad of Hudson River origin were recaptured from Maine to North Carolina. Most recaptured fish were from the fishery along the New Jersey coast in spring. Prespawning adults move along the coast in the spring to their natal rivers (Dadswell et al. 1987), which they enter as river temperatures reach 50 to 60 °F.

Peak spawning activity for American shad in the Hudson River occurs during May in the upper estuary. Shad have been reported to spawn on dark afternoons or evening hours over shallow, broad flats washed by moderate currents in the main body of coastal rivers (Leggett 1976). At present shad are not known to utilize Hudson River tributaries, the Mohawk River, or the upper Hudson River for spawning (Schmidt et al. 1988), although historically the Mohawk and upper Hudson may have been part of the shad spawning and nursery range. During 1992, the bulk of American shad eggs were collected in the Catskill and Albany regions, primarily during May (Figure 4-32).

American shad produce 116,000 to 468,000 eggs per female. The eggs are 1/16 to 1/8 in. in diameter, semibuoyant, and nonadhesive. They hatch in three to 12 days, depending upon water temperature. Newly hatched YSL are approximately ¼ in. long and grow very rapidly. They absorb the yolk sac within one week and are approximately ½ in. long at the beginning of the PYSL stage. Larval shad alternately swim toward the surface and passively sink (Chittenden 1969), but behavior has not been completely described.

Although some downriver dispersal is apparent during 1992, both YSL and PYSL American shad were found primarily in the upper estuary between Hyde Park and Albany (Figures 4-32 and 4-33). During 1992 juvenile shad appeared to have been fully recruited to the beach seine gear by early July with the highest catch effort evident in the Indian Point through Cornwall regions (Figure 4-34). Few yearling and older American shad were collected in 1992 (Figure 4-35), since adult spawning fish (three to six year-old fish) effectively avoid the BSS and FSS juvenile gear.

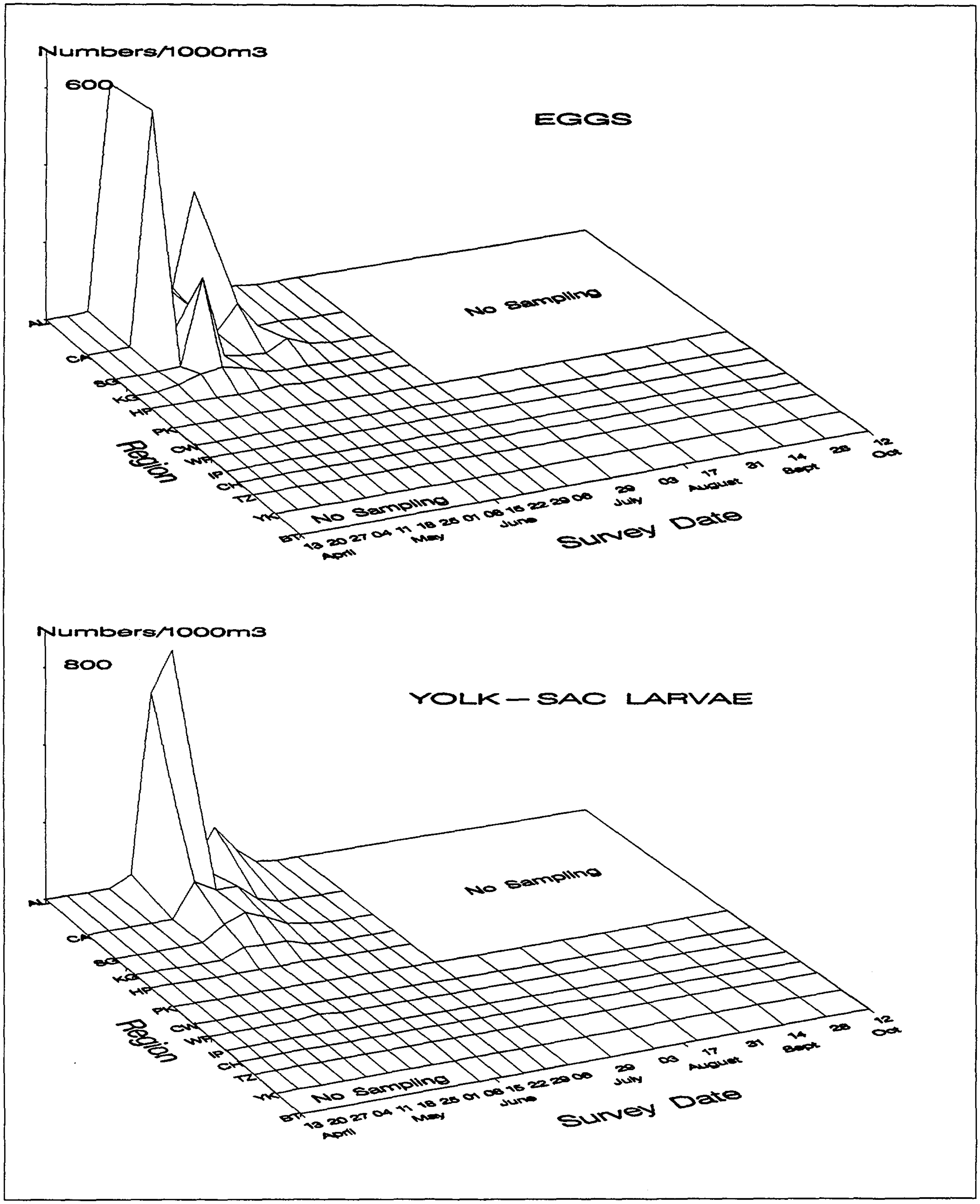


Figure 4-32. Spatiotemporal distribution of egg and yolk-sac stages of American shad in the Hudson River estuary based on the 1992 Long River Ichthyoplankton Survey.

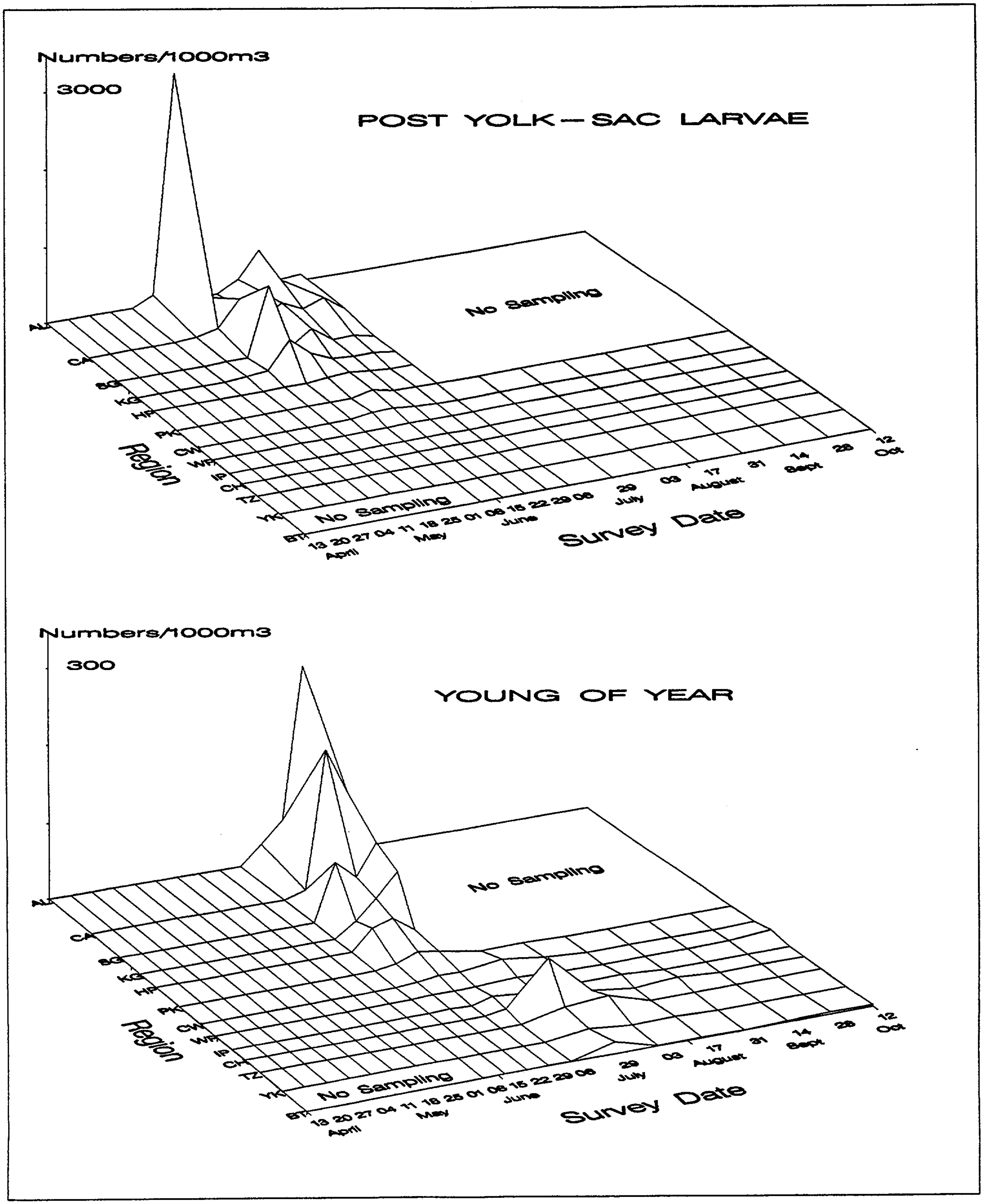


Figure 4–33. Spatiotemporal distribution of post yolk–sac and young–of–year stages of American shad in the Hudson River estuary based on the 1992 Long River Ichthyoplankton Survey.

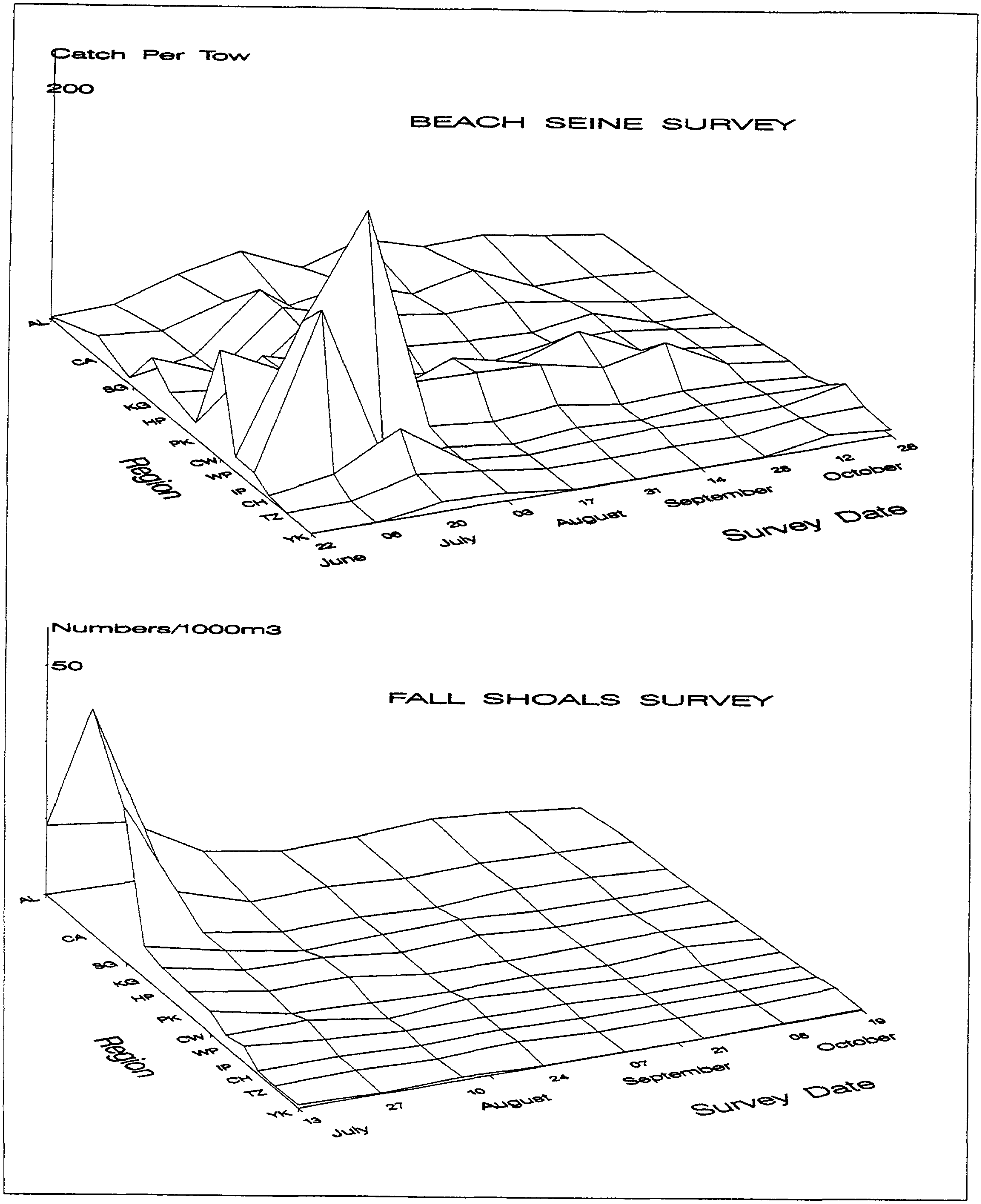


Figure 4-34. Spatiotemporal distribution of young-of-year American shad in the Hudson River estuary based on the 1992 Fall Shoals and Beach Seine Surveys.

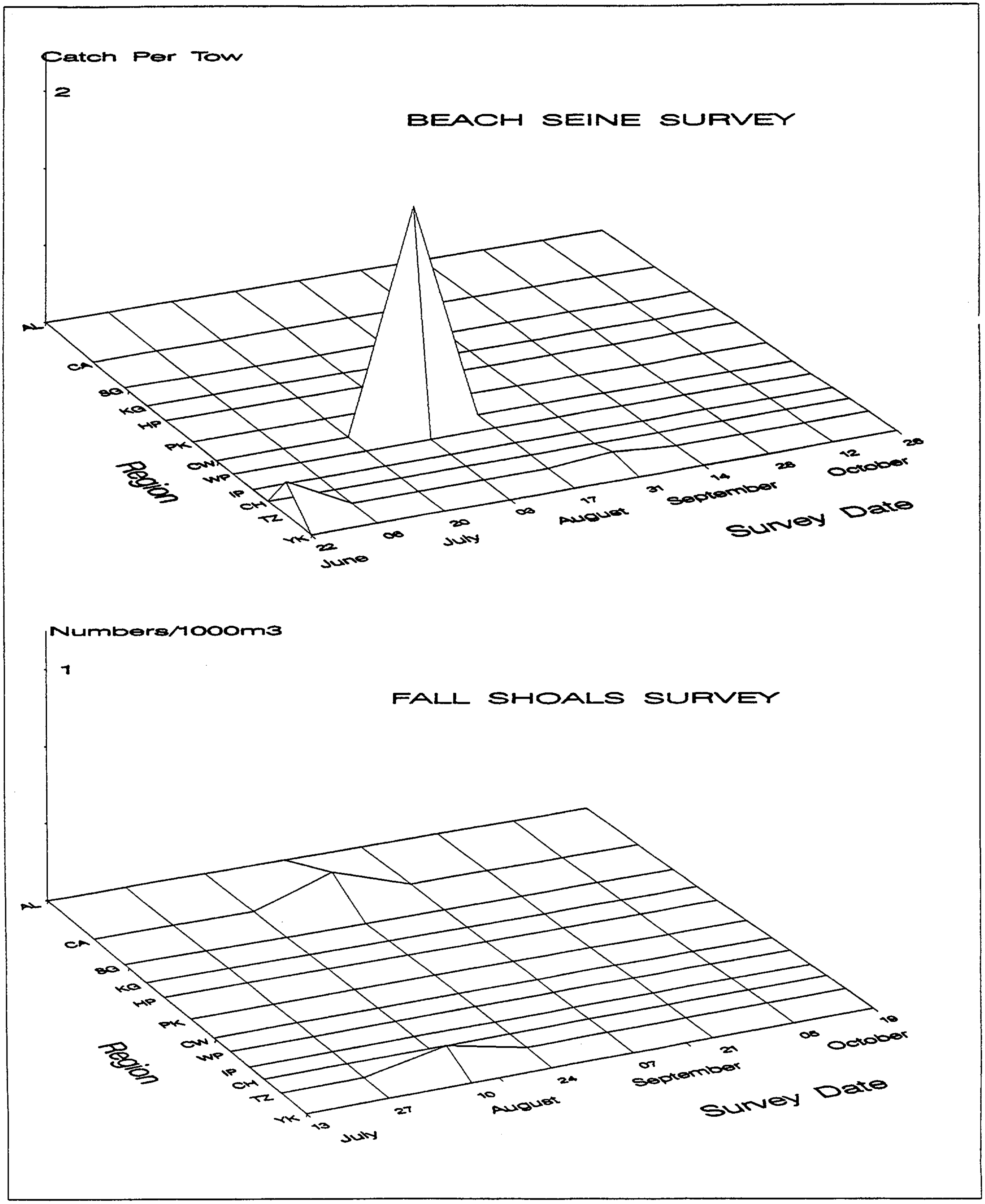


Figure 4-35. Spatiotemporal distribution of yearling and older American shad in the Hudson River estuary based on the 1992 Fall Shoals and Beach Seine Surveys.

Comparing the temporal distribution of early life stages of American shad in 1992 with previous years (1974-1991), it is apparent that in 1992 the distributions of early life stages were generally consistent with the long term record (Figure 4-36). However, in 1992 approximately 50 % of the egg distribution occurred in early May, whereas over the long term peak egg distribution occurred in late May.

The geographical distribution of American shad early life stages in 1992 is also consistent with the long term record, except that there were somewhat higher proportions of YSL, PYSL and juveniles in the Albany region than seen in the long term record (Figure 4-37).

The 1992 geographical distribution of young-of-the-year American shad in the BSS is also consistent with the long term trend, showing tri-modal peaks in the lower estuary (Tappan Zee and Croton-Haverstraw), mid estuary (Cornwall and Poughkeepsie) and upper estuary (Saugerties and Catskill) (Figure 4-38).

Weekly length statistics for American shad from yolk sac through juvenile life stages collected in 1992 show a rapid growth period from early June through early July and steady growth thereafter, through the end of BSS/FSS collections in mid October (Figure 4-39 and Appendix Tables D-9 through D-11). At the time they emigrate from the Hudson at the end of the summer, juvenile shad range from 3 to 4 in. long. This emigration is triggered by declining water temperatures and may be related to size (Schmidt et al. 1988): larger juveniles may tend to emigrate earlier. The shad emigration is a gradual movement of the population seaward over several months. Shad emigrate from the estuary earlier than either of the other two anadromous herrings commonly found in the Hudson River, alewives and blueback herring, and Schmidt et al. (1988) speculated that the earlier migration might be a behavioral adaptation that reduces competition with juveniles of the other two herring species.

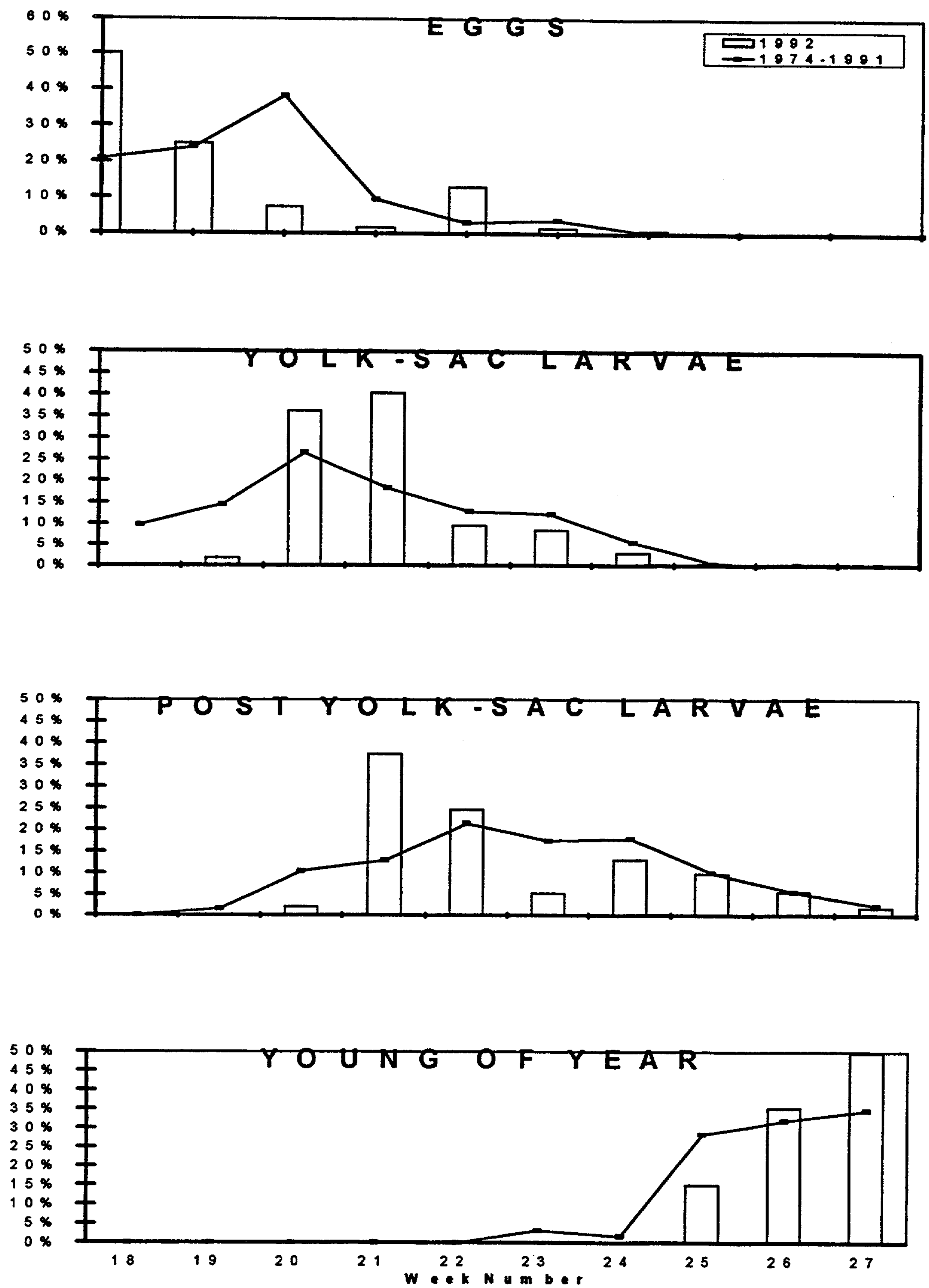


Figure 4-36 Temporal distribution indices for American shad collected during Longitudinal Ichthyoplankton Surveys of the Hudson River Estuary, 1974 - 1992.

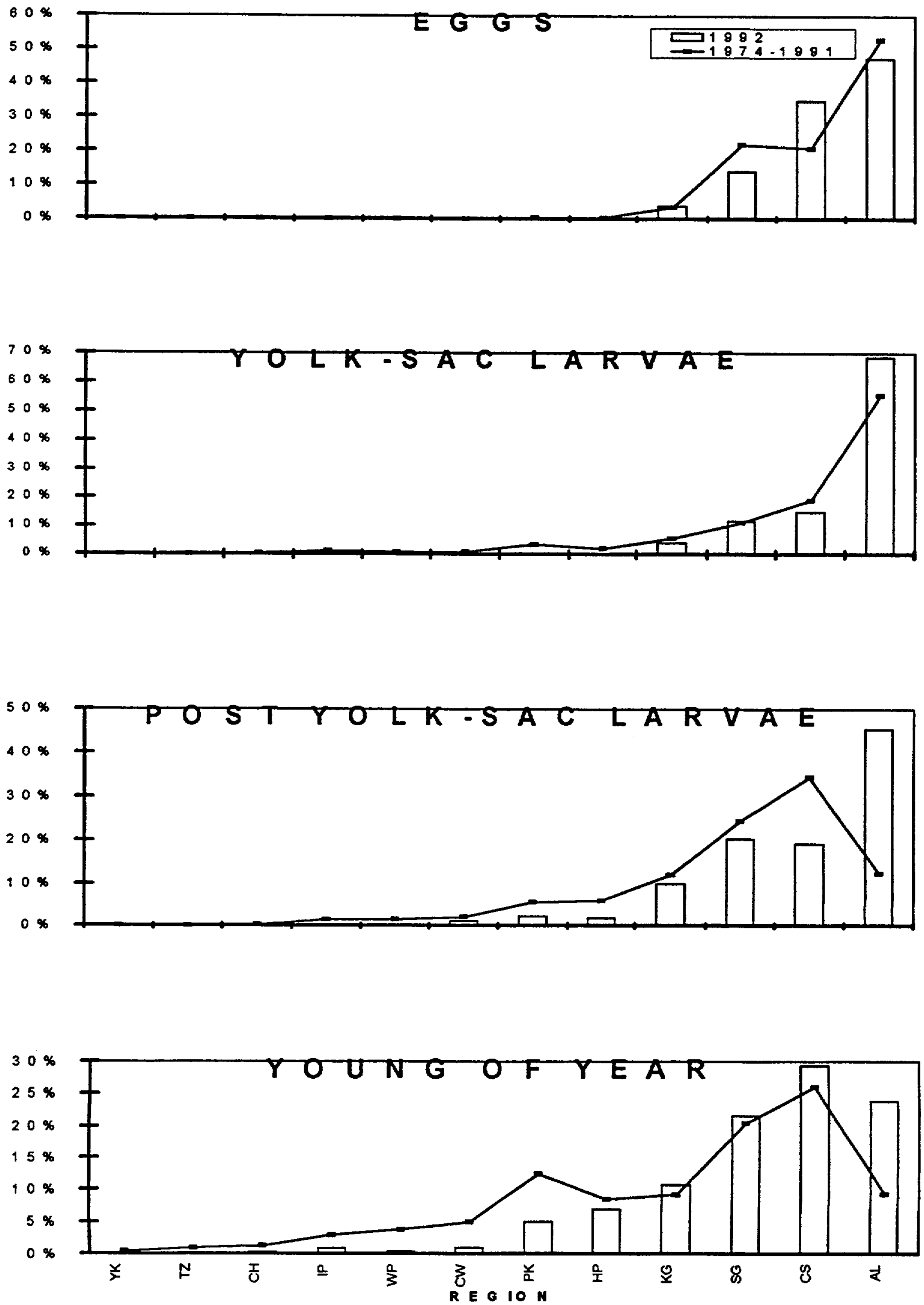


Figure 4-37 Geographical distribution indices for early life stages of American shad collected during Longitudinal River Ichthyoplankton Surveys of the Hudson River Estuary, 1974 - 1992.

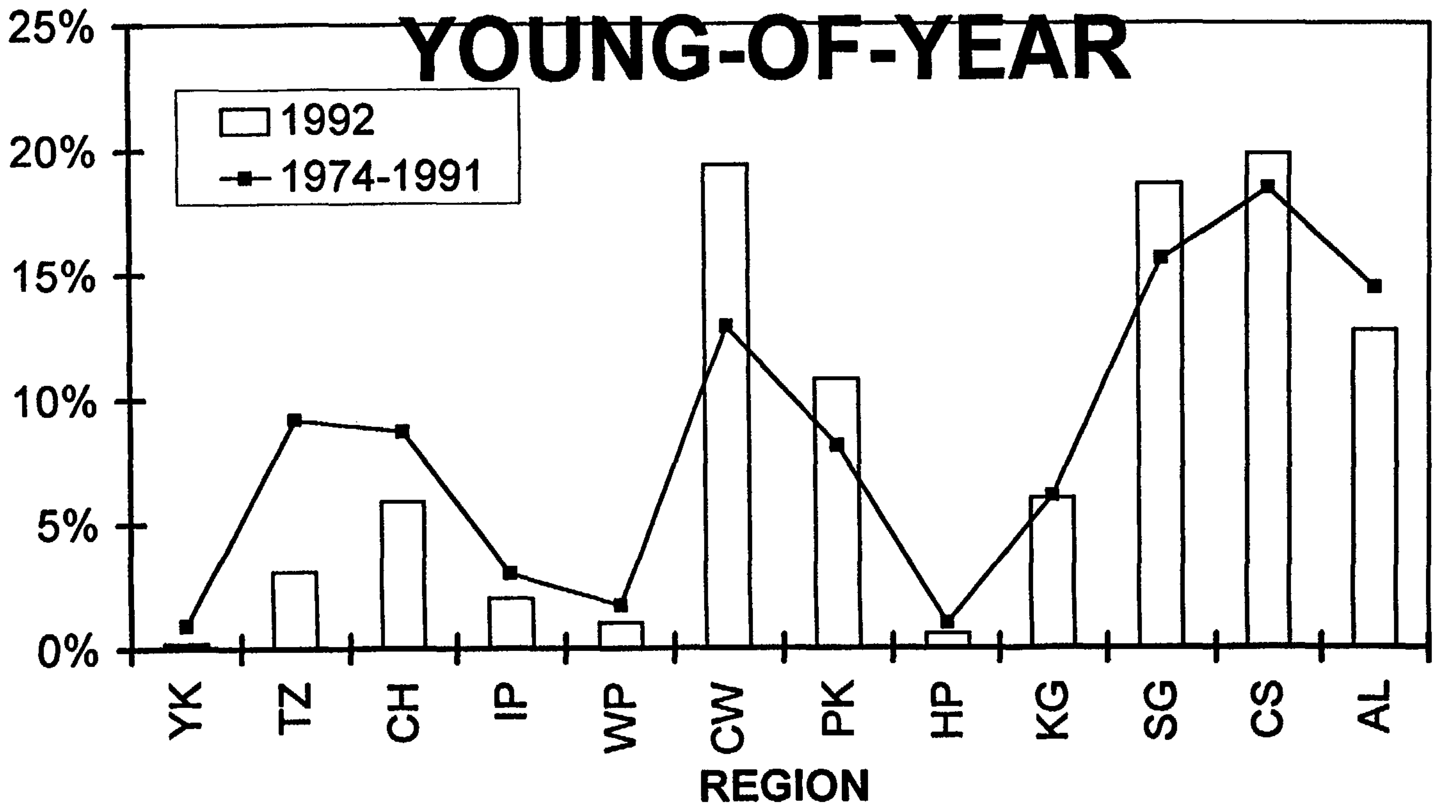


Figure 4-38. Geographical distribution indices for young-of -the-year American shad collected during Beach Seine surveys of the Hudson River Estuary, 1974 - 1992.

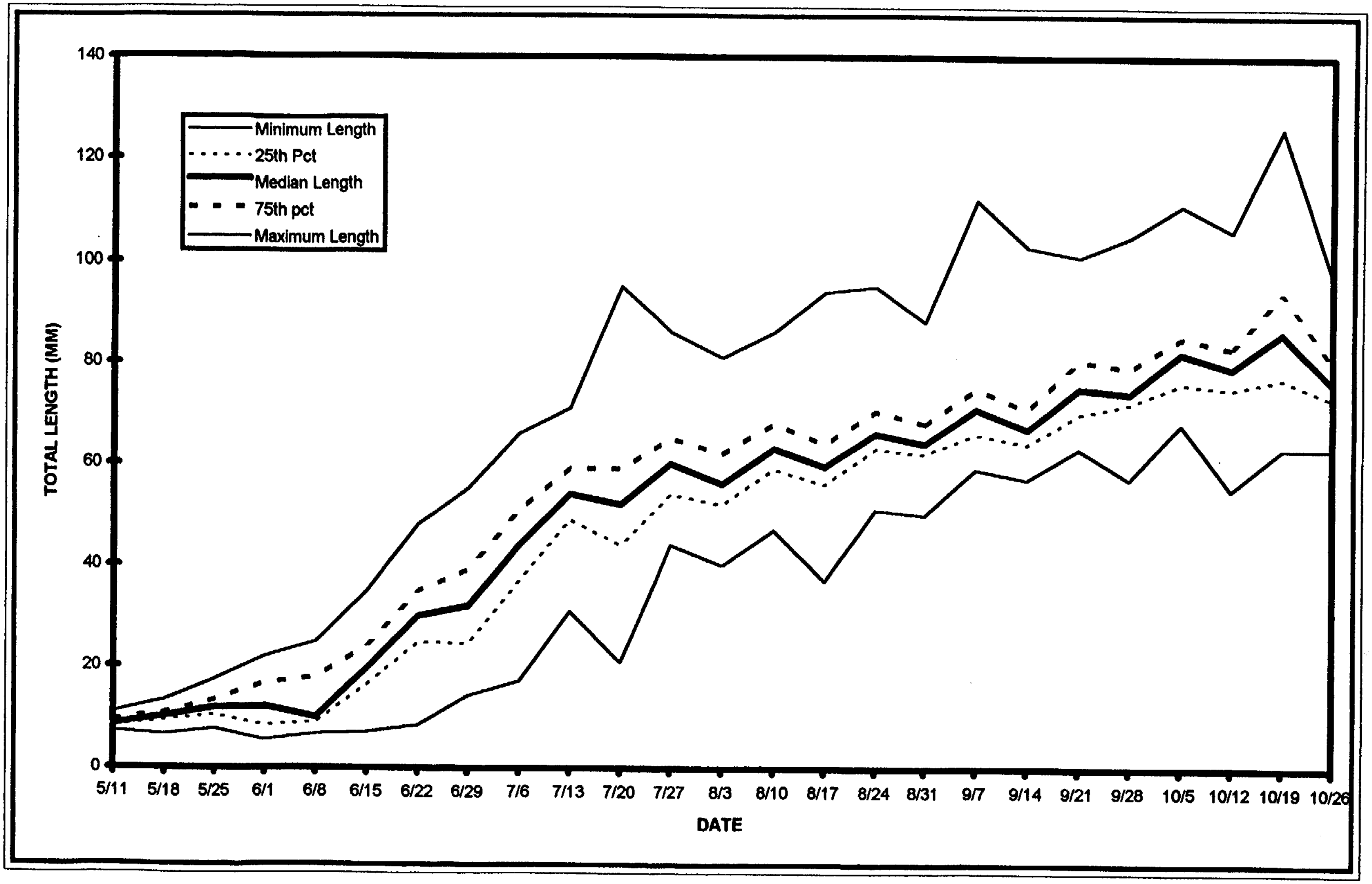


Figure 4-39 Weekly length statistics for American shad larvae and young-of-the year in the Hudson River Estuary, 1992

4.7 RIVER HERRINGS (*Alosa* spp.)

Blueback herring (*Alosa aestivalis*) and its congener alewife (*A. pseudoharengus*) are similar in general form to American shad, but are much smaller and not as deep bodied when adult. Blueback herring grow to a maximum length of 15 in. and a weight of about 1 lb and live for up to eight or nine years (Scott and Crossman 1973). Blueback herring and alewives are very much alike in external appearance, especially as larvae, but older alewives have proportionately larger eyes and deeper bodies than blueback herring.

Of the three anadromous herring species that spawn in the Hudson River estuary, blueback herring are the last to begin their spring spawning run, preferring warmer water than American shad or alewives. Their peak spawning activity occurs near the end of May. Spawning activity occurs within the river, but preferred spawning habitat is in fast-flowing tributaries, where eggs are released over hard substrates (Loesch and Lund 1977). In the Hudson blueback herring travel through the locks, and spawning occurs within the Mohawk River and upper Hudson River.

In Hudson River sampling, eggs and larvae of alewives and blueback herring are not differentiated. Any references in this document to eggs and larvae pertain to the combined numbers from both species. Juveniles of these two species are differentiated by the size of the eyes and the mouth morphology.

Male anadromous alewives reach maturity in about three years, females in about four years. Alewife eggs are semidemersal, slightly adhesive, but easily torn free and carried by currents. The egg diameter is about 1/16 in. Spawning activity is most intense when water temperatures are 51 to 71 °F, which results in slightly earlier spawning than that of blueback herring. Hatching takes two to 15 days depending upon temperature (Smith 1985).

Blueback herring produce 45,000 to 350,000 eggs per female. The eggs are 1/16 in. in diameter and adhesive upon release, but they may later become dislodged and be pelagic. In the Hudson River during 1992 peak abundance of herring eggs (combined alewife and blueback herring, or *Alosa* spp.) appeared to occur in the upper estuary in the Catskill region during mid-May (Figure 4-40). Development proceeds rapidly and hatching occurs in two to three days. Newly hatched blueback herring are 0.125 in. long and the yolk sac is absorbed in about four days. At the beginning of the post-yolk-sac stage the larvae are about 0.1875 in. long. In the Hudson River during 1992 PYSL appeared to be most abundant in the Kingston through Albany regions of the estuary during late May and early June (Figure 4-41).

Comparing the temporal distribution of early life stages of *Alosa* spp. in 1992 with previous years (1974-1991), it is apparent that in 1992 the distributions of eggs, YSL and PYSL were generally consistent with the long term record (Figure 4-42). However, in 1992 approximately 80 % of *Alosa* spp. egg distribution in 1992 occurred in early May, whereas over the long term peak egg distribution occurred in mid May.

The geographical distribution of *Alosa* spp. early life stages in 1992 is also consistent with the long term record, with the major proportions of eggs and YSL occurring in the Albany region (Figure 4-43).

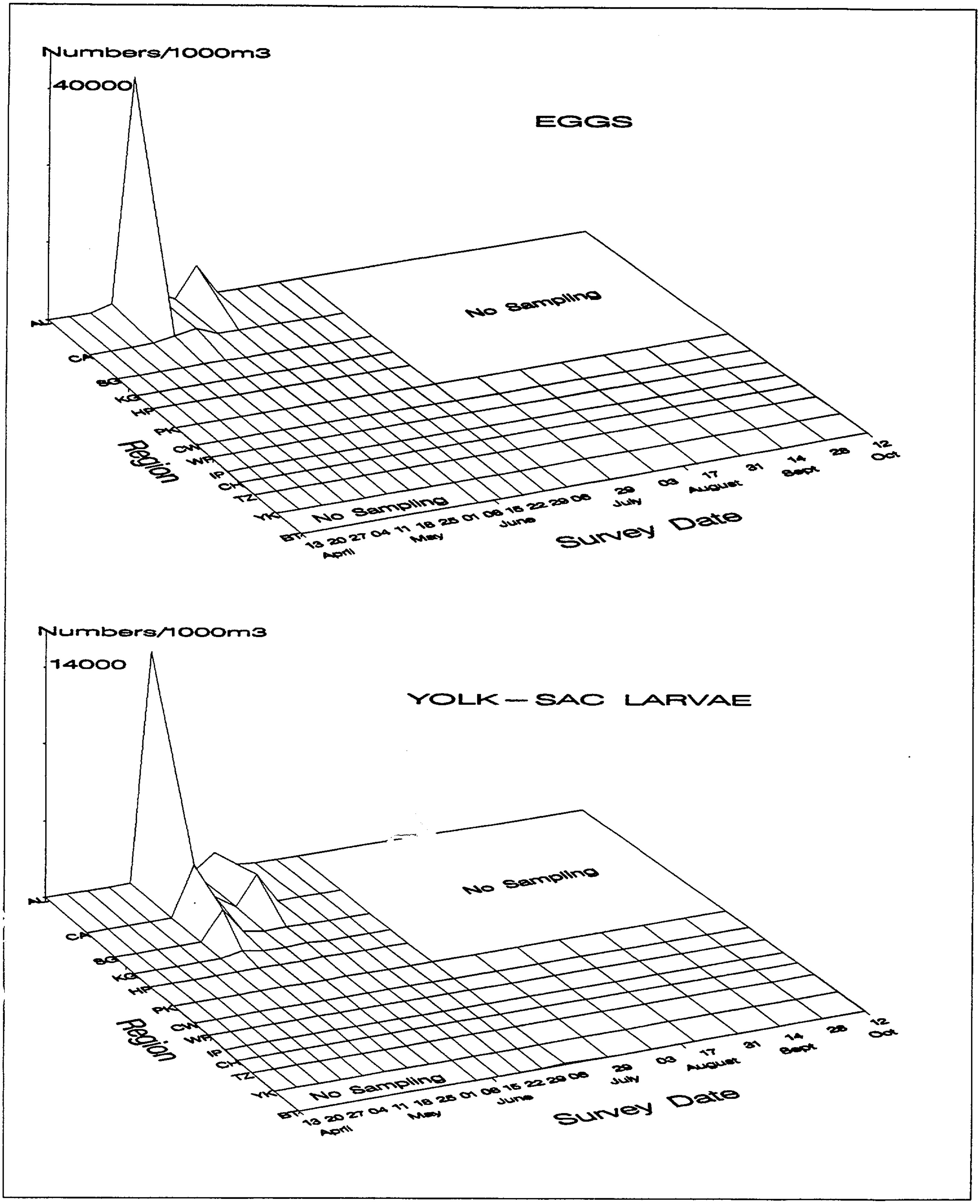


Figure 4–40. Spatiotemporal distribution of egg and yolk–sac stages of Alosa spp. in the Hudson River estuary based on the 1992 Long River Ichthyoplankton Survey.

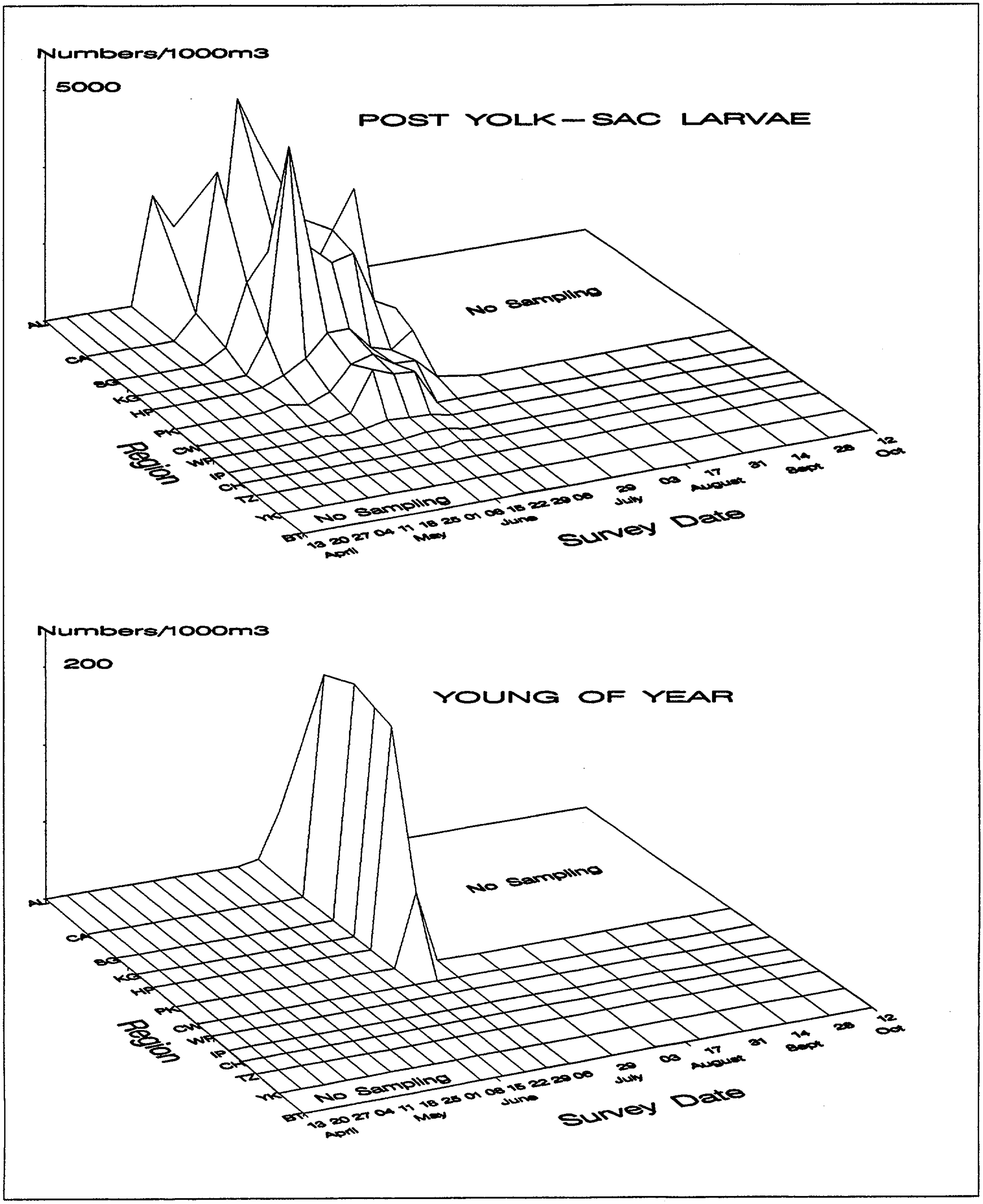


Figure 4-41. Spatiotemporal distribution of post yolk-sac and young-of-year stages of Alosa sp. in the the Hudson River estuary based on the 1992 Long River Ichthyoplankton Survey.

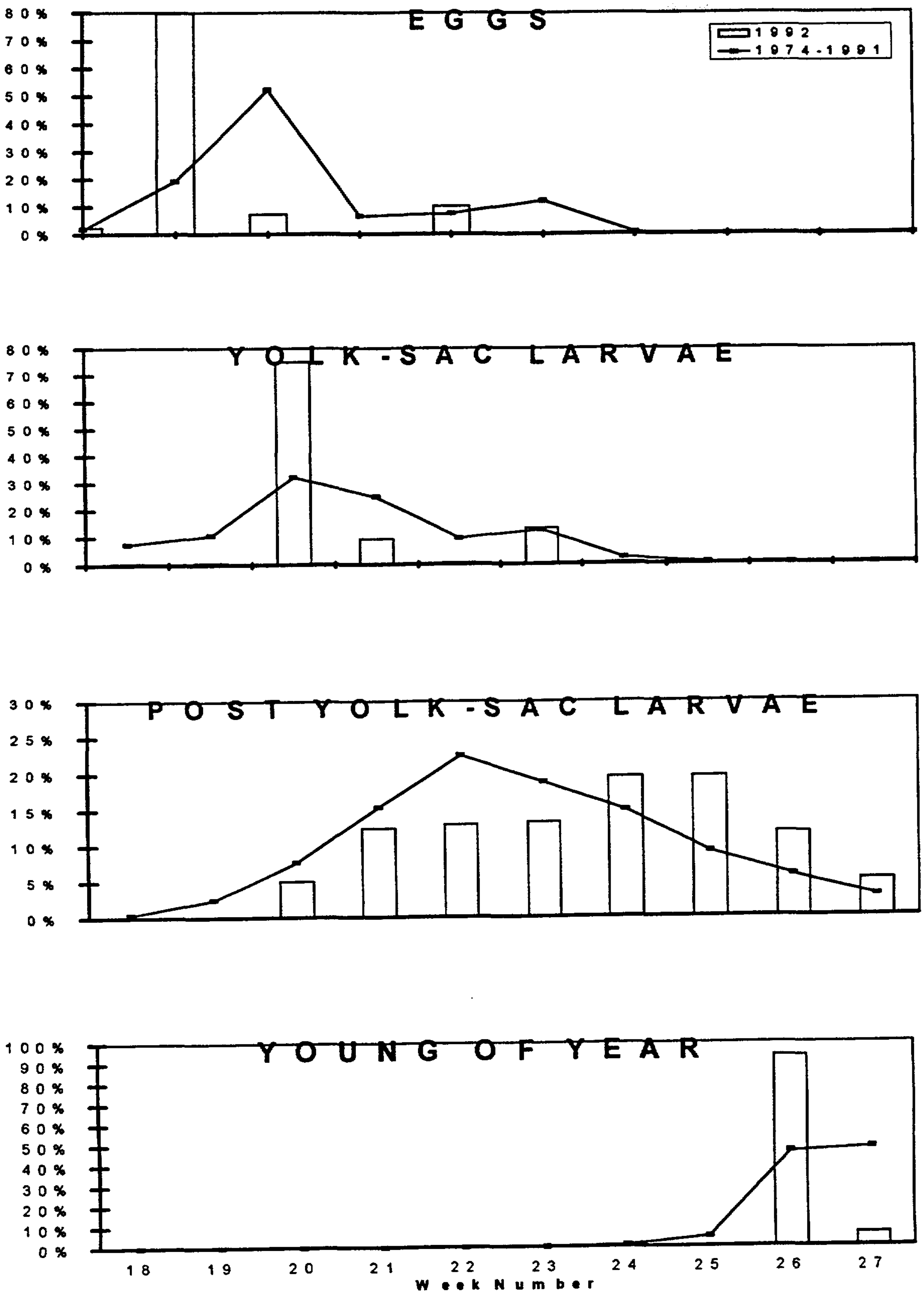


Figure 4-42 Temporal distribution indices for Alosa sp collected during Longitudinal Ichthyoplankton Surveys of the Hudson River Estuary, 1974 - 1992.

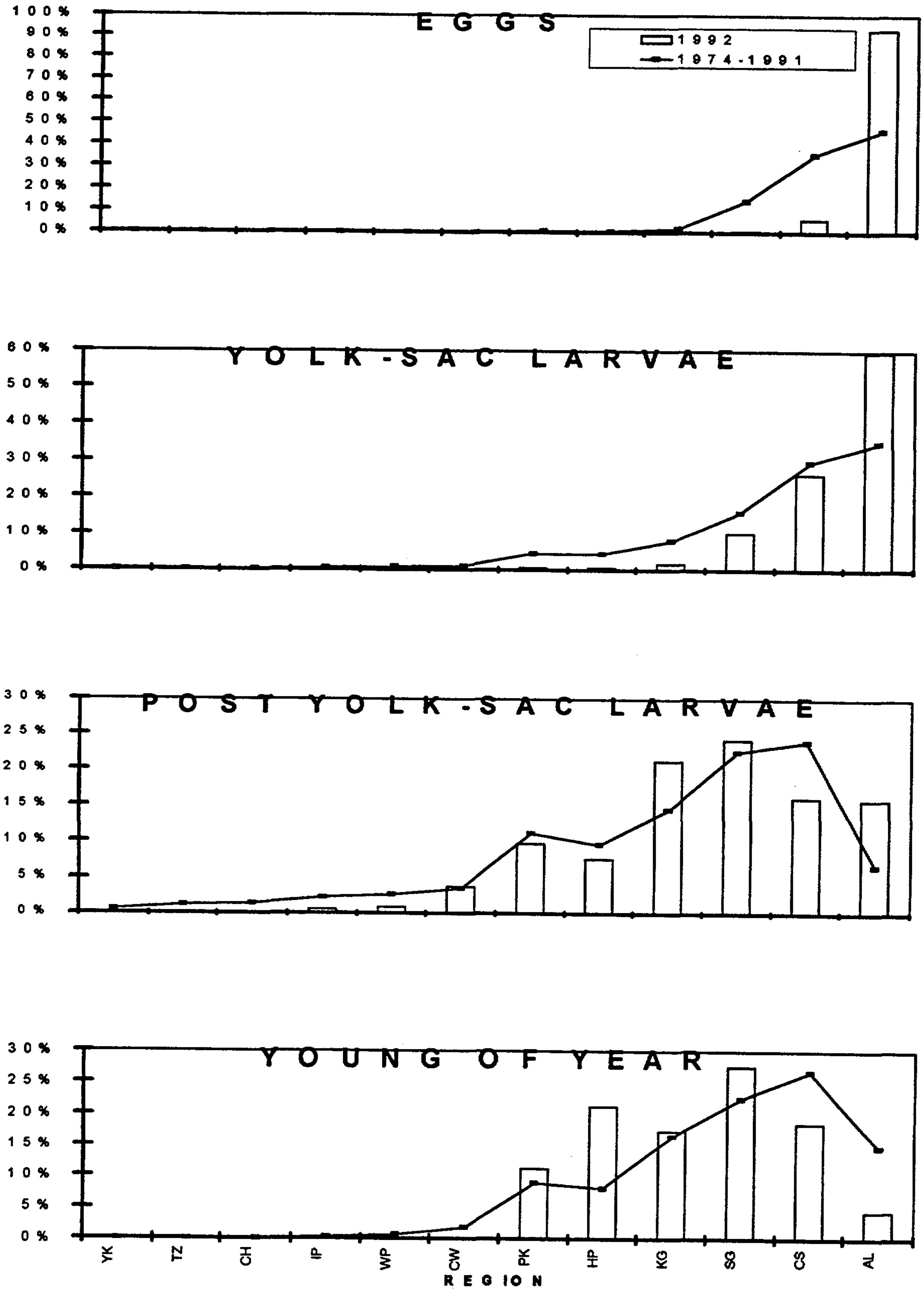


Figure 4-43 Geographical distribution indices for early life stages of Alosa sp. collected during Longitudinal River Ichthyoplankton Surveys of the Hudson River Estuary, 1974 - 1992.

4.8 ALEWIFE

Alewives are physically similar to blueback herring and can be distinguished from blueback herring on the basis of the color of the lining of the body cavity, eye size, and body shape. Alewife are usually anadromous and inhabit coastal waters from Newfoundland to South Carolina but they have also been introduced into the upper Great Lakes and inland lakes in Rhode Island, Maine, New Hampshire, Virginia, Ontario, and New York, where they provide forage for large predatory species. Anadromous alewives spend most of their lives in salt water and return to fresh water to spawn in lakes and quiet stretches of rivers (Scott and Crossman 1973). They are capable of homing to their natal rivers after they mature at ages 3 or 4, even though substantial numbers may not return and considerable mixing of river stocks may occur (reviewed in Fay et al. 1983). Adults are typically about 10 to 12 in. long and have a maximum life span of about nine years.

The alewife is chiefly a plankton feeder; copepods, amphipods, shrimps, and appendicularians are the chief diet. However, they also take small fish, such as herring, eels, lance, cunners, and their own species, as well as fish eggs. After returning to the lower estuary after spawning, alewife feed heavily on shrimp (Bigelow and Schroeder 1953).

Like young blueback herring, alewife assume adult characteristics at about one month of age and about ½ in. long. At this stage they tend to move inshore during the day and offshore into deeper waters at night. They remain in estuaries until water temperatures begin declining in the fall, when they move into coastal waters. Their emigration pattern is prolonged, like that of American shad. Timing of migration may also be related to size, and larger juveniles migrate earlier (Schmidt et al. 1988). Little is known about the migration patterns at sea. The presence of alewives and blueback herring in the Bay of Fundy has led to speculation that these species have an oceanic migratory pattern similar to American shad, although that has not been confirmed (Harris and Rulifson 1989).

Juvenile alewives began appearing in the 1992 LRS in late June and highest densities were found in the Saugerties and Kingston regions (Figure 4-44). Spatiotemporal distribution of juvenile alewives based on the 1992 BSS shows peak CPUE in the Cornwall region in early July; however, peak densities of juveniles in the FSS occurred further upriver in the Kingston and Saugerties regions (Figure 4-45). Few yearling and older alewives were collected in the BSS and FSS gear (Figure 4-46).

Comparing the geographical distribution of juvenile alewives based on beach seine surveys in 1992 with previous years (1974-1991), it is apparent that in 1992 the distributions of juveniles were generally consistent with the long term record (Figure 4-47). However, in 1992 a bi-modal pattern in the distribution was apparent, with peaks in Cornwall and Saugerties. Only a small portion of the population wqs found in the Tappan Zee region, which historically has contributed to about 20 % of the population.

Weekly length statistics for alewife juveniles collected in 1992 show steady growth from early July through the end of BSS/FSS collections in mid October (Figure 4-48 and Appendix Tables D-12 and D-13).

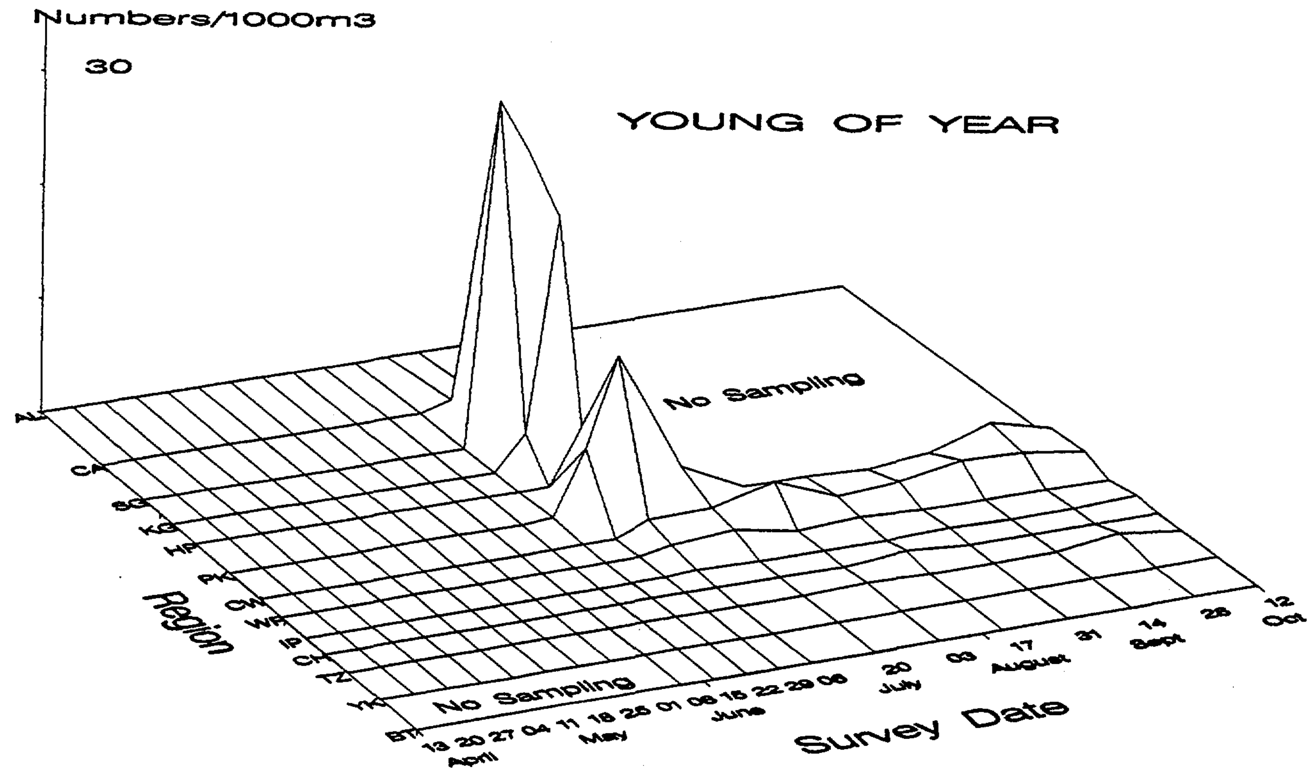


Figure 4–44. Spatiotemporal distribution of young–of–year alewife in the Hudson River estuary based on the 1992 Long River Ichthyoplankton Survey.

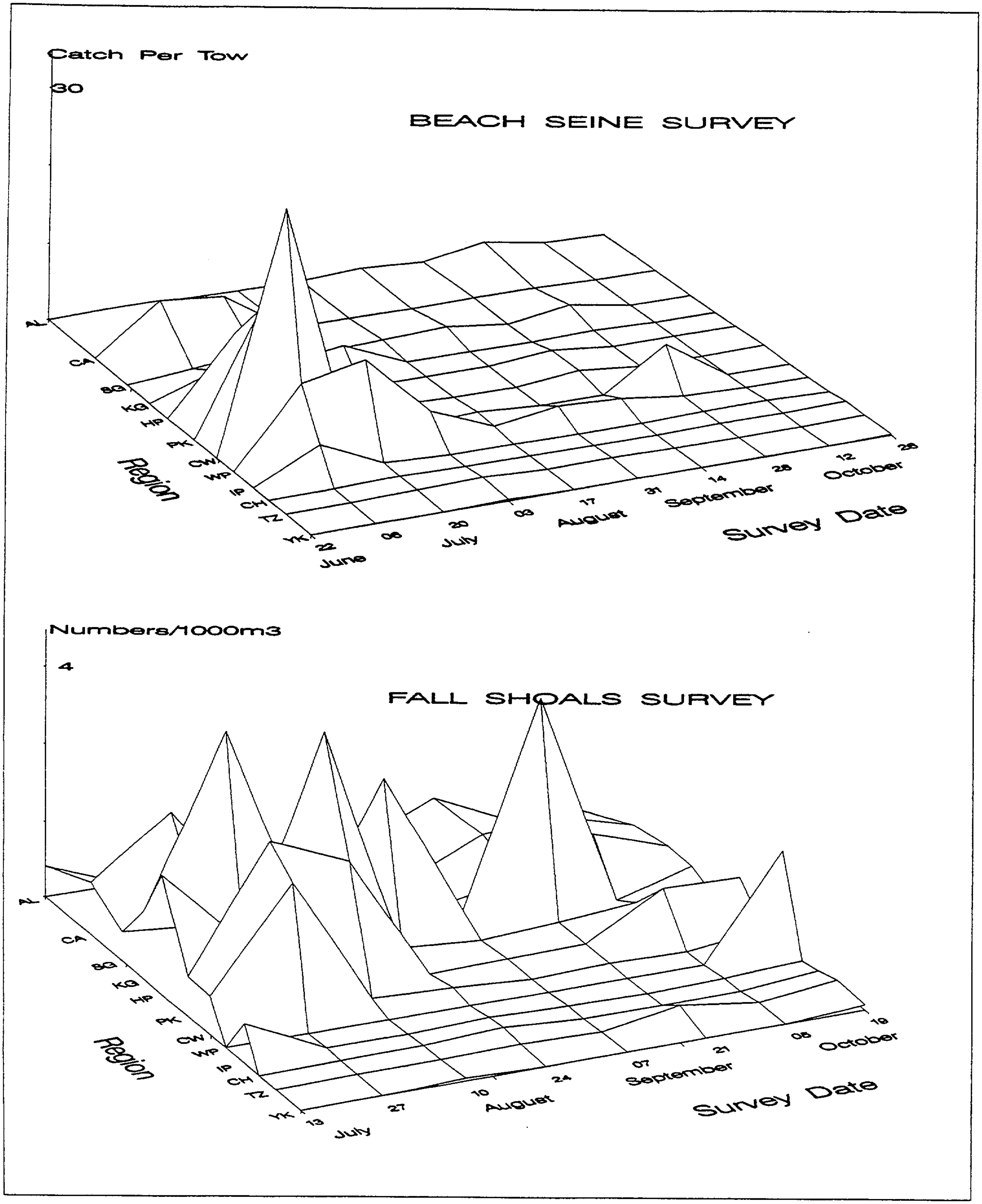


Figure 4-45. Spatiotemporal distribution of young-of-year alewife in the Hudson River estuary based on the 1992 Fall Shoals and Beach Seine Surveys.

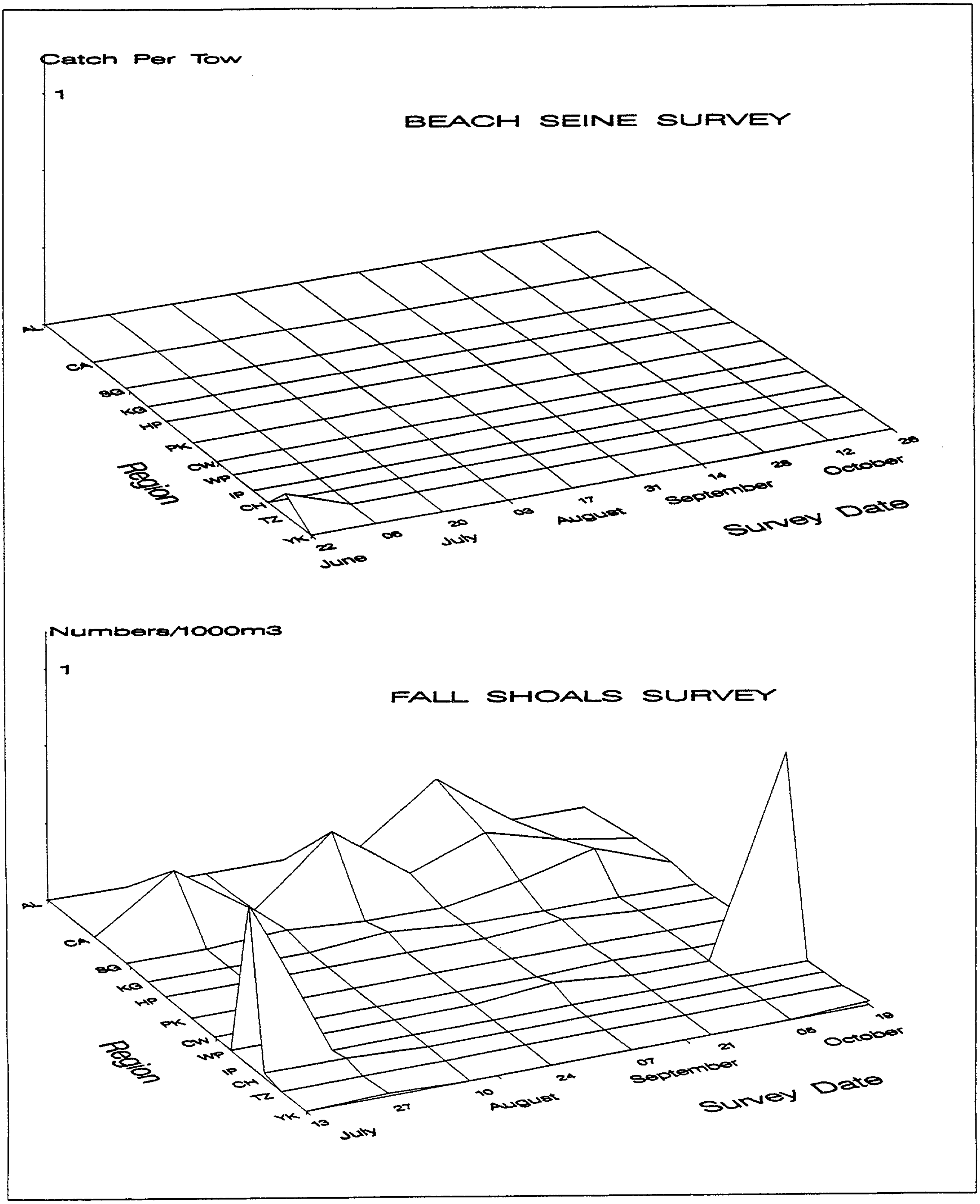


Figure 4–46. Spatiotemporal distribution of yearling and older alewife in the Hudson River estuary based on the 1992 Fall Shoals and Beach Seine Surveys.

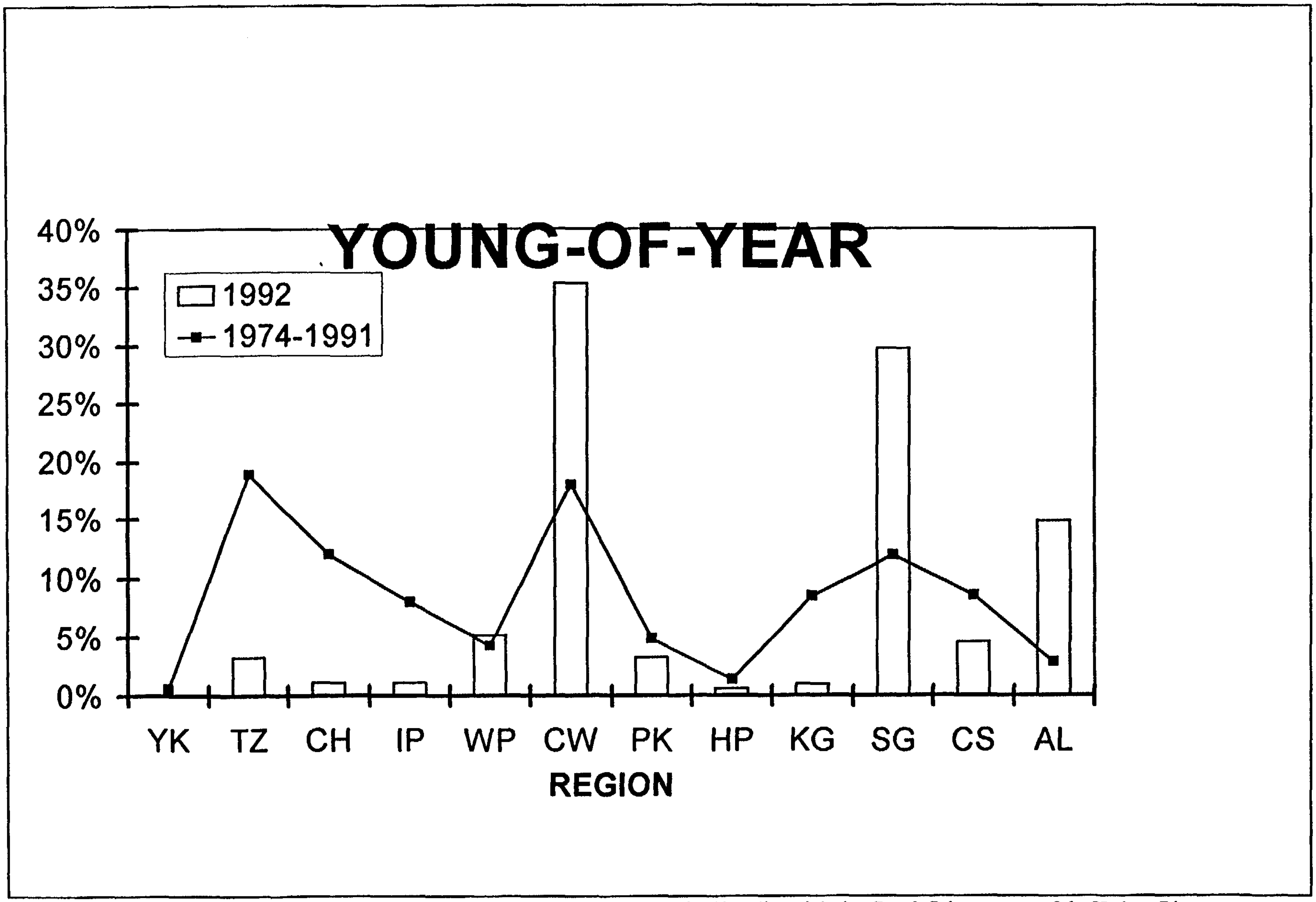


Figure 4-47 Geographical distribution indices for young-of -the-year alewife collected during Beach Seine surveys of the Hudson River Estuary, 1974 - 1992.

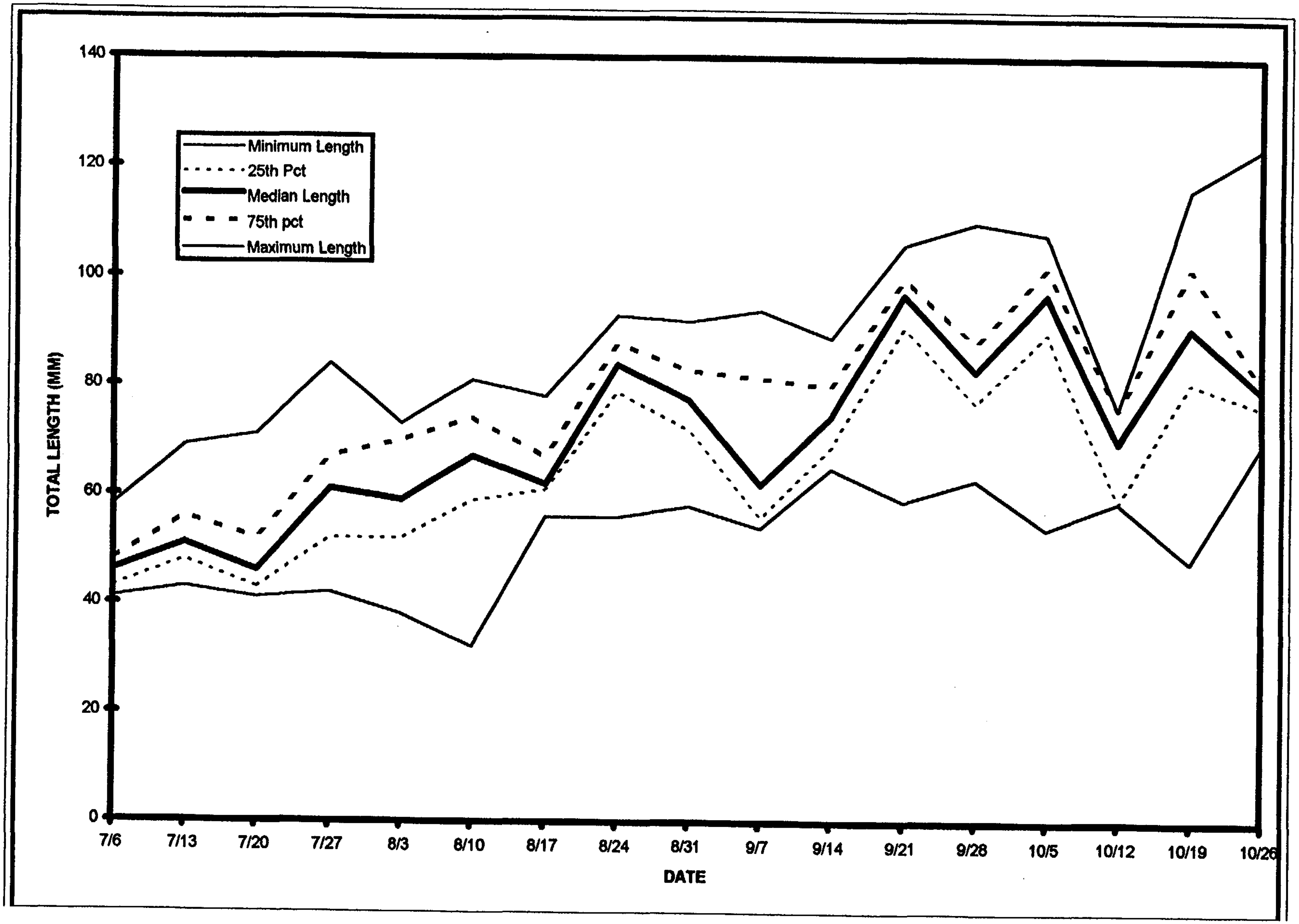


Figure 4-48 Weekly length statistics for alewife young-of-the year in the Hudson River Estuary, 1992

4.9 BLUEBACK HERRING

Blueback herring range from southern New Brunswick and Nova Scotia southward to northern Florida. Although they are caught as far as 70 to 80 miles offshore, little is known about the oceanic migration patterns. The presence of alewives and blueback herring in the Bay of Fundy has led to speculation that these species have an oceanic migratory pattern similar to that of American shad, although that has not been confirmed (Harris and Rulifson 1989). The degree to which river herring of Hudson River origin return to the Hudson River is not known nor is the degree to which spawning stocks from different river systems mix.

Within a month of hatching the young blueback herring assume adult characteristics and are about 0.5 in. long. In the Hudson River during 1992 the peak abundance of early juveniles collected in the LRS occurred in the upper estuary in the Albany region during early July (Figure 4-49). Juvenile blueback herring remain in the upper estuary throughout the summer. During this period they are about 10 times more abundant than juvenile alewives. Juvenile blueback herring grow more slowly than juvenile alewives and begin their downriver migration later than the other herring species. It has been reported that blueback herring exhibit a tendency to spend their first year or two in the lower reaches of estuaries (Hildebrand 1963).

Juvenile blueback began appearing in the 1992 BSS and FSS in early July, with CPUE gradually increasing downriver into October, reflecting downriver migration (Figure 4-50). Few yearling and older alewives were collected in the BSS and FSS gear (Figure 4-51).

Comparing the geographical distribution of juvenile blueback herring based on beach seine surveys in 1992 with previous years (1974-1991), it is apparent that in 1992 the distribution of juveniles was not consistent with the long term record, with a large portion of the population in the Cornwall region rather than being more evenly distributed further upriver (Figure 4-52).

Weekly length statistics for juvenile blueback herring collected in 1992 show slow but steady growth from early July through the end of BSS/FSS collections in mid October (Figure 4-53 and Appendix Tables D-14 and D-15).

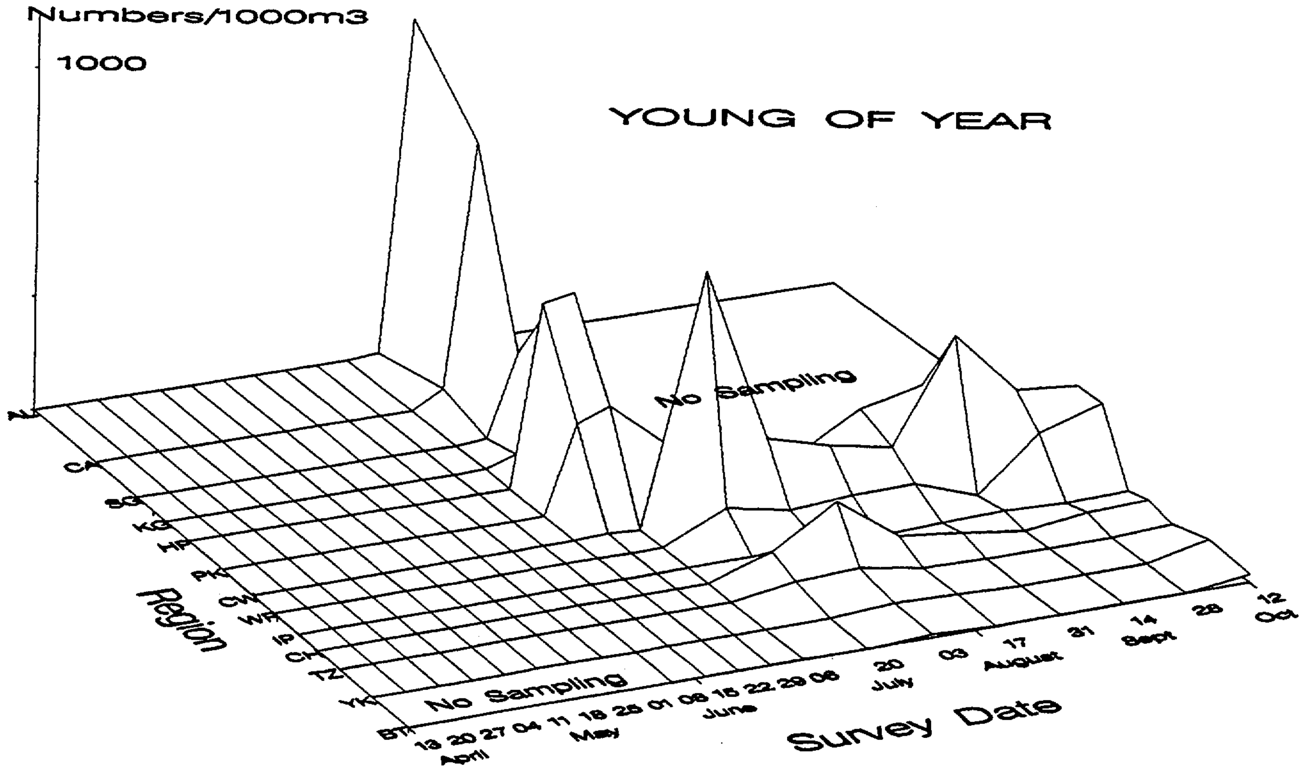


Figure 4–49. Spatiotemporal distribution of young–of–year blueback herring in the Hudson River estuary based on the 1992 Long River Ichthyoplankton Survey.

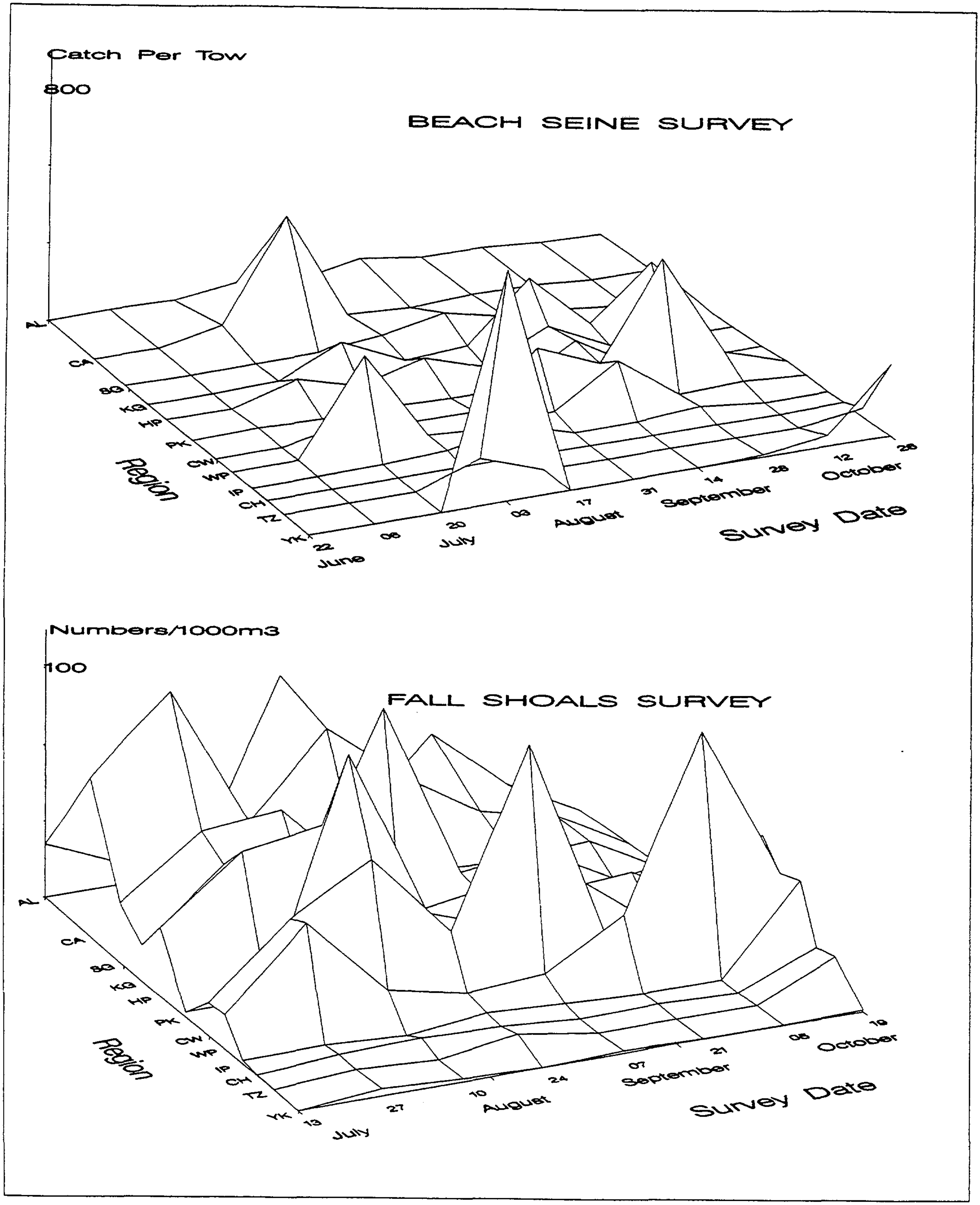


Figure 4-50. Spatiotemporal distribution of young-of-year blueback herring in the Hudson River estuary based on the 1992 Fall Shoals and Beach Seine Surveys.

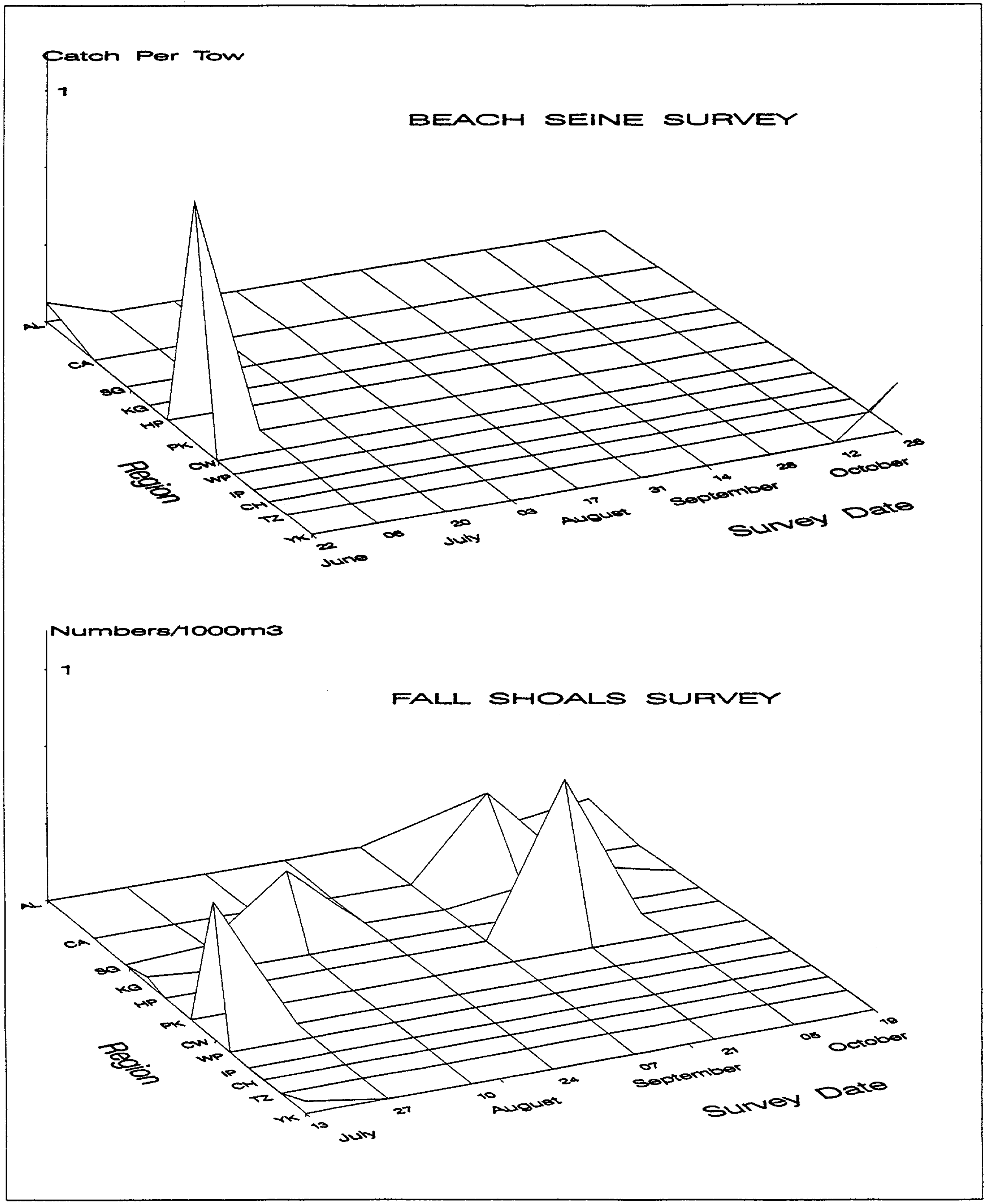


Figure 4-51. Spatiotemporal distribution of yearling and older blueback herring in the Hudson River estuary based on the 1992 Fall Shoals and Beach Seine Surveys.

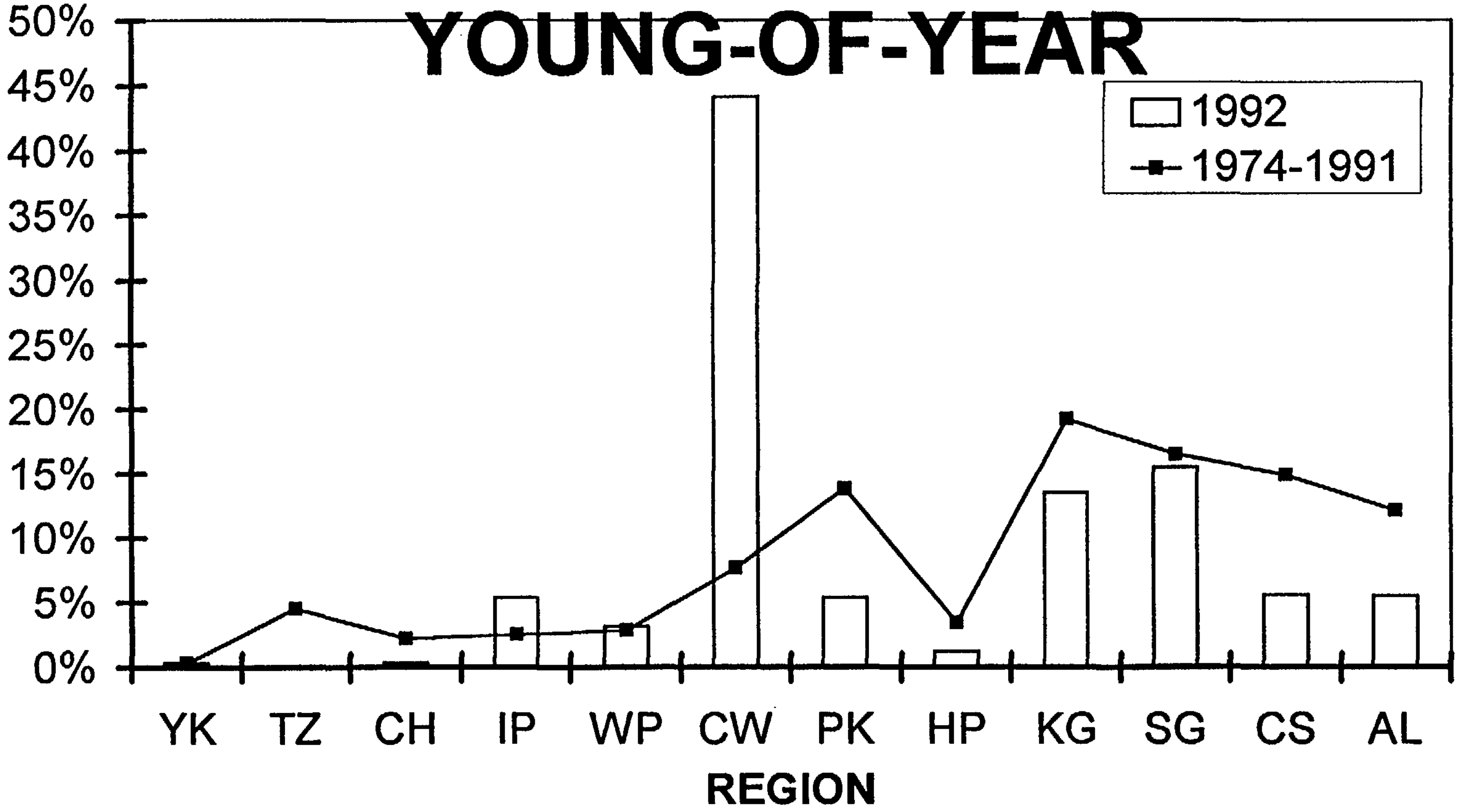


Figure 4-52 Geographical distribution indices for young-of -the-year blueback herring collected during Beach Seine surveys of the Hudson River Estuary, 1974 - 1992.

