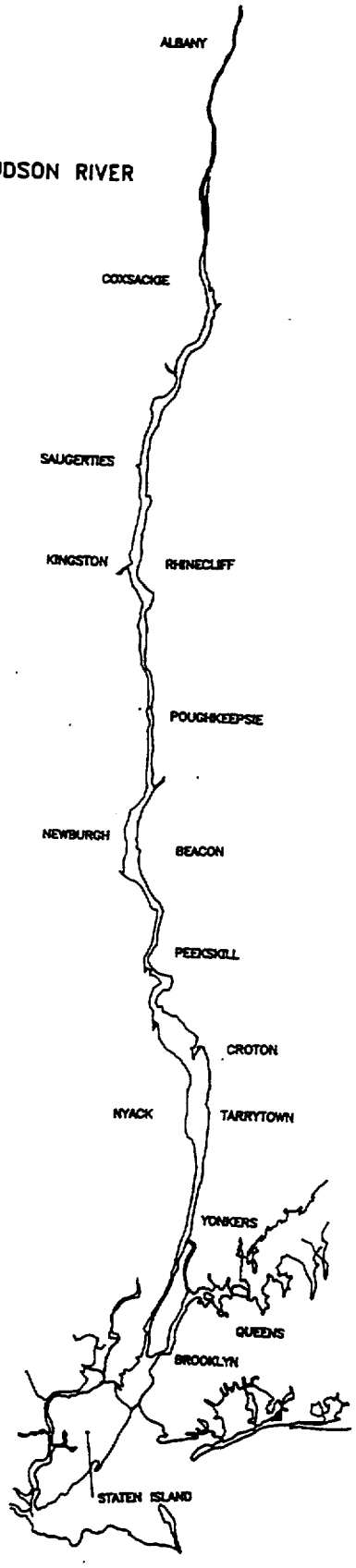

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1995 YEAR CLASS REPORT

for the Hudson River Estuary Monitoring Program

Prepared for

Consolidated Edison Company of New York, 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.

EA Engineering, Science, and Technology

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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 9 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 3 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 and 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 the 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 Survey (LRS), Fall Shoals Survey (FSS), and Beach Seine Survey (BSS). 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 4 species.

The 1986 and 1987 Year Class Report (LMS 1989) described the results from the 1986 and 1987 LRS, FSS, and BSS. 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

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TABLE 1-1 FISH SPECIES[a] TREATED IN DEPTH IN THE 1995 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	*Ameiurus catus*
White perch	*Morone americana*

a. Species identified by the New York State Department of Environmental Conservation of interest for discharge permitting purposes.
b. Names recognized by American Fisheries Society (Robins et al. 1991).

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 (YOY), 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:

1. **Longitudinal River Ichthyoplankton Survey**—The entire length of the Hudson River estuary, from River Mile (RM) 1 at the Battery in Manhattan to RM 152 at the Federal Dam in Troy, was sampled to provide ichthyoplankton data that would allow calculations of standing crop, temporal, and geographic indices 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.

2. **Fall Shoals Survey**—Samples were collected every other week from the George Washington Bridge (RM 12) to the Troy Dam in mid-summer and fall. The objective was to provide data on YOY fish that would allow calculation of standing crop, temporal, and geographic indices for selected Hudson River fish species. The target species were Atlantic tomcod, American shad, striped bass, and white perch.

3. **Beach Seine Survey**—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 YOY 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 YOY of these species were utilizing the shorezone nursery.

Sampling for all programs was conducted according to a stratified random design in which the Hudson River estuary from the George Washington Bridge (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 has been sampled since 1988. 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:

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; LMS 1992, 1996) describe the results of the 1988, 1989, 1990, and 1991 LRS, FSS, and BSS. 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 1992, 1993, and 1994 Year Class reports (Con Edison 1996, 1997a,b) presented results from the 1992, 1993, and 1994 LRS, FSS, and BSS. The reports described the physical/chemical parameter patterns in the Hudson River estuary and the spatiotemporal distribution of 16 selected species of fish. Three additional species (bluefish, hogchoker, and gizzard shad) were added to these reports since they were of interest to the New York State Department of Environmental Conservation (NYSDEC).

The present report adds to the historical database by describing the results of the LRS, FSS, and BSS for 1995. The 1995 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 1995.

- Describe the distribution and abundance of 16 selected species of fish (Table 1-1) in the Hudson River estuary in 1995 and provide information on length frequency when available.

This report is organized into four chapters with supporting appendixes. 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 Estimates; Appendix D - Length Frequency Distribution; and Appendix E - Numbers of Fish/Species Collected in the Ichthyoplankton, Beach Seine, and Fall Shoals Sampling Programs, 1988-1995.

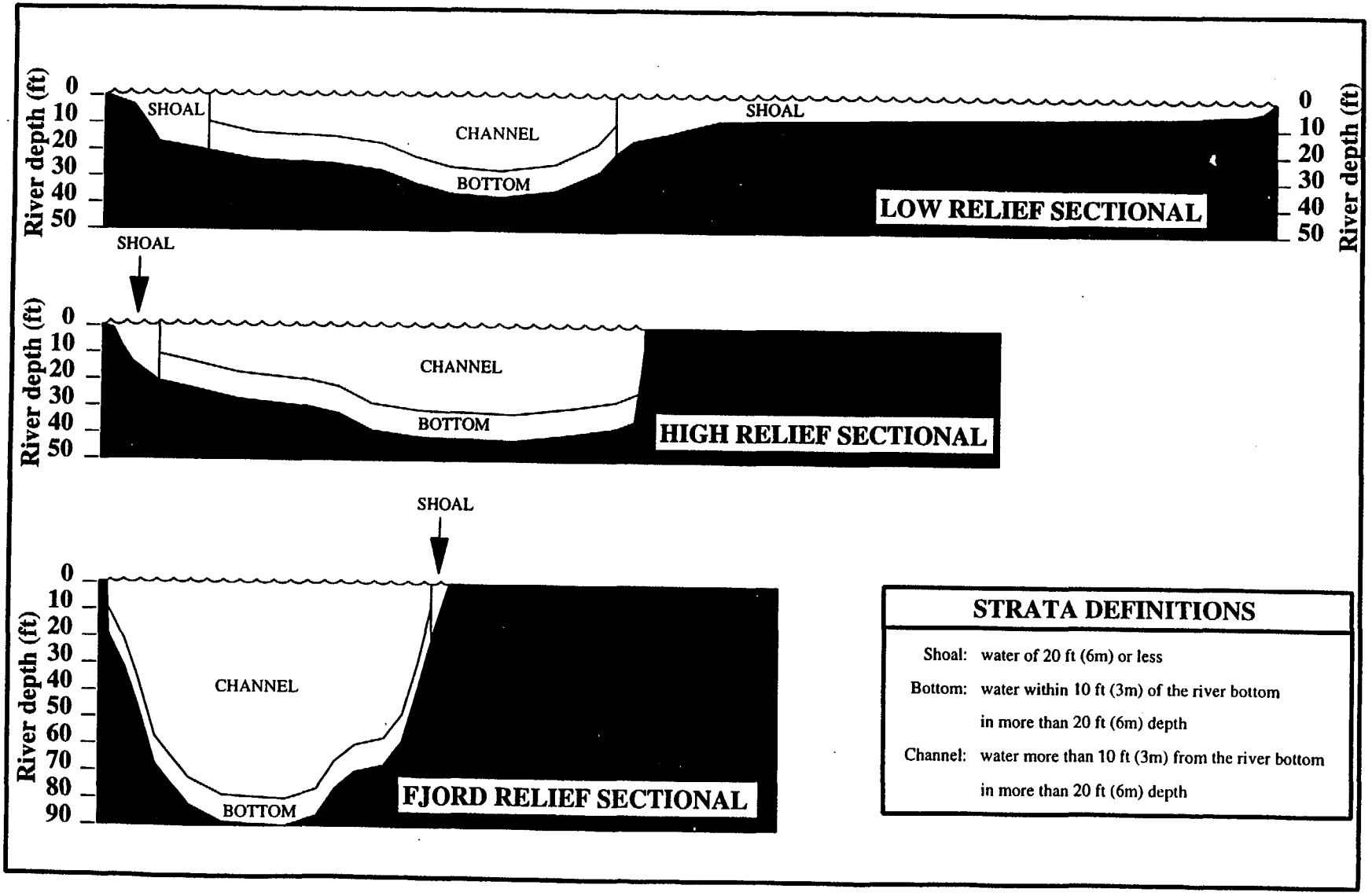


Figure 2-2. Cross sections of the Hudson River estuary showing locations and typical proportional relationships of the shoal, bottom, and channel strata.

TABLE 2-1 STRATA SAMPLED WITHIN THE 13 GEOGRAPHIC REGIONS OF THE HUDSON RIVER ESTUARY DURING 1995

Region	Abbreviation	River Miles	River Kilometers	1995 Survey			
				Shore	Shoal	Channel	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.

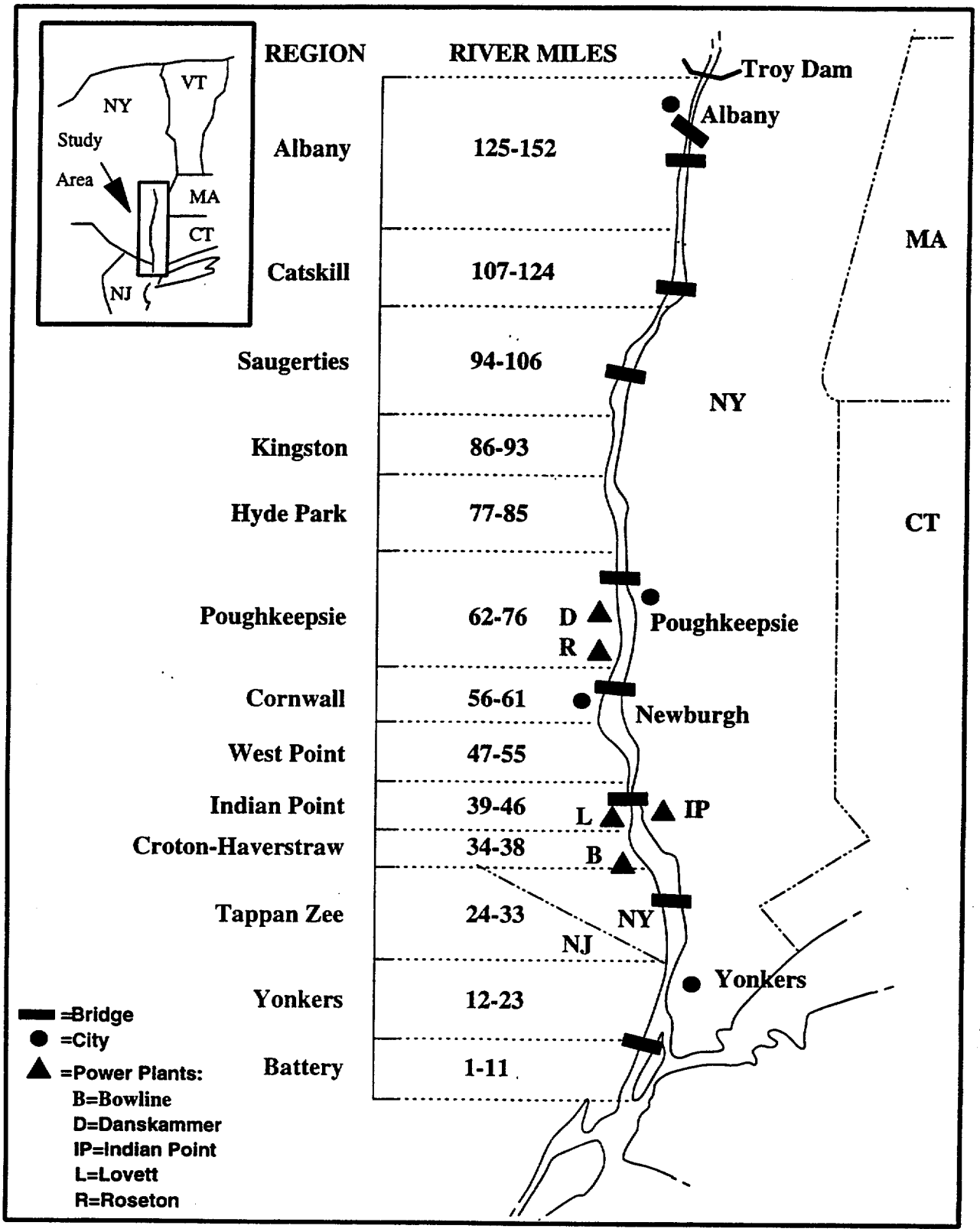


Figure 2-1. Location of 13 geographic regions (with river mile boundaries) sampled during 1995 field sampling programs in the Hudson River estuary.

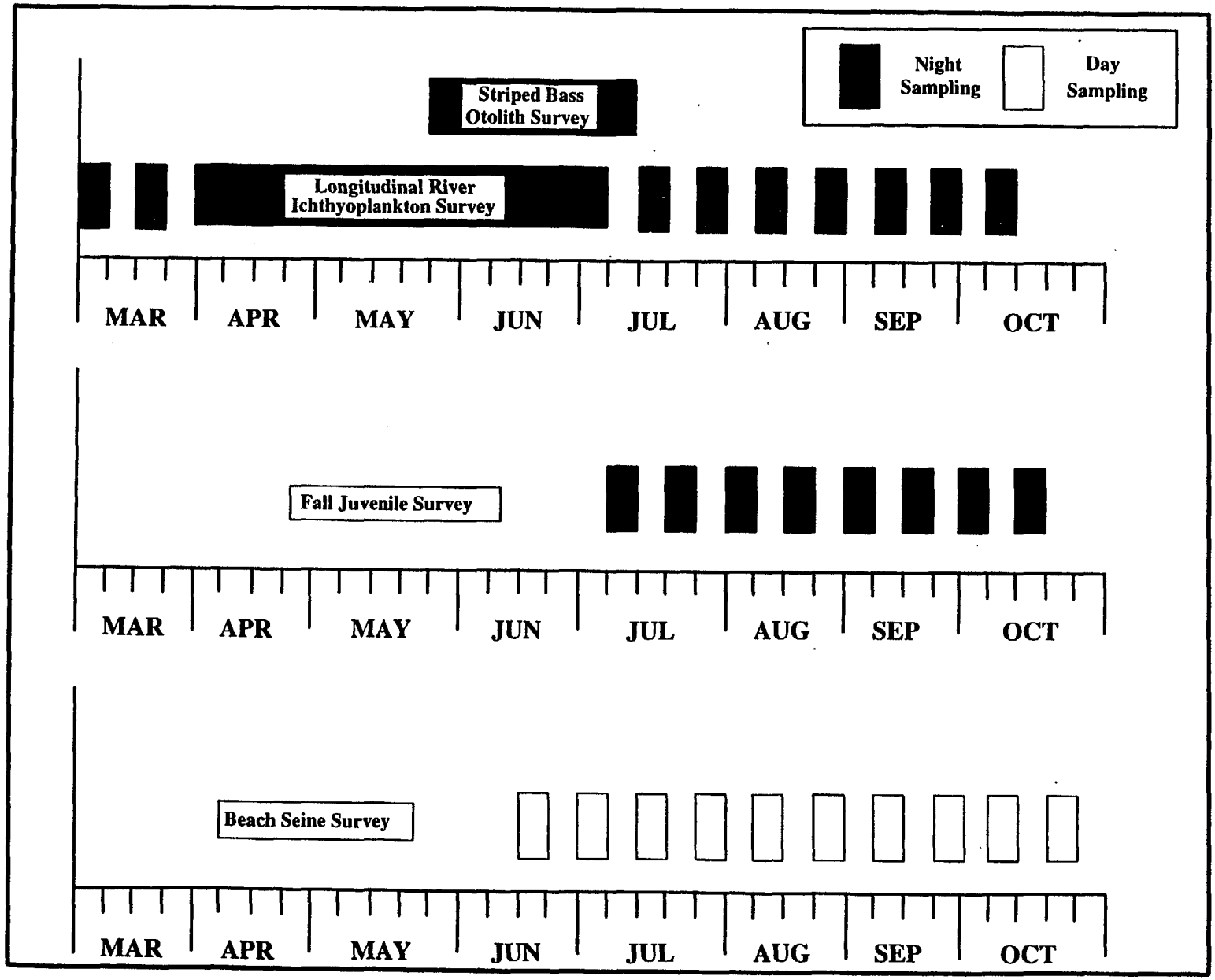


Figure 2-3. Sampling schedule for 1995.

- **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 was assigned to each stratum in most regions for the LRS. However, no samples were scheduled in the Poughkeepsie through Albany regions during the first 3 sampling weeks of the LRS (6 March - 7 April) nor in the Hyde Park through Albany regions during the final 7 weeks of the LRS (19 July - 12 October). A minimum of three samples was assigned to each stratum in each region for the FSS and a minimum of three samples was also taken in each region for the BSS. The strata actually sampled in each region during the 1995 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 1995 LRS covered 32 weeks from 6 March to 12 October (Table 2-2 and Figure 2-3). Sampling was conducted biweekly for the first 5 weeks between RM 1 and RM 61 with all samples collected during the day. For the next 13 consecutive weeks, sampling encompassed RM 1 - RM 152 and all samples were collected at night. Beginning the week of 17 July and ending the week of 9 October, sampling was conducted biweekly between RM 1 and RM 76 with all samples collected at night. Between 22 May and 8 July, approximately 20 additional 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.

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 1995 LRS sampling program was scheduled as 6 separate multiweek efforts. The first, which covered March and the first week of April, sampled biweekly, was directed toward the collection of Atlantic tomcod post

TABLE 2-3 SUMMARY OF 1995 SAMPLE COLLECTION INFORMATION BY RIVER REGION AND STRATUM FOR THE LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY

	5-Week Period from 6 MAR to 7 APR					3-Week Period from 10 APR to 28 APR					3-Week Period from 30 APR to 20 MAY				
	Shoal		Channel	Bottom		Shoal		Channel	Bottom		Shoal		Channel	Bottom	
Region	Sled	Trawl	Trawl	Sled	Total	Sled	Trawl	Trawl	Sled	Total	Sled	Trawl	Trawl	Sled	Total
Battery	--	--	15	15	30	--	--	18	24	42	--	--	18	18	36
Yonkers	6	6	18	18	48	6	6	15	21	48	6	6	15	20	47
Tappan Zee	9	6	18	18	51	18	12	12	12	54	18	12	12	12	54
Croton-Haverstraw	9	6	18	18	51	12	9	12	12	45	12	9	12	12	45
Indian Point	6	6	18	18	48	6	6	12	12	36	6	6	30	18	60
West Point	--	--	15	15	30	--	--	15	15	30	--	--	45	18	63
Cornwall	6	6	12	12	36	9	6	9	9	33	9	6	15	24	54
Poughkeepsie	--	--	--	--	--	--	--	9	9	18	--	--	30	30	60
Hyde Park	--	--	--	--	--	--	--	21	9	30	--	--	33	27	60
Kingston	--	--	--	--	--	--	--	18	24	42	--	--	21	18	39
Saugerties	--	--	--	--	--	--	--	18	24	42	--	--	15	9	24
Catskill	--	--	--	--	--	--	--	21	48	69	--	--	15	9	24
Albany	--	--	--	--	--	--	--	30	60	90	--	--	15	15	30
Total	36	30	114	114	294	51	39	210	279	579	51	39	276	230	596

	3-Week Period from 21 MAY to 10 JUN					4-Week Period from 12 JUN to 8 JUL					13-Week Period from 19 JUL to 12 OCT				
	Shoal		Channel	Bottom		Shoal		Channel	Bottom		Shoal		Channel	Bottom	
Region	Sled	Trawl	Trawl	Sled	Total	Sled	Trawl	Trawl	Sled	Total	Sled	Trawl	Trawl	Sled	Total
Battery	--	--	12	24	36	--	--	16	24	40	--	--	42	42	84
Yonkers	6	3	12	18	39	8	8	28	24	68	14	14	28	42	98
Tappan Zee	12	6	12	12	42	8	8	28	20	64	21	21	28	28	98
Croton-Haverstraw	12	6	16	12	46	12	8	32	24	76	21	21	28	28	98
Indian Point	6	6	46	18	76	12	8	80	20	120	21	21	28	28	98
West Point	--	--	60	21	81	--	--	116	32	148	--	--	28	28	56
Cornwall	9	6	22	24	61	8	8	60	48	124	14	14	21	21	70
Poughkeepsie	--	--	67	36	103	--	--	72	28	100	--	--	21	21	42
Hyde Park	--	--	38	21	59	--	--	44	20	64	--	--	--	--	--
Kingston	--	--	18	12	30	--	--	24	16	40	--	--	--	--	--
Saugerties	--	--	9	15	24	--	--	8	16	24	--	--	--	--	--
Catskill	--	--	9	9	18	--	--	12	12	24	--	--	--	--	--
Albany	--	--	9	9	18	--	--	12	12	24	--	--	--	--	--
Total	45	27	330	231	633	48	40	532	296	916	91	91	224	238	644

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

TABLE 2-2 SUMMARY OF 1995 HUDSON RIVER SURVEYS

Program Phase	Sampling Schedule Start Date	Sampling Schedule End Date	Number of River Runs	Sampling Frequency	Strata Sampled	Sample Number Collection Projected	Sample Number Collection Actual	Sample Number Lab Analysis	Sampling Gear
Longitudinal River Ichthyoplankton Survey	6 MAR	12 OCT	23	Weekly/ Biweekly	Shoal	588	588	553	1.0-m^2 net on epibenthic sled or 1.0-m^2 Tucker trawl
					Channel	1,686[a]	1,686	954	1.0-m^2 Tucker trawl
					Bottom	1,389	1,388	924	1.0-m^2 net on epibenthic sled
Fall Shoals Survey	10 JUL	20 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	19 JUN	26 OCT	10	Biweekly	Shore	1,000	1,000		30.5-m beach seine

a. Includes 141 samples collected for striped bass otolith analysis.

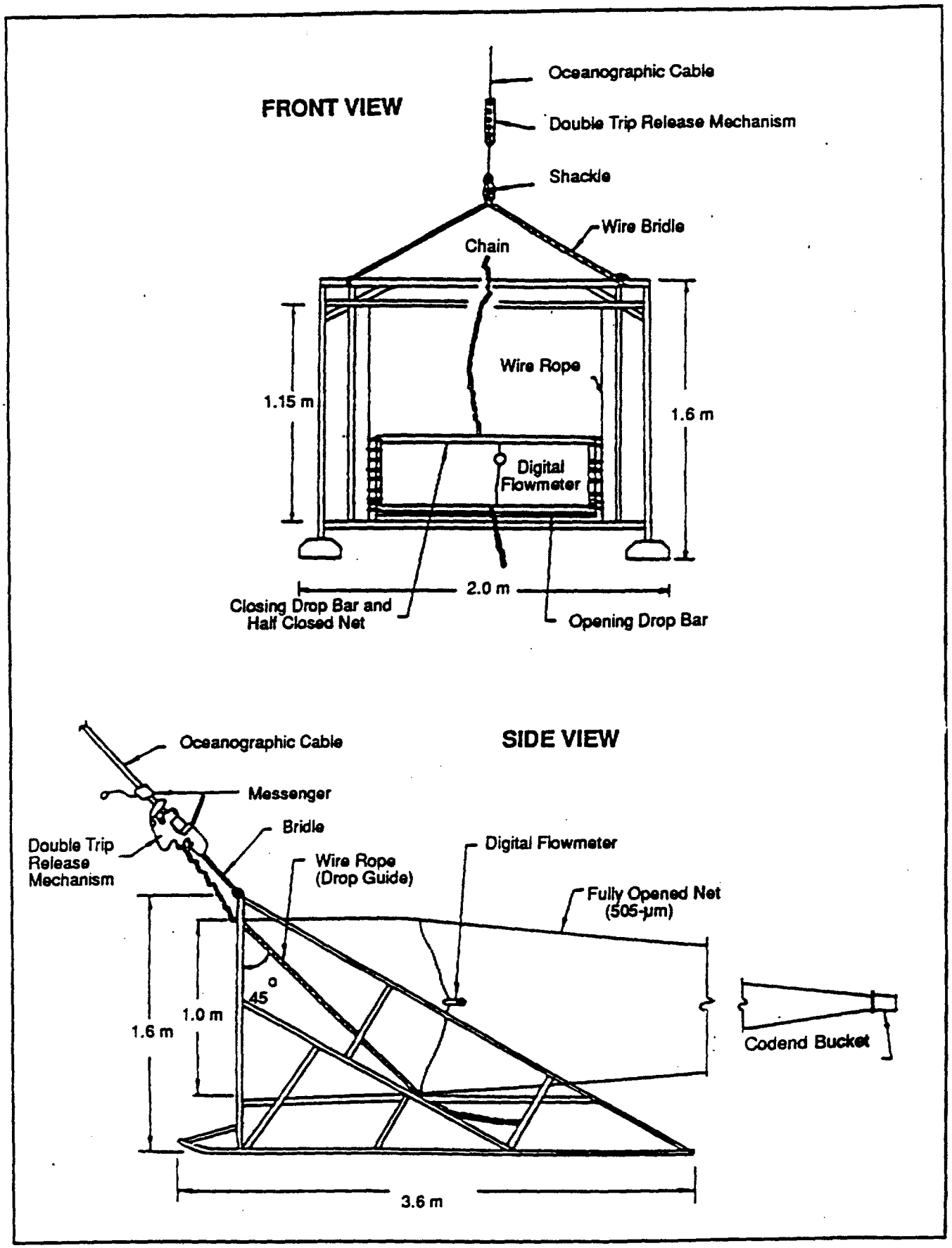


Figure 2-5. Design and dimensions of 1.0-m^2 Tucker trawl mounted on an epibenthic sled.

yolk-sac larvae (PYSL). The second effort which covered the last 3 weeks of April was directed toward the collection of American shad eggs. The third effort covered the first 3 weeks of May and was designed to collect eggs of *Morone* spp. and American shad. The fourth 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 (YSL). The fifth effort consisted of 4 weeks extending from the middle of June through the first week in July. This sampling effort was designed to collect *Morone* spp. and American shad PYSL. The LRS sampling program concluded with a 13-week period, sampled biweekly, from the middle of July to early 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 2-3. During 1995, 3,663 ichthyoplankton samples (including 141 striped bass otolith aging samples) were scheduled for collection; 3,662 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 2-4) to sample the channel strata, an epibenthic sled-mounted 1.0-m^2 net similar in design to the Tucker trawl (Figure 2-5) to sample the bottom strata, and both gear types to sample the shoal strata. Table 2-4 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 percent of the container volume. The containers were filled with 10 percent formalin.

In situ measurements of water temperature (°C), dissolved oxygen (mg/L), 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 1995 LRS. Physical/chemical measurements were recorded from surface, mid-depth, and bottom water depth at channel stations and from the surface and bottom water depth at shoal stations. During the 23 collection weeks of the 1995 LRS, 3,520 samples were scheduled, with 3,520 samples actually collected. In 1995, physical/chemical measurements were scheduled and collected at 4 fixed river mile locations in the Battery region for the first time in the history of the LRS.

Ichthyoplankton samples collected for striped bass otolith aging were handled in the same manner as regularly scheduled LRS samples except that the preservative was 95 percent ethanol. Within 48 hours, the samples were drained and placed in fresh 95 percent ethanol.

TABLE 2-5 WATER QUALITY SAMPLING LOCATIONS DURING THE 1995 LONGITUDINAL RIVER ICHTHYOPLANKTON AND FALL SHOALS SURVEYS

River Region	Scheduled Sampling Locations (RM)		Number of Water Quality Samples Scheduled Per Region Per River Run			
	Shoals[a]	Channel	LRS River Runs 1-3	LRS River Runs 4-16	LRS River Runs 17-23	FSS River Runs 1-8
Battery	--	1, 3, 6, 9	12	12	12	--
Yonkers	19	14, 17, 19, 22	19	19	19	19
Tappan Zee	29	25, 27, 29, 32	16	16	16	16
Croton-Haverstraw	36	35, 36, 37, 38	16	16	16	16
Indian Point	43	40, 42, 43, 46	16	16	16	16
West Point	--	49, 51, 53, 55	12	12	12	12
Cornwall	59	56, 57, 59, 61	16	16	16	16
Poughkeepsie	--	63, 67, 71, 75	--	12	12	12
Hyde Park	--	78, 80, 82, 84	--	12	--	12
Kingston	--	87, 89, 91, 93	--	12	--	12
Saugerties	--	96, 99, 102, 105	--	12	--	12
Catskill	--	109, 114, 118, 122	--	12	--	12
Albany	--	126, 131, 135, 138, 142	--	15	--	15
Total per River Run			107	182	119	170

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

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

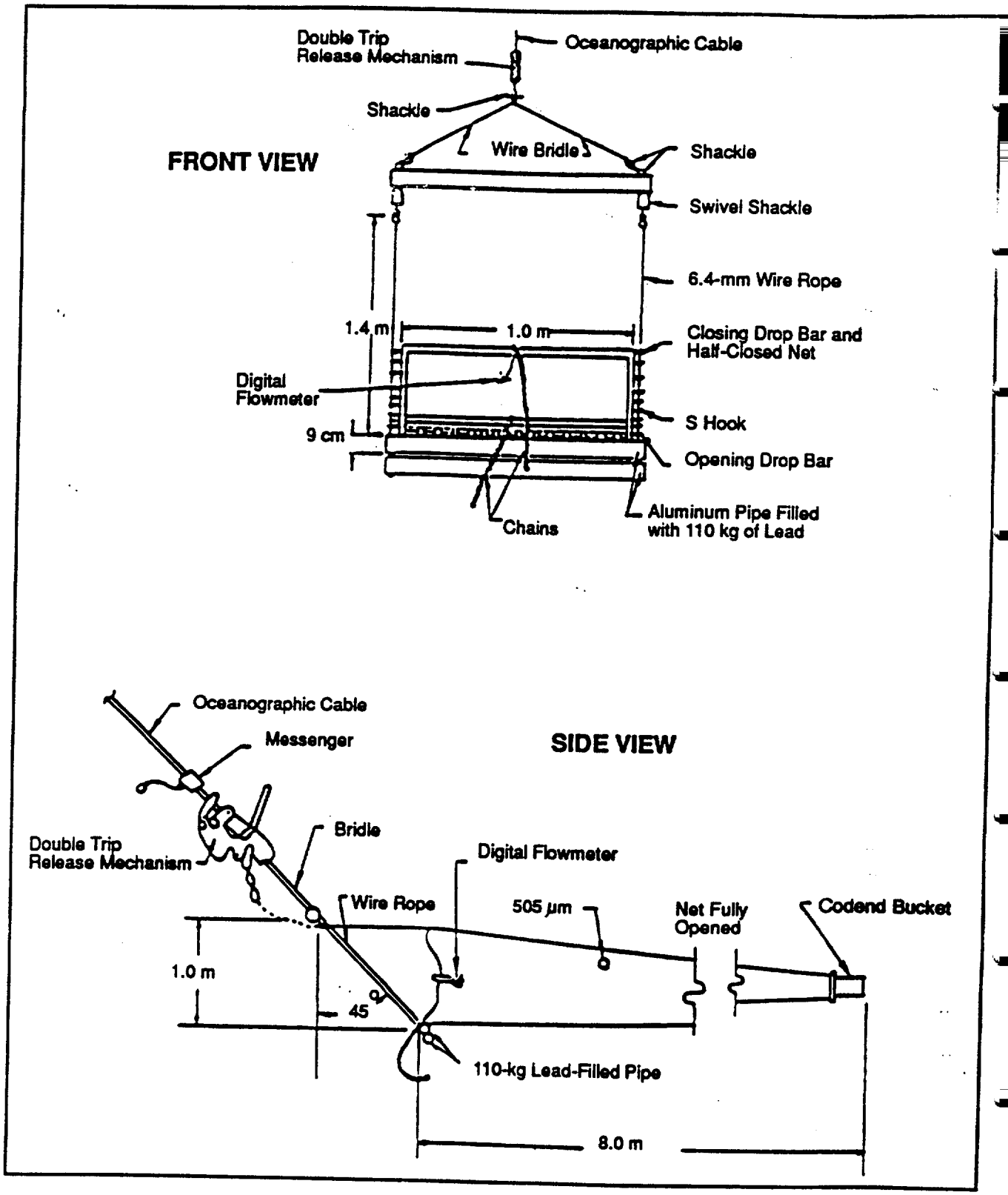


Figure 2-4. Design and dimensions of 1.0-m^2 Tucker trawl.

TABLE 2-6 SUMMARY OF 1995 SAMPLE ANALYSIS INFORMATION BY RIVER REGION AND STRATUM FOR THE LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY

	5-Week Period from 6 MAR to 7 APR					3-Week Period from 10 APR to 28 APR					3-Week Period from 30 APR to 20 MAY				
	Shoal		Channel	Bottom		Shoal		Channel	Bottom		Shoal		Channel	Bottom	
Region	Sled	Trawl	Trawl	Sled	Total	Sled	Trawl	Trawl	Sled	Total	Sled	Trawl	Trawl	Sled	Total
Battery	--	--	15	15	30	--	--	9	12	21	--	--	9	9	18
Yonkers	6	6	9	9	30	6	6	15	12	39	6	6	15	12	39
Tappan Zee	9	6	9	9	33	9	12	12	12	45	9	12	12	12	45
Croton-Haverstraw	9	6	9	9	33	12	9	12	12	45	12	9	12	12	45
Indian Point	6	6	9	8	29	6	6	12	12	36	6	6	15	9	36
West Point	--	--	15	15	30	--	--	14	15	29	--	--	9	9	18
Cornwall	5	6	12	9	32	8	6	9	8	31	9	6	15	12	42
Poughkeepsie	--	--	--	--	--	--	--	9	8	17	--	--	15	15	30
Hyde Park	--	--	--	--	--	--	--	12	9	21	--	--	18	15	33
Kingston	--	--	--	--	--	--	--	9	12	21	--	--	12	9	21
Saugerties	--	--	--	--	--	--	--	9	12	21	--	--	15	9	24
Catskill	--	--	--	--	--	--	--	12	10	22	--	--	15	9	24
Albany	--	--	--	--	--	--	--	15	12	27	--	--	15	15	30
Total	35	30	78	74	217	41	39	149	146	375	42	39	177	147	405

	3-Week Period from 21 MAY to 10 JUN					4-Week Period from 12 JUN to 8 JUL					13-Week Period from 19 JUL to 12 OCT				
	Shoal		Channel	Bottom		Shoal		Channel	Bottom		Shoal		Channel	Bottom	
Region	Sled	Trawl	Trawl	Sled	Total	Sled	Trawl	Trawl	Sled	Total	Sled	Trawl	Trawl	Sled	Total
Battery	--	--	12	12	24	--	--	16	12	40	--	--	21	21	42
Yonkers	6	3	12	9	30	8	8	16	12	68	14	14	21	27	76
Tappan Zee	12	6	12	12	42	8	7	20	20	64	14	21	28	28	91
Croton-Haverstraw	12	6	12	12	42	12	8	12	12	76	21	21	28	28	98
Indian Point	6	6	18	9	39	12	8	12	20	120	14	21	28	27	90
West Point	--	--	9	12	21	--	--	20	16	148	--	--	28	28	56
Cornwall	9	6	15	12	42	8	8	24	24	124	14	14	21	21	70
Poughkeepsie	--	--	12	18	30	--	--	12	16	100	--	--	21	21	42
Hyde Park	--	--	15	12	27	--	--	20	20	64	--	--	--	--	--
Kingston	--	--	9	12	21	--	--	12	16	40	--	--	--	--	--
Saugerties	--	--	9	15	24	--	--	8	16	24	--	--	--	--	--
Catskill	--	--	9	9	18	--	--	12	12	24	--	--	--	--	--
Albany	--	--	9	9	18	--	--	12	12	24	--	--	--	--	--
Total	45	27	153	153	378	48	39	196	208	916	77	91	196	201	565

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

TABLE 2-4 SPECIFICATIONS OF SAMPLING GEAR USED DURING THE 1995 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	505 µm
Net material	Nytex (monofilament nylon)
Collection cup	
Length	30 cm
Length with net-retaining ring	37 cm
Mesh size	505 µm
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 µm
Net material	Nytex (monofilament nylon)
Collection cup	
Length	30 cm
Length with net-retaining ring	37 cm
Mesh size	505 µm
Net material	Nytex (monofilament nylon)

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:

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

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:

Life Stage	Description
Egg	Embryonic stage from spawning to hatching
YSL	From hatching to development of a complete and functional digestive system
PYSL	From development of a complete digestive system to acquisition of a full complement of adult fin rays
YOY	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, 30 American shad, 30 Atlantic tomcod, and 30 bay anchovy per sample were measured. Organisms were chosen at random from each taxon regardless of life stage until the required number were obtained; life stages to be included were YSL, PYSL, and YOY. The total length of YSL and PYSL was measured to the nearest 0.1 mm and to the nearest 1 mm for YOY. 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

2.2.2 Laboratory Methods

In 1995, 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 2,431, comprising 66 percent of the collected samples (excluding those collected for otolith analysis).

In 1995, as in previous years, splitting (or subsampling) was permitted. A trained technician first determined, by visual inspection, if the sample needed splitting. 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 PYSL first appeared, and for the next 8 river runs (a total of 9 consecutive river runs), a minimum of 500 *Morone* larvae (i.e., the combined total of YSL, PYSL, and YOY of striped bass, white perch, and unidentified *Morone*) was sorted from the entire sample and a minimum of 50 non-*Morone* larvae was also sorted. Because some of the more difficult distinctions between species (e.g., striped bass versus white perch) or between life stages could not be made reliably during sorting, samples from these 9 river runs were usually sorted in their entirety for larvae (i.e., YSL, PYSL, and YOY 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 had verified that sufficient numbers of both *Morone* larvae and non-*Morone* larvae were 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 14 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., YSL, PYSL, and YOY combined) of all species combined.

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.

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 1995 CSP-1 Quality Assurance/Quality Control Program are contained in Appendix A.

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 YOY 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 was adjusted as necessary to achieve and maintain a 45° wire angle; the resultant tow speed was recorded. The beam trawl was towed at a 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 on-deck readout display. Tucker trawl samples taken in over 20 ft of river depth were remotely opened and closed at sampling depth. 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 1995 FSS biweekly sampling program covered 15 weeks from 10 July to 20 October (Figure 2-5), with all samples collected at night. Table 2-8 presents the distribution of the FSS sampling effort among the 12 river regions (no FSS samples were scheduled in the Battery region) by stratum. In 1995, 1,680 samples were scheduled for collection; 1,680 samples, or 100.0 percent of the scheduled number, were actually collected.

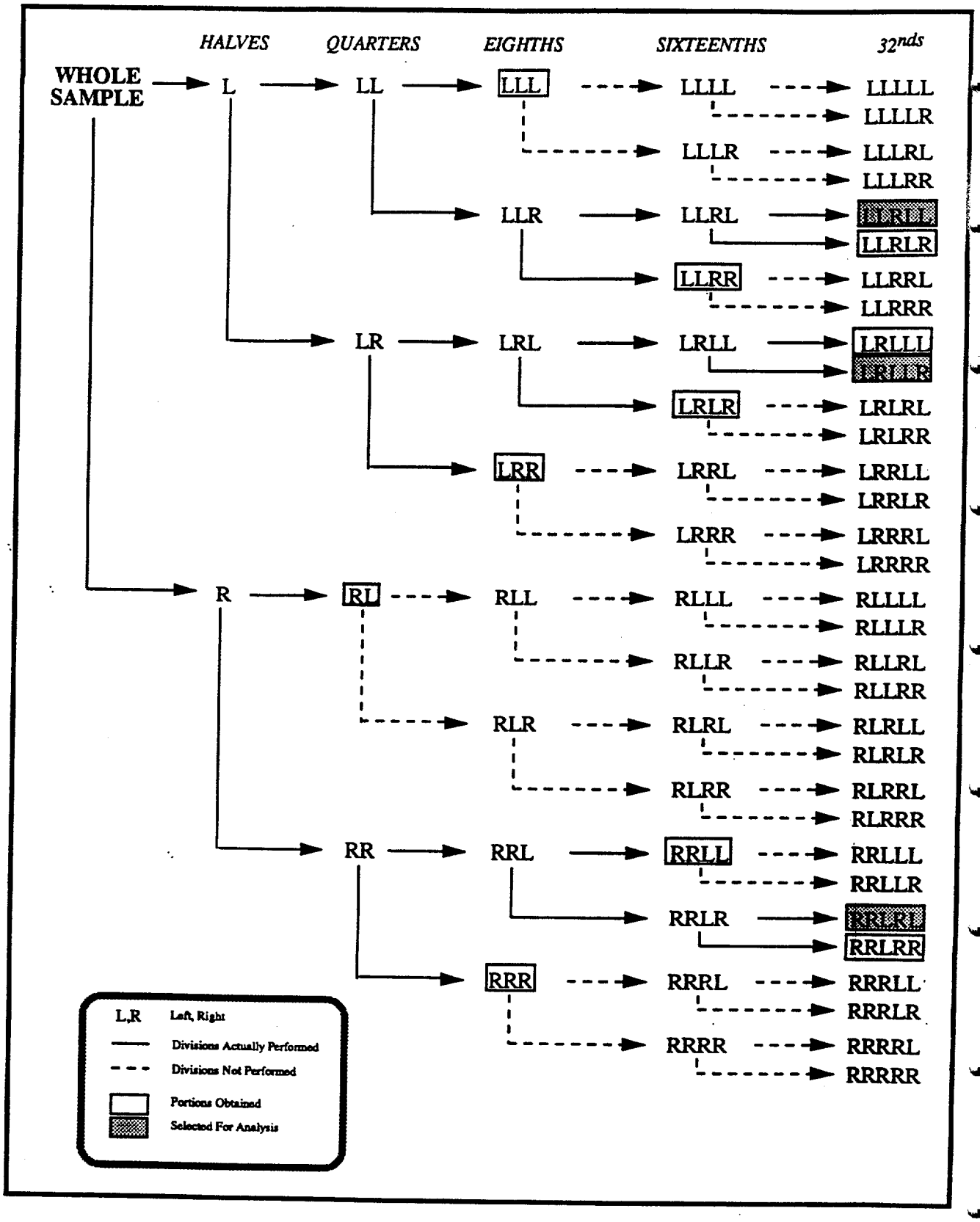


Figure 2-6. Conceptual diagram of the splitting process.

TABLE 2-7 SPECIFICATIONS OF SAMPLING GEAR USED DURING THE 1995 FALL SHOALS 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

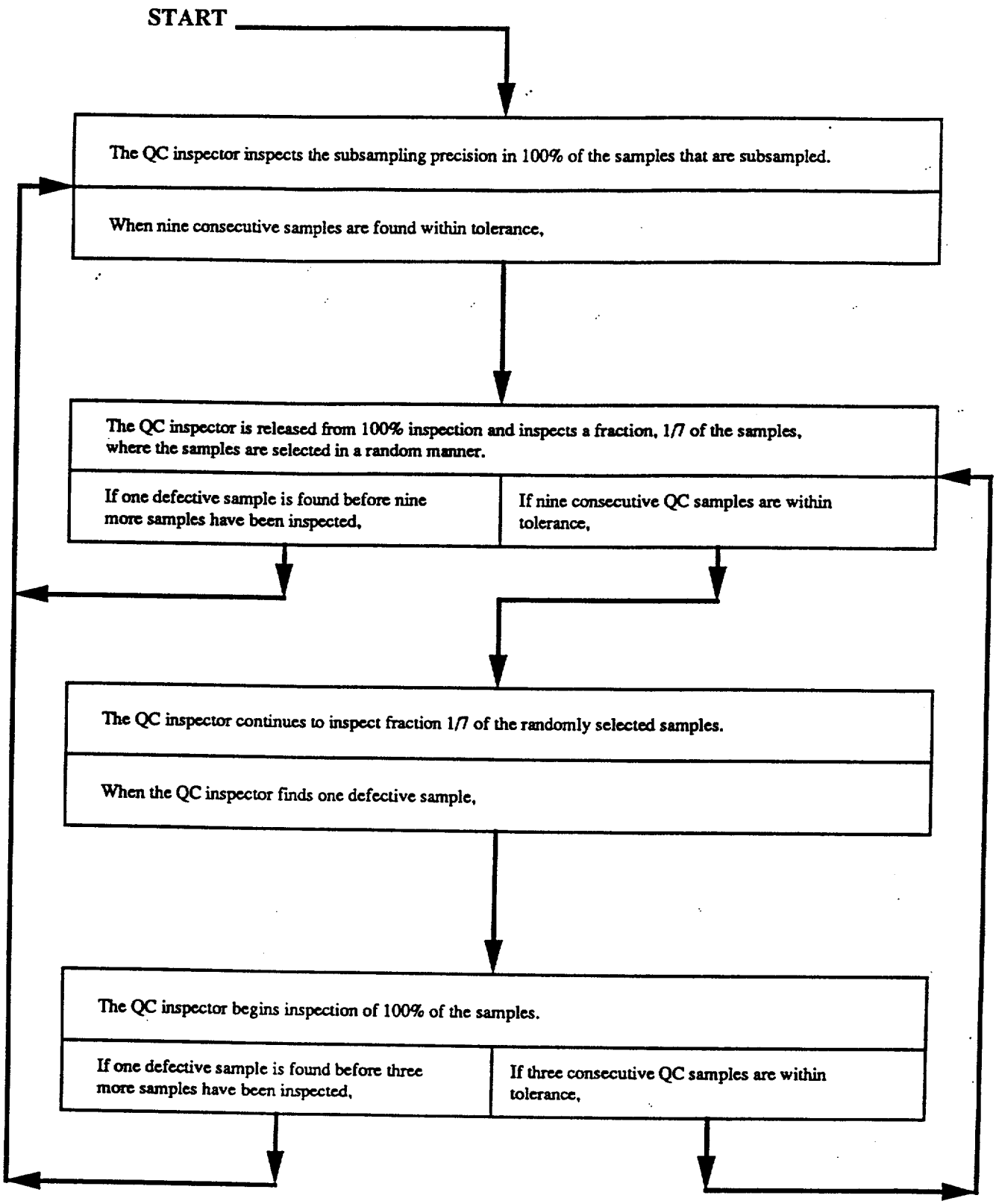


Figure 2-7. Inspection plan for evaluation of splitting precision.

Calibrated meters were used to measure water temperature (°C), dissolved oxygen (mg/L), 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 1995 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 1995 FSS, 1,360 samples were scheduled and 1,361 samples were actually collected, greater than 100 percent of the number of samples scheduled for collection.

Because of the difficulty in differentiating some species, especially YOY *Morone* (striped bass, white perch) and *Alosa* (alewife, blueback herring), samples collected during the first two sampling periods (River Runs 1 and 2) for the 1995 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 fish determined to be yearling or older, based on length categorization; live fish were returned to the river after length and count data were determined.

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 1995, 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 10 of the BSS. Also for the BSS during River Runs 1 through 3, the Yonkers through West Point regions 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 5 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 YOY length limit ("Division 1"), which was obtained from the field contractor on a weekly basis for each species.

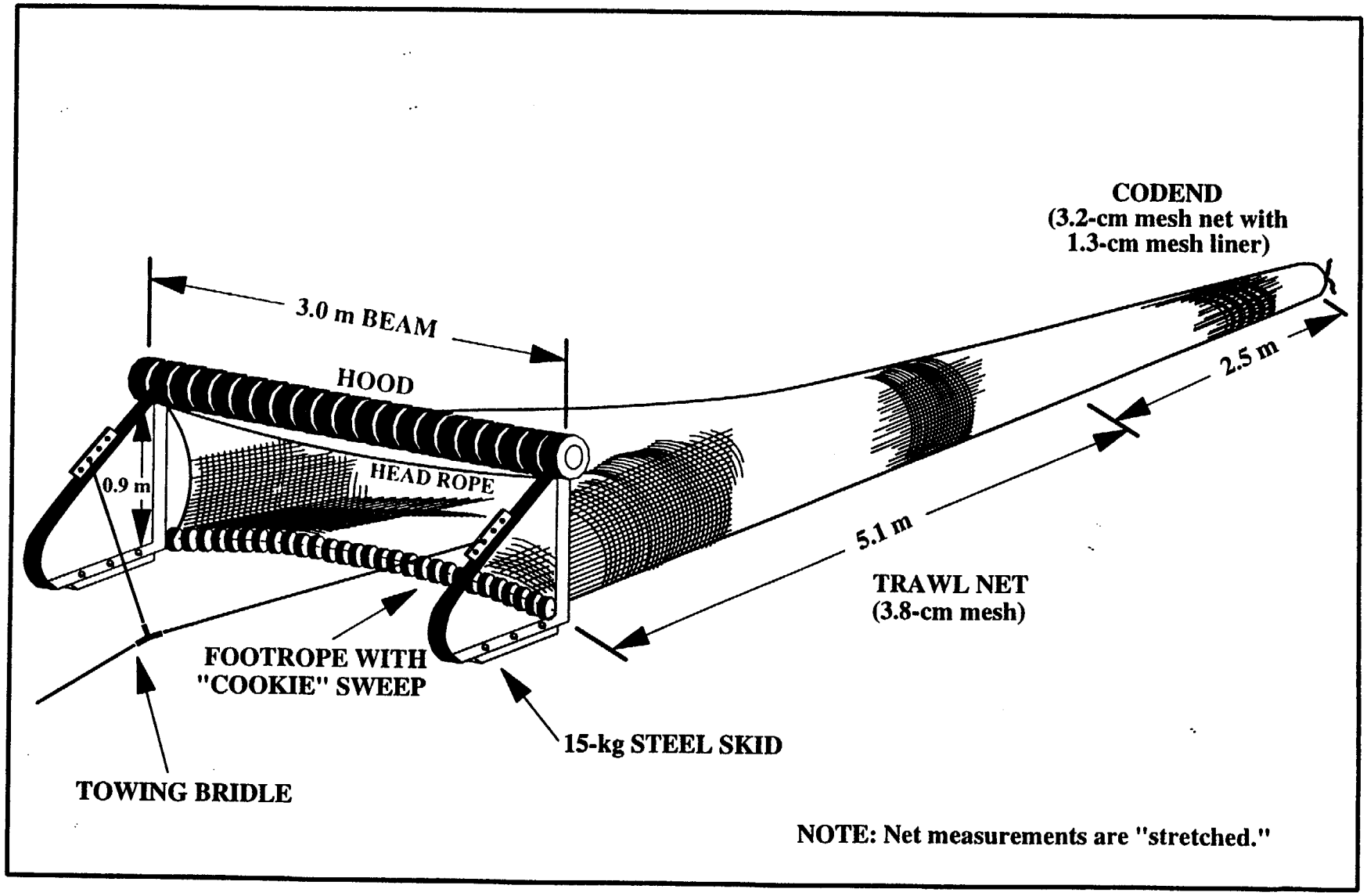


Figure 2-8. Design and dimensions of the 3.0-m beam trawl used in the 1995 Fall Shoals Survey.

TABLE 2-9 SPECIFICATIONS OF SAMPLING GEAR USED DURING THE 1995 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
Sampling area	450 m^2

TABLE 2-8 NUMBER OF BIWEEKLY SAMPLES COLLECTED DURING THE 1995 FALL SHOALS SURVEY

	10 July - 20 October			
	Strata			
Region	Shoal (Beam Trawl)	Channel (Tucker Trawl)	Bottom (Beam Trawl)	Total
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[a]

a. All samples collected at night.

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

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 1995 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 NYSDEC.

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 are not required. The maximum deviation between this equation and the previous equation is 0.1 percent (TI 1976).

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

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.

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 field 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 total length 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 YOY fish in the shorezone of each region, except the Battery 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 1995 BSS biweekly sampling program was conducted from 19 June through 26 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 1995 BSS are presented in Table 2-10. All of the scheduled 1,000 samples projected for collection in 1995 were collected.

Measurements of water temperature (°C), dissolved oxygen (mg/L), 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 1995 BSS, 1,000 samples were scheduled and 1,000 samples were actually collected.

YOY fishes collected during the first 3 beach seine river runs in 1995 were processed in the laboratory because of the difficulty in distinguishing species at the YOY life stage, adults were processed in the field. All samples collected following River Run 3 were field processed;

$$D_{ikrw} = \frac{C_{ikrw}}{V_{ikrw}} \tag{4}$$

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_{ikrw} = Volume sampled (m^3) by sample i in stratum k in region r during week w.

$$D_{krw} = \frac{1}{n_{krw}} \sum_{i=1}^{n_{krw}} D_{ikrw} \tag{5}$$

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.

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

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.

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

TABLE 2-10 NUMBER OF BIWEEKLY SAMPLES COLLECTED DURING THE 1995 BEACH SEINE SURVEY

19 June - 26 October

Region	Number of Beaches Sampled Per Region for River Runs 1-3	Number of Beaches Sampled Per Region for River Runs 4-10	Total
Yonkers	9	35	44
Tappan Zee	33	168	201
Croton-Haverstraw	21	98	119
Indian Point	9	35	44
West Point	9	35	44
Cornwall	9	42	51
Poughkeepsie	24	35	59
Hyde Park	24	35	59
Kingston	24	35	59
Saugerties	45	63	108
Catskill	57	70	127
Albany	36	49	85
Total	300	700	1,000

TABLE 2-11 STRATUM AND REGION VOLUMES (m^3) AND SURFACE AREAS (m^2) USED IN ANALYSIS OF 1995 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	(a)
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

a. 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).

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.

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

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.

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

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 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

$$SC_{rw}^{**} = \sum_{k=1}^{3} SC_{krw} \tag{13}$$

where

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

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

$$SE(SC)_{rw}^{**} = \sqrt{\sum_{k=1}^{3} [SE(SC_{krw})]^2} \tag{14}$$

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.

$$SC_w = \sum_{r=1}^{12} SC_{rw} \tag{15}$$

where

SC_w = Standing crop index for week w. For the LRS, regional standing crop indices include the Battery Region (r=0).

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

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

** 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.

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 (catch-per-unit-effort [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.

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

n_{rw} = Number of samples taken 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.

The LRS was used for calculating the temporal and geographic indices for early life stages of striped bass, white perch, Atlantic tomcod, bay anchovy, American shad, *Alosa* spp., and rainbow smelt. The BSS was used to calculate geographical distribution indices for striped bass, white perch, bay anchovy, American shad, alewife, blueback herring, 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 1974-1995, whereas the time period for the FSS extended from 1979 (when the FSS sampled the river from RM 12 to RM 152) through 1995. Temporal and geographic indices for bay anchovy from the LRS used the period from 1988 to 1995, when the sampling design included the Battery region.

A geographic index that collapses data over weeks was calculated for LRS, FSS, and BSS data as the relative standing crop in each region. This geographic index was calculated as follows:

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

where

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

SC_{rwy} = Regional standing crop index for region r in week w in year y calculated in Equations 13 or 17.

n_y = Number of weeks sampled in year y.

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

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

where

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

SC_{wy} = Weekly standing crop index in year y calculated in Equation 15.

n_y = Number of weeks sampled in year y.

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

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 value because no adjustment was applied for collection efficiency.

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

where

SC_{krw} = Standing crop index 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.

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

where

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

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

CHAPTER 3
PHYSICAL/CHEMICAL PARAMETERS

This chapter provides information on the parameters of temperature, salinity, and dissolved oxygen as measured during the 1995 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 for the Green Island Dam near Troy, New York, and daily water temperature data from the Poughkeepsie Waterworks are discussed. Physical and chemical parameters are presented in Appendix B.

3.1 GREEN ISLAND DAM FLOWS

From January through September 1995, daily freshwater flow estimated by the U.S. Geological Survey for the gauging station at Green Island, New York, ranged from approximately 50 to 1,050 m^3/sec/day (Figure 3-1). No flow data were available for October, November, and December 1995 due to problems with the gauging stations used to estimate flows (Allen 1996). The primary peaks in daily flows occurred in late January and mid-March with flows around 1,000 m^3/sec/day. There were no secondary peaks in flow as usually seen in previous years because 1995 was a severe drought year. Periods of low daily flows of less than 100 m^3/sec/day started in mid-June and continued through September (Figure 3-1, Appendix Table B-1). The 1995 monthly freshwater flow rates differed from the long-term monthly average (1947-1994) flow rates in that the monthly average flow rate for April 1995 was the lowest recorded for that month (Figure 3-1, Appendix Table B-2). During the remainder of 1995, monthly mean flows were near the long-term monthly minimum flow rate.

3.2 POUGHKEEPSIE WATERWORKS TEMPERATURES

Long-term (1951-1995) daily temperature records are available from the Poughkeepsie Waterworks, located just north of the City of Poughkeepsie, New York, at RM 76. The lowest recorded temperature in 1995 was 0.0°C in February (Appendix Table B-4). Water temperatures in 1995 remained relatively low (<4°C) through mid-March. Water temperature began increasing in April and reached a high of 26.9°C in early August. Temperatures started to decline in September (Figure 3-2).

The 1995 mean water temperature profile generally resembles the long-term pattern (Figure 3-2). However, water temperatures were higher than the long-term average in late January, late March, and during the summer peak from late July through September. Spring and fall temperatures were on par with the 1951-1994 long-term average, except that November was slightly cooler than the long-term average.

3.3 HUDSON RIVER SURVEYS

3.3.1 Spatiotemporal Pattern in Temperature

Mean weekly water temperature measured during the 1995 LRS/FSS increased from the beginning of sampling in March until 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

where

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

$SE(SC_{rw})$ = Standard error of regional standing crop index calculated in Equations 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 shorezone 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 shorezone was calculated as the sum of the 12 regional standing crops (Equations 15 and 16).

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

where

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

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

A_r = Surface area (m^2) of the shorezone in region r.

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

$$SE(SC_{rw}) = \frac{[SE(C_{rw})] (A_r)}{A} \tag{18}$$

where

$SE(SC_{rw})$ = Standard error of standing crop index for the shorezone 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. To allow comparisons of 1995 data with historical data, only data from samples collected from Weeks 18 to 27 (where Week 1 begins with the first Monday in January) were used for LRS (except for bay anchovy which used Weeks 18-40); data from Weeks 33 to 40 were used for the FSS and BSS. In all cases, data were used only when Regions 1-12 were sampled (except for bay anchovy which included Region 0).

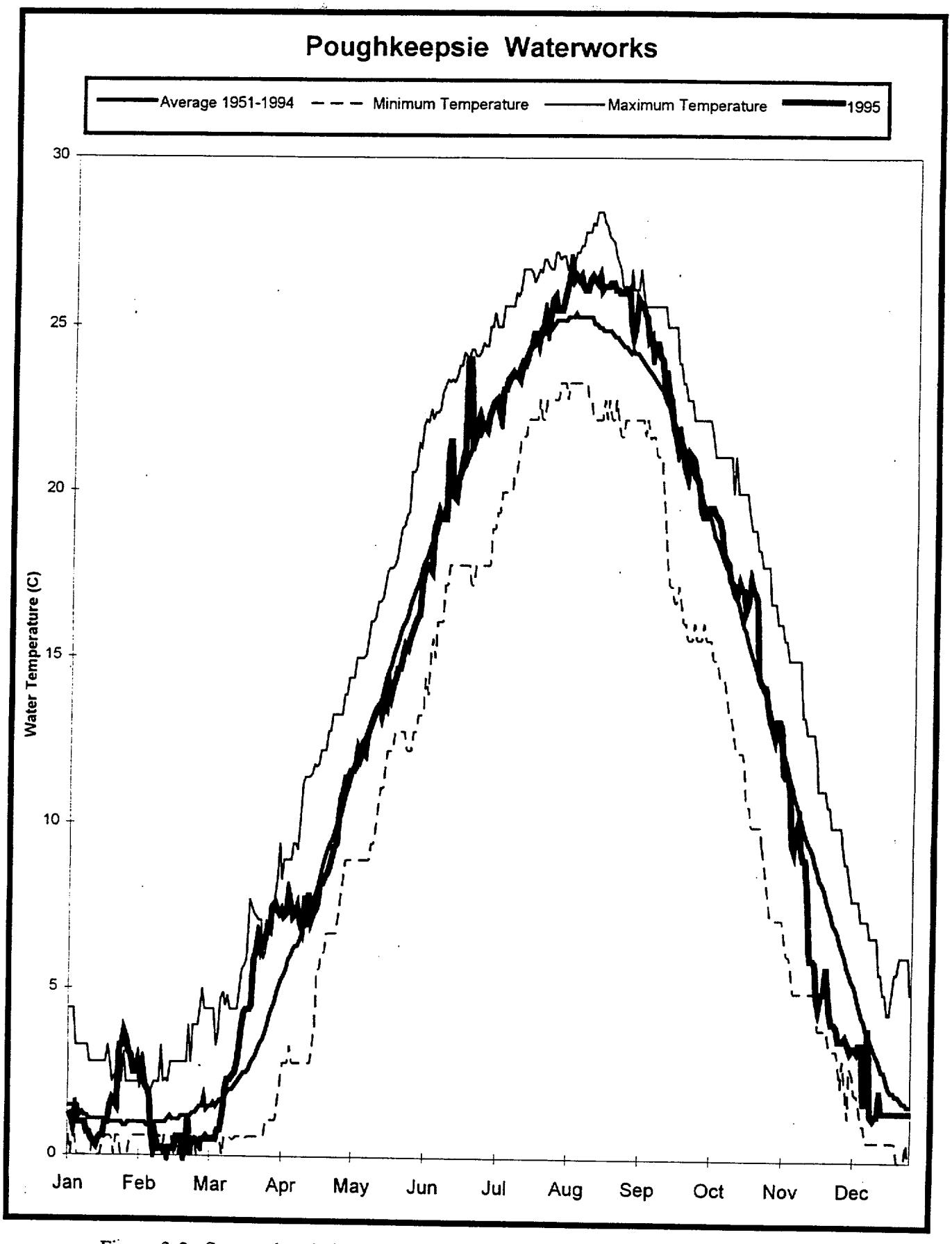


Figure 3-2. Seasonal variations in water temperature from 1951 to 1995.
Source: Poughkeepsie Waterworks.

reflected that recorded at Poughkeepsie Waterworks. Weekly mean temperatures measured during the LRS/FSS were similar to concurrent Poughkeepsie Waterworks temperatures. Peak river temperatures occurred during the week beginning on 31 July, as with Poughkeepsie Waterworks, when the river-wide mean temperature was 28.1°C and regional mean values were between 25.3 and 29.8°C (Appendix Table B-5). Lowest values occurred during the first week of sampling in March when the mean river-wide temperature was 2.2°C (Poughkeepsie Waterworks daily temperatures were 0.8-2.3°C) and regional mean temperatures ranged from 1.0 to 3.3°C.

Temporal patterns in the 1995 BSS temperature data are in close agreement with LRS/FSS measurements (Figure 3-3). Mean weekly regional temperatures reached a peak of over 29°C in the Croton-Haverstraw, Indian Point, and Catskill regions during the 31 July sampling week (Appendix Table B-6). BSS mean temperatures decreased steadily from the summer peak into fall, generally on par with and only slightly lower than LRS/FSS temperatures. Minimum mean temperatures of 12-14°C were recorded from the uppermost river regions during the last week of sampling that began on 23 October.

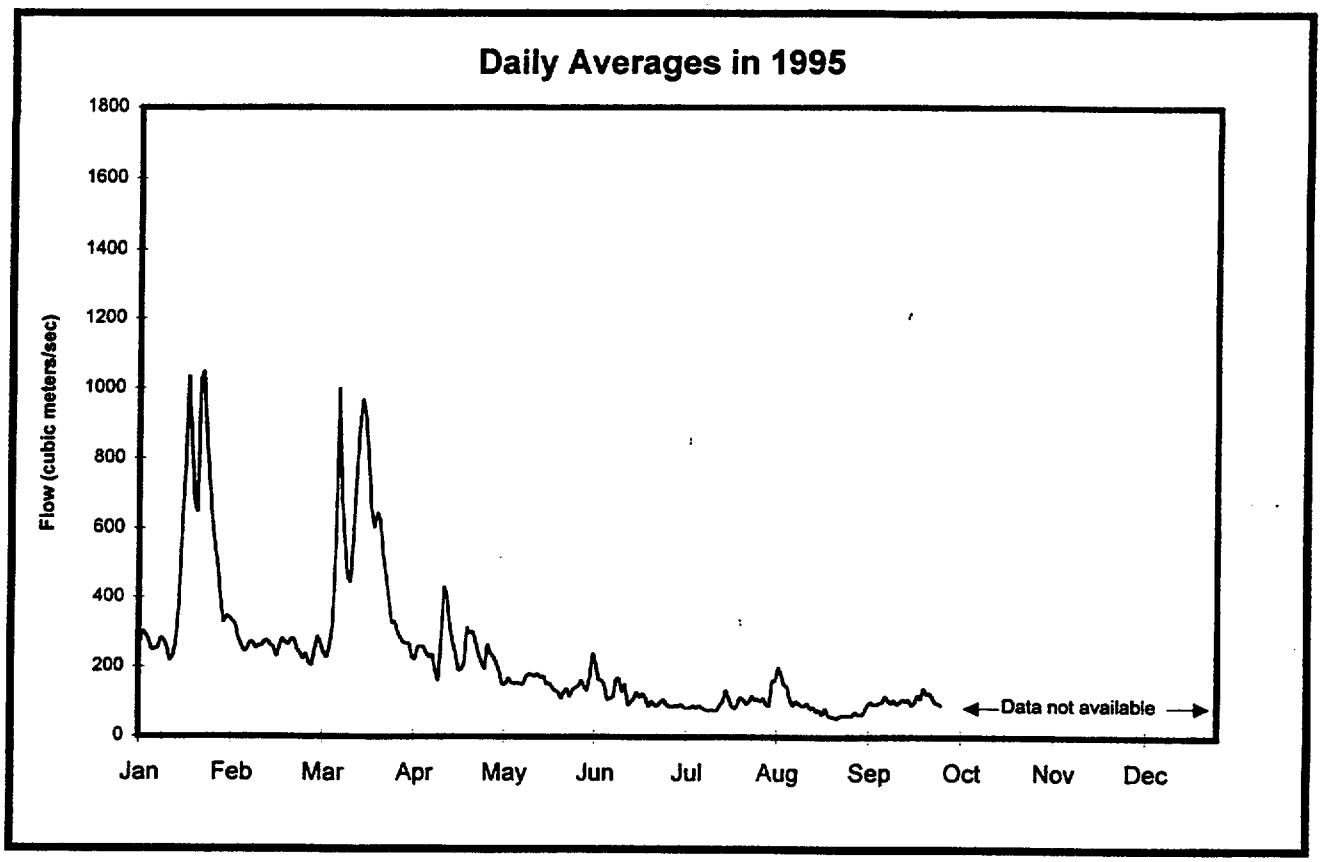
3.3.2 Spatiotemporal Pattern in Salinity

The pattern of seasonal variations in salinity observed in previous years of the Hudson River surveys shows decreased salinity in the 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. In 1995, salinity values were lowest in mid-March near the beginning of sampling as observed previously, but because of the low level of freshwater input, salinity values increased throughout the spring and summer to maximum levels in September and early October (Figure 3-4, Appendix Table B-7). Low flows resulted in salinities over 2 ppt in the Poughkeepsie region and over 0.3 ppt in the Hyde Park region during September (Figure 3-4). Generally, the leading edge of the salt front (i.e., salinity greater than 0.3 ppt) in the Hudson River estuary remains in the Cornwall or Poughkeepsie regions, but in 1995 the salt front pushed into the Hyde Park region. Mean salinity north of Hyde Park remained below 0.3 ppt.

The spatiotemporal pattern of salinity observed during the 1995 BSS resembled that observed in the LRS/FSS. Mean weekly regional salinity was highest in the Yonkers region and decreased upstream (Appendix Table B-8). Peak salinity measurements (1.2-11.2 ppt from Poughkeepsie to Yonkers) were recorded during the week of 25 September and lowest values (0.1-7.3 ppt from Poughkeepsie to Yonkers) were observed during the week of 23 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 shorezone area.

3.3.3 Spatiotemporal Pattern in Dissolved Oxygen

As temperatures rose in the Spring and Summer of 1995, dissolved oxygen, as recorded in the LRS/FSS, declined from peak mean weekly regional values of 10.9-13.7 mg/L on 20 March to minimum mean levels of 4.2-7.0 mg/L in late September when temperatures and salinity were elevated (Figure 3-5, Appendix Table B-9). Percent oxygen saturation relates the theoretical limit of oxygen saturation, based on temperature and salinity, to the observed dissolved oxygen concentrations. Mean weekly regional percent saturation based on measurements taken during the LRS/FSS was usually above 85 percent during the entire sampling season. Individual mean weekly regional values never dropped below 53 percent, the minimum recorded during the week of 25 September from the Yonkers region.



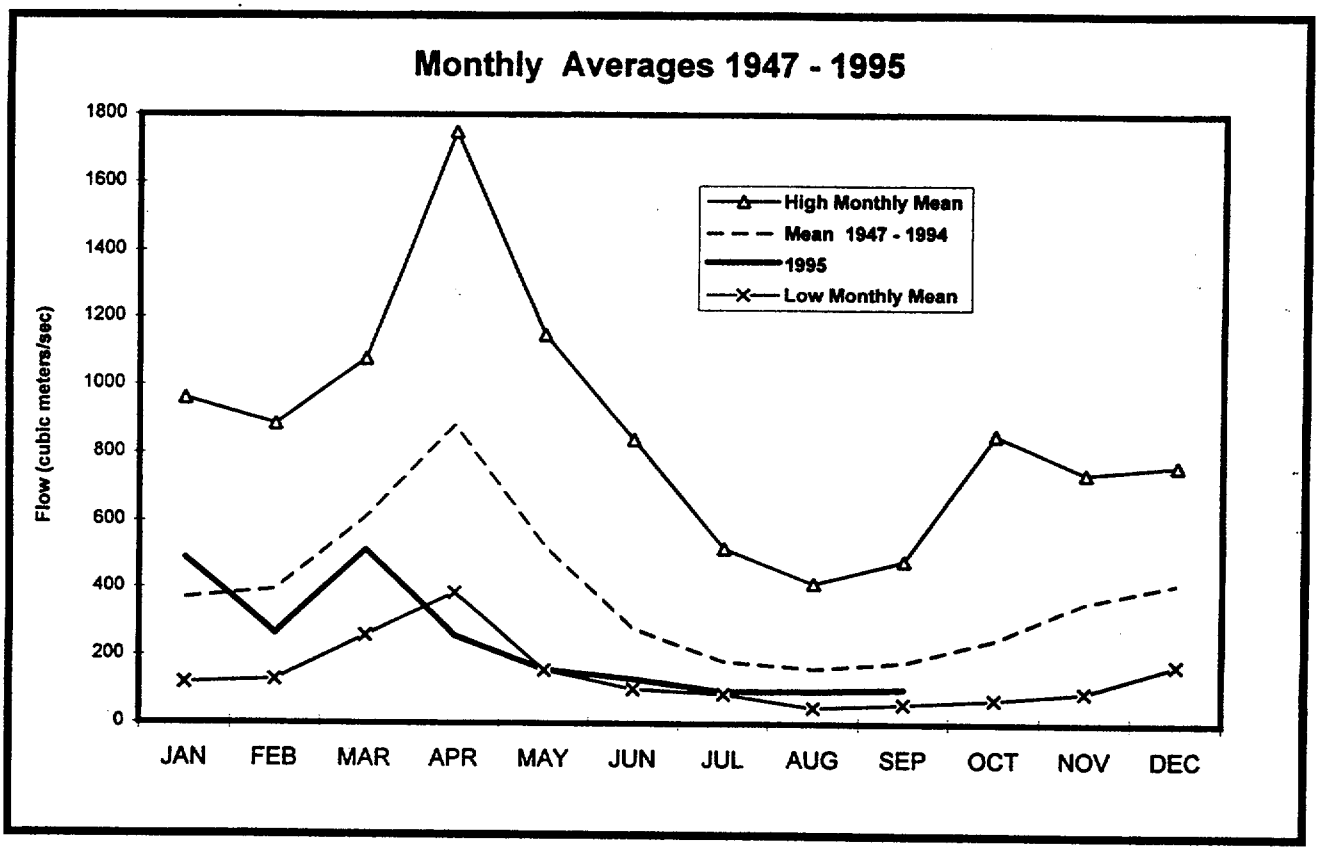


Figure 3-1. Hudson River daily average flow rate in 1995 and monthly average flow rates from 1947 to 1995, Green Island Dam, Troy, New York.

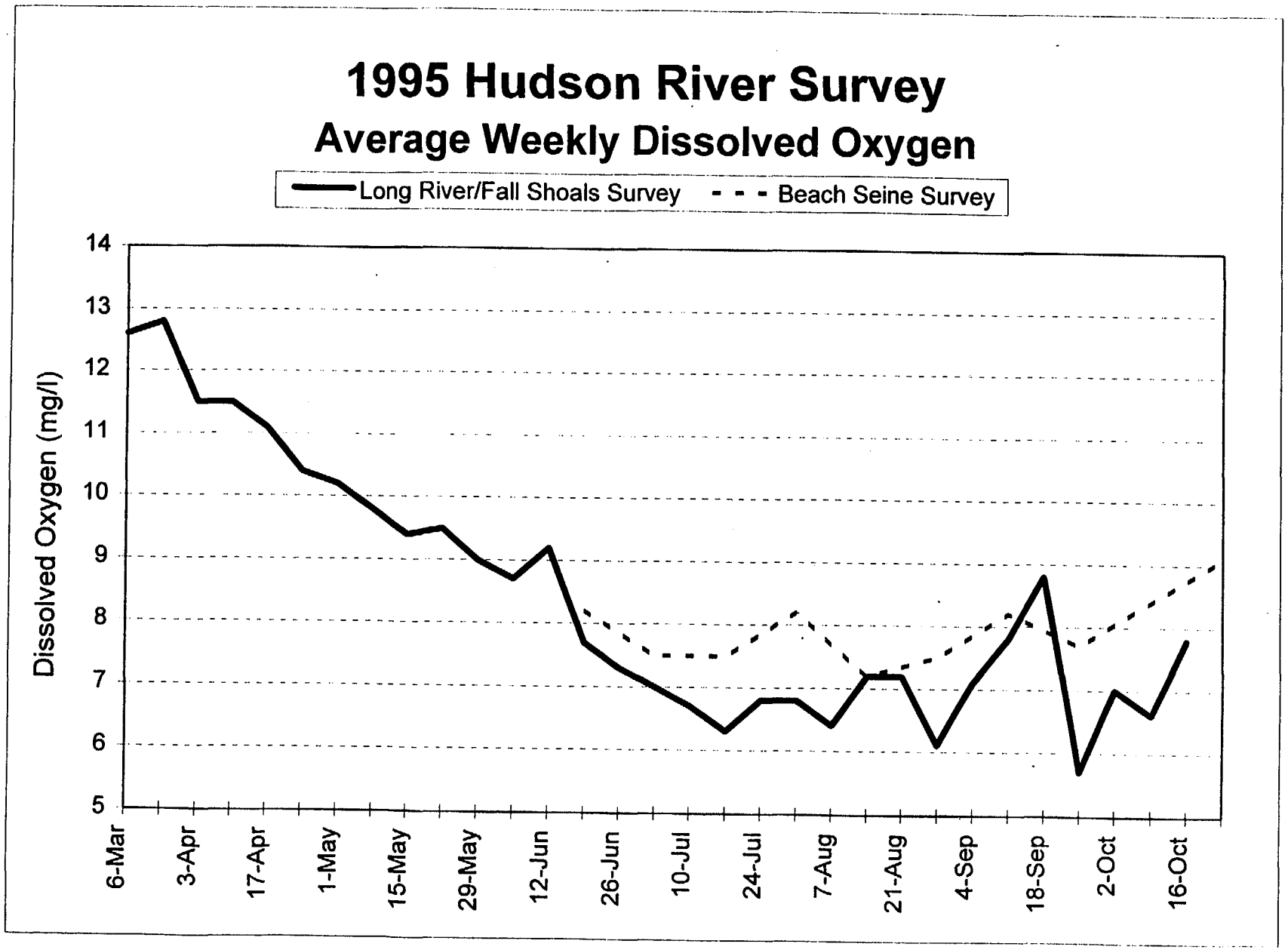


Figure 3-5. Seasonal variations in dissolved oxygen from the 1995 Hudson River surveys, RM 1 - RM 152.

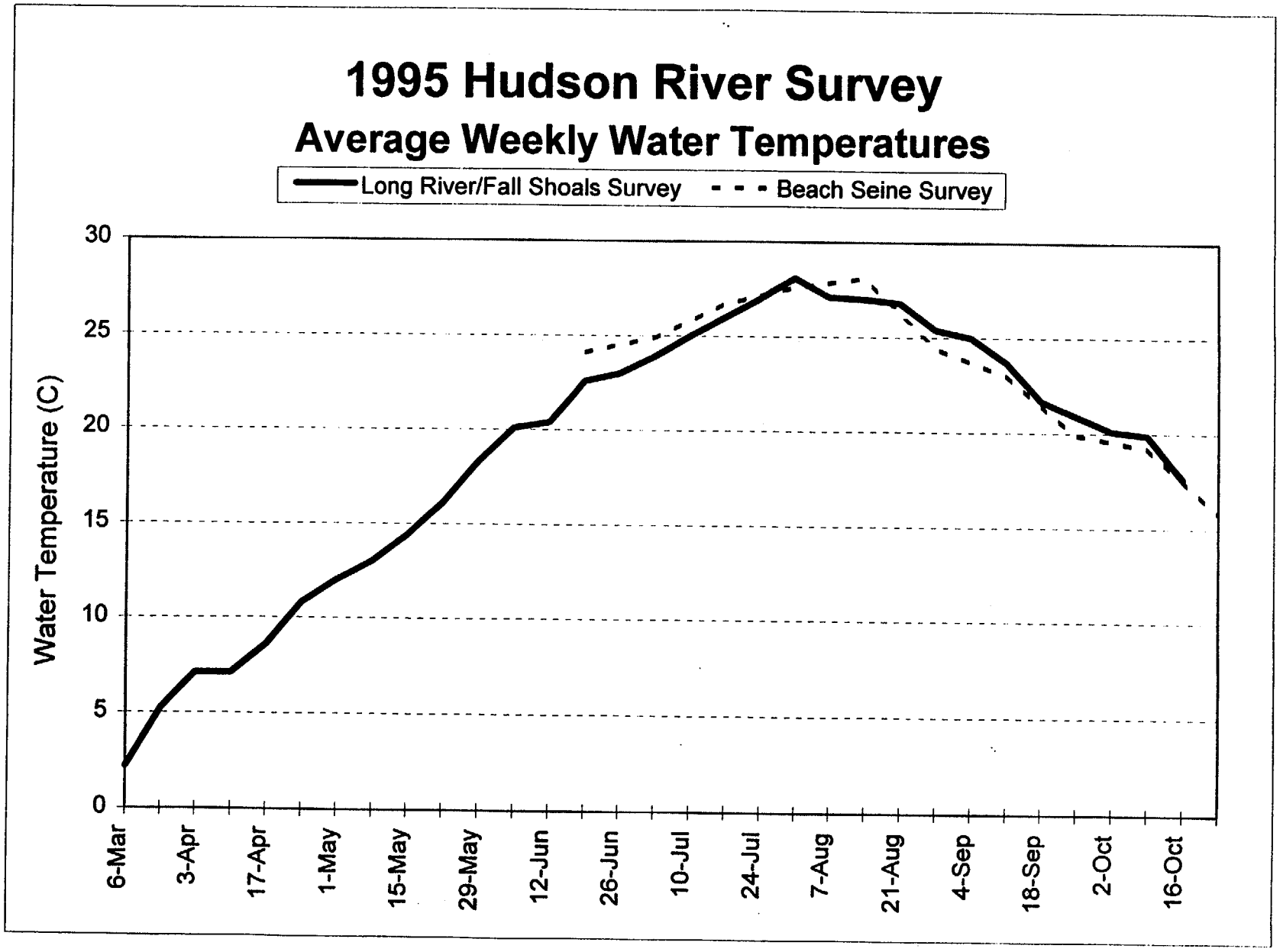


Figure 3-3. Seasonal variations in water temperature from the 1995 Hudson River surveys, RM 1 - RM 152.

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

4.1 FISH COMMUNITY

4.1.1 General Description of the Fish Community

The fish community of the Hudson River 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 River estuary's species diversity is enhanced by its mid-latitude location on the Atlantic Coast. Southern tropical marine forms enter the Hudson River 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 3 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 River 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 benthic 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 River 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 River 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.

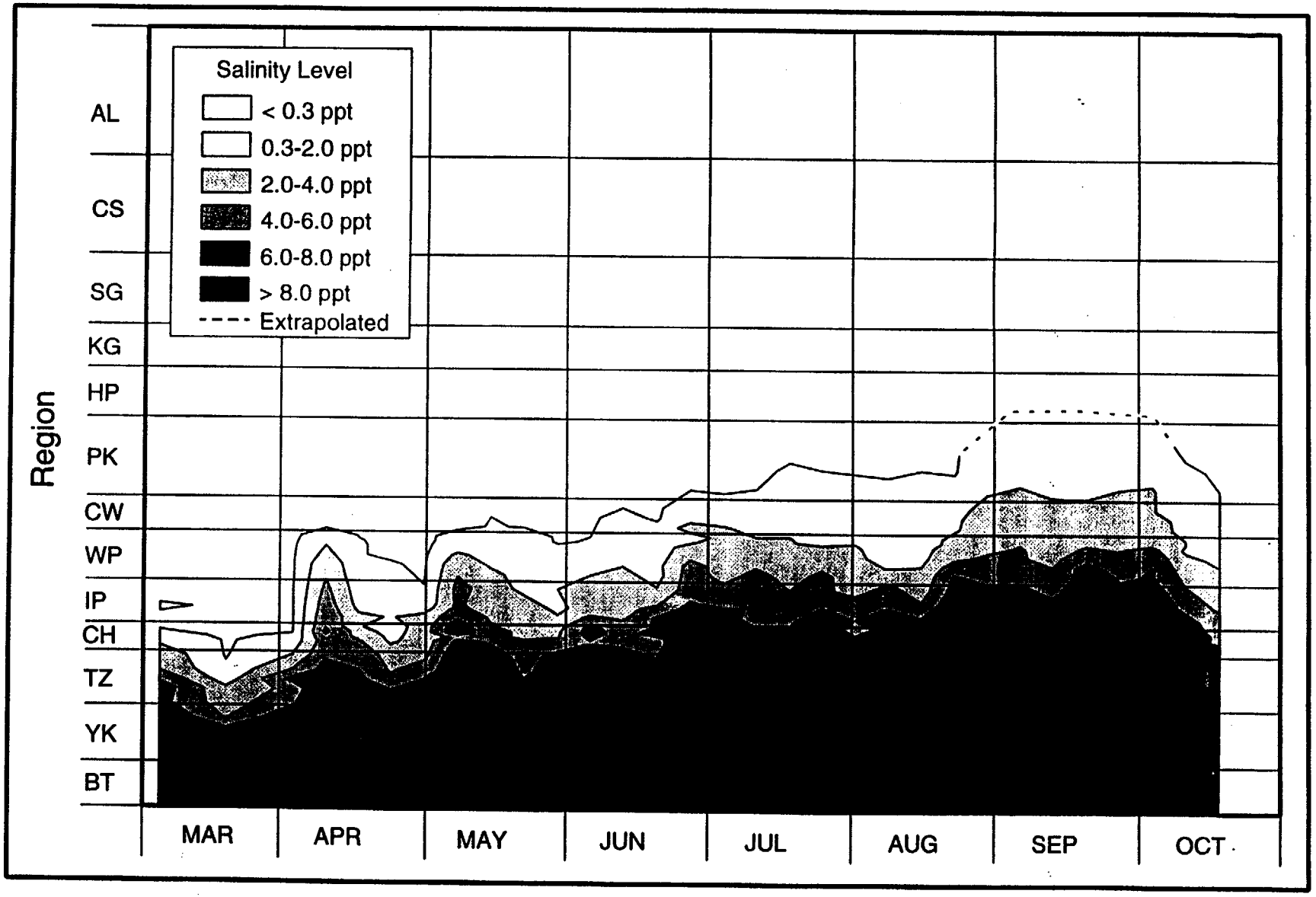


Figure 3-4. Seasonal variations in salinity based on the 1995 Longitudinal River Ichthyoplankton and Fall Shoals surveys, average weekly values, RM 1 - RM 152.

TABLE 4-1 SPECIES COMPOSITION OF FISH COLLECTED DURING HUDSON RIVER STUDIES FROM 1974 TO 1995

Common Name	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Fresh Water																						
Banded killifish	X	X	X	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	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	X	X	X
Bluntnose minnow	X	X	X	X	X	X	X														X	
Bridle shiner	X		X						X													
Brook silverside																					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	X	X	X
Brown trout			X	X	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	X	X	X
Central mudminnow			X				X							X								
Chain pickerel	X	X	X	X	X	X	X	X	X		X					X			X			X
Channel catfish	X							X					X	X	X	X	X	X	X	X	X	X
Comely shiner	X						X													X		
Common shiner	X	X	X	X	X	X	X	X		X					X		X		X	X		
Creek chub		X	X	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	X	X	
Fallfish		X	X	X	X	X	X	X	X	X				X				X	X	X	X	X
Fathead minnow	X	X	X	X	X	X	X					X	X			X					X	
Freshwater drum																X			X	X	X	X
Gizzard shad	X	X	X	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	X	X	X
Goldfish	X	X	X	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	X	X	X
Logperch	X		X	X		X	X			X					X	X			X	X		
Longear sunfish																	X					
Longnose dace		X	X	X	X				X			X										
Margined madtom														X				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	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	X	X	X
Rainbow trout						X																X
Redbreast sunfish	X	X	X	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	X	X	X
Rosyface shiner	X																					
Satinfin shiner	X	X	X	X	X	X	X				X	X	X		X		X			X		X
Shield darter							X															

Data collected in the 1995 BSS (Figure 3-5, Appendix Table B-12) indicated slightly higher mean regional dissolved oxygen and percent oxygen saturation than recorded in the LRS/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.

TABLE 4-1 (Continued)

Common Name	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Northern kingfish	X	X	X	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	X	X	X
Northern puffer		X		X		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		X	X	X
Northern stargazer	X						X		X	X	X	X			X		X	X	X	X	X	X
Orangespotted filefish													X									
Oyster toadfish																			X			X
Permit																			X	X		
Pinfish																						X
Pollack		X																				
Red hake	X		X			X	X	X			X	X			X	X	X		X	X		
Rock gunnel			X	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	X	X	X
Scup	X																					X
Sea raven							X															
Searobin unidentified		X	X		X		X	X							X		X	X				
Seaboard goby		X	X				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	X	X	X
Smallmouth flounder						X	X		X		X	X			X		X	X	X	X	X	X
Spanish mackerel																	X	X		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	X	X	
Spotfin butterflyfish									X			X										X
Spotfin mojarra									X												X	
Spotted goatfish																				X		
Spotted hake							X			X	X	X	X	X	X	X	X	X	X	X	X	X
Striped anchovy		X				X			X			X							X	X	X	X
Striped cuskeel							X					X	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				X
Striped burrfish													X									
Striped searobin		X			X	X	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	X	X	X
Tautog		X				X	X	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	X	X	X
White mullet	X	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	X	X	X
Winter flounder	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Yellowtail flounder	X																		X		X	X
Total	27	29	29	24	22	31	37	28	29	24	32	39	40	32	45	37	40	43	44	40	39	43

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 River, only the American eel is catadromous; thus 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 1995 (Table 4-1) with no apparent trend. Total number of fish collected by species in the LRS, BSS, and FSS sampling efforts between 1988 and 1995 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 are several species that occurred consistently in the early years and not in the later years, such as bluntnose minnow, blacknose dace, and trout perch. Conversely, there are several species that were not present in the early years but have been recorded recently, such as brook silverside, channel catfish, and freshwater drum. There were no new freshwater species recorded in 1995.

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. The new marine species recorded in 1995 was the pinfish.

Thirty-six out of the 89 species recorded during 1995 were collected in all three sampling surveys, while 32 of the remaining 53 species were collected in only one of the surveys (Table 4-2). Of the 31 freshwater species, 14 (45 percent) of them were collected only in the BSS. More freshwater taxa were collected in the BSS than in the other two surveys and more marine species were captured in the LRS.

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 mid-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

TABLE 4-2 SPECIES COMPOSITION OF FISH COLLECTED IN EACH OF THE HUDSON RIVER SURVEYS DURING 1995

Common Name	BSS	FSS	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
Striped bass	X	X	X
Total	5	7	7
Catadromous			
American eel	X	X	X
Total	1	1	1
Estuarine			
Fourspine stickleback	X	X	X
Hogchoker	X	X	X
Inland silverside	X	X	X
Mummichog	X		X
Shortnose sturgeon	X	X	X
Threespine stickleback			X
White perch	X	X	X
Total	6	5	7
Freshwater			
Banded killifish	X	X	X
Black crappie	X		
Bluegill	X	X	X
Brook silverside	X		
Brown bullhead	X	X	X
Brown trout	X		
Carp	X	X	X
Chain pickerel	X		
Channel catfish		X	X
Creek chub	X		
Fallfish	X		
Freshwater drum		X	X
Gizzard shad	X	X	X
Golden shiner	X		X
Goldfish	X		
Largemouth bass	X		
Pumpkinseed	X	X	
Rainbow trout	X		
Redbreast sunfish	X	X	
Rock bass	X		
Satinfin shiner	X		
Silvery minnow	X		
Smallmouth bass	X		
Spotfin shiner	X		

TABLE 4-1 (Continued)

Common Name	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Silvery minnow	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Smallmouth bass	X	X	X	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					X	X	X
Spottail shiner	X	X	X	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	X	X	X
Tiger muskellunge																			X			X
Trout perch	X	X	X	X	X	X					X											
Walleye			X	X	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	X	X	X
White crappie	X	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	X	X	X
Yellow bullhead		X						X								X						X
Yellow perch	X	X	X	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	31	32	31
Marine																						
American sandlance													X	X	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	X	X	X
Atlantic herring		X	X		X	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	X	X	X
Atlantic needlefish	X	X	X	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	X	X	X
Bay anchovy	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Black seabass					X							X			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	X	X	X
Butterfish	X	X	X	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	X	X	X
Crevalle jack	X	X	X	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	X	X	X
Fourbeard rockling						X	X								X	X	X	X	X	X	X	X
Fourspot flounder	X						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	X	X	X
Hickory shad		X			X	X				X			X									X
Inshore lizardfish	X					X	X	X			X	X			X	X		X	X	X	X	X
Lined seahorse															X		X	X				X
Longhorn sculpin	X	X								X						X				X		
Lookdown	X	X	X	X		X	X	X				X	X	X	X	X	X				X	
Moonfish			X										X	X		X			X		X	
Naked goby	X		X								X	X	X	X	X	X	X	X	X	X	X	X

TABLE 4-2 (Continued)

Common Name	BSS	FSS	LRS
Marine (Continued)			
Windowpane		X	X
Winter flounder	X	X	X
Yellowtail flounder			X
Total	23	28	37
Undetermined			
Atherinidae			X
Centrarchidae	X		X
Clupeidae	X	X	X
Cyprinidae	X		X
Fundulus sp.			X
Gadidae			X
Gobiidae			X
Menidia sp.			X
Morone sp.	X		X
Total	4	1	9

TABLE 4-1 (Continued)

Common Name	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
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	X	X	X
Hogchoker	X	X	X	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	X	X	X
Mummichog	X	X	X	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	X	X	X
Threespine stickleback	X	X	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	X	X	X
Total	7	6	7	7	6	7	7	7	7	7	7	7	8	7	7	7	7	7	7	7	6	7
Catadromous																						
American eel	X	X	X	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	1	1	1
Anadromous																						
Alewife	X	X	X	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	X	X	X
Atlantic sturgeon	X	X	X	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	X	X	X
Blueback herring	X	X	X	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	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	X	X	X
Total	8	8	7	7	7	8	8	8	7	7	8	7	7	7	8	7	8	7	7	7	7	7
All Categories																						
Total	82	83	85	82	75	84	93	75	68	64	76	81	82	75	93	82	85	89	92	86	85	89

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 1-4 days, depending on temperature, 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 1995, striped bass YSL were most abundant mid-river, slightly downriver of the location of egg abundance (Figure 4-1). In other years in the Hudson River, however, the peak in yolk-sac abundance was often further upriver than the peak in eggs. 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).

Transformation to the PYSL stage occurs from 4 to 9 days after hatching, when the larvae are 1/4 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 1/2 in. long. During 1995, 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 1995 spatiotemporal distribution pattern seen in both the LRS (Figure 4-2), and BSS and FSS (Figure 4-3). Larger juveniles, over 2-1/2 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 throughout the estuary during 1995 (Figure 4-4).

Comparing the temporal distribution of early life stages of striped bass in 1995 with previous years (1974-1994), peak egg density in 1995 closely corresponded to the historical pattern of peak occurrence in mid- to late May (Figure 4-5). YSL and PYSL abundance in 1995 lagged slightly behind the historical trend, extending into mid-June. YOY abundance fit the temporal composition of the historical pattern, however, most of the YOY were collected later in 1995, beyond the temporal limits of this comparison.

Striped bass eggs in the 1995 LRS were primarily in the Kingston and Saugerties regions (Figure 4-6). The proportion of eggs upriver in the Saugerties region was much higher than observed in the historical trend, which has shown a concentration in the Kingston region and a downriver distribution of eggs to West Point. The YSL and PYSL distribution in 1995 was generally consistent with the pattern seen across years of greatest distribution in the middle estuary. YOY were distributed throughout the Hudson River estuary in 1995 as in previous years, with slightly more YOY found in the Tappan Zee region in 1995. The 1995 geographical distribution of YOY, or juvenile, striped bass in the BSS was consistent with the long-term trend (based on data from 1974 to 1994), 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 1992).

TABLE 4-2 (Continued)

Common Name	BSS	FSS	LRS
Freshwater (Continued)			
Spottail shiner	X	X	X
Tesselated darter	X	X	X
Tiger muskellunge		X	
White catfish	X	X	X
White sucker	X		X
Yellow bullhead			X
Yellow perch	X		X
Total	27	13	14
Marine			
American sand lance			X
Atlantic croaker	X	X	X
Atlantic herring			X
Atlantic menhaden	X	X	X
Atlantic needlefish	X	X	X
Atlantic silverside	X	X	X
Bay anchovy	X	X	X
Bluefish	X	X	X
Butterfish		X	X
Conger eel		X	X
Crevalle jack	X	X	
Cunner			X
Fourbeard rockling			X
Grubby	X		X
Hickory shad	X		X
Inshore lizardfish	X		X
Lined seahorse		X	X
Naked goby	X	X	X
Northern kingfish	X	X	X
Northern pipefish	X	X	X
Northern puffer	X	X	X
Northern searobin		X	X
Northern stargazer	X		
Oyster toadfish		X	
Pinfish			X
Rock gunnel			X
Rough silverside	X	X	X
Scup		X	
Seaboard goby			X
Silver perch	X	X	X
Smallmouth flounder	X	X	X
Spotfin butterflyfish		X	
Spotted hake		X	X
Striped anchovy	X	X	X
Striped cuskeel			X
Striped mullet	X		
Striped searobin		X	X
Summer flounder	X	X	X
Tautog			X
Weakfish	X	X	X

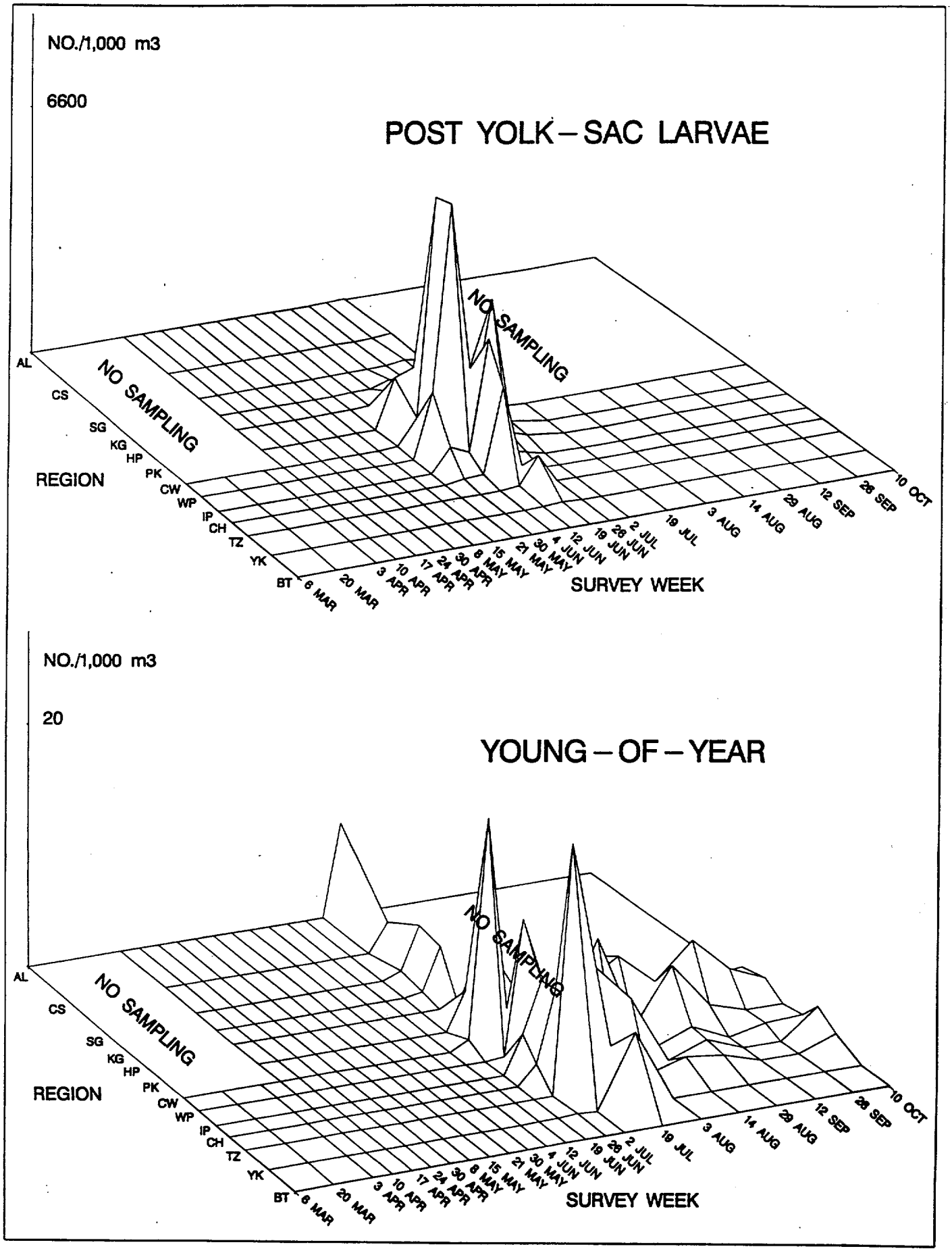


Figure 4-2. Spatiotemporal distribution of post yolk-sac and young-of-year stages of striped bass in the Hudson River estuary based on the 1995 Longitudinal River Ichthyoplankton Survey.