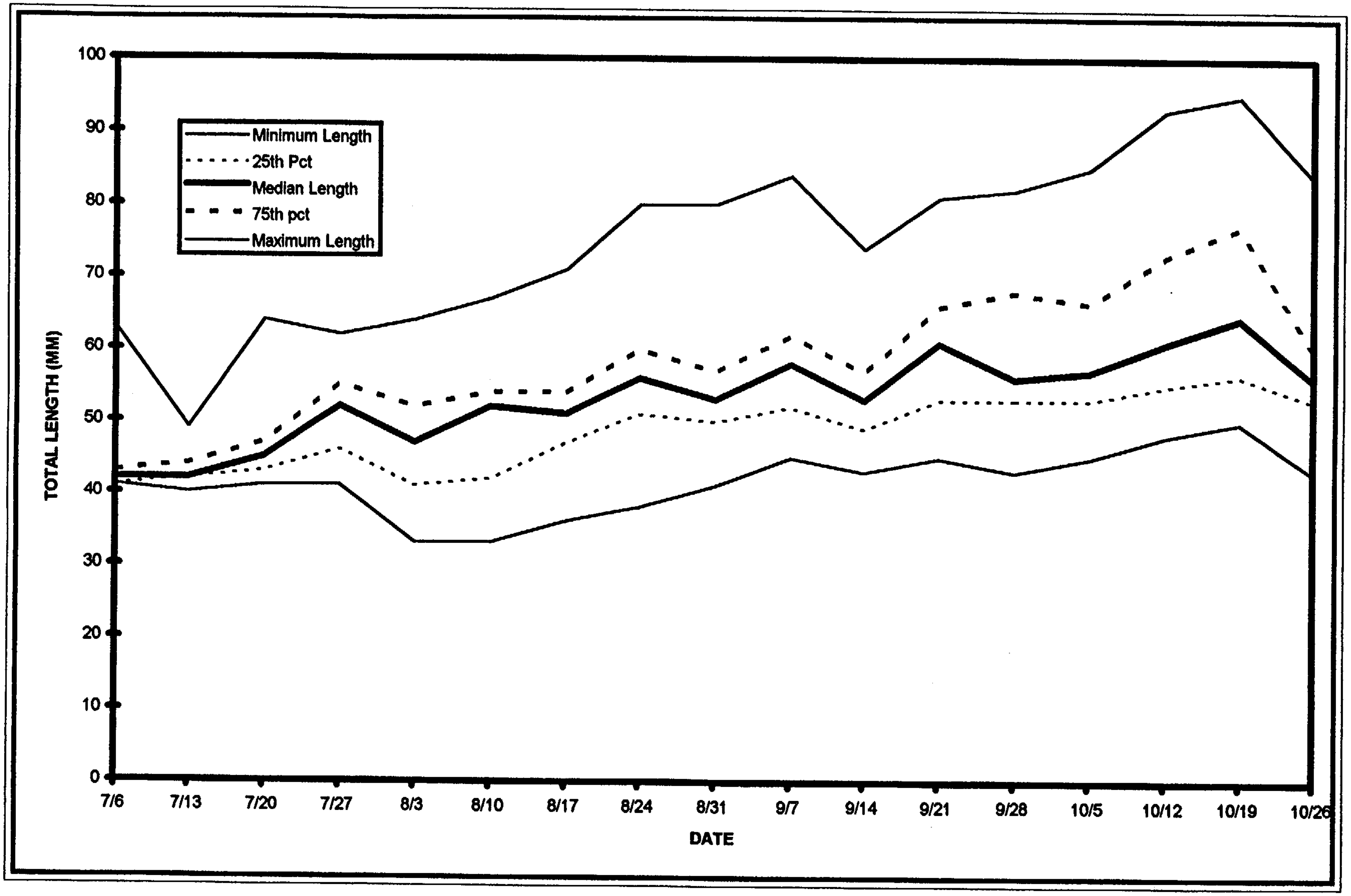


Figure 4-53 Weekly length statistics for blueback herring young-of-the year in the Hudson River Estuary, 1992

4.10 GIZZARD SHAD

The gizzard shad (*Dorosoma cepedianum*) is a freshwater herring that sometimes ranges into brackish water and seawater along the coast. It is an open-water species, usually living at or near the surface, and is found in large rivers, reservoirs, lakes, swamps, bays, borrow pits, bayous, estuaries, temporary floodwater pools along large river courses, sloughs, and similar quiet open waters. The geographic range of the gizzard shad includes the Great Lakes, except Lake Superior; the Hudson River south to the U.S. Gulf Coast and west to the Dakotas, Texas, and New Mexico; and along the Gulf Coast south to Rio Panuco in eastern Mexico (Figure V-80). The northern extent of the range along the Atlantic coast is Sandy Hook, the Hudson River, and Long Island (Smith 1985). Gizzard shad can grow to a length of 19 in., but the usual adult size is 10 to 14 in. and 1 to 3 lb in weight (Miller 1960).

Gizzard shad spawn when the water temperature reaches 50 to 70 °F (April to June, depending upon the location). Adults mill near the surface and spawning sometimes takes place in water less than a foot deep. The eggs sink slowly and adhere to the bottom. The eggs are less than 1/16 in. in diameter and the number of eggs produced by adult females ranges from 59,000 to almost 400,000. Hatching occurs in one and a half to seven days, depending upon the temperature.

Gizzard shad larvae are generally pelagic and widely distributed in many types of habitat. They begin to eat by the fifth day after hatching and feed on microzooplankton until they are about 1 in. long. At that point the digestive system begins to change and the young shad become herbivorous and eat phytoplankton, algae, and microscopic bottom plants (Scott and Crossman 1973).

Growth during the first five or six weeks is typically rapid, but then slows. By the end of the first summer, gizzard shad are generally between 4 and 5 in. long. Young gizzard shad tend to school and prefer clear, slow-moving water. They sometimes move into small streams and can tolerate high turbidity. However, they do not usually move into brackish waters.

Gizzard shad typically mature at age 2 or 3, and the life span is about seven years in northern populations and less in southern ones. In estuarine populations gizzard shad move into waters of higher salinities as they age; spring spawning runs have been reported in some instances (Miller 1960), but adults are generally too large to be eaten easily. Young gizzard shad are eaten by most predatory fish.

Gizzard shad occur primarily in the Mohawk River drainage. The early life stages of this species have been caught only occasionally in the utilities' river surveys. Few juvenile gizzard shad were collected in the 1992 BSS and FSS, except during mid August beach seine collections in the Poughkeepsie and Cornwall regions (Figure 4-54). However, adult gizzard shad appear regularly in winter impingement samples at all of the power plants. These fish may be emigrants from established populations located in the Mohawk River (Smith 1985) or there may be a small resident population in the lower Hudson. The few yearling and older gizzard shad recorded in river surveys in 1992 were collected in beach seines in the Cornwall and West Point regions (Figure 4-55). Comparing both juvenile and yearling and older distributions of gizzard shad during 1992 with the long term record (1974-1991) it is apparent that in 1992 gizzard were primarily distributed in the middle Hudson River (Cornwall and Poughkeepsie) as compared to primarily an upriver (Kingston through Albany regions) distribution in the long term record.

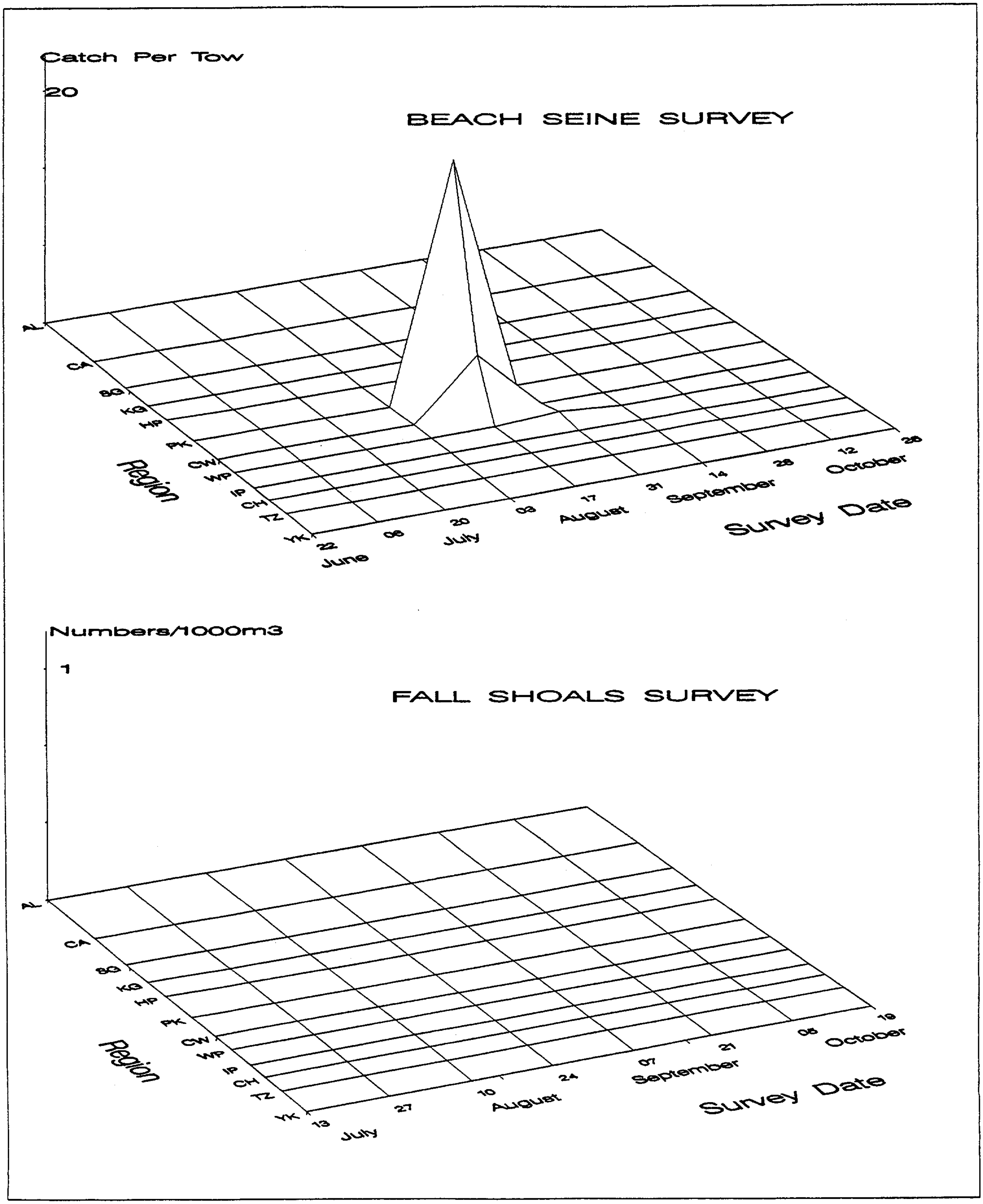


Figure 4-54. Spatiotemporal distribution of young-of-year gizzard shad in the Hudson River estuary based on the 1992 Fall Shoals and Beach Seine Surveys.

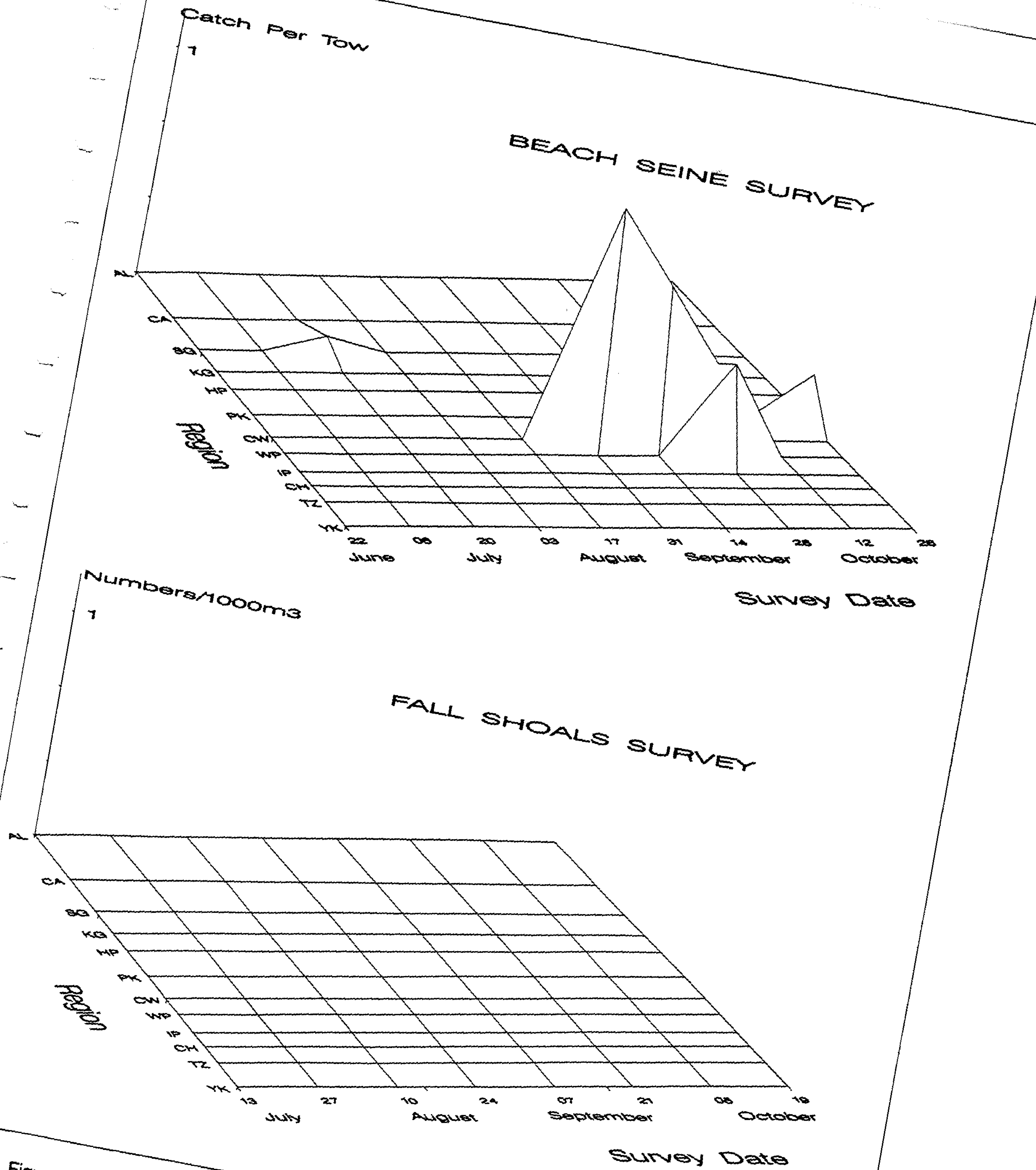


Figure 4-55. Spatiotemporal distribution of yearling and older gizzard shad in the Hudson River estuary based on the 1992 Fall Shoals and Beach Seine Surveys.

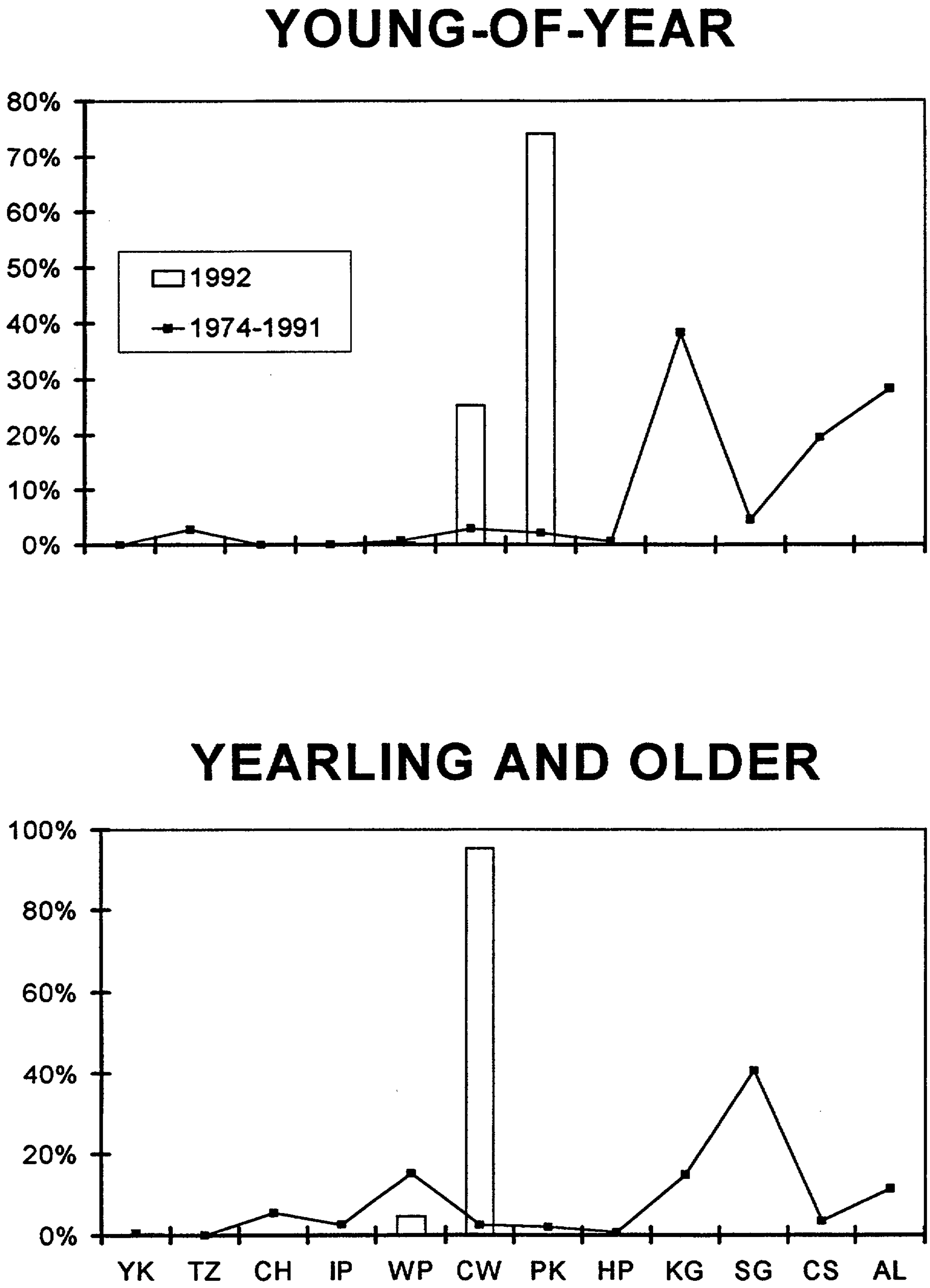


Figure 4-56 Geographical distribution indices for gizzard shad collected during Beach Seine surveys of the Hudson River Estuary, 1974 - 1992.

4.11 RAINBOW SMELT

The rainbow smelt are greenish, slender, salmon-like fish with deeply forked tails. They occur along the Atlantic coast from Labrador to the Delaware River, along the Arctic Coast, and along the coasts of Alaska and British Columbia. They are landlocked naturally in many lakes and ponds in Canada, Maine and New Hampshire and have been introduced to other landlocked freshwaters. Within New York State rainbow smelt are found in the Hudson River, Long Island streams, several Adirondac lakes, and the Great Lakes (Smith 1985).

Anadromous rainbow smelt may spend the whole year in or near estuaries. In the fall they move into the bays and estuaries. Rainbow smelt spawn in tributaries in spring when the water temperature reaches 48 °F. Even landlocked populations continue to migrate from their lake habitats to tributary streams to spawn. Spawners move into the lower reaches of streams in the evening, spawn at night, and move out in the day. Adult smelt leave the tributaries immediately after spawning. They spawn where water velocities are high, and larval survival decreases where water velocities are low (Buckley 1989). In the summer adults move to deeper, cooler water just outside bays and estuaries.

Adult smelt usually average 7 to 8 in. in total length, but occasionally reach lengths of 13 to 14 in. Female smelt grow faster than males and may reach maturity as early as age 1 along the southern edge of their range. However, maturity occurs more commonly at ages 2 through 5. The number of eggs produced by an adult smelt may range from 7000 to 70,000.

The eggs are approximately 1/16 in. or less in diameter and sink to the bottom, where they stick in clusters to pebbles or whatever they happen to touch (Bigelow and Schroeder 1953). In the Hudson River during 1992 rainbow smelt eggs were most abundant in the ichthyoplankton catches from the upper estuary in the Saugerties region (Figure 4-57). They hatch in about a week to almost a month, depending on temperature, and eggs are present in the Hudson River ichthyoplankton catches for about two weeks, which suggests a short spawning period.

Newly hatched larvae are about 1/5 in. long. These larvae are carried downstream and out of the tributaries by current flows. During 1992, YSL were abundant in early May and were found from the Catskill through West Point regions (Figure 4-57). The yolk sac is absorbed when the fish are about ¼ in. in length. In 1992 PYSL were commonly found from the Saugerties through Tappan Zee regions (Figure 5-58), and were abundant from mid-May through mid-June. As rainbow smelt larvae grow, they move closer to the bottom during the day and move back toward the surface at night, probably to feed on zooplankton, which exhibit similar vertical migrations in the water column.

Juvenile rainbow smelt were abundant in the 1992 LRS catches from late June through September (Figure 4-58). Juvenile smelt are exceedingly slender and nearly transparent. At about ¾ in. they begin to school. Juvenile rainbow smelt move into shallow water at night and back to deep channels during the day (Buckley 1989). These movement patterns are reflected in the 1992 BSS and FSS collections where beach seines conducted during the day did not collect any rainbow smelt and fall shoals sampling conducted at night collected juveniles primarily in the West Point and Cornwall regions (Figure 4-59). By late summer the young smelt leave the estuary. Few yearling and older rainbow smelt were collected in the FSS during 1992 (Figure 4-60).

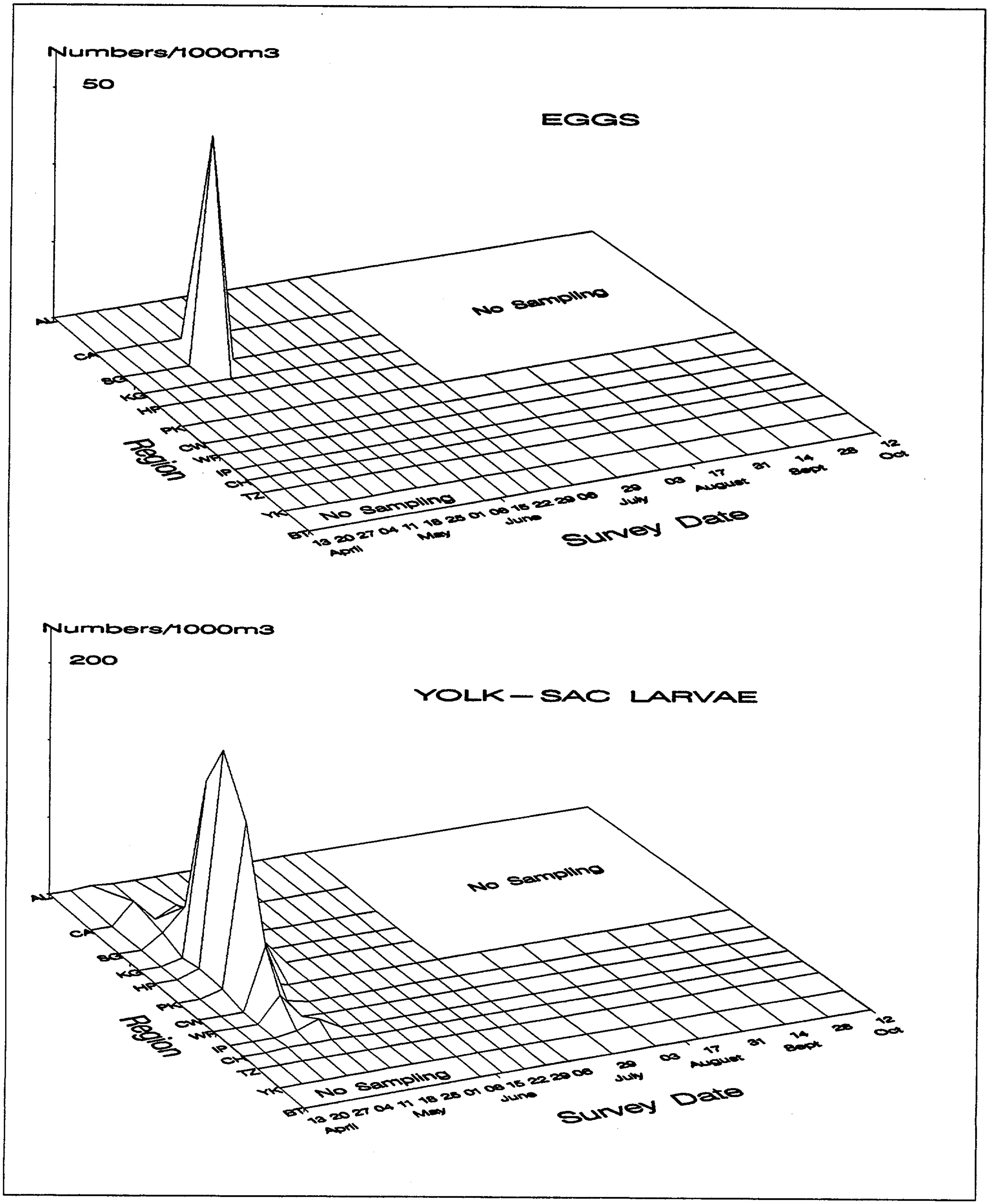


Figure 4-57. Spatiotemporal distribution of egg and yolk-sac stages of rainbow smelt in the Hudson River estuary based on the 1992 Long River Ichthyoplankton Survey.

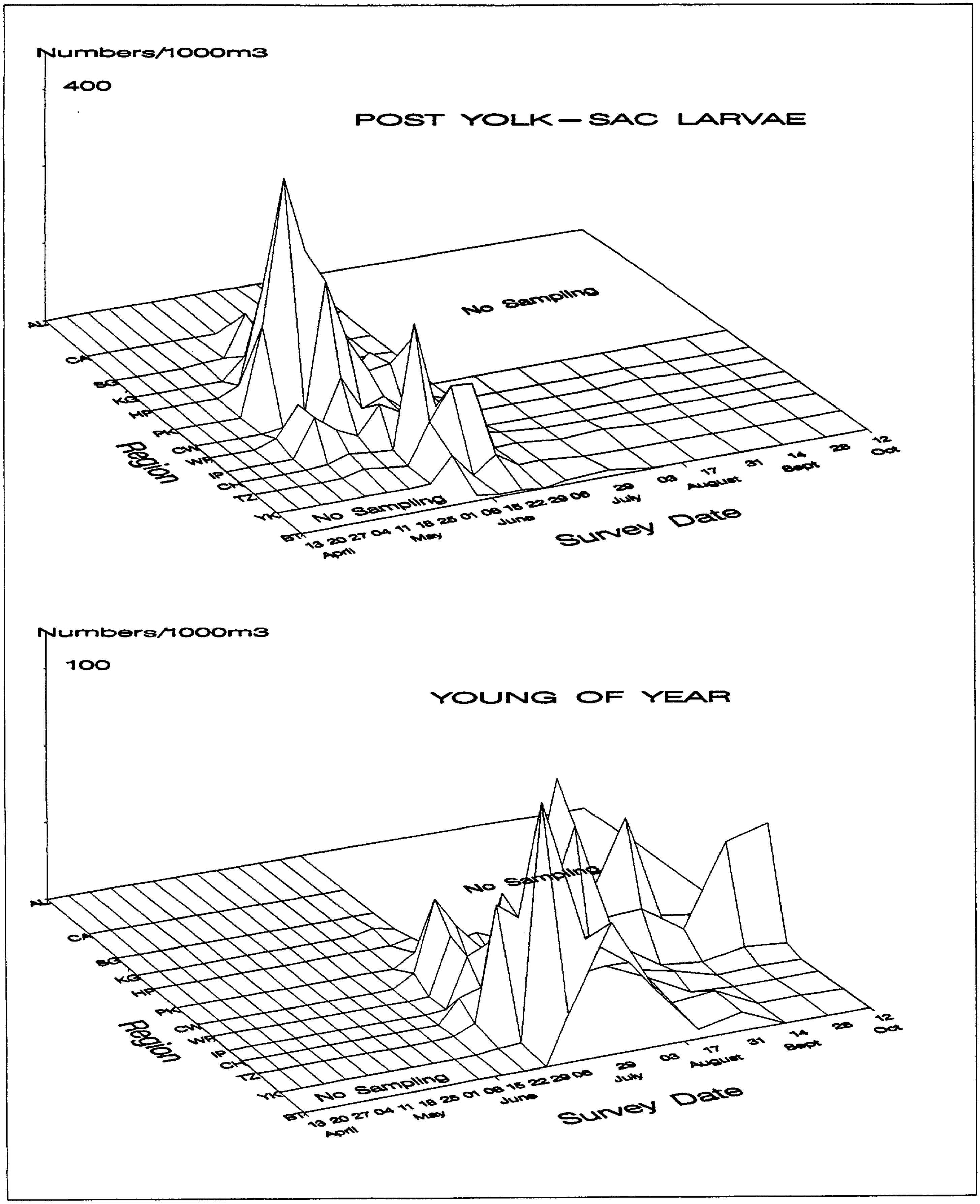


Figure 4-58. Spatiotemporal distribution of post yolk-sac and young-of-year stages of rainbow smelt in the Hudson River estuary based on the 1992 Long River Ichthyoplankton Survey.

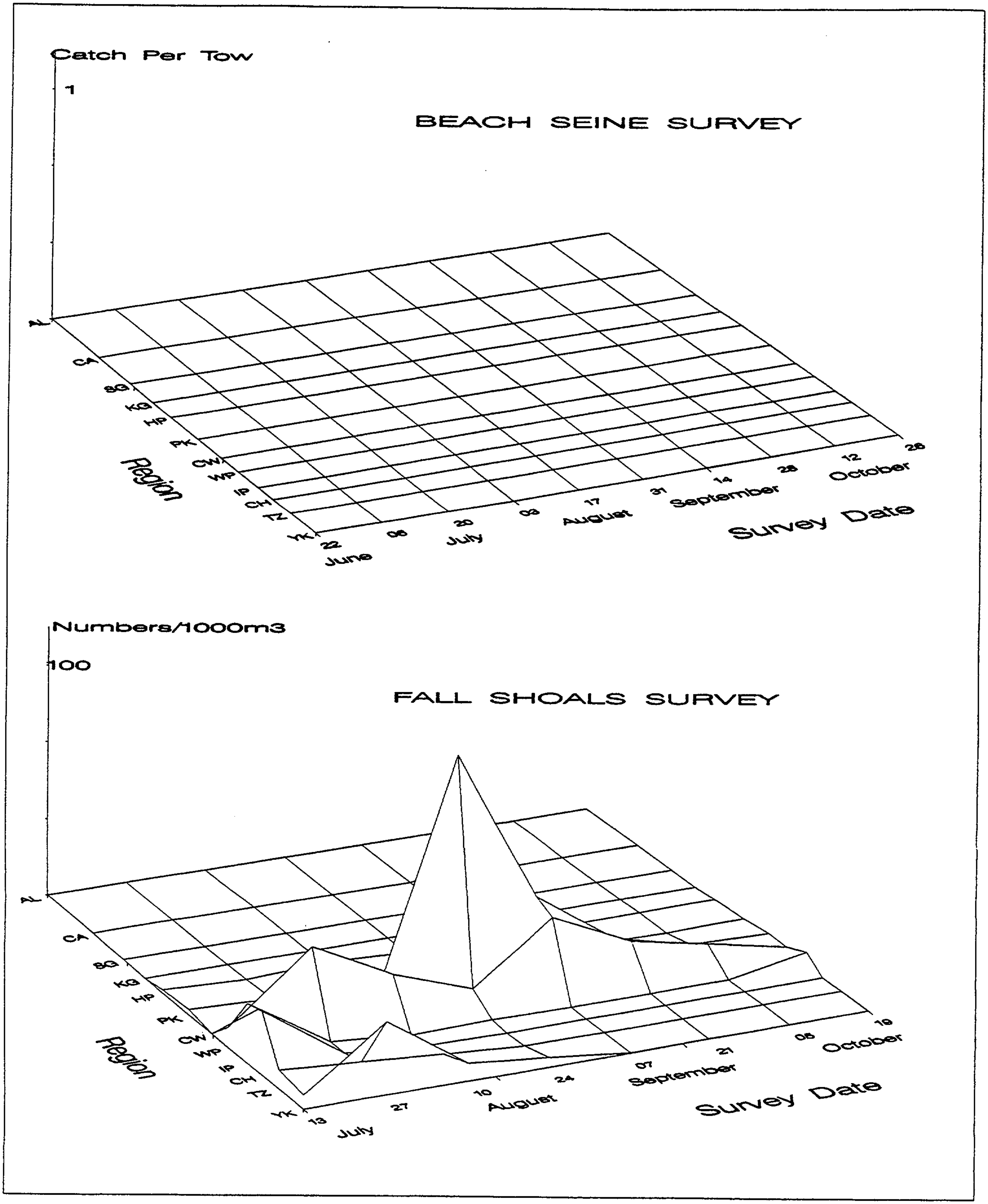


Figure 4-59. Spatiotemporal distribution of young-of-year rainbow smelt in the Hudson River estuary based on the 1992 Fall Shoals and Beach Seine Surveys.

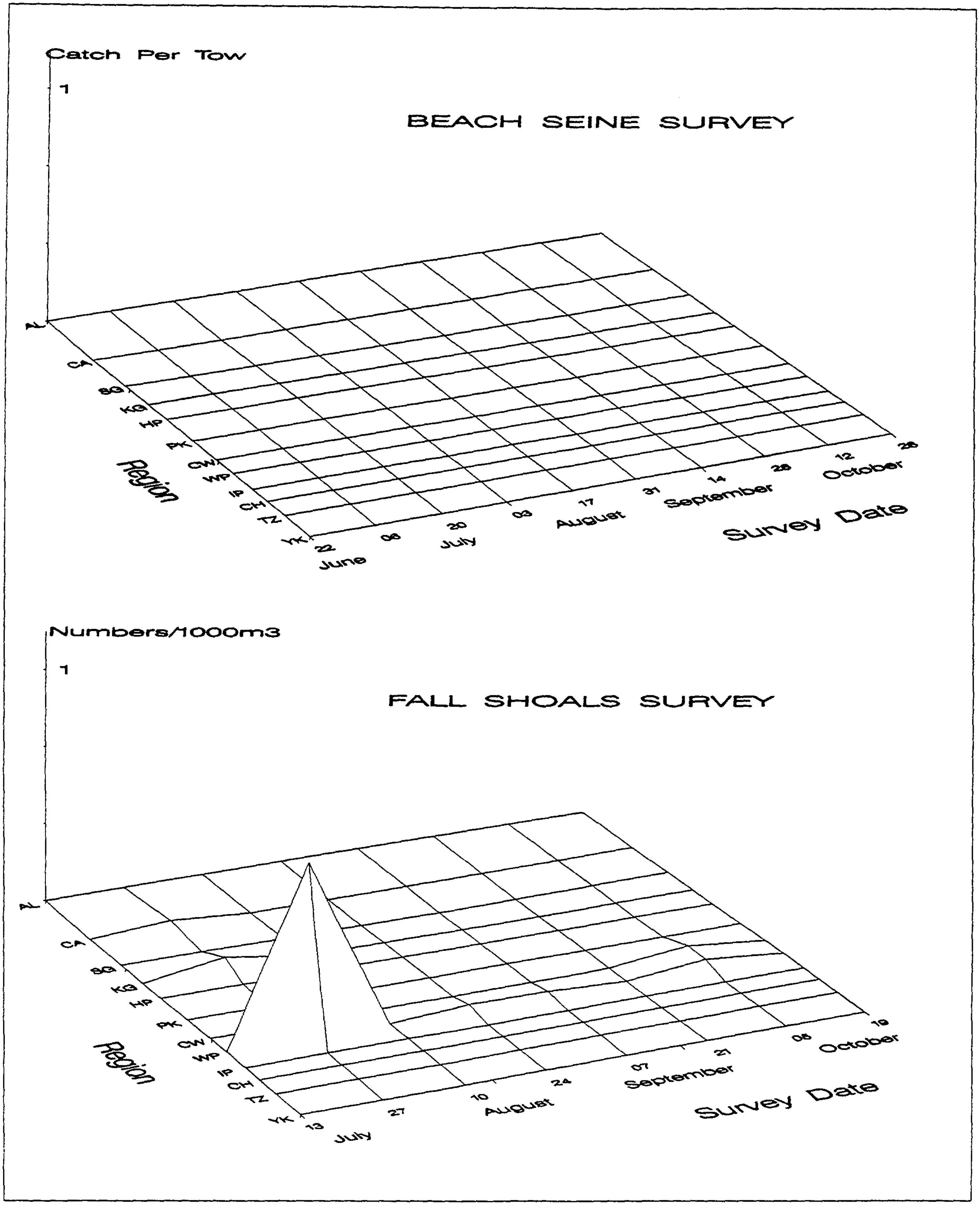


Figure 4-60. Spatiotemporal distribution of yearling and older rainbow smelt in the Hudson River estuary based on the 1992 Fall Shoals and Beach Seine Surveys.

Comparing the temporal distribution of early life stages of rainbow smelt in 1992 with previous years (1974-1991), it is apparent that in 1992 the distributions of early life stages were generally consistent with the long term record (Figure 4-61). However, in 1992 over 50 % of the juvenile distribution occurred in early July, whereas over the long term juveniles were more evenly distributed from mid June through early July.

The geographical distribution of rainbow smelt early stages during 1992 was somewhat further downriver than seen in the long term record (Figure 4-62). Eggs were found only in the Saugerties region, rather than in the Saugerties through Albany regions and YSL were primarily found in the Poughkeepsie through Kingston rather than being more evenly distributed between the Hyde Park and Catskill regions. PYSL rainbow smelt were not as abundant above Hyde Park in 1992 and juveniles were more abundant in the Yonkers and Tappan Zee regions as evident in the long term record (Figure 4-62).

The 1992 geographical distribution of young-of-the-year and yearling and older rainbow smelt in the BSS is generally consistent with the long term trend, except that the peak of juveniles occurred in the Cornwall region compared to the long term record where peak juvenile occurrence was further downriver in the West Point region (Figure 4-63).

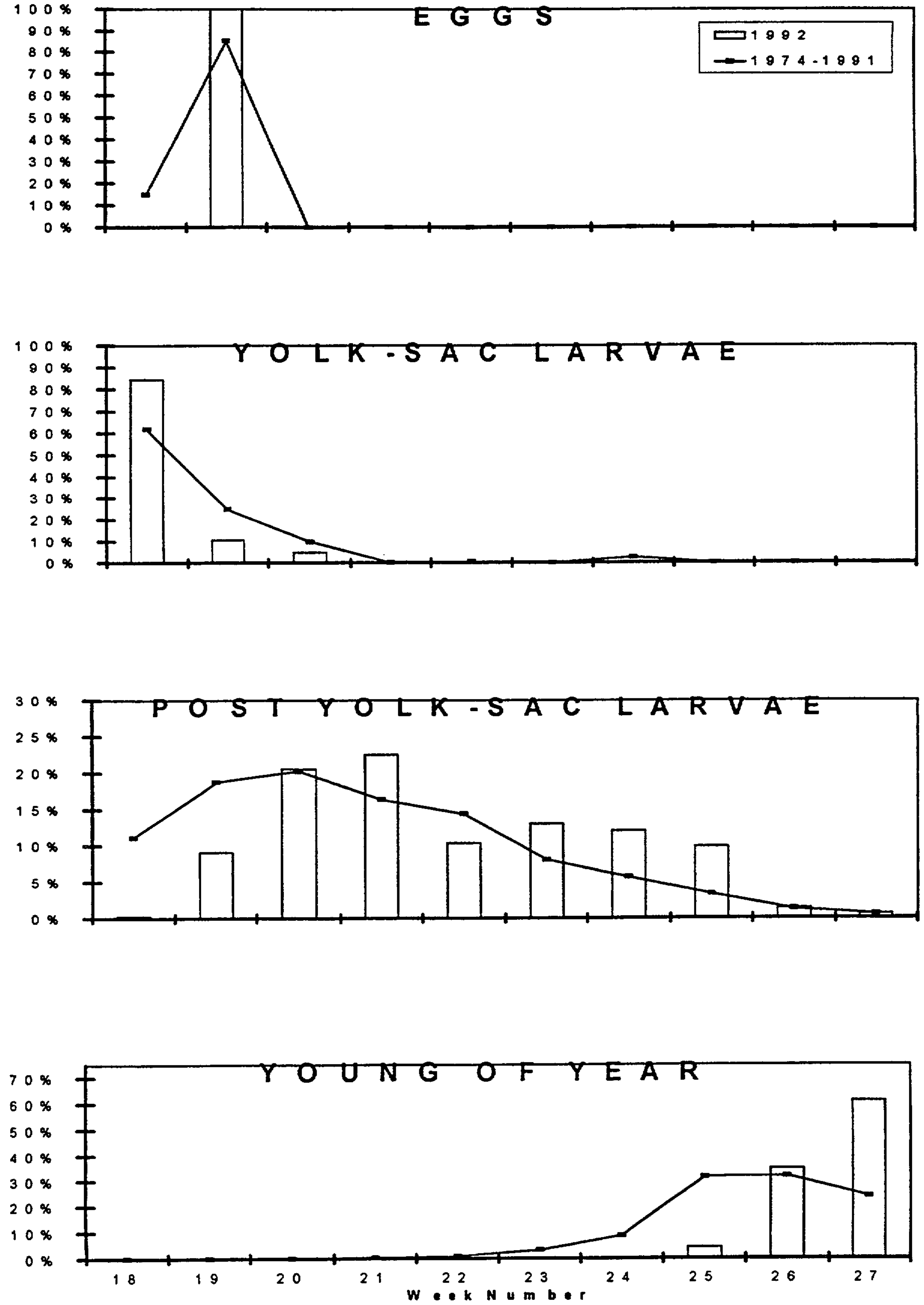


Figure 4-61 Temporal distribution indices for early life stages of rainbow smelt collected during Longitudinal River Ichthyoplankton Surveys of the Hudson River Estuary, 1974 - 1992.

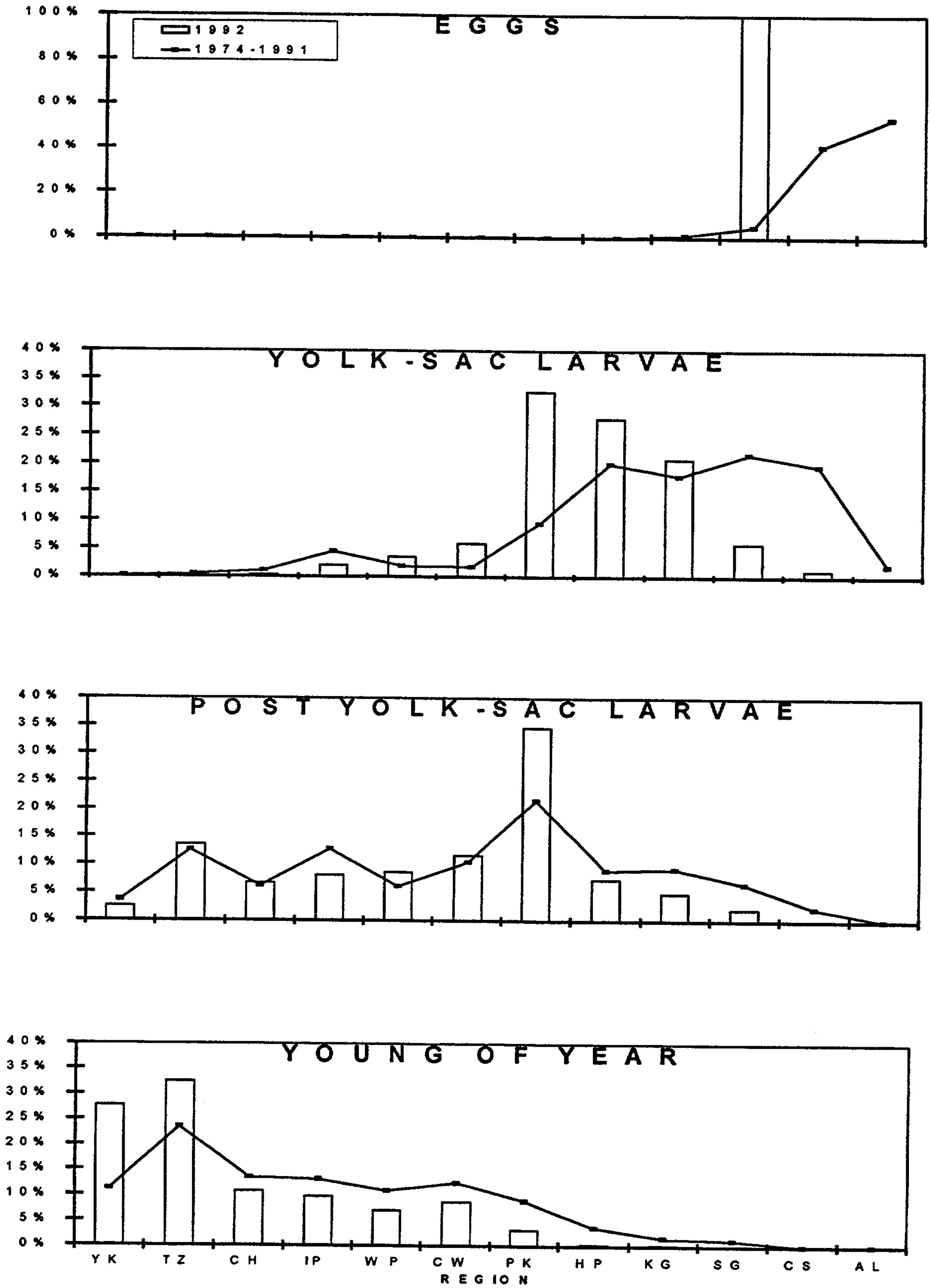


Figure 4-62 Geographical distribution indices for early life stages of rainbow smelt collected during Longitudinal River Ichthyoplankton Surveys of the Hudson River Estuary, 1974 - 1992.

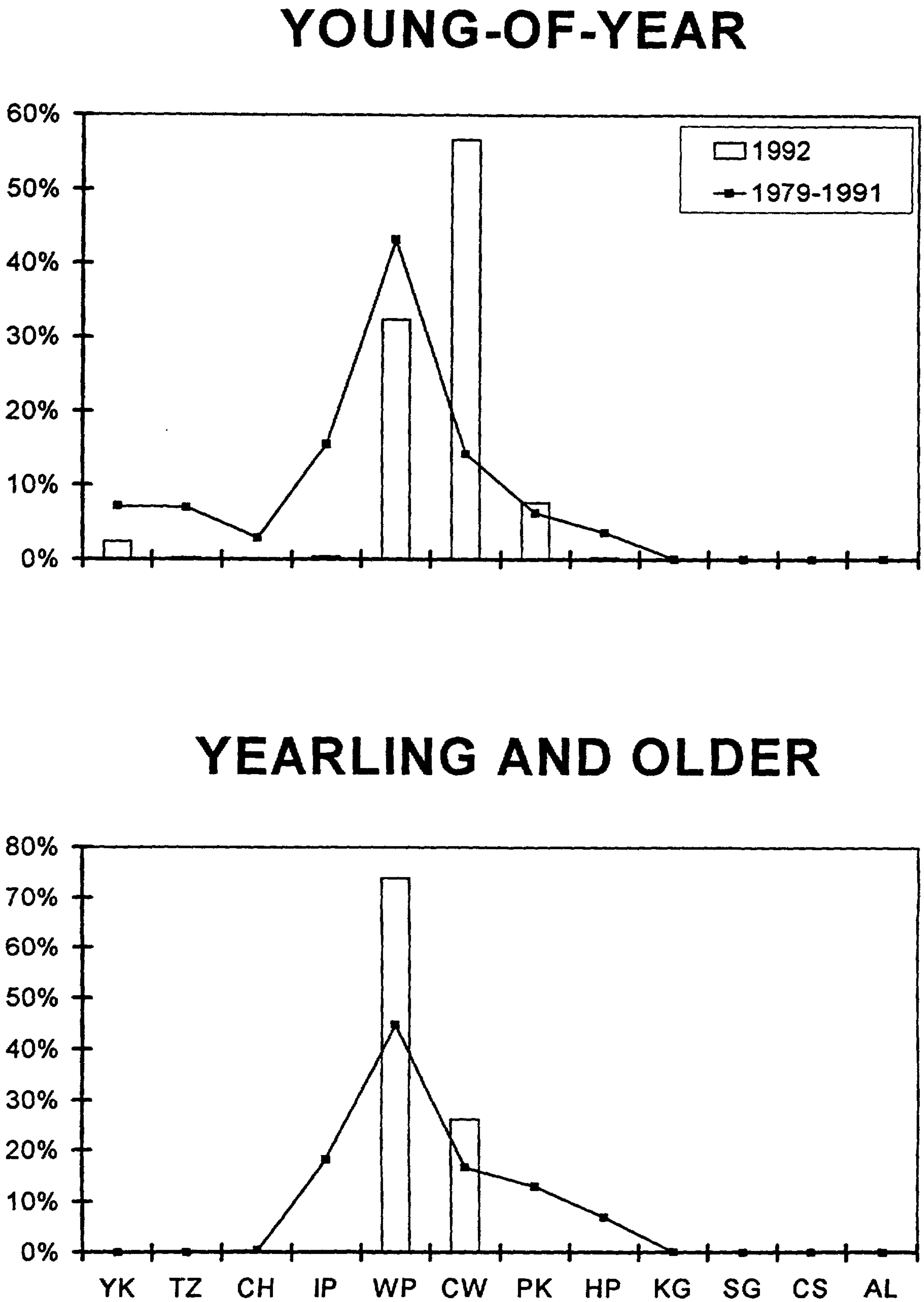


Figure 4-63 Geographical distribution indices for rainbow smelt collected during Fall Shoals surveys of the Hudson River Estuary, 1979 - 1992.

4.12 HOGCHOKER

Hogchokers (*Trinectes maculatus*) inhabit estuaries and nearshore coastal waters and range from Massachusetts Bay to the Atlantic coast of Panama. They can tolerate a wide range of salinities and are found from marine waters up into fresh water, although older individuals tend to be found in more saline waters. Hogchokers reach a length of 2 to 3 in. in their first year, mature at about 4.5 in., and obtain a maximum size of about 8 in. (Bigelow and Schroeder 1953). This small flatfish is very abundant in the Hudson River estuary and its adjacent bays and coastal waters.

Adult hogchokers overwinter in low salinity regions of estuaries (Koski 1973) and spawn in the lower regions of estuaries and offshore from estuary mouths during the spring and summer. In some areas (eastern Chesapeake Bay) spawning appears to be restricted to sandy substrates. Dovel et al. (1969) reported that the hogchoker population in the Patuxent River was a resident population confined for the most part to that estuary in the Chesapeake Bay complex and concluded that the hogchoker population in the Chesapeake Bay system was probably composed of subpopulations that were generally confined to the bay and various tributaries. The relationship of Hudson River hogchokers to Atlantic coastal populations is unknown.

Individual hogchokers produce from 11,000 to 54,000 eggs, depending upon the size of the female. In the Hudson River estuary hogchoker spawning occurs from May to October although eggs are more commonly collected during the period from the last week in May through July, in the more saline areas of the lower estuary, such as the Battery and Yonkers regions. During 1992 hogchoker eggs were collected primarily in the Yonkers and Battery regions between early June and mid-August (Figure 4-64).

After hatching, the yolk-sac larvae move upstream from the spawning areas and may use the net upstream flows in the deeper saline waters of the estuary. No YSL and few PYSL hogchokers were recorded in the LRS during 1992 (Figure 4-65). Generally low numbers of juvenile hogchokers were collected in the catches of the monitoring program from mid-July through late October (Figure 4-66). However, during 1992 yearling and older hogchokers were abundant, particularly in FSS collections from Yonkers through West Point (Figure 4-67).

The 1992 geographical distribution of young-of-the-year and yearling and older hogchokers in the FSS is generally consistent with the long term trend (1979-1991), except that the peak of juveniles occurred in the Tappan Zee region compared to the long term record where peak juvenile occurrence is further upriver in the Indian Point and West Point regions (Figure 4-68).

In the Hudson hogchokers generally reached sexual maturity at age 2, although some males were mature at age 1 (about 3 in. long). The oldest males in the Hudson were age 4 while the oldest females were age 6. Hogchokers feed near the bottom on a variety of benthic invertebrates, including annelid worms and smaller crustaceans.

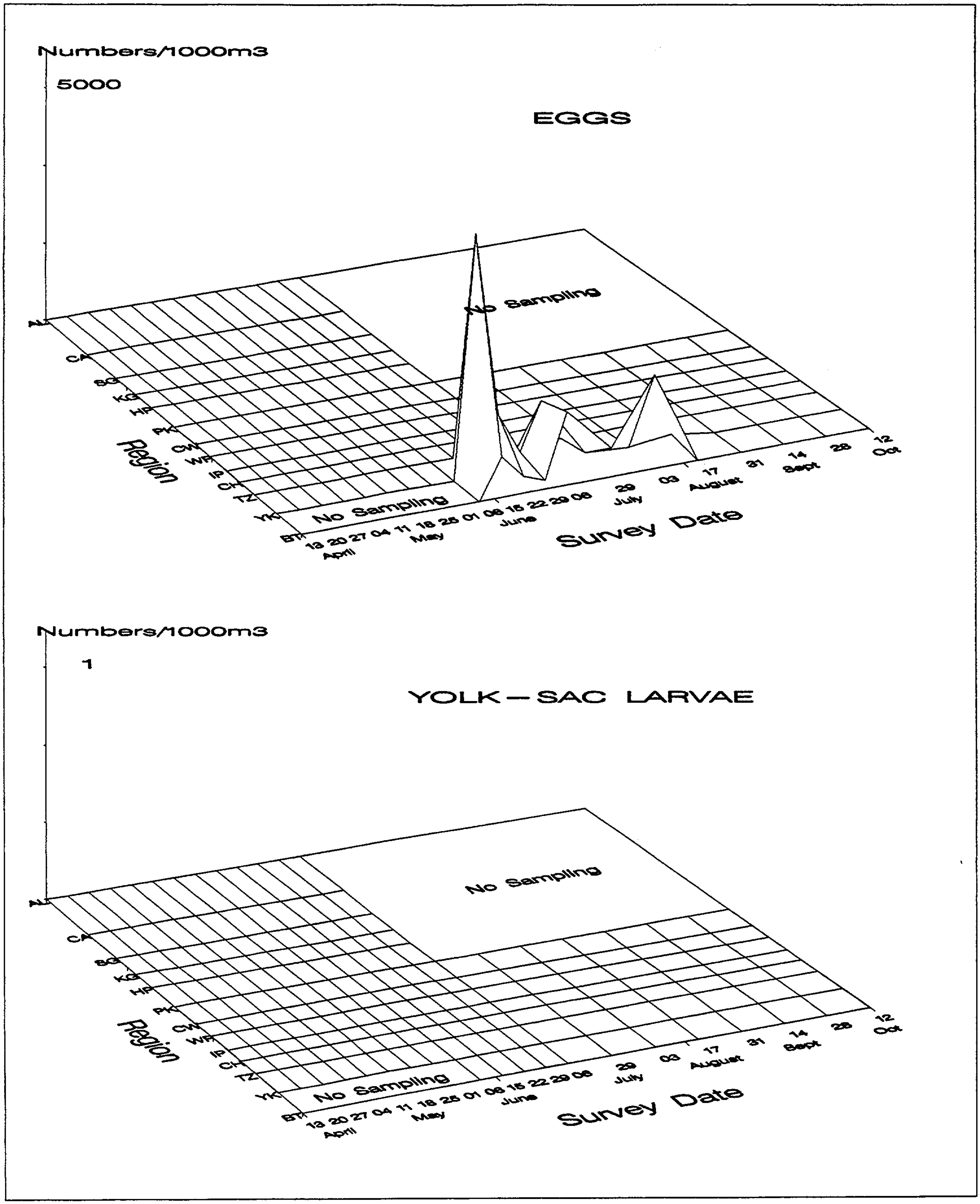


Figure 4–64. Spatiotemporal distribution of egg and yolk–sac stages of hogchoker in the Hudson River estuary based on the 1992 Long River Ichthyoplankton Survey.

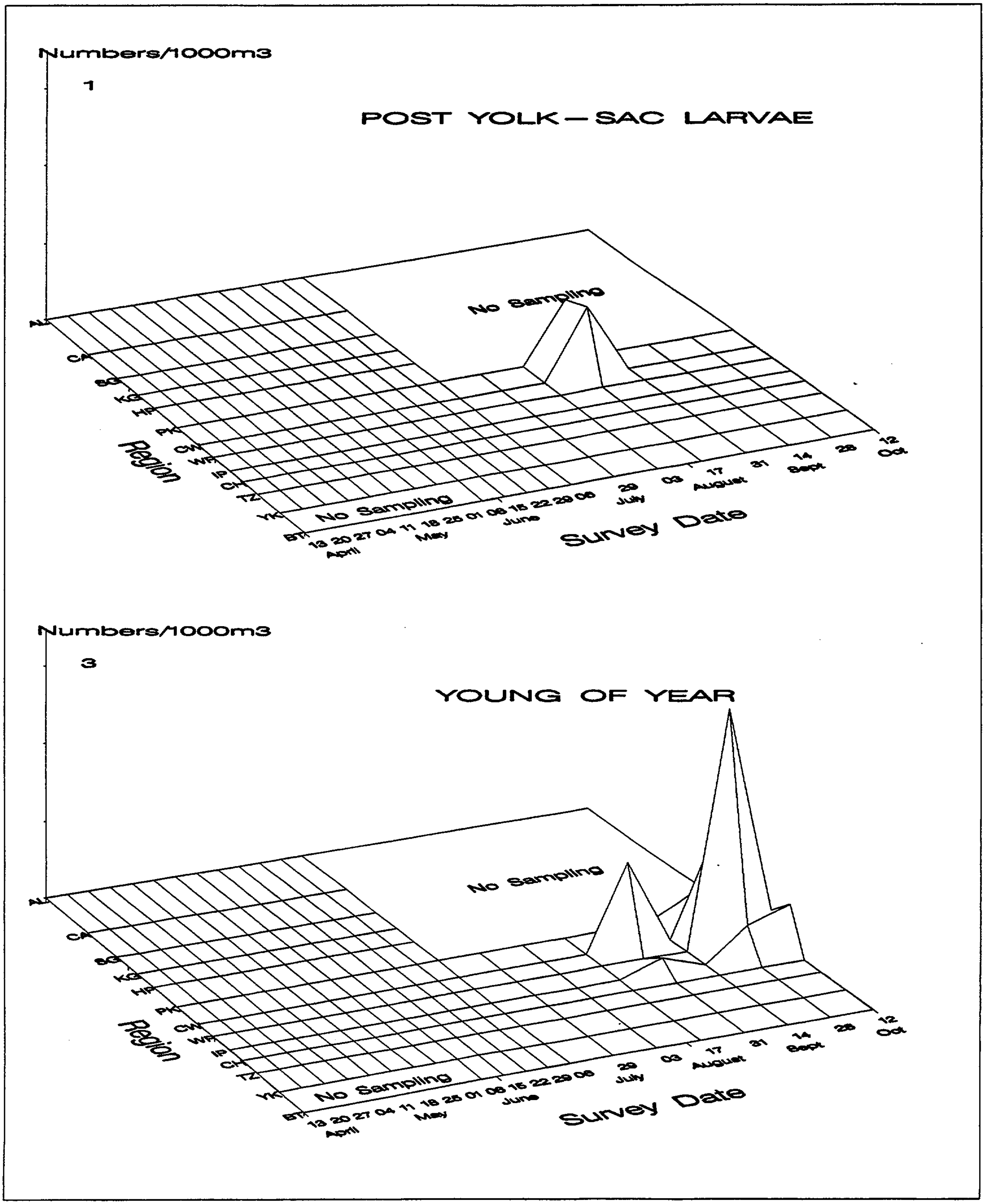


Figure 4-65. Spatiotemporal distribution of post yolk-sac and young-of-year stages of hogchoker in the Hudson River estuary based on the 1992 Long River Ichthyoplankton Survey.

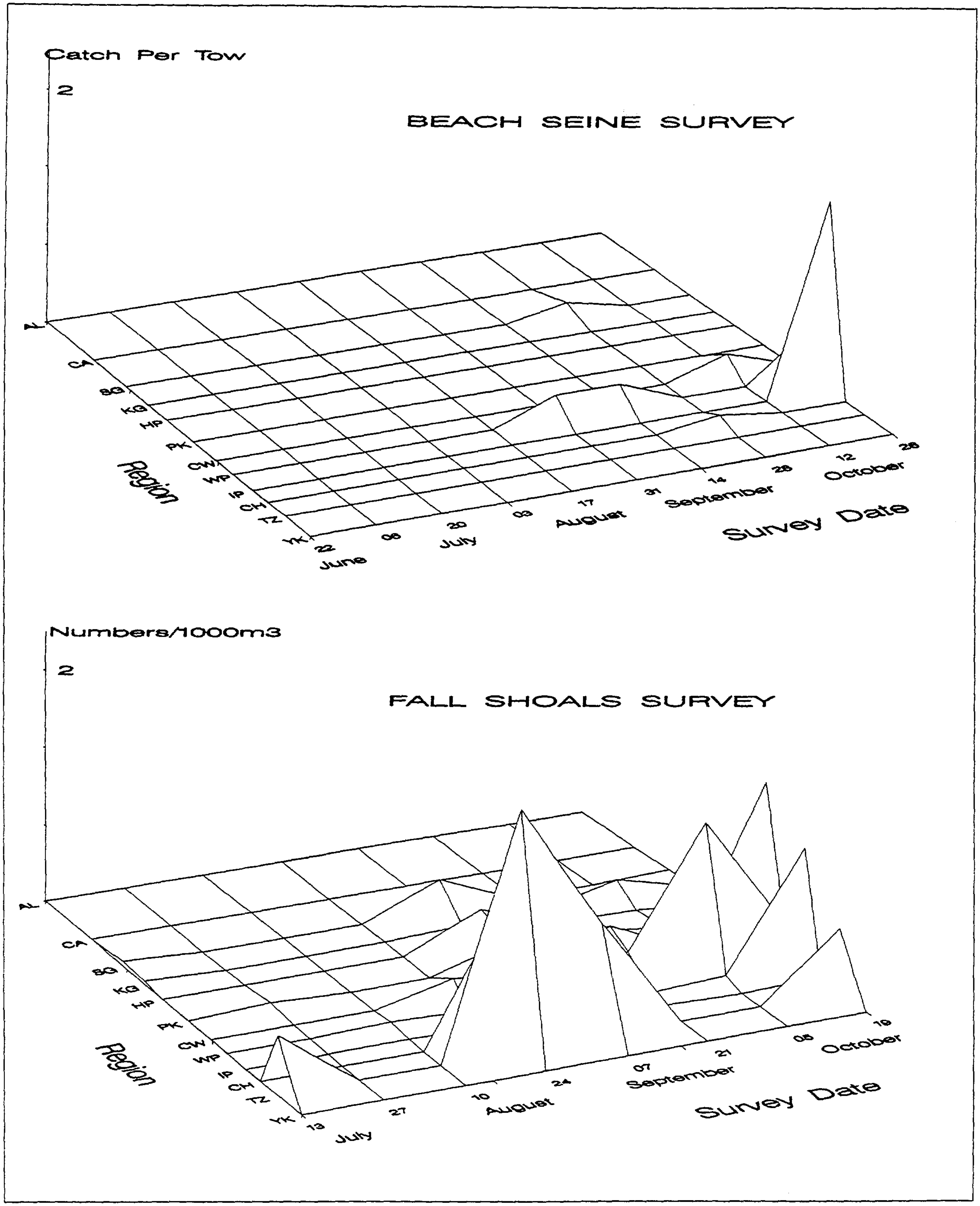


Figure 4-66. Spatiotemporal distribution of young-of-year hogchoker in the Hudson River estuary based on the 1992 Fall Shoals and Beach Seine Surveys.

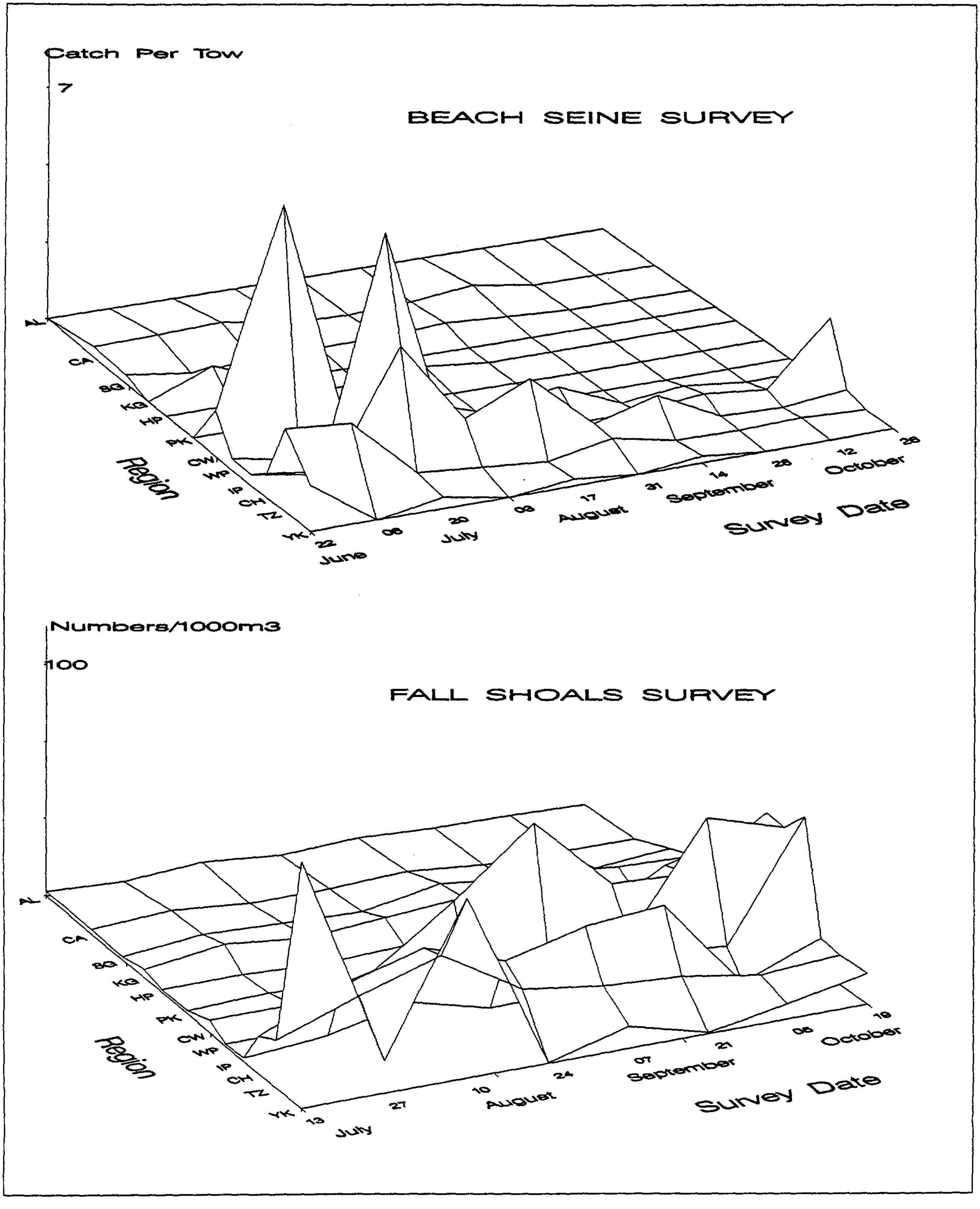
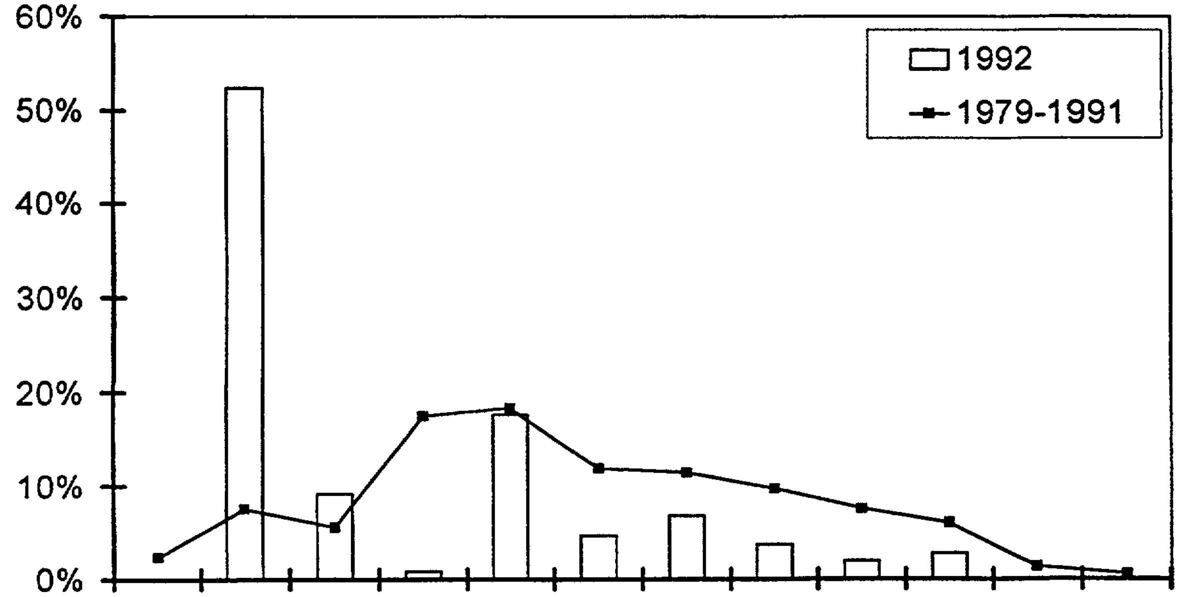


Figure 4-67. Spatiotemporal distribution of yearling and older hogchoker in the Hudson River estuary based on the 1992 Fall Shoals and Beach Seine Surveys.

YOUNG-OF-YEAR



YEARLING AND OLDER

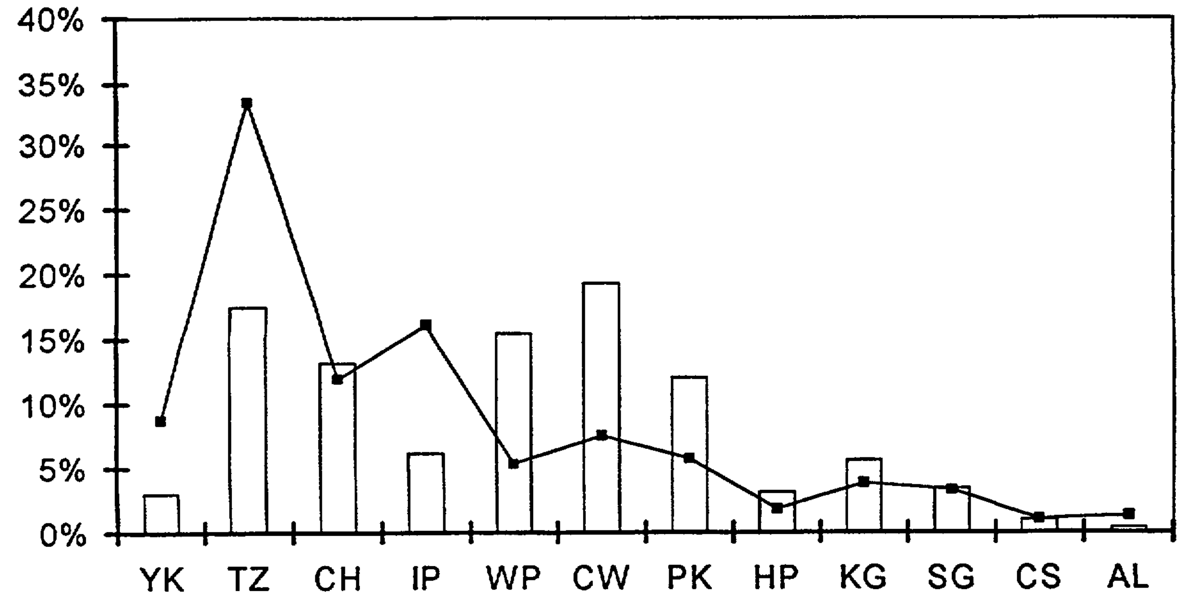


Figure 4-68 Geographical distribution indices for hogchoker collected during Fall Shoals surveys of the Hudson River Estuary, 1979 - 1992.

4.13 SPOTTAIL SHINER

The spottail shiner (*Notropis hudsonius*) is a small, silvery, freshwater minnow that reaches a maximum total length of over 5 in. in the Hudson River. It is usually recognizable by a large oval spot at the base of the tail, but in large individuals the spot is sometimes small and somewhat masked by silvery pigment. It occurs in a variety of freshwater habitats from large lakes and rivers to small streams and is widely distributed in Canada and the United States (Smith 1985).

The spottail shiner is a freshwater species and does not enter marine coastal waters. Thus, the Hudson River population is probably isolated from those in other coastal rivers along the east coast of the United States.

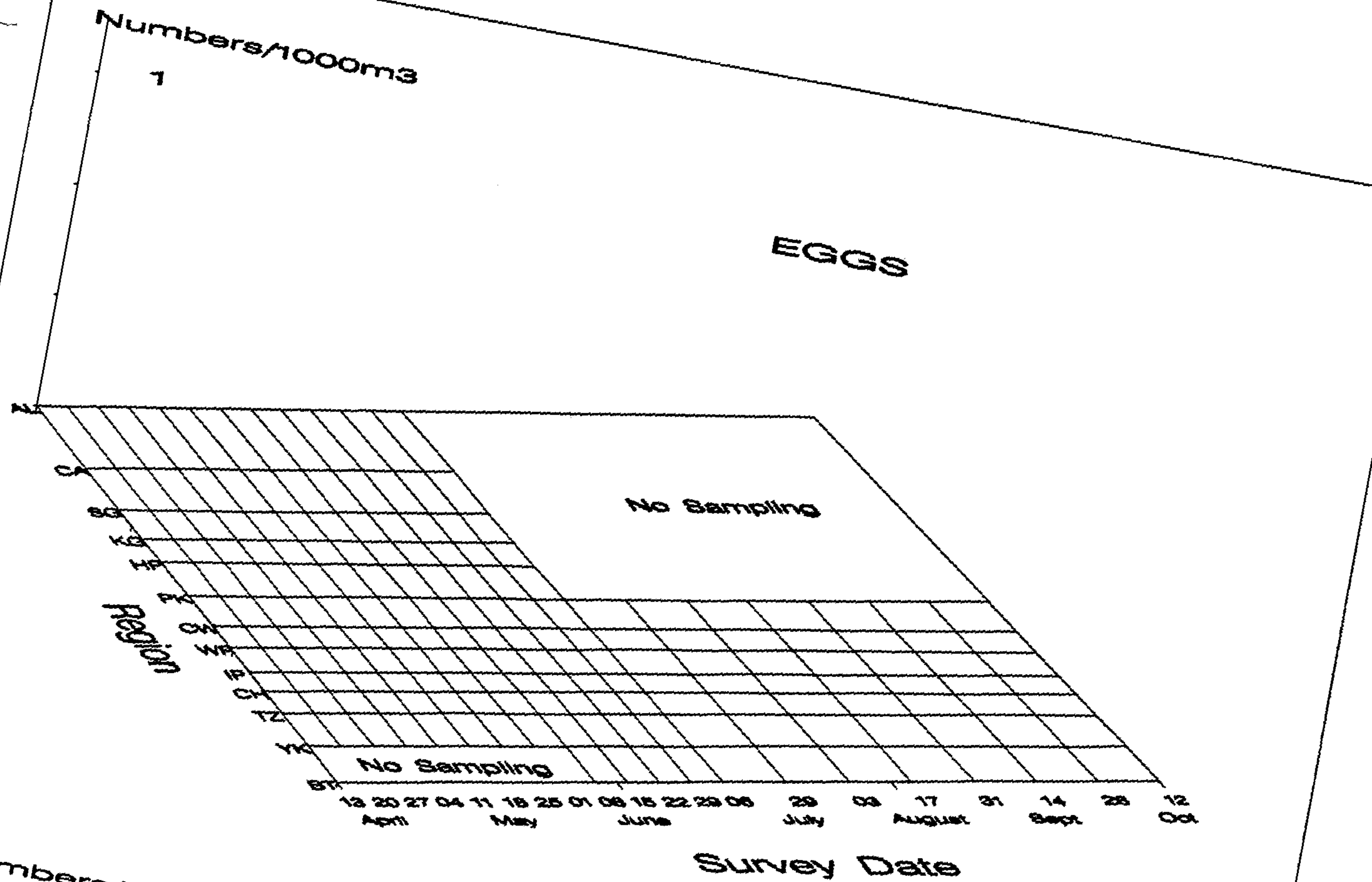
Adult spottail shiners may form large spawning aggregations over sand or gravel substrates in shallow water or at the mouths of tributaries. In the Hudson River adult spottail shiners appear in the ichthyoplankton samples from the upper, freshwater regions of the estuary during May. Spottail shiners produce from 100 to 2600 eggs, depending upon the age and size of the female. Very few eggs and larvae have been collected during the Long River Surveys, which is probably a reflection of the fact that this species spawns in shallow-water habitats that are not sampled efficiently during the ichthyoplankton surveys.

During 1992 no eggs or YSL and few PYSL and juveniles were collected in the LRS (Figures 4-69 and 4-70). Juvenile spottail shiners first appeared in the BSS during early July and were most abundant in the shore zone above the Cornwall region (Figure 4-71), which is also the portion of the estuary with the greatest number of tributaries. Yearling and older spottail shiners were also found throughout the upper Hudson above Cornwall (Figure 4-72).

Comparing the geographical distribution of juvenile and yearling and older spottail shiners based on beach seine surveys in 1992 with previous years (1974-1991), it is apparent that in 1992 the distribution of these life stages was generally consistent with the long term record (Figure 4-73). However, in 1992 the peak in juveniles occurred further downriver in Kingston and Saugerties rather than in the Albany region as seen in the long term record.

Weekly length statistics for juvenile spottail shiners collected in 1992 show steady growth from late June through the end of BSS/FSS collections in mid October (Figure 4-74 and Appendix Tables D-18 and D-19).

In general, spottail shiners are opportunistic predators that feed on aquatic insect larvae, zooplankton, benthic invertebrates, and the eggs and larvae of fish, including their own species. The smaller fish eat the smaller organisms and zooplankton (Scott and Crossman 1973).



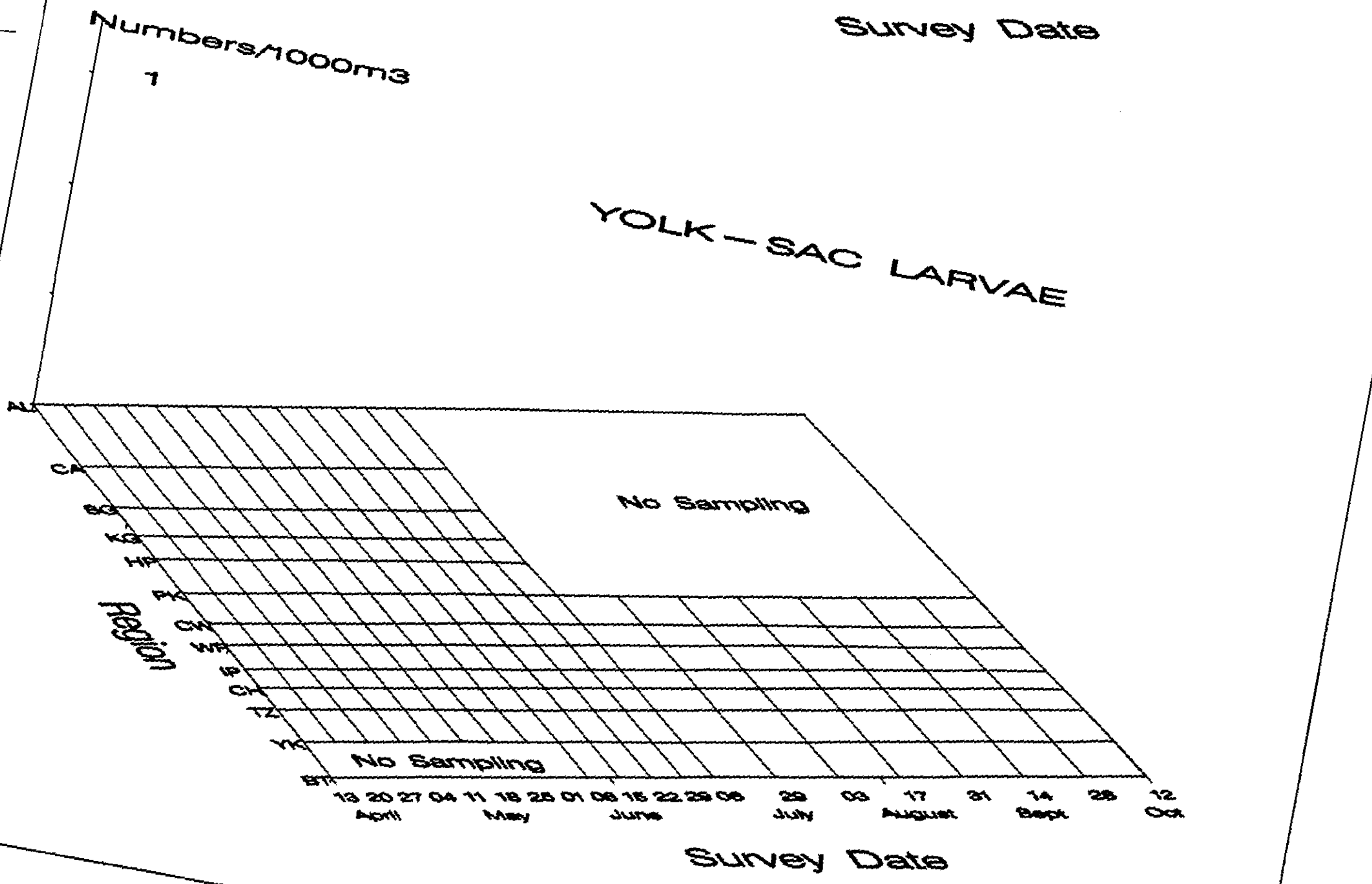


Figure 4–69 Spatiotemporal distribution of egg and yolk–sac stages of spottail shiner in the Hudson River estuary based on the 1992 Long River Ichthyoplankton Survey.

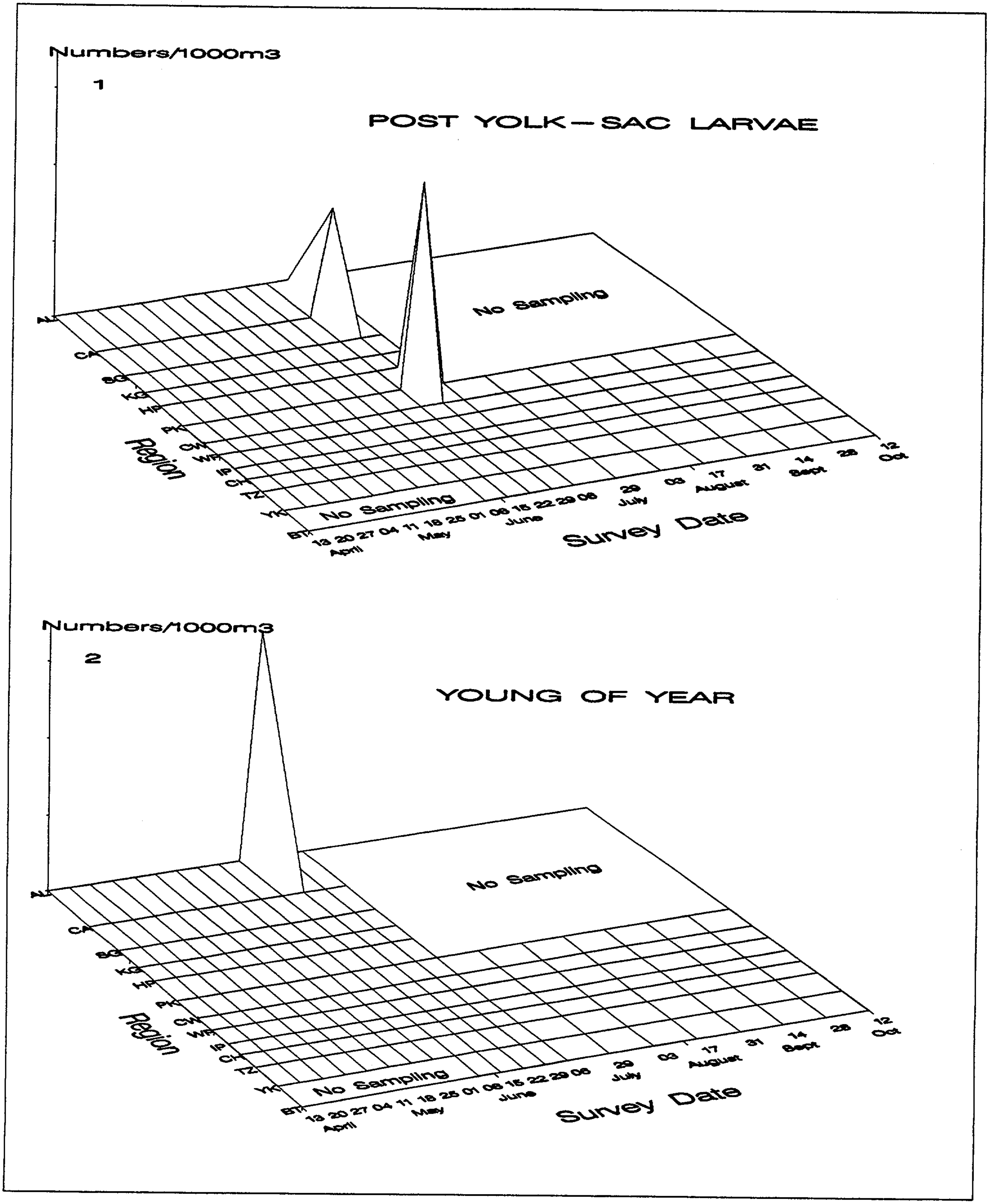


Figure 4–70. Spatiotemporal distribution of post yolk–sac and young–of–year stages of spottail shiner in the Hudson River estuary based on the 1992 Long River Ichthyoplankton Survey.

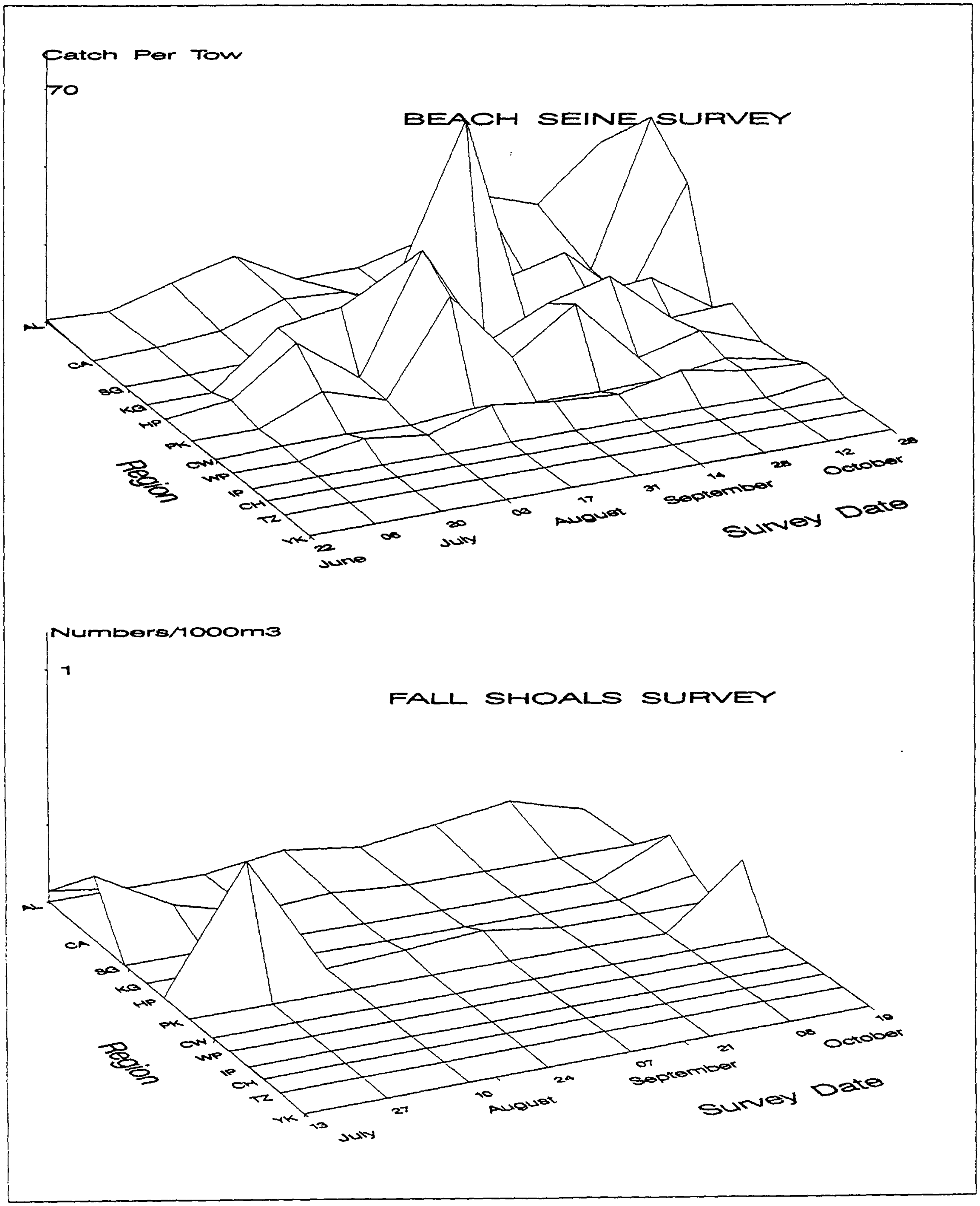


Figure 4-71. Spatiotemporal distribution of young-of-year spottail shiner in the Hudson River estuary based on the 1992 Fall Shoals and Beach Seine Surveys.