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. Extension of the LRS sampling program into the more saline portion of the Hudson River estuary, the Battery region, increased the possibility of collecting more marine species.

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 60-65 °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. Depending on their age and size, females

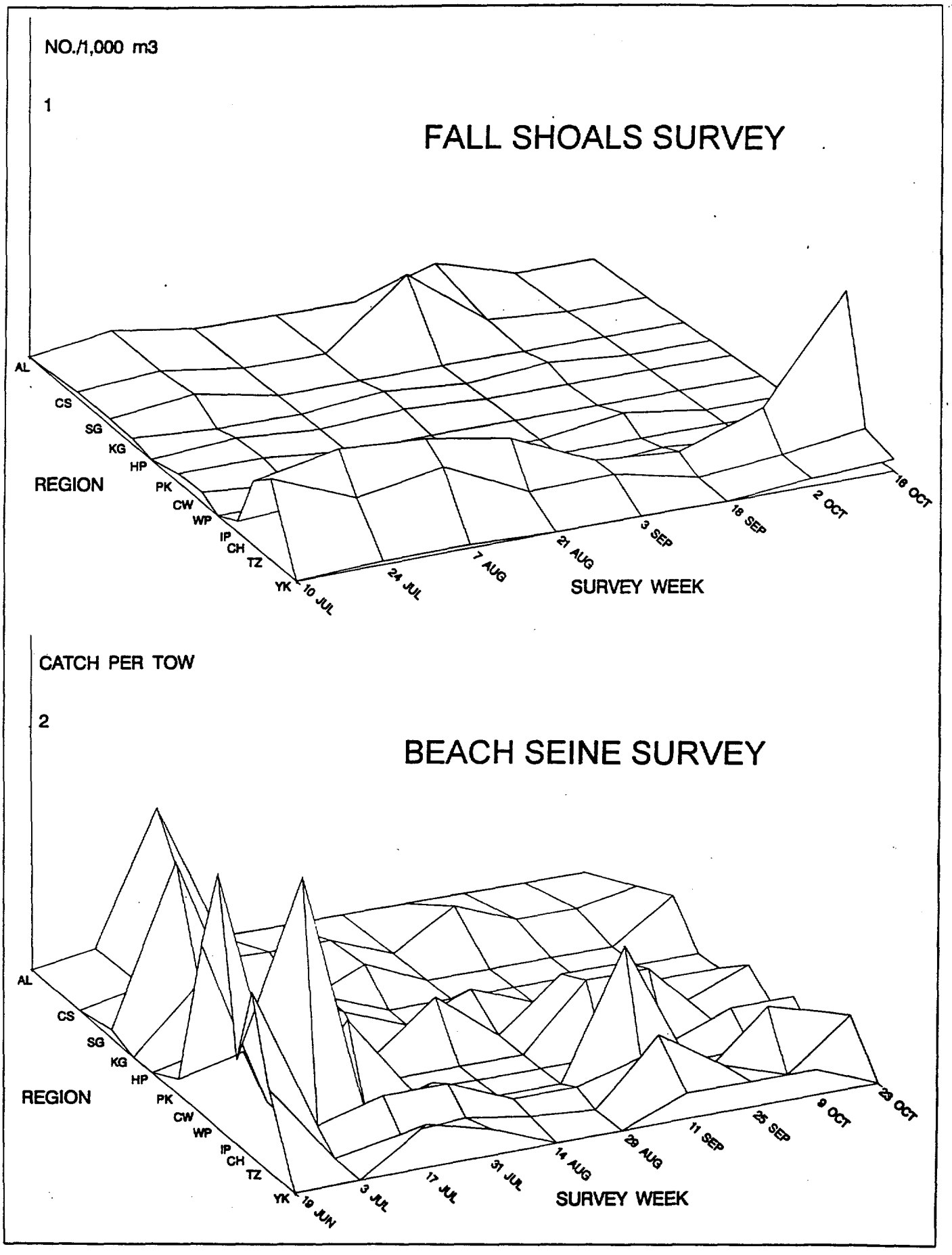


Figure 4-4. Spatiotemporal distribution of yearling and older striped bass in the Hudson River estuary based on the 1995 Fall Shoals and Beach Seine surveys.

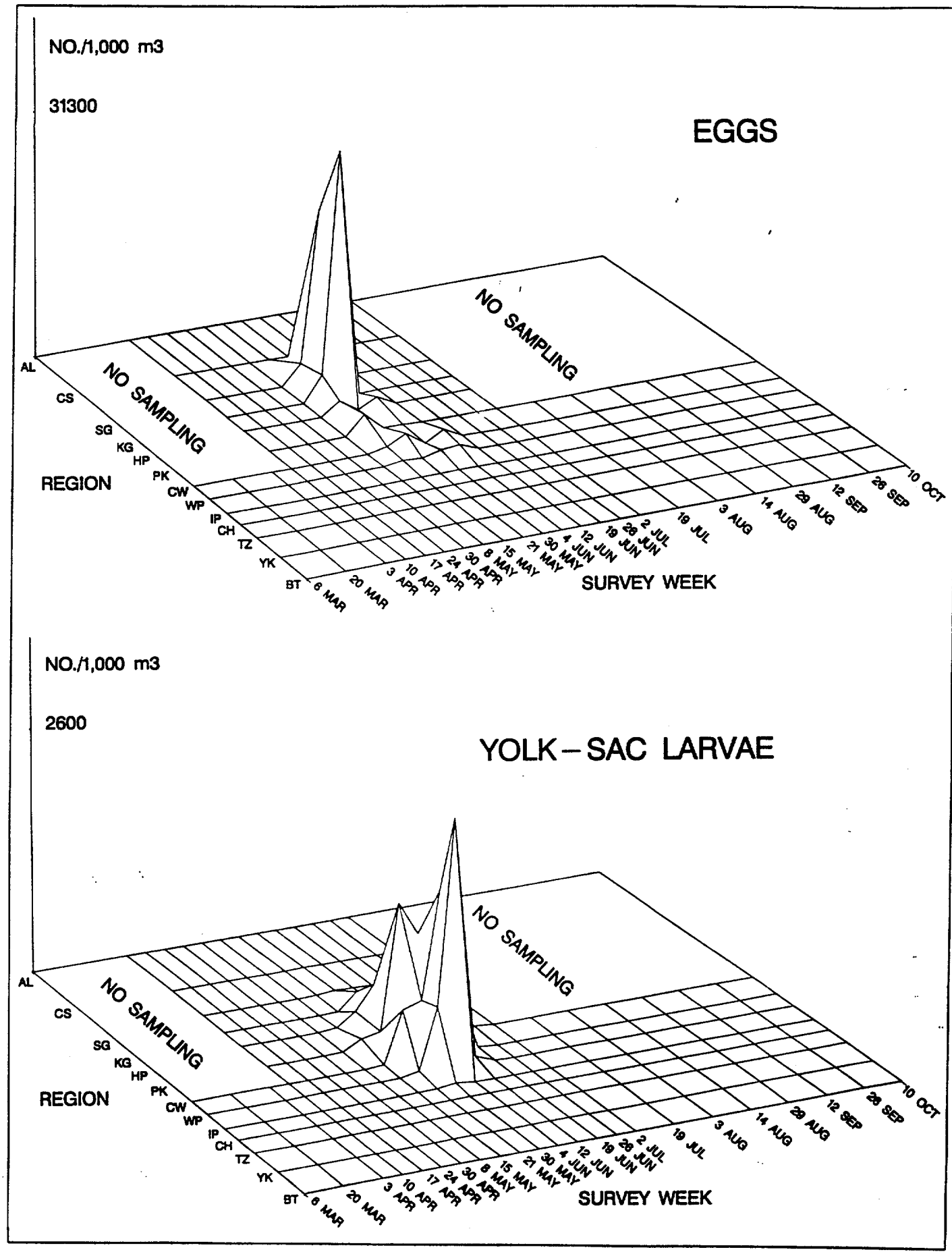


Figure 4-1. Spatiotemporal distribution of egg and yolk-sac stages of striped bass in the Hudson River estuary based on the 1995 Longitudinal River Ichthyoplankton Survey.

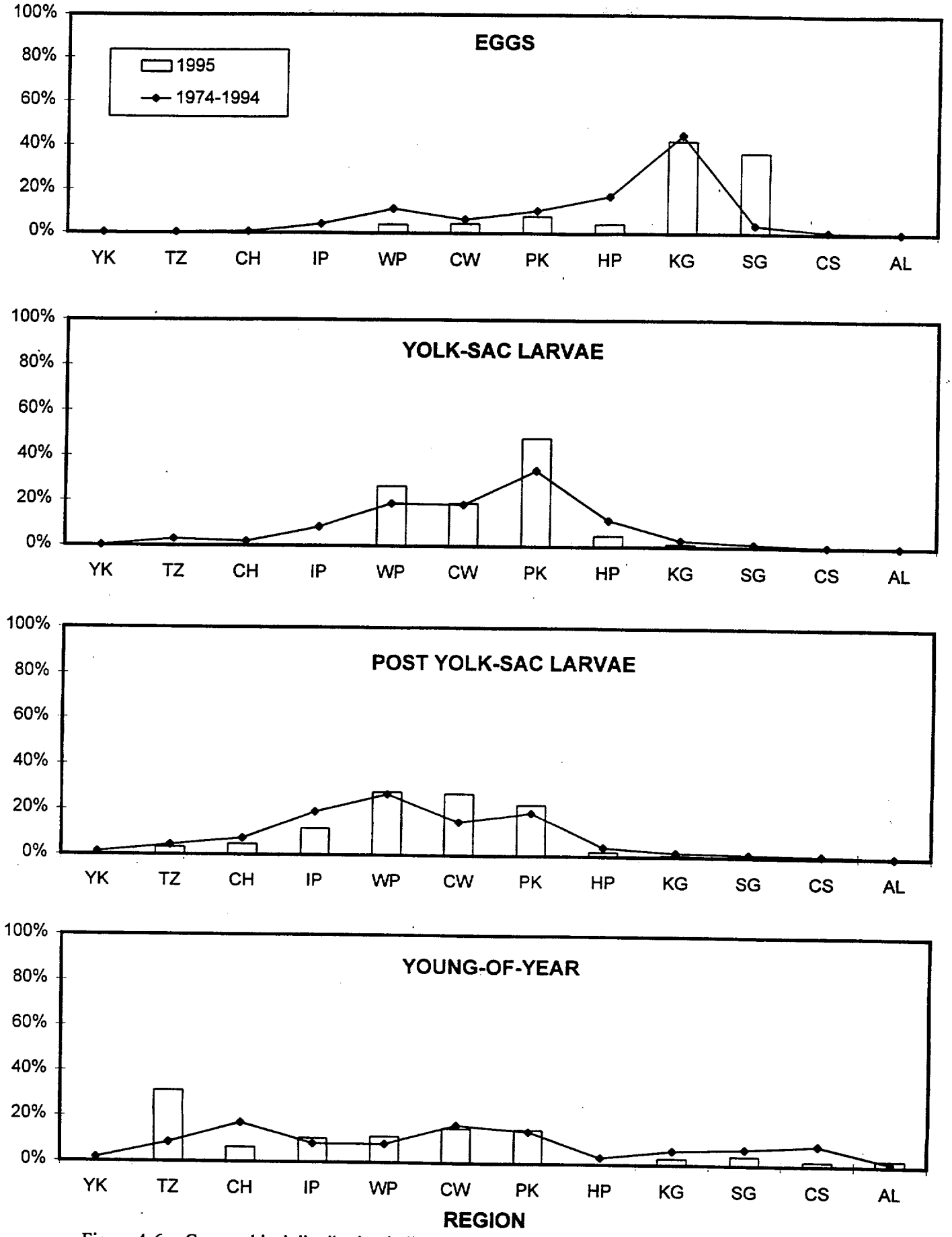


Figure 4-6. Geographical distribution indices for early life stages of striped bass collected during Longitudinal River Ichthyoplankton surveys of the Hudson River estuary, 1974-1995.

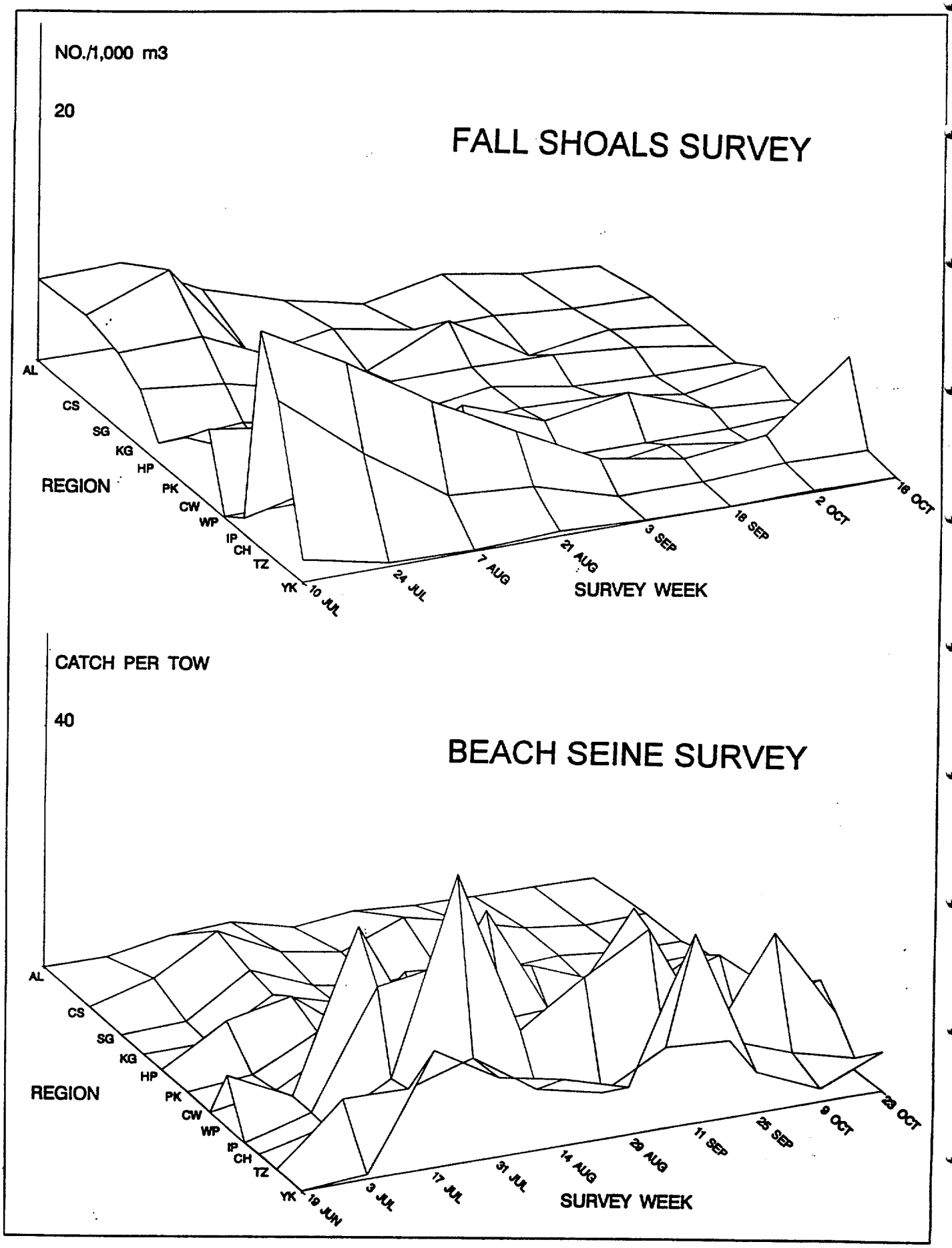


Figure 4-3. Spatiotemporal distribution of young-of-year striped bass in the Hudson River estuary based on the 1995 Fall Shoals and Beach Seine surveys.

Weekly length statistics for striped bass from yolk-sac through juvenile life stages collected in 1995 show a rapid growth period in mid-July and steady growth thereafter through the end of BSS/FSS collections in October (Figure 4-8, 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 mi offshore, they are typically available to sport and commercial fishermen all along their migration route.

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 1995, white perch eggs were most abundant in the upper estuary, but extended to the Poughkeepsie region (Figure 4-9).

Hatching occurs in 1.5-6 days, with development occurring faster at higher temperatures. Newly hatched YSL are from 1/16 to 1/8 in. long. They remain on or near the bottom for 3-5 days and do not move about actively until the yolk-sac is absorbed (Mansueti 1964). White perch YSL were abundant in the upper and middle estuary during 1995, slightly downriver of the location of egg abundance (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 1995, white perch PYSL were

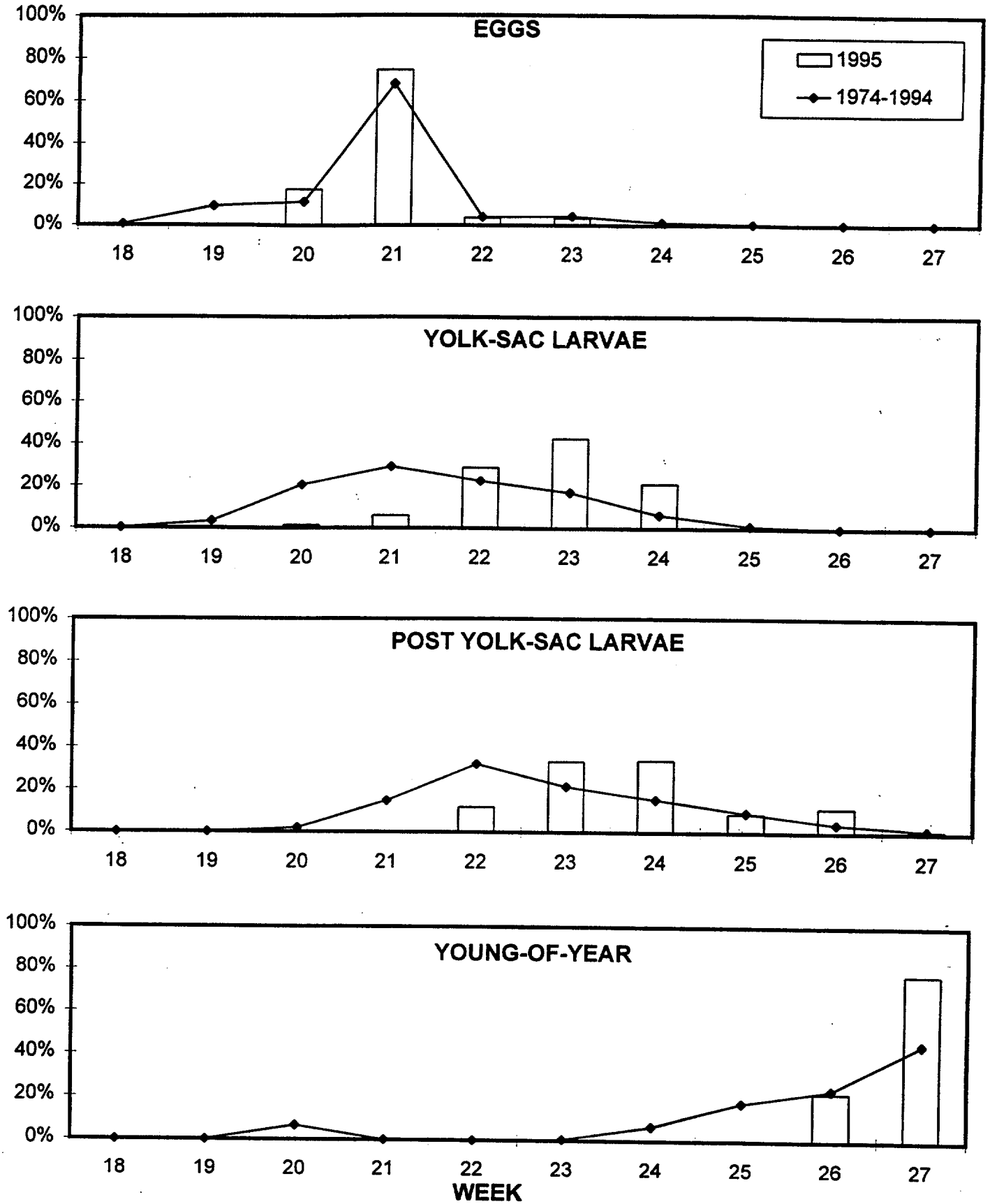


Figure 4-5. Temporal distribution indices for early life stages of striped bass collected during Longitudinal River Ichthyoplankton surveys of the Hudson River estuary, 1974-1995.

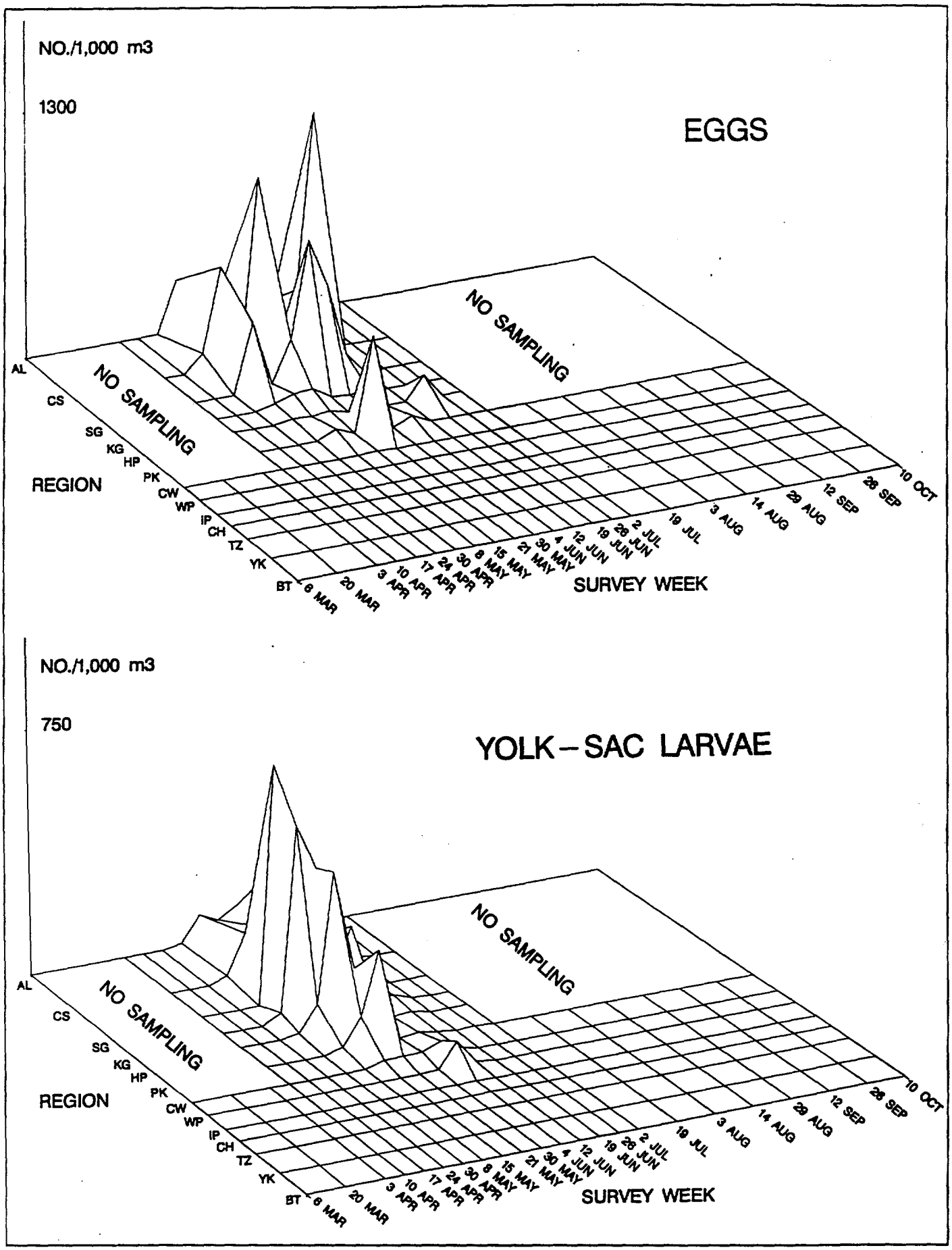


Figure 4-9. Spatiotemporal distribution of egg and yolk-sac stages of white perch in the Hudson River estuary based on the 1995 Longitudinal River Ichthyoplankton Survey.

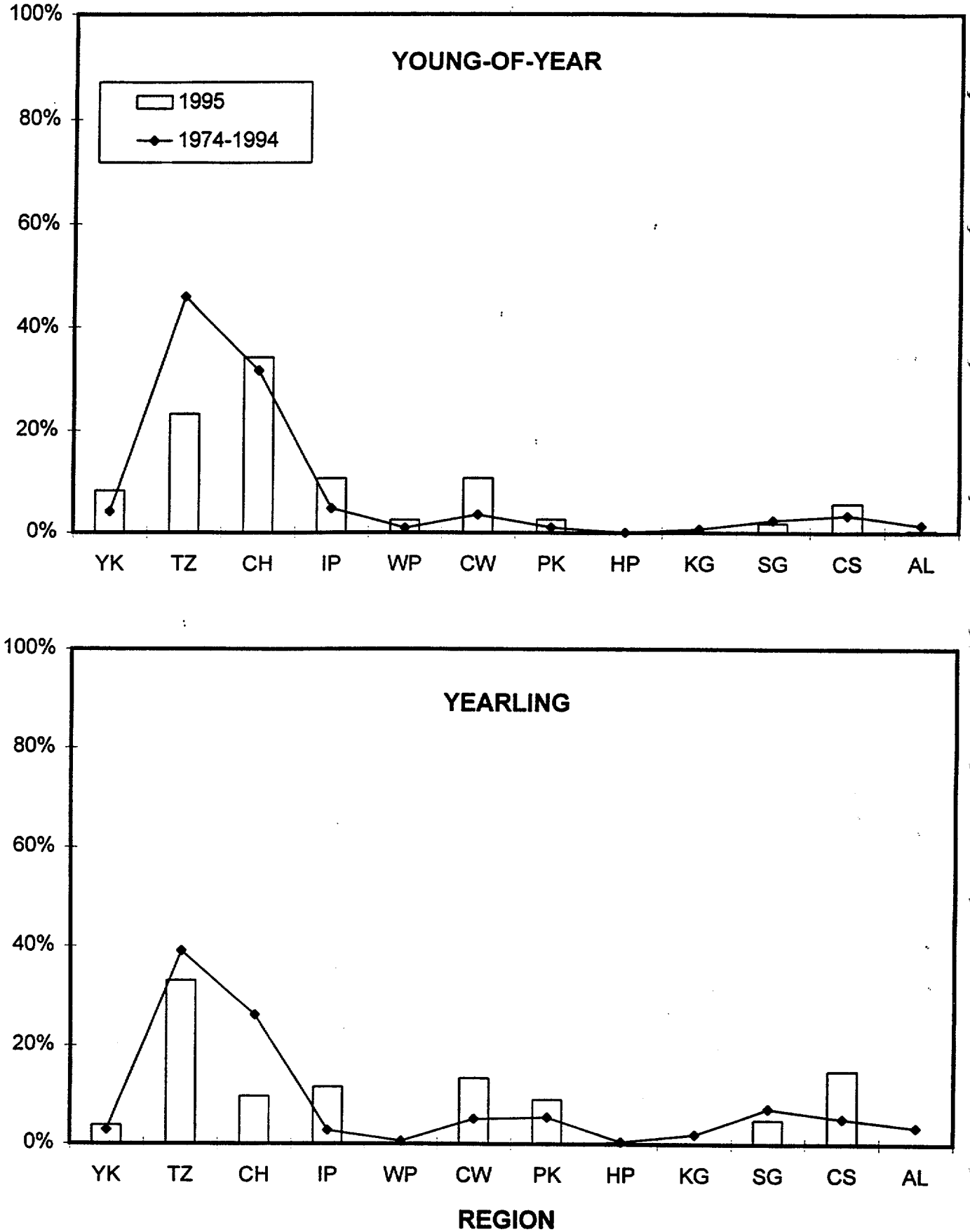


Figure 4-7. Geographical distribution indices for striped bass collected during Beach Seine surveys of the Hudson River estuary, 1974-1995.

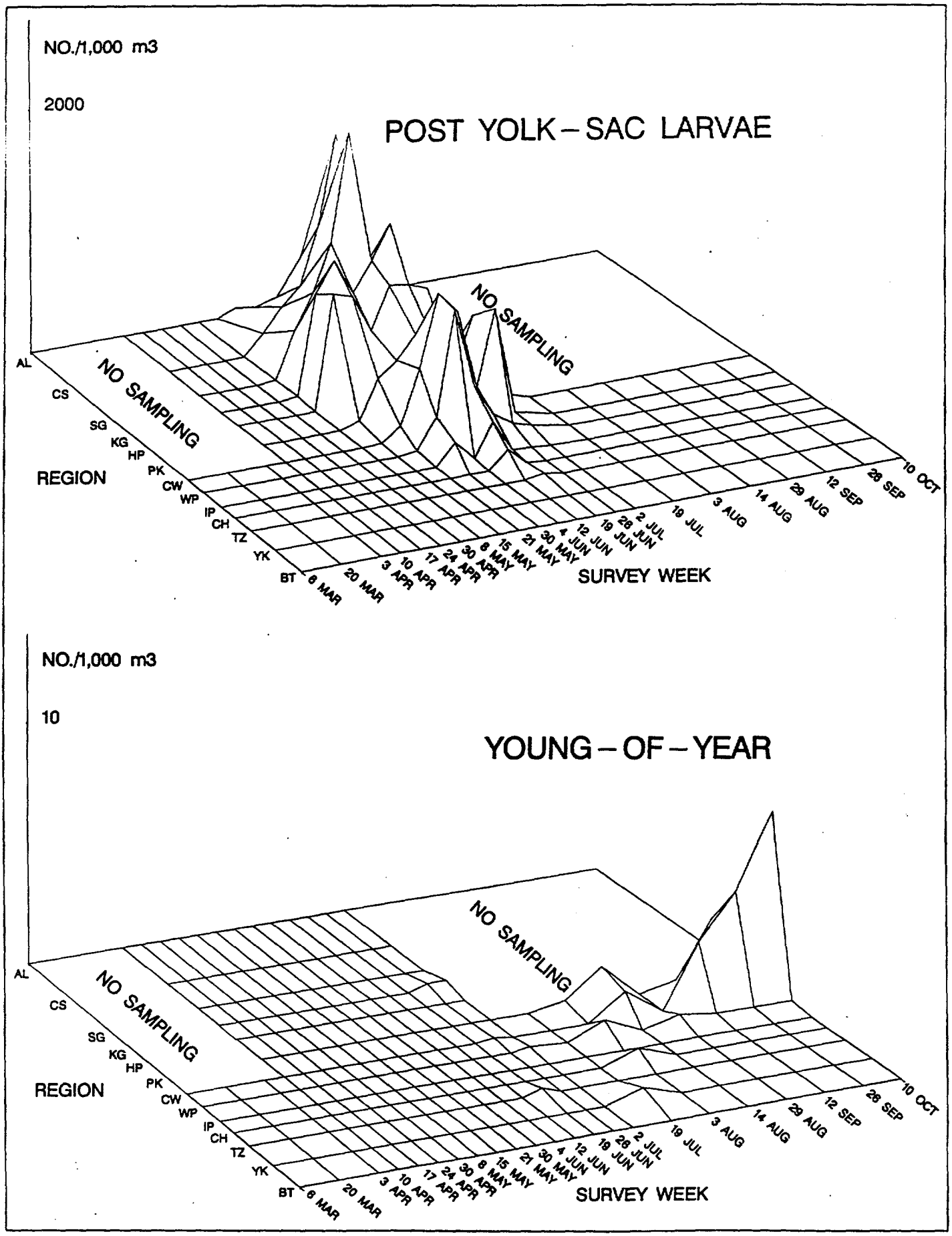


Figure 4-10. Spatiotemporal distribution of post yolk-sac and young-of-year stages of white perch in the Hudson River estuary based on the 1995 Longitudinal River Ichthyoplankton Survey.

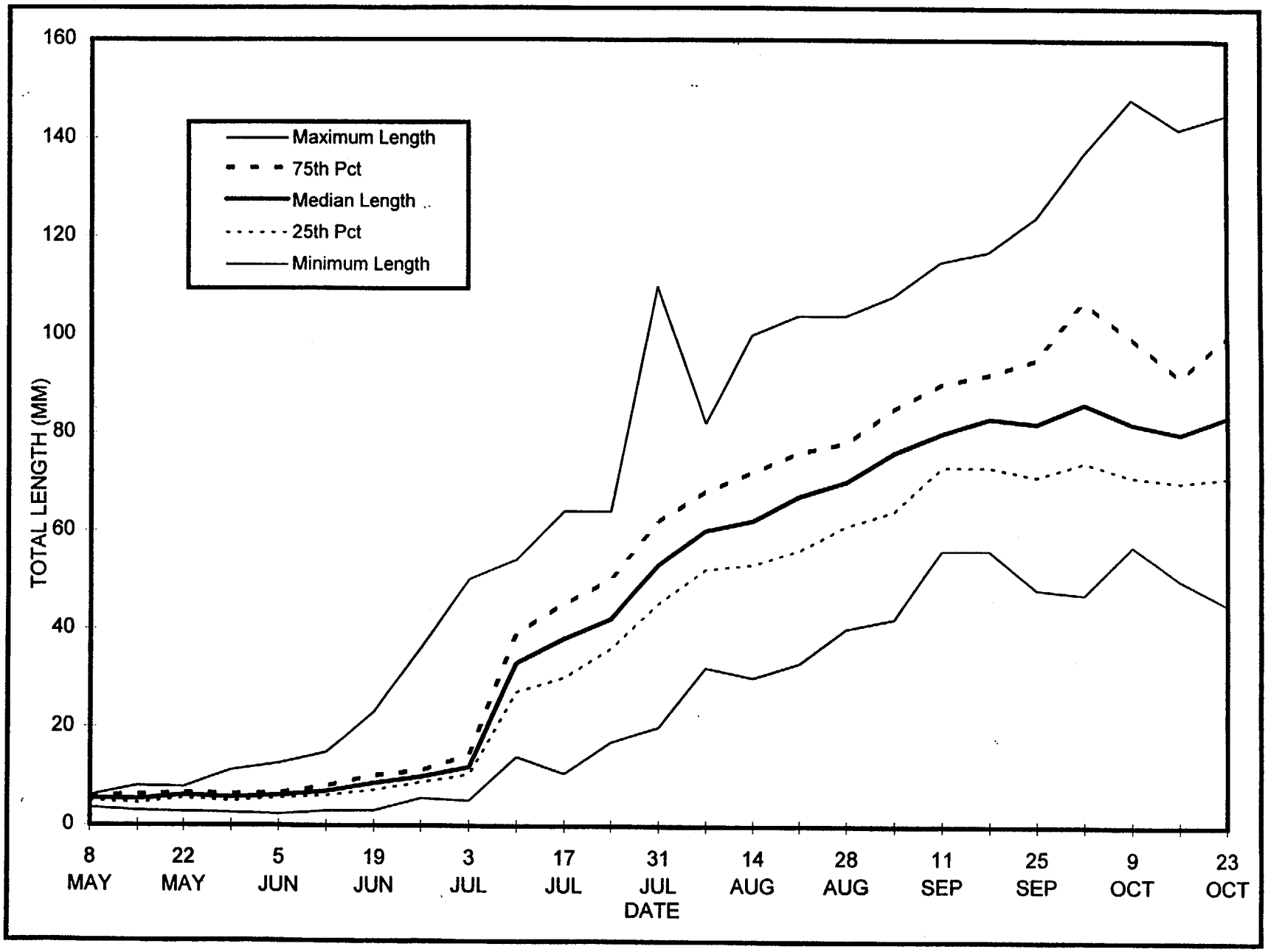


Figure 4-8. Weekly length statistics for larval and young-of-year striped bass in the Hudson River estuary, 1995.

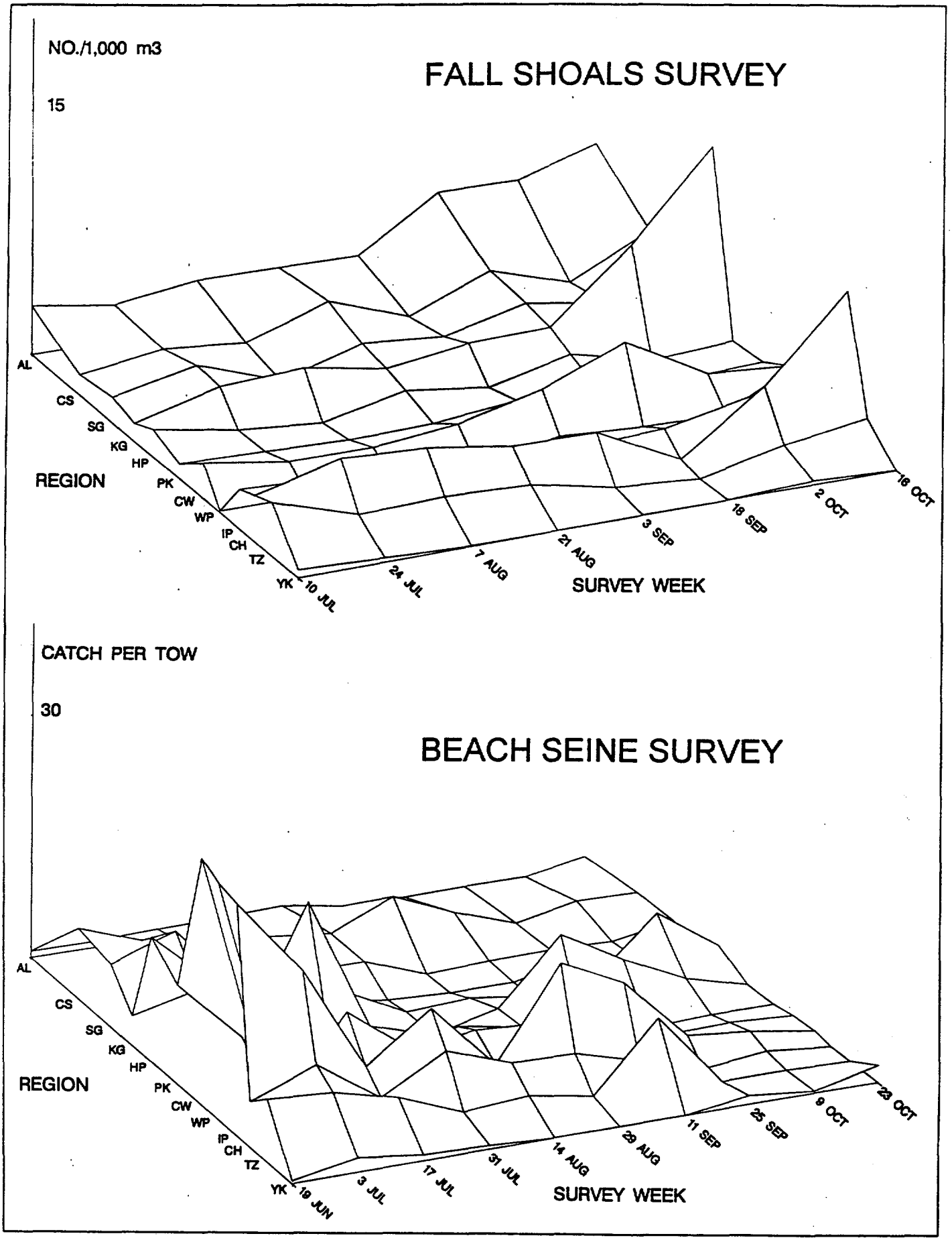


Figure 4-12. Spatiotemporal distribution of yearling and older white perch in the Hudson River estuary based on the 1995 Fall Shoals and Beach Seine surveys.

abundant from West Point to Albany (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 1995, YOY fish were found primarily in the middle estuary between the Hyde Park and West Point regions, but occurred throughout the entire estuary (Figure 4-11). 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 1995 FSS and BSS, yearling and older white perch were distributed throughout the Hudson River (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 1995 with previous years (1974-1994), the 1995 distribution was very similar to the long-term record. The majority of eggs occurred from early May to early June, peak YSL abundance was in mid-May, and PYSL were present from late May through late June (Figure 4-13).

White perch eggs in the 1995 LRS were primarily in the Saugerties and Catskill regions which is consistent with that observed in the historical trend (Figure 4-14). YSL and PYSL distributions in 1995 were also consistent with patterns seen across years with the majority of larvae between Poughkeepsie and Catskill. Historically, the geographical distribution of YOY and yearling white perch in the BSS has shown the main distribution center to be in the Tappan Zee and Croton-Haverstraw regions and a secondary distribution in the upriver region of Catskill (Figure 4-15). In 1995, about one-third of the YOY and yearling white perch were found in the Catskill region and the remainder were in the middle estuary with concentrations in Cornwall for YOY and Indian Point for yearling life stages.

Weekly length statistics for white perch from yolk-sac through juvenile life stages collected in 1995 show a rapid growth period beginning in early July, nearly steady growth to mid-September, and little increase in size through the end of BSS/FSS collections in October (Figure 4-16, Appendix Tables D-4 through D-6).

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 mid-winter. 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.

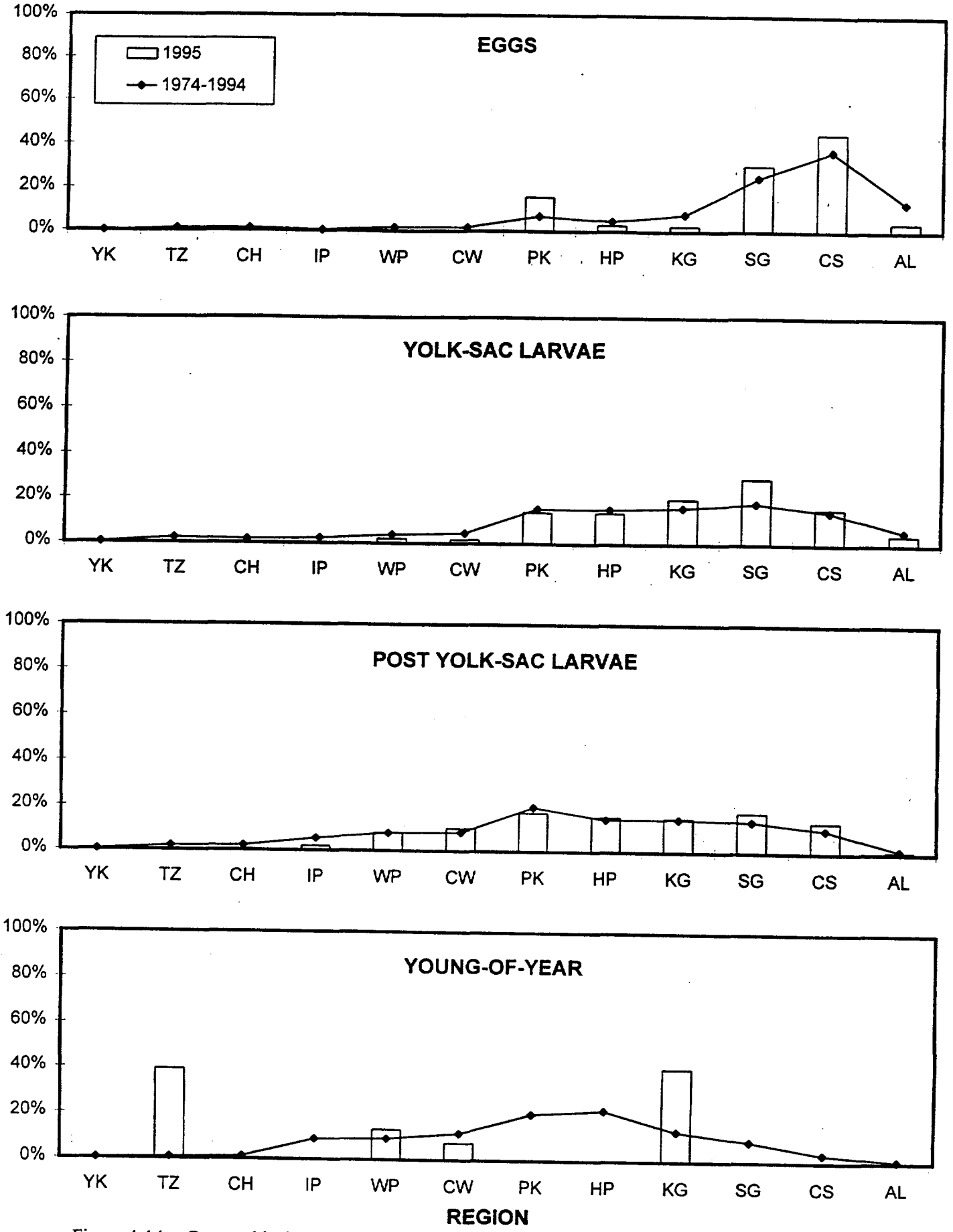


Figure 4-14. Geographical distribution indices for early life stages of white perch collected during Longitudinal River Ichthyoplankton surveys of the Hudson River estuary, 1974-1995.

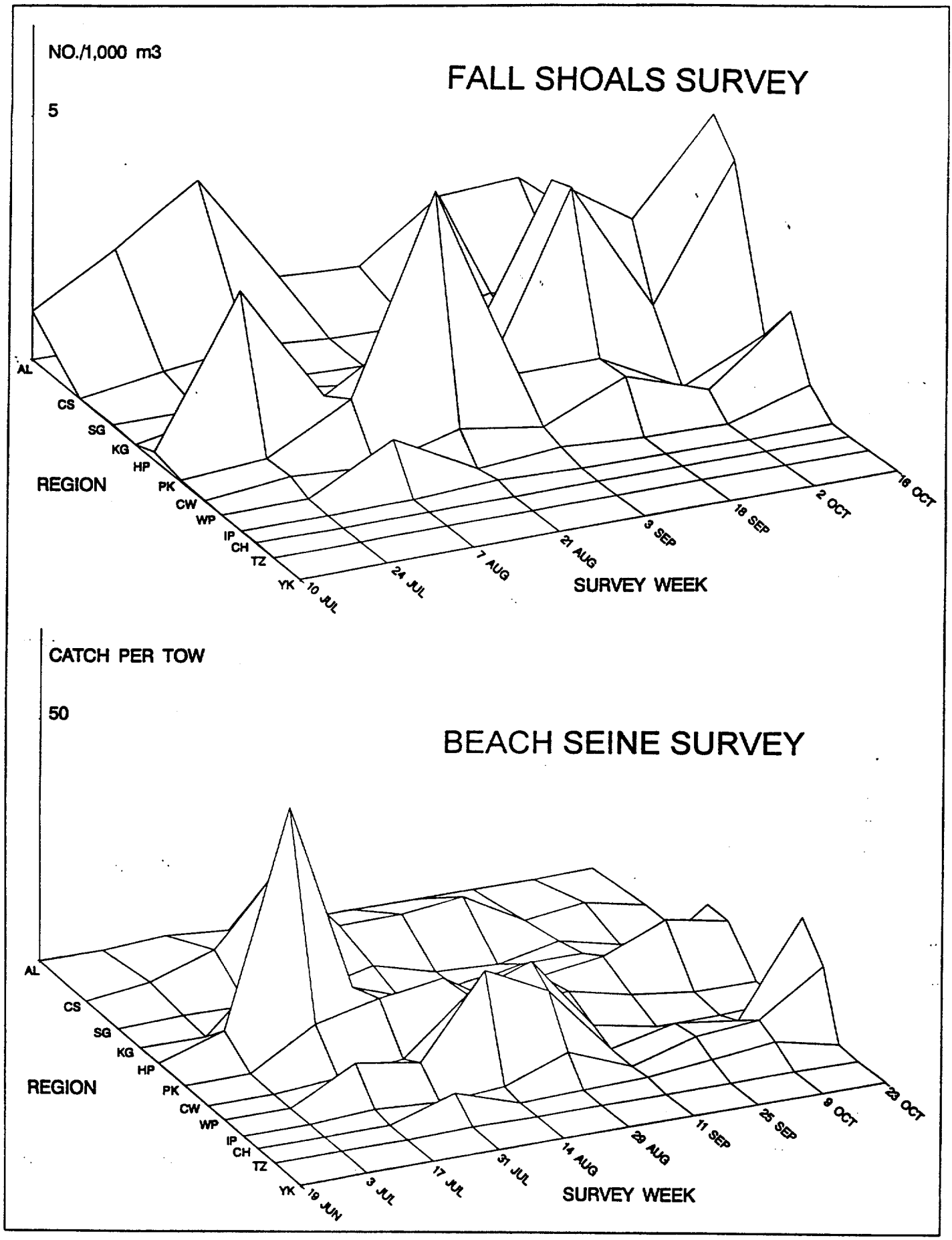


Figure 4-11. Spatiotemporal distribution of young-of-year white perch in the Hudson River estuary based on the 1995 Fall Shoals and Beach Seine surveys.

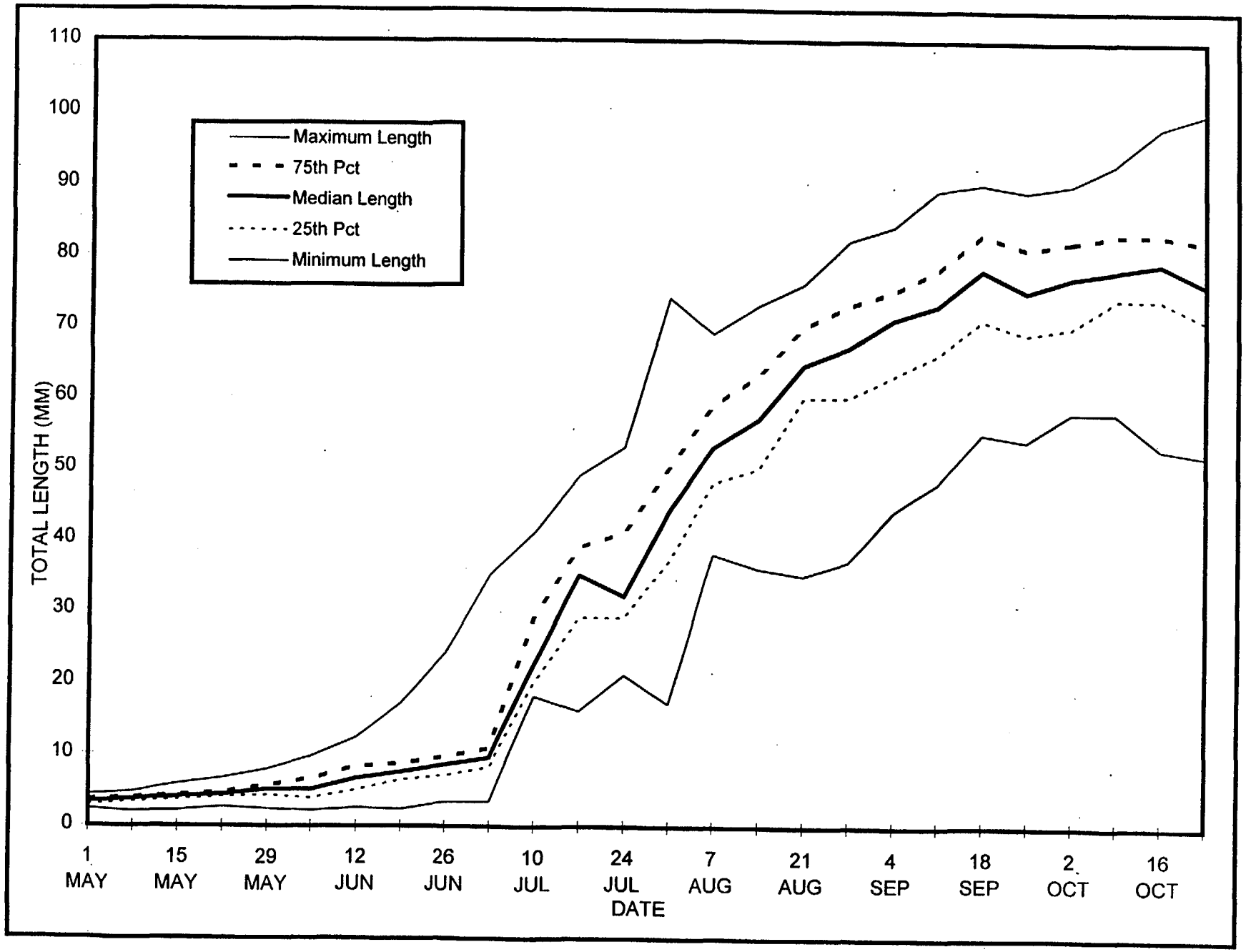


Figure 4-16. Weekly length statistics for larval and young-of-year white perch in the Hudson River estuary, 1995.

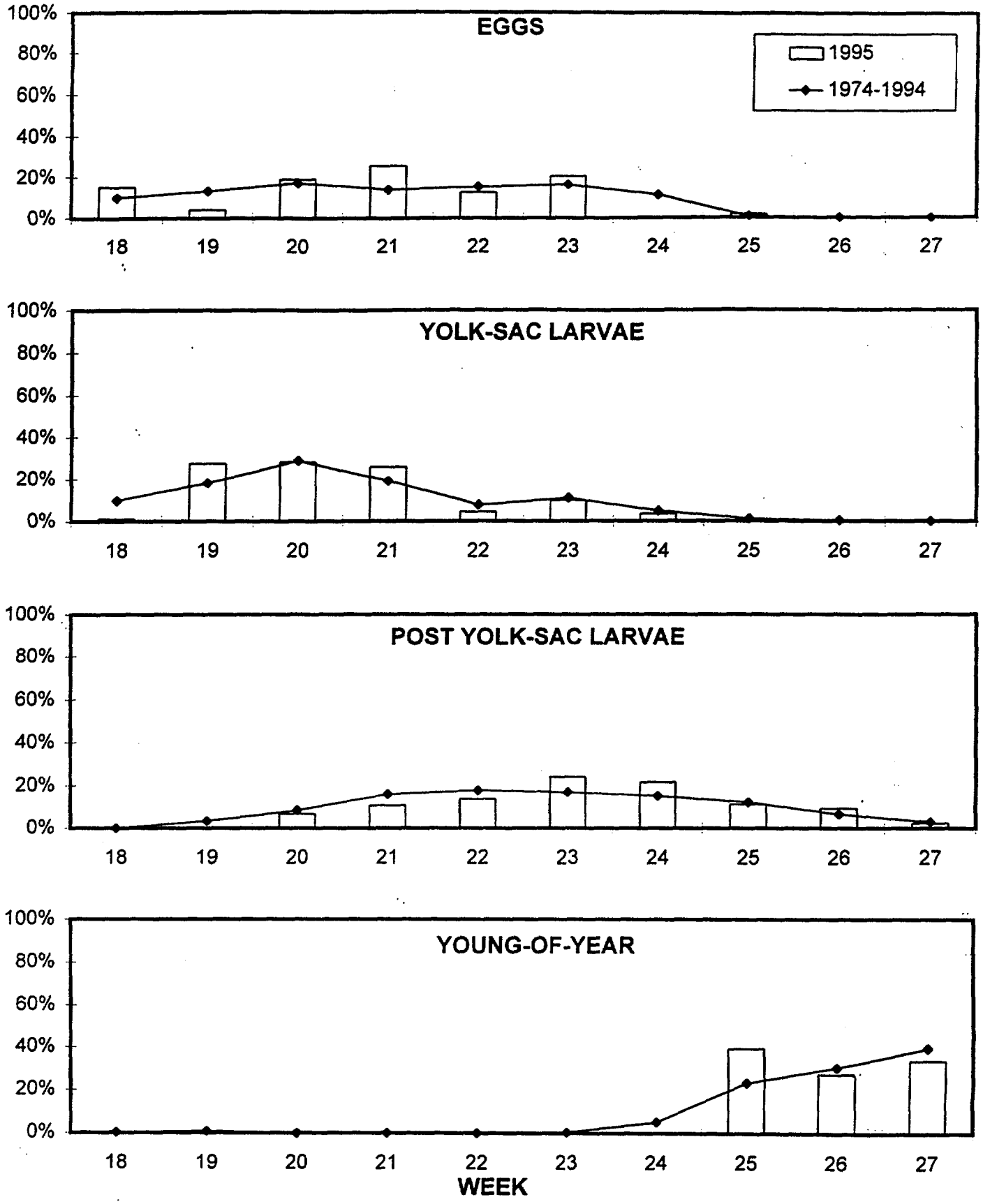


Figure 4-13. Temporal distribution indices for early life stages of white perch collected during Longitudinal River Ichthyoplankton surveys of the Hudson River estuary, 1974-1995.

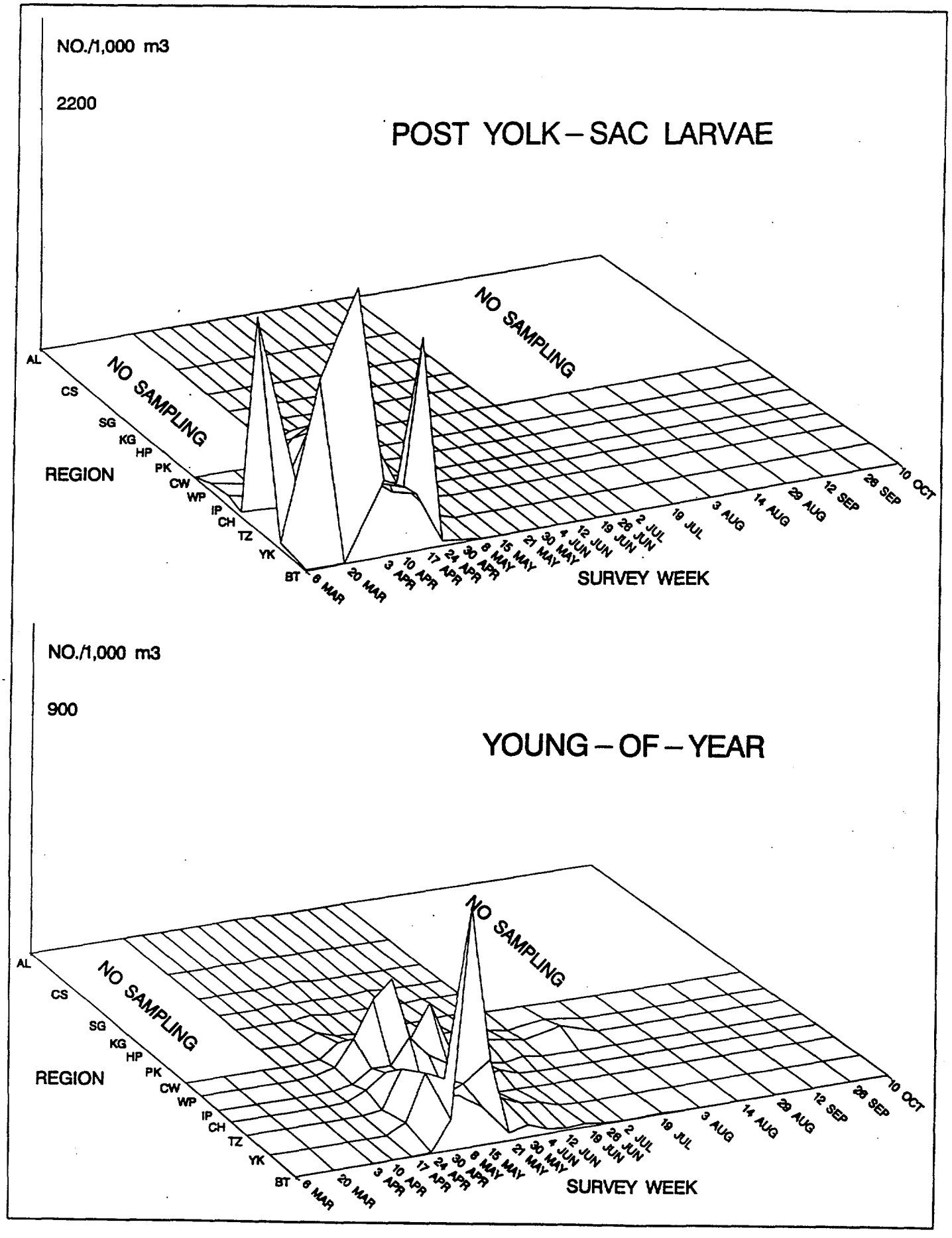


Figure 4-17. Spatiotemporal distribution of post yolk-sac and young-of-year stages of Atlantic tomcod in the Hudson River estuary based on the 1995 Longitudinal River Ichthyoplankton Survey.

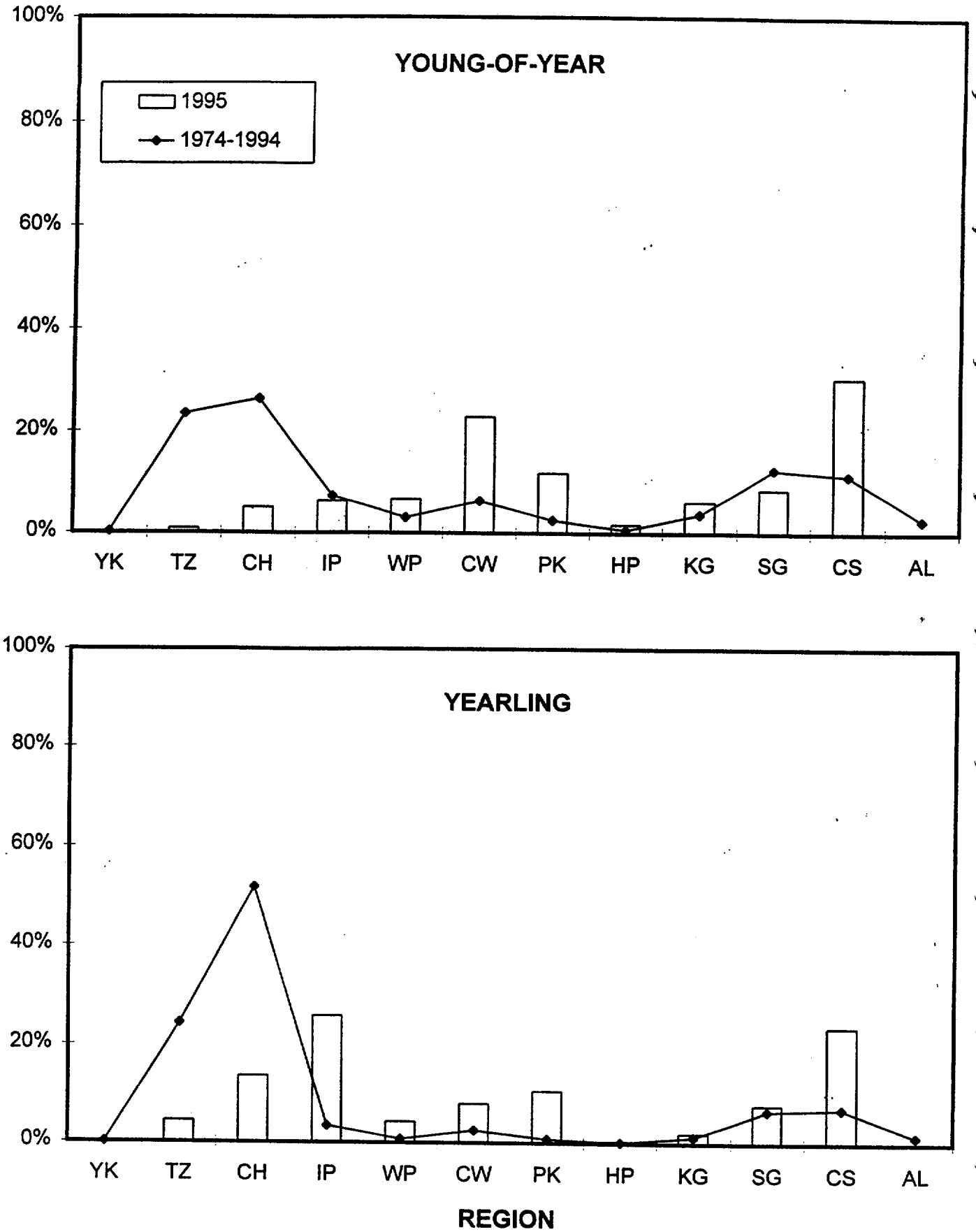
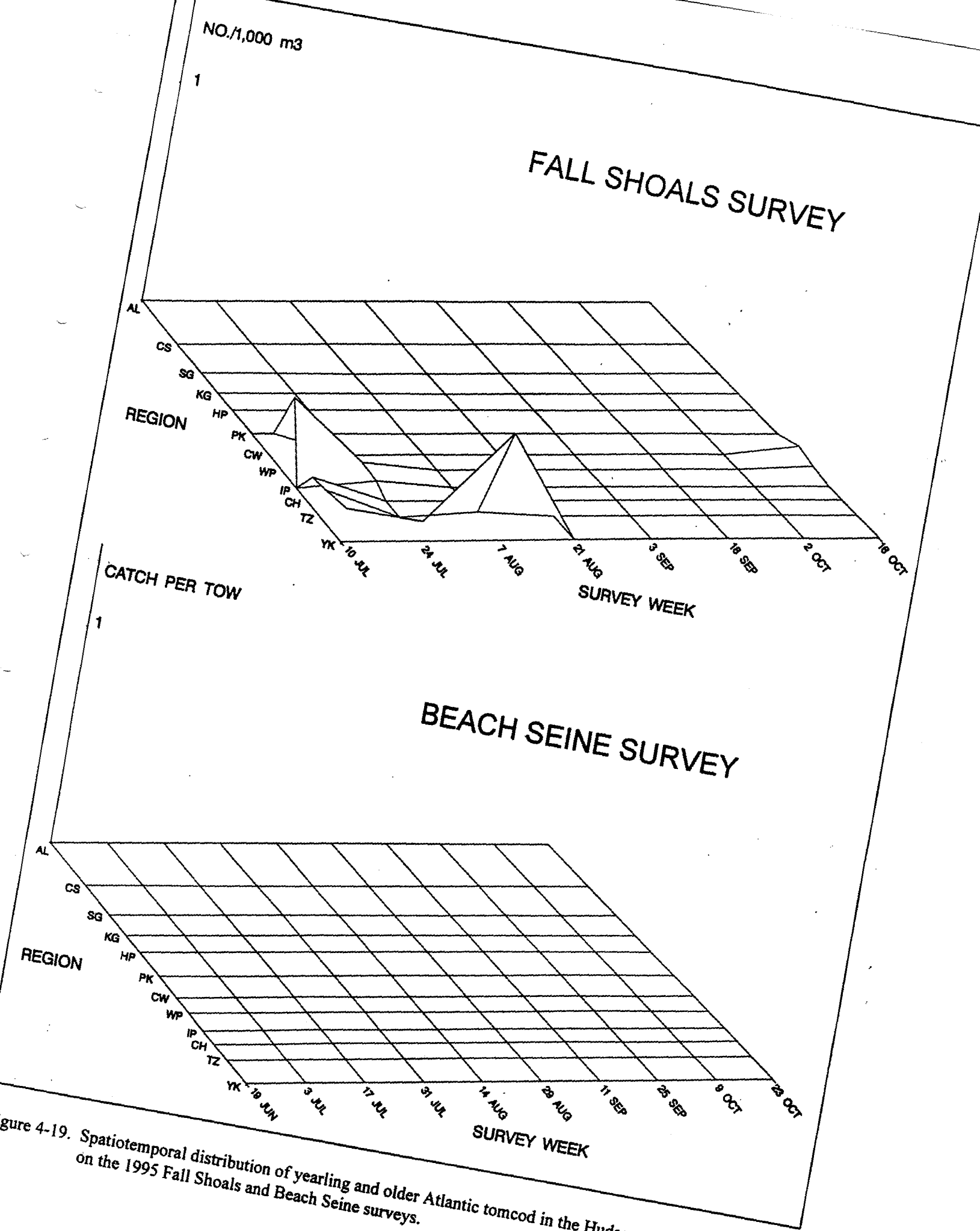


Figure 4-15. Geographical distribution indices for white perch collected during Beach Seine surveys of the Hudson River estuary, 1974-1995.



gure 4-19. Spatiotemporal distribution of yearling and older Atlantic tomcod in the Hudson River estuary b
on the 1995 Fall Shoals and Beach Seine surveys.

Atlantic tomcod eggs are about 1/16 in. in diameter and non-adhesive. 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.

Atlantic 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 1/4 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.

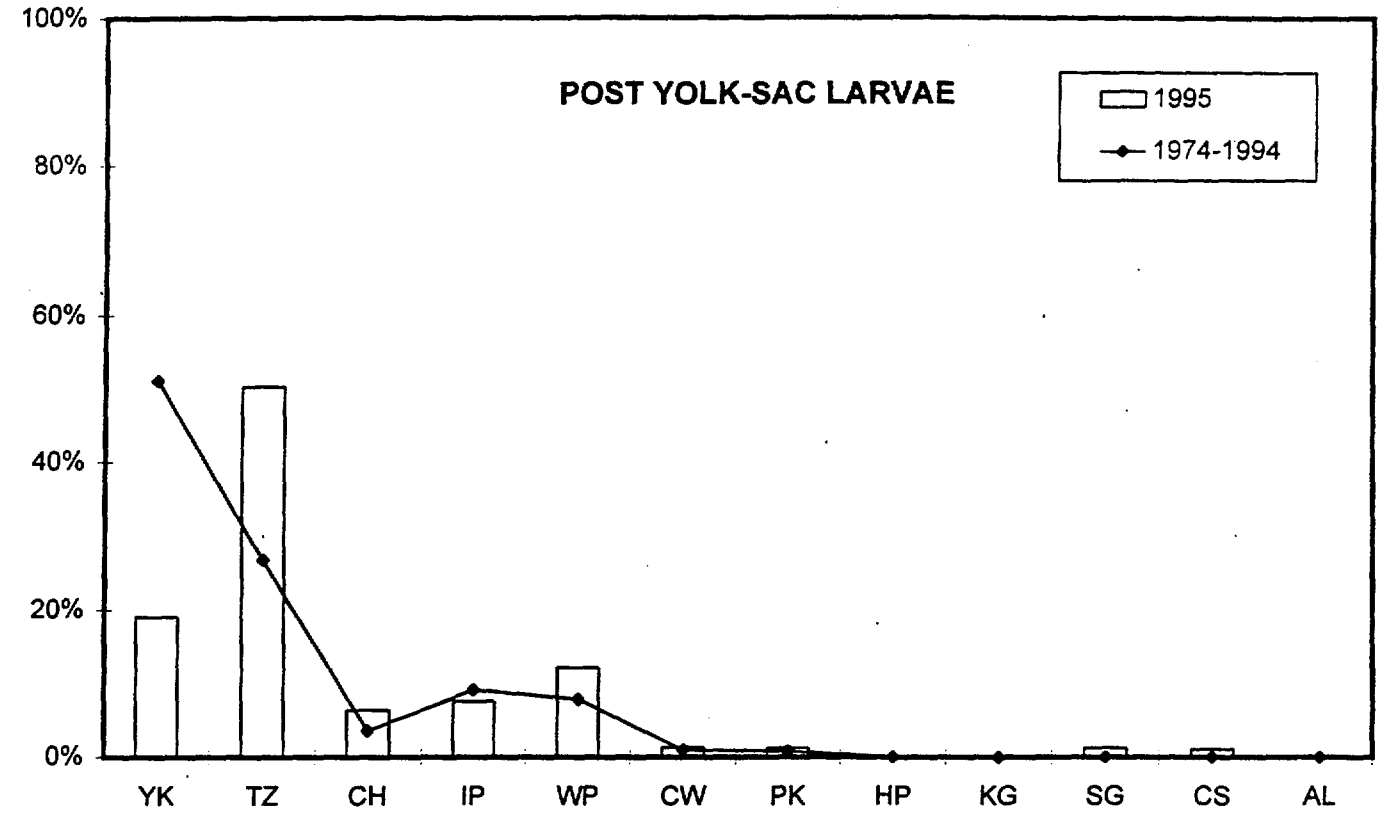
Early March sampling in the 1995 LRS collected low numbers of YSL (<7/1,000 m^3) from the Battery to Cornwall regions, the northern extent of sampling (Appendix Table C-33). PYSL were collected from March through early May predominantly in the Tappan Zee and Yonkers regions, but ranging as far north as Catskill (Figure 4-17). Juvenile Atlantic tomcod collected in the LRS were most abundant from late April to late May 1995, from the Battery to West Point 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. The 1995 FSS collected juvenile Atlantic tomcod primarily in the West Point through Poughkeepsie regions during July and the 1995 BSS collected a few Atlantic tomcod south of the Cornwall region, also during July (Figure 4-18). A few yearling and older Atlantic tomcod were collected in the BSS and FSS and they were found in the lower half of the estuary (Figure 4-19).

Comparing the temporal distribution of early life stages of Atlantic tomcod in 1995 with the long-term database (beginning in early May) available from previous years (1974-1994), the 1995 PYSL distribution was consistent with the long-term record with nearly 80 percent of the PYSL collected in early May (Figure 4-20). The 1995 YOY occurrence, which agrees with the historical trend, was primarily in early and mid-May and extended to late June. The peak geographical distributions of PYSL and juveniles collected in the 1995 LRS were shifted upriver of the long-term distribution center usually found in the Yonkers regions (Figure 4-21). PYSL were more abundant in the Tappan Zee region; YOY were abundant in the West Point region. No geographical distribution indices based on the BSS were calculated for 1995 as no YOY or yearling and older Atlantic tomcod were collected in beach seines during the temporal limits of this index.

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 1995, the weekly length statistics obtained from BSS and FSS collections show more rapid growth in the spring and fall than during the summer (Figure 4-22, Appendix Tables D-7 and D-8). Juvenile tomcod generally double their summer length by December to a mean total length approximately 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. Following the period of rapid growth during the fall, mature YOY migrate upriver to spawn.

4.5 BAY ANCHOVY

Bay anchovy (*Anchoa mitchilli*) is a small, slender fish, from 1.5- to 4-in. long, that is 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



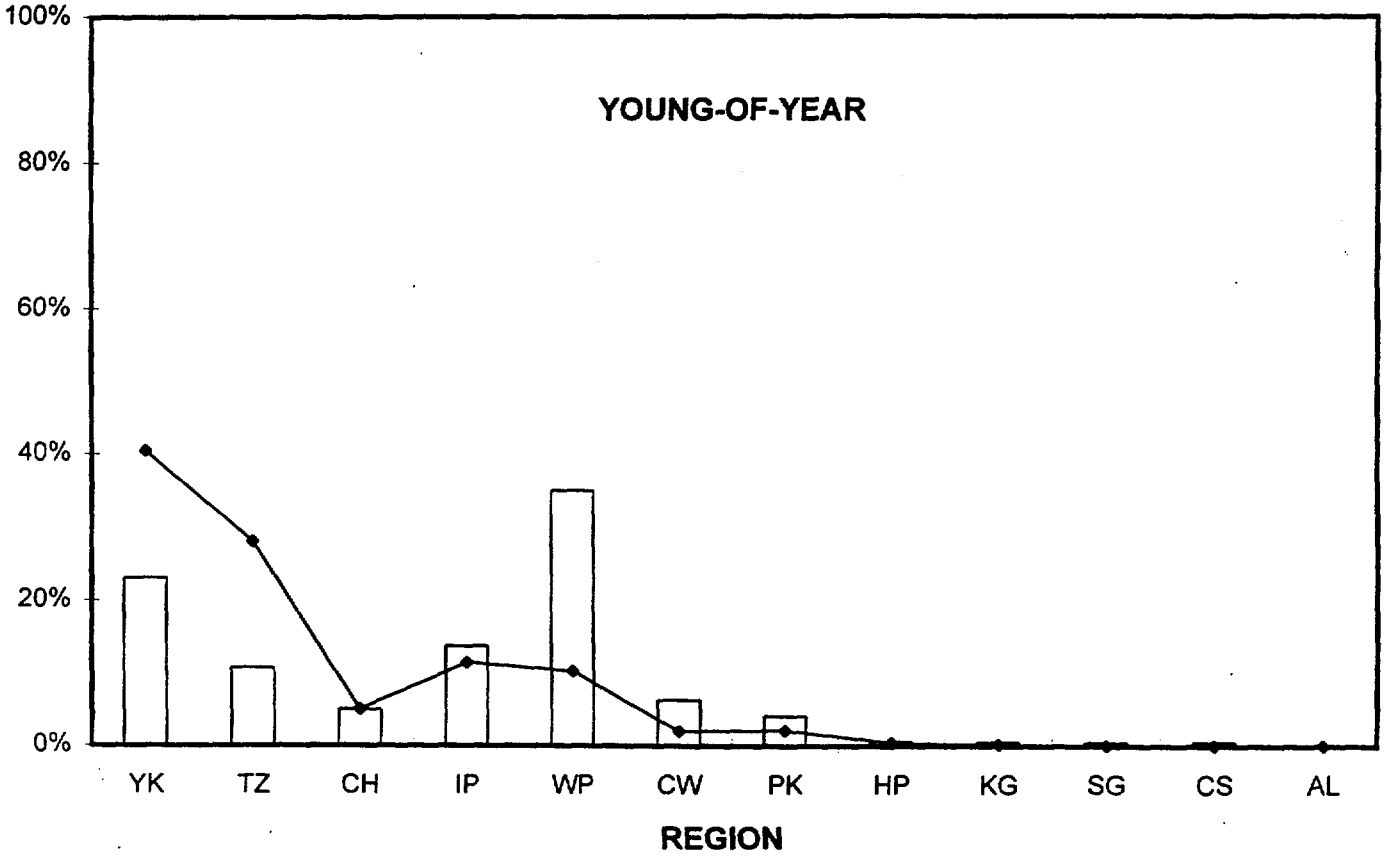


Figure 4-21. Geographical distribution indices for early life stages of Atlantic tomcod collected during Longitudinal River Ichthyoplankton surveys of the Hudson River estuary, 1974-1995.

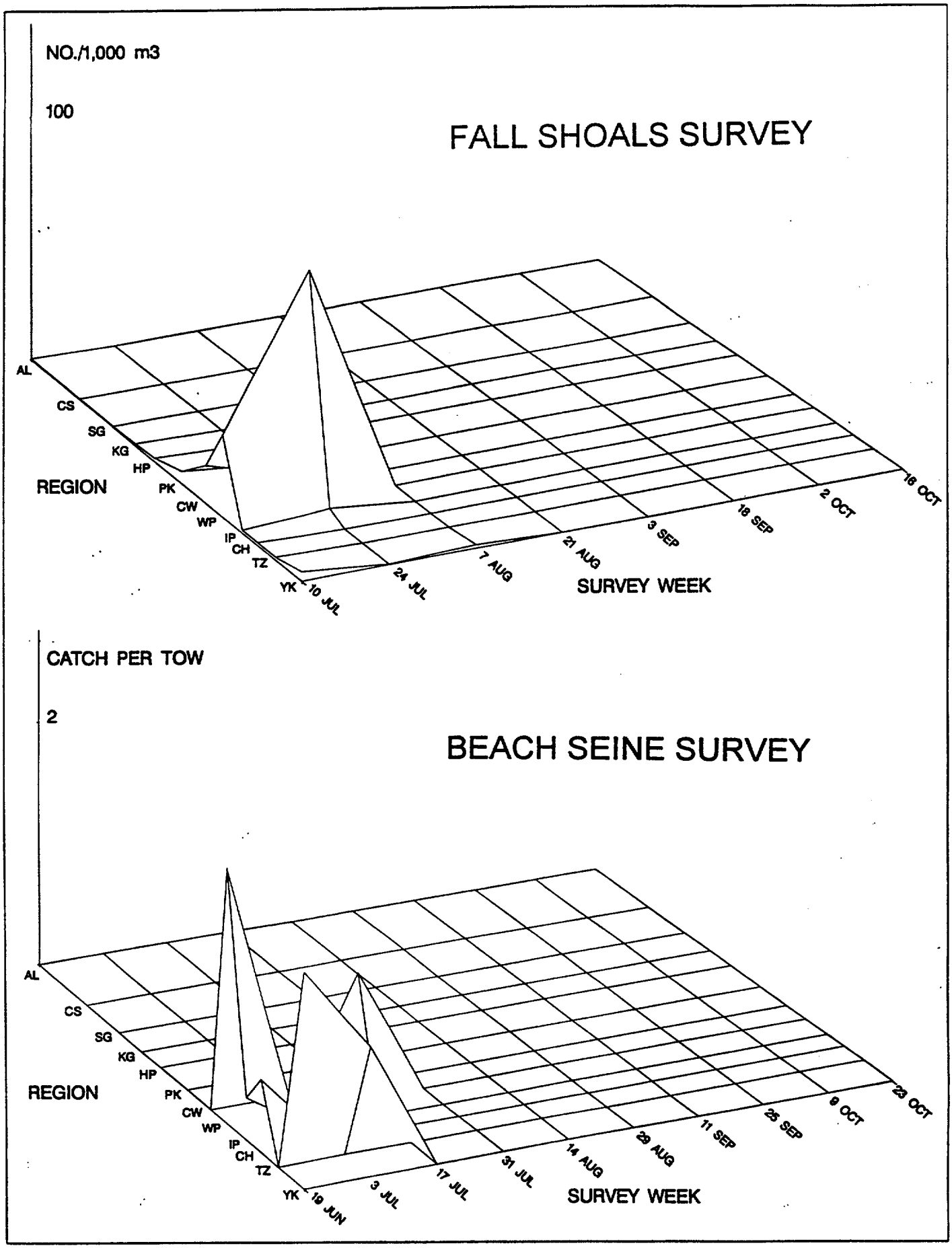


Figure 4-18. Spatiotemporal distribution of young-of-year Atlantic tomcod in the Hudson River estuary based on the 1995 Fall Shoals and Beach Seine surveys.

prefer salinities found at seaward ends of estuaries. Where temperatures do not drop below 41°F during the winter, bay anchovy remain in the estuaries throughout the year (Wang and Kernehan 1979).

However, north of Delaware Bay, where water temperatures go below 41°F during the winter, National Marine Fisheries Service trawl data indicate a movement of bay anchovy 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 bay anchovy 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 anchovy rarely survive more than 2 years. They grow rapidly and mature at a size of 1-2 in. In warm waters, they may mature within 3 months of hatching, but in cooler, northern waters they usually mature in their second summer, 11-14 months after hatching. They are also very prolific; individual females may spawn 50 or more times per year, averaging about 1,100 eggs per spawn (Houde and Zastrow 1991). Partially as a result of this early maturity and high fecundity, bay anchovy may be the most abundant fish species in the western north Atlantic (McHugh 1967).

Bay anchovy 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 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 New York 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 4-23). The eggs, which are about 1/16 in. long, are transparent and initially buoyant, but sink after 12-16 hours of floating. Hatching occurs approximately 24 hours after spawning. Newly hatched YSL are approximately 1/16-1/8 in. long, transparent, and drift along the bottom with the tidal currents. The YSL stage is very brief, and typically lasts less than 1 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 July and the center of their distribution shifts slightly upriver compared to that of eggs and YSL (Figure 4-24).

Bay anchovy are about 1/2 in. long at the beginning of the juvenile stage. Juvenile bay anchovy are found in the Hudson River estuary from mid-August through October and as far upriver as Albany (Schmidt 1992). During 1995, most of the juvenile population was located downstream of the Hyde Park region (Figures 4-24 and 4-25). Yearling and older bay anchovy were much less abundant in collections than juveniles (Figure 4-26). They were caught more frequently early in the summer than during fall.

Comparing the temporal distribution of early life stages of bay anchovy in 1995 with the prior 7-year period (1988-1994) when LRS sampling included the Battery region (RM 0-12), the 1995 bay

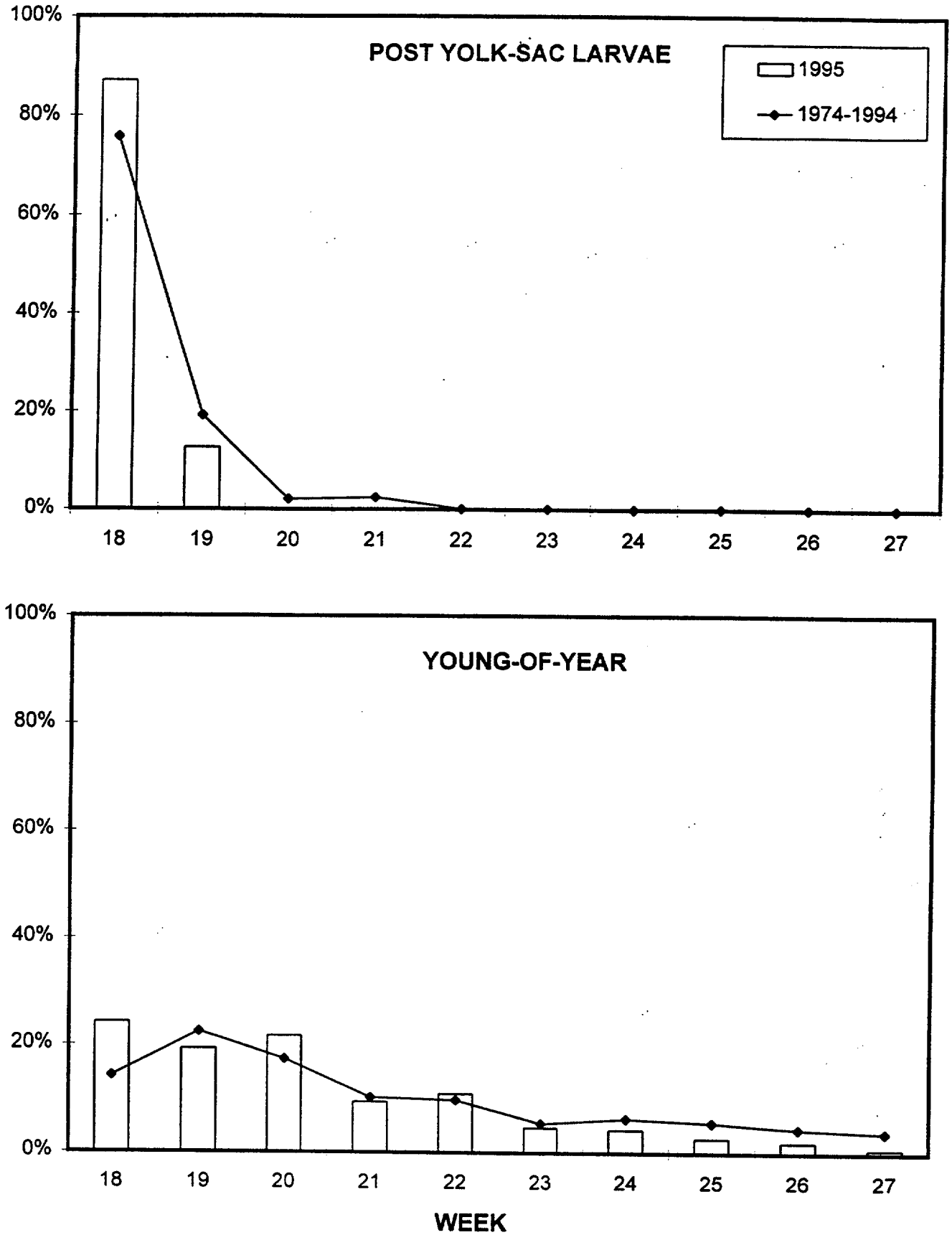


Figure 4-20. Temporal distribution indices for early life stages of Atlantic tomcod collected during Longitudinal River Ichthyoplankton surveys of the Hudson River estuary, 1974-1995.

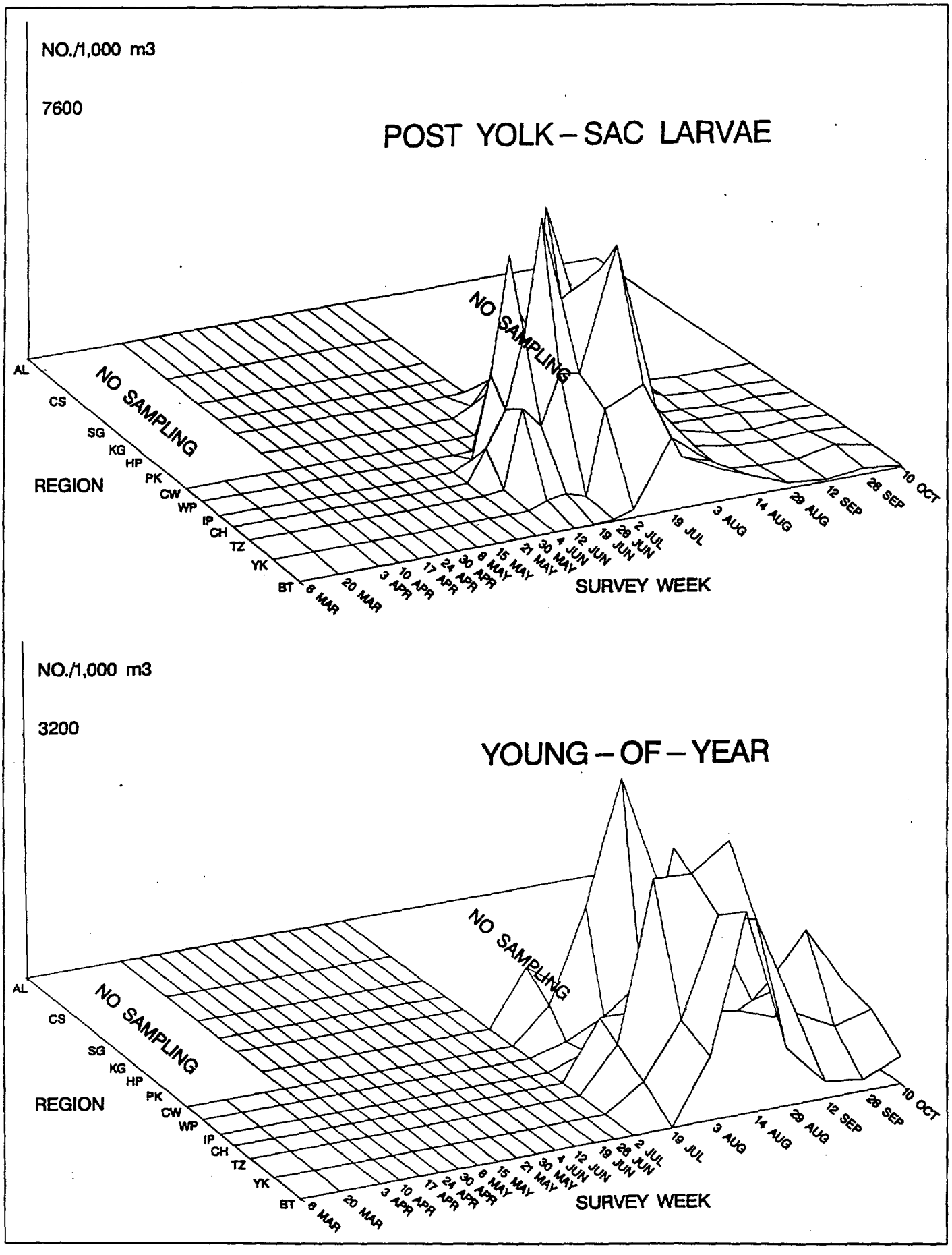


Figure 4-24. Spatiotemporal distribution of post yolk-sac and young-of-year stages of bay anchovy in the Hudson River estuary based on the 1995 Longitudinal River Ichthyoplankton Survey.

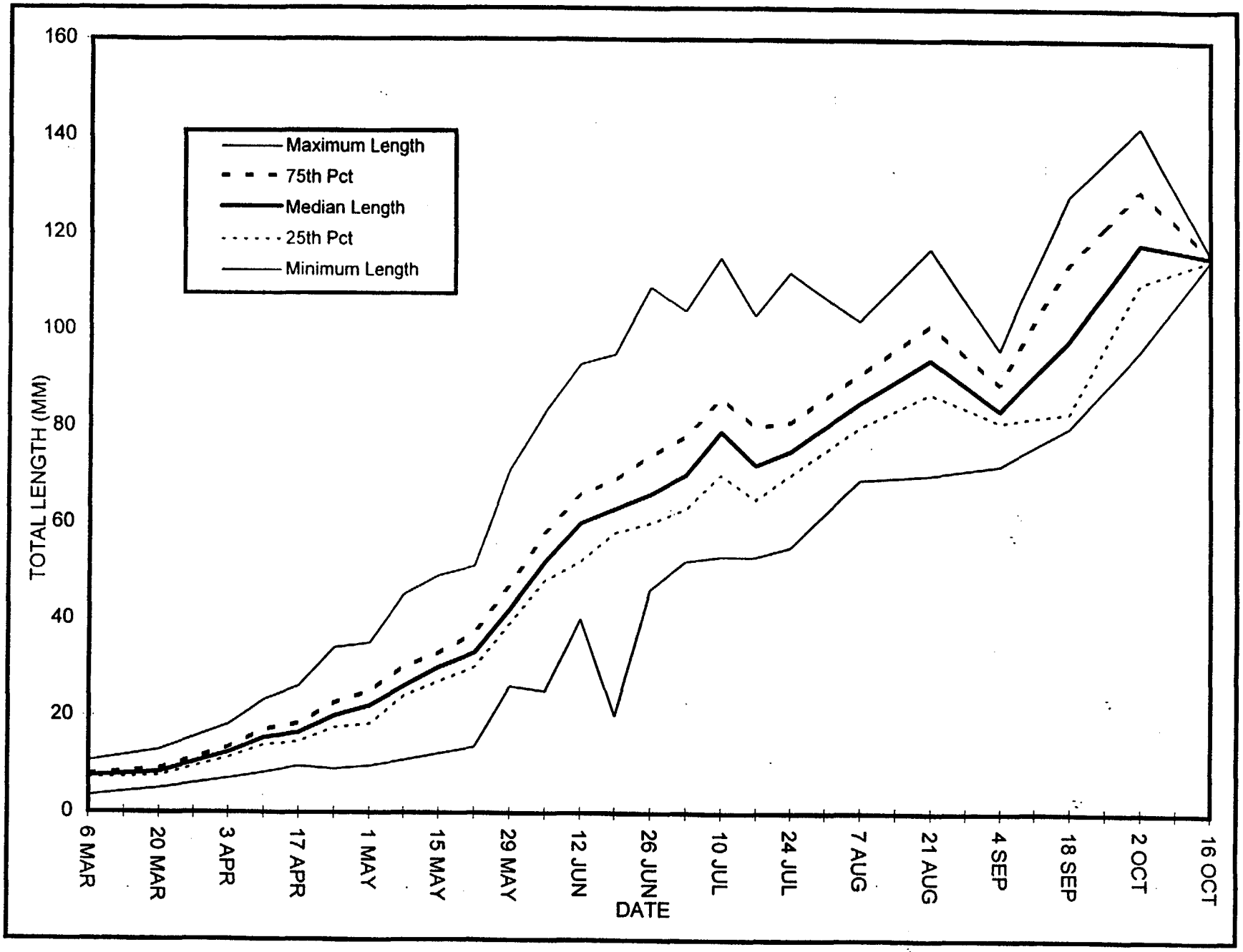


Figure 4-22. Weekly length statistics for larval and young-of-year Atlantic tomcod in the Hudson River estuary, 1995.