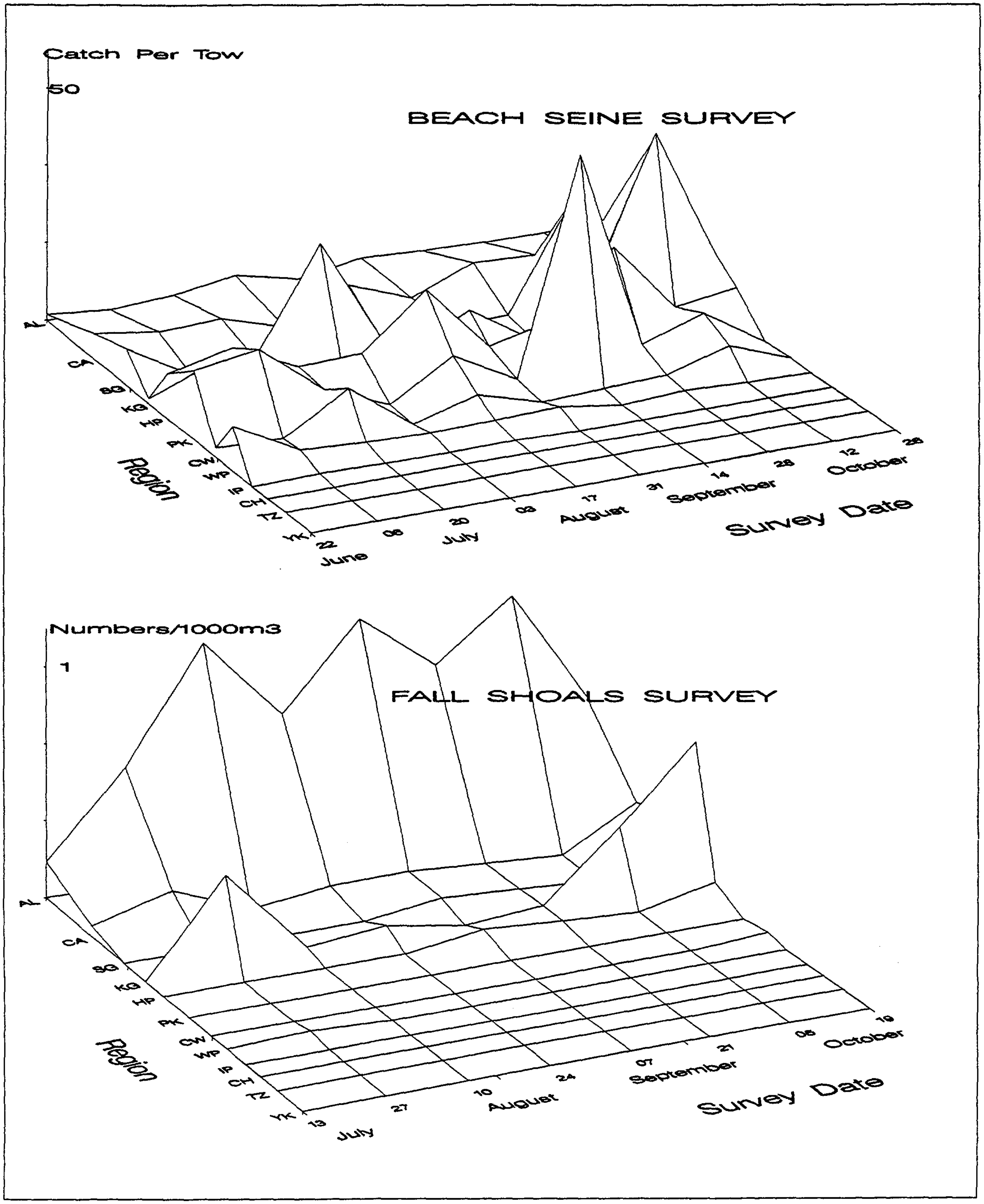
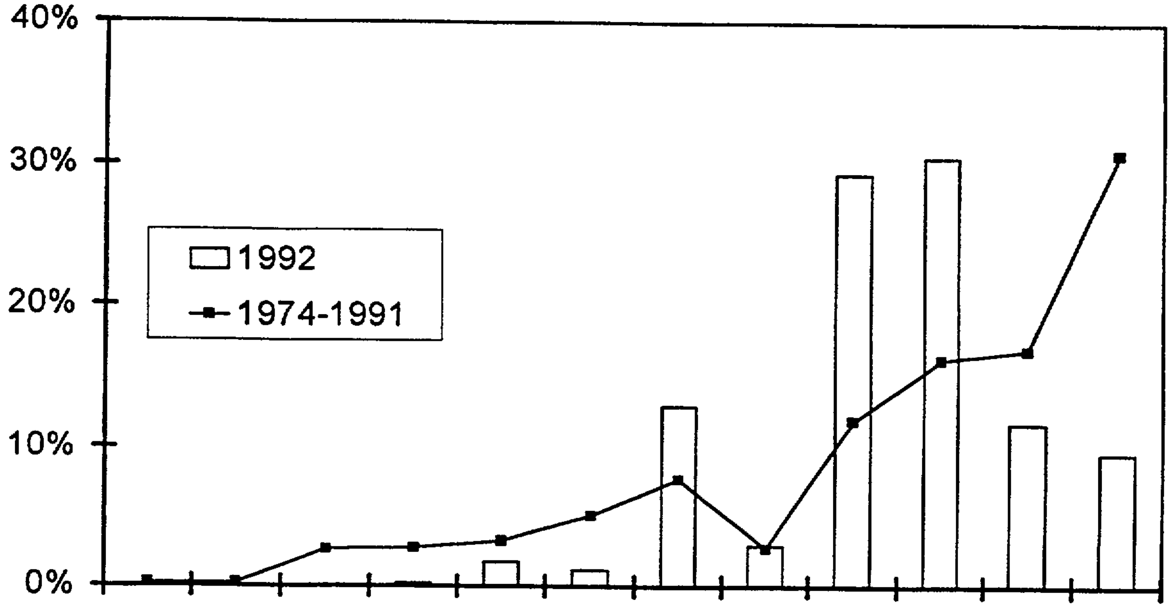


Figure 4-72. Spatiotemporal distribution of yearling and older spottail shiner in the Hudson River estuary based on the 1992 Fall Shoals and Beach Seine Surveys.

YOUNG-OF-YEAR



YEARLING AND OLDER

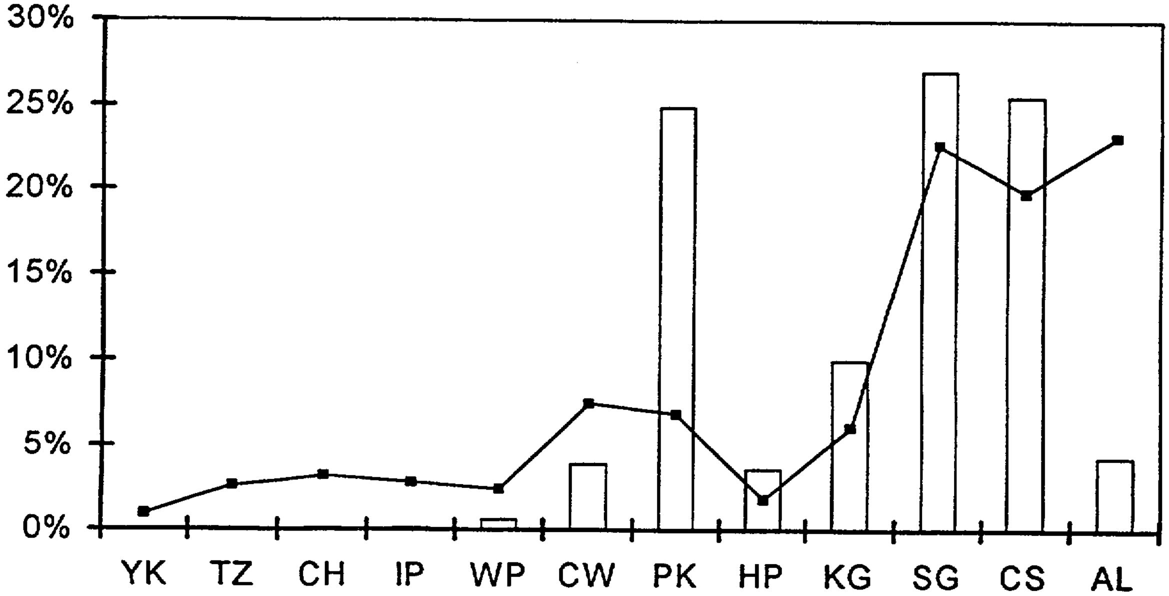


Figure 4-73 Geographical distribution indices for spottail shiner collected during Beach Seine surveys of the Hudson River Estuary, 1974 - 1992.

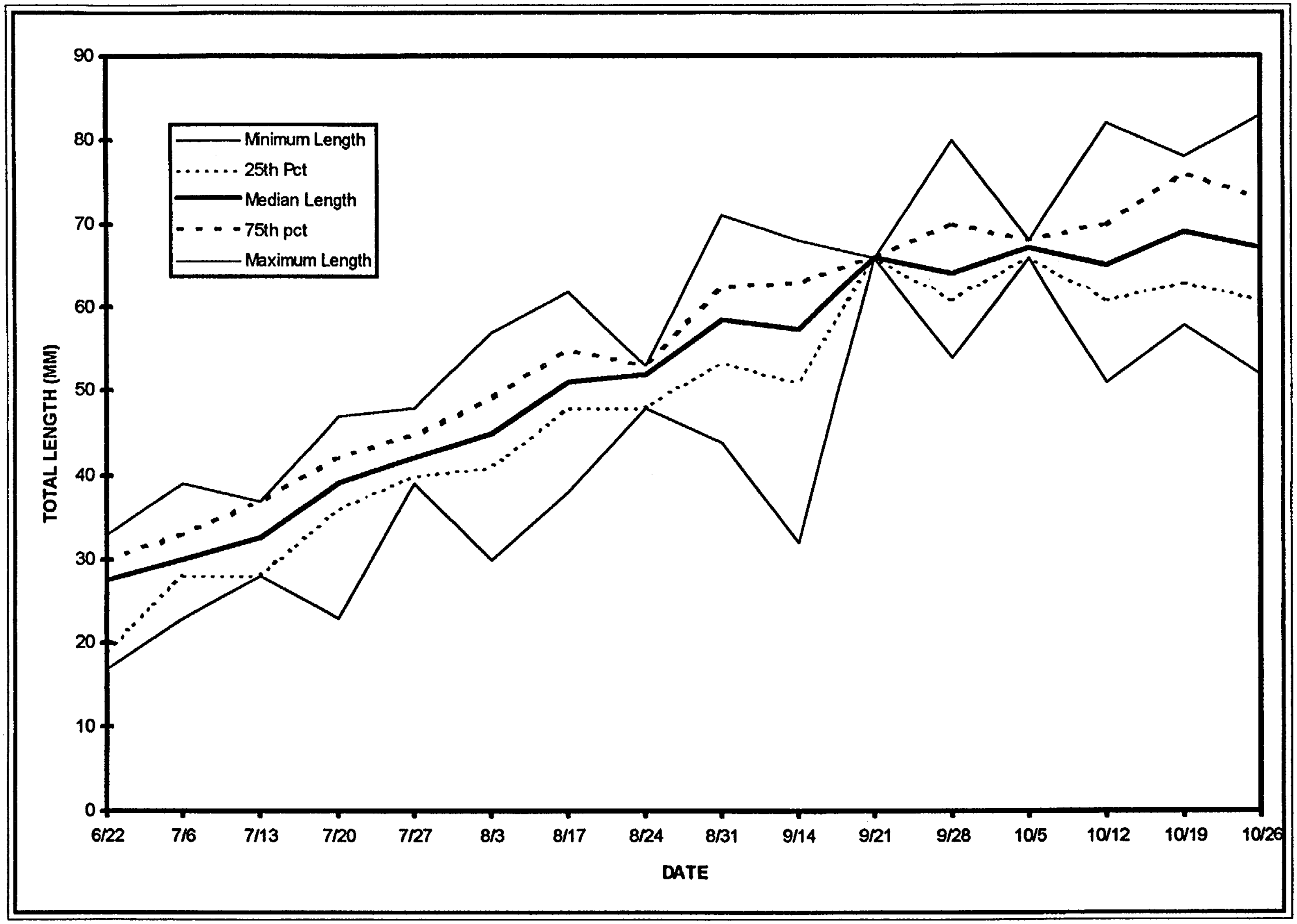


Figure 4-74 Weekly length statistics for spottail shiner young-of-the year in the Hudson River Estuary, 1992

4.14 ATLANTIC STURGEON

The Atlantic sturgeon, *Acipenser oxyrhynchus*, has two recognized subspecies, *A. o. oxyrhynchus* and *A. o. desotoi*. The former ranges from Hamilton River, Labrador, and George River, Ungava Bay, to northeastern Florida, while the latter is confined to the northeastern Gulf of Mexico (Gruchy and Parker 1980a). Adults are large fishes with barbels extending across most of the width of the snout, heavy bony plates (called scutes) covering the body, and an extended upper lobe of the tail fin. Dovel and Berggren (1983) reported that by age 29, Atlantic sturgeon averaged 7.8 ft. The largest Atlantic sturgeon reported by Dovel (1977) was an 8.5-ft specimen weighing 245 lb.

Atlantic sturgeon are long-lived, slow-maturing fishes. Although in the Hudson River the maximum reported age is 29, the oldest known Atlantic sturgeon is a 60-year-old individual from the St. Lawrence River (Gilbert 1989). Male Atlantic sturgeon reach maturity at about 12 years and females at 18-19 years (Dovel and Berggren 1983). They are believed to spawn at intervals of about 3 years.

Tagging studies reported by Dovel and Berggren (1983) indicate that Atlantic sturgeon disperse over great distances and spend at least part of their lives in other estuary systems. Atlantic sturgeon tagged in the Hudson River have been recaptured as far north as Marblehead, Massachusetts, and as far south as Ocracoke. Many of the tags were returned by Delaware Bay and Chesapeake Bay commercial fisherman. Presumably, Atlantic sturgeon that spawned in other rivers and estuaries find their way into the Hudson River.

Mature male Atlantic sturgeon enter the Hudson estuary by early April, before water temperatures rise above 43 °F, while mature females do not arrive until several weeks later (Dovel and Berggren 1983). Spawning begins when gravid females appear in upper Haverstraw Bay (RM 38), about mid-May, when temperatures are approximately 55 °F. At this time the salt front is typically in this vicinity. As the season progresses and the salt front moves upriver, spawning also appears to move progressively upriver, but no farther than about Catskill (RM 113). Most spawning occurs between Croton Point (RM 35) and Hyde Park (RM 76) from May to August, usually in water over 25 ft deep. After spawning, females may remain in the estuary for four to six weeks before moving back to the ocean, while males may remain in the lower estuary for up to eight months (April through November).

Eggs are presumably broadcast into flowing water, becoming widely dispersed after fertilization. There is no evidence of parental care. The eggs are demersal and become strongly adhesive after about 20 min and attach to rocks, weeds, and other submerged objects (Gilbert 1989).

Based on the capture locations of larval and juvenile sturgeon, the nursery area appears to be in the middle estuary (Hoff et al. 1988). Most, if not all, of the Atlantic sturgeon found in the estuary from December through March are immature individuals that congregate in the deep water (>25 ft) between the Bear Mountain Bridge and the George Washington Bridge.

Sturgeon feed by rooting along the bottom and "vacuuming" with their protrusible mouths. This leads to a large amount of nonfood matter, mostly mud, in the stomach. Actual food items include mollusks, polychaete worms, gastropods, shrimp, isopods, amphipods, and small benthic fishes.

Fisheries surveys conducted during 1992 resulted in a total of eleven yearling and older Atlantic sturgeon collected in the FSS between the Indian Point and Catskill regions from mid July though October (Figure 4-75 and Table 4-3).

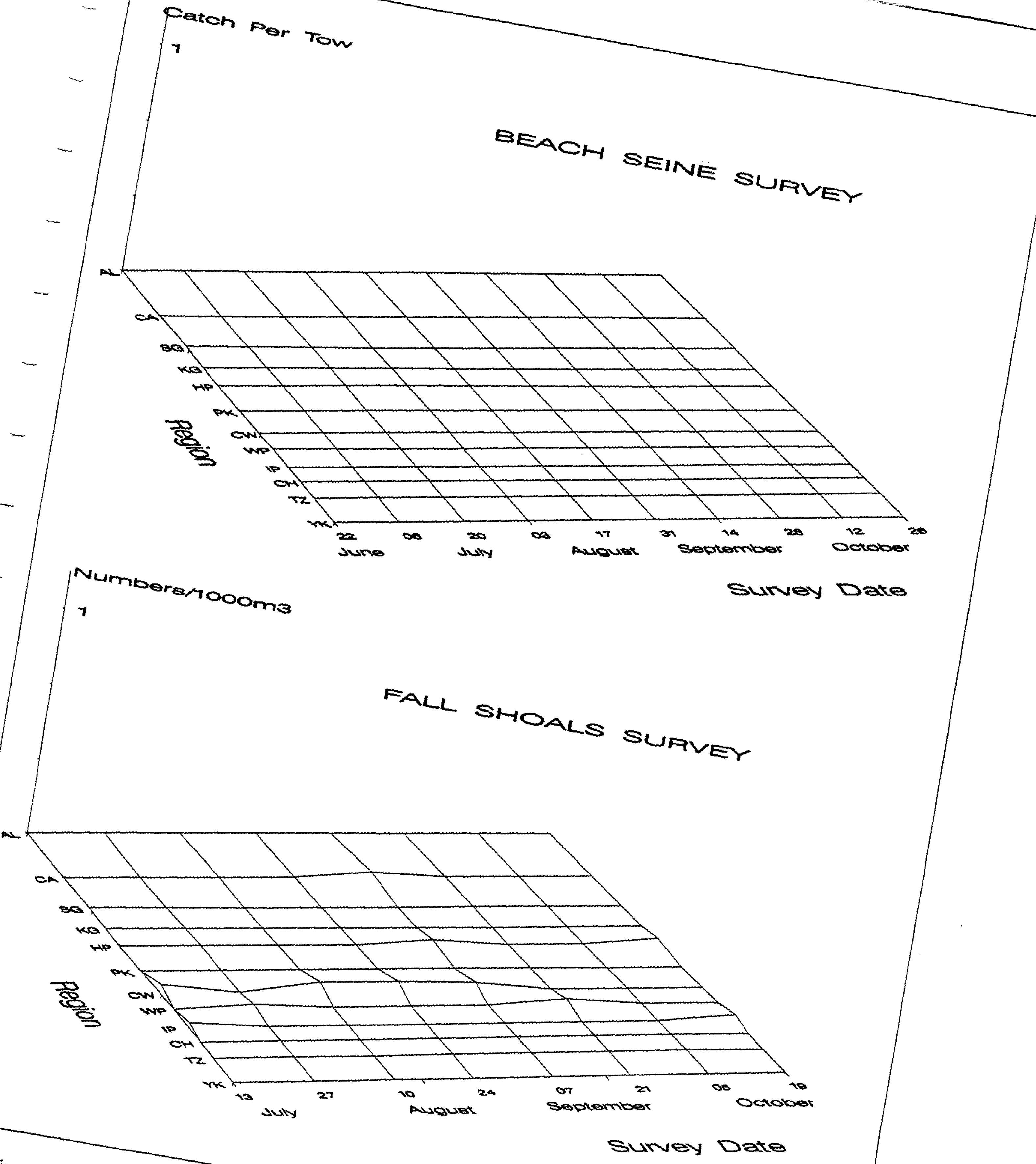


Figure 4–75. Spatiotemporal distribution of yearling and older Atlantic sturgeon in the Hudson River estuary based on the 1992 Fall Shoals and Beach Seine Surveys.

TABLE 4-3 COLLECTIONS OF ATLANTIC STURGEON DURING THE 1992 HUDSON RIVER SURVEYS

DATE	SURVEY	REGION	STRATA	NUMBER COLLECTED	TOTAL LENGTH (mm)
17 July	FSS	Cornwall	Bottom	1	102
18 July	FSS	Indian Point	Bottom	1	613
31 July	FSS	Cornwall	Bottom	1	695
12 August	FSS	Cornwall	Bottom	1	498
26 August	FSS	Cornwall	Bottom	1	533
8 September	FSS	Catskill	Bottom	1	414
9 September	FSS	Hyde Park	Bottom	1	645
10 September	FSS	Cornwall	Bottom	1	222
23 September	FSS	West Point	Bottom	1	497
21 October	FSS	Indian Point	Bottom	1	690
23 October	FSS	Hyde Park	Bottom	1	452

4.15 SHORTNOSE STURGEON

The shortnose sturgeon, *Acipenser brevirostrum*, is less widespread, ranging from the St. John River, New Brunswick, to the St. Johns River, Florida (Gruchy and Parker 1980b). Both the Atlantic and the shortnose sturgeons are similar in appearance. As adults, shortnose sturgeon can be distinguished from the Atlantic sturgeon by a shorter and blunter snout, wider mouth, and smaller size of the anal fin. Individuals over 4 ft long are invariably Atlantic sturgeon. Small sturgeon, under 2 ft, and especially larvae, are difficult to distinguish.

Although numerous studies summarized the life history of Atlantic sturgeon since the late 1800s, little attention was paid to shortnose sturgeon, likely because of its limited commercial importance. With the listing of shortnose sturgeon as an endangered species in the United States and its classification as rare in Canada (Gorham and McAllister 1974), more effort has been directed toward understanding this species. The early life histories of these species remain relatively unknown due to the difficulty in distinguishing between the eggs, larvae, and YOY of the two species coupled with the infrequency of their capture.

Like Atlantic sturgeon, shortnose sturgeon are long-lived, slow-maturing fishes. In the Hudson River the maximum reported age for shortnose sturgeon is 37 years but the oldest known shortnose sturgeon is a 67-year-old female from St. John River, Canada (Gilbert 1989). Shortnose sturgeon do not reach sexual maturity until age 8-10 (Dovel and Berggren 1983) and appear to be nonannual spawners.

Shortnose sturgeon apparently are closely linked to the estuary. Greeley (1937) stated that shortnose sturgeon were permanent residents of the freshwater portion of the river, with some movement into brackish waters. However, Dovel (1977), on the basis of barnacles found on the tags of three individuals, postulated that they did venture into marine waters. During their spawning migrations, shortnose sturgeon move upriver as far as accessible habitat permits (Dovel et al. 1992). Adult shortnose sturgeon reach the spawning grounds between Coeymans and Troy (RM 124-153) as early as the first week of April. After spawning, they move downriver to feed, some as far south as the Tappan Zee. From October through March they concentrate near Esopus Meadows (RM 87) and in deeper, warmer channel locations in Haverstraw Bay and the Tappan Zee.

Early growth is rapid. For shortnose sturgeon, larvae are approximately 0.7 in. in total length at the end of May and 4.9 to 5.1 in. by the end of July. By the end of their second summer, they average approximately 11.5 in. (Dovel et al. 1992). Dovel and Berggren (1983) reported that by the end of their second summer average size is 12.8 in. After about the third year of life, growth slows considerably. Greeley (1937) reported a maximum size of about 34 in. at 15 years for shortnose sturgeon while Dadswell et al. (1984) reported a maximum of approximately 35 in. at age 40. The largest shortnose sturgeon reported by Dovel et al. (1992) was a 3.5-ft specimen that weighed 23.6 lb.

Juvenile shortnose sturgeon appear to overwinter in the Esopus Meadows region. Dovel et al. (1992) also reported collecting a few Atlantic sturgeon from this location. Juvenile shortnose sturgeon typically prey on benthic crustaceans and insect larvae.

Dadswell et al. (1984) reported that whether each river population of shortnose sturgeon is distinct from the others must await future studies. He noted, however, that southern populations may mix in the sea while northern populations appear confined to their separate drainage systems. Shortnose sturgeon move considerable distances within the Hudson River, but appear rarely to migrate to the ocean or to neighboring systems. Although a century ago, shortnose sturgeon were harvested along with Atlantic sturgeon, they are no longer harvested due to their protected status as an endangered or threatened species.

Fisheries surveys conducted during 1992 resulted in a total of 81 shortnose sturgeon collected primarily in the FSS. Although shortnose sturgeon were caught between the Tappan Zee and Albany regions, the majority of fish were collected between the Poughkeepsie and Kingston regions from mid July though October (Figure 4-76 and Table 4-4).

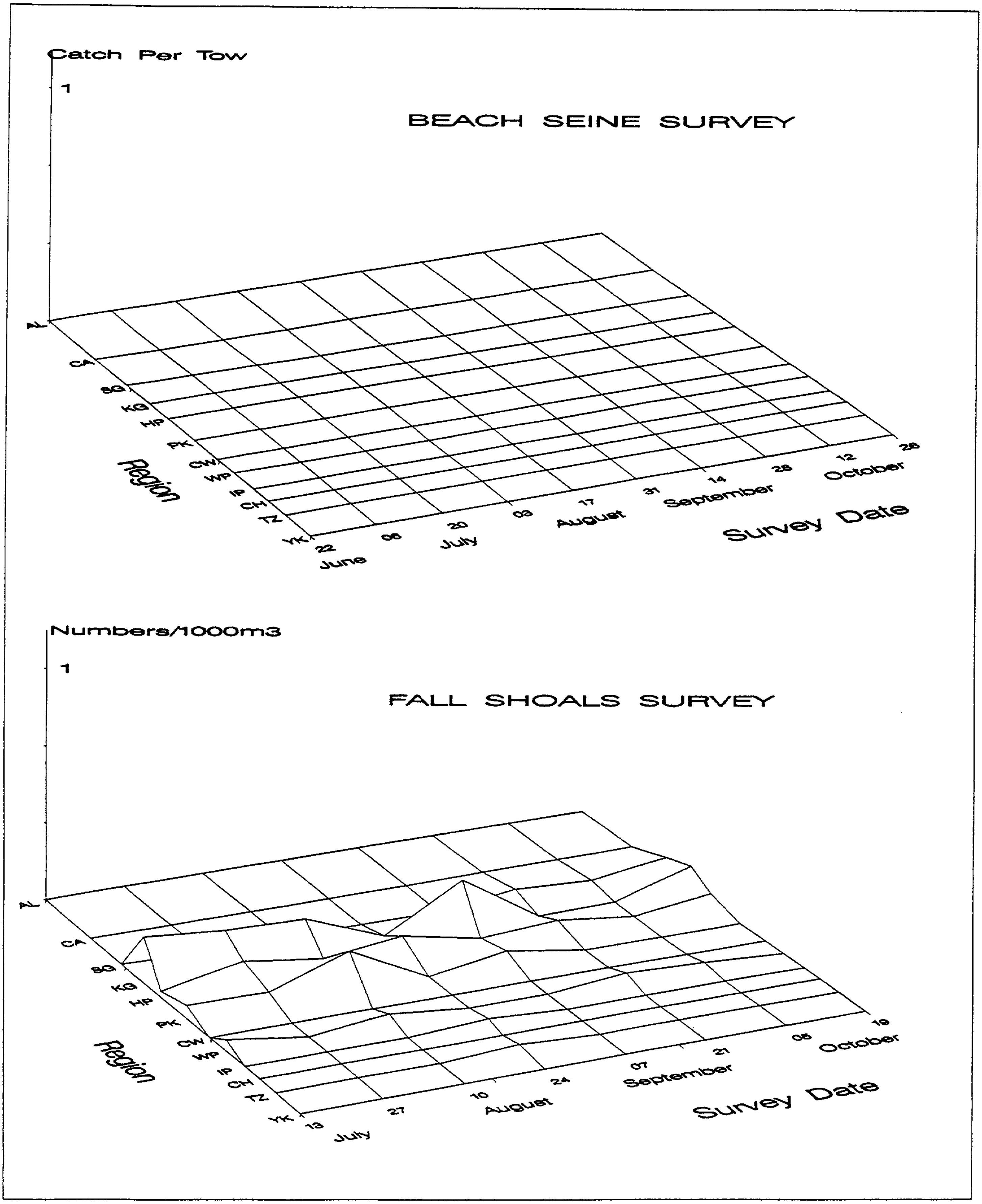


Figure 4–76. Spatiotemporal distribution of yearling and older shortnose sturgeon in the Hudson River estuary based on the 1992 Fall Shoals and Beach Seine Surveys.

TABLE 4-4 COLLECTIONS OF SHORTNOSE STURGEON DURING THE 1992 HUDSON RIVER SURVEYS

DATE	SURVEY	REGION	STRATA	NUMBER COLLECTED	TOTAL LENGTH (mm)
15 April	LRS	Albany	Bottom	1	681
22 April	LRS	Albany	Bottom	1	739
28 April	LRS	Albany	Bottom	1	740
26 May	LRS	Albany	Bottom	1	800
14 July	FSS	Kingston	Bottom	7	667,630,737,735, 663,532,612
15 July	FSS	Poughkeepsie	Bottom	2	630,733
15 July	FSS	Hyde Park	Bottom	1	628
17 July	FSS	West Point	Bottom	3	710,812,643
28 July	FSS	Kingston	Bottom	6	611,686,705,672, 709,581
29 July	FSS	Hyde Park	Bottom	4	698,670,727,622
29 July	FSS	Poughkeepsie	Bottom	2	715,705
11 August	FSS	Kingston	Bottom	6	682,651,770,685, 585,572
12 August	FSS	Hyde Park	Bottom	2	715,544
12 August	FSS	Poughkeepsie	Bottom	6	649,635,555,776, 642,640
14 August	FSS	West Point	Bottom	2	551,671
25 August	FSS	Kingston	Bottom	1	705
25 August	FSS	Hyde Park	Bottom	3	772,770,815
26 August	FSS	Hyde Park	Bottom	1	718
27 August	FSS	Tappan Zee	Bottom	1	718
27 August	FSS	Indian Point	Bottom	1	677
9 September	FSS	Kingston	Bottom	8	642,722,655,740, 828,780,595,672
9 September	FSS	Hyde Park	Bottom	1	692
9 September	FSS	Poughkeepsie	Bottom	1	656
10 September	FSS	Poughkeepsie	Bottom	1	792
22 September	FSS	Saugerties	Bottom	2	702,628

TABLE 4-4 (CONT'D) COLLECTIONS OF SHORTNOSE STURGEON DURING THE 1992 HUDSON RIVER SURVEYS

22 September	FSS	Hyde Park	Bottom	2	650,610
23 September	FSS	West Point	Bottom	2	610,493
29 September	LRS	Poughkeepsie	Bottom	1	610
6 October	FSS	Saugetries	Bottom	1	581
7 October	FSS	West Point	Bottom	1	575
22 October	FSS	Kingston	Bottom	4	591,751,597,605
22 October	FSS	Saugerties	Bottom	3	639,718,663
23 October	FSS	Hyde Park	Bottom	2	692,709

4.16 WHITE CATFISH

White catfish occur in freshwater lakes and ponds and have been introduced widely on the west coast and into the Northeast. The natural distribution was originally from the Chesapeake Bay region in coastal streams southward to Texas. It is found in estuaries all along the Atlantic coast from the Hudson River to Florida and west along the Gulf of Mexico to Mobile Bay. It prefers fresh and slightly brackish waters and moderate water currents. White catfish do not tolerate high salinity, so estuarine populations generally remain in their natal systems.

In southern waters young white catfish are about 3 in. long at the end of the first growing season. White catfish generally do not mature until they are three to four years old and 7 to 8 in. long. They continue to grow slowly, attaining lengths of 17 in. at age 8 and 22 in. at age 11. This species seldom exceeds 3 lb in weight.

White catfish move upstream to spawn. In spring white catfish have been reported in tidal creeks and shallow marsh habitats. Like the other members of the catfish family, the white catfish is a nest builder, and the male guards the young for some time after they hatch. Both parents participate in the construction of a nest up to 3 ft in diameter on sand and gravel bars. White catfish spawn when water temperatures reach about 70 °F, i.e., in late June and early July in the Hudson River. An 11- to 12-in. female carries only 3200 to 3500 eggs, but the eggs are large, approximately ¼ in. in diameter. The male (or less often both parents) protects and fans water over the eggs in the nest.

White catfish eggs, larvae, and early juveniles were rarely collected during the utilities' ichthyoplankton surveys. However, the 1992 BSS and FSS consistently captured low numbers of juveniles, yearlings and older white catfish (Figures 4-77 and 4-78). The 1992 geographical distribution of young-of-the-year and yearling and older white catfish in the FSS is generally consistent with the 1979-1991 long term trend (Figure 4-79). Juveniles tend to occur in the mid to upper Hudson with the bulk of the distribution in the Catskill and Albany regions. Yearling and older white catfish are found throughout the river and their distribution tends to be bimodal with peaks in the Croton-Haverstraw and Catskill regions (Figure 4-79). After moving into the deeper river strata during September and October, yearling and older white catfish migrate downstream to overwinter in the lower estuary when temperatures in the upper estuary drop below 59 °F (NAI 1985).

Small white catfish feed on midge larvae until they become large enough to eat fish. Larger white catfish have a diverse diet that includes midge larvae, crustaceans, algae, fish eggs, and a variety of fish (Smith 1985).

Weekly length statistics for juvenile white catfish collected in 1992 show steady growth from mid July through the end of BSS/FSS collections in mid October (Figure 4-80 and Appendix Table D-20).

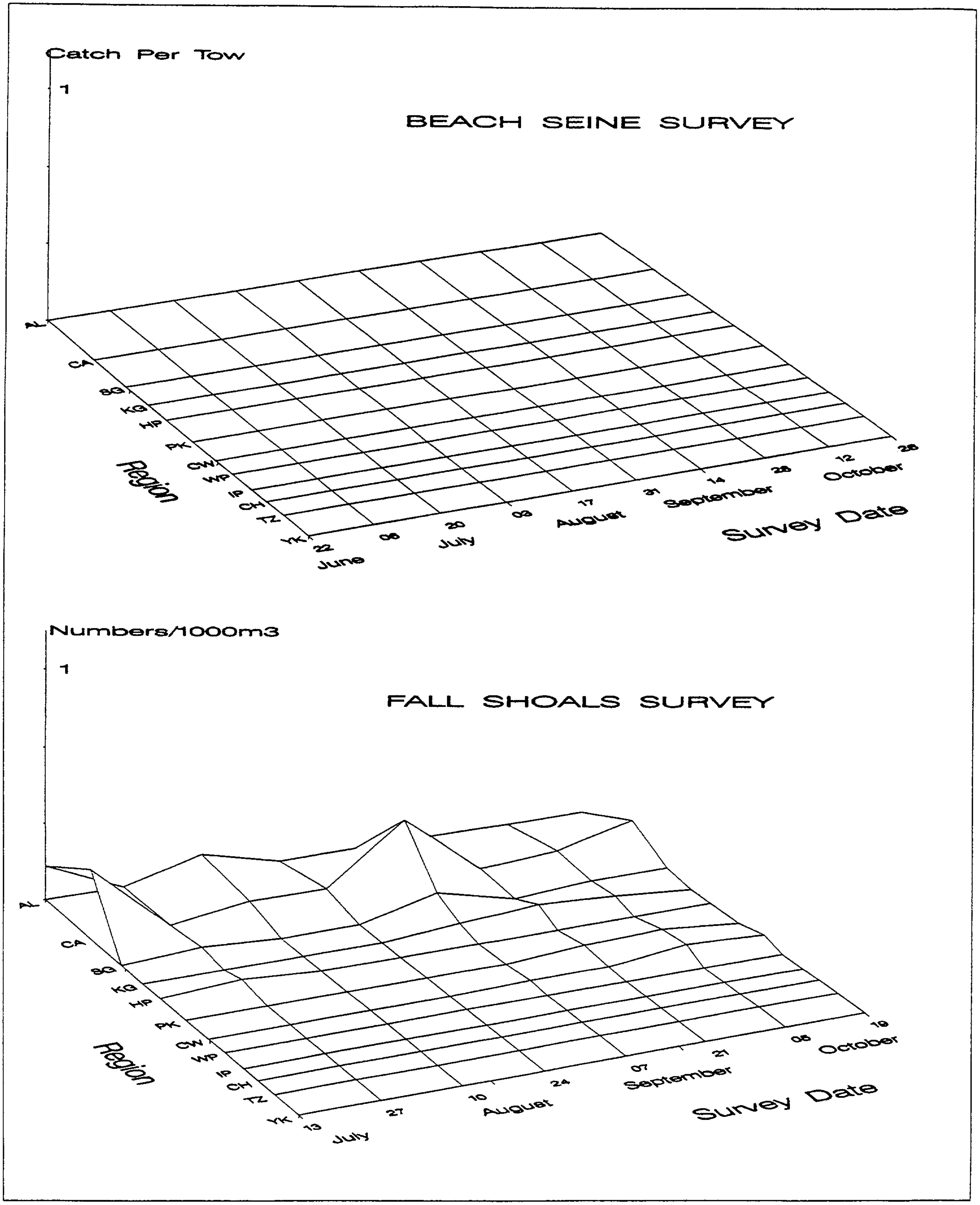


Figure 4-77. Spatiotemporal distribution of young-of-year white catfish in the Hudson River estuary based on the 1992 Fall Shoals and Beach Seine Surveys.

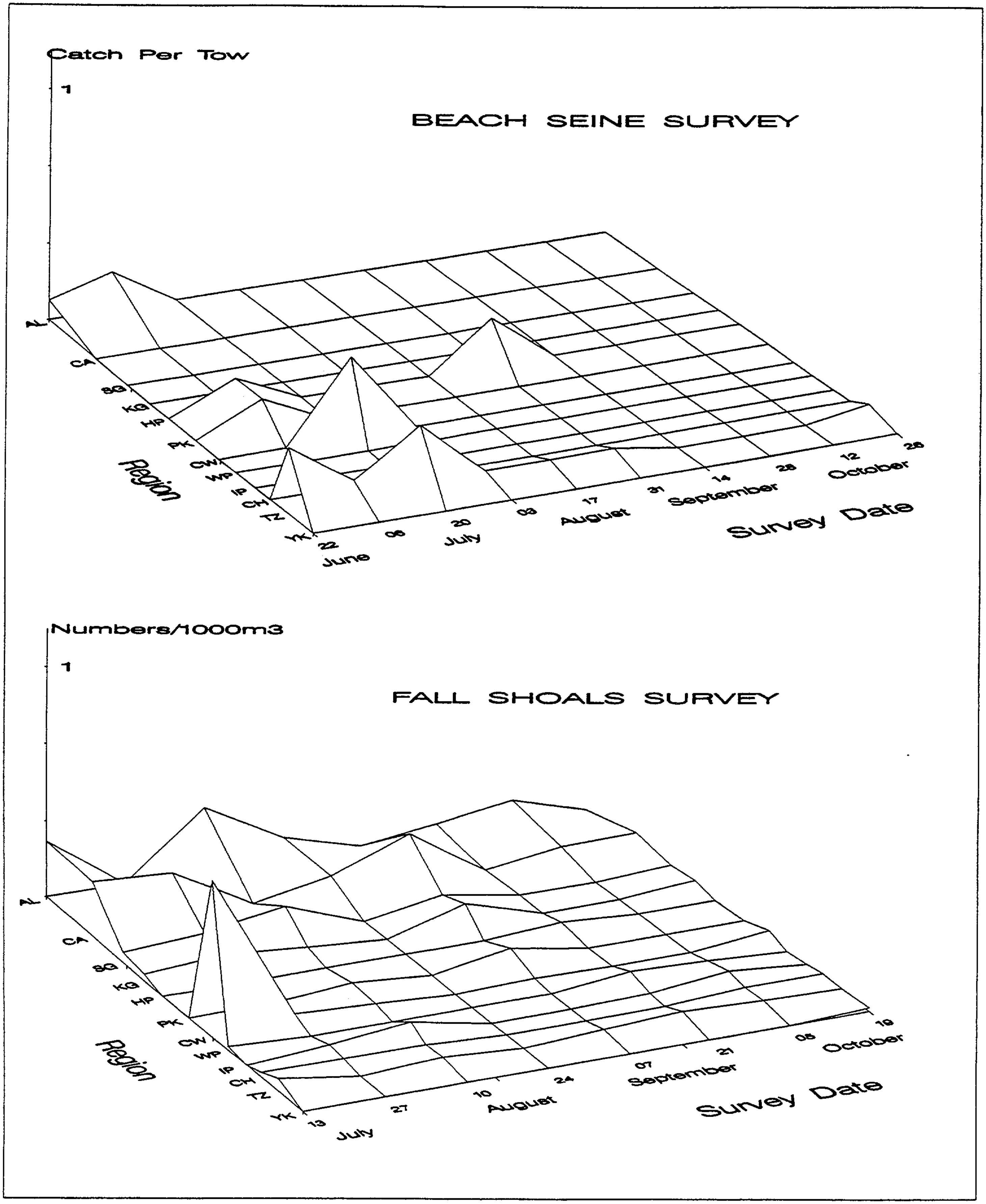
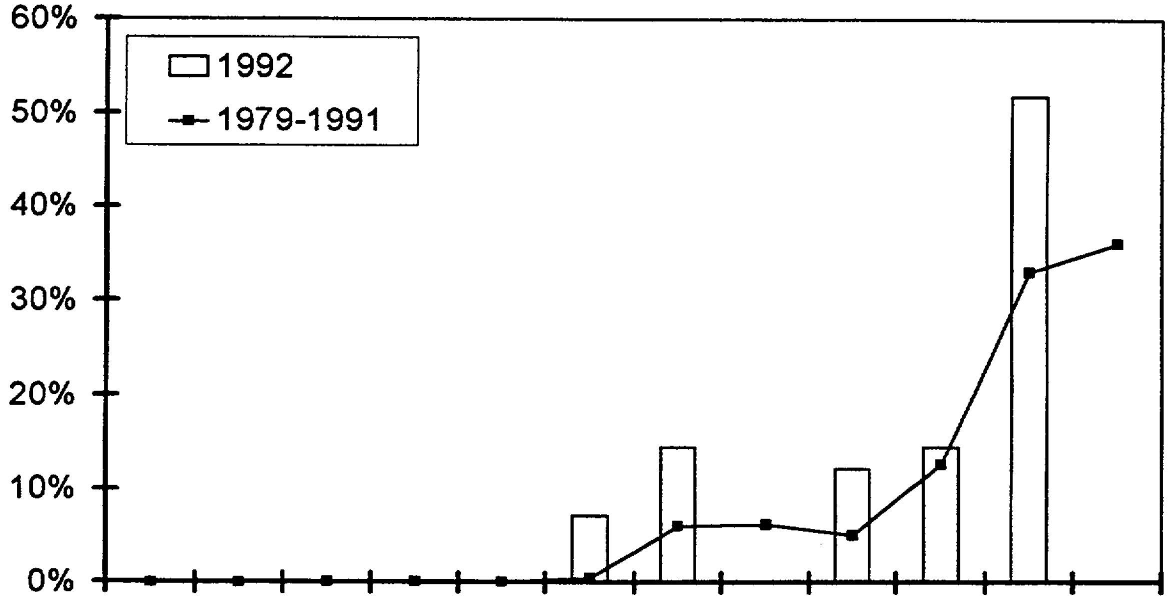


Figure 4–78. Spatiotemporal distribution of yearling and older white catfish in the Hudson River estuary based on the 1992 Fall Shoals and Beach Seine Surveys.

YOUNG-OF-YEAR



YEARLING AND OLDER

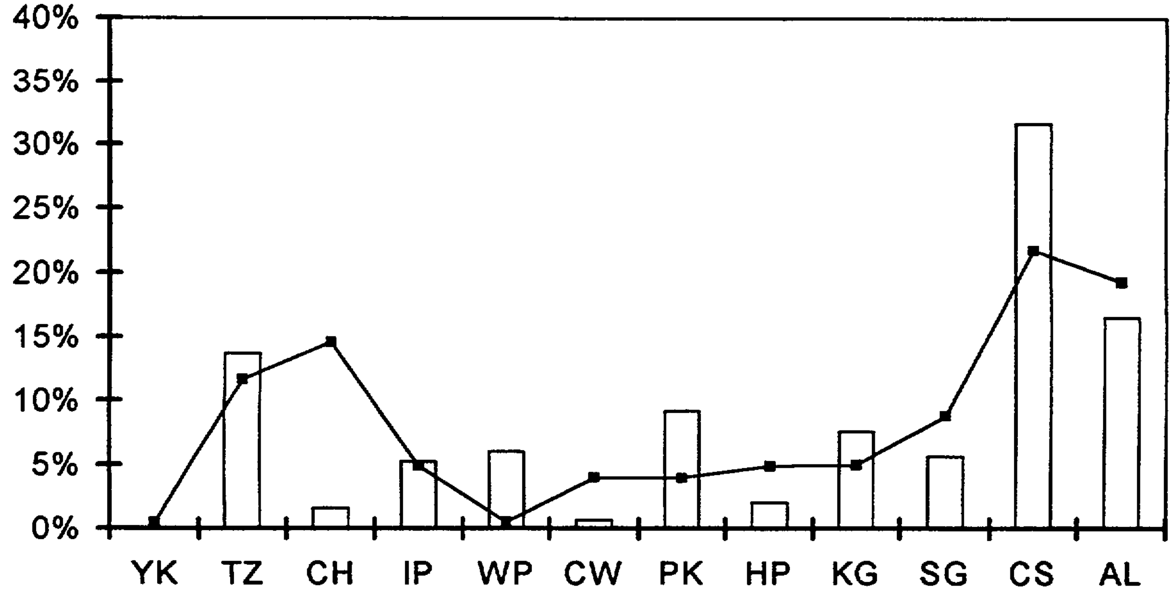


Figure 4-79 Geographical distribution indices for white catfish collected during Fall Shoals surveys of the Hudson River Estuary, 1979 - 1992.

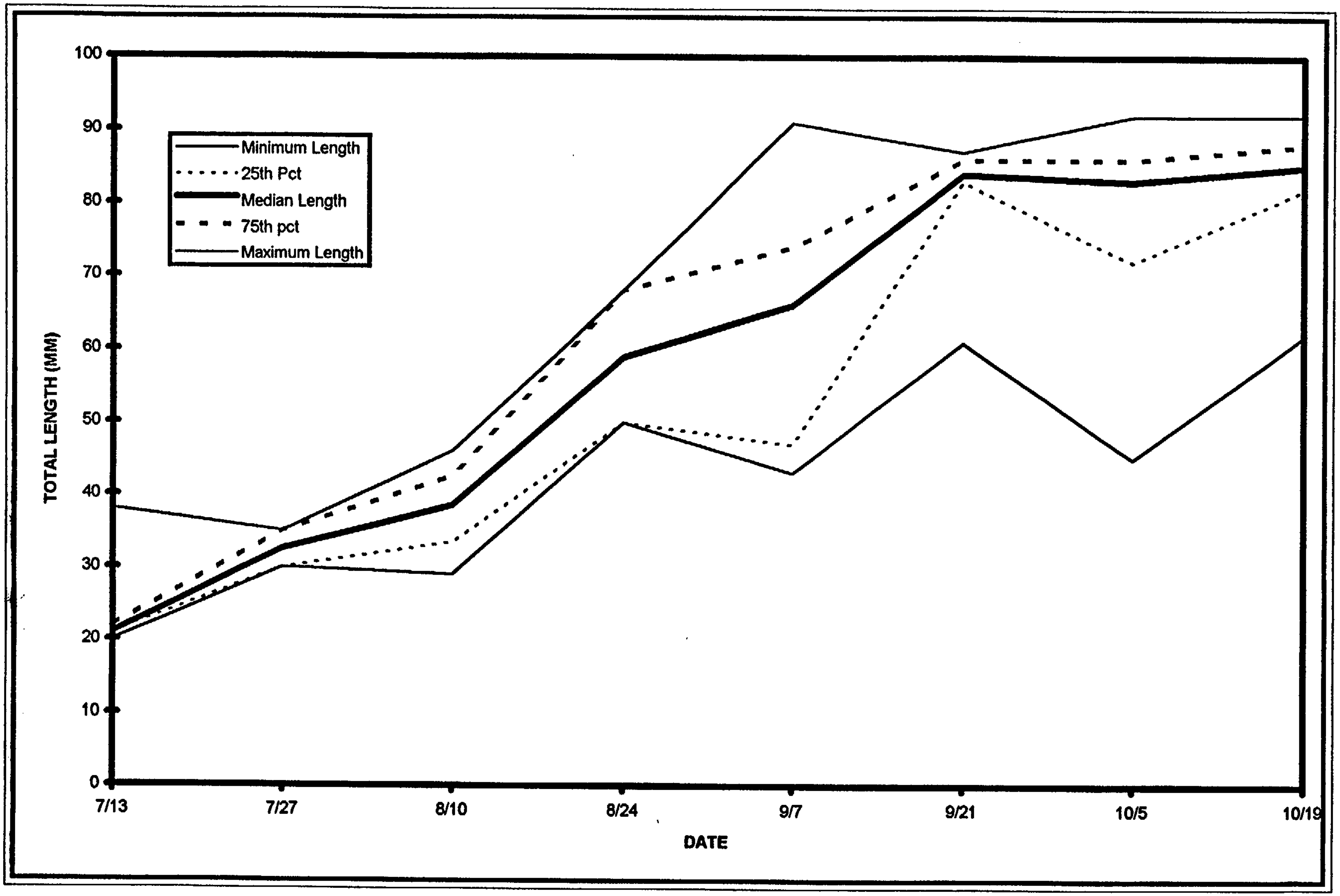


Figure 4-80 Weekly length statistics for white catfish young-of-the year in the Hudson River Estuary, 1992

4.17 WEAKFISH

Weakfish (*Cynoscion regalis*) is a member of the drum family commonly inhabiting near-shore waters from North Carolina to New York and occasionally straying as far as Nova Scotia or the eastern Gulf of Mexico. Weakfish overwinter in deeper waters of the continental shelf, generally between Chesapeake Bay and Cape Fear, North Carolina. When inshore waters begin to warm each spring, older weakfish begin to move toward shore and then head north along the coast. These older individuals are followed by successively younger groups of adult weakfish. During warmer months of the year, weakfish are found throughout inshore waters in their geographic range, with larger individuals the most abundant in northern areas. As water temperatures decline in the fall, weakfish begin to migrate southward and return to offshore overwintering areas.

Spawning occurs in near-shore coastal and marine waters in spring and summer, depending upon geographic location. Extensive spawning occurs in the south and in the New York Bight. Weakfish eggs are buoyant and hatch in about two days. The newly hatched larvae, which are less than 1/8 in. long, are weak swimmers and move shoreward up into the bays and estuaries. Duration of the larval stage appears to depend partially on prey density. In the nursery areas young weakfish feed on invertebrates and grow rapidly. They reach a length of 3 to 6 in. by the end of the first summer. Young weakfish can be found throughout the saline and brackish areas of estuaries but tend to be most common in areas where salinities are over 10 ppt. As water temperatures decline in fall, juvenile weakfish begin to leave these nursery areas and move toward southern overwintering areas.

In the New York Bight spawning typically occurs from May to mid-July, and there are two spawning peaks. Weakfish larvae are rarely encountered north of the George Washington Bridge, preferring more saline waters. Weakfish juveniles (YOY) typically first enter the areas north of the George Washington Bridge during July and most have emigrated from the estuary by mid-August. During the 1992 LRS weakfish juveniles peaked in mid-September and were most abundant in the Battery and Yonkers regions (Figure 4-81). In the 1992 FSS juvenile weakfish were found from the Yonkers through Indian Point regions, beginning in late July (Figure 4-82). They peaked in the Tappan Zee region in early September and gradually emigrated from the Yonkers region by mid-October (Figure 4-82). Very low numbers of yearling and older weakfish were collected in the FSS, indicating that few of these life stages enter the Hudson above Yonkers (Figure 4-83).

The 1992 geographical distribution of young-of-the-year and yearling and older weakfish in the FSS is generally consistent with the 1979-1991 long term trend (Figure 4-84). During 1992 it was apparent that juveniles and yearling and older weakfish were generally absent from the West Point and Cornwall regions, as compared to the long term record where these regions record from 10 to 20 % of Hudson River juvenile and yearling and older life stages.

Weekly length statistics for juvenile weakfish collected in 1992 show steady growth from late July through the end of BSS/FSS collections in mid October (Figure 4-85 and Appendix Table D-21).

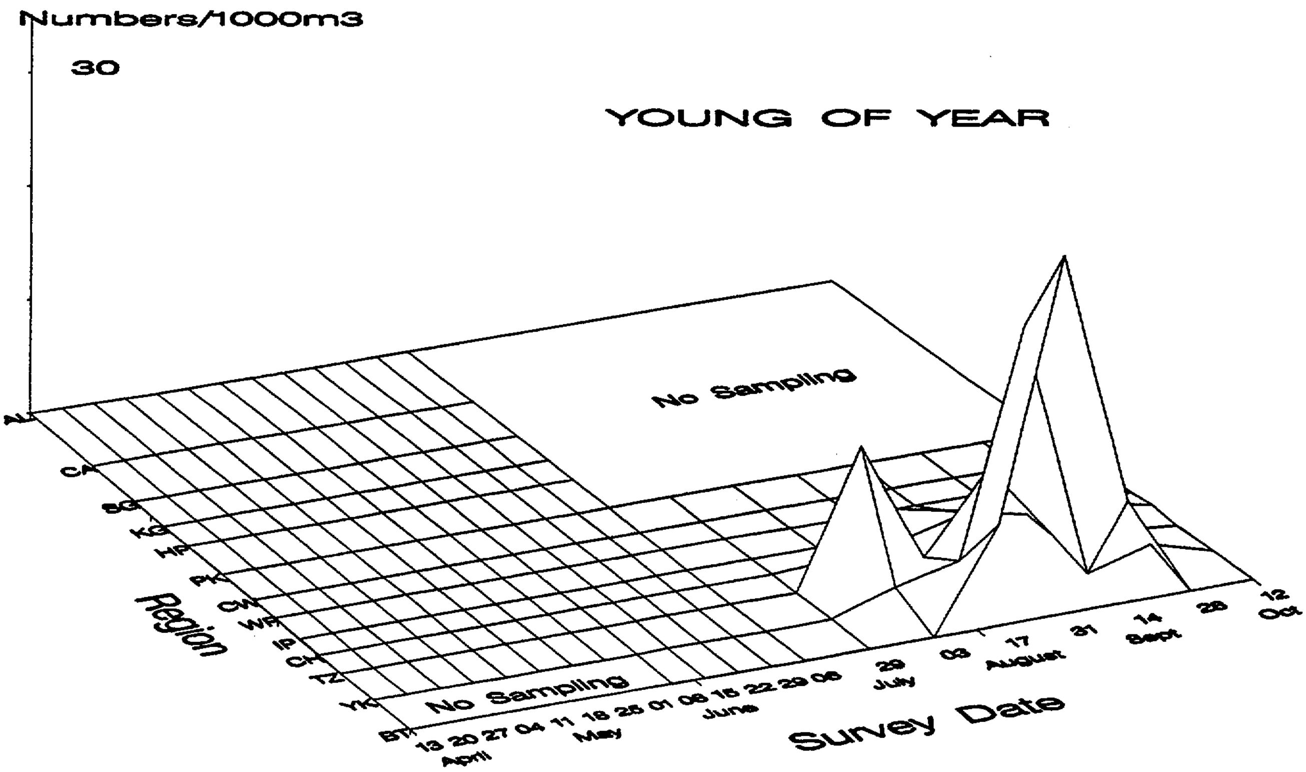


Figure 4-81. Spatiotemporal distribution of young-of-year stage of weakfish in the Hudson River estuary based on the 1992 Long River Ichthyoplankton Survey.

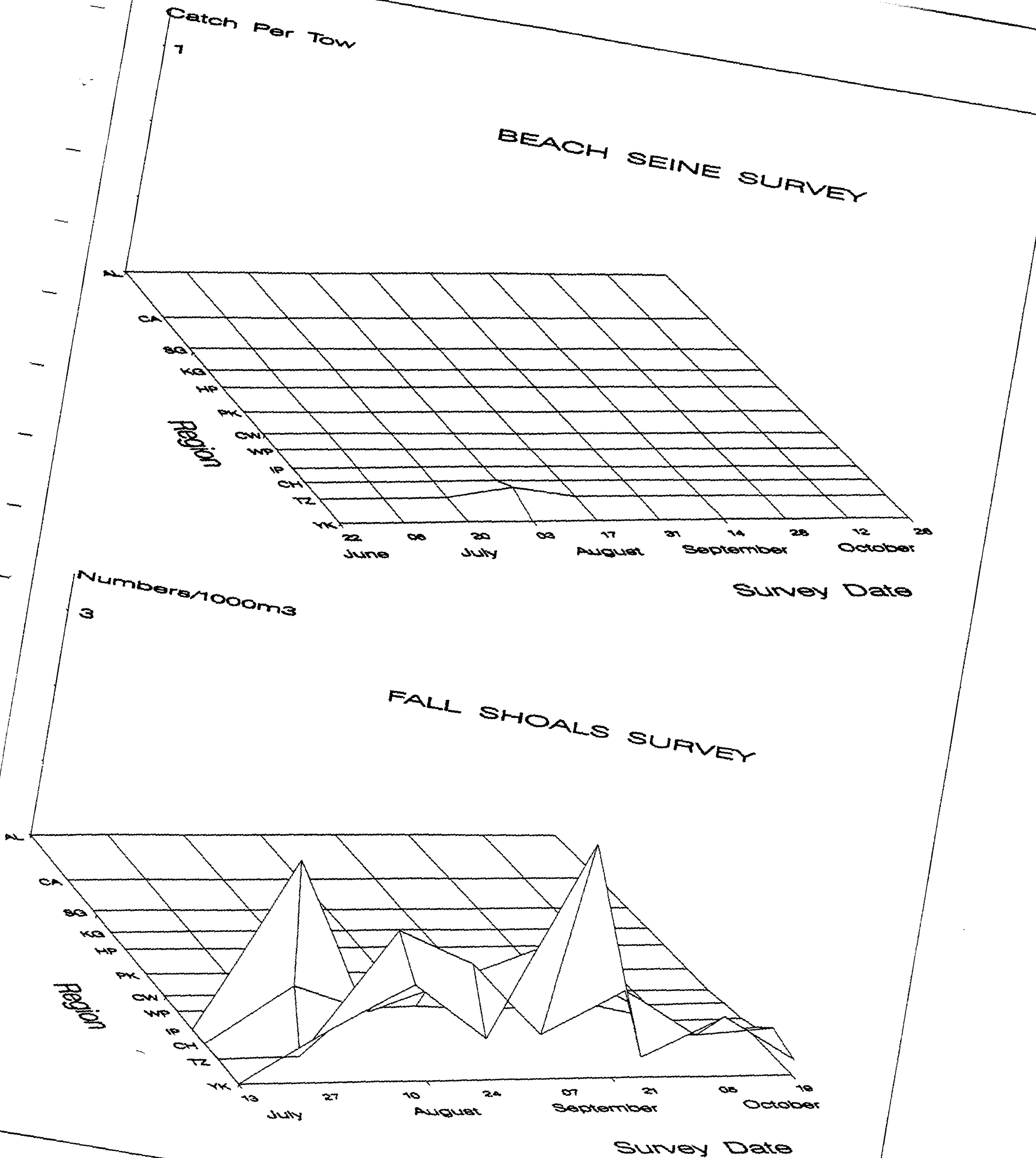


Figure 4-82. Spatiotemporal distribution of young-of-year weakfish in the Hudson River estuary based on the 1992 Fall Shoals and Beach Seine Surveys.

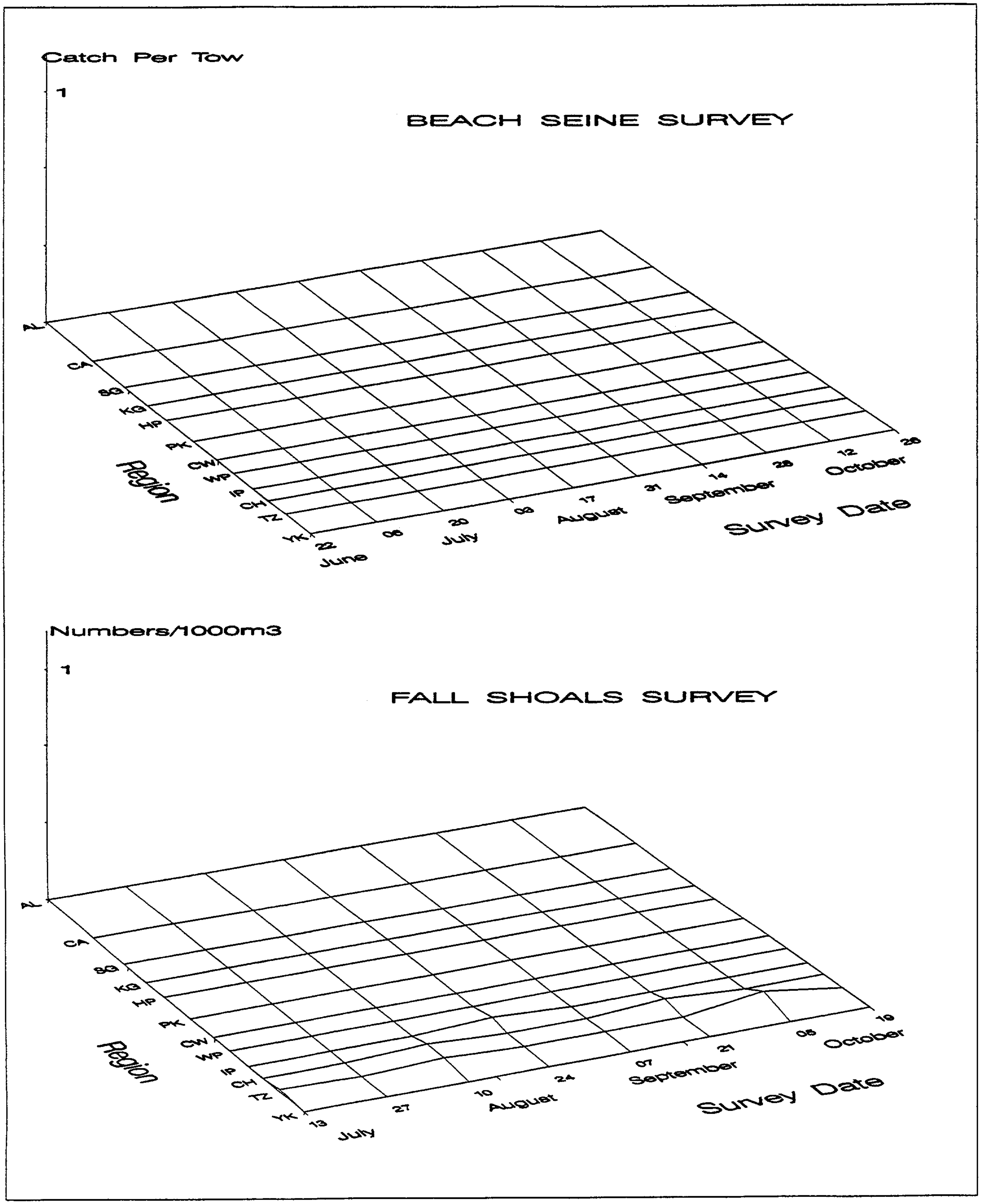


Figure 4−83. Spatiotemporal distribution of yearling and older weakfish in the Hudson River estuary based on the 1992 Fall Shoals and Beach Seine Surveys.

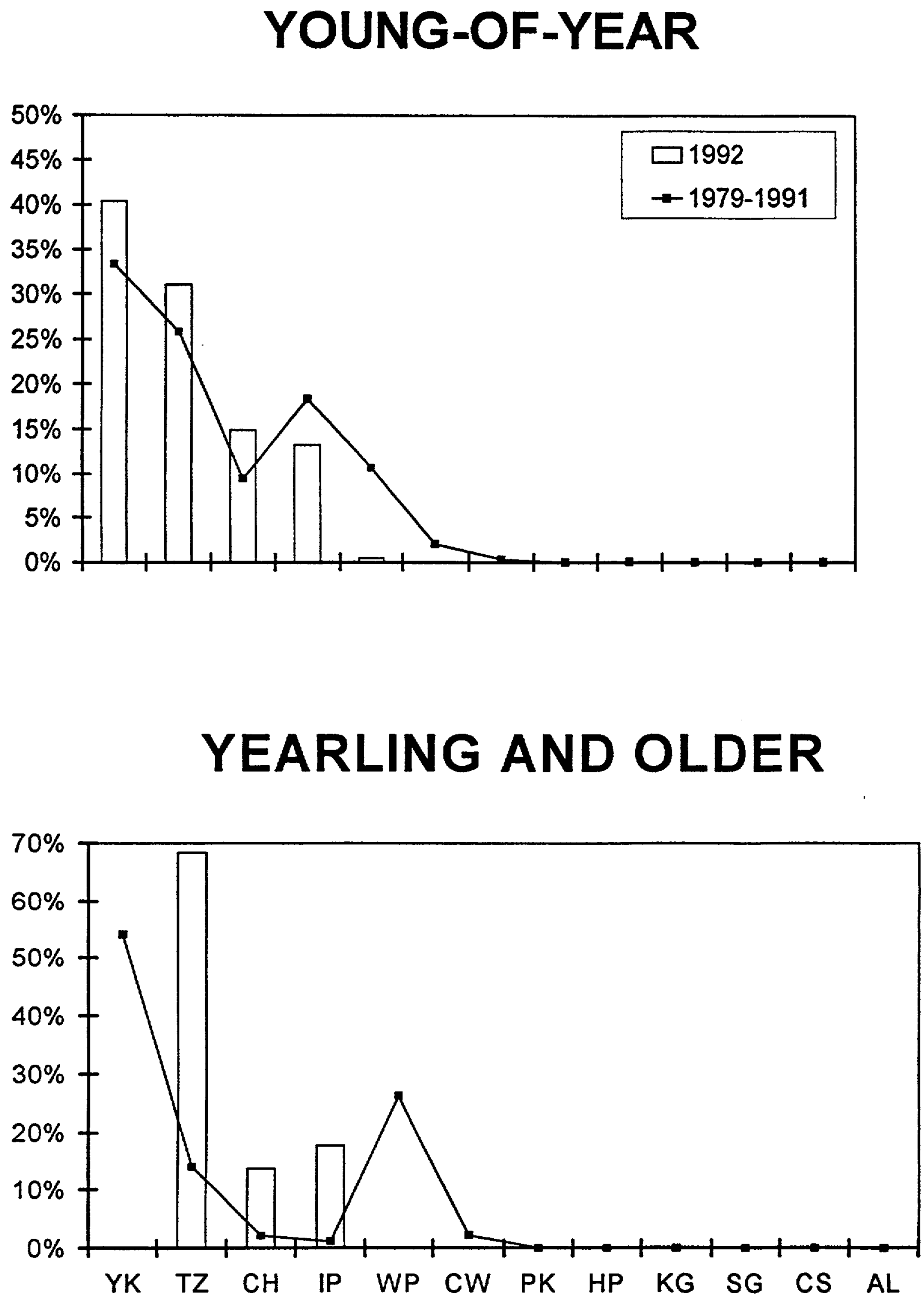


Figure 4-84 Geographical distribution indices for weakfish collected during Fall Shoals surveys of the Hudson River Estuary, 1979 - 1992.

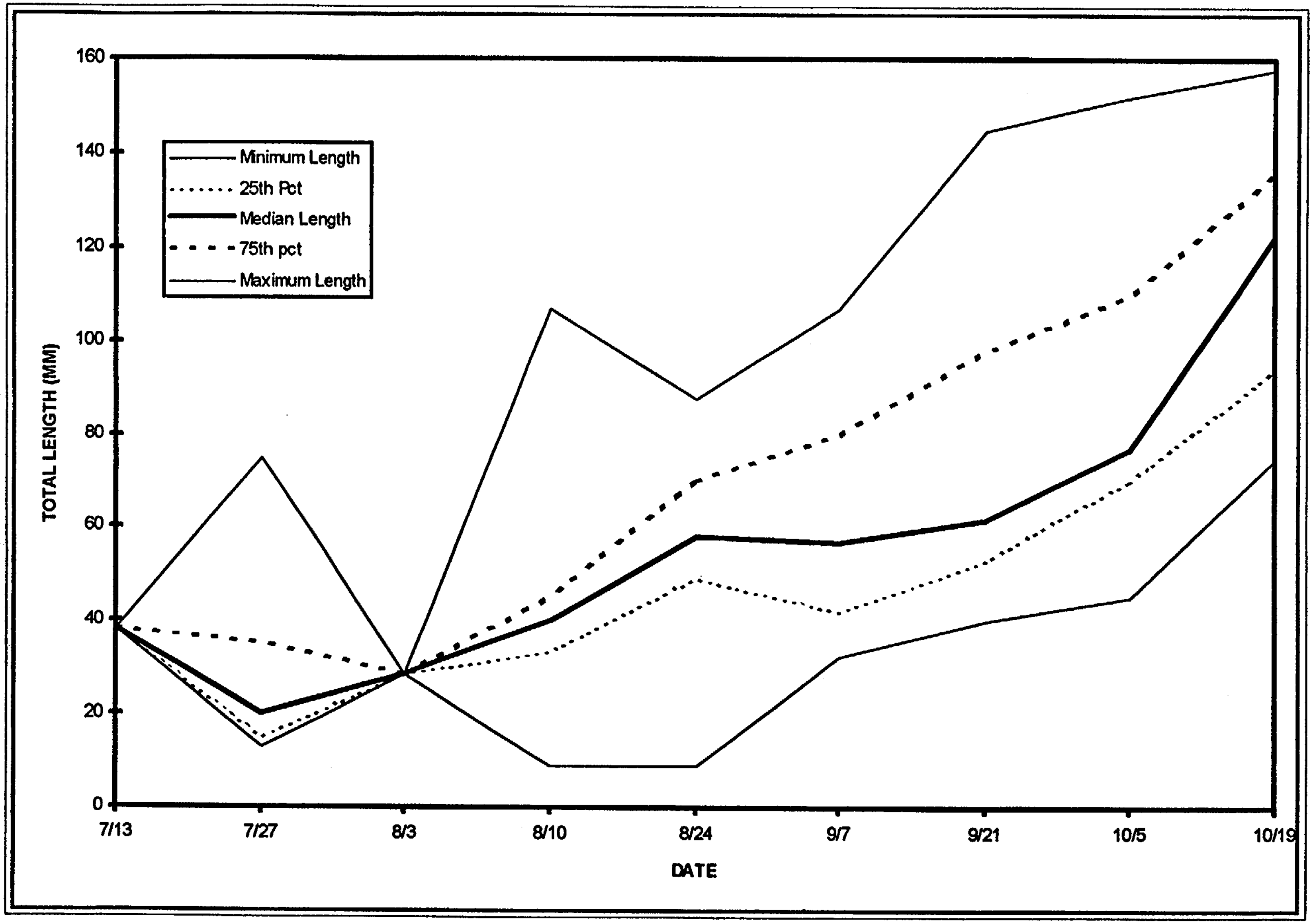


Figure 4-85 Weekly length statistics for weakfish young-of-the year in the Hudson River Estuary, 1992

4.18 BLUEFISH

Bluefish (*Pomatomus saltatrix*) is a predaceous oceanic fish species; in the western Atlantic Ocean its range is from Argentina to Maine and occasionally to Nova Scotia. In the New York Bight bluefish is a common inshore inhabitant that arrives in May and usually departs by November. North Atlantic bluefish migrate from New England to Cape Hatteras, North Carolina, in summer and to the Florida area and the southern Gulf Stream in winter, but migration patterns have not been positively identified. During migrations, smaller fish migrate closer to shore than larger fish. There are two major spawning aggregations in the mid-Atlantic: a spring spawning stock and a summer spawning stock. The degree to which the stocks are isolated is not known, but consistent morphological differences suggest some isolation of the stocks (Pottern et al. 1989).

Most of the bluefish population in the New York Bight probably originates from the spring-spawning stock (Chiarella and Conover 1990). The spring spawners move into the waters where the Gulf Stream and the continental shelf water meet between northern Florida and Cape Hatteras. Bluefish spawn as they migrate northward. North of Cape Hatteras the adults move shoreward. The smaller spent bluefish may spend summers in the Chesapeake and Delaware bays and Albemarle Sound. Larger fish move north longer than the smaller bluefish and migrate farther. Some move into Long Island Sound and more northern areas. In autumn, bluefish migrate back to the wintering areas off south Florida and the south Atlantic (Pottern et al. 1989).

The juvenile bluefish produced in the spring travel north with the Gulf Stream and migrate across the continental shelf to the mid-Atlantic bays and estuaries, which act as productive nursery areas. Spring-spawned juveniles spend most of their first summer in estuaries (Kendall and Walford 1979). In fall they migrate southward along the coast to winter off south Florida. The following spring, yearlings migrate north along the coast and return to the mid-Atlantic bays and estuaries and, to a lesser extent, the sounds of North Carolina (Pottern et al. 1989). The spring-spawning bluefish stock that contributes most to Hudson River fish ranges along most of the Atlantic coast.

Some summer-spawned larvae have also been reported in the more saline parts of estuaries in the mid-Atlantic Bight. Summer-spawned juveniles may spend only about a month in estuaries, but most are found along the shore (Kendall and Walford 1979). The summer-spawning adults start from the southern wintering areas, but they migrate north to the outer half of the continental shelf between Cape Hatteras and Cape Cod and spawn there. Spent spawners then move west, and show up in coastal waters, particularly along Long Island. Most of the juveniles from the summer spawn remain offshore during the summer. In fall the adults and juveniles migrate south. Juveniles from the summer spawn may spend the winter farther out to sea than juveniles from the spring spawning. Juveniles from the summer spawn migrate north the next spring and most of these juveniles may spend the summer in the sounds of North Carolina and may not return to their original nursery areas (Pottern et al. 1989).

Bluefish eggs are buoyant and pelagic and hatch in about two days. The newly hatched larvae are also pelagic and remain in offshore waters for one to two months before migrating shoreward toward shallow-water nursery areas. In the New York Bight YOY bluefish enter the shallow-water nursery areas as two groups. The first, from the spring spawning in the south Atlantic, are about 1 to 2 in. long when they enter the nursery areas in June or early July to feed and grow rapidly. The second, from the summer spawning in the mid-Atlantic Bight, are larger when they arrive in September.

YOY bluefish typically first enter areas north of the George Washington Bridge in early June and remain at least until early October. They are most common in shallow, more saline areas of the estuary, including the Tappan Zee and Haverstraw Bay, but typically range as far upriver as the Cornwall region. During 1992 juvenile bluefish were collected as far north as the Cornwall region and had emigrated from the Hudson River above the George Washington Bridge by late September (Figure 4-86). Salinity intrusions into the estuary appear to be a major determinant of geographic distribution within the estuary. YOY bluefish are also abundant in areas of the estuary south of the George Washington Bridge and adjacent waterways, which are part of the larger, coastal distribution.

The 1992 geographical distribution of young-of-the-year bluefish in the BSS is generally consistent with the 1974-1991 long term trend (Figure 4-87). However, the proportion of juveniles in the Tappan Zee region was substantially higher than seen in the long term trend where the bulk of the juvenile population is more evenly distributed between the Tappan Zee and Croton-Haverstraw regions.

In the Hudson River YOY bluefish aggressively feed on a variety of macroinvertebrates and fish and grow rapidly to a size of 3 to 6 in. by the time they begin to leave the estuary in late summer. Older bluefish, including adults, occasionally enter the lower estuary during summer and feed on available forage fish such as bay anchovy, Atlantic silversides, and young menhaden and river herrings. Bluefish reach sexual maturity during their second year of life. Annual fecundities range from 600,000 to 1,400,000 eggs per female, depending upon size. The maximum size of bluefish has been reported to be 45 in. and 30 lb. All ages of bluefish often travel in schools and are voracious feeders that commonly destroy more than they can eat.

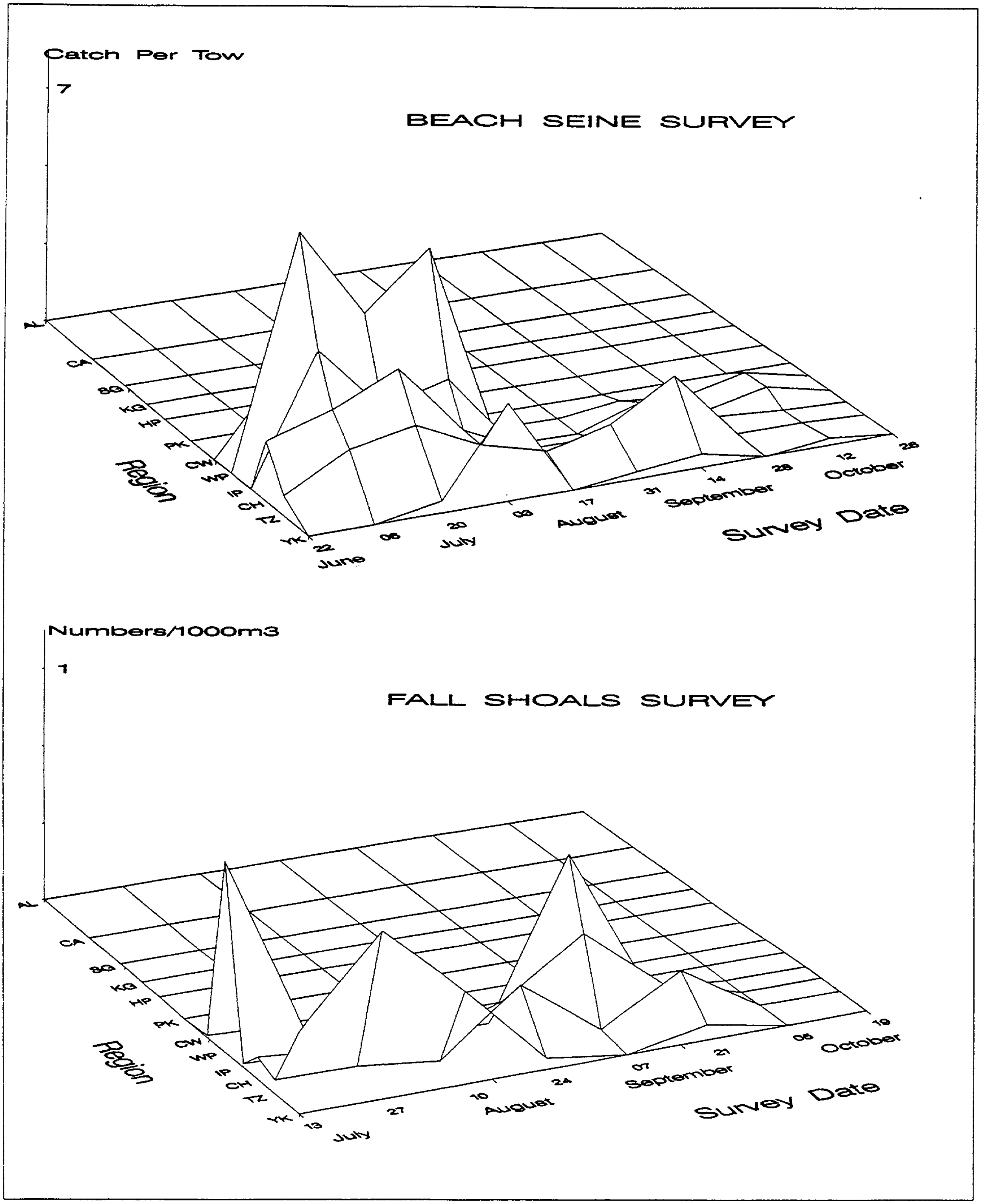


Figure 4-86. Spatiotemporal distribution of young-of-year bluefish in the Hudson River estuary based on the 1992 Fall Shoals and Beach Seine Surveys.

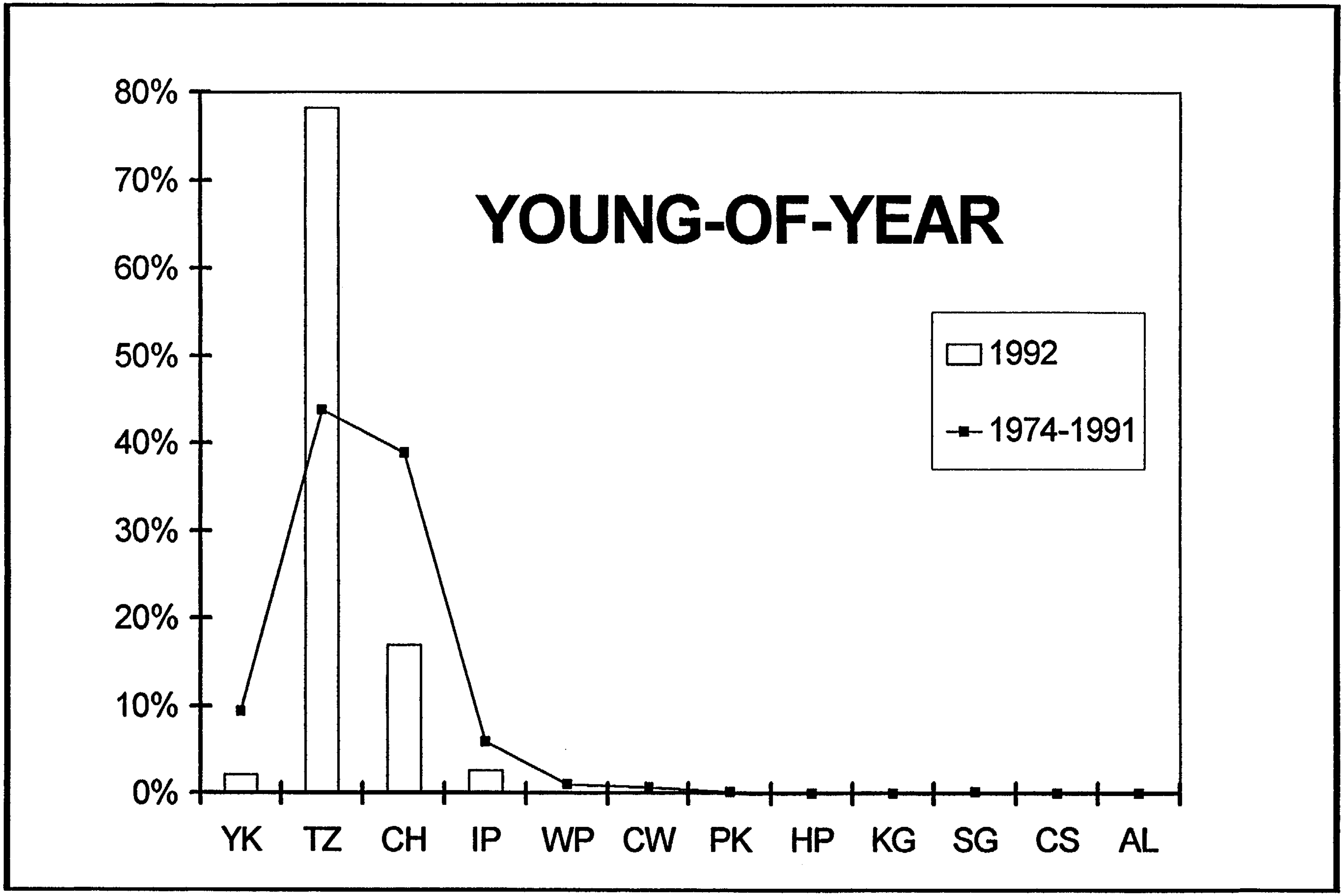


Figure 4-87. Geographical distribution indices for young-of -the-year bluefish collected during Beach Seine surveys of the Hudson River Estuary, 1974 - 1992.

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APPENDIX A

QUALITY ASSURANCE PROGRAM

1992 ICHTHYOPLANKTON AND FALL JUVENILE LABORATORY

QUALITY ASSURANCE REPORT FOR THE 1992 HUDSON RIVER ICHTHYOPLANKTON LABORATORY PROGRAM AND 1992 FALL JUVENILE SURVEY

Prepared for

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Prepared by

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25 Nashua Road
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QA-12607.51

February 1993

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QUALITY ASSURANCE REPORT FOR THE 1992 HUDSON RIVER ICHTHYOPLANKTON LABORATORY PROGRAM AND 1992 FALL JUVENILE SURVEY

1.0 INTRODUCTION

This quality assurance report for the laboratory tasks of the 1992 Hudson River Ichthyoplankton Survey and the 1992 Fall Juvenile Survey was prepared for Con Edison by Normandeau Associates Inc. (NAI).

To comply with Consolidated Edison's requirements for valid and reliable data on the Hudson River Ichthyoplankton Laboratory Program and the Fall Juvenile Survey, NAI implemented a Quality Assurance Plan that provides a 10% Average Outgoing Quality Limit (AOQL) for all measurement parameters collected. The Quality Assurance Plan consists of two systems: a quality control (QC) system and a quality assurance (QA) system. The QC system is managed by the program manager and conducted by operational personnel. The system monitors and documents the reliability and validity (accuracy, precision, completeness) of daily operations. The specific features of the QC system are determined by the Quality Assurance Department to insure that all procedures conform to Consolidated Edison's data requirements. The QA system is managed by NAI's Quality Assurance Director and utilizes project independent personnel familiar with the work or activities under evaluation to conduct performance and systems audits. These audits are designed to provide objective evidence that the quality control program and technical requirements, methods, and procedures as outlined in the program Standard Operating Procedures are being implemented. The outcomes of the QA system activities are

- verification of the effectiveness of the QC system,
- assignment of corrective actions to resolve nonconforming procedures or data deficiencies,
- communication of audit results to project and staff managers for follow-up, and

- objective validation or improvement of project operations.

This report provides a compilation of QC system data verifying the results of the 1992 Hudson River Ichthyoplankton Laboratory Program and 1992 Fall Juvenile Survey activities. Determinations of the fraction inspected, process average (percent nonconforming), and average outgoing quality are presented for both programs. In addition, for the 1992 Hudson River Ichthyoplankton Laboratory Program the results include percent measurement error, a summary of the number of each taxon-life stage found during sorting QA, and cumulative error rates for each taxon-life stage.

2.0 QUALITY CONTROL/QUALITY ASSURANCE METHODS

2.1 QUALITY CONTROL PROGRAMS

For sorting and identification of samples from the 1992 Hudson River Ichthyoplankton Laboratory Program, NAI used a continuous sampling plan designed to provide a 10% Average Outgoing Quality Limit (U.S. Department of Defense 1981). A flow diagram of how the sampling plan was applied is presented in Figure 1. A summary of the sampling plan, tolerances and QC sample definitions used for each measurement parameter is presented in Table 1. Quality control inspection was applied on a laboratory-wide basis for the sorting task and to each individual processor for the identification task. Quality control samples were selected in a random manner utilizing random number tables. As determined from the sampling plan outlined in Table 1, a given number of quality control samples were reprocessed by QC inspectors with expertise in the task being inspected. In cases where a sample was subdivided and counted, counts for all subdivisions were combined before calculating percent error for that sample. If the difference between the quality control value and the original value exceeded acceptable tolerances (Table 1), a third measurement could be obtained to verify one of the

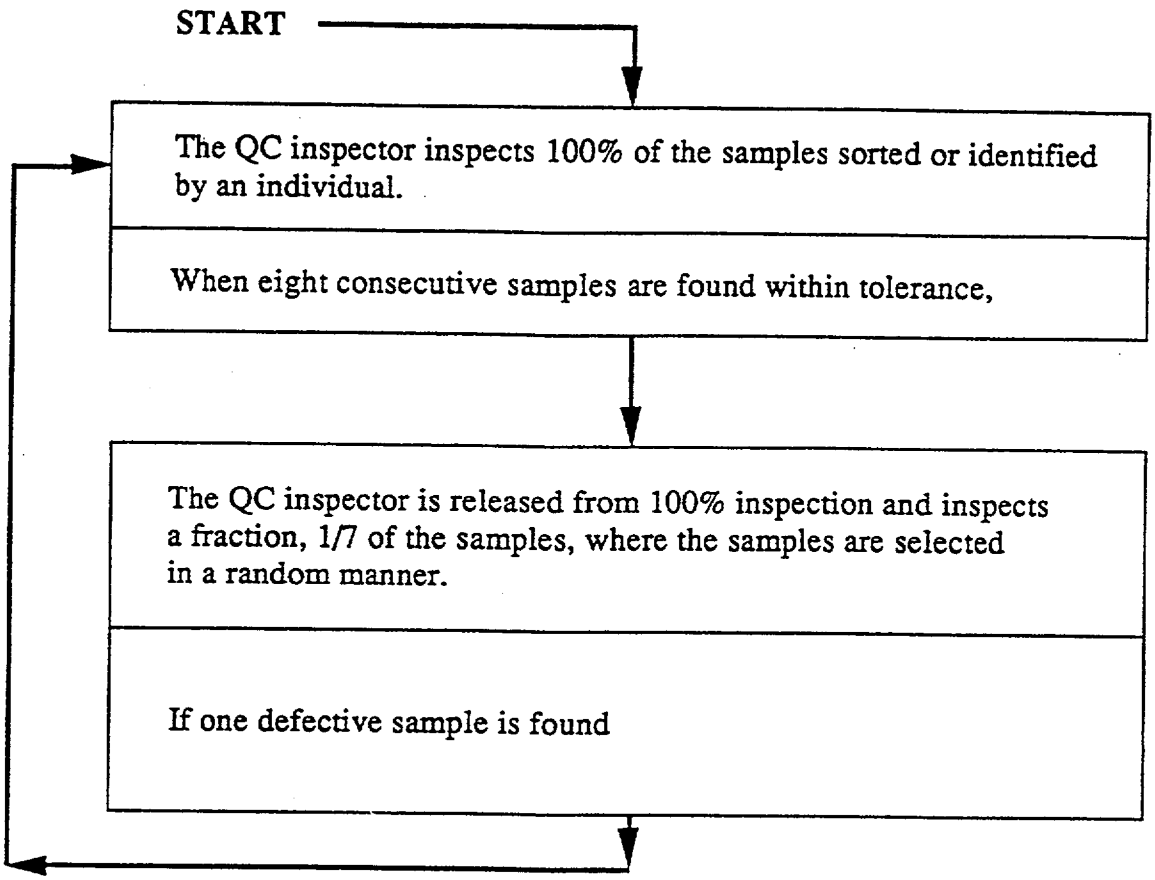

Figure 1. Quality control inspection plan for ichthyoplankton sorting and identification tasks.

measurements. If a sample was found to have exceeded acceptable tolerances, all subsequent samples processed by the laboratory (for sorting) or by the same technician (for identification) were subjected to 100% quality control until an appropriate number of consecutive samples (i) were found within tolerance as determined by the continuous sampling plan (Table 1 and Figure 1). The Quality Assurance Plan for the 1991 and 1992 Hudson River Ichthyoplankton Laboratory Programs (Rev. 3, Change 0, 31 Dec 92) documents specific QA/QC methods utilized for this program.

TABLE 1. TASK SPECIFIC APPLICATIONS OF CONTINUOUS SAMPLING PLANS FOR THE 1992 HUDSON RIVER ICHTHYOPLANKTON LABORATORY PROGRAM.