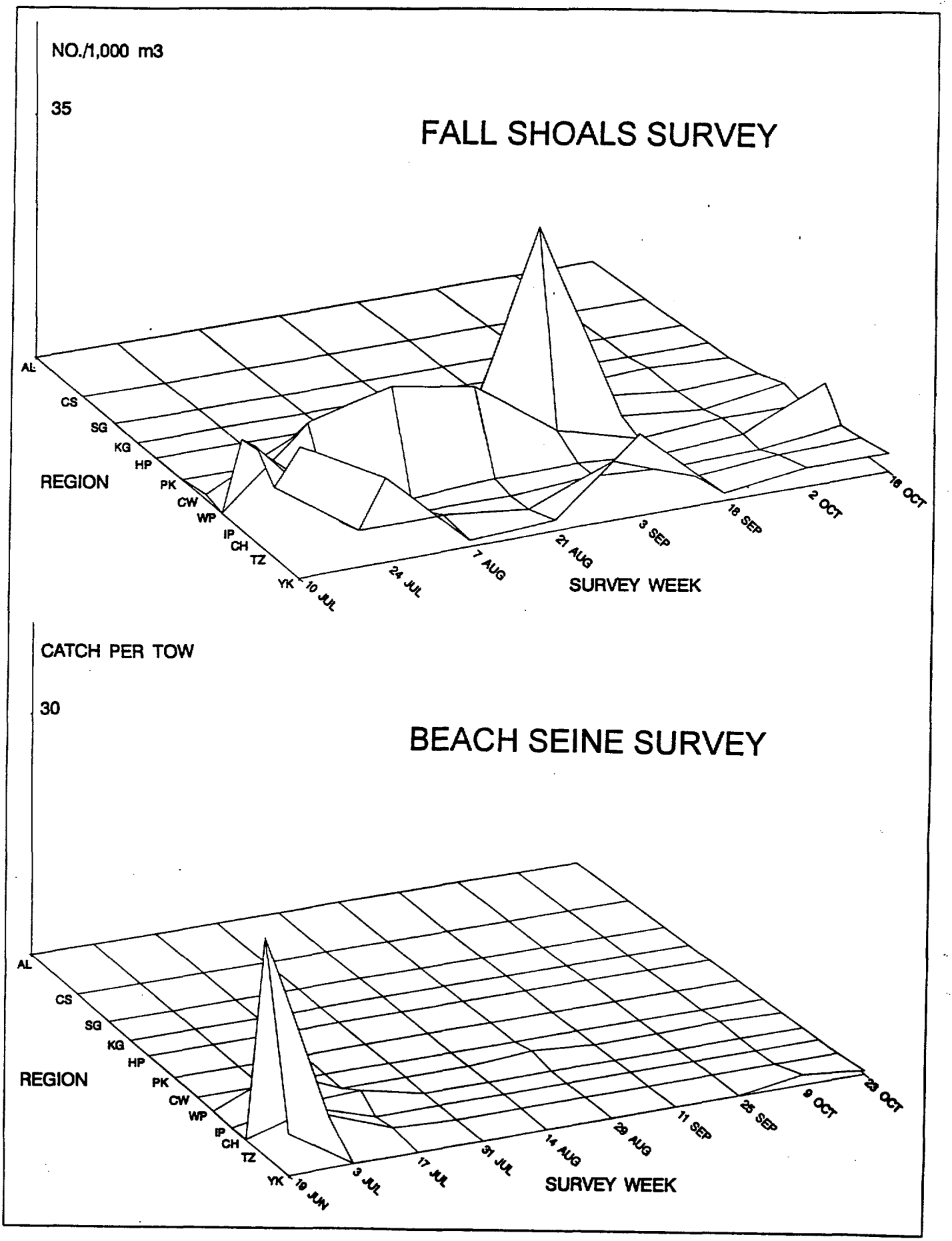


Figure 4-26. Spatiotemporal distribution of yearling and older bay anchovy in the Hudson River estuary based on the 1995 Fall Shoals and Beach Seine surveys.

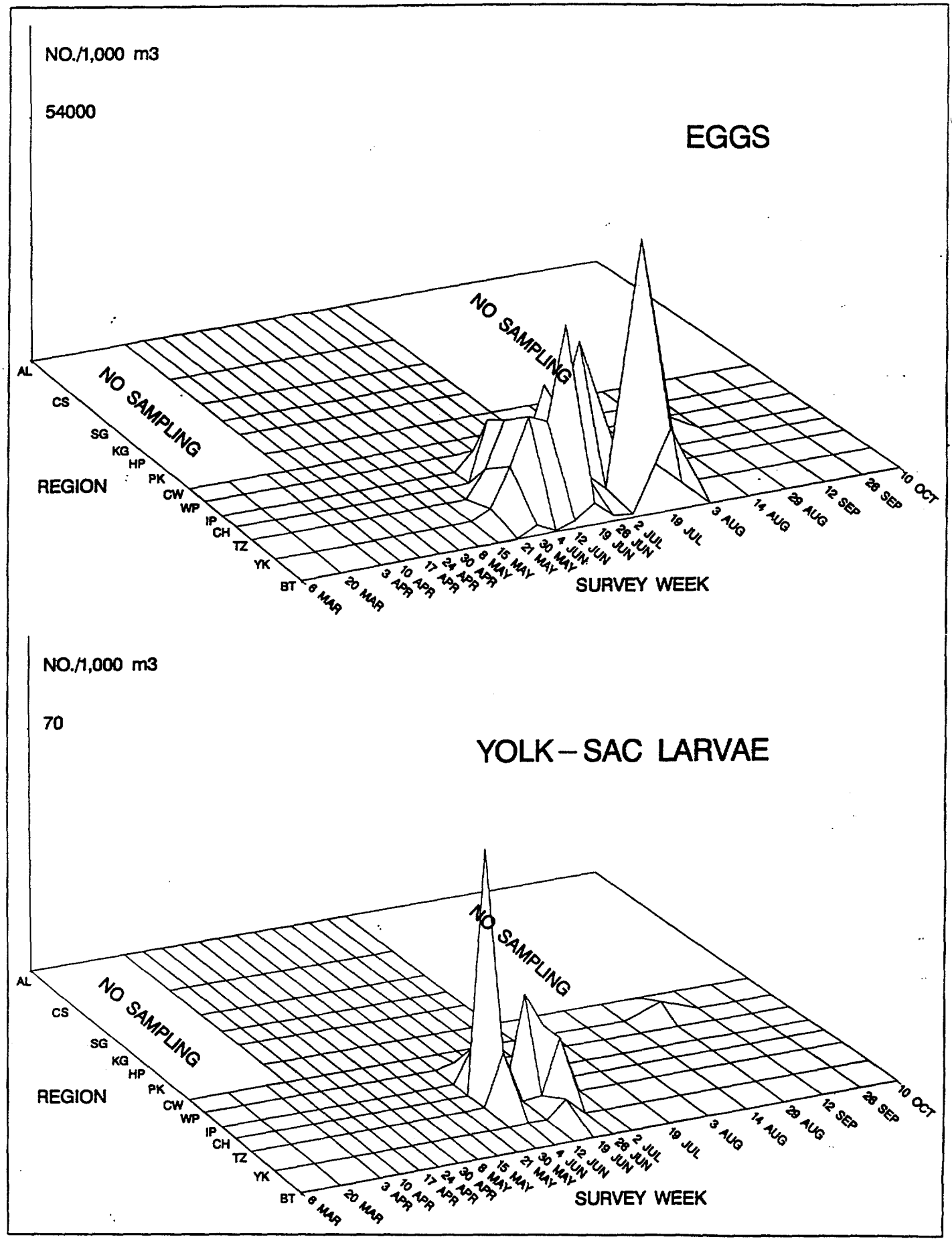


Figure 4-23. Spatiotemporal distribution of egg and yolk-sac stages of bay anchovy in the Hudson River estuary based on the 1995 Longitudinal River Ichthyoplankton Survey.

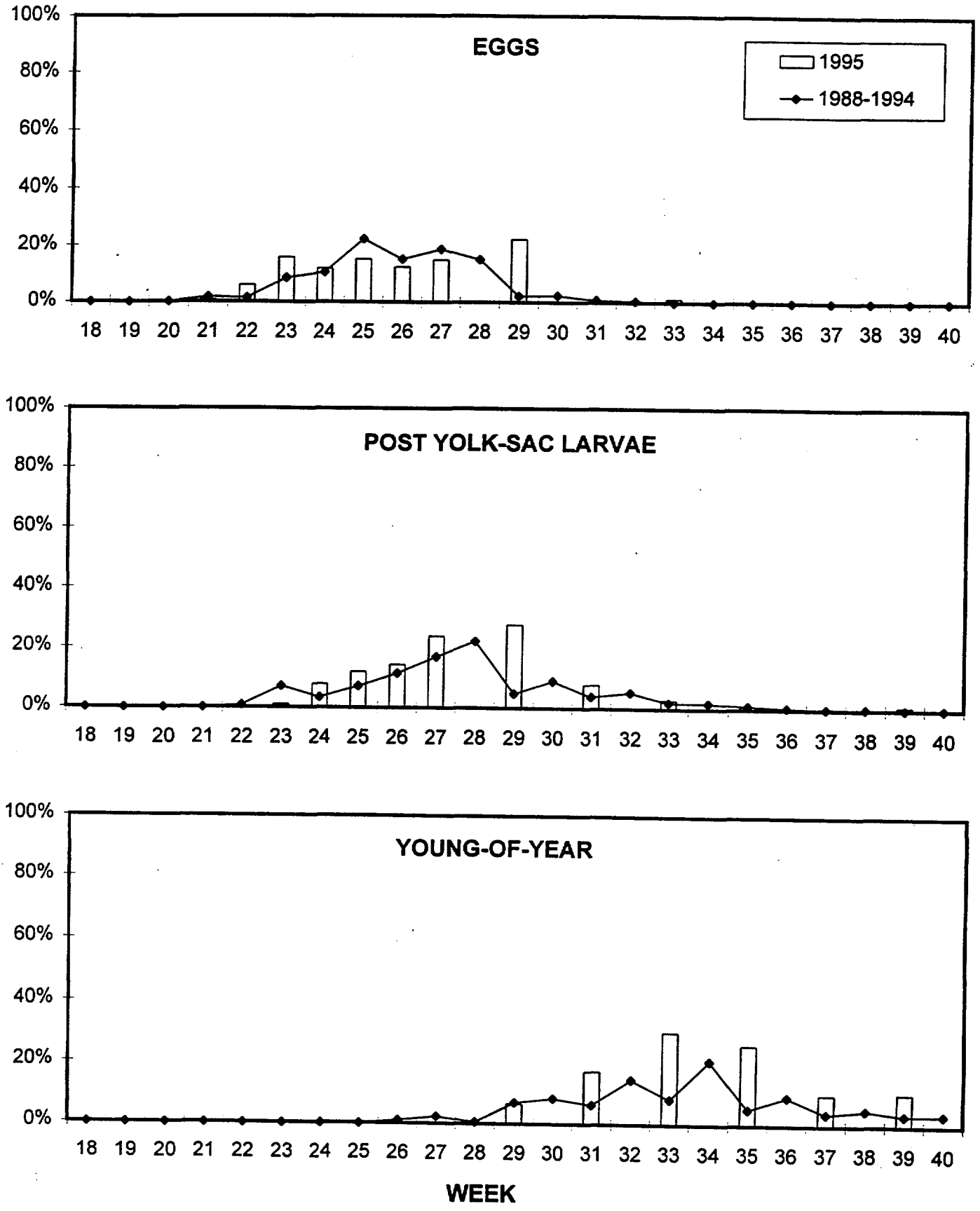


Figure 4-27. Temporal distribution indices for early life stages of bay anchovy collected during Longitudinal River Ichthyoplankton surveys of the Hudson River estuary, 1988-1995.

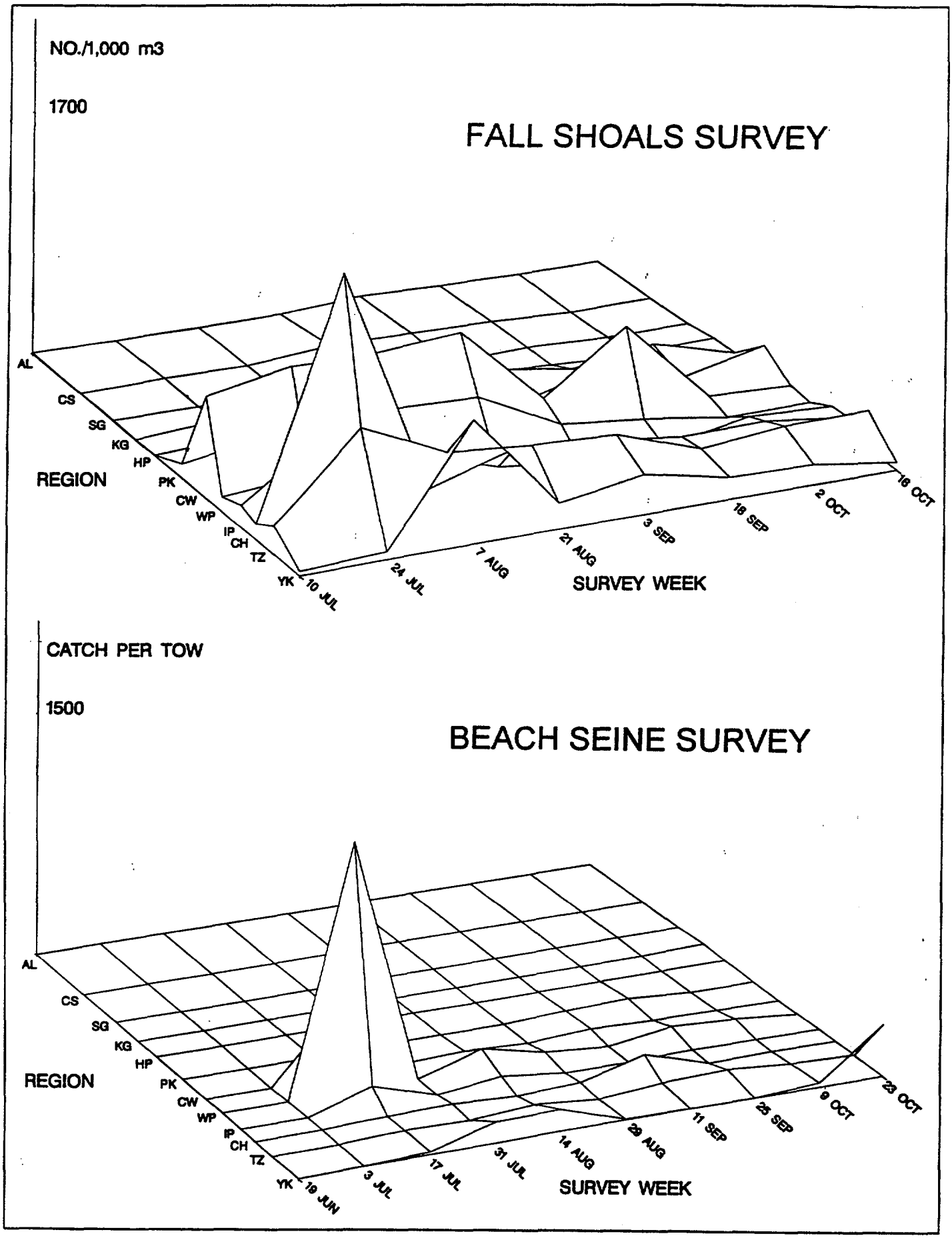


Figure 4-25. Spatiotemporal distribution of young-of-year bay anchovy in the Hudson River estuary based on the 1995 Fall Shoals and Beach Seine surveys.

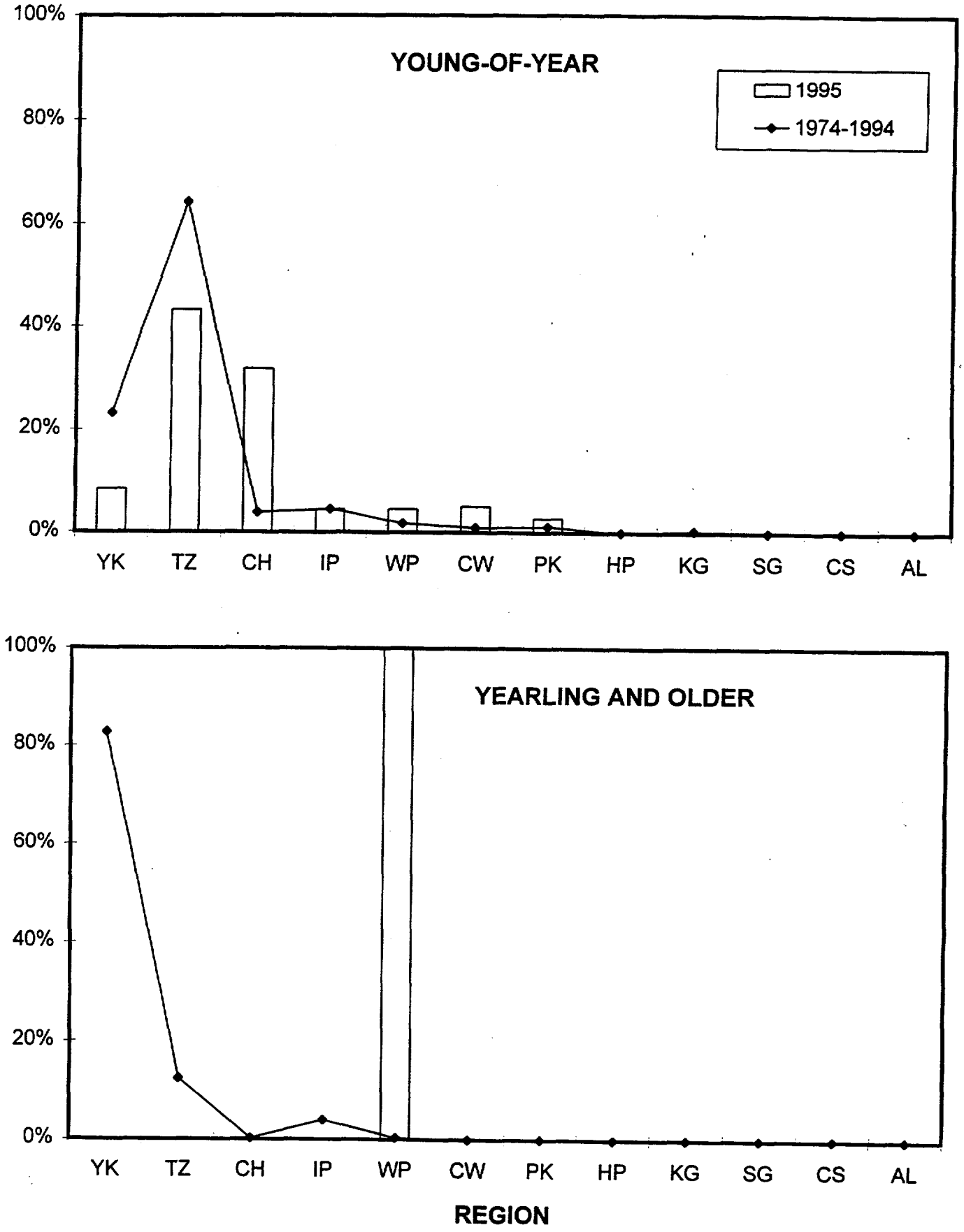


Figure 4-29. Geographical distribution indices for bay anchovy collected during Beach Seine surveys of the Hudson River estuary, 1974-1995.

anchovy egg distribution was consistent with the long-term trend, but the mid-July peak in egg abundance was slightly later than previously seen (Figure 4-27). Peak PYSL occurrence was also slightly later than normal with the peak abundance in mid-July. Juvenile temporal distribution in the 1995 LRS was within the range seen over the 7 previous years, spanning the period from late July through September (Figure 4-27).

The geographical distribution of bay anchovy early life stages in 1995 was consistent with the distribution pattern seen over the 1988-1994 period, except that the 1995 distribution for eggs and PYSL was shifted slightly upriver with less concentration in the Battery and Yonkers regions (Figure 4-28). The 1995 YOY geographical distribution was similar to the previous 7 years with peak abundance in the Tappan Zee region.

The 1995 geographical distribution of YOY bay anchovy in the BSS was generally consistent with the 1974-1994 long-term trend, however, a greater proportion of the catch was located upriver in the Croton-Haverstraw region rather than the Yonkers or Tappan Zee regions. The 1995 geographical distribution of yearling and older bay anchovy shows a concentration in the West Point region. However, the majority of yearling and older fish caught in 1995 by beach seines were found in the Tappan Zee region earlier than the temporal constraints of this index. The historical trend shows a predominance of yearling and older bay anchovy in the Yonkers region (Figure 4-29).

Weekly length statistics for bay anchovy juvenile life stage collected in 1995 show an overall increase in growth throughout the early summer and a slower growth rate during September and October as the fish near adult size. The zigzag pattern in the growth curve may reflect the different size selectivity of the variety of sampling equipment used. The wide range in size (up to 1.6 in.) during a collection period reflects the protracted spawning period of bay anchovy (Figure 4-30, Appendix Tables D-9 and D-10).

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 3-6 years at sea, although some males may mature within 2 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. Pre-spawning adults move along the Coast in the spring to their natal rivers (Dadswell et al. 1987), which they enter as river temperatures reach 50-60 °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 1995, the bulk of American shad eggs were collected from Saugerties to Albany during May (Figure 4-31).

American shad produce 116,000-468,000 eggs per female. The eggs are 1/16-1/8 in. in diameter, semibuoyant, and non-adhesive. They hatch in 3-12 days, depending upon water temperature. Newly hatched YSL are approximately 1/4 in. long and grow very rapidly. They absorb the yolk-sac within 1 week and are approximately 1/2 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 was apparent during 1995, both YSL and PYSL American shad were found primarily in the upper estuary between Hyde Park and Albany (Figures 4-31 and 4-32). During 1995 juvenile shad appeared to have been fully recruited to the beach seine gear by early July with the highest catch effort evident in the middle estuary, whereas the highest catch effort was still in the upper estuary for the FSS gear (Figure 4-33). Few yearling and older American shad were collected in 1995 (Figure 4-34), since adult spawning fish (3- to 6-year-old fish) effectively avoid the BSS and FSS juvenile gear.

Comparing the temporal distribution of early life stages of American shad in 1995 with previous years (1974-1994), the 1995 distributions of early life stages were generally consistent with the long-term record (Figure 4-35). Peak egg distribution in 1995, however, lagged 2-3 weeks behind the historical peak of mid-May. Larval distribution in 1995 agreed with the historical pattern of occurrence: late May for YSL, late May to late June for PYSL, and late June into July for YOY. The geographical distribution of American shad early life stages in 1995 was generally consistent with the long-term record with greatest distribution in the upper estuary, except that more eggs and YSL were found downriver in the Saugerties instead of Albany region (Figure 4-36).

The long-term geographical distribution of YOY American shad in the BSS shows tri-modal peaks in the lower estuary (Tappan Zee and Croton-Haverstraw), mid-estuary (Cornwall and Poughkeepsie), and upper estuary (Saugerties, Catskill, and Albany) (Figure 4-37). The 1995 geographical distribution data supported the mid- and upper estuary peaks, but few YOY were found in the lower estuary in 1995.

Weekly length statistics for American shad from YSL through juvenile life stages collected in 1995 show a rapid growth period from early June through mid-July and much slower growth through the end of BSS/FSS collections in October (Figure 4-38, Appendix Tables D-11 through D-13). At the time they emigrate from the Hudson River 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, alewife 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.

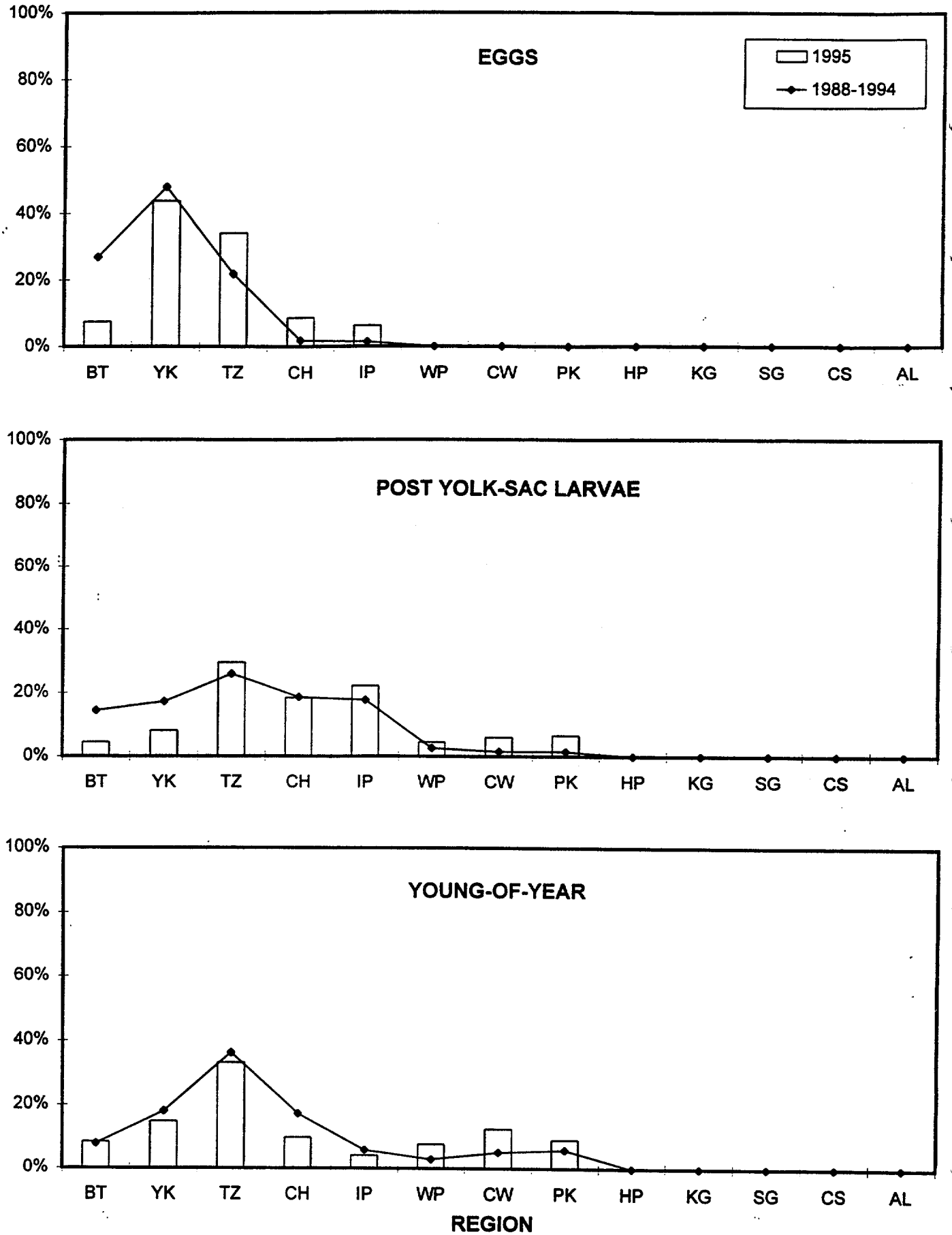


Figure 4-28. Geographical distribution indices for early life stages of bay anchovy collected during Longitudinal River Ichthyoplankton surveys of the Hudson River estuary, 1988-1995.

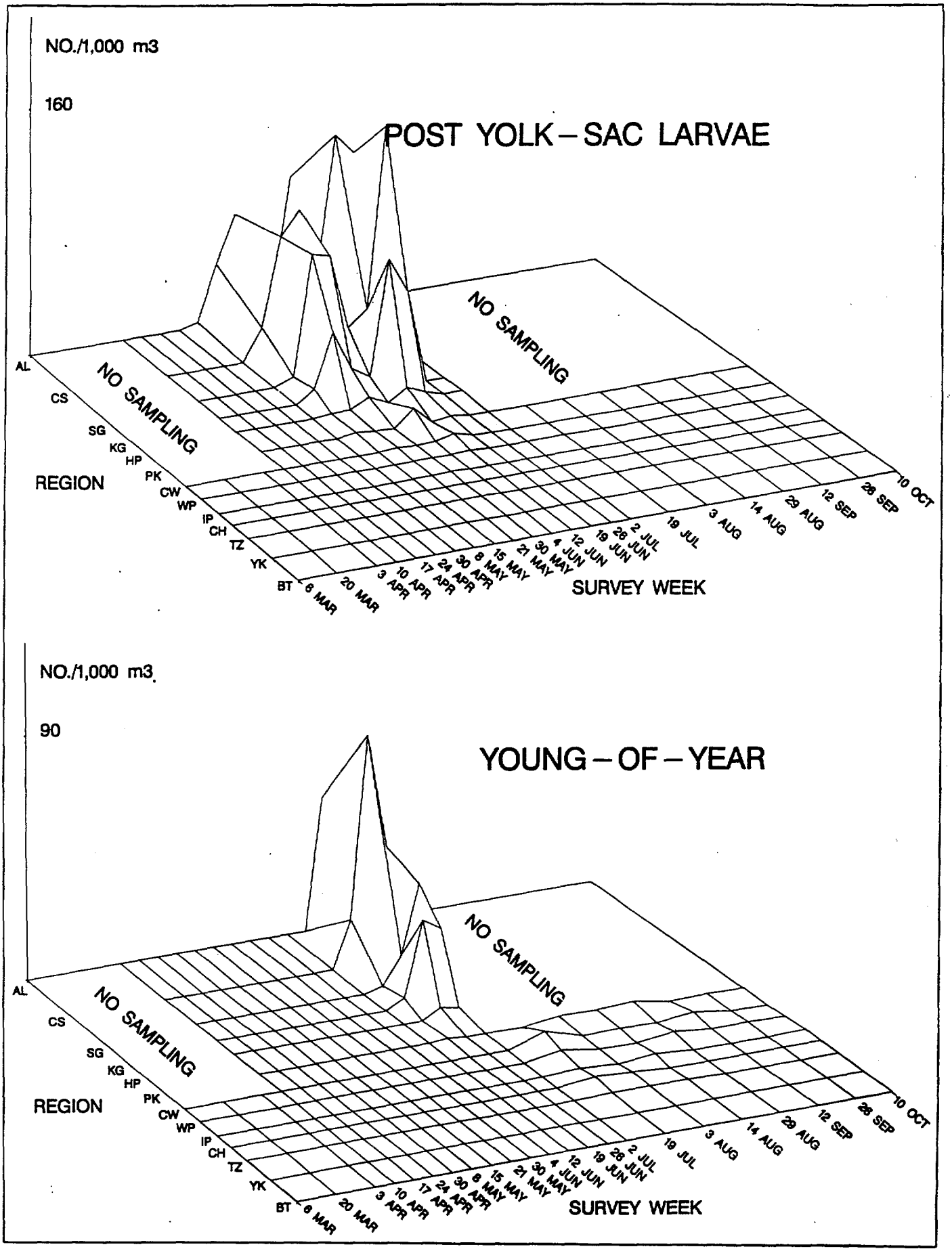


Figure 4-32. Spatiotemporal distribution of post yolk-sac and young-of-year stages of American shad in the Hudson River estuary based on the 1995 Longitudinal River Ichthyoplankton Survey.

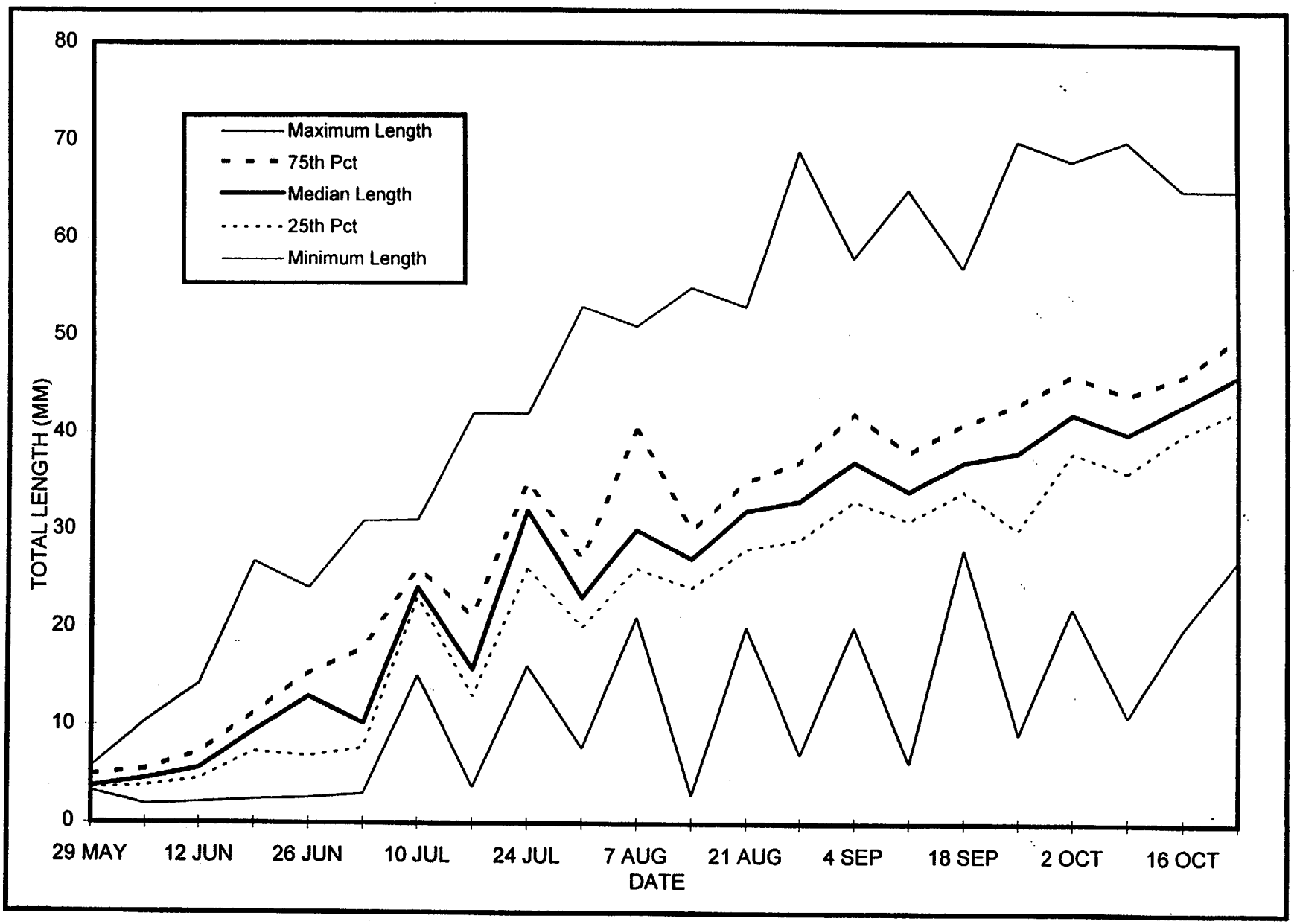


Figure 4-30. Weekly length statistics for larval and young-of-year bay anchovy in the Hudson River estuary, 1995.

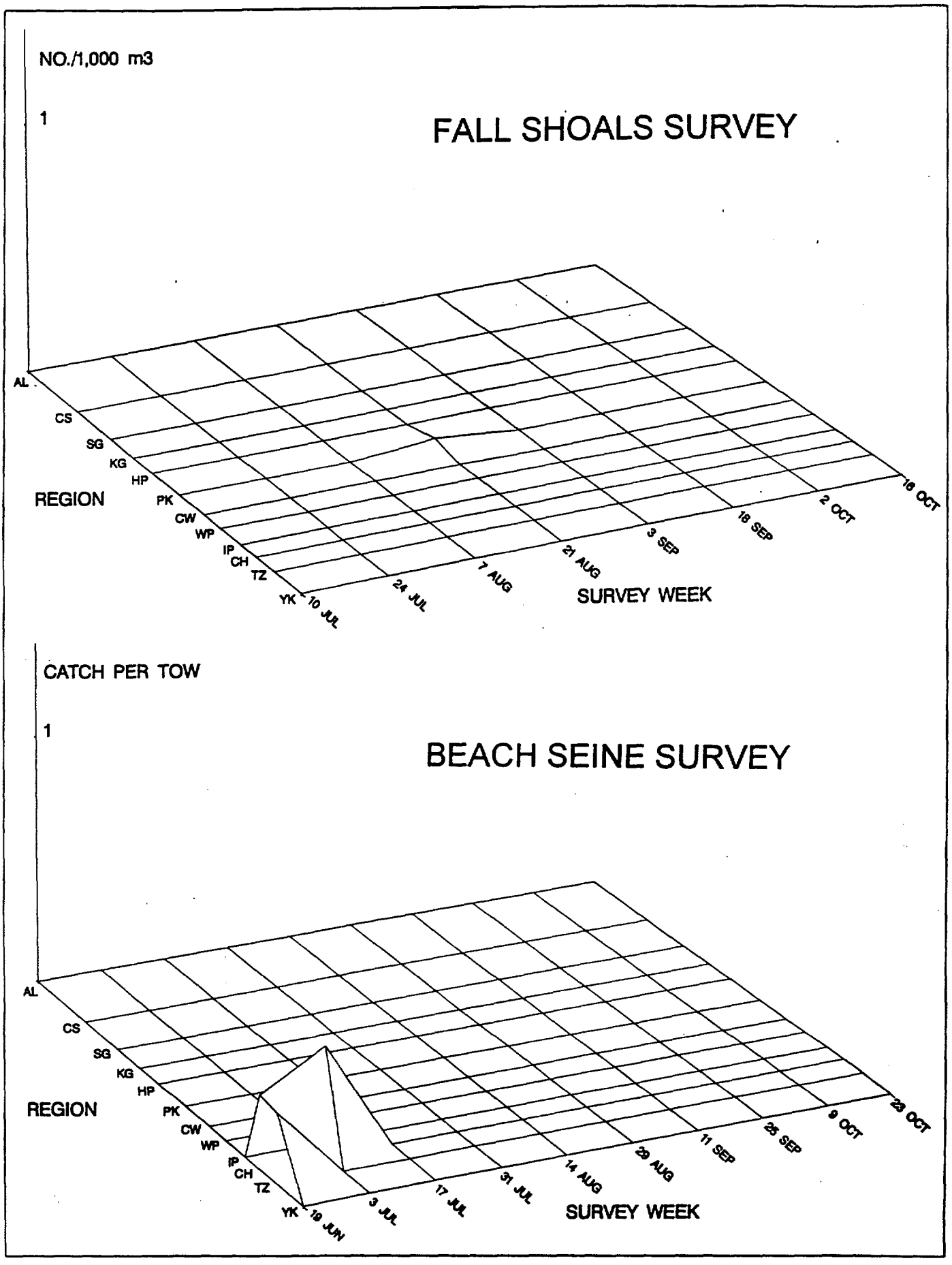


Figure 4-34. Spatiotemporal distribution of yearling and older American shad in the Hudson River estuary based on the 1995 Fall Shoals and Beach Seine surveys.

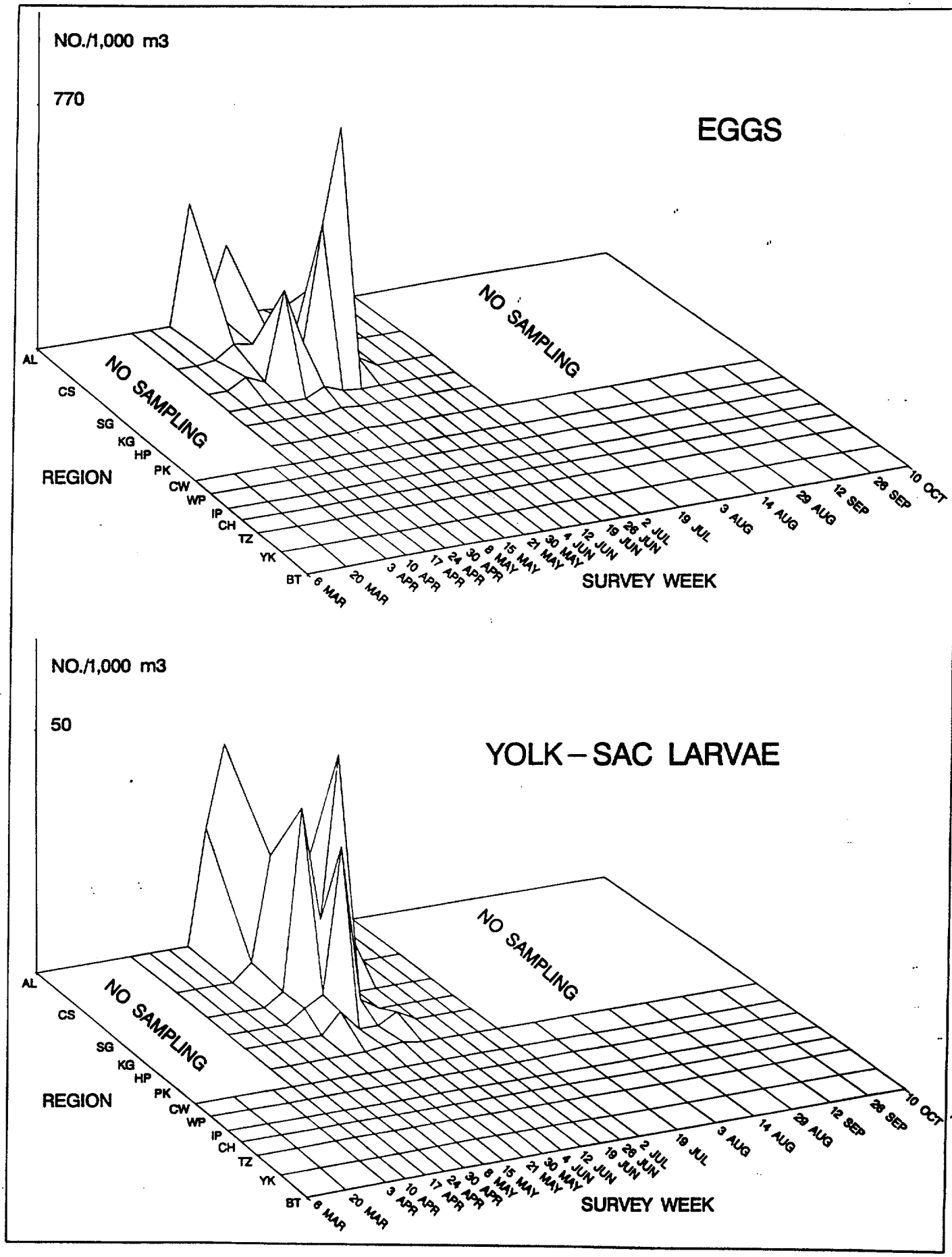


Figure 4-31. Spatiotemporal distribution of egg and yolk-sac stages of American shad in the Hudson River estuary based on the 1995 Longitudinal River Ichthyoplankton Survey.

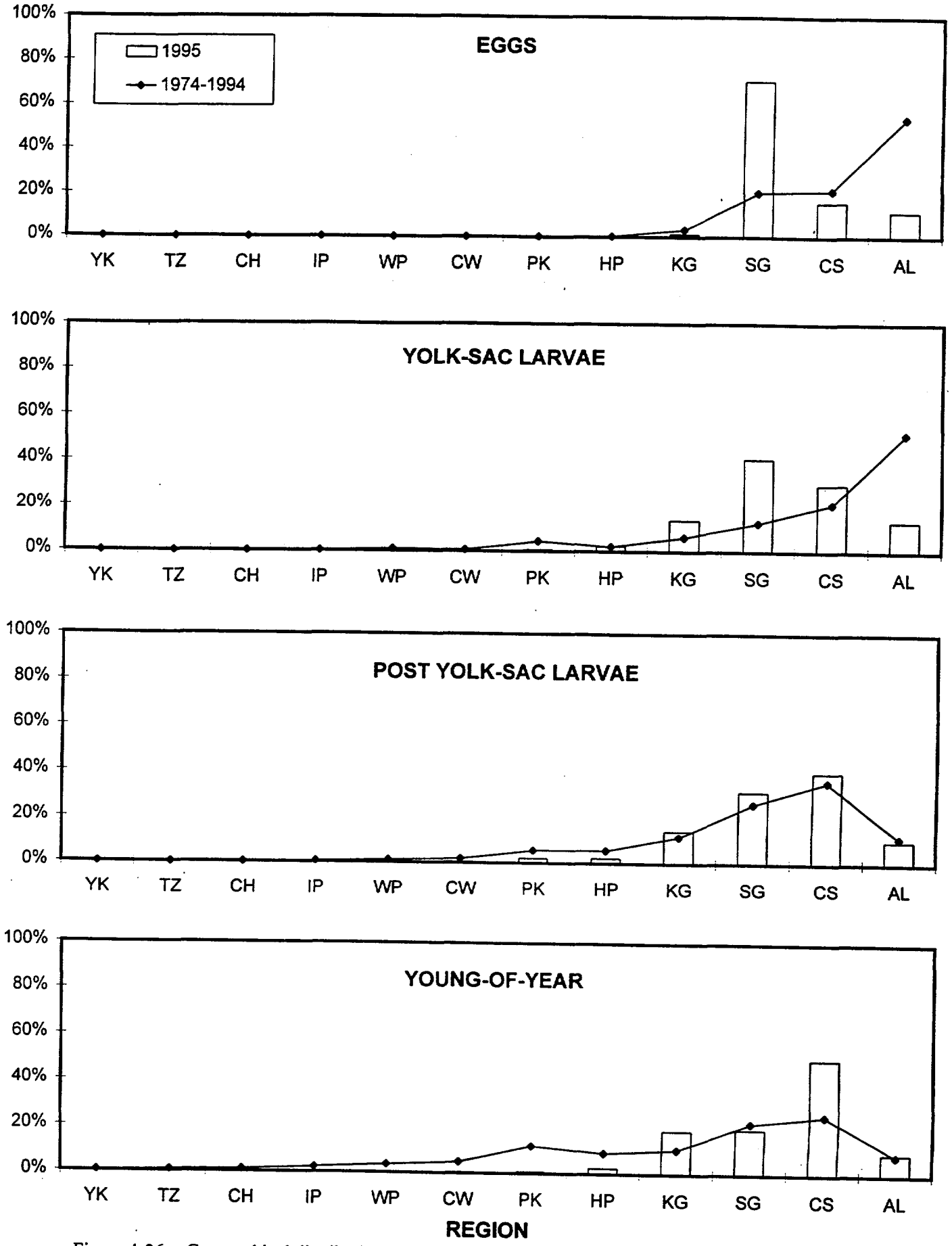


Figure 4-36. Geographical distribution indices for early life stages of American shad collected during Longitudinal River Ichthyoplankton surveys of the Hudson River estuary, 1974-1995.

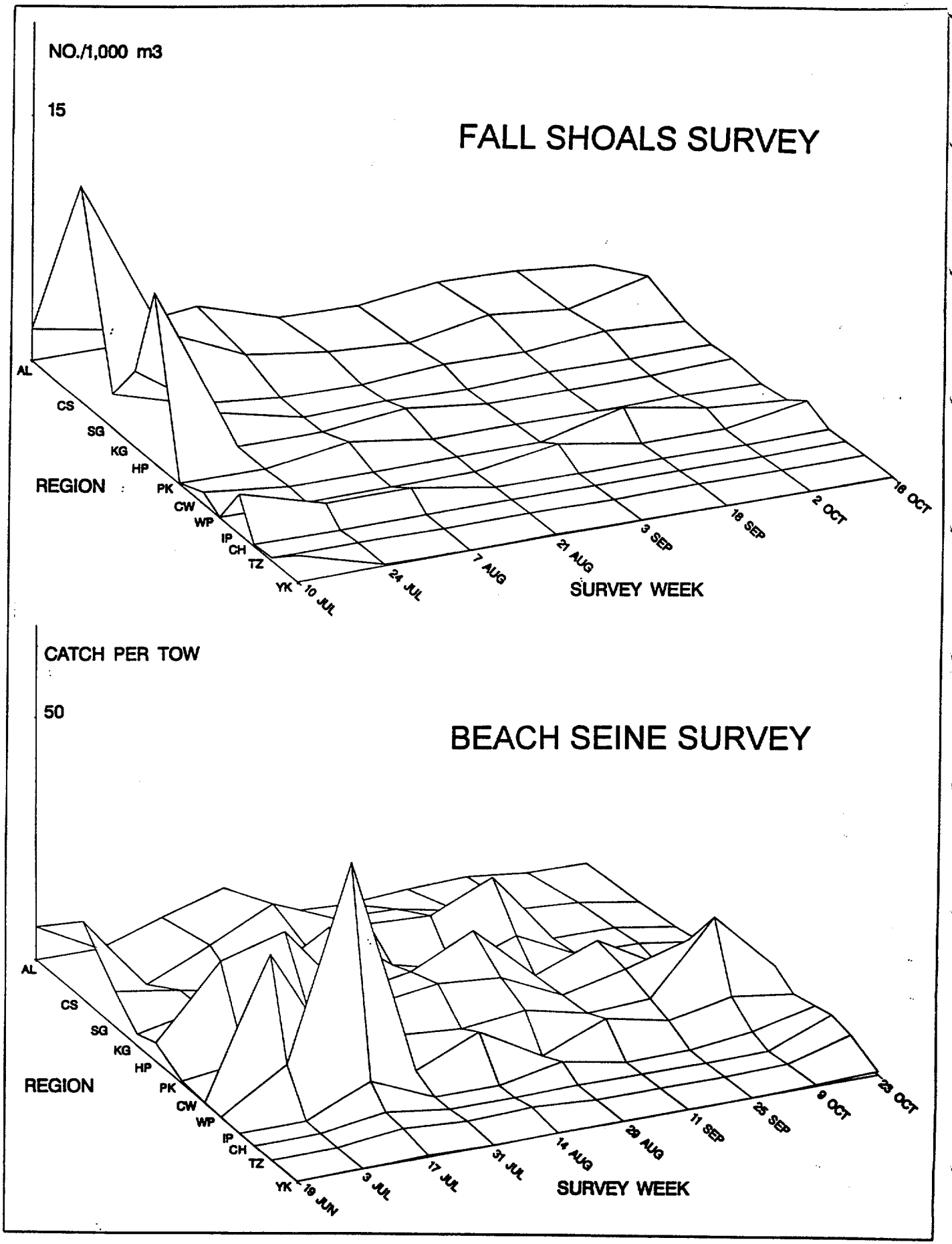


Figure 4-33. Spatiotemporal distribution of young-of-year American shad in the Hudson River estuary based on the 1995 Fall Shoals and Beach Seine surveys.

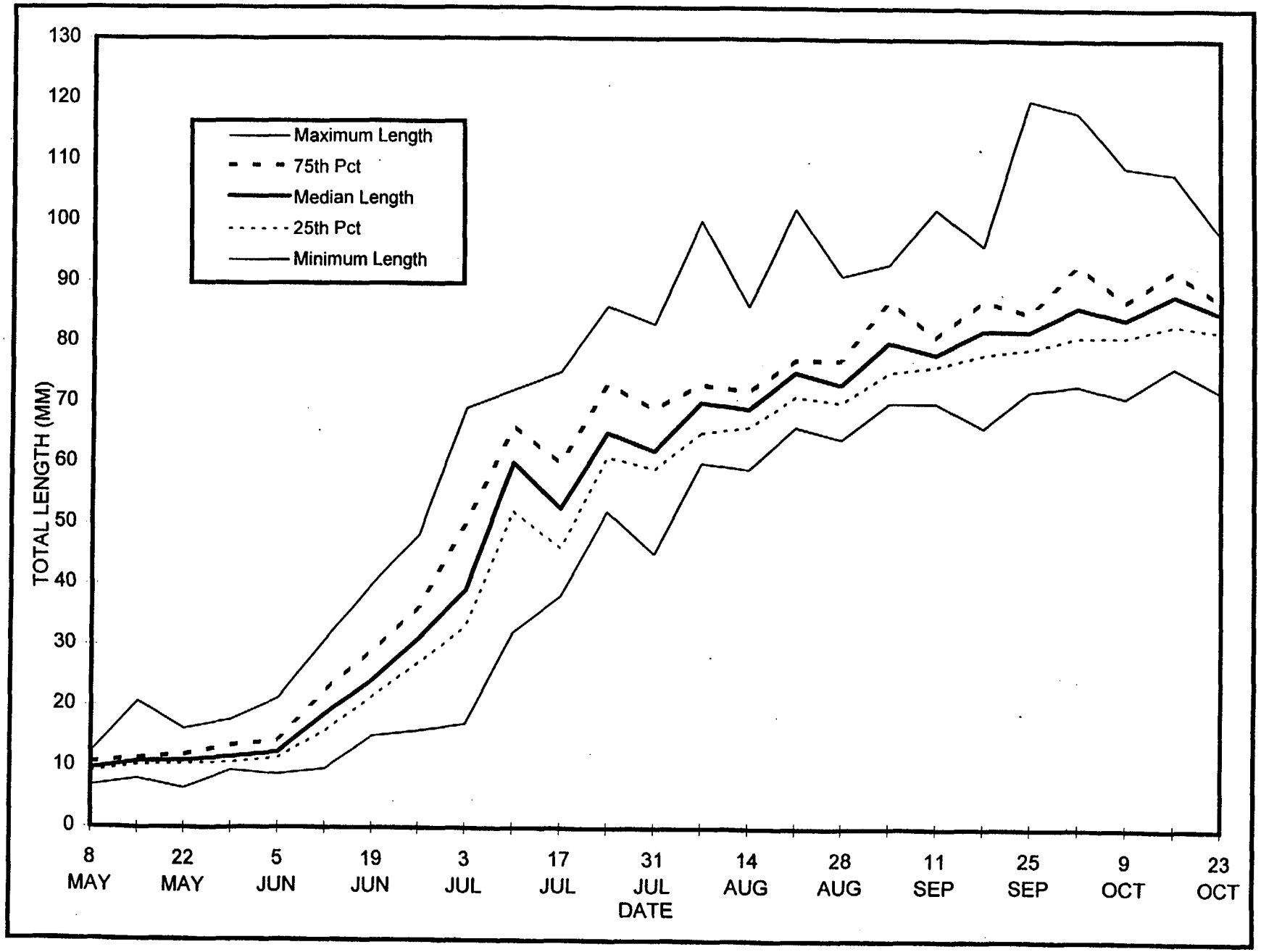


Figure 4-38. Weekly length statistics for larval and young-of-year American shad in the Hudson River estuary, 1995.

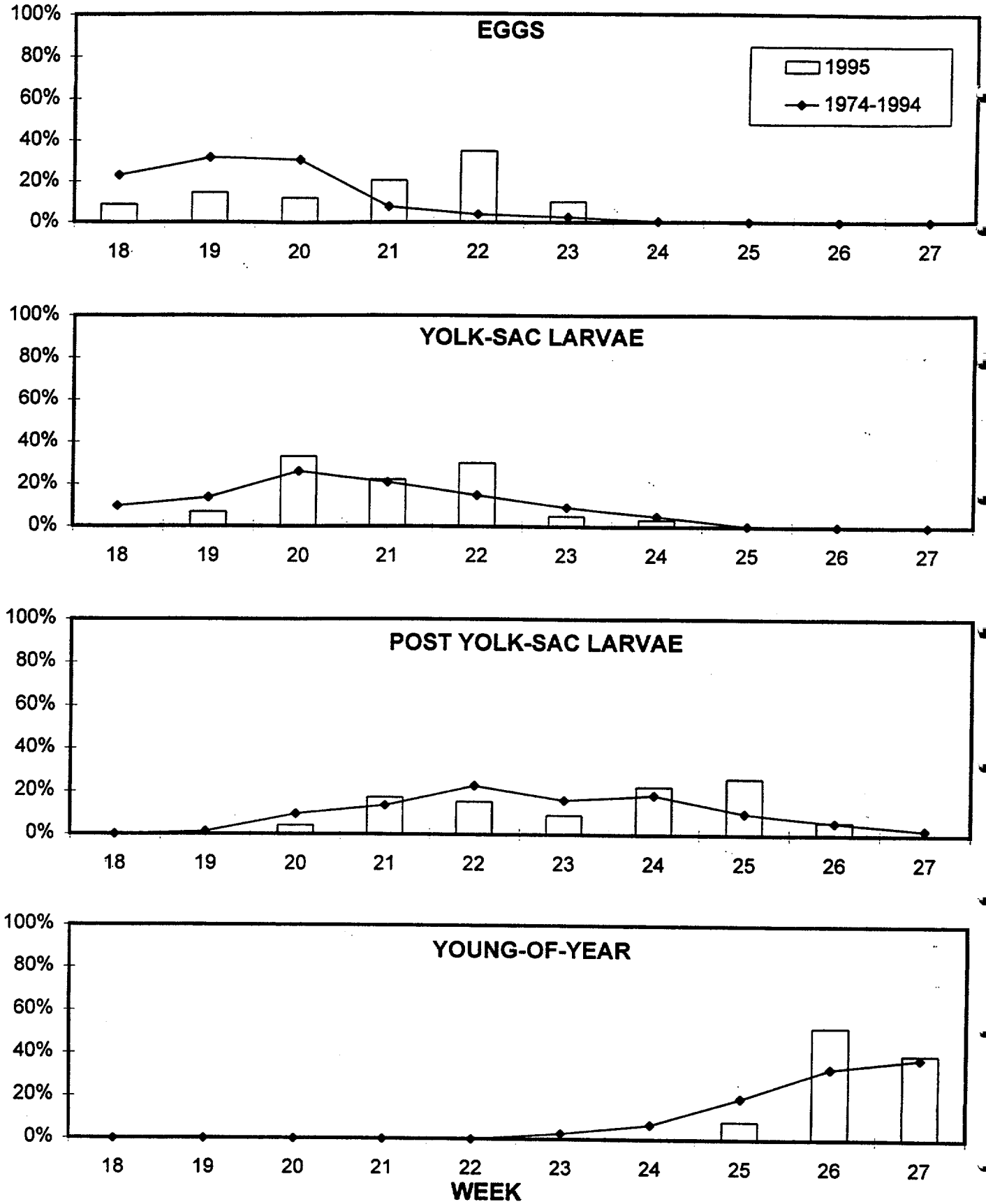


Figure 4-35. Temporal distribution indices for early life stages of American shad collected during Longitudinal River Ichthyoplankton surveys of the Hudson River estuary, 1974-1995.

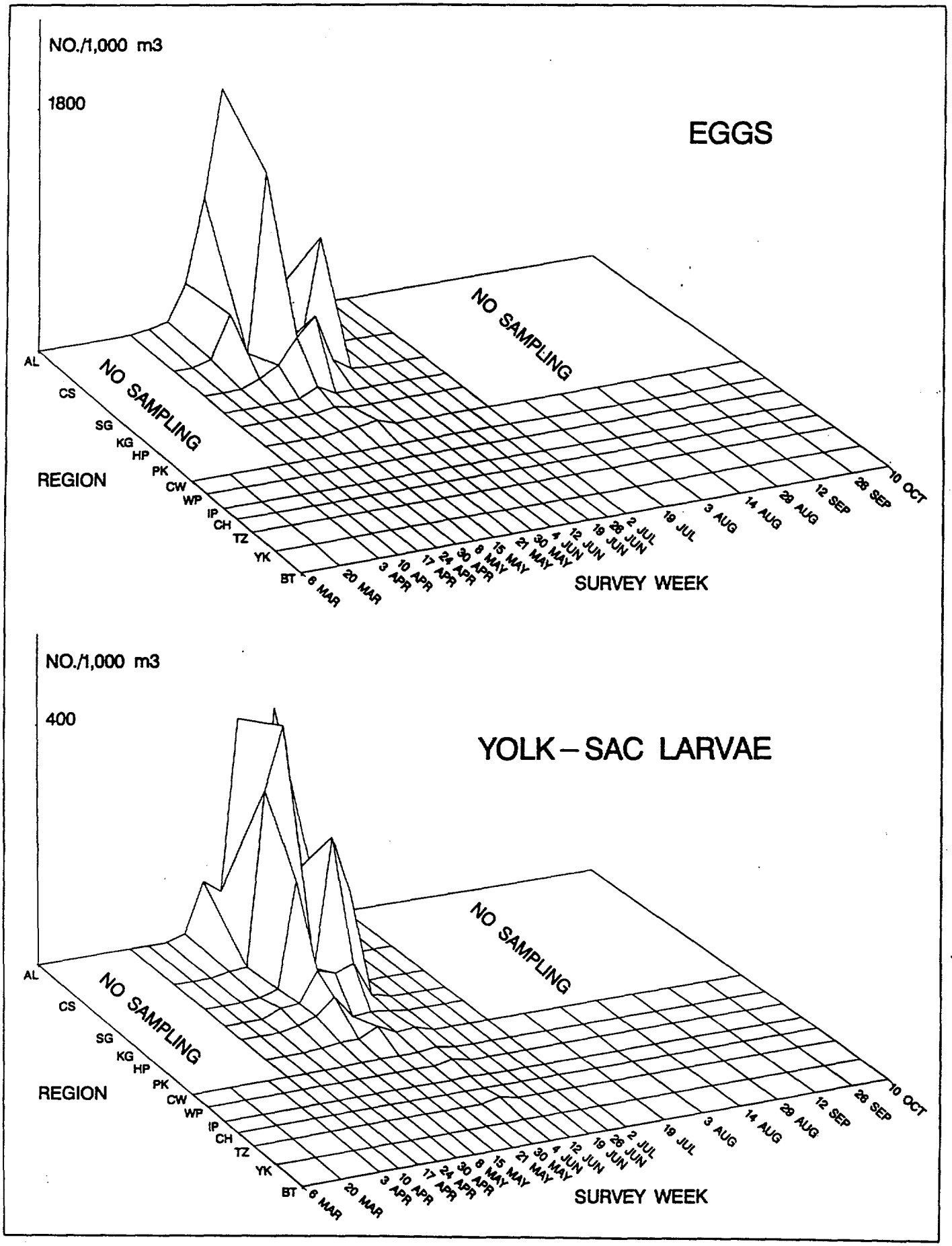


Figure 4-39. Spatiotemporal distribution of egg and yolk-sac stages of *Alosa* spp. in the Hudson River estuary based on the 1995 Longitudinal River Ichthyoplankton Survey.

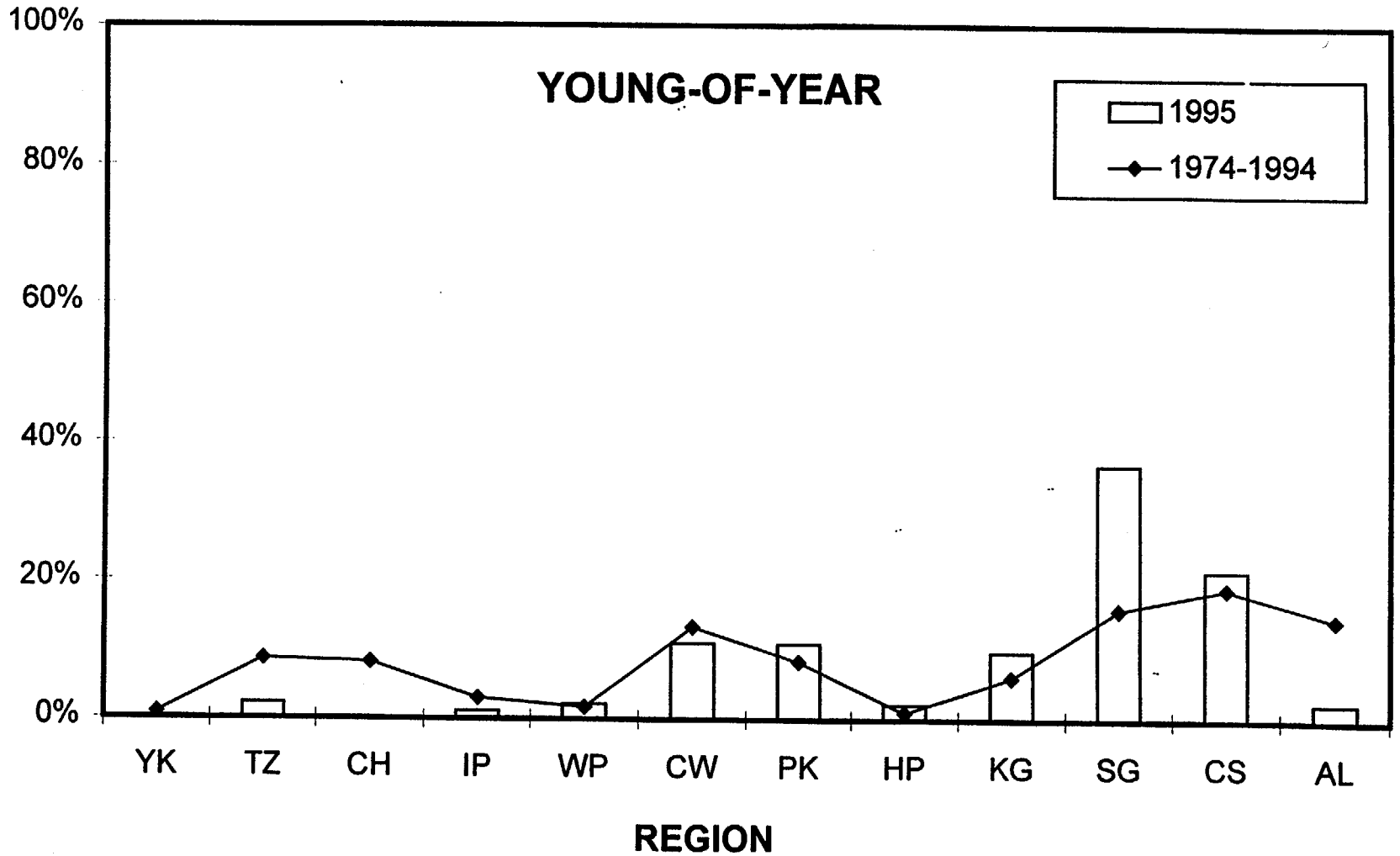


Figure 4-37. Geographical distribution indices for American shad collected during Beach Seine surveys of the Hudson River estuary, 1974-1995.

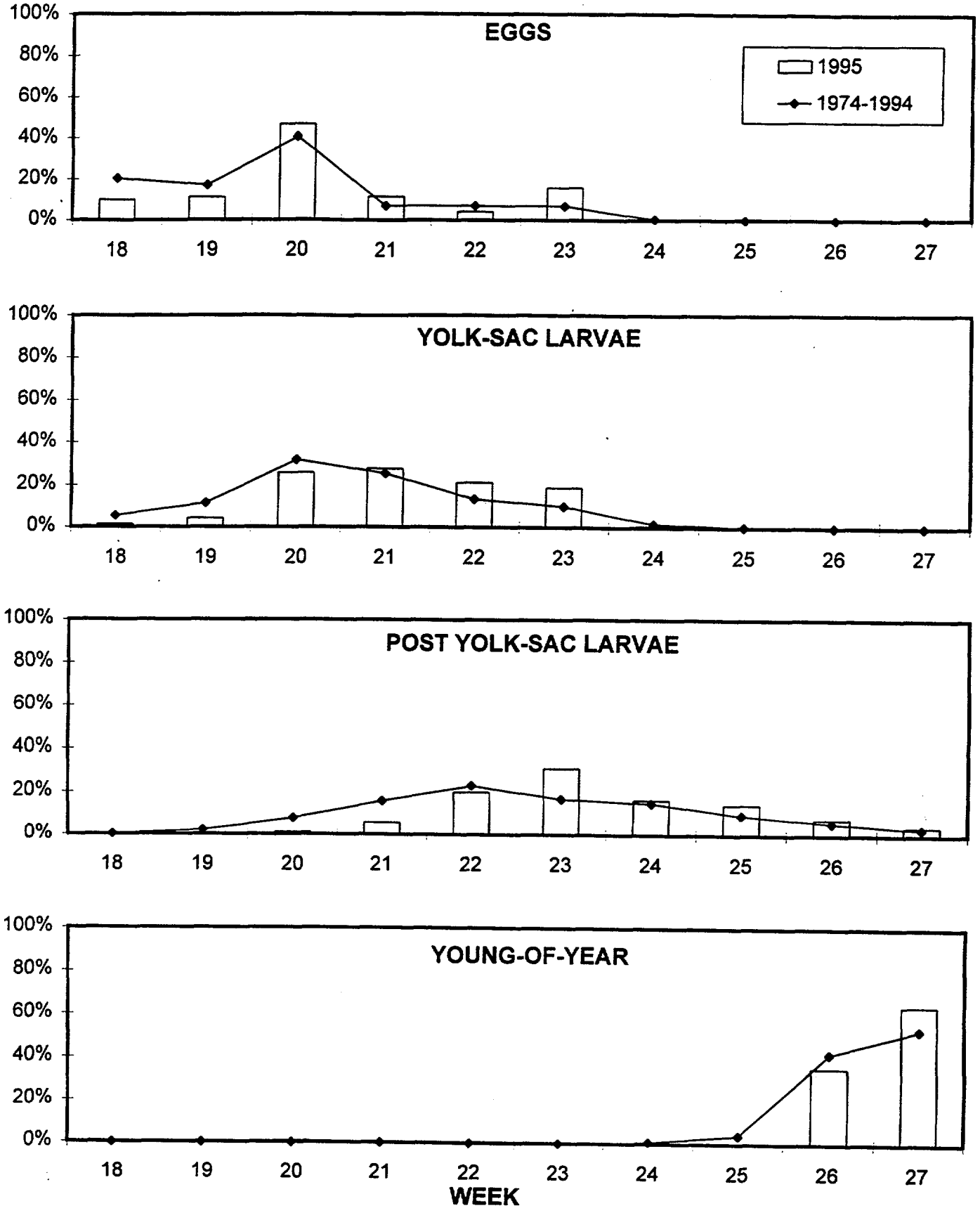


Figure 4-41. Temporal distribution indices for early life stages of *Alosa* spp. collected during Longitudinal River Ichthyoplankton surveys of the Hudson River estuary, 1974-1995.

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 and alewife are very much alike in external appearance, especially as larvae, but older alewife have proportionately larger eyes and deeper bodies than blueback herring. In Hudson River sampling, eggs and larvae of alewife and blueback herring are not differentiated because of the similarity in appearance. Any references in this document to eggs and larvae pertain to the combined numbers from both species, referred to as *Alosa* spp. Juveniles of these two species are differentiated by the size of the eyes and the mouth morphology and are discussed separately.

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 alewife. Alewife spawning activity is most intense when water temperatures are 51-71°F, which results in slightly earlier spawning than that of blueback herring. Blueback herring peak spawning activity occurs near the end of May. Spawning activity occurs within the river, but preferred spawning habitat for blueback herring is in fast-flowing tributaries, where eggs are released over hard substrates (Loesch and Lund 1977). In the Hudson River, blueback herring travel through the locks and spawning occurs within the Mohawk River and upper Hudson River. Alewife prefer ponds and slow-moving streams for their spawning habitat.

Alewife eggs are semidemersal, slightly adhesive, but easily torn free and carried by currents. The egg diameter is about 1/16 in. Hatching takes 2-15 days depending upon temperature (Smith 1985). Blueback herring produce 45,000-350,000 eggs per female. The eggs are 1/16 in. in diameter and adhesive upon release, but they may later become dislodged and be pelagic. Development proceeds rapidly and hatching occurs in 2-3 days. Newly hatched blueback herring are 0.125 in. long and the yolk-sac is absorbed in about 4 days. At the beginning of the PYSL stage, the larvae are about 0.1875 in. long.

In the Hudson River during 1995, peak abundance of *Alosa* spp. eggs occurred in the upper estuary, mainly from Catskill to Albany during mid-May (Figure 4-39). YSL and PYSL were also most abundant in the upper estuary but PYSL were found downriver as far as the Battery region by early June (Figure 4-40).

Comparing the temporal distribution of early life stages of *Alosa* spp. in 1995 with previous years (1974-1994), the 1995 peak abundance periods for eggs and YSL were consistent with the historical record, occurring in mid-May for eggs and from mid- to late May for YSL (Figure 4-41). PYSL and YOY temporal distributions in 1995 also resembled the long-term pattern with occurrence throughout June and in late June, respectively. The geographical distribution of *Alosa* spp. early life stages shows that most of the *Alosa* spp. eggs are found in the Catskill and Albany regions and the larvae disperse downriver to the middle estuary regions. The 1995 distribution is consistent with this long-term record (Figure 4-42).

4.8 ALEWIFE

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 alewife 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 9 years.

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. Upon returning to the lower estuary after spawning, alewife feed heavily on shrimp (Bigelow and Schroeder 1953).

Alewife assume adult characteristics at about one month of age and about 1/2 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 alewife 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 alewife began appearing in the 1995 LRS in late June in the upper estuary with the highest density found in the Kingston region (Figure 4-43). Juvenile alewife captured in the 1995 FSS were found throughout the upper and middle estuary while juvenile alewife from the BSS were most abundant in the middle estuary (Figure 4-44). Few yearling and older alewife were collected in the BSS and FSS gear (Figure 4-45).

Comparing the geographical distribution of juvenile alewife based on the 1995 BSS with previous years (1974-1994), the 1995 distribution of juveniles does not wholly support the long-term pattern of a tri-modal peak in distribution (Figure 4-46). Approximately 40 percent of the YOY alewife were caught in the Poughkeepsie region in 1995 compared to 5 percent in the long-term pattern. Few alewife were collected in the lower estuary, but a secondary peak in the upper estuary was evident in 1995.

Weekly length statistics for alewife juveniles collected in 1995 show an overall increase in growth from early July through the end of BSS/FSS collections in October, marked by a zigzag pattern that may be related to sampling gear selectivity on alternating weeks of the FSS and BSS (Figure 4-47, Appendix Tables D-14 and D-15).

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 70-80 miles offshore, little is known about the oceanic migration patterns. The presence of blueback herring and alewife 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. Blueback herring grow to a maximum length of 15 in. and a weight of about 1 lb and live for up to 8 or 9 years (Scott and Crossman 1973).

Within a month of hatching the young blueback herring assume adult characteristics and are about 0.5 in. long. Juvenile blueback herring remain in upper estuaries throughout the summer. During this period

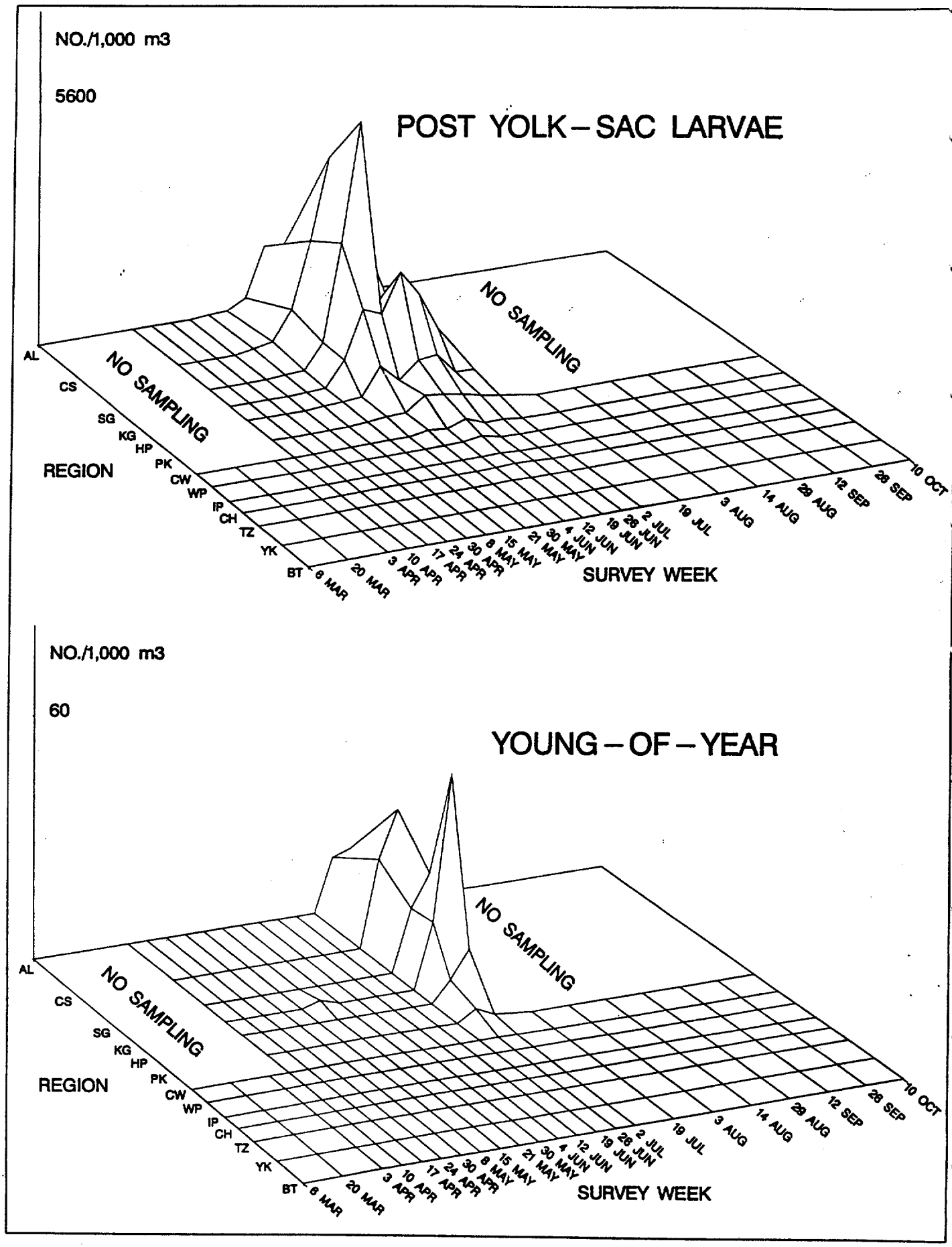


Figure 4-40. Spatiotemporal distribution of post yolk-sac and young-of-year stages of *Alosa* spp. in the Hudson River estuary based on the 1995 Longitudinal River Ichthyoplankton Survey.

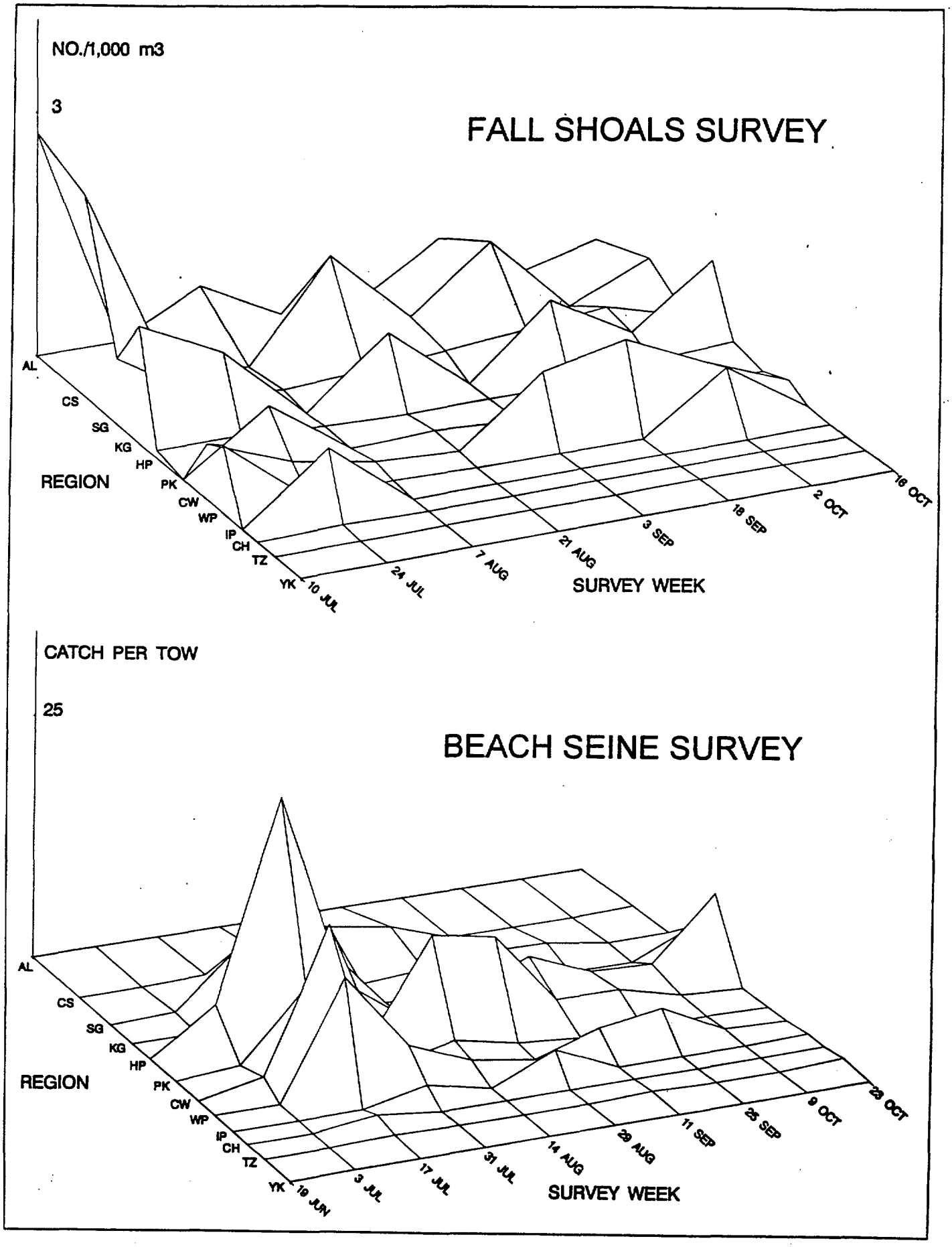


Figure 4-44. Spatiotemporal distribution of young-of-year alewife in the Hudson River estuary based on the 1995 Fall Shoals and Beach Seine surveys.

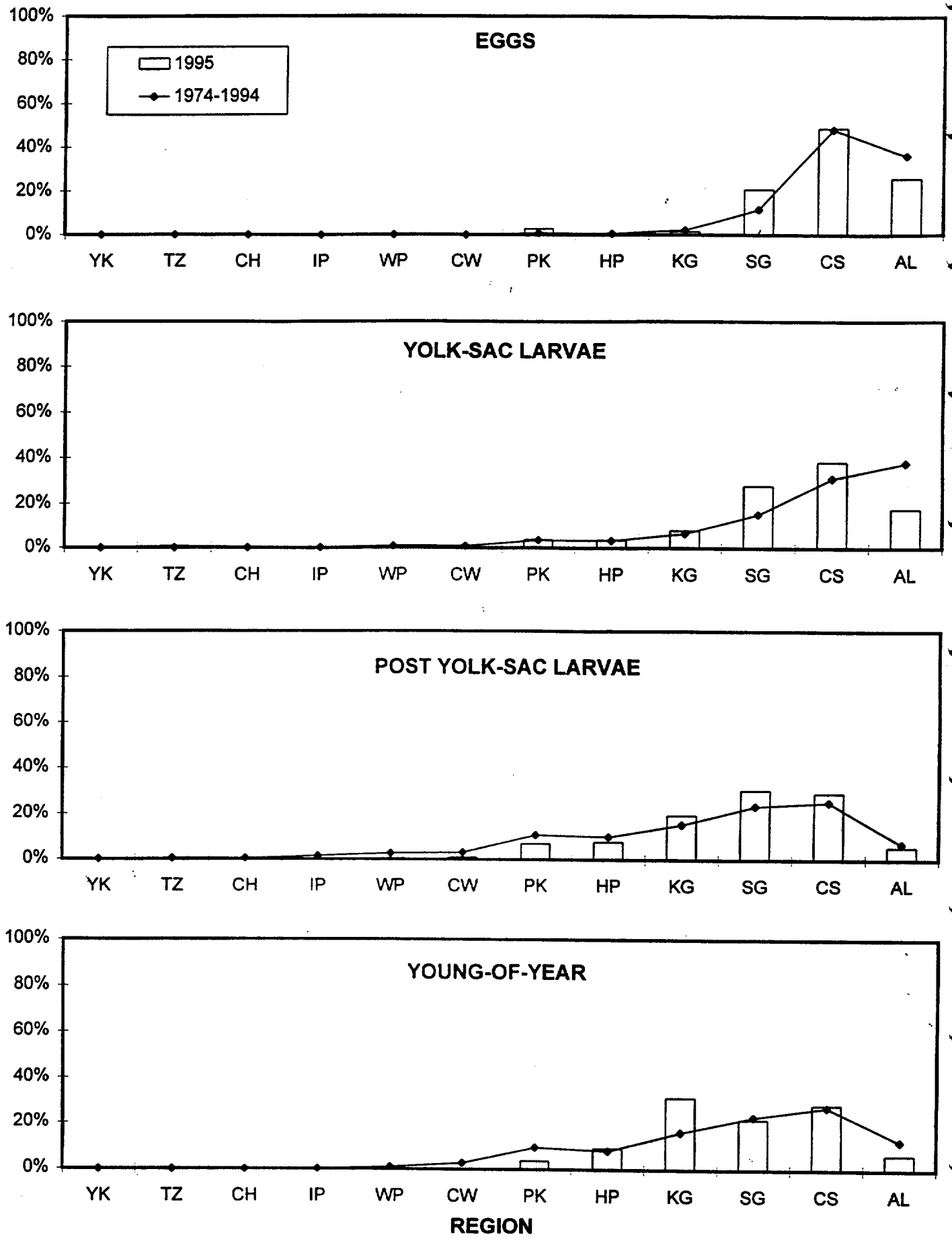


Figure 4-42. Geographical distribution indices for early life stages of *Alosa* spp. collected during Longitudinal River Ichthyoplankton surveys of the Hudson River estuary, 1974-1995.

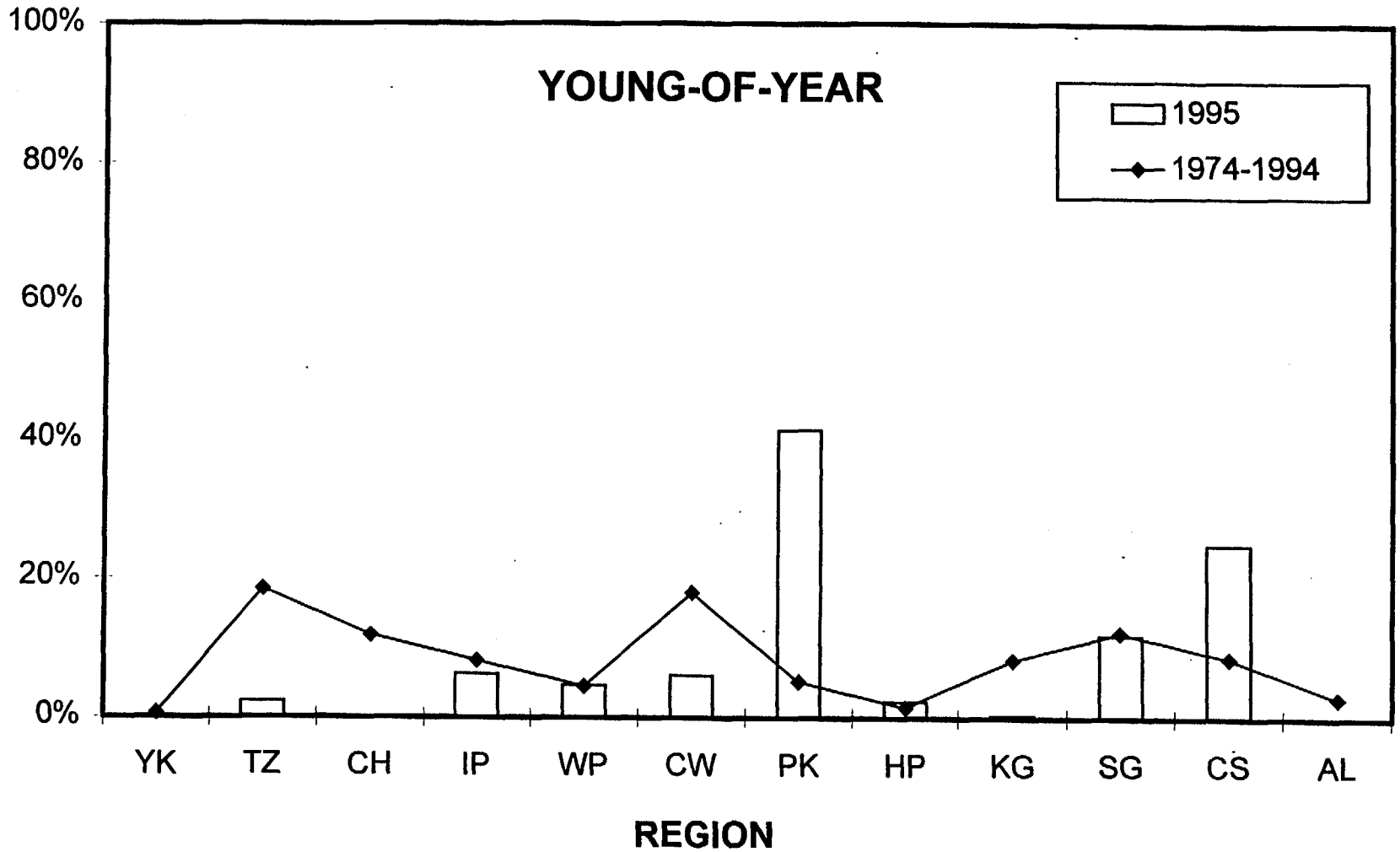


Figure 4-46. Geographical distribution indices for alewife collected during Beach Seine surveys of the Hudson River estuary, 1974-1995.

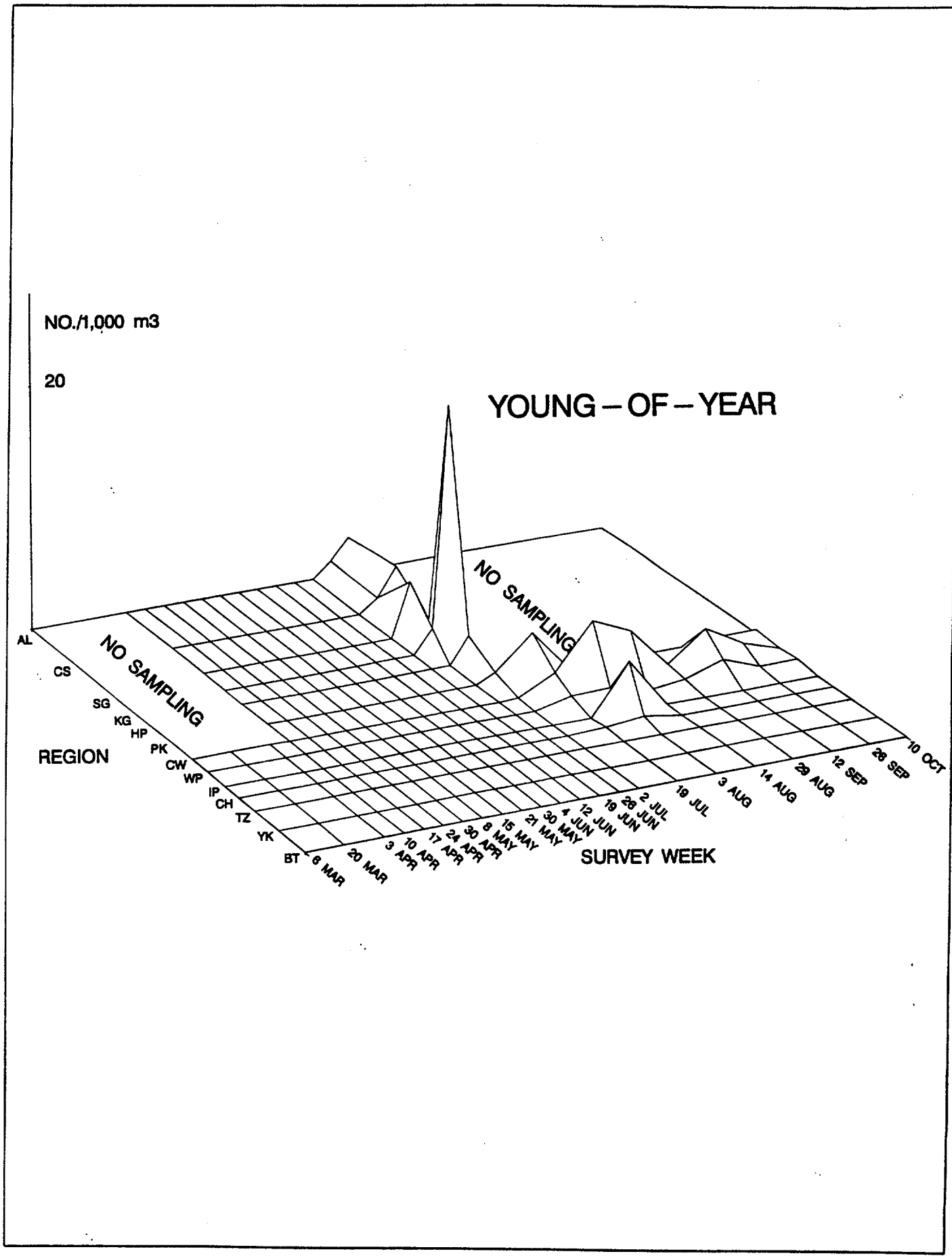


Figure 4-43. Spatiotemporal distribution of young-of-year alewife in the Hudson River estuary based on the 1995 Longitudinal River Ichthyoplankton Survey.

they are about 10 times more abundant than juvenile alewife. Juvenile blueback herring grow more slowly than juvenile alewife 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).

In the Hudson River during 1995, early juveniles collected in the LRS were abundant in the upper estuary in late June and in the mid-estuary regions of Cornwall and Poughkeepsie from July through October (Figure 4-48). Juvenile blueback herring began appearing in the 1995 BSS and FSS in early July, with collections gradually increasing in downriver regions by October, reflecting the downriver migration (Figure 4-49). Few yearling and older blueback herring were collected in the BSS and FSS gear (Figure 4-50).

Comparing the geographical distribution of juvenile blueback herring based on the 1995 BSS with previous years (1974-1994), the 1995 distribution of juveniles resembled the long-term record, except that a much higher proportion, over 60 percent, of the population was caught in the Poughkeepsie region than in previous years (Figure 4-51). This concentration area was also observed in YOY alewife distribution in 1995.

Weekly length statistics for juvenile blueback herring collected in 1995 show slow but increasing growth from early July through the end of BSS/FSS collections in October (Figure 4-52, Appendix Tables D-16 and D-17).

4.10 GIZZARD SHAD

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. 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 10-14 in. and 1-3 lb in weight (Miller 1960).

Gizzard shad spawn when the water temperature reaches 50-70°F (April-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 from 1-1/2 to 7 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 micro-zooplankton 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 5 or 6 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.

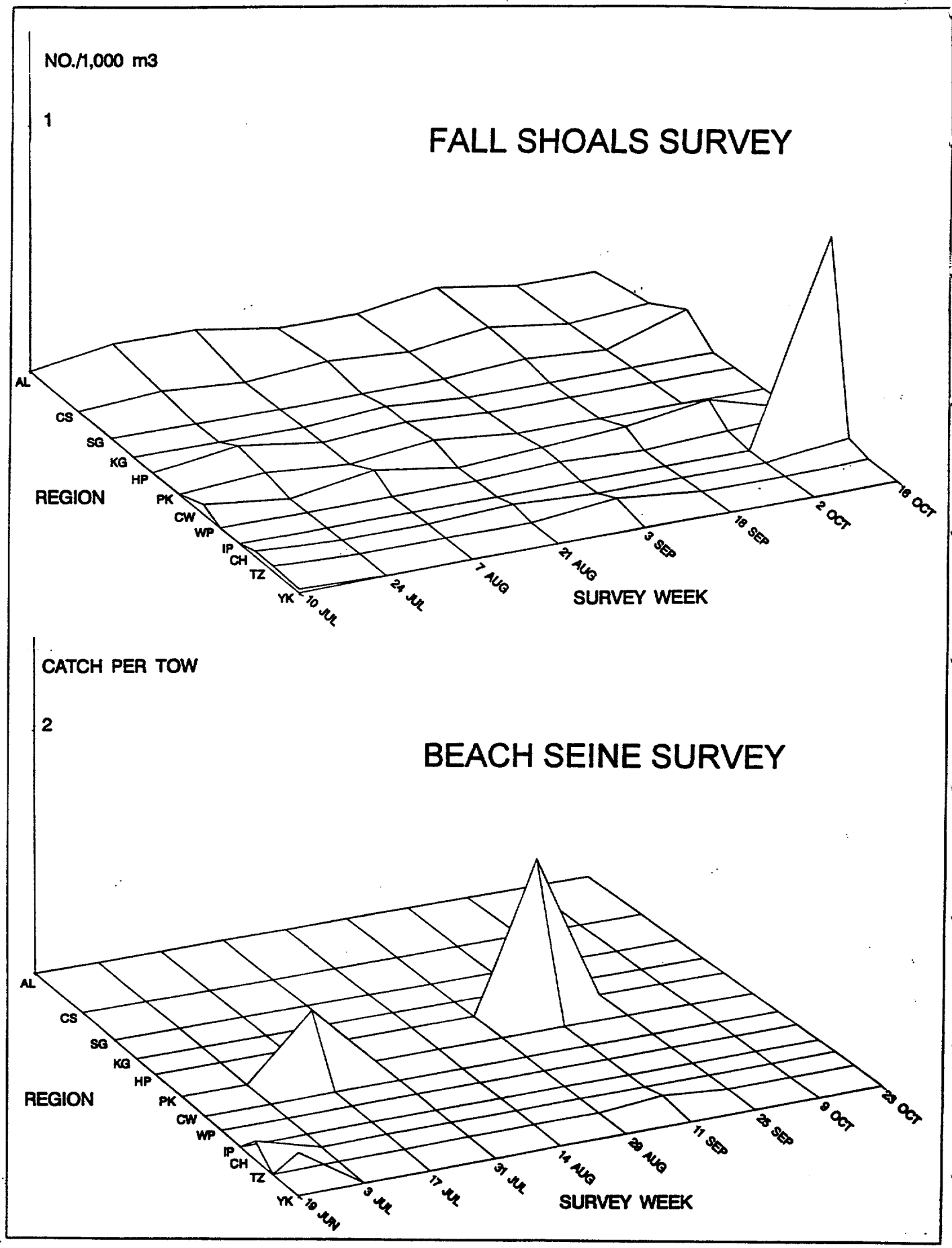


Figure 4-45. Spatiotemporal distribution of yearling and older alewife in the Hudson River estuary based on the 1995 Fall Shoals and Beach Seine surveys.