LABORATORY TASK	CSP-1 AOQL-10% i	f	SAMPLE TOLERANCE	QC SAMPLE DEFINITION
Sorting	8	1/7	± 2 if ≤20 organisms ± 10% if > 20 organisms	one sample
Identification	8	1/7	± 2 if ≤ 20 ± 10% if > 20 for every taxon in the sample (in identifying, assigning a life stage, or counting any species, errors are cumulative by life stage within each taxon)	one sample

For laboratory identification and length measurements of young-of-the-year fishes in the 1992 Fall Juvenile Survey, NAI used a continuous sampling plan designed to provide a 10% Average Outgoing Quality Limit (U.S. Department of Defense, 1981). A flow diagram of how the plan was applied is presented in Figure 2. A summary of the sampling plan, tolerances, and QC sample definitions used for each task is shown in Table 2. QC samples were selected as specified by the appropriate plan in Table 2, using random numbers, and reprocessed by QC

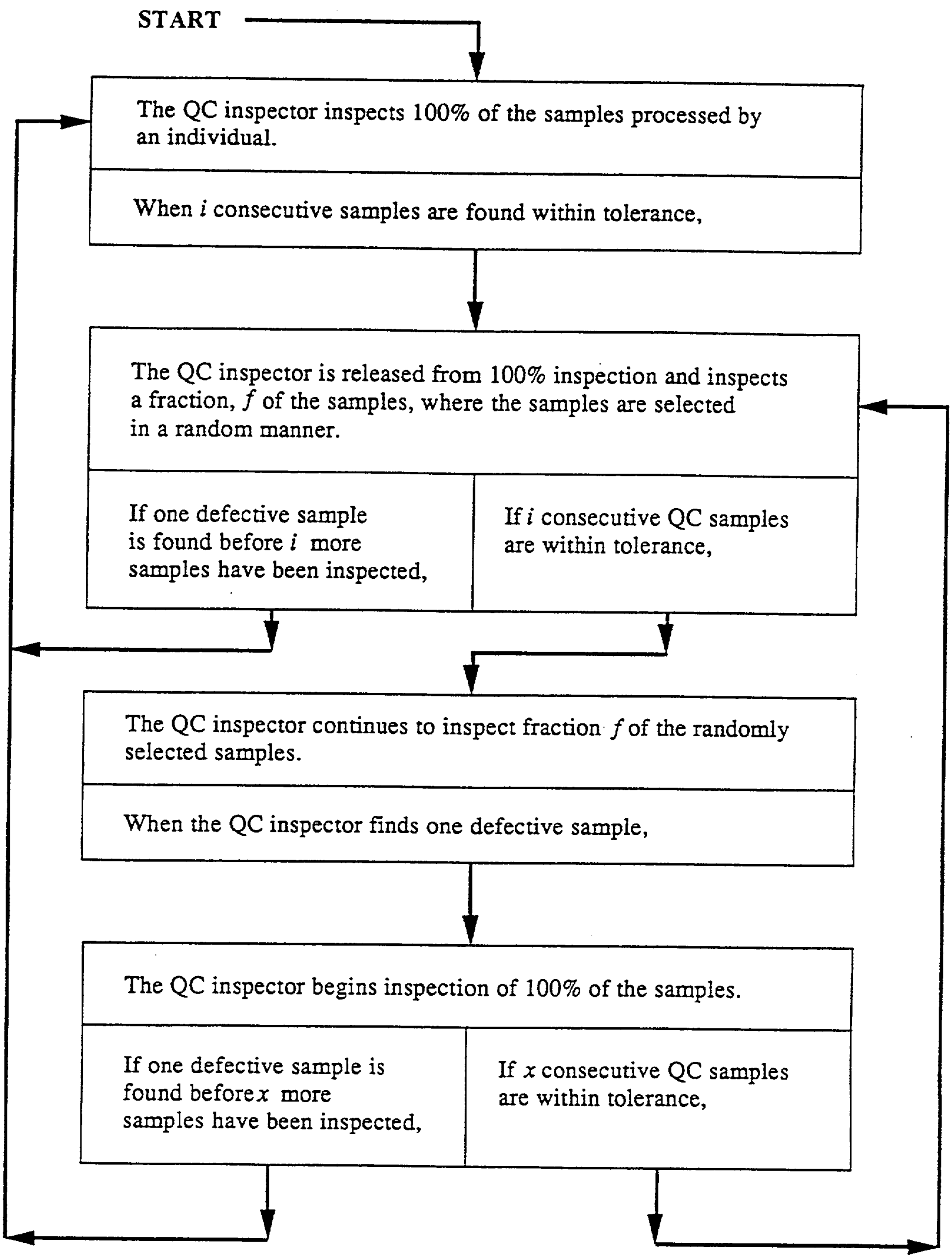

Figure 2. Quality control inspection plan for identification and length measurement of young-of-the-year fishes.

inspectors. If the difference between original and QC values exceeded the acceptable tolerance, a third value was obtained as a resolution. The QC methods are documented in the 1992 Hudson River Fall Juvenile and Beach Seine Surveys Standard Operating Procedures (Rev. 9, Change 1, 6/26/92). Young-of-the-year fishes were identified in the laboratory for the first two Fall Shoals river runs and the first three Beach Seine Survey river runs. Young-of-the-year fishes were identified in the field starting with Fall Shoals river run 3 and Beach Seine Survey river run 4. The same quality control procedures applied to both field and laboratory identifications. All length measurements of young-of-the-year fishes occurred in the laboratory.

TABLE 2. TASK SPECIFIC APPLICATIONS OF CONTINUOUS SAMPLING PLANS FOR THE 1992 FALL JUVENILE SURVEY.

TASK	QC PLAN	AOQL	i	f	x	TOLERANCE	QC SAMPLE DEFINITION
Identification	CSP-V	7%	21	1/15	7	±10% of total count or ±2 individuals when <25 fish	One taxon
Length	CSP-V	7%	30	1/50	10	±1 mm when <34 mm TL ±3% when >34mm TL	One fish

2.2 QUALITY CONTROL REPORTING METHODS

The 1992 Hudson River Ichthyoplankton Laboratory Program Sort and Identification Quality Control Logs were keyed, verified, and error-checked to produce SAS data sets. From these data, fraction inspected, process average (percent nonconforming), and percent measurement error (precision) were determined for each river run and for the entire study. For the 1992 Fall Juvenile Survey, QC data were used to determine fraction inspected and process average (percent nonconforming) for the entire study (combining all river runs of both the Fall Shoals Survey and the Beach Seine Survey).

2.2.1 Fraction Inspected

Fraction Inspected

$$= \frac{\text{Number of Samples Inspected}}{\text{Total Number of Samples}} \times 100 \qquad \text{(Equation 1)}$$

River Run: Fraction inspected for a river run (Equation 1) was one hundred times the number of samples inspected divided by the total number of samples analyzed for that river run. For the ichthyoplankton identification task, the total number of samples excludes empty ("no catch") samples that did not require processing by an identifier.

Entire Study: Fraction inspected for the entire study was one hundred times the number of samples inspected divided by the total number of samples analyzed during the study.

2.2.2 Process Average (Percent Nonconforming)

Process Average (Percent Nonconforming)

$$= \frac{\text{Number Nonconforming Samples Inspected}}{\text{Number of Samples Inspected}} \times 100 \qquad \text{(Equation 2)}$$

River Run: Process average for a river run (Equation 2) was one hundred times the number of nonconforming quality control samples found for that river run divided by the total number of quality control samples inspected for that river run.

Entire Study: Process average for the entire study was one hundred times the total number of nonconforming quality control samples for the study divided by the total number of quality control samples inspected for the study. The results of this analysis was a determination of the actual incoming quality level of each measurement parameter. (Note that because samples checked by QC found to be defective were rectified during QC, the average outgoing quality of the final data set differed from the percent nonconforming.)

2.2.3 Percent Measurement Error

2.2.3.1 Sorting Task

Sorting Percent Measurement Error =

$$\frac{\text{Quality Control Value}}{(\text{Original Value} + \text{Quality Control Value})} \times 100 \quad \text{(Equation 3)}$$

Sample: Percent measurement error for a sorted sample (Equation 3) was one hundred times the quality control value divided by the sum of the original value and the quality control value. If the total count (original value plus quality control value) was less than or equal to 20, and the quality control value (i.e., the number of organisms missed by the sorter and found during sort QC inspection) was one or two, the percent measurement error for the sorted sample was defined as zero.

River Run: Mean percent measurement error for sorted samples for a river run was the sum of the percent measurement errors for each sample inspected during the river run divided by the total number of samples inspected for the river run.

Entire Study: Mean percent measurement error for sorted samples for the entire study was the sum of the percent measurement errors for each sample inspected during the study divided by the total number of samples inspected for the study. (Note: this method of averaging gives equal weight to each sample, regardless of the number of organisms present).

2.2.3.2 Identification Task

Life Stage Percent Measurement Error =

$$\frac{\text{(Original Value - Quality Control Value)}}{\text{Quality Control Value}} \times 100 \qquad \text{(Equation 4)}$$

<u>Life Stage</u>: Percent measurement error for a life stage (Equation 4) was one hundred times the difference between the original value and the quality control value divided by the quality control value. For life stages where the quality control value was 20 or less, if the original and quality control values differed by less than or equal to two organisms the percent measurement error was defined as zero. For life stages where the quality control value was 20 or less and the original and quality control values differed by more than two organisms, the percent measurement error was calculated utilizing Equation 4. In the latter case, if the quality control value was zero, the percent measurement error was calculated by multiplying the difference between the original and quality control values by 100. This results in percent measurement error values which are at times extremely large (e.g. possibly several hundred percent for a life stage of a taxon in a sample) and not truly indicative of the actual proportion of specimens misidentified, mis-staged, or miscounted in a sample.

<u>Taxon</u>: Percent measurement error for an identified taxon was the sum of the absolute values of percent measurement error for each life stage within the taxon. Refer to Figure 3 for an example of taxon percent measurement error calculations.

<u>River Run</u>: Mean percent measurement error for the identification task for a river run was the sum of the percent measurement errors for all taxa inspected during the river run divided by the total number of taxa inspected for the river run. This statistic was computed by averaging taxa rather than samples because even though complete samples were inspected and reworked for identification quality control, the pass/fail criterion was whether any taxon in the sample individually exceeded the 10% tolerance.

	EGGS	POST YOLK-SAC LARVAE	UNDETERMINED	TOTAL
Taxon 1				
Original Value	103	176	25	
Quality Control Value	100	194	26	
% Measurement Error Life Stage	3.0	-9.3	-3.8	16.1
Taxon 2				
Original Value		2		
Quality Control Value		1		
% Measurement Error Life Stage		0		0
Taxon 3				
Original Value		8		
Quality Control Value		2		
% Measurement Error Life Stage		300		300

Figure 3. Example of percent measurement error calculations for individual taxa during the identification task.

Entire Study: Mean percent measurement error for identified taxa for the entire study was the sum of the percent measurement errors for all taxa inspected during the study divided by the total number of taxa inspected for the study.

2.2.4 Average Outgoing Quality

At the completion of these studies, the Average Outgoing Quality (AOQ) was calculated for each measurement parameter inspected. Continuous sampling plans were used for all tasks. Continuous sampling plans are devised for processes involving a continuous or nearly continuous flow of products or other entities. For these types of processes, it is extremely difficult to organize units into discrete groups commonly referred to as lots. As a result, inspection must be performed on individual units drawn from a continuous flow of products and a decision made concerning the quality of units produced based on the inspection results. Rectification is performed on any nonconforming unit found during inspection, followed by 100% screening of a number of subsequent units depending on the sampling plan. Average Outgoing Quality for each laboratory task was calculated as a function of the process average (percent nonconforming) and the fraction of total units inspected (Stephens 1979). This calculation applies to continuous sampling plans when nonconforming units found are rectified:

$$AOQ = \frac{p'(1-f)q^i}{f+(1-f)q^i} \times 100 \qquad \text{(Equation 5)}$$

where

p' = Process average (percent nonconforming) as a decimal fraction

f = Fraction of units inspected. This is a parameter of the sampling plan.

q = $1-p'$ = Process fraction conforming

i = Clearing interval. This is a parameter of the sampling plan.

Example:

$p' = 0.0689$

$f = 1/7 = 0.1429$

$q = 1-0.0689 = 0.9311$

$i = 8$

$$AOQ = \frac{0.0689\ (1-0.1429)(0.9311)^8}{0.1429 + (1-0.1429)\ (0.9311)^8} \times 100 = 5.32\%$$

The above equation for calculating AOQ was formulated specifically for CSP-1 sampling plans such as those used for the ichthyoplankton sorting and identification (Table 1). The same equation was used to calculate AOQ for young-of-the-year identifications and measurements, which used CSP-V plans (Table 2). When Equation 5 is used for CSP-V plans, the calculated AOQ is conservatively high, because the equation does not take into account the times when the number of consecutive reinspection following a failure is x (which is smaller than i).

2.2.5 Cumulative Error Rates

Due to the non-independence of identification errors across taxa and life stages, and to the cumulation of errors within taxa, a relatively high fraction of samples may fail QC inspection even though only a small fraction of organisms are incorrectly identified or counted. In order to present the error frequencies more realistically for particular taxa-life stages, two additional statistics were calculated for each taxon-life stage for the identification/counting process.

Absolute Error Rate =

$$\sum_{i=1}^{n} |I_i - Q_i| \Big/ \sum_{i=1}^{n} Q_i \qquad \text{Equation 6}$$

Net Error Rate =

$$\sum_{i=1}^{n} (I_i - Q_i) \;/\; \sum_{i=1}^{n} Q_i \qquad \text{Equation 7}$$

where

I_i = initial count for taxon-life stage in sample i
Q_i = QC count for taxon-life stage in sample i
n = number of samples in the entire study

if the sum of Q_i for the entire study was zero for the taxon-life stage, then the sum of Q_i was set equal to one for the purpose of calculating absolute and net error rate.

The absolute error rate is the approximate fraction of the taxon-life stage that was originally identified or counted incorrectly. This is an estimate of the fraction of erroneous countable items in the uninspected samples.

Net error rate is the approximate relative error in the total counts for the taxon-life stage. For this index, positive (original count too high) and negative (original count too low) errors cancel each other so that the index reflects the relative net bias to the taxon-life stage abundance.

3.0 RESULTS

3.1 HUDSON RIVER ICHTHYOPLANKTON LABORATORY PROGRAM

The Average Outgoing Quality (AOQ) for the sorting and identification tasks of the 1992 Hudson River Ichthyoplankton Laboratory Program was 4.62% and 4.31% respectively. These AOQ levels represent the actual or achieved quality for measurement parameters and were well within the 10% AOQL requirement of Con Edison. The Average Fraction

Inspected (AFI) was 19.74% for sorting and 14.73% for identification (Table 3).

TABLE 3. FRACTION INSPECTED, PROCESS AVERAGE, MEAN PERCENT MEASUREMENT ERROR, AND AVERAGE OUTGOING QUALITY OF TASKS PERFORMED BY NAI FOR THE 1992 HUDSON RIVER ICHTHYOPLANKTON LABORATORY PROGRAM.

TASK	FRACTION INSPECTED(%)	PROCESS AVERAGE(%)	MEAN PERCENT MEASUREMENT ERROR(%)	AOQ(%)
Sorting	19.74	5.87	3.16	4.62
Identification	14.73	5.43	3.81	4.31

The AFI for the sorting task as calculated here is conservatively low, because samples used as "training QCs" were not entered into the formal QC inspection plan. Each training QC sample was reprocessed by the Sorting Supervisor during the training process, so these do not represent the independent performance of the sorter. Only after a new sorter demonstrated proficiency in the training program were subsequent samples processed by that sorter entered into the laboratory-wide QC plan.

Sorting and identification tasks were also evaluated on a sampling week basis representing river runs (sampling weeks) 1 through 20. Sorted samples were inspected at a rate of 10.96% to 28.21% for individual river runs (Table 4). River run nonconformities for the sorting task among the inspected samples ranged from 0% to 19.35% and was 5.87% overall (Table 5). Sorting measurement error was between 0% and 7.76% and averaged 3.16% for the study (Table 6). For the task of sample identification, 11.97% to 19.33% of samples were inspected from individual river runs (Table 7). Percent nonconforming for the identification task ranged among river runs from 0% to 29.41% (Table 8) and measurement error from 0.16% to 22.06% (Table 9). Overall percent nonconformance (Table 8) and measurement error (Table 9) for the identification task of this study were 5.43% and 3.81%, respectively.

TABLE 4. SAMPLE SORTING FRACTION INSPECTED RESULTS, 1992 HUDSON RIVER ICHTHYOPLANKTON LABORATORY PROGRAM.

	FRACTION INSPECTED SORTING QC		
SAMPLING WEEK (BEGINNING MONDAY)	TOTAL # OF SAMPLES INSPECTED	TOTAL # OF SAMPLES SORTED	FRACTION INSPECTED
04/13/92	13	106	12.26
04/20/92	14	108	12.96
04/27/92	22	108	20.37
05/04/92	31	115	26.96
05/11/92	31	118	26.27
05/18/92	26	110	23.64
05/25/92	23	110	20.91
06/01/92	26	110	23.64
06/08/92	28	119	23.53
06/15/92	33	117	28.21
06/22/92	31	118	26.27
06/29/92	16	118	13.56
07/06/92	27	119	22.69
07/20/92	11	72	15.28
08/03/92	11	73	15.07
08/17/92	10	73	13.70
08/31/92	10	73	13.70
09/14/92	8	73	10.96
09/28/92	11	73	15.07
10/12/92	10	73	13.70
STUDY	392	1986	19.74

TABLE 5. SAMPLE SORTING PERCENT NONCONFORMANCE RESULTS, 1992 HUDSON RIVER ICHTHYOPLANKTON LABORATORY PROGRAM.

	% NONCONFORMANCE SORTING QC			
SAMPLING WEEK (BEGINNING MONDAY)	# OF NONCON-FORMITIES	TOTAL # OF SAMPLES INSPECTED	% NON-CONFORMANCE (WEEK)	% NON-CONFORMANCE (STUDY)
04/13/92	0	13	0.00	0.00
04/20/92	0	14	0.00	0.00
04/27/92	1	22	4.55	2.04
05/04/92	2	31	6.45	3.75
05/11/92	6	31	19.35	8.11
05/18/92	3	26	11.54	8.76
05/25/92	4	23	17.39	10.00
06/01/92	1	26	3.85	9.14
06/08/92	2	28	7.14	8.88
06/15/92	1	33	3.03	8.10
06/22/92	2	31	6.45	7.91
06/29/92	0	16	0.00	7.48
07/06/92	1	27	3.70	7.17
07/20/92	0	11	0.00	6.93
08/03/92	0	11	0.00	6.71
08/17/92	0	10	0.00	6.52
08/31/92	0	10	0.00	6.34
09/14/92	0	8	0.00	6.20
09/28/92	0	11	0.00	6.02
10/14/92	0	10	0.00	5.87
STUDY	23	392		

TABLE 6. SAMPLE SORTING MEAN PERCENT MEASUREMENT ERROR RESULTS, 1992 HUDSON RIVER ICHTHYOPLANKTON LABORATORY PROGRAM.

	MEAN PERCENT MEASUREMENT ERROR SORTING QC	
SAMPLING WEEK (BEGINNING MONDAY)	TOTAL # OF SAMPLES INSPECTED	MEAN PERCENT MEASUREMENT ERROR
04/13/92	13	0.63
04/20/92	14	0.32
04/27/92	22	2.12
05/04/92	31	3.27
05/11/92	31	7.76
05/18/92	26	6.20
05/25/92	23	6.15
06/01/92	26	2.84
06/08/92	28	3.11
06/15/92	33	2.34
06/22/92	31	2.92
06/29/92	16	1.96
07/06/92	27	3.03
07/20/92	11	2.07
08/03/92	11	1.72
08/17/92	10	2.16
08/31/92	10	0.55
09/14/92	8	2.15
09/28/92	11	0.45
10/12/92	10	0.00
STUDY	392	3.16

TABLE 7. SAMPLE IDENTIFICATION FRACTION INSPECTED RESULTS, 1992 HUDSON RIVER ICHTHYOPLANKTON LABORATORY PROGRAM.

	FRACTION INSPECTED IDENTIFICATION QC		
SAMPLING WEEK (BEGINNING MONDAY)	TOTAL # OF SAMPLES INSPECTED	TOTAL # OF SAMPLES IDENTIFIED	FRACTION INSPECTED
04/13/92	10	67	14.93
04/20/92	7	49	14.29
04/27/92	14	96	14.58
05/04/92	22	115	19.13
05/11/92	17	117	14.53
05/18/92	14	109	12.84
05/25/92	15	110	13.64
06/01/92	16	110	14.55
06/08/92	17	119	14.29
06/15/92	14	117	11.97
06/22/92	17	118	14.41
06/29/92	16	118	13.56
07/06/92	23	119	19.33
07/20/92	13	72	18.06
08/03/92	10	73	13.70
08/17/92	11	73	15.07
08/31/92	9	73	12.33
09/14/92	10	73	13.70
09/28/92	11	73	15.07
10/12/92	10	73	13.70
STUDY	276	1874	14.73

TABLE 8. SAMPLE IDENTIFICATION PERCENT NONCONFORMANCE RESULTS, 1992 HUDSON RIVER ICHTHYOPLANKTON LABORATORY PROGRAM.

	% NONCONFORMANCE IDENTIFICATION QC			
SAMPLING WEEK (BEGINNING MONDAY)	# OF NONCON-FORMITIES	TOTAL # OF SAMPLES INSPECTED	% NON-CONFORMANCE (WEEK)	% NON-CONFORMANCE (STUDY)
04/13/92	0	10	0.00	0.00
04/20/92	0	7	0.00	0.00
04/27/92	0	14	0.00	0.00
05/04/92	0	22	0.00	0.00
05/11/92	3	17	17.65	4.29
05/18/92	0	14	0.00	3.57
05/25/92	4	15	26.67	7.07
06/01/92	1	16	6.25	6.96
06/08/92	5	17	29.41	9.85
06/15/92	0	14	0.00	8.90
06/22/92	0	17	0.00	7.98
06/29/92	0	16	0.00	7.26
07/06/92	2	23	8.70	7.43
07/20/92	0	13	0.00	6.98
08/03/92	0	10	0.00	6.67
08/17/92	0	11	0.00	6.36
08/31/92	0	9	0.00	6.12
09/14/92	0	10	0.00	5.88
09/28/92	0	11	0.00	5.64
10/12/92	0	10	0.00	5.43
STUDY	15	276		

TABLE 9. SAMPLE IDENTIFICATION MEAN PERCENT MEASUREMENT ERROR RESULTS, 1992 HUDSON RIVER ICHTHYOPLANKTON LABORATORY PROGRAM.

	MEAN PERCENT MEASUREMENT ERROR IDENTIFICATION QC		
SAMPLING WEEK (BEGINNING MONDAY)	TOTAL # OF SAMPLES INSPECTED	MEAN PERCENT MEASUREMENT ERROR	NUMBER OF TAXA INSPECTED
04/13/92	10	0.18	18
04/20/92	7	0.31	9
04/27/92	14	0.25	37
05/04/92	22	0.23	90
05/11/92	17	12.02	82
05/18/92	14	1.47	63
05/25/92	15	22.06	82
06/01/92	16	1.52	94
06/08/92	17	12.40	104
06/15/92	14	0.84	82
06/22/92	17	0.91	102
06/29/92	16	0.71	108
07/06/92	23	1.01	145
07/20/92	13	0.35	61
08/03/92	10	0.58	39
08/17/92	11	0.97	43
08/31/92	9	0.90	42
09/14/92	10	0.69	26
09/28/92	11	0.92	34
10/12/92	10	0.16	29
STUDY	276	3.81	1290

Measurement error results are skewed towards high values as a result of the method of computation at the life stage level. In addition, measurement errors are summed over life stages within each taxon, which then amplifies the already skewed life stage values. These data are not indicative of actual measurement error and should only be compared to other measurement error results that are calculated using exactly the same methods.

Additional organisms found during the sort QC were identified independently to determine the frequency of species and life stages missed during the initial sort. Four taxa accounted for 88% of the additional organisms found during sort QC: white perch, striped bass, bay anchovy, and clupeids (Table 10).

For the six taxa most commonly encountered during sort QC the total number of each life stage found in the sort QC was low compared to the total number sorted (Table 11). For most taxa-life stages the percentage missed by the original sorter was well under 2%.

The dominant life stage for the taxa commonly found during the sort QC was post-yolk-sac larvae (Table 11). For bay anchovy, eggs found during sort QC were also prevalent. Eggs and yolk-sac larvae of striped bass and white perch were also found in moderate numbers.

Absolute error rates of the identification process for commonly encountered taxa ranged from 0 to greater than 1, but most taxa-life stages had rates less than 0.05. Generally, only those taxa-life stages with total counts under 25 had absolute error rates above 0.05 (Table 12). The taxon *Morone* sp. had high absolute errors compared to most other taxa, indicating discrepancies in counts resulting from the more experienced QC inspectors being able to identify specimens in poor condition to the species level when the original identifier had been more conservative.

TABLE 10. RANKING OF SPECIES MISSED DURING INITIAL SORT AND FOUND DURING SORT QC.

TAXON	NUMBER OF ORGANISMS FOUND IN SORT QC	PERCENT
WHITE PERCH	1382	33.78
STRIPED BASS	1241	30.33
BAY ANCHOVY	667	16.30
CLUPEID UNID.	304	7.43
UNIDENTIFIED	111	2.71
GOBIID UNID.	94	2.30
MORONE SP.	72	1.76
RAINBOW SMELT	55	1.34
TESSELLATED DARTER	28	0.68
WINDOWPANE	28	0.68
CYPRINID UNID.	17	0.42
AMERICAN SHAD	16	0.39
COMMON CARP	15	0.37
CUNNER	15	0.37
ATLANTIC TOMCOD	10	0.24
WINTER FLOUNDER	9	0.22
HOGCHOKER	8	0.20
GRUBBY	7	0.17
YELLOW PERCH	3	0.07
CENTRARCHID UNID.	2	0.05
TAUTOG	2	0.05
TIDEWATER SILVERSIDE	2	0.05
BLUEBACK HERRING	1	0.02
GIZZARD SHAD	1	0.02
NORTHERN PIPEFISH	1	0.02
TOTAL	4091	100.00

TABLE 11. SUMMARY BY LIFE STAGE OF THE SIX HIGHEST RANKED TAXA MISSED DURING ORIGINAL SORT AND FOUND DURING SORT QC COMPARED TO TOTAL COUNT.

TAXON	LIFESTAGE	NUMBER MISSED	PERCENT IN EACH STAGE	PERCENT OF TOTAL FOUND	TOTAL ORGANISMS FOUND[a]
BAY ANCHOVY	EGGS	379	56.82	0.51	74047
	YOLK-SAC LARVAE	0	0.00	0.00	7
	POST YOLK-SAC LARVAE	288	43.18	0.48	60335
	YOUNG-OF-THE-YEAR	0	0.00	0.00	16207
	UNIDENTIFIED	0	0.00	0.00	33
CLUPEID UNID.	EGGS	43	14.14	0.42	10174
	YOLK-SAC LARVAE	50	16.45	0.87	5752
	POST YOLK-SAC LARVAE	211	69.41	0.72	29228
	YOUNG-OF-THE-YEAR	0	0.00	0.00	796
	UNIDENTIFIED	0	0.00	0.00	146
GOBIID UNID.	POST YOLK-SAC LARVAE	94	100.00	1.45	6489
	YOUNG-OF-THE-YEAR	0	0.00	0.00	21
MORONE SP.	YOLK-SAC LARVAE	2	2.78	1.06	188
	POST YOLK-SAC LARVAE	29	40.28	1.01	2884
	UNIDENTIFIED	41	56.94	4.54	903
STRIPED BASS	EGGS	412	33.20	3.06	13452
	YOLK-SAC LARVAE	434	34.97	1.17	37178
	POST YOLK-SAC LARVAE	390	31.43	0.45	86213
	YOUNG-OF-THE-YEAR	3	0.24	1.24	242
	UNIDENTIFIED	2	0.16	1.41	142
WHITE PERCH	EGGS	238	17.22	1.64	14497
	YOLK-SAC LARVAE	382	27.64	2.47	15467
	POST YOLK-SAC LARVAE	762	55.14	0.73	104347
	YOUNG-OF-THE-YEAR	0	0.00	0.00	71
	UNIDENTIFIED	0	0.00	0.00	16

[a]Includes both original count and additional organisms found during sort QC.

TABLE 12. CUMULATIVE NET AND ABSOLUTE ERROR RATES FOR COMMONLY ENCOUNTERED TAXA IN SAMPLES SELECTED FOR QC INSPECTION OF IDENTIFICATION AND COUNTING PROCESS.

TAXON	LIFESTAGE	TOTAL COUNT	NET ERROR RATE	ABSOLUTE ERROR RATE	N
BAY ANCHOVY	UNIDENTIFIED	7	0.28571	0.85714	6
	EGGS	12553	0.00008	0.01681	51
	POST YOLK-SAC LARVAE	9715	0.00412	0.02038	110
	YOUNG-OF-THE-YEAR	2156	-0.00186	0.02226	58
AMERICAN SHAD	UNIDENTIFIED	0	1.00000	1.00000	1
	EGGS	245	-0.01224	0.02041	17
	YOLK-SAC LARVAE	125	0.00000	0.03200	18
	POST YOLK-SAC LARVAE	258	-0.01938	0.03488	26
	YOUNG-OF-THE-YEAR	134	0.00000	0.01493	38
HOGCHOKER	EGGS	966	-0.00725	0.02381	15
	YOUNG-OF-THE-YEAR	4	0.00000	0.00000	3
BLUEBACK HERRING	YOUNG-OF-THE-YEAR	1699	0.00353	0.00942	51
RAINBOW SMELT	UNIDENTIFIED	3	-0.66667	0.66667	3
	YOLK-SAC LARVAE	271	-0.00369	0.04059	26
	POST YOLK-SAC LARVAE	840	-0.00595	0.02738	77
	YOUNG-OF-THE-YEAR	595	0.00672	0.02017	50
STRIPED BASS	UNIDENTIFIED	25	0.04000	0.04000	1
	EGGS	2078	0.01877	0.02551	31
	YOLK-SAC LARVAE	3833	-0.00913	0.03731	57
	POST YOLK-SAC LARVAE	9575	-0.00292	0.01796	102
	YOUNG-OF-THE-YEAR	20	0.15000	0.15000	8
ATLANTIC TOMCOD	UNIDENTIFIED	2	0.00000	0.00000	2
	POST YOLK-SAC LARVAE	431	-0.02320	0.03248	29
	YOUNG-OF-THE-YEAR	941	0.00850	0.01488	68
WHITE PERCH	UNIDENTIFIED	0	1.00000	1.00000	1
	EGGS	1223	0.00491	0.02289	48
	YOLK-SAC LARVAE	2219	0.00451	0.03064	55
	POST YOLK-SAC LARVAE	10725	0.00261	0.02219	104
	YOUNG-OF-THE-YEAR	11	-0.36364	0.36364	4
CLUPEID UNID.	UNIDENTIFIED	22	0.27273	0.36364	8
	EGGS	1773	0.02369	0.03610	22
	YOLK-SAC LARVAE	1422	0.00914	0.03305	42
	POST YOLK-SAC LARVAE	3863	0.00104	0.01864	85
	YOUNG-OF-THE-YEAR	16	0.12500	0.12500	4
MORONE SP.	UNIDENTIFIED	56	0.14286	0.17857	8
	YOLK-SAC LARVAE	0	7.00000	7.00000	1
	POST YOLK-SAC LARVAE	158	0.11392	0.53165	34
WINTER FLOUNDER	UNIDENTIFIED	0	1.00000	1.00000	1
	YOLK-SAC LARVAE	5	0.00000	0.00000	1
	POST YOLK-SAC LARVAE	277	0.00361	0.00361	23
	YOUNG-OF-THE-YEAR	2	0.00000	0.00000	2
WINDOWPANE	EGGS	518	0.01158	0.01544	8
	POST YOLK-SAC LARVAE	74	0.01351	0.01351	9
	YOUNG-OF-THE-YEAR	16	0.00000	0.00000	8
GOBIID UNID.	POST YOLK-SAC LARVAE	1022	0.00587	0.01566	59

Net error rates were substantially lower than the absolute error rates in most cases, demonstrating that errors often tended to cancel each other out. This was noticeable for many of the more abundant taxa-life stages, such as bay anchovy eggs, post yolk-sac larvae and young-of-the-year, as well as post yolk-sac larvae of striped bass, white perch, and clupeids.

3.2 FALL JUVENILE SURVEY

Results of the laboratory quality control program for the 1992 Fall Juvenile Survey (consisting of the Bench Seine Survey and the Fall Shoals Survey) were summarized by the same methods as the QC results for the 1992 Hudson River Ichthyoplankton Laboratory Program (Section 2.2) and are presented in Table 13.

TABLE 13. FRACTION INSPECTED, PROCESS AVERAGE, AND AVERAGE OUTGOING QUALITY OF LABORATORY TASKS PERFORMED BY NAI FOR THE 1992 FALL JUVENILE SURVEY.

TASK	AVERAGE FRACTION INSPECTED(%)	PROCESS AVERAGE(%)	AVERAGE OUTGOING QUALITY(%)
Identification	19.79	0.18	0.16
Measurement	3.14	0.00	0.00

A total of 1,793 and 941 young-of-the-year fish identification records were made in the laboratory for the Fall Shoals and Beach Seine surveys respectively and 6,402 and 6,452 young-of-the-year fish length measurement records were made for the Fall Shoals and Beach Seine surveys respectively.

4.0 BIBLIOGRAPHY

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APPENDIX B

PHYSICAL/CHEMICAL PARAMETERS

APPENDIX B

LIST OF TABLES

Table B-1. Daily freshwater flow (m3/s) at Green Island, NY,1992

Day of Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	362	235	235	453	501	857	148	382	153	164	308	526
2	317	216	208	416	467	880	170	351	162	184	286	487
3	291	200	212	359	1545	713	127	216	146	190	427	458
4	286	177	215	331	1534	577	155	219	233	187	583	470
5	317	185	226	297	1186	410	172	235	247	190	481	430
6	393	194	222	283	999	614	255	211	237	170	521	393
7	379	185	266	271	863	662	212	198	199	167	532	340
8	348	186	359	264	804	603	161	150	190	161	464	374
9	311	184	447	342	668	600	212	159	188	167	385	478
10	278	179	458	379	623	478	242	242	193	286	325	453
11	291	171	674	419	558	385	229	245	320	422	337	348
12	241	159	1115	671	507	368	179	158	289	385	396	354
13	223	171	733	863	504	306	184	167	241	368	515	359
14	286	153	591	693	422	227	256	189	205	286	566	391
15	484	175	495	526	419	210	458	268	209	280	591	385
16	402	236	396	464	354	189	617	187	141	294	529	345
17	306	300	340	617	365	154	396	188	179	345	444	354
18	308	311	297	991	354	163	308	212	156	311	416	541
19	244	320	289	937	311	157	308	283	174	334	391	597
20	259	374	267	849	286	149	276	187	169	328	348	566
21	263	391	232	758	229	134	248	181	172	331	323	625
22	263	331	216	841	225	143	255	157	155	314	444	532
23	247	280	211	1007	188	113	314	155	376	297	968	473
24	300	281	222	1121	198	146	410	170	371	289	920	427
25	382	262	215	1132	189	174	317	146	294	405	880	345
26	325	252	203	1163	206	180	246	148	275	410	860	340
27	286	256	512	996	175	165	241	142	198	408	764	334
28	261	243	1070	753	214	161	218	139	224	272	710	317
29	249	238	671	662	215	173	189	186	230	323	668	351
30	258		566	591	162	164	180	223	195	308	558	413
31	254		492		274		183	205		306		784

TABLE B-2 LONG-TERM (1947-1991) AND 1992 MONTHLY MEAN FRESHWATER FLOW (m^3/sec) RECORDED AT GREEN ISLAND, NEW YORK

Month	Flow (m^3/sec) 1992 Average	Long-Term Average	Long-Term Minimum[b]	Long-Term Maximum[b]
JAN	304	366	118	961
FEB	236	401	128	885
MAR	408	620	258	1,077
APR	648	856	384	1,462
MAY	501	530	156	1,147
JUN	342	281	101	839
JUL	254	182	87	520
AUG	203	159	48	414
SEP	217	181	58	482
OCT	286	250	71	853
NOV	531	355	93	740
DEC	438	414	173	764
Annual Average[a]	364	383		

a. Mean of monthly means weighted by number of days/month.
b. Monthly average.

TABLE B-3 MONTHLY MEAN FRESHWATER FLOW (m^3/sec) RECORDED AT GREEN ISLAND, NEW YORK FROM 1974 TO 1992

	Year																		
Month	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
JAN	623	540	417	225	745	571	256	148	321	259	308	440	308	263	268	196	383	512	304
FEB	528	549	885	227	400	336	128	851	361	352	742	319	358	201	349	256	703	496	236
MAR	587	671	897	1,233	619	1,253	634	349	620	581	465	581	1,011	596	461	332	994	696	408
APR	854	724	1,041	1,149	950	1,080	748	385	1,085	1,063	940	456	683	897	476	548	894	655	648
MAY	650	566	901	454	530	554	274	328	354	1,037	844	232	342	122	357	620	990	346	501
JUN	249	367	431	207	282	236	192	169	432	358	418	157	404	175	123	389	250	144	342
JUL	334	211	433	162	131	132	144	140	182	127	289	133	228	162	131	92	157	112	254
AUG	180	254	414	154	169	149	130	134	124	155	176	104	307	118	139	61	248	123	203
SEP	294	482	271	408	175	221	118	233	122	133	190	171	218	341	164	120	159	136	217
OCT	256	663	658	854	244	314	158	457	124	154	181	203	337	466	211	256	477	216	286
NOV	487	637	508	664	227	465	242	395	196	339	277	419	545	415	565	565	653	301	531
DEC	549	532	399	750	303	430	273	321	233	799	448	330	524	412	330	180	687	364	438
Annual	465	516	603	543	398	479	275	322	345	447	438	295	439	347	298	301	549	341	364

TABLE B-4 POUGHKEEPSIE WATER WORKS DATA, MEAN, MINIMUM, AND MAXIMUM TEMPERATURE (C) FOR EACH DAY OF THE YEAR, 1951-1992

		Long Term Temperature (1951-1991)			1992 Actual
Month	Day	Mean	Minimum	Maximum	Temperatures
1	1	1.6	0.6	4.4	1.2
1	2	1.5	0.0	4.4	1.0
1	3	1.6	0.6	4.4	1.3
1	4	1.5	0.6	3.3	1.3
1	5	1.5	0.0	3.3	1.2
1	6	1.3	0.0	3.3	0.8
1	7	1.3	0.0	3.3	0.9
1	8	1.2	0.0	3.3	1.3
1	9	1.2	0.0	3.3	1.3
1	10	1.1	0.0	2.8	1.3
1	11	1.1	0.0	2.8	1.3
1	12	1.1	0.6	2.8	1.2
1	13	1.1	0.0	2.8	1.1
1	14	1.1	0.0	2.8	1.1
1	15	1.1	0.0	2.8	1.8
1	16	1.1	0.5	2.8	1.3
1	17	1.1	0.6	2.8	1.2
1	18	1.1	0.6	3.3	1.1
1	19	1.0	0.6	2.8	1.1
1	20	1.0	0.5	2.2	1.1
1	21	1.0	0.0	2.4	0.7
1	22	1.0	0.6	2.2	0.8
1	23	1.0	0.6	2.2	1.1
1	24	1.0	0.0	2.2	0.8
1	25	1.0	0.0	3.1	0.9
1	26	0.9	0.0	2.2	0.9
1	27	1.0	0.0	2.2	0.8
1	28	1.0	0.6	2.2	0.8
1	29	1.0	0.6	2.2	0.7
1	30	1.0	0.6	2.2	0.9
1	31	1.0	0.6	2.2	1.1
2	1	1.0	0.6	2.2	0.9
2	2	1.0	0.6	2.2	0.9
2	3	1.0	0.6	2.2	0.8
2	4	0.9	0.6	1.8	0.7
2	5	0.9	0.6	1.7	0.9
2	6	1.0	0.5	2.0	0.9
2	7	1.0	0.6	2.2	0.9
2	8	1.0	0.6	2.2	0.9
2	9	1.0	0.6	2.2	0.8
2	10	1.1	0.6	3.3	0.8
2	11	1.0	0.0	2.2	0.8
2	12	1.0	0.6	2.3	0.8
2	13	1.1	0.6	2.2	0.8

TABLE B-4 POUGHKEEPSIE WATER WORKS DATA, MEAN, MINIMUM, AND MAXIMUM TEMPERATURE (C) FOR EACH DAY OF THE YEAR, 1951-1992

		Long Term Temperature (1951-1991)			1992 Actual
Month	Day	Mean	Minimum	Maximum	Temperatures
2	14	1.2	0.6	2.8	0.9
2	15	1.1	0.6	2.8	1.0
2	16	1.1	0.0	2.8	0.9
2	17	1.2	0.6	2.8	0.9
2	18	1.1	0.0	2.8	0.9
2	19	1.2	0.6	2.8	1.1
2	20	1.2	0.6	2.8	1.2
2	21	1.2	0.6	2.8	1.3
2	22	1.2	0.0	3.9	1.3
2	23	1.3	0.0	2.8	0.8
2	24	1.3	0.0	3.9	0.8
2	25	1.3	0.6	3.9	1.2
2	26	1.5	0.0	3.9	0.9
2	27	1.5	0.0	4.4	1.1
2	28	1.5	0.0	5.0	1.1
2	29	1.8	0.6	4.4	1.0
3	1	1.5	0.6	4.4	0.9
3	2	1.5	0.6	4.4	0.9
3	3	1.5	0.6	4.4	0.9
3	4	1.6	0.6	4.4	1.3
3	5	1.6	0.6	3.3	0.9
3	6	1.6	0.6	3.7	1.3
3	7	1.7	0.6	4.7	1.7
3	8	1.7	0.0	4.9	1.9
3	9	1.8	0.6	4.5	2.2
3	10	1.9	0.6	4.8	2.2
3	11	2.0	0.6	4.4	3.3
3	12	2.1	0.6	4.4	3.3
3	13	2.1	0.6	4.4	4.3
3	14	2.2	0.6	4.4	3.9
3	15	2.3	0.6	5.0	3.7
3	16	2.5	0.6	5.6	3.4
3	17	2.6	0.6	5.7	3.4
3	18	2.6	0.6	5.9	3.2
3	19	2.7	0.6	7.7	2.9
3	20	2.9	0.6	7.5	3.2
3	21	3.0	0.6	7.3	3.0
3	22	3.1	0.6	7.2	2.9
3	23	3.4	0.6	7.1	2.9
3	24	3.5	0.6	7.1	2.8
3	25	3.6	0.6	5.9	2.9
3	26	3.8	0.6	6.1	3.0
3	27	4.1	1.1	6.7	3.0
3	28	4.3	1.1	6.7	3.3

TABLE B-4 POUGHKEEPSIE WATER WORKS DATA, MEAN, MINIMUM, AND MAXIMUM TEMPERATURE (C) FOR EACH DAY OF THE YEAR, 1951-1992

Month	Day	Long Term Temperature (1951-1991) Mean	Minimum	Maximum	1992 Actual Temperatures
3	29	4.5	1.1	6.7	3.5
3	30	4.6	1.1	7.8	3.7
3	31	5.0	1.1	8.3	3.9
4	1	5.2	1.7	9.4	4.1
4	2	5.4	2.2	8.3	4.4
4	3	5.5	2.8	8.9	4.9
4	4	5.8	2.8	8.9	5.0
4	5	6.0	2.8	8.9	5.3
4	6	6.1	3.3	8.9	5.5
4	7	6.2	2.8	9.4	5.8
4	8	6.4	2.8	9.4	5.6
4	9	6.4	2.8	9.2	5.9
4	10	6.5	2.8	10.2	6.2
4	11	6.8	2.8	11.2	6.3
4	12	7.0	2.8	11.4	6.5
4	13	7.2	2.8	11.4	6.9
4	14	7.3	2.8	11.4	6.9
4	15	7.5	2.8	11.5	7.1
4	16	7.7	3.3	11.8	7.5
4	17	7.9	3.9	11.7	7.5
4	18	8.2	5.6	11.8	7.8
4	19	8.4	5.6	12.2	8.0
4	20	8.7	6.1	12.2	8.3
4	21	9.0	6.1	12.2	8.2
4	22	9.2	6.7	12.8	8.5
4	23	9.4	6.7	12.8	8.7
4	24	9.6	6.7	13.3	9.0
4	25	9.7	6.7	13.3	9.3
4	26	10.0	6.7	13.3	10.0
4	27	10.1	7.2	13.3	10.4
4	28	10.4	7.8	13.3	11.0
4	29	10.6	8.3	13.9	11.7
4	30	10.9	8.9	13.9	11.9
5	1	11.1	8.9	14.4	12.0
5	2	11.4	8.9	14.4	12.2
5	3	11.6	8.9	14.4	12.4
5	4	11.9	8.9	15.0	12.5
5	5	12.0	8.9	15.0	13.3
5	6	12.2	8.9	15.0	12.4
5	7	12.5	8.9	15.0	12.6
5	8	12.6	8.9	15.1	13.2
5	9	12.7	8.9	15.6	13.4
5	10	12.9	8.9	16.1	13.6
5	11	13.0	9.4	16.1	13.8

TABLE B-4 POUGHKEEPSIE WATER WORKS DATA, MEAN, MINIMUM, AND MAXIMUM TEMPERATURE (C) FOR EACH DAY OF THE YEAR, 1951-1992

		Long Term Temperature (1951-1991)			1992 Actual
Month	Day	Mean	Minimum	Maximum	Temperatures
5	12	13.1	9.4	16.1	13.9
5	13	13.3	10.0	16.2	14.1
5	14	13.5	10.6	16.7	14.6
5	15	13.7	11.1	16.7	14.8
5	16	14.1	11.1	17.2	15.0
5	17	14.3	11.7	17.2	15.5
5	18	14.5	12.2	17.3	15.7
5	19	14.7	12.2	17.5	15.9
5	20	15.0	12.2	17.8	16.0
5	21	15.2	12.8	18.0	16.3
5	22	15.5	12.8	18.5	16.5
5	23	15.7	12.8	18.9	16.7
5	24	15.9	12.8	19.0	16.6
5	25	16.1	12.8	19.3	16.0
5	26	16.3	12.2	19.4	15.3
5	27	16.5	12.2	20.6	16.9
5	28	16.8	12.2	20.6	17.0
5	29	17.0	12.8	20.7	17.4
5	30	17.2	12.8	21.5	17.5
5	31	17.3	13.3	21.3	17.8
6	1	17.7	13.3	22.0	17.8
6	2	17.9	13.3	22.2	17.8
6	3	18.1	14.4	22.1	17.6
6	4	18.3	13.9	22.5	17.9
6	5	18.5	15.0	22.2	18.2
6	6	18.6	15.6	22.4	18.5
6	7	18.8	15.0	22.4	19.0
6	8	19.1	16.1	22.5	19.3
6	9	19.2	16.1	23.0	19.4
6	10	19.5	16.1	23.2	19.6
6	11	19.7	17.2	23.4	19.9
6	12	19.8	17.2	23.3	20.0
6	13	20.0	17.8	23.4	20.5
6	14	20.1	17.8	23.3	20.9
6	15	20.2	17.8	23.5	21.0
6	16	20.4	17.8	23.8	21.0
6	17	20.4	17.8	23.8	21.1
6	18	20.7	17.8	24.2	21.3
6	19	20.7	17.8	24.1	21.3
6	20	20.9	17.8	24.0	21.1
6	21	21.2	17.8	24.3	21.0
6	22	21.4	17.2	24.3	21.1
6	23	21.5	17.2	24.1	21.0
6	24	21.6	17.8	24.1	21.4

TABLE B-4 POUGHKEEPSIE WATER WORKS DATA, MEAN, MINIMUM, AND MAXIMUM TEMPERATURE (C) FOR EACH DAY OF THE YEAR, 1951-1992

Month	Day	Long Term Temperature (1951-1991) Mean	Minimum	Maximum	1992 Actual Temperatures
6	25	21.7	17.8	24.2	21.3
6	26	21.9	17.8	24.5	21.4
6	27	22.0	17.8	24.4	21.6
6	28	22.1	17.8	24.4	20.1
6	29	22.3	17.8	25.0	21.9
6	30	22.4	17.8	25.0	22.1
7	1	22.5	18.9	25.4	22.2
7	2	22.7	18.9	25.0	22.2
7	3	22.8	19.4	25.0	22.2
7	4	22.8	19.4	25.0	22.2
7	5	23.0	20.0	25.6	22.2
7	6	23.1	20.0	25.6	22.3
7	7	23.2	20.0	25.6	22.4
7	8	23.3	20.0	25.6	22.7
7	9	23.4	20.0	25.6	22.6
7	10	23.4	20.6	25.6	23.2
7	11	23.6	20.6	25.6	23.2
7	12	23.7	21.1	26.1	23.5
7	13	23.9	21.7	26.7	23.6
7	14	23.9	21.7	26.7	23.8
7	15	24.1	21.7	26.7	23.9
7	16	24.2	22.2	26.7	23.9
7	17	24.3	22.2	26.1	23.9
7	18	24.3	22.2	26.1	24.0
7	19	24.5	22.2	26.1	24.5
7	20	24.6	22.2	26.7	24.3
7	21	24.6	22.8	26.1	24.6
7	22	24.7	22.2	26.7	24.5
7	23	24.8	22.2	26.7	24.5
7	24	24.8	22.8	26.7	24.2
7	25	24.8	22.8	26.7	24.3
7	26	24.9	22.8	26.7	24.5
7	27	25.1	22.8	27.2	24.2
7	28	25.1	22.8	27.2	24.1
7	29	25.2	22.8	26.7	24.1
7	30	25.2	23.3	26.7	24.4
7	31	25.2	23.3	26.7	24.5
8	1	25.2	23.3	26.7	24.2
8	2	25.3	22.8	26.7	24.2
8	3	25.3	23.3	26.8	24.3
8	4	25.3	23.3	26.9	24.4
8	5	25.3	23.3	27.2	24.1
8	6	25.3	23.3	27.2	23.9
8	7	25.3	23.3	27.4	23.9

TABLE B-4 POUGHKEEPSIE WATER WORKS DATA, MEAN, MINIMUM, AND MAXIMUM TEMPERATURE (C) FOR EACH DAY OF THE YEAR, 1951-1992

		Long Term Temperature (1951-1991)			1992 Actual
Month	Day	Mean	Minimum	Maximum	Temperatures
8	8	25.3	23.3	27.4	23.8
8	9	25.3	23.3	27.8	23.9
8	10	25.3	23.3	27.8	24.1
8	11	25.3	22.8	27.8	24.1
8	12	25.3	22.8	28.1	24.1
8	13	25.2	22.2	28.0	24.2
8	14	25.1	22.2	28.4	23.9
8	15	25.0	22.2	28.4	23.8
8	16	25.0	22.2	28.4	23.6
8	17	25.0	22.2	28.1	23.6
8	18	24.9	22.8	28.0	23.3
8	19	24.9	22.2	27.7	23.5
8	20	24.9	22.8	27.6	23.4
8	21	24.8	22.2	27.5	22.9
8	22	24.8	22.2	27.1	23.0
8	23	24.7	22.8	26.9	23.2
8	24	24.7	22.2	26.7	23.4
8	25	24.5	21.7	26.2	23.4
8	26	24.5	21.7	26.1	23.5
8	27	24.5	22.2	26.2	23.5
8	28	24.4	22.2	25.8	23.9
8	29	24.3	22.2	26.7	23.8
8	30	24.3	22.2	26.1	23.7
8	31	24.2	22.2	26.1	23.5
9	1	24.2	22.2	26.1	23.6
9	2	24.1	22.2	26.7	23.2
9	3	24.0	22.2	26.1	23.5
9	4	23.9	22.2	25.6	23.0
9	5	23.8	21.7	25.6	23.1
9	6	23.8	22.2	25.6	23.0
9	7	23.6	21.7	25.6	22.8
9	8	23.5	21.7	25.6	23.0
9	9	23.4	21.7	25.6	22.8
9	10	23.3	21.1	25.6	23.1
9	11	23.2	21.1	25.6	23.1
9	12	23.1	21.1	25.6	22.8
9	13	22.9	20.0	25.6	22.5
9	14	22.7	18.9	25.0	22.6
9	15	22.5	17.8	25.0	22.7
9	16	22.3	17.2	25.0	22.6
9	17	22.2	17.2	25.0	22.6
9	18	22.0	16.7	25.0	22.7
9	19	21.9	16.7	23.9	22.9
9	20	21.8	17.2	23.9	22.6

TABLE B-4 POUGHKEEPSIE WATER WORKS DATA, MEAN, MINIMUM, AND MAXIMUM TEMPERATURE (C) FOR EACH DAY OF THE YEAR, 1951-1992

Month	Day	Long Term Temperature (1951-1991) Mean	Minimum	Maximum	1992 Actual Temperatures
9	21	21.5	16.7	23.3	22.8
9	22	21.3	16.1	23.3	22.8
9	23	21.0	16.1	22.8	22.1
9	24	20.8	15.6	22.8	21.4
9	25	20.7	15.6	22.8	21.1
9	26	20.5	15.6	22.2	20.9
9	27	20.3	16.1	22.2	20.7
9	28	20.2	15.6	22.2	20.7
9	29	19.9	15.6	22.2	20.4
9	30	19.7	15.6	22.2	20.0
10	1	19.6	16.1	22.2	19.6
10	2	19.4	15.6	22.2	19.4
10	3	19.3	15.6	22.2	19.0
10	4	19.0	15.6	21.7	19.1
10	5	18.7	15.0	21.1	18.7
10	6	18.6	15.0	21.1	18.2
10	7	18.5	15.0	21.1	18.1
10	8	18.2	14.4	21.1	17.4
10	9	18.0	14.4	21.1	17.5
10	10	17.9	14.4	21.1	17.4
10	11	17.7	13.9	21.1	17.2
10	12	17.4	13.3	21.1	17.0
10	13	17.2	13.3	20.0	16.9
10	14	17.0	12.8	21.1	16.4
10	15	16.8	12.2	20.0	16.4
10	16	16.6	12.2	20.0	16.6
10	17	16.3	12.2	20.0	16.3
10	18	16.1	12.2	20.0	16.0
10	19	15.9	11.7	20.0	16.1
10	20	15.7	10.6	19.4	15.4
10	21	15.3	10.6	18.9	15.2
10	22	15.1	10.0	18.9	14.4
10	23	15.0	10.0	18.9	14.0
10	24	14.7	10.0	18.3	13.8
10	25	14.5	10.0	18.3	13.7
10	26	14.3	10.0	17.8	13.0
10	27	14.1	9.4	17.8	12.7
10	28	14.0	8.9	17.8	12.5
10	29	13.7	8.3	17.8	12.7
10	30	13.5	7.8	16.7	12.4
10	31	13.2	7.2	16.7	12.2
11	1	13.0	7.2	16.7	12.0
11	2	12.8	7.2	16.1	11.4
11	3	12.7	7.2	16.1	11.4

TABLE B-4 POUGHKEEPSIE WATER WORKS DATA, MEAN, MINIMUM, AND MAXIMUM TEMPERATURE (C) FOR EACH DAY OF THE YEAR, 1951-1992

		Long Term Temperature (1951-1991)			1992 Actual
Month	Day	Mean	Minimum	Maximum	Temperatures
11	4	12.5	7.2	16.1	10.7
11	5	12.2	7.2	15.6	10.5
11	6	12.0	6.7	15.6	10.1
11	7	11.7	6.1	15.0	9.7
11	8	11.4	6.1	15.0	9.1
11	9	11.2	5.6	15.0	9.0
11	10	11.0	5.0	15.0	9.0
11	11	10.7	5.0	15.0	9.0
11	12	10.5	5.0	15.0	8.8
11	13	10.3	5.0	13.3	8.7
11	14	10.0	5.0	13.3	8.6
11	15	9.8	5.0	12.8	7.6
11	16	9.6	5.0	12.8	7.4
11	17	9.5	5.0	12.8	7.4
11	18	9.3	5.0	12.8	7.3
11	19	8.9	5.0	12.2	6.9
11	20	8.7	5.0	11.1	6.8
11	21	8.5	3.9	11.1	6.6
11	22	8.3	3.9	11.1	6.5
11	23	8.1	3.9	11.1	7.3
11	24	7.8	3.9	10.6	6.7
11	25	7.6	3.9	10.6	6.3
11	26	7.4	3.3	10.0	6.3
11	27	7.1	3.3	10.0	6.3
11	28	7.0	3.3	10.0	6.1
11	29	6.8	3.3	10.0	6.0
11	30	6.5	2.8	10.0	5.8
12	1	6.3	2.2	9.4	6.0
12	2	6.1	3.0	8.9	6.1
12	3	5.8	2.2	8.9	6.1
12	4	5.6	1.3	8.3	6.0
12	5	5.4	2.8	7.8	6.3
12	6	5.2	2.6	7.8	6.1
12	7	5.0	2.0	7.8	6.5
12	8	4.8	2.0	7.8	6.2
12	9	4.6	1.7	7.2	5.3
12	10	4.3	1.1	7.2	4.9
12	11	4.1	1.1	7.2	5.6
12	12	3.9	0.6	7.2	4.5
12	13	3.7	0.6	6.7	4.5
12	14	3.6	0.6	6.7	3.9
12	15	3.4	0.6	6.7	3.8
12	16	3.2	0.6	6.7	3.0
12	17	3.1	0.6	5.6	2.7

TABLE B-4 POUGHKEEPSIE WATER WORKS DATA, MEAN, MINIMUM, AND MAXIMUM TEMPERATURE (C) FOR EACH DAY OF THE YEAR, 1951-1992

Month	Day	Long Term Temperature (1951-1991) Mean	Minimum	Maximum	1992 Actual Temperatures
12	18	2.9	0.6	5.6	2.6
12	19	2.7	0.6	5.0	2.5
12	20	2.7	0.6	5.0	2.5
12	21	2.4	0.6	4.4	2.5
12	22	2.2	0.6	4.4	2.3
12	23	2.1	0.6	5.0	2.5
12	24	2.1	0.6	5.6	1.9
12	25	2.0	0.6	5.6	1.5
12	26	2.0	0.0	6.1	1.4
12	27	1.9	0.0	6.1	1.2
12	28	1.8	0.0	6.1	1.1
12	29	1.8	0.0	6.1	1.5
12	30	1.7	0.6	6.1	1.5
12	31	1.7	0.0	5.0	1.3

Table B-5. 1992 LONG RIVER/FALL SHOALS WATER QUALITY DATA
WEIGHTED MEAN TEMPERATURE (C) BY REGION AND WEEK

WEEK BEGINNING MONDAY	REGIONS											
	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
13APR92	7.4	7.4	7.5	7.1	6.3	6.4	6.4	6.7	7.2	7.9	6.6	5.8
20APR92	8.8	9.3	9.2	8.8	9.2	8.9	8.3	8.5	8.0	8.2	8.4	8.5
27APR92	10.6	10.5	10.3	10.2	9.9	10.4	11.3	11.4	10.9	10.1	8.8	8.3
04MAY92	12.7	12.3	11.7	12.0	12.6	12.3	12.2	12.3	12.1	12.1	11.7	11.2
11MAY92	13.2	13.8	14.2	14.0	14.7	14.8	14.4	14.5	14.8	14.1	14.2	15.1
18MAY92	15.7	15.9	16.0	16.9	15.8	15.9	15.9	16.2	16.0	16.8	17.4	17.2
25MAY92	16.2	16.5	16.8	17.0	16.6	16.9	16.5	17.0	17.1	17.4	17.9	18.3
01JUN92	17.0	17.2	17.6	17.3	17.6	18.0	18.0	17.7	17.3	17.9	18.0	17.2
08JUN92	19.9	20.2	19.8	19.7	20.0	20.1	19.7	19.6	19.5	19.6	19.7	19.6
15JUN92	21.8	21.7	23.4	22.2	21.3	21.4	21.4	21.4	21.4	21.9	22.1	22.5
22JUN92	20.4	20.6	22.2	21.9	21.5	21.4	21.7	21.2	21.1	21.1	21.2	21.8
29JUN92	20.0	21.2	21.3	22.0	22.3	22.8	22.9	22.5	22.6	22.7	23.1	22.9
06JUL92	21.6	22.5	23.5	23.5	23.6	23.6	23.1	22.9	22.8	22.8	22.8	22.9
13JUL92	24.0	24.6	25.2	25.0	24.3	24.6	24.4	24.0	24.3	23.9	24.1	24.1
20JUL92	24.8	25.7	26.3	25.6	25.0	25.2	25.2	.	.	.	.	.
27JUL92	23.8	24.6	25.3	25.2	24.1	24.2	24.6	24.2	24.0	23.7	23.9	23.6
03AUG92	23.2	23.9	24.5	24.2	23.9	24.1	24.4	.	.	.	.	.
10AUG92	23.8	24.1	24.5	24.7	24.1	24.7	24.6	23.9	24.0	23.7	23.5	23.2
17AUG92	22.3	22.9	23.9	24.1	23.3	23.2	23.4	.	.	.	.	.
24AUG92	23.5	23.9	25.3	25.4	23.6	23.4	23.4	22.3	22.3	22.2	22.1	21.6
31AUG92	22.7	22.7	23.5	24.1	22.9	22.8	23.0	.	.	.	.	.
07SEP92	22.4	22.7	24.2	24.1	22.9	23.0	22.8	21.8	21.6	21.3	21.7	21.3
14SEP92	21.5	21.8	22.9	23.8	23.0	23.2	22.9	.	.	.	.	.
21SEP92	21.3	21.1	21.7	22.4	22.8	22.8	23.2	22.1	21.4	20.9	21.1	21.2
28SEP92	19.3	19.6	20.3	20.6	20.0	20.2	20.1	.	.	.	.	.
05OCT92	16.0	16.4	17.2	17.7	17.5	17.4	17.7	16.7	15.5	15.2	15.4	14.4
12OCT92	16.4	16.6	17.2	17.6	17.1	17.1	16.4	.	.	.	.	.
19OCT92	14.9	14.6	14.8	15.9	14.8	13.8	13.3	12.6	11.7	10.7	10.3	9.4

NOTE: (.) indicates no sampling.

TABLE B-6 MEAN TEMPERATURE (C) BY REGION AND WEEK FROM BEACH SEINE SURVEY, 1992

Week Beginning Monday	Regions											
	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
22JUN92	21.9	22.6	21.1	23.1	21.8	23.1	21.6	20.6	20.2	21.2	21.0	20.5
06JUL92	22.2	22.2	24.2	24.2	23.9	25.1	23.2	23.2	22.9	22.1	23.1	21.6
20JUL92	26.0	26.1	26.0	25.7	25.4	26.1	25.6	24.6	23.6	24.6	24.5	23.2
17AUG92	23.7	23.1	23.8	25.1	24.0	25.8	24.8	23.9	23.6	23.6	22.8	22.2
31AUG92	23.9	23.7	23.1	24.0	24.5	24.6	23.2	22.8	22.8	23.4	23.1	22.6
14SEP92	22.6	22.1	22.1	24.0	23.3	23.7	22.8	22.0	22.0	22.1	21.5	19.9
28SEP92	19.3	19.4	18.4	20.6	18.6	18.0	18.7	18.5	18.5	18.6	17.1	17.1
12OCT92	16.4	16.0	17.1	17.9	17.7	17.1	16.0	15.2	15.1	14.5	13.3	13.2
26OCT92	12.1	11.7	13.1	14.1	12.9	12.0	12.7	11.2	10.3	9.7	8.2	8.0

Table B-7. 1992 LONG RIVER/FALL SHOALS WATER QUALITY DATA
WEIGHTED MEAN SALINITY (PPT) BY REGION AND WEEK

WEEK BEGINNING MONDAY	REGIONS											
	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
13APR92	7.8	3.8	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
20APR92	2.7	2.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
27APR92	7.1	6.8	2.1	1.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
04MAY92	3.0	1.4	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
11MAY92	8.5	2.6	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
18MAY92	3.2	1.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
25MAY92	12.1	7.9	4.1	5.5	2.7	1.2	0.1	0.1	0.1	0.1	0.1	0.1
01JUN92	9.8	7.9	5.8	3.9	1.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2
08JUN92	5.9	1.5	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
15JUN92	5.5	3.9	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
22JUN92	9.3	6.2	3.1	1.9	0.8	0.1	0.1	0.1	0.1	0.1	0.1	0.1
29JUN92	13.0	9.4	6.0	4.2	1.6	0.6	0.1	0.1	0.1	0.1	0.1	0.1
06JUL92	11.5	7.6	5.1	3.3	1.0	0.4	0.1	0.1	0.1	0.1	0.1	0.1
13JUL92	11.6	7.7	4.8	2.2	0.4	0.2	0.1	0.1	0.1	0.1	0.1	0.1
20JUL92	10.7	6.2	3.1	1.3	0.2	0.1	0.1	.	.	.	.	.
27JUL92	11.1	6.7	4.8	3.0	0.6	0.2	0.1	0.1	0.1	0.1	0.1	0.1
03AUG92	10.6	4.0	3.3	1.1	0.2	0.2	0.2	.	.	.	.	.
10AUG92	9.9	7.4	3.9	3.1	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1
17AUG92	10.9	8.0	4.5	2.4	0.4	0.1	0.1	.	.	.	.	.
24AUG92	12.3	8.2	5.4	4.5	1.2	0.3	0.1	0.1	0.1	0.1	0.1	0.1
31AUG92	9.6	6.6	4.4	2.3	0.7	0.4	0.2	.	.	.	.	.
07SEP92	12.6	9.5	5.1	4.3	1.3	0.4	0.1	0.1	0.1	0.1	0.1	0.1
14SEP92	10.9	7.6	4.5	2.8	0.7	0.2	0.1	.	.	.	.	.
21SEP92	12.6	7.2	4.6	2.8	0.6	0.3	0.1	0.1	0.1	0.1	0.1	0.1
28SEP92	10.6	7.0	3.7	1.7	0.3	0.1	0.1	.	.	.	.	.
05OCT92	13.0	10.6	7.3	5.3	1.7	0.2	0.1	0.1	0.1	0.1	0.1	0.1
12OCT92	13.9	9.4	6.8	4.4	1.3	0.3	0.1	.	.	.	.	.
19OCT92	11.2	5.6	5.2	2.6	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1

NOTE: (.) indicates no sampling.

TABLE B-8 MEAN SALINITY (PPT) BY REGION AND WEEK FROM BEACH SEINE SURVEY, 1992

Week Beginning Monday	Regions											
	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
22JUN92	5.0	1.7	3.3	1.8	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
06JUL92	9.3	7.3	4.2	2.9	0.9	0.4	0.1	0.1	0.1	0.1	0.1	0.1
20JUL92	6.1	4.4	2.6	2.0	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2
03AUG92	6.7	4.7	2.5	1.0	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.1
17AUG92	7.3	4.3	3.4	1.6	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2
31AUG92	11.9	6.7	3.8	1.9	0.6	0.3	0.2	0.2	0.2	0.2	0.2	0.2
14SEP92	9.1	6.6	4.2	2.8	0.8	0.3	0.2	0.2	0.2	0.2	0.2	0.2
28SEP92	9.4	6.2	2.6	1.9	0.8	0.1	0.2	0.2	0.2	0.2	0.2	0.2
12OCT92	9.0	6.2	5.3	4.6	1.0	0.3	0.2	0.2	0.2	0.2	0.2	0.2
26OCT92	8.5	4.4	2.2	1.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2

TABLE B-9 1992 LONG RIVER/FALL SHOALS WATER QUALITY DATA
WEIGHTED MEAN DISSOLVED OXYGEN (MG/L) BY REGION AND WEEK

WEEK BEGINNING MONDAY	REGIONS YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
13APR92	10.2	10.7	11.7	11.3	10.9	11.0	10.8	11.1	11.3	.	11.4	12.1
20APR92	11.0	11.0	11.8	11.0	11.0	11.1	11.4	11.8	11.7	12.1	12.2	12.3
27APR92	10.3	10.2	10.2	10.3	11.0	10.6	10.1	10.0	10.2	10.7	11.6	11.8
04MAY92	10.1	10.3	10.5	10.3	9.7	9.7	9.9	9.9	9.7	9.8	10.3	11.0
11MAY92	8.3	9.1	9.4	9.4	9.6	9.1	8.9	9.0	9.5	9.6	9.7	9.4
18MAY92	8.6	9.0	9.5	8.9	8.6	8.6	8.3	9.0	9.3	9.5	8.7	8.8
25MAY92	8.6	8.8	8.9	8.0	7.7	8.1	8.4	9.4	9.9	10.3	10.0	7.5
01JUN92	8.1	8.3	8.1	7.8	8.1	8.6	8.7	8.9	8.7	8.2	8.3	9.4
08JUN92	7.4	7.8	8.1	8.1	7.9	9.4	9.5	9.6	10.1	9.9	9.3	9.5
15JUN92	7.6	7.5	7.7	8.1	8.3	8.6	8.2	8.5	8.5	9.3	9.4	7.5
22JUN92	7.6	7.2	7.7	6.9	7.2	8.2	8.1	8.2	9.0	8.9	8.9	7.0
29JUN92	7.5	8.2	7.3	6.9	6.6	7.3	7.7	8.4	8.9	9.0	9.8	7.4
06JUL92	4.4	4.5	5.1	5.8	7.0	7.3	6.8	7.2	7.9	8.7	9.1	7.9
13JUL92	6.1	6.6	6.3	5.9	6.3	6.5	6.5	6.7	8.0	8.1	7.7	7.2
20JUL92	5.9	6.1	5.9	6.0	6.6	6.7	6.6	.	.	.	.	.
27JUL92	5.5	6.5	6.4	5.9	6.0	6.5	6.4	6.4	8.1	8.6	8.4	7.6
03AUG92	5.4	6.8	6.8	6.3	6.9	7.2	6.9	.	.	.	.	.
10AUG92	6.2	6.1	6.6	6.3	6.3	6.8	6.6	6.8	7.7	8.3	8.8	6.8
17AUG92	5.7	5.7	5.3	5.5	5.8	5.9	6.0	.	.	.	.	.
24AUG92	6.2	6.9	6.5	6.5	7.2	8.0	7.8	7.7	9.4	10.3	11.3	9.4
31AUG92	6.3	7.0	6.9	6.2	6.6	7.0	6.8	.	.	.	.	.
07SEP92	5.9	5.8	6.3	6.0	6.7	7.0	6.7	6.7	7.2	7.5	7.6	7.4
14SEP92	5.6	6.6	6.5	6.5	6.8	7.4	7.2	.	.	.	.	.
21SEP92	6.9	7.3	10.4	8.2	6.6	6.8	6.7	6.6	7.5	7.8	8.4	7.2
28SEP92	5.8	6.1	6.6	6.7	7.3	7.1	7.7	.	.	.	.	.
05OCT92	7.9	7.5	7.4	7.2	8.0	8.5	8.3	8.3	8.8	9.7	10.6	9.3
12OCT92	7.0	7.3	7.0	7.6	8.1	8.3	8.7	.	.	.	.	.
19OCT92	7.8	8.2	8.6	8.0	8.3	7.5	7.4	7.8	8.1	8.1	8.2	9.4

(.) indicates no sampling.

TABLE B-10 MEAN DISSOLVED OXYGEN (mg/L) BY REGION AND WEEK FROM BEACH SEINE SURVEY, 1992

Week Beginning Monday	Regions											
	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
22JUN92	9.6	11.4	7.6	7.5	8.1	9.2	8.3	8.1	8.0	9.2	8.9	6.6
06JUL92	6.8	7.1	7.9	7.1	7.4	8.2	7.1	8.0	8.2	8.2	9.9	7.8
20JUL92	7.8	8.1	9.4	6.4	7.6	7.7	8.1	7.5	7.5	8.0	9.5	7.5
03AUG92	7.0	9.0	10.1	7.2	7.8	8.6	7.5	7.7	8.9	9.4	9.9	8.5
17AUG92	6.4	7.3	7.3	6.6	6.5	7.7	7.2	6.8	7.1	7.7	8.0	7.3
31AUG92	8.3	9.3	7.6	7.7	8.1	8.1	8.6	9.9	9.2	9.7	8.8	8.0
14SEP92	8.4	9.0	8.7	9.6	8.9	9.0	8.7	8.9	9.2	10.5	10.4	9.1
28SEP92	10.4	10.5	8.5	7.5	7.3	7.9	10.0	9.9	8.2	7.9	7.6	7.7
12OCT92	7.7	8.0	9.1	10.0	7.9	8.7	9.0	10.1	10.2	10.3	9.9	10.2
26OCT92	9.0	10.0	9.5	9.0	9.5	9.8	9.9	7.9	8.4	8.6	9.3	9.6

TABLE B-11. 1992 LONG RIVER/FALL SHOALS WATER QUALITY DATA
WEIGHTED MEAN PERCENT OXYGEN SATURATION BY REGION AND WEEK

WEEK BEGINNING MONDAY	REGIONS YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
13APR92	89.6	91.1	97.8	93.7	88.6	88.9	88.1	90.8	92.9	.	91.6	97.1
20APR92	96.5	97.6	102.4	94.4	95.8	95.6	97.0	100.7	99.2	102.5	104.1	105.5
27APR92	97.7	96.0	92.8	92.1	97.1	94.5	92.6	91.7	91.9	94.9	99.9	100.3
04MAY92	97.0	97.4	97.0	95.4	90.9	91.2	92.3	92.3	89.9	90.9	94.9	100.6
11MAY92	84.3	89.4	91.5	90.9	94.5	90.2	86.7	88.7	94.1	93.9	94.3	93.9
18MAY92	88.4	91.7	96.4	92.3	86.4	86.6	84.3	91.8	94.7	97.5	90.2	91.1
25MAY92	94.1	94.6	93.8	85.9	80.6	84.2	85.9	97.0	102.3	107.5	105.4	79.6
01JUN92	89.7	91.1	87.9	83.4	85.5	91.2	91.9	93.7	90.3	86.1	87.3	97.5
08JUN92	84.2	87.4	89.3	88.5	86.8	103.2	103.3	105.4	109.7	108.3	101.7	103.2
15JUN92	89.7	87.6	90.8	92.7	93.7	96.7	92.5	96.5	95.5	106.4	108.0	86.1
22JUN92	89.1	82.5	90.2	80.0	81.5	92.8	91.6	92.7	101.1	99.8	99.8	80.3
29JUN92	89.5	98.4	85.4	80.6	77.0	85.6	89.3	96.4	102.9	104.1	114.4	85.7
06JUL92	53.7	54.8	61.5	69.6	82.5	86.7	79.7	83.5	91.2	101.2	106.2	91.6
13JUL92	77.8	83.0	78.9	72.4	75.6	78.5	77.5	79.9	95.1	96.2	91.8	85.2
20JUL92	75.7	77.2	74.8	73.9	79.6	81.5	80.2	.	.	.	.	.
27JUL92	69.7	81.7	80.7	73.0	72.1	77.8	76.6	75.8	96.6	101.8	99.9	89.2
03AUG92	68.0	82.1	82.6	75.8	82.2	86.0	82.8	.	.	.	.	.
10AUG92	77.7	75.4	81.4	77.0	74.5	82.3	79.1	80.9	92.0	98.1	103.1	79.6
17AUG92	70.7	70.0	64.2	66.3	68.4	69.3	70.8	.	.	.	.	.
24AUG92	78.4	86.3	81.6	82.0	85.8	94.2	91.1	88.3	108.1	118.5	129.9	107.2
31AUG92	78.1	85.1	83.4	75.3	77.6	81.0	79.6	.	.	.	.	.
07SEP92	74.3	70.9	77.4	73.3	78.5	81.2	78.0	76.8	81.3	85.1	86.0	83.6
14SEP92	68.7	78.6	77.6	77.9	79.3	86.5	83.6	.	.	.	.	.
21SEP92	83.9	86.5	121.6	96.5	76.7	78.6	78.9	75.6	84.9	87.8	94.6	80.8
28SEP92	68.0	69.9	74.4	75.8	80.0	79.0	84.4	.	.	.	.	.
05OCT92	87.1	82.3	81.1	78.8	84.6	89.3	87.7	85.8	88.2	97.1	106.0	91.0
12OCT92	78.7	79.6	76.6	82.2	85.1	86.6	88.8	.	.	.	.	.
19OCT92	83.3	83.6	87.7	82.7	82.6	72.9	70.7	73.7	75.0	73.4	73.3	82.0

NOTE: (.) indicates no sampling.

TABLE B-12 MEAN PERCENT OXYGEN SATURATION BY REGION AND WEEK FROM BEACH SEINE SURVEY, 1992

Week Beginning Monday	Regions											
	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
22JUN92	113.4	133.8	87.5	88.4	92.8	107.5	94.0	90.2	87.9	103.2	99.4	73.7
06JUL92	83.4	85.7	96.1	86.7	87.6	99.2	82.7	94.1	95.4	94.2	115.1	88.1
20JUL92	99.3	103.2	118.2	79.5	93.1	95.2	99.5	90.3	88.2	96.3	114.2	87.3
03AUG92	87.6	113.9	127.3	88.4	93.9	103.7	89.3	90.2	105.3	111.8	117.6	99.4
17AUG92	79.4	87.1	87.9	81.1	77.0	94.6	87.3	80.6	83.9	91.0	92.6	83.8
31AUG92	106.6	115.0	90.4	92.2	96.9	97.9	100.7	114.3	107.2	113.8	102.8	92.4
14SEP92	102.6	108.2	102.6	116.5	104.6	106.7	100.7	101.7	104.7	119.9	118.3	99.7
28SEP92	120.1	118.7	92.7	84.7	78.7	83.8	107.4	105.7	88.0	84.1	78.6	79.9
12OCT92	83.5	85.1	98.0	108.7	84.0	90.1	91.5	100.3	101.9	100.7	94.8	97.0
26OCT92	89.0	94.9	91.9	87.9	90.3	91.4	93.2	72.4	75.0	75.3	79.1	81.3

TABLE B-13. 1992 LONG RIVER/FALL SHOALS WATER QUALITY DATA
WEIGHTED MEAN CONDUCTIVITY (MS/CM @ 25 C) BY REGION AND WEEK

WEEK BEGINNING MONDAY	REGIONS											
	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
13APR92	13.3	6.6	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2
20APR92	4.6	4.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
27APR92	11.9	11.4	3.7	1.8	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2
04MAY92	5.2	2.5	0.9	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
11MAY92	14.4	4.6	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
18MAY92	5.6	2.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
25MAY92	20.0	13.3	7.1	9.5	4.8	2.1	0.2	0.2	0.2	0.2	0.2	0.2
01JUN92	16.7	13.5	10.1	6.8	1.8	0.2	0.2	0.2	0.2	0.2	0.3	0.3
08JUN92	10.2	2.7	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
15JUN92	9.4	6.8	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
22JUN92	15.6	10.6	5.4	3.3	1.5	0.2	0.2	0.2	0.2	0.2	0.2	0.2
29JUN92	21.8	16.1	10.3	7.4	2.9	1.0	0.3	0.2	0.2	0.2	0.2	0.2
06JUL92	19.4	13.0	8.9	5.8	1.8	0.7	0.2	0.2	0.2	0.2	0.2	0.2
13JUL92	19.5	13.2	8.4	3.9	0.6	0.3	0.2	0.2	0.2	0.2	0.2	0.2
20JUL92	18.0	10.8	5.5	2.3	0.3	0.2	0.2	.	.	.	.	.
27JUL92	18.7	11.6	8.4	5.2	1.1	0.3	0.2	0.2	0.3	0.3	0.2	0.2
03AUG92	17.9	7.0	5.7	1.9	0.5	0.4	0.3	.	.	.	.	.
10AUG92	16.8	12.6	6.9	5.5	0.6	0.3	0.3	0.3	0.2	0.2	0.2	0.2
17AUG92	18.3	13.8	7.9	4.3	0.7	0.3	0.3	.	.	.	.	.
24AUG92	20.6	14.0	9.3	7.9	2.0	0.5	0.3	0.3	0.2	0.2	0.2	0.2
31AUG92	16.3	11.4	7.7	4.1	1.2	0.6	0.3	.	.	.	.	.
07SEP92	21.0	16.2	8.9	7.5	2.3	0.7	0.3	0.3	0.2	0.2	0.2	0.2
14SEP92	18.4	13.0	7.8	4.9	1.2	0.3	0.3	.	.	.	.	.
21SEP92	21.1	12.5	8.0	5.0	1.1	0.5	0.3	0.3	0.3	0.2	0.3	0.2
28SEP92	17.9	12.1	6.5	3.0	0.5	0.3	0.3	.	.	.	.	.
05OCT92	21.6	17.7	12.5	9.1	2.9	0.3	0.2	0.2	0.2	0.2	0.2	0.2
12OCT92	23.1	16.0	11.7	7.6	2.3	0.5	0.3	.	.	.	.	.
19OCT92	18.7	9.7	9.0	4.6	0.7	0.3	0.2	0.2	0.2	0.2	0.2	0.2

NOTE: (.) indicates no sampling

TABLE B-14 MEAN CONDUCTIVITY (mS/cm AT 25 C) BY REGION AND WEEK FROM BEACH SEINE SURVEY, 1992

Week Beginning Monday	Regions											
	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
22JUN92	8.7	3.0	5.7	3.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2
06JUL92	15.9	12.5	7.3	5.1	1.6	0.6	0.3	0.2	0.2	0.2	0.2	0.2
20JUL92	10.4	7.7	4.6	3.5	0.4	0.3	0.2	0.2	0.3	0.3	0.3	0.3
03AUG92	11.6	8.1	4.3	1.7	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2
17AUG92	12.5	7.6	5.9	2.9	0.6	0.3	0.3	0.3	0.3	0.3	0.3	0.3
31AUG92	20.0	11.5	6.6	3.3	1.0	0.5	0.3	0.3	0.3	0.3	0.3	0.3
14SEP92	15.5	11.4	7.3	5.0	1.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3
28SEP92	16.0	10.7	4.7	3.3	1.5	0.3	0.3	0.3	0.3	0.3	0.3	0.3
12OCT92	15.3	10.7	9.2	8.0	1.9	0.5	0.3	0.3	0.3	0.3	0.3	0.3
26OCT92	14.5	7.7	3.9	1.9	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3

APPENDIX C

DENSITY AND STANDING CROP ESTIMATES

APPENDIX C

LIST OF TABLES

APPENDIX C

LIST OF TABLES (Cont.)

APPENDIX C

LIST OF TABLES (Cont.)

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APPENDIX C

LIST OF TABLES (Cont.)

Table C-1 Regional Density (No./1,000m3) of Striped Bass Eggs in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.02
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.30
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.95	0.60	0.61	2.11	7.04	0.00	19.17	54.48	7.08
	SE		0.00	0.00	0.00	0.00	0.54	0.28	0.29	1.46	6.56	0.00	19.17	33.74	39.39
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	DENSITY	NS	0.00	0.00	0.32	15.23	1196.41	2428.23	27.69	487.33	196.17	0.00	0.00	0.00	362.61
	SE		0.00	0.00	0.32	9.36	407.06	1161.29	15.16	129.90	52.85	0.00	0.00	0.00	1238.66
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	DENSITY	NS	0.00	0.00	0.21	11.81	86.33	364.78	512.78	438.25	3571.71	404.48	1.54	0.00	449.32
	SE		0.00	0.00	0.21	3.92	62.79	97.72	266.11	273.44	1590.06	404.48	0.73	0.00	1688.49
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	DENSITY	NS	0.57	0.17	0.35	0.06	2.91	55.87	11.02	1251.29	60.44	102.16	65.76	0.00	129.22
	SE		0.57	0.17	0.25	0.06	1.53	29.03	9.82	1065.96	26.52	49.03	41.45	0.00	1068.66
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	DENSITY	NS	0.92	0.00	0.00	0.00	0.37	1.42	0.81	8.26	26.90	2.88	0.00	0.00	3.46
	SE		0.67	0.00	0.00	0.00	0.37	1.01	0.62	4.58	8.54	1.44	0.00	0.00	9.90
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	DENSITY	0.00	0.00	0.29	0.00	0.89	3.90	3.87	3.16	35.15	47.94	3.49	3.39	2.50	8.04
	SE	0.00	0.00	0.29	0.00	0.55	3.80	3.63	2.98	14.95	15.42	2.65	1.74	2.50	22.68
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	DENSITY	0.00	0.00	0.00	0.47	0.69	0.00	0.83	0.40	0.83	0.28	10.98	0.53	0.00	1.15
	SE	0.00	0.00	0.00	0.47	0.60	0.00	0.71	0.40	0.83	0.28	10.98	0.53	0.00	11.09
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-1 Regional Density (No./1,000m3) of Striped Bass Eggs
in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	2.43	0.00	1.22	0.00	0.00	0.00	0.00	0.00	0.28
	SE	0.00	0.00	0.00	0.00	0.00	2.16	0.00	1.22	0.00	0.00	0.00	0.00	0.00	2.48
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-2 Regional Standing Crop (In Thousands) of Striped Bass Eggs in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
18APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
25APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	38	38
01MAY	SE		0	0	0	0	0	0	0	0	0	0	0	38	38
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-	St. Crop	NS	0	0	0	0	196	84	182	348	996	0	3082	6977	11866
08MAY	SE		0	0	0	0	112	39	86	242	929	0	3082	4321	5396
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-	St. Crop	NS	0	0	48	3174	248203	339444	8254	80645	27752	0	0	0	707520
15MAY	SE		0	0	48	1950	84447	162338	4519	21496	7476	0	0	0	184465
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-	St. Crop	NS	0	0	31	2461	17910	50993	152877	72524	505290	71307	248	0	873641
22MAY	SE		0	0	31	817	13027	13660	79336	45250	224946	71307	117	0	253740
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-	St. Crop	NS	132	55	52	13	603	7810	3285	207070	8550	18011	10570	0	256150
30MAY	SE		132	55	37	13	318	4058	2928	176400	3752	8644	6662	0	176848
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-	St. Crop	NS	211	0	0	0	77	198	243	1367	3805	507	0	0	6408
05JUN	SE		154	0	0	0	77	142	185	759	1209	254	0	0	1478
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-	St. Crop	0	0	93	0	185	810	541	943	5816	6782	616	545	320	16651
12JUN	SE	0	0	93	0	115	788	508	889	2474	2182	467	279	320	3601
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-	St. Crop	0	0	0	70	143	0	116	118	138	40	1937	85	0	2646
19JUN	SE	0	0	0	70	124	0	99	118	138	40	1937	85	0	1955
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-2 Regional Standing Crop (In Thousands) of Striped Bass Eggs
in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	St. Crop	0	0	0	0	0	504	0	365	0	0	0	0	0	868
	SE	0	0	0	0	0	447	0	365	0	0	0	0	0	577
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-3 Regional Density (No./1,000m3) of Striped Bass Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	DENSITY	NS	0.00	0.00	0.00	0.13	0.00	0.95	0.00	0.00	0.00	0.67	0.00	0.00	0.15
	SE		0.00	0.00	0.00	0.13	0.00	0.52	0.00	0.00	0.00	0.67	0.00	0.00	0.86
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	DENSITY	NS	0.00	0.89	8.70	58.26	27.34	20.84	125.31	36.74	26.52	2.19	0.00	0.00	25.57
	SE		0.00	0.63	3.56	14.78	9.86	9.50	44.14	12.32	4.91	1.10	0.00	0.00	50.44
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	DENSITY	NS	0.28	24.37	136.10	4569.72	5092.13	2643.24	1895.78	412.75	27.17	4.95	16.24	0.00	1235.23
	SE		0.28	15.38	43.54	1252.86	1192.88	454.72	294.01	86.43	9.63	4.95	16.24	0.00	1815.44
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	DENSITY	NS	0.00	3.76	6.96	3.13	1227.45	3692.79	973.80	3073.86	1465.94	838.02	105.16	0.00	949.24
	SE		0.00	2.98	1.92	1.52	249.99	1237.75	258.87	309.42	243.62	543.38	49.92	0.00	1454.10
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	DENSITY	NS	0.00	0.00	0.00	1.14	1293.28	2957.80	2754.22	911.18	375.10	40.29	0.00	0.00	694.42
	SE		0.00	0.00	0.00	0.81	438.29	542.41	599.32	254.63	96.09	37.06	0.00	0.00	959.65
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	DENSITY	0.00	0.98	44.62	668.62	715.64	312.94	196.88	241.51	1719.86	191.11	21.15	8.75	0.55	317.12
	SE	0.00	0.89	24.93	221.70	110.35	89.66	46.35	50.26	619.45	39.88	2.38	5.29	0.55	678.24
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	DENSITY	0.00	0.00	0.00	3.66	16.97	73.67	52.95	44.88	53.34	50.61	24.26	10.50	0.00	25.45
	SE	0.00	0.00	0.00	1.52	4.96	16.66	13.33	11.89	11.27	24.59	10.27	1.04	0.00	38.23
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	DENSITY	0.00	0.00	0.00	0.00	1.57	1.40	0.60	7.69	0.91	0.00	0.00	0.00	0.00	0.94
	SE	0.00	0.00	0.00	0.00	1.53	0.93	0.60	5.11	0.79	0.00	0.00	0.00	0.00	5.51
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-3 Regional Density (No./1,000m3) of Striped Bass Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.69	1.07	0.60	0.00	0.47	0.00	0.23
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.49	0.66	0.60	0.00	0.47	0.00	1.13
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
22JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
06AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
20AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
03SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
17SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
30SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-4 Regional Standing Crop (In Thousands) of Striped Bass Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	St. Crop	0	0	0	0	0	0	23	206	177	85	0	75	0	567
	SE	0	0	0	0	0	0	23	147	109	85	0	75	0	217
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-4 Regional Standing Crop (In Thousands) of Striped Bass Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
18APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
25APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-	St. Crop	NS	0	0	0	27	0	133	0	0	0	119	0	0	279
08MAY	SE		0	0	0	27	0	72	0	0	0	119	0	0	142
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-	St. Crop	NS	0	285	1285	12138	5673	2914	37360	6079	3751	386	0	0	69870
15MAY	SE		0	203	525	3079	2046	1327	13161	2039	695	194	0	0	13915
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-	St. Crop	NS	63	7841	20108	952037	1056391	369501	565196	68304	3843	872	2611	0	3046768
22MAY	SE		63	4949	6433	261016	247470	63566	87655	14303	1363	872	2611	0	375998
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-	St. Crop	NS	0	1209	1029	652	254642	516219	290323	508676	207387	147739	16903	0	1944779
30MAY	SE		0	959	284	317	51862	173027	77179	51205	34464	95796	8024	0	227237
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-	St. Crop	NS	0	0	0	237	268298	413473	821126	150786	53066	7103	0	0	1714089
05JUN	SE		0	0	0	169	90925	75825	178676	42138	13594	6533	0	0	218963
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-	St. Crop	0	224	14361	98780	149094	64922	27522	72002	284610	27036	3729	1406	71	743757
12JUN	SE	0	205	8022	32754	22990	18601	6479	14984	102510	5641	419	850	71	113222
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-	St. Crop	0	0	0	540	3536	15283	7402	13381	8827	7159	4277	1688	0	62093
19JUN	SE	0	0	0	224	1034	3457	1864	3544	1866	3478	1811	167	0	6927
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-	St. Crop	0	0	0	0	326	290	84	2293	150	0	0	0	0	3144
26JUN	SE	0	0	0	0	319	192	84	1524	131	0	0	0	0	1577
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-5 Regional Density (No./1,000m3) of Striped Bass Post Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	DENSITY	NS	0.00	11.88	5.88	64.31	163.30	110.37	0.00	6.15	2.30	0.00	4.25	0.00	30.70
	SE		0.00	7.79	2.15	37.00	123.24	21.69	0.00	3.11	2.30	0.00	4.25	0.00	130.86
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	DENSITY	NS	0.00	14.23	349.99	552.40	5658.74	2783.61	2187.93	1843.69	135.97	28.28	5.24	0.00	1130.01
	SE		0.00	5.50	105.63	152.68	1276.03	609.05	407.49	520.15	38.38	13.61	2.51	0.00	1572.24
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	DENSITY	NS	2.44	3.57	688.80	2642.50	5403.92	4426.61	1805.44	641.90	207.59	7.64	0.00	0.00	1319.20
	SE		1.64	2.60	290.38	513.03	936.77	677.23	511.28	82.31	44.21	6.98	0.00	0.00	1397.82
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	DENSITY	123.56	763.27	3888.28	11109.11	7654.91	2496.06	1260.05	488.03	58.33	32.62	0.00	1.97	2.33	2144.50
	SE	42.09	250.56	1047.08	4773.23	842.81	687.33	263.28	59.16	16.15	7.74	0.00	0.99	2.33	5020.02
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	DENSITY	16.35	39.83	417.05	795.38	834.71	684.88	972.54	539.33	187.63	135.72	62.09	6.51	0.00	360.93
	SE	4.08	14.79	135.05	165.72	160.91	132.92	243.76	269.42	45.36	14.09	51.37	2.32	0.00	475.82
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	DENSITY	0.00	8.46	45.84	292.91	346.02	608.04	792.50	160.37	134.44	49.23	30.39	7.10	9.83	191.16
	SE	0.00	4.06	9.12	41.63	51.37	84.82	198.88	35.60	47.47	8.94	3.99	2.93	4.96	234.24
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-5 Regional Density (No./1,000m3) of Striped Bass Post Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	DENSITY	0.00	0.29	2.00	15.56	84.69	227.66	422.31	102.47	45.90	24.40	11.12	0.00	0.00	72.03
	SE	0.00	0.29	0.91	3.43	34.48	75.54	22.29	30.87	11.19	3.84	10.28	0.00	0.00	92.76
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	DENSITY	0.00	0.00	4.15	34.76	46.93	39.46	86.82	28.43	27.46	12.53	4.27	8.76	4.61	22.94
	SE	0.00	0.00	2.24	11.31	12.96	10.62	18.46	5.50	10.73	4.95	0.88	4.24	2.30	30.80
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	DENSITY	0.00	0.00	0.00	0.00	1.24	3.17	8.60	2.26	NS	NS	NS	NS	NS	1.91
	SE	0.00	0.00	0.00	0.00	0.73	0.95	1.16	0.73						1.83
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.12	0.09	0.00	NS	NS	NS	NS	NS	0.03
	SE	0.00	0.00	0.00	0.00	0.00	0.12	0.09	0.00						0.15
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.15	0.14	0.00	NS	NS	NS	NS	NS	0.04
	SE	0.00	0.00	0.00	0.00	0.00	0.15	0.14	0.00						0.20
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-6 Regional Standing Crop (In Thousands) of Striped Bass Post Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	St. Crop	NS	0	3823	868	13399	33878	15429	0	1017	326	0	683	0	69423
	SE		0	2507	317	7709	25566	3032	0	515	326	0	683	0	27009
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	St. Crop	NS	0	4578	51706	115085	1173938	389123	652295	305103	19236	4986	842	0	2716891
	SE		0	1770	15605	31808	264719	85139	121486	86077	5430	2399	404	0	317469
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	St. Crop	NS	560	1149	101761	550528	1121073	618800	538263	106224	29368	1347	0	0	3069074
	SE		376	837	42899	106883	194339	94671	152430	13621	6254	1230	0	0	288888
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	St. Crop	25826	175110	1251294	1641224	1594795	517823	176143	145497	9653	4614	0	317	298	5542593
	SE	8797	57483	336962	705182	175589	142590	36805	17637	2673	1096	0	159	298	816728
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	St. Crop	3418	9138	134213	117507	173901	142082	135953	160794	31050	19200	10946	1046	0	939247
	SE	853	3393	43460	24483	33524	27575	34075	80322	7506	1993	9056	372	0	110181
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	St. Crop	0	1942	14752	43273	72089	126142	110785	47811	22248	6964	5358	1141	1259	453764
	SE	0	932	2934	6150	10702	17596	27802	10614	7856	1264	704	471	635	37703
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-6 Regional Standing Crop (In Thousands) of Striped Bass Post Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	St. Crop	0	68	643	2299	17644	47230	59035	30551	7595	3451	1960	0	0	170474
	SE	0	68	292	507	7182	15672	3116	9204	1853	543	1812	0	0	19975
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	St. Crop	0	0	1336	5135	9777	8186	12137	8476	4544	1772	753	1407	591	54113
	SE	0	0	720	1671	2700	2203	2581	1640	1776	701	156	681	294	5387
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	St. Crop	0	0	0	0	257	658	1203	675	NS	NS	NS	NS	NS	2792
	SE	0	0	0	0	153	198	162	218						369
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	St. Crop	0	0	0	0	0	26	12	0	NS	NS	NS	NS	NS	38
	SE	0	0	0	0	0	26	12	0						28
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	St. Crop	0	0	0	0	0	31	19	0	NS	NS	NS	NS	NS	50
	SE	0	0	0	0	0	31	19	0						36
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-7 Regional Density (No./1,000m3) of Striped Bass Young of Year in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-7 Regional Density (No./1,000m3) of Striped Bass Young of Year in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	DENSITY	0.00	0.00	0.75	0.66	1.00	0.46	0.74	0.17	0.43	0.25	0.00	0.00	0.00	0.34
	SE	0.00	0.00	0.54	0.66	0.74	0.46	0.38	0.17	0.43	0.25	0.00	0.00	0.00	1.38
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	DENSITY	0.00	0.45	0.00	3.35	4.67	0.00	0.92	0.35	0.00	0.00	0.00	0.93	0.00	0.82
	SE	0.00	0.45	0.00	1.78	2.53	0.00	0.71	0.35	0.00	0.00	0.00	0.66	0.00	3.29
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	DENSITY	0.00	0.08	0.00	0.00	0.04	0.88	1.17	0.23	NS	NS	NS	NS	NS	0.30
	SE	0.00	0.08	0.00	0.00	0.04	0.88	1.09	0.23						1.43
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	DENSITY	0.00	0.00	1.06	1.71	1.98	0.00	0.76	0.00	NS	NS	NS	NS	NS	0.69
	SE	0.00	0.00	0.58	1.71	1.29	0.00	0.58	0.00						2.29
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	DENSITY	0.00	0.00	0.00	0.00	1.46	3.14	0.13	0.00	NS	NS	NS	NS	NS	0.59
	SE	0.00	0.00	0.00	0.00	1.42	1.33	0.13	0.00						1.95
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	DENSITY	0.67	0.15	1.13	7.31	0.46	0.47	0.35	0.00	NS	NS	NS	NS	NS	1.32
	SE	0.67	0.15	0.81	2.99	0.42	0.27	0.28	0.00						3.23
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	DENSITY	0.00	0.00	0.19	0.00	0.00	0.27	0.00	0.00	NS	NS	NS	NS	NS	0.06
	SE	0.00	0.00	0.19	0.00	0.00	0.27	0.00	0.00						0.33
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	DENSITY	0.00	0.23	0.00	1.72	0.29	0.00	0.00	0.85	NS	NS	NS	NS	NS	0.39
	SE	0.00	0.23	0.00	0.85	0.22	0.00	0.00	0.85						1.24
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-8 Regional Standing Crop (In Thousands) of Striped Bass Young of Year
in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
18APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
25APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
08MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
30MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
05JUN	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-8 Regional Standing Crop (In Thousands) of Striped Bass Young of Year in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	St. Crop	0	0	242	98	208	96	103	50	71	35	0	0	0	904
	SE	0	0	174	98	154	96	53	50	71	35	0	0	0	290
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	St. Crop	0	104	0	495	973	0	129	104	0	0	0	149	0	1954
	SE	0	104	0	264	527	0	99	104	0	0	0	106	0	625
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	St. Crop	0	19	0	0	9	183	164	68	NS	NS	NS	NS	NS	443
	SE	0	19	0	0	9	183	153	68						249
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	St. Crop	0	0	340	252	413	0	106	0	NS	NS	NS	NS	NS	1112
	SE	0	0	186	252	269	0	81	0						421
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	St. Crop	0	0	0	0	305	652	18	0	NS	NS	NS	NS	NS	974
	SE	0	0	0	0	296	277	18	0						405
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	St. Crop	140	34	364	1080	96	97	49	0	NS	NS	NS	NS	NS	1860
	SE	140	34	260	442	87	56	39	0						544
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	St. Crop	0	0	62	0	0	56	0	0	NS	NS	NS	NS	NS	118
	SE	0	0	62	0	0	56	0	0						84
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	St. Crop	0	54	0	255	61	0	0	252	NS	NS	NS	NS	NS	622
	SE	0	54	0	125	46	0	0	252						290
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-9 Regional Density (No./1,000m3) of Striped Bass Young of Year in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-18JUL	DENSITY	0.06	2.56	2.57	2.73	4.21	6.85	0.41	1.08	0.59	2.06	2.42	0.24	2.15
	SE	0.03	0.47	0.51	1.29	2.10	4.85	0.17	1.03	0.31	0.89	1.06	0.20	5.76
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-01AUG	DENSITY	0.06	1.46	4.65	3.28	2.92	4.32	2.21	0.57	1.81	1.20	2.98	0.05	2.13
	SE	0.04	0.48	1.34	2.17	1.78	1.10	1.14	0.53	0.50	0.58	0.70	0.05	3.71
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-14AUG	DENSITY	0.06	3.94	3.41	0.17	0.05	1.89	1.25	0.57	0.29	1.00	0.34	0.09	1.09
	SE	0.03	0.94	0.80	0.07	0.03	0.67	1.04	0.54	0.13	0.36	0.13	0.06	1.88
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-28AUG	DENSITY	0.00	0.14	1.37	2.74	0.79	1.16	0.03	0.18	0.59	0.23	0.58	0.05	0.66
	SE	0.00	0.06	0.63	1.60	0.79	0.68	0.03	0.08	0.27	0.14	0.32	0.05	2.06
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-12SEP	DENSITY	0.04	0.21	1.07	0.12	0.00	0.20	0.03	0.02	0.05	0.56	0.00	0.05	0.20
	SE	0.04	0.07	0.59	0.08	0.00	0.08	0.03	0.02	0.03	0.34	0.00	0.05	0.70
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-25SEP	DENSITY	0.01	1.33	3.04	0.56	0.00	0.74	0.00	0.02	0.03	0.02	0.04	0.09	0.49
	SE	0.01	0.31	0.67	0.18	0.00	0.64	0.00	0.02	0.03	0.02	0.03	0.06	0.99
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-09OCT	DENSITY	0.00	0.97	0.48	0.34	0.02	0.08	0.00	0.00	0.03	0.02	0.08	0.09	0.17
	SE	0.00	0.43	0.30	0.11	0.02	0.05	0.00	0.00	0.03	0.02	0.05	0.06	0.54
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-23OCT	DENSITY	0.46	0.83	2.22	0.43	0.00	0.25	0.00	0.00	0.08	0.02	0.02	0.00	0.36
	SE	0.26	0.23	0.49	0.18	0.00	0.15	0.00	0.00	0.04	0.02	0.02	0.00	0.65
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-10 Regional Standing Crops (in Thousands) of Striped Bass Young of Year in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-	St. Crop	13	825	379	568	874	958	122	178	84	363	389	31	4783
18JUL	SE	7	150	76	268	437	677	51	170	44	158	171	25	915
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-	St. Crop	15	471	687	684	605	604	659	95	256	211	478	6	4769
01AUG	SE	10	156	198	451	369	154	339	88	70	102	113	6	760
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-	St. Crop	13	1269	504	36	11	264	373	94	41	177	54	12	2848
14AUG	SE	7	304	119	14	7	94	311	90	19	64	21	8	475
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-	St. Crop	0	45	202	571	165	163	8	29	84	41	94	6	1407
28AUG	SE	0	20	93	333	165	96	8	13	38	25	51	6	402
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-	St. Crop	10	67	158	25	0	29	8	4	7	99	0	6	412
12SEP	SE	10	24	88	16	0	11	8	4	5	60	0	6	112
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-	St. Crop	3	426	449	117	0	104	0	4	4	4	6	11	1129
25SEP	SE	3	99	99	37	0	89	0	4	4	4	4	8	170
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-	St. Crop	0	311	70	70	3	11	0	0	4	4	14	12	499
09OCT	SE	0	138	44	24	3	7	0	0	4	4	8	8	147
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-	St. Crop	106	266	328	91	0	35	0	0	11	4	3	0	844
23OCT	SE	59	75	72	39	0	21	0	0	6	4	3	0	127
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-11 Regional Catch-Per-Unit-Effort (CPUE) of Striped Bass Young of Year in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-26JUN	CPUE	0.00	1.45	10.57	8.33	5.00	3.67	0.13	0.13	0.00	0.00	0.00	0.00	2.44
	SE	0.00	1.26	5.07	8.33	4.51	2.19	0.13	0.13	0.00	0.00	0.00	0.00	11.04
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-09JUL	CPUE	0.33	3.27	4.29	15.67	60.33	19.67	6.00	13.63	8.25	5.00	10.16	0.58	12.26
	SE	0.33	0.66	2.31	9.28	49.28	8.09	1.70	5.87	3.91	2.83	6.43	0.42	51.85
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-22JUL	CPUE	9.00	11.27	18.43	17.00	5.33	2.67	3.75	13.63	6.25	4.00	11.84	1.58	8.73
	SE	4.04	3.02	4.22	8.14	2.91	0.88	1.06	4.83	3.29	0.86	3.72	0.51	13.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-06AUG	CPUE	10.40	15.75	23.29	32.00	22.60	12.67	3.00	2.40	1.60	5.44	4.00	8.43	11.80
	SE	1.50	2.26	5.53	16.60	7.28	3.20	1.48	1.29	0.60	1.36	1.92	4.83	20.25
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-20AUG	CPUE	11.60	8.58	20.29	2.80	3.40	8.33	3.00	4.80	0.20	3.78	2.80	0.29	5.82
	SE	4.71	1.58	3.18	0.86	1.03	2.09	0.95	2.40	0.20	1.18	0.92	0.29	7.07
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-02SEP	CPUE	2.40	8.71	16.93	7.40	2.80	4.50	2.20	1.00	2.80	1.78	5.40	0.86	4.73
	SE	0.75	1.30	2.19	1.99	0.73	1.67	1.96	0.77	1.32	0.52	1.76	0.70	4.93
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-16SEP	CPUE	0.80	5.63	12.21	1.20	1.20	1.67	2.20	1.80	0.40	2.11	3.50	0.00	2.73
	SE	0.37	1.50	1.87	0.58	0.37	0.49	1.96	1.11	0.24	0.79	1.33	0.00	3.76
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-30SEP	CPUE	1.60	2.96	6.43	3.80	0.80	2.83	1.40	0.40	0.60	1.11	0.90	0.43	1.94
	SE	0.68	0.77	1.19	0.80	0.37	0.40	0.87	0.40	0.24	0.99	0.60	0.20	2.41
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-15OCT	CPUE	1.20	2.75	7.00	3.00	0.80	0.33	0.60	0.20	0.00	0.11	0.20	0.00	1.35
	SE	0.73	0.44	1.54	1.64	0.80	0.21	0.60	0.20	0.00	0.11	0.13	0.00	2.63
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-28OCT	CPUE	4.00	2.50	6.43	5.60	1.00	0.33	0.60	1.00	0.00	0.00	0.00	0.14	1.80
	SE	1.05	0.62	0.82	2.20	0.45	0.21	0.24	0.77	0.00	0.00	0.00	0.14	2.82
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-12 Regional Standing Crops (in Thousands) of Striped Bass Young of Year in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-	St. Crop	0	66	284	77	13	39	1	<0.005	0	0	0	0	480
26JUN	SE	0	57	136	77	12	23	1	<0.005	0	0	0	0	169
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-	St. Crop	3	149	115	144	159	209	43	17	71	88	200	8	1205
09JUL	SE	3	30	62	86	130	86	12	7	34	50	127	6	237
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-	St. Crop	68	512	496	157	14	28	27	17	54	70	233	22	1697
22JUL	SE	30	137	114	75	8	9	8	6	28	15	73	7	212
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-	St. Crop	78	716	626	295	60	135	21	3	14	96	79	115	2236
06AUG	SE	11	103	149	153	19	34	11	2	5	24	38	66	253
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-	St. Crop	87	390	546	26	9	89	21	6	2	66	55	4	1301
20AUG	SE	35	72	86	8	3	22	7	3	2	21	18	4	123
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-	St. Crop	18	396	455	68	7	48	16	1	24	31	106	12	1183
02SEP	SE	6	59	59	18	2	18	14	1	11	9	35	10	96
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-	St. Crop	6	256	328	11	3	18	16	2	3	37	69	0	749
16SEP	SE	3	68	50	5	1	5	14	1	2	14	26	0	91
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-	St. Crop	12	134	173	35	2	30	10	<0.005	5	20	18	6	445
30SEP	SE	5	35	32	7	1	4	6	<0.005	2	17	12	3	53
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-	St. Crop	9	125	188	28	2	4	4	<0.005	0	2	4	0	366
15OCT	SE	6	20	42	15	2	2	4	<0.005	0	2	3	0	49
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-	St. Crop	30	114	173	52	3	4	4	1	0	0	0	2	382
28OCT	SE	8	28	22	20	1	2	2	1	0	0	0	2	42
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-13 Regional Density (No./1,000m3) of Striped Bass Yearling and Older in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-18JUL	DENSITY	0.00	0.34	0.08	0.02	0.00	0.00	0.00	0.00	0.03	0.00	0.02	0.00	0.04
	SE	0.00	0.08	0.04	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.02	0.00	0.10
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-01AUG	DENSITY	0.00	0.02	0.04	0.05	0.00	0.02	0.00	0.00	0.03	0.02	0.30	0.09	0.05
	SE	0.00	0.01	0.02	0.03	0.00	0.01	0.00	0.00	0.03	0.02	0.24	0.06	0.25
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-14AUG	DENSITY	0.00	0.21	0.11	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.25	0.05
	SE	0.00	0.07	0.06	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.25	0.27
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-28AUG	DENSITY	0.00	0.01	0.02	0.01	0.00	1.32	0.03	0.05	0.00	0.00	0.02	0.00	0.12
	SE	0.00	0.01	0.02	0.01	0.00	1.28	0.03	0.05	0.00	0.00	0.02	0.00	1.28
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-12SEP	DENSITY	0.00	0.02	0.02	0.00	0.00	0.00	0.03	0.00	0.35	0.02	0.00	0.00	0.04
	SE	0.00	0.02	0.02	0.00	0.00	0.00	0.03	0.00	0.30	0.02	0.00	0.00	0.30
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-25SEP	DENSITY	0.00	0.09	0.09	0.01	0.00	0.64	0.00	0.00	0.00	0.00	0.04	0.00	0.07
	SE	0.00	0.03	0.04	0.01	0.00	0.64	0.00	0.00	0.00	0.00	0.03	0.00	0.64
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-09OCT	DENSITY	0.00	0.36	0.11	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
	SE	0.00	0.13	0.09	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-23OCT	DENSITY	0.01	0.35	0.46	0.07	0.00	0.04	0.03	0.00	0.00	0.00	0.00	0.00	0.08
	SE	0.01	0.10	0.16	0.02	0.00	0.02	0.03	0.00	0.00	0.00	0.00	0.00	0.19
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-14 Regional Standing Crops (in Thousands) of Striped Bass Yearling and Older in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-18JUL	St. Crop	0	110	12	4	0	0	0	0	4	0	4	0	133
	SE	0	27	6	2	0	0	0	0	4	0	4	0	28
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-01AUG	St. Crop	0	6	5	9	0	2	0	0	4	4	49	11	91
	SE	0	4	4	6	0	1	0	0	4	4	39	7	41
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-14AUG	St. Crop	0	67	17	0	0	0	10	0	0	0	0	32	125
	SE	0	23	9	0	0	0	10	0	0	0	0	32	42
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-28AUG	St. Crop	0	3	3	1	0	185	8	8	0	0	4	0	213
	SE	0	3	3	1	0	178	8	8	0	0	4	0	179
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-12SEP	St. Crop	0	7	3	0	0	0	8	0	49	4	0	0	71
	SE	0	5	3	0	0	0	8	0	42	4	0	0	44
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-25SEP	St. Crop	0	29	13	3	0	89	0	0	0	0	6	0	140
	SE	0	10	6	3	0	89	0	0	0	0	4	0	90
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-09OCT	St. Crop	0	115	16	10	3	0	0	0	0	0	0	0	144
	SE	0	42	13	4	3	0	0	0	0	0	0	0	44
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-23OCT	St. Crop	3	114	68	14	0	5	10	0	0	0	0	0	215
	SE	3	33	23	5	0	3	10	0	0	0	0	0	42
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-15 Regional Catch-Per-Unit-Effort (CPUE) of Striped Bass Yearling and Older in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-	CPUE	0.00	0.18	0.00	0.00	0.00	0.00	0.88	0.88	0.00	2.00	1.11	0.50	0.46
26JUN	SE	0.00	0.18	0.00	0.00	0.00	0.00	0.44	0.64	0.00	1.21	0.41	0.23	1.53
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-	CPUE	0.00	0.09	0.57	0.33	0.33	0.33	0.75	0.13	0.00	1.60	2.74	0.92	0.65
09JUL	SE	0.00	0.09	0.20	0.33	0.33	0.33	0.31	0.13	0.00	0.83	1.69	0.61	2.10
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-	CPUE	0.33	0.18	0.00	0.00	0.00	1.00	4.50	0.63	0.25	0.47	1.26	0.33	0.75
22JUL	SE	0.33	0.18	0.00	0.00	0.00	0.58	2.90	0.38	0.16	0.47	0.70	0.26	3.13
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	2.20	0.80	1.20	1.44	0.60	0.29	0.54
06AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	1.36	0.80	1.20	0.56	0.27	0.29	2.09
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-	CPUE	0.00	0.50	0.07	0.00	0.20	0.17	2.80	1.00	0.00	5.00	0.80	0.57	0.93
20AUG	SE	0.00	0.24	0.07	0.00	0.20	0.17	2.33	0.77	0.00	4.76	0.80	0.30	5.43
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-	CPUE	0.00	0.04	0.07	0.00	0.20	0.00	2.00	0.40	1.00	0.11	0.30	0.29	0.37
02SEP	SE	0.00	0.04	0.07	0.00	0.20	0.00	1.76	0.40	0.63	0.11	0.21	0.18	1.95
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-	CPUE	0.60	0.13	0.57	0.00	0.20	0.33	0.00	0.00	0.00	1.89	0.00	0.14	0.32
16SEP	SE	0.24	0.07	0.40	0.00	0.20	0.33	0.00	0.00	0.00	1.10	0.00	0.14	1.27
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-	CPUE	0.20	0.38	0.21	1.60	2.20	0.50	0.40	0.20	1.40	0.22	0.20	0.00	0.63
30SEP	SE	0.20	0.13	0.15	0.75	2.20	0.22	0.24	0.20	0.60	0.15	0.13	0.00	2.46
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-	CPUE	1.40	1.04	0.57	1.20	0.20	0.00	0.00	0.20	3.40	0.33	0.00	0.14	0.71
15OCT	SE	0.60	0.27	0.23	0.97	0.20	0.00	0.00	0.20	3.40	0.17	0.00	0.14	3.62
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-	CPUE	0.20	0.33	0.07	0.40	0.20	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.14
28OCT	SE	0.20	0.10	0.07	0.24	0.20	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.52
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-16 Regional Standing Crops (in Thousands) of Striped Bass Yearling and Older in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-	St. Crop	0	8	0	0	0	0	6	1	0	35	22	7	79
26JUN	SE	0	8	0	0	0	0	3	1	0	21	8	3	25
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-	St. Crop	0	4	15	3	1	4	5	<0.005	0	28	54	12	127
09JUL	SE	0	4	5	3	1	4	2	<0.005	0	15	33	8	38
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-	St. Crop	3	8	0	0	0	11	32	1	2	8	25	5	94
22JUL	SE	3	8	0	0	0	6	21	<0.005	1	8	14	3	28
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-	St. Crop	0	0	0	0	0	0	16	1	10	25	12	4	68
06AUG	SE	0	0	0	0	0	0	10	1	10	10	5	4	18
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-	St. Crop	0	23	2	0	1	2	20	1	0	88	16	8	159
20AUG	SE	0	11	2	0	1	2	17	1	0	83	16	4	87
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-	St. Crop	0	2	2	0	1	0	14	<0.005	9	2	6	4	39
02SEP	SE	0	2	2	0	1	0	12	<0.005	5	2	4	3	15
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-	St. Crop	5	6	15	0	1	4	0	0	0	33	0	2	65
16SEP	SE	2	3	11	0	1	4	0	0	0	19	0	2	23
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-	St. Crop	2	17	6	15	6	5	3	<0.005	12	4	4	0	73
30SEP	SE	2	6	4	7	6	2	2	<0.005	5	3	3	0	14
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-	St. Crop	11	47	15	11	1	0	0	<0.005	29	6	0	2	122
15OCT	SE	5	12	6	9	1	0	0	<0.005	29	3	0	2	34
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-	St. Crop	2	15	2	4	1	5	0	0	0	0	0	0	28
28OCT	SE	2	4	2	2	1	4	0	0	0	0	0	0	7
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-17 Regional Density (No./1,000m3) of White Perch Eggs
in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-17 Regional Density (No./1,000m3) of White Perch Eggs
in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.14	0.74	0.49	10.22	46.94	12.18	11.35	5.32	7.28
	SE		0.00	0.00	0.00	0.00	0.14	0.71	0.49	3.29	30.86	4.91	4.00	2.07	31.76
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	DENSITY	NS	0.00	0.00	0.00	0.31	1.72	6.44	9.37	46.49	1032.17	92.10	1511.34	925.47	302.12
	SE		0.00	0.00	0.00	0.18	1.72	4.60	3.20	21.49	571.80	49.87	303.93	162.10	669.77
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	DENSITY	NS	0.00	0.00	0.00	0.37	6.82	47.21	6.82	40.97	2055.27	400.00	334.59	419.00	275.92
	SE		0.00	0.00	0.00	0.23	3.64	21.30	3.73	20.91	509.83	190.97	103.87	145.21	573.75
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	DENSITY	NS	0.00	0.00	0.00	0.00	1.63	15.57	31.32	19.36	130.26	79.54	838.35	311.68	118.98
	SE		0.00	0.00	0.00	0.00	0.57	8.35	15.95	9.15	34.92	51.66	328.53	106.56	351.54
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	DENSITY	NS	0.57	0.00	0.00	2.30	0.00	115.29	4.08	192.29	1830.71	8.60	183.45	147.53	207.07
	SE		0.57	0.00	0.00	1.47	0.00	64.00	2.05	148.46	1021.73	3.46	135.02	75.92	1045.98
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	DENSITY	NS	0.00	0.00	0.00	0.00	0.71	0.54	32.03	42.75	27.50	47.20	85.90	2508.00	228.72
	SE		0.00	0.00	0.00	0.00	0.49	0.54	26.91	36.45	11.85	23.43	39.57	803.93	806.61
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	DENSITY	0.00	0.00	0.00	0.00	0.39	5.06	54.96	0.18	3.73	58.11	73.41	32.56	18.05	18.96
	SE	0.00	0.00	0.00	0.00	0.10	2.59	36.00	0.18	1.58	22.26	31.75	18.56	6.40	56.52
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.65	0.69	9.84	0.39	2.55	3.84	84.23	54.72	12.07
	SE	0.00	0.00	0.00	0.00	0.00	0.65	0.69	7.42	0.39	1.81	2.15	60.58	26.38	66.56
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-18 Regional Standing Crop (In Thousands) of White Perch Eggs
In Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-18 Regional Standing Crop (In Thousands) of White Perch Eggs in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	St. Crop	NS	0	0	0	0	30	104	145	1691	6641	2148	1824	681	13264
	SE		0	0	0	0	30	99	145	545	4366	866	643	265	4542
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	St. Crop	NS	0	0	0	65	357	901	2792	7693	146022	16237	242920	118523	535510
	SE		0	0	0	38	357	643	954	3557	80893	8793	48851	20760	97224
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	St. Crop	NS	0	0	0	77	1414	6600	2032	6781	290758	70518	53779	53661	485620
	SE		0	0	0	49	756	2977	1112	3460	72125	33668	16695	18597	83563
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	St. Crop	NS	0	0	0	0	338	2176	9337	3204	18427	14022	134750	39916	222171
	SE		0	0	0	0	119	1168	4754	1514	4941	9108	52804	13647	55751
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	St. Crop	NS	132	0	0	479	0	16117	1216	31822	258990	1517	29486	18893	358652
	SE		132	0	0	307	0	8946	611	24567	144544	609	21702	9722	148805
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	St. Crop	NS	0	0	0	0	147	76	9550	7074	3890	8322	13807	321195	364061
	SE		0	0	0	0	102	76	8022	6031	1676	4131	6360	102958	103738
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	St. Crop	0	0	0	0	81	1049	7683	55	618	8221	12942	5233	2312	38193
	SE	0	0	0	0	20	537	5033	55	262	3150	5597	2983	820	8747
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	St. Crop	0	0	0	0	0	134	97	2933	65	361	676	13539	7008	24813
	SE	0	0	0	0	0	134	97	2212	65	257	379	9737	3378	10553
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-19 Regional Density (No./1,000m3) of White Perch Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.06	1.16
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.99	7.99
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.65	0.00	0.00	0.00	0.05
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.65	0.00	0.00	0.00	0.65
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-19 Regional Density (No./1,000m3) of White Perch Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	DENSITY	NS	0.00	0.00	0.22	0.05	0.65	5.33	14.87	18.12	6.89	4.34	3.50	0.00	4.50
	SE		0.00	0.00	0.22	0.05	0.45	2.92	3.47	6.28	1.36	3.95	2.62	0.00	9.20
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	DENSITY	NS	0.00	0.00	1.48	12.72	20.67	49.40	187.27	204.46	316.09	123.01	242.59	108.82	105.54
	SE		0.00	0.00	0.78	4.92	6.64	16.87	69.70	26.62	45.14	17.34	56.23	18.24	108.41
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	DENSITY	NS	0.00	4.53	11.56	46.18	120.53	188.26	844.36	769.37	1958.53	825.95	694.76	282.65	478.89
	SE		0.00	2.09	2.40	32.39	41.43	42.29	226.35	114.92	445.82	167.62	534.00	121.64	771.89
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	DENSITY	NS	0.29	0.00	0.68	1.08	14.57	437.62	445.56	825.09	262.25	256.83	241.83	152.31	219.84
	SE		0.29	0.00	0.37	0.80	7.83	228.77	129.30	112.21	16.95	87.95	78.94	51.60	314.05
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	DENSITY	NS	0.00	0.00	0.00	0.00	12.39	13.51	81.82	29.68	33.25	38.13	28.64	8.85	20.52
	SE		0.00	0.00	0.00	0.00	5.91	4.24	35.05	7.85	7.43	27.03	6.45	5.92	46.96
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	DENSITY	0.00	0.00	0.00	1.22	19.00	9.48	9.84	4.20	39.01	333.46	545.12	1926.35	329.82	247.50
	SE	0.00	0.00	0.00	0.95	10.36	3.70	3.78	1.81	13.84	51.94	139.73	270.82	62.66	315.94
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	DENSITY	0.00	0.00	0.00	0.25	0.45	1.87	3.08	4.96	4.92	5.01	33.39	56.35	94.57	15.76
	SE	0.00	0.00	0.00	0.25	0.34	1.28	2.77	1.57	2.13	2.51	17.21	2.79	25.79	31.49
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.70	0.12	0.00	0.00	1.25	3.95	0.47
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.70	0.12	0.00	0.00	0.71	1.58	1.87
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-20 Regional Standing Crop (In Thousands) of White Perch Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	1929	1929
03JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	1023	1023
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-	St. Crop	0	0	0	0	0	0	0	0	0	91	0	0	0	91
10JUL	SE	0	0	0	0	0	0	0	0	0	91	0	0	0	91
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
22JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
06AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
20AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
03SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
17SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
30SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-20 Regional Standing Crop (In Thousands) of White Perch Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	St. Crop	NS	0	0	33	10	134	745	4432	2999	975	764	562	0	10654
	SE		0	0	33	10	93	408	1034	1039	193	697	421	0	1739
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	St. Crop	NS	0	0	219	2650	4288	6905	55830	33835	44717	21686	38992	13937	223059
	SE		0	0	116	1026	1377	2359	20779	4405	6386	3057	9038	2336	24432
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	St. Crop	NS	0	1458	1708	9621	25005	26317	251732	127318	277073	145612	111669	36199	1013712
	SE		0	672	355	6748	8594	5912	67481	19018	63070	29551	85831	15578	132405
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	St. Crop	NS	66	0	101	225	3023	61175	132838	136540	37101	45277	38869	19507	474721
	SE		66	0	54	167	1625	31980	38550	18569	2398	15504	12688	6609	57507
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	St. Crop	NS	0	0	0	0	2570	1889	24394	4912	4704	6722	4604	1133	50927
	SE		0	0	0	0	1227	593	10450	1299	1051	4765	1037	758	11756
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	St. Crop	0	0	0	180	3958	1967	1376	1252	6455	47175	96103	309626	42240	510331
	SE	0	0	0	141	2158	767	529	539	2290	7348	24633	43529	8025	51294
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	St. Crop	0	0	0	37	93	387	431	1479	815	709	5887	9057	12112	31006
	SE	0	0	0	37	71	265	388	470	352	354	3034	448	3302	4583
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	St. Crop	0	0	0	0	0	0	17	210	20	0	0	201	506	954
	SE	0	0	0	0	0	0	17	210	20	0	0	113	202	313
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-21 Regional Density (No./1,000m3) of White Perch Post Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	DENSITY	0.00	0.29	0.00	0.89	15.50	86.32	661.79	425.31	677.04	680.81	515.14	307.76	18.79	260.74
	SE	0.00	0.29	0.00	0.63	7.87	17.56	171.98	141.33	192.48	136.63	79.91	95.04	11.40	348.12
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	DENSITY	0.00	0.00	0.00	1.78	22.44	59.37	79.12	85.89	224.79	158.58	134.23	275.99	137.89	90.78
	SE	0.00	0.00	0.00	0.87	5.00	21.73	17.58	44.97	37.95	18.89	24.43	78.87	13.28	107.79
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	DENSITY	0.00	0.00	0.00	0.00	2.83	8.11	10.71	11.80	NS	NS	NS	NS	NS	4.18
	SE	0.00	0.00	0.00	0.00	1.32	4.82	2.95	6.98						9.08
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.90	1.20	0.00	NS	NS	NS	NS	NS	0.26
	SE	0.00	0.00	0.00	0.00	0.00	0.90	0.85	0.00						1.24
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	DENSITY	0.00	0.00	0.27	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.03
	SE	0.00	0.00	0.27	0.00	0.00	0.00	0.00	0.00						0.27
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	1.11	0.00	NS	NS	NS	NS	NS	0.14
	SE	0.00	0.00	0.00	0.00	0.00	0.00	1.11	0.00						1.11
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-21 Regional Density (No./1,000m3) of White Perch Post Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.79	0.00	0.07
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.79	0.00	0.79
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	DENSITY	NS	0.00	0.00	0.64	3.96	7.34	4.49	18.38	0.78	0.49	1.08	1.46	0.00	3.22
	SE		0.00	0.00	0.64	0.86	3.06	2.15	11.46	0.25	0.49	1.08	0.85	0.00	12.19
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	DENSITY	NS	0.54	7.01	17.57	114.20	279.94	330.09	1204.52	1285.47	1289.82	520.19	35.53	0.00	423.74
	SE		0.54	3.26	3.44	45.16	77.11	47.33	233.39	260.33	269.32	92.35	15.49	0.00	462.38
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	DENSITY	NS	0.00	1.84	17.92	51.50	560.33	1859.87	1947.37	3102.72	2091.95	1774.60	816.06	226.35	1037.54
	SE		0.00	1.16	4.03	6.31	122.05	529.07	505.79	491.16	281.38	283.70	193.41	76.95	997.46
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	DENSITY	NS	0.00	0.63	10.92	144.39	1027.97	2548.14	1737.50	640.65	2327.30	769.48	24.75	1.04	769.40
	SE		0.00	0.45	2.94	59.81	330.00	295.45	802.39	56.22	538.60	136.93	13.45	0.75	1075.08
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	DENSITY	0.51	25.37	277.94	939.70	1312.31	1019.14	1014.86	934.34	300.51	1243.40	570.09	582.63	0.00	632.37
	SE	0.51	10.17	40.06	124.74	80.40	312.33	256.48	388.66	109.10	240.13	43.82	394.25	0.00	751.69
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	DENSITY	0.00	0.10	25.79	459.69	559.11	995.89	1071.99	1435.21	1210.00	2472.69	1989.23	2143.46	1614.38	1075.20
	SE	0.00	0.10	19.15	78.06	144.38	364.10	306.62	539.89	135.41	379.23	972.66	329.46	334.98	1369.07
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	DENSITY	0.00	2.18	6.30	84.00	124.55	171.53	885.63	296.21	890.33	1304.72	1814.35	2693.47	1551.25	755.73
	SE	0.00	1.24	2.17	14.23	24.78	21.54	186.34	74.99	155.48	121.52	509.79	337.14	464.36	818.38
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-22 Regional Standing Crop (In Thousands) of White Perch Post Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	St. Crop	0	68	0	132	3230	17909	92513	126798	112040	96314	90817	49466	2407	591693
	SE	0	68	0	93	1641	3643	24041	42136	31853	19329	14088	15275	1460	64742
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	St. Crop	0	0	0	264	4676	12316	11060	25607	37200	22435	23665	44361	17659	199242
	SE	0	0	0	128	1041	4507	2457	13406	6280	2672	4307	12677	1701	20878
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	St. Crop	0	0	0	0	590	1682	1497	3518	NS	NS	NS	NS	NS	7287
	SE	0	0	0	0	275	1000	413	2080						2361
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	St. Crop	0	0	0	0	0	188	167	0	NS	NS	NS	NS	NS	355
	SE	0	0	0	0	0	188	119	0						222
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	St. Crop	0	0	87	0	0	0	0	0	NS	NS	NS	NS	NS	87
	SE	0	0	87	0	0	0	0	0						87
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	St. Crop	0	0	0	0	0	0	155	0	NS	NS	NS	NS	NS	155
	SE	0	0	0	0	0	0	155	0						155
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-22 Regional Standing Crop (In Thousands) of White Perch Post Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
18APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
25APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	127	0	127
08MAY	SE		0	0	0	0	0	0	0	0	0	0	127	0	127
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-	St. Crop	NS	0	0	95	826	1522	627	5480	129	69	191	234	0	9173
15MAY	SE		0	0	95	178	636	301	3416	41	69	191	137	0	3503
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-	St. Crop	NS	124	2256	2596	23793	58076	46144	359107	212725	182471	91707	5711	0	984710
22MAY	SE		124	1048	508	9408	15996	6616	69582	43081	38100	16282	2490	0	93862
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-	St. Crop	NS	0	593	2648	10730	116244	259994	580576	513453	295947	312854	131167	28988	2253195
30MAY	SE		0	372	595	1314	25320	73959	150792	81280	39807	50015	31087	9855	201513
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-	St. Crop	NS	0	203	1614	30081	213258	356207	518008	106018	329244	135656	3978	134	1694400
05JUN	SE		0	144	434	12461	68460	41302	239220	9304	76196	24140	2162	96	265055
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-	St. Crop	108	5820	89444	138828	273401	211426	141869	278558	49730	175904	100504	93647	0	1559238
12JUN	SE	108	2333	12892	18428	16751	64794	35854	115873	18055	33971	7726	63369	0	158926
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-	St. Crop	0	24	8299	67913	116483	206604	149855	427886	200237	349810	350693	344523	206751	2429077
19JUN	SE	0	24	6164	11533	30080	75535	42863	160959	22408	53650	171475	52955	42900	268245
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-	St. Crop	0	500	2028	12409	25948	35586	123803	88311	147336	184578	319862	432926	198666	1571952
26JUN	SE	0	284	700	2102	5162	4469	26049	22358	25729	17192	89873	54189	59470	129375
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-23 Regional Density (No./1,000m3) of White Perch Young of Year in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-23 Regional Density (No./1,000m3) of White Perch Young of Year in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	2.12	0.00	0.00	0.00	0.00	0.17
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	1.34	0.00	0.00	0.00	0.00	1.34
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	DENSITY	0.00	0.00	0.00	0.00	0.81	0.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10
	SE	0.00	0.00	0.00	0.00	0.81	0.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.94
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.14	2.36	0.00	NS	NS	NS	NS	NS	0.31
	SE	0.00	0.00	0.00	0.00	0.00	0.14	1.89	0.00						1.90
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	DENSITY	0.00	0.43	0.00	0.00	0.00	1.72	0.58	0.00	NS	NS	NS	NS	NS	0.34
	SE	0.00	0.43	0.00	0.00	0.00	0.90	0.58	0.00						1.16
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	1.76	0.95	0.00	NS	NS	NS	NS	NS	0.34
	SE	0.00	0.00	0.00	0.00	0.00	1.01	0.54	0.00						1.14
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	DENSITY	0.00	0.00	0.00	0.00	0.04	1.85	3.07	0.00	NS	NS	NS	NS	NS	0.62
	SE	0.00	0.00	0.00	0.00	0.04	1.21	1.76	0.00						2.14
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.28	0.00	0.95	NS	NS	NS	NS	NS	0.15
	SE	0.00	0.00	0.00	0.00	0.00	0.28	0.00	0.95						0.99
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	DENSITY	0.00	0.00	0.00	0.00	0.09	2.54	0.00	1.05	NS	NS	NS	NS	NS	0.46
	SE	0.00	0.00	0.00	0.00	0.09	1.84	0.00	0.80						2.01
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	1.61	0.67	0.29	NS	NS	NS	NS	NS	0.32
	SE	0.00	0.00	0.00	0.00	0.00	1.61	0.67	0.29						1.77
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-24 Regional Standing Crop (In Thousands) of White Perch Young of Year in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
18APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
25APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
08MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
30MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
05JUN	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-24 Regional Standing Crop (In Thousands) of White Perch Young of Year in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	St. Crop	0	0	0	0	0	0	6	0	351	0	0	0	0	358
	SE	0	0	0	0	0	0	6	0	222	0	0	0	0	222
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	St. Crop	0	0	0	0	169	99	0	0	0	0	0	0	0	267
	SE	0	0	0	0	169	99	0	0	0	0	0	0	0	195
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	St. Crop	0	0	0	0	0	29	330	0	NS	NS	NS	NS	NS	359
	SE	0	0	0	0	0	29	264	0						266
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	St. Crop	0	100	0	0	0	358	81	0	NS	NS	NS	NS	NS	538
	SE	0	100	0	0	0	187	81	0						227
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	St. Crop	0	0	0	0	0	365	133	0	NS	NS	NS	NS	NS	498
	SE	0	0	0	0	0	209	75	0						222
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	St. Crop	0	0	0	0	9	385	429	0	NS	NS	NS	NS	NS	823
	SE	0	0	0	0	9	251	246	0						352
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	St. Crop	0	0	0	0	0	58	0	284	NS	NS	NS	NS	NS	342
	SE	0	0	0	0	0	58	0	284						290
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	St. Crop	0	0	0	0	20	526	0	314	NS	NS	NS	NS	NS	860
	SE	0	0	0	0	20	382	0	239						452
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	St. Crop	0	0	0	0	0	334	94	86	NS	NS	NS	NS	NS	514
	SE	0	0	0	0	0	334	94	86						358
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-25 Regional Density (No./1,000m3) of White Perch Young of Year in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-18JUL	DENSITY	0.00	0.00	0.00	0.03	2.20	2.12	0.90	6.70	1.73	0.56	0.70	0.10	1.25
	SE	0.00	0.00	0.00	0.02	1.66	1.78	0.30	4.92	1.13	0.34	0.49	0.10	5.65
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-01AUG	DENSITY	0.00	0.01	0.00	2.20	5.46	6.80	1.16	6.97	9.17	0.00	0.07	0.00	2.65
	SE	0.00	0.01	0.00	2.13	1.80	3.59	0.68	2.00	2.30	0.00	0.05	0.00	5.52
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-14AUG	DENSITY	0.00	0.00	0.02	0.03	0.73	8.70	0.14	1.90	0.00	0.02	0.02	0.00	0.96
	SE	0.00	0.00	0.02	0.02	0.41	1.53	0.04	0.85	0.00	0.02	0.02	0.00	1.80
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-28AUG	DENSITY	0.00	0.00	0.00	0.11	0.40	1.17	0.43	5.88	0.44	0.00	0.00	0.09	0.71
	SE	0.00	0.00	0.00	0.11	0.40	0.29	0.18	2.57	0.17	0.00	0.00	0.09	2.63
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-12SEP	DENSITY	0.00	0.00	0.00	0.01	0.03	6.68	0.42	0.38	0.17	0.02	0.00	0.19	0.66
	SE	0.00	0.00	0.00	0.01	0.02	3.94	0.24	0.23	0.11	0.02	0.00	0.14	3.96
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-25SEP	DENSITY	0.00	0.00	0.04	0.05	0.06	0.59	0.00	1.87	0.15	0.00	0.02	0.00	0.23
	SE	0.00	0.00	0.03	0.05	0.03	0.29	0.00	0.72	0.07	0.00	0.02	0.00	0.78
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-09OCT	DENSITY	0.00	0.00	0.00	0.03	0.23	1.20	0.24	0.72	0.33	0.47	0.23	0.18	0.30
	SE	0.00	0.00	0.00	0.02	0.06	0.59	0.13	0.33	0.08	0.19	0.10	0.10	0.73
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-23OCT	DENSITY	0.00	0.00	0.00	0.39	0.25	1.91	1.02	0.63	0.74	0.42	0.07	0.05	0.46
	SE	0.00	0.00	0.00	0.20	0.11	0.87	0.74	0.21	0.09	0.11	0.05	0.05	1.20
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-26 Regional Standing Crops (in Thousands) of White Perch Young of Year in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-	St. Crop	0	0	0	6	456	296	268	1109	244	98	113	13	2604
18JUL	SE	0	0	0	5	345	249	90	815	159	60	78	13	942
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-	St. Crop	0	3	0	458	1132	950	345	1153	1297	0	11	0	5348
01AUG	SE	0	3	0	445	373	502	202	331	325	0	8	0	919
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-	St. Crop	0	0	3	6	151	1216	42	315	0	4	4	0	1741
14AUG	SE	0	0	3	4	86	214	12	141	0	4	4	0	271
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-	St. Crop	0	0	0	22	83	163	127	973	62	0	0	12	1442
28AUG	SE	0	0	0	22	83	40	55	425	24	0	0	12	440
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-	St. Crop	0	0	0	3	7	934	125	62	23	3	0	24	1183
12SEP	SE	0	0	0	3	4	551	71	39	16	3	0	18	557
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-	St. Crop	0	0	6	11	13	82	0	310	21	0	3	0	447
25SEP	SE	0	0	4	10	6	40	0	119	10	0	3	0	127
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-	St. Crop	0	0	0	7	48	168	72	119	47	82	37	23	603
09OCT	SE	0	0	0	3	12	82	38	55	12	33	16	12	114
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-	St. Crop	0	0	0	82	52	267	304	104	104	73	11	6	1003
23OCT	SE	0	0	0	42	23	122	222	35	13	20	8	6	261
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-27 Regional Catch-Per-Unit-Effort (CPUE) of White Perch Young of Year in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-	CPUE	0.00	0.09	0.43	0.00	20.67	1.33	2.63	10.38	0.88	0.00	1.32	0.00	3.14
09JUL	SE	0.00	0.09	0.43	0.00	20.67	0.67	1.58	3.43	0.58	0.00	0.89	0.00	21.05
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-	CPUE	0.00	2.36	0.00	7.00	8.33	2.33	26.00	28.50	10.75	1.80	2.32	0.42	7.48
22JUL	SE	0.00	1.63	0.00	6.51	6.01	1.45	14.81	8.99	6.26	0.79	0.78	0.19	20.58
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-	CPUE	0.20	3.67	1.29	2.40	16.40	7.50	2.60	8.40	1.60	1.89	2.50	0.43	4.07
06AUG	SE	0.20	1.37	0.69	1.91	7.63	2.70	1.89	3.50	0.81	0.73	1.90	0.43	9.61
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-	CPUE	0.00	2.75	0.57	1.80	11.80	5.83	28.20	17.40	0.60	4.67	0.10	0.00	6.14
20AUG	SE	0.00	1.18	0.25	1.36	6.20	2.14	13.42	9.27	0.40	4.42	0.10	0.00	18.22
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-	CPUE	0.00	3.21	0.86	1.40	14.20	2.50	8.00	0.40	1.80	4.00	1.90	0.00	3.19
02SEP	SE	0.00	1.21	0.31	1.17	8.27	1.57	3.78	0.24	0.92	2.89	1.40	0.00	9.96
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-	CPUE	0.00	3.83	2.64	2.20	8.80	0.50	10.00	7.40	0.00	0.67	10.10	0.00	3.85
16SEP	SE	0.00	1.34	1.31	1.96	3.54	0.34	6.89	1.89	0.00	0.67	8.56	0.00	12.04
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-	CPUE	0.00	0.71	0.71	0.20	6.00	5.67	2.80	7.60	0.60	15.33	0.90	0.00	3.38
30SEP	SE	0.00	0.37	0.24	0.20	2.51	2.14	1.71	6.11	0.40	8.22	0.41	0.00	10.92
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-	CPUE	0.00	0.63	0.29	3.60	23.60	2.00	3.20	1.00	0.40	0.56	4.10	0.71	3.34
15OCT	SE	0.00	0.27	0.22	3.36	15.77	1.61	2.18	1.00	0.40	0.44	3.99	0.71	16.88
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-	CPUE	0.00	0.13	0.86	12.40	6.80	0.33	0.20	1.20	0.00	0.00	4.00	0.57	2.21
28OCT	SE	0.00	0.09	0.43	8.70	3.99	0.33	0.20	1.20	0.00	0.00	4.00	0.37	10.47
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-28 Regional Standing Crops (in Thousands) of White Perch Young of Year in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
26JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-	St. Crop	0	4	12	0	54	14	19	13	8	0	26	0	149
09JUL	SE	0	4	12	0	54	7	11	4	5	0	18	0	60
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-	St. Crop	0	107	0	65	22	25	184	35	93	32	46	6	614
22JUL	SE	0	74	0	60	16	15	105	11	54	14	15	3	155
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-	St. Crop	2	167	35	22	43	80	18	10	14	33	49	6	479
06AUG	SE	2	62	19	18	20	29	13	4	7	13	37	6	87
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-	St. Crop	0	125	15	17	31	62	200	22	5	82	2	0	561
20AUG	SE	0	54	7	13	16	23	95	11	3	78	2	0	138
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-	St. Crop	0	146	23	13	37	27	57	<0.005	15	70	37	0	426
02SEP	SE	0	55	8	11	22	17	27	<0.005	8	51	28	0	90
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-	St. Crop	0	174	71	20	23	5	71	9	0	12	199	0	585
16SEP	SE	0	61	35	18	9	4	49	2	0	12	168	0	191
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-	St. Crop	0	32	19	2	16	60	20	9	5	269	18	0	451
30SEP	SE	0	17	7	2	7	23	12	8	3	144	8	0	148
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-	St. Crop	0	28	8	33	62	21	23	1	3	10	81	10	280
15OCT	SE	0	12	6	31	42	17	15	1	3	8	79	10	99
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-	St. Crop	0	6	23	114	18	4	1	1	0	0	79	8	254
28OCT	SE	0	4	12	80	11	4	1	1	0	0	79	5	114
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-29 Regional Density (No./1,000m3) of White Perch Yearling and Older in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-18JUL	DENSITY	0.60	8.13	7.94	1.78	0.85	3.60	1.23	2.10	3.44	2.89	3.19	3.71	3.29
	SE	0.33	1.16	2.03	0.46	0.21	0.95	0.95	0.61	0.77	1.15	0.82	1.03	3.41
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-01AUG	DENSITY	0.01	1.92	2.42	1.40	1.09	3.42	1.42	4.99	8.01	5.20	6.19	2.53	3.22
	SE	0.01	0.51	0.76	0.34	0.87	2.33	0.46	2.15	1.52	2.04	1.39	0.84	4.59
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-14AUG	DENSITY	0.69	2.69	2.64	2.62	0.87	0.99	2.48	0.79	7.16	4.40	6.25	7.52	3.26
	SE	0.18	0.54	0.55	0.53	0.75	0.29	1.33	0.18	2.12	0.72	1.52	2.27	3.98
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-28AUG	DENSITY	0.00	1.44	1.03	0.61	0.00	1.09	0.54	1.34	5.44	2.10	4.34	5.85	1.98
	SE	0.00	0.40	0.22	0.35	0.00	0.22	0.11	0.59	2.13	0.49	0.95	1.89	3.16
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-12SEP	DENSITY	0.19	2.05	2.12	1.83	0.07	2.69	0.28	0.89	11.80	6.17	4.13	9.45	3.47
	SE	0.08	0.41	0.41	1.29	0.04	1.01	0.14	0.33	4.69	1.41	0.74	3.88	6.54
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-25SEP	DENSITY	0.00	2.95	3.94	0.73	0.77	1.56	0.20	0.45	13.93	2.22	3.33	5.50	2.97
	SE	0.00	1.17	0.43	0.29	0.74	1.28	0.12	0.16	4.25	0.75	0.97	2.26	5.34
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-09OCT	DENSITY	0.05	1.50	0.75	0.93	0.80	1.73	0.10	1.79	8.97	4.32	3.08	3.64	2.30
	SE	0.05	0.23	0.11	0.33	0.73	0.43	0.10	0.64	2.10	1.01	0.67	1.20	2.94
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-23OCT	DENSITY	1.38	3.11	2.51	0.66	0.02	2.71	0.52	0.77	7.65	3.77	4.46	1.28	2.40
	SE	0.42	0.69	0.48	0.22	0.02	0.83	0.27	0.18	2.49	0.77	1.30	0.57	3.25
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-30 Regional Standing Crops (in Thousands) of White Perch in Hudson River Estuary Determined From Fall Shoals Survey, 1992 Yearling and Older