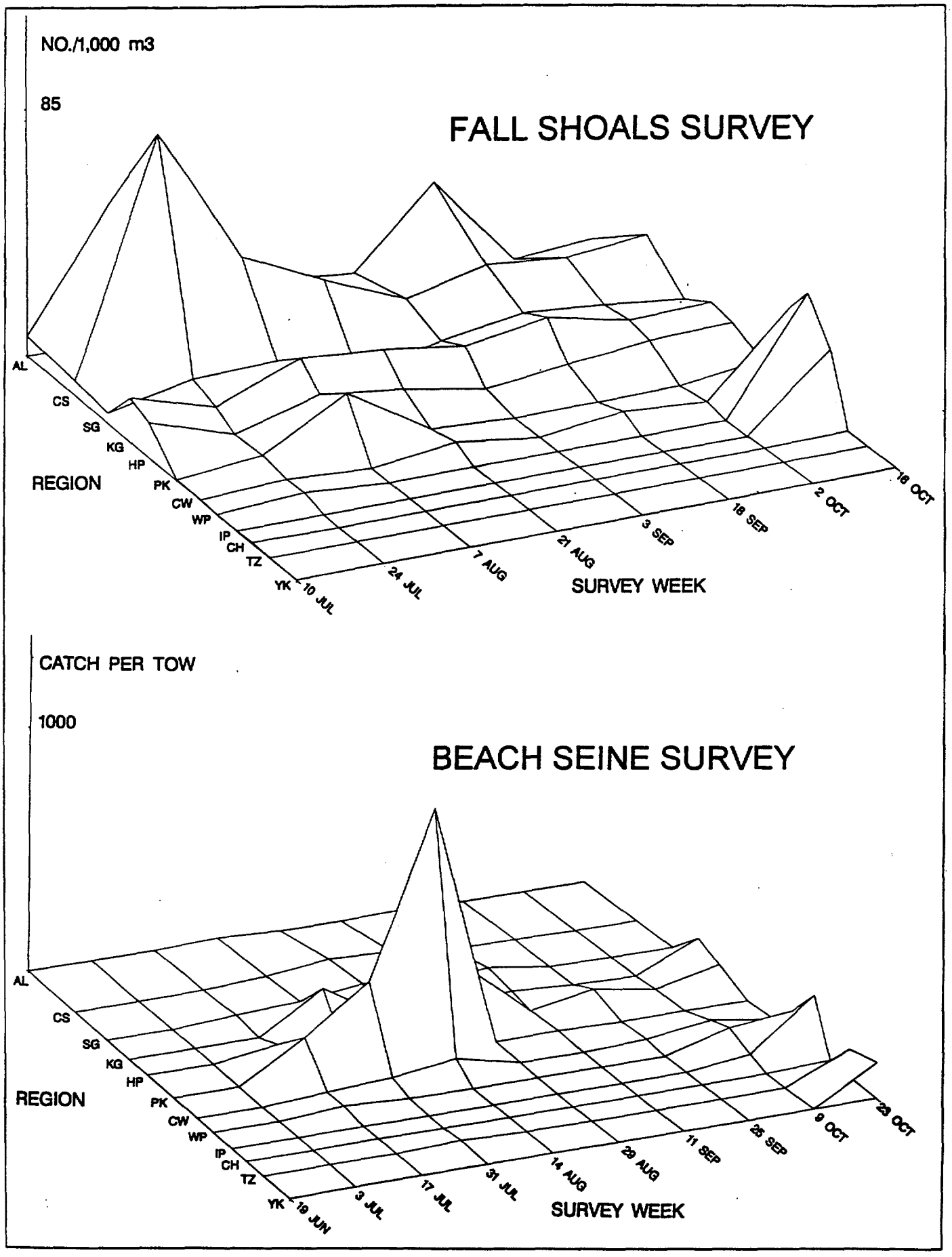


Figure 4-49. Spatiotemporal distribution of young-of-year blueback herring in the Hudson River estuary based on the 1995 Fall Shoals and Beach Seine surveys.

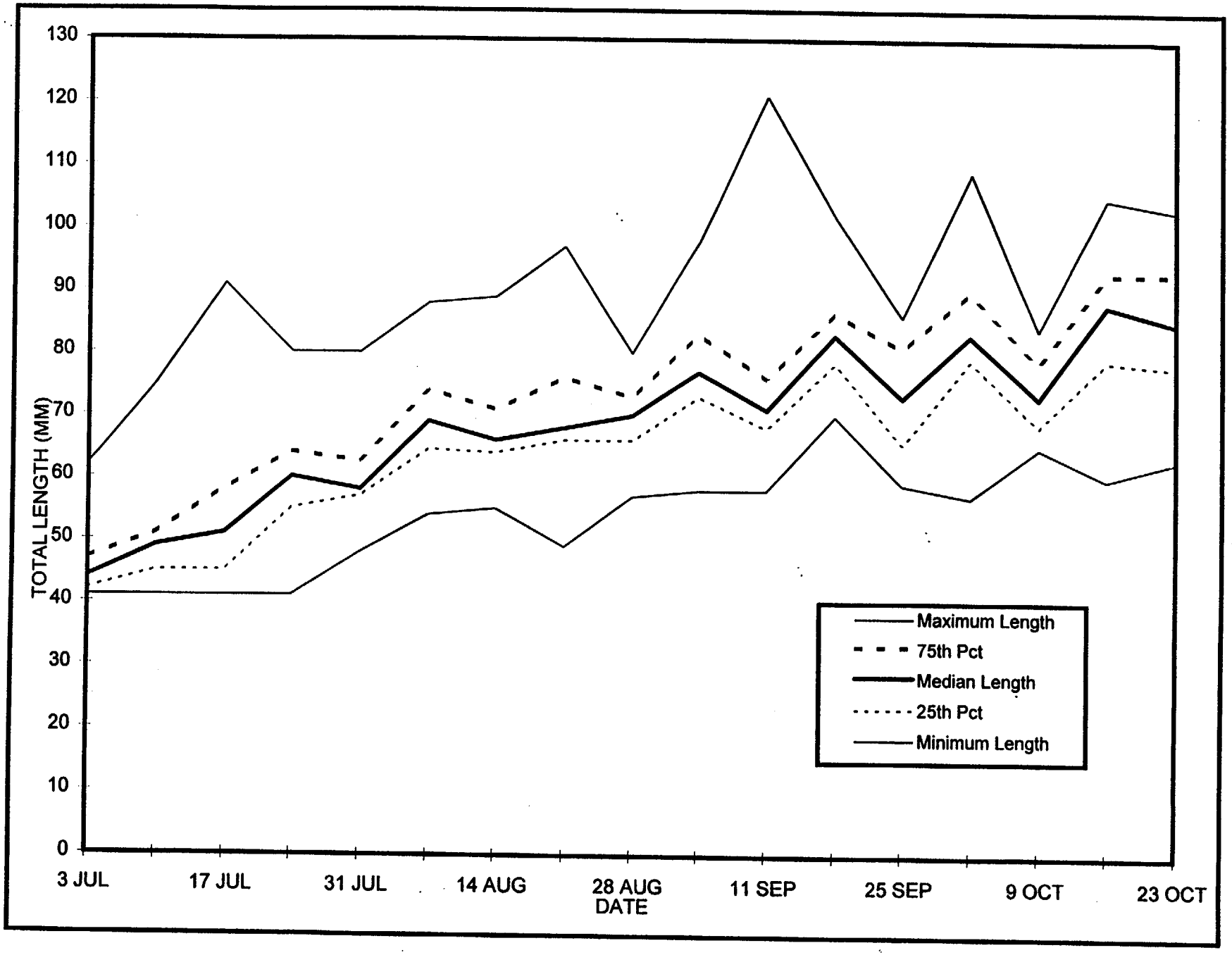


Figure 4-47. Weekly length statistics for young-of-year alewife in the Hudson River estuary, 1995.

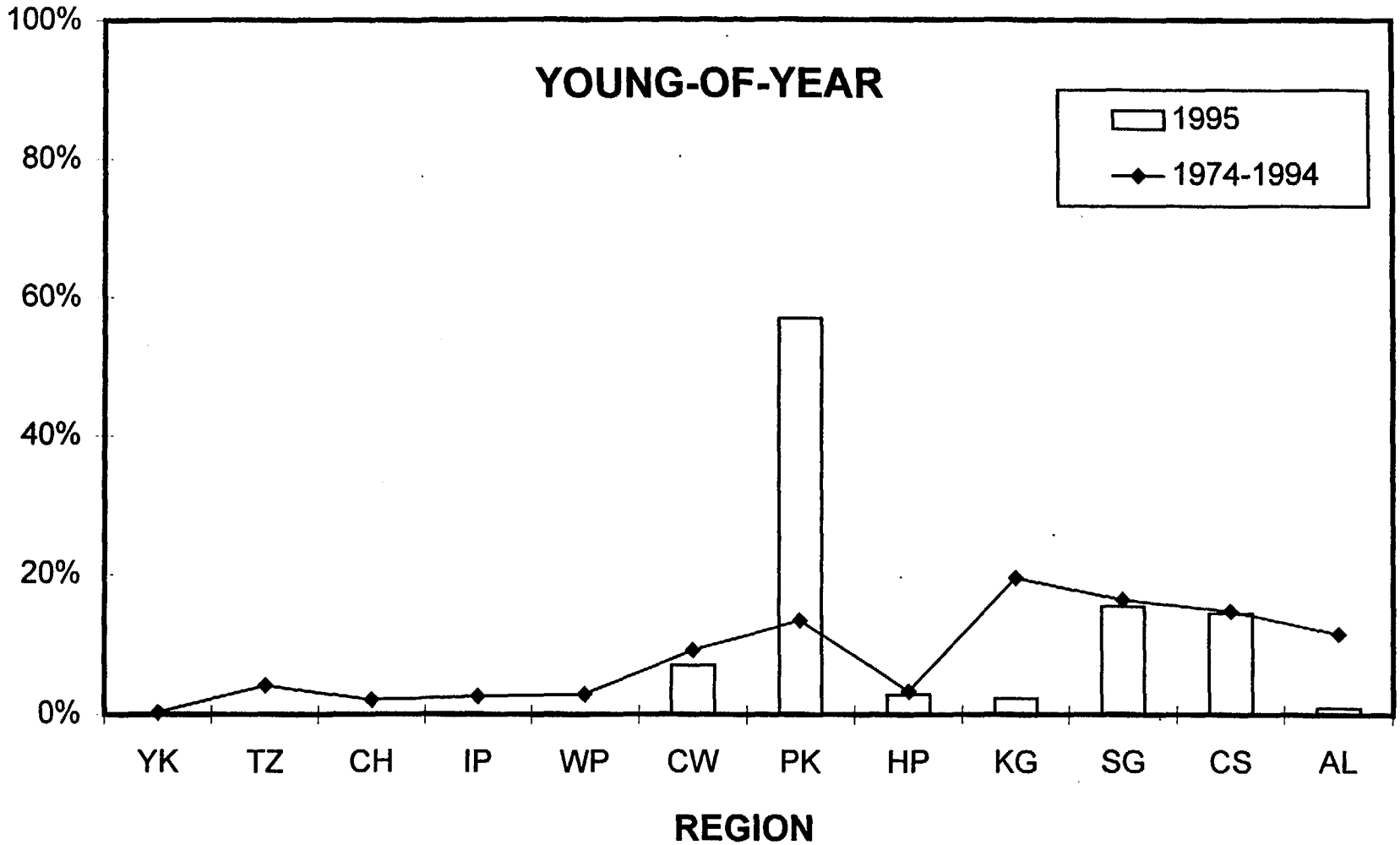


Figure 4-51. Geographical distribution indices for blueback herring collected during Beach Seine surveys of the Hudson River estuary, 1974-1995.

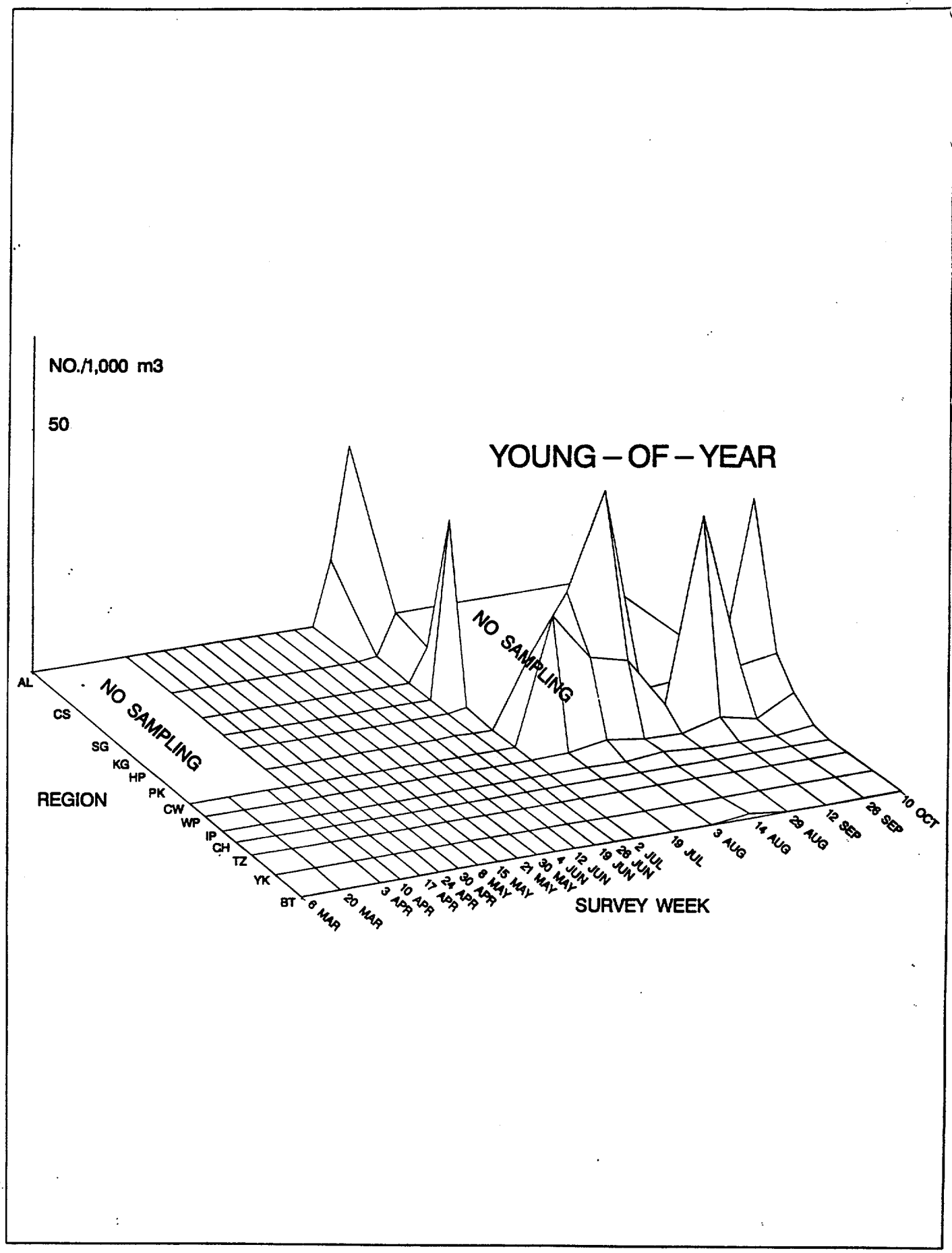


Figure 4-48. Spatiotemporal distribution of young-of-year blueback herring in the Hudson River estuary based on the 1995 Longitudinal River Ichthyoplankton Survey.

Gizzard shad typically mature at age 2 or 3, and the life span is about 7 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). Young gizzard shad are eaten by most predatory fish, but adults are generally too large to be eaten easily.

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. A few juvenile gizzard shad were collected in the 1995 BSS throughout the estuary and no gizzard shad were collected during the 1995 FSS (Figure 4-53). 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 River. The few yearling and older gizzard shad recorded in river surveys in 1995 were mostly collected in beach seines in the middle estuary (Figure 4-54).

Comparing both juvenile and yearling and older distributions of gizzard shad during 1995 with the long-term record (1974-1994) is difficult as few gizzard shad were collected in 1995 (Figure 4-55). Gizzard shad were primarily found in the middle Hudson River (Poughkeepsie and Cornwall) and some were also collected in the Tappan Zee and Kingston through Saugerties regions.

4.11 RAINBOW SMELT

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 fresh waters. Within New York State rainbow smelt are found in the Hudson River, Long Island streams, several Adirondack 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 rainbow 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 7-8 in. in total length, but occasionally reach lengths of 13-14 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 7,000 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). Rainbow smelt eggs hatch in about a week to almost a month, depending on temperature and, historically, eggs have been present in the Hudson River ichthyoplankton catches for about 2 weeks, which suggests a short spawning period. No rainbow smelt eggs were collected in the Hudson River during 1995 (Figure 4-56).

Newly hatched larvae are about 1/5 in. long. These larvae are carried downstream and out of the tributaries by current flows. During 1995, YSL were abundant in late April and were found throughout

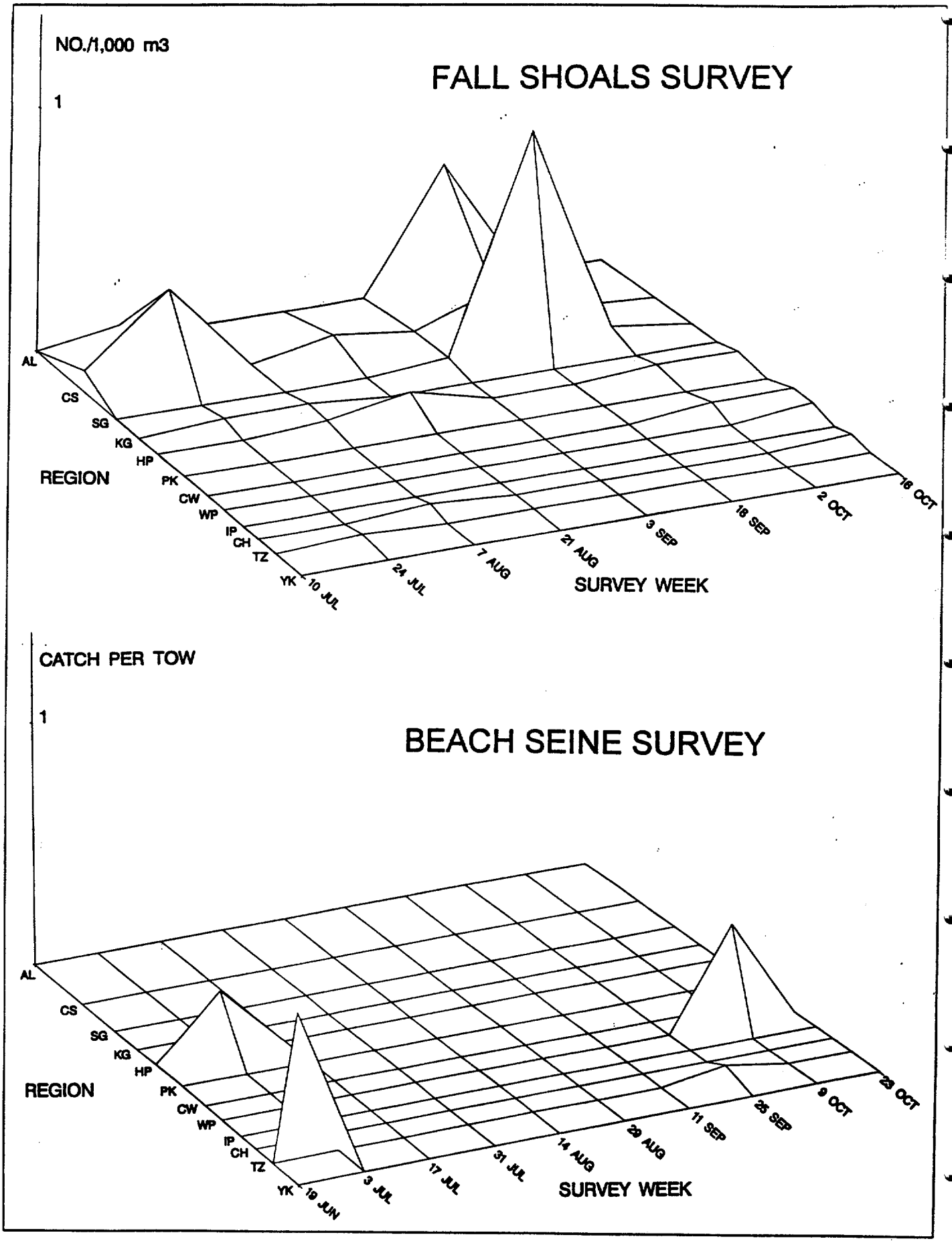


Figure 4-50. Spatiotemporal distribution of yearling and older blueback herring in the Hudson River estuary based on the 1995 Fall Shoals and Beach Seine surveys.

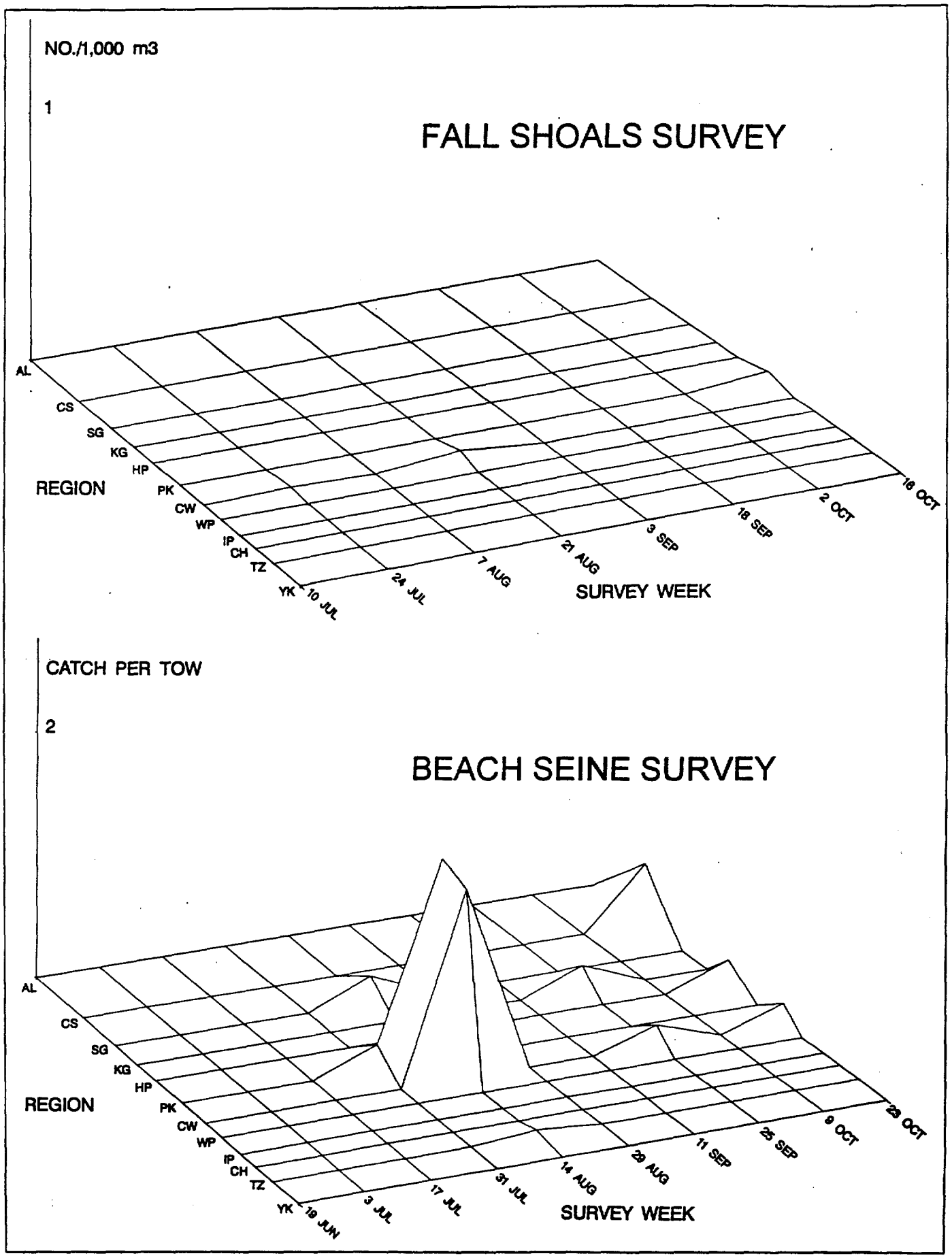


Figure 4-54. Spatiotemporal distribution of yearling and older gizzard shad in the Hudson River estuary based on the 1995 Fall Shoals and Beach Seine surveys.

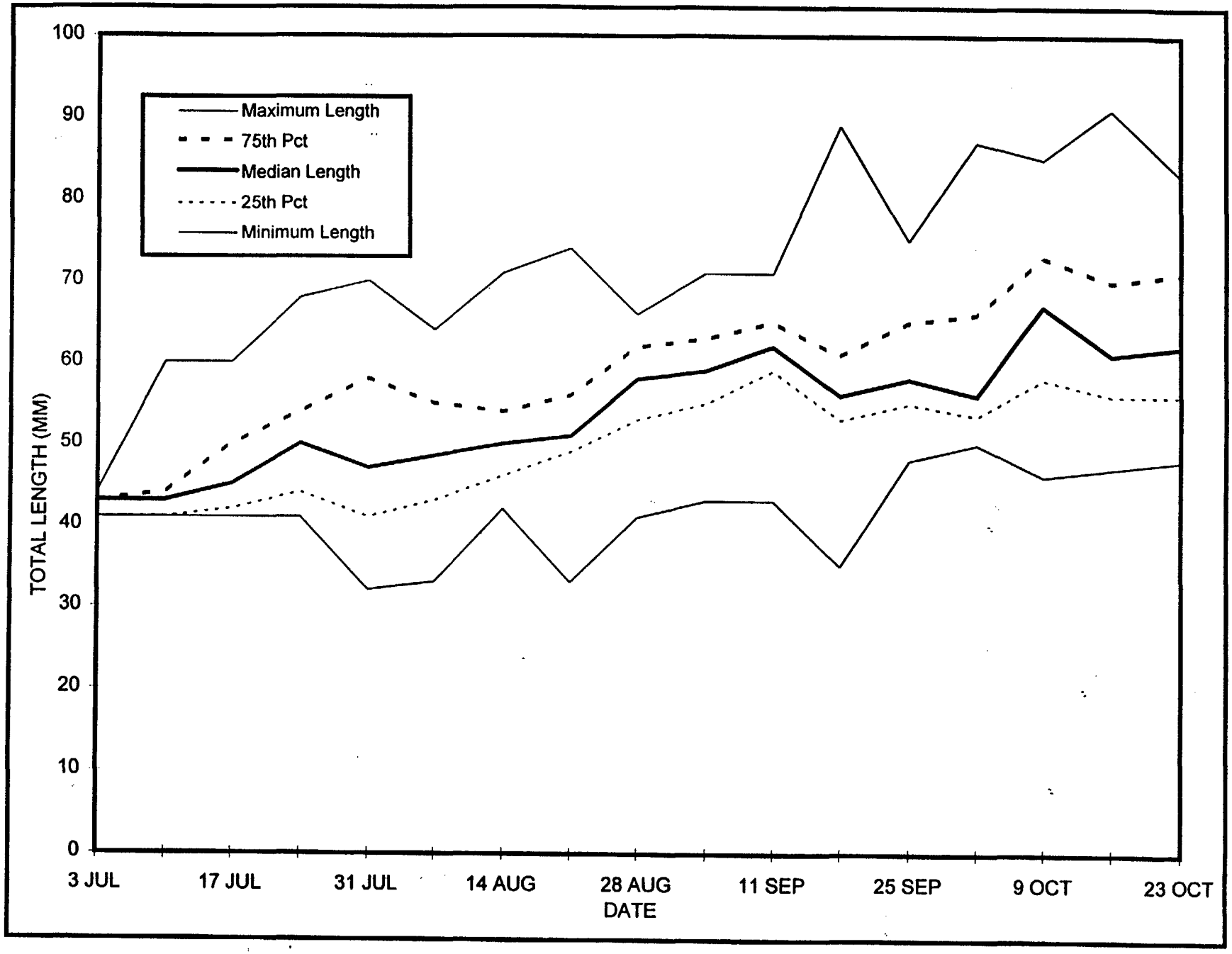


Figure 4-52. Weekly length statistics for young-of-year blueback herring in the Hudson River estuary, 1995.

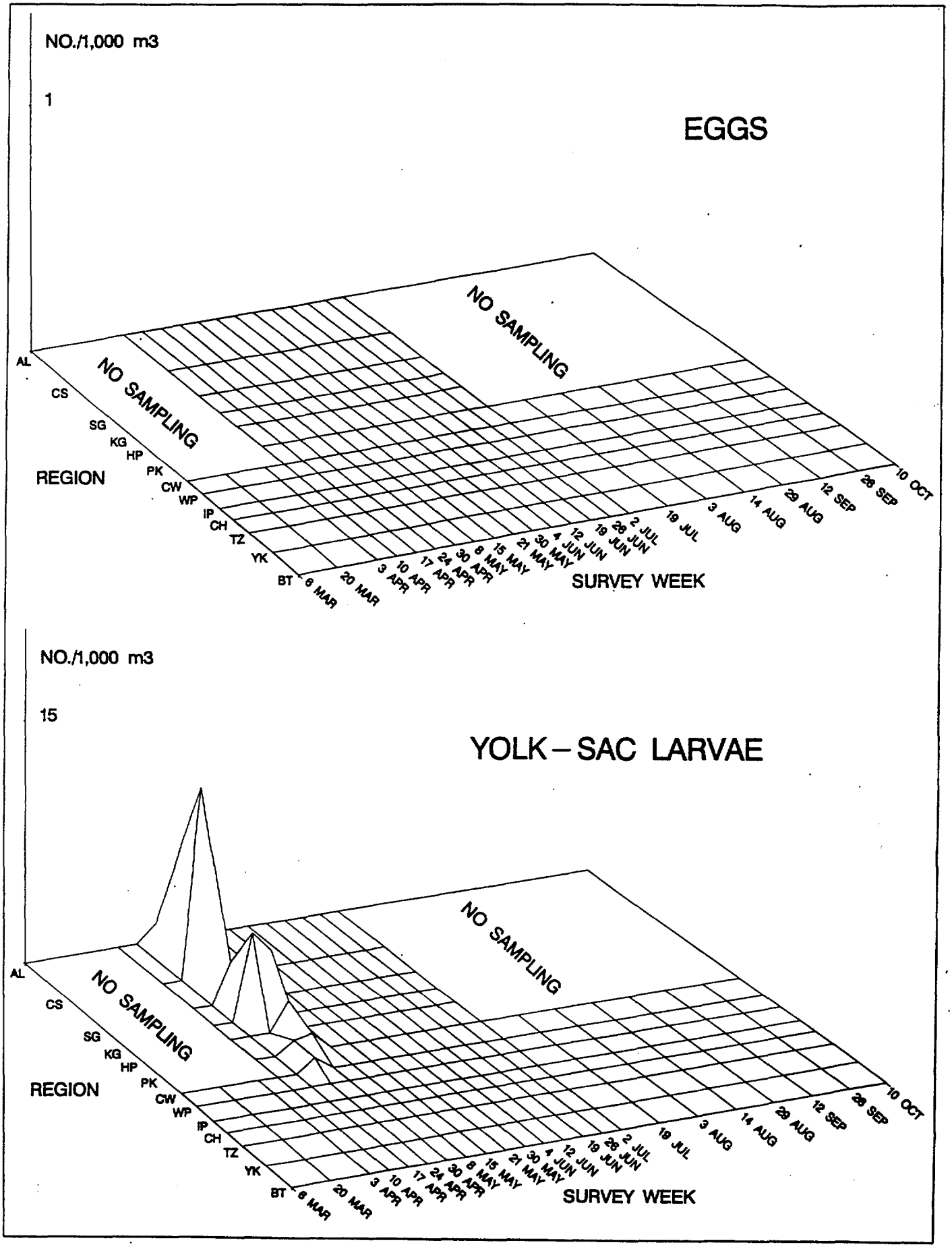


Figure 4-56. Spatiotemporal distribution of egg and yolk-sac stages of rainbow smelt in the Hudson River estuary based on the 1995 Longitudinal River Ichthyoplankton Survey.

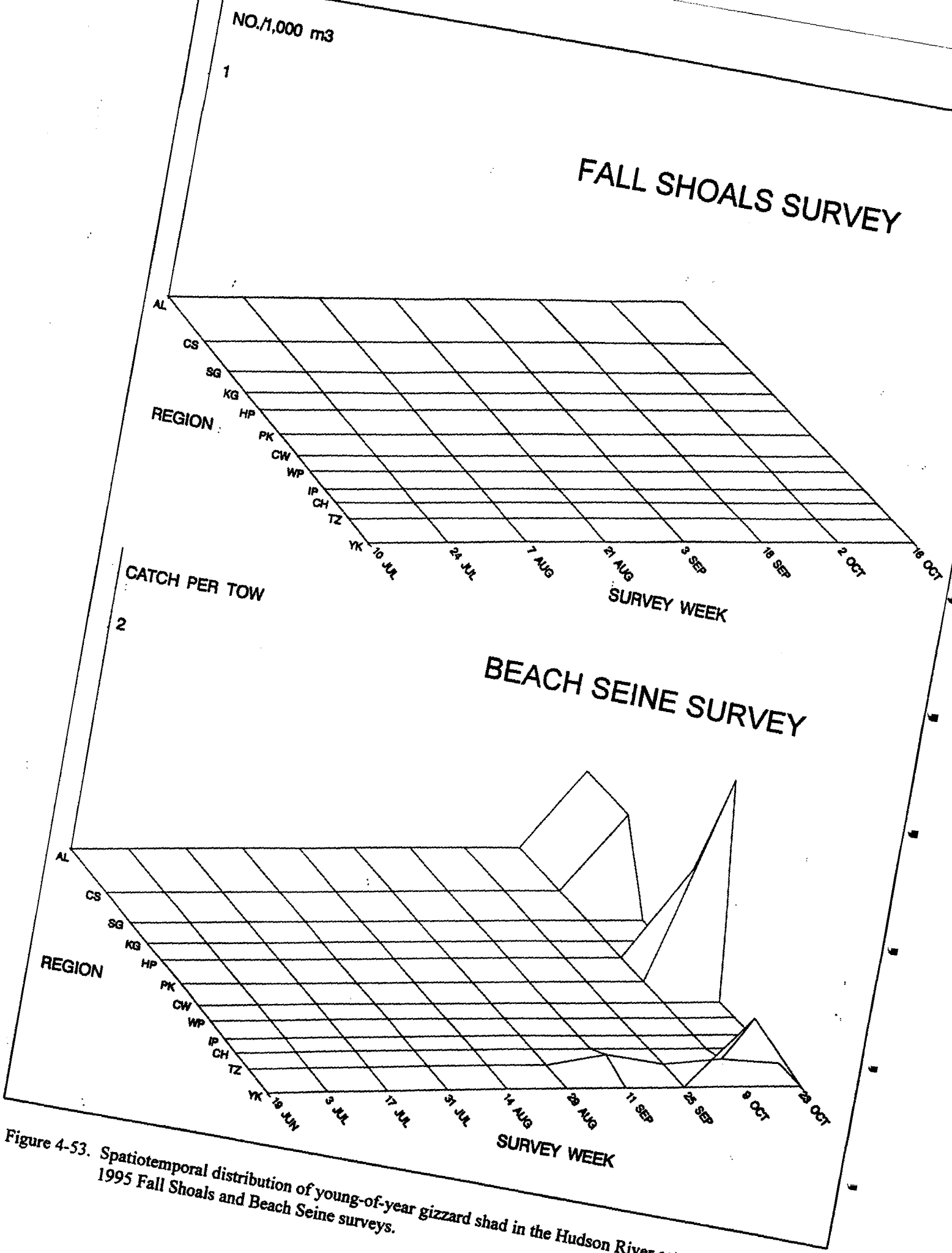


Figure 4-53. Spatiotemporal distribution of young-of-year gizzard shad in the Hudson River estuary based on th 1995 Fall Shoals and Beach Seine surveys.

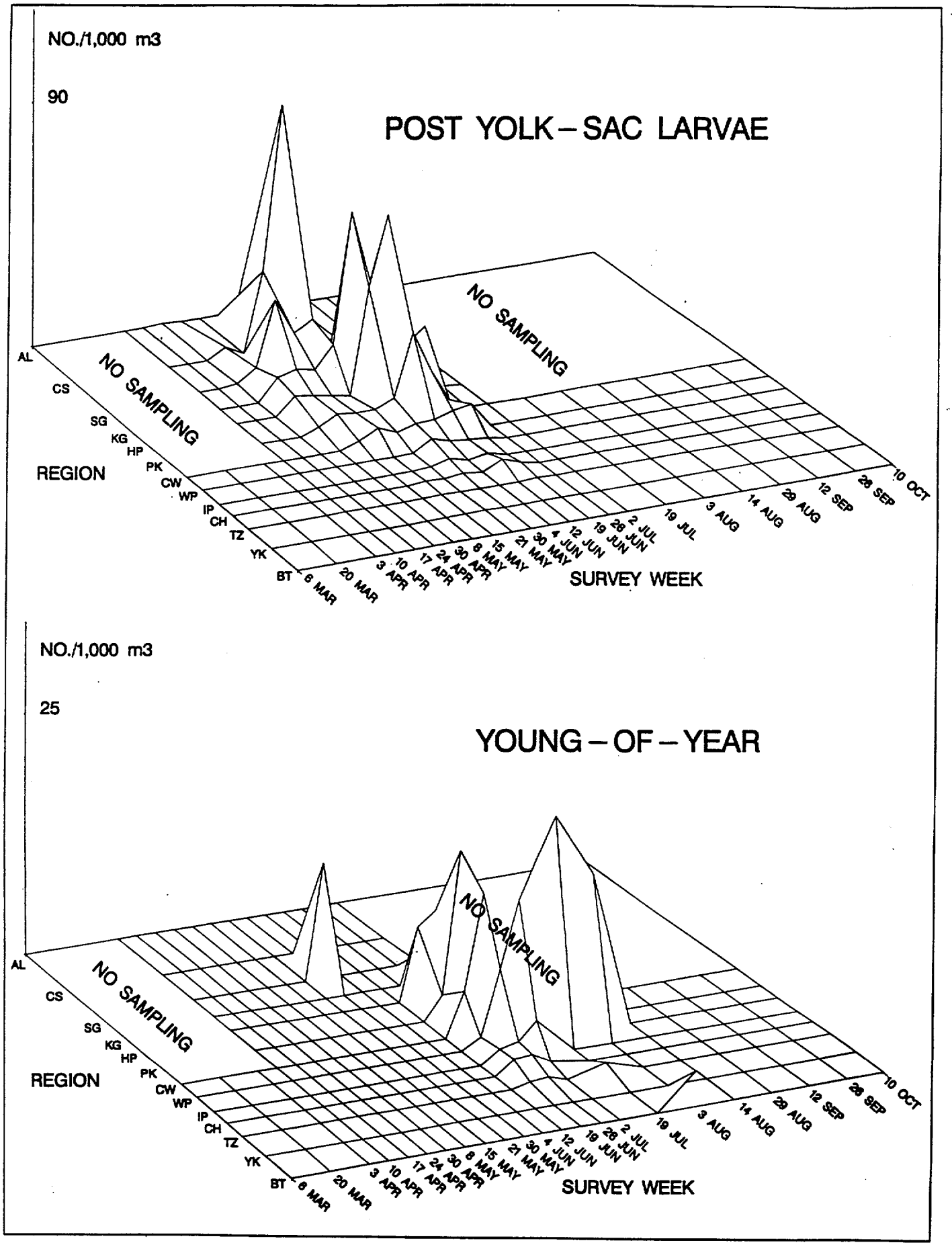


Figure 4-57. Spatiotemporal distribution of post yolk-sac and young-of-year stages of rainbow smelt in the Hudson River estuary based on the 1995 Longitudinal River Ichthyoplankton Survey.

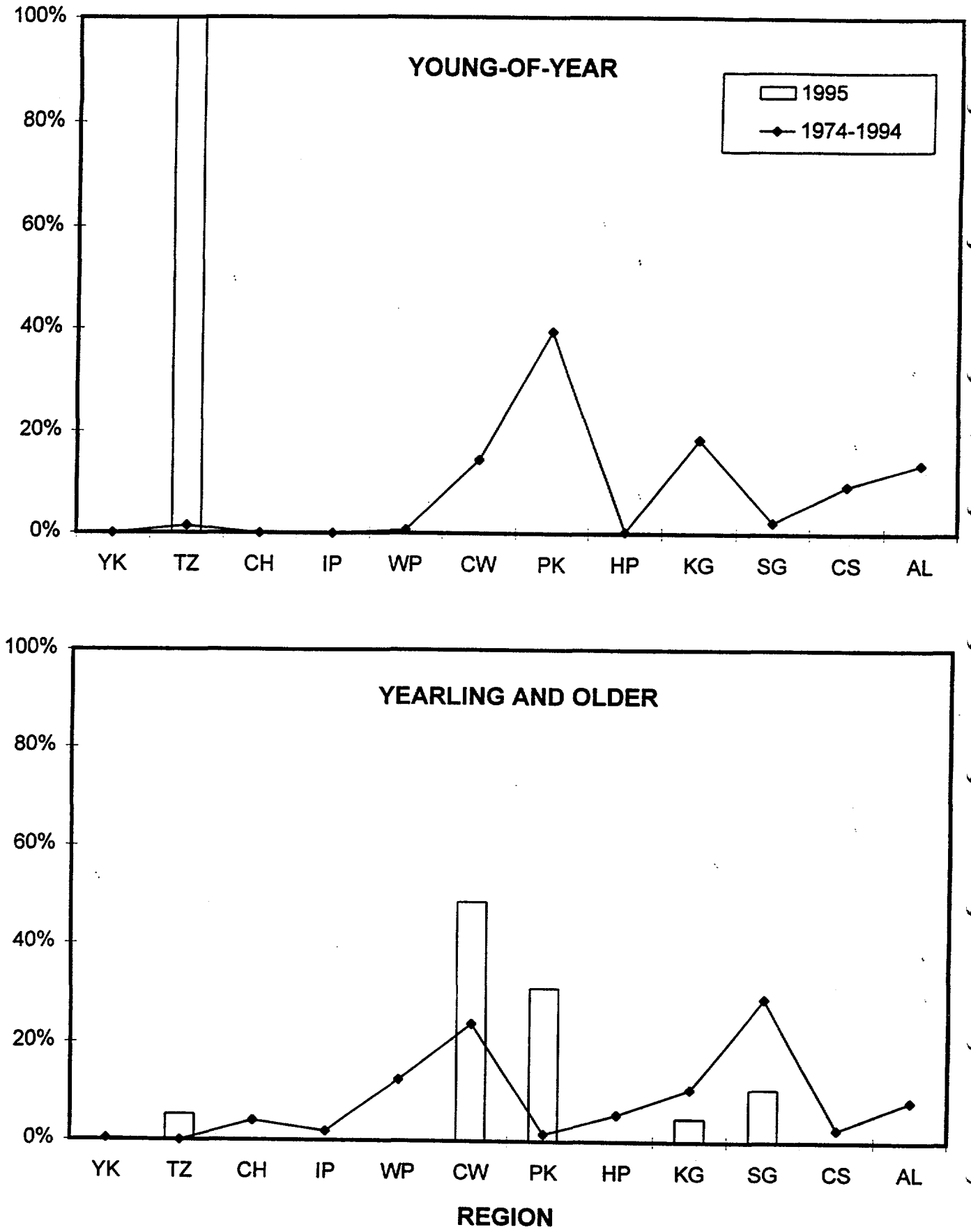
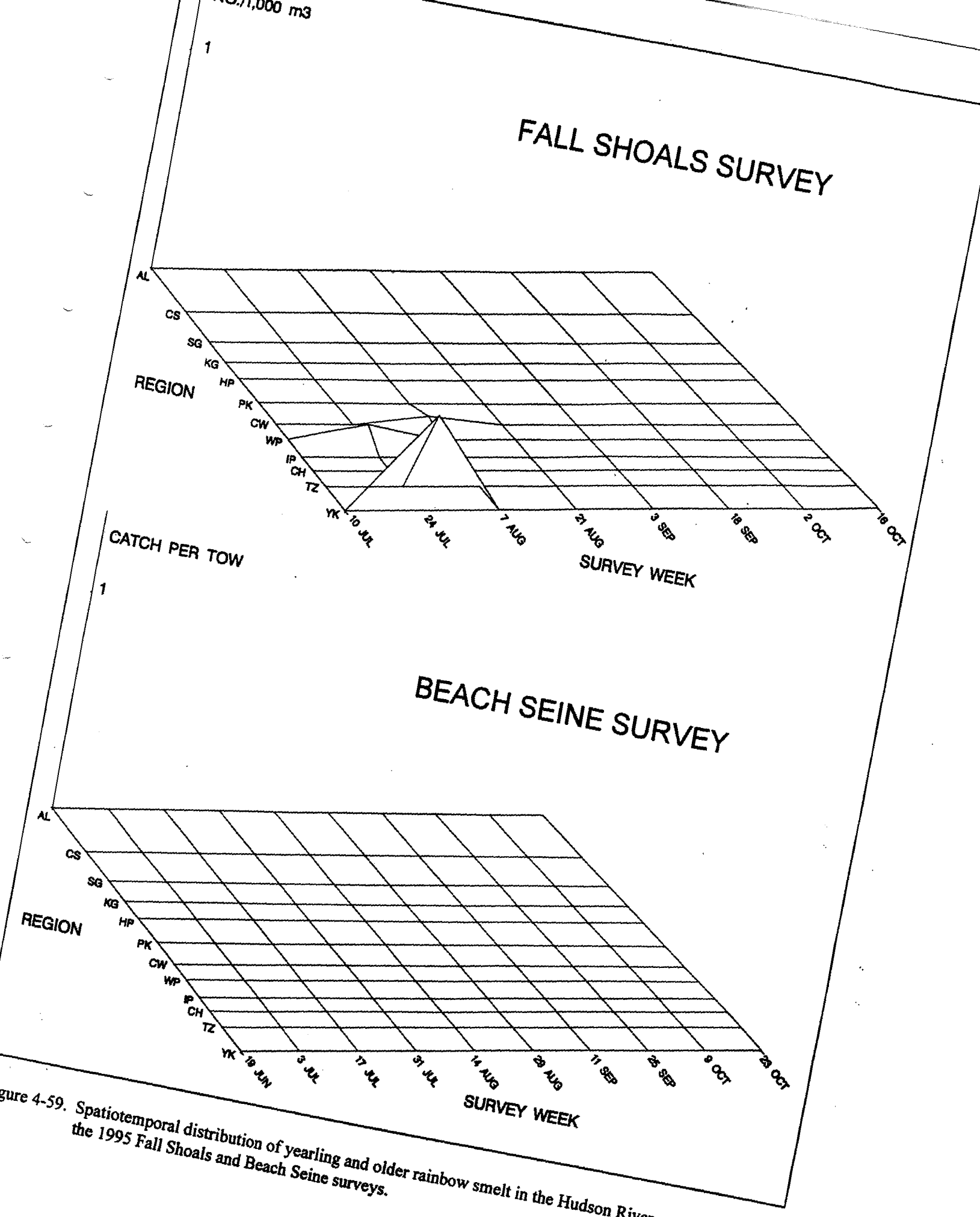


Figure 4-55. Geographical distribution indices for gizzard shad collected during Beach Seine surveys of the Hudson River estuary, 1974-1995.



gure 4-59. Spatiotemporal distribution of yearling and older rainbow smelt in the Hudson River estuary based on the 1995 Fall Shoals and Beach Seine surveys.

the upper half of the Hudson River estuary (Figure 4-56). The yolk-sac is absorbed when the fish are about 1/4 in. in length. In 1995 PYSL were commonly found in the upper and middle estuary and were abundant from late April through June (Figure 4-57). 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 1995 LRS catches from mid-June to August in the middle estuary (Figure 4-57). Juvenile smelt are exceedingly slender and nearly transparent. At about 3/4 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 1995 BSS and FSS collections where beach seines conducted during the day collected no rainbow smelt and fall shoals sampling conducted at night collected juveniles primarily in the middle estuary regions in the early summer (Figure 4-58). By late summer the young smelt leave the estuary. The few yearling and older rainbow smelt collected in the 1995 FSS were found in the West Point, Cornwall, and Yonkers regions (Figure 4-59).

Comparing the temporal distribution of early life stages of rainbow smelt in 1995 with previous years (1974-1994), the 1995 distributions of the larval stages paralleled the long-term record (Figure 4-60). Most YSL were collected in early May, PYSL were found throughout May and June, and YOY were prevalent in late June.

The geographical distribution of rainbow smelt early stages during 1995 was generally consistent with the long-term record (Figure 4-61). However, PYSL and YOY in 1995 were shifted upriver of the historical trend with fewer of these life stages collected in the lower estuary regions. No comparison of the 1995 geographical distribution of YOY and yearling and older rainbow smelt from the FSS was made with the long-term trend in distribution as no rainbow smelt were collected in 1995 within the temporal limits of this index.

4.12 HOGCHOKER

Hogchoker (*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. Hogchoker reach a length of 2-3 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 hogchoker 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 hogchoker to Atlantic coastal populations is unknown.

Individual hogchoker 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 from the last week in May through July in the more saline areas of the lower

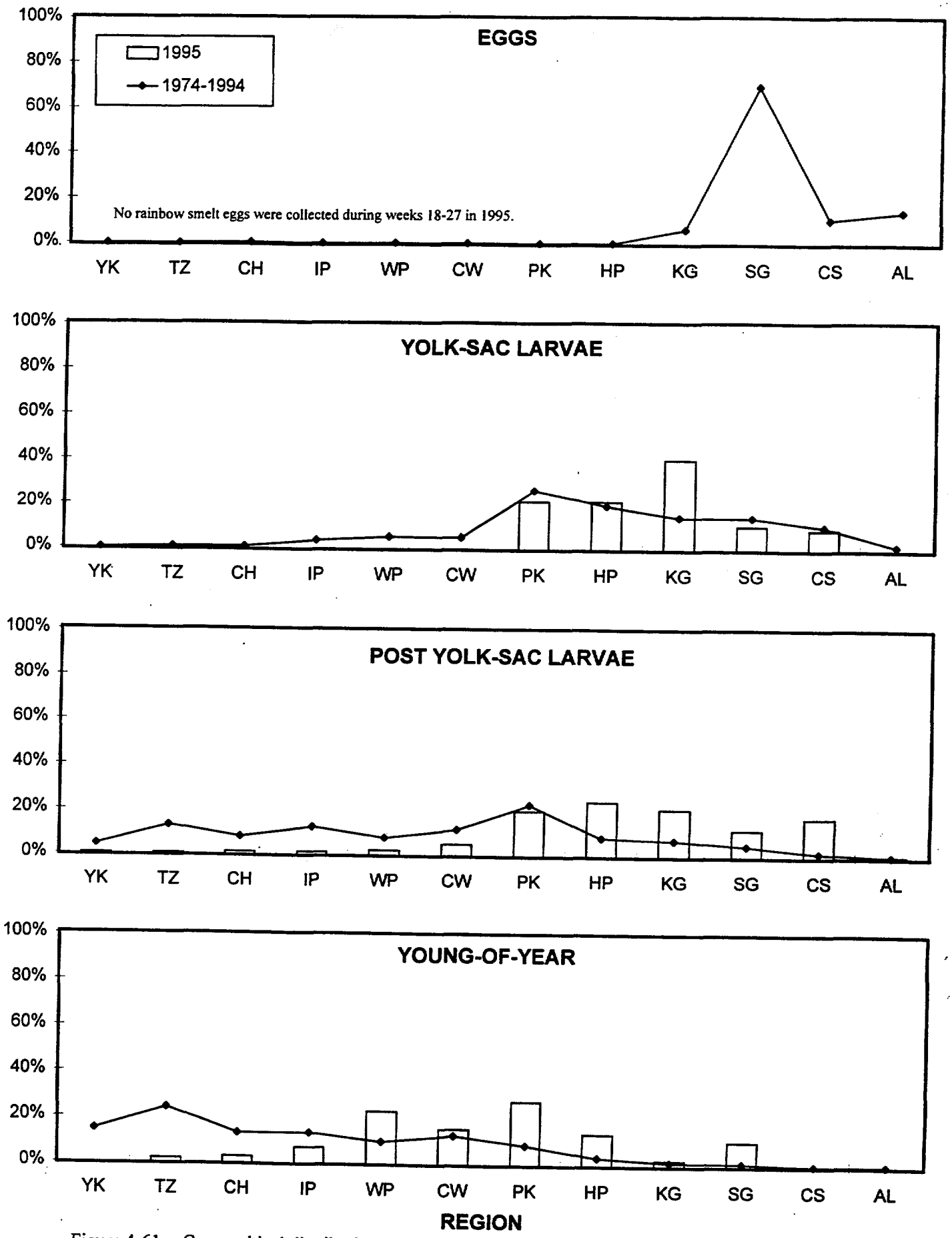


Figure 4-61. Geographical distribution indices for early life stages of rainbow smelt collected during Longitudinal River Ichthyoplankton surveys of the Hudson River estuary, 1974-1995.

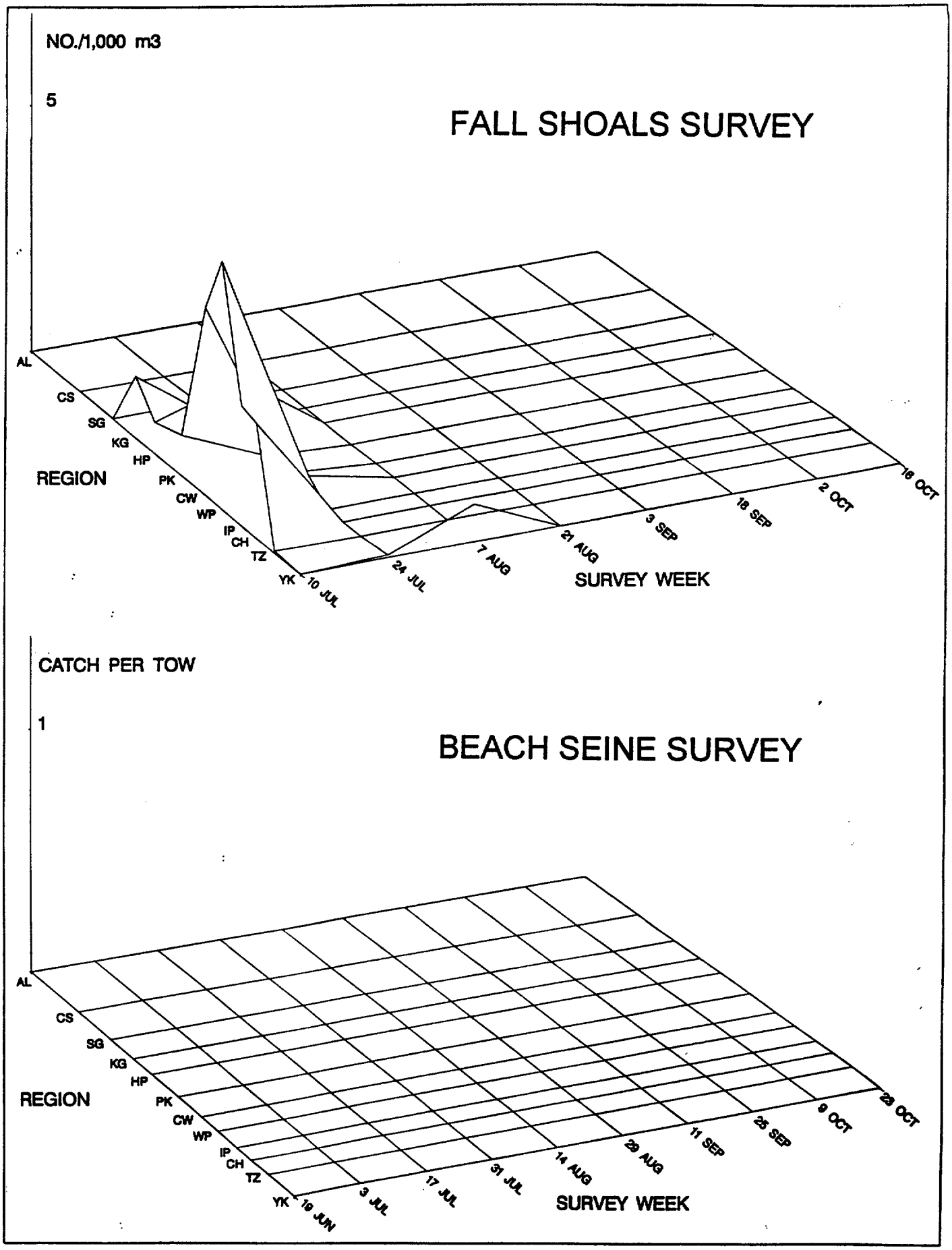


Figure 4-58. Spatiotemporal distribution of young-of-year rainbow smelt in the Hudson River estuary based on the 1995 Fall Shoals and Beach Seine surveys.

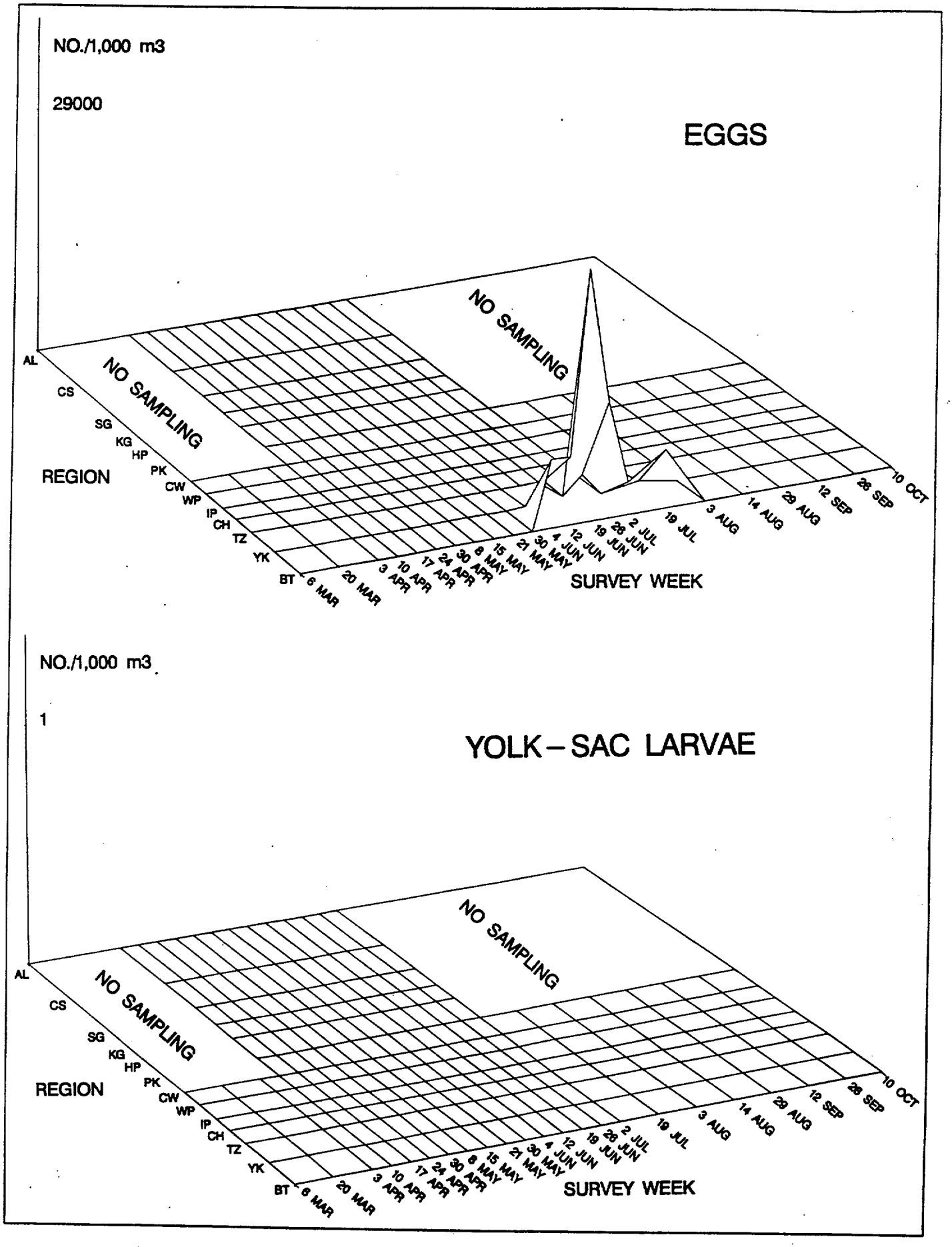


Figure 4-62. Spatiotemporal distribution of egg and yolk-sac stages of hogchoker in the Hudson River estuary based on the 1995 Longitudinal River Ichthyoplankton Survey.

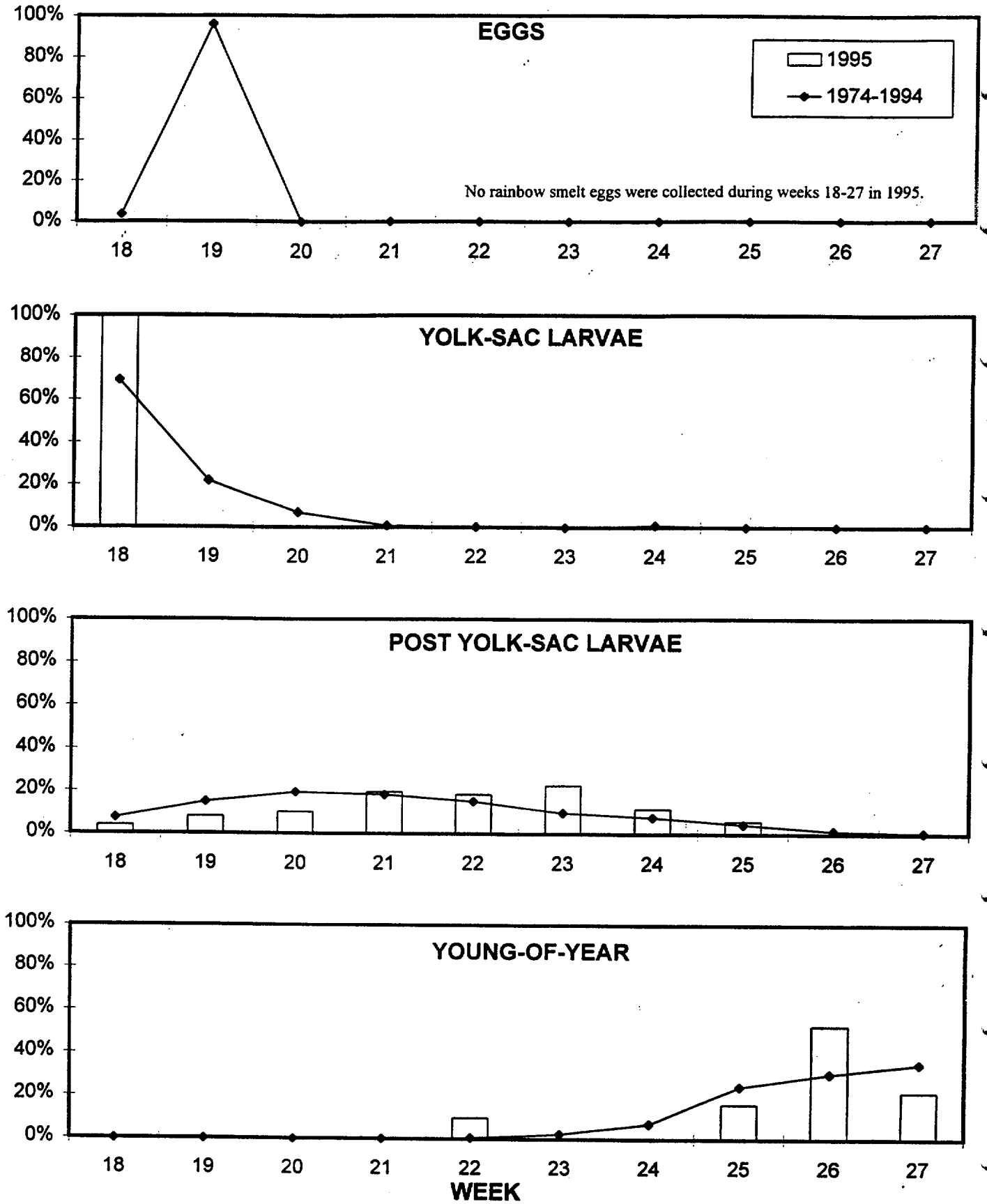


Figure 4-60. Temporal distribution indices for early life stages of rainbow smelt collected during Longitudinal River Ichthyoplankton surveys of the Hudson River estuary, 1974-1995.

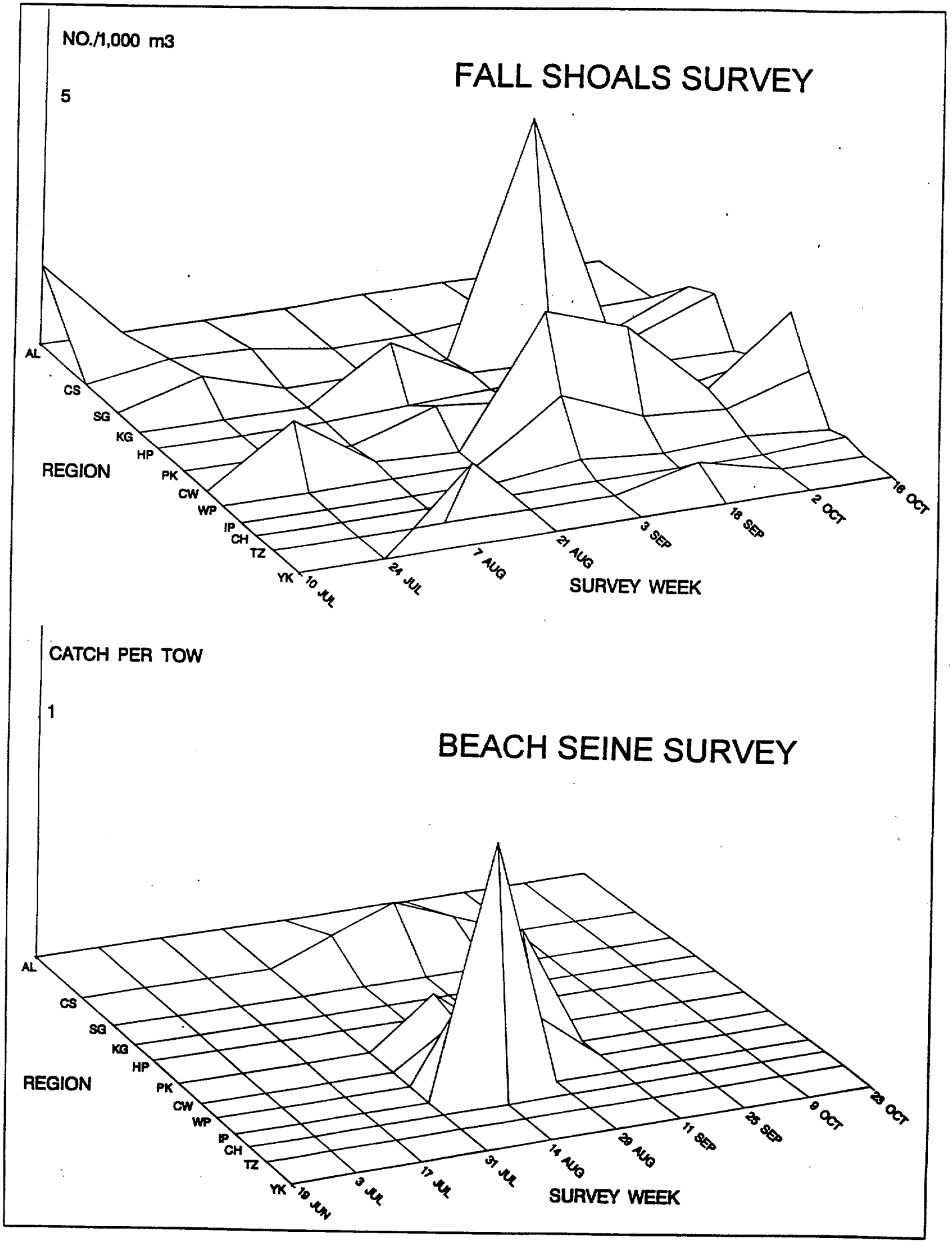


Figure 4-64. Spatiotemporal distribution of young-of-year hogchoker in the Hudson River estuary based on the 1995 Fall Shoals and Beach Seine surveys.

estuary, such as the Battery and Yonkers regions. During 1995 hogchoker eggs were collected primarily in the Yonkers and Battery regions from early June through early August (Figure 4-62).

After hatching, the YSL move upstream from the spawning areas and may use the net upstream flows in the deeper saline waters of the estuary. During the 1995 LRS, centers of abundance for successive life stages progressed upriver; PYSL were most abundant in the Tappan Zee region, and YOY most abundant in the Cornwall region (Figure 4-63). Juvenile hogchoker were collected in the 1995 BSS primarily in the middle estuary during the summer and in the 1995 FSS through the fall (Figure 4-64). During 1995 yearling and older hogchoker were collected throughout the Hudson River but were most abundant in the lower and middle estuary (Figure 4-65).

The 1995 geographical distribution of YOY and yearling and older hogchoker in the FSS is generally consistent with the long-term trend (1979-1994) showing a fairly even distribution throughout most of the Hudson River estuary, although in 1995 more rainbow smelt were found upriver especially in the Saugerties region and fewer yearling and older were found in Tappan Zee (Figure 4-66). Generally, about 30 percent of the yearling and older hogchoker are found in the Tappan Zee region.

In the Hudson River, hogchoker 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 River were age 4 while the oldest females were age 6. Hogchoker feed near the bottom on a variety of benthic invertebrates, including annelid worms and smaller crustaceans.

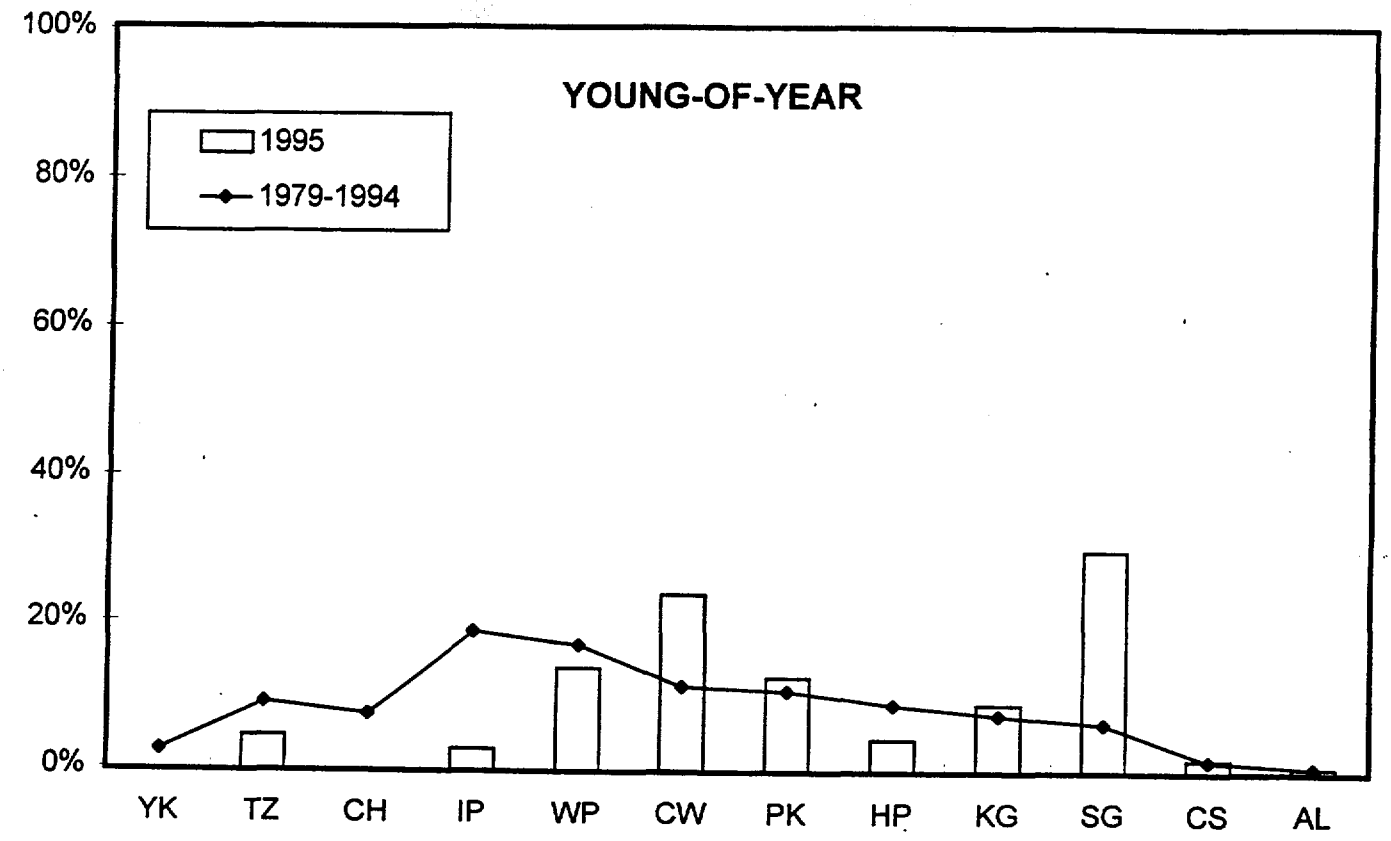
4.13 SPOTTAIL SHINER

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). 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 shiner 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 shiner appear in the ichthyoplankton samples from the upper, freshwater regions of the estuary during May. Spottail shiner produce from 100 to 2,600 eggs, depending upon the age and size of the female. Very few eggs and larvae have been collected during the LRS, 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 1995, no eggs, YSL, or PYSL and very few juveniles were collected in the LRS (Figures 4-67 and 4-68). Juvenile spottail shiner first appeared in the BSS during June and were most abundant in the shorezone above the Cornwall region (Figure 4-69), which is also the portion of the estuary with the greatest number of tributaries. Yearling and older spottail shiner were also found throughout the middle and upper Hudson River above Croton-Haverstraw (Figure 4-70).

Comparing the geographical distribution of juvenile and yearling and older spottail shiner based on BSS in 1995 with previous years (1974-1994), the 1995 distribution of these life stages was generally consistent with the long-term record (Figure 4-71). However, in 1995 the peak distributions for each life



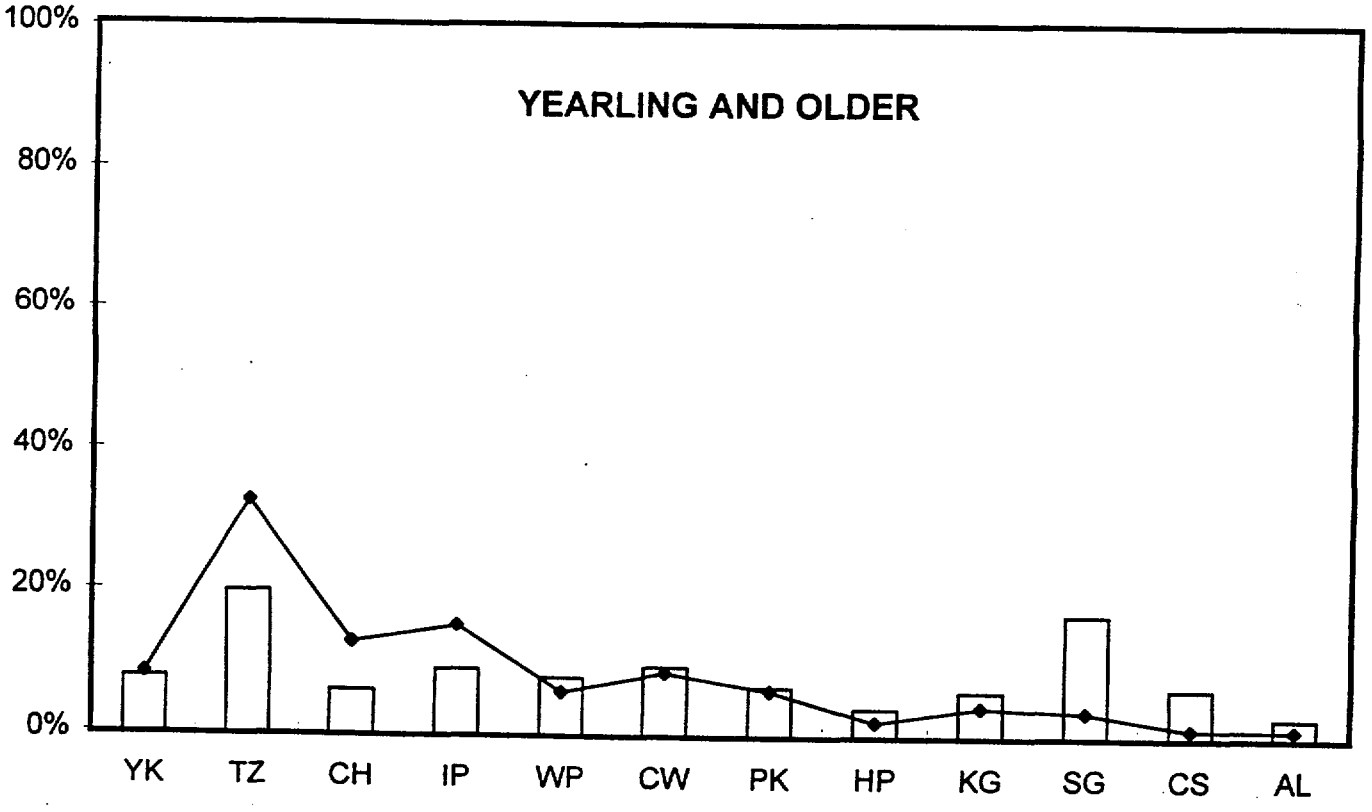


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Figure 4-66. Geographical distribution indices for hogchoker collected during Fall Shoals surveys of the Hudson River estuary, 1979-1995.

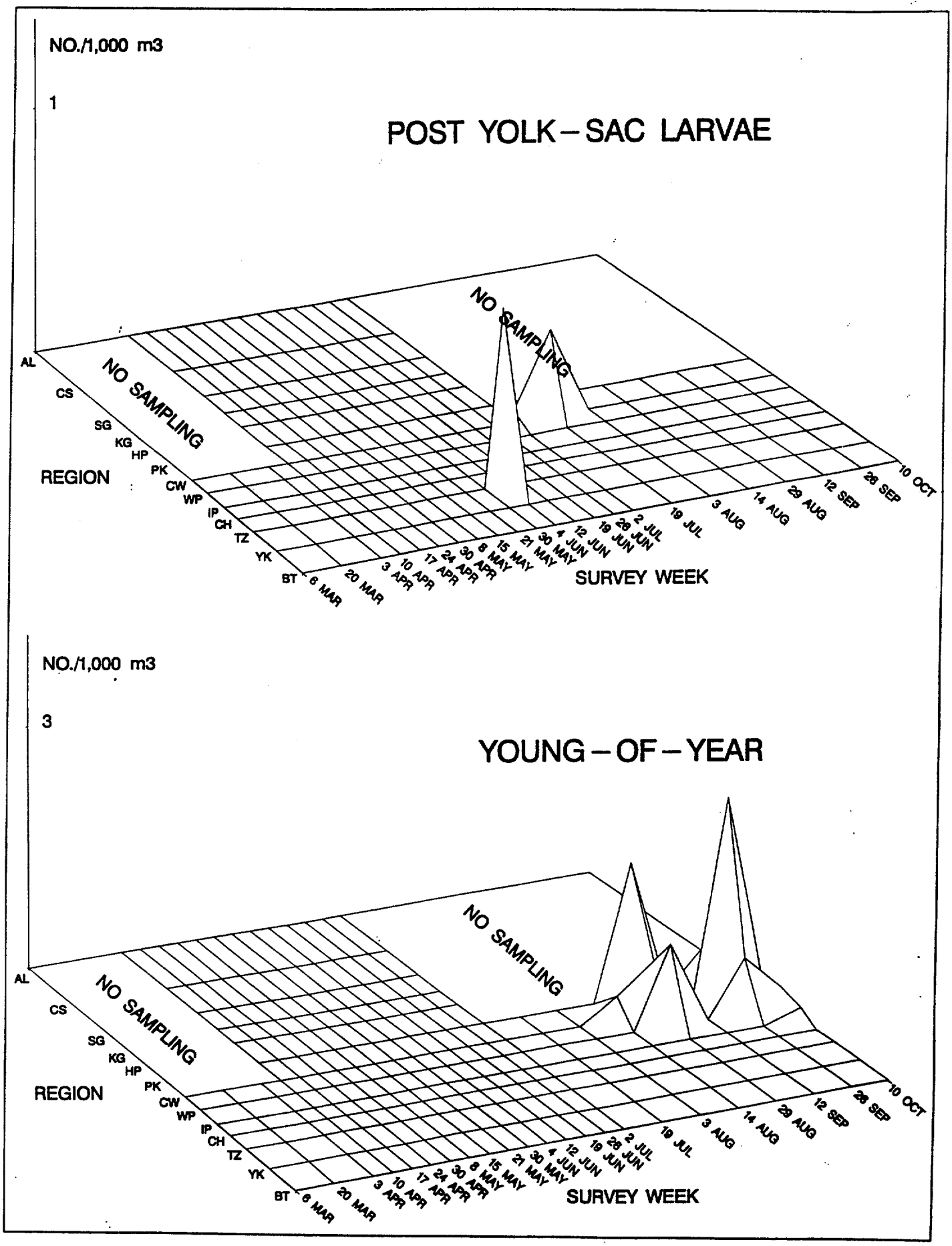


Figure 4-63. Spatiotemporal distribution of post yolk-sac and young-of-year stages of hogchoker in the Hudson River estuary based on the 1995 Longitudinal River Ichthyoplankton Survey.

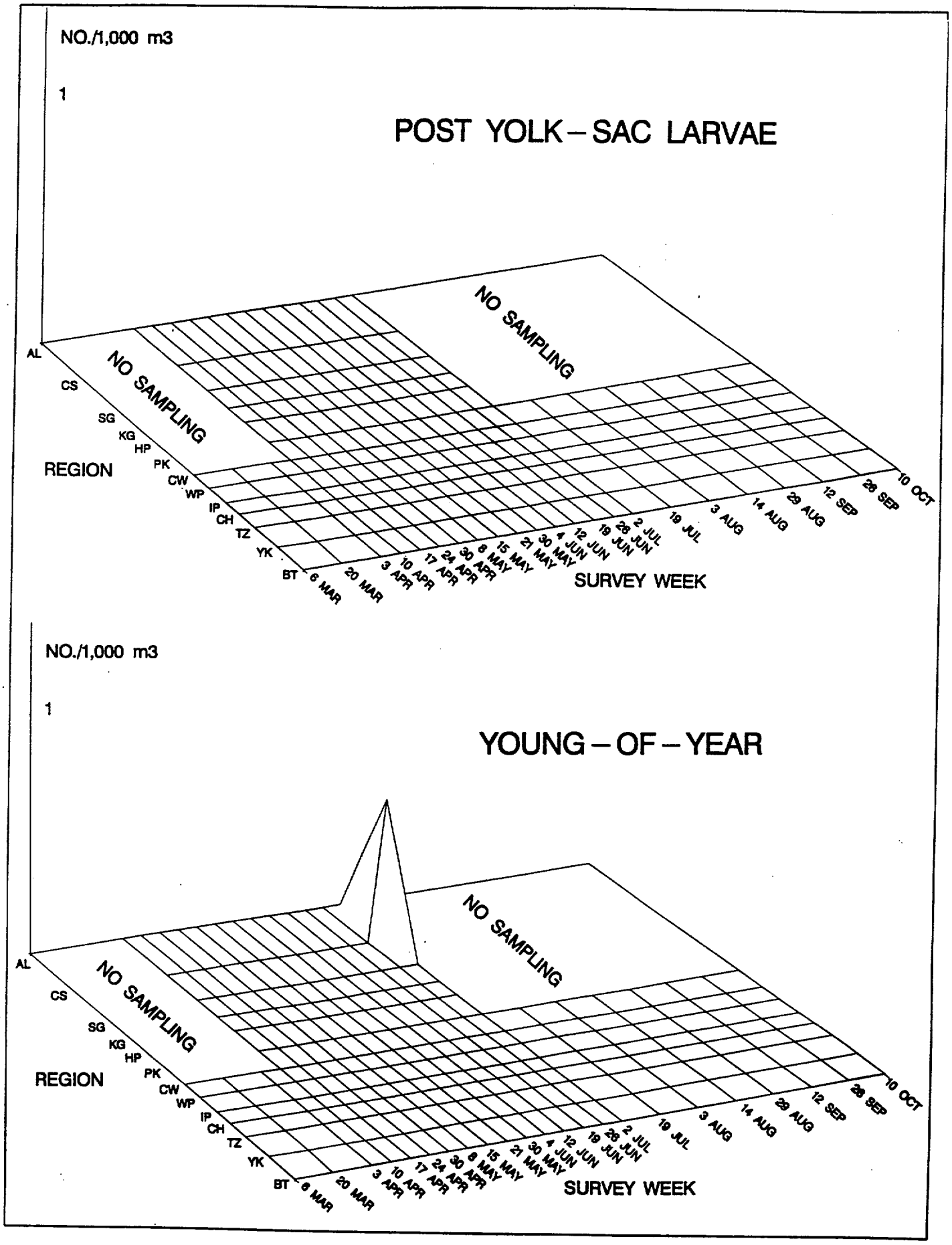


Figure 4-68. Spatiotemporal distribution of post yolk-sac and young-of-year stages of spottail shiner in the Hudson River estuary based on the 1995 Longitudinal River Ichthyoplankton Survey.

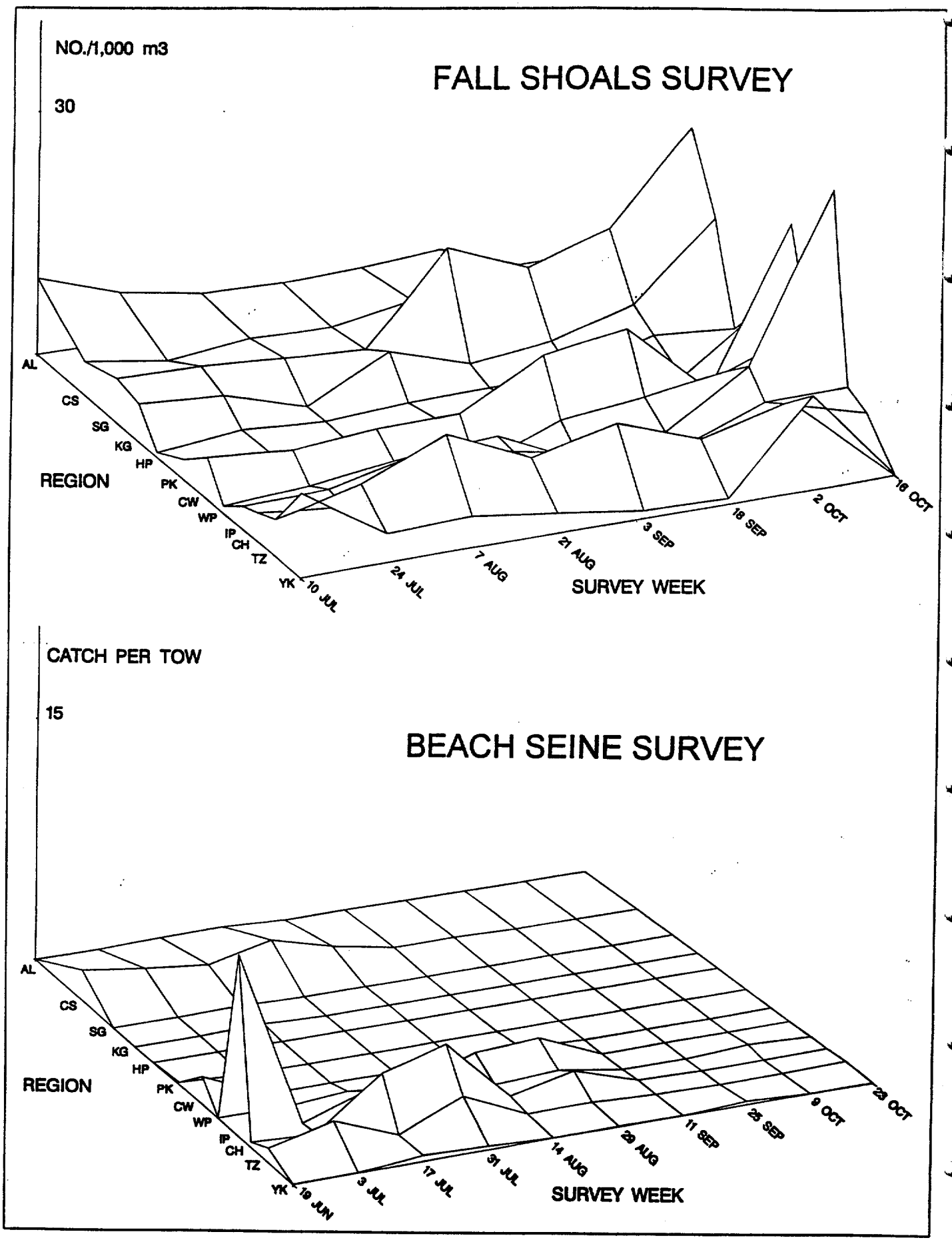


Figure 4-65. Spatiotemporal distribution of yearling and older hogchoker in the Hudson River estuary based on the 1995 Fall Shoals and Beach Seine surveys.

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, however, the oldest known shortnose sturgeon is a 67-year-old female from St. John River, Canada (Gilbert 1989). The largest shortnose sturgeon reported for the Hudson River was almost 4 ft long (Geoghegan et al. 1992), considerably smaller than that reported for Atlantic sturgeon. However, 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.

Male shortnose sturgeon in the Hudson River do not reach sexual maturity until age 3-5 and females at age 6-7 (Dadswell et al. 1984). The first spawning, however, may follow maturation in males by 1-2 years, while in females spawning may be delayed for up to 5 years (Dadswell 1979). Spawning appears to be a non-annual event. Based on the percentage of fish examined from August to March that were developing sexually, Dadswell (1979) suggested that females spawn once every third year and males every other year. Other evidence (annuli of the pectoral ray) suggests a 5- to 11-year interval between spawnings (Dadswell 1979). However, tagging studies on the Hudson River tracked shortnose sturgeon to the spawning grounds in successive years (Dovel et al. 1992).

During their spawning migrations, shortnose sturgeon move upriver as far as accessible habitat permits (Dovel et al. 1992). In the Hudson River, adult shortnose sturgeon reach the spawning grounds between Coeymans and Troy (RM 124-153) as early as the first week of April and spawning occurs from late April to early May (Bain 1996a). After spawning, adults move downriver to feed and disperse over the tidal portion of the Hudson estuary, but are primarily south of Kingston (Bain 1996a). From October through March, pre-spawning adults concentrate near Esopus Meadows (RM 87) (Dovel et al. 1992). Non-spawning adults may inhabit another winter concentration area located near Croton Point (RM 34) (Geoghegan et al. 1992; Bain 1996a).

Like Atlantic sturgeon, shortnose sturgeon eggs are demersal and adhesive and the newly hatched larvae remain on the bottom. Relatively little is known about the early life histories of shortnose and Atlantic sturgeon because of the infrequency of their capture. From 1973 through 1979, only 49 larvae and 26 juveniles of the combined sturgeon species were collected in the Hudson River (Hoff et al. 1988). Data from 21 years of the LRS (1974-1994) document the collection of 186 larvae and early juveniles (Con Edison 1997a). These data also show two concentration areas of sturgeon larvae and early juveniles in the Hudson estuary. Based on spawning ground identification by Dovel et al. (1992), the concentration area from RM 120 to RM 150 during May may correspond to the distribution of shortnose sturgeon larvae and early juveniles in the Hudson River.

Early growth is rapid. For shortnose sturgeon, larvae are approximately 0.7 in. in total length at the end of May and from 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). 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.

Juvenile shortnose sturgeon use a large portion of the Hudson estuary as nursery ground (Bain 1996a). During the summer, more juvenile shortnose sturgeon were found in the relatively shallow, freshwater zone of the estuary around Poughkeepsie (RM 67-86) than in the deeper, more saline zone near West Point (RM 42-56) (Haley et al. 1996). By late fall and early winter, most juveniles occupy the broad region of the Hudson River near Haverstraw (RM 34-39) (Bain 1996a). Juvenile shortnose sturgeon typically prey on benthic crustaceans and insect larvae, whereas adults will feed on larger items with mollusks being a major component of their diet (Bain 1996a).

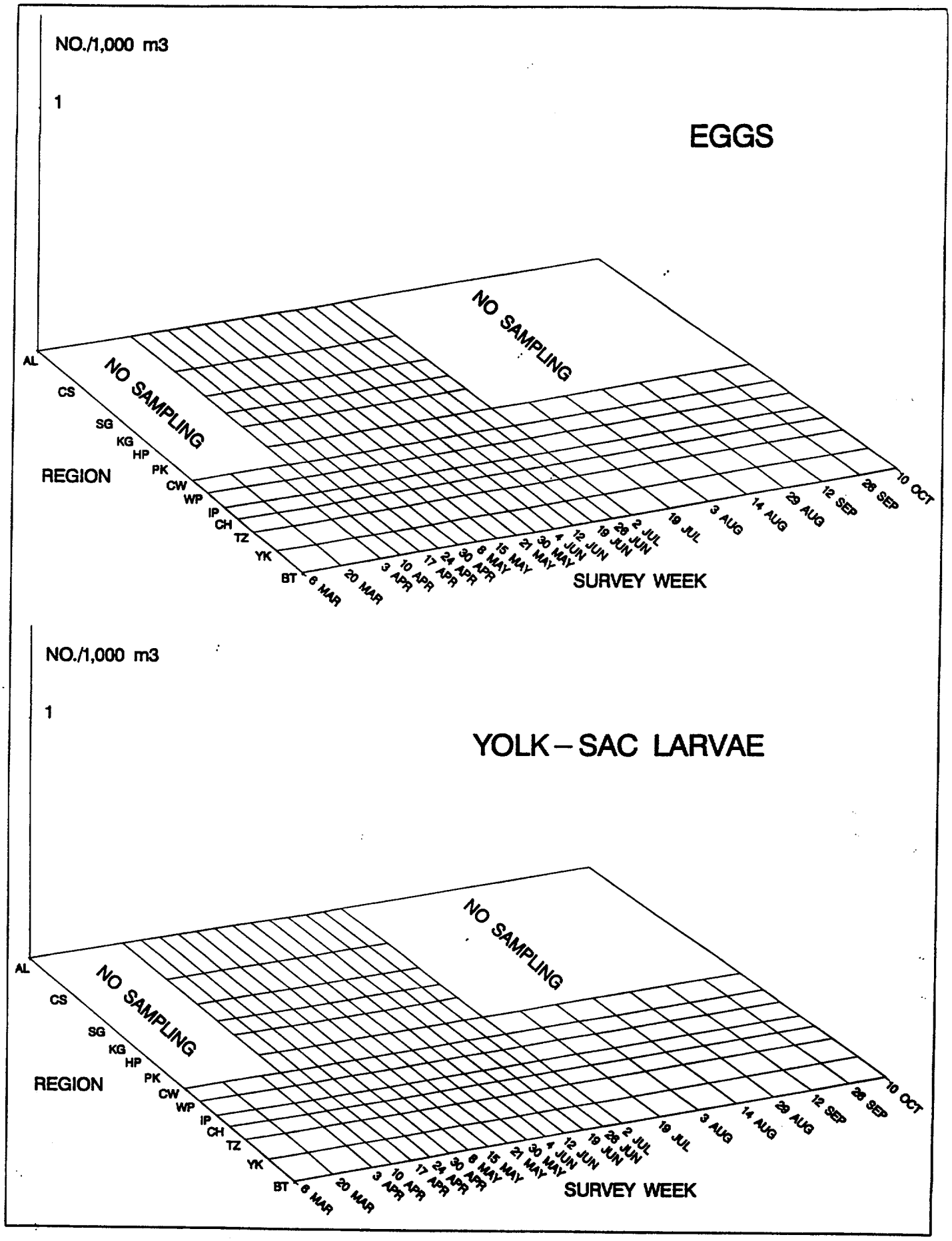


Figure 4-67. Spatiotemporal distribution of egg and yolk-sac stages of spottail shiner in the Hudson River estuary based on the 1995 Longitudinal River Ichthyoplankton Survey.

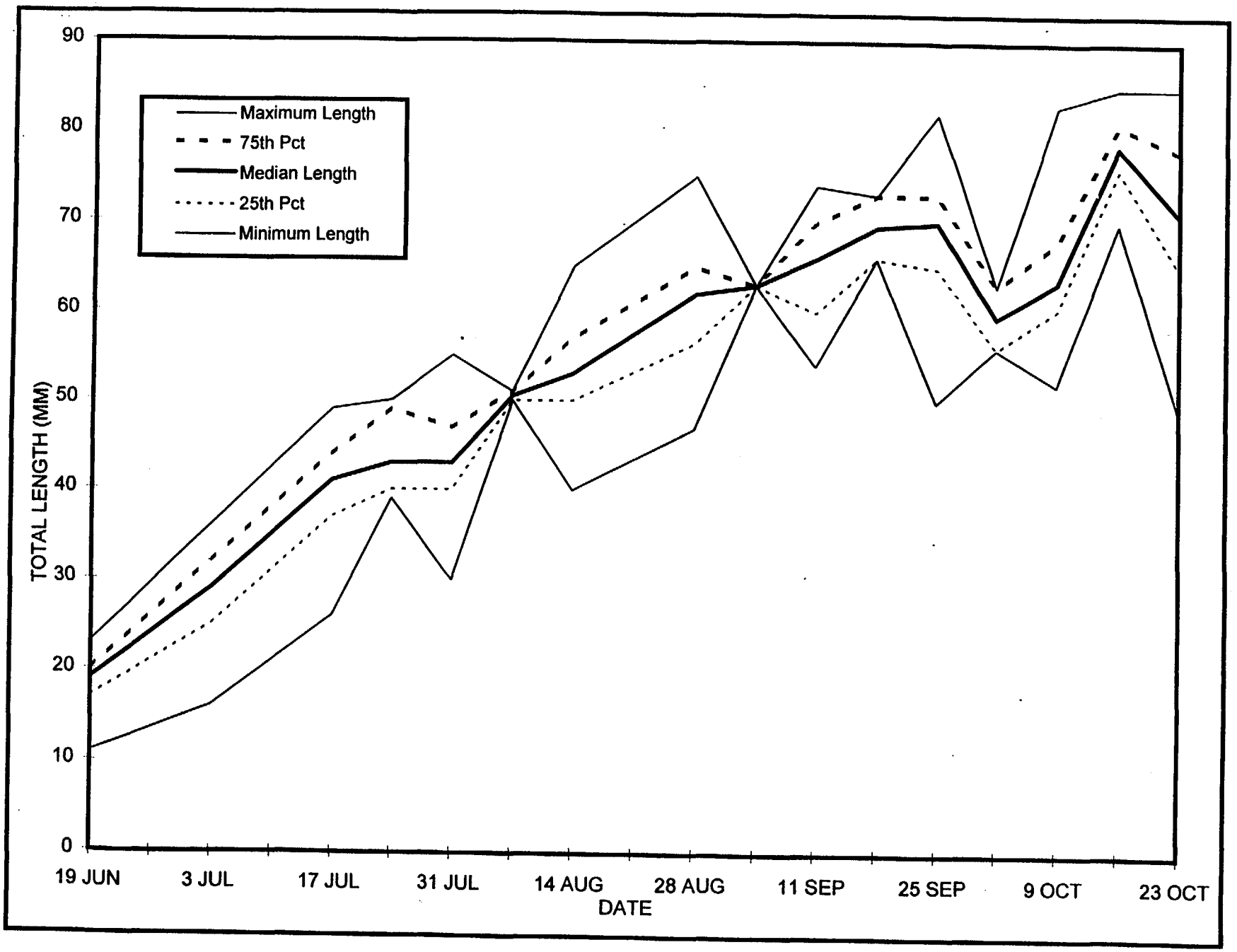


Figure 4-72. Weekly length statistics for young-of-year spottail shiner in the Hudson River estuary, 1995.

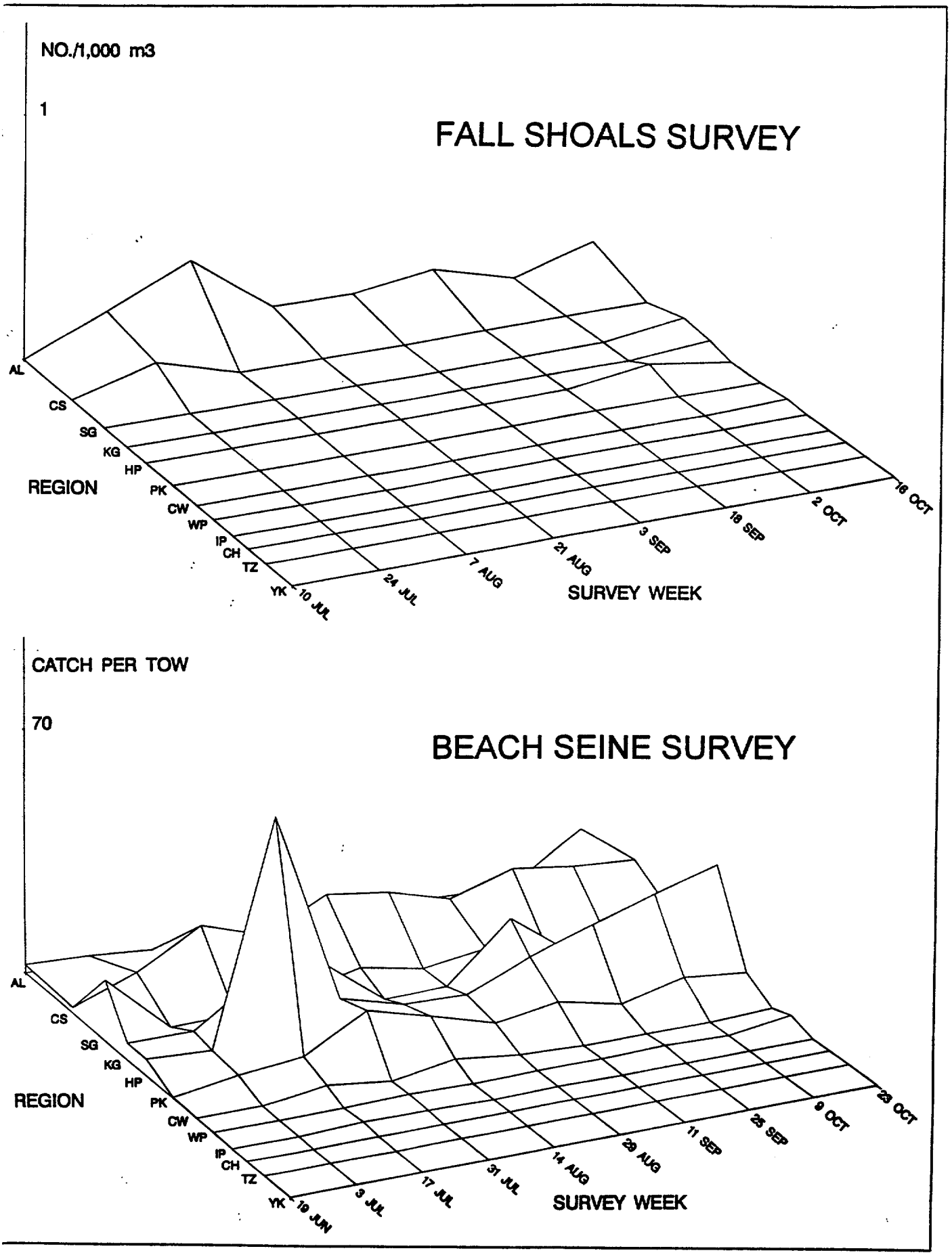


Figure 4-69. Spatiotemporal distribution of young-of-year spottail shiner in the Hudson River estuary based on the 1995 Fall Shoals and Beach Seine surveys.

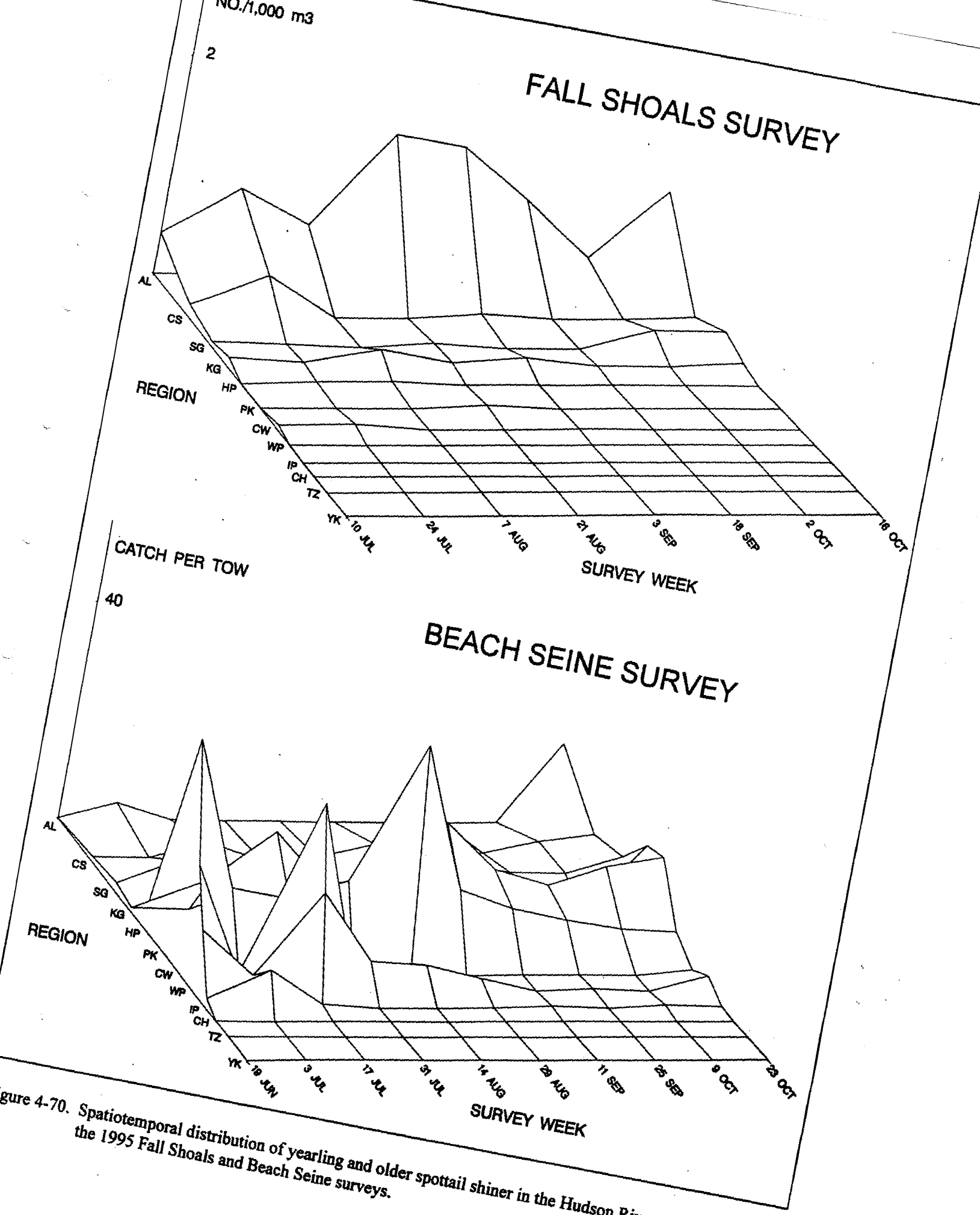


Figure 4-70. Spatiotemporal distribution of yearling and older spottail shiner in the Hudson River estuary based on the 1995 Fall Shoals and Beach Seine surveys.

stage occurred further downriver in Catskill (for YOY) or Poughkeepsie (for yearling and older) rather than in the Albany region as seen in the long-term record.

Weekly length statistics for juvenile spottail shiner collected in 1995 show steady growth from late June through late September and fluctuations in growth until the end of BSS/FSS collections that may be related to sampling gear selectivity (Figure 4-72, Appendix Tables D-18 and D-19).

In general, spottail shiner 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).

4.14 ATLANTIC STURGEON

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). Atlantic sturgeon are anadromous with spawning occurring in freshwater, but most of their life is spent in marine waters, often undertaking long distance migrations along the Atlantic Coast (Bain 1996a). 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, North Carolina. 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.

Atlantic sturgeon are long-lived, slow-maturing, large fishes. Dovel and Berggren (1983) reported that by age 29, Atlantic sturgeon averaged 7.8 ft. The largest known Atlantic sturgeon was a 14-ft specimen weighing 811 lb from Saint John River, New Brunswick (Van Den Avyle 1984). While in the Hudson River the maximum reported age is 36 (Van Eenennaam et al. 1996), the oldest known Atlantic sturgeon is a 60-year-old individual from the St. Lawrence River (Gilbert 1989). 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.

Male Atlantic sturgeon reach maturity at about 12 years and females at 18-19 years (Dovel and Berggren 1983), although some females may reach maturity at 15 years (Van Eenennaam et al. 1996). They are believed to spawn at intervals ranging from 1 to 5 years (Bain 1996a), however, males may possibly have an annual spermatogenic cycle (Van Eenennaam et al. 1996). 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 occurs from May through July. Telemetry studies in 1994 and 1995 suggest that spawning occurs in concentration areas near Hyde Park (RM 80) and Clinton Point (RM 70) (Nack and Bain 1996). Other studies have identified an additional concentration area near Catskill (RM 113) (Van Eenennaam et al. 1996). After spawning, males and females were tracked to a congregation site at Con Hook (RM 48) where the estuary is deep (up to 120 ft). Post-spawning adults were joined at this site by marine-migrant juveniles and this large population of Atlantic sturgeon remained at Con Hook throughout most of the summer. A gradual emigration to marine waters began in August and was completed by October (Nack and Bain 1996).

During spawning, 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 minutes and attach to rocks, weeds, and other submerged objects (Gilbert 1989).

Larvae of Atlantic sturgeon, as all life stages, are oriented on the bottom of deep channel habitats (Bain 1996a). Based on capture locations of larval and juvenile sturgeon from early Hudson River studies, the nursery region for sturgeon is believed to be located between RM 43 and RM 118 from May through mid-July (Hoff et al. 1977, in Hoff et al. 1988). More recent data collected during the LRS from 1974 through 1994 show a concentration area (RM 43-100) of larvae and early juveniles between mid-May and mid-July that may correspond to the distribution of Atlantic sturgeon early life stages (Con Edison 1997a).

Juvenile Atlantic sturgeon remain in the Hudson estuary for 2-6 years before migrating to marine waters. During the first 3 years of life, they quickly grow to over 2 ft (Bain 1996a). From July through September, juvenile Atlantic sturgeon are distributed over much of the Hudson estuary (Bain 1996a), but one section of the estuary (RM 43-48) contained high numbers of juveniles (Haley et al. 1996). As water temperatures drop in the fall, juveniles form an overwintering congregation in deep waters (>25 ft) between the Bear Mountain Bridge and the George Washington Bridge (Dovel and Berggren 1983).

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

The Atlantic sturgeon is an important commercial species in the Hudson estuary, prized for its flesh and caviar. Commercial landings peaked at 7 million pounds at the turn of the 19th century, but the fishery crashed within a 10-year period due to over-exploitation of a slow-growing, slow-maturing fish (Field 1996). Since then, coast-wide landings hovered around 200,000 lb. In 1990, the Atlantic States Marine Fisheries Commission adopted a management plan for Atlantic sturgeon establishing a minimum size limit for the commercial fishery. Recent annual landings in New York State have ranged from 17,000 to 36,000 lb (McKown 1996). However, in 1996, the Atlantic States Marine Fisheries Commission recommended a 2-year fishery moratorium based on recent scientific analyses of the Hudson River Atlantic sturgeon which indicated a collapsing population (Field 1996).

Fisheries surveys conducted during 1995 resulted in a total of 18 yearling and older Atlantic sturgeon collected in the LRS and FSS between the Croton-Haverstraw and Saugerties regions from April through October (Table 4-3 and Figure 4-73).

4.15 SHORTNOSE STURGEON

Shortnose sturgeon, *Acipenser brevirostrum*, are less widespread than the Atlantic sturgeon, ranging from the St. John River, New Brunswick, to the St. Johns River, Florida (Gruchy and Parker 1980b). Shortnose sturgeon are amphidromous, using mainly fresh and brackish waters, and only occasionally marine waters, during its life cycle (Bain 1996a). Shortnose sturgeon presumably from the Hudson River have been caught in Sandy Hook Bay, New Jersey just off the mouth of the Hudson (Dovel et al. 1992), but most seem to remain within the Hudson estuary. Forty-four shortnose sturgeon tagged in the Hudson River between 1979 and 1980 were recaptured in the Hudson River by researchers from 1993 to 1995, from 14 to 17 years after tagging (Bain et al. 1996).

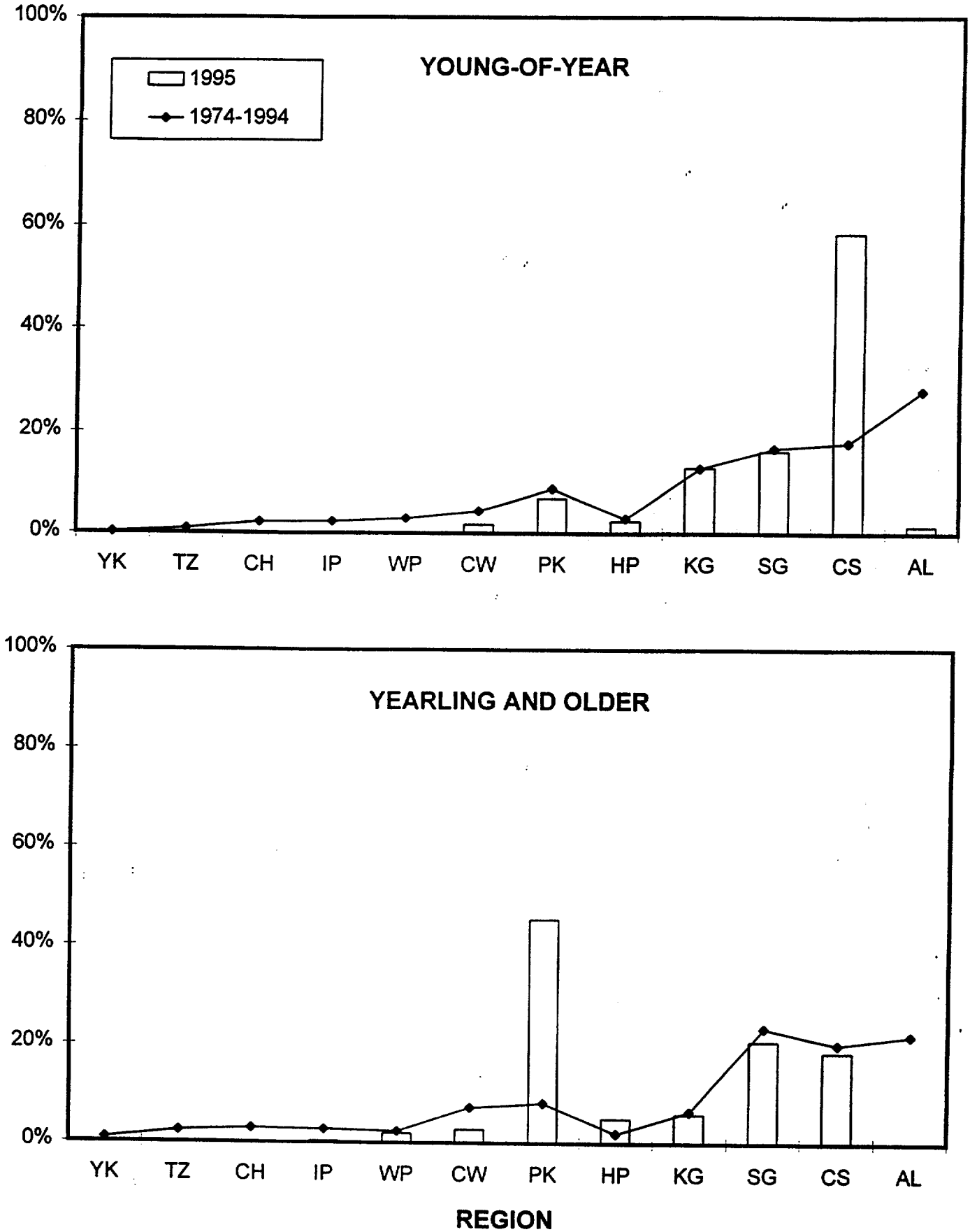


Figure 4-71. Geographical distribution indices for spottail shiner collected during Beach Seine surveys of the Hudson River estuary, 1974-1995.

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. Current research efforts have focused on the ecology of juveniles and on the population status of shortnose sturgeon in the Hudson River. Trends in the relative abundance of shortnose and Atlantic sturgeon have shown an increase in shortnose sturgeon and a decline in Atlantic sturgeon (Bain 1996b). Dovel et al. (1992) observed that in 1984 equal numbers of juvenile Atlantic and shortnose sturgeon were collected; while during earlier years (1975-1980), the ratio of Atlantic to shortnose sturgeon was 10:1 in the Hudson River. Other evidence of an increasing population of shortnose sturgeon over its range is that the National Marine Fisheries Service is considering a petition to delist shortnose sturgeon as an endangered species in the Kennebec River system in Maine (Haley 1996).

Fisheries surveys conducted during 1995 resulted in a total of 48 shortnose sturgeon collected in the LRS and FSS from Tappan Zee to Albany from April though October (Table 4-4 and Figure 4-74).

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. They are found in estuaries all along the Atlantic Coast from the Hudson River to Florida and west along the Gulf of Mexico to Mobile Bay. White catfish prefer fresh and slightly brackish waters and moderate water currents, however, they 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 3-4 years old and 7-8 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.

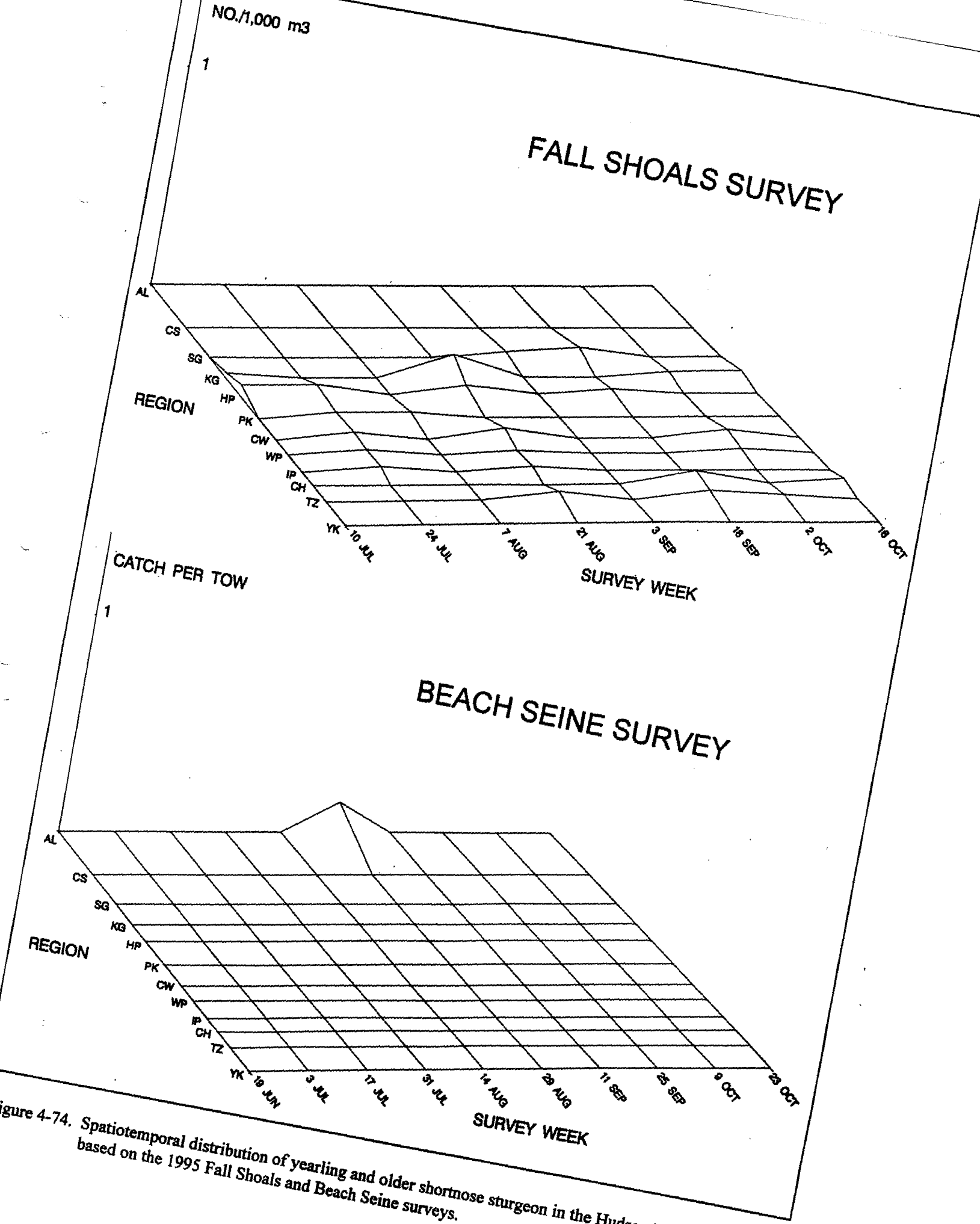
White catfish move upstream to spawn. In spring white catfish have been reported in tidal creeks and shallow marsh habitats. Like the other members of the catfish family, the white catfish is a nest builder, and the male guards the young for some time after they hatch. Both parents participate in the 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 3,200-3,500 eggs, but the eggs are large, approximately 1/4 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 1995 FSS consistently captured low numbers of YOY white catfish primarily in the upper estuary but extending as far south as Poughkeepsie (Figure 4-75). Yearling and older white catfish were captured in the 1995 FSS throughout the estuary and in the BSS from the lower and middle reaches of the Hudson River estuary (Figure 4-76).

The 1995 geographical distribution of YOY white catfish in the FSS is generally consistent with the 1979-1994 long-term trend, however, the 1995 distribution for yearling and older white catfish differs from the historical pattern (Figure 4-77). Juveniles tend to occur in the mid- to upper Hudson with the bulk of the distribution in the Catskill and Albany regions. Although yearling and older white catfish are

TABLE 4-3 COLLECTIONS OF ATLANTIC STURGEON DURING THE 1995 HUDSON RIVER SURVEYS

Date		Survey	Region	River Mile	Number Collected	Total Length (mm)
4	April	LRS	Indian Point	42	1	348
3	June	LRS	Indian Point	39	1	396
12	July	FSS	Kingston	92, 89	2	280, 344
28	July	FSS	Poughkeepsie	64	1	395
11	August	FSS	Croton-Haverstraw	36	1	408
22	August	FSS	Saugerties	97	1	350
23	August	FSS	Cornwall	59	1	455
6	September	FSS	Kingston	89	1	385
19	September	FSS	Saugerties	98	3	380, 441, 483
19	September	FSS	Kingston	88	1	365
20	September	FSS	Cornwall	60	1	347
27	September	LRS	West Point	55	1	335
4	October	FSS	Cornwall	61	1	546
19	October	FSS	Cornwall	58	1	516
20	October	FSS	Indian Point	42	1	605



igure 4-74. Spatiotemporal distribution of yearling and older shortnose sturgeon in the Hudson River estuary based on the 1995 Fall Shoals and Beach Seine surveys.

TABLE 4-4 COLLECTIONS OF SHORTNOSE STURGEON DURING THE 1995 HUDSON RIVER SURVEYS

Date		Survey	Region	River Mile	Number Collected	Total Length (mm)
11	April	LRS	Saugerties	97	1	730
19	April	LRS	Catskill	118	1	640
24	April	LRS	Albany	133	1	755
25	April	LRS	Albany	131	1	710
8	May	LRS	Albany	142	1	902
21	May	LRS	Albany	132	1	902
6	June	LRS	Hyde Park	85	1	780
23	June	LRS	West Point	55	1	750
29	June	LRS	Cornwall	58,57	2	739, 726
12	July	FSS	Kingston	90	1	689
12	July	FSS	Hyde Park	84	2	610, 610
26	July	FSS	Indian Point	39	1	780
28	July	FSS	Hyde Park	85, 77	2	680, 640
28	July	FSS	Poughkeepsie	76	1	750
28	July	FSS	Cornwall	57	1	909
29	July	FSS	West Point	53	1	584
10	August	FSS	Poughkeepsie	69	1	675
15	August	LRS	Poughkeepsie	67	1	668
22	August	FSS	Kingston	92, 92, 91, 88	4	685, 680, 675, 721
22	August	FSS	Hyde Park	85	1	790
23	August	FSS	Hyde Park	85	1	865
23	August	FSS	Cornwall	59	1	673
24	August	FSS	West Point	53	1	686
24	August	FSS	Indian Point	40	1	605
24	August	FSS	Tappan Zee	33	2	939, 808
31	August	LRS	West Point	51	1	669
6	September	FSS	Saugerties	96	1	655
19	September	FSS	Saugerties	106, 94	2	734, 636
19	September	FSS	Hyde Park	82	1	690
21	September	FSS	Croton-Haverstraw	38, 38, 35	3	673, 783, 732
21	September	FSS	Tappan Zee	33	2	950, 740
3	October	FSS	Tappan Zee	33	1	980
4	October	FSS	Cornwall	60	1	733
4	October	FSS	West Point	54	1	655
5	October	FSS	Kingston	93	1	705
18	October	FSS	Kingston	92	1	810
20	October	FSS	Croton-Haverstraw	38	1	753

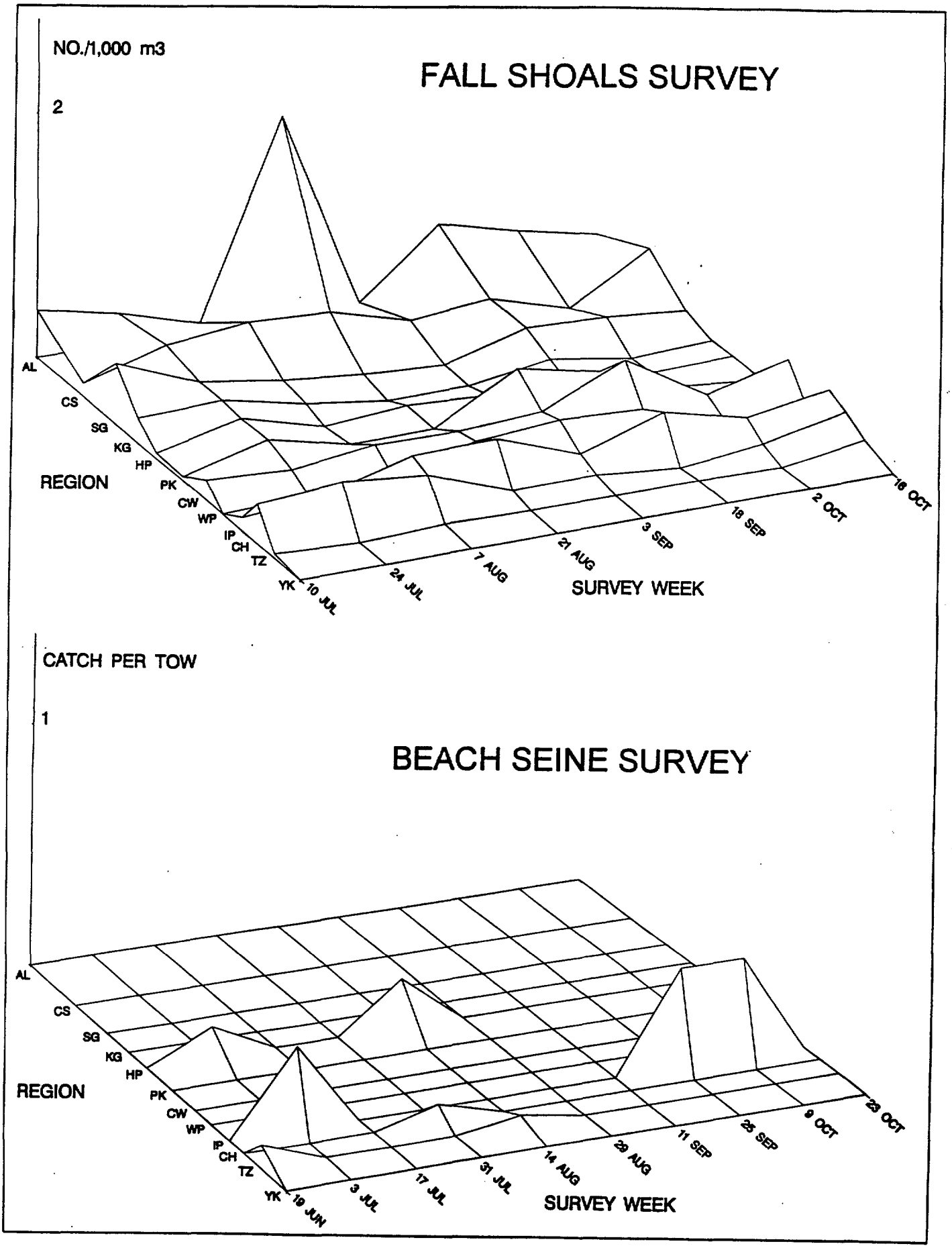


Figure 4-76. Spatiotemporal distribution of yearling and older white catfish in the Hudson River estuary based on the 1995 Fall Shoals and Beach Seine surveys.

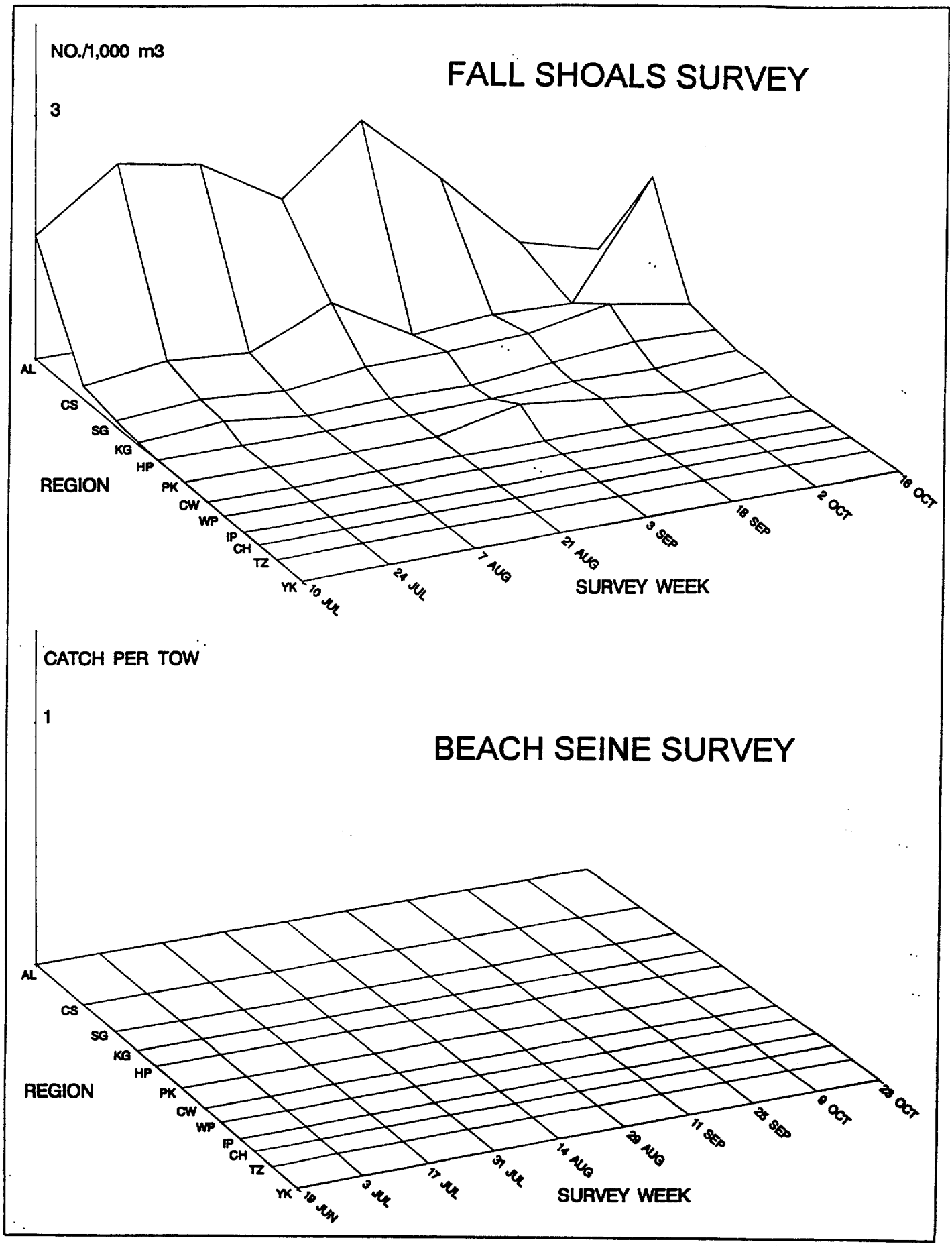


Figure 4-75. Spatiotemporal distribution of young-of-year white catfish in the Hudson River estuary based on the 1995 Fall Shoals and Beach Seine surveys.

found throughout the river, their distribution tends to be bimodal with peaks in the Croton-Haverstraw and Catskill regions, but in 1995 most yearling and older white catfish were found in the middle estuary regions from Indian Point to Poughkeepsie (Figure 4-77). 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 1985a).

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 1995 show a steady increase in growth from mid-July through the end of FSS collections in October (Figure 4-78, Appendix Table D-20).

4.17 WEAKFISH

Weakfish (*Cynoscion regalis*) is a member of the drum family commonly inhabiting nearshore 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 nearshore 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 2 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 3-6 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 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 1995 LRS, weakfish juveniles were present from July through October from the Battery to Poughkeepsie regions with greatest abundance in early August in the Battery region (Figure 4-79). In the 1995 FSS juvenile weakfish abundance peaked in early August but were found through October from Yonkers to Indian Point, showing a gradual emigration from the Hudson estuary (Figure 4-80). Very low numbers of yearling and older weakfish were collected in the FSS and BSS, indicating that few of these life stages enter the Hudson above Yonkers (Figure 4-81).

The 1995 geographical distribution of YOY weakfish in the FSS is consistent with the 1979-1994 long-term trend in which the majority of juveniles were distributed in the lower estuary (Figure 4-82). Historically, YOY weakfish have ranged as far upriver as Poughkeepsie, but Kingston was the

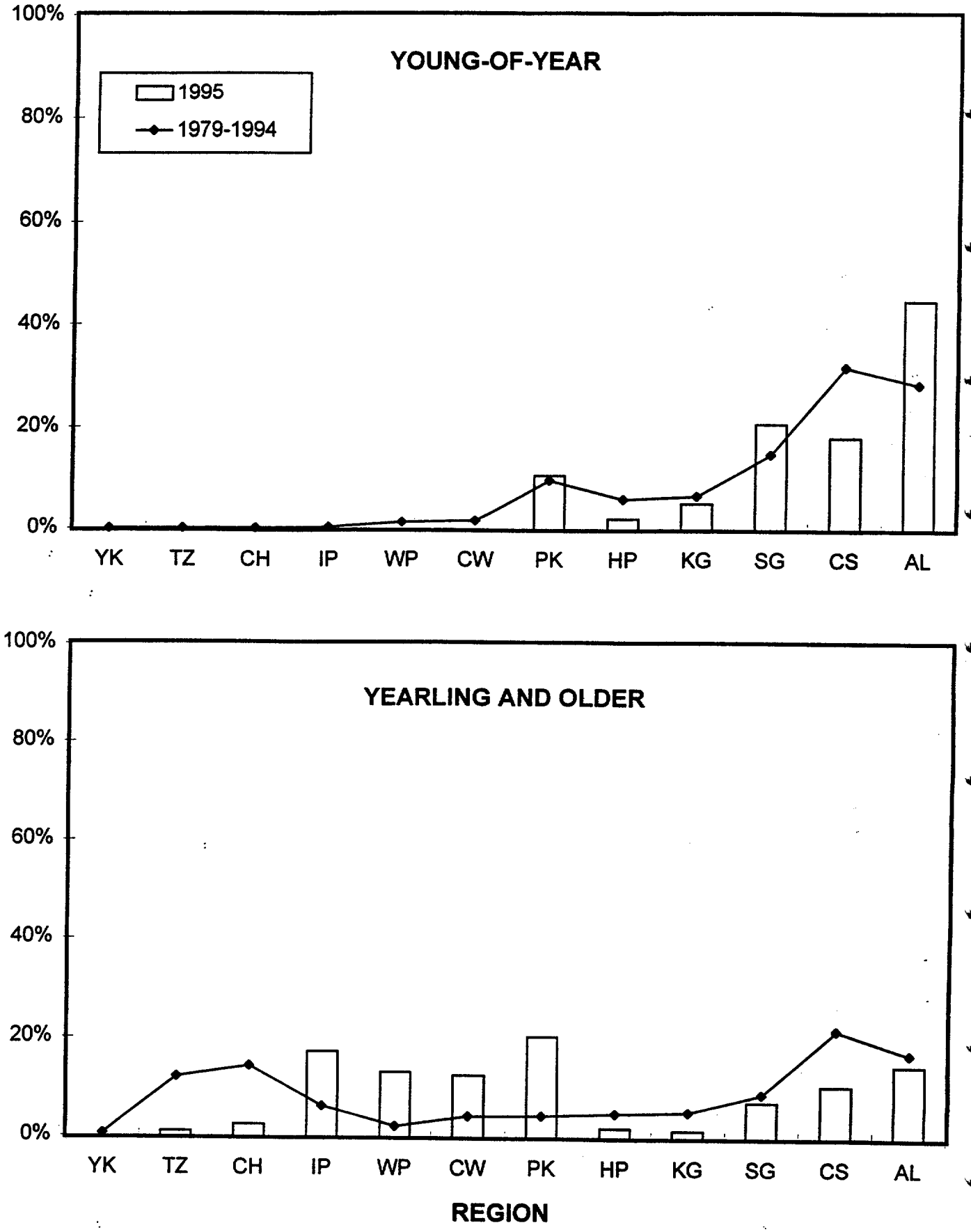


Figure 4-77. Geographical distribution indices for white catfish collected during Fall Shoals surveys of the Hudson River estuary, 1979-1995.

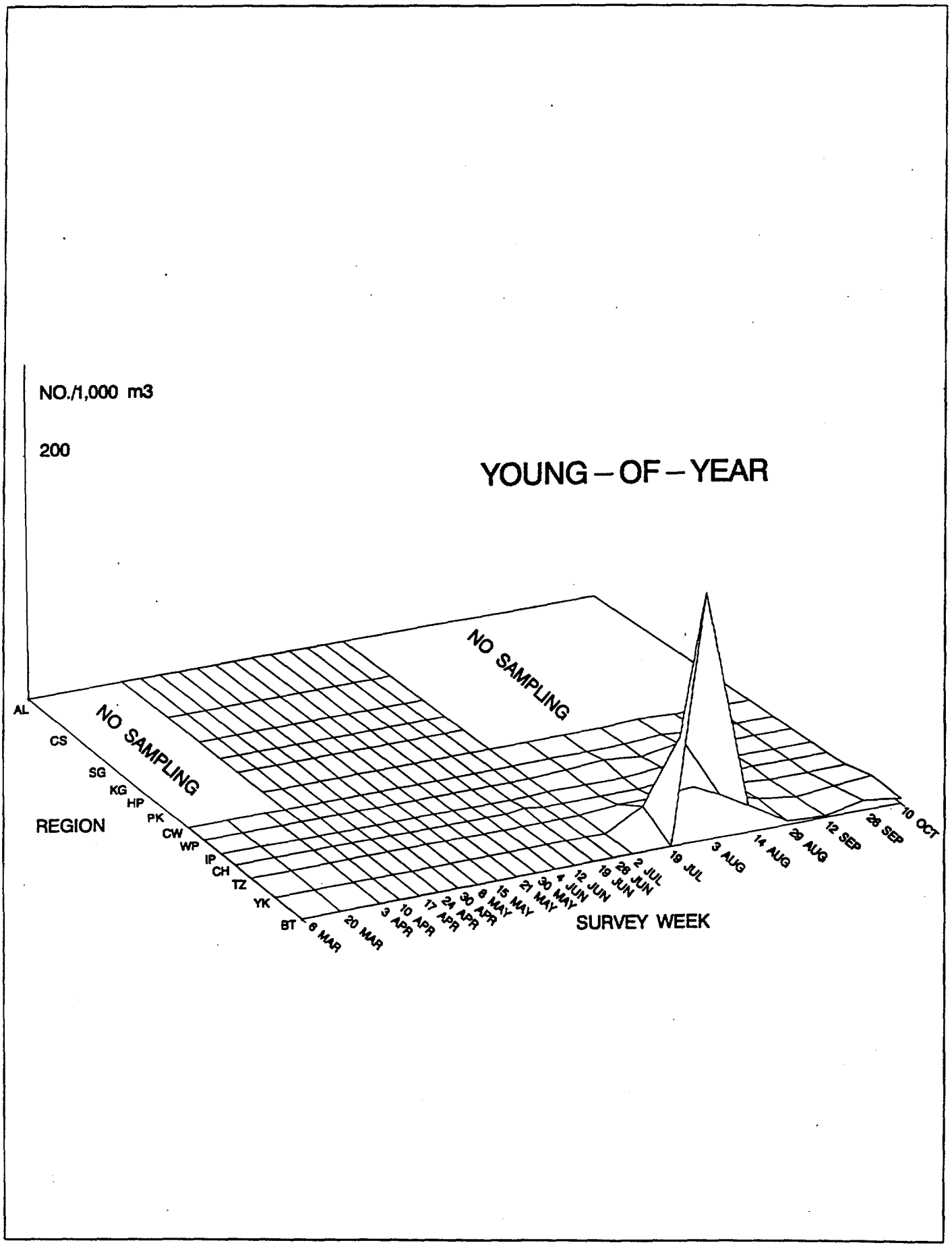


Figure 4-79. Spatiotemporal distribution of young-of-year weakfish in the Hudson River estuary based on the 1995 Longitudinal River Ichthyoplankton Survey.

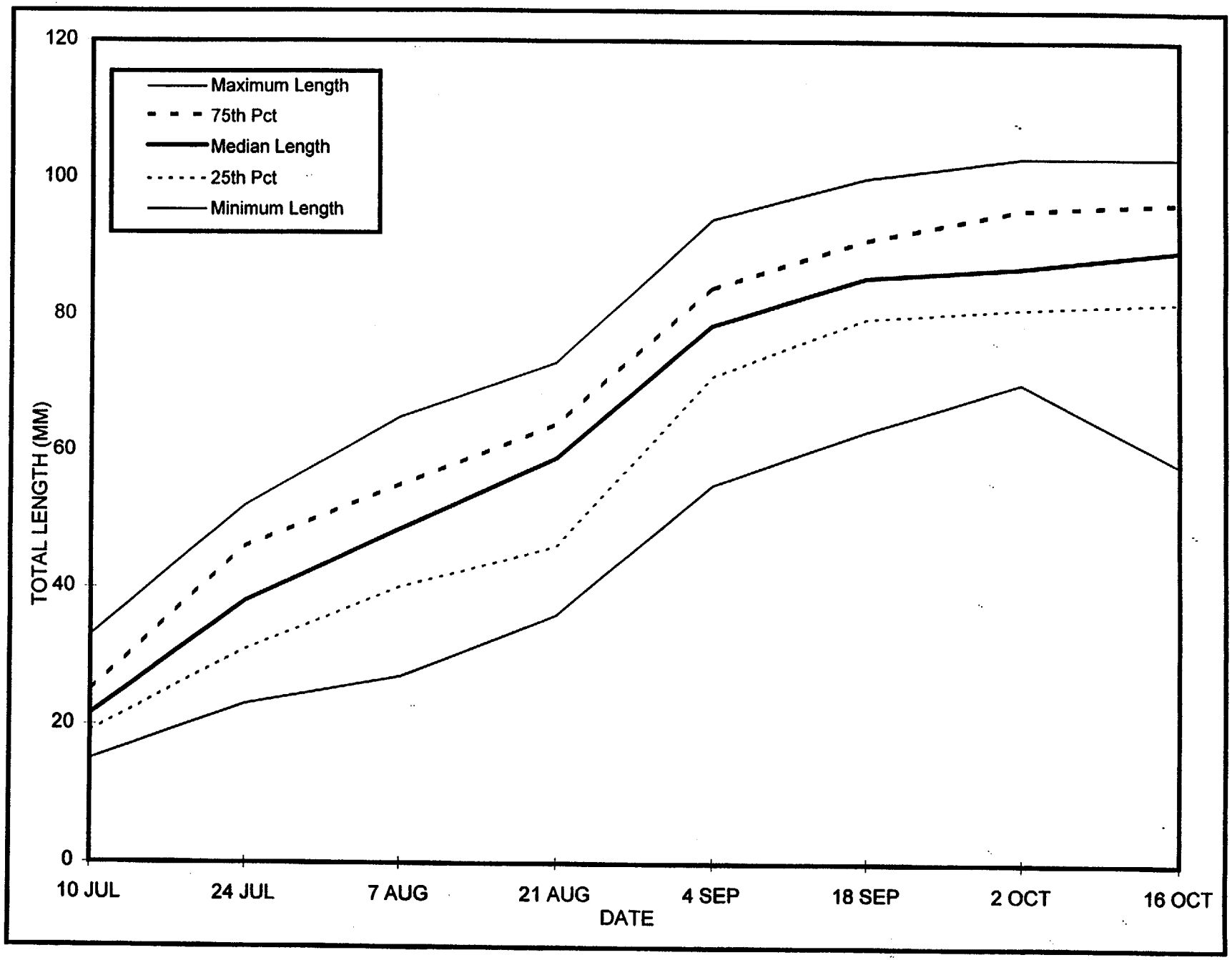


Figure 4-78. Weekly length statistics for young-of-year white catfish in the Hudson River estuary, 1995.

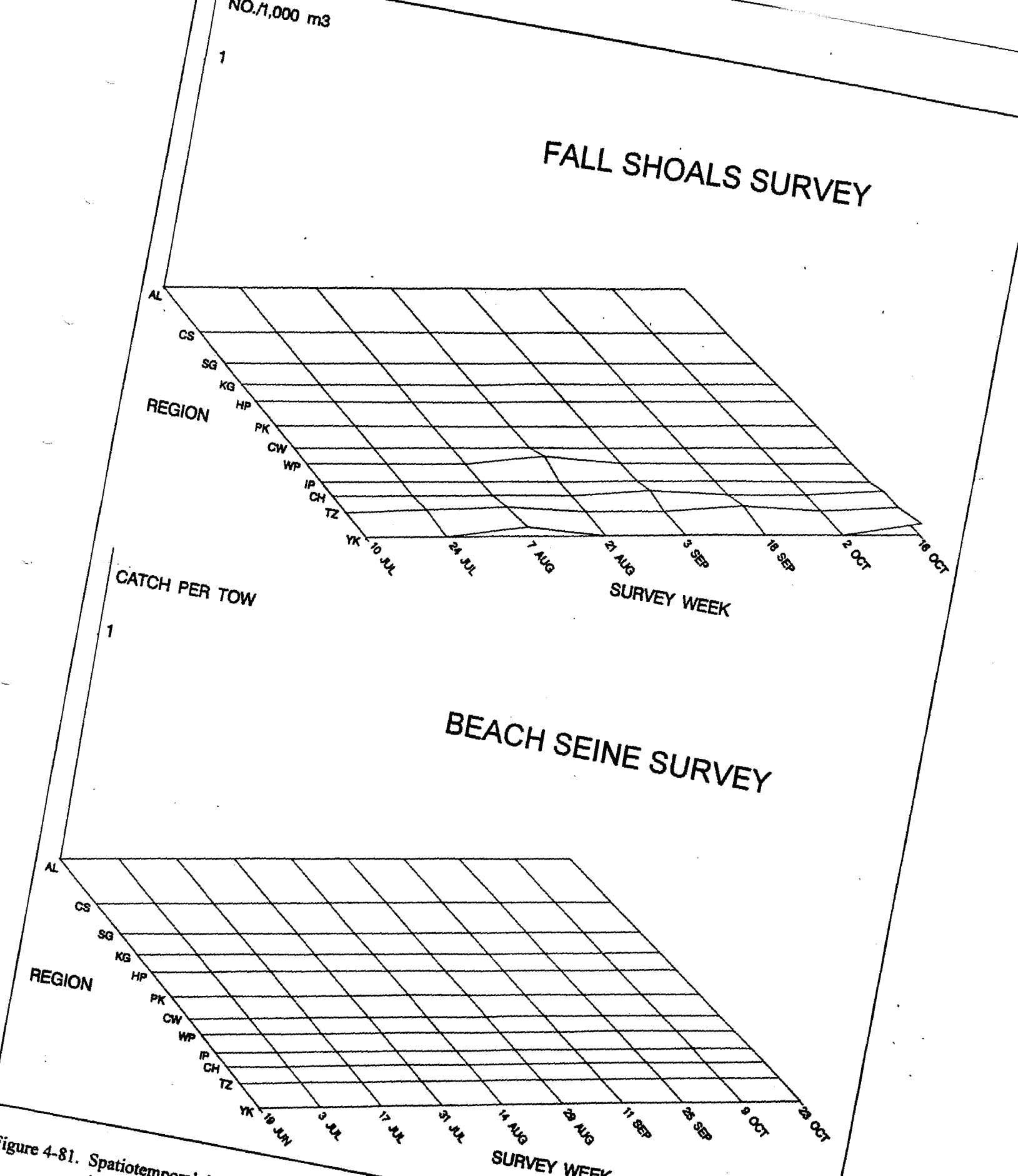


Figure 4-81. Spatiotemporal distribution of yearling and older weakfish in the Hudson River estuary based on the 1995 Fall Shoals and Beach Seine surveys.

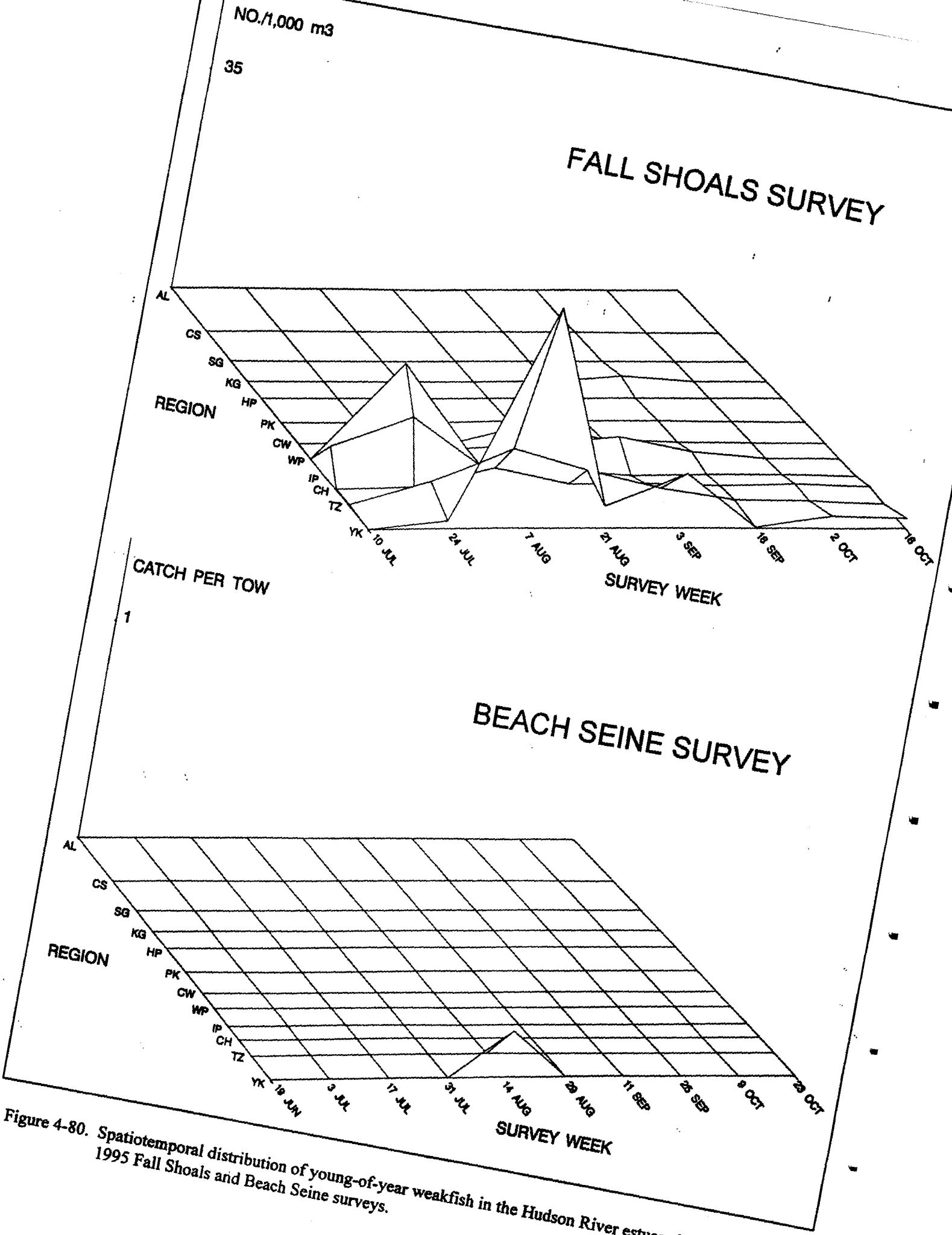


Figure 4-80. Spatiotemporal distribution of young-of-year weakfish in the Hudson River estuary based on the 1995 Fall Shoals and Beach Seine surveys.

northernmost region for juveniles in 1995. Most of the yearling and older weakfish in the 1995 FSS collections were found in the Tappan Zee and West Point regions, also further upriver than seen in the long-term record.

Weekly length statistics for juvenile weakfish collected in 1995 show an unsteady but overall increase in growth during the FSS collection period from mid-July through October (Figure 4-83 and Appendix Table D-21).

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 2 days. The newly hatched larvae are also pelagic and remain in offshore waters for 1-2 months before migrating shoreward toward shallow-water

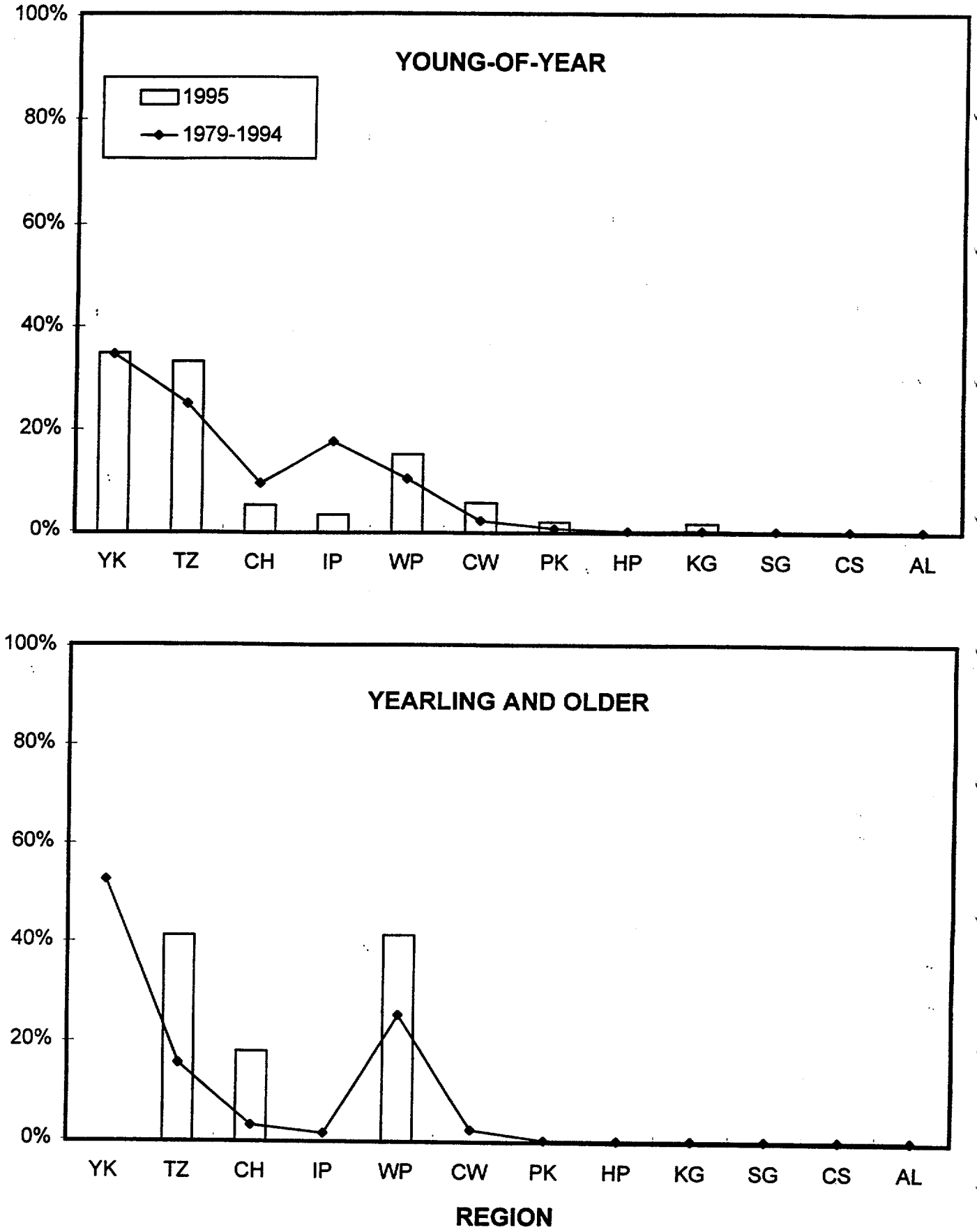


Figure 4-82. Geographical distribution indices for weakfish collected during Fall Shoals surveys of the Hudson River estuary, 1979-1995.

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 1-2 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 1995 juvenile bluefish were collected as far north as the Poughkeepsie region and most had emigrated from the Hudson River above the George Washington Bridge by late October (Figure 4-84). 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 1995 geographical distribution of YOY bluefish in the BSS is consistent with the 1974-1994 long-term trend with the majority of fish collected in the Tappan Zee and Croton-Haverstraw regions (Figure 4-85).

In the Hudson River YOY bluefish aggressively feed on a variety of macroinvertebrates and fish and grow rapidly to a size of 3-6 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 silverside, 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.

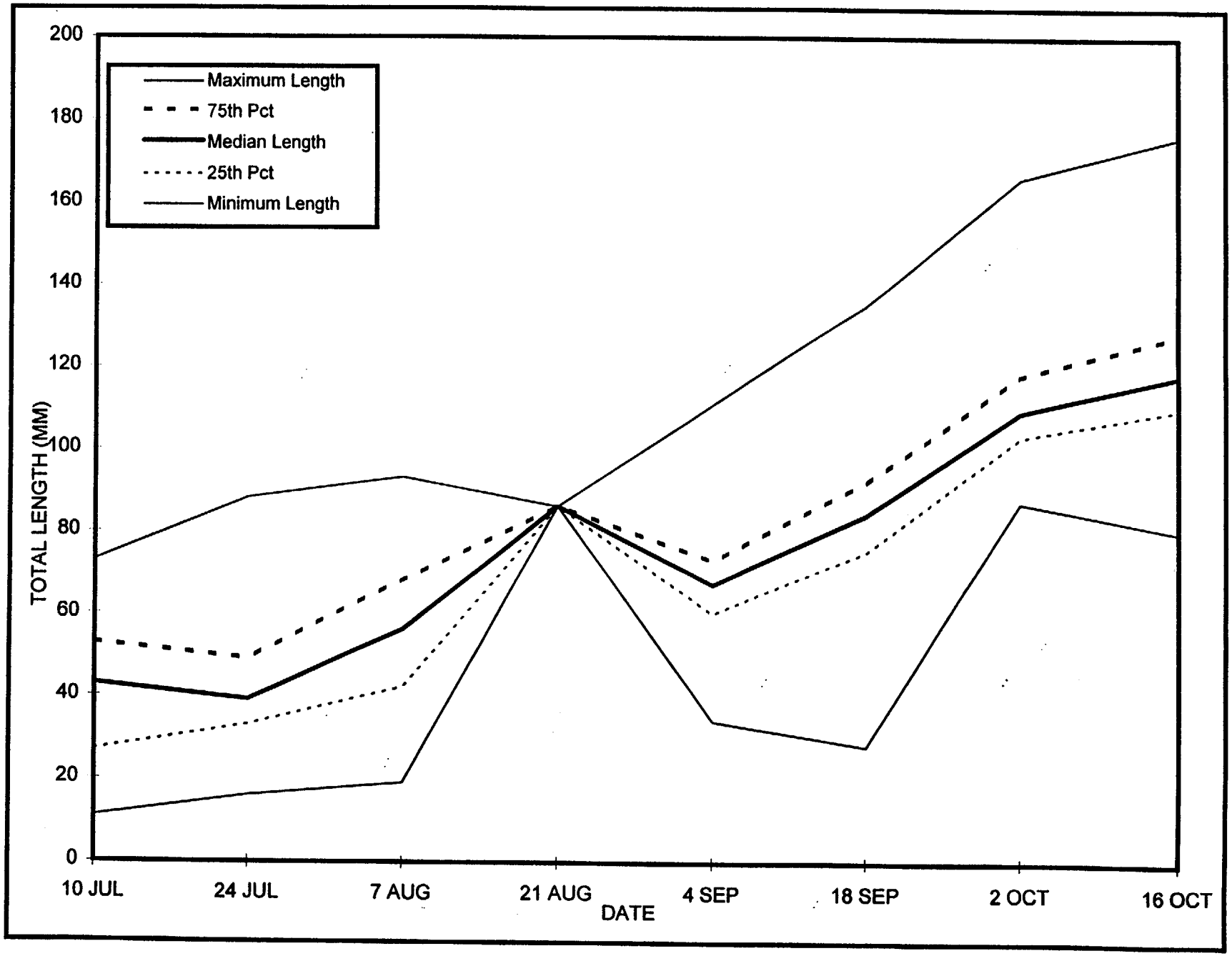


Figure 4-83. Weekly length statistics for young-of-year weakfish in the Hudson River estuary, 1995.

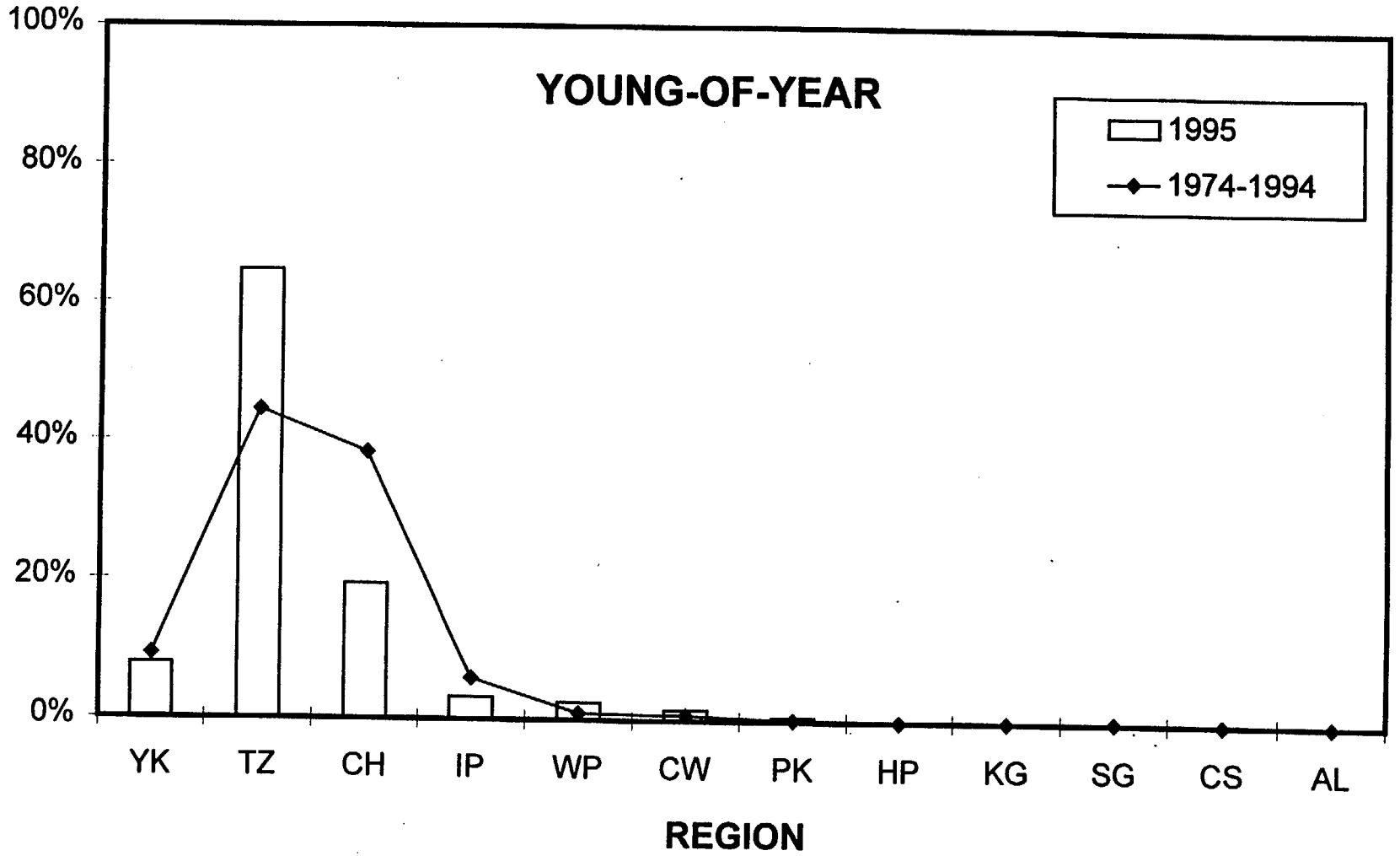


Figure 4-85. Geographical distribution indices for bluefish collected during Beach Seine surveys of the Hudson River estuary, 1974-1995.

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Appendix A

Quality Assurance Program

1995 Ichthyoplankton and Fall Shoals Laboratory Program

QUALITY CONTROL REPORT FOR THE 1995 HUDSON RIVER ICHTHYOPLANKTON LABORATORY PROGRAM AND 1995 FALL JUVENILE SURVEY

Prepared for

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QUALITY CONTROL REPORT FOR THE 1995 HUDSON RIVER ICHTHYOPLANKTON LABORATORY PROGRAM AND 1995 FALL JUVENILE SURVEY

1.0 INTRODUCTION

1.1 SORTING AND IDENTIFICATION QUALITY CONTROL

This quality control report for the laboratory tasks of the 1995 Hudson River Ichthyoplankton Survey and the 1995 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 1995 Hudson River Ichthyoplankton Laboratory Program and 1995 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 1995 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.

1.2 PTERYGIOPHORE STUDY

Distinguishing between striped bass larvae and white perch larvae can be difficult in the early post yolk-sac larval stage. Mansueti (1964) described white perch larvae and discussed external characteristics useful in distinguishing them from striped bass. In the annual Hudson River ichthyoplankton survey, which has been conducted since the 1970s, those and other external characters (summarized by Hardy 1978) have been the basis for identification of *Morone* larvae (NAI 1996). Because of the importance of larval surveys in monitoring populations of striped bass, difficulty in reliably separating the two species resulted in attempts by fisheries scientists in the Chesapeake Bay area to find better diagnostic characters (Drewry and Mihursky 1980).

Fritzsche and Johnson (1980) examined a wide variety of osteological characteristics for the two species and noted differences that could help in identifying *Morone* larvae. Internal osteological characteristics are rendered visible using the enzyme clearing technique of Taylor (1967) and the differential staining of bone and cartilage described by Dingerkus and Uhler (1977). Application of these methods for larval specimens was summarized by Potthoff (1984). Olney et al. (1983) focused attention on pterygiophore interdigitation patterns and extended the comparison to include two additional *Morone* species.

Schmidt (1993, draft) examined pterygiophore patterns from *Morone* larvae that had been collected from the Hudson River in 1978, 1981, 1982, and 1987. He found that the

previous identifications of some of the larvae (based on conventional external characteristics) did not agree with his species determinations based on pterytgiophores. Based on this initial finding, two studies were undertaken in 1995 to further investigate the reliability of external vs. pterygiophore characters in separating larvae of striped bass and white perch from Hudson river stocks. The first study found good agreement between identifications based on external characters and identifications based on pterygiophores for hatchery-reared specimens of both species (Hudson River Foundation; report in preparation).

The second study in 1995 is the one presented in this quality control report. In this study, representative specimens of wild-caught *Morone* larvae from the 1995 Hudson River ichthyoplankton survey were identified by both methods. The results were compared to evaluate whether the agreement observed for hatchery specimens applies also to wild populations. Additionally, larvae unidentifiable by conventional external characters ("*Morone* sp.") were included in this comparison to evaluate whether pterygiophore characters would be useful in reducing the numbers of unidentified *Morone* larvae.

2.0 METHODS

2.1 SORTING AND IDENTIFICATION QUALITY CONTROL

2.1.1 Laboratory Procedures

2.1.1.1 Ichthyoplankton Survey

For sorting and identification of samples from the 1995 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 measurements. If a sample was found to have exceeded acceptable tolerances, all subsequent samples processed by the same technician 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 standard operating procedures manual (NAI 1996) documents specific QA/QC methods utilized for this program.

TABLE 1. TASK SPECIFIC APPLICATIONS OF CONTINUOUS SAMPLING PLANS FOR THE 1995 HUDSON RIVER ICHTHYOPLANKTON LABORATORY PROGRAM.

	CSP-1 AOQL-10%			
LABORATORY TASK	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

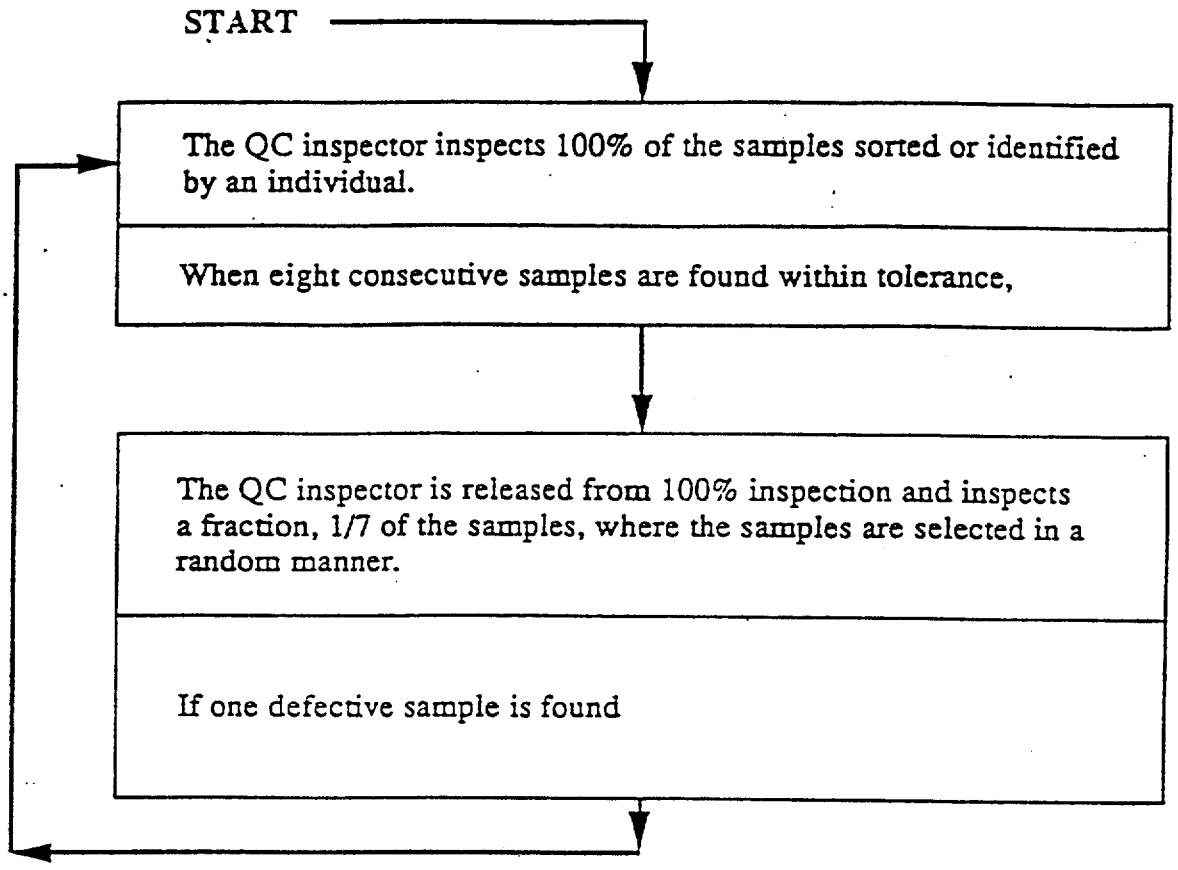

Figure 1. Quality control inspection plan for ichthyoplankton sorting and identification.

In some cases one of the taxonomists (either the original identifier or the QC inspector) was able to determine the taxon or life stage of damaged specimens when the other taxonomist recorded them as unknown life stage, unidentified taxon, or a higher level taxon (genus or family). If a more general taxon or life stage used by one taxonomist included the more specific category used by the other taxonomist, and that was the only reason for a count discrepancy, then that sample was not considered as failing the QC inspection. For example, damaged specimens recorded as *Morone* sp. by the original identifier and as striped bass by the QC inspector were considered to be in agreement because the category *Morone* sp. includes striped bass. In contrast, an original determination of unidentified gobiid would not be acceptable if the QC determination was striped bass, because striped bass is not included in the family Gobiidae.

2.1.1.2 Fall Juvenile Survey

For laboratory identification and length measurements of young-of-the-year fishes in the 1995 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 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 1995 Hudson River Fall Juvenile and Beach Seine Surveys Standard Operating Procedures (Rev. 10, Change 5, 2/15/96). 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.

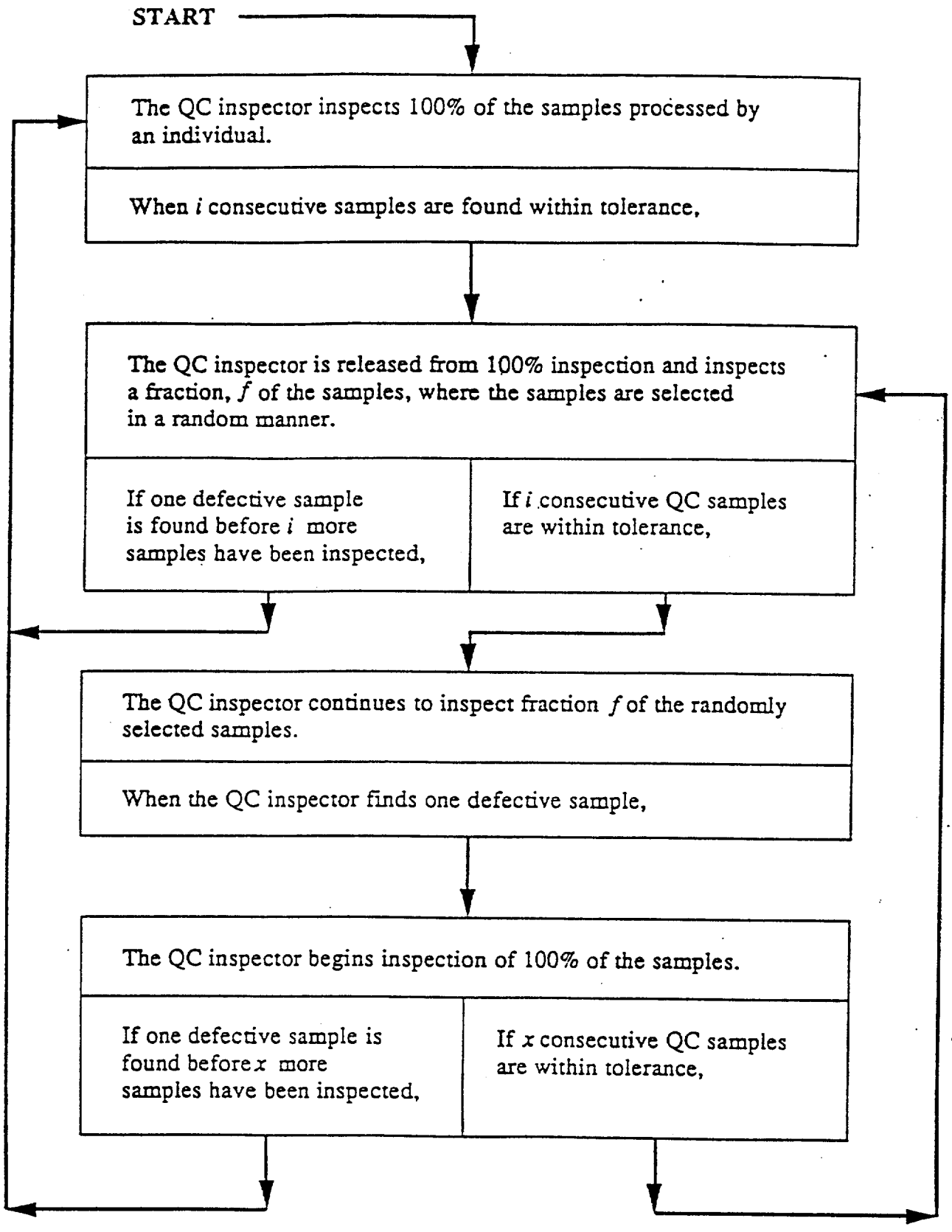

Figure 2. Quality control inspection plan for identification and length measurement of young-of-the-year fishes.

TABLE 2. TASK SPECIFIC APPLICATIONS OF CONTINUOUS SAMPLING PLANS FOR THE 1995 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 >34 mm TL	One fish

2.1.2 Reporting Procedures

The 1995 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 1995 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).

2.1.2.1 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 ichthyoplankton tasks, the number of samples inspected excludes "training QC samples," which do not represent the independent performance of the technician. For the ichthyoplankton identification task, the total number of samples identified excludes empty ("no catch") samples, which 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.

2.1.2.2 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.)

2.1.2.3 Percent Measurement Error

Sorting Task

Sorting Percent Measurement Error

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

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 that this method of averaging gives equal weight to each sample, regardless of the number of organisms present).

Identification Task

Life Stage Percent Measurement Error

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

Life Stage: 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. If the original count for a life stage was acceptably close to a resolution value but not to the quality control value, the percent measurement error was calculated as described above except that the resolution value was substituted for the quality control value.

Taxon: 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.

River Run: 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.

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.

2.1.2.4 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:

	EGGS	POST YOLK-SAC LARVAE	YOUNG-OF-THE-YEAR	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.

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

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).

2.1.2.5 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 =

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

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 (or the resolution count, if I_i was acceptably close to it but not to the QC count)
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.

2.2 PTERYGIOPHORE STUDY

2.2.1 Selection of Specimens

Specimens of *Morone* larvae were selected for the pterygiophore analysis from samples in River Runs 7-18 that were inspected for quality control of the identification task. After the quality control by conventional external characters had been completed, the appropriately-sized *Morone* larvae were separated from the rest of the sample following these criteria:

(1) In addition to striped bass and white perch, any unidentified *Morone* (*Morone* sp.) were included.

(2) *Morone* larvae and juveniles were excluded if they were large enough that they could readily be identified on the basis of anal fin elements. This generally excluded larvae larger than approximately 12 mm TL, but the determination was made on the basis of the anal fin development, not the measurement.

(3) *Morone* larvae that were judged to be too small for pterygiophore determinations were excluded. Specimens as small as 7 mm TL were selected at first. After examining some of the cleared and stained larvae, the minimum size was changed to 8 mm TL.

From the appropriately-sized *Morone* larvae isolated from each quality control sample, approximately 10% of the specimens were randomly selected for pterygiophore analysis. The fraction selected from a sample was sometimes more than 10% for small samples and less than 10% for large samples. The three *Morone* taxa were well mixed prior to selection of the pterygiophore subsample, to insure that striped bass, white perch, and *Morone* sp. are all represented in the subsample in approximately the same proportions as in the whole sample. After the *Morone* QCs were completed, some additional larvae were selected to bring the total up to the target of 800 specimens for pterygiophore analysis.

Each larva selected for pterygiophore analysis was placed in a separate vial that was labeled with sample number and a specimen identification number unique within that sample.

2.2.2 External Characteristics

For each specimen subsampled for pterygiophore analysis, data were recorded on identification based on external characteristics before the specimen was cleared and stained: specimen identification number, total length to the nearest 0.1 mm, taxon, which external characteristics were examined to make the identification, and for each of those characteristics whether it (1) supported an identification as striped bass, (2) supported an identification as white perch, or (3) was inconclusive.

2.2.3 Clearing and Staining

After data on identification based on external characteristics were recorded, the specimens were prepared for pterygiophore analysis by clearing and staining, using the protocol described below. Solution transfers were made by pipetting solutions in and out of the vials rather than handling the larvae directly. Times are only approximate and varied with the size of the specimens and the condition of the solutions; test batches were run to determine the best timing. For additional comments on the protocol, including some safety considerations, refer to "A Protocol for Clearing and Staining *Morone* Larvae" by the Hudson River Foundation (7 July 1994, 6 pages).

(1) Specimens were transferred from formalin through a graded series of ethanol: one hour in 50% (two hours if >10 mm), one hour in 75% (two hours if >10 mm), and overnight in 95%.

(2) Specimens were transferred from 95% ethanol to stock alcian blue solution (80 parts 95% ethanol, 20 parts glacial acetic acid, and enough concentrated dye to turn solution dark blue) for 12-48 hours.

(3) Specimens were neutralized in saturated sodium borate or stock enzyme buffer solution (3 parts saturated sodium borate and 7 parts distilled water). Specimens >13 mm were soaked twice for approximately one hour each time in saturated sodium borate, or for several hours in enzyme buffer solution. Smaller specimens were left in either solution for shorter periods.

(4) Specimens were transferred to fresh buffer solution for clearing (10-40 times the volume of the specimens) and trypsin powder was added (a pinch for small vials containing small fish). Clearing time varied with the freshness and size of the specimens (minimum of 2 hours for a 7-mm fish). Specimens

were kept in solution until about 90% of desired clarity was reached (clearing continued after transfer into glycerin).

(5) Specimens were rinsed twice in distilled water to remove traces of trypsin powder.

(6) Specimens were transferred through a graded series of glycerin: 35%, 55%, and 75%. The 35% and 75% glycerin contained thymol to prevent molding. Thymol crystals were added to the 75% glycerin, to prevent ethanol from clouding the solution. The following recipe was used to add thymol to the 35% glycerin: 1/2 teaspoon thymol, 1 quart 35% glycerin, and a few drops of 95% ethanol (but only enough to put the thymol into solution).

2.2.4 Pterygiophore Determinations

The cleared and stained specimens were examined, and the pterygiophore interdigitation pattern and the identification based on the pattern were determined for each specimen. Counts were recorded for the number of supraneurals present in each of interneural spaces 1-4 and for the number of pterygiophores present in each of interneural spaces 3-6, interneural spaces 10-13, and interhaemal spaces 12-15. If it appeared that some of the supraneurals or pterygiophores were missing because the larva was not well enough developed, or if the space to which an element belonged could not be determined or was questionable, that was noted on the data sheet.

Identifications based on pterygiophores were determined according to the following sequential decision rules:

(1) The specimen was identified as a white perch if either the 10th interneural space or the 11th interneural space lacked a pterygiophore.

(2) The specimen was identified as a striped bass if the first spine-bearing pterygiophore was not in the third interneural space.

(3) The specimen was identified as a striped bass if the second supraneural was not in the second interneural space.

(4) The specimen was identified as a white perch if the third spine-bearing pterygiophore was not in the fifth interneural space.

(5) The specimen was identified as a striped bass if the fourth spine-bearing pterygiophore was not in the fifth interneural space.

(6) The specimen was identified as a striped bass if the fourth ray-bearing pterygiophore was in the 12th interneural space.

The sequential decision rules were examined in order beginning with the first one, until one of the described conditions was found to be present. As soon as one condition was satisfied, the specimen was identified on that basis and no further pterygiophore characters were examined for that specimen. If none of the six conditions were satisfied, then no attempt was made to identify the specimen on the basis of pterygiophores.

3.0 RESULTS

3.1 ICHTHYOPLANKTON LABORATORY PROGRAM

The Average Outgoing Quality (AOQ) of the 1995 Hudson River Ichthyoplankton Laboratory Program was 4.72% for the sorting task and 1.03% for the identification task. 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 12.98% for sorting and 15.28% 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 1995 HUDSON RIVER ICHTHYOPLANKTON LABORATORY PROGRAM.

TASK	FRACTION INSPECTED(%)	PROCESS AVERAGE(%)	MEAN PERCENT MEASUREMENT ERROR(%)	AOQ(%)
Sorting	12.98	6.01	2.79	4.72
Identification	15.28	1.22	1.46	1.03

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 23. Sorted samples were inspected at a rate of 8.15% to 32.10% for individual river runs (Table 4). Nonconformance for task among the inspected samples ranged from 0% to 27.27% among the river runs and was 6.01% overall (Table 5). Sorting measurement error was between 0% and 9.24% and averaged 2.79% for the study (Table 6). For the task of sample identification, 11.37% to 31.94% of samples were inspected from individual river runs (Table 7). Percent nonconforming for the identification task ranged from 0% to 12.50% for each of the 23 river runs and averaged 1.22% (Table 8). Measurement error ranged from 0% to 22.95% and overall measurement error was 1.46% for the identification task of this study (Table 9).

The 22.95% average error rate for the samples collected during the week beginning Monday 31 July 1995 is misleading. It was an artifact of the method for percent error calculation, which required a value of 718% to be used as one of the 35 percentages averaged for that week. First of all, it is impossible to misidentify or mis-stage more than 100% of the specimens of a species in a sample. Secondly, only 7.9% of the actual specimens of the species in question were in disagreement between the original identifier and the quality control inspector. If the more representative value of 7.9% had been used instead of the original 718%, the mean percent measurement error for that river run would have been 2.66%. The data for the sample in question were corrected, and the inspection frequency was increased to 100% for the next eight samples, as required, even though the "failure" of the sample was due to a shortcoming in the method of calculation.

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

TABLE 4. SAMPLE SORTING FRACTION INSPECTED RESULTS, 1995 HUDSON RIVER ICHTHYOPLANKTON LABORATORY PROGRAM.

	FRACTION INSPECTED SORTING QC		
SAMPLING WEEK (BEGINNING MONDAY)	TOTAL # OF SAMPLES INSPECTED	TOTAL # OF SAMPLES SORTED	FRACTION INSPECTED
03/06/95	9	74	12.16
03/20/95	10	71	14.08
04/03/95	11	73	15.07
04/10/95	15	126	11.90
04/17/95	16	126	12.70
04/24/95	16	124	12.90
05/01/95	12	135	8.89
05/08/95	11	135	8.15
05/15/95	17	135	12.59
05/22/95	17	126	13.49
05/29/95	16	126	12.70
06/05/95	11	126	8.73
06/12/95	16	123	13.01
06/19/95	15	123	12.20
06/26/95	16	123	13.01
07/03/95	15	123	12.20
07/17/95	12	80	15.00
07/31/95	12	81	14.81
08/14/95	11	81	13.58
08/28/95	11	81	13.58
09/11/95	11	81	13.58
09/25/95	10	81	12.35
10/09/95	26	81	32.10
STUDY	316	2435	12.98

TABLE 5. SAMPLE SORTING PERCENT NONCONFORMANCE RESULTS, 1995
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)
03/06/95	1	9	11.11	11.11
03/20/95	1	10	10.00	10.53
04/03/95	0	11	0.00	6.67
04/10/95	0	15	0.00	4.44
04/17/95	2	16	12.50	6.56
04/24/95	2	16	12.50	7.79
05/01/95	2	12	16.67	8.99
05/08/95	3	11	27.27	11.00
05/15/95	2	17	11.76	11.11
05/22/95	1	17	5.88	10.45
05/29/95	0	16	0.00	9.33
06/05/95	1	11	9.09	9.32
06/12/95	1	16	6.25	9.04
06/19/95	1	15	6.67	8.85
06/26/95	0	16	0.00	8.17
07/03/95	1	15	6.67	8.07
07/17/95	1	12	8.33	8.09
07/31/95	0	12	0.00	7.69
08/14/95	0	11	0.00	7.36
08/28/95	0	11	0.00	7.06
09/11/95	0	11	0.00	6.79
09/25/95	0	10	0.00	6.55
10/09/95	0	26	0.00	6.01
STUDY	19	316		

TABLE 6. SAMPLE SORTING MEAN PERCENT MEASUREMENT ERROR RESULTS, 1995 HUDSON RIVER ICHTHYOPLANKTON LABORATORY PROGRAM.

SAMPLING WEEK (BEGINNING MONDAY)	MEAN PERCENT MEASUREMENT ERROR SORTING QC TOTAL # OF SAMPLES INSPECTED	MEAN PERCENT MEASUREMENT ERROR
03/06/95	9	1.49
03/20/95	10	7.66
04/03/95	11	0.00
04/10/95	15	1.44
04/17/95	16	6.29
04/24/95	16	7.55
05/01/95	12	7.87
05/08/95	11	9.24
05/15/95	17	3.30
05/22/95	17	4.67
05/29/95	16	1.13
06/05/95	11	3.74
06/12/95	16	2.87
06/19/95	15	1.43
06/26/95	16	1.27
07/03/95	15	2.05
07/17/95	12	2.48
07/31/95	12	0.01
08/14/95	11	0.20
08/28/95	11	0.00
09/11/95	11	0.00
09/25/95	10	0.00
10/09/95	26	0.22
STUDY	316	2.79

TABLE 7. SAMPLE IDENTIFICATION FRACTION INSPECTED RESULTS, 1995 HUDSON RIVER ICHTHYOPLANKTON LABORATORY PROGRAM.

	FRACTION INSPECTED IDENTIFICATION QC		
SAMPLING WEEK (BEGINNING MONDAY)	TOTAL # OF SAMPLES INSPECTED	TOTAL # OF SAMPLES IDENTIFIED	FRACTION INSPECTED
03/06/95	23	72	31.94
03/20/95	9	65	13.85
04/03/95	8	51	15.69
04/10/95	15	104	14.42
04/17/95	14	107	13.08
04/24/95	17	114	14.91
05/01/95	23	167	13.77
05/08/95	26	193	13.47
05/15/95	34	201	16.92
05/22/95	27	191	14.14
05/29/95	38	217	17.51
06/05/95	39	233	16.74
06/12/95	33	225	14.67
06/19/95	33	226	14.60
06/26/95	29	222	13.06
07/03/95	24	211	11.37
07/17/95	14	113	12.39
07/31/95	16	102	15.69
08/14/95	18	81	22.22
08/28/95	10	81	12.35
09/11/95	10	81	12.35
09/25/95	12	81	14.81
10/09/95	20	81	24.69
STUDY	492	3219	15.28

TABLE 8. SAMPLE IDENTIFICATION PERCENT NONCONFORMANCE RESULTS, 1995 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)
03/06/95	0	23	0.00	0.00
03/20/95	0	9	0.00	0.00
04/03/95	0	8	0.00	0.00
04/10/95	0	15	0.00	0.00
04/17/95	0	14	0.00	0.00
04/24/95	0	17	0.00	0.00
05/01/95	0	23	0.00	0.00
05/08/95	0	26	0.00	0.00
05/15/95	0	34	0.00	0.00
05/22/95	0	27	0.00	0.00
05/29/95	0	38	0.00	0.00
06/05/95	3	39	7.69	1.10
06/12/95	0	33	0.00	0.98
06/19/95	0	33	0.00	0.88
06/26/95	0	29	0.00	0.82
07/03/95	0	24	0.00	0.77
07/17/95	1	14	7.14	0.99
07/31/95	2	16	12.50	1.42
08/14/95	0	18	0.00	1.36
08/28/95	0	10	0.00	1.33
09/11/95	0	10	0.00	1.30
09/25/95	0	12	0.00	1.27
10/09/95	0	20	0.00	1.22
STUDY	6	492		

TABLE 9. SAMPLE IDENTIFICATION MEAN PERCENT MEASUREMENT ERROR RESULTS, 1995 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
03/06/95	23	0.00	47
03/20/95	9	0.08	13
04/03/95	8	0.00	24
04/10/95	15	0.34	38
04/17/95	14	0.48	39
04/24/95	17	0.82	38
05/01/95	23	0.22	61
05/08/95	26	0.48	73
05/15/95	34	0.52	92
05/22/95	27	0.92	83
05/29/95	38	0.96	146
06/05/95	39	1.91	156
06/12/95	33	1.54	121
06/19/95	33	1.13	107
06/26/95	29	0.90	83
07/03/95	24	1.33	63
07/17/95	14	1.51	34
07/31/95	16	22.95	35
08/14/95	18	0.85	32
08/28/95	10	0.00	15
09/11/95	10	0.15	13
09/25/95	12	0.10	36
10/09/95	20	0.27	44
STUDY	492	1.46	1393

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. Six taxa accounted for 87% of the additional organisms found during sort QC: white perch, striped bass, bay anchovy, clupeids, winter flounder, and windowpane (Table 10). The additional number found in the QC sort was less than 1% of the total found during sample processing.