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-	St. Crop	138	2616	1173	370	175	503	367	347	487	509	512	475	7673
18JUL	SE	75	374	299	96	43	132	284	100	109	202	132	132	665
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-	St. Crop	3	617	358	291	227	478	423	826	1133	916	994	324	6590
01AUG	SE	3	163	113	72	181	325	138	356	215	359	223	108	752
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-	St. Crop	158	865	390	545	180	138	739	131	1013	775	1004	963	6903
14AUG	SE	42	175	81	110	155	41	396	30	299	127	244	291	696
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-	St. Crop	0	462	153	128	0	153	162	222	770	370	697	749	3866
28AUG	SE	0	129	32	73	0	31	32	98	301	86	153	242	463
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-	St. Crop	44	659	314	380	14	376	83	147	1670	1088	664	1210	6648
12SEP	SE	19	131	60	268	8	141	42	54	664	249	120	497	939
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-	St. Crop	0	950	582	151	160	219	61	74	1971	391	535	704	5798
25SEP	SE	0	378	63	60	154	178	35	27	601	133	156	289	833
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-	St. Crop	12	483	111	194	166	242	29	296	1269	762	495	466	4523
09OCT	SE	12	73	17	68	152	60	29	106	298	178	108	154	452
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-	St. Crop	316	1002	370	137	4	378	154	127	1083	664	717	163	5115
23OCT	SE	97	223	72	46	4	116	80	31	352	136	209	74	528
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-31 Regional Catch-Per-Unit-Effort (CPUE) of White Perch Yearling and Older in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-26JUN	CPUE	0.67	42.55	30.43	5.67	4.33	23.33	7.38	9.75	3.50	13.53	9.53	13.17	13.65
	SE	0.67	12.41	16.43	1.45	3.38	8.09	2.31	4.21	1.69	3.75	1.87	6.92	24.38
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-09JUL	CPUE	0.33	9.55	3.29	1.67	10.33	12.00	11.88	10.63	18.13	14.73	35.26	1.33	10.76
	SE	0.33	3.37	1.55	1.20	4.81	6.24	1.52	2.50	5.83	5.26	8.54	0.78	14.87
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-22JUL	CPUE	0.00	6.64	5.86	6.00	11.67	3.67	7.50	5.63	4.88	15.73	32.16	5.08	8.73
	SE	0.00	1.77	1.40	3.06	4.63	2.19	2.59	1.31	1.76	3.10	7.13	1.56	10.72
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-06AUG	CPUE	0.40	13.58	2.50	6.40	3.60	4.67	2.40	2.60	2.60	9.00	11.30	2.00	5.09
	SE	0.40	4.26	0.64	3.28	1.60	4.10	1.50	1.69	1.66	2.67	4.60	1.53	9.35
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-20AUG	CPUE	0.20	3.96	4.79	0.40	3.60	3.00	7.80	10.60	0.20	3.33	11.90	1.57	4.28
	SE	0.20	1.54	2.72	0.40	1.36	1.10	4.13	6.35	0.20	1.76	4.49	0.75	9.71
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-02SEP	CPUE	0.00	3.50	5.57	3.00	6.00	3.17	7.80	0.60	3.20	1.22	2.00	0.29	3.03
	SE	0.00	1.12	1.98	2.02	3.21	1.87	5.69	0.60	1.83	0.70	0.97	0.29	7.79
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-16SEP	CPUE	0.40	2.21	3.14	4.00	2.20	1.67	1.80	4.20	0.00	0.11	7.80	1.14	2.39
	SE	0.40	1.08	0.94	3.30	1.16	1.17	1.11	1.20	0.00	0.11	2.73	0.83	5.16
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-30SEP	CPUE	1.20	0.83	1.64	7.40	5.60	2.50	2.40	4.40	5.00	3.33	1.90	0.43	3.05
	SE	0.73	0.44	0.55	3.44	2.25	1.52	1.60	1.33	1.58	1.05	0.98	0.43	5.42
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-15OCT	CPUE	0.40	0.42	3.79	7.00	1.60	1.83	0.20	0.60	0.20	0.00	0.30	0.00	1.36
	SE	0.40	0.21	1.68	5.07	0.68	0.87	0.20	0.60	0.20	0.00	0.21	0.00	5.52
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-28OCT	CPUE	1.60	0.71	1.71	8.40	0.40	0.17	21.20	1.20	0.00	0.00	0.00	0.00	2.95
	SE	0.93	0.24	1.34	4.88	0.40	0.17	20.70	0.73	0.00	0.00	0.00	0.00	21.35
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-32 Regional Standing Crops (in Thousands) of White Perch Yearling and Older in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-	St. Crop	5	1933	818	52	11	249	52	12	30	238	187	179	3767
26JUN	SE	5	564	442	13	9	86	16	5	15	66	37	94	732
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-	St. Crop	3	434	88	15	27	128	84	13	156	259	694	18	1919
09JUL	SE	3	153	42	11	13	67	11	3	50	92	168	11	263
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-	St. Crop	0	302	158	55	31	39	53	7	42	276	633	69	1664
22JUL	SE	0	81	38	28	12	23	18	2	15	54	140	21	182
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-	St. Crop	3	617	67	59	9	50	17	3	22	158	222	27	1256
06AUG	SE	3	194	17	30	4	44	11	2	14	47	91	21	228
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-	St. Crop	2	180	129	4	9	32	55	13	2	59	234	21	739
20AUG	SE	2	70	73	4	4	12	29	8	2	31	88	10	142
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-	St. Crop	0	159	150	28	16	34	55	1	28	21	39	4	534
02SEP	SE	0	51	53	19	8	20	40	1	16	12	19	4	93
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-	St. Crop	3	100	85	37	6	18	13	5	0	2	153	16	437
16SEP	SE	3	49	25	30	3	13	8	1	0	2	54	11	85
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-	St. Crop	9	38	44	68	15	27	17	5	43	59	37	6	368
30SEP	SE	6	20	15	32	6	16	11	2	14	19	19	6	55
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-	St. Crop	3	19	102	65	4	20	1	1	2	0	6	0	222
15OCT	SE	3	9	45	47	2	9	1	1	2	0	4	0	67
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-	St. Crop	12	32	46	77	1	2	150	1	0	0	0	0	322
28OCT	SE	7	11	36	45	1	2	147	1	0	0	0	0	158
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-33 Regional Density (No./1,000m3) of Atlantic Tomcod Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-33 Regional Density (No./1,000m3) of Atlantic Tomcod Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-34 Regional Standing Crop (In Thousands) of Atlantic Tomcod Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
18APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
25APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
08MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
30MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
05JUN	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-34 Regional Standing Crop (In Thousands) of Atlantic Tomcod Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-35 Regional Density (No./1,000m3) of Atlantic Tomcod Post Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	DENSITY	NS	84.28	130.19	129.57	38.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	31.89
	SE		42.59	17.41	53.04	31.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	77.12
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	DENSITY	NS	191.07	225.51	1.70	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	34.86
	SE		177.69	157.16	0.68	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	237.23
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	DENSITY	NS	56.79	230.28	53.46	119.32	16.66	0.71	0.00	0.00	0.00	0.00	0.00	0.00	39.77
	SE		26.98	129.10	30.88	47.61	16.51	0.71	0.00	0.00	0.00	0.00	0.00	0.00	144.53
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	DENSITY	NS	42.24	10.08	20.78	22.27	0.96	0.41	0.00	0.00	0.00	0.00	0.00	0.00	8.06
	SE		33.40	3.66	8.17	6.36	0.68	0.41	0.00	0.00	0.00	0.00	0.00	0.00	35.17
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	DENSITY	NS	5.84	22.17	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.34
	SE		2.71	16.76	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.98
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	DENSITY	NS	0.58	0.16	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
	SE		0.29	0.16	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.37
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-35 Regional Density (No./1,000m3) of Atlantic Tomcod Post Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-36 Regional Standing Crop (In Thousands) of Atlantic Tomcod Post Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	St. Crop	NS	19336	41896	19142	8063	0	0	0	0	0	0	0	0	88437
	SE		9771	5603	7835	6644	0	0	0	0	0	0	0	0	15245
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	St. Crop	NS	43835	72573	251	9	0	0	0	0	0	0	0	0	116667
	SE		40767	50577	101	9	0	0	0	0	0	0	0	0	64961
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	St. Crop	NS	13028	74107	7898	24859	3456	99	0	0	0	0	0	0	123447
	SE		6189	41546	4562	9919	3426	99	0	0	0	0	0	0	43535
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	St. Crop	NS	9692	3244	3071	4639	199	57	0	0	0	0	0	0	20901
	SE		7663	1179	1208	1324	142	57	0	0	0	0	0	0	7959
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	St. Crop	NS	1339	7135	0	0	21	0	0	0	0	0	0	0	8495
	SE		623	5392	0	0	21	0	0	0	0	0	0	0	5428
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	St. Crop	NS	133	52	25	0	0	0	0	0	0	0	0	0	209
	SE		66	52	25	0	0	0	0	0	0	0	0	0	88
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-36 Regional Standing Crop (In Thousands) of Atlantic Tomcod Post Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-37 Regional Density (No./1,000m3) of Atlantic Tomcod Young of Year in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	DENSITY	NS	0.29	1.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14
	SE		0.29	0.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.76
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	DENSITY	NS	14.35	2.48	4.95	7.30	1.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.55
	SE		8.30	1.35	3.68	3.33	1.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.89
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	DENSITY	NS	125.00	8.85	13.92	19.41	3.41	1.71	0.00	0.00	0.00	0.00	0.00	0.00	14.36
	SE		107.73	2.09	6.50	5.09	2.24	0.79	0.00	0.00	0.00	0.00	0.00	0.00	108.09
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	DENSITY	NS	116.83	131.74	3.37	1.37	4.03	3.52	0.00	0.00	0.00	0.00	0.00	0.00	21.74
	SE		61.28	83.63	1.23	0.89	1.28	3.07	0.00	0.00	0.00	0.00	0.00	0.00	103.74
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	DENSITY	NS	101.03	74.96	10.05	6.13	3.94	0.70	0.24	0.56	0.00	0.00	0.00	0.00	16.47
	SE		41.83	19.34	3.39	1.85	1.85	0.70	0.24	0.43	0.00	0.00	0.00	0.00	46.29
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	DENSITY	NS	44.62	47.07	19.10	4.35	25.96	7.73	0.49	0.00	0.00	0.00	0.00	0.00	12.44
	SE		15.80	28.50	11.71	2.65	9.97	4.29	0.49	0.00	0.00	0.00	0.00	0.00	36.39
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	DENSITY	NS	33.98	7.02	0.00	33.38	13.36	0.68	0.49	0.00	0.00	0.00	0.00	0.00	7.41
	SE		17.14	2.89	0.00	24.75	9.82	0.32	0.25	0.00	0.00	0.00	0.00	0.00	31.80
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	DENSITY	61.58	16.96	12.68	6.78	1.96	3.51	0.85	0.18	0.00	0.00	0.00	0.00	0.00	8.04
	SE	37.54	8.00	3.38	2.95	0.94	1.59	0.38	0.18	0.00	0.00	0.00	0.00	0.00	38.69
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	DENSITY	10.91	28.49	13.82	21.92	7.62	10.55	2.57	0.39	0.00	0.00	0.00	0.00	0.00	7.41
	SE	9.07	9.07	6.64	3.66	3.39	4.20	2.06	0.23	0.00	0.00	0.00	0.00	0.00	15.98
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	DENSITY	6.91	13.94	8.71	2.11	16.11	1.56	3.63	0.18	0.00	0.00	0.00	0.00	0.00	4.09
	SE	5.30	10.71	3.39	1.31	4.16	0.42	2.22	0.18	0.00	0.00	0.00	0.00	0.00	13.36
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-37 Regional Density (No./1,000m3) of Atlantic Tomcod Young of Year in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	DENSITY	0.00	0.00	0.24	0.00	3.98	6.45	1.83	0.00	0.00	0.00	0.00	0.00	0.00	0.96
	SE	0.00	0.00	0.14	0.00	2.19	3.28	0.62	0.00	0.00	0.00	0.00	0.00	0.00	4.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	DENSITY	8.98	5.14	9.96	2.49	10.67	1.82	4.68	0.90	0.25	0.00	0.00	0.00	0.00	3.45
	SE	3.29	2.31	4.33	1.54	5.36	0.51	1.81	0.55	0.16	0.00	0.00	0.00	0.00	8.36
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	DENSITY	31.39	0.00	0.66	0.53	10.45	3.58	5.27	0.65	NS	NS	NS	NS	NS	6.57
	SE	22.33	0.00	0.66	0.27	3.55	1.87	3.71	0.35						23.01
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	DENSITY	5.36	3.22	1.63	2.15	11.20	1.99	5.55	0.45	NS	NS	NS	NS	NS	3.94
	SE	1.36	0.62	0.46	1.53	5.08	1.04	2.87	0.45						6.34
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	DENSITY	0.00	0.75	0.00	1.54	1.14	13.39	5.31	2.29	NS	NS	NS	NS	NS	3.05
	SE	0.00	0.41	0.00	1.54	0.60	3.85	1.33	1.17						4.57
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	DENSITY	3.56	0.45	1.56	0.80	3.07	10.86	16.28	3.86	NS	NS	NS	NS	NS	5.05
	SE	2.37	0.45	0.81	0.80	1.41	1.46	5.05	2.55						6.58
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	DENSITY	0.00	0.00	0.00	0.00	2.77	4.42	3.69	1.93	NS	NS	NS	NS	NS	1.60
	SE	0.00	0.00	0.00	0.00	0.95	2.83	1.06	1.58						3.55
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	DENSITY	1.64	0.52	2.62	2.17	1.99	3.73	2.86	3.45	NS	NS	NS	NS	NS	2.37
	SE	1.64	0.52	1.40	0.96	0.24	1.68	1.50	0.92						3.44
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	DENSITY	0.00	0.79	0.24	2.52	3.52	2.35	2.45	1.14	NS	NS	NS	NS	NS	1.63
	SE	0.00	0.79	0.24	1.30	1.20	0.86	1.37	0.27						2.55
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-38 Regional Standing Crop (In Thousands) of Atlantic Tomcod Young of Year
in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	St. Crop	NS	67	429	0	0	0	0	0	0	0	0	0	0	496
	SE		67	224	0	0	0	0	0	0	0	0	0	0	234
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	St. Crop	NS	3292	798	732	1521	326	0	0	0	0	0	0	0	6669
	SE		1904	433	544	694	326	0	0	0	0	0	0	0	2167
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	St. Crop	NS	28678	2847	2056	4044	707	239	0	0	0	0	0	0	38570
	SE		24716	674	960	1060	464	110	0	0	0	0	0	0	24771
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	St. Crop	NS	26802	42396	497	285	837	492	0	0	0	0	0	0	71309
	SE		14058	26912	182	186	265	429	0	0	0	0	0	0	30368
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	St. Crop	NS	23178	24123	1485	1276	818	98	72	93	0	0	0	0	51143
	SE		9596	6223	501	386	384	98	72	71	0	0	0	0	11462
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	St. Crop	NS	10237	15149	2822	906	5386	1080	147	0	0	0	0	0	35728
	SE		3625	9172	1730	552	2069	600	147	0	0	0	0	0	10258
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	St. Crop	NS	7796	2259	0	6953	2771	96	147	0	0	0	0	0	20023
	SE		3932	929	0	5157	2037	44	74	0	0	0	0	0	6861
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	St. Crop	12872	3892	4080	1002	408	728	119	54	0	0	0	0	0	23154
	SE	7845	1835	1088	436	196	330	53	54	0	0	0	0	0	8151
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	St. Crop	2280	6537	4448	3238	1588	2190	359	118	0	0	0	0	0	20757
	SE	1895	2081	2137	541	707	871	288	68	0	0	0	0	0	3758
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	St. Crop	1444	3198	2803	312	3356	324	508	54	0	0	0	0	0	11999
	SE	1107	2457	1091	193	868	87	310	54	0	0	0	0	0	3058
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-38 Regional Standing Crop (In Thousands) of Atlantic Tomcod Young of Year
In Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	St. Crop	0	0	76	0	828	1338	256	0	0	0	0	0	0	2498
	SE	0	0	46	0	457	680	86	0	0	0	0	0	0	825
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	St. Crop	1877	1180	3205	367	2224	377	655	268	42	0	0	0	0	10194
	SE	687	531	1394	228	1117	105	253	163	26	0	0	0	0	2024
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	St. Crop	6561	0	214	78	2178	743	736	193	NS	NS	NS	NS	NS	10703
	SE	4668	0	214	40	740	389	519	105						4777
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	St. Crop	1120	740	524	317	2334	412	776	136	NS	NS	NS	NS	NS	6357
	SE	285	142	149	227	1059	215	402	136						1234
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	St. Crop	0	171	0	227	239	2778	743	683	NS	NS	NS	NS	NS	4841
	SE	0	94	0	227	125	799	186	349						933
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	St. Crop	744	103	501	118	640	2252	2275	1150	NS	NS	NS	NS	NS	7783
	SE	495	103	261	118	294	304	706	761						1263
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	St. Crop	0	0	0	0	577	918	516	574	NS	NS	NS	NS	NS	2585
	SE	0	0	0	0	198	588	149	472						794
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	St. Crop	343	118	843	320	414	774	399	1029	NS	NS	NS	NS	NS	4241
	SE	343	118	450	142	50	348	210	275						773
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	St. Crop	0	181	77	372	734	487	342	340	NS	NS	NS	NS	NS	2533
	SE	0	181	77	192	250	179	192	81						462
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-39 Regional Density (No./1,000m3) of Atlantic Tomcod Young of Year in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-	DENSITY	34.11	3.90	7.89	30.47	3.11	5.44	0.60	0.10	0.00	0.02	0.00	0.05	7.14
18JUL	SE	4.22	1.59	2.30	21.83	1.40	4.55	0.27	0.06	0.00	0.02	0.00	0.05	22.91
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-	DENSITY	2.65	3.71	1.19	1.23	6.35	2.15	1.95	0.07	0.03	0.02	0.00	0.00	1.61
01AUG	SE	1.32	0.77	0.36	0.37	4.41	0.63	0.52	0.05	0.03	0.02	0.00	0.00	4.76
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-	DENSITY	2.19	1.66	1.37	0.57	14.87	1.89	0.75	0.11	0.08	0.00	0.00	0.00	1.96
14AUG	SE	0.25	0.37	0.14	0.20	5.82	0.21	0.37	0.05	0.04	0.00	0.00	0.00	5.86
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-	DENSITY	0.29	0.54	0.54	1.17	3.17	2.98	1.86	0.25	0.19	0.00	0.00	0.00	0.91
28AUG	SE	0.17	0.18	0.16	0.64	0.63	0.37	0.48	0.04	0.09	0.00	0.00	0.00	1.13
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-	DENSITY	1.31	0.32	0.14	0.32	10.75	13.75	1.13	0.86	0.31	0.16	0.02	0.00	2.42
12SEP	SE	0.22	0.17	0.05	0.05	2.52	6.92	0.41	0.49	0.14	0.09	0.02	0.00	7.40
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-	DENSITY	0.35	0.99	0.84	2.73	1.89	3.93	0.68	0.36	1.78	0.19	0.00	0.00	1.14
25SEP	SE	0.07	0.23	0.18	1.35	0.46	0.71	0.39	0.17	0.82	0.13	0.00	0.00	1.86
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-	DENSITY	1.39	3.56	0.44	2.79	2.34	1.11	1.63	0.72	1.14	0.42	0.04	0.00	1.30
09OCT	SE	0.32	0.69	0.10	0.61	0.57	0.31	0.39	0.15	0.28	0.17	0.03	0.00	1.29
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-	DENSITY	2.56	3.69	2.08	2.52	1.45	1.07	1.63	0.28	2.95	2.00	0.85	0.00	1.76
23OCT	SE	0.58	0.74	0.37	0.81	0.62	0.47	0.47	0.13	0.65	0.55	0.33	0.00	1.83
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-40 Regional Standing Crops (in Thousands) of Atlantic Tomcod Young of Year in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-	St. Crop	7827	1257	1166	6349	646	761	179	16	0	4	0	7	18209
18JUL	SE	968	511	340	4547	291	635	80	10	0	4	0	7	4742
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-	St. Crop	609	1195	176	256	1318	301	580	11	4	4	0	0	4453
01AUG	SE	303	249	54	78	914	87	155	7	4	4	0	0	1015
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-	St. Crop	502	533	202	119	3084	264	224	19	11	0	0	0	4958
14AUG	SE	56	118	21	41	1208	30	109	9	6	0	0	0	1222
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-	St. Crop	65	174	80	245	657	417	554	41	26	0	0	0	2258
28AUG	SE	39	59	24	133	131	52	142	6	12	0	0	0	252
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-	St. Crop	300	101	21	67	2230	1922	335	142	44	28	3	0	5195
12SEP	SE	51	55	8	10	523	967	123	81	19	16	3	0	1112
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-	St. Crop	80	317	124	569	391	549	204	60	252	33	0	0	2578
25SEP	SE	16	74	26	280	96	99	117	28	115	23	0	0	364
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-	St. Crop	319	1146	65	581	486	155	485	119	161	73	7	0	3597
09OCT	SE	75	222	15	127	117	44	115	25	40	30	5	0	321
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-	St. Crop	587	1186	307	525	302	149	486	47	417	353	137	0	4495
23OCT	SE	133	238	55	168	128	66	141	22	92	98	53	0	409
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-41 Regional Catch-Per-Unit-Effort (CPUE) of Atlantic Tomcod Young of Year in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-26JUN	CPUE	1.33	1.27	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25
	SE	0.67	0.69	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.05
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-09JUL	CPUE	0.00	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42
	SE	0.00	2.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.30
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-22JUL	CPUE	0.00	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
	SE	0.00	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.37
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-06AUG	CPUE	0.00	0.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
	SE	0.00	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.35
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-20AUG	CPUE	0.20	2.00	0.21	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22
	SE	0.20	1.18	0.11	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.22
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-02SEP	CPUE	0.20	0.67	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10
	SE	0.20	0.33	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.52
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-16SEP	CPUE	0.00	0.75	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
	SE	0.00	0.30	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.37
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-30SEP	CPUE	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
	SE	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-15OCT	CPUE	0.20	0.75	0.14	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11
	SE	0.20	0.28	0.14	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-28OCT	CPUE	0.40	3.96	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39
	SE	0.24	3.61	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.63
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-42 Regional Standing Crops (in Thousands) of Atlantic Tomcod Young of Year in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-	St. Crop	10	58	12	0	0	0	0	0	0	0	0	0	79
26JUN	SE	5	31	12	0	0	0	0	0	0	0	0	0	34
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-	St. Crop	0	227	0	0	0	0	0	0	0	0	0	0	227
09JUL	SE	0	105	0	0	0	0	0	0	0	0	0	0	105
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-	St. Crop	0	25	0	0	0	0	0	0	0	0	0	0	25
22JUL	SE	0	17	0	0	0	0	0	0	0	0	0	0	17
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-	St. Crop	0	27	0	0	0	0	0	0	0	0	0	0	27
06AUG	SE	0	16	0	0	0	0	0	0	0	0	0	0	16
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-	St. Crop	2	91	6	2	0	0	0	0	0	0	0	0	100
20AUG	SE	2	54	3	2	0	0	0	0	0	0	0	0	54
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-	St. Crop	2	30	10	0	0	0	0	0	0	0	0	0	41
02SEP	SE	2	15	10	0	0	0	0	0	0	0	0	0	18
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-	St. Crop	0	34	6	0	0	0	0	0	0	0	0	0	40
16SEP	SE	0	13	6	0	0	0	0	0	0	0	0	0	15
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-	St. Crop	0	0	13	0	0	0	0	0	0	0	0	0	13
30SEP	SE	0	0	5	0	0	0	0	0	0	0	0	0	5
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-	St. Crop	2	34	4	2	0	0	0	0	0	0	0	0	41
15OCT	SE	2	13	4	2	0	0	0	0	0	0	0	0	13
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-	St. Crop	3	180	8	0	0	0	0	0	0	0	0	0	191
28OCT	SE	2	164	6	0	0	0	0	0	0	0	0	0	164
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-43 Regional Density (No./1,000m3) of Atlantic Tomcod Yearling and Older in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-18JUL	DENSITY	0.25	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
	SE	0.18	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-01AUG	DENSITY	0.04	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
	SE	0.04	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-14AUG	DENSITY	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<0.005
	SE	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-28AUG	DENSITY	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<0.005
	SE	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-12SEP	DENSITY	0.34	0.12	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
	SE	0.18	0.08	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-25SEP	DENSITY	0.03	0.11	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
	SE	0.03	0.06	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-09OCT	DENSITY	0.62	0.10	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
	SE	0.19	0.05	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-23OCT	DENSITY	0.76	0.12	0.08	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.10
	SE	0.17	0.05	0.04	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.21
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-44 Regional Standing Crops (in Thousands) of Atlantic Tomcod Yearling and Older in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-	St. Crop	58	22	0	0	0	0	0	0	0	0	0	0	80
18JUL	SE	41	19	0	0	0	0	0	0	0	0	0	0	45
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-	St. Crop	9	10	0	0	0	0	0	0	0	0	0	0	19
01AUG	SE	9	7	0	0	0	0	0	0	0	0	0	0	11
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-	St. Crop	10	0	0	0	0	0	0	0	0	0	0	0	10
14AUG	SE	10	0	0	0	0	0	0	0	0	0	0	0	10
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-	St. Crop	0	7	0	0	0	0	0	0	0	0	0	0	7
28AUG	SE	0	7	0	0	0	0	0	0	0	0	0	0	7
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-	St. Crop	77	40	0	0	3	0	0	0	0	0	0	0	120
12SEP	SE	40	27	0	0	3	0	0	0	0	0	0	0	49
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-	St. Crop	8	36	3	0	0	0	0	0	0	0	0	0	47
25SEP	SE	8	20	3	0	0	0	0	0	0	0	0	0	22
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-	St. Crop	142	31	0	24	0	0	0	0	0	0	0	0	196
09OCT	SE	44	15	0	15	0	0	0	0	0	0	0	0	49
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-	St. Crop	173	40	11	22	0	0	0	0	0	0	15	0	262
23OCT	SE	38	17	6	14	0	0	0	0	0	0	15	0	47
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-45 Regional Catch-Per-Unit-Effort (CPUE) of Atlantic Tomcod Yearling and Older in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-26JUN	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-09JUL	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-22JUL	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-06AUG	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-20AUG	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-02SEP	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-16SEP	CPUE	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<0.005
	SE	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-30SEP	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-15OCT	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-28OCT	CPUE	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
	SE	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-46 Regional Standing Crops (in Thousands) of Atlantic Tomcod Yearling and Older in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-26JUN	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-09JUL	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-22JUL	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-06AUG	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-20AUG	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-02SEP	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-16SEP	St. Crop	0	2	0	0	0	0	0	0	0	0	0	0	2
	SE	0	2	0	0	0	0	0	0	0	0	0	0	2
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-30SEP	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-15OCT	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-28OCT	St. Crop	0	9	0	0	0	0	0	0	0	0	0	0	9
	SE	0	5	0	0	0	0	0	0	0	0	0	0	5
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-47 Regional Density (No./1,000m3) of Bay Anchovy Eggs
in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	DENSITY	NS	0.00	0.00	0.00	2.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22
	SE		0.00	0.00	0.00	2.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.62
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	DENSITY	NS	0.00	0.00	0.00	0.00	11.25	1.45	0.67	0.57	1.25	0.00	12.61	0.00	2.32
	SE		0.00	0.00	0.00	0.00	11.25	1.42	0.67	0.57	0.89	0.00	11.43	0.00	16.15
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	DENSITY	NS	3.40	0.41	0.00	0.00	0.00	0.45	0.00	0.85	0.50	0.39	0.00	1.38	0.62
	SE		2.51	0.41	0.00	0.00	0.00	0.41	0.00	0.48	0.50	0.39	0.00	1.11	2.91
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	DENSITY	NS	881.39	3344.89	288.66	39.13	1.20	0.00	0.00	0.00	1.15	0.00	0.00	0.00	379.70
	SE		591.56	2166.95	220.91	35.92	0.68	0.00	0.00	0.00	0.82	0.00	0.00	0.00	2257.36
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	DENSITY	NS	3064.77	2482.47	48.73	0.00	0.00	0.16	0.25	0.00	0.00	0.00	0.00	0.00	466.37
	SE		416.20	433.08	18.85	0.00	0.00	0.16	0.25	0.00	0.00	0.00	0.00	0.00	600.95
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	DENSITY	20748.06	831.56	0.62	0.00	0.00	0.12	0.00	0.74	0.00	0.28	0.00	0.00	0.00	1660.11
	SE	9645.98	736.65	0.62	0.00	0.00	0.12	0.00	0.74	0.00	0.28	0.00	0.00	0.00	9674.07
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	DENSITY	7682.94	24224.36	262.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.87	2474.65
	SE	1254.58	12469.71	183.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.87	12534.01
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	DENSITY	10965.67	13042.32	15252.31	67.23	23.76	0.00	1.59	0.00	0.00	0.00	0.00	0.00	1.57	3027.27
	SE	3661.08	3934.43	6484.43	67.23	10.57	0.00	1.59	0.00	0.00	0.00	0.00	0.00	1.57	8422.34
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-47 Regional Density (No./1,000m3) of Bay Anchovy Eggs
in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	DENSITY	6123.20	59580.54	34571.53	4314.65	246.44	0.00	0.00	0.00	0.26	7.20	0.00	11.74	6.38	8066.30
	SE	2156.44	14698.26	5815.75	1699.33	170.74	0.00	0.00	0.00	0.16	7.20	0.00	11.74	6.38	16044.60
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	DENSITY	35258.87	33980.58	18401.57	1089.62	0.08	0.00	0.00	0.00	0.00	0.00	3.55	0.00	0.64	6825.76
	SE	5902.84	5363.86	4208.52	864.12	0.05	0.00	0.00	0.00	0.00	0.00	3.55	0.00	0.64	9059.41
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	DENSITY	22693.50	9131.99	3245.36	178.48	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	4406.16
	SE	5288.00	2635.37	1350.10	69.54	0.00	0.00	0.00	0.00						6061.00
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	DENSITY	2805.46	1050.51	21.15	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	484.64
	SE	1792.11	322.32	14.07	0.00	0.00	0.00	0.00	0.00						1820.92
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	DENSITY	0.00	0.00	129.93	0.00	0.17	0.00	0.00	0.00	NS	NS	NS	NS	NS	16.26
	SE	0.00	0.00	85.84	0.00	0.17	0.00	0.00	0.00						85.84
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	DENSITY	0.00	0.00	0.70	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.09
	SE	0.00	0.00	0.70	0.00	0.00	0.00	0.00	0.00						0.70
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-48 Regional Standing Crop (In Thousands) of Bay Anchovy Eggs in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	St. Crop	NS	0	0	0	546	0	0	0	0	0	0	0	0	546
	SE		0	0	0	546	0	0	0	0	0	0	0	0	546
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	St. Crop	NS	0	0	0	0	2333	203	198	95	177	0	2027	0	5033
	SE		0	0	0	0	2333	198	198	95	126	0	1837	0	2987
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	St. Crop	NS	781	133	0	0	0	63	0	141	70	69	0	176	1433
	SE		575	133	0	0	0	58	0	79	70	69	0	142	623
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	St. Crop	NS	202208	1076424	42645	8152	248	0	0	0	162	0	0	0	1329840
	SE		135716	697348	32637	7484	140	0	0	0	116	0	0	0	711220
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	St. Crop	NS	703121	798888	7200	0	0	23	75	0	0	0	0	0	1509307
	SE		95484	139371	2785	0	0	23	75	0	0	0	0	0	168965
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	St. Crop	4336609	190777	201	0	0	24	0	222	0	40	0	0	0	4527873
	SE	2016134	169002	201	0	0	24	0	222	0	40	0	0	0	2023205
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	St. Crop	1605833	5557560	84388	0	0	0	0	0	0	0	0	0	111	7247893
	SE	262223	2860804	59131	0	0	0	0	0	0	0	0	0	111	2873405
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	St. Crop	2291965	2992173	4908368	9933	4950	0	223	0	0	0	0	0	201	10207813
	SE	765212	902639	2086764	9933	2202	0	223	0	0	0	0	0	201	2398957
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-48 Regional Standing Crop (In Thousands) of Bay Anchovy Eggs in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	St. Crop	1279827	13668984	11125515	637433	51343	0	0	0	43	1019	0	1887	817	26766868
	SE	450723	3372079	1871576	251054	35572	0	0	0	26	1019	0	1887	817	3891165
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	St. Crop	7369554	7795833	5921835	160977	16	0	0	0	0	0	625	0	81	21248922
	SE	1233769	1230578	1354350	127662	10	0	0	0	0	0	625	0	81	2210672
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	St. Crop	4743231	2095064	1044393	26367	0	0	0	0	NS	NS	NS	NS	NS	7909055
	SE	1105260	604608	434476	10273	0	0	0	0						1332677
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	St. Crop	586378	241009	6805	0	0	0	0	0	NS	NS	NS	NS	NS	834192
	SE	374574	73947	4529	0	0	0	0	0						381830
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	St. Crop	0	0	41815	0	35	0	0	0	NS	NS	NS	NS	NS	41850
	SE	0	0	27624	0	35	0	0	0						27624
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	St. Crop	0	0	225	0	0	0	0	0	NS	NS	NS	NS	NS	225
	SE	0	0	225	0	0	0	0	0						225
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-49 Regional Density (No./1,000m3) of Bay Anchovy Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	DENSITY	0.00	1.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
	SE	0.00	0.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.95
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-49 Regional Density (No./1,000m3) of Bay Anchovy Yolk-Sac Larvae
in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	DENSITY	0.00	0.00	2.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17
	SE	0.00	0.00	1.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.49
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-50 Regional Standing Crop (In Thousands) of Bay Anchovy Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	St. Crop	0	238	0	0	0	0	0	0	0	0	0	0	0	238
	SE	0	218	0	0	0	0	0	0	0	0	0	0	0	218
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-50 Regional Standing Crop (In Thousands) of Bay Anchovy Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-	St. Crop	0	0	706	0	0	0	0	0	0	0	0	0	0	706
10JUL	SE	0	0	481	0	0	0	0	0	0	0	0	0	0	481
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
22JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
06AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
20AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
03SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
17SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
30SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-51 Regional Density (No./1,000m3) of Bay Anchovy Post Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	DENSITY	NS	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
	SE		0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	0.03
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	0.40
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.42	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.04
	SE		0.00	0.00	0.00	0.00	0.42	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.42
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	DENSITY	NS	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
	SE		0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	DENSITY	2.74	1.57	0.43	0.00	0.00	0.00	2.64	0.00	0.00	0.00	0.00	0.00	0.00	0.57
	SE	1.33	0.85	0.43	0.00	0.00	0.00	2.64	0.00	0.00	0.00	0.00	0.00	0.00	3.11
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	DENSITY	48.05	54.65	72.72	3.24	3.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.02
	SE	18.97	13.79	24.76	2.53	3.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	34.38
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	DENSITY	49.49	352.18	101.56	150.27	51.28	0.00	0.56	0.00	0.25	4.30	6.52	0.00	0.00	55.11
	SE	13.07	132.20	33.95	39.38	13.21	0.00	0.56	0.00	0.25	4.30	6.52	0.00	0.00	143.48
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-51 Regional Density (No./1,000m3) of Bay Anchovy Post Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	DENSITY	150.65	57.88	343.38	977.40	1085.42	57.84	18.78	0.00	0.00	5.06	0.00	0.00	0.00	207.42
	SE	47.58	14.99	233.94	195.84	149.94	14.97	3.67	0.00	0.00	3.85	0.00	0.00	0.00	343.96
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	DENSITY	14.04	1253.55	606.47	2368.44	682.52	43.48	146.28	0.67	0.00	0.00	0.00	2.55	18.39	395.11
	SE	7.82	1001.15	159.19	438.90	156.64	7.45	45.19	0.67	0.00	0.00	0.00	2.55	18.39	1116.83
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	DENSITY	1627.01	2947.57	4623.08	4716.43	153.08	111.75	101.98	29.85	NS	NS	NS	NS	NS	1788.84
	SE	148.59	821.90	1669.74	1599.85	53.25	17.50	36.76	10.65						2459.63
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	DENSITY	738.34	3293.47	2793.75	2776.05	350.74	101.85	233.88	99.27	NS	NS	NS	NS	NS	1298.42
	SE	179.66	885.18	425.63	577.99	92.79	23.49	25.78	34.30						1158.47
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	DENSITY	829.41	1139.49	1614.23	3180.27	983.77	140.74	134.75	52.75	NS	NS	NS	NS	NS	1009.42
	SE	517.39	149.48	291.24	417.37	259.43	36.06	27.66	13.13						786.51
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	DENSITY	1277.96	851.06	1793.45	5261.14	765.61	641.65	307.99	241.87	NS	NS	NS	NS	NS	1392.59
	SE	303.88	174.42	467.62	1052.92	147.81	187.27	69.97	96.23						1233.35
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	DENSITY	297.32	1091.67	574.70	248.66	245.90	67.98	124.95	32.36	NS	NS	NS	NS	NS	335.44
	SE	56.33	390.78	122.50	41.77	28.92	18.59	24.62	10.66						417.77
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	DENSITY	186.69	158.17	187.19	278.54	86.05	71.36	33.86	35.70	NS	NS	NS	NS	NS	129.69
	SE	24.73	39.10	33.33	72.06	35.50	8.22	7.63	12.92						99.98
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	DENSITY	13.90	13.63	51.66	66.22	23.57	30.27	24.61	12.31	NS	NS	NS	NS	NS	29.52
	SE	4.30	3.32	12.37	20.06	3.96	5.94	10.85	7.48						28.45
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-52 Regional Standing Crop (In Thousands) of Bay Anchovy Post Yolk-Sac Larvae
in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-	St. Crop	NS	0	0	0	19	0	0	0	0	0	0	0	0	19
18APR	SE		0	0	0	19	0	0	0	0	0	0	0	0	19
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	51	51
25APR	SE		0	0	0	0	0	0	0	0	0	0	0	51	51
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-	St. Crop	NS	0	0	0	0	86	5	0	0	0	0	0	0	91
08MAY	SE		0	0	0	0	86	5	0	0	0	0	0	0	87
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
30MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-	St. Crop	NS	0	0	33	0	0	0	0	0	0	0	0	0	33
05JUN	SE		0	0	33	0	0	0	0	0	0	0	0	0	33
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-	St. Crop	574	361	137	0	0	0	370	0	0	0	0	0	0	1441
12JUN	SE	278	195	137	0	0	0	370	0	0	0	0	0	0	520
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-	St. Crop	10042	12538	23402	478	740	0	0	0	0	0	0	0	0	47200
19JUN	SE	3965	3163	7967	373	740	0	0	0	0	0	0	0	0	9481
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-	St. Crop	10344	80797	32682	22201	10683	0	79	0	41	609	1149	0	0	158585
26JUN	SE	2732	30330	10926	5818	2753	0	79	0	41	609	1149	0	0	33013
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-52 Regional Standing Crop (In Thousands) of Bay Anchovy Post Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	St. Crop	31487	13278	110504	144397	226133	12000	2625	0	0	716	0	0	0	541142
	SE	9945	3440	75286	28933	31238	3105	514	0	0	545	0	0	0	87189
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	St. Crop	2935	287591	195169	349906	142194	9020	20449	201	0	0	0	410	2355	1010230
	SE	1634	229684	51230	64842	32634	1545	6318	201	0	0	0	410	2355	246373
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	St. Crop	340066	676231	1487759	696789	31893	23183	14255	8900	NS	NS	NS	NS	NS	3279076
	SE	31057	188561	537342	236357	11094	3631	5139	3174						617490
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	St. Crop	154322	755590	899062	410125	73071	21130	32694	29594	NS	NS	NS	NS	NS	2375589
	SE	37552	203077	136972	85390	19331	4874	3604	10227						263094
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	St. Crop	173357	261422	519477	469842	204956	29197	18836	15727	NS	NS	NS	NS	NS	1692814
	SE	108140	34293	93724	61661	54049	7480	3867	3916						168713
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	St. Crop	267111	195250	577153	777264	159505	133113	43054	72110	NS	NS	NS	NS	NS	2224559
	SE	63515	40015	150485	155555	30793	38850	9781	28689						236336
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	St. Crop	62144	250452	184946	36737	51229	14103	17468	9648	NS	NS	NS	NS	NS	626726
	SE	11773	89653	39420	6171	6026	3856	3442	3179						99204
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	St. Crop	39020	36288	60239	41151	17928	14803	4734	10644	NS	NS	NS	NS	NS	224805
	SE	5168	8971	10725	10645	7397	1704	1066	3853						20227
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	St. Crop	2904	3127	16626	9783	4910	6279	3440	3669	NS	NS	NS	NS	NS	50738
	SE	898	762	3981	2963	825	1232	1517	2229						5957
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-53 Regional Density (No./1,000m3) of Bay Anchovy Young of Year
in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-53 Regional Density (No./1,000m3) of Bay Anchovy Young of Year in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	DENSITY	0.00	1.12	0.00	0.23	0.04	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.17
	SE	0.00	1.12	0.00	0.23	0.04	0.00	0.00	0.00						1.15
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	DENSITY	73.61	151.19	254.53	236.58	8.42	13.48	36.73	15.20	NS	NS	NS	NS	NS	98.72
	SE	31.36	36.02	74.87	55.38	7.88	2.77	15.41	13.31						106.95
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	DENSITY	238.22	344.38	379.42	733.13	70.18	12.16	19.72	13.47	NS	NS	NS	NS	NS	226.34
	SE	93.84	98.14	144.31	130.51	22.53	5.48	6.94	8.17						238.63
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	DENSITY	208.02	293.38	895.17	1436.85	31.59	25.24	106.43	127.05	NS	NS	NS	NS	NS	390.47
	SE	42.11	67.60	164.54	258.93	21.98	6.59	76.89	92.90						339.90
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	DENSITY	518.27	357.45	710.34	533.17	142.82	24.86	53.32	7.84	NS	NS	NS	NS	NS	293.51
	SE	131.65	48.74	90.52	75.87	35.57	10.31	7.45	4.45						187.36
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	DENSITY	142.42	178.88	318.51	619.98	54.88	64.66	236.37	59.05	NS	NS	NS	NS	NS	209.34
	SE	31.14	25.87	50.09	79.15	7.97	21.39	105.61	17.44						149.64
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	DENSITY	104.28	108.27	268.35	251.62	25.76	31.03	50.31	23.51	NS	NS	NS	NS	NS	107.89
	SE	32.02	16.05	43.71	52.35	12.31	9.39	11.47	13.49						80.54
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-54 Regional Standing Crop (In Thousands) of Bay Anchovy Young of Year in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-54 Regional Standing Crop (In Thousands) of Bay Anchovy Young of Year in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	St. Crop	0	257	0	35	9	0	0	0	NS	NS	NS	NS	NS	301
	SE	0	257	0	35	9	0	0	0						260
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	St. Crop	15386	34685	81912	34952	1754	2797	5134	4531	NS	NS	NS	NS	NS	181151
	SE	6554	8263	24095	8181	1641	575	2154	3968						27967
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	St. Crop	49792	79009	122100	108310	14621	2522	2757	4016	NS	NS	NS	NS	NS	383127
	SE	19614	22514	46441	19281	4694	1136	970	2434						58739
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	St. Crop	43479	67308	288075	212276	6581	5236	14878	37879	NS	NS	NS	NS	NS	675713
	SE	8801	15510	52952	38254	4578	1367	10749	27697						74100
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	St. Crop	108324	82005	228595	78769	29755	5158	7453	2338	NS	NS	NS	NS	NS	542397
	SE	27516	11182	29131	11209	7411	2139	1041	1325						43803
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	St. Crop	29768	41038	102500	91594	11433	13414	33043	17605	NS	NS	NS	NS	NS	340395
	SE	6508	5936	16119	11694	1661	4437	14763	5200						27232
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	St. Crop	21797	24840	86357	37173	5367	6438	7033	7008	NS	NS	NS	NS	NS	196013
	SE	6694	3681	14065	7735	2564	1947	1603	4021						18577
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-55 Regional Density (No./1,000m3) of Bay Anchovy Young of Year in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-18JUL	DENSITY	0.28	57.83	123.91	53.43	18.85	26.21	0.00	0.00	0.36	0.00	0.00	0.00	23.41
	SE	0.28	22.78	39.89	26.53	2.20	25.12	0.00	0.00	0.32	0.00	0.00	0.00	58.74
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-01AUG	DENSITY	86.88	219.13	634.16	298.95	50.67	33.63	22.17	0.51	5.19	0.29	1.82	0.00	112.78
	SE	46.10	65.68	327.42	180.93	6.64	11.64	13.03	0.51	3.08	0.29	0.89	0.00	383.06
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-14AUG	DENSITY	189.19	123.45	153.90	137.68	31.24	144.34	2.47	7.51	31.80	4.40	21.88	1.45	70.78
	SE	45.17	39.17	55.27	36.70	16.87	56.32	1.26	2.29	14.82	1.66	16.37	1.45	109.23
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-28AUG	DENSITY	169.53	340.03	386.09	407.91	87.63	241.28	188.89	23.52	12.38	0.00	2.08	0.04	154.95
	SE	53.87	96.36	166.56	19.51	16.97	27.31	96.62	11.02	9.77	0.00	1.45	0.04	225.60
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-12SEP	DENSITY	116.83	137.58	29.52	40.84	13.26	36.31	204.22	15.16	9.91	2.29	1.66	0.50	50.68
	SE	19.96	24.10	6.40	19.15	4.14	21.49	166.19	6.07	2.61	1.52	1.35	0.50	171.85
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-25SEP	DENSITY	83.66	196.79	141.26	208.81	79.92	430.20	10.03	1.63	14.62	5.06	5.79	0.00	98.15
	SE	31.04	38.33	40.55	39.73	71.22	103.60	6.87	1.03	7.29	3.92	2.64	0.00	146.92
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-09OCT	DENSITY	25.16	85.93	99.81	28.08	46.40	74.52	3.01	0.51	0.00	0.00	0.25	0.00	30.31
	SE	9.84	24.23	47.34	12.81	23.77	7.72	1.98	0.51	0.00	0.00	0.25	0.00	60.98
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-23OCT	DENSITY	107.37	133.50	24.84	3.23	10.94	6.85	1.64	0.00	0.00	0.00	0.00	0.00	24.03
	SE	34.21	44.20	4.02	2.08	5.44	1.03	1.54	0.00	0.00	0.00	0.00	0.00	56.37
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-56 Regional Standing Crops (in Thousands) of Bay Anchovy Young of Year in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-18JUL	St. Crop	65	18611	18306	11131	3911	3664	0	0	52	0	0	0	55740
	SE	65	7330	5893	5527	457	3512	0	0	45	0	0	0	11469
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-01AUG	St. Crop	19933	70520	93688	62283	10512	4701	6608	85	734	51	293	0	269408
	SE	10577	21135	48371	37695	1376	1626	3886	85	436	51	144	0	65872
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-14AUG	St. Crop	43405	39727	22736	28683	6481	20177	736	1242	4499	776	3517	186	172167
	SE	10362	12606	8166	7647	3499	7872	374	379	2096	292	2632	186	21849
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-28AUG	St. Crop	38893	109426	57040	84983	18179	33728	56313	3892	1752	0	334	6	404546
	SE	12359	31009	24607	4064	3520	3817	28806	1824	1383	0	232	6	50974
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-12SEP	St. Crop	26804	44275	4362	8509	2751	5076	60886	2509	1402	404	267	65	157310
	SE	4580	7757	945	3989	859	3004	49547	1004	369	267	217	65	50635
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-25SEP	St. Crop	19194	63329	20870	43502	16579	60138	2990	270	2069	892	930	0	230764
	SE	7122	12335	5990	8278	14774	14483	2048	170	1031	690	424	0	27226
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-09OCT	St. Crop	5772	27655	14745	5850	9625	10418	898	84	0	0	40	0	75087
	SE	2258	7798	6994	2669	4932	1079	589	84	0	0	40	0	12156
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-23OCT	St. Crop	24633	42963	3670	672	2269	958	489	0	0	0	0	0	75654
	SE	7848	14225	594	432	1128	144	460	0	0	0	0	0	16309
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-57 Regional Catch-Per-Unit-Effort (CPUE) of Bay Anchovy Young of Year in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-26JUN	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	<0.005
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.05
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-09JUL	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-22JUL	CPUE	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
	SE	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-06AUG	CPUE	1.40	5.17	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.55
	SE	0.68	2.64	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.72
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-20AUG	CPUE	2.40	2.54	0.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47
	SE	2.40	1.59	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.89
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-02SEP	CPUE	26.80	0.71	0.14	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.35
	SE	12.18	0.36	0.10	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.19
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-16SEP	CPUE	0.20	3.50	0.29	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42
	SE	0.20	1.86	0.16	0.00	0.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.03
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-30SEP	CPUE	989.00	30.88	1.57	3.60	0.00	0.17	0.00	0.00	0.00	0.11	0.00	0.00	85.44
	SE	940.21	12.29	1.35	2.42	0.00	0.17	0.00	0.00	0.00	0.11	0.00	0.00	940.29
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-15OCT	CPUE	2.20	0.08	0.00	0.60	3.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.54
	SE	2.20	0.06	0.00	0.40	2.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.04
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-28OCT	CPUE	1.00	0.38	0.07	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15
	SE	1.00	0.19	0.07	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.10
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-58 Regional Standing Crops (in Thousands) of Bay Anchovy Young of Year in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-26JUN	St. Crop	0	0	0	0	0	0	0	0	0	0	1	0	1
	SE	0	0	0	0	0	0	0	0	0	0	1	0	1
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-09JUL	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-22JUL	St. Crop	3	0	0	0	0	0	0	0	0	0	0	0	3
	SE	3	0	0	0	0	0	0	0	0	0	0	0	3
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-06AUG	St. Crop	11	235	2	0	0	0	0	0	0	0	0	0	247
	SE	5	120	2	0	0	0	0	0	0	0	0	0	120
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-20AUG	St. Crop	18	115	19	0	0	0	0	0	0	0	0	0	153
	SE	18	72	8	0	0	0	0	0	0	0	0	0	75
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-02SEP	St. Crop	202	32	4	6	0	0	0	0	0	0	0	0	243
	SE	92	17	3	4	0	0	0	0	0	0	0	0	93
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-16SEP	St. Crop	2	159	8	0	3	0	0	0	0	0	0	0	171
	SE	2	85	4	0	2	0	0	0	0	0	0	0	85
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-30SEP	St. Crop	7448	1403	42	33	0	2	0	0	0	2	0	0	8930
	SE	7081	558	36	22	0	2	0	0	0	2	0	0	7103
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-15OCT	St. Crop	17	4	0	6	9	0	0	0	0	0	0	0	35
	SE	17	3	0	4	5	0	0	0	0	0	0	0	18
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-28OCT	St. Crop	8	17	2	4	0	0	0	0	0	0	0	0	30
	SE	8	9	2	4	0	0	0	0	0	0	0	0	12
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-59 Regional Density (No./1,000m3) of Bay Anchovy Yearling and Older in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-18JUL	DENSITY	100.46	33.03	8.81	5.47	0.01	1.20	0.00	0.00	0.00	0.00	0.00	0.00	12.42
	SE	39.41	20.16	4.40	2.30	0.01	0.60	0.00	0.00	0.00	0.00	0.00	0.00	44.55
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-01AUG	DENSITY	127.40	61.47	16.11	5.86	8.86	38.12	0.83	0.00	2.11	0.00	0.00	0.00	21.73
	SE	20.90	14.85	6.59	5.46	3.53	11.77	0.67	0.00	0.88	0.00	0.00	0.00	29.71
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-14AUG	DENSITY	20.53	10.12	1.92	0.80	11.31	4.60	5.78	3.30	0.00	0.00	0.00	0.00	4.86
	SE	7.89	2.54	0.67	0.70	3.15	2.10	4.58	2.58	0.00	0.00	0.00	0.00	10.57
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-28AUG	DENSITY	16.97	6.06	5.89	3.92	7.94	9.85	2.35	2.20	3.31	0.00	0.00	0.00	4.87
	SE	7.20	1.85	3.93	1.46	3.23	2.14	2.16	0.86	2.90	0.00	0.00	0.00	10.09
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-12SEP	DENSITY	1.92	3.39	0.29	1.54	8.49	0.30	0.00	0.04	0.30	0.00	0.00	0.00	1.36
	SE	1.35	1.07	0.11	1.28	5.56	0.10	0.00	0.04	0.30	0.00	0.00	0.00	5.97
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-25SEP	DENSITY	5.74	7.39	4.91	6.53	18.46	1.00	0.08	0.00	0.00	0.00	0.00	0.00	3.68
	SE	1.65	1.83	3.22	4.05	11.64	0.58	0.05	0.00	0.00	0.00	0.00	0.00	12.99
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-09OCT	DENSITY	2.15	1.22	1.47	0.66	2.37	1.94	0.74	0.51	0.00	0.00	0.00	0.00	0.92
	SE	0.85	0.49	0.72	0.64	0.09	1.11	0.74	0.51	0.00	0.00	0.00	0.00	1.99
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-23OCT	DENSITY	1.94	2.16	0.06	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.35
	SE	1.78	0.95	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.02
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-60 Regional Standing Crops (in Thousands) of Bay Anchovy Yearling and Older in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-18JUL	St. Crop	23047	10630	1302	1140	3	167	0	0	0	0	0	0	36289
	SE	9042	6486	650	479	3	84	0	0	0	0	0	0	11157
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-01AUG	St. Crop	29227	19782	2381	1222	1837	5329	246	0	298	0	0	0	60323
	SE	4794	4778	974	1137	732	1645	200	0	125	0	0	0	7166
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-14AUG	St. Crop	4709	3256	283	166	2346	643	1724	546	0	0	0	0	13674
	SE	1810	819	99	146	654	294	1365	427	0	0	0	0	2557
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-28AUG	St. Crop	3892	1949	871	817	1647	1377	699	364	468	0	0	0	12085
	SE	1653	594	581	304	671	300	643	143	411	0	0	0	2158
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-12SEP	St. Crop	441	1091	42	321	1761	42	0	7	42	0	0	0	3747
	SE	310	345	16	267	1154	14	0	7	42	0	0	0	1273
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-25SEP	St. Crop	1318	2377	726	1361	3830	139	23	0	0	0	0	0	9775
	SE	379	588	476	843	2415	81	16	0	0	0	0	0	2696
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-09OCT	St. Crop	493	394	217	138	493	271	221	84	0	0	0	0	2310
	SE	195	159	107	134	19	155	221	84	0	0	0	0	416
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-23OCT	St. Crop	444	695	9	8	0	0	0	0	0	0	0	0	1155
	SE	409	307	4	6	0	0	0	0	0	0	0	0	511
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-61 Regional Catch-Per-Unit-Effort (CPUE) of Bay Anchovy Yearling and Older in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-26JUN	CPUE	9.33	25.82	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.94
	SE	4.48	17.28	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.85
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-09JUL	CPUE	1.00	141.36	7.71	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.59
	SE	0.58	68.92	4.22	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	69.06
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-22JUL	CPUE	0.67	14.09	0.29	5.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.70
	SE	0.33	4.36	0.29	5.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.90
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-06AUG	CPUE	12.20	10.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.87
	SE	7.12	5.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.01
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-20AUG	CPUE	2.20	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19
	SE	1.56	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-02SEP	CPUE	0.20	0.17	0.00	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
	SE	0.20	0.10	0.00	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-16SEP	CPUE	0.00	0.17	0.00	0.00	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
	SE	0.00	0.12	0.00	0.00	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-30SEP	CPUE	0.00	1.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12
	SE	0.00	1.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.21
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-15OCT	CPUE	0.40	0.04	0.00	0.00	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10
	SE	0.40	0.04	0.00	0.00	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.90
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-28OCT	CPUE	0.20	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
	SE	0.20	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-62 Regional Standing Crops (in Thousands) of Bay Anchovy Yearling and Older in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-26JUN	St. Crop	70	1173	4	0	0	0	0	0	0	0	0	0	1247
	SE	34	785	4	0	0	0	0	0	0	0	0	0	786
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-09JUL	St. Crop	8	6423	207	0	3	0	0	0	0	0	0	0	6641
	SE	4	3131	114	0	3	0	0	0	0	0	0	0	3133
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-22JUL	St. Crop	5	640	8	49	0	0	0	0	0	0	0	0	702
	SE	3	198	8	49	0	0	0	0	0	0	0	0	204
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-06AUG	St. Crop	92	468	0	0	0	0	0	0	0	0	0	0	559
	SE	54	251	0	0	0	0	0	0	0	0	0	0	256
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-20AUG	St. Crop	17	6	0	0	0	0	0	0	0	0	0	0	22
	SE	12	4	0	0	0	0	0	0	0	0	0	0	12
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-02SEP	St. Crop	2	8	0	6	0	0	0	0	0	0	0	0	15
	SE	2	4	0	6	0	0	0	0	0	0	0	0	7
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-16SEP	St. Crop	0	8	0	0	1	0	0	0	0	0	0	0	9
	SE	0	5	0	0	1	0	0	0	0	0	0	0	5
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-30SEP	St. Crop	0	64	0	0	0	0	0	0	0	0	0	0	64
	SE	0	55	0	0	0	0	0	0	0	0	0	0	55
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-15OCT	St. Crop	3	2	0	0	2	0	0	0	0	0	0	0	7
	SE	3	2	0	0	2	0	0	0	0	0	0	0	4
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-28OCT	St. Crop	2	4	0	0	0	0	0	0	0	0	0	0	5
	SE	2	4	0	0	0	0	0	0	0	0	0	0	4
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-63 Regional Density (No./1,000m3) of American Shad Eggs
In Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.49	0.00	0.29	3.78	1.05
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.76	0.00	0.29	2.41	8.13
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.98	27.21	3.65	605.88	585.48	101.93
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.52	21.64	3.06	364.47	83.82	374.62
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	35.37	221.00	13.90	331.78	50.17
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.30	185.81	3.37	156.99	243.96
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.55	0.00	23.89	13.88	70.02	73.50	15.15
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.55	0.00	16.30	7.55	30.51	45.55	57.69
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.44	0.00	0.00	3.24	5.02	4.69	1.94	27.86	3.60
	SE		0.00	0.00	0.00	0.00	0.44	0.00	0.00	2.63	4.54	2.30	1.94	8.02	10.06
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.45	68.45	271.25	28.37
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.28	13.07	65.88	67.16
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.12	28.10	0.51	3.67	2.57
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	26.53	0.51	3.04	26.71
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	DENSITY	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	8.33	3.17	8.18	1.52
	SE	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	4.60	2.24	5.37	7.42
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-63 Regional Density (No./1,000m3) of American Shad Eggs in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-64 Regional Standing Crop (In Thousands) of American Shad Eggs
in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	St. Crop	NS	0	0	0	0	0	0	0	0	1201	0	46	484	1731
	SE		0	0	0	0	0	0	0	0	1098	0	46	308	1142
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	St. Crop	NS	0	0	0	0	0	0	0	162	3849	643	97385	74981	177020
	SE		0	0	0	0	0	0	0	87	3061	540	58582	10734	59638
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	St. Crop	NS	0	0	0	0	0	0	0	0	5003	38961	2234	42491	88690
	SE		0	0	0	0	0	0	0	0	2589	32757	542	20105	38526
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	St. Crop	NS	0	0	0	0	0	0	164	0	3380	2447	11254	9413	26658
	SE		0	0	0	0	0	0	164	0	2305	1331	4904	5834	8074
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	St. Crop	NS	0	0	0	0	91	0	0	537	710	826	312	3568	6043
	SE		0	0	0	0	91	0	0	435	642	406	312	1028	1388
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	St. Crop	NS	0	0	0	0	0	0	0	0	41	80	11002	34739	45862
	SE		0	0	0	0	0	0	0	0	41	49	2100	8437	8695
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	St. Crop	0	0	0	0	0	0	0	0	0	159	4955	82	470	5665
	SE	0	0	0	0	0	0	0	0	0	64	4677	82	390	4694
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	St. Crop	0	0	0	0	16	0	0	0	0	0	1468	509	1048	3041
	SE	0	0	0	0	16	0	0	0	0	0	811	360	688	1122
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-64 Regional Standing Crop (In Thousands) of American Shad Eggs
in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
22JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
06AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
20AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
03SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
17SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
30SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-65 Regional Density (No./1,000m3) of American Shad Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.31	0.00	0.00	0.11
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.31	0.00	0.00	1.31
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	1.06	4.71	0.49	37.46	3.65
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.60	1.52	0.49	12.34	12.45
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	DENSITY	NS	0.00	0.00	0.00	0.00	7.75	0.00	0.00	0.00	32.23	53.34	118.25	656.01	72.30
	SE		0.00	0.00	0.00	0.00	7.75	0.00	0.00	0.00	18.69	31.22	16.98	346.69	349.09
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	27.27	81.21	79.51	794.04	81.86
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	18.11	41.18	57.76	269.71	279.47
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.84	27.70	53.60	78.96	38.08	16.77
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.57	16.32	40.28	15.08	7.78	46.69
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.03	17.95	24.17	155.50	15.59
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.03	12.82	18.11	37.04	43.47
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.98	2.24	64.22	5.57
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.98	2.24	45.01	45.46
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.74	0.83
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.78	7.78
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-65 Regional Density (No./1,000m3) of American Shad Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-66 Regional Standing Crop (In Thousands) of American Shad Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
18APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
25APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	231	0	0	231
08MAY	SE		0	0	0	0	0	0	0	0	0	231	0	0	231
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-	St. Crop	NS	0	0	0	0	0	0	0	21	150	830	79	4797	5877
15MAY	SE		0	0	0	0	0	0	0	21	85	268	79	1580	1607
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-	St. Crop	NS	0	0	0	0	1607	0	0	0	4560	9404	19006	84014	118591
22MAY	SE		0	0	0	0	1607	0	0	0	2644	5505	2730	44400	44930
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-	St. Crop	NS	0	0	0	0	0	0	72	0	3858	14317	12779	101691	132717
30MAY	SE		0	0	0	0	0	0	72	0	2562	7260	9285	34541	36586
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-	St. Crop	NS	0	0	0	0	0	0	0	470	3919	9449	12692	4877	31407
05JUN	SE		0	0	0	0	0	0	0	260	2309	7102	2423	997	7919
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-	St. Crop	0	0	0	0	0	0	0	0	0	711	3165	3885	19915	27676
12JUN	SE	0	0	0	0	0	0	0	0	0	711	2260	2911	4744	6050
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	1054	360	8224	9638
19JUN	SE	0	0	0	0	0	0	0	0	0	0	1054	360	5764	5871
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	1375	1375
26JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	996	996
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-66 Regional Standing Crop (In Thousands) of American Shad Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-67 Regional Density (No./1,000m3) of American Shad Post Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00	20.22	10.44	22.06	126.28	14.93
	SE		0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00	18.11	10.44	12.07	63.59	68.02
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	1.33	5.32	50.97	7.69	94.57	3143.04	275.24
	SE		0.00	0.00	0.00	0.00	0.00	0.00	1.12	3.57	22.43	3.42	23.13	923.78	924.36
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	1.60	0.00	3.99	397.64	891.34	422.35	2.33	143.27
	SE		0.00	0.00	0.00	0.00	0.00	1.27	0.00	2.16	393.00	461.27	338.10	1.84	693.93
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	DENSITY	0.00	0.00	0.00	0.00	0.21	0.00	34.40	7.33	30.86	178.81	46.33	91.51	0.00	29.96
	SE	0.00	0.00	0.00	0.00	0.12	0.00	28.97	6.06	21.76	91.94	25.10	63.94	0.00	120.51
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	DENSITY	0.00	0.00	0.28	0.96	0.45	3.18	39.42	64.72	54.87	67.07	243.34	272.39	151.50	69.09
	SE	0.00	0.00	0.28	0.96	0.31	0.97	32.44	55.91	22.44	31.01	138.95	85.68	41.19	184.36
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	DENSITY	0.00	0.00	0.00	0.00	1.61	0.94	12.29	10.57	25.44	43.84	54.58	154.31	497.69	61.64
	SE	0.00	0.00	0.00	0.00	0.78	0.94	5.95	7.48	14.01	8.42	29.86	38.89	123.79	134.49
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-67 Regional Density (No./1,000m3) of American Shad Post Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.35	1.69	41.53	64.45	251.43	52.52	31.69
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.35	1.69	23.46	27.82	80.61	22.66	91.32
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.99	7.04	4.43	61.48	79.44	11.80
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.99	7.04	4.43	30.18	37.40	48.78
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	NS	NS	NS	NS	NS	0.01
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00						0.04
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-68 Regional Standing Crop (In Thousands) of American Shad Post Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	St. Crop	NS	0	0	0	0	0	15	0	0	2860	1841	3546	16172	24434
	SE		0	0	0	0	0	15	0	0	2562	1841	1940	8144	8947
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	St. Crop	NS	0	0	0	0	0	0	397	881	7211	1356	15200	402524	427569
	SE		0	0	0	0	0	0	333	591	3174	602	3718	118307	118412
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	St. Crop	NS	0	0	0	0	0	224	0	661	56254	157139	67885	298	282460
	SE		0	0	0	0	0	177	0	357	55597	81321	54343	235	112505
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	St. Crop	0	0	0	0	44	0	4808	2186	5107	25296	8168	14708	0	60316
	SE	0	0	0	0	25	0	4050	1805	3602	13007	4425	10277	0	18084
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	St. Crop	0	0	91	141	94	661	5511	19295	9080	9488	42900	43782	19402	150445
	SE	0	0	91	141	66	202	4535	16667	3713	4387	24496	13771	5275	33897
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	St. Crop	0	0	0	0	335	196	1717	3152	4211	6202	9622	24803	63739	113976
	SE	0	0	0	0	163	196	832	2229	2318	1191	5264	6250	15853	18183
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-68 Regional Standing Crop (In Thousands) of American Shad Post Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	St. Crop	0	0	0	0	0	0	0	105	280	5875	11362	40413	6727	64761
	SE	0	0	0	0	0	0	0	105	280	3318	4904	12957	2902	14542
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	St. Crop	0	0	0	0	0	0	0	0	163	995	781	9882	10174	21997
	SE	0	0	0	0	0	0	0	0	163	995	781	4850	4790	6935
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	St. Crop	0	0	0	0	0	0	6	0	NS	NS	NS	NS	NS	6
	SE	0	0	0	0	0	0	6	0						6
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-69 Regional Density (No./1,000m3) of American Shad Young of Year in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
	SE	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	DENSITY	0.00	0.00	0.00	0.21	1.06	1.09	1.82	4.10	25.80	18.17	74.38	7.99	26.10	12.36
	SE	0.00	0.00	0.00	0.21	0.85	0.54	1.70	1.76	13.40	8.93	55.12	6.57	14.63	59.68
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-69 Regional Density (No./1,000m3) of American Shad Young of Year
in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	DENSITY	0.00	0.00	0.00	0.00	0.10	0.92	5.34	14.75	33.73	42.67	50.50	186.00	52.85	29.76
	SE	0.00	0.00	0.00	0.00	0.10	0.92	1.28	5.90	9.65	26.99	14.78	30.29	21.84	49.71
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	DENSITY	0.00	0.00	0.00	4.10	6.57	1.54	5.14	10.72	14.29	72.74	92.08	128.68	250.33	45.09
	SE	0.00	0.00	0.00	1.50	1.92	1.00	1.76	4.17	3.79	15.52	26.18	17.28	87.71	94.65
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	DENSITY	15.14	7.11	11.60	57.32	0.86	3.81	11.83	1.29	NS	NS	NS	NS	NS	13.62
	SE	10.61	4.21	8.88	54.42	0.36	1.64	7.18	0.92						56.80
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	DENSITY	0.00	1.78	15.75	7.29	3.30	0.43	3.87	1.74	NS	NS	NS	NS	NS	4.27
	SE	0.00	1.04	14.38	7.08	1.61	0.27	1.83	1.29						16.30
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	DENSITY	0.86	1.90	0.00	0.43	4.76	0.44	0.90	0.25	NS	NS	NS	NS	NS	1.19
	SE	0.86	1.05	0.00	0.31	1.67	0.44	0.86	0.25						2.39
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	DENSITY	0.00	0.00	0.21	4.60	0.95	0.95	0.96	0.26	NS	NS	NS	NS	NS	0.99
	SE	0.00	0.00	0.21	3.68	0.74	0.73	0.49	0.26						3.87
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	DENSITY	1.14	0.00	0.19	0.22	0.47	0.39	0.64	0.24	NS	NS	NS	NS	NS	0.41
	SE	1.14	0.00	0.19	0.22	0.47	0.39	0.27	0.24						1.38
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	DENSITY	2.45	0.00	0.00	0.88	0.52	1.18	0.00	0.60	NS	NS	NS	NS	NS	0.70
	SE	1.42	0.00	0.00	0.48	0.21	0.45	0.00	0.30						1.61
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	DENSITY	1.79	0.00	0.00	0.63	0.39	5.20	1.82	0.57	NS	NS	NS	NS	NS	1.30
	SE	1.79	0.00	0.00	0.45	0.39	3.43	0.05	0.57						3.96
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-70 Regional Standing Crop (In Thousands) of American Shad Young of Year in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	St. Crop	0	0	0	0	0	25	0	0	0	0	0	0	0	25
	SE	0	0	0	0	0	25	0	0	0	0	0	0	0	25
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	St. Crop	0	0	0	31	221	227	254	1221	4269	2571	13112	1285	3343	26535
	SE	0	0	0	31	178	111	237	525	2218	1263	9718	1055	1873	10293
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-70 Regional Standing Crop (In Thousands) of American Shad Young of Year in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	St. Crop	0	0	0	0	22	192	746	4399	5582	6036	8903	29896	6769	62544
	SE	0	0	0	0	22	192	179	1759	1596	3818	2606	4868	2797	7655
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	St. Crop	0	0	0	605	1370	320	719	3197	2364	10290	16234	20683	32059	87840
	SE	0	0	0	222	400	207	246	1244	628	2195	4616	2778	11233	12738
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	St. Crop	3165	1630	3732	8468	179	790	1654	386	NS	NS	NS	NS	NS	20002
	SE	2218	966	2858	8040	75	340	1003	273						8937
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	St. Crop	0	409	5069	1077	687	90	541	520	NS	NS	NS	NS	NS	8394
	SE	0	239	4629	1046	336	56	256	384						4786
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	St. Crop	180	437	0	64	991	92	126	75	NS	NS	NS	NS	NS	1964
	SE	180	241	0	45	348	92	120	75						492
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	St. Crop	0	0	69	679	198	198	134	77	NS	NS	NS	NS	NS	1355
	SE	0	0	69	544	153	151	68	77						598
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	St. Crop	239	0	62	32	98	81	90	71	NS	NS	NS	NS	NS	674
	SE	239	0	62	32	98	81	38	71						291
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	St. Crop	512	0	0	131	109	244	0	178	NS	NS	NS	NS	NS	1174
	SE	297	0	0	70	44	94	0	89						335
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	St. Crop	374	0	0	93	82	1078	255	171	NS	NS	NS	NS	NS	2054
	SE	374	0	0	67	82	712	7	171						829
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-71 Regional Density (No./1,000m3) of American Shad Young of Year in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-18JUL	DENSITY	0.76	0.48	0.78	3.38	2.38	4.47	4.73	5.35	6.63	32.96	48.27	15.09	10.44
	SE	0.64	0.16	0.18	1.71	2.31	2.37	3.62	1.75	1.46	10.45	6.36	8.11	15.75
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-01AUG	DENSITY	0.21	0.72	0.67	1.75	2.51	1.21	2.05	2.05	3.01	3.08	6.35	13.18	3.06
	SE	0.08	0.27	0.35	1.42	1.52	0.58	1.99	1.41	0.93	1.10	1.81	3.41	5.27
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-14AUG	DENSITY	0.71	0.24	0.25	0.88	0.02	0.60	2.08	1.86	0.18	0.49	1.25	4.19	1.06
	SE	0.40	0.06	0.08	0.76	0.02	0.57	2.08	1.04	0.10	0.18	0.66	2.37	3.55
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-28AUG	DENSITY	0.10	0.98	0.58	0.78	1.52	0.24	0.05	0.20	0.96	0.76	1.85	1.52	0.79
	SE	0.04	0.46	0.40	0.68	0.76	0.09	0.05	0.14	0.41	0.23	0.50	0.41	1.44
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-12SEP	DENSITY	0.17	0.12	0.12	0.71	0.72	0.79	0.00	1.07	1.41	0.19	1.14	1.77	0.69
	SE	0.06	0.04	0.04	0.64	0.70	0.63	0.00	0.96	0.68	0.08	0.49	0.36	1.75
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-25SEP	DENSITY	0.03	0.08	0.15	0.05	0.08	0.12	0.21	0.05	0.50	1.52	1.67	3.25	0.64
	SE	0.02	0.03	0.06	0.02	0.05	0.06	0.06	0.03	0.30	0.32	0.35	1.49	1.59
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-09OCT	DENSITY	0.15	0.01	0.02	0.00	0.02	1.28	0.69	0.10	0.31	1.46	1.35	2.23	0.64
	SE	0.06	0.01	0.02	0.00	0.02	1.24	0.65	0.07	0.31	0.67	0.36	0.54	1.72
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-23OCT	DENSITY	0.24	0.62	0.22	0.17	0.03	0.16	0.16	0.21	0.36	0.42	0.94	0.46	0.33
	SE	0.11	0.19	0.08	0.08	0.03	0.07	0.10	0.08	0.10	0.15	0.21	0.19	0.44
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-72 Regional Standing Crops (in Thousands) of American Shad Young of Year in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-	St. Crop	175	155	115	703	493	625	1410	885	937	5811	7758	1933	21001
18JUL	SE	147	52	27	356	479	332	1080	289	206	1841	1022	1038	2701
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-	St. Crop	49	231	99	364	520	169	612	339	425	543	1020	1687	6057
01AUG	SE	19	86	52	297	315	81	593	233	132	193	292	436	970
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-	St. Crop	163	77	37	184	3	84	621	308	25	86	201	537	2327
14AUG	SE	92	21	12	159	3	79	621	172	15	32	106	304	749
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-	St. Crop	23	315	85	163	315	34	16	33	135	134	297	194	1744
28AUG	SE	10	149	58	141	158	12	16	24	58	41	81	53	293
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-	St. Crop	40	40	18	149	149	111	0	177	200	34	183	227	1326
12SEP	SE	13	11	6	133	145	88	0	159	96	15	79	46	300
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-	St. Crop	7	24	22	10	17	17	63	8	70	268	268	416	1190
25SEP	SE	3	8	9	5	9	9	19	5	42	57	56	190	213
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-	St. Crop	34	3	3	0	4	179	205	17	44	258	217	285	1250
09OCT	SE	13	3	3	0	4	174	193	11	44	118	58	70	303
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-	St. Crop	54	199	32	35	6	23	49	35	51	73	151	59	767
23OCT	SE	25	62	12	16	6	10	31	13	15	27	34	24	94
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-73 Regional Catch-Per-Unit-Effort (CPUE) of American Shad Young of Year in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-26JUN	CPUE	0.00	0.00	3.14	11.67	12.33	90.00	13.25	21.13	38.13	5.47	19.26	1.75	18.01
	SE	0.00	0.00	2.82	6.12	10.87	44.81	6.32	9.82	37.98	2.69	12.58	1.66	62.60
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-09JUL	CPUE	0.00	0.18	11.43	138.33	116.33	63.33	61.25	15.63	16.75	16.33	15.11	5.00	38.31
	SE	0.00	0.18	3.26	88.71	76.71	20.69	14.27	5.94	10.80	6.73	4.58	4.11	120.96
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-22JUL	CPUE	8.00	14.18	40.43	4.33	229.67	32.00	46.50	59.13	64.38	64.67	32.16	22.42	51.49
	SE	2.65	6.06	23.71	1.45	203.72	10.54	10.16	20.78	18.02	24.44	7.98	7.76	209.29
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-06AUG	CPUE	6.60	8.21	5.79	6.80	11.60	37.83	12.60	10.20	48.40	27.67	20.20	34.00	19.16
	SE	2.73	1.73	3.81	2.94	2.50	5.50	8.33	4.40	17.33	6.94	8.28	13.70	27.64
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-20AUG	CPUE	0.60	1.29	1.43	0.40	6.40	36.67	34.00	3.20	14.40	25.89	30.00	11.86	13.84
	SE	0.60	0.43	0.73	0.24	0.81	7.50	13.10	1.07	9.98	4.25	10.81	2.60	21.73
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-02SEP	CPUE	0.40	1.08	3.71	5.60	11.40	35.17	21.80	3.80	10.00	18.56	13.90	27.86	12.77
	SE	0.24	0.33	0.82	3.20	5.05	8.16	9.15	1.83	3.41	6.19	2.62	7.31	17.33
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-16SEP	CPUE	0.20	1.83	5.86	3.20	3.20	23.83	40.00	12.60	9.40	20.11	25.60	13.29	13.26
	SE	0.20	0.56	4.43	2.96	1.16	6.20	13.90	5.14	3.66	5.87	9.72	2.62	20.92
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-30SEP	CPUE	0.80	0.79	4.86	6.40	6.00	36.83	14.80	14.40	17.40	12.78	3.80	15.14	11.17
	SE	0.37	0.30	1.77	2.14	2.97	12.84	8.03	2.27	7.86	4.47	1.14	3.34	18.59
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-15OCT	CPUE	9.60	7.88	6.07	7.20	4.80	9.83	8.60	7.20	1.00	3.89	3.70	7.14	6.41
	SE	2.25	1.64	1.28	3.28	2.08	3.04	3.67	3.14	0.77	1.45	2.84	3.74	9.04
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-28OCT	CPUE	5.20	7.88	16.64	6.40	1.20	3.50	2.80	0.40	0.00	0.00	0.00	0.00	3.67
	SE	1.24	2.46	5.78	3.98	0.58	1.57	0.86	0.24	0.00	0.00	0.00	0.00	7.78
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-74 Regional Standing Crops (in Thousands) of American Shad Young of Year in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-	St. Crop	0	0	85	108	33	959	94	26	328	96	379	24	2130
26JUN	SE	0	0	76	56	29	477	45	12	327	47	248	23	641
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-	St. Crop	0	8	307	1275	307	675	435	19	144	287	297	68	3822
09JUL	SE	0	8	88	818	202	220	101	7	93	118	90	56	900
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-	St. Crop	60	644	1087	40	605	341	330	73	554	1135	633	305	5808
22JUL	SE	20	275	638	13	537	112	72	26	155	429	157	106	1017
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-	St. Crop	50	373	156	63	31	403	89	13	417	486	397	462	2938
06AUG	SE	21	79	103	27	7	59	59	5	149	122	163	186	351
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-	St. Crop	5	59	38	4	17	391	241	4	124	454	590	161	2088
20AUG	SE	5	20	20	2	2	80	93	1	86	75	213	35	274
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-	St. Crop	3	49	100	52	30	375	155	5	86	326	273	378	1832
02SEP	SE	2	15	22	30	13	87	65	2	29	109	52	99	197
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-	St. Crop	2	83	158	29	8	254	284	16	81	353	504	181	1952
16SEP	SE	2	25	119	27	3	66	99	6	31	103	191	36	281
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-	St. Crop	6	36	131	59	16	392	105	18	150	224	75	206	1417
30SEP	SE	3	14	47	20	8	137	57	3	68	79	22	45	195
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-	St. Crop	72	358	163	66	13	105	61	9	9	68	73	97	1094
15OCT	SE	17	75	34	30	5	32	26	4	7	25	56	51	127
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-	St. Crop	39	358	448	59	3	37	20	<0.005	0	0	0	0	964
28OCT	SE	9	112	156	37	2	17	6	<0.005	0	0	0	0	196
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-75 Regional Density (No./1,000m3) of American Shad Yearling and Older in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-	DENSITY	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
14AUG	SE	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.01
28AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.05
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-76 Regional Standing Crops (in Thousands) of American Shad Yearling and Older in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
18JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
01AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-	St. Crop	0	22	0	0	0	0	0	0	0	0	0	0	22
14AUG	SE	0	22	0	0	0	0	0	0	0	0	0	0	22
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-	St. Crop	0	0	0	0	0	0	0	0	0	0	18	0	18
28AUG	SE	0	0	0	0	0	0	0	0	0	0	8	0	8
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
12SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
25SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
09OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
23OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-77 Regional Catch-Per-Unit-Effort (CPUE) of American Shad in Hudson River Estuary Determined From Beach Seine Survey, 1992 Yearling and Older

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-26JUN	CPUE	0.00	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
	SE	0.00	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-09JUL	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-22JUL	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-06AUG	CPUE	0.00	0.00	0.00	0.00	0.00	1.83	0.00	0.00	0.00	0.00	0.00	0.00	0.15
	SE	0.00	0.00	0.00	0.00	0.00	1.83	0.00	0.00	0.00	0.00	0.00	0.00	1.83
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-20AUG	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-02SEP	CPUE	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<0.005
	SE	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-16SEP	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-30SEP	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-15OCT	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-28OCT	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-78 Regional Standing Crops (in Thousands) of American Shad Yearling and Older in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-	St. Crop	0	12	0	0	0	0	0	0	0	0	0	0	12
26JUN	SE	0	9	0	0	0	0	0	0	0	0	0	0	9
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
09JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
22JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-	St. Crop	0	0	0	0	0	20	0	0	0	0	0	0	20
06AUG	SE	0	0	0	0	0	20	0	0	0	0	0	0	20
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
20AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-	St. Crop	0	2	0	0	0	0	0	0	0	0	0	0	2
02SEP	SE	0	2	0	0	0	0	0	0	0	0	0	0	2
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
16SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
30SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
15OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
28OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-79 Regional Density (No./1,000m3) of Alewife Young of Year
in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.00	0.00	0.00	0.00	0.00	0.01
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.00	0.00	0.00	0.00	0.00	0.18
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-79 Regional Density (No./1,000m3) of Alewife Young of Year in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.04	5.79	0.00	3.03	33.05	0.75	0.00	3.28
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.04	2.63	0.00	1.94	27.84	0.75	0.00	28.04
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	DENSITY	0.00	0.00	0.00	0.00	0.14	0.50	1.16	13.28	4.81	21.38	25.09	0.50	0.00	5.14
	SE	0.00	0.00	0.00	0.00	0.11	0.50	0.69	4.49	2.31	5.60	10.72	0.50	0.00	13.14
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	DENSITY	0.00	0.00	0.00	0.00	0.04	0.93	1.30	2.84	NS	NS	NS	NS	NS	0.64
	SE	0.00	0.00	0.00	0.00	0.04	0.80	1.09	0.70						1.52
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	DENSITY	0.00	0.00	0.19	0.00	0.00	0.00	2.76	0.23	NS	NS	NS	NS	NS	0.40
	SE	0.00	0.00	0.19	0.00	0.00	0.00	1.34	0.23						1.37
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	DENSITY	0.00	0.00	0.00	0.43	0.00	0.30	0.61	0.25	NS	NS	NS	NS	NS	0.20
	SE	0.00	0.00	0.00	0.22	0.00	0.30	0.57	0.25						0.73
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	DENSITY	0.00	0.00	0.00	0.00	0.19	0.00	0.95	0.00	NS	NS	NS	NS	NS	0.14
	SE	0.00	0.00	0.00	0.00	0.13	0.00	0.65	0.00						0.67
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	1.99	0.48	NS	NS	NS	NS	NS	0.31
	SE	0.00	0.00	0.00	0.00	0.00	0.00	1.99	0.48						2.04
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	DENSITY	0.00	0.00	0.76	0.00	0.00	0.00	1.72	2.21	NS	NS	NS	NS	NS	0.59
	SE	0.00	0.00	0.76	0.00	0.00	0.00	0.83	0.81						1.38
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	DENSITY	0.00	0.00	0.00	0.00	0.30	0.00	0.97	0.87	NS	NS	NS	NS	NS	0.27
	SE	0.00	0.00	0.00	0.00	0.22	0.00	0.69	0.51						0.88
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-80 Regional Standing Crop (In Thousands) of Alewife Young of Year in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	St. Crop	0	0	0	0	0	0	0	53	0	0	0	0	0	53
	SE	0	0	0	0	0	0	0	53	0	0	0	0	0	53
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-80 Regional Standing Crop (In Thousands) of Alewife Young of Year in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	St. Crop	0	0	0	0	0	0	6	1727	0	428	5827	121	0	8109
	SE	0	0	0	0	0	0	6	785	0	275	4908	121	0	4979
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	St. Crop	0	0	0	0	29	105	162	3958	796	3025	4423	81	0	12580
	SE	0	0	0	0	23	105	97	1339	382	793	1890	81	0	2483
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	St. Crop	0	0	0	0	9	193	181	848	NS	NS	NS	NS	NS	1231
	SE	0	0	0	0	9	166	153	208						307
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	St. Crop	0	0	62	0	0	0	385	68	NS	NS	NS	NS	NS	515
	SE	0	0	62	0	0	0	187	68						208
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	St. Crop	0	0	0	64	0	62	85	75	NS	NS	NS	NS	NS	286
	SE	0	0	0	32	0	62	80	75						130
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	St. Crop	0	0	0	0	39	0	133	0	NS	NS	NS	NS	NS	172
	SE	0	0	0	0	28	0	91	0						95
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	St. Crop	0	0	0	0	0	0	278	142	NS	NS	NS	NS	NS	420
	SE	0	0	0	0	0	0	278	142						312
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	St. Crop	0	0	245	0	0	0	241	660	NS	NS	NS	NS	NS	1146
	SE	0	0	245	0	0	0	116	240						362
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	St. Crop	0	0	0	0	63	0	135	260	NS	NS	NS	NS	NS	458
	SE	0	0	0	0	47	0	96	151						185
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-81 Regional Density (No./1,000m3) of Alewife Young of Year in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-	DENSITY	0.00	0.00	0.00	0.66	0.00	0.64	0.65	2.02	1.16	0.50	0.91	0.54	0.59
18JUL	SE	0.00	0.00	0.00	0.65	0.00	0.61	0.65	0.74	0.46	0.28	0.31	0.19	1.48
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-	DENSITY	0.00	0.01	0.00	0.02	0.00	2.31	2.70	0.65	4.18	0.39	1.92	0.00	1.01
01AUG	SE	0.00	0.01	0.00	0.01	0.00	2.21	1.34	0.51	2.08	0.12	0.41	0.00	3.38
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-	DENSITY	0.05	0.01	0.02	0.01	0.00	0.13	2.14	4.03	0.50	0.02	0.04	0.00	0.58
14AUG	SE	0.05	0.01	0.02	0.01	0.00	0.11	2.09	2.24	0.28	0.02	0.03	0.00	3.08
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-	DENSITY	0.00	0.04	0.09	0.06	0.00	0.08	0.00	0.09	2.77	0.49	0.50	0.19	0.36
28AUG	SE	0.00	0.02	0.03	0.02	0.00	0.04	0.00	0.03	1.32	0.20	0.11	0.14	1.35
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-	DENSITY	0.00	0.00	0.00	0.02	0.00	0.00	0.03	0.00	0.27	0.04	0.02	0.05	0.04
12SEP	SE	0.00	0.00	0.00	0.02	0.00	0.00	0.03	0.00	0.17	0.03	0.02	0.05	0.18
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-	DENSITY	0.00	0.22	0.00	0.00	0.00	0.04	0.06	0.09	3.73	0.34	0.65	0.65	0.48
25SEP	SE	0.00	0.15	0.00	0.00	0.00	0.04	0.04	0.04	3.06	0.10	0.17	0.49	3.11
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-	DENSITY	0.00	0.03	0.00	0.02	0.00	0.01	0.81	0.20	0.00	0.87	0.76	0.05	0.23
09OCT	SE	0.00	0.02	0.00	0.02	0.00	0.01	0.74	0.15	0.00	0.42	0.20	0.05	0.89
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-	DENSITY	0.08	0.17	0.11	0.08	1.74	0.15	0.77	0.17	0.38	0.44	0.38	0.00	0.37
23OCT	SE	0.05	0.07	0.04	0.04	0.85	0.07	0.77	0.08	0.18	0.29	0.15	0.00	1.22
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-82 Regional Standing Crops (in Thousands) of Alewife Young of Year in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-18JUL	St. Crop	0	0	0	137	0	89	194	334	164	87	146	69	1221
	SE	0	0	0	135	0	85	194	122	65	50	49	25	296
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-01AUG	St. Crop	0	3	0	3	0	323	806	107	591	69	309	0	2211
	SE	0	3	0	2	0	308	398	84	295	22	66	0	594
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-14AUG	St. Crop	10	3	3	2	0	18	639	667	71	4	7	0	1424
	SE	10	3	3	2	0	16	624	370	40	4	5	0	727
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-28AUG	St. Crop	0	12	14	13	0	11	0	15	392	87	80	24	648
	SE	0	7	5	5	0	6	0	5	187	35	18	18	192
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-12SEP	St. Crop	0	0	0	5	0	0	8	0	39	7	4	6	68
	SE	0	0	0	5	0	0	8	0	24	5	4	6	27
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-25SEP	St. Crop	0	70	0	0	0	5	17	14	528	60	104	83	881
	SE	0	49	0	0	0	5	11	7	433	18	28	63	442
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-09OCT	St. Crop	0	10	0	5	0	1	240	34	0	153	121	6	570
	SE	0	6	0	5	0	1	222	25	0	74	33	6	238
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-23OCT	St. Crop	18	56	16	18	361	20	230	28	54	77	62	0	940
	SE	13	23	6	8	177	10	230	13	25	51	24	0	298
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-83 Regional Catch-Per-Unit-Effort (CPUE) of Alewife Young of Year in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-26JUN	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-09JUL	CPUE	0.00	0.00	0.00	4.00	9.67	31.33	15.25	9.38	2.88	0.80	6.21	0.25	6.65
	SE	0.00	0.00	0.00	2.31	5.93	26.49	8.68	3.49	1.75	0.33	3.56	0.18	29.08
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-22JUL	CPUE	0.00	0.18	0.14	0.33	11.33	0.00	1.75	1.13	2.38	1.73	5.47	0.17	2.05
	SE	0.00	0.12	0.14	0.33	10.84	0.00	1.01	0.74	1.35	1.08	4.01	0.17	11.76
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-06AUG	CPUE	0.20	0.38	0.00	0.00	3.60	0.17	0.20	0.00	3.40	0.22	0.10	0.00	0.69
	SE	0.20	0.21	0.00	0.00	3.12	0.17	0.20	0.00	2.27	0.15	0.10	0.00	3.89
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-20AUG	CPUE	0.00	0.00	0.00	0.00	0.40	0.50	0.00	0.00	0.00	0.56	0.00	0.00	0.12
	SE	0.00	0.00	0.00	0.00	0.40	0.50	0.00	0.00	0.00	0.56	0.00	0.00	0.85
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-02SEP	CPUE	0.00	0.13	0.00	0.00	1.60	0.00	0.00	0.00	0.00	1.00	0.00	0.43	0.26
	SE	0.00	0.13	0.00	0.00	0.75	0.00	0.00	0.00	0.00	0.71	0.00	0.43	1.12
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-16SEP	CPUE	0.00	0.00	0.00	0.00	1.20	0.00	0.80	0.80	0.00	0.00	0.20	0.00	0.25
	SE	0.00	0.00	0.00	0.00	1.20	0.00	0.80	0.80	0.00	0.00	0.20	0.00	1.66
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-30SEP	CPUE	0.00	0.00	0.07	0.20	0.20	5.17	0.00	0.00	0.20	1.33	0.20	1.43	0.73
	SE	0.00	0.00	0.07	0.20	0.20	3.63	0.00	0.00	0.20	0.97	0.20	1.43	4.04
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-15OCT	CPUE	0.00	0.00	0.07	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.03
	SE	0.00	0.00	0.07	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.26
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-28OCT	CPUE	0.20	0.13	0.21	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.06
	SE	0.20	0.13	0.21	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.38
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-84 Regional Standing Crops (in Thousands) of Alewife Young of Year in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-26JUN	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-09JUL	St. Crop	0	0	0	37	25	334	108	12	25	14	122	3	680
	SE	0	0	0	21	16	282	62	4	15	6	70	2	299
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-22JUL	St. Crop	0	8	4	3	30	0	12	1	20	30	108	2	220
	SE	0	6	4	3	29	0	7	1	12	19	79	2	87
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-06AUG	St. Crop	2	17	0	0	9	2	1	0	29	4	2	0	66
	SE	2	9	0	0	8	2	1	0	20	3	2	0	24
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-20AUG	St. Crop	0	0	0	0	1	5	0	0	0	10	0	0	16
	SE	0	0	0	0	1	5	0	0	0	10	0	0	11
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-02SEP	St. Crop	0	6	0	0	4	0	0	0	0	18	0	6	33
	SE	0	6	0	0	2	0	0	0	0	12	0	6	15
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-16SEP	St. Crop	0	0	0	0	3	0	6	1	0	0	4	0	14
	SE	0	0	0	0	3	0	6	1	0	0	4	0	8
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-30SEP	St. Crop	0	0	2	2	1	55	0	0	2	23	4	19	108
	SE	0	0	2	2	1	39	0	0	2	17	4	19	47
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-15OCT	St. Crop	0	0	2	2	0	0	0	0	0	0	0	2	6
	SE	0	0	2	2	0	0	0	0	0	0	0	2	3
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-28OCT	St. Crop	2	6	6	0	0	0	1	0	0	0	0	0	14
	SE	2	6	6	0	0	0	1	0	0	0	0	0	8
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-85 Regional Density (No./1,000m3) of Alewife Yearling and Older in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-18JUL	DENSITY	0.00	0.00	0.02	0.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06
	SE	0.00	0.00	0.02	0.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-01AUG	DENSITY	0.01	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.02
	SE	0.01	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.12
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-14AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	<0.005
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.02
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-28AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.28	0.00	0.03
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.14	0.00	0.14
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-12SEP	DENSITY	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.01
	SE	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.04
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-25SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.02	0.00	0.06	0.16	0.24	0.04
	SE	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.02	0.00	0.03	0.07	0.24	0.25
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-09OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.07	0.00	0.02
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.05	0.00	0.08
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-23OCT	DENSITY	0.02	0.00	0.00	0.00	0.83	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.07
	SE	0.02	0.00	0.00	0.00	0.83	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.83
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-86 Regional Standing Crops (in Thousands) of Alewife Yearling and Older in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-18JUL	St. Crop	0	0	3	138	0	0	0	0	0	0	0	0	141
	SE	0	0	3	133	0	0	0	0	0	0	0	0	133
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-01AUG	St. Crop	3	0	3	0	0	0	0	0	0	0	38	0	43
	SE	3	0	3	0	0	0	0	0	0	0	18	0	19
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-14AUG	St. Crop	0	0	0	0	0	0	0	0	0	4	0	0	4
	SE	0	0	0	0	0	0	0	0	0	4	0	0	4
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-28AUG	St. Crop	0	0	0	0	0	0	0	0	3	0	46	0	49
	SE	0	0	0	0	0	0	0	0	3	0	22	0	22
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-12SEP	St. Crop	0	0	0	0	7	0	0	0	0	0	7	0	13
	SE	0	0	0	0	4	0	0	0	0	0	5	0	6
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-25SEP	St. Crop	0	0	0	0	0	1	0	4	0	11	26	31	72
	SE	0	0	0	0	0	1	0	4	0	6	11	31	33
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-09OCT	St. Crop	0	0	0	0	0	0	0	0	0	25	12	0	37
	SE	0	0	0	0	0	0	0	0	0	11	9	0	14
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-23OCT	St. Crop	4	0	0	0	173	0	0	0	0	4	3	0	184
	SE	4	0	0	0	173	0	0	0	0	4	3	0	173
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-87 Regional Catch-Per-Unit-Effort (CPUE) of Alewife Yearling and Older
in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-	CPUE	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
26JUN	SE	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-88 Regional Standing Crops (in Thousands) of Alewife Yearling and Older in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-	St. Crop	0	4	0	0	0	0	0	0	0	0	0	0	4
26JUN	SE	0	4	0	0	0	0	0	0	0	0	0	0	4
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
09JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
22JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
06AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
20AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
02SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
16SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
30SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
15OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
28OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-89 Regional Density (No./1,000m3) of Blueback Herring Young of Year in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.40	0.00	0.00	0.00	0.18
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.40	0.00	0.00	0.00	2.40
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-89 Regional Density (No./1,000m3) of Blueback Herring Young of Year
in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	5.64	252.08	522.23	28.99	5.37	51.12	6.90	67.10
	SE	0.00	0.00	0.00	0.00	0.00	0.00	4.34	198.83	252.87	28.99	3.15	31.43	4.02	324.58
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	DENSITY	1.75	0.00	0.00	0.00	0.00	0.50	0.94	288.77	537.08	439.72	242.45	754.80	982.74	249.90
	SE	1.75	0.00	0.00	0.00	0.00	0.50	0.44	98.92	129.76	85.91	62.12	173.15	359.32	443.80
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	DENSITY	0.00	0.00	27.01	59.44	0.82	85.52	713.85	138.95	NS	NS	NS	NS	NS	128.20
	SE	0.00	0.00	11.70	54.83	0.51	45.99	210.61	56.21						229.72
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	DENSITY	8.78	12.80	35.54	176.79	19.69	49.51	207.62	188.85	NS	NS	NS	NS	NS	87.45
	SE	6.10	5.42	28.89	146.35	5.63	11.23	108.92	76.50						200.48
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	DENSITY	0.63	6.48	4.18	47.14	3.73	63.82	157.59	63.34	NS	NS	NS	NS	NS	43.36
	SE	0.63	1.67	2.30	23.75	2.02	15.41	14.21	40.86						51.83
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	DENSITY	0.88	0.94	2.33	25.33	11.51	67.26	123.70	166.55	NS	NS	NS	NS	NS	49.81
	SE	0.88	0.94	1.46	14.08	5.62	27.49	63.06	49.29						86.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	DENSITY	1.65	0.00	0.86	1.51	17.18	4.51	417.12	206.72	NS	NS	NS	NS	NS	81.19
	SE	1.65	0.00	0.59	0.59	8.68	2.94	66.74	185.89						197.72
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	DENSITY	0.00	0.49	1.11	26.30	8.76	154.05	232.00	127.02	NS	NS	NS	NS	NS	68.72
	SE	0.00	0.28	0.56	6.03	2.23	61.09	82.79	54.21						116.48
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	DENSITY	22.19	40.07	11.27	31.18	15.32	212.88	213.59	119.25	NS	NS	NS	NS	NS	83.22
	SE	9.54	17.32	4.32	9.31	6.78	103.74	73.82	45.85						137.32
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-90 Regional Standing Crop (In Thousands) of Blueback Herring Young of Year in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	St. Crop	0	0	0	0	0	0	0	0	0	340	0	0	0	340
	SE	0	0	0	0	0	0	0	0	0	340	0	0	0	340
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-90 Regional Standing Crop (In Thousands) of Blueback Herring Young of Year in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	St. Crop	0	0	0	0	0	0	788	75152	86421	4101	947	8216	884	176508
	SE	0	0	0	0	0	0	606	59276	41847	4101	555	5052	514	72857
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	St. Crop	365	0	0	0	0	105	131	86092	88878	62207	42742	121320	125858	527697
	SE	365	0	0	0	0	105	61	29490	21473	12153	10952	27831	46017	67013
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	St. Crop	0	0	8692	8782	170	17742	99790	41426	NS	NS	NS	NS	NS	176602
	SE	0	0	3765	8101	107	9540	29441	16757						36310
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	St. Crop	1835	2936	11437	26118	4103	10272	29023	56302	NS	NS	NS	NS	NS	142027
	SE	1275	1243	9297	21621	1172	2330	15226	22808						36275
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	St. Crop	131	1486	1345	6965	778	13239	22030	18884	NS	NS	NS	NS	NS	64858
	SE	131	383	741	3509	420	3198	1987	12182						13258
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	St. Crop	184	217	749	3742	2397	13954	17292	49655	NS	NS	NS	NS	NS	88190
	SE	184	217	470	2080	1171	5702	8816	14694						18225
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	St. Crop	345	0	275	223	3579	936	58310	61632	NS	NS	NS	NS	NS	125300
	SE	345	0	190	87	1807	609	9330	55419						56232
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	St. Crop	0	113	359	3885	1825	31958	32431	37869	NS	NS	NS	NS	NS	108441
	SE	0	65	180	891	465	12674	11574	16163						23598
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	St. Crop	4637	9194	3625	4606	3192	44164	29858	35553	NS	NS	NS	NS	NS	134830
	SE	1994	3975	1389	1375	1413	21522	10319	13669						27966
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-91 Regional Density (No./1,000m3) of Blueback Herring Young of Year in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-18JUL	DENSITY	0.00	0.20	0.36	1.56	14.62	13.97	2.20	28.69	15.09	25.10	68.03	23.01	16.07
	SE	0.00	0.07	0.08	0.65	13.52	9.19	1.31	13.44	2.98	4.29	9.04	3.35	23.88
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-01AUG	DENSITY	3.05	2.49	3.08	1.98	46.62	43.11	3.20	54.81	43.25	50.03	117.32	9.09	31.50
	SE	1.17	0.64	0.47	0.71	8.77	18.36	2.65	29.47	18.29	20.34	41.50	4.42	61.50
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-14AUG	DENSITY	1.42	0.85	4.23	0.32	13.22	61.75	99.34	60.48	28.02	54.38	38.32	8.99	30.94
	SE	0.79	0.23	1.17	0.24	5.15	5.49	92.11	29.05	9.90	14.85	11.89	4.59	99.34
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-28AUG	DENSITY	0.08	5.53	3.18	4.22	6.37	26.57	26.49	16.29	101.87	18.96	73.37	81.31	30.35
	SE	0.05	1.73	0.60	2.56	0.99	3.02	6.71	5.36	33.59	4.74	13.00	35.51	51.72
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-12SEP	DENSITY	1.07	0.28	0.64	2.65	8.65	116.10	15.96	22.09	23.60	17.45	46.96	12.31	22.31
	SE	0.44	0.16	0.22	1.95	3.86	60.53	9.22	6.27	6.21	2.85	20.95	2.62	65.57
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-25SEP	DENSITY	0.21	0.26	1.29	0.93	27.62	13.24	28.74	16.38	27.56	15.57	26.68	44.83	16.94
	SE	0.14	0.08	0.46	0.25	19.33	3.16	22.99	12.21	15.64	3.14	5.22	23.12	43.33
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-09OCT	DENSITY	0.13	0.37	0.06	0.77	117.01	28.41	4.34	18.47	9.98	18.66	19.46	17.64	19.61
	SE	0.07	0.08	0.03	0.40	112.00	18.69	2.28	2.49	3.18	7.68	3.88	7.06	114.19
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-23OCT	DENSITY	0.76	15.03	13.57	36.79	33.91	44.84	23.73	1.63	12.16	1.17	0.84	0.39	15.40
	SE	0.16	5.97	4.58	35.52	16.61	5.08	12.82	0.70	7.57	0.47	0.29	0.21	42.93
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-92 Regional Standing Crops (in Thousands) of Blueback Herring Young of Year in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-	St. Crop	0	66	54	325	3033	1953	657	4748	2134	4426	10935	2947	31278
18JUL	SE	0	24	12	136	2804	1285	390	2224	421	757	1452	430	4204
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-	St. Crop	699	800	455	413	9671	6027	954	9070	6118	8819	18857	1164	63047
01AUG	SE	268	205	70	149	1819	2566	791	4877	2587	3586	6670	566	9940
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-	St. Crop	327	273	626	67	2743	8632	29617	10008	3964	9587	6160	1151	73155
14AUG	SE	182	73	172	50	1069	768	27461	4807	1400	2619	1911	588	28140
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-	St. Crop	19	1778	470	878	1321	3715	7898	2696	14411	3343	11793	10413	58735
28AUG	SE	11	556	88	534	206	423	2001	887	4753	836	2089	4548	7345
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-	St. Crop	245	92	95	552	1794	16230	4758	3656	3339	3076	7548	1576	42958
12SEP	SE	101	50	32	406	800	8461	2749	1038	878	503	3368	336	9671
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-	St. Crop	49	84	191	193	5730	1851	8569	2710	3899	2745	4289	5742	36053
25SEP	SE	32	24	68	53	4011	441	6854	2021	2213	554	839	2961	9056
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-	St. Crop	29	118	8	160	24275	3971	1293	3056	1412	3290	3127	2259	42998
09OCT	SE	15	25	5	84	23236	2612	680	411	450	1355	623	904	23465
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-	St. Crop	174	4838	2005	7665	7035	6268	7076	270	1720	205	135	50	37442
23OCT	SE	36	1920	677	7401	3445	710	3823	115	1071	82	47	27	9332
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-93 Regional Catch-Per-Unit-Effort (CPUE) of Blueback Herring Young of Year in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-26JUN	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-09JUL	CPUE	0.00	0.00	0.00	0.67	3.33	2.33	7.75	0.38	0.25	0.60	1.63	2.75	1.64
	SE	0.00	0.00	0.00	0.67	2.03	1.45	4.80	0.26	0.16	0.41	0.80	1.81	5.82
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-22JUL	CPUE	0.00	0.27	0.00	4.00	316.67	47.67	2.25	63.50	7.38	3.60	46.47	0.92	41.06
	SE	0.00	0.14	0.00	4.00	296.67	24.90	1.45	38.82	3.39	1.32	18.82	0.45	300.87
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-06AUG	CPUE	758.60	73.04	1.71	16.20	19.40	19.00	6.80	5.60	104.20	8.67	389.20	27.57	119.17
	SE	463.80	38.46	1.14	12.57	13.48	5.60	6.80	4.63	69.92	5.73	378.49	24.82	604.83
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-20AUG	CPUE	0.00	0.00	0.43	67.80	9.00	19.50	1.60	66.20	8.00	32.11	15.10	1.00	18.39
	SE	0.00	0.00	0.43	67.80	3.97	5.70	1.36	36.84	7.26	17.61	8.20	0.69	80.22
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-02SEP	CPUE	0.00	0.29	0.29	6.60	28.20	196.17	1.60	0.60	23.80	75.89	5.20	42.71	31.78
	SE	0.00	0.15	0.16	4.69	11.85	107.71	1.36	0.24	10.47	38.59	2.48	41.40	122.82
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-16SEP	CPUE	0.00	0.00	0.07	8.60	162.60	111.00	126.40	105.40	220.00	30.44	17.00	14.57	66.34
	SE	0.00	0.00	0.07	8.60	83.04	81.86	120.68	62.96	176.38	13.28	7.28	5.78	252.13
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-30SEP	CPUE	7.60	0.17	1.29	23.00	14.40	427.17	5.60	7.00	34.00	22.33	14.30	15.86	47.73
	SE	6.37	0.13	0.62	21.27	7.33	306.75	5.60	3.54	17.49	14.20	10.66	12.36	308.97
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-15OCT	CPUE	37.80	0.00	1.21	1.20	23.40	78.17	0.00	0.60	208.20	0.33	0.00	1.71	29.39
	SE	29.30	0.00	0.77	1.20	8.99	36.24	0.00	0.60	208.20	0.33	0.00	1.19	213.55
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-28OCT	CPUE	240.40	29.58	5.57	1.60	10.20	13.33	2.80	0.00	0.00	0.00	0.20	0.00	25.31
	SE	176.01	17.39	2.64	1.12	4.87	11.07	1.46	0.00	0.00	0.00	0.20	0.00	177.31
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-94 Regional Standing Crops (in Thousands) of Blueback Herring Young of Year in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-26JUN	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-09JUL	St. Crop	0	0	0	6	9	25	55	<0.005	2	11	32	37	177
	SE	0	0	0	6	5	15	34	<0.005	1	7	16	25	49
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-22JUL	St. Crop	0	12	0	37	835	508	16	79	63	63	914	12	2540
	SE	0	6	0	37	782	265	10	48	29	23	370	6	908
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-06AUG	St. Crop	5713	3319	46	149	51	202	48	7	897	152	7658	375	18617
	SE	3493	1748	31	116	36	60	48	6	602	101	7447	337	8439
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-20AUG	St. Crop	0	0	12	625	24	208	11	82	69	564	297	14	1904
	SE	0	0	12	625	10	61	10	46	62	309	161	9	723
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-02SEP	St. Crop	0	13	8	61	74	2089	11	1	205	1332	102	580	4477
	SE	0	7	4	43	31	1147	10	<0.005	90	677	49	562	1451
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-16SEP	St. Crop	0	0	2	79	429	1182	897	131	1894	534	334	198	5680
	SE	0	0	2	79	219	872	856	78	1518	233	143	79	1985
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-30SEP	St. Crop	57	8	35	212	38	4550	40	9	293	392	281	215	6129
	SE	48	6	17	196	19	3267	40	4	151	249	210	168	3298
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-15OCT	St. Crop	285	0	33	11	62	833	0	1	1792	6	0	23	3045
	SE	221	0	21	11	24	386	0	1	1792	6	0	16	1847
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-28OCT	St. Crop	1810	1344	150	15	27	142	20	0	0	0	4	0	3512
	SE	1326	790	71	10	13	118	10	0	0	0	4	0	1549
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-95 Regional Density (No./1,000m3) of Blueback Herring Yearling and Older in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-18JUL	DENSITY	0.05	0.00	0.00	0.00	0.00	0.57	0.00	0.00	0.03	0.00	0.00	0.00	0.05
	SE	0.05	0.00	0.00	0.00	0.00	0.57	0.00	0.00	0.03	0.00	0.00	0.00	0.57
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-01AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	<0.005
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.02
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-14AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.00	0.00	0.02
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.00	0.00	0.29
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-28AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-12SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-25SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64	0.00	0.04	0.34	0.09	0.09
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64	0.00	0.03	0.11	0.09	0.65
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-09OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.01
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.04
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-23OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	<0.005
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-96 Regional Standing Crops (in Thousands) of Blueback Herring Yearling and Older in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-	St. Crop	12	0	0	0	0	79	0	0	4	0	0	0	95
18JUL	SE	12	0	0	0	0	79	0	0	4	0	0	0	80
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-	St. Crop	0	0	0	0	0	0	0	0	0	4	0	0	4
01AUG	SE	0	0	0	0	0	0	0	0	0	4	0	0	4
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-	St. Crop	0	0	0	0	0	0	0	0	0	50	0	0	50
14AUG	SE	0	0	0	0	0	0	0	0	0	50	0	0	50
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
28AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
12SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-	St. Crop	0	0	0	0	0	0	0	106	0	8	55	11	179
25SEP	SE	0	0	0	0	0	0	0	106	0	5	18	11	108
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-	St. Crop	0	0	0	0	0	0	0	0	0	12	0	0	12
09OCT	SE	0	0	0	0	0	0	0	0	0	6	0	0	6
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	6	6
23OCT	SE	0	0	0	0	0	0	0	0	0	0	0	6	6
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-97 Regional Catch-Per-Unit-Effort (CPUE) of Blueback Herring Yearling and Older in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.08	0.09
26JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.57	0.00	0.00	0.00	0.00	0.08	0.57
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-	CPUE	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
28OCT	SE	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-98 Regional Standing Crops (in Thousands) of Blueback Herring Yearling and Older in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-	St. Crop	0	0	0	0	0	0	7	0	0	0	0	1	8
26JUN	SE	0	0	0	0	0	0	4	0	0	0	0	1	4
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
09JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
22JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
06AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
20AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
02SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
16SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
30SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
15OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-	St. Crop	2	0	0	0	0	0	0	0	0	0	0	0	2
28OCT	SE	2	0	0	0	0	0	0	0	0	0	0	0	2
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-99 Regional Density (No./1,000m3) of Alosa spp. Eggs in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00	0.00	1.52	2.57	0.36
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00	0.00	1.52	2.57	2.99
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.51	0.54
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.52	4.52
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.59	0.00	0.78	19.96	44.60	5.58
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.23	0.00	0.32	9.41	26.97	28.59
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.28	3.08	11.08	167.77	1025.51	100.66
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.17	1.55	7.10	98.99	204.86	227.64
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
11MAY-15MAY	DENSITY	NS	0.00	0.00	0.00	0.26	0.00	0.00	0.00	1.62	15.51	103.29	793.12	39818.72	3394.38
	SE		0.00	0.00	0.00	0.26	0.00	0.00	0.00	0.63	6.54	70.17	396.12	24344.05	24347.38
	NO. TOWS		9	10	9	19	11	17	10	12	7	6	7	10	127
18MAY-22MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.73	0.00	0.00	7.31	169.48	1498.10	1634.87	275.87
	SE		0.00	0.00	0.00	0.00	0.00	0.73	0.00	0.00	3.99	86.76	796.51	1333.85	1556.00
	NO. TOWS		9	11	13	9	10	15	7	11	9	9	9	6	118
25MAY-30MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49	3.60	0.00	11.17	97.91	9.43
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32	2.63	0.00	10.64	34.08	35.79
	NO. TOWS		9	12	15	12	16	23	14	19	13	15	12	9	169
01JUN-05JUN	DENSITY	NS	0.00	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.23	21.74	5152.77	431.30
	SE		0.00	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.23	12.93	2114.44	2114.48
	NO. TOWS		9	11	16	12	15	27	13	20	14	16	12	12	177
08JUN-12JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43	4.71	95.99	7.78
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29	3.56	93.97	94.04
	NO. TOWS	6	11	18	18	23	18	19	13	17	14	11	11	11	190
15JUN-19JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	0.22	0.05
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	0.22	0.45
	NO. TOWS	6	11	16	18	24	18	24	13	18	12	11	10	10	191
22JUN-26JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	17	19	16	24	11	19	10	10	8	9	174

Table C-99 Regional Density (No./1,000m3) of Alosa spp. Eggs
in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	12	14	14	11	13	10	15	8	14	11	6	5	9	142
06JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	10	15	8	10	10	7	7	7	129
20JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
22JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
06AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
20AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
03SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
17SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
30SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-100 Regional Standing Crop (In Thousands) of Alosa spp. Eggs
in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	St. Crop	NS	0	0	0	0	0	0	79	0	0	0	244	329	651
	SE		0	0	0	0	0	0	79	0	0	0	244	329	416
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	833	833
	SE		0	0	0	0	0	0	0	0	0	0	0	579	579
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	St. Crop	NS	0	0	0	0	0	0	0	264	0	137	3208	5712	9321
	SE		0	0	0	0	0	0	0	203	0	56	1513	3454	3776
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	St. Crop	NS	0	0	0	0	0	0	46	47	436	1953	26966	131336	160783
	SE		0	0	0	0	0	0	46	29	219	1252	15911	26236	30710
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
11MAY-15MAY	St. Crop	NS	0	0	0	53	0	0	0	268	2195	18209	127480	5099520	5247726
	SE		0	0	0	53	0	0	0	105	926	12371	63669	3117703	3118378
	NO. TOWS		9	10	9	19	11	17	10	12	7	6	7	10	127
18MAY-22MAY	St. Crop	NS	0	0	0	0	0	102	0	0	1035	29878	240792	209375	481181
	SE		0	0	0	0	0	102	0	0	564	15295	128025	170824	214022
	NO. TOWS		9	11	13	9	10	15	7	11	9	9	9	6	118
25MAY-30MAY	St. Crop	NS	0	0	0	0	0	0	0	80	510	0	1796	12539	14924
	SE		0	0	0	0	0	0	0	53	373	0	1710	4364	4702
	NO. TOWS		9	12	15	12	16	23	14	19	13	15	12	9	169
01JUN-05JUN	St. Crop	NS	0	242	0	0	0	0	0	0	21	41	3494	659907	663704
	SE		0	242	0	0	0	0	0	0	21	41	2078	270793	270801
	NO. TOWS		9	11	16	12	15	27	13	20	14	16	12	12	177
08JUN-12JUN	St. Crop	0	0	0	0	0	0	0	0	0	0	75	756	12293	13124
	SE	0	0	0	0	0	0	0	0	0	0	52	573	12034	12048
	NO. TOWS	6	11	18	18	23	18	19	13	17	14	11	11	11	190
15JUN-19JUN	St. Crop	0	0	0	0	0	0	0	0	0	0	0	64	28	91
	SE	0	0	0	0	0	0	0	0	0	0	0	64	28	69
	NO. TOWS	6	11	16	18	24	18	24	13	18	12	11	10	10	191
22JUN-26JUN	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	17	19	16	24	11	19	10	10	8	9	174

Table C-100 Regional Standing Crop (In Thousands) of Alosa spp. Eggs
in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	12	14	14	11	13	10	15	8	14	11	6	5	9	142
06JUL-10JUL	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	10	15	8	10	10	7	7	7	129
20JUL-22JUL	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS.	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-101 Regional Density (No./1,000m3) of Alosa spp. Yolk-Sac Larvae
in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.04	1.75	0.00	0.00	0.00	0.00	0.00	0.15
	SE		0.00	0.00	0.00	0.00	0.00	0.04	0.99	0.00	0.00	0.00	0.00	0.00	0.99
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	DENSITY	NS	0.00	0.00	0.00	1.77	3.70	14.61	13.91	27.62	14.48	21.56	12.19	1.61	9.29
	SE		0.00	0.00	0.00	0.96	1.37	1.81	3.41	7.10	2.24	10.93	5.46	0.62	14.93
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
11MAY-15MAY	DENSITY	NS	0.00	0.00	0.34	3.74	8.80	3.67	17.05	15.82	22.62	12.78	23.03	58.47	13.86
	SE		0.00	0.00	0.34	1.28	3.65	1.33	11.82	5.02	6.01	2.40	6.09	18.49	24.54
	NO. TOWS		9	10	9	19	11	17	10	12	7	6	7	10	127
18MAY-22MAY	DENSITY	NS	0.00	0.15	3.20	34.38	14.34	1.07	25.77	33.13	263.03	1741.59	3015.47	14044.75	1598.07
	SE		0.00	0.15	2.27	30.33	8.11	0.68	21.61	12.71	60.76	451.59	1333.69	6402.04	6555.46
	NO. TOWS		9	11	13	9	10	15	7	11	9	9	9	6	118
25MAY-30MAY	DENSITY	NS	0.00	0.00	0.16	0.75	0.27	1.09	0.84	20.89	42.86	223.52	879.76	1047.90	184.84
	SE		0.00	0.00	0.16	0.71	0.27	0.35	0.54	9.13	19.92	95.96	298.98	492.48	584.47
	NO. TOWS		9	12	15	12	16	23	14	19	13	15	12	9	169
01JUN-05JUN	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.19	2.10	3.11	13.42	14.44	47.93	82.20	13.62
	SE		0.00	0.00	0.00	0.00	0.00	0.13	1.17	1.70	5.56	7.82	17.99	47.38	51.62
	NO. TOWS		9	11	16	12	15	27	13	20	14	16	12	12	177
08JUN-12JUN	DENSITY	0.00	0.00	0.00	0.00	1.20	1.27	3.60	22.95	48.71	82.85	38.41	1819.34	1077.38	238.13
	SE	0.00	0.00	0.00	0.00	0.85	1.27	3.04	19.82	45.66	71.46	20.42	699.82	482.99	855.00
	NO. TOWS	6	11	18	18	23	18	19	13	17	14	11	11	11	190
15JUN-19JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68	0.00	161.03	12.44
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68	0.00	103.37	103.37
	NO. TOWS	6	11	16	18	24	18	24	13	18	12	11	10	10	191
22JUN-26JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.23	0.09
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.23	1.23
	NO. TOWS	6	11	14	17	19	16	24	11	19	10	10	8	9	174

Table C-101 Regional Density (No./1,000m3) of Alosa spp. Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.39	1.26
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.07	9.07
	NO. TOWS	12	14	14	11	13	10	15	8	14	11	6	5	9	142
06JUL-10JUL	DENSITY	83.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.39
	SE	83.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	83.10
	NO. TOWS	6	11	14	11	13	10	15	8	10	10	7	7	7	129
20JUL-22JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-102 Regional Standing Crop (In Thousands) of Alosa spp. Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
18APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
25APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-	St. Crop	NS	0	0	0	0	0	5	522	0	0	0	0	0	527
01MAY	SE		0	0	0	0	0	5	295	0	0	0	0	0	295
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-	St. Crop	NS	0	0	0	369	768	2042	4148	4571	2048	3802	1959	206	19913
08MAY	SE		0	0	0	200	285	252	1017	1175	317	1928	877	80	2682
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
11MAY-	St. Crop	NS	0	0	50	780	1826	512	5083	2619	3200	2254	3702	7489	27515
15MAY	SE		0	0	50	266	757	186	3524	831	850	422	979	2368	4610
	NO. TOWS		9	10	9	19	11	17	10	12	7	6	7	10	127
18MAY-	St. Crop	NS	0	49	473	7163	2976	149	7682	5483	37211	307034	484682	1798688	2651591
22MAY	SE		0	49	335	6318	1682	95	6444	2103	8596	79614	214366	819899	851286
	NO. TOWS		9	11	13	9	10	15	7	11	9	9	9	6	118
25MAY-	St. Crop	NS	0	0	23	156	57	153	250	3457	6064	39406	141405	134202	325173
30MAY	SE		0	0	23	148	57	49	161	1510	2817	16918	48055	63071	81140
	NO. TOWS		9	12	15	12	16	23	14	19	13	15	12	9	169
01JUN-	St. Crop	NS	0	0	0	0	0	27	627	515	1899	2545	7704	10527	23843
05JUN	SE		0	0	0	0	0	18	350	282	787	1379	2891	6068	6921
	NO. TOWS		9	11	16	12	15	27	13	20	14	16	12	12	177
08JUN-	St. Crop	0	0	0	0	250	263	503	6842	8061	11721	6772	292426	137979	464818
12JUN	SE	0	0	0	0	178	263	425	5909	7555	10110	3599	112483	61855	129174
	NO. TOWS	6	11	18	18	23	18	19	13	17	14	11	11	11	190
15JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	120	0	20623	20744
19JUN	SE	0	0	0	0	0	0	0	0	0	0	120	0	13238	13239
	NO. TOWS	6	11	16	18	24	18	24	13	18	12	11	10	10	191
22JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	158	158
26JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	158	158
	NO. TOWS	6	11	14	17	19	16	24	11	19	10	10	8	9	174

Table C-102 Regional Standing Crop (In Thousands) of Alosa spp. Yolk-Sac Larvae
In Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	2100	2100
	SE	0	0	0	0	0	0	0	0	0	0	0	0	1162	1162
	NO. TOWS	12	14	14	11	13	10	15	8	14	11	6	5	9	142
06JUL-10JUL	St. Crop	17369	0	0	0	0	0	0	0	0	0	0	0	0	17369
	SE	17369	0	0	0	0	0	0	0	0	0	0	0	0	17369
	NO. TOWS	6	11	14	11	13	10	15	8	10	10	7	7	7	129
20JUL-22JUL	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-103 Regional Density (No./1,000m3) of Alosa spp. Post Yolk-Sac Larvae
in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	DENSITY	NS	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
	SE		0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
11MAY-15MAY	DENSITY	NS	0.00	0.00	0.34	2.59	0.87	1.25	9.76	11.72	5.62	9.04	1.67	0.00	3.57
	SE		0.00	0.00	0.34	1.22	0.70	0.54	4.00	3.10	3.06	3.42	1.20	0.00	7.10
	NO. TOWS		9	10	9	19	11	17	10	12	7	6	7	10	127
18MAY-22MAY	DENSITY	NS	0.11	1.51	3.09	25.14	38.69	4.31	94.49	65.54	42.58	291.17	513.38	2351.90	285.99
	SE		0.11	0.88	1.45	22.66	23.20	2.02	34.40	23.11	18.33	257.06	226.61	1593.48	1630.86
	NO. TOWS		9	11	13	9	10	15	7	11	9	9	9	6	118
25MAY-30MAY	DENSITY	NS	0.00	0.29	0.92	2.61	3.43	15.04	15.80	248.42	801.31	1595.70	3494.49	1580.14	646.51
	SE		0.00	0.29	0.46	2.17	1.11	4.61	6.00	152.06	385.30	578.90	1152.21	547.29	1460.79
	NO. TOWS		9	12	15	12	16	23	14	19	13	15	12	9	169
01JUN-05JUN	DENSITY	NS	0.00	0.00	0.73	1.18	39.10	106.42	211.44	524.80	4771.14	2172.08	151.09	27.60	667.13
	SE		0.00	0.00	0.35	1.03	16.09	29.59	76.68	168.88	3067.53	813.39	95.60	13.58	3180.60
	NO. TOWS		9	11	16	12	15	27	13	20	14	16	12	12	177
08JUN-12JUN	DENSITY	0.00	0.00	1.04	5.28	39.59	135.96	951.03	716.47	981.45	2516.10	1471.76	792.67	15.86	586.71
	SE	0.00	0.00	0.53	2.06	12.55	44.08	473.28	319.03	381.40	1127.07	483.90	669.73	7.90	1557.69
	NO. TOWS	6	11	18	18	23	18	19	13	17	14	11	11	11	190
15JUN-19JUN	DENSITY	0.00	0.00	1.47	4.31	97.16	107.14	781.25	848.85	1000.21	2125.07	1598.63	1332.21	4170.12	928.19
	SE	0.00	0.00	0.82	1.96	40.23	42.70	368.39	646.89	416.08	1095.80	677.49	505.69	1882.79	2488.20
	NO. TOWS	6	11	16	18	24	18	24	13	18	12	11	10	10	191
22JUN-26JUN	DENSITY	12.43	0.00	0.90	51.91	91.33	88.47	753.59	573.14	532.12	2236.74	2409.07	2176.27	3154.73	929.28
	SE	10.97	0.00	0.77	42.21	49.83	28.34	336.49	289.17	189.65	782.34	1039.31	577.82	1085.22	1855.21
	NO. TOWS	6	11	14	17	19	16	24	11	19	10	10	8	9	174

Table C-103 Regional Density (No./1,000m3) of Alosa spp. Post Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	DENSITY	8.26	5.10	0.46	0.97	0.26	1.26	11.13	561.65	392.04	1154.49	3244.29	954.96	160.13	499.61
	SE	3.20	1.83	0.33	0.97	0.14	0.57	4.04	323.64	121.74	490.86	1888.46	137.25	65.65	1987.45
	NO. TOWS	12	14	14	11	13	10	15	8	14	11	6	5	9	142
06JUL-10JUL	DENSITY	0.58	1.55	0.00	0.00	0.04	0.54	1.28	143.49	727.45	917.32	555.81	305.03	519.90	244.08
	SE	0.58	1.55	0.00	0.00	0.04	0.44	0.78	56.22	266.12	300.09	175.57	98.32	115.55	466.78
	NO. TOWS	6	11	14	11	13	10	15	8	10	10	7	7	7	129
20JUL-22JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.28	6.16	1.78	NS	NS	NS	NS	NS	1.03
	SE	0.00	0.00	0.00	0.00	0.00	0.28	5.99	1.36						6.15
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.00	NS	NS	NS	NS	NS	0.04
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.00						0.33
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	22.71	0.00	0.00	NS	NS	NS	NS	NS	2.84
	SE	0.00	0.00	0.00	0.00	0.00	22.71	0.00	0.00						22.71
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	DENSITY	0.00	0.00	0.72	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.09
	SE	0.00	0.00	0.72	0.00	0.00	0.00	0.00	0.00						0.72
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-104 Regional Standing Crop (In Thousands) of Alosa spp. Post Yolk-Sac Larvae
in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	St. Crop	NS	0	0	0	27	0	0	0	0	0	0	0	0	27
	SE		0	0	0	27	0	0	0	0	0	0	0	0	27
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
11MAY-15MAY	St. Crop	NS	0	0	50	540	180	174	2908	1939	795	1594	269	0	8450
	SE		0	0	50	253	145	76	1191	513	434	603	192	0	1538
	NO. TOWS		9	10	9	19	11	17	10	12	7	6	7	10	127
18MAY-22MAY	St. Crop	NS	25	485	456	5237	8027	602	28170	10847	6024	51332	82517	301204	494926
	SE		25	283	214	4721	4814	282	10255	3824	2594	45319	36423	204074	212600
	NO. TOWS		9	11	13	9	10	15	7	11	9	9	9	6	118
25MAY-30MAY	St. Crop	NS	0	95	136	543	712	2102	4709	41110	113361	281315	561675	202365	1208124
	SE		0	95	69	452	230	644	1789	25164	54508	102058	185197	70091	230727
	NO. TOWS		9	12	15	12	16	23	14	19	13	15	12	9	169
01JUN-05JUN	St. Crop	NS	0	0	108	247	8112	14877	63038	86846	674972	382929	24285	3535	1258949
	SE		0	0	51	214	3337	4136	22860	27948	433963	143398	15366	1740	458757
	NO. TOWS		9	11	16	12	15	27	13	20	14	16	12	12	177
08JUN-12JUN	St. Crop	0	0	336	781	8248	28205	132946	213604	162415	355953	259465	127408	2031	1291390
	SE	0	0	172	305	2614	9144	66161	95115	63116	159447	85310	107646	1012	248572
	NO. TOWS	6	11	18	18	23	18	19	13	17	14	11	11	11	190
15JUN-19JUN	St. Crop	0	0	475	637	20243	22226	109212	253072	165520	300633	281831	214129	534061	1902038
	SE	0	0	265	290	8381	8857	51497	192861	68854	155022	119439	81281	241126	384426
	NO. TOWS	6	11	16	18	24	18	24	13	18	12	11	10	10	191
22JUN-26JUN	St. Crop	2598	0	289	7669	19028	18353	105345	170873	88057	316431	424710	349795	404022	1907169
	SE	2293	0	248	6236	10382	5879	47039	86212	31384	110677	183226	92874	138983	290826
	NO. TOWS	6	11	14	17	19	16	24	11	19	10	10	8	9	174

Table C-104 Regional Standing Crop (In Thousands) of Alosa spp. Post Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	St. Crop	1726	1169	149	143	54	261	1556	167446	64877	163326	571954	153493	20507	1146660
	SE	669	419	105	143	29	117	565	96488	20147	69442	332927	22061	8408	354875
	NO. TOWS	12	14	14	11	13	10	15	8	14	11	6	5	9	142
06JUL-10JUL	St. Crop	122	356	0	0	8	111	179	42780	120382	129774	97987	49027	66583	507308
	SE	122	356	0	0	8	91	109	16762	44038	42454	30952	15803	14799	73822
	NO. TOWS	6	11	14	11	13	10	15	8	10	10	7	7	7	129
20JUL-22JUL	St. Crop	0	0	0	0	0	58	861	531	NS	NS	NS	NS	NS	1450
	SE	0	0	0	0	0	58	838	404						932
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	St. Crop	0	0	0	0	0	0	46	0	NS	NS	NS	NS	NS	46
	SE	0	0	0	0	0	0	46	0						46
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	St. Crop	0	0	0	0	0	4711	0	0	NS	NS	NS	NS	NS	4711
	SE	0	0	0	0	0	4711	0	0						4711
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	St. Crop	0	0	231	0	0	0	0	0	NS	NS	NS	NS	NS	231
	SE	0	0	231	0	0	0	0	0						231
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-105 Regional Density (No./1,000m3) of Alosa spp. Young of Year
in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
11MAY-15MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	19	11	17	10	12	7	6	7	10	127
18MAY-22MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	10	15	7	11	9	9	9	6	118
25MAY-30MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	12	15	12	16	23	14	19	13	15	12	9	169
01JUN-05JUN	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	16	12	15	27	13	20	14	16	12	12	177
08JUN-12JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	18	18	23	18	19	13	17	14	11	11	11	190
15JUN-19JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	16	18	24	18	24	13	18	12	11	10	10	191
22JUN-26JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.13	0.24
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.13	3.13
	NO. TOWS	6	11	14	17	19	16	24	11	19	10	10	8	9	174