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 life stage most commonly missed by sorters for white perch, clupeids, and bay anchovy was post yolk-sac larvae (Table 11). The most commonly missed life stage was yolk-sac larvae for striped bass and winter flounder and eggs for windowpane. Generally the life stage most frequently missed by sorters was the most abundant one, except that the larger young-of-the-year fish were very rarely overlooked by the sorters.

Absolute error rates of the identification process for individual life stages of commonly encountered taxa ranged from 0 to 1, but most taxa-life stages had rates less than 0.05. Generally, only those taxa-life stages with low total counts had absolute error rates above 0.05 (Table 12).

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.

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	768	29.76
STRIPED BASS	455	17.63
BAY ANCHOVY	395	15.30
HERRING FAMILY	296	11.47
WINTER FLOUNDER	200	7.75
WINDOWPANE	132	5.11
FOURBEARD ROCKLING	66	2.56
GRUBBY	45	1.74
UNIDENTIFIED	42	1.63
MORONE SPECIES	35	1.36
AMERICAN SHAD	27	1.05
CUNNER	23	0.89
ATLANTIC TOMCOD	19	0.74
ATLANTIC MENHADEN	14	0.54
CARP AND MINNOW FAMILY	14	0.54
HOGCHOKER	10	0.39
RAINBOW SMELT	10	0.39
TAUTOG	8	0.31
GOBIOSOMA SPECIES	5	0.19
AMERICAN SAND LANCE	3	0.12
COMMON CARP	3	0.12
TESSELLATED DARTER	3	0.12
YELLOWTAIL FLOUNDER	3	0.12
SILVERSIDE FAMILY	1	0.04
ATLANTIC SILVERSIDE	1	0.04
GIZZARD SHAD	1	0.04
SUMMER FLOUNDER	1	0.04
YELLOW PERCH	1	0.04
TOTAL	2581	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	LIFE STAGE	NUMBER MISSED	PERCENT IN EACH STAGE	PERCENT OF TOTAL FOUND	TOTAL ORGANISMS FOUND[a]
BAY ANCHOVY	EGGS	165	41.77	0.21	77609
	YOLK-SAC LARVAE	28	7.09	16.67	168
	POST YOLK-SAC LARVAE	202	51.14	0.56	35943
	YOUNG-OF-THE-YEAR	0	0.00	0.00	55480
	UNIDENTIFIED	0	0.00	0.00	239
HERRING FAMILY	EGGS	69	23.31	0.67	10331
	YOLK-SAC LARVAE	25	8.45	0.94	2656
	POST YOLK-SAC LARVAE	200	67.57	0.85	23408
	YOUNG-OF-THE-YEAR	0	0.00	0.00	248
	UNIDENTIFIED	2	0.68	0.94	213
STRIPED BASS	EGGS	123	27.03	0.45	27281
	YOLK-SAC LARVAE	200	43.96	1.25	16015
	POST YOLK-SAC LARVAE	122	26.81	0.19	65890
	YOUNG-OF-THE-YEAR	5	1.10	0.52	963
	UNIDENTIFIED	5	1.10	0.75	664
WHITE PERCH	EGGS	171	22.27	1.82	9389
	YOLK-SAC LARVAE	114	14.84	1.07	10688
	POST YOLK-SAC LARVAE	480	62.50	0.74	65041
	YOUNG-OF-THE-YEAR	0	0.00	0.00	91
	UNIDENTIFIED	3	0.39	1.58	190
WINDOWPANE	EGGS	124	93.94	1.96	6315
	YOLK-SAC LARVAE	0	0.00	0.00	1
	POST YOLK-SAC LARVAE	7	5.30	2.67	262
	YOUNG-OF-THE-YEAR	1	0.76	0.95	105
WINTER FLOUNDER	YOLK-SAC LARVAE	123	61.50	12.18	1010
	POST YOLK-SAC LARVAE	77	38.50	2.51	3065
	YOUNG-OF-THE-YEAR	0	0.00	0.00	24
	UNIDENTIFIED	0	0.00	0.00	1

[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	LIFE STAGE	TOTAL COUNT	NET ERROR RATE	ABSOLUTE ERROR RATE	N
AMERICAN SHAD	EGGS	306	0.00327	0.01634	12
	YOLK-SAC LARVAE	58	0.05172	0.05172	13
	POST YOLK-SAC LARVAE	150	-0.02667	0.10667	30
	YOUNG-OF-THE-YEAR	50	0.00000	0.04000	13
ATLANTIC HERRING	POST YOLK-SAC LARVAE	285	0.00000	0.02807	29
	YOUNG-OF-THE-YEAR	77	0.00000	0.07792	14
ATLANTIC TOMCOD	UNIDENTIFIED	1	1.00000	1.00000	2
	YOLK-SAC LARVAE	16	0.00000	0.00000	7
	POST YOLK-SAC LARVAE	4817	0.00581	0.01163	82
	YOUNG-OF-THE-YEAR	1450	0.00207	0.02414	93
BAY ANCHOVY	UNIDENTIFIED	72	0.25000	0.36111	20
	EGGS	10769	0.01671	0.02786	59
	YOLK-SAC LARVAE	39	0.05128	0.10256	4
	POST YOLK-SAC LARVAE	5446	0.00129	0.03324	138
	YOUNG-OF-THE-YEAR	7851	0.00344	0.01057	91
CUNNER	EGGS	328	-0.00915	0.02744	13
FOURBEARD ROCKLING	EGGS	646	0.03870	0.03870	6
GRUBBY	YOLK-SAC LARVAE	1	-1.00000	1.00000	1
	POST YOLK-SAC LARVAE	274	0.00365	0.00365	30
	YOUNG-OF-THE-YEAR	1	-1.00000	1.00000	1
HERRING FAMILY	UNIDENTIFIED	56	-0.03571	0.42857	23
	EGGS	1243	0.01931	0.02574	27
	YOLK-SAC LARVAE	424	-0.01651	0.06840	57
	POST YOLK-SAC LARVAE	3386	0.01122	0.03367	116
	YOUNG-OF-THE-YEAR	45	0.06667	0.15556	10
HOGCHOKER	EGGS	2494	0.02526	0.03168	11
	YOUNG-OF-THE-YEAR	3	0.00000	0.00000	2
MORONE SPECIES	UNIDENTIFIED	132	0.18939	0.25000	21
	YOLK-SAC LARVAE	4	0.25000	1.25000	5
	POST YOLK-SAC LARVAE	353	0.04816	0.18980	48
RAINBOW SMELT	YOLK-SAC LARVAE	16	0.00000	0.00000	4
	POST YOLK-SAC LARVAE	200	0.00500	0.02500	49
	YOUNG-OF-THE-YEAR	36	-0.02778	0.02778	15
STRIPED BASS	UNIDENTIFIED	154	0.78571	0.98052	20
	EGGS	3694	0.00217	0.00704	54
	YOLK-SAC LARVAE	2950	0.02441	0.05763	55
	POST YOLK-SAC LARVAE	10699	-0.01636	0.04496	88
	YOUNG-OF-THE-YEAR	55	0.05455	0.05455	19
TESSELLATED DARTER	YOLK-SAC LARVAE	179	-0.01676	0.02793	33
	POST YOLK-SAC LARVAE	34	0.02941	0.14706	11
	YOUNG-OF-THE-YEAR	3	0.00000	0.00000	2
WHITE PERCH	UNIDENTIFIED	10	0.60000	1.60000	10
	EGGS	1431	-0.00140	0.02096	31
	YOLK-SAC LARVAE	1500	-0.00067	0.03800	67
	POST YOLK-SAC LARVAE	9414	0.00181	0.02985	102
	YOUNG-OF-THE-YEAR	5	-0.20000	0.20000	4
WINDOWPANE	EGGS	595	0.00336	0.00336	13
	POST YOLK-SAC LARVAE	61	0.01639	0.01639	7
	YOUNG-OF-THE-YEAR	21	-0.04762	0.04762	8
WINTER FLOUNDER	YOLK-SAC LARVAE	16	0.06250	0.06250	6
	POST YOLK-SAC LARVAE	207	-0.00966	0.01932	27
	YOUNG-OF-THE-YEAR	3	0.00000	0.00000	2

3.2 FALL JUVENILE SURVEY

Results of the laboratory quality control program for the 1995 Fall Juvenile Survey (consisting of the Beach Seine Survey and the Fall Shoals Survey) were summarized by the same methods as the QC results for the 1995 Hudson River Ichthyoplankton Laboratory Program (Section 2.1.2) and are presented in Table 13.

TABLE 13. FRACTION INSPECTED, PROCESS AVERAGE, AND AVERAGE OUTGOING QUALITY OF LABORATORY TASKS PERFORMED BY NAI FOR THE 1995 FALL JUVENILE SURVEY.

TASK	AVERAGE FRACTION INSPECTED(%)	PROCESS AVERAGE(%)	AVERAGE OUTGOING QUALITY(%)
Identification	6.14	0.00	0.00
Measurement	1.53	0.00	0.00

A total of 1431 and 817 young-of-the-year fish identification records were made in the laboratory for the Fall Shoals and Beach Seine surveys respectively and 5213 and 5856 young-of-the-year fish length measurement records were made for the Fall Shoals and Beach Seine surveys respectively.

3.3 PTERYGIOPHORE STUDY

Clearing, staining, and pterygiophore determinations were completed for a total of 814 *Morone* larvae. Of this total, 257 (31.6%) were identifiable by both external and pterygiophore methods, 553 (67.9%) were identifiable by external characters but not by pterygiophores, and four (0.5%) were not identifiable by either method (Table 14). There were no specimens that were identifiable by pterygiophores but not by external characters.

TABLE 14. SPECIES IDENTIFICATIONS OF STRIPED BASS AND WHITE PERCH LARVAE FROM THE HUDSON RIVER ON THE BASIS OF PTERYGIOPHORE CHARACTERISTICS, COMPARED TO IDENTIFICATIONS BASED ON EXTERNAL CHARACTERS.

	IDENTIFICATION RESULTS			
IDENTIFICATION POSSIBLE BY	BASED ON EXTERNAL CHARACTERS	BASED ON PTERYGIOPHORE CHARACTERS	NUMBER	PERCENT
Both methods	striped bass	striped bass	153	
	striped bass	white perch	11	
	white perch	striped bass	7	
	white perch	white perch	86	
			257	31.6
External characters only	striped bass	*Morone* sp.	330	
	white perch	*Morone* sp.	223	
			553	67.9
Pterygiophore characters only	*Morone* sp.	striped bass	0	
	Morone sp.	white perch	0	
			0	0.0
Neither method	*Morone* sp.	*Morone* sp.	4	0.5
GRAND TOTAL			814	100.0

The primary reason that the proportion of unsuccessful pterygiophore determinations was as high as 67.9% was that the attainment of sufficiently developed pterygiophores did not occur in most of these larvae until a larger size than anticipated. In 91.6% of the 557 specimens not identifiable by pterygiophores, the full complement had not yet been attained in either interneural (IN) spaces 1-6 or IN 10-13, which are the two regions examined when using the pterygiophore method (Table 15).

Previous experience with hatchery reared specimens and indications in the literature had suggested that the shortest larvae for which the pterygiophore method could be used would be roughly 8 mm. Since the lower useful size was not known with certainty, larvae were examined in this study as small as about 7 mm, in case the wild Hudson River *Morone* larvae might develop pterygiophores at a smaller size than expected. The opposite was true, however, and even many of the larvae longer than 8 mm did not have their full complement of pterygiophores.

All 100 of the larvae smaller than 8.0 mm TL that were examined were not identifiable by the pterygiophore method because the pterygiophores had not all formed yet (Table 16). In the size range of 8.0 to 8.9 mm, only 11.0% of the larvae examined had formed all the pterygiophores. The proportion of *Morone* larvae with full complements of pterygiophores increased gradually with increasing size: 27.3% at 9.0-9.9 mm, 58.6% at 10.0-10.9 mm, and 88.2% at 11.0 mm and above (Table 16).

Judging from the variation in sizes observed at earliest pterygiophore development, size may not be the most reliable external sign of when a larva has developed to the point where pterygiophore determination is possible. One potentially useful observation may be the development of the pelvic fin rays. In *Morone* larvae that were at or near the completion of pterygiophore development, the pelvic fin rays were observed to be visible as incipient rays.

Other reasons for failing to identify specimens by the pterygiophore method (in addition to the 91.6% without the full number of elements) included "ambiguous" elements for which the position could not be determined for reasons such as a forked tip of a neural spine (119 specimens, 21.4%), questionable position of elements because they were incompletely formed (39 specimens, 7.0%), failing to destain sufficiently (38 specimens, 6.8%), and damage to the

TABLE 15. CONDITION OF STRIPED BASS AND WHITE PERCH LARVAE THAT WERE NOT IDENTIFIABLE BY THE PTERYGIOPHORE METHOD.

STATUS OF PTERYGIOPHORES IN THE TWO CRITICAL REGIONS[a]			
INTERNEURAL SPACES 1-6	INTERNEURAL SPACES 10-13	NUMBER	PERCENT
undeveloped	undeveloped	309	55.5
undeveloped	ambiguous	13	2.3
undeveloped	undeveloped/ambiguous	90	16.2
undeveloped	damaged	11	2.0
undeveloped	questionable	36	6.5
undeveloped	satisfactory	35	6.3
ambiguous	ambiguous	1	0.2
undeveloped/ambiguous	undeveloped/ambiguous	1	0.2
undeveloped/ambiguous	questionable	2	0.4
undeveloped/ambiguous	satisfactory	6	1.1
damaged	undeveloped	2	0.4
damaged	undeveloped/ambiguous	2	0.4
damaged	damaged	5	0.9
damaged	questionable	1	0.2
damaged	satisfactory	4	0.7
obscured	undeveloped	1	0.2
obscured	ambiguous	2	0.4
obscured	undeveloped/ambiguous	2	0.4
obscured	obscured	20	3.6
obscured	satisfactory	13	2.3
satisfactory	satisfactory	1	0.2
TOTAL		557	100.0

[a]Status categories for pterygiophores
- undeveloped: some (or all) of elements (pterygiophores and supraneurals) not yet formed
- ambiguous: position of at least one of the elements could not be determined due to abnormality (e.g. forked neural spine)
- damaged: position of at least one of the elements could not be determined because of damage to the specimen
- questionable: position of at least one of the elements was questionable because its formation was incomplete
- obscured: elements could not be adequately observed because the tissues could not be sufficiently destained
- satisfactory: all elements present and their positions successfully determined

TABLE 16. MORONE LARVAE SIZE DISTRIBUTION CLASSIFIED BY RESULTS OF PTERYGIOPHORE DETERMINATION.

PTERYGIOPHORE DETERMINATION RESULT	NUMBER OF SPECIMENS BY SIZE RANGE (mm TL)										
	7.4 OR UNDER	7.5 TO 7.9	8.0 TO 8.4	8.5 TO 8.9	9.0 TO 9.4	9.5 TO 9.9	10.0 TO 10.4	10.5 TO 10.9	11.0 TO 11.4	11.5 OR OVER	TOTAL
IDENTIFIED AS STRIPED BASS				5	12	16	28	29	30	40	160
IDENTIFIED AS WHITE PERCH			4	9	8	17	15	20	12	12	97
UNIDENTIFIED DUE TO UNFORMED ELEMENTS	39	61	77	68	102	71	57	20	10	5	510
UNIDENTIFIED FOR OTHER REASON					3	9	11	6	8	10	47

critical regions (25 specimens, 4.5%). Only one specimen (0.2%) was not identifiable by pterygiophore determination when pterygiophores were completely formed and their position successfully determined. (These percentages add to more than 100% because a specimen could exhibit more than one of these conditions between the two regions examined.)

Among the 257 *Morone* larvae for which species determinations were reached by both methods, there were 239 (93.0%) for which the two methods were in agreement and 18 larvae (7.0%) for which the two methods provided opposite conclusions (Table 14). The rate of agreement by the two methods was similar for the two species: pterygiophores supported the external character identification 93.3% of the time for striped bass (153 of 164 larvae) and 92.5% of the time for white perch (86 of 93 larvae).

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Appendix B

Physical/Chemical Parameters

APPENDIX B

LIST OF TABLES

Number	Title
B-1	Daily freshwater flow (m^3/sec) recorded at Green Island Dam, New York, 1995.
B-2	Long-term (1947-1994) and 1995 monthly mean freshwater flow (m^3/sec) recorded at Green Island, New York.
B-3	Monthly mean freshwater flow (m^3/sec) recorded at Green Island Dam, New York, from 1974 to 1995.
B-4	Poughkeepsie Waterworks data, mean, minimum, and maximum temperature (°C) for each day of the year, 1951-1995.
B-5	Weighted mean temperature (°C) by region and week from 1995 Long River/Fall Shoals surveys.
B-6	Mean temperature (°C) by region and week from 1995 Beach Seine Survey.
B-7	Weighted mean salinity (ppt) by region and week from 1995 Long River/Fall Shoals surveys.
B-8	Mean salinity (ppt) by region and week from 1995 Beach Seine Survey.
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B-10	Mean dissolved oxygen (mg/L) by region and week from 1995 Beach Seine Survey.
B-11	Weighted mean percent oxygen saturation by region and week from 1995 Long River/Fall Shoals surveys.
B-12	Mean percent oxygen saturation by region and week from 1995 Beach Seine Survey.
B-13	Weighted mean conductivity (mS/cm @ 25°C) by region and week from 1995 Long River/Fall Shoals surveys.
B-14	Mean conductivity (mS/cm @ 25°C) by region and week from 1995 Beach Seine Survey.

TABLE B-1 DAILY FRESHWATER FLOW (M3/SEC) RECORDED AT GREEN ISLAND DAM, NEW YORK, 1995

DAY OF MONTH	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	272	331	252	269	229	144	88	113	74	NA	NA	NA
2	303	323	289	269	212	133	91	93	65	NA	NA	NA
3	291	283	269	229	187	175	88	91	65	NA	NA	NA
4	275	263	243	224	150	241	96	164	74	NA	NA	NA
5	249	246	229	260	150	209	85	161	93	NA	NA	NA
6	252	252	260	260	170	164	85	201	102	NA	NA	NA
7	255	272	320	260	156	164	85	181	96	NA	NA	NA
8	283	272	543	241	153	150	91	150	96	NA	NA	NA
9	277	255	1002	229	156	108	85	147	99	NA	NA	NA
10	258	263	682	238	153	113	91	113	102	NA	NA	NA
11	218	263	563	190	150	116	85	91	119	NA	NA	NA
12	232	275	461	161	173	167	79	105	108	NA	NA	NA
13	272	277	447	260	181	170	76	99	99	NA	NA	NA
14	388	263	580	433	178	130	79	91	108	NA	NA	NA
15	614	260	756	408	175	153	76	91	96	NA	NA	NA
16	781	232	906	320	181	93	76	99	102	NA	NA	NA
17	1036	258	971	275	170	102	93	82	110	NA	NA	NA
18	852	283	917	243	175	110	102	88	105	NA	NA	NA
19	674	272	801	192	150	130	136	74	110	NA	NA	NA
20	645	266	657	195	156	116	113	79	91	NA	NA	NA
21	1024	280	603	212	142	125	91	65	102	NA	NA	NA
22	1050	283	645	314	133	113	82	85	122	NA	NA	NA
23	880	252	623	297	130	88	93	62	110	NA	NA	NA
24	741	243	529	303	110	105	116	59	142	NA	NA	NA
25	623	226	470	269	130	93	108	57	125	NA	NA	NA
26	549	241	405	235	139	91	96	54	127	NA	NA	NA
27	492	212	328	215	116	102	102	62	116	NA	NA	NA
28	393	207	334	195	136	108	119	62	99	NA	NA	NA
29	328	.	303	266	142	96	108	62	99	NA	NA	NA
30	348	.	286	241	147	88	110	62	91	NA	NA	NA
31	342	.	272	.	164	.	105	62	.	NA	NA	NA

NOTE: NA = Not available.

TABLE B-2 LONG-TERM (1947-1994) AND 1995 MONTHLY MEAN FRESHWATER FLOW (m^3/sec) RECORDED AT GREEN ISLAND, NEW YORK

	Flow (m^3/sec)			
Month	1995 Average	Long-Term Average	Long-Term Minimum[a]	Long-Term Maximum[a]
JAN	490	369	118	961
FEB	263	394	128	885
MAR	514	611	258	1,077
APR	257	881	384	1,749
MAY	158	526	156	1,147
JUN	130	279	101	839
JUL	95	184	87	520
AUG	97	162	48	414
SEP	102	181	58	482
OCT	NA	248	71	853
NOV	NA	357	93	740
DEC	NA	414	173	764
Annual Average[b]	234	383		

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

TABLE B-3 MONTHLY MEAN FRESHWATER FLOW (M3/SEC) RECORDED AT GREEN ISLAND DAM, NEW YORK FROM 1974 TO 1995

	YEAR											
	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
JAN	623	540	417	225	744	571	256	148	321	259	133	439
FEB	527	548	885	227	400	335	128	851	356	352	552	319
MAR	587	670	897	987	619	1,077	633	349	613	580	281	581
APR	854	724	1,040	1,092	950	1,009	748	384	897	1,062	761	456
MAY	650	566	900	421	530	508	274	328	354	1,036	651	232
JUN	249	367	431	207	282	216	192	169	431	358	275	157
JUL	333	211	432	162	131	131	144	140	182	127	127	133
AUG	180	254	414	154	169	149	130	133	124	155	48	104
SEP	294	482	271	408	175	221	118	233	122	133	58	171
OCT	256	662	658	853	244	313	158	456	124	71	178	206
NOV	486	637	507	663	227	465	242	393	196	224	277	423
DEC	548	532	398	749	303	430	273	319	233	624	447	338
ANNUAL AVERAGE	466	516	604	512	398	452	275	325	329	415	316	296

	YEAR									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
JAN	310	262	268	196	383	512	304	550	239	490
FEB	362	201	349	256	703	496	236	276	337	263
MAR	1,018	605	461	332	994	696	408	453	562	514
APR	689	981	476	548	894	655	648	1,749	1,375	257
MAY	363	156	357	620	990	346	501	375	534	158
JUN	428	175	123	389	250	144	342	203	233	130
JUL	250	162	131	92	157	112	254	136	248	94
AUG	350	118	139	61	248	123	203	140	265	97
SEP	218	341	164	120	159	136	217	158	190	102
OCT	336	504	211	254	477	216	286	192	177	NA
NOV	544	453	565	407	653	301	531	347	251	NA
DEC	524	437	330	180	687	364	438	403	396	NA
ANNUAL AVERAGE	449	366	298	288	549	342	364	415	401	234

NOTE: NA = Not available.

TABLE B-4 POUGHKEEPSIE WATERWORKS DATA, MEAN, MINIMUM, AND MAXIMUM TEMPERATURE (C) FOR EACH DAY OF THE YEAR, 1951-1995

MONTH	DAY	LONG-TERM TEMPERATURE (1951-1994) MEAN	MINIMUM	MAXIMUM	1995 ACTUAL TEMPERATURES
1	1	1.5	0.6	4.4	1.3
1	2	1.5	0.0	4.4	1.2
1	3	1.5	0.6	4.4	0.9
1	4	1.5	0.6	3.3	1.4
1	5	1.5	0.0	3.3	1.0
1	6	1.2	0.0	3.3	1.0
1	7	1.3	0.0	3.3	1.0
1	8	1.2	0.0	3.3	1.0
1	9	1.2	0.0	3.3	0.7
1	10	1.1	0.0	2.8	
1	11	1.1	0.0	2.8	0.5
1	12	1.1	0.6	2.8	0.4
1	13	1.1	0.0	2.8	0.3
1	14	1.1	0.0	2.8	0.5
1	15	1.1	0.0	2.8	0.6
1	16	1.1	0.4	2.8	0.6
1	17	1.1	0.5	2.8	1.0
1	18	1.1	0.6	3.3	1.0
1	19	1.0	0.6	2.8	1.5
1	20	1.0	0.5	2.2	1.7
1	21	1.0	0.0	2.4	1.6
1	22	1.0	0.6	2.2	1.5
1	23	1.0	0.6	2.2	3.3
1	24	1.0	0.0	2.2	3.3
1	25	0.9	0.0	3.1	3.7
1	26	0.9	0.0	2.2	3.5
1	27	1.0	0.0	2.2	3.1
1	28	1.0	0.5	2.2	3.0
1	29	1.0	0.6	2.2	2.5
1	30	1.0	0.6	2.2	2.5
1	31	1.0	0.6	2.2	2.8
2	1	1.0	0.6	2.2	2.4
2	2	1.0	0.6	2.2	2.7
2	3	1.0	0.6	2.2	2.1
2	4	0.9	0.6	1.8	2.0
2	5	0.9	0.6	1.7	1.8
2	6	1.0	0.5	2.0	0.7
2	7	0.9	0.6	2.2	0.2
2	8	1.0	0.6	2.2	0.6
2	9	1.0	0.6	2.2	0.2
2	10	1.0	0.6	3.3	0.2
2	11	1.0	0.0	2.2	0.2
2	12	1.0	0.6	2.3	0.3
2	13	1.1	0.6	2.2	0.0
2	14	1.2	0.6	2.8	0.3
2	15	1.1	0.6	2.8	0.2
2	16	1.1	0.0	2.8	0.2
2	17	1.1	0.6	2.8	0.6
2	18	1.1	0.0	2.8	0.6
2	19	1.2	0.6	2.8	0.6
2	20	1.2	0.6	2.8	0.0
2	21	1.2	0.6	2.8	0.4
2	22	1.2	0.0	3.9	1.2
2	23	1.2	0.0	2.8	0.1
2	24	1.3	0.0	3.9	0.5
2	25	1.3	0.6	3.9	0.5
2	26	1.4	0.0	3.9	0.4
2	27	1.5	0.0	4.4	0.3
2	28	1.5	0.0	5.0	0.5
2	29	1.8	0.6	4.4	
3	1	1.4	0.6	4.4	0.6
3	2	1.5	0.6	4.4	0.5
3	3	1.5	0.6	4.4	0.5
3	4	1.6	0.6	4.4	0.5
3	5	1.5	0.6	3.3	0.5
3	6	1.6	0.6	3.7	0.8
3	7	1.7	0.6	4.7	0.8
3	8	1.7	0.0	4.9	1.3
3	9	1.8	0.6	4.5	2.0
3	10	1.9	0.6	4.8	2.3
3	11	2.0	0.6	4.4	2.3
3	12	2.0	0.5	4.4	2.4
3	13	2.1	0.5	4.4	2.5
3	14	2.2	0.6	4.4	2.8
3	15	2.3	0.6	5.0	3.3
3	16	2.4	0.6	5.6	3.9
3	17	2.5	0.6	5.7	4.3
3	18	2.5	0.5	5.9	4.4
3	19	2.6	0.6	7.7	4.4
3	20	2.8	0.6	7.5	4.5
3	21	2.9	0.6	7.3	5.9

TABLE B-4 (CONT.)

MONTH	DAY	LONG-TERM TEMPERATURE (1951-1994) MEAN	MINIMUM	MAXIMUM	1995 ACTUAL TEMPERATURES
3	22	3.0	0.6	7.2	6.1
3	23	3.2	0.6	7.1	6.6
3	24	3.4	0.6	7.1	6.2
3	25	3.5	0.6	5.9	6.4
3	26	3.7	0.6	6.1	6.5
3	27	3.9	1.1	6.7	6.9
3	28	4.2	1.1	6.7	6.8
3	29	4.4	1.1	6.7	7.5
3	30	4.6	1.1	7.8	7.6
3	31	4.9	1.1	8.3	7.4
4	1	5.1	1.7	9.4	7.3
4	2	5.3	2.2	8.3	7.4
4	3	5.4	2.8	8.9	7.2
4	4	5.6	2.8	8.9	7.3
4	5	5.9	2.8	8.9	7.9
4	6	6.0	3.3	8.9	7.6
4	7	6.2	2.8	9.4	7.2
4	8	6.3	2.8	9.4	7.3
4	9	6.3	2.8	9.2	7.5
4	10	6.5	2.8	10.2	7.0
4	11	6.7	2.8	11.2	6.8
4	12	6.9	2.8	11.4	7.5
4	13	7.2	2.8	11.4	7.2
4	14	7.3	2.8	11.4	7.9
4	15	7.5	2.8	11.5	7.1
4	16	7.7	3.3	11.8	7.3
4	17	7.9	3.9	11.7	7.4
4	18	8.1	5.6	11.8	7.6
4	19	8.4	5.6	12.2	8.2
4	20	8.7	6.1	12.2	8.2
4	21	9.0	6.1	12.2	8.4
4	22	9.2	6.7	12.8	8.5
4	23	9.4	6.7	12.8	8.7
4	24	9.5	6.7	13.3	9.0
4	25	9.7	6.7	13.3	9.3
4	26	10.0	6.7	13.3	9.4
4	27	10.1	7.2	13.3	10.3
4	28	10.3	7.8	13.3	10.8
4	29	10.6	8.3	13.9	11.0
4	30	10.9	8.9	13.9	11.4
5	1	11.1	8.9	14.4	11.4
5	2	11.4	8.9	14.4	11.6
5	3	11.7	8.9	14.4	11.6
5	4	11.9	8.9	15.0	11.7
5	5	12.1	8.9	15.0	12.2
5	6	12.3	8.9	15.0	12.0
5	7	12.5	8.9	15.0	12.2
5	8	12.6	8.9	15.1	12.1
5	9	12.8	8.9	15.6	12.7
5	10	13.0	8.9	16.1	12.9
5	11	13.1	9.4	16.1	13.1
5	12	13.2	9.4	16.2	13.3
5	13	13.4	10.0	16.7	13.5
5	14	13.6	10.6	16.7	13.6
5	15	13.8	11.1	16.8	13.3
5	16	14.1	11.1	17.2	13.6
5	17	14.4	11.7	17.6	13.5
5	18	14.6	12.2	17.7	14.3
5	19	14.8	12.2	17.7	13.9
5	20	15.1	12.2	17.8	14.2
5	21	15.3	12.8	18.0	14.4
5	22	15.5	12.8	18.5	14.7
5	23	15.8	12.8	18.9	14.7
5	24	16.0	12.8	19.0	15.1
5	25	16.1	12.8	19.3	15.4
5	26	16.3	12.2	19.4	15.3
5	27	16.6	12.2	20.6	15.6
5	28	16.8	12.2	20.6	15.8
5	29	17.0	12.8	20.7	16.0
5	30	17.2	12.8	21.5	16.2
5	31	17.4	13.3	21.3	16.3
6	1	17.7	13.3	22.0	17.2
6	2	17.9	13.3	22.2	17.6
6	3	18.0	14.4	22.1	17.8
6	4	18.3	13.9	22.5	17.7
6	5	18.5	15.0	22.2	17.6
6	6	18.6	15.6	22.4	18.9
6	7	18.8	15.0	22.4	19.1
6	8	19.1	16.1	22.5	19.4
6	9	19.2	16.1	23.0	19.2
6	10	19.4	16.1	23.2	19.2

TABLE B-4 (CONT.)

MONTH	DAY	LONG-TERM MEAN	TEMPERATURE MINIMUM	(1951-1994) MAXIMUM	1995 ACTUAL TEMPERATURES
6	11	19.7	17.2	23.4	19.2
6	12	19.8	17.2	23.3	21.2
6	13	20.0	17.8	23.4	21.6
6	14	20.1	17.8	23.3	19.9
6	15	20.2	17.8	23.5	19.8
6	16	20.4	17.8	23.8	20.4
6	17	20.5	17.8	23.8	20.6
6	18	20.7	17.8	24.2	21.0
6	19	20.8	17.8	24.1	21.3
6	20	21.0	17.8	24.0	24.0
6	21	21.2	17.8	24.3	
6	22	21.4	17.2	24.3	21.4
6	23	21.5	17.2	24.1	21.7
6	24	21.7	17.8	24.1	22.1
6	25	21.7	17.8	24.2	22.3
6	26	21.9	17.8	24.5	22.0
6	27	22.1	17.8	24.4	22.0
6	28	22.1	17.8	24.4	21.9
6	29	22.3	17.8	25.0	22.3
6	30	22.4	17.8	25.0	22.5
7	1	22.6	18.9	25.4	22.7
7	2	22.7	18.9	25.0	22.8
7	3	22.8	19.4	25.0	22.5
7	4	22.9	19.4	25.0	22.2
7	5	23.1	20.0	25.6	23.1
7	6	23.2	20.0	25.6	23.1
7	7	23.2	20.0	25.6	23.4
7	8	23.4	20.0	25.6	23.5
7	9	23.5	20.0	25.6	23.6
7	10	23.5	20.6	26.0	23.5
7	11	23.6	20.6	25.9	23.5
7	12	23.8	21.1	26.1	23.4
7	13	24.0	21.7	26.7	23.8
7	14	24.0	21.7	26.7	23.8
7	15	24.2	21.7	26.7	24.0
7	16	24.3	22.2	26.7	24.3
7	17	24.4	22.2	26.6	24.4
7	18	24.4	22.2	26.3	24.8
7	19	24.6	22.2	26.5	24.8
7	20	24.7	22.2	26.7	24.5
7	21	24.7	22.8	26.6	24.9
7	22	24.8	22.2	27.0	25.0
7	23	24.8	22.2	27.0	25.4
7	24	24.9	22.8	26.8	24.9
7	25	24.9	22.8	26.7	25.3
7	26	25.0	22.8	26.7	25.8
7	27	25.1	22.8	27.2	25.9
7	28	25.2	22.8	27.2	25.5
7	29	25.2	22.8	27.0	25.5
7	30	25.2	23.3	27.1	25.5
7	31	25.2	23.3	27.1	25.8
8	1	25.2	23.3	26.7	26.1
8	2	25.3	22.8	26.7	26.4
8	3	25.3	23.3	26.8	26.9
8	4	25.3	23.3	26.9	26.4
8	5	25.4	23.3	27.2	26.5
8	6	25.3	23.3	27.2	26.4
8	7	25.3	23.3	27.4	26.5
8	8	25.3	23.3	27.4	26.2
8	9	25.3	23.3	27.8	26.1
8	10	25.3	23.3	27.8	26.1
8	11	25.3	22.8	27.8	26.4
8	12	25.3	22.8	28.1	26.5
8	13	25.1	22.2	28.0	26.4
8	14	25.1	22.2	28.4	26.3
8	15	25.0	22.2	28.4	26.5
8	16	25.0	22.2	28.4	26.1
8	17	24.9	22.2	28.1	26.2
8	18	24.9	22.8	28.0	26.2
8	19	24.9	22.2	27.7	26.2
8	20	24.9	22.8	27.6	26.3
8	21	24.8	22.2	27.5	26.3
8	22	24.7	22.2	27.1	26.1
8	23	24.7	22.8	26.9	26.1
8	24	24.6	22.2	26.7	26.0
8	25	24.5	21.7	26.2	26.0
8	26	24.4	21.7	26.1	26.1
8	27	24.4	22.2	26.2	26.0
8	28	24.3	22.2	25.8	26.1
8	29	24.2	22.2	26.7	25.1
8	30	24.3	22.2	26.1	24.7

TABLE B-4 (CONT.)

MONTH	DAY	LONG-TERM TEMPERATURE (1951-1994) MEAN	MINIMUM	MAXIMUM	1995 ACTUAL TEMPERATURES
8	31	24.2	22.2	26.1	25.0
9	1	24.2	22.2	26.1	25.8
9	2	24.1	22.2	26.7	25.7
9	3	24.0	22.2	26.1	25.7
9	4	23.9	22.2	25.6	25.4
9	5	23.8	21.7	25.6	25.3
9	6	23.7	22.2	25.6	24.6
9	7	23.6	21.6	25.6	24.7
9	8	23.5	21.7	25.6	24.1
9	9	23.4	21.7	25.6	24.5
9	10	23.3	21.1	25.6	24.5
9	11	23.2	21.1	25.6	24.1
9	12	23.1	21.1	25.6	24.0
9	13	22.9	20.0	25.6	23.0
9	14	22.7	18.9	25.0	23.5
9	15	22.6	17.8	25.0	23.0
9	16	22.3	17.2	25.0	22.8
9	17	22.2	17.2	25.0	22.0
9	18	22.0	16.7	25.0	21.7
9	19	21.9	16.7	23.9	21.3
9	20	21.8	17.2	23.9	21.7
9	21	21.5	16.7	23.3	21.3
9	22	21.3	16.1	23.3	20.8
9	23	21.1	16.1	22.8	20.5
9	24	20.8	15.6	22.8	21.2
9	25	20.7	15.6	22.8	21.1
9	26	20.5	15.6	22.2	21.0
9	27	20.4	16.1	22.2	20.5
9	28	20.2	15.6	22.2	20.4
9	29	20.0	15.6	22.2	19.5
9	30	19.7	15.6	22.2	19.3
10	1	19.6	16.1	22.2	19.3
10	2	19.4	15.6	22.2	19.3
10	3	19.3	15.6	22.2	19.6
10	4	19.0	15.6	21.7	19.6
10	5	18.7	15.0	21.1	19.4
10	6	18.6	15.0	21.1	19.3
10	7	18.4	15.0	21.1	19.2
10	8	18.2	14.4	21.1	18.9
10	9	18.0	14.4	21.1	18.2
10	10	17.8	14.4	21.1	18.0
10	11	17.7	13.9	21.1	17.9
10	12	17.4	13.3	21.1	17.4
10	13	17.1	13.3	20.0	17.3
10	14	16.9	12.8	21.1	17.2
10	15	16.8	12.2	20.0	17.0
10	16	16.6	12.2	20.0	17.3
10	17	16.3	12.2	20.0	17.1
10	18	16.0	12.2	20.0	17.1
10	19	15.9	11.7	20.0	16.5
10	20	15.6	10.6	19.4	16.7
10	21	15.3	10.6	18.9	17.4
10	22	15.1	10.0	18.9	17.1
10	23	14.9	10.0	18.9	17.0
10	24	14.7	10.0	18.3	16.8
10	25	14.5	10.0	18.3	14.5
10	26	14.3	10.0	17.8	14.3
10	27	14.1	9.4	17.8	14.2
10	28	14.0	8.9	17.8	14.2
10	29	13.7	8.3	17.8	13.6
10	30	13.5	7.8	16.7	13.2
10	31	13.2	7.2	16.7	13.0
11	1	13.0	7.2	16.7	12.7
11	2	12.8	7.2	16.1	13.2
11	3	12.7	7.2	16.1	13.2
11	4	12.4	7.2	16.1	13.0
11	5	12.2	7.2	15.6	11.6
11	6	12.0	6.7	15.6	11.5
11	7	11.7	6.1	15.0	
11	8	11.4	6.1	15.0	11.1
11	9	11.2	5.6	15.0	9.5
11	10	10.9	5.0	15.0	9.3
11	11	10.7	5.0	15.0	9.9
11	12	10.4	5.0	15.0	10.2
11	13	10.2	5.0	13.3	9.3
11	14	9.9	5.0	13.3	9.0
11	15	9.7	5.0	12.8	9.0
11	16	9.5	5.0	12.8	8.0
11	17	9.4	5.0	12.8	6.0
11	18	9.2	5.0	12.8	6.0
11	19	8.9	5.0	12.2	5.9

TABLE B-4 (CONT.)

MONTH	DAY	LONG-TERM TEMPERATURE (1951-1994) MEAN	MINIMUM	MAXIMUM	1995 ACTUAL TEMPERATURES
11	20	8.7	5.0	11.1	4.9
11	21	8.4	3.9	11.1	4.6
11	22	8.3	3.9	11.1	5.0
11	23	8.1	3.9	11.1	5.0
11	24	7.8	3.9	10.6	5.8
11	25	7.6	3.9	10.6	5.0
11	26	7.4	3.3	10.0	4.4
11	27	7.1	3.3	10.0	4.1
11	28	7.0	3.3	10.0	4.1
11	29	6.8	3.3	10.0	4.0
11	30	6.5	2.8	10.0	3.6
12	1	6.3	2.2	9.4	3.6
12	2	6.1	3.0	8.9	3.6
12	3	5.8	2.2	8.9	3.7
12	4	5.6	1.3	8.3	3.5
12	5	5.4	2.8	7.8	3.3
12	6	5.3	2.6	7.8	3.4
12	7	5.1	2.0	7.8	3.4
12	8	4.8	2.0	7.8	3.3
12	9	4.6	1.7	7.2	3.5
12	10	4.3	1.1	7.2	3.5
12	11	4.2	1.1	7.2	1.7
12	12	3.9	0.6	7.2	3.0
12	13	3.8	0.6	6.7	4.0
12	14	3.6	0.6	6.7	1.4
12	15	3.4	0.6	6.7	1.3
12	16	3.2	0.6	6.7	1.4
12	17	3.1	0.6	5.6	1.4
12	18	2.9	0.6	5.6	2.0
12	19	2.7	0.6	5.0	1.5
12	20	2.7	0.6	5.0	1.5
12	21	2.4	0.6	4.4	1.5
12	22	2.2	0.6	4.4	1.5
12	23	2.1	0.6	5.0	1.5
12	24	2.1	0.6	5.6	1.5
12	25	2.0	0.6	5.6	1.5
12	26	2.0	0.0	6.1	1.5
12	27	1.9	0.0	6.1	1.5
12	28	1.8	0.0	6.1	1.5
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	1.5

TABLE B-5 WEIGHTED MEAN TEMPERATURE (C) BY REGION AND WEEK FROM 1995 LONG RIVER/FALL SHOALS SURVEYS

WEEK BEGINNING MONDAY	REGIONS												
	BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
06MAR95	3.3	2.9	2.6	2.2	1.6	1.0	1.0	.	.	.	.	.	.
20MAR95	6.1	5.6	5.2	5.0	4.8	4.4	4.5	.	.	.	.	.	.
03APR95	7.0	7.3	6.7	6.8	7.0	7.3	7.7	.	.	.	.	.	.
10APR95	7.6	7.5	7.7	7.6	7.4	7.3	7.6	7.2	6.9	6.5	6.5	5.7	5.1
17APR95	8.7	8.8	9.1	8.5	8.4	9.1	9.4	8.3	8.2	8.6	8.6	8.2	8.1
24APR95	11.1	11.3	11.6	10.8	11.0	10.9	10.6	9.4	10.2	10.8	11.1	10.5	10.9
01MAY95	11.8	12.0	12.2	12.2	11.6	11.3	11.3	11.5	12.4	12.6	12.7	12.9	13.1
08MAY95	12.3	12.5	12.8	12.9	13.0	12.9	12.8	12.9	13.5	13.6	13.4	13.7	14.1
15MAY95	13.9	14.1	14.1	14.3	14.0	14.1	14.2	14.3	15.0	15.1	14.9	15.1	15.5
22MAY95	15.7	16.2	16.5	16.4	16.3	15.6	16.2	15.4	15.9	16.2	16.3	16.5	16.8
29MAY95	17.9	18.4	18.8	19.2	18.1	17.6	18.3	17.7	18.4	18.1	18.3	18.8	19.2
05JUN95	17.8	20.3	20.4	20.3	19.9	19.8	20.0	19.4	20.0	20.5	20.9	21.4	21.9
12JUN95	18.5	18.9	19.9	21.1	20.8	20.0	20.2	20.4	21.1	21.2	21.4	22.0	21.9
19JUN95	20.6	22.0	22.8	23.1	22.9	21.9	22.0	22.1	22.3	23.3	23.9	24.6	24.1
26JUN95	20.6	21.1	22.6	23.2	23.3	22.8	23.2	23.0	23.7	24.1	24.8	25.2	25.4
03JUL95	22.0	23.2	23.8	24.5	24.6	23.0	23.8	24.0	24.2	24.5	24.8	25.1	25.6
10JUL95	.	23.7	24.6	26.6	26.3	25.0	25.1	25.1	24.4	24.8	25.0	24.8	25.5
17JUL95	24.2	26.0	26.8	27.3	26.6	25.5	25.8	26.0	.	.	.	.	.
24JUL95	.	25.9	26.8	28.0	27.9	27.3	27.2	27.0	26.6	27.1	27.0	27.3	27.6
31JUL95	25.3	27.5	28.5	29.8	29.6	28.0	28.1	28.2	.	.	.	.	.
07AUG95	.	26.0	27.3	28.6	28.3	27.4	27.0	27.2	27.0	26.9	26.5	27.1	26.2
14AUG95	25.4	26.1	26.9	27.6	28.4	27.4	27.4	27.7	.	.	.	.	.
21AUG95	.	26.1	25.9	26.3	27.3	27.1	27.2	27.2	26.9	26.7	26.8	27.0	27.6
28AUG95	24.5	24.9	24.8	25.4	26.6	25.8	25.8	26.0	.	.	.	.	.
04SEP95	.	24.5	24.7	26.3	26.4	25.3	25.3	25.6	25.0	24.1	23.8	24.1	24.3
11SEP95	23.1	22.9	23.1	24.2	25.1	23.9	23.6	24.1	.	.	.	.	.
18SEP95	.	21.7	22.1	22.8	23.0	22.6	22.2	22.4	21.7	20.5	19.8	19.9	20.1
25SEP95	20.2	20.3	20.0	21.0	22.0	21.4	21.4	21.6	.	.	.	.	.
02OCT95	.	20.0	20.1	21.2	21.4	21.1	21.1	20.7	19.3	18.7	18.5	18.7	18.6
09OCT95	19.7	19.6	19.8	20.2	20.5	20.1	20.0	19.5	.	.	.	.	.
16OCT95	.	18.7	18.3	18.2	19.0	18.1	17.7	17.7	17.0	16.2	15.9	15.5	15.2

NOTE: Dots (.) indicate no sampling.

TABLE B-6 MEAN TEMPERATURE (C) BY REGION AND WEEK FROM 1995 BEACH SEINE SURVEY

WEEK BEGINNING MONDAY	REGIONS											
	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
19JUN95	24.3	25.3	22.9	22.2	21.8	22.6	22.8	23.3	23.5	24.4	26.5	24.2
03JUL95	23.9	23.3	25.3	25.0	23.8	24.5	25.3	24.7	24.8	25.2	26.6	25.5
17JUL95	26.5	26.9	26.8	27.7	25.3	24.8	26.1	26.9	27.1	26.1	27.7	28.3
31JUL95	28.4	28.5	29.2	29.2	26.3	28.5	26.2	25.2	28.2	24.8	29.0	27.4
14AUG95	27.7	28.1	28.7	29.5	27.9	28.8	28.8	27.5	27.5	28.0	27.3	26.4
28AUG95	24.7	24.3	24.7	25.7	25.4	25.5	21.8	24.3	25.4	25.1	24.4	23.8
11SEP95	23.4	22.2	23.8	25.0	24.5	24.7	24.6	23.6	22.7	21.7	21.9	20.2
25SEP95	18.9	19.1	20.8	22.2	21.9	21.2	21.3	19.6	18.6	18.6	19.0	18.0
09OCT95	20.0	19.7	21.3	21.2	20.3	19.6	19.4	17.8	18.1	18.1	17.4	15.7
23OCT95	17.8	17.1	17.0	16.5	16.4	15.6	15.3	14.4	14.1	14.6	13.9	12.2

TABLE B-7 WEIGHTED MEAN SALINITY (PPT) BY REGION AND WEEK FROM 1995 LONG RIVER/FALL SHOALS SURVEYS

WEEK BEGINNING MONDAY	REGIONS												
	BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
06MAR95	15.1	9.0	4.9	0.7	0.3	0.1	0.1	.	.	.	.	.	.
20MAR95	13.9	6.4	1.0	0.1	0.2	0.1	0.1	.	.	.	.	.	.
03APR95	14.8	9.2	4.3	0.4	0.2	0.1	0.1	.	.	.	.	.	.
10APR95	20.7	13.6	7.3	5.8	5.0	2.9	0.6	0.1	0.1	0.1	0.1	0.1	0.1
17APR95	16.9	12.8	6.3	3.2	1.5	0.4	0.2	0.1	0.1	0.1	0.1	0.2	0.1
24APR95	20.1	11.7	4.4	1.3	1.2	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1
01MAY95	19.1	13.6	5.6	3.0	1.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
08MAY95	21.7	14.2	8.1	6.5	4.7	2.7	0.4	0.1	0.1	0.1	0.1	0.1	0.1
15MAY95	17.7	13.6	8.9	4.9	3.2	1.5	0.4	0.2	0.1	0.1	0.1	0.2	0.1
22MAY95	22.1	12.0	6.1	3.7	2.6	1.0	0.5	0.1	0.1	0.1	0.1	0.2	0.2
29MAY95	18.2	12.7	8.0	4.0	1.9	0.9	0.2	0.2	0.1	0.1	0.1	0.2	0.2
05JUN95	22.7	11.9	7.4	6.4	3.4	0.8	0.3	0.1	0.1	0.2	0.2	0.2	0.2
12JUN95	21.5	15.9	8.4	5.1	3.6	1.5	0.6	0.2	0.2	0.2	0.2	0.2	0.2
19JUN95	22.0	10.9	6.7	5.9	4.2	1.3	0.5	0.2	0.2	0.2	0.2	0.2	0.2
26JUN95	21.1	16.7	10.2	7.8	6.3	4.0	1.8	0.4	0.2	0.2	0.2	0.2	0.1
03JUL95	21.7	13.3	9.0	7.2	5.7	3.1	2.2	0.3	0.2	0.2	0.2	0.2	0.2
10JUL95	.	14.5	10.1	6.4	5.6	3.5	1.6	0.3	0.2	0.2	0.2	0.2	0.2
17JUL95	22.5	12.3	8.5	6.4	4.6	2.7	1.8	0.6	.	.	.	.	.
24JUL95	.	15.0	10.9	7.0	5.9	3.4	1.3	0.5	0.2	0.2	0.2	0.2	0.2
31JUL95	23.3	13.5	8.8	6.0	4.9	2.5	1.6	0.5	.	.	.	.	.
07AUG95	.	16.2	9.3	6.4	5.9	2.0	1.2	0.4	0.2	0.2	0.2	0.2	0.1
14AUG95	18.7	12.9	9.1	7.1	4.6	1.9	1.0	0.4	.	.	.	.	.
21AUG95	.	14.9	11.7	9.8	7.8	4.5	2.2	0.7	0.2	0.2	0.2	0.1	0.1
28AUG95	21.2	15.6	12.0	9.1	7.5	4.6	3.1	1.6	.	.	.	.	.
04SEP95	.	18.2	10.9	8.3	7.9	4.6	3.6	1.9	0.3	0.2	0.2	0.1	0.2
11SEP95	18.9	13.6	9.9	8.2	7.0	3.6	2.8	1.6	.	.	.	.	.
18SEP95	.	16.3	12.6	10.2	9.1	6.1	3.2	1.5	0.3	0.2	0.2	0.2	0.1
25SEP95	21.4	17.1	12.0	8.5	7.8	4.8	3.1	1.7	.	.	.	.	.
02OCT95	.	16.7	10.5	8.7	8.1	5.5	3.3	1.6	0.2	0.2	0.2	0.2	0.1
09OCT95	17.2	12.8	9.5	7.5	5.6	2.7	1.7	0.6	.	.	.	.	.
16OCT95	.	11.6	7.2	5.5	3.8	1.8	0.8	0.3	0.2	0.2	0.1	0.2	0.2

NOTE: Dots (.) indicate no sampling.

TABLE B-8 MEAN SALINITY (PPT) BY REGION AND WEEK FROM 1995 BEACH SEINE SURVEY

WEEK BEGINNING MONDAY	REGIONS											
	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
19JUN95	8.7	7.0	7.1	4.4	2.2	0.7	0.2	0.2	0.2	0.2	0.2	0.2
03JUL95	10.1	8.3	6.2	4.3	2.5	1.3	0.3	0.2	0.2	0.2	0.2	0.2
17JUL95	11.4	8.8	6.5	5.1	4.7	3.2	0.5	0.2	0.2	0.2	0.2	0.2
31JUL95	12.0	8.6	6.7	3.9	2.1	1.2	0.4	0.2	0.2	0.2	0.2	0.1
14AUG95	11.3	8.2	6.2	4.6	2.0	0.9	0.3	0.2	0.2	0.2	0.2	0.1
28AUG95	11.8	9.5	7.9	7.0	4.9	2.8	1.0	0.2	0.2	0.1	0.1	0.1
11SEP95	11.4	9.2	7.6	6.1	4.2	2.3	1.3	0.2	0.1	0.1	0.1	0.1
25SEP95	11.2	9.2	8.3	7.7	5.5	3.0	1.2	0.2	0.2	0.2	0.2	0.1
09OCT95	10.0	8.0	6.5	4.7	3.0	1.7	0.5	0.2	0.2	0.1	0.1	0.1
23OCT95	7.3	3.6	0.9	0.4	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1

TABLE B-9 WEIGHTED MEAN DISSOLVED OXYGEN (MG/L) BY REGION AND WEEK FROM 1995 LONG RIVER/FALL SHOALS SURVEYS

WEEK BEGINNING MONDAY	REGIONS												
	BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
06MAR95	11.2	12.2	12.7	13.4	13.2	12.9	12.9	.	.	.	.	.	.
20MAR95	10.9	12.0	13.4	13.7	13.4	13.5	13.5	.	.	.	.	.	.
03APR95	10.1	11.1	11.6	12.1	11.9	11.8	11.7	.	.	.	.	.	.
10APR95	10.1	10.7	11.2	11.4	11.5	11.7	12.0	11.6	11.8	12.0	12.1	11.9	12.6
17APR95	9.2	9.5	10.5	11.2	11.3	11.4	11.5	11.7	11.8	11.8	12.0	11.9	12.1
24APR95	8.2	8.9	9.9	10.4	10.9	11.0	11.1	11.2	11.1	11.1	11.0	10.8	10.8
01MAY95	9.1	9.4	9.9	10.4	10.7	11.1	10.9	10.8	10.6	10.5	10.2	9.9	9.8
08MAY95	8.4	8.8	9.5	9.6	10.0	10.3	10.7	10.4	10.4	10.4	10.7	9.9	9.2
15MAY95	7.2	7.6	8.5	9.4	9.3	9.9	10.2	10.3	10.7	11.3	11.1	9.2	8.7
22MAY95	6.7	8.0	9.5	9.3	9.5	9.8	10.1	10.3	10.5	10.5	10.8	10.6	8.3
29MAY95	6.9	8.2	9.2	9.9	9.1	9.2	10.6	10.1	8.7	8.6	9.0	9.8	7.8
05JUN95	8.4	8.6	8.9	8.3	8.5	9.6	10.1	8.9	8.3	8.3	8.3	9.0	7.5
12JUN95	6.9	7.0	7.9	8.0	7.7	7.7	9.9	11.7	11.4	11.4	11.3	10.9	10.2
19JUN95	5.7	7.3	8.7	7.9	7.7	7.1	7.6	8.2	7.9	8.1	7.7	8.4	7.9
26JUN95	6.0	6.8	7.7	6.9	6.8	6.7	7.7	8.0	7.8	7.7	7.9	7.6	6.6
03JUL95	5.6	6.7	7.3	7.4	7.0	7.0	7.2	7.3	7.3	7.3	7.3	6.6	6.2
10JUL95	.	6.0	6.9	7.1	6.8	6.5	6.7	6.8	6.7	7.0	7.3	6.9	5.9
17JUL95	4.4	6.3	6.7	6.5	6.3	6.6	7.0	6.9	.	.	.	.	.
24JUL95	.	6.2	6.4	6.4	6.3	6.2	7.3	7.8	7.4	7.6	7.5	6.6	6.2
31JUL95	4.9	6.6	8.0	7.5	6.5	6.2	6.8	7.1	.	.	.	.	.
07AUG95	.	5.1	6.1	6.6	6.5	6.1	6.5	6.7	6.9	7.6	7.2	6.5	6.2
14AUG95	5.9	7.3	8.6	9.2	6.6	6.2	6.7	6.7	.	.	.	.	.
21AUG95	.	8.0	6.8	7.0	6.5	7.2	6.7	6.7	6.9	8.0	8.4	8.4	6.5
28AUG95	5.3	5.5	6.6	6.9	6.1	6.1	6.5	6.4	.	.	.	.	.
04SEP95	.	5.6	8.0	8.1	7.3	6.4	6.7	6.4	7.0	8.0	8.0	7.9	6.8
11SEP95	5.2	9.0	10.2	8.1	7.1	6.8	7.2	6.9	.	.	.	.	.
18SEP95	.	8.5	7.0	5.8	5.8	7.8	9.7	9.8	10.0	11.3	11.3	11.1	11.8
25SEP95	4.2	4.3	5.3	6.1	6.1	6.6	6.9	7.0	.	.	.	.	.
02OCT95	.	4.7	6.6	6.7	6.6	6.6	7.2	7.3	7.9	8.3	8.3	8.2	8.2
09OCT95	4.5	5.5	6.7	6.8	6.9	7.4	7.6	7.8	.	.	.	.	.
16OCT95	.	6.5	7.7	7.8	7.3	7.8	8.2	8.0	8.2	8.7	8.4	8.4	9.1

NOTE: Dots (.) indicate no sampling.

TABLE B-10 MEAN DISSOLVED OXYGEN (mg/L) BY REGION AND WEEK FROM 1995 BEACH SEINE SURVEY

WEEK BEGINNING MONDAY	REGIONS											
	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
19JUN95	8.5	9.4	8.4	7.7	7.1	8.0	8.1	8.6	8.0	7.9	8.7	7.6
03JUL95	8.4	8.1	9.0	6.8	6.8	6.8	7.0	7.7	7.4	7.8	7.4	6.4
17JUL95	6.8	7.9	7.6	8.7	6.1	6.2	7.7	7.6	8.0	7.5	7.1	7.2
31JUL95	7.0	10.5	7.7	6.5	7.7	7.9	7.7	7.3	8.1	7.9	7.5	6.0
14AUG95	6.0	7.0	6.9	6.5	6.6	7.6	7.6	7.5	7.9	8.5	7.9	6.7
28AUG95	6.7	7.2	7.6	7.1	6.7	7.3	8.9	10.5	9.2	9.9	7.9	6.1
11SEP95	9.0	8.2	7.1	7.8	7.7	8.9	8.4	7.6	8.5	9.1	8.2	7.7
25SEP95	6.3	7.2	7.6	6.7	7.1	7.9	7.9	8.2	8.2	8.8	9.1	8.2
09OCT95	6.6	7.5	7.5	9.3	8.7	9.1	9.4	9.5	8.9	8.9	8.9	8.7
23OCT95	8.2	8.5	8.6	8.7	8.9	9.1	9.2	8.9	8.9	9.9	10.3	10.3

TABLE B-11 WEIGHTED MEAN PERCENT OXYGEN SATURATION BY REGION AND WEEK FROM 1995 LONG RIVER/FALL SHOALS SURVEYS

WEEK BEGINNING MONDAY	REGIONS												
	BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
06MAR95	94.1	96.9	97.3	98.4	94.3	91.2	91.1	.	.	.	.	.	.
20MAR95	97.1	99.8	105.9	107.0	104.4	104.2	104.2	.	.	.	.	.	.
03APR95	93.0	98.4	98.0	99.2	97.9	98.1	98.3	.	.	.	.	.	.
10APR95	98.4	98.9	99.3	99.5	99.5	99.5	100.9	96.0	97.3	97.7	98.6	95.2	98.9
17APR95	89.4	90.1	95.2	97.8	97.1	99.2	100.3	99.5	100.1	101.2	102.6	100.9	102.6
24APR95	86.1	88.4	94.2	94.7	99.5	99.3	99.6	97.9	98.8	100.2	100.0	96.9	98.2
01MAY95	96.0	95.7	96.0	99.3	99.2	101.0	99.4	99.0	99.1	98.8	96.2	93.9	93.7
08MAY95	91.5	91.2	94.7	95.1	97.8	99.6	101.4	98.8	99.5	100.4	102.7	95.7	89.4
15MAY95	78.8	81.1	88.5	94.9	92.7	97.6	100.1	100.5	106.2	112.3	109.8	91.7	87.4
22MAY95	78.9	88.4	101.6	97.6	98.1	99.3	103.1	103.6	105.7	107.3	110.3	108.5	85.8
29MAY95	82.2	95.2	104.2	109.7	98.0	97.5	113.2	106.0	93.2	91.3	95.4	105.3	84.2
05JUN95	103.1	103.1	103.4	95.2	95.8	106.0	111.3	97.4	91.4	92.4	92.9	102.2	85.4
12JUN95	85.2	83.3	92.2	92.7	87.8	85.4	109.3	130.0	128.2	128.2	127.7	125.0	116.7
19JUN95	74.0	90.2	105.1	96.0	92.5	82.1	86.6	93.6	91.3	94.5	91.3	101.3	93.9
26JUN95	76.3	85.7	94.8	84.5	82.5	80.1	90.8	94.0	91.9	91.6	94.7	92.3	80.6
03JUL95	73.6	84.9	91.5	92.2	87.2	82.7	86.6	86.6	87.0	88.1	88.2	80.2	75.7
10JUL95	.	77.1	87.9	91.8	86.8	80.3	81.6	82.3	80.6	83.9	88.1	82.7	71.8
17JUL95	60.0	83.2	88.5	85.1	80.4	82.2	87.1	85.4	.	.	.	.	.
24JUL95	.	83.3	86.1	85.1	83.3	80.4	92.2	98.6	91.6	94.9	93.6	82.7	78.4
31JUL95	69.6	91.2	109.1	102.0	87.4	79.9	87.5	91.7	.	.	.	.	.
07AUG95	.	69.7	81.8	89.1	87.0	78.3	82.3	84.4	87.0	94.9	90.1	81.4	77.1
14AUG95	80.3	97.7	114.5	121.9	87.5	79.2	84.6	84.6	.	.	.	.	.
21AUG95	.	107.4	89.6	92.2	85.8	92.6	85.1	84.9	85.9	99.8	104.4	105.6	82.2
28AUG95	72.5	73.7	85.8	89.1	79.9	77.2	80.7	79.3	.	.	.	.	.
04SEP95	.	75.3	103.2	105.3	95.5	80.0	82.8	79.6	84.4	95.5	94.5	93.6	81.6
11SEP95	68.2	114.7	127.2	101.7	89.4	82.4	86.4	83.4	.	.	.	.	.
18SEP95	.	106.5	86.7	72.2	71.6	93.6	113.7	113.8	114.1	125.9	123.8	121.5	130.3
25SEP95	53.3	53.4	63.4	72.8	72.8	76.4	80.0	79.8	.	.	.	.	.
02OCT95	.	57.8	77.5	79.4	78.2	77.3	83.0	82.0	86.0	89.3	88.5	87.6	87.2
09OCT95	55.0	65.5	77.6	79.5	79.4	82.5	83.9	85.5	.	.	.	.	.
16OCT95	.	74.5	85.9	85.9	81.0	83.1	86.3	84.5	84.6	88.7	84.6	84.5	91.0

NOTE: Dots (.) indicate no sampling.

TABLE B-12 MEAN PERCENT OXYGEN SATURATION BY REGION AND WEEK FROM 1995 BEACH SEINE SURVEY

WEEK BEGINNING MONDAY	REGIONS											
	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
19JUN95	106.9	118.9	101.7	91.5	82.5	92.7	93.6	100.6	93.9	94.3	108.8	90.7
03JUL95	106.6	100.0	113.5	84.8	82.1	82.2	84.8	92.5	89.7	94.5	92.2	77.8
17JUL95	90.5	104.0	99.3	114.6	75.9	76.3	95.7	95.2	100.2	92.2	89.9	92.0
31JUL95	96.6	143.1	103.2	84.5	97.1	101.7	92.5	88.8	102.8	93.9	97.1	75.2
14AUG95	81.9	94.1	92.0	87.1	85.0	98.2	97.7	94.6	99.3	108.8	100.1	83.6
28AUG95	86.4	90.8	96.5	91.4	83.8	90.3	102.9	126.3	110.8	119.1	94.9	71.7
11SEP95	114.5	99.9	87.7	98.1	94.6	109.0	101.4	90.1	98.7	103.0	92.9	85.2
25SEP95	73.1	82.6	90.0	80.9	84.5	91.1	89.9	90.0	87.4	93.7	98.7	86.3
09OCT95	77.6	86.5	88.0	108.5	97.8	100.8	102.2	100.0	94.7	94.3	92.6	87.6
23OCT95	91.1	90.6	89.8	88.8	91.1	91.6	92.1	87.4	87.0	97.8	100.0	95.6

TABLE B-13 WEIGHTED MEAN CONDUCTIVITY (MS/CM @ 25 C) BY REGION AND WEEK FROM 1995 LONG RIVER/FALL SHOALS SURVEYS

WEEK BEGINNING MONDAY	REGIONS												
	BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
06MAR95	24.7	15.3	8.5	1.2	0.5	0.2	0.2	.	.	.	.	.	.
20MAR95	23.0	10.9	1.7	0.3	0.3	0.3	0.3	.	.	.	.	.	.
03APR95	24.4	15.6	7.5	0.8	0.3	0.3	0.3	.	.	.	.	.	.
10APR95	33.3	22.6	12.4	10.0	8.7	5.2	1.1	0.2	0.2	0.2	0.2	0.3	0.2
17APR95	27.6	21.3	10.9	5.7	2.7	0.8	0.4	0.2	0.2	0.3	0.3	0.3	0.3
24APR95	32.4	19.6	7.7	2.4	2.2	0.5	0.2	0.2	0.2	0.2	0.3	0.3	0.2
01MAY95	30.9	22.6	9.7	5.2	2.0	0.3	0.2	0.2	0.3	0.3	0.2	0.2	0.2
08MAY95	34.8	23.5	13.9	11.2	8.2	4.7	0.8	0.3	0.3	0.3	0.2	0.2	0.3
15MAY95	29.0	22.6	15.2	8.5	5.7	2.7	0.7	0.3	0.3	0.2	0.2	0.3	0.3
22MAY95	35.3	20.1	10.5	6.5	4.6	1.8	1.0	0.3	0.3	0.3	0.3	0.3	0.3
29MAY95	29.5	21.3	13.7	7.0	3.4	1.7	0.4	0.3	0.3	0.3	0.3	0.3	0.3
05JUN95	36.2	19.9	12.7	11.0	5.9	1.4	0.5	0.3	0.3	0.3	0.3	0.3	0.3
12JUN95	34.5	26.2	14.3	8.9	6.2	2.7	1.0	0.3	0.3	0.3	0.3	0.3	0.3
19JUN95	35.3	18.4	11.6	10.3	7.3	2.2	1.0	0.3	0.3	0.3	0.3	0.3	0.3
26JUN95	33.9	27.5	17.2	13.4	11.0	7.0	3.0	0.6	0.3	0.3	0.3	0.3	0.3
03JUL95	34.8	22.1	15.3	12.4	9.9	5.4	3.8	0.5	0.3	0.3	0.3	0.3	0.3
10JUL95	.	24.0	17.2	11.0	9.7	6.1	2.8	0.6	0.3	0.3	0.3	0.3	0.3
17JUL95	35.9	20.7	14.5	11.1	8.0	4.7	3.2	1.1	.	.	.	.	.
24JUL95	.	24.7	18.4	12.1	10.3	5.9	2.3	0.9	0.3	0.3	0.3	0.3	0.3
31JUL95	37.0	22.4	15.0	10.4	8.5	4.5	2.9	0.9	.	.	.	.	.
07AUG95	.	26.6	15.8	11.0	10.3	3.5	2.2	0.8	0.3	0.3	0.3	0.3	0.2
14AUG95	30.5	21.6	15.6	12.2	8.1	3.4	1.8	0.7	.	.	.	.	.
21AUG95	.	24.6	19.7	16.6	13.4	7.8	3.8	1.2	0.3	0.3	0.3	0.3	0.3
28AUG95	34.1	25.7	20.2	15.6	12.9	7.9	5.5	2.9	.	.	.	.	.
04SEP95	.	29.6	18.4	14.3	13.5	7.9	6.3	3.4	0.5	0.3	0.3	0.3	0.3
11SEP95	30.7	22.7	16.8	14.1	12.0	6.2	5.0	2.8	.	.	.	.	.
18SEP95	.	26.7	21.1	17.3	15.5	10.5	5.6	2.7	0.4	0.3	0.3	0.3	0.3
25SEP95	34.3	28.1	20.1	14.5	13.4	8.4	5.4	2.9	.	.	.	.	.
02OCT95	.	27.4	17.8	14.8	13.8	9.5	5.7	2.9	0.4	0.3	0.3	0.3	0.3
09OCT95	28.2	21.4	16.2	12.9	9.6	4.7	3.0	1.1	.	.	.	.	.
16OCT95	.	19.4	12.4	9.6	6.7	3.2	1.5	0.5	0.3	0.3	0.3	0.3	0.3

NOTE: Dots (.) indicate no sampling.

TABLE B-14 MEAN CONDUCTIVITY (MS/CM AT 25 C) BY REGION AND WEEK FROM 1995 BEACH SEINE SURVEY

WEEK BEGINNING MONDAY	REGIONS											
	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
19JUN95	14.9	12.1	12.2	7.6	4.0	1.3	0.3	0.3	0.3	0.3	0.3	0.3
03JUL95	17.1	14.2	10.8	7.5	4.3	2.3	0.5	0.3	0.3	0.3	0.3	0.3
17JUL95	19.1	15.0	11.2	8.8	8.2	5.7	0.9	0.3	0.3	0.3	0.3	0.3
31JUL95	20.1	14.7	11.5	6.9	3.7	2.0	0.6	0.3	0.3	0.3	0.3	0.3
14AUG95	19.0	14.1	10.7	8.1	3.5	1.5	0.5	0.3	0.3	0.3	0.3	0.3
28AUG95	19.9	16.1	13.6	12.0	8.5	4.9	1.7	0.3	0.3	0.3	0.2	0.2
11SEP95	19.2	15.6	13.1	10.6	7.3	4.1	2.3	0.3	0.3	0.2	0.3	0.3
25SEP95	18.9	15.7	14.2	13.3	9.6	5.3	2.1	0.3	0.3	0.3	0.3	0.2
09OCT95	16.9	13.8	11.2	8.1	5.2	3.0	0.8	0.3	0.3	0.3	0.2	0.2
23OCT95	12.6	6.3	1.5	0.7	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2

Appendix C

Density and Standing Crop Estimates

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C-171	Regional density (no./1,000 m^3) of shortnose sturgeon yearling and older in Hudson River estuary determined from Fall Shoals Survey, 1995.
C-172	Regional standing crop (in thousands) of shortnose sturgeon yearling and older in Hudson River estuary determined from Fall Shoals Survey, 1995.

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C-184	Regional standing crop (in thousands) of weakfish young-of-year in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1995.
C-185	Regional density (no./1,000 m^3) of weakfish young-of-year in Hudson River estuary determined from Fall Shoals Survey, 1995.
C-186	Regional standing crop (in thousands) of weakfish young-of-year in Hudson River estuary determined from Fall Shoals Survey, 1995.

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C-188	Regional standing crop (in thousands) of weakfish young-of-year in Hudson River estuary determined from Beach Seine Survey, 1995.
C-189	Regional density (no./1,000 m^3) of weakfish yearling and older in Hudson River estuary determined from Fall Shoals Survey, 1995.
C-190	Regional standing crop (in thousands) of weakfish yearling and older in Hudson River estuary determined from Fall Shoals Survey, 1995.
C-191	Regional catch-per-unit-effort of weakfish yearling and older in Hudson River estuary determined from Beach Seine Survey, 1995.
C-192	Regional standing crop (in thousands) of weakfish yearling and older in Hudson River estuary determined from Beach Seine Survey, 1995.
C-193	Regional density (no./1,000 m^3) of bluefish young-of-year in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1995.
C-194	Regional standing crop (in thousands) of bluefish young-of-year in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1995.
C-195	Regional density (no./1,000 m^3) of bluefish young-of-year in Hudson River estuary determined from Fall Shoals Survey, 1995.
C-196	Regional standing crop (in thousands) of bluefish young-of-year in Hudson River estuary determined from Fall Shoals Survey, 1995.
C-197	Regional catch-per-unit-effort of bluefish young-of-year in Hudson River estuary determined from Beach Seine Survey, 1995.
C-198	Regional standing crop (in thousands) of bluefish young-of-year in Hudson River estuary determined from Beach Seine Survey, 1995.

TABLE C-1 REGIONAL DENSITY (NO./1,000m3) OF STRIPED BASS EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
08MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
22MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
07APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	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
14APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.32	0.00	0.00	0.10
21APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.32	0.00	0.00	1.04
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	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
28APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	13.22	2.63	9.20	1.52	0.00	0.00	0.00	2.04
04MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	8.39	1.49	3.52	0.51	0.00	0.00	0.00	9.23
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	2.63	4.57	24.55	4.14	2.41	0.00	0.00	0.00	2.95
12MAY	SE	0.00	0.00	0.00	0.00	0.00	1.46	2.18	12.87	3.42	1.47	0.00	0.00	0.00	13.65
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	DENSITY	0.00	0.59	0.19	0.00	0.05	321.76	486.04	2393.52	1625.80	3257.45	2650.74	23.08	0.00	827.63
20MAY	SE	0.00	0.59	0.19	0.00	0.05	270.98	279.84	682.97	454.06	1481.32	1282.70	10.89	0.00	2159.65
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	DENSITY	0.00	2.11	0.58	0.00	0.00	175.47	1660.33	247.84	95.86	31210.35	21618.23	8.07	0.00	4232.22
26MAY	SE	0.00	0.88	0.58	0.00	0.00	81.14	922.94	101.38	57.26	14640.86	9373.66	3.98	0.00	17409.54
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	DENSITY	0.00	1.23	0.20	0.38	30.69	742.99	32.40	200.56	1268.40	2.44	15.77	2.78	0.00	176.76
04JUN	SE	0.00	1.23	0.20	0.27	14.62	322.11	15.29	135.14	218.49	1.12	6.00	1.50	0.00	412.60
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	DENSITY	0.00	0.00	0.00	0.53	3.31	927.56	1304.90	98.61	24.18	14.64	4.32	12.91	0.00	183.92
10JUN	SE	0.00	0.00	0.00	0.38	3.11	250.14	568.42	62.94	18.53	6.39	1.53	6.06	0.00	624.55
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-1 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF STRIPED BASS EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	DENSITY	0.00	0.00	0.00	0.27	2.50	29.26	103.63	57.02	45.18	8.33	0.99	0.00	0.00	19.01
17JUN	SE	0.00	0.00	0.00	0.27	1.21	14.21	89.54	23.94	20.71	3.88	0.99	0.00	0.00	96.11
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	DENSITY	0.00	0.00	0.00	0.00	0.04	16.56	31.18	2.17	1.50	0.00	1.27	0.00	2.03	4.21
24JUN	SE	0.00	0.00	0.00	0.00	0.04	9.42	14.98	1.39	1.00	0.00	0.90	0.00	1.55	17.87
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	DENSITY	0.00	0.00	4.55	0.24	0.00	0.70	3.55	0.61	0.00	0.00	0.00	0.00	0.00	0.74
01JUL	SE	0.00	0.00	4.55	0.24	0.00	0.42	3.21	0.39	0.00	0.00	0.00	0.00	0.00	5.60
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.45	1.88	0.00	0.00	0.00	0.00	0.00	0.18
08JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.40	1.69	0.00	0.00	0.00	0.00	0.00	1.74
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
21JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
05AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
16AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
31AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
28SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
12OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-2 REGIONAL STANDING CROP (IN THOUSANDS) OF STRIPED BASS EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
08MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
22MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
07APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	ST. CROP	0	0	0	0	0	0	0	0	163	0	56	0	0	219
21APR	SE	0	0	0	0	0	0	0	0	163	0	56	0	0	173
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	ST. CROP	0	0	0	0	0	0	1848	785	1522	215	0	0	0	4371
04MAY	SE	0	0	0	0	0	0	1173	445	582	72	0	0	0	1385
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	ST. CROP	0	0	0	0	0	545	638	7318	685	340	0	0	0	9527
12MAY	SE	0	0	0	0	0	302	304	3836	566	208	0	0	0	3907
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	ST. CROP	0	135	60	0	10	66751	67943	713588	269045	460831	467314	3710	0	2049388
20MAY	SE	0	135	60	0	10	56216	39119	203615	75139	209562	226134	1751	0	383212
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	ST. CROP	0	484	187	0	0	36402	232100	73889	15864	4415325	3811201	1298	0	8586748
26MAY	SE	0	203	187	0	0	16834	129019	30226	9476	2071240	1652535	640	0	2653081
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	ST. CROP	0	283	64	56	6393	154137	4530	59794	209901	346	2779	447	0	438729
04JUN	SE	0	283	64	40	3045	66823	2137	40290	36156	158	1058	241	0	86087
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	ST. CROP	0	0	0	78	689	192427	182414	29399	4001	2071	762	2076	0	413915
10JUN	SE	0	0	0	57	648	51893	79459	18766	3066	904	271	975	0	96801
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-2 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF STRIPED BASS EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	ST. CROP	0	0	0	39	520	6070	14487	16999	7477	1178	175	0	0	46944
17JUN	SE	0	0	0	39	252	2948	12516	7136	3427	550	175	0	0	15113
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	ST. CROP	0	0	0	0	8	3436	4359	648	248	0	223	0	144	9067
24JUN	SE	0	0	0	0	8	1953	2094	414	165	0	159	0	110	2905
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	ST. CROP	0	0	1465	36	0	145	496	182	0	0	0	0	0	2325
01JUL	SE	0	0	1465	36	0	88	448	115	0	0	0	0	0	1539
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	ST. CROP	0	0	0	0	0	0	62	560	0	0	0	0	0	622
08JUL	SE	0	0	0	0	0	0	56	504	0	0	0	0	0	507
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
21JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
16AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
31AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
12OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-3 REGIONAL DENSITY (NO./1,000m3) OF STRIPED BASS YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-08MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-22MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-07APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-14APR	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	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-21APR	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	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-28APR	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	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-04MAY	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	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-12MAY	DENSITY	0.00	0.00	0.00	0.32	0.05	0.15	0.88	5.00	1.95	0.53	0.00	0.00	0.00	0.68
	SE	0.00	0.00	0.00	0.32	0.05	0.15	0.51	1.95	0.87	0.53	0.00	0.00	0.00	2.29
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-20MAY	DENSITY	0.00	0.00	0.00	0.00	0.18	1.19	12.91	104.62	16.42	0.00	0.41	0.00	0.00	10.44
	SE	0.00	0.00	0.00	0.00	0.18	0.60	6.09	34.35	6.35	0.00	0.41	0.00	0.00	35.47
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-26MAY	DENSITY	0.00	0.00	0.00	0.77	0.43	39.46	544.55	143.98	152.15	4.32	3.88	2.37	0.00	68.61
	SE	0.00	0.00	0.00	0.77	0.43	9.21	168.87	68.33	62.47	2.47	1.56	1.20	0.00	192.83
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-04JUN	DENSITY	0.00	0.00	0.00	1.81	24.15	667.61	609.88	1460.30	398.06	179.20	18.91	7.56	0.52	259.08
	SE	0.00	0.00	0.00	1.34	9.79	320.55	184.35	433.55	120.43	42.06	8.68	4.72	0.52	584.10
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-10JUN	DENSITY	0.00	0.38	0.00	0.35	0.64	2594.83	1719.09	1104.58	45.02	8.48	9.01	4.07	0.00	422.04
	SE	0.00	0.38	0.00	0.35	0.48	1724.80	295.30	517.45	12.99	3.43	1.00	2.42	0.00	1824.85
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-3 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF STRIPED BASS YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	DENSITY	0.00	0.00	0.00	0.44	0.04	85.08	651.38	1394.81	152.42	20.67	2.29	1.73	0.00	177.60
17JUN	SE	0.00	0.00	0.00	0.44	0.04	32.82	361.06	484.48	58.51	8.67	1.12	1.29	0.00	608.00
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	7.84	16.33	19.05	8.12	0.74	0.00	0.52	0.48	4.08
24JUN	SE	0.00	0.00	0.00	0.00	0.00	2.49	5.54	7.65	3.05	0.74	0.00	0.52	0.48	10.28
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.41	17.90	0.00	0.00	0.00	0.00	0.00	1.41
01JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.41	15.92	0.00	0.00	0.00	0.00	0.00	15.93
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.00	0.00	0.27	0.00	0.00	0.00	0.04
08JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.27	0.00	0.00	0.00	0.31
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
21JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
05AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
16AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
31AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
28SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
12OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-4 REGIONAL STANDING CROP (IN THOUSANDS) OF STRIPED BASS YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
08MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
22MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
07APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	ST. CROP	0	0	0	47	11	30	124	1491	322	75	0	0	0	2099
12MAY	SE	0	0	0	47	11	30	72	582	144	75	0	0	0	612
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	ST. CROP	0	0	0	0	37	248	1804	31192	2718	0	72	0	0	36070
20MAY	SE	0	0	0	0	37	124	851	10242	1052	0	72	0	0	10332
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	ST. CROP	0	0	0	114	89	8186	76123	42927	25179	611	685	381	0	154295
26MAY	SE	0	0	0	114	89	1911	23606	20370	10338	349	275	192	0	32909
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	ST. CROP	0	0	0	267	5032	138499	85256	435366	65873	25351	3335	1216	37	760231
04JUN	SE	0	0	0	198	2039	66499	25770	129256	19930	5951	1530	759	37	149107
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	ST. CROP	0	88	0	52	134	538313	240313	329313	7450	1199	1588	655	0	1119106
10JUN	SE	0	88	0	52	101	357819	41280	154270	2149	485	176	389	0	391845
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-4 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF STRIPED BASS YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	ST. CROP	0	0	0	66	8	17650	91057	415838	25222	2924	404	279	0	553447
17JUN	SE	0	0	0	66	8	6808	50474	144440	9683	1226	198	207	0	153467
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	ST. CROP	0	0	0	0	0	1626	2283	5679	1343	105	0	84	34	11154
24JUN	SE	0	0	0	0	0	517	774	2281	504	105	0	84	34	2518
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	ST. CROP	0	0	0	0	0	0	58	5338	0	0	0	0	0	5395
01JUL	SE	0	0	0	0	0	0	58	4747	0	0	0	0	0	4748
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	ST. CROP	0	0	0	0	0	0	27	0	0	38	0	0	0	65
08JUL	SE	0	0	0	0	0	0	21	0	0	38	0	0	0	44
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
21JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
16AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
31AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
12OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81

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, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
08MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
22MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
07APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	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
14APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	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
21APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	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
28APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	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
04MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	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
12MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.81	2.24	1.73	0.00	0.00	0.00	0.00	0.37
20MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.81	1.23	1.73	0.00	0.00	0.00	0.00	2.27
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	DENSITY	0.00	0.00	0.20	0.19	0.14	12.27	28.21	2.69	4.49	0.67	0.98	0.00	0.00	3.83
26MAY	SE	0.00	0.00	0.20	0.19	0.14	6.86	6.15	1.32	2.71	0.67	0.77	0.00	0.00	9.75
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	DENSITY	0.00	0.00	0.00	64.70	624.71	1692.11	692.36	1292.90	31.99	24.43	6.67	0.53	0.00	340.80
04JUN	SE	0.00	0.00	0.00	47.04	170.23	1138.52	306.45	514.35	11.33	8.12	1.50	0.53	0.00	1298.50
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	DENSITY	0.65	0.00	8.87	98.85	400.14	6508.25	6378.16	1477.14	334.70	20.02	11.34	1.81	0.00	1172.30
10JUN	SE	0.65	0.00	3.20	18.55	118.67	2339.77	1316.30	777.54	145.51	7.57	5.28	1.36	0.00	2801.33
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-5 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF STRIPED BASS POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	DENSITY	1.33	0.21	54.04	2298.22	3260.93	2134.93	5237.30	2055.93	265.82	185.70	18.50	12.07	1.24	1194.33
17JUN	SE	1.33	0.21	49.41	620.31	1745.76	172.91	922.57	665.64	42.66	49.82	5.01	5.56	1.24	2182.52
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	DENSITY	0.00	29.75	764.36	165.37	279.71	679.48	622.48	426.48	268.76	69.68	22.34	1.06	1.38	256.22
24JUN	SE	0.00	14.65	313.90	73.06	70.18	174.30	124.93	113.50	61.82	36.75	8.24	0.53	1.38	416.08
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	DENSITY	0.00	0.00	8.49	16.72	147.57	300.67	3456.03	1138.36	102.79	72.24	92.73	16.29	11.63	412.58
01JUL	SE	0.00	0.00	3.43	2.81	67.22	88.45	2842.86	573.55	56.25	21.28	29.79	6.17	10.93	2903.08
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	DENSITY	0.00	0.00	0.31	4.14	23.50	133.15	163.56	49.05	25.63	41.14	14.54	63.02	23.47	41.65
08JUL	SE	0.00	0.00	0.31	1.70	5.07	45.03	27.71	5.71	12.54	12.87	5.75	31.14	11.32	65.66
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	DENSITY	0.00	0.00	0.00	0.21	2.04	0.89	2.82	0.81	NS	NS	NS	NS	NS	0.85
21JUL	SE	0.00	0.00	0.00	0.21	1.68	0.76	1.60	0.48						2.50
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
05AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
16AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
31AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
28SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
12OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

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, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
08MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
22MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
07APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	ST. CROP	0	0	0	0	0	0	114	668	287	0	0	0	0	1069
20MAY	SE	0	0	0	0	0	0	114	365	287	0	0	0	0	478
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	ST. CROP	0	0	64	29	29	2545	3943	801	743	95	173	0	0	8421
26MAY	SE	0	0	64	29	29	1423	859	394	449	95	135	0	0	1776
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	ST. CROP	0	0	0	9558	130150	351038	96785	385458	5293	3456	1176	85	0	983001
04JUN	SE	0	0	0	6949	35465	236193	42839	153346	1875	1148	264	85	0	287139
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	ST. CROP	136	0	2855	14604	83364	1350174	891609	440385	55388	2832	2000	291	0	2843638
10JUN	SE	136	0	1029	2741	24724	485399	184007	231810	24079	1071	931	218	0	569569
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-6 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF STRIPED BASS POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	ST. CROP	279	47	17389	339532	679371	442904	732127	612941	43989	26271	3262	1941	89	2900142
17JUN	SE	279	47	15899	91643	363705	35871	128968	198449	7060	7048	883	893	89	445348
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	ST. CROP	0	6826	245980	24431	58273	140962	87018	127148	44475	9858	3938	171	98	749179
24JUN	SE	0	3361	101016	10794	14622	36159	17464	33838	10230	5200	1452	86	98	115919
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	ST. CROP	0	0	2733	2470	30745	62376	483122	339384	17011	10220	16348	2618	828	967854
01JUL	SE	0	0	1103	415	14005	18349	397407	170993	9308	3010	5251	991	777	433393
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	ST. CROP	0	0	99	612	4896	27623	22864	14623	4241	5820	2564	10129	1670	95141
08JUL	SE	0	0	99	251	1057	9342	3874	1703	2076	1821	1014	5005	806	11863
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	ST. CROP	0	0	0	32	426	185	394	243	NS	NS	NS	NS	NS	1279
21JUL	SE	0	0	0	32	351	157	223	143						468
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
16AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
31AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
12OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-7 REGIONAL DENSITY (NO./1,000m3) OF STRIPED BASS YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
08MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
22MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
07APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	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
14APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	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
21APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	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
28APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	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
04MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	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
12MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	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
20MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	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
26MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	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
04JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	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
10JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-7 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF STRIPED BASS YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
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
17JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.79	0.00	0.00	0.00	0.00	0.00	0.00	0.06
24JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.57	0.00	0.00	0.00	0.00	0.00	0.00	0.57
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	DENSITY	0.00	0.10	0.00	1.57	3.11	0.14	18.31	3.02	0.00	0.27	0.61	0.00	0.00	2.09
01JUL	SE	0.00	0.10	0.00	0.78	1.82	0.14	11.93	2.44	0.00	0.27	0.35	0.00	0.00	12.35
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	DENSITY	0.00	0.00	19.78	7.23	7.03	10.86	2.78	6.92	0.14	3.71	4.06	2.34	7.78	5.59
08JUL	SE	0.00	0.00	12.43	3.12	4.42	7.15	1.48	4.65	0.14	3.71	2.58	1.17	4.11	17.25
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	DENSITY	0.00	5.78	3.23	8.58	1.71	1.46	2.72	1.65	NS	NS	NS	NS	NS	3.14
21JUL	SE	0.00	4.44	3.23	2.62	0.91	0.84	1.32	1.65						6.56
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	DENSITY	0.00	0.00	0.42	5.45	0.00	8.30	3.62	0.74	NS	NS	NS	NS	NS	2.32
05AUG	SE	0.00	0.00	0.42	1.47	0.00	6.54	1.93	0.49						7.01
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	DENSITY	0.00	0.00	1.30	0.00	0.13	0.77	5.39	4.05	NS	NS	NS	NS	NS	1.46
16AUG	SE	0.00	0.00	0.43	0.00	0.13	0.66	2.70	2.22						3.59
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	DENSITY	0.00	0.00	0.92	1.17	1.36	5.10	2.84	0.00	NS	NS	NS	NS	NS	1.42
31AUG	SE	0.00	0.00	0.92	1.17	1.36	3.33	1.82	0.00						4.30
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	1.46	5.66	1.28	NS	NS	NS	NS	NS	1.05
14SEP	SE	0.00	0.00	0.00	0.00	0.00	0.55	3.00	1.28						3.31
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	DENSITY	0.00	0.00	0.00	0.00	0.63	0.57	2.86	0.83	NS	NS	NS	NS	NS	0.61
28SEP	SE	0.00	0.00	0.00	0.00	0.63	0.22	1.03	0.83						1.48
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	DENSITY	0.00	0.00	1.11	2.29	0.77	0.50	1.59	1.13	NS	NS	NS	NS	NS	0.92
12OCT	SE	0.00	0.00	0.61	1.40	0.45	0.37	1.45	0.88						2.36
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-8 REGIONAL STANDING CROP (IN THOUSANDS) OF STRIPED BASS YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
08MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
22MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
07APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-8 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF STRIPED BASS YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	ST. CROP	0	0	0	0	0	0	111	0	0	0	0	0	0	111
24JUN	SE	0	0	0	0	0	0	80	0	0	0	0	0	0	80
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	ST. CROP	0	23	0	231	649	28	2560	901	0	39	107	0	0	4537
01JUL	SE	0	23	0	115	380	28	1668	727	0	39	62	0	0	1864
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	ST. CROP	0	0	6364	1069	1465	2252	389	2064	23	525	716	375	554	15796
08JUL	SE	0	0	4001	461	920	1483	207	1385	23	525	456	188	292	4672
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	ST. CROP	0	1327	1039	1268	357	302	380	491	NS	NS	NS	NS	NS	5164
21JUL	SE	0	1019	1039	387	190	175	185	491						1615
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	ST. CROP	0	0	136	806	0	1723	506	222	NS	NS	NS	NS	NS	3392
05AUG	SE	0	0	136	217	0	1357	270	147						1414
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	ST. CROP	0	0	417	0	28	161	754	1208	NS	NS	NS	NS	NS	2567
16AUG	SE	0	0	139	0	28	138	377	663						788
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	ST. CROP	0	0	298	173	283	1057	398	0	NS	NS	NS	NS	NS	2209
31AUG	SE	0	0	298	173	283	691	254	0						861
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	ST. CROP	0	0	0	0	0	303	791	381	NS	NS	NS	NS	NS	1475
14SEP	SE	0	0	0	0	0	114	419	381						578
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	ST. CROP	0	0	0	0	132	118	399	248	NS	NS	NS	NS	NS	898
28SEP	SE	0	0	0	0	132	45	144	248						319
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	ST. CROP	0	0	357	338	160	104	223	336	NS	NS	NS	NS	NS	1518
12OCT	SE	0	0	196	207	94	77	203	262						454
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-9 REGIONAL DENSITY (NO./1,000m3) OF STRIPED BASS YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	DENSITY	1.74	12.56	16.91	1.23	0.09	5.89	3.68	1.49	4.60	6.11	6.98	6.64	5.66
15JUL	SE	0.53	5.12	3.02	0.79	0.03	0.38	1.63	1.07	1.79	1.95	2.28	5.14	8.88
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24JUL-	DENSITY	0.28	7.22	13.30	2.91	0.15	4.99	0.93	2.01	3.96	6.27	9.50	6.92	4.87
29JUL	SE	0.11	1.31	1.95	1.05	0.05	1.28	0.45	0.74	0.90	1.42	3.44	2.29	5.38
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	DENSITY	0.08	2.71	9.06	4.96	0.05	0.59	2.86	0.84	2.33	3.27	1.36	3.61	2.64
11AUG	SE	0.08	0.63	1.10	1.63	0.02	0.25	1.19	0.13	0.80	1.10	0.45	1.00	2.97
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21AUG-	DENSITY	0.37	2.26	5.51	0.96	0.01	4.32	0.69	0.47	1.83	1.19	2.47	1.62	1.81
25AUG	SE	0.30	0.52	1.80	0.23	0.01	1.85	0.41	0.35	0.44	0.31	0.67	0.95	3.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
03SEP-	DENSITY	0.04	0.28	2.19	0.16	0.14	1.88	1.41	1.44	1.85	4.14	1.19	0.16	1.24
08SEP	SE	0.04	0.08	0.66	0.08	0.05	0.28	0.75	0.66	1.09	1.13	0.54	0.12	2.07
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
18SEP-	DENSITY	0.00	0.27	0.99	1.13	0.07	3.03	1.17	0.33	1.73	0.17	1.26	1.56	0.97
22SEP	SE	0.00	0.13	0.31	0.31	0.05	0.70	0.81	0.18	0.95	0.07	0.52	0.57	1.70
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
02OCT-	DENSITY	0.13	0.68	1.77	0.25	0.09	0.66	0.21	0.07	1.18	1.15	0.73	0.49	0.62
05OCT	SE	0.05	0.12	0.47	0.12	0.05	0.17	0.12	0.05	0.55	0.41	0.32	0.27	0.97
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
16OCT-	DENSITY	0.00	0.56	7.03	0.61	0.39	0.23	1.44	0.05	0.17	0.37	0.56	0.00	0.95
20OCT	SE	0.00	0.12	1.03	0.37	0.14	0.13	1.44	0.03	0.11	0.28	0.23	0.00	1.86
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

TABLE C-10 REGIONAL STANDING CROP (IN THOUSANDS) OF STRIPED BASS YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	ST. CROP	400	4043	2498	257	19	824	1099	247	651	1078	1122	473	12710
15JUL	SE	121	1648	446	165	6	52	486	177	253	344	366	366	1917
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24JUL-	ST. CROP	65	2325	1964	606	30	698	278	333	560	1105	1527	492	9983
29JUL	SE	25	422	289	218	11	179	133	123	127	250	552	163	886
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	ST. CROP	19	871	1339	1034	11	83	853	139	330	577	218	257	5730
11AUG	SE	19	202	163	341	4	34	354	22	114	194	73	71	610
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21AUG-	ST. CROP	84	728	814	201	3	604	207	78	260	210	396	115	3699
25AUG	SE	70	167	266	47	3	259	122	58	62	54	107	68	463
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
03SEP-	ST. CROP	10	89	323	34	28	263	421	238	262	730	192	12	2603
08SEP	SE	10	26	98	17	10	39	224	110	154	199	86	8	381
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
18SEP-	ST. CROP	0	87	146	235	15	423	348	55	244	30	202	111	1895
22SEP	SE	0	40	46	65	9	98	243	29	134	12	83	40	322
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
02OCT-	ST. CROP	29	219	261	53	18	92	62	12	167	202	117	35	1266
05OCT	SE	13	39	69	25	10	24	35	8	78	72	52	19	153
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
16OCT-	ST. CROP	0	180	1039	127	81	32	429	8	24	66	90	0	2075
20OCT	SE	0	37	153	76	30	18	429	5	15	50	36	0	469
	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, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-22JUN	CPUE	0.00	0.00	0.14	0.00	8.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.68
	SE	0.00	0.00	0.14	0.00	5.69	0.00	0.00	0.00	0.00	0.00	0.05	0.00	5.69
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03JUL-06JUL	CPUE	0.67	9.27	2.71	3.00	3.00	1.67	1.00	6.13	0.13	0.47	3.05	0.00	2.59
	SE	0.67	4.98	1.54	2.52	2.08	0.88	0.50	2.23	0.13	0.35	1.01	0.00	6.74
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
17JUL-20JUL	CPUE	18.33	9.09	8.43	21.00	28.33	7.33	6.13	8.38	6.13	7.13	9.26	1.92	10.95
	SE	16.86	2.21	4.38	16.50	24.36	1.86	2.79	3.67	2.03	4.66	2.33	1.14	35.09
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
31JUL-02AUG	CPUE	12.40	12.21	39.07	22.80	9.20	17.17	6.80	0.80	3.20	2.89	4.10	2.57	11.10
	SE	4.60	2.05	11.06	9.23	3.07	5.36	2.96	0.37	2.71	1.87	2.70	2.09	17.39
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14AUG-16AUG	CPUE	10.40	5.54	12.64	12.60	27.60	16.33	4.20	1.20	0.20	1.11	2.30	0.00	7.84
	SE	2.42	1.17	3.99	8.80	8.98	2.70	2.35	0.58	0.20	0.45	0.84	0.00	13.98
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
29AUG-31AUG	CPUE	7.40	3.25	19.36	13.00	10.00	14.83	2.80	1.40	0.40	2.56	6.50	1.00	6.87
	SE	4.73	0.73	5.48	3.65	3.36	4.26	1.83	0.75	0.24	1.12	2.10	0.58	10.28
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11SEP-14SEP	CPUE	30.00	8.67	25.50	27.00	2.60	10.83	8.40	1.00	0.40	0.44	4.10	0.29	9.94
	SE	15.36	2.11	7.95	10.11	0.24	1.99	3.59	0.77	0.24	0.18	3.25	0.29	20.84
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25SEP-28SEP	CPUE	6.40	8.08	6.14	5.00	5.80	8.17	2.60	0.40	0.20	1.11	1.40	0.14	3.79
	SE	1.96	2.51	2.19	2.24	2.24	2.43	1.21	0.40	0.20	0.89	1.09	0.14	5.88
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
09OCT-12OCT	CPUE	2.00	4.46	21.57	6.80	3.60	11.50	8.60	0.40	0.80	0.11	0.20	0.14	5.02
	SE	0.71	0.81	4.39	1.83	1.21	3.15	5.06	0.40	0.58	0.11	0.13	0.14	7.83
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
23OCT-26OCT	CPUE	6.20	1.92	6.93	10.40	7.40	3.50	2.80	0.80	1.40	0.22	0.50	0.00	3.51
	SE	2.18	0.43	1.58	2.68	2.62	1.06	1.66	0.58	0.24	0.15	0.31	0.00	5.08
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE C-12 REGIONAL STANDING CROP (IN THOUSANDS) OF STRIPED BASS YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	ST. CROP	0	0	4	0	21	0	0	0	0	0	1	0	26
22JUN	SE	0	0	4	0	15	0	0	0	0	0	1	0	16
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03JUL-	ST. CROP	5	421	73	28	8	18	7	8	1	8	60	0	637
06JUL	SE	5	226	41	23	5	9	4	3	1	6	20	0	233
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
17JUL-	ST. CROP	138	413	227	194	75	78	43	10	53	125	182	26	1564
20JUL	SE	127	100	118	152	64	20	20	5	17	82	46	16	278
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
31JUL-	ST. CROP	93	555	1051	210	24	183	48	1	28	51	81	35	2359
02AUG	SE	35	93	297	85	8	57	21	<0.5	23	33	53	28	339
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14AUG-	ST. CROP	78	252	340	116	73	174	30	1	2	20	45	0	1131
16AUG	SE	18	53	107	81	24	29	17	1	2	8	17	0	153
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
29AUG-	ST. CROP	56	148	521	120	26	158	20	2	3	45	128	14	1239
31AUG	SE	36	33	147	34	9	45	13	1	2	20	41	8	172
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11SEP-	ST. CROP	226	394	686	249	7	115	60	1	3	8	81	4	1833
14SEP	SE	116	96	214	93	1	21	25	1	2	3	64	4	287
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25SEP-	ST. CROP	48	367	165	46	15	87	18	0	2	20	28	2	799
28SEP	SE	15	114	59	21	6	26	9	<0.5	2	16	21	2	136
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
09OCT-	ST. CROP	15	203	580	63	9	122	61	0	7	2	4	2	1069
12OCT	SE	5	37	118	17	3	34	36	<0.5	5	2	3	2	134
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
23OCT-	ST. CROP	47	87	186	96	20	37	20	1	12	4	10	0	519
26OCT	SE	16	20	42	25	7	11	12	1	2	3	6	0	59
	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, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	DENSITY	0.00	0.31	0.25	0.04	0.00	0.04	0.03	0.00	0.02	0.02	0.02	0.00	0.06
15JUL	SE	0.00	0.12	0.08	0.02	0.00	0.04	0.03	0.00	0.02	0.02	0.02	0.00	0.16
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24JUL-	DENSITY	0.01	0.18	0.31	0.07	0.00	0.01	0.03	0.02	0.00	0.06	0.05	0.05	0.07
29JUL	SE	0.01	0.08	0.07	0.04	0.00	0.01	0.03	0.02	0.00	0.03	0.03	0.05	0.14
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	DENSITY	0.01	0.23	0.29	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.05
11AUG	SE	0.01	0.08	0.13	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.15
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21AUG-	DENSITY	0.00	0.08	0.23	0.00	0.00	0.01	0.00	0.02	0.03	0.00	0.00	0.00	0.03
25AUG	SE	0.00	0.03	0.07	0.00	0.00	0.01	0.00	0.02	0.03	0.00	0.00	0.00	0.09
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
03SEP-	DENSITY	0.00	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.04
08SEP	SE	0.00	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.25
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
18SEP-	DENSITY	0.00	0.01	0.06	0.03	0.00	0.05	0.00	0.00	0.03	0.00	0.02	0.10	0.02
22SEP	SE	0.00	0.01	0.04	0.01	0.00	0.05	0.00	0.00	0.03	0.00	0.02	0.06	0.10
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
02OCT-	DENSITY	0.03	0.04	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
05OCT	SE	0.03	0.02	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
16OCT-	DENSITY	0.05	0.09	0.58	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06
20OCT	SE	0.05	0.03	0.21	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

TABLE C-14 REGIONAL STANDING CROP (IN THOUSANDS) OF STRIPED BASS YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	ST. CROP	0	100	37	8	0	5	10	0	3	4	3	0	170
15JUL	SE	0	40	11	5	0	5	10	0	3	4	3	0	43
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24JUL-	ST. CROP	3	57	46	14	0	1	10	4	0	11	8	4	158
29JUL	SE	3	27	10	9	0	1	10	4	0	6	5	4	33
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	ST. CROP	3	75	43	0	0	1	0	0	0	0	0	0	122
11AUG	SE	3	24	19	0	0	1	0	0	0	0	0	0	31
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21AUG-	ST. CROP	0	25	34	0	0	1	0	3	4	0	0	0	68
25AUG	SE	0	11	11	0	0	1	0	3	4	0	0	0	17
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
03SEP-	ST. CROP	0	27	12	0	0	0	0	0	0	0	43	0	83
08SEP	SE	0	11	6	0	0	0	0	0	0	0	40	0	42
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
18SEP-	ST. CROP	0	4	8	5	0	6	0	0	4	0	3	7	38
22SEP	SE	0	4	6	2	0	6	0	0	4	0	3	5	12
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
02OCT-	ST. CROP	7	13	25	0	0	0	0	0	0	0	0	0	45
05OCT	SE	7	6	7	0	0	0	0	0	0	0	0	0	12
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
16OCT-	ST. CROP	10	28	86	2	0	0	0	0	0	0	0	0	125
20OCT	SE	10	11	31	2	0	0	0	0	0	0	0	0	34
	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, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	CPUE	0.00	0.64	1.29	0.67	2.00	1.33	0.13	0.00	0.00	0.07	0.00	0.00	0.51
22JUN	SE	0.00	0.20	0.84	0.67	2.00	0.88	0.13	0.00	0.00	0.07	0.00	0.00	2.45
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03JUL-	CPUE	0.00	0.00	0.14	2.00	0.00	0.00	0.25	0.13	0.50	1.33	0.11	0.08	0.38
06JUL	SE	0.00	0.00	0.14	2.00	0.00	0.00	0.16	0.13	0.50	0.65	0.07	0.08	2.18
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
17JUL-	CPUE	0.33	0.09	0.29	0.00	0.67	0.33	0.25	0.50	0.00	0.00	0.21	1.17	0.32
20JUL	SE	0.33	0.09	0.18	0.00	0.33	0.33	0.16	0.27	0.00	0.00	0.12	1.17	1.36
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
31JUL-	CPUE	0.20	0.13	0.29	0.20	0.00	0.00	0.00	0.20	0.20	0.00	0.20	0.00	0.12
02AUG	SE	0.20	0.09	0.16	0.20	0.00	0.00	0.00	0.20	0.20	0.00	0.13	0.00	0.46
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14AUG-	CPUE	0.00	0.04	0.07	0.00	0.00	0.00	0.40	0.00	0.00	0.22	0.20	0.00	0.08
16AUG	SE	0.00	0.04	0.07	0.00	0.00	0.00	0.40	0.00	0.00	0.15	0.13	0.00	0.45
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
29AUG-	CPUE	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.02
31AUG	SE	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.20	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
11SEP-	CPUE	0.20	0.50	0.21	1.00	0.00	0.50	0.40	0.00	0.00	0.00	0.30	0.00	0.26
14SEP	SE	0.20	0.23	0.15	0.63	0.00	0.34	0.24	0.00	0.00	0.00	0.15	0.00	0.85
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25SEP-	CPUE	0.20	0.17	0.00	0.00	0.00	0.50	0.40	0.00	0.00	0.00	0.10	0.00	0.11
28SEP	SE	0.20	0.13	0.00	0.00	0.00	0.34	0.24	0.00	0.00	0.00	0.10	0.00	0.49
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
09OCT-	CPUE	0.20	0.00	0.43	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.08
12OCT	SE	0.20	0.00	0.25	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.39
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
23OCT-	CPUE	0.00	0.38	0.29	0.00	0.20	0.00	0.20	0.00	0.00	0.33	0.20	0.00	0.13
26OCT	SE	0.00	0.20	0.16	0.00	0.20	0.00	0.20	0.00	0.00	0.24	0.13	0.00	0.47
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE C-16 REGIONAL STANDING CROP (IN THOUSANDS) OF STRIPED BASS YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	ST. CROP	0	29	35	6	5	14	1	0	0	1	0	0	91
22JUN	SE	0	9	23	6	5	9	1	0	0	1	0	0	27
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03JUL-	ST. CROP	0	0	4	18	0	0	2	0	4	23	2	1	55
06JUL	SE	0	0	4	18	0	0	1	<0.5	4	11	1	1	23
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
17JUL-	ST. CROP	3	4	8	0	2	4	2	1	0	0	4	16	42
20JUL	SE	3	4	5	0	1	4	1	<0.5	0	0	2	16	18
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
31JUL-	ST. CROP	2	6	8	2	0	0	0	0	2	0	4	0	23
02AUG	SE	2	4	4	2	0	0	0	<0.5	2	0	3	0	7
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14AUG-	ST. CROP	0	2	2	0	0	0	3	0	0	4	4	0	14
16AUG	SE	0	2	2	0	0	0	3	0	0	3	3	0	5
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
29AUG-	ST. CROP	0	0	2	0	0	0	0	0	0	0	0	0	2
31AUG	SE	0	0	2	0	0	0	0	<0.5	0	0	0	0	2
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11SEP-	ST. CROP	2	23	6	9	0	5	3	0	0	0	6	0	53
14SEP	SE	2	11	4	6	0	4	2	0	0	0	3	0	14
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25SEP-	ST. CROP	2	8	0	0	0	5	3	0	0	0	2	0	19
28SEP	SE	2	6	0	0	0	4	2	0	0	0	2	0	8
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
09OCT-	ST. CROP	2	0	12	0	1	0	0	0	0	0	2	0	16
12OCT	SE	2	0	7	0	1	0	0	0	0	0	2	0	7
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
23OCT-	ST. CROP	0	17	8	0	1	0	1	0	0	6	4	0	36
26OCT	SE	0	9	4	0	1	0	1	0	0	4	3	0	11
	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, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-08MAR	DENSITY	0.00	0.54	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.08
	SE	0.00	0.54	0.00	0.00	0.00	0.00	0.00							0.54
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-22MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-07APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-14APR	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	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-21APR	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	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-28APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.93	1.45	93.01	5.68	7.77
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.93	1.02	51.38	3.61	51.53
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-04MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.07	2.63	18.11	28.97	363.94	534.02	278.31	94.31
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.07	1.87	8.03	9.05	29.11	161.10	96.94	190.65
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-12MAY	DENSITY	0.00	0.45	0.00	0.00	0.00	0.00	2.02	47.69	12.75	62.42	26.77	13.93	208.88	28.84
	SE	0.00	0.45	0.00	0.00	0.00	0.00	1.42	15.85	6.84	35.17	20.18	10.85	90.09	100.89
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-20MAY	DENSITY	0.00	0.84	0.00	0.00	0.00	0.00	5.18	8.53	25.04	69.61	241.26	974.67	70.07	107.32
	SE	0.00	0.84	0.00	0.00	0.00	0.00	3.51	5.86	11.01	35.30	108.88	518.90	30.44	532.40
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-26MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.07	500.20	1.70	11.07	747.82	89.69	1.19	103.98
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.05	476.15	1.70	7.86	237.01	41.36	0.60	533.54
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-04JUN	DENSITY	0.00	0.00	0.00	0.17	0.00	1.17	0.93	2.38	7.41	2.69	493.82	343.18	54.53	69.71
	SE	0.00	0.00	0.00	0.17	0.00	0.96	0.66	1.19	2.58	1.19	379.12	123.34	31.17	399.91
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-10JUN	DENSITY	0.00	0.00	0.00	0.20	0.00	0.00	0.26	46.33	0.77	14.61	111.85	1257.92	6.07	110.62
	SE	0.00	0.00	0.00	0.20	0.00	0.00	0.26	45.52	0.77	13.82	54.33	535.02	5.12	539.90
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-17 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF WHITE PERCH EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.81	2.70	0.00	0.00	2.95	6.76	1.03
17JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.81	2.70	0.00	0.00	1.56	6.76	7.49
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	125.47	0.74	0.64	1.62	0.59	9.93
24JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	125.47	0.74	0.64	1.62	0.59	125.49
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.00	0.05
01JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.00	0.60
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	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
08JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
21JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
05AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
16AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
31AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
28SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
12OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-18 REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE PERCH EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	ST. CROP	0	124	0	0	0	0	0	NS	NS	NS	NS	NS	NS	124
08MAR	SE	0	124	0	0	0	0	0							124
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
22MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
07APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	ST. CROP	0	0	0	0	0	0	0	0	0	131	255	14950	404	15740
28APR	SE	0	0	0	0	0	0	0	0	0	131	180	8259	257	8266
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	ST. CROP	0	0	0	0	0	0	10	783	2997	4099	64162	85833	19801	177685
04MAY	SE	0	0	0	0	0	0	10	558	1329	1280	5132	25894	6897	27352
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	ST. CROP	0	104	0	0	0	0	283	14219	2110	8830	4720	2240	14861	47367
12MAY	SE	0	104	0	0	0	0	198	4725	1132	4975	3558	1744	6410	10256
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	ST. CROP	0	192	0	0	0	0	724	2544	4143	9848	42532	156661	4985	221630
20MAY	SE	0	192	0	0	0	0	490	1747	1822	4994	19195	83403	2166	85795
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	ST. CROP	0	0	0	0	0	0	10	149126	282	1566	131837	14416	84	297322
26MAY	SE	0	0	0	0	0	0	6	141955	282	1112	41785	6648	42	148130
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	ST. CROP	0	0	0	25	0	242	130	710	1226	380	87058	55160	3879	148812
04JUN	SE	0	0	0	25	0	199	92	356	427	169	66837	19825	2218	69754
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	ST. CROP	0	0	0	30	0	0	37	13811	128	2066	19719	202187	432	238409
10JUN	SE	0	0	0	30	0	0	37	13571	128	1956	9577	85995	364	87607
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-18 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE PERCH EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	ST. CROP	0	0	0	0	0	0	19	241	446	0	0	474	481	1662
17JUN	SE	0	0	0	0	0	0	19	241	446	0	0	250	481	743
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	ST. CROP	0	0	0	0	0	0	0	0	20764	105	112	261	42	21285
24JUN	SE	0	0	0	0	0	0	0	0	20764	105	112	261	42	20766
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	ST. CROP	0	0	0	0	0	0	0	180	0	0	0	0	0	180
01JUL	SE	0	0	0	0	0	0	0	180	0	0	0	0	0	180
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
21JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
16AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
31AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
12OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-19 REGIONAL DENSITY (NO./1,000m3) OF WHITE PERCH YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
08MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
22MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
07APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	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
14APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	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
21APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	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
28APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.49	9.81	31.21	2.02	20.72	10.76	5.77
04MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.49	4.51	8.07	0.89	7.65	1.94	12.20
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	DENSITY	0.00	0.00	0.00	0.00	0.10	0.29	1.16	15.32	86.68	587.44	725.34	140.70	88.28	126.56
12MAY	SE	0.00	0.00	0.00	0.00	0.06	0.29	0.54	4.71	49.59	60.86	146.24	40.70	30.44	173.66
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.45	17.36	96.41	475.62	449.34	361.23	148.29	61.57	123.87
20MAY	SE	0.00	0.00	0.00	0.00	0.00	0.26	9.71	21.76	84.78	89.12	52.02	29.98	14.18	139.66
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	DENSITY	0.00	0.00	0.00	0.20	0.64	1.40	18.83	287.02	176.48	190.41	202.95	345.23	97.23	101.57
26MAY	SE	0.00	0.00	0.00	0.20	0.49	0.92	6.77	59.86	36.74	67.43	23.98	108.50	91.15	173.72
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	5.02	19.80	10.84	17.17	13.40	62.43	96.62	35.80	20.08
04JUN	SE	0.00	0.00	0.00	0.00	0.00	2.52	9.47	4.04	5.17	2.71	29.20	32.18	13.22	47.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	DENSITY	0.00	0.00	0.00	1.18	1.37	77.79	42.69	17.65	6.28	33.48	191.60	98.76	108.22	44.54
10JUN	SE	0.00	0.00	0.00	0.55	1.32	39.05	14.70	7.61	1.62	10.00	8.17	41.45	33.01	69.12
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-19 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF WHITE PERCH YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	DENSITY	0.00	0.00	0.00	0.00	0.04	7.02	9.85	8.14	12.96	22.51	10.18	67.99	123.63	20.18
17JUN	SE	0.00	0.00	0.00	0.00	0.04	5.27	4.60	3.53	2.70	4.38	8.93	23.70	33.86	43.31
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.80	0.00	2.97	0.00	4.16	19.52	2.13
24JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.80	0.00	2.97	0.00	3.67	7.37	8.79
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.17	0.00	0.00	0.00	0.00	0.48	0.28
01JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.17	0.00	0.00	0.00	0.00	0.48	3.20
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	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
08JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
21JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
05AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
16AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
31AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
28SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
12OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-20 REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE PERCH YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
08MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
22MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
07APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	ST. CROP	0	0	0	0	0	0	5	147	1623	4415	357	3331	766	10643
04MAY	SE	0	0	0	0	0	0	5	147	746	1142	157	1230	138	1854
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	ST. CROP	0	0	0	0	20	61	162	4568	14345	83105	127874	22615	6281	259030
12MAY	SE	0	0	0	0	12	61	76	1404	8206	8610	25782	6542	2166	29252
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	ST. CROP	0	0	0	0	0	93	2426	28743	78708	63567	63683	23836	4381	265437
20MAY	SE	0	0	0	0	0	54	1357	6486	14030	12608	9172	4819	1009	22541
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	ST. CROP	0	0	0	30	134	290	2632	85571	29205	26938	35780	55490	6918	242988
26MAY	SE	0	0	0	30	103	192	946	17845	6080	9539	4227	17439	6485	28485
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	ST. CROP	0	0	0	0	0	1041	2768	3232	2841	1896	11007	15529	2547	40862
04JUN	SE	0	0	0	0	0	523	1323	1205	856	384	5147	5173	941	7648
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	ST. CROP	0	0	0	174	285	16137	5968	5263	1039	4737	33778	15874	7700	90954
10JUN	SE	0	0	0	81	275	8101	2055	2269	269	1415	1441	6663	2348	11364
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-20 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE PERCH YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	ST. CROP	0	0	0	0	9	1457	1378	2427	2144	3184	1796	10929	8796	32119
17JUN	SE	0	0	0	0	9	1092	644	1053	446	620	1574	3809	2409	5108
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	ST. CROP	0	0	0	0	0	0	41	239	0	421	0	668	1389	2759
24JUN	SE	0	0	0	0	0	0	26	239	0	421	0	590	524	926
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	ST. CROP	0	0	0	0	0	0	0	945	0	0	0	0	34	979
01JUL	SE	0	0	0	0	0	0	0	945	0	0	0	0	34	946
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
21JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
16AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
31AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
12OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81

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, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
08MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
22MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
07APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	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
14APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	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
21APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	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
28APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	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
04MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	1.32	0.98	4.64	18.33	14.77	6.46	0.60	3.62
12MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.59	0.98	1.47	2.96	8.43	3.49	0.60	9.79
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	10.05	55.55	924.48	818.97	392.03	170.44	0.00	182.42
20MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	2.34	12.75	148.26	106.62	48.01	47.40	0.00	195.11
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	DENSITY	0.00	0.00	0.00	0.33	1.71	22.24	120.25	372.34	882.23	1065.61	671.57	363.20	63.63	274.09
26MAY	SE	0.00	0.00	0.00	0.33	1.71	8.47	34.42	65.57	186.35	178.73	165.78	150.08	60.31	354.79
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	DENSITY	0.00	0.00	0.00	3.47	171.29	265.86	558.65	490.30	580.05	777.68	1054.59	508.03	39.14	342.24
04JUN	SE	0.00	0.00	0.00	2.17	55.08	61.16	84.95	128.25	164.37	401.75	219.29	165.30	18.97	542.80
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	DENSITY	0.60	0.00	0.39	2.06	16.48	1097.39	1130.46	673.63	917.29	1011.87	1935.55	970.68	41.04	599.80
10JUN	SE	0.60	0.00	0.39	0.53	8.75	537.67	237.16	124.72	142.46	261.68	339.08	190.69	20.09	775.55
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-21 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF WHITE PERCH POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	DENSITY	0.53	0.00	2.20	145.13	277.11	462.99	963.38	575.20	896.40	1293.05	858.71	1706.75	130.83	562.48
17JUN	SE	0.53	0.00	2.07	19.23	99.66	111.31	101.52	99.84	143.81	382.65	284.02	540.68	45.80	764.97
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	DENSITY	0.00	0.70	26.98	10.53	27.31	205.76	328.39	313.57	836.09	731.31	512.89	671.10	95.10	289.21
24JUN	SE	0.00	0.70	12.01	6.49	9.64	40.72	72.36	55.96	85.09	182.45	105.40	257.80	50.08	361.82
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	DENSITY	0.00	0.00	0.00	0.00	18.53	101.31	930.01	740.83	234.50	299.68	229.70	187.40	148.70	222.36
01JUL	SE	0.00	0.00	0.00	0.00	8.18	34.13	703.82	239.81	112.39	58.98	42.71	27.91	52.70	758.68
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	DENSITY	0.00	0.00	0.00	0.00	5.82	55.99	68.86	92.40	74.20	86.05	83.97	259.99	61.25	60.66
08JUL	SE	0.00	0.00	0.00	0.00	2.95	12.38	10.17	58.97	29.80	33.32	35.71	88.10	26.80	124.48
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.00	NS	NS	NS	NS	NS	0.04
21JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.00						0.29
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
05AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
16AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
31AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
28SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
12OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

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, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-08MAR	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-22MAR	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-07APR	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-14APR	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	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-21APR	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	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-28APR	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	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-04MAY	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	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-12MAY	ST. CROP	0	0	0	0	0	0	185	293	768	2593	2603	1039	43	7523
	SE	0	0	0	0	0	0	82	293	243	419	1487	560	43	1689
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-20MAY	ST. CROP	0	0	0	0	0	0	1405	16560	152986	115860	69114	27395	0	383320
	SE	0	0	0	0	0	0	327	3801	24534	15084	8463	7618	0	31204
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-26MAY	ST. CROP	0	0	0	49	357	4613	16810	111008	145996	150752	118396	58378	4527	610888
	SE	0	0	0	49	357	1757	4811	19548	30837	25285	29227	24123	4291	58765
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-04JUN	ST. CROP	0	0	0	513	35687	55154	78094	146176	95989	110018	185919	81656	2785	791991
	SE	0	0	0	320	11476	12688	11875	38235	27201	56835	38660	26569	1350	89823
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-10JUN	ST. CROP	126	0	125	304	3433	227661	158028	200831	151798	143148	341230	156020	2920	1385623
	SE	126	0	125	78	1823	111543	33153	37183	23574	37019	59779	30650	1430	146178
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-22 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE PERCH POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	ST. CROP	112	0	707	21441	57731	96050	134672	171487	148340	182927	151387	274329	9308	1248492
17JUN	SE	112	0	665	2841	20763	23092	14191	29765	23799	54133	50072	86905	3259	125009
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	ST. CROP	0	161	8683	1555	5689	42686	45905	93485	138361	103459	90419	107867	6766	645037
24JUN	SE	0	161	3866	960	2009	8449	10115	16683	14081	25811	18581	41436	3563	58407
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	ST. CROP	0	0	0	0	3861	21018	130008	220866	38806	42395	40496	30120	10580	538151
01JUL	SE	0	0	0	0	1704	7080	98388	71494	18599	8344	7530	4486	3749	123900
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	ST. CROP	0	0	0	0	1212	11616	9627	27548	12279	12174	14803	41789	4358	135406
08JUL	SE	0	0	0	0	615	2569	1422	17581	4931	4713	6295	14161	1906	24666
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	ST. CROP	0	0	0	0	0	0	41	0	NS	NS	NS	NS	NS	41
21JUL	SE	0	0	0	0	0	0	41	0						41
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
16AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
31AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
12OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-23 REGIONAL DENSITY (NO./1,000m3) OF WHITE PERCH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-08MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-22MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-07APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-14APR	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	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-21APR	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	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-28APR	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	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-04MAY	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	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-12MAY	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	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-20MAY	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	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-26MAY	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	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-04JUN	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	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-10JUN	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	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-23 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF WHITE PERCH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
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
17JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	DENSITY	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
24JUN	SE	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.28	0.00	0.00	0.00	0.03
01JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.28	0.00	0.00	0.00	0.29
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.29	0.00	0.00	0.00	0.03
08JUL	SE	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.29	0.00	0.00	0.00	0.31
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	DENSITY	0.00	0.48	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.06
21JUL	SE	0.00	0.48	0.00	0.00	0.00	0.00	0.00	0.00						0.48
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	DENSITY	0.00	0.00	0.00	0.53	0.00	0.66	0.00	0.25	NS	NS	NS	NS	NS	0.18
05AUG	SE	0.00	0.00	0.00	0.53	0.00	0.66	0.00	0.25						0.89
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	1.06	1.41	NS	NS	NS	NS	NS	0.31
16AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.54	1.03						1.16
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.35	0.00	0.00	NS	NS	NS	NS	NS	0.04
31AUG	SE	0.00	0.00	0.00	0.00	0.00	0.35	0.00	0.00						0.35
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.13	2.56	0.32	NS	NS	NS	NS	NS	0.38
14SEP	SE	0.00	0.00	0.00	0.00	0.00	0.13	1.20	0.32						1.25
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.12	4.35	2.57	NS	NS	NS	NS	NS	0.88
28SEP	SE	0.00	0.00	0.00	0.00	0.00	0.12	0.90	0.86						1.25
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.12	7.41	3.89	NS	NS	NS	NS	NS	1.43
12OCT	SE	0.00	0.00	0.00	0.00	0.00	0.12	4.19	2.15						4.71
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-24 REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE PERCH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-08MAR	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-22MAR	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-07APR	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-14APR	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	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-21APR	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	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-28APR	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	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-04MAY	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	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-12MAY	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	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-20MAY	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	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-26MAY	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	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-04JUN	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	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-10JUN	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	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-24 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE PERCH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	ST. CROP	0	0	78	0	0	0	0	0	0	0	0	0	0	78
24JUN	SE	0	0	78	0	0	0	0	0	0	0	0	0	0	78
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	ST. CROP	0	0	0	0	0	0	15	0	0	40	0	0	0	54
01JUL	SE	0	0	0	0	0	0	8	0	0	40	0	0	0	40
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	ST. CROP	0	0	0	0	0	26	0	0	0	41	0	0	0	67
08JUL	SE	0	0	0	0	0	26	0	0	0	41	0	0	0	48
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	ST. CROP	0	109	0	0	0	0	0	0	NS	NS	NS	NS	NS	109
21JUL	SE	0	109	0	0	0	0	0	0						109
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	ST. CROP	0	0	0	78	0	138	0	75	NS	NS	NS	NS	NS	291
05AUG	SE	0	0	0	78	0	138	0	75						176
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	ST. CROP	0	0	0	0	0	0	149	420	NS	NS	NS	NS	NS	569
16AUG	SE	0	0	0	0	0	0	75	306						315
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	ST. CROP	0	0	0	0	0	72	0	0	NS	NS	NS	NS	NS	72
31AUG	SE	0	0	0	0	0	72	0	0						72
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	ST. CROP	0	0	0	0	0	26	357	95	NS	NS	NS	NS	NS	479
14SEP	SE	0	0	0	0	0	26	168	95						195
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	ST. CROP	0	0	0	0	0	25	608	765	NS	NS	NS	NS	NS	1398
28SEP	SE	0	0	0	0	0	25	126	256						286
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	ST. CROP	0	0	0	0	0	24	1035	1161	NS	NS	NS	NS	NS	2221
12OCT	SE	0	0	0	0	0	24	586	640						868
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-25 REGIONAL DENSITY (NO./1,000m3) OF WHITE PERCH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	DENSITY	0.00	0.00	0.02	0.00	0.00	0.01	0.03	0.16	0.00	0.02	0.00	1.00	0.10
15JUL	SE	0.00	0.00	0.02	0.00	0.00	0.01	0.03	0.10	0.00	0.02	0.00	0.69	0.70
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24JUL-	DENSITY	0.00	0.00	0.00	0.00	0.02	0.18	0.16	3.12	0.31	0.02	0.26	1.99	0.51
29JUL	SE	0.00	0.00	0.00	0.00	0.02	0.08	0.11	1.98	0.22	0.02	0.11	0.82	2.16
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	DENSITY	0.00	0.00	0.00	0.01	0.89	0.09	1.06	0.70	0.57	0.39	0.49	3.14	0.61
11AUG	SE	0.00	0.00	0.00	0.01	0.86	0.02	0.65	0.27	0.12	0.10	0.27	1.15	1.63
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21AUG-	DENSITY	0.00	0.00	0.00	0.09	0.00	0.52	4.95	1.73	0.35	0.34	0.36	0.85	0.77
25AUG	SE	0.00	0.00	0.00	0.09	0.00	0.16	4.05	0.59	0.11	0.12	0.14	0.35	4.12
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
03SEP-	DENSITY	0.00	0.00	0.00	0.02	0.14	0.26	0.98	0.71	0.84	0.30	0.31	0.78	0.36
08SEP	SE	0.00	0.00	0.00	0.02	0.07	0.05	0.22	0.15	0.15	0.10	0.20	0.20	0.44
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
18SEP-	DENSITY	0.00	0.00	0.00	0.01	0.03	0.99	1.00	4.06	3.93	0.09	0.72	1.96	1.07
22SEP	SE	0.00	0.00	0.00	0.01	0.02	0.21	0.33	1.03	3.08	0.07	0.22	0.44	3.31
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
02OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.43	0.10	1.37	2.84	0.09	0.21	2.07	0.59
05OCT	SE	0.00	0.00	0.00	0.00	0.00	0.32	0.06	0.50	0.54	0.05	0.08	1.04	1.32
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
16OCT-	DENSITY	0.00	0.00	0.00	0.02	0.50	1.74	0.89	4.07	4.71	1.07	0.71	0.75	1.20
20OCT	SE	0.00	0.00	0.00	0.02	0.08	0.53	0.33	0.95	1.58	0.39	0.28	0.25	2.02
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

TABLE C-26 REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE PERCH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	ST. CROP	0	0	2	0	0	1	8	26	0	4	0	71	113
15JUL	SE	0	0	2	0	0	1	8	17	0	4	0	49	53
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24JUL-	ST. CROP	0	0	0	0	4	26	49	516	43	4	42	142	825
29JUL	SE	0	0	0	0	4	11	33	328	31	4	17	58	337
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	ST. CROP	0	0	0	2	185	12	316	115	81	68	78	223	1081
11AUG	SE	0	0	0	2	178	2	193	45	17	17	43	82	283
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21AUG-	ST. CROP	0	0	0	18	0	73	1476	286	50	60	58	61	2083
25AUG	SE	0	0	0	18	0	23	1208	98	15	21	22	25	1214
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
03SEP-	ST. CROP	0	0	0	4	28	37	293	117	118	52	50	56	756
08SEP	SE	0	0	0	4	14	7	66	25	22	18	32	15	85
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
18SEP-	ST. CROP	0	0	0	2	6	139	297	672	555	17	116	139	1943
22SEP	SE	0	0	0	2	4	29	97	171	435	12	36	32	481
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
02OCT-	ST. CROP	0	0	0	0	0	59	29	226	402	17	34	147	913
05OCT	SE	0	0	0	0	0	45	19	82	77	9	12	74	144
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
16OCT-	ST. CROP	0	0	0	5	104	243	265	673	667	188	114	53	2311
20OCT	SE	0	0	0	5	17	74	97	157	223	68	45	18	311
	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, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	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
22JUN	SE	0.00	0.00	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
03JUL-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.13	4.38	0.00	0.53	1.68	0.00	0.56
06JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.13	3.03	0.00	0.53	0.83	0.00	3.19
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
17JUL-	CPUE	0.00	0.00	0.00	0.67	6.67	1.00	7.88	47.13	12.25	0.33	6.16	1.00	6.92
20JUL	SE	0.00	0.00	0.00	0.67	6.67	0.58	2.95	11.48	3.75	0.23	2.56	0.52	14.38
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
31JUL-	CPUE	0.00	0.33	4.21	0.00	4.60	2.50	10.80	8.80	3.20	1.00	20.60	0.00	4.67
02AUG	SE	0.00	0.18	2.48	0.00	2.69	1.93	6.46	4.95	2.71	0.55	9.22	0.00	13.27
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14AUG-	CPUE	0.00	0.04	0.00	0.80	20.80	13.33	12.80	4.20	2.00	4.11	7.00	0.00	5.42
16AUG	SE	0.00	0.04	0.00	0.80	9.49	5.22	7.23	1.91	1.76	2.07	3.83	0.00	14.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
29AUG-	CPUE	0.00	0.08	0.29	5.40	14.60	17.83	5.00	6.40	1.20	0.67	7.20	0.00	4.89
31AUG	SE	0.00	0.06	0.16	1.94	5.85	8.53	3.38	2.64	1.20	0.47	2.84	0.00	11.79
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11SEP-	CPUE	0.00	0.08	0.64	0.40	0.80	2.83	5.80	4.60	4.00	0.11	8.70	0.00	2.33
14SEP	SE	0.00	0.06	0.51	0.24	0.58	1.90	1.02	1.83	1.92	0.11	3.57	0.00	5.01
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25SEP-	CPUE	0.00	0.08	2.00	4.20	3.80	0.33	3.00	6.40	4.00	2.89	1.70	0.00	2.37
28SEP	SE	0.00	0.06	1.92	3.50	1.98	0.33	1.67	5.43	1.64	2.19	0.98	0.00	7.79
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
09OCT-	CPUE	0.00	0.13	3.36	5.40	2.20	0.50	1.40	12.00	0.40	0.00	3.30	0.00	2.39
12OCT	SE	0.00	0.13	2.61	3.17	1.50	0.50	0.75	5.69	0.40	0.00	2.11	0.00	7.55
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
23OCT-	CPUE	0.00	0.00	0.57	14.00	21.00	1.17	1.40	9.60	10.00	0.11	0.70	0.29	4.90
26OCT	SE	0.00	0.00	0.50	7.99	12.63	0.75	1.40	3.14	4.86	0.11	0.42	0.18	16.12
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE C-28 REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE PERCH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
22JUN	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
03JUL-	ST. CROP	0	0	0	0	0	0	1	5	0	9	33	0	49
06JUL	SE	0	0	0	0	0	0	1	4	0	9	16	0	19
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
17JUL-	ST. CROP	0	0	0	6	18	11	56	58	105	6	121	14	395
20JUL	SE	0	0	0	6	18	6	21	14	32	4	50	7	68
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
31JUL-	ST. CROP	0	15	113	0	12	27	77	11	28	18	405	0	705
02AUG	SE	0	8	67	0	7	21	46	6	23	10	181	0	202
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14AUG-	ST. CROP	0	2	0	7	55	142	91	5	17	72	138	0	529
16AUG	SE	0	2	0	7	25	56	51	2	15	36	75	0	117
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
29AUG-	ST. CROP	0	4	8	50	38	190	35	8	10	12	142	0	497
31AUG	SE	0	3	4	18	15	91	24	3	10	8	56	0	113
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11SEP-	ST. CROP	0	4	17	4	2	30	41	6	34	2	171	0	311
14SEP	SE	0	3	14	2	2	20	7	2	17	2	70	0	77
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25SEP-	ST. CROP	0	4	54	39	10	4	21	8	34	51	33	0	258
28SEP	SE	0	3	52	32	5	4	12	7	14	38	19	0	77
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
09OCT-	ST. CROP	0	6	90	50	6	5	10	15	3	0	65	0	250
12OCT	SE	0	6	70	29	4	5	5	7	3	0	41	0	88
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
23OCT-	ST. CROP	0	0	15	129	55	12	10	12	86	2	14	4	340
26OCT	SE	0	0	13	74	33	8	10	4	42	2	8	3	93
	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, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	DENSITY	0.45	3.11	2.68	2.30	0.10	2.07	0.89	1.64	1.07	1.55	1.24	2.97	1.67
15JUL	SE	0.28	0.51	0.47	0.66	0.06	0.62	0.27	0.69	0.39	0.53	0.40	0.88	1.82
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24JUL-	DENSITY	0.25	1.53	3.99	2.14	0.11	1.30	0.75	0.72	2.42	2.59	1.93	2.22	1.66
29JUL	SE	0.12	0.30	0.72	0.59	0.04	0.29	0.17	0.13	0.65	0.42	0.47	0.66	1.53
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	DENSITY	0.02	1.64	3.72	1.26	0.05	1.29	0.58	0.28	2.69	0.81	1.43	2.87	1.39
11AUG	SE	0.02	0.38	0.51	0.36	0.03	0.45	0.08	0.06	0.40	0.40	0.83	1.80	2.24
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21AUG-	DENSITY	0.00	1.44	2.92	0.83	0.27	1.77	0.66	1.36	1.79	2.19	3.12	2.83	1.60
25AUG	SE	0.00	0.25	0.69	0.29	0.09	0.39	0.24	0.64	0.49	0.55	1.07	1.48	2.26
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
03SEP-	DENSITY	0.00	0.38	2.84	1.29	0.96	2.97	1.13	0.65	2.43	1.75	1.38	2.76	1.55
08SEP	SE	0.00	0.16	1.42	0.73	0.23	0.51	0.25	0.56	0.59	0.51	0.43	0.40	2.05
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
18SEP-	DENSITY	0.00	0.01	0.35	1.47	0.66	4.92	0.86	1.81	2.55	2.92	3.30	5.89	2.06
22SEP	SE	0.00	0.01	0.16	0.67	0.16	1.43	0.31	0.43	0.80	0.74	0.69	2.04	2.94
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
02OCT-	DENSITY	0.22	1.18	3.85	2.47	0.54	2.18	0.70	0.57	6.77	2.07	1.73	5.81	2.34
05OCT	SE	0.13	0.38	1.12	1.31	0.36	0.46	0.39	0.13	0.99	0.53	0.38	2.03	3.03
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
16OCT-	DENSITY	0.00	1.89	8.68	1.45	0.15	1.78	0.89	0.89	12.01	5.34	4.17	7.26	3.71
20OCT	SE	0.00	0.42	1.34	0.22	0.08	0.50	0.31	0.24	2.15	1.26	0.97	1.70	3.53
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

TABLE C-30 REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE PERCH YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	ST. CROP	104	1000	395	479	20	290	265	271	152	273	200	211	3660
15JUL	SE	63	165	70	137	13	87	80	114	56	93	64	63	319
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24JUL-	ST. CROP	57	493	589	445	23	181	224	119	342	456	311	158	3397
29JUL	SE	28	98	106	122	9	40	51	22	93	73	75	47	251
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	ST. CROP	3	527	549	262	11	180	174	47	380	142	231	204	2712
11AUG	SE	3	122	76	75	7	63	25	10	57	71	134	128	271
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21AUG-	ST. CROP	0	464	432	172	55	247	196	225	254	386	501	201	3133
25AUG	SE	0	82	102	61	19	55	71	105	70	96	172	105	308
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
03SEP-	ST. CROP	0	124	420	268	200	415	338	107	344	309	222	196	2942
08SEP	SE	0	51	210	151	48	71	74	93	84	90	68	28	334
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
18SEP-	ST. CROP	0	4	52	306	137	688	255	300	361	515	531	419	3569
22SEP	SE	0	4	23	139	34	199	94	71	113	130	111	145	371
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
02OCT-	ST. CROP	51	379	569	515	113	304	209	95	957	366	278	414	4249
05OCT	SE	30	122	166	274	74	64	116	22	140	94	61	144	441
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
16OCT-	ST. CROP	0	609	1283	301	32	249	265	147	1699	941	671	516	6714
20OCT	SE	0	134	197	47	17	70	92	40	305	222	156	121	505
	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, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	CPUE	0.33	7.27	5.29	27.00	27.67	29.00	11.75	14.88	3.63	7.53	8.53	0.75	11.97
22JUN	SE	0.33	3.05	3.91	13.50	3.84	2.31	5.09	4.53	2.20	3.86	4.62	0.35	17.74
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03JUL-	CPUE	1.67	6.73	8.29	18.00	0.33	1.00	4.25	8.13	5.50	10.27	5.79	0.75	5.89
06JUL	SE	1.20	3.38	7.31	11.14	0.33	0.58	1.42	3.42	3.28	3.09	1.52	0.66	15.08
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
17JUL-	CPUE	0.67	4.82	3.14	5.33	10.00	4.33	19.13	6.63	5.50	1.73	2.84	1.00	5.43
20JUL	SE	0.67	3.76	1.03	3.53	3.61	2.40	12.52	1.58	2.08	0.75	0.95	0.58	14.57
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
31JUL-	CPUE	0.40	1.83	7.36	11.00	4.20	1.83	3.00	4.60	1.60	2.78	3.80	1.14	3.63
02AUG	SE	0.24	0.62	2.59	5.73	2.62	1.11	2.32	3.89	1.12	1.74	2.45	0.86	8.92
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14AUG-	CPUE	0.00	2.46	4.64	3.00	5.20	4.00	0.60	0.80	0.40	2.78	2.90	1.43	2.35
16AUG	SE	0.00	0.73	1.72	1.38	1.83	2.27	0.60	0.37	0.40	1.34	1.72	1.43	4.62
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
29AUG-	CPUE	0.00	1.08	4.43	13.80	4.80	2.67	2.60	1.20	0.00	0.00	6.20	0.14	3.08
31AUG	SE	0.00	0.48	0.80	6.52	1.43	2.67	1.54	0.58	0.00	0.00	2.74	0.14	7.93
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11SEP-	CPUE	0.00	9.08	2.36	10.20	1.00	0.67	10.20	0.20	0.00	0.33	3.00	0.00	3.09
14SEP	SE	0.00	8.44	1.86	4.61	0.00	0.33	5.25	0.20	0.00	0.33	1.58	0.00	11.23
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25SEP-	CPUE	1.00	0.21	0.00	2.60	0.80	0.00	6.00	1.00	1.60	0.44	0.40	0.14	1.18
28SEP	SE	0.77	0.10	0.00	1.66	0.58	0.00	4.35	0.77	1.03	0.44	0.31	0.14	4.96
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
09OCT-	CPUE	0.20	0.21	0.86	1.80	1.00	0.33	2.40	7.80	0.40	0.22	1.90	0.14	1.44
12OCT	SE	0.20	0.10	0.29	1.11	0.77	0.21	2.40	7.55	0.40	0.15	1.20	0.14	8.15
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
23OCT-	CPUE	2.00	0.00	0.07	0.60	0.60	0.33	0.40	2.60	0.80	1.56	1.80	1.43	1.02
26OCT	SE	0.63	0.00	0.07	0.60	0.40	0.33	0.40	1.03	0.80	0.58	0.76	0.81	2.11
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE C-32 REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE PERCH YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	ST. CROP	3	330	142	249	73	309	83	18	31	132	168	10	1549
22JUN	SE	3	139	105	124	10	25	36	6	19	68	91	5	247
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03JUL-	ST. CROP	13	306	223	166	1	11	30	10	47	180	114	10	1110
06JUL	SE	9	154	197	103	1	6	10	4	28	54	30	9	279
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
17JUL-	ST. CROP	5	219	85	49	26	46	136	8	47	30	56	14	721
20JUL	SE	5	171	28	33	10	26	89	2	18	13	19	8	201
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
31JUL-	ST. CROP	3	83	198	101	11	20	21	6	14	49	75	16	596
02AUG	SE	2	28	70	53	7	12	16	5	10	31	48	12	111
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14AUG-	ST. CROP	0	112	125	28	14	43	4	1	3	49	57	19	454
16AUG	SE	0	33	46	13	5	24	4	<0.5	3	24	34	19	78
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
29AUG-	ST. CROP	0	49	119	127	13	28	18	1	0	0	122	2	480
31AUG	SE	0	22	22	60	4	28	11	1	0	0	54	2	92
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11SEP-	ST. CROP	0	413	63	94	3	7	72	0	0	6	59	0	717
14SEP	SE	0	383	50	42	0	4	37	<0.5	0	6	31	0	392
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25SEP-	ST. CROP	8	9	0	24	2	0	43	1	14	8	8	2	118
28SEP	SE	6	5	0	15	2	0	31	1	9	8	6	2	38
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
09OCT-	ST. CROP	2	9	23	17	3	4	17	10	3	4	37	2	130
12OCT	SE	2	5	8	10	2	2	17	9	3	3	24	2	34
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
23OCT-	ST. CROP	15	0	2	6	2	4	3	3	7	27	35	19	123
26OCT	SE	5	0	2	6	1	4	3	1	7	10	15	11	24
	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, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	DENSITY	1.69	0.67	3.11	4.02	6.42	2.02	0.23	NS	NS	NS	NS	NS	NS	2.59
08MAR	SE	1.69	0.67	1.84	1.34	2.89	1.57	0.09							4.40
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	DENSITY	0.00	0.00	0.94	0.45	1.93	0.00	0.00	NS	NS	NS	NS	NS	NS	0.47
22MAR	SE	0.00	0.00	0.47	0.28	1.71	0.00	0.00							1.79
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
07APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	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
14APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	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
21APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	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
28APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	DENSITY	0.35	1.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11
04MAY	SE	0.35	1.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.10
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	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
12MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	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
20MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	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
26MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	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
04JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	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
10JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-33 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF ATLANTIC TOMCOD YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
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
17JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
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
24JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
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
01JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	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
08JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
21JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
05AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
16AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
31AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
28SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
12OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-34 REGIONAL STANDING CROP (IN THOUSANDS) OF ATLANTIC TOMCOD YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-08MAR	ST. CROP	353	155	1000	594	1337	419	32	NS	NS	NS	NS	NS	NS	3889
	SE	353	155	592	198	603	326	12							1004
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-22MAR	ST. CROP	0	0	304	66	402	0	0	NS	NS	NS	NS	NS	NS	772
	SE	0	0	152	41	356	0	0							389
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-07APR	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-14APR	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	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-21APR	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	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-28APR	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	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-04MAY	ST. CROP	73	239	0	0	0	0	0	0	0	0	0	0	0	312
	SE	73	239	0	0	0	0	0	0	0	0	0	0	0	250
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-12MAY	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	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-20MAY	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	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-26MAY	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	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-04JUN	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	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-10JUN	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	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-34 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF ATLANTIC TOMCOD YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
21JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
16AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
31AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
12OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81

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, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	DENSITY	9.80	52.55	1846.77	42.42	88.00	63.47	9.35	NS	NS	NS	NS	NS	NS	301.76
08MAR	SE	2.37	11.18	1182.13	10.14	19.52	9.19	2.55							1182.43
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	DENSITY	2.82	1408.25	334.09	20.91	11.24	5.43	8.09	NS	NS	NS	NS	NS	NS	255.83
22MAR	SE	1.88	507.10	140.09	7.17	4.44	1.59	3.52							526.18
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	DENSITY	654.13	2147.12	1240.58	109.11	0.31	0.00	0.55	NS	NS	NS	NS	NS	NS	593.11
07APR	SE	418.31	669.34	955.83	38.84	0.31	0.00	0.51							1240.21
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	DENSITY	565.09	419.21	136.93	721.31	510.67	366.99	205.91	0.00	0.00	0.00	0.00	0.00	0.00	225.09
14APR	SE	314.34	174.19	34.10	168.76	180.33	75.87	84.35	0.00	0.00	0.00	0.00	0.00	0.00	451.87
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	DENSITY	1827.42	396.59	609.83	108.00	149.25	150.29	298.06	87.22	2.40	0.00	0.00	1.38	0.00	279.26
21APR	SE	728.40	136.35	160.92	29.95	29.06	33.30	80.49	79.15	1.01	0.00	0.00	1.38	0.00	768.54
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	DENSITY	42.24	269.42	118.93	89.94	105.48	143.67	26.64	8.53	4.92	9.32	6.88	0.00	0.00	63.54
28APR	SE	37.52	69.44	21.13	11.04	52.39	38.16	11.94	5.58	2.46	9.02	2.84	0.00	0.00	106.15
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	DENSITY	21.96	51.11	79.62	25.48	20.08	27.85	4.40	2.31	0.00	0.40	4.17	3.92	0.00	18.56
04MAY	SE	16.05	11.49	31.52	7.16	10.88	22.66	1.88	1.90	0.00	0.40	1.94	1.23	0.00	45.60
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	DENSITY	0.00	0.23	16.64	0.86	2.25	8.07	0.88	0.17	0.00	0.00	0.00	0.00	0.00	2.24
12MAY	SE	0.00	0.23	9.61	0.86	0.89	3.53	0.51	0.17	0.00	0.00	0.00	0.00	0.00	10.33
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	DENSITY	0.00	0.00	0.00	0.17	0.00	0.00	0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.05
20MAY	SE	0.00	0.00	0.00	0.17	0.00	0.00	0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.54
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	DENSITY	0.00	0.00	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
26MAY	SE	0.00	0.00	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	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
04JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	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
10JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-35 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF ATLANTIC TOMCOD POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
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
17JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
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
24JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
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
01JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	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
08JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
21JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
05AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
16AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
31AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
28SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
12OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

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, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	ST. CROP	2048	12056	594311	6267	18334	13167	1307	NS	NS	NS	NS	NS	NS	647490
08MAR	SE	496	2565	380424	1499	4067	1907	357							380463
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	ST. CROP	589	323081	107514	3089	2342	1127	1131	NS	NS	NS	NS	NS	NS	438874
22MAR	SE	392	116339	45082	1060	925	331	492							124779
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	ST. CROP	136721	492593	399233	16120	64	0	77	NS	NS	NS	NS	NS	NS	1044808
07APR	SE	87433	153561	307596	5738	64	0	71							354787
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	ST. CROP	118112	96174	44066	106565	106391	76135	28785	0	0	0	0	0	0	576227
14APR	SE	65701	39963	10973	24932	37570	15740	11792	0	0	0	0	0	0	91945
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	ST. CROP	381954	90985	196251	15955	31094	31179	41666	26002	397	0	0	222	0	815705
21APR	SE	152246	31282	51785	4425	6054	6909	11252	23597	168	0	0	222	0	166212
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	ST. CROP	8829	61811	38272	13288	21976	29804	3724	2544	814	1319	1213	0	0	183593
28APR	SE	7841	15932	6799	1631	10915	7917	1669	1665	407	1276	500	0	0	23529
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	ST. CROP	4589	11726	25624	3765	4183	5777	615	688	0	56	735	631	0	58389
04MAY	SE	3354	2637	10144	1057	2267	4701	263	568	0	56	342	197	0	12248
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	ST. CROP	0	52	5354	128	469	1675	123	51	0	0	0	0	0	7851
12MAY	SE	0	52	3091	128	186	732	71	51	0	0	0	0	0	3187
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	ST. CROP	0	0	0	26	0	0	71	0	0	0	0	0	0	97
20MAY	SE	0	0	0	26	0	0	71	0	0	0	0	0	0	76
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	ST. CROP	0	0	52	0	0	0	0	0	0	0	0	0	0	52
26MAY	SE	0	0	52	0	0	0	0	0	0	0	0	0	0	52
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-36 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF ATLANTIC TOMCOD POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
21JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
16AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
31AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
12OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-37 REGIONAL DENSITY (NO./1,000m3) OF ATLANTIC TOMCOD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
08MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
22MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
07APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	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
14APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	DENSITY	0.00	0.22	1.47	3.96	3.32	6.49	1.22	0.58	0.00	0.00	0.00	0.00	0.00	1.33
21APR	SE	0.00	0.22	1.47	1.56	1.21	3.00	0.97	0.58	0.00	0.00	0.00	0.00	0.00	4.04
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	DENSITY	4.87	32.78	11.67	34.77	14.63	24.83	6.56	0.00	0.46	0.64	1.33	0.00	0.00	10.20
28APR	SE	4.22	23.28	2.50	13.40	3.51	9.79	5.44	0.00	0.46	0.37	1.33	0.00	0.00	29.76
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	DENSITY	107.19	197.79	145.06	86.71	61.79	116.04	57.39	29.02	0.67	8.33	0.80	2.82	0.00	62.59
04MAY	SE	60.68	69.72	71.44	31.17	25.75	82.44	21.16	9.16	0.42	1.65	0.49	2.05	0.00	150.39
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	DENSITY	850.27	165.74	19.66	58.51	59.96	248.82	44.25	6.96	9.56	1.53	1.12	0.00	1.56	112.92
12MAY	SE	649.68	67.26	10.78	41.96	30.38	109.39	20.06	0.76	6.80	0.37	1.12	0.00	1.10	664.70
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	DENSITY	297.31	137.28	18.64	15.54	151.36	314.03	20.73	0.79	0.99	3.70	11.63	6.32	2.20	75.42
20MAY	SE	224.07	15.78	8.27	3.82	70.11	42.32	11.25	0.36	0.50	2.35	5.98	1.89	1.46	239.63
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	DENSITY	26.28	41.65	16.43	6.32	74.53	84.59	75.93	3.28	2.00	1.21	2.09	2.82	4.89	26.31
26MAY	SE	18.03	7.69	5.17	2.42	38.40	19.73	27.09	1.38	1.11	0.70	1.23	1.26	4.36	55.14
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	DENSITY	40.45	63.05	7.93	18.49	33.72	202.70	9.22	4.06	2.14	0.58	1.06	2.26	2.76	29.88
04JUN	SE	26.08	16.62	2.04	2.76	16.26	144.75	2.81	0.99	1.25	0.33	0.67	1.12	1.45	149.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	DENSITY	16.51	32.92	5.11	3.94	17.32	41.79	25.26	9.63	1.88	7.61	1.03	3.67	0.00	12.82
10JUN	SE	7.83	4.43	2.31	1.52	7.16	28.46	4.78	4.64	1.12	7.22	0.50	2.82	0.00	32.49
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-37 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF ATLANTIC TOMCOD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	DENSITY	7.01	25.26	4.26	28.63	12.19	38.30	27.33	8.19	0.73	0.55	0.00	1.17	0.00	11.82
17JUN	SE	3.27	13.60	1.58	5.72	3.97	16.66	6.13	4.23	0.46	0.32	0.00	0.58	0.00	24.09
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	DENSITY	11.75	3.04	1.41	3.97	4.21	33.87	23.24	14.31	4.97	0.00	0.00	0.51	0.00	7.79
24JUN	SE	6.15	1.81	0.59	3.30	2.54	11.70	6.82	3.04	3.16	0.00	0.00	0.51	0.00	16.18
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	DENSITY	2.28	0.00	0.79	0.77	14.06	25.35	11.29	10.18	0.58	0.00	0.00	0.59	0.00	5.07
01JUL	SE	2.28	0.00	0.37	0.37	6.37	8.49	2.60	3.91	0.28	0.00	0.00	0.59	0.00	11.86
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	DENSITY	0.00	0.00	0.63	0.00	3.77	10.28	1.35	4.50	0.84	0.00	0.00	0.59	0.00	1.69
08JUL	SE	0.00	0.00	0.39	0.00	1.97	4.36	0.55	2.23	0.56	0.00	0.00	0.59	0.00	5.38
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	DENSITY	3.38	0.51	0.29	0.17	1.30	39.76	18.69	3.23	NS	NS	NS	NS	NS	8.42
21JUL	SE	1.93	0.51	0.29	0.17	0.79	25.67	11.06	1.90						28.10
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
05AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
16AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
31AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
28SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
12OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-38 REGIONAL STANDING CROP (IN THOUSANDS) OF ATLANTIC TOMCOD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
08MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
22MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
07APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	ST. CROP	0	51	472	585	692	1347	171	173	0	0	0	0	0	3491
21APR	SE	0	51	472	230	252	623	136	173	0	0	0	0	0	882
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	ST. CROP	1017	7519	3757	5137	3049	5151	916	0	77	90	235	0	0	26949
28APR	SE	882	5341	805	1980	732	2031	761	0	77	52	235	0	0	6259
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	ST. CROP	22405	45378	46683	12811	12873	24074	8022	8651	110	1178	141	452	0	182780
04MAY	SE	12683	15994	22989	4605	5364	17103	2958	2732	70	233	87	330	0	36112
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	ST. CROP	177717	38024	6328	8644	12493	51620	6186	2075	1581	216	197	0	111	305192
12MAY	SE	135791	15430	3468	6199	6328	22694	2804	228	1125	53	197	0	78	138896
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	ST. CROP	62142	31494	6000	2295	31534	65148	2898	237	164	523	2050	1015	157	205657
20MAY	SE	46834	3619	2662	565	14607	8780	1573	107	83	333	1054	304	104	50082
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	ST. CROP	5493	9554	5287	934	15527	17548	10615	977	330	171	369	453	348	67606
26MAY	SE	3769	1764	1663	357	8000	4093	3787	412	184	99	217	203	310	10756
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	ST. CROP	8455	14464	2552	2731	7025	42051	1289	1210	355	81	187	363	197	80961
04JUN	SE	5450	3814	657	407	3387	30030	393	294	206	47	118	181	103	30959
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	ST. CROP	3450	7552	1646	582	3608	8670	3530	2872	312	1076	182	590	0	34071
10JUN	SE	1636	1016	743	225	1492	5903	668	1382	186	1021	89	453	0	6711
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-38 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF ATLANTIC TOMCOD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	ST. CROP	1465	5795	1372	4229	2540	7946	3820	2443	120	78	0	188	0	29997
17JUN	SE	683	3121	508	846	827	3455	857	1262	75	45	0	94	0	5114
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	ST. CROP	2455	698	454	586	876	7026	3248	4268	822	0	0	81	0	20515
24JUN	SE	1285	416	190	487	529	2427	954	905	522	0	0	81	0	3206
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	ST. CROP	477	0	254	113	2929	5259	1578	3034	96	0	0	94	0	13833
01JUL	SE	477	0	121	54	1326	1762	364	1166	46	0	0	94	0	2571
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	ST. CROP	0	0	204	0	785	2132	188	1341	139	0	0	95	0	4884
08JUL	SE	0	0	125	0	410	905	77	666	92	0	0	95	0	1212
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	ST. CROP	706	118	94	26	271	8249	2613	963	NS	NS	NS	NS	NS	13041
21JUL	SE	403	118	94	26	165	5326	1546	566						5594
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
16AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
31AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
12OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-39 REGIONAL DENSITY (NO./1,000m3) OF ATLANTIC TOMCOD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	DENSITY	3.48	0.94	1.05	1.16	32.11	14.69	4.66	1.30	0.85	0.21	0.33	0.39	5.10
15JUL	SE	1.13	0.24	0.31	0.45	7.70	2.97	1.05	0.24	0.35	0.13	0.12	0.17	8.43
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24JUL-	DENSITY	0.12	0.22	0.12	3.44	91.09	4.98	1.28	0.09	0.00	0.02	0.00	0.00	8.45
29JUL	SE	0.05	0.08	0.10	2.08	41.40	1.16	0.75	0.04	0.00	0.02	0.00	0.00	41.48
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	DENSITY	1.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11
11AUG	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	17	46	27	14	8	13	8	10	15	18	21	13	210
21AUG-	DENSITY	0.06	0.02	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
25AUG	SE	0.03	0.02	0.02	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
03SEP-	DENSITY	0.05	0.04	0.00	0.00	0.02	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.01
08SEP	SE	0.05	0.03	0.00	0.00	0.02	0.04	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
18SEP-	DENSITY	0.00	0.00	0.00	0.02	0.03	0.04	0.03	0.00	0.33	0.00	0.00	0.00	0.04
22SEP	SE	0.00	0.00	0.00	0.02	0.03	0.04	0.03	0.00	0.31	0.00	0.00	0.00	0.31
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
02OCT-	DENSITY	0.12	0.00	0.00	0.00	0.07	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.02
05OCT	SE	0.12	0.00	0.00	0.00	0.07	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.14
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
16OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.02	0.00	0.00	<0.005
20OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.02	0.00	0.00	0.04
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

TABLE C-40 REGIONAL STANDING CROP (IN THOUSANDS) OF ATLANTIC TOMCOD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	ST. CROP	798	303	155	241	6661	2054	1390	215	120	36	54	28	12055
15JUL	SE	260	78	46	93	1597	416	313	39	50	22	19	12	1706
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24JUL-	ST. CROP	28	71	17	717	18898	697	382	14	0	4	0	0	20827
29JUL	SE	12	25	14	434	8589	163	223	7	0	4	0	0	8604
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	ST. CROP	308	0	0	0	0	0	0	0	0	0	0	0	308
11AUG	SE	76	0	0	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
21AUG-	ST. CROP	13	6	5	0	0	0	0	0	0	0	0	0	25
25AUG	SE	7	6	3	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
03SEP-	ST. CROP	10	11	0	0	4	5	0	0	0	0	0	0	31
08SEP	SE	10	8	0	0	4	5	0	0	0	0	0	0	15
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
18SEP-	ST. CROP	0	0	0	5	7	5	10	0	47	0	0	0	74
22SEP	SE	0	0	0	5	7	5	10	0	43	0	0	0	46
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
02OCT-	ST. CROP	26	0	0	0	15	0	19	0	0	0	0	0	61
05OCT	SE	26	0	0	0	15	0	12	0	0	0	0	0	33
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
16OCT-	ST. CROP	0	0	0	0	0	0	0	0	5	3	0	0	8
20OCT	SE	0	0	0	0	0	0	0	0	5	3	0	0	6
	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, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	CPUE	1.67	0.00	0.57	0.33	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38
22JUN	SE	1.67	0.00	0.37	0.33	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.65
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03JUL-	CPUE	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
06JUL	SE	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
17JUL-	CPUE	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
20JUL	SE	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
31JUL-	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
02AUG	SE	0.00	0.00	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
14AUG-	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
16AUG	SE	0.00	0.00	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
29AUG-	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
31AUG	SE	0.00	0.00	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
11SEP-	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
14SEP	SE	0.00	0.00	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
25SEP-	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
28SEP	SE	0.00	0.00	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
09OCT-	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
12OCT	SE	0.00	0.00	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
23OCT-	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
26OCT	SE	0.00	0.00	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-42 REGIONAL STANDING CROP (IN THOUSANDS) OF ATLANTIC TOMCOD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	ST. CROP	13	0	15	3	5	0	0	0	0	0	0	0	36
22JUN	SE	13	0	10	3	5	0	0	0	0	0	0	0	17
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03JUL-	ST. CROP	8	0	0	0	0	0	0	0	0	0	0	0	8
06JUL	SE	8	0	0	0	0	0	0	0	0	0	0	0	8
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
17JUL-	ST. CROP	0	0	0	0	3	0	0	0	0	0	0	0	3
20JUL	SE	0	0	0	0	3	0	0	0	0	0	0	0	3
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
31JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
02AUG	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
14AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
16AUG	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
29AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
31AUG	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
11SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
14SEP	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
25SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
28SEP	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
09OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
12OCT	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
23OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
26OCT	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-43 REGIONAL DENSITY (NO./1,000m3) OF ATLANTIC TOMCOD YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-15JUL	DENSITY	0.14	0.12	0.11	0.00	0.32	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.07
	SE	0.11	0.05	0.06	0.00	0.13	0.10	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
24JUL-29JUL	DENSITY	0.08	0.00	0.00	0.03	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
	SE	0.05	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-11AUG	DENSITY	0.46	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
	SE	0.13	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21AUG-25AUG	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
03SEP-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
	SE	0.00	0.00	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
18SEP-22SEP	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
02OCT-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
	SE	0.00	0.00	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
16OCT-20OCT	DENSITY	0.00	0.00	0.00	0.00	0.01	0.04	0.00	0.00	0.00	0.00	0.00	0.00	<0.005
	SE	0.00	0.00	0.00	0.00	0.01	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

TABLE C-44 REGIONAL STANDING CROP (IN THOUSANDS) OF ATLANTIC TOMCOD YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	ST. CROP	32	38	16	0	67	13	0	0	0	0	0	0	166
15JUL	SE	26	17	8	0	26	13	0	0	0	0	0	0	44
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24JUL-	ST. CROP	19	0	0	6	7	0	0	0	0	0	0	0	33
29JUL	SE	11	0	0	5	4	0	0	0	0	0	0	0	13
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	ST. CROP	106	6	0	0	0	0	0	0	0	0	0	0	113
11AUG	SE	30	6	0	0	0	0	0	0	0	0	0	0	31
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
25AUG	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
03SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
08SEP	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
18SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
22SEP	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
02OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
05OCT	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
16OCT-	ST. CROP	0	0	0	0	3	5	0	0	0	0	0	0	9
20OCT	SE	0	0	0	0	3	5	0	0	0	0	0	0	6
	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, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	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
22JUN	SE	0.00	0.00	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
03JUL-	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
06JUL	SE	0.00	0.00	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
17JUL-	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
20JUL	SE	0.00	0.00	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
31JUL-	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
02AUG	SE	0.00	0.00	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
14AUG-	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
16AUG	SE	0.00	0.00	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
29AUG-	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
31AUG	SE	0.00	0.00	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
11SEP-	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
14SEP	SE	0.00	0.00	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
25SEP-	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
28SEP	SE	0.00	0.00	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
09OCT-	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
12OCT	SE	0.00	0.00	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
23OCT-	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
26OCT	SE	0.00	0.00	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-46 REGIONAL STANDING CROP (IN THOUSANDS) OF ATLANTIC TOMCOD YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
22JUN	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
03JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
06JUL	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
17JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
20JUL	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
31JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
02AUG	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
14AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
16AUG	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
29AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
31AUG	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
11SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
14SEP	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
25SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
28SEP	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
09OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
12OCT	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
23OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
26OCT	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-47 REGIONAL DENSITY (NO./1,000m3) OF BAY ANCHOVY EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
08MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
22MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
07APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	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
14APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	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
21APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	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
28APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	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
04MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	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
12MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	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
20MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	DENSITY	70.10	2096.49	40.56	1.25	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.51	169.95
26MAY	SE	34.59	724.94	17.23	1.25	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.51	725.97
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	DENSITY	2107.40	10255.48	5770.11	0.19	0.05	0.00	0.96	0.00	0.00	0.00	0.00	0.00	0.00	1394.94
04JUN	SE	680.34	3652.97	2582.43	0.19	0.05	0.00	0.96	0.00	0.00	0.00	0.00	0.00	0.00	4525.05
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	DENSITY	168.17	20222.57	15594.82	13046.68	4046.35	1.04	0.47	2.83	0.18	4.06	2.56	0.00	8.76	4084.50
10JUN	SE	21.55	12306.81	7427.78	1091.05	3488.89	1.04	0.47	2.47	0.18	2.67	2.56	0.00	6.37	14832.15
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-47 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF BAY ANCHOVY EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	DENSITY	1564.17	18434.13	14619.37	0.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	204.15	2678.67
17JUN	SE	436.03	11118.76	4760.89	0.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	204.15	12104.74
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	DENSITY	4596.19	38340.25	519.32	6741.34	4918.15	0.00	0.00	0.19	0.00	0.00	0.32	1.02	0.00	4239.75
24JUN	SE	3584.73	23168.27	278.63	5322.49	2822.92	0.00	0.00	0.19	0.00	0.00	0.32	0.72	0.00	24207.32
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	DENSITY	1136.93	5388.23	14519.17	18309.48	4299.07	1.94	0.20	0.00	0.00	0.00	0.00	0.00	0.00	3358.08
01JUL	SE	441.27	4252.72	3734.63	5066.18	1579.51	1.81	0.16	0.00	0.00	0.00	0.00	0.00	0.00	7771.02
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	DENSITY	770.95	1768.90	29568.29	5595.36	3973.56	20.53	0.00	0.20	0.00	0.00	0.00	5.47	0.00	3207.94
08JUL	SE	245.26	365.84	22037.38	1202.45	429.62	17.87	0.00	0.20	0.00	0.00	0.00	5.47	0.00	22078.74
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	DENSITY	17479.80	53904.23	2674.32	1980.64	1806.44	3.24	0.00	0.28	NS	NS	NS	NS	NS	9731.12
21JUL	SE	11958.91	34055.61	1450.85	538.61	595.17	2.97	0.00	0.28						36132.39
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
05AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	DENSITY	0.92	0.00	0.55	0.00	4431.11	1.31	1.49	0.27	NS	NS	NS	NS	NS	554.46
16AUG	SE	0.92	0.00	0.55	0.00	2442.55	1.31	0.75	0.27						2442.55
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.69	0.00	NS	NS	NS	NS	NS	0.09
31AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.69	0.00						0.69
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
28SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
12OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-48 REGIONAL STANDING CROP (IN THOUSANDS) OF BAY ANCHOVY EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
08MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
22MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
07APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	ST. CROP	14653	480977	13054	184	84	0	0	0	0	0	0	0	36	508987
26MAY	SE	7230	166316	5545	184	84	0	0	0	0	0	0	0	36	166565
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	ST. CROP	440475	2352814	1856888	28	10	0	134	0	0	0	0	0	0	4650349
04JUN	SE	142199	838067	831056	28	10	0	134	0	0	0	0	0	0	1188794
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	ST. CROP	35151	4639467	5018593	1927474	843001	216	66	843	29	574	451	0	623	12466488
10JUN	SE	4504	2823431	2390345	161189	726862	216	66	737	29	378	451	0	453	3773572
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-48 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF BAY ANCHOVY EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	ST. CROP	326932	4229164	4704681	138	0	0	0	0	0	0	0	0	14525	9275441
17JUN	SE	91136	2550868	1532109	138	0	0	0	0	0	0	0	0	14525	2977046
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	ST. CROP	960663	8796031	167123	995943	1024628	0	0	57	0	0	56	165	0	11944666
24JUN	SE	749256	5315271	89666	786327	588116	0	0	57	0	0	56	117	0	5457629
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	ST. CROP	237632	1236169	4672436	2704983	895652	403	29	0	0	0	0	0	0	9747303
01JUL	SE	92232	975660	1201846	748461	329070	376	23	0	0	0	0	0	0	1753093
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	ST. CROP	161139	405822	9515415	826641	827836	4259	0	58	0	0	0	879	0	11742048
08JUL	SE	51263	83930	7091881	177646	89505	3707	0	58	0	0	0	879	0	7095353
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	ST. CROP	3653503	12366724	860625	292614	376346	673	0	83	NS	NS	NS	NS	NS	17550568
21JUL	SE	2499567	7813049	466899	79572	123995	617	0	83						8217741
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	ST. CROP	192	0	178	0	923162	271	208	81	NS	NS	NS	NS	NS	924092
16AUG	SE	192	0	178	0	508871	271	104	81						508871
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	ST. CROP	0	0	0	0	0	0	97	0	NS	NS	NS	NS	NS	97
31AUG	SE	0	0	0	0	0	0	97	0						97
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
12OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-49 REGIONAL DENSITY (NO./1,000m3) OF BAY ANCHOVY YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
08MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
22MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
07APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	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
14APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	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
21APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	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
28APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	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
04MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	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
12MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	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
20MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	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
26MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	DENSITY	0.00	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
04JUN	SE	0.00	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	DENSITY	0.00	0.16	14.29	67.75	9.31	1.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.12
10JUN	SE	0.00	0.16	7.49	43.14	7.13	1.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.38
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-49 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF BAY ANCHOVY YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
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
17JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	DENSITY	0.00	4.71	0.58	25.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.37
24JUN	SE	0.00	4.61	0.58	25.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.90
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	DENSITY	0.00	0.00	15.62	15.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.41
01JUL	SE	0.00	0.00	15.62	15.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22.18
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	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
08JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
21JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
05AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
16AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	3.72	0.00	NS	NS	NS	NS	NS	0.47
31AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	3.72	0.00						3.72
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
28SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
12OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-50 REGIONAL STANDING CROP (IN THOUSANDS) OF BAY ANCHOVY YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
08MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
22MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
07APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	ST. CROP	0	0	67	0	0	0	0	0	0	0	0	0	0	67
04JUN	SE	0	0	67	0	0	0	0	0	0	0	0	0	0	67
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	ST. CROP	0	36	4597	10009	1939	216	0	0	0	0	0	0	0	16796
10JUN	SE	0	36	2411	6374	1485	216	0	0	0	0	0	0	0	6978
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-50 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF BAY ANCHOVY YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	ST. CROP	0	1081	188	3765	0	0	0	0	0	0	0	0	0	5033
24JUN	SE	0	1058	188	3765	0	0	0	0	0	0	0	0	0	3915
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	ST. CROP	0	0	5026	2327	0	0	0	0	0	0	0	0	0	7352
01JUL	SE	0	0	5026	2327	0	0	0	0	0	0	0	0	0	5538
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
21JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
16AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	ST. CROP	0	0	0	0	0	0	521	0	NS	NS	NS	NS	NS	521
31AUG	SE	0	0	0	0	0	0	521	0						521
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
12OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81

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, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-08MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-22MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-07APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-14APR	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	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-21APR	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	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-28APR	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	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-04MAY	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	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-12MAY	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	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-20MAY	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	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-26MAY	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	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-04JUN	DENSITY	0.00	0.00	1.28	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14
	SE	0.00	0.00	0.80	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.87
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-10JUN	DENSITY	2.11	2.42	92.43	951.41	287.38	1.00	1.11	0.29	0.00	0.00	0.00	0.00	0.00	102.93
	SE	1.63	1.30	19.09	430.56	101.70	1.00	1.00	0.29	0.00	0.00	0.00	0.00	0.00	442.83
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-51 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF BAY ANCHOVY POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	DENSITY	0.00	214.45	2412.25	2017.73	2748.69	18.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	570.15
17JUN	SE	0.00	82.84	769.83	652.13	1072.71	14.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1475.02
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	DENSITY	3.39	307.20	1787.44	4154.45	6227.31	19.71	3.09	0.00	0.00	0.00	0.00	0.00	0.00	961.74
24JUN	SE	2.90	131.05	322.14	673.88	373.19	9.27	1.49	0.00	0.00	0.00	0.00	0.00	0.00	845.24
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	DENSITY	42.08	113.36	3263.55	7551.64	1478.42	1372.61	1384.66	282.74	0.00	0.00	0.00	0.00	0.00	1191.47
01JUL	SE	12.09	36.92	1038.06	1413.76	415.92	567.45	448.44	228.63	0.00	0.00	0.00	0.00	0.00	1956.06
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	DENSITY	232.39	2621.00	3157.59	5034.33	7475.08	1635.14	3978.40	976.91	5.45	0.00	0.00	0.00	0.00	1932.02
08JUL	SE	49.74	350.39	540.86	615.78	1246.56	331.01	745.54	537.99	2.63	0.00	0.00	0.00	0.00	1818.16
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	DENSITY	2149.94	3152.05	6763.20	5687.65	3440.43	1043.85	1566.73	2219.35	NS	NS	NS	NS	NS	3252.90
21JUL	SE	405.65	725.66	397.06	671.34	1775.03	235.14	248.00	1069.35						2389.67
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	DENSITY	1223.17	756.98	1706.30	962.40	499.18	271.24	1349.29	835.31	NS	NS	NS	NS	NS	950.48
05AUG	SE	267.84	217.05	231.90	116.98	123.80	73.29	514.86	488.15						842.84
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	DENSITY	590.06	166.29	322.81	422.70	275.90	139.75	790.29	315.04	NS	NS	NS	NS	NS	377.85
16AUG	SE	146.02	56.36	91.06	78.31	83.98	50.67	104.53	169.95						297.24
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	DENSITY	159.86	65.10	116.64	120.08	219.88	98.76	172.46	100.40	NS	NS	NS	NS	NS	131.65
31AUG	SE	76.10	11.14	34.12	15.39	134.07	48.00	36.50	46.16						176.23
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	DENSITY	59.80	48.61	62.30	15.26	205.06	17.73	83.17	22.16	NS	NS	NS	NS	NS	64.26
14SEP	SE	22.67	20.50	52.76	8.74	159.73	4.25	20.45	5.42						172.55
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	DENSITY	176.86	297.04	114.48	88.87	61.24	75.94	59.03	34.44	NS	NS	NS	NS	NS	113.49
28SEP	SE	76.28	133.31	35.33	15.83	14.11	10.18	11.45	6.31						159.89
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	DENSITY	35.37	67.39	51.65	54.19	41.89	22.76	14.19	4.62	NS	NS	NS	NS	NS	36.51
12OCT	SE	18.40	14.66	11.93	9.60	20.34	5.91	1.23	2.34						35.26
	NO. TOWS	6	11	13	14	13	8	10	6						81

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, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
08MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
22MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
07APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	ST. CROP	0	0	411	80	0	0	0	0	0	0	0	0	0	491
04JUN	SE	0	0	256	52	0	0	0	0	0	0	0	0	0	261
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	ST. CROP	440	555	29745	140559	59871	208	155	86	0	0	0	0	0	231619
10JUN	SE	341	299	6142	63610	21187	208	140	86	0	0	0	0	0	67328
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-52 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF BAY ANCHOVY POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	ST. CROP	0	49200	776291	298093	572651	3904	0	0	0	0	0	0	0	1700138
17JUN	SE	0	19005	247741	96344	223484	2989	0	0	0	0	0	0	0	347812
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	ST. CROP	708	70478	575218	613765	1297375	4088	431	0	0	0	0	0	0	2562064
24JUN	SE	605	30065	103670	99556	77749	1922	208	0	0	0	0	0	0	166168
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	ST. CROP	8796	26007	1050249	1115655	308009	284756	193564	84293	0	0	0	0	0	3071328
01JUL	SE	2527	8470	334061	208864	86651	117722	62689	68163	0	0	0	0	0	430397
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	ST. CROP	48573	601311	1016149	743755	1557331	339219	556145	291250	903	0	0	0	0	5154636
08JUL	SE	10397	80387	174055	90974	259704	68669	104220	160392	435	0	0	0	0	392289
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	ST. CROP	449366	723143	2176477	840276	716766	216553	219015	661662	NS	NS	NS	NS	NS	6003258
21JUL	SE	84787	166481	127778	99182	369803	48780	34668	318808						550493
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	ST. CROP	255659	173666	549107	142183	103997	56270	188619	249033	NS	NS	NS	NS	NS	1718534
05AUG	SE	55981	49796	74627	17282	25791	15205	71972	145535						196820
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	ST. CROP	123330	38150	103882	62449	57480	28991	110475	93924	NS	NS	NS	NS	NS	618681
16AUG	SE	30521	12929	29304	11569	17495	10512	14612	50667						72722
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	ST. CROP	33412	14935	37536	17741	45808	20489	24108	29933	NS	NS	NS	NS	NS	223962
31AUG	SE	15905	2555	10980	2273	27932	9958	5102	13762						38471
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	ST. CROP	12500	11152	20049	2254	42722	3679	11626	6607	NS	NS	NS	NS	NS	110589
14SEP	SE	4739	4703	16980	1291	33277	882	2859	1614						38124
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	ST. CROP	36966	68147	36840	13129	12758	15755	8253	10267	NS	NS	NS	NS	NS	202115
28SEP	SE	15944	30584	11369	2338	2940	2113	1601	1880						36655
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	ST. CROP	7394	15460	16621	8006	8728	4721	1984	1378	NS	NS	NS	NS	NS	64292
12OCT	SE	3845	3362	3839	1418	4238	1226	172	699						7926
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-53 REGIONAL DENSITY (NO./1,000m3) OF BAY ANCHOVY YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-08MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-22MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-07APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-14APR	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	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-21APR	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	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-28APR	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	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-04MAY	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	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-12MAY	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	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-20MAY	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	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-26MAY	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	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-04JUN	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	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-10JUN	DENSITY	0.00	0.00	4.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31
	SE	0.00	0.00	4.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.05
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-53 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF BAY ANCHOVY YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
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
17JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
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
24JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
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
01JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	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
08JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	DENSITY	0.00	320.70	559.98	742.18	167.41	121.94	433.18	720.43	NS	NS	NS	NS	NS	383.23
21JUL	SE	0.00	250.44	92.63	121.28	44.03	49.09	114.77	675.08						747.84
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	DENSITY	796.05	1007.40	2565.95	737.90	516.13	351.64	1607.50	383.91	NS	NS	NS	NS	NS	995.81
05AUG	SE	243.57	140.40	492.32	151.98	180.57	49.43	664.46	186.37						925.10
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	DENSITY	2517.56	2235.08	2543.69	2719.55	553.88	725.24	3188.02	967.42	NS	NS	NS	NS	NS	1931.30
16AUG	SE	434.30	560.38	326.29	530.61	155.77	118.13	444.07	610.13						1224.07
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	DENSITY	716.78	2094.23	2876.08	1699.45	409.36	2214.72	1673.15	717.99	NS	NS	NS	NS	NS	1550.22
31AUG	SE	114.92	335.39	309.47	223.10	150.58	1122.71	565.96	192.79						1382.70
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	DENSITY	204.13	819.88	1009.37	594.35	333.70	386.26	1600.57	208.41	NS	NS	NS	NS	NS	644.58
14SEP	SE	44.23	375.61	159.30	130.54	64.78	47.08	453.95	62.48						633.91
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	DENSITY	140.99	566.29	1564.22	735.94	160.93	231.78	1190.33	339.20	NS	NS	NS	NS	NS	616.21
28SEP	SE	27.61	79.31	354.97	158.62	35.93	111.90	271.34	181.42						527.79
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	DENSITY	346.60	692.55	800.18	623.59	378.85	232.76	261.60	116.78	NS	NS	NS	NS	NS	431.61
12OCT	SE	131.22	154.78	138.02	94.11	87.73	47.37	77.11	31.79						293.22
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-54 REGIONAL STANDING CROP (IN THOUSANDS) OF BAY ANCHOVY YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
08MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
22MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
07APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	ST. CROP	0	0	1303	0	0	0	0	0	0	0	0	0	0	1303
10JUN	SE	0	0	1303	0	0	0	0	0	0	0	0	0	0	1303
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-54 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF BAY ANCHOVY YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	ST. CROP	0	73574	180209	109647	34877	25296	60555	214786	NS	NS	NS	NS	NS	698944
21JUL	SE	0	57457	29809	17917	9172	10185	16044	201263						213220
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	ST. CROP	166385	231118	825751	109015	107528	72950	224714	114458	NS	NS	NS	NS	NS	1851919
05AUG	SE	50909	32211	158436	22453	37619	10256	92886	55563						206084
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	ST. CROP	526202	512772	818589	401777	115393	150454	445656	288421	NS	NS	NS	NS	NS	3259264
16AUG	SE	90775	128563	105005	78390	32453	24508	62077	181901						283787
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	ST. CROP	149817	480459	925557	251071	85284	459456	233892	214056	NS	NS	NS	NS	NS	2799591
31AUG	SE	24021	76946	99591	32960	31372	232913	79116	57476						286876
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	ST. CROP	42665	188097	324827	87807	69521	80131	223745	62135	NS	NS	NS	NS	NS	1078928
14SEP	SE	9244	86172	51265	19285	13496	9767	63458	18629						123136
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	ST. CROP	29469	129918	503383	108725	33527	48085	166397	101126	NS	NS	NS	NS	NS	1120630
28SEP	SE	5772	18195	114235	23434	7485	23215	37930	54086						137558
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	ST. CROP	72443	158886	257506	92127	78928	48287	36569	34817	NS	NS	NS	NS	NS	779563
12OCT	SE	27426	35510	44416	13904	18278	9827	10779	9478						69397
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-55 REGIONAL DENSITY (NO./1,000m3) OF BAY ANCHOVY YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	DENSITY	28.75	187.03	108.55	148.77	97.53	683.58	92.80	0.00	3.24	6.56	1.63	6.96	113.78
15JUL	SE	13.13	89.85	30.02	50.57	46.49	257.76	48.84	0.00	1.47	2.27	1.41	6.02	287.64
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24JUL-	DENSITY	51.48	743.67	1697.92	544.86	145.73	788.66	184.33	30.71	45.32	1.61	9.14	0.52	353.66
29JUL	SE	17.37	170.23	539.74	251.87	43.27	266.28	87.78	13.90	10.86	0.87	4.98	0.52	681.81
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	DENSITY	832.02	477.55	138.43	281.90	492.10	779.48	364.71	31.55	41.19	1.65	0.23	0.00	286.73
11AUG	SE	362.08	92.13	52.01	94.29	81.97	306.04	138.23	8.51	22.21	1.62	0.23	0.00	520.81
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21AUG-	DENSITY	177.55	424.75	307.33	102.18	472.08	826.55	519.52	12.39	150.12	29.31	47.57	1.83	255.93
25AUG	SE	48.41	62.78	82.23	17.23	412.55	196.90	145.52	2.74	64.20	25.26	28.56	0.76	499.07
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
03SEP-	DENSITY	266.01	398.32	264.07	44.62	186.92	273.46	109.18	194.08	57.20	7.65	36.41	34.42	156.03
08SEP	SE	109.79	57.27	172.62	10.78	104.26	109.97	20.87	39.99	32.63	2.81	11.03	34.08	269.45
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
18SEP-	DENSITY	145.23	201.19	187.91	38.30	125.28	676.39	252.17	102.84	25.43	23.09	25.94	9.80	151.13
22SEP	SE	46.90	38.29	94.78	6.65	61.01	171.37	69.20	30.77	11.89	14.51	5.70	9.42	228.02
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
02OCT-	DENSITY	133.39	257.26	197.37	146.51	36.47	89.41	86.19	177.63	1.17	0.31	0.02	0.00	93.81
05OCT	SE	33.67	48.21	54.05	38.00	23.66	8.84	30.42	158.51	0.68	0.31	0.02	0.00	185.78
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
16OCT-	DENSITY	52.14	266.55	126.93	120.97	41.20	66.65	216.00	17.24	19.87	0.00	0.00	0.05	77.30
20OCT	SE	15.52	81.95	20.47	16.50	6.05	44.04	93.85	7.80	4.59	0.00	0.00	0.05	136.07
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

TABLE C-56 REGIONAL STANDING CROP (IN THOUSANDS) OF BAY ANCHOVY YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	ST. CROP	6596	60187	16037	30994	20234	95559	27666	0	458	1156	262	495	259644
15JUL	SE	3013	28915	4435	10536	9646	36033	14561	0	208	400	227	428	50791
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24JUL-	ST. CROP	11811	239323	250846	113513	30233	110248	54955	5081	6412	284	1469	37	824211
29JUL	SE	3985	54782	79740	52473	8976	37224	26171	2300	1537	153	800	37	119534
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	ST. CROP	190882	153682	20451	58731	102089	108964	108732	5221	5827	291	38	0	754906
11AUG	SE	83068	29649	7684	19644	17005	42782	41211	1408	3142	286	38	0	109791
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21AUG-	ST. CROP	40733	136689	45404	21287	97935	115544	154885	2051	21238	5167	7646	130	648709
25AUG	SE	11106	20205	12148	3589	85586	27525	43385	453	9083	4453	4591	54	103829
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
03SEP-	ST. CROP	61029	128185	39012	9295	38778	38227	32550	32117	8092	1349	5853	2449	396937
08SEP	SE	25188	18429	25502	2246	21629	15373	6223	6617	4616	496	1774	2425	49464
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
18SEP-	ST. CROP	33319	64745	27761	7979	25990	94554	75181	17018	3597	4070	4170	697	359080
22SEP	SE	10759	12321	14003	1386	12656	23956	20629	5092	1682	2558	916	670	40765
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
02OCT-	ST. CROP	30602	82788	29159	30524	7566	12498	25697	29395	165	56	4	0	248453
05OCT	SE	7725	15516	7986	7917	4909	1236	9069	26232	96	56	4	0	34970
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
16OCT-	ST. CROP	11963	85779	18753	25203	8547	9317	64396	2852	2810	0	0	3	229623
20OCT	SE	3560	26373	3024	3438	1255	6157	27980	1291	650	0	0	3	39416
	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, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	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
22JUN	SE	0.00	0.00	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
03JUL-	CPUE	0.00	0.18	1.86	0.00	0.00	0.67	0.00	0.00	0.00	0.00	0.00	0.00	0.23
06JUL	SE	0.00	0.18	0.99	0.00	0.00	0.67	0.00	0.00	0.00	0.00	0.00	0.00	1.20
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
17JUL-	CPUE	15.00	13.18	10.86	120.67	1485.67	419.00	0.00	0.00	0.00	0.00	0.00	0.08	172.04
20JUL	SE	14.01	2.91	9.42	90.13	1468.68	394.75	0.00	0.00	0.00	0.00	0.00	0.08	1523.57
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
31JUL-	CPUE	122.40	6.21	21.14	2.40	0.80	4.83	0.00	0.00	0.00	0.00	0.00	0.00	13.15
02AUG	SE	101.35	2.70	15.04	1.50	0.80	4.83	0.00	0.00	0.00	0.00	0.00	0.00	102.63
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14AUG-	CPUE	129.40	33.92	2.36	46.80	117.80	20.83	0.00	0.00	0.00	0.00	0.00	0.00	29.26
16AUG	SE	82.89	18.14	1.43	46.80	83.90	13.57	0.00	0.00	0.00	0.00	0.00	0.00	128.90
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
29AUG-	CPUE	2.60	0.88	17.14	1.40	30.80	2.00	0.00	0.00	0.00	0.00	0.00	0.00	4.57
31AUG	SE	2.36	0.42	16.08	1.17	18.15	1.63	0.00	0.00	0.00	0.00	0.00	0.00	24.45
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11SEP-	CPUE	0.00	30.63	119.50	1.00	0.00	23.83	17.00	0.00	0.00	0.00	0.00	0.14	16.01
14SEP	SE	0.00	25.56	119.19	1.00	0.00	16.89	7.34	0.00	0.00	0.00	0.00	0.14	123.29
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25SEP-	CPUE	0.40	46.96	0.79	7.60	53.00	9.00	28.00	0.00	0.00	0.00	0.00	0.00	12.15
28SEP	SE	0.40	46.52	0.65	7.60	44.69	5.28	28.00	0.00	0.00	0.00	0.00	0.00	70.94
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
09OCT-	CPUE	24.20	17.75	6.71	4.20	35.20	6.00	0.00	0.00	0.00	0.00	0.00	0.00	7.84
12OCT	SE	15.18	10.91	5.21	2.58	34.45	3.61	0.00	0.00	0.00	0.00	0.00	0.00	39.79
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
23OCT-	CPUE	307.40	4.00	0.14	2.20	0.20	1.00	0.00	2.60	11.20	0.00	0.00	0.00	27.40
26OCT	SE	295.93	1.20	0.10	2.20	0.20	1.00	0.00	1.17	7.43	0.00	0.00	0.00	296.04
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE C-58 REGIONAL STANDING CROP (IN THOUSANDS) OF BAY ANCHOVY YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
22JUN	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
03JUL-	ST. CROP	0	8	50	0	0	7	0	0	0	0	0	0	65
06JUL	SE	0	8	27	0	0	7	0	0	0	0	0	0	29
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
17JUL-	ST. CROP	113	599	292	1112	3916	4463	0	0	0	0	0	1	10495
20JUL	SE	106	132	253	831	3871	4205	0	0	0	0	0	1	5783
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
31JUL-	ST. CROP	922	282	569	22	2	51	0	0	0	0	0	0	1848
02AUG	SE	763	123	405	14	2	51	0	0	0	0	0	0	874
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14AUG-	ST. CROP	975	1541	63	431	310	222	0	0	0	0	0	0	3543
16AUG	SE	624	824	38	431	221	144	0	0	0	0	0	0	1151
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
29AUG-	ST. CROP	20	40	461	13	81	21	0	0	0	0	0	0	636
31AUG	SE	18	19	432	11	48	17	0	0	0	0	0	0	436
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11SEP-	ST. CROP	0	1391	3213	9	0	254	121	0	0	0	0	2	4991
14SEP	SE	0	1161	3205	9	0	180	52	0	0	0	0	2	3414
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25SEP-	ST. CROP	3	2134	21	70	140	96	199	0	0	0	0	0	2662
28SEP	SE	3	2114	17	70	118	56	199	0	0	0	0	0	2128
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
09OCT-	ST. CROP	182	806	181	39	93	64	0	0	0	0	0	0	1365
12OCT	SE	114	496	140	24	91	38	0	0	0	0	0	0	537
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
23OCT-	ST. CROP	2315	182	4	20	1	11	0	3	96	0	0	0	2632
26OCT	SE	2229	55	3	20	1	11	0	1	64	0	0	0	2230
	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, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	DENSITY	17.89	9.46	13.06	12.49	0.00	0.65	0.00	0.00	0.00	0.00	0.00	0.00	4.46
15JUL	SE	7.66	2.59	2.64	6.29	0.00	0.64	0.00	0.00	0.00	0.00	0.00	0.00	10.60
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24JUL-	DENSITY	11.51	1.36	0.44	2.33	10.51	6.48	0.00	0.00	0.00	0.00	0.00	0.00	2.72
29JUL	SE	6.02	0.48	0.42	1.31	3.75	2.73	0.00	0.00	0.00	0.00	0.00	0.00	7.74
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	DENSITY	0.80	1.36	0.04	0.02	13.63	5.44	0.00	0.00	0.00	0.00	0.00	0.00	1.78
11AUG	SE	0.48	0.53	0.03	0.02	8.18	2.53	0.00	0.00	0.00	0.00	0.00	0.00	8.59
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21AUG-	DENSITY	1.43	0.11	0.00	0.71	11.47	0.14	0.75	0.00	0.00	0.00	0.00	0.00	1.22
25AUG	SE	0.57	0.06	0.00	0.68	10.35	0.09	0.75	0.00	0.00	0.00	0.00	0.00	10.41
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
03SEP-	DENSITY	11.34	4.66	0.68	0.75	3.19	30.20	0.00	0.00	0.00	0.00	0.00	0.00	4.23
08SEP	SE	2.78	2.30	0.46	0.75	1.60	25.85	0.00	0.00	0.00	0.00	0.00	0.00	26.17
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
18SEP-	DENSITY	1.03	0.51	0.02	0.01	0.03	1.28	1.43	0.00	0.00	0.00	0.00	0.00	0.36
22SEP	SE	0.72	0.11	0.02	0.01	0.02	1.28	1.43	0.00	0.00	0.00	0.00	0.00	2.05
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
02OCT-	DENSITY	2.60	1.51	0.32	0.80	0.83	0.17	0.19	0.56	0.00	0.00	0.00	0.00	0.58
05OCT	SE	1.06	0.61	0.14	0.73	0.76	0.04	0.09	0.56	0.00	0.00	0.00	0.00	1.72
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
16OCT-	DENSITY	2.52	1.87	1.69	6.15	0.84	2.02	0.76	0.00	0.00	0.00	0.00	0.00	1.32
20OCT	SE	1.87	0.54	0.18	1.99	0.76	1.14	0.76	0.00	0.00	0.00	0.00	0.00	3.20
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