Table C-105 Regional Density (No./1,000m3) of Alosa spp. Young of Year
in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.14	60.96	187.36	192.96	237.38	189.42	42.43	70.05
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.14	36.17	104.00	71.71	40.53	25.75	23.63	141.88
	NO. TOWS	12	14	14	11	13	10	15	8	14	11	6	5	9	142
06JUL-10JUL	DENSITY	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.66	23.81	9.24	20.61	0.68	9.78	4.99
	SE	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.66	12.35	7.54	20.61	0.68	7.20	26.21
	NO. TOWS	6	11	14	11	13	10	15	8	10	10	7	7	7	129
20JUL-22JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.31	0.00	NS	NS	NS	NS	NS	0.04
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.31	0.00						0.31
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-106 Regional Standing Crop (In Thousands) of Alosa spp. Young of Year
in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
11MAY-15MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	19	11	17	10	12	7	6	7	10	127
18MAY-22MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	10	15	7	11	9	9	9	6	118
25MAY-30MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	12	15	12	16	23	14	19	13	15	12	9	169
01JUN-05JUN	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	16	12	15	27	13	20	14	16	12	12	177
08JUN-12JUN	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	18	18	23	18	19	13	17	14	11	11	11	190
15JUN-19JUN	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	16	18	24	18	24	13	18	12	11	10	10	191
22JUN-26JUN	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	401	401
	SE	0	0	0	0	0	0	0	0	0	0	0	0	401	401
	NO. TOWS	6	11	14	17	19	16	24	11	19	10	10	8	9	174

Table C-106 Regional Standing Crop (In Thousands) of Alosa spp. Young of Year in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	St. Crop	0	0	0	0	0	0	19	18173	31006	27298	41850	30446	5434	154226
	SE	0	0	0	0	0	0	19	10782	17211	10144	7145	4139	3026	24346
	NO. TOWS	12	14	14	11	13	10	15	8	14	11	6	5	9	142
06JUL-10JUL	St. Crop	0	0	0	0	7	0	0	196	3940	1308	3633	110	1252	10446
	SE	0	0	0	0	7	0	0	196	2044	1067	3633	110	922	4406
	NO. TOWS	6	11	14	11	13	10	15	8	10	10	7	7	7	129
20JUL-22JUL	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	St. Crop	0	0	0	0	0	0	43	0	NS	NS	NS	NS	NS	43
	SE	0	0	0	0	0	0	43	0						43
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-107 Regional Density (No./1,000m3) of Gizzard Shad Young of Year in Hudson River Estuary Determined from Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-107 Regional Density (No./1,000m3) of Gizzard Shad Young of Year in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49	NS	NS	NS	NS	NS	0.06
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49						0.49
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	1.22	0.00	0.00	NS	NS	NS	NS	NS	0.15
	SE	0.00	0.00	0.00	0.00	0.00	1.22	0.00	0.00						1.22
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	DENSITY	0.00	1.25	0.00	0.00	0.00	0.13	0.07	0.24	NS	NS	NS	NS	NS	0.21
	SE	0.00	1.25	0.00	0.00	0.00	0.13	0.07	0.24						1.28
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.00	NS	NS	NS	NS	NS	0.04
	SE	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.00						0.33
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-108 Regional Standing Crop (In Thousands) of Gizzard Shad Young of Year in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
18APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
25APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
08MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
30MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
05JUN	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-108 Regional Standing Crop (In Thousands) of Gizzard Shad Young of Year in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
22JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
06AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-	St. Crop	0	0	0	0	0	0	0	147	NS	NS	NS	NS	NS	147
20AUG	SE	0	0	0	0	0	0	0	147						147
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-	St. Crop	0	0	0	0	0	254	0	0	NS	NS	NS	NS	NS	254
03SEP	SE	0	0	0	0	0	254	0	0						254
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-	St. Crop	0	286	0	0	0	27	10	72	NS	NS	NS	NS	NS	395
17SEP	SE	0	286	0	0	0	27	10	72						296
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-	St. Crop	0	0	0	0	0	69	0	0	NS	NS	NS	NS	NS	69
30SEP	SE	0	0	0	0	0	69	0	0						69
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-109 Regional Density (No./1,000m3) of Gizzard Shad Young of Year in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-18JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-01AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-14AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-28AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-12SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-25SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-09OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-23OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-110 Regional Standing Crops (in Thousands) of Gizzard Shad Young of Year in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
18JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
01AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
14AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
28AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
12SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
25SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
09OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
23OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-111 Regional Catch-Per-Unit-Effort (CPUE) of Gizzard Shad Young of Year in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-26JUN	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-09JUL	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-22JUL	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-06AUG	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-20AUG	CPUE	0.00	0.00	0.00	0.00	0.00	5.00	22.00	0.00	0.00	0.00	0.00	0.00	2.25
	SE	0.00	0.00	0.00	0.00	0.00	5.00	20.06	0.00	0.00	0.00	0.00	0.00	20.67
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-02SEP	CPUE	0.00	0.00	0.00	0.00	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
	SE	0.00	0.00	0.00	0.00	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-16SEP	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-30SEP	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-15OCT	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-28OCT	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-112 Regional Standing Crops (in Thousands) of Gizzard Shad Young of Year in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
26JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
09JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
22JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
06AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-	St. Crop	0	0	0	0	0	53	156	0	0	0	0	0	209
20AUG	SE	0	0	0	0	0	53	142	0	0	0	0	0	152
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-	St. Crop	0	0	0	0	1	0	0	0	0	0	0	0	1
02SEP	SE	0	0	0	0	1	0	0	0	0	0	0	0	1
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
16SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
30SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
15OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
28OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-113 Regional Density (No./1,000m3) of Gizzard Shad Yearling and Older in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-18JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-01AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-14AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-28AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-12SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-25SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-09OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-23OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-114 Regional Standing Crops (in Thousands) of Gizzard Shad Yearling and Older in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-18JUL	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-01AUG	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-14AUG	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-28AUG	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-12SEP	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-25SEP	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-09OCT	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-23OCT	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-115 Regional Catch-Per-Unit-Effort (CPUE) of Gizzard Shad Yearling and Older in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-26JUN	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-09JUL	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-22JUL	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.01
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.07
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-06AUG	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-20AUG	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-02SEP	CPUE	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
	SE	0.00	0.00	0.00	0.00	0.00	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.45
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-16SEP	CPUE	0.00	0.00	0.00	0.00	0.00	0.67	0.00	0.00	0.00	0.00	0.00	0.00	0.06
	SE	0.00	0.00	0.00	0.00	0.00	0.67	0.00	0.00	0.00	0.00	0.00	0.00	0.67
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-30SEP	CPUE	0.00	0.00	0.00	0.00	0.40	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.06
	SE	0.00	0.00	0.00	0.00	0.40	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.52
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-15OCT	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-28OCT	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.02
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.20
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-116 Regional Standing Crops (in Thousands) of Gizzard Shad Yearling and Older in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
26JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
09JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-	St. Crop	0	0	0	0	0	0	0	0	0	1	0	0	1
22JUL	SE	0	0	0	0	0	0	0	0	0	1	0	0	1
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
06AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
20AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-	St. Crop	0	0	0	0	0	11	0	0	0	0	0	0	11
02SEP	SE	0	0	0	0	0	5	0	0	0	0	0	0	5
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-	St. Crop	0	0	0	0	0	7	0	0	0	0	0	0	7
16SEP	SE	0	0	0	0	0	7	0	0	0	0	0	0	7
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-	St. Crop	0	0	0	0	1	4	0	0	0	0	0	0	5
30SEP	SE	0	0	0	0	1	4	0	0	0	0	0	0	4
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
15OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-	St. Crop	0	0	0	0	0	0	1	0	0	0	0	0	1
28OCT	SE	0	0	0	0	0	0	1	0	0	0	0	0	1
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-117 Regional Density (No./1,000m3) of Rainbow Smelt Eggs
in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.43	0.00	0.00	4.04
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.43	0.00	0.00	48.43
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-117 Regional Density (No./1,000m3) of Rainbow Smelt Eggs in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-118 Regional Standing Crop (In Thousands) of Rainbow Smelt Eggs in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
18APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
25APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
08MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	8538	0	0	8538
15MAY	SE		0	0	0	0	0	0	0	0	0	8538	0	0	8538
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
30MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
05JUN	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-118 Regional Standing Crop (In Thousands) of Rainbow Smelt Eggs in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
22JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
06AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
20AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
03SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
17SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
30SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-119 Regional Density (No./1,000m3) of Rainbow Smelt Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	DENSITY	NS	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<0.005
	SE		0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	DENSITY	NS	0.00	0.00	1.33	0.21	0.16	0.04	5.28	6.66	4.69	12.25	18.39	1.12	4.18
	SE		0.00	0.00	0.81	0.17	0.16	0.04	1.24	3.11	2.28	3.96	8.46	0.50	10.23
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	DENSITY	NS	0.00	0.00	0.75	3.03	21.84	52.96	142.56	187.48	150.85	30.79	0.00	0.00	49.19
	SE		0.00	0.00	0.37	2.22	10.41	10.39	23.20	42.04	39.94	8.89	0.00	0.00	64.82
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	DENSITY	NS	0.00	0.00	1.55	9.91	0.72	3.58	3.57	17.86	24.92	13.92	9.20	0.00	7.10
	SE		0.00	0.00	0.70	4.04	0.46	1.38	1.91	11.04	4.63	4.10	4.66	0.00	14.30
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	DENSITY	NS	0.00	0.00	0.88	0.00	0.00	0.00	0.00	20.24	20.91	0.00	0.00	0.00	3.50
	SE		0.00	0.00	0.88	0.00	0.00	0.00	0.00	15.05	20.91	0.00	0.00	0.00	25.78
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-119 Regional Density (No./1,000m3) of Rainbow Smelt Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-120 Regional Standing Crop (In Thousands) of Rainbow Smelt Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	St. Crop	NS	0	0	0	9	0	0	0	0	0	0	0	0	9
	SE		0	0	0	9	0	0	0	0	0	0	0	0	9
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	St. Crop	NS	0	0	196	43	32	5	1573	1103	664	2160	2956	143	8876
	SE		0	0	120	35	32	5	370	515	323	699	1360	65	1693
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	St. Crop	NS	0	0	110	631	4530	7404	42502	31025	21341	5429	0	0	112972
	SE		0	0	55	462	2159	1452	6918	6958	5651	1568	0	0	11732
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	St. Crop	NS	0	0	229	2066	150	501	1064	2956	3525	2454	1479	0	14424
	SE		0	0	103	841	95	193	569	1827	655	723	750	0	2437
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	St. Crop	NS	0	0	130	0	0	0	0	3349	2958	0	0	0	6437
	SE		0	0	130	0	0	0	0	2491	2958	0	0	0	3869
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-120 Regional Standing Crop (In Thousands) of Rainbow Smelt Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-121 Regional Density (No./1,000m3) of Rainbow Smelt Post Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	DENSITY	NS	0.00	0.00	1.01	0.77	13.32	0.04	0.00	0.00	0.00	0.00	0.00	0.00	1.26
	SE		0.00	0.00	0.45	0.54	8.64	0.04	0.00	0.00	0.00	0.00	0.00	0.00	8.67
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	DENSITY	NS	0.27	0.57	2.81	65.38	64.10	5.44	145.43	16.47	0.86	3.55	0.00	0.00	25.41
	SE		0.27	0.43	2.59	17.22	35.19	1.95	118.72	4.16	0.61	3.00	0.00	0.00	125.17
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	DENSITY	NS	0.22	9.46	14.68	37.72	17.99	22.49	388.89	161.23	36.28	6.09	0.00	0.00	57.92
	SE		0.11	4.43	5.11	11.68	9.71	11.47	93.62	38.90	11.96	5.05	0.00	0.00	104.19
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	DENSITY	NS	0.11	5.55	10.66	21.52	96.16	234.66	259.17	158.24	56.46	73.67	0.00	0.00	76.35
	SE		0.11	1.25	2.38	7.51	25.94	96.69	53.28	54.65	8.08	33.18	0.00	0.00	130.68
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	DENSITY	NS	1.83	1.35	7.83	67.64	38.44	133.68	42.60	12.47	178.72	12.65	0.00	0.00	41.43
	SE		1.07	0.87	3.06	32.98	10.42	31.15	26.76	3.01	147.60	12.65	0.00	0.00	157.64
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	DENSITY	8.45	41.90	70.52	211.71	49.04	52.38	74.89	37.23	0.57	4.56	0.00	0.00	1.66	42.53
	SE	3.49	11.60	13.35	102.22	23.37	14.64	23.65	22.20	0.57	4.56	0.00	0.00	1.66	112.30
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	DENSITY	3.43	3.28	123.12	68.55	45.16	23.76	80.64	72.26	2.20	4.88	0.00	4.17	0.00	33.19
	SE	2.31	1.24	50.86	16.37	15.11	12.84	54.30	53.30	1.72	3.45	0.00	4.17	0.00	95.27
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	DENSITY	4.28	30.25	119.81	39.59	23.25	25.59	113.99	6.23	10.68	0.00	0.00	0.00	0.00	28.74
	SE	3.28	11.36	43.34	9.63	6.52	3.38	31.57	2.59	6.71	0.00	0.00	0.00	0.00	56.68
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-121 Regional Density (No./1,000m3) of Rainbow Smelt Post Yolk-Sac Larvae
in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	DENSITY	0.00	6.15	6.29	12.68	7.11	8.28	13.52	3.86	2.21	0.99	0.00	0.00	0.00	4.70
	SE	0.00	4.90	1.53	4.88	3.01	4.42	5.49	1.94	1.29	0.99	0.00	0.00	0.00	10.74
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	DENSITY	7.15	7.62	7.41	6.23	0.10	0.42	0.22	0.00	0.00	0.00	0.00	0.00	0.00	2.24
	SE	4.39	4.53	4.08	3.95	0.10	0.42	0.22	0.00	0.00	0.00	0.00	0.00	0.00	8.50
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	DENSITY	11.27	1.12	0.59	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	1.62
	SE	11.27	1.12	0.59	0.00	0.00	0.00	0.00	0.00						11.34
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	DENSITY	0.39	0.00	4.38	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.60
	SE	0.39	0.00	4.38	0.00	0.00	0.00	0.00	0.00						4.40
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	DENSITY	0.91	0.00	0.00	0.00	0.00	3.67	1.11	0.00	NS	NS	NS	NS	NS	0.71
	SE	0.91	0.00	0.00	0.00	0.00	3.67	1.11	0.00						3.94
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-122 Regional Standing Crop (In Thousands) of Rainbow Smelt Post Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
18APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
25APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-	St. Crop	NS	0	0	149	161	2764	5	0	0	0	0	0	0	3078
08MAY	SE		0	0	67	112	1792	5	0	0	0	0	0	0	1796
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-	St. Crop	NS	63	184	415	13620	13297	760	43358	2726	122	626	0	0	75171
15MAY	SE		63	140	382	3588	7301	272	35395	688	87	529	0	0	36332
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-	St. Crop	NS	50	3045	2168	7858	3733	3144	115942	26681	5133	1073	0	0	168827
22MAY	SE		25	1427	755	2433	2014	1603	27912	6437	1691	890	0	0	28971
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-	St. Crop	NS	25	1785	1574	4484	19950	32804	77267	26186	7987	12987	0	0	185050
30MAY	SE		25	403	352	1565	5382	13517	15885	9043	1144	5849	0	0	24167
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-	St. Crop	NS	419	435	1156	14091	7974	18687	12701	2063	25284	2230	0	0	85040
05JUN	SE		246	279	452	6871	2161	4354	7979	499	20881	2230	0	0	24002
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-	St. Crop	1767	9613	22695	31278	10217	10867	10469	11099	94	645	0	0	213	108957
12JUN	SE	728	2661	4296	15102	4869	3036	3306	6619	94	645	0	0	213	18501
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-	St. Crop	717	751	39622	10128	9407	4928	11273	21543	365	690	0	670	0	100094
19JUN	SE	482	284	16367	2418	3149	2665	7591	15891	284	489	0	670	0	24535
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-	St. Crop	894	6939	38555	5849	4844	5309	15935	1856	1768	0	0	0	0	81949
26JUN	SE	686	2607	13946	1422	1359	702	4413	773	1110	0	0	0	0	15080
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-122 Regional Standing Crop (In Thousands) of Rainbow Smelt Post Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	St. Crop	0	1410	2025	1873	1482	1719	1890	1151	366	141	0	0	0	12056
	SE	0	1123	494	720	627	917	768	580	213	141	0	0	0	2062
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	St. Crop	1495	1748	2383	921	21	87	31	0	0	0	0	0	0	6687
	SE	918	1038	1314	583	21	87	31	0	0	0	0	0	0	1999
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	St. Crop	2355	257	191	0	0	0	0	0	NS	NS	NS	NS	NS	2802
	SE	2355	257	191	0	0	0	0	0						2377
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	St. Crop	81	0	1410	0	0	0	0	0	NS	NS	NS	NS	NS	1491
	SE	81	0	1410	0	0	0	0	0						1412
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	St. Crop	190	0	0	0	0	762	155	0	NS	NS	NS	NS	NS	1106
	SE	190	0	0	0	0	762	155	0						800
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-123 Regional Density (No./1,000m3) of Rainbow Smelt Young of Year
in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	DENSITY	0.00	0.00	0.28	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.03
	SE	0.00	0.00	0.28	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.32
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	DENSITY	0.00	1.13	4.08	10.01	0.78	0.51	5.34	0.00	0.00	0.00	0.00	0.00	0.00	1.68
	SE	0.00	0.80	2.98	7.34	0.30	0.51	2.59	0.00	0.00	0.00	0.00	0.00	0.00	8.40
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-123 Regional Density (No./1,000m3) of Rainbow Smelt Young of Year
in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	DENSITY	0.00	1.72	51.68	12.59	21.05	23.86	34.52	5.32	0.00	1.74	0.00	0.00	0.00	11.73
	SE	0.00	1.22	14.37	5.18	6.56	10.76	10.41	2.60	0.00	1.74	0.00	0.00	0.00	22.63
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	DENSITY	19.90	117.85	44.58	49.93	25.00	9.60	21.84	5.25	2.00	0.00	0.00	0.00	0.00	22.77
	SE	13.24	35.80	10.89	20.20	8.77	2.42	11.47	2.70	1.31	0.00	0.00	0.00	0.00	46.98
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	DENSITY	54.43	39.50	16.26	19.12	15.58	3.09	2.57	8.69	NS	NS	NS	NS	NS	19.91
	SE	22.86	33.97	8.51	7.71	5.51	1.15	2.57	4.26						43.18
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	DENSITY	23.94	26.90	18.24	25.69	67.82	82.80	7.04	0.77	NS	NS	NS	NS	NS	31.65
	SE	11.31	6.70	6.83	12.47	57.32	69.31	3.11	0.77						92.06
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	DENSITY	3.84	7.00	10.31	8.31	14.05	19.62	18.14	0.76	NS	NS	NS	NS	NS	10.25
	SE	2.24	3.07	5.65	0.98	7.54	2.55	7.96	0.44						13.20
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	DENSITY	7.89	8.98	1.09	4.71	3.01	20.82	54.94	1.03	NS	NS	NS	NS	NS	12.81
	SE	4.04	3.33	1.09	2.15	1.31	8.24	15.90	0.69						18.87
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	DENSITY	0.00	0.21	0.00	0.00	1.00	9.01	2.17	2.82	NS	NS	NS	NS	NS	1.90
	SE	0.00	0.21	0.00	0.00	0.26	3.58	2.13	1.67						4.51
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	DENSITY	0.00	0.75	0.00	0.31	3.82	43.21	2.55	0.28	NS	NS	NS	NS	NS	6.37
	SE	0.00	0.75	0.00	0.31	2.19	20.94	2.55	0.28						21.22
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	DENSITY	0.00	0.00	0.00	0.00	2.32	48.15	3.84	1.41	NS	NS	NS	NS	NS	6.96
	SE	0.00	0.00	0.00	0.00	2.17	11.22	2.14	1.01						11.67
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-124 Regional Standing Crop (In Thousands) of Rainbow Smelt Young of Year
in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
18APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
25APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
08MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
30MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
05JUN	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-	St. Crop	0	0	91	0	0	0	20	0	0	0	0	0	0	111
19JUN	SE	0	0	91	0	0	0	20	0	0	0	0	0	0	93
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-	St. Crop	0	258	1314	1479	162	105	747	0	0	0	0	0	0	4066
26JUN	SE	0	184	959	1085	62	105	361	0	0	0	0	0	0	1509
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-124 Regional Standing Crop (In Thousands) of Rainbow Smelt Young of Year in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	St. Crop	0	394	16631	1859	4386	4951	4826	1587	0	246	0	0	0	34881
	SE	0	280	4625	766	1367	2232	1455	775	0	246	0	0	0	5629
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	St. Crop	4159	27037	14346	7376	5207	1992	3053	1564	332	0	0	0	0	65067
	SE	2767	8213	3506	2984	1827	503	1604	806	217	0	0	0	0	10157
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	St. Crop	11377	9061	5234	2825	3246	641	359	2590	NS	NS	NS	NS	NS	35334
	SE	4778	7792	2738	1139	1148	238	359	1271						9771
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	St. Crop	5004	6172	5870	3796	14128	17178	984	230	NS	NS	NS	NS	NS	53362
	SE	2364	1536	2198	1842	11943	14379	435	230						19126
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	St. Crop	802	1607	3318	1227	2928	4071	2536	227	NS	NS	NS	NS	NS	16715
	SE	467	705	1817	144	1571	529	1113	130						2835
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	St. Crop	1649	2061	352	695	627	4320	7680	307	NS	NS	NS	NS	NS	17691
	SE	844	765	352	318	273	1709	2223	205						3083
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	St. Crop	0	49	0	0	209	1868	303	841	NS	NS	NS	NS	NS	3270
	SE	0	49	0	0	55	744	298	498						946
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	St. Crop	0	171	0	46	796	8964	356	84	NS	NS	NS	NS	NS	10419
	SE	0	171	0	46	455	4343	356	84						4386
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	St. Crop	0	0	0	0	483	9988	537	420	NS	NS	NS	NS	NS	11429
	SE	0	0	0	0	452	2328	299	301						2410
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-125 Regional Density (No./1,000m3) of Rainbow Smelt Young of Year in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-18JUL	DENSITY	6.05	7.86	26.00	24.37	8.49	0.04	2.32	1.54	0.00	0.00	0.00	0.00	6.39
	SE	1.46	2.46	10.22	7.32	5.97	0.04	1.18	0.94	0.00	0.00	0.00	0.00	14.28
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-01AUG	DENSITY	29.90	5.37	3.38	3.10	35.89	12.59	0.72	0.00	0.00	0.00	0.00	0.00	7.58
	SE	10.59	1.67	2.67	1.81	32.61	2.17	0.49	0.00	0.00	0.00	0.00	0.00	34.55
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-14AUG	DENSITY	7.47	2.89	0.49	0.04	18.80	3.16	0.75	1.56	0.00	0.00	0.00	0.00	2.93
	SE	6.73	1.26	0.22	0.03	5.26	2.42	0.70	1.56	0.00	0.00	0.00	0.00	9.13
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-28AUG	DENSITY	4.14	0.35	0.04	0.74	7.05	113.93	5.97	0.09	0.00	0.00	0.00	0.00	11.03
	SE	1.38	0.17	0.02	0.64	2.12	77.23	2.92	0.09	0.00	0.00	0.00	0.00	77.32
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-12SEP	DENSITY	0.09	0.01	0.05	0.00	31.33	34.75	2.82	0.00	0.00	0.00	0.00	0.00	5.75
	SE	0.05	0.01	0.04	0.00	20.95	11.16	2.79	0.00	0.00	0.00	0.00	0.00	23.90
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-25SEP	DENSITY	0.00	0.00	0.00	0.03	15.66	11.47	1.30	0.00	0.00	0.00	0.00	0.00	2.37
	SE	0.00	0.00	0.00	0.02	11.41	3.22	0.64	0.00	0.00	0.00	0.00	0.00	11.87
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-09OCT	DENSITY	0.00	0.00	0.00	0.00	8.82	3.24	0.27	0.51	0.00	0.00	0.00	0.00	1.07
	SE	0.00	0.00	0.00	0.00	8.05	3.20	0.11	0.51	0.00	0.00	0.00	0.00	8.68
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-23OCT	DENSITY	0.00	0.00	0.02	5.85	1.86	2.17	0.97	0.70	0.00	0.00	0.00	0.00	0.97
	SE	0.00	0.00	0.02	5.53	1.67	2.00	0.77	0.68	0.00	0.00	0.00	0.00	6.20
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-126 Regional Standing Crops (in Thousands) of Rainbow Smelt Young of Year in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-18JUL	St. Crop	1387	2531	3841	5077	1760	6	692	255	0	0	0	0	15549
	SE	336	791	1509	1524	1239	5	353	156	0	0	0	0	2650
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-01AUG	St. Crop	6860	1729	500	645	7445	1760	216	0	0	0	0	0	19155
	SE	2429	536	394	377	6765	303	147	0	0	0	0	0	7236
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-14AUG	St. Crop	1715	929	72	9	3900	441	225	258	0	0	0	0	7549
	SE	1545	405	32	6	1090	338	209	258	0	0	0	0	1991
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-28AUG	St. Crop	950	111	6	154	1463	15926	1781	15	0	0	0	0	20406
	SE	316	53	4	134	441	10795	870	15	0	0	0	0	10845
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-12SEP	St. Crop	20	3	8	0	6499	4858	841	0	0	0	0	0	12229
	SE	11	3	5	0	4346	1561	833	0	0	0	0	0	4692
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-25SEP	St. Crop	0	0	0	6	3248	1604	386	0	0	0	0	0	5244
	SE	0	0	0	4	2367	450	190	0	0	0	0	0	2417
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-09OCT	St. Crop	0	0	0	0	1829	452	79	84	0	0	0	0	2445
	SE	0	0	0	0	1670	447	34	84	0	0	0	0	1731
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-23OCT	St. Crop	0	0	3	1219	386	304	290	117	0	0	0	0	2319
	SE	0	0	3	1151	347	280	231	113	0	0	0	0	1261
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-127 Regional Catch-Per-Unit-Effort (CPUE) of Rainbow Smelt Young of Year in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-26JUN	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-09JUL	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-22JUL	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-06AUG	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-20AUG	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-02SEP	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-16SEP	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-30SEP	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-15OCT	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-28OCT	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-128 Regional Standing Crops (in Thousands) of Rainbow Smelt Young of Year in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-26JUN	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-09JUL	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-22JUL	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-06AUG	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-20AUG	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-02SEP	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-16SEP	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-30SEP	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-15OCT	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-28OCT	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-129 Regional Density (No./1,000m3) of Rainbow Smelt Yearling and Older in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-18JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-01AUG	DENSITY	0.00	0.00	0.00	0.00	0.73	0.00	0.00	0.00	0.05	0.00	0.02	0.00	0.07
	SE	0.00	0.00	0.00	0.00	0.73	0.00	0.00	0.00	0.05	0.00	0.02	0.00	0.73
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-14AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-28AUG	DENSITY	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<0.005
	SE	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-12SEP	DENSITY	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<0.005
	SE	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-25SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-09OCT	DENSITY	0.00	0.00	0.00	0.00	0.03	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.01
	SE	0.00	0.00	0.00	0.00	0.03	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.05
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-23OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-130 Regional Standing Crops (in Thousands) of Rainbow Smelt Yearling and Older in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
18JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-	St. Crop	0	0	0	0	151	0	0	0	8	0	4	0	162
01AUG	SE	0	0	0	0	151	0	0	0	8	0	4	0	151
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
14AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-	St. Crop	0	0	0	0	4	0	0	0	0	0	0	0	4
28AUG	SE	0	0	0	0	4	0	0	0	0	0	0	0	4
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-	St. Crop	0	0	0	0	3	0	0	0	0	0	0	0	3
12SEP	SE	0	0	0	0	3	0	0	0	0	0	0	0	3
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
25SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-	St. Crop	0	0	0	0	7	5	0	0	0	0	0	0	12
09OCT	SE	0	0	0	0	7	5	0	0	0	0	0	0	8
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
23OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-131 Regional Catch-Per-Unit-Effort (CPUE) of Rainbow Smelt Yearling and Older in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-132 Regional Standing Crops (in Thousands) of Rainbow Smelt Yearling and Older in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
26JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
09JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
22JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
06AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
20AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
02SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
16SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
30SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
15OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
28OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-133 Regional Density (No./1,000m3) of Hogchoker Eggs
in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	DENSITY	NS	0.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
	SE		0.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.58
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	DENSITY	NS	0.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
	SE		0.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.59
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.01
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.17
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	DENSITY	807.38	5273.36	1.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	467.86
	SE	46.99	1537.56	1.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1538.27
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	DENSITY	338.51	1180.73	158.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	129.02
	SE	162.74	932.68	80.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	950.19
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-133 Regional Density (No./1,000m3) of Hogchoker Eggs in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	DENSITY	174.71	335.84	110.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.78
	SE	105.84	103.68	64.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	161.49
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	DENSITY	1479.15	1310.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	214.57
	SE	583.75	701.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	912.72
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	DENSITY	574.92	73.68	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	81.07
	SE	38.55	33.82	0.00	0.00	0.00	0.00	0.00	0.00						51.28
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	DENSITY	1931.57	23.23	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	244.35
	SE	1061.11	6.70	0.00	0.00	0.00	0.00	0.00	0.00						1061.13
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	DENSITY	0.00	120.54	0.43	0.00	0.04	0.00	0.00	0.00	NS	NS	NS	NS	NS	15.13
	SE	0.00	74.17	0.43	0.00	0.04	0.00	0.00	0.00						74.17
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-134 Regional Standing Crop (In Thousands) of Hogchoker Eggs
in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
18APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
25APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
08MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-	St. Crop	NS	133	0	0	0	0	0	0	0	0	0	0	0	133
30MAY	SE		133	0	0	0	0	0	0	0	0	0	0	0	133
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-	St. Crop	NS	135	0	0	0	0	0	0	0	0	0	0	0	135
05JUN	SE		135	0	0	0	0	0	0	0	0	0	0	0	135
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-	St. Crop	0	0	0	0	0	0	24	0	0	0	0	0	0	24
12JUN	SE	0	0	0	0	0	0	24	0	0	0	0	0	0	24
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-	St. Crop	168752	1209815	458	0	0	0	0	0	0	0	0	0	0	1379026
19JUN	SE	9821	352746	378	0	0	0	0	0	0	0	0	0	0	352883
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-	St. Crop	70753	270884	50852	0	0	0	0	0	0	0	0	0	0	392488
26JUN	SE	34015	213976	25920	0	0	0	0	0	0	0	0	0	0	218208
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-134 Regional Standing Crop (In Thousands) of Hogchoker Eggs in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	St. Crop	36518	77048	35597	0	0	0	0	0	0	0	0	0	0	149162
	SE	22123	23787	20667	0	0	0	0	0	0	0	0	0	0	38502
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	St. Crop	309161	300612	0	0	0	0	0	0	0	0	0	0	0	609774
	SE	122011	160971	0	0	0	0	0	0	0	0	0	0	0	201986
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	St. Crop	120165	16903	0	0	0	0	0	0	NS	NS	NS	NS	NS	137068
	SE	8058	7759	0	0	0	0	0	0						11186
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	St. Crop	403722	5329	0	0	0	0	0	0	NS	NS	NS	NS	NS	409051
	SE	221785	1538	0	0	0	0	0	0						221791
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	St. Crop	0	27655	139	0	9	0	0	0	NS	NS	NS	NS	NS	27803
	SE	0	17017	139	0	9	0	0	0						17017
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	St. Crop.	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-135 Regional Density (No./1,000m3) of Hogchoker Yolk-Sac Larvae
in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05JUN	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-135 Regional Density (No./1,000m3) of Hogchoker Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-136 Regional Standing Crop (In Thousands) of Hogchoker Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-136 Regional Standing Crop (In Thousands) of Hogchoker Yolk-Sac Larvae
in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-137 Regional Density (No./1,000m3) of Hogchoker Post Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-137 Regional Density (No./1,000m3) of Hogchoker Post Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.26	NS	NS	NS	NS	NS	0.07
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.26						0.39
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-138 Regional Standing Crop (In Thousands) of Hogchoker Post Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
18APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
25APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
08MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
30MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
05JUN	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-138 Regional Standing Crop (In Thousands) of Hogchoker Post Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	St. Crop	0	0	0	0	0	0	41	77	NS	NS	NS	NS	NS	117
	SE	0	0	0	0	0	0	41	77						87
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-139 Regional Density (No./1,000m3) of Hogchoker Young of Year in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-139 Regional Density (No./1,000m3) of Hogchoker Young of Year
in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	DENSITY	0.00	0.00	0.00	0.00	0.18	0.00	1.09	0.00	NS	NS	NS	NS	NS	0.16
	SE	0.00	0.00	0.00	0.00	0.18	0.00	1.05	0.00						1.06
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	DENSITY	0.00	0.00	0.00	0.00	0.40	3.18	1.22	0.28	NS	NS	NS	NS	NS	0.64
	SE	0.00	0.00	0.00	0.00	0.40	1.36	0.96	0.28						1.74
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	DENSITY	0.00	0.00	0.00	0.00	0.58	0.34	0.00	0.57	NS	NS	NS	NS	NS	0.19
	SE	0.00	0.00	0.00	0.00	0.34	0.17	0.00	0.28						0.47
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-140 Regional Standing Crop (In Thousands) of Hogchoker Young of Year in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-140 Regional Standing Crop (In Thousands) of Hogchoker Young of Year in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	St. Crop	0	0	0	0	38	0	152	0	NS	NS	NS	NS	NS	190
	SE	0	0	0	0	38	0	146	0						151
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	St. Crop	0	0	0	0	84	660	171	84	NS	NS	NS	NS	NS	998
	SE	0	0	0	0	84	283	135	84						335
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	St. Crop	0	0	0	0	122	70	0	169	NS	NS	NS	NS	NS	361
	SE	0	0	0	0	70	35	0	85						115
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-141 Regional Density (No./1,000m3) of Hogchoker Young of Year in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-18JUL	DENSITY	0.00	0.48	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.04	0.00	0.00	0.05
	SE	0.00	0.48	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.00	0.48
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-01AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	<0.005
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.03
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-14AUG	DENSITY	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<0.005
	SE	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-28AUG	DENSITY	0.00	2.00	1.10	0.00	0.00	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.27
	SE	0.00	2.00	1.10	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	2.28
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-12SEP	DENSITY	0.00	0.93	0.00	0.00	0.07	0.04	0.19	0.29	0.03	0.28	0.00	0.00	0.15
	SE	0.00	0.93	0.00	0.00	0.05	0.03	0.12	0.17	0.03	0.28	0.00	0.00	0.99
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-25SEP	DENSITY	0.00	0.00	0.02	0.02	0.24	0.35	0.15	0.07	0.03	0.00	0.00	0.00	0.07
	SE	0.00	0.00	0.02	0.02	0.07	0.15	0.15	0.04	0.03	0.00	0.00	0.00	0.23
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-09OCT	DENSITY	0.00	0.00	0.00	0.05	1.23	0.06	0.07	0.05	0.20	0.00	0.00	0.00	0.14
	SE	0.00	0.00	0.00	0.05	0.84	0.04	0.07	0.05	0.07	0.00	0.00	0.00	0.85
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-23OCT	DENSITY	0.00	0.53	0.02	1.02	0.25	1.37	0.00	0.00	0.03	0.02	0.00	0.00	0.27
	SE	0.00	0.50	0.02	0.82	0.16	1.36	0.00	0.00	0.03	0.02	0.00	0.00	1.68
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-142 Regional Standing Crops (in Thousands) of Hogchoker Young of Year in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-18JUL	St. Crop	0	154	0	0	0	0	0	0	4	7	0	0	165
	SE	0	154	0	0	0	0	0	0	4	5	0	0	154
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-01AUG	St. Crop	0	0	0	0	0	0	10	0	0	0	0	0	10
	SE	0	0	0	0	0	0	10	0	0	0	0	0	10
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-14AUG	St. Crop	0	0	0	0	4	0	0	0	0	0	0	0	4
	SE	0	0	0	0	4	0	0	0	0	0	0	0	4
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-28AUG	St. Crop	0	643	163	0	0	21	0	0	0	0	0	0	827
	SE	0	643	163	0	0	7	0	0	0	0	0	0	663
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-12SEP	St. Crop	0	299	0	0	14	6	56	48	4	49	0	0	475
	SE	0	299	0	0	10	5	35	28	4	49	0	0	306
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-25SEP	St. Crop	0	0	3	5	50	49	46	11	4	0	0	0	167
	SE	0	0	3	5	14	21	46	7	4	0	0	0	53
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-09OCT	St. Crop	0	0	0	11	255	8	20	8	28	0	0	0	330
	SE	0	0	0	10	174	6	20	8	10	0	0	0	176
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-23OCT	St. Crop	0	171	3	212	53	192	0	0	4	4	0	0	638
	SE	0	161	3	171	33	190	0	0	4	4	0	0	304
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-143 Regional Catch-Per-Unit-Effort (CPUE) of Hogchoker Young of Year in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-26JUN	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-09JUL	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-22JUL	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-06AUG	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-20AUG	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-02SEP	CPUE	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
	SE	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-16SEP	CPUE	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
	SE	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-30SEP	CPUE	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.02
	SE	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.13
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-15OCT	CPUE	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.01
	SE	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.17
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-28OCT	CPUE	0.00	0.00	0.00	1.60	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17
	SE	0.00	0.00	0.00	1.60	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.62
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-144 Regional Standing Crops (in Thousands) of Hogchoker Young of Year in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
26JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
09JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
22JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
06AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
20AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-	St. Crop	0	0	0	0	1	0	0	0	0	0	0	0	1
02SEP	SE	0	0	0	0	1	0	0	0	0	0	0	0	1
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-	St. Crop	0	0	0	0	1	0	0	0	0	0	0	0	1
16SEP	SE	0	0	0	0	1	0	0	0	0	0	0	0	1
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-	St. Crop	0	0	2	0	0	0	0	0	0	2	0	0	4
30SEP	SE	0	0	2	0	0	0	0	0	0	2	0	0	3
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-	St. Crop	0	0	0	0	0	2	0	0	0	0	0	0	2
15OCT	SE	0	0	0	0	0	2	0	0	0	0	0	0	2
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-	St. Crop	0	0	0	15	1	0	0	0	0	0	0	0	16
28OCT	SE	0	0	0	15	1	0	0	0	0	0	0	0	15
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-145 Regional Density (No./1,000m3) of Hogchoker Yearling and Older
in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-18JUL	DENSITY	113.57	19.38	15.35	1.73	0.98	5.20	1.26	1.25	3.49	1.44	2.22	1.81	13.97
	SE	35.66	2.97	3.52	0.48	0.48	0.72	1.13	0.60	1.03	0.60	0.58	0.38	36.02
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-01AUG	DENSITY	13.17	31.02	29.68	4.73	1.42	5.37	2.49	1.58	8.83	5.27	4.44	0.37	9.03
	SE	8.78	5.00	6.65	0.75	0.33	1.25	1.00	0.45	2.75	1.32	1.79	0.12	12.74
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-14AUG	DENSITY	73.90	42.19	39.86	12.00	10.58	13.78	1.57	0.39	5.43	4.28	1.66	2.95	17.38
	SE	15.75	6.62	6.61	6.33	3.77	3.38	1.26	0.18	2.10	1.45	0.50	1.22	20.28
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-28AUG	DENSITY	0.29	21.99	28.65	3.90	8.69	37.55	7.51	2.20	8.13	3.22	1.97	0.37	10.37
	SE	0.23	5.71	11.61	2.47	4.11	14.31	5.45	0.53	3.53	1.40	1.10	0.25	21.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-12SEP	DENSITY	8.89	17.56	37.36	4.17	4.49	64.37	4.60	6.17	11.13	9.53	3.68	1.99	14.49
	SE	2.06	4.43	5.68	1.21	0.88	24.77	1.35	1.74	3.13	3.74	1.36	0.65	26.51
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-25SEP	DENSITY	0.52	15.58	40.44	15.03	16.37	33.38	8.64	7.12	15.75	5.69	0.92	0.60	13.34
	SE	0.26	2.58	11.85	8.31	7.09	4.94	7.75	2.73	5.85	2.32	0.86	0.34	19.97
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-09OCT	DENSITY	6.08	10.27	1.41	12.52	60.51	31.74	28.02	7.21	12.78	4.72	0.89	0.70	14.74
	SE	2.29	2.58	0.30	6.61	17.99	7.36	13.87	1.47	4.52	1.69	0.70	0.33	25.53
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-23OCT	DENSITY	13.13	13.07	14.94	61.40	50.93	51.84	35.53	5.17	11.76	7.42	0.76	0.00	22.16
	SE	4.03	3.13	3.01	30.45	22.34	9.97	15.11	1.38	2.67	2.39	0.12	0.00	42.47
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-146 Regional Standing Crops (in Thousands) of Hogchoker Yearling and Older
in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-	St. Crop	26055	6238	2268	360	202	727	375	208	493	254	356	232	37768
18JUL	SE	8181	955	519	99	99	101	336	99	146	105	93	48	8265
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-	St. Crop	3021	9983	4386	985	294	751	742	261	1249	929	714	48	23362
01AUG	SE	2015	1608	982	157	69	175	300	74	389	233	287	15	2838
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-	St. Crop	16955	13576	5889	2500	2194	1927	469	65	768	755	267	378	45744
14AUG	SE	3614	2130	977	1318	783	472	376	30	298	255	81	157	4632
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-	St. Crop	67	7077	4232	811	1802	5249	2239	364	1151	567	317	47	23923
28AUG	SE	54	1837	1716	514	852	2000	1624	88	499	248	176	32	3781
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-	St. Crop	2039	5650	5519	869	932	8999	1370	1021	1575	1681	591	255	30499
12SEP	SE	473	1424	839	253	182	3462	403	289	442	658	218	83	3996
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-	St. Crop	119	5015	5975	3130	3395	4666	2575	1178	2228	1003	149	77	29511
25SEP	SE	60	830	1751	1731	1470	690	2311	452	828	409	138	44	3976
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-	St. Crop	1395	3305	209	2608	12552	4437	8353	1194	1808	832	143	90	36926
09OCT	SE	526	830	44	1378	3732	1029	4136	244	639	298	112	42	5961
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-	St. Crop	3012	4207	2207	12791	10566	7247	10593	856	1664	1309	122	0	54573
23OCT	SE	924	1007	445	6343	4634	1394	4505	228	377	421	20	0	9295
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-147 Regional Catch-Per-Unit-Effort (CPUE) of Hogchoker Yearling and Older in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-	CPUE	1.33	2.36	0.71	0.33	0.33	1.33	0.00	0.00	0.00	0.27	0.32	0.00	0.58
26JUN	SE	0.88	1.25	0.57	0.33	0.33	0.88	0.00	0.00	0.00	0.12	0.27	0.00	1.93
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-	CPUE	0.00	2.18	0.43	0.00	0.00	7.00	0.00	0.00	0.75	0.00	0.37	0.00	0.89
09JUL	SE	0.00	1.26	0.30	0.00	0.00	5.51	0.00	0.00	0.62	0.00	0.16	0.00	5.69
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-	CPUE	0.33	0.45	3.71	6.67	0.33	0.00	0.00	0.00	0.00	0.07	0.42	0.00	1.00
22JUL	SE	0.33	0.25	2.36	2.60	0.33	0.00	0.00	0.00	0.00	0.07	0.18	0.00	3.56
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-	CPUE	0.00	0.29	1.29	0.20	0.00	0.67	0.00	0.00	0.00	0.11	0.10	0.00	0.22
06AUG	SE	0.00	0.13	0.67	0.20	0.00	0.42	0.00	0.00	0.00	0.11	0.10	0.00	0.84
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-	CPUE	0.20	0.13	2.14	0.00	0.60	0.00	0.00	0.20	0.00	0.11	0.00	0.00	0.28
20AUG	SE	0.20	0.07	0.96	0.00	0.60	0.00	0.00	0.20	0.00	0.11	0.00	0.00	1.17
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-	CPUE	0.00	0.46	0.50	0.20	0.80	0.00	0.00	0.00	0.00	0.22	0.10	0.00	0.19
02SEP	SE	0.00	0.15	0.23	0.20	0.49	0.00	0.00	0.00	0.00	0.22	0.10	0.00	0.64
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-	CPUE	0.20	0.08	1.00	0.20	0.00	0.00	0.00	0.00	0.00	0.11	0.30	0.00	0.16
16SEP	SE	0.20	0.06	0.56	0.20	0.00	0.00	0.00	0.00	0.00	0.11	0.21	0.00	0.68
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-	CPUE	0.00	0.04	0.07	0.40	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06
30SEP	SE	0.00	0.04	0.07	0.24	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-	CPUE	0.00	0.08	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
15OCT	SE	0.00	0.06	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-	CPUE	0.00	0.00	0.21	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18
28OCT	SE	0.00	0.00	0.11	1.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.76
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-148 Regional Standing Crops (in Thousands) of Hogchoker Yearling and Older in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-26JUN	St. Crop	10	107	19	3	1	14	0	0	0	5	6	0	166
	SE	7	57	15	3	1	9	0	0	0	2	5	0	60
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-09JUL	St. Crop	0	99	12	0	0	75	0	0	6	0	7	0	199
	SE	0	57	8	0	0	59	0	0	5	0	3	0	83
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-22JUL	St. Crop	3	21	100	61	1	0	0	0	0	1	8	0	195
	SE	3	11	63	24	1	0	0	0	0	1	3	0	69
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-06AUG	St. Crop	0	13	35	2	0	7	0	0	0	2	2	0	61
	SE	0	6	18	2	0	4	0	0	0	2	2	0	20
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-20AUG	St. Crop	2	6	58	0	2	0	0	<0.005	0	2	0	0	69
	SE	2	3	26	0	2	0	0	<0.005	0	2	0	0	26
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-02SEP	St. Crop	0	21	13	2	2	0	0	0	0	4	2	0	44
	SE	0	7	6	2	1	0	0	0	0	4	2	0	10
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-16SEP	St. Crop	2	4	27	2	0	0	0	0	0	2	6	0	42
	SE	2	3	15	2	0	0	0	0	0	2	4	0	16
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-30SEP	St. Crop	0	2	2	4	1	0	0	0	0	0	0	0	8
	SE	0	2	2	2	1	0	0	0	0	0	0	0	4
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-15OCT	St. Crop	0	4	0	2	0	0	0	0	0	0	0	0	6
	SE	0	3	0	2	0	0	0	0	0	0	0	0	3
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-28OCT	St. Crop	0	0	6	18	0	0	0	0	0	0	0	0	24
	SE	0	0	3	16	0	0	0	0	0	0	0	0	17
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-149 Regional Density (No./1,000m3) of Spottail Shiner Eggs
in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-149 Regional Density (No./1,000m3) of Spottail Shiner Eggs
in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-150 Regional Standing Crop (In Thousands) of Spottail Shiner Eggs
in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
18APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
25APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
08MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
30MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
05JUN	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-150 Regional Standing Crop (In Thousands) of Spottail Shiner Eggs in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	St. Crop	0	0	0	0	0-	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-151 Regional Density (No./1,000m3) of Spottail Shiner Yolk-Sac Larvae
in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-151 Regional Density (No./1,000m3) of Spottail Shiner Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-152 Regional Standing Crop (In Thousands) of Spottail Shiner Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-152 Regional Standing Crop (In Thousands) of Spottail Shiner Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-153 Regional Density (No./1,000m3) of Spottail Shiner Post Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-153 Regional Density (No./1,000m3) of Spottail Shiner Post Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.87	0.00	0.00	0.00	0.47	0.00	0.10
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.87	0.00	0.00	0.00	0.47	0.00	0.99
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-154 Regional Standing Crop (In Thousands) of Spottail Shiner Post Yolk-Sac Larvae
in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
18APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
25APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
08MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
30MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
05JUN	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-154 Regional Standing Crop (In Thousands) of Spottail Shiner Post Yolk-Sac Larvae in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	St. Crop	0	0	0	0	0	0	0	260	0	0	0	75	0	336
	SE	0	0	0	0	0	0	0	260	0	0	0	75	0	271
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-155 Regional Density (No./1,000m3) of Spottail Shiner Young of Year in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.09	0.16
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.09	2.09
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-155 Regional Density (No./1,000m3) of Spottail Shiner Young of Year in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-156 Regional Standing Crop (In Thousands) of Spottail Shiner Young of Year
in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	268	268
	SE	0	0	0	0	0	0	0	0	0	0	0	0	268	268
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-156 Regional Standing Crop (In Thousands) of Spottail Shiner Young of Year in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
22JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
06AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
20AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
03SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
17SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
30SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-157 Regional Density (No./1,000m3) of Spottail Shiner Young of Year
in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-18JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.05	0.03
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.05	0.26
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-01AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.52	0.00	0.00	0.09	0.00	0.05
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.07	0.00	0.50
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-14AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-28AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.02	0.05	0.01
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.02	0.05	0.06
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-12SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	<0.005
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.05
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-25SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	<0.005
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-09OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.06
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-23OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.05	0.15	0.00	0.00	0.04
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.00	0.03	0.13	0.00	0.00	0.21
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-158 Regional Standing Crops (in Thousands) of Spottail Shiner Young of Year in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-18JUL	St. Crop	0	0	0	0	0	0	0	0	0	0	44	6	50
	SE	0	0	0	0	0	0	0	0	0	0	40	6	41
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-01AUG	St. Crop	0	0	0	0	0	0	0	86	0	0	15	0	101
	SE	0	0	0	0	0	0	0	82	0	0	11	0	83
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-14AUG	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-28AUG	St. Crop	0	0	0	0	0	0	0	4	0	0	3	6	13
	SE	0	0	0	0	0	0	0	4	0	0	3	6	8
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-12SEP	St. Crop	0	0	0	0	0	0	0	8	0	0	0	0	8
	SE	0	0	0	0	0	0	0	8	0	0	0	0	8
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-25SEP	St. Crop	0	0	0	0	0	0	0	0	0	0	0	6	6
	SE	0	0	0	0	0	0	0	0	0	0	0	6	6
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-09OCT	St. Crop	0	0	0	0	0	0	0	0	0	0	0	12	12
	SE	0	0	0	0	0	0	0	0	0	0	0	8	8
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-23OCT	St. Crop	0	0	0	0	0	0	77	0	7	27	0	0	110
	SE	0	0	0	0	0	0	47	0	5	23	0	0	53
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-159 Regional Catch-Per-Unit-Effort (CPUE) of Spottail Shiner Young of Year in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-26JUN	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.67	0.07
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.67	0.68
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-09JUL	CPUE	0.00	0.00	0.00	0.00	0.00	0.67	0.13	2.38	0.25	0.13	0.74	0.00	0.36
	SE	0.00	0.00	0.00	0.00	0.00	0.67	0.13	1.50	0.25	0.13	0.68	0.00	1.80
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-22JUL	CPUE	0.00	0.00	0.00	0.00	3.33	0.67	7.75	16.13	16.50	1.07	2.47	5.50	4.45
	SE	0.00	0.00	0.00	0.00	2.40	0.67	4.28	5.35	8.81	0.50	1.13	2.57	11.79
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-06AUG	CPUE	0.00	0.00	0.00	0.00	1.00	0.00	2.00	2.40	19.20	5.44	8.80	10.57	4.12
	SE	0.00	0.00	0.00	0.00	0.77	0.00	1.05	1.29	11.69	4.33	6.39	5.17	15.04
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-20AUG	CPUE	0.00	0.00	0.00	0.20	6.60	1.83	29.60	37.40	29.00	11.89	7.80	0.43	10.40
	SE	0.00	0.00	0.00	0.20	3.12	1.83	17.21	27.37	21.12	11.64	5.45	0.43	40.87
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-02SEP	CPUE	0.00	0.00	0.00	0.20	4.40	0.50	8.40	6.60	69.00	15.22	0.80	0.71	8.82
	SE	0.00	0.00	0.00	0.20	1.69	0.50	5.12	3.34	57.30	10.98	0.39	0.47	58.69
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-16SEP	CPUE	0.00	0.00	0.07	0.20	3.20	0.17	21.00	15.20	5.40	13.00	9.10	5.57	6.08
	SE	0.00	0.00	0.07	0.20	1.36	0.17	16.35	8.27	2.77	7.57	6.46	2.22	21.20
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-30SEP	CPUE	0.00	0.00	0.00	0.20	7.00	0.83	1.80	20.20	10.40	18.00	2.20	16.86	6.46
	SE	0.00	0.00	0.00	0.20	3.74	0.65	0.92	6.04	3.60	2.94	0.99	16.53	18.64
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-15OCT	CPUE	0.00	0.00	0.00	0.00	3.60	3.50	6.80	4.80	12.60	1.00	2.20	11.14	3.80
	SE	0.00	0.00	0.00	0.00	2.06	3.50	6.31	4.32	7.19	0.76	1.40	10.48	15.46
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-28OCT	CPUE	0.00	0.00	0.00	2.20	2.60	0.00	0.00	5.80	0.40	33.22	45.90	27.00	9.76
	SE	0.00	0.00	0.00	2.20	0.93	0.00	0.00	4.14	0.40	32.97	45.46	26.50	62.28
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-160 Regional Standing Crops (in Thousands) of Spottail Shiner Young of Year in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-	St. Crop	0	0	0	0	0	0	0	<0.005	0	0	0	9	9
26JUN	SE	0	0	0	0	0	0	0	<0.005	0	0	0	9	9
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-	St. Crop	0	0	0	0	0	7	1	3	2	2	14	0	30
09JUL	SE	0	0	0	0	0	7	1	2	2	2	13	0	16
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-	St. Crop	0	0	0	0	9	7	55	20	142	19	49	75	375
22JUL	SE	0	0	0	0	6	7	30	7	76	9	22	35	93
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-	St. Crop	0	0	0	0	3	0	14	3	165	96	173	144	597
06AUG	SE	0	0	0	0	2	0	7	2	101	76	126	70	192
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-	St. Crop	0	0	0	2	17	20	210	46	250	209	153	6	913
20AUG	SE	0	0	0	2	8	20	122	34	182	204	107	6	321
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-	St. Crop	0	0	0	2	12	5	60	8	594	267	16	10	973
02SEP	SE	0	0	0	2	4	5	36	4	493	193	8	6	531
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-	St. Crop	0	0	2	2	8	2	149	19	46	228	179	76	711
16SEP	SE	0	0	2	2	4	2	116	10	24	133	127	30	221
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-	St. Crop	0	0	0	2	18	9	13	25	90	316	43	229	745
30SEP	SE	0	0	0	2	10	7	7	7	31	52	19	225	234
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-	St. Crop	0	0	0	0	9	37	48	6	108	18	43	151	422
15OCT	SE	0	0	0	0	5	37	45	5	62	13	28	142	169
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-	St. Crop	0	0	0	20	7	0	0	7	3	583	903	367	1891
28OCT	SE	0	0	0	20	2	0	0	5	3	579	894	360	1125
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-161 Regional Density (No./1,000m3) of Spottail Shiner Yearling and Older in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-18JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.15	0.02
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.07	0.08
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-01AUG	DENSITY	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.38	0.00	0.14	0.51	0.09
	SE	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.13	0.00	0.10	0.15	0.22
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-14AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	1.17	0.10
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.44	0.44
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-28AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.04	0.63	0.06
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.04	0.33	0.34
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-12SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.04	0.04	1.36	0.12
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.03	0.03	0.47	0.48
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-25SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.74	0.07
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.29	0.30
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-09OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31	0.00	0.00	1.01	0.11
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.33	0.35
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-23OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.07	0.62	0.22	0.18	0.49	0.13
	SE	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.07	0.22	0.10	0.07	0.27	0.38
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-162 Regional Standing Crops (in Thousands) of Spottail Shiner Yearling and Older in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-18JUL	St. Crop	0	0	0	0	0	0	0	0	0	0	7	20	27
	SE	0	0	0	0	0	0	0	0	0	0	5	10	11
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-01AUG	St. Crop	0	0	0	0	3	0	0	0	54	0	22	65	145
	SE	0	0	0	0	3	0	0	0	18	0	16	20	31
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-14AUG	St. Crop	0	0	0	0	0	0	0	0	4	0	0	150	154
	SE	0	0	0	0	0	0	0	0	4	0	0	57	57
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-28AUG	St. Crop	0	0	0	0	0	0	0	0	8	0	6	81	95
	SE	0	0	0	0	0	0	0	0	8	0	6	43	44
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-12SEP	St. Crop	0	0	0	0	0	0	0	7	0	7	7	174	195
	SE	0	0	0	0	0	0	0	7	0	5	5	61	61
	NO. TOWS	17	46	27	14	8	13	8	10.	15	18	21	13	210
21SEP-25SEP	St. Crop	0	0	0	0	0	0	0	4	3	4	3	95	109
	SE	0	0	0	0	0	0	0	4	3	4	3	38	38
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-09OCT	St. Crop	0	0	0	0	0	0	0	0	43	0	0	130	173
	SE	0	0	0	0	0	0	0	0	15	0	0	42	45
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-23OCT	St. Crop	0	0	0	0	0	3	0	12	88	38	29	63	233
	SE	0	0	0	0	0	2	0	12	31	17	11	35	53
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-163 Regional Catch-Per-Unit-Effort (CPUE) of Spottail Shiner Yearling and Older in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-	CPUE	0.00	0.00	0.00	0.00	9.33	2.00	14.50	9.50	1.13	7.73	5.42	1.33	4.25
26JUN	SE	0.00	0.00	0.00	0.00	5.21	0.58	7.37	5.92	0.67	1.66	3.05	0.74	11.39
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-	CPUE	0.00	0.00	0.00	0.33	2.00	1.67	16.50	12.50	6.63	0.07	3.63	0.00	3.61
09JUL	SE	0.00	0.00	0.00	0.33	1.15	1.67	5.58	3.93	3.14	0.07	1.38	0.00	7.91
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-	CPUE	0.00	0.00	0.00	0.00	1.33	10.00	5.88	6.38	3.25	1.40	4.11	1.00	2.78
22JUL	SE	0.00	0.00	0.00	0.00	1.33	9.50	2.16	3.32	2.97	0.86	1.95	0.64	11.03
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-	CPUE	0.00	0.00	0.00	0.00	1.00	0.17	0.40	6.80	0.20	23.33	0.00	3.00	2.91
06AUG	SE	0.00	0.00	0.00	0.00	0.77	0.17	0.24	6.80	0.20	21.61	0.00	2.68	22.83
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-	CPUE	0.00	0.00	0.00	0.20	1.40	4.00	8.40	18.00	0.60	0.22	6.70	0.00	3.29
20AUG	SE	0.00	0.00	0.00	0.20	0.93	3.61	5.41	16.52	0.60	0.15	5.08	0.00	18.50
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-	CPUE	0.00	0.00	0.07	0.00	2.00	0.17	1.20	3.80	8.40	1.11	1.80	2.29	1.74
02SEP	SE	0.00	0.00	0.07	0.00	0.84	0.17	0.58	2.20	8.40	0.56	1.59	1.39	9.01
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-	CPUE	0.00	0.00	0.00	0.00	0.00	0.83	46.40	7.00	0.00	1.33	7.10	1.71	5.37
16SEP	SE	0.00	0.00	0.00	0.00	0.00	0.83	43.94	5.78	0.00	0.69	6.46	0.92	44.81
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-	CPUE	0.00	0.00	0.00	0.00	0.80	1.33	4.00	20.40	10.80	23.67	6.60	1.43	5.75
30SEP	SE	0.00	0.00	0.00	0.00	0.37	0.71	4.00	9.59	4.87	12.09	2.42	0.92	16.89
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-	CPUE	0.00	0.00	0.00	0.00	0.20	5.33	8.40	5.40	40.00	1.78	1.00	1.43	5.29
15OCT	SE	0.00	0.00	0.00	0.00	0.20	5.14	4.79	4.92	39.75	1.53	0.89	1.02	40.72
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-	CPUE	0.00	0.00	0.00	0.00	0.00	0.33	0.00	7.40	11.20	0.44	28.60	2.14	4.18
28OCT	SE	0.00	0.00	0.00	0.00	0.00	0.33	0.00	5.67	11.20	0.44	28.38	1.98	31.10
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-164 Regional Standing Crops (in Thousands) of Spottail Shiner Yearling and Older in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-26JUN	St. Crop	0	0	0	0	25	21	103	12	10	136	107	18	431
	SE	0	0	0	0	14	6	52	7	6	29	60	10	87
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-09JUL	St. Crop	0	0	0	3	5	18	117	16	57	1	71	0	288
	SE	0	0	0	3	3	18	40	5	27	1	27	0	58
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-22JUL	St. Crop	0	0	0	0	4	107	42	8	28	25	81	14	307
	SE	0	0	0	0	4	101	15	4	26	15	38	9	114
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-06AUG	St. Crop	0	0	0	0	3	2	3	8	2	410	0	41	468
	SE	0	0	0	0	2	2	2	8	2	379	0	36	381
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-20AUG	St. Crop	0	0	0	2	4	43	60	22	5	4	132	0	271
	SE	0	0	0	2	2	39	38	20	5	3	100	0	116
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-02SEP	St. Crop	0	0	2	0	5	2	9	5	72	20	35	31	180
	SE	0	0	2	0	2	2	4	3	72	10	31	19	82
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-16SEP	St. Crop	0	0	0	0	0	9	329	9	0	23	140	23	533
	SE	0	0	0	0	0	9	312	7	0	12	127	12	337
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-30SEP	St. Crop	0	0	0	0	2	14	28	25	93	415	130	19	728
	SE	0	0	0	0	1	8	28	12	42	212	48	13	224
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-15OCT	St. Crop	0	0	0	0	1	57	60	7	344	31	20	19	538
	SE	0	0	0	0	1	55	34	6	342	27	18	14	350
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-28OCT	St. Crop	0	0	0	0	0	4	0	9	96	8	563	29	709
	SE	0	0	0	0	0	4	0	7	96	8	558	27	567
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-165 Regional Density (No./1,000m3) of Atlantic Sturgeon Young of Year in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-166 Regional Standing Crops (in Thousands) of Atlantic Sturgeon Young of Year in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
18JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
01AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
14AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
28AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
12SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
25SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
09OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
23OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-167 Regional Density (No./1,000m3) of Atlantic Sturgeon Yearling and Older in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-	DENSITY	0.00	0.00	0.00	0.02	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	<0.005
18JUL	SE	0.00	0.00	0.00	0.02	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.04
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-	DENSITY	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<0.005
01AUG	SE	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	<0.005
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.04
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	<0.005
28AUG	SE	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.04
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.02	0.00	0.00	0.02	0.00	0.01
12SEP	SE	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.02	0.00	0.00	0.02	0.00	0.04
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-	DENSITY	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<0.005
25SEP	SE	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-	DENSITY	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	<0.005
23OCT	SE	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.03
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-168 Regional Standing Crops (in Thousands) of Atlantic Sturgeon Yearling and Older in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-18JUL	St. Crop	0	0	0	5	0	5	0	0	0	0	0	0	10
	SE	0	0	0	5	0	5	0	0	0	0	0	0	7
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-01AUG	St. Crop	0	0	0	0	4	0	0	0	0	0	0	0	4
	SE	0	0	0	0	4	0	0	0	0	0	0	0	4
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-14AUG	St. Crop	0	0	0	0	0	5	0	0	0	0	0	0	5
	SE	0	0	0	0	0	5	0	0	0	0	0	0	5
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-28AUG	St. Crop	0	0	0	0	0	5	0	0	0	0	0	0	5
	SE	0	0	0	0	0	5	0	0	0	0	0	0	5
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-12SEP	St. Crop	0	0	0	0	0	4	0	4	0	0	3	0	12
	SE	0	0	0	0	0	4	0	4	0	0	3	0	7
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-25SEP	St. Crop	0	0	0	0	5	0	0	0	0	0	0	0	5
	SE	0	0	0	0	5	0	0	0	0	0	0	0	5
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-09OCT	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-23OCT	St. Crop	0	0	0	5	0	0	0	3	0	0	0	0	8
	SE	0	0	0	5	0	0	0	3	0	0	0	0	6
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-169 Regional Density (No./1,000m3) of Shortnose Sturgeon Young of Year in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-18JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-01AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-14AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-28AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-12SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-25SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-09OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-23OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-170 Regional Standing Crops (in Thousands) of Shortnose Sturgeon Young of Year in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-18JUL	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-01AUG	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-14AUG	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-28AUG	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-12SEP	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-25SEP	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-09OCT	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-23OCT	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-171 Regional Density (No./1,000m3) of Shortnose Sturgeon Yearling and Older in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-18JUL	DENSITY	0.00	0.00	0.00	0.00	0.05	0.00	0.06	0.02	0.19	0.00	0.00	0.00	0.03
	SE	0.00	0.00	0.00	0.00	0.03	0.00	0.03	0.02	0.09	0.00	0.00	0.00	0.10
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-01AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.09	0.16	0.00	0.00	0.00	0.03
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.04	0.08	0.00	0.00	0.00	0.10
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-14AUG	DENSITY	0.00	0.00	0.00	0.00	0.03	0.00	0.17	0.05	0.16	0.00	0.00	0.00	0.03
	SE	0.00	0.00	0.00	0.00	0.03	0.00	0.08	0.03	0.07	0.00	0.00	0.00	0.12
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-28AUG	DENSITY	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.09	0.03	0.00	0.00	0.00	0.01
	SE	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.03	0.03	0.00	0.00	0.00	0.05
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-12SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.02	0.21	0.00	0.00	0.00	0.02
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.02	0.21	0.00	0.00	0.00	0.21
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-25SEP	DENSITY	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.04	0.00	0.04	0.00	0.00	0.01
	SE	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.03	0.00	0.03	0.00	0.00	0.04
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-09OCT	DENSITY	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02	0.00	0.00	<0.005
	SE	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.03
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-23OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.10	0.06	0.00	0.00	0.02
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.05	0.04	0.00	0.00	0.08
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-172 Regional Standing Crops (in Thousands) of Shortnose Sturgeon Yearling and Older in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-	St. Crop	0	0	0	0	10	0	17	4	28	0	0	0	58
18JUL	SE	0	0	0	0	6	0	10	4	13	0	0	0	18
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-	St. Crop	0	0	0	0	0	0	15	15	23	0	0	0	54
01AUG	SE	0	0	0	0	0	0	9	7	12	0	0	0	17
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-	St. Crop	0	0	0	0	7	0	50	8	22	0	0	0	87
14AUG	SE	0	0	0	0	7	0	25	5	10	0	0	0	28
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-	St. Crop	0	6	0	4	0	0	0	15	4	0	0	0	28
28AUG	SE	0	6	0	4	0	0	0	5	4	0	0	0	9
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-	St. Crop	0	0	0	0	0	0	16	4	30	0	0	0	49
12SEP	SE	0	0	0	0	0	0	10	4	30	0	0	0	31
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-	St. Crop	0	0	0	0	7	0	0	7	0	7	0	0	20
25SEP	SE	0	0	0	0	4	0	0	4	0	4	0	0	7
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-	St. Crop	0	0	0	0	4	0	0	0	0	4	0	0	8
09OCT	SE	0	0	0	0	4	0	0	0	0	4	0	0	5
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-	St. Crop	0	0	0	0	0	0	0	7	14	11	0	0	32
23OCT	SE	0	0	0	0	0	0	0	7	7	8	0	0	13
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-173 Regional Density (No./1,000m3) of White Catfish Young of Year in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-173 Regional Density (No./1,000m3) of White Catfish Young of Year
in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-174 Regional Standing Crop (In Thousands) of White Catfish Young of Year in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
18APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
25APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
08MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
30MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
05JUN	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-174 Regional Standing Crop (In Thousands) of White Catfish Young of Year
in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-175 Regional Density (No./1,000m3) of White Catfish Young of Year in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-18JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.15	0.04
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.07	0.26
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-01AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02	0.00	0.00	<0.005
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02	0.00	0.00	0.03
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-14AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.09	0.01
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.09	0.09
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-28AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	<0.005
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.03
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-12SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.03	0.08	0.29	0.00	0.03
	SE	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.03	0.04	0.25	0.00	0.25
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-25SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.05	0.00	0.02	0.00	0.01
	SE	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.03	0.00	0.02	0.00	0.05
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-09OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.04	0.03	0.00	0.03	0.02	0.04	0.00	0.01
	SE	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.03	0.02	0.03	0.00	0.06
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-23OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.02	0.12	0.00	0.01
	SE	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.02	0.05	0.00	0.05
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-176 Regional Standing Crops (in Thousands) of White Catfish Young of Year in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-18JUL	St. Crop	0	0	0	0	0	0	0	0	0	0	48	19	66
	SE	0	0	0	0	0	0	0	0	0	0	41	9	42
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-01AUG	St. Crop	0	0	0	0	0	0	0	4	0	4	0	0	7
	SE	0	0	0	0	0	0	0	4	0	4	0	0	5
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-14AUG	St. Crop	0	0	0	0	0	0	0	0	0	0	7	11	18
	SE	0	0	0	0	0	0	0	0	0	0	5	11	12
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-28AUG	St. Crop	0	0	0	0	0	0	0	0	0	0	7	0	7
	SE	0	0	0	0	0	0	0	0	0	0	5	0	5
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-12SEP	St. Crop	0	0	0	0	0	1	0	0	4	14	46	0	65
	SE	0	0	0	0	0	1	0	0	4	8	40	0	41
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-25SEP	St. Crop	0	0	0	0	0	1	7	0	7	0	3	0	19
	SE	0	0	0	0	0	1	7	0	5	0	3	0	9
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-09OCT	St. Crop	0	0	0	0	0	6	10	0	4	4	7	0	31
	SE	0	0	0	0	0	4	10	0	4	4	5	0	13
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-23OCT	St. Crop	0	0	0	0	0	4	0	0	0	4	20	0	27
	SE	0	0	0	0	0	2	0	0	0	4	8	0	9
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-177 Regional Catch-Per-Unit-Effort (CPUE) of White Catfish Young of Year
in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-26JUN	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-09JUL	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-22JUL	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-06AUG	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-20AUG	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-02SEP	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-16SEP	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-30SEP	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-15OCT	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-28OCT	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-178 Regional Standing Crops (in Thousands) of White Catfish Young of Year in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
26JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
09JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
22JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
06AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
20AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
02SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
16SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
30SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
15OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
28OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-179 Regional Density (No./1,000m3) of White Catfish Yearling and Older in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-	DENSITY	0.00	0.05	0.02	0.00	0.01	0.64	0.00	0.00	0.03	0.04	0.23	0.24	0.11
18JUL	SE	0.00	0.03	0.02	0.00	0.01	0.57	0.00	0.00	0.03	0.04	0.16	0.15	0.61
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-	DENSITY	0.00	0.00	0.02	0.03	0.00	0.04	0.00	0.00	0.05	0.06	0.21	0.00	0.03
01AUG	SE	0.00	0.00	0.02	0.03	0.00	0.04	0.00	0.00	0.04	0.05	0.07	0.00	0.10
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-	DENSITY	0.00	0.02	0.02	0.06	0.00	0.02	0.03	0.00	0.03	0.12	0.02	0.28	0.05
14AUG	SE	0.00	0.02	0.02	0.03	0.00	0.02	0.03	0.00	0.03	0.05	0.02	0.20	0.21
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09	0.01
28AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.09	0.10
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-	DENSITY	0.00	0.02	0.00	0.00	0.00	0.01	0.06	0.00	0.10	0.06	0.22	0.00	0.04
12SEP	SE	0.00	0.01	0.00	0.00	0.00	0.01	0.03	0.00	0.05	0.03	0.09	0.00	0.12
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-	DENSITY	0.00	0.04	0.00	0.01	0.03	0.00	0.00	0.02	0.00	0.00	0.00	0.04	0.01
25SEP	SE	0.00	0.02	0.00	0.01	0.03	0.00	0.00	0.02	0.00	0.00	0.00	0.04	0.06
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-	DENSITY	0.00	0.02	0.02	0.04	0.02	0.00	0.00	0.00	0.00	0.00	0.05	0.09	0.02
09OCT	SE	0.00	0.01	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.03	0.06	0.08
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-	DENSITY	0.01	0.01	0.02	0.01	0.00	0.03	0.00	0.00	0.03	0.02	0.06	0.00	0.02
23OCT	SE	0.01	0.01	0.02	0.01	0.00	0.03	0.00	0.00	0.03	0.02	0.04	0.00	0.07
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-180 Regional Standing Crops (in Thousands) of White Catfish Yearling and Older in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-	St. Crop	0	16	3	0	3	90	0	0	4	7	37	31	192
18JUL	SE	0	10	3	0	3	79	0	0	4	7	26	19	87
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-	St. Crop	0	0	3	5	0	5	0	0	8	11	34	0	66
01AUG	SE	0	0	3	5	0	5	0	0	5	8	11	0	17
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-	St. Crop	0	7	3	13	0	2	8	0	4	21	4	36	98
14AUG	SE	0	5	3	7	0	2	8	0	4	8	4	25	30
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-	St. Crop	0	0	0	0	0	0	0	0	0	0	14	12	26
28AUG	SE	0	0	0	0	0	0	0	0	0	0	6	12	13
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-	St. Crop	0	7	0	0	0	1	17	0	14	10	35	0	83
12SEP	SE	0	5	0	0	0	1	10	0	8	5	15	0	21
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-	St. Crop	0	11	0	1	7	0	0	4	0	0	0	6	29
25SEP	SE	0	7	0	1	7	0	0	4	0	0	0	6	12
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-	St. Crop	0	7	3	8	4	0	0	0	0	0	8	12	42
09OCT	SE	0	5	3	5	4	0	0	0	0	0	5	8	13
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-	St. Crop	3	4	3	2	0	5	0	0	4	4	9	0	32
23OCT	SE	3	4	3	2	0	5	0	0	4	4	6	0	11
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-181 Regional Catch-Per-Unit-Effort (CPUE) of White Catfish Yearling and Older in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-26JUN	CPUE	0.00	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.03
	SE	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.16
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-09JUL	CPUE	0.00	0.09	0.00	0.00	0.00	0.00	0.13	0.13	0.00	0.00	0.00	0.17	0.04
	SE	0.00	0.09	0.00	0.00	0.00	0.00	0.13	0.13	0.00	0.00	0.00	0.11	0.23
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-22JUL	CPUE	0.00	0.27	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.05
	SE	0.00	0.19	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.39
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-06AUG	CPUE	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<0.005
	SE	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-20AUG	CPUE	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<0.005
	SE	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-02SEP	CPUE	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.02
	SE	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.20
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-16SEP	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-30SEP	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-15OCT	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-28OCT	CPUE	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<0.005
	SE	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-182 Regional Standing Crops (in Thousands) of White Catfish Yearling and Older in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-26JUN	St. Crop	0	12	0	0	0	0	0	0	0	0	0	1	14
	SE	0	6	0	0	0	0	0	0	0	0	0	1	6
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-09JUL	St. Crop	0	4	0	0	0	0	1	<0.005	0	0	0	2	7
	SE	0	4	0	0	0	0	1	<0.005	0	0	0	2	4
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-22JUL	St. Crop	0	12	0	0	0	4	0	0	0	0	0	0	16
	SE	0	9	0	0	0	4	0	0	0	0	0	0	10
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-06AUG	St. Crop	0	2	0	0	0	0	0	0	0	0	0	0	2
	SE	0	2	0	0	0	0	0	0	0	0	0	0	2
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-20AUG	St. Crop	0	2	0	0	0	0	0	0	0	0	0	0	2
	SE	0	2	0	0	0	0	0	0	0	0	0	0	2
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-02SEP	St. Crop	0	2	0	0	0	0	0	<0.005	0	0	0	0	2
	SE	0	2	0	0	0	0	0	<0.005	0	0	0	0	2
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-16SEP	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-30SEP	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-15OCT	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-28OCT	St. Crop	0	2	0	0	0	0	0	0	0	0	0	0	2
	SE	0	2	0	0	0	0	0	0	0	0	0	0	2
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-183 Regional Density (No./1,000m3) of Weakfish Young of Year
in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05JUN	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-183 Regional Density (No./1,000m3) of Weakfish Young of Year in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	DENSITY	0.00	1.73	11.34	0.40	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	1.68
	SE	0.00	0.36	9.22	0.40	0.00	0.00	0.00	0.00						9.24
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	DENSITY	8.47	3.03	1.05	0.87	2.41	0.00	0.00	0.00	NS	NS	NS	NS	NS	1.98
	SE	4.45	2.53	0.55	0.43	1.51	0.00	0.00	0.00						5.38
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	DENSITY	31.17	21.76	7.63	2.40	1.34	0.00	0.00	0.00	NS	NS	NS	NS	NS	8.04
	SE	17.70	9.80	1.88	2.40	0.73	0.00	0.00	0.00						20.48
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	DENSITY	8.53	0.00	1.12	1.30	0.16	0.00	0.00	0.00	NS	NS	NS	NS	NS	1.39
	SE	3.75	0.00	1.12	1.01	0.16	0.00	0.00	0.00						4.04
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	DENSITY	0.00	1.53	0.53	1.19	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.41
	SE	0.00	1.53	0.53	0.75	0.00	0.00	0.00	0.00						1.79
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	DENSITY	0.00	0.00	0.00	0.28	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.04
	SE	0.00	0.00	0.00	0.28	0.00	0.00	0.00	0.00						0.28
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-184 Regional Standing Crop (In Thousands) of Weakfish Young of Year in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-184 Regional Standing Crop (In Thousands) of Weakfish Young of Year in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
22JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-	St. Crop	0	396	3650	59	0	0	0	0	NS	NS	NS	NS	NS	4105
06AUG	SE	0	82	2968	59	0	0	0	0						2970
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-	St. Crop	1770	695	338	128	501	0	0	0	NS	NS	NS	NS	NS	3432
20AUG	SE	930	580	177	64	315	0	0	0						1156
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-	St. Crop	6514	4992	2456	355	280	0	0	0	NS	NS	NS	NS	NS	14597
03SEP	SE	3700	2248	606	355	151	0	0	0						4389
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-	St. Crop	1782	0	362	193	33	0	0	0	NS	NS	NS	NS	NS	2370
17SEP	SE	784	0	362	149	33	0	0	0						876
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-	St. Crop	0	352	171	177	0	0	0	0	NS	NS	NS	NS	NS	699
30SEP	SE	0	352	171	111	0	0	0	0						407
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-	St. Crop	0	0	0	42	0	0	0	0	NS	NS	NS	NS	NS	42
14OCT	SE	0	0	0	42	0	0	0	0						42
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-185 Regional Density (No./1,000m3) of Weakfish Young of Year in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-	DENSITY	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<0.005
18JUL	SE	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-	DENSITY	0.65	0.03	0.72	2.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30
01AUG	SE	0.40	0.02	0.68	1.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.46
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-	DENSITY	1.23	1.61	0.38	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30
14AUG	SE	0.48	0.44	0.14	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-	DENSITY	0.52	1.18	0.78	0.82	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28
28AUG	SE	0.38	0.39	0.37	0.40	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.77
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-	DENSITY	3.01	0.26	1.16	0.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41
12SEP	SE	1.11	0.07	0.32	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.20
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-	DENSITY	0.25	0.82	0.63	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16
25SEP	SE	0.12	0.30	0.21	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-	DENSITY	0.77	0.23	0.04	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09
09OCT	SE	0.29	0.05	0.03	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-	DENSITY	0.20	0.31	0.12	0.06	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06
23OCT	SE	0.07	0.31	0.07	0.05	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-186 Regional Standing Crops (in Thousands) of Weakfish Young of Year
in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-	St. Crop	0	4	0	0	0	0	0	0	0	0	0	0	4
18JUL	SE	0	4	0	0	0	0	0	0	0	0	0	0	4
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-	St. Crop	148	10	106	449	0	0	0	0	0	0	0	0	713
01AUG	SE	91	5	101	257	0	0	0	0	0	0	0	0	290
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-	St. Crop	281	518	56	83	0	0	0	0	0	0	0	0	938
14AUG	SE	109	141	21	36	0	0	0	0	0	0	0	0	183
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-	St. Crop	120	380	115	170	8	0	0	0	0	0	0	0	792
28AUG	SE	87	124	54	83	8	0	0	0	0	0	0	0	181
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-	St. Crop	691	85	171	108	0	0	0	0	0	0	0	0	1055
12SEP	SE	254	24	47	69	0	0	0	0	0	0	0	0	268
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-	St. Crop	58	263	93	56	0	0	0	0	0	0	0	0	470
25SEP	SE	29	98	31	18	0	0	0	0	0	0	0	0	108
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-	St. Crop	176	76	6	10	3	0	0	0	0	0	0	0	270
09OCT	SE	66	17	4	10	3	0	0	0	0	0	0	0	69
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-	St. Crop	46	101	18	12	7	0	0	0	0	0	0	0	183
23OCT	SE	16	101	10	9	7	0	0	0	0	0	0	0	103
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-187 Regional Catch-Per-Unit-Effort (CPUE) of Weakfish Young of Year in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-26JUN	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-09JUL	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-22JUL	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-06AUG	CPUE	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<0.005
	SE	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-20AUG	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-02SEP	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-16SEP	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-30SEP	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-15OCT	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-28OCT	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-188 Regional Standing Crops (in Thousands) of Weakfish Young of Year
in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
26JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
09JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
22JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-	St. Crop	0	2	0	0	0	0	0	0	0	0	0	0	2
06AUG	SE	0	2	0	0	0	0	0	0	0	0	0	0	2
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
20AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
02SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
16SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
30SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
15OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
28OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-189 Regional Density (No./1,000m3) of Weakfish Yearling and Older in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-	DENSITY	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<0.005
18JUL	SE	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-	DENSITY	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<0.005
14AUG	SE	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-	DENSITY	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<0.005
28AUG	SE	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-	DENSITY	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<0.005
25SEP	SE	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-	DENSITY	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<0.005
09OCT	SE	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-190 Regional Standing Crops (in Thousands) of Weakfish Yearling and Older in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-18JUL	St. Crop	0	4	0	0	0	0	0	0	0	0	0	0	4
	SE	0	4	0	0	0	0	0	0	0	0	0	0	4
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-01AUG	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-14AUG	St. Crop	0	5	3	0	0	0	0	0	0	0	0	0	8
	SE	0	5	3	0	0	0	0	0	0	0	0	0	6
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-28AUG	St. Crop	0	0	0	4	0	0	0	0	0	0	0	0	4
	SE	0	0	0	4	0	0	0	0	0	0	0	0	4
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-12SEP	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-25SEP	St. Crop	0	0	3	0	0	0	0	0	0	0	0	0	3
	SE	0	0	3	0	0	0	0	0	0	0	0	0	3
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-09OCT	St. Crop	0	14	0	0	0	0	0	0	0	0	0	0	14
	SE	0	9	0	0	0	0	0	0	0	0	0	0	9
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-23OCT	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-191 Regional Catch-Per-Unit-Effort (CPUE) of Weakfish Yearling and Older in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-26JUN	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-09JUL	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-22JUL	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-06AUG	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-20AUG	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-02SEP	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-16SEP	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-30SEP	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-15OCT	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-28OCT	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-192 Regional Standing Crops (in Thousands) of Weakfish Yearling and Older in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
26JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
09JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
22JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
06AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
20AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
02SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
16SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
30SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
15OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
28OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-193 Regional Density (No./1,000m3) of Bluefish Young of Year in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	DENSITY	0.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
	SE	0.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	DENSITY	0.00	0.00	0.25	0.42	0.21	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
	SE	0.00	0.00	0.25	0.26	0.13	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-193 Regional Density (No./1,000m3) of Bluefish Young of Year in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-03JUL	DENSITY	1.14	0.46	0.38	1.32	0.27	0.66	3.85	2.40	0.00	0.00	0.00	0.00	0.00	0.81
	SE	0.81	0.46	0.29	0.66	0.18	0.56	3.59	2.40	0.00	0.00	0.00	0.00	0.00	4.51
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-10JUL	DENSITY	0.51	0.72	1.29	1.96	0.59	1.04	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.52
	SE	0.51	0.48	0.77	0.94	0.21	0.58	0.40	0.00	0.00	0.00	0.00	0.00	0.00	1.59
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-22JUL	DENSITY	0.00	0.64	0.83	0.46	0.30	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.28
	SE	0.00	0.46	0.25	0.23	0.15	0.00	0.00	0.00						0.59
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-06AUG	DENSITY	1.92	0.74	1.25	0.47	0.05	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.55
	SE	1.59	0.65	1.01	0.34	0.05	0.00	0.00	0.00						2.02
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-20AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-03SEP	DENSITY	0.00	0.15	5.18	3.17	0.05	0.00	0.62	0.00	NS	NS	NS	NS	NS	1.15
	SE	0.00	0.15	1.25	1.16	0.05	0.00	0.62	0.00						1.82
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-17SEP	DENSITY	1.78	1.29	0.19	0.21	0.04	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.44
	SE	1.78	1.29	0.19	0.21	0.04	0.00	0.00	0.00						2.22
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-30SEP	DENSITY	0.00	0.00	0.00	0.34	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.04
	SE	0.00	0.00	0.00	0.34	0.00	0.00	0.00	0.00						0.34
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-14OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-194 Regional Standing Crop (In Thousands) of Bluefish Young of Year in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
13APR-18APR	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	9	6	10	6	6	7	8	10	9	106
20APR-25APR	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
27APR-01MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
04MAY-08MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	5	9	115
11MAY-15MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	14	10	16	10	11	7	6	6	10	118
18MAY-22MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
25MAY-30MAY	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
01JUN-05JUN	St. Crop	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
08JUN-12JUN	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
15JUN-19JUN	St. Crop	101	0	0	0	0	0	0	0	0	0	0	0	0	101
	SE	101	0	0	0	0	0	0	0	0	0	0	0	0	101
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	5	117
22JUN-26JUN	St. Crop	0	0	80	62	44	22	0	0	0	0	0	0	0	208
	SE	0	0	80	38	27	22	0	0	0	0	0	0	0	95
	NO. TOWS	6	11	14	11	12	9	13	7	10	7	6	6	6	118

Table C-194 Regional Standing Crop (In Thousands) of Bluefish Young of Year
in Hudson River Estuary Determined From Longitudinal River Ichthyoplankton Survey, 1992

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions Combined
29JUN-	St. Crop	239	105	123	195	57	136	538	715	0	0	0	0	0	2107
03JUL	SE	169	105	93	97	38	116	502	715	0	0	0	0	0	914
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
06JUL-	St. Crop	107	165	414	290	124	216	83	0	0	0	0	0	0	1400
10JUL	SE	107	111	247	139	43	120	56	0	0	0	0	0	0	352
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
20JUL-	St. Crop	0	146	267	67	62	0	0	0	NS	NS	NS	NS	NS	543
22JUL	SE	0	105	80	34	31	0	0	0						140
	NO. TOWS	7	11	11	12	10	6	9	6						72
04AUG-	St. Crop	401	169	403	70	10	0	0	0	NS	NS	NS	NS	NS	1053
06AUG	SE	331	148	325	50	10	0	0	0						490
	NO. TOWS	7	11	11	12	10	6	10	6						73
18AUG-	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
20AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
01SEP-	St. Crop	0	34	1666	468	10	0	87	0	NS	NS	NS	NS	NS	2265
03SEP	SE	0	34	402	172	10	0	87	0						447
	NO. TOWS	7	11	11	12	10	6	10	6						73
15SEP-	St. Crop	372	296	62	31	8	0	0	0	NS	NS	NS	NS	NS	769
17SEP	SE	372	296	62	31	8	0	0	0						481
	NO. TOWS	7	11	11	12	10	6	10	6						73
28SEP-	St. Crop	0	0	0	50	0	0	0	0	NS	NS	NS	NS	NS	50
30SEP	SE	0	0	0	50	0	0	0	0						50
	NO. TOWS	7	11	11	12	10	6	10	6						73
12OCT-	St. Crop	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

Table C-195 Regional Density (No./1,000m3) of Bluefish Young of Year
in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-	DENSITY	0.33	0.05	0.09	0.02	0.79	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.11
18JUL	SE	0.32	0.03	0.04	0.01	0.77	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.83
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-	DENSITY	0.68	0.05	0.06	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
01AUG	SE	0.40	0.02	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-	DENSITY	0.37	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
14AUG	SE	0.33	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-	DENSITY	0.05	0.26	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
28AUG	SE	0.04	0.16	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-	DENSITY	0.00	0.02	0.37	0.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09
12SEP	SE	0.00	0.01	0.37	0.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.74
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-	DENSITY	0.06	0.20	0.09	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
25SEP	SE	0.06	0.15	0.04	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-196 Regional Standing Crops (in Thousands) of Bluefish Young of Year in Hudson River Estuary Determined From Fall Shoals Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
13JUL-	St. Crop	76	18	14	3	163	1	0	0	0	0	0	0	275
18JUL	SE	73	10	5	2	160	1	0	0	0	0	0	0	176
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
27JUL-	St. Crop	156	16	9	2	0	0	0	0	0	0	0	0	182
01AUG	SE	91	7	7	2	0	0	0	0	0	0	0	0	91
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10AUG-	St. Crop	86	3	3	0	0	0	0	0	0	0	0	0	92
14AUG	SE	76	3	3	0	0	0	0	0	0	0	0	0	76
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24AUG-	St. Crop	10	84	21	0	0	0	0	0	0	0	0	0	115
28AUG	SE	8	51	8	0	0	0	0	0	0	0	0	0	53
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
08SEP-	St. Crop	0	6	54	136	0	0	0	0	0	0	0	0	196
12SEP	SE	0	4	54	133	0	0	0	0	0	0	0	0	144
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21SEP-	St. Crop	14	66	14	6	0	0	0	0	0	0	0	0	99
25SEP	SE	14	47	6	5	0	0	0	0	0	0	0	0	50
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
05OCT-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
09OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
19OCT-	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
23OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

Table C-197 Regional Catch-Per-Unit-Effort (CPUE) of Bluefish Young of Year in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-26JUN	CPUE	0.00	0.55	1.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19
	SE	0.00	0.45	1.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.62
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-09JUL	CPUE	0.00	1.55	2.29	3.67	6.67	2.33	0.00	0.00	0.00	0.00	0.00	0.00	1.37
	SE	0.00	0.53	0.92	2.73	5.24	0.33	0.00	0.00	0.00	0.00	0.00	0.00	6.01
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-22JUL	CPUE	0.33	1.91	3.14	1.67	4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.92
	SE	0.33	0.73	1.12	1.67	2.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.32
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-06AUG	CPUE	2.80	1.04	1.07	2.20	5.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.06
	SE	1.53	0.30	0.49	1.71	5.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.08
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-20AUG	CPUE	0.00	0.54	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06
	SE	0.00	0.21	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-02SEP	CPUE	0.20	1.00	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12
	SE	0.20	0.55	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.59
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-16SEP	CPUE	0.40	2.08	0.71	0.60	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33
	SE	0.24	0.97	0.29	0.40	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.13
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-30SEP	CPUE	0.00	0.08	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
	SE	0.00	0.06	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-15OCT	CPUE	0.20	0.08	0.07	0.40	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10
	SE	0.20	0.06	0.07	0.40	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.61
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-28OCT	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Table C-198 Regional Standing Crops (in Thousands) of Bluefish Young of Year in Hudson River Estuary Determined From Beach Seine Survey, 1992

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	Regions COMBINED
23JUN-26JUN	St. Crop	0	25	46	0	0	0	0	0	0	0	0	0	71
	SE	0	21	42	0	0	0	0	0	0	0	0	0	47
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
06JUL-09JUL	St. Crop	0	70	61	34	18	25	0	0	0	0	0	0	208
	SE	0	24	25	25	14	4	0	0	0	0	0	0	45
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
20JUL-22JUL	St. Crop	3	87	85	15	11	0	0	0	0	0	0	0	200
	SE	3	33	30	15	7	0	0	0	0	0	0	0	48
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03AUG-06AUG	St. Crop	21	47	29	20	15	0	0	0	0	0	0	0	132
	SE	12	14	13	16	15	0	0	0	0	0	0	0	31
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17AUG-20AUG	St. Crop	0	25	6	0	0	0	0	0	0	0	0	0	30
	SE	0	9	3	0	0	0	0	0	0	0	0	0	10
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31AUG-02SEP	St. Crop	2	45	6	0	0	0	0	0	0	0	0	0	53
	SE	2	25	3	0	0	0	0	0	0	0	0	0	25
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14SEP-16SEP	St. Crop	3	95	19	6	1	0	0	0	0	0	0	0	123
	SE	2	44	8	4	1	0	0	0	0	0	0	0	45
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
28SEP-30SEP	St. Crop	0	4	6	0	0	0	0	0	0	0	0	0	10
	SE	0	3	3	0	0	0	0	0	0	0	0	0	4
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
12OCT-15OCT	St. Crop	2	4	2	4	1	0	0	0	0	0	0	0	12
	SE	2	3	2	4	1	0	0	0	0	0	0	0	5
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
26OCT-28OCT	St. Crop	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

APPENDIX D

LENGTH FREQUENCY DISTRIBUTION

APPENDIX D

LIST OF TABLES

APPENDIX D

LIST OF TABLES (Cont.)

TABLE D-1 LENGTH FREQUENCY DISTRIBUTION OF LARVAL AND YOUNG-OF-YEAR STRIPED BASS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1992

DATES	0.0-1.9	2.0-3.9	4.0-5.9	6.0-7.9	8.0-9.9	10.0-11.9	12.0-13.9	14.0-15.9	16.0-17.9	18.0-19.9	20.0-21.9	22.0-23.9	24.0-25.9	26.0-27.9	28.0-29.9
13APR-18APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20APR-25APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27APR-01MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04MAY-08MAY	0	1	4	0	0	0	0	0	0	0	0	0	0	0	0
11MAY-15MAY	0	156	564	14	0	0	0	0	0	0	0	0	0	0	0
18MAY-22MAY	0	38	1243	425	0	0	0	0	0	0	0	0	0	0	0
25MAY-30MAY	0	103	1160	1105	24	0	0	0	0	0	0	0	0	0	0
01JUN-05JUN	0	18	993	863	207	2	0	0	0	0	0	0	0	0	0
08JUN-12JUN	0	124	1168	1124	480	128	3	0	0	0	0	0	0	0	0
15JUN-19JUN	0	14	852	1127	350	228	138	33	21	4	0	0	0	0	0
22JUN-26JUN	0	0	273	828	311	326	206	112	74	50	24	6	1	0	0
29JUN-03JUL	0	2	26	87	321	376	236	108	53	42	27	26	16	16	9
06JUL-10JUL	0	1	21	68	50	194	380	189	56	27	18	11	13	9	11

DATES	30.0-31.9	32.0-33.9	34.0-35.9	36.0-37.9	38.0-39.9	40.0-41.9	42.0-43.9	44.0-45.9	46.0-47.9	48.0-49.9	50.0-51.9	52.0-53.9	54.0-55.9	56.0-57.9	58.0-59.9
13APR-18APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20APR-25APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27APR-01MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04MAY-08MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11MAY-15MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18MAY-22MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25MAY-30MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01JUN-05JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08JUN-12JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15JUN-19JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22JUN-26JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29JUN-03JUL	3	2	1	2	0	0	0	0	0	0	0	0	0	0	0
06JUL-10JUL	14	9	7	6	1	0	2	1	0	0	0	0	0	0	0

DATES	60.0-61.9	62.0-63.9	64.0-65.9	66.0-67.9	68.0-69.9	70.0-71.9	72.0-73.9	74.0-75.9	76.0-77.9	78.0-79.9	80.0-81.9	82.0-83.9	84.0-85.9	86.0-87.9	88.0-89.9
13APR-18APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20APR-25APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27APR-01MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04MAY-08MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11MAY-15MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18MAY-22MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25MAY-30MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01JUN-05JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08JUN-12JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15JUN-19JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22JUN-26JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29JUN-03JUL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06JUL-10JUL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

DATES	90.0-91.9	92.0-93.9	94.0-95.9	96.0-97.9	98.0-99.9	100.0-101.9	102.0-103.9	104.0-105.9	106.0-107.9+	N	MEAN	MIN	MED	MAX	SD
13APR-18APR	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
20APR-25APR	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
27APR-01MAY	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
04MAY-08MAY	0	0	0	0	0	0	0	0	0	5	4.1	2.9	4.3	4.7	0.7
11MAY-15MAY	0	0	0	0	0	0	0	0	0	786	4.5	2.3	4.5	7.0	0.7
18MAY-22MAY	0	0	0	0	0	0	0	0	0	1712	5.6	2.9	5.6	7.6	0.7
25MAY-30MAY	0	0	0	0	0	0	0	0	0	2405	5.8	2.7	5.9	8.7	1.0
01JUN-05JUN	0	0	0	0	0	0	0	0	0	2086	6.2	2.8	6.0	10.2	1.2
08JUN-12JUN	0	0	0	0	0	0	0	0	0	3042	6.5	2.6	6.2	13.2	1.7
15JUN-19JUN	0	0	0	0	0	0	0	0	0	2771	7.4	2.6	6.6	19.9	2.5
22JUN-26JUN	0	0	0	0	0	0	0	0	0	2219	9.4	4.2	8.0	25.4	3.7
29JUN-03JUL	0	0	0	0	0	0	0	0	0	1366	12.3	3.7	11.3	37.0	4.6
06JUL-10JUL	0	0	0	0	0	0	0	0	0	1094	14.0	3.6	13.1	44.0	5.5

NOTE: N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

TABLE D-1 (cont.) LENGTH FREQUENCY DISTRIBUTION OF LARVAL AND YOUNG-OF-YEAR STRIPED BASS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1992

DATES	0.0-1.9	2.0-3.9	4.0-5.9	6.0-7.9	8.0-9.9	10.0-11.9	12.0-13.9	14.0-15.9	16.0-17.9	18.0-19.9	20.0-21.9	22.0-23.9	24.0-25.9	26.0-27.9	28.0-29.9
20JUL-22JUL	0	0	1	2	1	2	9	7	8	11	4	3	0	3	1
04AUG-06AUG	0	0	0	0	0	1	1	0	0	0	1	0	0	2	2
18AUG-20AUG	0	0	0	0	0	0	0	0	0	1	0	2	1	1	2
01SEP-03SEP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15SEP-17SEP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28SEP-30SEP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12OCT-14OCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	457	6305	5643	1744	1257	973	449	212	135	74	48	31	31	25

DATES	30.0-31.9	32.0-33.9	34.0-35.9	36.0-37.9	38.0-39.9	40.0-41.9	42.0-43.9	44.0-45.9	46.0-47.9	48.0-49.9	50.0-51.9	52.0-53.9	54.0-55.9	56.0-57.9	58.0-59.9
20JUL-22JUL	2	0	1	0	0	1	4	3	0	1	0	0	0	0	0
04AUG-06AUG	2	0	1	0	4	2	0	1	4	1	2	1	0	1	0
18AUG-20AUG	0	0	1	1	1	0	2	0	2	1	0	3	1	0	2
01SEP-03SEP	0	0	1	0	1	0	0	0	1	0	0	2	1	3	2
15SEP-17SEP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28SEP-30SEP	0	0	0	0	0	0	1	0	0	0	1	1	0	1	0
12OCT-14OCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	21	11	12	9	7	3	9	5	7	3	3	7	2	5	4

DATES	60.0-61.9	62.0-63.9	64.0-65.9	66.0-67.9	68.0-69.9	70.0-71.9	72.0-73.9	74.0-75.9	76.0-77.9	78.0-79.9	80.0-81.9	82.0-83.9	84.0-85.9	86.0-87.9	88.0-89.9
20JUL-22JUL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04AUG-06AUG	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0
18AUG-20AUG	1	0	3	0	1	0	0	1	0	0	0	0	0	0	0
01SEP-03SEP	1	1	2	1	1	0	0	2	6	3	2	2	2	1	0
15SEP-17SEP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28SEP-30SEP	0	0	0	0	0	1	0	0	1	1	0	0	1	0	2
12OCT-14OCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	3	5	1	2	1	0	3	7	4	2	2	3	1	2

DATES	90.0-91.9	92.0-93.9	94.0-95.9	96.0-97.9	98.0-99.9	100.0-101.9	102.0-103.9	104.0-105.9	106.0-107.9+	N	MEAN	MIN	MED	MAX	SD
20JUL-22JUL	0	0	0	0	0	0	0	0	0	66	21.1	5.7	18.0	48.0	10.6
04AUG-06AUG	0	0	0	0	0	0	0	0	0	29	39.9	11.5	40.0	63.0	13.5
18AUG-20AUG	0	0	0	0	0	0	0	0	0	27	45.7	18.0	47.0	75.0	16.1
01SEP-03SEP	2	0	1	0	0	0	0	0	0	38	69.7	34.0	75.5	94.0	14.6
15SEP-17SEP	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
28SEP-30SEP	1	0	0	0	0	0	1	1	1	14	78.0	42.0	81.5	106.0	21.0
12OCT-14OCT	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
	3	0	1	0	0	0	1	1	1	17660					

NOTE: N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

TABLE D-2 LENGTH FREQUENCY DISTRIBUTION OF STRIPED BASS IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1992

DATES	5.0-9.9	10.0-14.9	15.0-19.9	20.0-24.9	25.0-29.9	30.0-34.9	35.0-39.9	40.0-44.9	45.0-49.9	50.0-54.9	55.0-59.9	60.0-64.9	65.0-69.9	70.0-74.9	75.0-79.9
13JUL-18JUL	1	6	19	12	8	23	24	16	19	3	3	0	0	0	0
27JUL-01AUG	0	1	5	9	10	8	9	17	19	16	21	9	3	0	0
10AUG-14AUG	0	0	0	0	3	11	10	7	13	15	9	17	11	11	5
24AUG-28AUG	0	0	0	0	0	2	2	5	9	13	8	15	7	14	8
08SEP-12SEP	0	0	0	0	0	0	0	0	3	9	4	10	6	12	12
21SEP-25SEP	0	0	0	0	0	0	0	0	0	4	4	4	6	12	9
05OCT-09OCT	0	0	0	0	0	0	0	0	0	1	2	4	10	8	9
19OCT-23OCT	0	0	0	0	0	0	0	0	0	0	1	2	8	10	11
	======	======	======	======	======	======	======	======	======	======	======	======	======	======	======
	1	7	24	21	21	44	45	45	63	61	52	61	51	67	54

DATES	80.0-84.9	85.0-89.9	90.0-94.9	95.0-99.9	100.0-104.9	105.0-109.9	110.0-114.9	115.0-119.9	120.0-124.9+	N	MEAN	MIN	MED	MAX	SD
13JUL-18JUL	0	0	0	0	0	0	0	0	0	134	32.7	9.0	34.0	57.0	11.7
27JUL-01AUG	0	0	0	0	0	0	0	0	0	130	44.1	13.0	46.0	69.0	13.5
10AUG-14AUG	2	0	0	0	0	0	0	0	0	116	54.1	28.0	53.5	80.0	14.1
24AUG-28AUG	12	3	2	1	0	0	0	0	0	105	64.0	30.0	63.0	97.0	14.3
08SEP-12SEP	9	5	4	1	1	0	1	1	0	78	71.8	45.0	72.0	116.0	14.5
21SEP-25SEP	13	10	3	5	6	3	2	0	0	82	79.8	50.0	80.0	110.0	14.9
05OCT-09OCT	5	8	3	7	6	5	2	1	0	71	83.0	54.0	81.0	118.0	15.5
19OCT-23OCT	10	8	8	12	8	7	5	4	0	94	88.4	58.0	88.5	117.0	15.3
	======	======	======	======	======	======	======	======	======	======					
	51	34	20	26	21	15	10	6	0	810					

NOTE: N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

TABLE D-3 LENGTH FREQUENCY DISTRIBUTION OF STRIPED BASS IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1992

DATES	15.0-19.9	20.0-24.9	25.0-29.9	30.0-34.9	35.0-39.9	40.0-44.9	45.0-49.9	50.0-54.9	55.0-59.9	60.0-64.9	65.0-69.9	70.0-74.9	75.0-79.9	80.0-84.9	85.0-89.9
23JUN-26JUN	4	14	13	4	0	0	0	0	0	0	0	0	0	0	0
06JUL-09JUL	0	2	18	43	63	34	12	4	0	0	0	0	0	0	0
20JUL-22JUL	0	2	1	5	15	30	32	22	29	16	6	0	1	0	0
03AUG-06AUG	0	0	1	9	6	17	13	42	42	18	15	15	4	2	0
17AUG-20AUG	0	0	0	6	5	10	10	22	18	18	20	17	12	7	3
31AUG-02SEP	0	0	0	1	2	5	7	8	18	24	23	26	12	7	4
14SEP-16SEP	0	0	0	0	0	0	0	2	11	16	17	14	12	9	3
28SEP-30SEP	0	0	0	0	0	0	2	1	3	4	13	12	13	14	13
12OCT-15OCT	0	0	0	0	0	0	0	0	2	3	6	9	10	11	10
26OCT-28OCT	0	0	0	0	0	0	0	1	3	5	7	16	10	12	12
	======	======	======	======	======	======	======	======	======	======	======	======	======	======	======
	4	18	33	68	91	96	76	102	126	104	107	109	74	62	45

DATES	90.0-94.9	95.0-99.9	100.0-104.9	105.0-109.9	110.0-114.9	115.0-119.9	120.0-124.9	125.0-129.9	130.0-134.9+	N	MEAN	MIN	MED	MAX	SD
23JUN-26JUN	0	0	0	0	0	0	0	0	0	35	24.6	18.0	24.0	34.0	4.1
06JUL-09JUL	0	0	0	0	0	0	0	0	0	176	36.5	23.0	36.0	53.0	5.8
20JUL-22JUL	0	0	0	0	0	0	0	0	0	162	49.3	22.0	49.0	76.0	9.4
03AUG-06AUG	0	0	0	0	0	0	0	0	0	192	55.2	28.0	55.0	80.0	11.0
17AUG-20AUG	0	0	0	0	0	0	0	0	0	156	60.1	30.0	60.0	89.0	13.0
31AUG-02SEP	5	2	0	0	0	0	0	0	0	148	65.8	34.0	65.0	98.0	12.4
14SEP-16SEP	7	2	3	1	1	0	0	0	0	99	73.0	54.0	70.0	111.0	12.9
28SEP-30SEP	17	6	5	5	2	5	0	0	0	117	83.1	47.0	82.0	119.0	15.7
12OCT-15OCT	6	1	8	6	5	2	0	0	0	79	85.9	56.0	83.0	115.0	15.5
26OCT-28OCT	4	8	3	4	5	5	1	0	0	96	84.4	54.0	82.5	120.0	16.2
	======	======	======	======	======	======	======	======	======	======					
	39	19	19	16	13	12	1	0	0	1260					

NOTE: N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

TABLE D-4 LENGTH FREQUENCY DISTRIBUTION OF LARVAL AND YOUNG-OF-YEAR WHITE PERCH IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1992

DATES	0.0-1.9	2.0-3.9	4.0-5.9	6.0-7.9	8.0-9.9	10.0-11.9	12.0-13.9	14.0-15.9	16.0-17.9	18.0-19.9	20.0-21.9	22.0-23.9	24.0-25.9
13APR-18APR	0	0	0	0	0	0	0	0	0	0	0	0	0
20APR-25APR	0	0	0	0	0	0	0	0	0	0	0	0	0
27APR-01MAY	0	0	0	0	0	0	0	0	0	0	0	0	0
04MAY-08MAY	0	163	18	0	0	0	0	0	0	0	0	0	0
11MAY-15MAY	0	1431	214	0	0	0	0	0	0	0	0	0	0
18MAY-22MAY	0	661	862	3	1	0	0	0	0	0	0	0	0
25MAY-30MAY	0	433	1355	352	5	0	0	0	0	0	0	0	0
01JUN-05JUN	0	186	932	662	69	1	0	0	0	0	0	0	0
08JUN-12JUN	0	638	861	969	432	28	1	0	0	0	0	0	0
15JUN-19JUN	0	304	1101	652	395	150	12	0	0	0	0	0	0
22JUN-26JUN	0	72	519	879	539	250	127	49	10	4	0	0	0
29JUN-03JUL	0	55	108	432	473	367	156	63	29	19	10	7	2
06JUL-10JUL	0	1	60	164	487	491	248	106	39	21	12	14	1

DATES	26.0-27.9	28.0-29.9	30.0-31.9	32.0-33.9	34.0-35.9	36.0-37.9	38.0-39.9	40.0-41.9	42.0-43.9	44.0-45.9	46.0-47.9	48.0-49.9	50.0-51.9
13APR-18APR	0	0	0	0	0	0	0	0	0	0	0	0	0
20APR-25APR	0	0	0	0	0	0	0	0	0	0	0	0	0
27APR-01MAY	0	0	0	0	0	0	0	0	0	0	0	0	0
04MAY-08MAY	0	0	0	0	0	0	0	0	0	0	0	0	0
11MAY-15MAY	0	0	0	0	0	0	0	0	0	0	0	0	0
18MAY-22MAY	0	0	0	0	0	0	0	0	0	0	0	0	0
25MAY-30MAY	0	0	0	0	0	0	0	0	0	0	0	0	0
01JUN-05JUN	0	0	0	0	0	0	0	0	0	0	0	0	0
08JUN-12JUN	0	0	0	0	0	0	0	0	0	0	0	0	0
15JUN-19JUN	0	0	0	0	0	0	0	0	0	0	0	0	0
22JUN-26JUN	0	0	0	0	0	0	0	0	0	0	0	0	0
29JUN-03JUL	0	0	0	0	0	0	0	0	0	0	0	0	0
06JUL-10JUL	0	0	0	0	0	0	0	0	0	0	0	0	0

DATES	52.0-53.9	54.0-55.9	56.0-57.9	58.0-59.9	60.0-61.9	62.0-63.9	64.0-65.9	66.0-67.9	68.0-69.9	70.0-71.9	72.0-73.9	74.0-75.9	76.0-77.9
13APR-18APR	0	0	0	0	0	0	0	0	0	0	0	0	0
20APR-25APR	0	0	0	0	0	0	0	0	0	0	0	0	0
27APR-01MAY	0	0	0	0	0	0	0	0	0	0	0	0	0
04MAY-08MAY	0	0	0	0	0	0	0	0	0	0	0	0	0
11MAY-15MAY	0	0	0	0	0	0	0	0	0	0	0	0	0
18MAY-22MAY	0	0	0	0	0	0	0	0	0	0	0	0	0
25MAY-30MAY	0	0	0	0	0	0	0	0	0	0	0	0	0
01JUN-05JUN	0	0	0	0	0	0	0	0	0	0	0	0	0
08JUN-12JUN	0	0	0	0	0	0	0	0	0	0	0	0	0
15JUN-19JUN	0	0	0	0	0	0	0	0	0	0	0	0	0
22JUN-26JUN	0	0	0	0	0	0	0	0	0	0	0	0	0
29JUN-03JUL	0	0	0	0	0	0	0	0	0	0	0	0	0
06JUL-10JUL	0	0	0	0	0	0	0	0	0	0	0	0	0

DATES	78.0-79.9	80.0-81.9	82.0-83.9	84.0-85.9+	N	MEAN	MIN	MED	MAX	SD
13APR-18APR	0	0	0	0	0	.	.	.	.	.
20APR-25APR	0	0	0	0	0	.	.	.	.	.
27APR-01MAY	0	0	0	0	0	.	.	.	.	.
04MAY-08MAY	0	0	0	0	185	3.4	1.9	3.5	4.2	0.4
11MAY-15MAY	0	0	0	0	1766	3.5	2.0	3.4	5.1	0.4
18MAY-22MAY	0	0	0	0	1676	4.0	2.5	4.0	9.7	0.5
25MAY-30MAY	0	0	0	0	2209	4.8	2.6	4.7	8.7	1.0
01JUN-05JUN	0	0	0	0	1885	5.6	2.5	5.5	10.2	1.3
08JUN-12JUN	0	0	0	0	2962	5.8	2.2	5.9	12.0	1.9
15JUN-19JUN	0	0	0	0	2639	6.2	2.6	5.8	13.4	2.1
22JUN-26JUN	0	0	0	0	2463	7.8	3.0	7.3	19.0	2.6
29JUN-03JUL	0	0	0	0	1725	9.4	2.7	9.0	24.1	3.2
06JUL-10JUL	0	0	0	0	1648	10.8	3.8	10.4	24.0	3.0

NOTE: N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

TABLE D-4 (cont.) LENGTH FREQUENCY DISTRIBUTION OF LARVAL AND YOUNG-OF-YEAR WHITE PERCH IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1992

DATES	0.0-1.9	2.0-3.9	4.0-5.9	6.0-7.9	8.0-9.9	10.0-11.9	12.0-13.9	14.0-15.9	16.0-17.9	18.0-19.9	20.0-21.9	22.0-23.9	24.0-25.9
20JUL-22JUL	0	0	0	4	1	0	16	26	12	4	0	2	0
04AUG-06AUG	0	0	0	0	0	0	1	0	1	0	0	1	1
18AUG-20AUG	0	0	0	0	1	0	0	0	0	0	0	0	1
01SEP-03SEP	0	0	0	0	0	0	0	0	0	0	0	0	0
15SEP-17SEP	0	0	0	0	0	0	0	0	0	0	0	0	0
28SEP-30SEP	0	0	0	0	0	0	0	0	0	0	0	0	0
12OCT-14OCT	0	0	0	0	0	0	0	0	0	0	0	0	0
	======	======	======	======	======	======	======	======	======	======	======	======	======
	0	3944	6030	4117	2403	1287	561	244	91	48	22	24	5

DATES	26.0-27.9	28.0-29.9	30.0-31.9	32.0-33.9	34.0-35.9	36.0-37.9	38.0-39.9	40.0-41.9	42.0-43.9	44.0-45.9	46.0-47.9	48.0-49.9	50.0-51.9
20JUL-22JUL	1	2	0	0	0	0	0	0	0	0	0	0	0
04AUG-06AUG	0	2	1	2	0	2	0	1	0	0	1	0	0
18AUG-20AUG	0	3	0	1	2	1	1	0	2	1	0	0	0
01SEP-03SEP	0	0	0	1	2	0	4	2	2	0	1	1	2
15SEP-17SEP	0	0	0	0	0	0	0	0	0	0	0	0	0
28SEP-30SEP	0	0	0	0	0	0	0	0	0	0	0	0	1
12OCT-14OCT	0	0	0	0	0	0	0	0	0	0	0	0	0
	======	======	======	======	======	======	======	======	======	======	======	======	======
	1	7	1	4	4	3	5	3	4	1	2	1	3

DATES	52.0-53.9	54.0-55.9	56.0-57.9	58.0-59.9	60.0-61.9	62.0-63.9	64.0-65.9	66.0-67.9	68.0-69.9	70.0-71.9	72.0-73.9	74.0-75.9	76.0-77.9
20JUL-22JUL	0	0	0	0	0	0	0	0	0	0	0	0	0
04AUG-06AUG	0	0	0	0	1	0	0	0	0	0	0	0	0
18AUG-20AUG	0	0	0	0	0	0	0	0	0	0	0	0	0
01SEP-03SEP	0	0	0	0	1	2	0	2	1	0	0	0	0
15SEP-17SEP	2	0	0	0	0	0	0	0	0	0	0	0	0
28SEP-30SEP	0	0	0	0	1	3	0	1	1	1	0	1	0
12OCT-14OCT	0	1	0	0	0	0	0	1	1	1	0	0	0
	======	======	======	======	======	======	======	======	======	======	======	======	======
	2	1	0	0	3	5	0	4	3	2	0	1	0

DATES	78.0-79.9	80.0-81.9	82.0-83.9	84.0-85.9+	N	MEAN	MIN	MED	MAX	SD
20JUL-22JUL	0	0	0	0	68	15.2	6.0	15.0	28.0	4.0
04AUG-06AUG	0	0	0	0	14	32.2	12.8	32.0	60.0	12.2
18AUG-20AUG	0	0	0	0	13	32.8	9.8	34.0	44.0	9.3
01SEP-03SEP	0	0	0	0	21	47.7	32.0	43.0	68.0	11.9
15SEP-17SEP	0	0	0	0	2	52.5	52.0	52.5	53.0	0.7
28SEP-30SEP	0	0	0	1	10	66.3	51.0	64.5	84.0	8.8
12OCT-14OCT	0	0	0	0	4	64.8	54.0	67.5	70.0	7.4
	======	======	======	======	======					
	0	0	0	1	19290					

NOTE: N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

TABLE D-5 LENGTH FREQUENCY DISTRIBUTION OF WHITE PERCH IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1992

DATES	10.0-14.9	15.0-19.9	20.0-24.9	25.0-29.9	30.0-34.9	35.0-39.9	40.0-44.9	45.0-49.9	50.0-54.9	55.0-59.9	60.0-64.9	65.0-69.9
13JUL-18JUL	8	32	20	17	8	1	0	0	0	0	0	0
27JUL-01AUG	2	22	11	15	12	12	6	2	2	0	0	0
10AUG-14AUG	0	1	4	13	15	13	11	4	0	1	1	0
24AUG-28AUG	0	0	0	3	11	20	12	10	10	4	3	0
08SEP-12SEP	0	0	0	0	2	3	15	9	13	9	3	4
21SEP-25SEP	0	0	0	0	0	1	1	6	9	10	6	3
05OCT-09OCT	0	0	0	0	0	0	1	3	7	5	11	17
19OCT-23OCT	0	0	0	0	0	0	1	4	4	6	10	18
	======	======	======	======	======	======	======	======	======	======	======	======
	10	55	35	48	48	50	47	38	45	35	34	42

DATES	70.0-74.9	75.0-79.9	80.0-84.9	85.0-89.9	90.0-94.9	95.0-99.9+	N	MEAN	MIN	MED	MAX	SD
13JUL-18JUL	0	0	0	0	0	0	86	21.5	12.0	20.0	39.0	6.0
27JUL-01AUG	0	0	0	0	0	0	84	27.8	12.0	27.0	52.0	9.6
10AUG-14AUG	0	0	0	0	0	0	63	34.5	19.0	33.0	62.0	8.4
24AUG-28AUG	0	0	0	0	0	0	74	42.6	27.0	41.5	64.0	9.1
08SEP-12SEP	2	1	0	0	0	0	62	50.6	33.0	50.5	77.0	10.0
21SEP-25SEP	4	1	4	1	0	0	48	59.9	39.0	57.0	85.0	11.4
05OCT-09OCT	11	6	9	2	0	0	73	66.8	44.0	68.0	88.0	10.1
19OCT-23OCT	17	14	7	5	0	0	86	68.7	41.0	69.5	86.0	10.4
	======	======	======	======	======	======	======					
	34	22	20	8	0	0	576					

NOTE: N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

TABLE D-6 LENGTH FREQUENCY DISTRIBUTION OF WHITE PERCH IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1992

DATES	20.0-24.9	25.0-29.9	30.0-34.9	35.0-39.9	40.0-44.9	45.0-49.9	50.0-54.9	55.0-59.9	60.0-64.9	65.0-69.9	70.0-74.9
23JUN-26JUN	0	0	0	0	0	0	0	0	0	0	0
06JUL-09JUL	18	33	6	6	1	1	0	0	0	0	0
20JUL-22JUL	3	11	42	51	27	1	3	0	0	0	0
03AUG-06AUG	0	2	4	19	40	38	32	7	0	0	0
17AUG-20AUG	0	1	5	6	12	17	31	32	18	4	1
31AUG-02SEP	0	0	1	3	2	8	15	33	20	21	12
14SEP-16SEP	0	0	0	0	3	14	14	7	15	16	18
28SEP-30SEP	0	0	0	1	0	2	5	7	15	28	14
12OCT-15OCT	0	0	0	0	0	0	6	5	12	26	18
26OCT-28OCT	0	0	0	0	0	1	8	7	8	9	16
	======	======	======	======	======	======	======	======	======	======	======
	21	47	58	86	85	82	114	98	88	104	79

DATES	75.0-79.9	80.0-84.9	85.0-89.9	90.0-94.9+	N	MEAN	MIN	MED	MAX	SD
23JUN-26JUN	0	0	0	0	0	.	.	.	.	.
06JUL-09JUL	0	0	0	0	65	27.8	21.0	27.0	47.0	5.1
20JUL-22JUL	0	0	0	0	138	35.5	23.0	35.0	53.0	5.1
03AUG-06AUG	0	0	0	0	142	45.2	26.0	45.0	59.0	6.3
17AUG-20AUG	0	0	0	0	133	52.6	28.0	53.0	70.0	8.7
31AUG-02SEP	6	0	0	0	125	59.8	33.0	60.0	78.0	9.0
14SEP-16SEP	19	4	2	0	115	64.1	41.0	65.0	87.0	11.4
28SEP-30SEP	20	10	6	0	114	68.9	35.0	69.0	89.0	9.9
12OCT-15OCT	18	10	2	0	99	69.7	51.0	69.0	89.0	8.4
26OCT-28OCT	14	8	2	0	74	69.1	49.0	70.5	87.0	9.9
	======	======	======	======	======					
	77	32	12	0	1005					

NOTE: N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

TABLE D-7 LENGTH FREQUENCY DISTRIBUTION OF ATLANTIC TOMCOD IN HUDSON RIVER ESTUARY
DETERMINED FROM FALL SHOALS SURVEY,1992

DATES	45.0-49.9	50.0-54.9	55.0-59.9	60.0-64.9	65.0-69.9	70.0-74.9	75.0-79.9	80.0-84.9	85.0-89.9	90.0-94.9	95.0-99.9	100.0-104.9	105.0-109.9	110.0-114.9
13JUL-18JUL	1	0	0	0	0	0	1	2	27	27	26	20	16	5
27JUL-01AUG	0	0	0	0	0	0	1	6	24	32	23	30	22	10
10AUG-14AUG	0	0	0	0	0	0	0	8	10	26	36	29	18	20
24AUG-28AUG	0	0	0	0	0	0	0	4	10	18	26	33	16	17
08SEP-12SEP	0	0	0	0	0	0	2	2	8	22	23	26	21	10
21SEP-25SEP	0	0	0	0	0	0	0	5	11	14	31	26	28	18
05OCT-09OCT	0	0	0	0	0	0	1	0	7	16	30	24	30	30
19OCT-23OCT	0	0	0	0	0	0	0	0	10	5	14	23	22	23
	======	======	======	======	======	======	======	======	======	======	======	======	======	======
	1	0	0	0	0	0	5	27	107	160	209	211	173	133

DATES	115.0-119.9	120.0-124.9	125.0-129.9	130.0-134.9	135.0-139.9	140.0-144.9	145.0-149.9	150.0-154.9+	N	MEAN	MIN	MED	MAX	SD
13JUL-18JUL	3	1	0	0	0	0	0	0	129	96.4	45.0	96.0	120.0	9.5
27JUL-01AUG	3	1	0	0	0	0	0	0	152	97.6	77.0	97.5	120.0	8.8
10AUG-14AUG	4	5	1	0	0	0	0	0	157	100.0	81.0	99.0	127.0	9.8
24AUG-28AUG	11	7	4	5	0	0	0	0	151	103.7	80.0	103.0	134.0	11.6
08SEP-12SEP	11	4	4	6	0	1	0	0	140	103.4	76.0	101.0	140.0	12.4
21SEP-25SEP	13	12	5	5	0	2	0	0	170	105.2	82.0	103.5	143.0	12.3
05OCT-09OCT	18	7	8	8	6	1	1	0	187	108.2	76.0	107.0	145.0	12.8
19OCT-23OCT	28	19	14	4	12	4	3	0	181	113.2	85.0	113.0	147.0	14.0
	======	======	======	======	======	======	======	======	======					
	91	56	36	28	18	8	4	0	1267					

NOTE: N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

TABLE D-8 LENGTH FREQUENCY DISTRIBUTION OF ATLANTIC TOMCOD IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1992

DATES	80.0-84.9	85.0-89.9	90.0-94.9	95.0-99.9	100.0-104.9	105.0-109.9	110.0-114.9	115.0-119.9	120.0-124.9	125.0-129.9	130.0-134.9
23JUN-26JUN	3	3	6	2	0	1	0	0	0	0	0
06JUL-09JUL	0	4	11	2	5	1	0	0	0	0	0
20JUL-22JUL	0	1	0	0	2	0	0	0	0	0	0
03AUG-06AUG	0	0	1	6	2	2	0	0	0	0	0
17AUG-20AUG	0	2	2	6	8	2	3	2	1	2	0
31AUG-02SEP	0	2	1	3	5	2	3	2	0	2	1
14SEP-16SEP	0	0	2	1	4	6	2	1	4	0	0
28SEP-30SEP	0	1	1	1	2	0	0	1	1	0	0
12OCT-15OCT	0	0	0	3	3	1	3	3	2	3	0
26OCT-28OCT	0	0	0	0	3	0	2	1	1	2	2
	======	======	======	======	======	======	======	======	======	======	======
	3	13	24	24	34	15	13	10	9	9	3

DATES	135.0-139.9	140.0-144.9	145.0-149.9	150.0-154.9+	N	MEAN	MIN	MED	MAX	SD
23JUN-26JUN	0	0	0	0	15	91.1	82.0	92.0	105.0	6.2
06JUL-09JUL	0	0	0	0	23	94.2	85.0	93.0	105.0	5.3
20JUL-22JUL	0	0	0	0	3	97.7	87.0	102.0	104.0	9.3
03AUG-06AUG	0	0	0	0	11	99.4	91.0	99.0	108.0	4.8
17AUG-20AUG	0	0	0	0	28	104.1	85.0	103.0	129.0	11.1
31AUG-02SEP	0	0	0	0	21	106.5	88.0	104.0	133.0	12.6
14SEP-16SEP	0	0	0	0	20	108.0	93.0	106.5	124.0	9.2
28SEP-30SEP	0	0	0	0	7	101.6	87.0	100.0	121.0	13.2
12OCT-15OCT	1	3	0	0	22	117.2	95.0	116.5	144.0	14.9
26OCT-28OCT	1	0	2	0	14	122.9	100.0	123.0	147.0	15.4
	======	======	======	======	======					
	2	3	2	0	164					

NOTE: N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

TABLE D-9 LENGTH FREQUENCY DISTRIBUTION OF LARVAL AND YOUNG-OF-YEAR AMERICAN SHAD IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1992

DATES	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-22.9	23.0-24.9	25.0-26.9	27.0-28.9	29.0-30.9	31.0-32.9	33.0-34.9
13APR-18APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20APR-25APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27APR-01MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04MAY-08MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11MAY-15MAY	0	65	37	3	0	0	0	0	0	0	0	0	0	0	0
18MAY-22MAY	1	18	70	26	1	0	0	0	0	0	0	0	0	0	0
25MAY-30MAY	0	7	60	61	51	12	2	0	0	0	0	0	0	0	0
01JUN-05JUN	16	88	49	23	33	38	32	34	9	0	0	0	0	0	0
08JUN-12JUN	2	32	57	5	4	9	11	15	16	2	0	0	0	0	0
15JUN-19JUN	0	7	5	12	13	30	41	33	17	32	24	14	3	1	0
22JUN-26JUN	0	3	0	0	1	5	16	27	24	31	41	37	13	13	28
29JUN-03JUL	0	0	0	0	1	4	7	21	31	34	29	19	23	19	30
06JUL-10JUL	0	0	0	0	0	0	1	3	3	7	13	22	18	15	19

DATES	35.0-36.9	37.0-38.9	39.0-40.9	41.0-42.9	43.0-44.9	45.0-46.9	47.0-48.9	49.0-50.9	51.0-52.9	53.0-54.9	55.0-56.9	57.0-58.9	59.0-60.9	61.0-62.9	63.0-64.9
13APR-18APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20APR-25APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27APR-01MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04MAY-08MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11MAY-15MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18MAY-22MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25MAY-30MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01JUN-05JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08JUN-12JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15JUN-19JUN	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22JUN-26JUN	20	10	7	1	1	0	1	0	0	0	0	0	0	0	0
29JUN-03JUL	35	28	18	24	17	18	12	11	2	4	1	0	0	0	0
06JUL-10JUL	21	21	22	26	26	29	24	17	33	26	17	10	5	1	0

DATES	65.0-66.9	67.0-68.9	69.0-70.9	71.0-72.9	73.0-74.9	75.0-76.9	77.0-78.9	79.0-80.9	81.0-82.9	83.0-84.9	85.0-86.9	87.0-88.9	89.0-90.9	91.0-92.9	93.0-94.9
13APR-18APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20APR-25APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27APR-01MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04MAY-08MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11MAY-15MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18MAY-22MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25MAY-30MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01JUN-05JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08JUN-12JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15JUN-19JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22JUN-26JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29JUN-03JUL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06JUL-10JUL	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0

DATES	95.0-96.9	97.0-98.9	99.0-100.9	101.0-102.9	103.0-104.9	105.0-106.9	N	MEAN	MIN	MED	MAX	SD
13APR-18APR	0	0	0	0	0	0	0	.	.	.	.	.
20APR-25APR	0	0	0	0	0	0	0	.	.	.	.	.
27APR-01MAY	0	0	0	0	0	0	0	.	.	.	.	.
04MAY-08MAY	0	0	0	0	0	0	0	.	.	.	.	.
11MAY-15MAY	0	0	0	0	0	0	105	8.9	7.3	8.6	11.0	0.9
18MAY-22MAY	0	0	0	0	0	0	116	10.1	6.7	10.2	13.4	1.2
25MAY-30MAY	0	0	0	0	0	0	193	12.0	7.8	11.9	17.4	1.9
01JUN-05JUN	0	0	0	0	0	0	324	12.6	5.6	12.1	21.9	4.6
08JUN-12JUN	0	0	0	0	0	0	156	13.1	6.8	10.0	24.8	5.2
15JUN-19JUN	0	0	0	0	0	0	240	19.9	7.2	19.6	35.0	5.3
22JUN-26JUN	0	0	0	0	0	0	284	26.9	8.5	26.2	48.0	6.4
29JUN-03JUL	0	0	0	0	0	0	401	32.5	14.2	32.0	55.0	9.1
06JUL-10JUL	0	0	0	0	0	0	384	41.6	17.1	42.0	66.0	10.0

NOTE: N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

TABLE D-9(cont.) LENGTH FREQUENCY DISTRIBUTION OF LARVAL AND YOUNG-OF-YEAR AMERICAN SHAD IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1992

DATES	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-22.9	23.0-24.9	25.0-26.9	27.0-28.9	29.0-30.9	31.0-32.9	33.0-34.9
20JUL-22JUL	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0
04AUG-06AUG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18AUG-20AUG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01SEP-03SEP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15SEP-17SEP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28SEP-30SEP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12OCT-14OCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	======	======	======	======	======	======	======	======	======	======	======	======	======	======	======
	19	220	278	130	104	98	110	133	100	106	108	93	57	48	77

DATES	35.0-36.9	37.0-38.9	39.0-40.9	41.0-42.9	43.0-44.9	45.0-46.9	47.0-48.9	49.0-50.9	51.0-52.9	53.0-54.9	55.0-56.9	57.0-58.9	59.0-60.9	61.0-62.9	63.0-64.9
20JUL-22JUL	1	1	0	2	2	4	6	3	5	6	5	8	9	10	6
04AUG-06AUG	0	0	0	0	1	0	4	2	3	6	5	6	4	6	4
18AUG-20AUG	0	0	0	0	0	0	0	0	0	3	3	4	6	10	2
01SEP-03SEP	0	0	0	0	0	0	0	0	0	0	0	1	0	2	1
15SEP-17SEP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28SEP-30SEP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12OCT-14OCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	======	======	======	======	======	======	======	======	======	======	======	======	======	======	======
	78	60	47	53	47	51	47	33	43	45	31	29	24	29	13

DATES	65.0-66.9	67.0-68.9	69.0-70.9	71.0-72.9	73.0-74.9	75.0-76.9	77.0-78.9	79.0-80.9	81.0-82.9	83.0-84.9	85.0-86.9	87.0-88.9	89.0-90.9	91.0-92.9	93.0-94.9
20JUL-22JUL	6	5	0	1	0	0	1	0	0	0	0	0	0	0	0
04AUG-06AUG	5	2	2	3	0	1	0	0	0	0	0	0	0	0	0
18AUG-20AUG	3	2	2	0	1	3	0	1	0	1	0	0	0	0	1
01SEP-03SEP	3	3	5	2	2	0	0	0	1	0	0	1	0	0	0
15SEP-17SEP	1	3	3	0	0	0	0	0	1	0	0	0	1	2	0
28SEP-30SEP	0	1	1	0	3	0	1	3	0	1	2	0	2	0	0
12OCT-14OCT	0	0	0	2	0	1	1	0	1	2	0	2	2	2	1
	======	======	======	======	======	======	======	======	======	======	======	======	======	======	======
	19	16	13	8	6	5	3	4	3	4	2	3	5	4	2

DATES	95.0-96.9	97.0-98.9	99.0-100.9	101.0-102.9	103.0-104.9	105.0-106.9	N	MEAN	MIN	MED	MAX	SD
20JUL-22JUL	0	0	0	0	0	0	89	56.0	20.9	58.0	77.0	9.9
04AUG-06AUG	0	0	0	0	0	0	56	59.2	43.0	59.0	76.0	7.3
18AUG-20AUG	0	0	0	0	0	0	44	63.8	53.0	62.0	94.0	8.4
01SEP-03SEP	0	0	0	0	0	0	24	68.3	57.0	68.0	88.0	6.6
15SEP-17SEP	0	1	0	0	1	0	14	78.0	63.0	69.5	103.0	14.0
28SEP-30SEP	0	0	0	1	0	1	16	82.1	67.0	79.5	105.0	10.7
12OCT-14OCT	1	1	3	1	0	1	21	89.2	72.0	89.0	106.0	9.8
	======	======	======	======	======	======	======					
	1	2	3	2	1	2	2467					

NOTE: N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

TABLE D-10 LENGTH FREQUENCY DISTRIBUTION OF AMERICAN SHAD IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1992

DATES	30.0-34.9	35.0-39.9	40.0-44.9	45.0-49.9	50.0-54.9	55.0-59.9	60.0-64.9	65.0-69.9	70.0-74.9	75.0-79.9	80.0-84.9	85.0-89.9	90.0-94.9	95.0-99.9
13JUL-18JUL	1	0	12	20	30	33	17	5	1	0	0	0	0	0
27JUL-01AUG	0	0	3	7	17	23	17	13	12	3	2	1	0	0
10AUG-14AUG	0	0	0	3	5	12	21	17	8	4	1	2	0	0
24AUG-28AUG	0	0	0	0	2	6	27	28	16	7	5	2	1	1
08SEP-12SEP	0	0	0	0	0	2	6	19	25	9	5	3	1	0
21SEP-25SEP	0	0	0	0	0	0	4	12	19	17	10	6	3	0
05OCT-09OCT	0	0	0	0	0	0	0	1	3	9	10	4	1	2
19OCT-23OCT	0	0	0	0	0	0	1	5	7	15	11	15	12	10
	======	======	======	======	======	======	======	======	======	======	======	======	======	======
	1	0	15	30	54	76	93	100	91	64	44	33	18	13

DATES	100.0-104.9	105.0-109.9	110.0-114.9	115.0-119.9	120.0-124.9	125.0-129.9	130.0-134.9+	N	MEAN	MIN	MED	MAX	SD
13JUL-18JUL	0	0	0	0	0	0	0	125	53.9	31.0	54.0	71.0	6.9
27JUL-01AUG	0	0	0	0	0	0	0	105	60.6	44.0	60.0	86.0	8.7
10AUG-14AUG	0	0	0	0	0	0	0	79	63.8	47.0	63.0	86.0	7.6
24AUG-28AUG	0	0	0	0	0	0	0	96	67.9	51.0	66.0	95.0	7.9
08SEP-12SEP	0	0	1	0	0	0	0	72	71.9	59.0	71.0	112.0	8.2
21SEP-25SEP	1	0	0	0	0	0	0	72	75.7	63.0	75.0	101.0	8.0
05OCT-09OCT	2	1	2	0	0	0	0	35	84.3	68.0	82.0	111.0	11.0
19OCT-23OCT	4	3	0	3	0	1	0	87	86.7	63.0	86.0	126.0	12.7
	======	======	======	======	======	======	======	======					
	7	4	3	3	0	1	0	671					

NOTE: N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

TABLE D-11 LENGTH FREQUENCY DISTRIBUTION OF AMERICAN SHAD IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1992

DATES	20.0-24.9	25.0-29.9	30.0-34.9	35.0-39.9	40.0-44.9	45.0-49.9	50.0-54.9	55.0-59.9	60.0-64.9	65.0-69.9	70.0-74.9	75.0-79.9
23JUN-26JUN	1	11	43	65	25	0	0	0	0	0	0	0
06JUL-09JUL	0	4	6	18	58	36	40	23	5	0	0	0
20JUL-22JUL	0	0	5	14	47	25	36	25	3	2	8	3
03AUG-06AUG	0	0	0	0	12	31	66	65	25	20	11	3
17AUG-20AUG	0	0	0	1	1	4	23	49	23	16	6	1
31AUG-02SEP	0	0	0	0	0	0	6	20	53	40	18	5
14SEP-16SEP	0	0	0	0	0	0	0	8	30	63	34	10
28SEP-30SEP	0	0	0	0	0	0	0	1	2	24	55	38
12OCT-15OCT	0	0	0	0	0	0	0	1	0	7	38	57
26OCT-28OCT	0	0	0	0	0	0	0	0	2	12	36	44
	======	======	======	======	======	======	======	======	======	======	======	======
	1	15	54	98	143	96	171	192	143	184	206	161

DATES	80.0-84.9	85.0-89.9	90.0-94.9	95.0-99.9	100.0-104.9	105.0-109.9+	N	MEAN	MIN	MED	MAX	SD
23JUN-26JUN	0	0	0	0	0	0	145	35.4	23.0	36.0	43.0	3.9
06JUL-09JUL	0	0	0	0	0	0	190	46.2	27.0	45.0	64.0	7.5
20JUL-22JUL	2	0	2	1	0	0	177	50.6	32.0	49.0	95.0	11.6
03AUG-06AUG	3	0	0	0	0	0	248	56.5	40.0	55.5	81.0	7.9
17AUG-20AUG	0	2	1	0	0	0	138	59.6	37.0	59.0	92.0	7.5
31AUG-02SEP	4	1	0	0	0	0	154	64.6	50.0	64.0	85.0	6.0
14SEP-16SEP	2	2	0	0	0	0	153	67.5	57.0	67.0	88.0	5.4
28SEP-30SEP	17	10	3	0	1	0	151	75.1	57.0	74.0	102.0	6.6
12OCT-15OCT	47	17	4	2	1	0	174	78.6	55.0	78.0	101.0	6.2
26OCT-28OCT	23	8	2	2	0	0	129	76.5	63.0	76.0	97.0	6.2
	======	======	======	======	======	======	======					
	98	40	12	5	2	0	1659					

NOTE: N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

TABLE D-12 LENGTH FREQUENCY DISTRIBUTION OF ALEWIFE IN HUDSON RIVER ESTUARY
DETERMINED FROM FALL SHOALS SURVEY, 1992

DATES	30.0-34.9	35.0-39.9	40.0-44.9	45.0-49.9	50.0-54.9	55.0-59.9	60.0-64.9	65.0-69.9	70.0-74.9	75.0-79.9	80.0-84.9	85.0-89.9	90.0-94.9
13JUL-18JUL	0	0	3	8	10	7	1	1	0	0	0	0	0
27JUL-01AUG	0	0	1	4	12	2	7	10	2	2	1	0	0
10AUG-14AUG	1	4	1	1	0	1	4	9	3	4	3	0	0
24AUG-28AUG	0	0	0	0	0	2	0	2	2	6	9	15	5
08SEP-12SEP	0	0	0	0	1	4	2	1	1	1	0	2	2
21SEP-25SEP	0	0	0	0	0	1	0	0	1	0	1	4	6
05OCT-09OCT	0	0	0	0	1	0	0	1	0	1	2	1	7
19OCT-23OCT	0	0	0	1	1	0	1	0	5	3	7	6	6
	======	======	======	======	======	======	======	======	======	======	======	======	======
	1	4	5	14	25	17	15	24	14	17	23	28	26

DATES	95.0-99.9	100.0-104.9	105.0-109.9	110.0-114.9	115.0-119.9	120.0-124.9+	N	MEAN	MIN	MED	MAX	SD
13JUL-18JUL	0	0	0	0	0	0	30	51.9	43.0	51.0	69.0	5.9
27JUL-01AUG	0	0	0	0	0	0	43	60.1	42.0	61.0	84.0	9.6
10AUG-14AUG	0	0	0	0	0	0	31	62.9	32.0	67.0	81.0	14.9
24AUG-28AUG	0	0	0	0	0	0	41	82.0	56.0	84.0	93.0	8.8
08SEP-12SEP	0	0	0	0	0	0	16	68.4	54.0	62.0	94.0	14.6
21SEP-25SEP	9	8	1	0	0	0	31	93.8	59.0	97.0	106.0	9.6
05OCT-09OCT	4	8	4	0	0	0	29	93.6	54.0	97.0	108.0	12.3
19OCT-23OCT	7	12	4	0	1	0	54	89.8	48.0	91.0	116.0	14.0
	======	======	======	======	======	======	======					
	20	28	9	0	1	0	275					

NOTE: N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

TABLE D-13 LENGTH FREQUENCY DISTRIBUTION OF ALEWIFE IN HUDSON RIVER ESTUARY
DETERMINED FROM BEACH SEINE SURVEY, 1992

DATES	35.0-39.9	40.0-44.9	45.0-49.9	50.0-54.9	55.0-59.9	60.0-64.9	65.0-69.9	70.0-74.9	75.0-79.9	80.0-84.9	85.0-89.9	90.0-94.9	95.0-99.9
23JUN-26JUN	0	0	0	0	0	0	0	0	0	0	0	0	0
06JUL-09JUL	0	50	64	23	4	0	0	0	0	0	0	0	0
20JUL-22JUL	0	32	29	8	4	5	8	2	0	0	0	0	0
03AUG-06AUG	1	0	3	12	6	5	3	13	0	0	0	0	0
17AUG-20AUG	0	0	0	0	2	5	2	0	1	0	0	0	0
31AUG-02SEP	0	0	0	0	1	3	0	5	4	6	2	1	0
14SEP-16SEP	0	0	0	0	0	0	4	4	4	2	2	0	0
28SEP-30SEP	0	0	0	0	0	1	1	3	8	10	6	4	3
12OCT-15OCT	0	0	0	0	1	0	0	1	1	0	0	0	0
26OCT-28OCT	0	0	0	0	0	0	0	1	3	3	0	0	0
	======	======	======	======	======	======	======	======	======	======	======	======	======
	1	82	96	43	18	19	18	29	21	21	10	5	3

DATES	100.0-104.9	105.0-109.9	110.0-114.9	115.0-119.9	120.0-124.9	125.0-129.9+	N	MEAN	MIN	MED	MAX	SD
23JUN-26JUN	0	0	0	0	0	0	0	.	.	.	.	.
06JUL-09JUL	0	0	0	0	0	0	141	46.1	41.0	46.0	58.0	3.8
20JUL-22JUL	0	0	0	0	0	0	89	49.4	41.0	46.0	71.0	8.5
03AUG-06AUG	0	0	0	0	0	0	43	60.0	38.0	59.0	73.0	9.5
17AUG-20AUG	0	0	0	0	0	0	10	63.6	56.0	62.0	78.0	6.3
31AUG-02SEP	0	0	0	0	0	0	22	76.2	58.0	77.5	92.0	8.9
14SEP-16SEP	0	0	0	0	0	0	16	75.2	65.0	74.5	89.0	7.4
28SEP-30SEP	0	0	1	0	0	0	37	82.9	63.0	83.0	110.0	9.0
12OCT-15OCT	0	0	0	0	0	0	3	68.3	59.0	70.0	76.0	8.6
26OCT-28OCT	0	0	0	0	1	0	8	83.4	70.0	79.5	124.0	16.8
	======	======	======	======	======	======	======					
	0	0	1	0	1	0	369					

NOTE: N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

TABLE D-14 LENGTH FREQUENCY DISTRIBUTION OF BLUEBACK HERRING IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1992

DATES	30.0-34.9	35.0-39.9	40.0-44.9	45.0-49.9	50.0-54.9	55.0-59.9	60.0-64.9	65.0-69.9	70.0-74.9	75.0-79.9
13JUL-18JUL	0	0	104	30	0	0	0	0	0	0
27JUL-01AUG	0	0	31	27	57	43	5	0	0	0
10AUG-14AUG	1	16	30	18	58	24	6	4	0	0
24AUG-28AUG	0	1	8	25	37	48	20	11	3	4
08SEP-12SEP	0	0	0	19	34	36	27	12	9	3
21SEP-25SEP	0	0	0	23	23	23	33	23	17	3
05OCT-09OCT	0	0	0	6	41	36	15	9	8	13
19OCT-23OCT	0	0	0	0	31	40	17	19	17	26
	======	======	======	======	======	======	======	======	======	======
	1	17	173	148	281	250	123	78	54	49

DATES	80.0-84.9	85.0-89.9	90.0-94.9	95.0-99.9+	N	MEAN	MIN	MED	MAX	SD
13JUL-18JUL	0	0	0	0	134	43.1	40.0	42.0	49.0	2.1
27JUL-01AUG	0	0	0	0	166	51.0	41.0	52.0	62.0	5.6
10AUG-14AUG	0	0	0	0	163	49.8	33.0	52.0	67.0	7.4
24AUG-28AUG	1	0	0	0	165	55.9	38.0	56.0	80.0	7.7
08SEP-12SEP	1	0	0	0	150	58.0	45.0	58.0	84.0	7.7
21SEP-25SEP	2	0	0	0	152	60.1	45.0	61.0	81.0	8.4
05OCT-09OCT	9	1	0	0	140	60.8	45.0	57.0	85.0	10.3
19OCT-23OCT	22	13	0	1	196	66.6	50.0	64.5	95.0	11.4
	======	======	======	======	======					
	35	14	0	1	1266					

NOTE: N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

TABLE D-15 LENGTH FREQUENCY DISTRIBUTION OF BLUEBACK HERRING IN HUDSON RIVER ESTUARY
DETERMINED FROM BEACH SEINE SURVEY, 1992

DATES	30.0-34.9	35.0-39.9	40.0-44.9	45.0-49.9	50.0-54.9	55.0-59.9	60.0-64.9	65.0-69.9	70.0-74.9	75.0-79.9
23JUN-26JUN	0	0	0	0	0	0	0	0	0	0
06JUL-09JUL	0	0	71	10	0	0	1	0	0	0
20JUL-22JUL	0	0	71	56	26	4	2	0	0	0
03AUG-06AUG	6	35	37	42	48	24	4	0	0	0
17AUG-20AUG	0	2	8	27	35	12	3	4	2	0
31AUG-02SEP	0	0	2	16	47	21	5	4	3	0
14SEP-16SEP	0	0	3	20	27	14	9	3	2	0
28SEP-30SEP	0	0	1	10	42	24	7	17	11	13
12OCT-15OCT	0	0	0	1	25	23	11	9	9	5
26OCT-28OCT	0	0	1	5	54	42	11	7	3	6
	======	======	======	======	======	======	======	======	======	======
	6	37	194	187	304	164	53	44	30	24

DATES	80.0-84.9	85.0-89.9	90.0-94.9	95.0-99.9+	N	MEAN	MIN	MED	MAX	SD
23JUN-26JUN	0	0	0	0	0	.	.	.	.	.
06JUL-09JUL	0	0	0	0	82	42.7	41.0	42.0	63.0	2.8
20JUL-22JUL	0	0	0	0	161	46.1	41.0	45.0	64.0	4.6
03AUG-06AUG	0	0	0	0	201	46.9	33.0	47.0	64.0	7.5
17AUG-20AUG	0	0	0	0	94	51.5	36.0	51.0	71.0	6.6
31AUG-02SEP	1	0	0	0	101	54.2	41.0	53.0	80.0	6.4
14SEP-16SEP	0	0	0	0	80	53.8	43.0	53.0	74.0	6.5
28SEP-30SEP	3	0	0	0	129	60.0	43.0	56.0	82.0	9.7
12OCT-15OCT	11	7	2	0	105	64.7	48.0	61.0	93.0	12.0
26OCT-28OCT	1	0	0	0	137	57.2	43.0	56.0	84.0	7.0
	======	======	======	======	======					
	16	7	2	0	1090					

NOTE: N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

TABLE D-16 LENGTH FREQUENCY DISTRIBUTION OF BAY ANCHOVY IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1992

DATES	10.0-14.9	15.0-19.9	20.0-24.9	25.0-29.9	30.0-34.9	35.0-39.9	40.0-44.9	45.0-49.9	50.0-54.9	55.0-59.9
13JUL-18JUL	7	22	42	35	4	0	0	0	0	0
27JUL-01AUG	1	35	53	50	19	8	7	0	0	0
10AUG-14AUG	1	4	43	41	22	10	19	3	0	0
24AUG-28AUG	0	3	17	40	34	28	15	15	4	0
08SEP-12SEP	0	1	23	19	24	32	35	29	15	1
21SEP-25SEP	0	0	11	8	23	28	49	40	17	4
05OCT-09OCT	0	0	2	4	13	24	48	33	15	6
19OCT-23OCT	0	0	0	4	9	23	38	24	18	5
	======	======	======	======	======	======	======	======	======	======
	9	65	191	201	148	153	211	144	69	16

DATES	60.0-64.9	65.0-69.9	70.0-74.9+	N	MEAN	MIN	MED	MAX	SD
13JUL-18JUL	0	0	0	110	22.2	10.0	23.0	33.0	4.9
27JUL-01AUG	0	0	0	173	24.8	14.0	24.0	43.0	6.2
10AUG-14AUG	0	0	0	143	28.9	12.0	27.0	48.0	7.4
24AUG-28AUG	0	0	0	156	33.1	16.0	32.0	53.0	8.1
08SEP-12SEP	0	0	0	179	37.2	15.0	38.0	55.0	9.2
21SEP-25SEP	1	0	0	181	40.5	20.0	42.0	62.0	8.5
05OCT-09OCT	0	0	0	145	42.2	20.0	43.0	59.0	7.0
19OCT-23OCT	0	0	0	121	42.9	27.0	42.0	58.0	6.6
	======	======	======	======					
	1	0	0	1208					

NOTE: N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

TABLE D-17 LENGTH FREQUENCY DISTRIBUTION OF BAY ANCHOVY IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1992

DATES	15.0-19.9	20.0-24.9	25.0-29.9	30.0-34.9	35.0-39.9	40.0-44.9	45.0-49.9	50.0-54.9	55.0-59.9
23JUN-26JUN	1	0	0	0	0	0	0	0	0
06JUL-09JUL	0	0	0	0	0	0	0	0	0
20JUL-22JUL	0	0	1	0	0	0	0	0	0
03AUG-06AUG	0	0	2	3	7	11	5	0	0
17AUG-20AUG	3	5	5	5	11	5	1	0	0
31AUG-02SEP	0	0	1	0	8	13	13	4	0
14SEP-16SEP	0	0	0	0	1	8	14	8	0
28SEP-30SEP	0	0	0	1	7	15	26	11	5
12OCT-15OCT	0	0	0	0	0	4	16	7	4
26OCT-28OCT	0	0	0	0	0	3	6	7	1
	======	======	======	======	======	======	======	======	======
	4	5	9	9	34	59	81	37	10

DATES	60.0-64.9	65.0-69.9+	N	MEAN	MIN	MED	MAX	SD
23JUN-26JUN	0	0	1	18.0	18.0	18.0	18.0	.
06JUL-09JUL	0	0	0	.	.	.	.	.
20JUL-22JUL	0	0	1	29.0	29.0	29.0	29.0	.
03AUG-06AUG	0	0	28	39.6	27.0	41.0	49.0	5.3
17AUG-20AUG	0	0	35	32.2	18.0	34.0	45.0	7.8
31AUG-02SEP	0	0	39	43.2	29.0	44.0	53.0	5.0
14SEP-16SEP	0	0	32	47.2	39.0	47.5	60.0	4.7
28SEP-30SEP	0	0	65	46.2	33.0	46.0	57.0	5.4
12OCT-15OCT	1	1	33	49.8	40.0	49.0	65.0	5.5
26OCT-28OCT	0	0	17	49.1	41.0	49.0	55.0	4.2
	======	======	======					
	1	1	251					

NOTE: N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

TABLE D-18 LENGTH FREQUENCY DISTRIBUTION OF SPOTTAIL SHINER IN HUDSON RIVER ESTUARY
DETERMINED FROM FALL SHOALS SURVEY, 1992

DATES	25.0-29.9	30.0-34.9	35.0-39.9	40.0-44.9	45.0-49.9	50.0-54.9	55.0-59.9	60.0-64.9	65.0-69.9
13JUL-18JUL	1	0	1	0	0	0	0	0	0
27JUL-01AUG	0	0	1	3	2	0	0	0	0
10AUG-14AUG	0	0	0	0	0	0	0	0	0
24AUG-28AUG	0	0	0	0	1	2	0	0	0
08SEP-12SEP	0	0	0	0	0	0	0	0	0
21SEP-25SEP	0	0	0	0	0	0	0	0	1
05OCT-09OCT	0	0	0	0	0	0	0	0	2
19OCT-23OCT	0	0	0	0	0	0	1	3	2
	======	======	======	======	======	======	======	======	======
	1	0	2	3	3	2	1	3	5

DATES	70.0-74.9	75.0-79.9	80.0-84.9+	N	MEAN	MIN	MED	MAX	SD
13JUL-18JUL	0	0	0	2	32.5	28.0	32.5	37.0	6.4
27JUL-01AUG	0	0	0	6	42.7	39.0	42.0	48.0	3.4
10AUG-14AUG	0	0	0	0	.	.	.	.	.
24AUG-28AUG	0	0	0	3	51.0	48.0	52.0	53.0	2.6
08SEP-12SEP	0	0	0	0	.	.	.	.	.
21SEP-25SEP	0	0	0	1	66.0	66.0	66.0	66.0	.
05OCT-09OCT	0	0	0	2	67.0	66.0	67.0	68.0	1.4
19OCT-23OCT	2	3	0	11	68.8	58.0	69.0	78.0	6.5
	======	======	======	======					
	2	3	0	25					

NOTE: N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

TABLE D-19 LENGTH FREQUENCY DISTRIBUTION OF SPOTTAIL SHINER IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1992

DATES	15.0-19.9	20.0-24.9	25.0-29.9	30.0-34.9	35.0-39.9	40.0-44.9	45.0-49.9	50.0-54.9	55.0-59.9	60.0-64.9	65.0-69.9
23JUN-26JUN	2	0	2	2	0	0	0	0	0	0	0
06JUL-09JUL	0	1	12	15	3	0	0	0	0	0	0
20JUL-22JUL	0	1	4	13	48	54	8	0	0	0	0
03AUG-06AUG	0	0	0	3	9	14	18	13	1	0	0
17AUG-20AUG	0	0	0	0	1	7	19	31	19	3	0
31AUG-02SEP	0	0	0	0	0	1	7	11	20	13	11
14SEP-16SEP	0	0	0	1	0	6	7	10	16	10	10
28SEP-30SEP	0	0	0	0	0	0	0	1	13	18	13
12OCT-15OCT	0	0	0	0	0	0	0	1	10	15	14
26OCT-28OCT	0	0	0	0	0	0	0	1	5	8	9
	======	======	======	======	======	======	======	======	======	======	======
	2	2	18	34	61	82	59	68	84	67	57

DATES	70.0-74.9	75.0-79.9	80.0-84.9	85.0-89.9+	N	MEAN	MIN	MED	MAX	SD
23JUN-26JUN	0	0	0	0	6	25.7	17.0	27.5	33.0	6.3
06JUL-09JUL	0	0	0	0	31	30.6	23.0	30.0	39.0	3.5
20JUL-22JUL	0	0	0	0	128	38.9	23.0	39.0	47.0	4.4
03AUG-06AUG	0	0	0	0	58	44.9	30.0	45.0	57.0	5.9
17AUG-20AUG	0	0	0	0	81	51.2	38.0	51.0	62.0	5.1
31AUG-02SEP	1	0	0	0	72	58.1	44.0	58.5	71.0	6.2
14SEP-16SEP	0	0	0	0	62	56.0	32.0	57.5	68.0	8.2
28SEP-30SEP	13	2	1	0	62	64.7	54.0	64.0	80.0	6.2
12OCT-15OCT	11	4	1	0	59	65.4	51.0	65.0	82.0	6.6
26OCT-28OCT	11	5	4	0	47	67.8	52.0	67.0	83.0	7.5
	======	======	======	======	======					
	36	11	6	0	606					

NOTE: N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

TABLE D-20 LENGTH FREQUENCY DISTRIBUTION OF WHITE CATFISH IN HUDSON RIVER ESTUARY
DETERMINED FROM FALL SHOALS SURVEY, 1992

DATES	20.0-24.9	25.0-29.9	30.0-34.9	35.0-39.9	40.0-44.9	45.0-49.9	50.0-54.9	55.0-59.9	60.0-64.9	65.0-69.9	70.0-74.9
13JUL-18JUL	5	0	0	1	0	0	0	0	0	0	0
27JUL-01AUG	0	0	1	1	0	0	0	0	0	0	0
10AUG-14AUG	0	1	0	2	0	1	0	0	0	0	0
24AUG-28AUG	0	0	0	0	0	0	1	0	0	1	0
08SEP-12SEP	0	0	0	0	1	2	0	0	1	2	1
21SEP-25SEP	0	0	0	0	0	0	0	0	1	0	0
05OCT-09OCT	0	0	0	0	0	1	0	0	0	1	1
19OCT-23OCT	0	0	0	0	0	0	0	0	1	0	0
	======	======	======	======	======	======	======	======	======	======	======
	5	1	1	4	1	4	1	0	3	4	2

DATES	75.0-79.9	80.0-84.9	85.0-89.9	90.0-94.9	95.0-99.9+	N	MEAN	MIN	MED	MAX	SD
13JUL-18JUL	0	0	0	0	0	6	23.8	20.0	21.0	38.0	7.0
27JUL-01AUG	0	0	0	0	0	2	32.5	30.0	32.5	35.0	3.5
10AUG-14AUG	0	0	0	0	0	4	38.0	29.0	38.5	46.0	7.0
24AUG-28AUG	0	0	0	0	0	2	59.0	50.0	59.0	68.0	12.7
08SEP-12SEP	0	1	0	1	0	9	64.0	43.0	66.0	91.0	16.5
21SEP-25SEP	0	2	2	0	0	5	80.2	61.0	84.0	87.0	10.8
05OCT-09OCT	1	2	3	1	0	10	77.7	45.0	83.0	92.0	13.6
19OCT-23OCT	1	2	3	2	0	9	82.6	62.0	85.0	92.0	9.1
	======	======	======	======	======	======					
	2	7	8	4	0	47					

NOTE: N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

TABLE D-21 LENGTH FREQUENCY DISTRIBUTION OF WEAKFISH IN HUDSON RIVER ESTUARY
DETERMINED FROM FALL SHOALS SURVEY, 1992

DATES	5.0-9.9	10.0-14.9	15.0-19.9	20.0-24.9	25.0-29.9	30.0-34.9	35.0-39.9	40.0-44.9	45.0-49.9	50.0-54.9	55.0-59.9	60.0-64.9	65.0-69.9
13JUL-18JUL	0	0	0	0	0	0	1	0	0	0	0	0	0
27JUL-01AUG	0	1	5	2	0	1	1	0	0	0	1	1	0
10AUG-14AUG	1	0	1	3	5	6	11	18	6	4	1	3	0
24AUG-28AUG	1	1	2	0	1	0	4	4	8	10	8	8	8
08SEP-12SEP	0	0	0	0	0	4	10	8	6	5	6	1	1
21SEP-25SEP	0	0	0	0	0	0	0	4	5	10	12	4	5
05OCT-09OCT	0	0	0	0	0	0	0	0	1	2	0	1	4
19OCT-23OCT	0	0	0	0	0	0	0	0	0	0	0	0	0
	======	======	======	======	======	======	======	======	======	======	======	======	======
	2	2	8	5	6	11	27	34	26	31	28	18	18

DATES	70.0-74.9	75.0-79.9	80.0-84.9	85.0-89.9	90.0-94.9	95.0-99.9	100.0-104.9	105.0-109.9	110.0-114.9	115.0-119.9	120.0-124.9	125.0-129.9	130.0-134.9
13JUL-18JUL	0	0	0	0	0	0	0	0	0	0	0	0	0
27JUL-01AUG	0	1	0	0	0	0	0	0	0	0	0	0	0
10AUG-14AUG	0	0	1	1	0	0	0	1	0	0	0	0	0
24AUG-28AUG	6	11	1	2	0	0	0	0	0	0	0	0	0
08SEP-12SEP	2	7	7	3	4	2	1	2	0	0	0	0	0
21SEP-25SEP	0	1	2	0	2	4	3	5	1	2	2	0	2
05OCT-09OCT	8	3	3	2	1	0	0	1	1	0	2	1	3
19OCT-23OCT	0	1	1	2	0	1	0	0	2	0	1	1	3
	======	======	======	======	======	======	======	======	======	======	======	======	======
	16	24	15	10	7	7	4	9	4	2	5	2	8

DATES	135.0-139.9	140.0-144.9	145.0-149.9	150.0-154.9	155.0-159.9	160.0-164.9+	N	MEAN	MIN	MED	MAX	SD
13JUL-18JUL	0	0	0	0	0	0	1	38.0	38.0	38.0	38.0	.
27JUL-01AUG	0	0	0	0	0	0	13	30.7	13.0	20.0	75.0	21.4
10AUG-14AUG	0	0	0	0	0	0	62	41.6	9.0	40.0	107.0	15.7
24AUG-28AUG	0	0	0	0	0	0	75	57.7	9.0	58.0	88.0	16.9
08SEP-12SEP	0	0	0	0	0	0	70	61.4	32.0	56.5	107.0	22.2
21SEP-25SEP	0	0	1	0	0	0	66	74.0	40.0	61.5	145.0	27.6
05OCT-09OCT	0	2	0	1	0	0	37	88.5	45.0	77.0	152.0	29.1
19OCT-23OCT	0	1	2	0	1	0	16	117.9	75.0	122.5	158.0	25.4
	======	======	======	======	======	======	======					
	0	3	3	1	1	0	340					

NOTE: N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

APPENDIX E

NUMBER OF FISH COLLECTED

IN

ICTHYOPLANKTON SURVEY

BEACH SEINE SURVEY

FALL SHOALS SURVEY

TABLE E-1 TOTAL NUMBER OF FISH COLLECTED IN THE LONG RIVER ICHTHYOPLANKTON SURVEY, 1988-1992.

GROUP	NAME	88	89	90	91	92
		YEAR OF DATA COLLECTION				
ANADROMOUS	ALEWIFE	8,200	624	60	2,727	555
	ALOSA UNIDENTIFIED	258,802	423,742	714,369	250,755	465,613
	AMERICAN SHAD	51,162	62,755	49,242	25,128	30,345
	ATLANTIC STURGEON	11	2	5	26	4
	ATLANTIC TOMCOD	25,414	37,397	38,431	40,804	10,558
	BLUEBACK HERRING	4,992	2,568	1,230	28,397	30,496
	MORONE UNIDENTIFIED	2,180	13,473	955	17,620	7,246
	RAINBOW SMELT	24,693	767	6,838	2,494	23,035
	STRIPED BASS	61,072	225,498	264,907	359,994	462,382
CATADROMOUS	AMERICAN EEL	789	917	848	1,372	827
ESTUARINE	ATLANTIC SILVERSIDE	152	11	67	49	27
	BANDED KILLIFISH	5	2,274	1	.	5
	FOURSPINE STICKLEBACK	6	1	1	2	1
	HOGCHOKER	301,192	589,469	13,591	908,378	44,337
	INLAND SILVERSIDE	98	101	.	58	42
	MUMMICHOG	1	.	.	.	.
	NORTHERN PIPEFISH	1,135	153	102	2,059	137
	SHORTNOSE STURGEON	3	.	2	3	3
	THREESPINE STICKLEBACK	2	.	1	.	.
	WHITE CATFISH	77	100	87	76	52
	WHITE PERCH	138,753	198,953	157,348	147,232	265,656
FRESHWATER	BLUEGILL	.	.	.	5	.
	BROWN BULLHEAD	1	12	33	30	4
	BROWN TROUT	.	.	1	.	1
	CARP	730	651	.	340	731
	CATOSTOMIDAE UNIDENT.	.	.	.	1	1
	CENTRARCHID UNIDENT	30	65	46	40	124
	CHANNEL CATFISH	.	.	.	1	1
	COMMON SHINER	.	.	12	.	.
	FRESHWATER DRUM	.	.	.	.	1
	FUNDULUS SP.	.	2	4	3	1
	GIZZARD SHAD	.	85	5	3	535
	GOLDEN SHINER	.	1	7	.	.
	GOLDFISH	113	217	.	97	22
	LARGEMOUTH BASS	.	1	.	2	.
	LOGPERCH	48	20	.	.	179
	MINNOW UNIDENTIFIED	470	1,736	6,839	1,764	2,576
	NORTHERN HOGSUCKER	19	.	.	.	.

TABLE E-1 TOTAL NUMBER OF FISH COLLECTED IN THE LONG RIVER ICHTHYOPLANKTON SURVEY, 1988-1992. (CONTINUED)

		YEAR OF DATA COLLECTION				
		88	89	90	91	92
GROUP	NAME					
FRESHWATER	PUMPKINSEED	132	1	.	2	.
	ROCK BASS	.	.	.	.	1
	SMALLMOUTH BASS	.	3	1	.	23
	SPOTTAIL SHINER	60	98	55	83	45
	TESSELATED DARTER	2,898	2,805	2,290	1,566	2,836
	WALLEYE	.	26	.	1	2
	WHITE SUCKER	.	10	44	.	1
	YELLOW PERCH	152	325	610	157	369
MARINE	AMERICAN SANDLANCE	48	8	2	4	4
	ATLANTIC CROAKER	.	.	.	.	157
	ATLANTIC HERRING	522	178	76	1,177	842
	ATLANTIC MENHADEN	6	12	671	1,301	404
	ATLANTIC NEEDLEFISH	.	.	3	.	.
	BAY ANCHOVY	2,852,331	444,854	900,354	3,831,982	1,341,076
	BLACKCHEEK TONGUEFISH	.	.	.	.	10
	BLUEFISH	85	54	165	151	147
	BUTTERFISH	143	18	18	27	46
	CONGER EEL	132	72	54	29	124
	CREVALLE JACK	1	4	.	1	.
	CUNNER	11,129	1,429	.	1,955	4,221
	FOUR BEARDED ROCKLING	108	209	2	404	691
	GOBIIDAE	9,007	5,593	22,569	78,349	26,599
	GOOSEFISH	.	.	.	8	12
	GRUBBY	605	387	167	521	248
	INSHORE LIZARDFISH	8	8	.	3	14
	MENIDIA SP.	12	7	193	.	2
	NAKED GOBY	279	44	1,619	8	73
	NORTHERN KINGFISH	.	118	.	10	10
	NORTHERN PUFFER	1	5	32	279	.
	NORTHERN SEAROBIN	40	2	17	19	1
	NORTHERN STARGAZER	129	.	.	.	.
	ROCK GUNNEL	9	2	1	5	6
	ROUGH SILVERSIDE	110	19	.	41	44
	SEABORD GOBY	1	.	.	4	19
	SMALLMOUTH FLOUNDER	38	.	1	91	71
	SPOT	.	.	2	.	.
	SPOTTED HAKE	62	1	1	19	40
	STRIPED CUSKEEL	2	1	.	4	3
	STRIPED KILLIFISH	.	.	.	.	1
	STRIPED SEAROBIN	43	4	.	234	5

TABLE E-1 TOTAL NUMBER OF FISH COLLECTED IN THE LONG RIVER ICHTHYOPLANKTON SURVEY, 1988-1992. (CONTINUED)

		YEAR OF DATA COLLECTION				
		88	89	90	91	92
GROUP	NAME					
MARINE	SUMMER FLOUNDER	.	24	1	39	18
	TAUTOG	1,205	3,432	.	969	488
	WEAKFISH	1,586	2,602	122,082	6,821	1,206
	WINDOWPANE FLOUNDER	8,866	5,162	49	1,500	14,953
	WINTER FLOUNDER	900	178	64	340	794
	YELLOWTAIL FLOUNDER	.	.	.	.	2
UNIDENTIFIED	UNIDENTIFIED	47,052	7,029	35,057	113,576	18,496

SAMPLING STATISTICS FOR LONG RIVER ICHTHYOPLANKTON SURVEY, 1988-1992

	YEAR OF DATA COLLECTION				
	88	89	90	91	92
START DATE	18APR88	17APR89	19APR90	15APR91	13APR92
END DATE	25AUG88	23AUG89	16AUG90	17OCT91	14OCT92
TOTAL VOLUME SAMPLED	524,777	519,252	419,294	537,825	632,978
NUMBER OF SAMPLES	1,663	1,641	1,561	1,991	1,986

TABLE E-2 TOTAL NUMBER OF FISH COLLECTED IN THE BEACH SEINE SURVEY, 1985-1992.

		YEAR OF DATA COLLECTION							
		85	86	87	88	89	90	91	92
GROUP	NAME								
ANADROMOUS	ALEWIFE	1,272	818	515	675	439	925	2,323	870
	ALOSA UNIDENTIFIED	8,272	2,529	5,685	21,022	8,346	10,853	38,966	3,490
	AMERICAN SHAD	9,171	14,716	7,641	10,780	13,026	12,261	15,771	15,366
	ATLANTIC STURGEON	1	.	.	.	3	.	.	.
	ATLANTIC TOMCOD	243	148	209	230	81	115	46	328
	BLUEBACK HERRING	25,362	12,522	31,373	36,245	19,037	43,555	40,731	29,105
	MORONE UNIDENTIFIED	.	.	1	.	.	.	.	.
	RAINBOW SMELT	.	1	.	.	.	2	5	.
	STRIPED BASS	1,413	1,854	11,987	6,151	5,585	6,906	10,813	6,156
CATADROMOUS	AMERICAN EEL	315	163	125	151	107	81	208	127
ESTUARINE	ATLANTIC SILVERSIDE	1,197	4,406	1,459	6,760	686	8,383	17,291	6,668
	BANDED KILLIFISH	5,959	3,514	4,369	4,917	1,948	1,513	3,232	1,243
	FOURSPINE STICKLEBACK	359	525	296	194	12	11	24	15
	HOGCHOKER	1,033	276	312	305	261	150	652	329
	INLAND SILVERSIDE	464	653	146	406	234	190	160	1,129
	MUMMICHOG	455	38	496	414	68	109	183	128
	NORTHERN PIPEFISH	844	166	348	297	156	86	689	51
	THREESPINE STICKLEBACK	2	17	10	3	4	2	4	1
	WHITE CATFISH	52	83	86	101	66	23	25	18
	WHITE PERCH	9,938	12,082	12,303	14,607	11,407	8,485	10,033	9,497
FRESHWATER	BLACK CRAPPIE	.	47	52	10	10	8	12	20
	BLUEGILL	64	57	76	355	159	89	69	61
	BROWN BULLHEAD	6	41	12	53	28	10	42	40
	CARP	50	102	78	133	86	57	111	90
	CENTRARCHID UNIDENT	673	327	388	351	100	106	64	29
	CHAIN PICKEREL	.	.	.	.	4	.	.	1
	CHANNEL CATFISH	.	.	.	.	.	3	.	.
	COMMON SHINER	.	.	.	1	.	.	.	1
	EMERALD SHINER	4	4	5	22	.	11	8	4
	FALLFISH	.	2	.	.	.	.	9	8
	GIZZARD SHAD	3	13	100	10	7	28	22	158
	GOLDEN SHINER	460	1,223	647	676	640	817	672	787
	GOLDFISH	14	25	16	97	1	3	33	1
	LARGEMOUTH BASS	44	71	44	57	51	34	85	55
	LOGPERCH	.	.	.	.	.	.	.	1
	MINNOW UNIDENTIFIED	1	6	6	.	.	.	134	.
	NORTHERN HOGSUCKER	.	.	1	3	.	1	4	2
	PUMPKINSEED	740	496	609	1,070	633	724	1,195	602

TABLE E-2 TOTAL NUMBER OF FISH COLLECTED IN THE BEACH SEINE SURVEY, 1985-1992. (CONTINUED)

		YEAR OF DATA COLLECTION							
		85	86	87	88	89	90	91	92
GROUP	NAME								
FRESHWATER	REDBREAST SUNFISH	115	158	185	160	111	76	200	259
	ROCK BASS	6	8	1	12	3	.	22	1
	SATINFIN SHINER	1	2	.	1	.	2	.	.
	SILVERY MINNOW	3	13	23	119	2	9	387	68
	SMALLMOUTH BASS	7	25	8	28	25	21	25	28
	SPOTTAIL SHINER	5,316	5,177	4,452	5,407	5,129	5,500	12,385	7,727
	SWALLOWTAIL SHINER	.	.	.	.	.	.	.	3
	TESSELATED DARTER	1,198	1,372	820	1,697	415	479	2,385	929
	WHITE CRAPPIE	.	4	1	3	.	1	2	1
	WHITE SUCKER	7	16	17	32	9	15	12	21
	YELLOW PERCH	22	67	44	49	34	12	27	23
MARINE	ATLANTIC CROAKER	.	1	.	.	.	26	.	1
	ATLANTIC MENHADEN	118	834	30	99	159	1,063	678	415
	ATLANTIC NEEDLEFISH	92	77	54	48	41	96	476	9
	BAY ANCHOVY	4,081	4,155	3,746	3,989	9,507	4,134	4,669	8,729
	BLUEFISH	567	400	533	280	224	348	314	375
	BUTTERFISH	.	.	.	4	.	1	.	1
	CREVALLE JACK	71	10	3	22	40	32	58	53
	CUNNER	.	.	.	.	.	.	.	1
	GOOSEFISH	.	.	.	.	.	.	1	.
	INSHORE LIZARDFISH	.	.	.	1	1	.	14	8
	MOONFISH	.	.	.	.	3	.	.	.
	NAKED GOBY	20	9	11	4	4	7	14	22
	NORTHERN KINGFISH	20	8	.	9	1	4	42	2
	NORTHERN PUFFER	2	1	.	1	.	.	10	.
	NORTHERN SEAROBIN	.	2	.	.	.	.	8	.
	NORTHERN STARGAZER	1	.	.	.	.	.	1	.
	PERMIT	.	.	.	.	.	.	.	1
	ROUGH SILVERSIDE	35	4	23	258	9	4	.	2
	SEABORD GOBY	.	.	.	1	.	.	.	.
	SILVER PERCH	13	1	.	19	.	.	29	8
	SMALLMOUTH FLOUNDER	1	.	.	.	.	.	.	.
	SPOT	35	106	4	32	.	1	8	2
	SPOTTED HAKE	.	.	.	.	.	1	.	.
	STRIPED ANCHOVY	1	.	.	.	.	.	.	.
	STRIPED SEAROBIN	5	16	.	3	.	.	34	1
	SUMMER FLOUNDER	48	45	4	1	2	2	46	26
	TAUTOG	2	5	2	20	.	6	31	1
	WEAKFISH	72	5	.	2	.	27	111	1
	WINDOWPANE FLOUNDER	.	.	3	.	.	.	1	.
	WINTER FLOUNDER	282	80	29	41	9	23	154	35

TABLE E-2 TOTAL NUMBER OF FISH COLLECTED IN THE BEACH SEINE SURVEY, 1985-1992. (CONTINUED)

SAMPLING STATISTICS FOR BEACH SEINE SURVEY, 1985-1992

	YEAR OF DATA COLLECTION							
	85	86	87	88	89	90	91	92
START DATE	16JUL85	15JUL86	24JUN87	14JUN88	13JUN89	18JUN90	24JUN91	23JUN92
END DATE	21NOV85	21NOV86	13NOV87	03NOV88	02NOV89	24OCT90	01NOV91	28OCT92
NUMBER OF SAMPLES	1,000	1,000	1,101	1,100	1,100	1,000	1,000	1,000

TABLE E-3 TOTAL NUMBER OF FISH COLLECTED IN THE FALL SHOALS SURVEY, 1985-1992.

		YEAR OF DATA COLLECTION							
		85	86	87	88	89	90	91	92
GROUP	NAME								
ANADROMOUS	ALEWIFE	1,142	554	702	379	327	459	994	790
	ALOSA UNIDENTIFIED	3,341	282	2,591	4,193	4,331	3,543	1,276	10,650
	AMERICAN SHAD	1,717	2,166	776	1,483	3,646	1,323	1,291	3,406
	ATLANTIC STURGEON	96	184	149	117	63	6	10	11
	ATLANTIC TOMCOD	5,083	10,046	7,908	8,210	14,060	1,105	4,914	7,299
	BLUEBACK HERRING	41,919	6,525	18,596	37,957	22,112	15,982	55,299	38,090
	MORONE UNIDENTIFIED	1	.	.	.	3	2	.	.
	RAINBOW SMELT	126	389	429	576	34	216	256	2,550
	STRIPED BASS	888	2,348	11,633	18,679	8,472	3,624	4,672	3,773
CATADROMOUS	AMERICAN EEL	1,872	2,906	2,254	2,076	1,444	342	984	1,392
ESTUARINE	ATLANTIC SILVERSIDE	.	2	.	3	1	2	18	2
	BANDED KILLIFISH	78	12	3	3	3	.	2	.
	FOURSPINE STICKLEBACK	1	9	.	1	1	.	.	.
	HOGCHOKER	89,948	108,036	89,042	74,672	73,613	22,760	42,916	62,358
	INLAND SILVERSIDE	.	.	.	1	.	2	.	.
	MUMMICHOG	.	.	.	.	.	4	.	.
	NORTHERN PIPEFISH	40	13	22	25	12	4	16	14
	SHORTNOSE STURGEON	16	8	11	20	12	2	18	76
	WHITE CATFISH	721	677	775	806	740	352	547	172
	WHITE PERCH	19,721	31,771	27,008	25,760	20,106	5,381	11,019	13,832
FRESHWATER	BLUEGILL	.	.	1	.	1	.	1	3
	BROWN BULLHEAD	37	127	109	171	172	17	125	177
	CARP	4	13	5	4	10	1	6	7
	CENTRARCHID UNIDENT	1	4	1	4	3	.	.	.
	CHANNEL CATFISH	.	5	10	9	12	1	4	7
	EMERALD SHINER	.	.	.	.	1	.	.	.
	FRESHWATER DRUM	.	.	.	.	3	.	.	1
	GIZZARD SHAD	4	6	8	2	8	1	.	.
	GOLDEN SHINER	.	1	.	.	.	.	.	29
	GOLDFISH	.	.	.	.	1	.	.	1
	MINNOW UNIDENTIFIED	48	.	.	.	.	.	.	.
	PUMPKINSEED	57	2	13	5	1	6	12	2
	REDBREAST SUNFISH	1	.	.	1	2	.	.	.
	ROCK BASS	.	1	.	.	.	.	.	.
	SATINFIN SHINER	.	.	.	.	.	1	.	.
	SILVERY MINNOW	.	1	.	.	.	.	.	.
	SMALLMOUTH BASS	.	.	.	.	1	1	.	.
	SPOTTAIL SHINER	244	685	333	369	102	43	404	259
	TESSELATED DARTER	89	747	197	370	120	10	187	225
	WHITE SUCKER	1	8	4	2	1	.	.	.
	YELLOW PERCH	.	.	1	1	.	.	.	.

TABLE E-3 TOTAL NUMBER OF FISH COLLECTED IN THE FALL SHOALS SURVEY, 1985-1992. (CONTINUED)

		YEAR OF DATA COLLECTION							
		85	86	87	88	89	90	91	92
GROUP	NAME								
MARINE	ATLANTIC CROAKER	1	4	7	.	1	4	.	4
	ATLANTIC MENHADEN	51	139	67	9	38	129	478	122
	ATLANTIC NEEDLEFISH	.	.	.	1	.	1	1	.
	BAY ANCHOVY	27,902	20,988	39,348	59,244	41,475	16,465	44,815	37,264
	BLUEFISH	60	51	107	116	62	82	58	82
	BUTTERFISH	61	106	48	110	81	43	35	141
	CONGER EEL	.	.	.	14	.	.	.	.
	CREVALLE JACK	2	1	1	10	8	7	3	1
	CUNNER	.	.	.	.	.	1	.	1
	GOBIIDAE	.	.	.	4	.	.	.	38
	GRUBBY	.	.	.	2	.	.	.	.
	INSHORE LIZARDFISH	1	.	.	1	4	.	1	4
	MOONFISH	.	1	2	.	5	.	.	1
	NAKED GOBY	3	6	47	9	21	1	7	30
	NORTHERN KINGFISH	9	6	.	20	3	3	10	2
	NORTHERN PUFFER	9	1	5	3	2	.	36	3
	NORTHERN SEAROBIN	.	2	7	21	3	16	7	12
	NORTHERN STARGAZER	1	.	.	20	.	4	3	10
	OYSTER TOADFISH	.	.	.	.	.	.	.	1
	ROUGH SILVERSIDE	1	.	3	1	.	.	.	3
	SEABORD GOBY	.	.	.	12	.	.	2	.
	SILVER PERCH	.	.	.	13	.	.	1	.
	SMALLMOUTH FLOUNDER	.	.	.	8	.	.	.	1
	SPOT	5	14	1	1,257	.	.	2	1
	SPOTTED HAKE	2	1	.	.	.	.	3	32
	STRIPED ANCHOVY	.	.	.	.	.	.	.	1
	STRIPED CUSKEEL	3	.	.	1	.	.	1	2
	STRIPED SEAROBIN	321	148	10	101	25	26	310	54
	SUMMER FLOUNDER	232	447	58	7	42	35	102	56
	TAUTOG	.	.	.	2	.	3	.	1
	WEAKFISH	2,214	1,482	749	3,777	2,842	770	5,878	756
	WINDOWPANE FLOUNDER	1	1	5	17	.	5	9	32
	WINTER FLOUNDER	226	196	92	39	23	13	28	36

SAMPLING STATISTICS FOR FALL SHOALS SURVEY, 1985-1992

	YEAR OF DATA COLLECTION							
	85	86	87	88	89	90	91	92
START DATE	22JUL1985	21JUL1986	13JUL1987	18JUL1988	17JUL1989	09JUL1990	15JUL1991	13JUL1992
END DATE	14NOV1985	02DEC1986	05NOV1987	28OCT1988	26OCT1989	17OCT1990	25OCT1991	23OCT1992
TOTAL VOLUME SAMPLED	1,886,745	2,298,278	2,035,357	1,826,628	1,590,047	1,252,910	1,707,237	1,865,365
NUMBER OF SAMPLES	1,802	2,098	1,958	1,680	1,679	1,680	1,678	1,680