TABLE C-60 REGIONAL STANDING CROP (IN THOUSANDS) OF BAY ANCHOVY YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	ST. CROP	4105	3043	1929	2603	0	90	0	0	0	0	0	0	11771
15JUL	SE	1758	832	390	1311	0	89	0	0	0	0	0	0	2379
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24JUL-	ST. CROP	2640	439	65	484	2180	906	0	0	0	0	0	0	6715
29JUL	SE	1382	154	63	273	777	382	0	0	0	0	0	0	1662
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	ST. CROP	184	437	6	5	2828	761	0	0	0	0	0	0	4221
11AUG	SE	111	171	4	5	1696	353	0	0	0	0	0	0	1745
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21AUG-	ST. CROP	328	34	0	147	2380	19	222	0	0	0	0	0	3131
25AUG	SE	131	20	0	142	2147	13	222	0	0	0	0	0	2167
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
03SEP-	ST. CROP	2601	1501	100	156	663	4222	0	0	0	0	0	0	9241
08SEP	SE	637	739	67	156	332	3614	0	0	0	0	0	0	3762
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
18SEP-	ST. CROP	237	163	3	2	6	179	427	0	0	0	0	0	1017
22SEP	SE	164	34	3	2	4	179	427	0	0	0	0	0	493
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
02OCT-	ST. CROP	597	486	47	167	172	23	57	93	0	0	0	0	1641
05OCT	SE	244	196	20	153	159	5	28	93	0	0	0	0	395
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
16OCT-	ST. CROP	577	601	250	1282	175	282	225	0	0	0	0	0	3392
20OCT	SE	429	175	26	415	157	159	225	0	0	0	0	0	699
	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, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	CPUE	5.00	25.64	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.56
22JUN	SE	1.53	17.89	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.96
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03JUL-	CPUE	0.00	3.27	2.43	1.33	3.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.86
06JUL	SE	0.00	1.28	1.95	0.88	1.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.05
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
17JUL-	CPUE	0.00	0.45	0.00	1.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18
20JUL	SE	0.00	0.37	0.00	1.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.26
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
31JUL-	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
02AUG	SE	0.00	0.00	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
14AUG-	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
16AUG	SE	0.00	0.00	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
29AUG-	CPUE	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
31AUG	SE	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11SEP-	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
14SEP	SE	0.00	0.00	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
25SEP-	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
28SEP	SE	0.00	0.00	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
09OCT-	CPUE	1.20	0.04	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12
12OCT	SE	1.20	0.04	0.00	0.00	0.20	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
23OCT-	CPUE	0.40	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
26OCT	SE	0.40	0.04	0.00	0.00	0.00	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

TABLE C-62 REGIONAL STANDING CROP (IN THOUSANDS) OF BAY ANCHOVY YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	ST. CROP	38	1165	4	0	0	0	0	0	0	0	0	0	1206
22JUN	SE	12	813	4	0	0	0	0	0	0	0	0	0	813
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03JUL-	ST. CROP	0	149	65	12	9	0	0	0	0	0	0	0	235
06JUL	SE	0	58	52	8	5	0	0	0	0	0	0	0	79
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
17JUL-	ST. CROP	0	21	0	15	0	0	0	0	0	0	0	0	36
20JUL	SE	0	17	0	11	0	0	0	0	0	0	0	0	20
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
31JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
02AUG	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
14AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
16AUG	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
29AUG-	ST. CROP	0	0	0	0	2	0	0	0	0	0	0	0	2
31AUG	SE	0	0	0	0	2	0	0	0	0	0	0	0	2
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
14SEP	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
25SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
28SEP	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
09OCT-	ST. CROP	9	2	0	0	1	0	0	0	0	0	0	0	11
12OCT	SE	9	2	0	0	1	0	0	0	0	0	0	0	9
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
23OCT-	ST. CROP	3	2	0	0	0	0	0	0	0	0	0	0	5
26OCT	SE	3	2	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, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-08MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-22MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-07APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-14APR	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	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-21APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.59	0.34	0.00	0.00	0.07
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.59	0.34	0.00	0.00	0.68
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-28APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.17	33.23	8.20	1.81	3.49
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.17	14.97	3.36	1.27	15.54
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-04MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.62	0.70	0.90	8.62	48.24	381.44	33.89
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49	0.50	0.64	3.16	23.56	343.95	344.78
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-12MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	286.92	39.33	49.17	28.91
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	281.44	21.83	28.86	283.76
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-20MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.38	5.22	28.13	112.50	45.28	229.70	32.71
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.38	5.22	28.13	45.34	23.85	158.45	169.02
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-26MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.34	6.73	470.18	3.90	0.96	37.11
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.34	6.73	263.18	2.62	0.96	263.28
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-04JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	763.89	51.95	5.84	63.25
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	562.77	43.94	1.75	564.49
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-10JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	34.61	218.31	0.00	19.46
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.47	200.54	0.00	201.59
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-63 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF AMERICAN SHAD EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
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
17JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
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
24JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	<0.005
01JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.05
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.00	0.00	0.02
08JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.00	0.00	0.28
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
21JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
05AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
16AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
31AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
28SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
12OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-64 REGIONAL STANDING CROP (IN THOUSANDS) OF AMERICAN SHAD EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
08MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
22MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
07APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	ST. CROP	0	0	0	0	0	0	0	0	0	84	59	0	0	143
21APR	SE	0	0	0	0	0	0	0	0	0	84	59	0	0	103
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	ST. CROP	0	0	0	0	0	0	0	0	0	306	5859	1317	129	7612
28APR	SE	0	0	0	0	0	0	0	0	0	306	2639	541	91	2712
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	ST. CROP	0	0	0	0	0	0	0	186	115	127	1520	7753	27139	36841
04MAY	SE	0	0	0	0	0	0	0	146	83	91	557	3788	24472	24770
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	54	50583	6321	3498	60456
12MAY	SE	0	0	0	0	0	0	0	0	0	54	49617	3508	2053	49784
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	ST. CROP	0	0	0	0	0	0	0	1306	863	3980	19833	7277	16343	49602
20MAY	SE	0	0	0	0	0	0	0	1306	863	3980	7994	3834	11274	14966
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	ST. CROP	0	0	0	0	0	0	0	82	56	953	82891	627	68	84678
26MAY	SE	0	0	0	0	0	0	0	82	56	953	46397	421	68	46408
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	85	134671	8350	416	143521
04JUN	SE	0	0	0	0	0	0	0	0	0	85	99215	7063	124	99466
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	6101	35090	0	41191
10JUN	SE	0	0	0	0	0	0	0	0	0	0	3609	32234	0	32435
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-64 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF AMERICAN SHAD EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	ST. CROP	0	0	0	0	0	0	7	0	0	0	0	0	0	7
01JUL	SE	0	0	0	0	0	0	7	0	0	0	0	0	0	7
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	50	0	0	50
08JUL	SE	0	0	0	0	0	0	0	0	0	0	50	0	0	50
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
21JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
16AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
31AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
12OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-65 REGIONAL DENSITY (NO./1,000m3) OF AMERICAN SHAD YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
08MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
22MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
07APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	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
14APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	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
21APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	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
28APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	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
04MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.63	2.62	3.49	24.09	2.53
12MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.65	1.14	2.33	9.19	9.69
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.19	4.79	39.58	24.94	40.94	8.80
20MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.87	3.15	9.58	7.98	14.79	19.69
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.00	34.33	15.90	15.12	0.99	5.14
26MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.00	11.46	4.32	13.43	0.99	18.21
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.62	0.00	2.53	49.15	22.31	15.51	6.93
04JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.62	0.00	2.53	25.66	9.98	8.12	28.83
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.13	0.00	0.00	9.90	3.87	1.22
10JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.95	0.00	0.00	9.31	3.87	10.27
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-65 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF AMERICAN SHAD YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.06	0.00	0.70
17JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.06	0.00	9.06
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
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
24JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
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
01JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	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
08JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
21JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
05AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
16AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
31AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
28SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
12OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-66 REGIONAL STANDING CROP (IN THOUSANDS) OF AMERICAN SHAD YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
08MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
22MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
07APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	372	461	561	1714	3108
12MAY	SE	0	0	0	0	0	0	0	0	0	233	202	375	654	814
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	ST. CROP	0	0	0	0	0	0	0	0	693	677	6978	4009	2913	15270
20MAY	SE	0	0	0	0	0	0	0	0	310	446	1689	1282	1052	2428
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	ST. CROP	0	0	0	0	0	0	0	124	0	4857	2803	2431	71	10286
26MAY	SE	0	0	0	0	0	0	0	84	0	1622	761	2159	71	2807
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	ST. CROP	0	0	0	0	0	0	0	186	0	358	8665	3587	1103	13898
04JUN	SE	0	0	0	0	0	0	0	186	0	358	4524	1605	578	4852
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	ST. CROP	0	0	0	0	0	0	0	0	353	0	0	1592	275	2220
10JUN	SE	0	0	0	0	0	0	0	0	323	0	0	1496	275	1555
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-66 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF AMERICAN SHAD YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	1456	0	1456
17JUN	SE	0	0	0	0	0	0	0	0	0	0	0	1456	0	1456
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
21JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
16AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
31AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
12OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81

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, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
08MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
22MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
07APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	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
14APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	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
21APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	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
28APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	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
04MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	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	3.03	0.23
12MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.23	2.23
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	DENSITY	0.00	0.00	0.00	0.00	0.05	0.00	0.19	1.96	1.40	7.93	4.88	20.98	39.80	5.94
20MAY	SE	0.00	0.00	0.00	0.00	0.05	0.00	0.19	1.96	1.09	5.22	2.87	9.38	11.00	15.80
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.84	0.70	1.92	42.78	82.23	78.83	70.76	21.39
26MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.84	0.45	1.61	15.36	18.65	13.52	51.20	58.24
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	DENSITY	0.00	0.00	0.21	0.00	0.40	0.25	0.04	0.00	8.14	17.36	79.40	94.09	17.00	16.69
04JUN	SE	0.00	0.00	0.21	0.00	0.40	0.15	0.04	0.00	3.36	7.46	40.60	49.86	8.42	65.36
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.56	10.87	2.15	10.10	30.72	53.81	12.92	9.32
10JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.56	10.73	1.40	6.98	30.72	25.17	8.28	42.56
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-67 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF AMERICAN SHAD POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.66	3.41	0.00	9.51	84.06	41.28	138.37	89.02	28.18
17JUN	SE	0.00	0.00	0.00	0.00	0.00	0.55	1.65	0.00	4.11	47.00	7.85	60.02	34.37	84.11
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.34	1.56	4.36	61.34	157.17	125.08	7.28	27.47
24JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.34	1.56	3.19	40.31	141.43	11.56	5.16	147.65
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.11	0.52	4.92	44.83	73.01	9.57
01JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.11	0.52	4.92	43.27	69.56	82.08
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.03	0.38	0.00	0.00	1.38	0.21
08JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.73	0.38	0.00	0.00	0.79	1.14
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
21JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
05AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
16AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
31AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
28SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
12OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-68 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF AMERICAN SHAD POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	ST. CROP	0	0	0	0	0	136	477	0	1574	11891	7277	22240	6334	49929
17JUN	SE	0	0	0	0	0	113	231	0	680	6649	1384	9647	2445	12071
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	ST. CROP	0	0	0	0	0	0	47	466	722	8677	27708	20104	518	58243
24JUN	SE	0	0	0	0	0	0	47	466	528	5702	24934	1858	367	25657
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	ST. CROP	0	0	0	0	0	0	0	0	184	73	867	7205	5195	13525
01JUL	SE	0	0	0	0	0	0	0	0	184	73	867	6955	4949	8583
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	ST. CROP	0	0	0	0	0	0	0	0	170	54	0	0	98	322
08JUL	SE	0	0	0	0	0	0	0	0	121	54	0	0	56	144
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
21JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
16AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
31AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
12OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81

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, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
08MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
22MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
07APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	216	216
12MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	159	159
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	ST. CROP	0	0	0	0	11	0	27	584	232	1122	861	3373	2831	9042
20MAY	SE	0	0	0	0	11	0	27	584	181	739	505	1508	783	2016
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	ST. CROP	0	0	0	0	0	0	118	208	318	6052	14497	12671	5035	38898
26MAY	SE	0	0	0	0	0	0	118	135	267	2174	3289	2173	3643	5800
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	ST. CROP	0	0	67	0	84	53	5	0	1348	2456	13998	15124	1210	34345
04JUN	SE	0	0	67	0	84	31	5	0	556	1055	7157	8014	599	10828
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	ST. CROP	0	0	0	0	0	0	78	3242	356	1429	5415	8648	919	20087
10JUN	SE	0	0	0	0	0	0	78	3199	232	987	5415	4046	589	7570
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-69 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF AMERICAN SHAD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
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
17JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.78	0.00	3.69	1.99	17.35	0.00	1.83
24JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.78	0.00	1.25	1.99	6.62	0.00	7.07
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.99	30.68	11.87	84.61	49.21	13.87
01JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.26	6.20	2.39	54.09	30.87	62.68
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	DENSITY	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.19	2.73	26.61	37.24	42.02	10.11	9.15
08JUL	SE	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.19	1.60	8.27	10.95	26.34	4.58	30.10
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	DENSITY	0.00	0.00	0.49	1.71	0.78	2.10	4.63	0.00	NS	NS	NS	NS	NS	1.21
21JUL	SE	0.00	0.00	0.37	0.95	0.53	1.36	2.84	0.00						3.35
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	DENSITY	0.00	0.00	0.42	1.01	0.00	0.11	0.62	1.77	NS	NS	NS	NS	NS	0.49
05AUG	SE	0.00	0.00	0.42	0.58	0.00	0.11	0.46	1.37						1.62
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	DENSITY	0.00	0.00	0.42	0.00	1.19	0.00	1.07	1.70	NS	NS	NS	NS	NS	0.55
16AUG	SE	0.00	0.00	0.42	0.00	1.19	0.00	0.94	1.70						2.32
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	1.74	0.62	2.51	NS	NS	NS	NS	NS	0.61
31AUG	SE	0.00	0.00	0.00	0.00	0.00	1.50	0.62	1.73						2.37
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.38	2.20	0.00	NS	NS	NS	NS	NS	0.32
14SEP	SE	0.00	0.00	0.00	0.00	0.00	0.24	1.93	0.00						1.94
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.55	0.27	0.48	NS	NS	NS	NS	NS	0.16
28SEP	SE	0.00	0.00	0.00	0.00	0.00	0.33	0.27	0.48						0.64
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	DENSITY	0.00	0.00	0.00	0.00	0.45	0.23	0.00	0.31	NS	NS	NS	NS	NS	0.12
12OCT	SE	0.00	0.00	0.00	0.00	0.45	0.13	0.00	0.31						0.57
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-69 REGIONAL DENSITY (NO./1,000m3) OF AMERICAN SHAD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-08MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-22MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-07APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-14APR	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	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-21APR	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	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-28APR	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	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-04MAY	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	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-12MAY	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	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-20MAY	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	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-26MAY	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	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-04JUN	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	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-10JUN	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	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-70 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF AMERICAN SHAD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	ST. CROP	0	0	0	0	0	0	0	233	0	523	351	2789	0	3896
24JUN	SE	0	0	0	0	0	0	0	233	0	176	351	1064	0	1158
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	ST. CROP	0	0	0	0	0	0	0	0	660	4340	2093	13599	3501	24194
01JUL	SE	0	0	0	0	0	0	0	0	374	878	422	8695	2196	9028
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	ST. CROP	0	0	0	0	8	0	0	57	451	3765	6566	6754	720	18321
08JUL	SE	0	0	0	0	8	0	0	57	265	1170	1931	4234	326	4817
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	ST. CROP	0	0	158	253	163	436	647	0	NS	NS	NS	NS	NS	1657
21JUL	SE	0	0	120	140	110	282	397	0						533
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	ST. CROP	0	0	136	149	0	23	87	527	NS	NS	NS	NS	NS	923
05AUG	SE	0	0	136	86	0	23	64	409						445
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	ST. CROP	0	0	136	0	248	0	149	508	NS	NS	NS	NS	NS	1042
16AUG	SE	0	0	136	0	248	0	131	508						596
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	ST. CROP	0	0	0	0	0	360	86	747	NS	NS	NS	NS	NS	1194
31AUG	SE	0	0	0	0	0	311	86	515						608
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	ST. CROP	0	0	0	0	0	79	308	0	NS	NS	NS	NS	NS	387
14SEP	SE	0	0	0	0	0	51	269	0						274
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	ST. CROP	0	0	0	0	0	114	38	142	NS	NS	NS	NS	NS	294
28SEP	SE	0	0	0	0	0	68	38	142						162
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	ST. CROP	0	0	0	0	95	47	0	92	NS	NS	NS	NS	NS	234
12OCT	SE	0	0	0	0	95	27	0	92						135
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-70 REGIONAL STANDING CROP (IN THOUSANDS) OF AMERICAN SHAD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-08MAR	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-22MAR	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-07APR	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-14APR	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	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-21APR	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	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-28APR	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	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-04MAY	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	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-12MAY	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	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-20MAY	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	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-26MAY	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	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-04JUN	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	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-10JUN	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	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-71 REGIONAL DENSITY (NO./1,000m3) OF AMERICAN SHAD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	DENSITY	1.53	0.15	0.09	2.34	0.02	0.66	0.03	10.17	4.62	2.06	13.09	1.93	3.06
15JUL	SE	1.53	0.15	0.05	2.33	0.02	0.61	0.03	8.27	1.27	0.77	4.39	1.00	9.95
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24JUL-	DENSITY	0.07	0.11	0.00	0.88	0.00	0.11	0.00	0.05	1.17	0.59	3.29	1.04	0.61
29JUL	SE	0.04	0.05	0.00	0.79	0.00	0.07	0.00	0.05	0.66	0.33	0.90	0.38	1.46
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	DENSITY	0.00	0.02	0.02	0.88	0.00	0.06	0.74	0.03	0.03	0.12	1.10	1.64	0.38
11AUG	SE	0.00	0.02	0.02	0.83	0.00	0.06	0.74	0.03	0.03	0.08	1.03	0.65	1.65
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21AUG-	DENSITY	0.06	0.07	0.02	0.04	0.01	0.09	0.00	0.58	0.14	0.04	0.41	0.12	0.13
25AUG	SE	0.06	0.04	0.02	0.02	0.01	0.05	0.00	0.58	0.08	0.03	0.26	0.08	0.66
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
03SEP-	DENSITY	0.00	0.00	0.00	0.00	0.84	0.12	0.03	0.00	0.00	0.39	0.05	0.00	0.12
08SEP	SE	0.00	0.00	0.00	0.00	0.83	0.04	0.03	0.00	0.00	0.33	0.03	0.00	0.89
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
18SEP-	DENSITY	0.00	0.04	0.00	0.01	0.00	1.36	0.00	0.02	0.22	0.30	0.96	0.60	0.29
22SEP	SE	0.00	0.02	0.00	0.01	0.00	0.75	0.00	0.02	0.10	0.13	0.20	0.28	0.84
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
02OCT-	DENSITY	0.01	0.04	0.00	0.00	0.00	0.46	0.06	0.02	0.15	0.76	0.51	0.50	0.21
05OCT	SE	0.01	0.02	0.00	0.00	0.00	0.18	0.04	0.02	0.08	0.38	0.12	0.22	0.50
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
16OCT-	DENSITY	0.01	0.07	0.08	0.09	0.89	0.13	0.00	0.22	0.14	0.49	1.70	0.05	0.32
20OCT	SE	0.01	0.03	0.04	0.03	0.85	0.12	0.00	0.08	0.08	0.18	0.29	0.05	0.93
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

TABLE C-69 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF AMERICAN SHAD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
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
17JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.78	0.00	3.69	1.99	17.35	0.00	1.83
24JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.78	0.00	1.25	1.99	6.62	0.00	7.07
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.99	30.68	11.87	84.61	49.21	13.87
01JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.26	6.20	2.39	54.09	30.87	62.68
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	DENSITY	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.19	2.73	26.61	37.24	42.02	10.11	9.15
08JUL	SE	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.19	1.60	8.27	10.95	26.34	4.58	30.10
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	DENSITY	0.00	0.00	0.49	1.71	0.78	2.10	4.63	0.00	NS	NS	NS	NS	NS	1.21
21JUL	SE	0.00	0.00	0.37	0.95	0.53	1.36	2.84	0.00						3.35
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	DENSITY	0.00	0.00	0.42	1.01	0.00	0.11	0.62	1.77	NS	NS	NS	NS	NS	0.49
05AUG	SE	0.00	0.00	0.42	0.58	0.00	0.11	0.46	1.37						1.62
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	DENSITY	0.00	0.00	0.42	0.00	1.19	0.00	1.07	1.70	NS	NS	NS	NS	NS	0.55
16AUG	SE	0.00	0.00	0.42	0.00	1.19	0.00	0.94	1.70						2.32
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	1.74	0.62	2.51	NS	NS	NS	NS	NS	0.61
31AUG	SE	0.00	0.00	0.00	0.00	0.00	1.50	0.62	1.73						2.37
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.38	2.20	0.00	NS	NS	NS	NS	NS	0.32
14SEP	SE	0.00	0.00	0.00	0.00	0.00	0.24	1.93	0.00						1.94
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.55	0.27	0.48	NS	NS	NS	NS	NS	0.16
28SEP	SE	0.00	0.00	0.00	0.00	0.00	0.33	0.27	0.48						0.64
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	DENSITY	0.00	0.00	0.00	0.00	0.45	0.23	0.00	0.31	NS	NS	NS	NS	NS	0.12
12OCT	SE	0.00	0.00	0.00	0.00	0.45	0.13	0.00	0.31						0.57
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-73 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF AMERICAN SHAD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.38	3.63	2.25	7.07	15.95	6.75	3.00
22JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.38	1.69	1.58	5.10	8.30	6.30	11.84
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03JUL-	CPUE	0.00	0.00	0.00	0.00	8.00	27.33	2.00	17.88	5.13	5.07	0.68	0.00	5.51
06JUL	SE	0.00	0.00	0.00	0.00	7.51	22:36	0.60	6.99	3.31	3.63	0.49	0.00	25.10
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
17JUL-	CPUE	0.33	1.36	1.71	5.33	45.67	5.00	7.75	21.63	9.88	2.33	6.63	4.25	9.32
20JUL	SE	0.33	0.54	0.99	4.33	45.67	2.31	2.22	5.39	5.21	0.83	2.39	2.57	46.75
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
31JUL-	CPUE	0.00	0.50	0.00	0.00	2.00	6.33	8.80	6.40	17.20	9.44	12.80	8.14	5.97
02AUG	SE	0.00	0.28	0.00	0.00	0.84	3.71	4.50	2.77	12.65	3.16	4.63	6.55	16.64
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14AUG-	CPUE	0.00	0.88	0.00	0.00	7.40	5.33	10.60	8.80	7.20	11.89	7.50	0.86	5.04
16AUG	SE	0.00	0.75	0.00	0.00	3.19	1.82	4.01	3.62	2.71	4.38	1.28	0.34	8.46
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
29AUG-	CPUE	0.00	0.04	0.14	2.40	0.40	6.83	9.60	15.00	4.00	11.33	7.20	0.14	4.76
31AUG	SE	0.00	0.04	0.14	2.40	0.40	1.25	5.49	11.43	1.76	6.13	2.17	0.14	14.62
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11SEP-	CPUE	0.00	0.08	0.00	0.00	5.60	4.00	3.80	3.60	8.80	17.00	4.70	1.14	4.06
14SEP	SE	0.00	0.06	0.00	0.00	2.11	1.61	1.50	2.38	7.08	6.05	2.62	0.70	10.45
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25SEP-	CPUE	0.00	0.00	0.00	0.20	3.00	4.67	7.00	8.60	2.80	2.33	2.80	1.57	2.75
28SEP	SE	0.00	0.00	0.00	0.20	1.26	2.46	3.78	5.07	2.08	1.31	1.09	1.15	7.50
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
09OCT-	CPUE	0.20	0.29	0.14	1.60	5.60	19.17	10.80	1.60	2.80	2.33	2.00	0.29	3.90
12OCT	SE	0.20	0.15	0.10	1.36	3.75	5.44	3.20	0.51	2.31	1.44	0.54	0.29	7.99
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
23OCT-	CPUE	0.60	3.79	5.14	4.60	3.80	7.00	4.40	1.00	1.00	0.33	0.00	0.14	2.65
26OCT	SE	0.40	1.12	2.31	3.06	0.92	1.90	3.44	0.45	0.63	0.24	0.00	0.14	5.75
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE C-70 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF AMERICAN SHAD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	ST. CROP	0	0	0	0	0	0	0	233	0	523	351	2789	0	3896
24JUN	SE	0	0	0	0	0	0	0	233	0	176	351	1064	0	1158
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	ST. CROP	0	0	0	0	0	0	0	0	660	4340	2093	13599	3501	24194
01JUL	SE	0	0	0	0	0	0	0	0	374	878	422	8695	2196	9028
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	ST. CROP	0	0	0	0	8	0	0	57	451	3765	6566	6754	720	18321
08JUL	SE	0	0	0	0	8	0	0	57	265	1170	1931	4234	326	4817
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	ST. CROP	0	0	158	253	163	436	647	0	NS	NS	NS	NS	NS	1657
21JUL	SE	0	0	120	140	110	282	397	0						533
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	ST. CROP	0	0	136	149	0	23	87	527	NS	NS	NS	NS	NS	923
05AUG	SE	0	0	136	86	0	23	64	409						445
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	ST. CROP	0	0	136	0	248	0	149	508	NS	NS	NS	NS	NS	1042
16AUG	SE	0	0	136	0	248	0	131	508						596
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	ST. CROP	0	0	0	0	0	360	86	747	NS	NS	NS	NS	NS	1194
31AUG	SE	0	0	0	0	0	311	86	515						608
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	ST. CROP	0	0	0	0	0	79	308	0	NS	NS	NS	NS	NS	387
14SEP	SE	0	0	0	0	0	51	269	0						274
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	ST. CROP	0	0	0	0	0	114	38	142	NS	NS	NS	NS	NS	294
28SEP	SE	0	0	0	0	0	68	38	142						162
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	ST. CROP	0	0	0	0	95	47	0	92	NS	NS	NS	NS	NS	234
12OCT	SE	0	0	0	0	95	27	0	92						135
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-75 REGIONAL DENSITY (NO./1,000m3) OF AMERICAN SHAD YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
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
15JUL	SE	0.00	0.00	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
24JUL-	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
29JUL	SE	0.00	0.00	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
07AUG-	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
11AUG	SE	0.00	0.00	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
21AUG-	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
25AUG	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
03SEP-	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
08SEP	SE	0.00	0.00	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
18SEP-	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
22SEP	SE	0.00	0.00	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
02OCT-	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
05OCT	SE	0.00	0.00	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
16OCT-	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
20OCT	SE	0.00	0.00	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-72 REGIONAL STANDING CROP (IN THOUSANDS) OF AMERICAN SHAD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	ST. CROP	352	50	14	488	4	93	8	1683	654	363	2105	138	5951
15JUL	SE	352	50	7	485	4	85	8	1369	179	136	706	71	1672
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24JUL-	ST. CROP	16	35	0	184	0	15	0	8	165	104	529	74	1129
29JUL	SE	10	15	0	165	0	9	0	8	93	58	144	27	248
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	ST. CROP	0	6	3	183	0	8	220	5	4	21	176	117	741
11AUG	SE	0	6	3	174	0	8	220	5	4	15	165	46	329
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21AUG-	ST. CROP	14	23	3	8	3	12	0	97	20	8	66	9	263
25AUG	SE	14	14	3	5	3	7	0	97	11	5	41	6	108
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
03SEP-	ST. CROP	0	0	0	0	175	17	10	0	0	70	7	0	278
08SEP	SE	0	0	0	0	171	6	10	0	0	58	5	0	181
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
18SEP-	ST. CROP	0	14	0	2	0	191	0	4	31	54	154	43	491
22SEP	SE	0	6	0	2	0	105	0	4	14	23	33	20	115
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
02OCT-	ST. CROP	3	13	0	0	0	64	19	4	21	135	81	36	377
05OCT	SE	3	6	0	0	0	25	12	4	12	68	20	15	79
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
16OCT-	ST. CROP	3	23	12	18	184	19	0	37	20	87	273	3	679
20OCT	SE	3	9	6	7	177	16	0	12	11	32	47	3	187
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

TABLE C-79 REGIONAL DENSITY (NO./1,000m3) OF ALOSA SPP. EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-08MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-22MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-07APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-14APR	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	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-21APR	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	22.83	1.76
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22.83	22.83
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-28APR	DENSITY	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.79	1.02	0.00	0.00	39.44	52.48	7.21
	SE	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.79	1.02	0.00	0.00	11.63	16.58	20.29
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-04MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.30	0.51	52.95	353.10	323.18	56.18
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.30	0.51	6.47	202.69	83.59	219.34
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-12MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.99	1.68	8.52	129.11	36.08	941.65	86.77
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.33	1.19	4.44	109.96	31.77	513.51	526.16
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-20MAY	DENSITY	0.00	0.00	0.00	0.00	0.47	1.70	0.00	24.40	27.31	71.96	310.39	1354.39	1738.45	271.47
	SE	0.00	0.00	0.00	0.00	0.47	1.70	0.00	24.40	15.69	36.21	139.29	808.44	456.63	940.03
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-26MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.48	0.31	2.68	447.37	58.38	21.41	44.20
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23.19	0.31	2.68	350.79	23.71	13.47	352.62
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-04JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.32	0.16	0.49	1.90	99.75	112.33	13.61	17.58
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.16	0.49	1.90	72.66	46.51	9.80	86.85
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-10JUN	DENSITY	0.00	0.00	0.21	0.00	0.00	0.00	0.00	0.60	0.19	0.00	13.88	808.54	135.05	73.73
	SE	0.00	0.00	0.21	0.00	0.00	0.00	0.00	0.60	0.19	0.00	6.62	349.81	119.80	369.81
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-74 REGIONAL STANDING CROP (IN THOUSANDS) OF AMERICAN SHAD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	ST. CROP	0	0	0	0	0	0	3	4	19	124	314	92	556
22JUN	SE	0	0	0	0	0	0	3	2	14	89	163	86	205
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03JUL-	ST. CROP	0	0	0	0	21	291	14	22	44	89	13	0	495
06JUL	SE	0	0	0	0	20	238	4	9	29	64	10	0	249
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
17JUL-	ST. CROP	3	62	46	49	120	53	55	27	85	41	130	58	729
20JUL	SE	3	25	27	40	120	25	16	7	45	15	47	35	155
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
31JUL-	ST. CROP	0	23	0	0	5	67	62	8	148	166	252	111	842
02AUG	SE	0	13	0	0	2	40	32	3	109	56	91	89	184
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14AUG-	ST. CROP	0	40	0	0	20	57	75	11	62	209	148	12	632
16AUG	SE	0	34	0	0	8	19	28	4	23	77	25	5	98
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
29AUG-	ST. CROP	0	2	4	22	1	73	68	19	34	199	142	2	565
31AUG	SE	0	2	4	22	1	13	39	14	15	108	43	2	127
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11SEP-	ST. CROP	0	4	0	0	15	43	27	4	76	298	92	16	575
14SEP	SE	0	3	0	0	6	17	11	3	61	106	52	10	135
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25SEP-	ST. CROP	0	0	0	2	8	50	50	11	24	41	55	21	261
28SEP	SE	0	0	0	2	3	26	27	6	18	23	22	16	55
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
09OCT-	ST. CROP	2	13	4	15	15	204	77	2	24	41	39	4	439
12OCT	SE	2	7	3	13	10	58	23	1	20	25	11	4	73
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
23OCT-	ST. CROP	5	172	138	42	10	75	31	1	9	6	0	2	491
26OCT	SE	3	51	62	28	2	20	24	1	5	4	0	2	91
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE C-77 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF AMERICAN SHAD YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	CPUE	0.00	0.27	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
22JUN	SE	0.00	0.27	0.29	0.00	0.00	0.00	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
03JUL-	CPUE	0.00	0.00	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
06JUL	SE	0.00	0.00	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
17JUL-	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
20JUL	SE	0.00	0.00	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
31JUL-	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
02AUG	SE	0.00	0.00	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
14AUG-	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
16AUG	SE	0.00	0.00	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
29AUG-	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
31AUG	SE	0.00	0.00	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
11SEP-	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
14SEP	SE	0.00	0.00	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
25SEP-	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
28SEP	SE	0.00	0.00	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
09OCT-	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
12OCT	SE	0.00	0.00	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
23OCT-	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
26OCT	SE	0.00	0.00	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-76 REGIONAL STANDING CROP (IN THOUSANDS) OF AMERICAN SHAD YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
15JUL	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
24JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
29JUL	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
07AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
11AUG	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
21AUG-	ST. CROP	0	0	0	0	0	0	9	0	0	0	0	0	9
25AUG	SE	0	0	0	0	0	0	9	0	0	0	0	0	9
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
03SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
08SEP	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
18SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
22SEP	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
02OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
05OCT	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
16OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
20OCT	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-80 REGIONAL STANDING CROP (IN THOUSANDS) OF ALOSA SPP. EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
08MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
22MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
07APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	1625	1625
21APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	1625	1625
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	ST. CROP	0	0	0	0	10	0	0	234	169	0	0	6339	3734	10487
28APR	SE	0	0	0	0	10	0	0	234	169	0	0	1870	1179	2229
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	ST. CROP	0	0	0	0	0	0	0	97	49	72	9334	56754	22994	89300
04MAY	SE	0	0	0	0	0	0	0	60	49	72	1140	32578	5948	33136
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	ST. CROP	0	0	0	0	0	0	0	3276	277	1206	22762	5800	66997	100318
12MAY	SE	0	0	0	0	0	0	0	1588	197	628	19386	5107	36536	41710
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	ST. CROP	0	0	0	0	98	354	0	7275	4520	10180	54721	217694	123689	418530
20MAY	SE	0	0	0	0	98	354	0	7275	2597	5122	24556	129943	32489	136491
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	ST. CROP	0	0	0	0	0	0	0	13261	52	379	78870	9384	1523	103468
26MAY	SE	0	0	0	0	0	0	0	6915	52	379	61843	3810	958	62353
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	ST. CROP	0	0	0	0	0	0	44	46	82	268	17586	18055	968	37051
04JUN	SE	0	0	0	0	0	0	39	46	82	268	12810	7475	697	14851
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	ST. CROP	0	0	66	0	0	0	0	178	32	0	2448	129958	9609	142290
10JUN	SE	0	0	66	0	0	0	0	178	32	0	1168	56225	8524	56880
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-79 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF ALOSA SPP. EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-17JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.16	0.00	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	0.82	0.00	0.82
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-24JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.92	57.71	4.89
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.92	19.18	20.07
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-01JUL	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	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-08JUL	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	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-21JUL	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	6	11	13	14	12	8	10	6						80
03AUG-05AUG	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	6	10	13	14	13	8	10	6						80
14AUG-16AUG	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	6	11	13	14	13	8	10	6						81
29AUG-31AUG	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	6	11	13	14	13	8	10	6						81
12SEP-14SEP	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	6	11	13	14	13	8	10	6						81
26SEP-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
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-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
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-81 REGIONAL DENSITY (NO./1,000m3) OF ALOSA SPP. YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	DENSITY	0.54	0.35	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.13
08MAR	SE	0.54	0.35	0.00	0.00	0.00	0.00	0.00							0.64
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
22MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
07APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	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
14APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	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
21APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	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
28APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	DENSITY	0.00	0.09	0.00	0.00	0.00	0.15	0.27	1.99	6.69	12.36	2.41	5.85	9.46	3.02
04MAY	SE	0.00	0.09	0.00	0.00	0.00	0.15	0.24	1.99	2.01	3.74	1.17	2.21	2.29	5.79
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	1.43	5.22	15.80	15.21	11.32	7.40	92.42	11.45
12MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.57	2.28	5.70	2.84	4.05	1.84	41.87	42.65
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	1.85	5.20	42.46	63.30	186.10	296.45	70.80	51.24
20MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.61	2.65	12.95	20.09	25.60	65.23	20.51	76.87
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	DENSITY	0.00	0.25	0.00	0.00	0.00	0.25	1.66	20.83	4.84	54.64	34.76	398.74	356.64	67.12
26MAY	SE	0.00	0.25	0.00	0.00	0.00	0.14	0.79	2.46	1.83	14.80	11.58	148.45	193.54	244.66
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	DENSITY	0.00	0.00	0.15	0.00	0.00	0.00	1.71	5.52	7.92	64.44	247.38	160.45	41.07	40.66
04JUN	SE	0.00	0.00	0.15	0.00	0.00	0.00	1.00	2.54	4.25	25.24	37.93	38.98	13.82	61.74
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	DENSITY	0.00	0.00	6.40	0.00	1.94	6.15	5.54	8.72	3.95	8.42	150.75	83.49	364.47	49.22
10JUN	SE	0.00	0.00	4.46	0.00	1.75	6.01	4.43	5.46	1.83	6.33	21.95	41.82	139.73	148.01
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-78 REGIONAL STANDING CROP (IN THOUSANDS) OF AMERICAN SHAD YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	ST. CROP	0	12	8	0	0	0	0	0	0	0	0	0	20
22JUN	SE	0	12	8	0	0	0	0	0	0	0	0	0	15
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03JUL-	ST. CROP	0	0	12	0	0	0	0	0	0	0	0	0	12
06JUL	SE	0	0	12	0	0	0	0	0	0	0	0	0	12
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
17JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
20JUL	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
31JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
02AUG	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
14AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
16AUG	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
29AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
31AUG	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
11SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
14SEP	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
25SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
28SEP	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
09OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
12OCT	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
23OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
26OCT	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-82. REGIONAL STANDING CROP (IN THOUSANDS) OF ALOSA SPP. YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	ST. CROP	113	80	0	0	0	0	0	NS	NS	NS	NS	NS	NS	193
08MAR	SE	113	80	0	0	0	0	0							138
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
22MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
07APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	ST. CROP	0	21	0	0	0	31	37	593	1107	1748	424	941	673	5577
04MAY	SE	0	21	0	0	0	31	33	593	332	528	207	356	163	969
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	ST. CROP	0	0	0	0	0	0	200	1556	2615	2151	1996	1190	6576	16284
12MAY	SE	0	0	0	0	0	0	80	679	943	402	714	296	2979	3315
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	ST. CROP	0	0	0	0	0	0	259	1550	7027	8956	32808	47649	5037	103286
20MAY	SE	0	0	0	0	0	0	86	791	2143	2842	4514	10484	1459	12072
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	ST. CROP	0	58	0	0	0	51	232	6211	801	7730	6128	64090	25374	110676
26MAY	SE	0	58	0	0	0	30	111	734	304	2094	2041	23860	13770	27715
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	ST. CROP	0	0	48	0	0	0	239	1645	1311	9117	43611	25790	2922	84683
04JUN	SE	0	0	48	0	0	0	139	756	704	3571	6687	6265	983	9938
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	ST. CROP	0	0	2060	0	405	1276	775	2600	654	1191	26577	13419	25932	74888
10JUN	SE	0	0	1434	0	364	1247	619	1628	302	896	3870	6721	9941	12910
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-81 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF ALOSA SPP. YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-17JUN	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	35.86	2.76
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.41	20.41
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-24JUN	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	25.97	2.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.90	5.90
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-01JUL	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	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-08JUL	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	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-21JUL	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	6	11	13	14	12	8	10	6						80
03AUG-05AUG	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	6	10	13	14	13	8	10	6						80
14AUG-16AUG	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	6	11	13	14	13	8	10	6						81
29AUG-31AUG	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	6	11	13	14	13	8	10	6						81
12SEP-14SEP	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	6	11	13	14	13	8	10	6						81
26SEP-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
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-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
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-83. REGIONAL DENSITY (NO./1,000m3) OF ALOSA SPP. POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-08MAR	DENSITY	0.00	0.00	0.00	0.24	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.03
	SE	0.00	0.00	0.00	0.24	0.00	0.00	0.00							0.24
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-22MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-07APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-14APR	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	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-21APR	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	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-28APR	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	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-04MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44	3.67	0.40	0.55	0.00	0.39
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44	2.38	0.40	0.55	0.00	2.52
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-12MAY	DENSITY	1.10	0.00	0.00	0.17	0.10	0.60	1.24	4.82	26.62	28.32	36.66	75.10	43.77	16.81
	SE	1.10	0.00	0.00	0.17	0.06	0.60	0.38	2.09	7.03	3.54	7.79	12.10	15.39	22.63
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-20MAY	DENSITY	0.00	0.00	0.00	0.20	0.00	1.31	11.72	33.21	45.72	47.74	65.95	170.84	67.77	34.19
	SE	0.00	0.00	0.00	0.20	0.00	0.66	2.72	12.74	12.87	13.94	13.70	44.90	21.44	56.51
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-26MAY	DENSITY	0.00	0.48	0.00	0.00	0.68	2.42	5.67	76.66	78.36	613.83	639.95	851.22	301.74	197.77
	SE	0.00	0.48	0.00	0.00	0.48	1.84	1.34	19.75	24.15	244.54	30.33	69.50	156.17	301.52
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-04JUN	DENSITY	0.00	0.00	0.21	1.46	7.94	15.39	83.78	88.75	706.14	1697.23	2867.34	2387.24	1446.02	715.50
	SE	0.00	0.00	0.21	0.72	2.25	7.33	16.34	28.14	464.91	352.90	395.95	417.86	646.38	1044.50
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-10JUN	DENSITY	0.76	11.20	12.90	8.33	9.30	31.27	46.43	402.98	304.12	1518.34	5531.79	4206.90	1368.91	1034.86
	SE	0.76	11.20	5.85	2.48	2.87	14.00	9.69	160.64	78.19	206.04	1316.25	1149.95	290.63	1792.82
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-83 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF ALOSA SPP. POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-17JUN	DENSITY	0.00	0.28	1.18	33.64	24.06	99.37	199.66	355.02	696.37	2409.55	1376.90	1507.86	544.78	557.59
	SE	0.00	0.28	1.18	5.30	11.79	23.33	53.19	96.39	100.78	822.52	332.78	387.05	83.71	983.41
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-24JUN	DENSITY	0.00	3.24	0.51	22.02	2.22	5.35	45.62	290.40	742.87	1830.39	797.53	2107.54	533.87	490.89
	SE	0.00	2.03	0.51	16.46	1.58	2.86	15.22	153.44	150.68	583.01	84.41	250.35	82.33	680.62
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-01JUL	DENSITY	8.00	3.66	0.74	0.00	0.00	1.88	53.64	195.72	279.42	962.84	441.51	906.31	662.19	270.45
	SE	3.10	1.85	0.74	0.00	0.00	1.63	18.13	124.65	59.29	551.27	44.06	419.20	334.18	782.72
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-08JUL	DENSITY	6.24	6.48	0.00	0.00	0.00	0.00	11.85	132.56	267.62	427.88	224.69	374.12	277.00	132.96
	SE	3.33	3.24	0.00	0.00	0.00	0.00	5.67	72.64	63.53	115.49	35.10	33.63	61.03	169.68
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-21JUL	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	6	11	13	14	12	8	10	6						80
03AUG-05AUG	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	6	10	13	14	13	8	10	6						80
14AUG-16AUG	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	6	11	13	14	13	8	10	6						81
29AUG-31AUG	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	6	11	13	14	13	8	10	6						81
12SEP-14SEP	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	6	11	13	14	13	8	10	6						81
26SEP-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
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-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
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-84 REGIONAL STANDING CROP (IN THOUSANDS) OF ALOSA SPP. POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	ST. CROP	0	0	0	35	0	0	0	NS	NS	NS	NS	NS	NS	35
08MAR	SE	0	0	0	35	0	0	0							35
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
22MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
07APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	ST. CROP	0	0	0	0	0	0	0	0	73	519	71	89	0	752
04MAY	SE	0	0	0	0	0	0	0	0	73	337	71	89	0	363
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	ST. CROP	230	0	0	26	20	125	174	1436	4405	4006	6463	12071	3114	32071
12MAY	SE	230	0	0	26	12	125	53	622	1164	501	1374	1946	1095	2989
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	ST. CROP	0	0	0	30	0	272	1639	9901	7566	6754	11626	27460	4822	70069
20MAY	SE	0	0	0	30	0	138	380	3799	2129	1971	2415	7217	1526	9124
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	ST. CROP	0	110	0	0	141	503	793	22855	12968	86838	112820	136817	21469	395314
26MAY	SE	0	110	0	0	100	382	187	5888	3997	34595	5347	11171	11111	39045
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	ST. CROP	0	0	67	216	1653	3193	11712	26459	116855	240107	505500	383706	102883	1392352
04JUN	SE	0	0	67	107	468	1520	2284	8391	76935	49924	69804	67163	45989	141379
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	ST. CROP	159	2570	4152	1230	1937	6487	6491	120142	50327	214799	975231	676182	97397	2157105
10JUN	SE	159	2570	1881	366	598	2905	1355	47893	12940	29149	232050	184834	20678	302936
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-84 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF ALOSA SPP. POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	ST. CROP	0	65	379	4970	5012	20615	27911	105845	115239	340878	242742	242362	38761	1144778
17JUN	SE	0	65	379	784	2455	4840	7435	28736	16678	116362	58668	62212	5956	148584
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	ST. CROP	0	742	166	3253	463	1110	6377	86579	122934	258945	140601	338749	37984	997903
24JUN	SE	0	466	166	2432	329	594	2128	45745	24935	82479	14882	40238	5858	106786
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	ST. CROP	1671	841	239	0	0	390	7499	58351	46240	136212	77836	145673	47114	522065
01JUL	SE	647	423	239	0	0	338	2535	37162	9812	77988	7767	67378	23777	112837
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	ST. CROP	1304	1486	0	0	0	0	1657	39521	44287	60532	39612	60133	19709	268239
08JUL	SE	696	744	0	0	0	0	793	21656	10513	16339	6188	5406	4342	30570
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
21JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
16AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
31AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
12OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-85 REGIONAL DENSITY (NO./1,000m3) OF ALOSA SPP. YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-08MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-22MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-07APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-14APR	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	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-21APR	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	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-28APR	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	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-04MAY	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	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-12MAY	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	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-20MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.41	0.00	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	1.41	0.00	0.00	0.00	1.41
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-26MAY	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	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-04JUN	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	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-10JUN	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	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-85 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF ALOSA SPP. YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
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
17JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
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
24JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.10	2.92	5.20	15.92	15.19	21.27	13.20	5.68
01JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.10	1.85	2.29	4.00	9.64	17.76	6.93	21.93
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.81	11.90	51.39	23.11	33.21	14.77	10.40
08JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	8.63	18.29	7.33	19.49	7.91	30.09
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
21JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
05AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
16AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
31AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
28SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
12OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-86 REGIONAL STANDING CROP (IN THOUSANDS) OF ALOSA SPP. YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
08MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
22MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
07APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	200	0	0	0	200
20MAY	SE	0	0	0	0	0	0	0	0	0	200	0	0	0	200
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-86 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF ALOSA SPP. YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	ST. CROP	0	0	0	0	0	0	14	871	861	2253	2678	3419	939	11033
01JUL	SE	0	0	0	0	0	0	14	552	379	566	1699	2854	493	3470
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	ST. CROP	0	0	0	0	0	0	0	242	1969	7270	4075	5337	1051	19943
08JUL	SE	0	0	0	0	0	0	0	140	1428	2587	1293	3133	563	4534
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
21JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
16AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
31AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
12OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-87 REGIONAL DENSITY (NO./1,000m3) OF ALEWIFE YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-08MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-22MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-07APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-14APR	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	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-21APR	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	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-28APR	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	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-04MAY	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	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-12MAY	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	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-20MAY	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	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-26MAY	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	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-04JUN	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	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-10JUN	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	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-88 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF ALEWIFE YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	266	761	174	87	1288
01JUL	SE	0	0	0	0	0	0	0	0	0	266	474	88	87	557
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	ST. CROP	0	0	0	0	0	0	13	222	352	2811	178	544	209	4328
08JUL	SE	0	0	0	0	0	0	13	222	249	814	178	146	107	915
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	ST. CROP	0	0	0	24	0	140	217	999	NS	NS	NS	NS	NS	1380
21JUL	SE	0	0	0	24	0	140	217	999						1032
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	ST. CROP	0	0	0	72	825	165	712	0	NS	NS	NS	NS	NS	1773
05AUG	SE	0	0	0	72	617	140	342	0						723
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	ST. CROP	0	0	0	0	8	0	525	0	NS	NS	NS	NS	NS	533
16AUG	SE	0	0	0	0	8	0	373	0						373
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	ST. CROP	0	0	0	0	0	72	78	0	NS	NS	NS	NS	NS	149
31AUG	SE	0	0	0	0	0	72	48	0						86
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	ST. CROP	0	0	0	0	0	273	396	0	NS	NS	NS	NS	NS	668
14SEP	SE	0	0	0	0	0	193	282	0						342
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	ST. CROP	0	0	0	0	0	47	156	86	NS	NS	NS	NS	NS	289
28SEP	SE	0	0	0	0	0	27	114	86						145
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	ST. CROP	0	0	0	0	0	51	21	92	NS	NS	NS	NS	NS	164
12OCT	SE	0	0	0	0	0	30	14	92						98
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-88 REGIONAL STANDING CROP (IN THOUSANDS) OF ALEWIFE YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
08MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
22MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
07APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-94 REGIONAL STANDING CROP (IN THOUSANDS) OF ALEWIFE YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	ST. CROP	3	6	3	0	0	5	0	0	0	0	0	0	18
15JUL	SE	3	4	3	0	0	5	0	0	0	0	0	0	8
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24JUL-	ST. CROP	0	0	0	0	0	0	8	8	0	0	4	4	23
29JUL	SE	0	0	0	0	0	0	8	5	0	0	4	4	11
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	ST. CROP	0	0	0	0	0	7	0	0	0	0	0	4	11
11AUG	SE	0	0	0	0	0	6	0	0	0	0	0	4	7
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21AUG-	ST. CROP	0	0	3	0	0	0	10	3	3	0	4	0	23
25AUG	SE	0	0	3	0	0	0	10	3	3	0	4	0	12
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
03SEP-	ST. CROP	0	12	0	0	4	3	0	0	0	0	0	0	18
08SEP	SE	0	8	0	0	4	3	0	0	0	0	0	0	9
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
18SEP-	ST. CROP	0	0	0	0	0	6	0	0	0	4	7	4	20
22SEP	SE	0	0	0	0	0	6	0	0	0	4	5	4	9
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
02OCT-	ST. CROP	0	0	0	0	4	13	0	0	0	0	0	0	16
05OCT	SE	0	0	0	0	4	6	0	0	0	0	0	0	7
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
16OCT-	ST. CROP	0	3	6	166	7	0	0	0	0	18	4	0	205
20OCT	SE	0	3	6	166	7	0	0	0	0	11	4	0	167
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

TABLE C-89 REGIONAL DENSITY (NO./1,000m3) OF ALEWIFE YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	DENSITY	0.00	0.00	0.00	0.00	0.81	0.66	0.00	0.09	1.40	0.79	2.45	2.75	0.75
15JUL	SE	0.00	0.00	0.00	0.00	0.81	0.61	0.00	0.05	0.66	0.34	1.09	1.41	2.18
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24JUL-	DENSITY	0.00	0.00	0.02	0.79	0.00	0.27	0.71	0.09	0.91	0.18	0.19	0.00	0.26
29JUL	SE	0.00	0.00	0.02	0.79	0.00	0.13	0.71	0.04	0.44	0.12	0.09	0.00	1.17
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	DENSITY	0.00	0.00	0.00	0.00	0.03	0.10	0.03	0.03	0.00	0.05	0.00	0.52	0.06
11AUG	SE	0.00	0.00	0.00	0.00	0.03	0.06	0.03	0.03	0.00	0.05	0.00	0.32	0.33
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.04	0.06	0.00	0.80	0.11	1.21	0.00	0.18
25AUG	SE	0.00	0.00	0.00	0.00	0.00	0.03	0.06	0.00	0.29	0.05	0.98	0.00	1.03
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
03SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.82	0.00	0.00	0.00	0.18	0.28	0.00	0.11
08SEP	SE	0.00	0.00	0.00	0.00	0.00	0.59	0.00	0.00	0.00	0.08	0.24	0.00	0.64
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
18SEP-	DENSITY	0.00	0.01	0.00	0.00	0.00	1.02	0.00	0.00	0.86	0.27	1.04	0.62	0.32
22SEP	SE	0.00	0.01	0.00	0.00	0.00	0.74	0.00	0.00	0.41	0.12	0.51	0.52	1.12
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
02OCT-	DENSITY	0.00	0.00	0.00	0.00	0.68	0.57	0.00	0.12	0.28	0.38	0.07	0.00	0.17
05OCT	SE	0.00	0.00	0.00	0.00	0.68	0.35	0.00	0.06	0.10	0.20	0.04	0.00	0.80
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
16OCT-	DENSITY	0.00	0.00	0.00	0.01	0.03	0.19	0.07	0.18	1.01	0.10	0.50	0.26	0.20
20OCT	SE	0.00	0.00	0.00	0.01	0.02	0.10	0.04	0.08	0.44	0.04	0.14	0.26	0.55
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

TABLE C-90 REGIONAL STANDING CROP (IN THOUSANDS) OF ALEWIFE YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	ST. CROP	0	0	0	0	168	93	0	15	198	139	394	196	1204
15JUL	SE	0	0	0	0	168	85	0	8	93	59	176	100	298
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24JUL-	ST. CROP	0	0	3	165	0	38	213	15	128	31	31	0	624
29JUL	SE	0	0	3	165	0	18	213	7	62	20	14	0	278
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	ST. CROP	0	0	0	0	7	13	8	5	0	9	0	37	79
11AUG	SE	0	0	0	0	7	9	8	5	0	9	0	23	29
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21AUG-	ST. CROP	0	0	0	0	0	5	17	0	114	20	194	0	350
25AUG	SE	0	0	0	0	0	4	17	0	42	9	157	0	164
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
03SEP-	ST. CROP	0	0	0	0	0	114	0	0	0	32	45	0	192
08SEP	SE	0	0	0	0	0	83	0	0	0	13	38	0	92
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
18SEP-	ST. CROP	0	3	0	0	0	143	0	0	122	47	167	44	526
22SEP	SE	0	3	0	0	0	104	0	0	57	20	81	37	150
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
02OCT-	ST. CROP	0	0	0	0	140	80	0	20	39	67	11	0	357
05OCT	SE	0	0	0	0	140	49	0	9	14	35	6	0	154
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
16OCT-	ST. CROP	0	0	0	2	7	26	21	29	142	18	80	19	344
20OCT	SE	0	0	0	2	4	13	13	13	63	6	22	19	73
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

TABLE C-95 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF ALEWIFE YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	CPUE	0.33	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
22JUN	SE	0.33	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.36
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03JUL-	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
06JUL	SE	0.00	0.00	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
17JUL-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.04
20JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.50
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
31JUL-	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
02AUG	SE	0.00	0.00	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
14AUG-	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
16AUG	SE	0.00	0.00	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
29AUG-	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
31AUG	SE	0.00	0.00	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
11SEP-	CPUE	0.00	0.04	0.00	0.00	0.00	0.00	0.00	1.20	0.00	0.00	0.00	0.00	0.10
14SEP	SE	0.00	0.04	0.00	0.00	0.00	0.00	0.00	1.20	0.00	0.00	0.00	0.00	1.20
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25SEP-	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
28SEP	SE	0.00	0.00	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
09OCT-	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
12OCT	SE	0.00	0.00	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
23OCT-	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
26OCT	SE	0.00	0.00	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-96 REGIONAL STANDING CROP (IN THOUSANDS) OF ALEWIFE YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	ST. CROP	3	0	4	0	0	0	0	0	0	0	0	0	6
22JUN	SE	3	0	4	0	0	0	0	0	0	0	0	0	5
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
06JUL	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
17JUL-	ST. CROP	0	0	0	0	0	0	4	0	0	0	0	0	4
20JUL	SE	0	0	0	0	0	0	4	0	0	0	0	0	4
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
31JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
02AUG	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
14AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
16AUG	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
29AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
31AUG	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
11SEP-	ST. CROP	0	2	0	0	0	0	0	1	0	0	0	0	3
14SEP	SE	0	2	0	0	0	0	0	1	0	0	0	0	2
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
28SEP	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
09OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
12OCT	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
23OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
26OCT	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-91 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF ALEWIFE YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	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
22JUN	SE	0.00	0.00	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
03JUL-	CPUE	0.00	0.00	0.00	0.00	0.00	1.33	0.50	4.50	0.00	0.27	0.00	0.00	0.55
06JUL	SE	0.00	0.00	0.00	0.00	0.00	0.67	0.33	3.04	0.00	0.27	0.00	0.00	3.14
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
17JUL-	CPUE	0.00	0.18	0.71	0.00	11.67	15.67	7.50	24.50	8.13	5.80	0.16	0.00	6.19
20JUL	SE	0.00	0.12	0.57	0.00	10.68	10.49	3.40	10.20	7.02	2.64	0.09	0.00	19.91
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
31JUL-	CPUE	0.00	0.04	0.00	1.40	3.80	0.33	0.80	4.80	7.00	0.44	1.10	0.00	1.64
02AUG	SE	0.00	0.04	0.00	1.40	3.56	0.21	0.80	4.09	7.00	0.29	0.57	0.00	9.02
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14AUG-	CPUE	0.00	0.00	0.00	0.00	1.20	1.83	10.60	0.20	0.00	0.00	3.10	0.00	1.41
16AUG	SE	0.00	0.00	0.00	0.00	1.20	1.83	8.13	0.20	0.00	0.00	3.10	0.00	8.98
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
29AUG-	CPUE	0.00	0.00	0.00	2.80	0.20	0.50	9.40	1.80	0.00	0.44	2.10	0.00	1.44
31AUG	SE	0.00	0.00	0.00	1.83	0.20	0.50	9.15	1.56	0.00	0.34	1.88	0.00	9.67
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11SEP-	CPUE	0.00	0.21	0.00	0.00	2.40	0.00	2.00	4.20	0.20	1.22	0.00	0.00	0.85
14SEP	SE	0.00	0.21	0.00	0.00	1.94	0.00	2.00	1.16	0.20	1.00	0.00	0.00	3.19
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25SEP-	CPUE	0.00	0.00	0.00	0.00	3.40	0.00	2.00	1.60	0.00	1.11	0.00	0.00	0.68
28SEP	SE	0.00	0.00	0.00	0.00	3.40	0.00	2.00	1.36	0.00	0.73	0.00	0.00	4.24
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
09OCT-	CPUE	0.00	0.00	0.00	0.00	0.20	0.17	0.40	1.40	0.00	0.11	0.00	0.00	0.19
12OCT	SE	0.00	0.00	0.00	0.00	0.20	0.17	0.24	0.60	0.00	0.11	0.00	0.00	0.71
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
23OCT-	CPUE	0.00	0.29	0.07	0.20	0.00	0.00	0.00	7.60	2.80	0.22	0.20	0.00	0.95
26OCT	SE	0.00	0.22	0.07	0.20	0.00	0.00	0.00	5.37	2.31	0.15	0.13	0.00	5.86
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE C-92 REGIONAL STANDING CROP (IN THOUSANDS) OF ALEWIFE YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
22JUN	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
03JUL-	ST. CROP	0	0	0	0	0	14	4	6	0	5	0	0	28
06JUL	SE	0	0	0	0	0	7	2	4	0	5	0	0	10
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
17JUL-	ST. CROP	0	8	19	0	31	167	53	30	70	102	3	0	484
20JUL	SE	0	6	15	0	28	112	24	13	60	46	2	0	142
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
31JUL-	ST. CROP	0	2	0	13	10	4	6	6	60	8	22	0	130
02AUG	SE	0	2	0	13	9	2	6	5	60	5	11	0	64
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14AUG-	ST. CROP	0	0	0	0	3	20	75	0	0	0	61	0	159
16AUG	SE	0	0	0	0	3	20	58	<0.5	0	0	61	0	86
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
29AUG-	ST. CROP	0	0	0	26	1	5	67	2	0	8	41	0	150
31AUG	SE	0	0	0	17	1	5	65	2	0	6	37	0	77
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11SEP-	ST. CROP	0	9	0	0	6	0	14	5	2	21	0	0	58
14SEP	SE	0	9	0	0	5	0	14	1	2	18	0	0	25
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25SEP-	ST. CROP	0	0	0	0	9	0	14	2	0	20	0	0	45
28SEP	SE	0	0	0	0	9	0	14	2	0	13	0	0	21
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
09OCT-	ST. CROP	0	0	0	0	1	2	3	2	0	2	0	0	9
12OCT	SE	0	0	0	0	1	2	2	1	0	2	0	0	3
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
23OCT-	ST. CROP	0	13	2	2	0	0	0	9	24	4	4	0	58
26OCT	SE	0	10	2	2	0	0	0	7	20	3	3	0	24
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE C-97 REGIONAL DENSITY (NO./1,000m3) OF BLUEBACK HERRING YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
08MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
22MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
07APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	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
14APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	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
21APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	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
28APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	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
04MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	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
12MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	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
20MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	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
26MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	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
04JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	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
10JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-97 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF BLUEBACK HERRING YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
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
17JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.02
24JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.21
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49	13.33	1.06
01JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49	8.95	8.96
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.56	36.14	6.79	8.96	36.59	6.85
08JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.56	11.95	3.29	4.56	15.40	20.29
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	DENSITY	0.00	0.00	0.00	0.00	0.14	0.11	25.27	13.98	NS	NS	NS	NS	NS	4.94
21JUL	SE	0.00	0.00	0.00	0.00	0.14	0.11	18.19	8.83						20.22
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	1.47	15.58	25.53	NS	NS	NS	NS	NS	5.32
05AUG	SE	0.00	0.00	0.00	0.00	0.00	0.94	6.67	14.61						16.09
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	DENSITY	0.94	0.00	0.00	0.00	0.60	0.38	13.68	44.87	NS	NS	NS	NS	NS	7.56
16AUG	SE	0.94	0.00	0.00	0.00	0.60	0.24	4.17	35.08						35.34
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.13	3.54	3.18	NS	NS	NS	NS	NS	0.86
31AUG	SE	0.00	0.00	0.00	0.00	0.00	0.13	2.38	1.29						2.71
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	2.19	40.47	3.75	NS	NS	NS	NS	NS	5.80
14SEP	SE	0.00	0.00	0.00	0.00	0.00	0.64	28.24	1.84						28.31
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.58	8.86	1.80	NS	NS	NS	NS	NS	1.41
28SEP	SE	0.00	0.00	0.00	0.00	0.00	0.35	4.11	0.58						4.17
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	DENSITY	0.00	0.00	0.00	0.00	0.80	4.55	10.08	38.42	NS	NS	NS	NS	NS	6.73
12OCT	SE	0.00	0.00	0.00	0.00	0.77	2.10	2.03	7.12						7.73
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-98 REGIONAL STANDING CROP (IN THOUSANDS) OF BLUEBACK HERRING YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
08MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
22MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
07APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-98 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF BLUEBACK HERRING YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	ST. CROP	0	0	0	0	0	0	0	62	0	0	0	0	0	62
24JUN	SE	0	0	0	0	0	0	0	62	0	0	0	0	0	62
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	79	948	1028
01JUL	SE	0	0	0	0	0	0	0	0	0	0	0	79	637	642
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	ST. CROP	0	0	0	0	0	0	0	0	92	5113	1198	1441	2604	10447
08JUL	SE	0	0	0	0	0	0	0	0	92	1690	580	733	1096	2223
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	ST. CROP	0	0	0	0	29	24	3533	4167	NS	NS	NS	NS	NS	7753
21JUL	SE	0	0	0	0	29	24	2543	2634						3661
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	ST. CROP	0	0	0	0	0	306	2177	7610	NS	NS	NS	NS	NS	10093
05AUG	SE	0	0	0	0	0	196	933	4355						4458
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	ST. CROP	197	0	0	0	124	78	1912	13378	NS	NS	NS	NS	NS	15690
16AUG	SE	197	0	0	0	124	50	583	10457						10476
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	ST. CROP	0	0	0	0	0	27	495	949	NS	NS	NS	NS	NS	1471
31AUG	SE	0	0	0	0	0	27	333	383						508
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	ST. CROP	0	0	0	0	0	454	5658	1117	NS	NS	NS	NS	NS	7229
14SEP	SE	0	0	0	0	0	132	3948	549						3989
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	ST. CROP	0	0	0	0	0	121	1238	537	NS	NS	NS	NS	NS	1896
28SEP	SE	0	0	0	0	0	73	575	173						605
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	ST. CROP	0	0	0	0	167	944	1409	11455	NS	NS	NS	NS	NS	13976
12OCT	SE	0	0	0	0	159	436	283	2121						2190
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-99 REGIONAL DENSITY (NO./1,000m3) OF BLUEBACK HERRING YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	DENSITY	0.00	0.00	0.40	0.00	0.00	0.01	0.00	11.62	14.87	3.35	4.99	6.85	3.51
15JUL	SE	0.00	0.00	0.40	0.00	0.00	0.01	0.00	10.84	12.27	1.00	1.93	1.97	16.64
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24JUL-	DENSITY	0.00	0.17	0.00	0.07	1.91	1.58	3.15	2.64	6.74	9.88	84.88	47.83	13.24
29JUL	SE	0.00	0.15	0.00	0.05	0.97	0.65	2.86	0.78	1.84	3.04	20.51	35.20	41.02
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.08	18.87	11.11	18.42	11.04	37.71	34.64	10.99
11AUG	SE	0.00	0.00	0.00	0.00	0.00	0.02	18.41	4.49	6.80	2.94	12.74	17.04	29.44
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	3.62	1.48	7.66	16.47	1.63	24.99	11.04	5.57
25AUG	SE	0.00	0.00	0.00	0.00	0.00	2.95	0.88	5.70	3.92	0.70	5.01	7.69	11.91
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
03SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.15	0.16	2.62	12.48	7.93	13.35	9.06	3.81
08SEP	SE	0.00	0.00	0.00	0.00	0.00	0.06	0.10	1.18	4.73	2.35	2.65	3.74	7.09
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
18SEP-	DENSITY	0.01	0.00	0.02	0.00	0.00	3.63	0.35	6.17	17.25	12.64	20.26	35.89	8.02
22SEP	SE	0.01	0.00	0.02	0.00	0.00	2.95	0.22	2.48	6.86	5.84	3.00	13.66	17.08
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
02OCT-	DENSITY	0.00	0.03	0.00	0.00	0.02	1.84	0.77	9.42	11.35	10.45	17.92	3.94	4.65
05OCT	SE	0.00	0.02	0.00	0.00	0.02	0.67	0.28	6.22	5.12	2.23	3.82	1.06	9.28
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
16OCT-	DENSITY	0.00	0.25	0.60	24.58	38.30	28.59	4.87	10.51	12.46	7.30	20.85	6.14	12.87
20OCT	SE	0.00	0.12	0.18	23.15	20.45	17.41	2.36	3.25	5.90	2.41	5.32	2.40	36.72
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

TABLE C-100 REGIONAL STANDING CROP (IN THOUSANDS) OF BLUEBACK HERRING YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	ST. CROP	0	0	59	0	0	1	0	1923	2104	591	803	487	5968
15JUL	SE	0	0	59	0	0	1	0	1795	1736	176	310	140	2527
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24JUL-	ST. CROP	0	56	0	15	397	221	940	436	953	1742	13642	3403	21807
29JUL	SE	0	48	0	10	202	91	853	130	261	535	3297	2504	4277
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	ST. CROP	0	0	0	0	0	11	5625	1839	2605	1946	6062	2464	20552
11AUG	SE	0	0	0	0	0	3	5489	743	962	519	2048	1212	6127
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21AUG-	ST. CROP	0	0	0	0	0	506	440	1267	2330	287	4017	785	9631
25AUG	SE	0	0	0	0	0	412	264	944	554	123	805	547	1549
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
03SEP-	ST. CROP	0	0	0	0	0	21	47	434	1765	1398	2145	645	6455
08SEP	SE	0	0	0	0	0	8	30	196	670	414	425	266	954
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
18SEP-	ST. CROP	3	0	3	0	0	508	105	1020	2440	2229	3256	2554	12118
22SEP	SE	3	0	3	0	0	412	65	411	971	1030	483	972	1877
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
02OCT-	ST. CROP	0	10	0	0	4	258	230	1559	1605	1843	2881	280	8670
05OCT	SE	0	8	0	0	4	94	84	1029	725	393	613	76	1462
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
16OCT-	ST. CROP	0	81	89	5121	7946	3997	1453	1739	1763	1286	3351	437	27263
20OCT	SE	0	39	26	4824	4244	2434	705	537	835	426	855	171	7045
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

TABLE C-101 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF BLUEBACK HERRING YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	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
22JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03JUL-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.63	0.25	0.00	0.00	0.00	0.07
06JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.63	0.16	0.00	0.00	0.00	0.65
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
17JUL-	CPUE	0.00	0.00	0.29	0.00	17.67	15.00	154.00	36.50	1.50	16.20	3.84	0.08	20.42
20JUL	SE	0.00	0.00	0.29	0.00	17.67	5.51	137.85	19.81	1.09	11.52	2.48	0.08	140.99
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
31JUL-	CPUE	0.00	8.88	0.36	0.20	3.60	29.00	334.20	8.60	157.40	28.44	18.40	11.57	50.05
02AUG	SE	0.00	7.11	0.36	0.20	2.54	19.83	144.94	8.60	156.40	9.30	6.52	8.71	214.94
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14AUG-	CPUE	0.00	0.00	0.00	0.00	0.80	62.50	986.00	14.20	5.00	58.56	46.10	0.43	97.80
16AUG	SE	0.00	0.00	0.00	0.00	0.49	24.52	693.17	13.71	3.87	36.99	29.02	0.20	695.34
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
29AUG-	CPUE	0.00	0.00	0.00	0.00	0.00	4.50	8.80	215.60	0.00	11.67	36.00	0.00	23.05
31AUG	SE	0.00	0.00	0.00	0.00	0.00	2.00	5.58	130.63	0.00	5.20	30.45	0.00	134.36
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11SEP-	CPUE	0.00	0.00	0.00	0.00	0.40	2.83	11.80	3.00	21.60	39.22	6.40	8.29	7.80
14SEP	SE	0.00	0.00	0.00	0.00	0.24	2.07	10.80	2.51	11.98	14.33	2.63	7.96	23.38
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25SEP-	CPUE	0.00	0.00	0.00	0.00	0.20	13.67	7.40	50.00	6.20	2.11	4.50	0.00	7.01
28SEP	SE	0.00	0.00	0.00	0.00	0.20	10.78	4.61	26.55	6.20	1.43	2.76	0.00	29.84
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
09OCT-	CPUE	0.00	0.00	0.00	29.40	73.20	48.67	8.40	9.00	0.00	0.67	1.70	0.14	14.26
12OCT	SE	0.00	0.00	0.00	12.32	55.52	20.85	6.07	4.56	0.00	0.33	1.09	0.14	61.06
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
23OCT-	CPUE	138.60	108.33	8.79	221.20	97.40	9.83	6.60	65.60	114.80	0.78	2.60	0.43	64.58
26OCT	SE	100.55	55.13	3.82	126.64	54.18	3.56	5.36	33.27	84.05	0.66	1.75	0.30	200.89
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE C-102 REGIONAL STANDING CROP (IN THOUSANDS) OF BLUEBACK HERRING YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
22JUN	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
03JUL-	ST. CROP	0	0	0	0	0	0	0	1	2	0	0	0	3
06JUL	SE	0	0	0	0	0	0	0	1	1	0	0	0	2
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
17JUL-	ST. CROP	0	0	8	0	47	160	1093	45	13	284	76	1	1726
20JUL	SE	0	0	8	0	47	59	978	25	9	202	49	1	1003
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
31JUL-	ST. CROP	0	403	10	2	9	309	2371	11	1355	499	362	157	5489
02AUG	SE	0	323	10	2	7	211	1028	11	1346	163	128	118	1754
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14AUG-	ST. CROP	0	0	0	0	2	666	6996	18	43	1028	907	6	9666
16AUG	SE	0	0	0	0	1	261	4918	17	33	649	571	3	5001
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
29AUG-	ST. CROP	0	0	0	0	0	48	62	267	0	205	708	0	1291
31AUG	SE	0	0	0	0	0	21	40	162	0	91	599	0	629
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11SEP-	ST. CROP	0	0	0	0	1	30	84	4	186	689	126	113	1232
14SEP	SE	0	0	0	0	1	22	77	3	103	252	52	108	308
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25SEP-	ST. CROP	0	0	0	0	1	146	53	62	53	37	89	0	440
28SEP	SE	0	0	0	0	1	115	33	33	53	25	54	0	148
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
09OCT-	ST. CROP	0	0	0	271	193	518	60	11	0	12	33	2	1100
12OCT	SE	0	0	0	113	146	222	43	6	0	6	21	2	293
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
23OCT-	ST. CROP	1044	4922	236	2038	257	105	47	81	988	14	51	6	9789
26OCT	SE	757	2505	103	1167	143	38	38	41	724	12	34	4	2961
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE C-105 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF BLUEBACK HERRING YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	CPUE	0.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06
22JUN	SE	0.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.67
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03JUL-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.02
06JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.25
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
17JUL-	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
20JUL	SE	0.00	0.00	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
31JUL-	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
02AUG	SE	0.00	0.00	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
14AUG-	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
16AUG	SE	0.00	0.00	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
29AUG-	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
31AUG	SE	0.00	0.00	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
11SEP-	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
14SEP	SE	0.00	0.00	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
25SEP-	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
28SEP	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
09OCT-	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
12OCT	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
23OCT-	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
26OCT	SE	0.00	0.00	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-106 REGIONAL STANDING CROP (IN THOUSANDS) OF BLUEBACK HERRING YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	ST. CROP	5	0	0	0	0	0	0	0	0	0	0	0	5
22JUN	SE	5	0	0	0	0	0	0	0	0	0	0	0	5
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
06JUL	SE	0	0	0	0	0	0	0	<0.5	0	0	0	0	<0.5
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
17JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
20JUL	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
31JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
02AUG	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
14AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
16AUG	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
29AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
31AUG	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
11SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
14SEP	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
25SEP-	ST. CROP	0	2	0	0	0	0	0	0	0	0	0	0	2
28SEP	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
09OCT-	ST. CROP	0	0	0	0	1	0	0	0	0	0	0	0	1
12OCT	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
23OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
26OCT	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-103 REGIONAL DENSITY (NO./1,000m3) OF BLUEBACK HERRING YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.01
15JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.06
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24JUL-	DENSITY	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.36	0.05	0.04
29JUL	SE	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.25	0.05	0.26
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	DENSITY	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02	0.03	0.00	0.00	0.00	0.01
11AUG	SE	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02	0.03	0.00	0.00	0.00	0.04
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.07	0.00	0.01
25AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.04	0.00	0.07
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
03SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.02	0.00	<0.005
08SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.02	0.00	0.04
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
18SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.90	0.14	0.50	0.13
22SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.88	0.08	0.50	1.02
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
02OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.02	0.00	0.05	0.02	0.00	0.01
05OCT	SE	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.02	0.00	0.05	0.02	0.00	0.07
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
16OCT-	DENSITY	0.00	0.00	0.02	0.00	0.04	0.04	0.00	0.03	0.00	0.00	0.00	0.00	0.01
20OCT	SE	0.00	0.00	0.02	0.00	0.04	0.04	0.00	0.03	0.00	0.00	0.00	0.00	0.06
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

TABLE C-104 REGIONAL STANDING CROP (IN THOUSANDS) OF BLUEBACK HERRING YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	14	0	14
15JUL	SE	0	0	0	0	0	0	0	0	0	0	9	0	9
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24JUL-	ST. CROP	0	5	0	0	0	0	0	0	3	0	58	4	70
29JUL	SE	0	5	0	0	0	0	0	0	3	0	40	4	41
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	ST. CROP	0	0	3	0	0	0	0	4	4	0	0	0	11
11AUG	SE	0	0	3	0	0	0	0	4	4	0	0	0	7
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21AUG-	ST. CROP	0	0	0	0	0	0	0	13	0	0	11	0	24
25AUG	SE	0	0	0	0	0	0	0	10	0	0	6	0	11
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
03SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	5	4	0	8
08SEP	SE	0	0	0	0	0	0	0	0	0	5	4	0	6
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
18SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	159	22	36	217
22SEP	SE	0	0	0	0	0	0	0	0	0	155	13	36	160
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
02OCT-	ST. CROP	0	0	0	0	0	5	0	4	0	8	3	0	20
05OCT	SE	0	0	0	0	0	5	0	4	0	8	3	0	11
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
16OCT-	ST. CROP	0	0	3	0	7	5	0	4	0	0	0	0	20
20OCT	SE	0	0	3	0	7	5	0	4	0	0	0	0	11
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

TABLE C-107 REGIONAL DENSITY (NO./1,000m3) OF GIZZARD SHAD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
08MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
22MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
07APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	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
14APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	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
21APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	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
28APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	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
04MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	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
12MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	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
20MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	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
26MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	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
04JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	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
10JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-107 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF GIZZARD SHAD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-17JUN	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	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-24JUN	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	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-01JUL	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	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-08JUL	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	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-21JUL	DENSITY	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.02
	SE	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00						0.14
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-05AUG	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	6	10	13	14	13	8	10	6						80
14AUG-16AUG	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	6	11	13	14	13	8	10	6						81
29AUG-31AUG	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	6	11	13	14	13	8	10	6						81
12SEP-14SEP	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	6	11	13	14	13	8	10	6						81
26SEP-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
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-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
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-108 REGIONAL STANDING CROP (IN THOUSANDS) OF GIZZARD SHAD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
08MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
22MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
07APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-108 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF GIZZARD SHAD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	ST. CROP	0	0	0	0	30	0	0	0	NS	NS	NS	NS	NS	30
21JUL	SE	0	0	0	0	30	0	0	0						30
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
16AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
31AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
12OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-109 REGIONAL DENSITY (NO./1,000m3) OF GIZZARD SHAD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
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
15JUL	SE	0.00	0.00	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
24JUL-	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
29JUL	SE	0.00	0.00	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
07AUG-	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
11AUG	SE	0.00	0.00	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
21AUG-	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
25AUG	SE	0.00	0.00	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
03SEP-	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
08SEP	SE	0.00	0.00	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
18SEP-	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
22SEP	SE	0.00	0.00	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
02OCT-	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
05OCT	SE	0.00	0.00	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
16OCT-	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
20OCT	SE	0.00	0.00	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 CROP (IN THOUSANDS) OF GIZZARD SHAD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
15JUL	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
24JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
29JUL	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
07AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
11AUG	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
21AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
25AUG	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
03SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
08SEP	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
18SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
22SEP	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
02OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
05OCT	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
16OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
20OCT	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, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	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
22JUN	SE	0.00	0.00	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
03JUL-	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
06JUL	SE	0.00	0.00	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
17JUL-	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
20JUL	SE	0.00	0.00	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
31JUL-	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
02AUG	SE	0.00	0.00	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
14AUG-	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
16AUG	SE	0.00	0.00	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
29AUG-	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
31AUG	SE	0.00	0.00	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
11SEP-	CPUE	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
14SEP	SE	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25SEP-	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
28SEP	SE	0.00	0.00	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
09OCT-	CPUE	0.60	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
12OCT	SE	0.60	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
23OCT-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	1.80	0.80	0.00	0.00	0.70	0.71	0.33
26OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	1.80	0.58	0.00	0.00	0.33	0.47	1.98
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE C-112 REGIONAL STANDING CROP (IN THOUSANDS) OF GIZZARD SHAD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
22JUN	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
03JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
06JUL	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
17JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
20JUL	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
31JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
02AUG	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
14AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
16AUG	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
29AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
31AUG	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
11SEP-	ST. CROP	0	4	0	0	0	0	0	0	0	0	0	0	4
14SEP	SE	0	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
25SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
28SEP	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
09OCT-	ST. CROP	5	2	0	0	0	0	0	0	0	0	0	0	6
12OCT	SE	5	2	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
23OCT-	ST. CROP	0	0	0	0	0	0	13	1	0	0	14	10	37
26OCT	SE	0	0	0	0	0	0	13	1	0	0	7	6	16
	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, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
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
15JUL	SE	0.00	0.00	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
24JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	<0.005
29JUL	SE	0.00	0.00	0.00	0.00	0.00	0.01	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
07AUG-	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
11AUG	SE	0.00	0.00	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
21AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	<0.005
25AUG	SE	0.00	0.00	0.00	0.00	0.00	0.02	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
03SEP-	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
08SEP	SE	0.00	0.00	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
18SEP-	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
22SEP	SE	0.00	0.00	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
02OCT-	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
05OCT	SE	0.00	0.00	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
16OCT-	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
20OCT	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

TABLE C-114 REGIONAL STANDING CROP (IN THOUSANDS) OF GIZZARD SHAD YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
15JUL	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
24JUL-	ST. CROP	0	0	0	0	0	1	0	0	0	0	0	0	1
29JUL	SE	0	0	0	0	0	1	0	0	0	0	0	0	1
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
11AUG	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
21AUG-	ST. CROP	0	0	0	0	0	4	0	0	0	0	0	0	4
25AUG	SE	0	0	0	0	0	3	0	0	0	0	0	0	3
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
03SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
08SEP	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
18SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
22SEP	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
02OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
05OCT	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
16OCT-	ST. CROP	0	0	0	0	0	0	9	0	0	0	0	0	9
20OCT	SE	0	0	0	0	0	0	9	0	0	0	0	0	9
	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, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-22JUN	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
03JUL-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
	SE	0.00	0.00	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
17JUL-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
	SE	0.00	0.00	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
31JUL-02AUG	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
14AUG-16AUG	CPUE	0.00	0.04	0.00	0.00	0.00	1.50	1.60	0.00	0.00	0.22	0.00	0.00	0.28
	SE	0.00	0.04	0.00	0.00	0.00	1.02	1.60	0.00	0.00	0.22	0.00	0.00	1.91
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
29AUG-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
	SE	0.00	0.00	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
11SEP-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
	SE	0.00	0.00	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
25SEP-28SEP	CPUE	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.00	0.20	0.00	0.00	0.00	0.03
	SE	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.00	0.20	0.00	0.00	0.00	0.26
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
09OCT-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
	SE	0.00	0.00	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
23OCT-26OCT	CPUE	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.20	0.00	0.00	0.50	0.00	0.07
	SE	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.20	0.00	0.00	0.40	0.00	0.48
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE C-116 REGIONAL STANDING CROP (IN THOUSANDS) OF GIZZARD SHAD YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
22JUN	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
03JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
06JUL	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
17JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
20JUL	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
31JUL-	ST. CROP	0	0	0	0	0	0	1	0	0	0	0	0	1
02AUG	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
14AUG-	ST. CROP	0	2	0	0	0	16	11	0	0	4	0	0	33
16AUG	SE	0	2	0	0	0	11	11	0	0	4	0	0	16
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
29AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
31AUG	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
11SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
14SEP	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
25SEP-	ST. CROP	0	0	0	0	0	2	0	0	2	0	0	0	3
28SEP	SE	0	0	0	0	0	2	0	0	2	0	0	0	2
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
09OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
12OCT	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
23OCT-	ST. CROP	0	0	0	0	0	2	0	0	0	0	10	0	12
26OCT	SE	0	0	0	0	0	2	0	<0.5	0	0	8	0	8
	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, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
08MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
22MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
07APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	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
14APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	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
21APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	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
28APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	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
04MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	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
12MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	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
20MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	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
26MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	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
04JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	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
10JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-117 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF RAINBOW SMELT EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-17JUN	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	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-24JUN	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	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-01JUL	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	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-08JUL	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	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-21JUL	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	6	11	13	14	12	8	10	6						80
03AUG-05AUG	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	6	10	13	14	13	8	10	6						80
14AUG-16AUG	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	6	11	13	14	13	8	10	6						81
29AUG-31AUG	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	6	11	13	14	13	8	10	6						81
12SEP-14SEP	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	6	11	13	14	13	8	10	6						81
26SEP-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
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-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
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-118 REGIONAL STANDING CROP (IN THOUSANDS) OF RAINBOW SMELT EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
08MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
22MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
07APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-118 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF RAINBOW SMELT EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
21JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
16AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
31AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
12OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-119 REGIONAL DENSITY (NO./1,000m3) OF RAINBOW SMELT YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
08MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
22MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
07APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	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
14APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	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
21APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.78	0.79	0.00	5.26	2.49	11.75	1.11	1.71
28APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.78	0.79	0.00	5.26	1.55	2.99	0.68	6.38
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.80	4.01	0.80	0.75	0.00	0.64
04MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.84	1.77	0.80	0.75	0.00	2.46
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	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
12MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	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
20MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	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
26MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	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
04JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	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
10JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-119 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF RAINBOW SMELT YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
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
17JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
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
24JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
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
01JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	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
08JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
21JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
05AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
16AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
31AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
28SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
12OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-120 REGIONAL STANDING CROP (IN THOUSANDS) OF RAINBOW SMELT YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
08MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
22MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
07APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	ST. CROP	0	0	0	0	0	0	108	234	0	744	439	1889	79	3494
28APR	SE	0	0	0	0	0	0	108	234	0	744	274	480	48	963
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	ST. CROP	0	0	0	0	0	0	0	297	298	567	141	120	0	1424
04MAY	SE	0	0	0	0	0	0	0	297	139	251	141	120	0	452
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-120 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF RAINBOW SMELT YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
21JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
16AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
31AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
12OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81

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, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
08MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
22MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
07APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	DENSITY	0.00	0.00	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
14APR	SE	0.00	0.00	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	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
21APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.72	0.00	0.46	0.09
28APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.72	0.00	0.46	0.86
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.61	6.43	7.95	5.40	3.83	0.00	2.02
04MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	2.11	5.71	2.45	1.99	0.00	6.99
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	DENSITY	0.00	0.00	0.00	0.00	0.05	0.15	2.56	6.04	5.53	9.94	29.10	0.35	0.00	4.13
12MAY	SE	0.00	0.00	0.00	0.00	0.05	0.15	1.44	2.18	1.32	1.91	7.66	0.35	0.00	8.43
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	DENSITY	0.00	0.00	0.18	0.55	0.00	0.00	6.14	5.30	4.37	8.64	15.89	29.65	0.00	5.44
20MAY	SE	0.00	0.00	0.18	0.30	0.00	0.00	2.34	2.43	2.01	5.03	3.47	14.15	0.00	15.91
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	DENSITY	0.00	0.25	0.00	0.18	0.43	0.25	3.40	5.35	3.22	16.75	19.89	89.57	2.02	10.87
26MAY	SE	0.00	0.25	0.00	0.18	0.43	0.25	1.49	1.42	3.07	10.02	6.28	48.23	2.02	49.84
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	DENSITY	0.00	0.00	0.00	0.74	2.15	4.34	5.35	8.27	41.51	64.29	7.52	0.00	0.00	10.32
04JUN	SE	0.00	0.00	0.00	0.52	1.04	4.23	2.50	5.95	25.41	25.79	4.65	0.00	0.00	37.33
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	DENSITY	0.00	0.00	0.00	0.00	0.44	2.27	5.56	30.57	66.72	37.97	0.00	0.00	0.00	11.04
10JUN	SE	0.00	0.00	0.00	0.00	0.44	1.02	1.45	16.00	28.54	29.24	0.00	0.00	0.00	43.92
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-121 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF RAINBOW SMELT POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-17JUN	DENSITY	0.00	0.00	0.00	3.56	1.72	1.65	7.56	15.69	18.38	27.62	0.00	0.58	0.00	5.90
	SE	0.00	0.00	0.00	2.58	0.82	1.10	2.28	2.53	4.68	17.08	0.00	0.58	0.00	18.28
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-24JUN	DENSITY	0.00	0.00	0.39	1.17	0.08	1.09	8.74	4.03	23.68	0.00	0.00	0.00	0.00	3.01
	SE	0.00	0.00	0.30	0.83	0.05	0.67	5.14	0.84	7.95	0.00	0.00	0.00	0.00	9.57
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-01JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.65	0.00	0.00	0.00	0.00	0.07
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.53	0.00	0.00	0.00	0.00	0.56
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-08JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	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	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.21
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-21JUL	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	6	11	13	14	12	8	10	6						80
03AUG-05AUG	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	6	10	13	14	13	8	10	6						80
14AUG-16AUG	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	6	11	13	14	13	8	10	6						81
29AUG-31AUG	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	6	11	13	14	13	8	10	6						81
12SEP-14SEP	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	6	11	13	14	13	8	10	6						81
26SEP-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
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-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
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

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, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
08MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
22MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
07APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	ST. CROP	0	0	57	0	0	0	0	0	0	0	0	0	0	57
14APR	SE	0	0	57	0	0	0	0	0	0	0	0	0	0	57
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	127	0	33	160
28APR	SE	0	0	0	0	0	0	0	0	0	0	127	0	33	132
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	ST. CROP	0	0	0	0	0	0	0	778	1065	1124	951	616	0	4534
04MAY	SE	0	0	0	0	0	0	0	409	349	808	431	320	0	1109
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	ST. CROP	0	0	0	0	11	30	358	1801	914	1407	5130	57	0	9709
12MAY	SE	0	0	0	0	11	30	202	649	218	271	1351	57	0	1553
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	ST. CROP	0	0	58	81	0	0	859	1579	723	1223	2802	4766	0	12091
20MAY	SE	0	0	58	45	0	0	328	723	332	711	612	2274	0	2607
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	ST. CROP	0	58	0	27	89	53	475	1596	534	2369	3507	14396	144	23248
26MAY	SE	0	58	0	27	89	53	208	422	508	1417	1107	7752	144	7990
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	ST. CROP	0	0	0	109	449	901	748	2466	6869	9096	1325	0	0	21963
04JUN	SE	0	0	0	77	216	877	349	1775	4206	3649	819	0	0	5981
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	ST. CROP	0	0	0	0	92	472	777	9115	11041	5371	0	0	0	26866
10JUN	SE	0	0	0	0	92	211	203	4770	4722	4137	0	0	0	7891
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-122 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF RAINBOW SMELT POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	ST. CROP	0	0	0	526	359	342	1056	4678	3042	3907	0	93	0	14003
17JUN	SE	0	0	0	381	170	229	319	754	775	2417	0	93	0	2711
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	ST. CROP	0	0	127	173	16	227	1221	1202	3919	0	0	0	0	6885
24JUN	SE	0	0	96	123	10	139	719	251	1316	0	0	0	0	1535
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	ST. CROP	0	0	0	0	0	0	0	61	108	0	0	0	0	169
01JUL	SE	0	0	0	0	0	0	0	61	87	0	0	0	0	106
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	ST. CROP	0	0	0	0	0	0	0	62	0	0	0	0	0	62
08JUL	SE	0	0	0	0	0	0	0	62	0	0	0	0	0	62
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
21JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
16AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
31AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
12OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-123 REGIONAL DENSITY (NO./1,000m3) OF RAINBOW SMELT YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
08MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
22MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
07APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	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
14APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	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
21APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	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
28APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	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
04MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	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
12MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	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
20MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	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
26MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.86	0.00	0.00	0.91
04JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.86	0.00	0.00	11.86
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	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
10JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-123 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF RAINBOW SMELT YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-17JUN	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	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-24JUN	DENSITY	0.00	0.00	0.42	1.42	1.33	1.09	4.52	2.47	7.40	0.00	0.00	0.00	0.00	1.44
	SE	0.00	0.00	0.32	0.80	0.90	0.67	1.66	2.47	3.81	0.00	0.00	0.00	0.00	5.04
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-01JUL	DENSITY	0.00	0.00	0.60	1.54	1.76	7.71	14.07	16.75	8.82	2.93	0.00	0.00	0.00	4.17
	SE	0.00	0.00	0.42	0.38	0.63	4.73	6.73	7.04	6.04	1.37	0.00	0.00	0.00	12.50
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-08JUL	DENSITY	0.00	0.00	0.00	0.58	3.56	14.29	4.12	0.20	0.77	0.00	0.29	0.00	0.00	1.83
	SE	0.00	0.00	0.00	0.58	1.93	7.11	1.35	0.20	0.57	0.00	0.29	0.00	0.00	7.54
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-21JUL	DENSITY	0.00	0.00	1.09	0.00	0.00	22.22	0.73	0.27	NS	NS	NS	NS	NS	3.04
	SE	0.00	0.00	0.83	0.00	0.00	10.45	0.64	0.27						10.50
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-05AUG	DENSITY	3.48	0.00	0.00	0.00	0.00	15.75	0.00	0.00	NS	NS	NS	NS	NS	2.40
	SE	3.48	0.00	0.00	0.00	0.00	8.15	0.00	0.00						8.86
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-16AUG	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	6	11	13	14	13	8	10	6						81
29AUG-31AUG	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	6	11	13	14	13	8	10	6						81
12SEP-14SEP	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	6	11	13	14	13	8	10	6						81
26SEP-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
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-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
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-124 REGIONAL STANDING CROP (IN THOUSANDS) OF RAINBOW SMELT YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
08MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
22MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
07APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	2090	0	0	2090
04JUN	SE	0	0	0	0	0	0	0	0	0	0	2090	0	0	2090
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-124 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF RAINBOW SMELT YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-17JUN	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	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-24JUN	ST. CROP	0	0	135	210	278	227	633	735	1225	0	0	0	0	3443
	SE	0	0	103	119	188	139	232	735	630	0	0	0	0	1035
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-01JUL	ST. CROP	0	0	192	228	366	1600	1966	4994	1459	415	0	0	0	11221
	SE	0	0	136	56	130	981	940	2099	1000	193	0	0	0	2707
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-08JUL	ST. CROP	0	0	0	85	742	2965	576	59	128	0	51	0	0	4607
	SE	0	0	0	85	402	1474	188	59	94	0	51	0	0	1547
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-21JUL	ST. CROP	0	0	350	0	0	4609	103	82	NS	NS	NS	NS	NS	5143
	SE	0	0	266	0	0	2167	90	82						2187
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-05AUG	ST. CROP	727	0	0	0	0	3268	0	0	NS	NS	NS	NS	NS	3994
	SE	727	0	0	0	0	1690	0	0						1840
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-16AUG	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	6	11	13	14	13	8	10	6						81
29AUG-31AUG	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	6	11	13	14	13	8	10	6						81
12SEP-14SEP	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	6	11	13	14	13	8	10	6						81
26SEP-28SEP	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	6	11	13	14	13	8	10	6						81
10OCT-12OCT	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	6	11	13	14	13	8	10	6						81

TABLE C-125 REGIONAL DENSITY (NO./1,000m3) OF RAINBOW SMELT YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	DENSITY	0.00	0.04	2.22	2.34	4.85	3.69	0.80	0.61	1.24	0.00	0.00	0.00	1.32
15JUL	SE	0.00	0.02	1.99	1.34	2.81	0.74	0.77	0.61	1.22	0.00	0.00	0.00	4.09
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24JUL-	DENSITY	0.04	0.00	0.00	0.00	0.35	0.14	0.09	1.18	0.00	0.02	0.00	0.00	0.15
29JUL	SE	0.04	0.00	0.00	0.00	0.08	0.03	0.04	0.68	0.00	0.02	0.00	0.00	0.69
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	DENSITY	0.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06
11AUG	SE	0.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.71
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21AUG-	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
25AUG	SE	0.00	0.00	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
03SEP-	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
08SEP	SE	0.00	0.00	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
18SEP-	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
22SEP	SE	0.00	0.00	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
02OCT-	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
05OCT	SE	0.00	0.00	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
16OCT-	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
20OCT	SE	0.00	0.00	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-126 REGIONAL STANDING CROP (IN THOUSANDS) OF RAINBOW SMELT YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	ST. CROP	0	11	329	487	1006	516	239	101	176	0	0	0	2865
15JUL	SE	0	7	294	280	584	104	231	101	172	0	0	0	781
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24JUL-	ST. CROP	10	0	0	0	72	19	27	195	0	3	0	0	327
29JUL	SE	10	0	0	0	16	5	11	113	0	3	0	0	115
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	ST. CROP	165	0	0	0	0	0	0	0	0	0	0	0	165
11AUG	SE	162	0	0	0	0	0	0	0	0	0	0	0	162
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
25AUG	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
03SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
08SEP	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
18SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
22SEP	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
02OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
05OCT	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
16OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
20OCT	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-127 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF RAINBOW SMELT YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	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
22JUN	SE	0.00	0.00	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
03JUL-	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
06JUL	SE	0.00	0.00	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
17JUL-	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
20JUL	SE	0.00	0.00	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
31JUL-	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
02AUG	SE	0.00	0.00	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
14AUG-	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
16AUG	SE	0.00	0.00	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
29AUG-	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
31AUG	SE	0.00	0.00	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
11SEP-	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
14SEP	SE	0.00	0.00	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
25SEP-	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
28SEP	SE	0.00	0.00	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
09OCT-	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
12OCT	SE	0.00	0.00	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
23OCT-	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
26OCT	SE	0.00	0.00	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 CROP (IN THOUSANDS) OF RAINBOW SMELT YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
22JUN	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
03JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
06JUL	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
17JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
20JUL	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
31JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
02AUG	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
14AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
16AUG	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
29AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
31AUG	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
11SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
14SEP	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
25SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
28SEP	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
09OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
12OCT	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
23OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
26OCT	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, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
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
15JUL	SE	0.00	0.00	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
24JUL-	DENSITY	0.41	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
29JUL	SE	0.41	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	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
11AUG	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
21AUG-	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
25AUG	SE	0.00	0.00	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
03SEP-	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
08SEP	SE	0.00	0.00	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
18SEP-	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
22SEP	SE	0.00	0.00	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
02OCT-	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
05OCT	SE	0.00	0.00	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
16OCT-	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
20OCT	SE	0.00	0.00	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 CROP (IN THOUSANDS) OF RAINBOW SMELT YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
15JUL	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
24JUL-	ST. CROP	94	0	0	0	14	0	0	0	0	0	0	0	109
29JUL	SE	94	0	0	0	10	0	0	0	0	0	0	0	95
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	ST. CROP	0	0	0	0	0	5	0	0	0	0	0	0	5
11AUG	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
21AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
25AUG	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
03SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
08SEP	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
18SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
22SEP	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
02OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
05OCT	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
16OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
20OCT	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, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-22JUN	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
03JUL-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
	SE	0.00	0.00	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
17JUL-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
	SE	0.00	0.00	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
31JUL-02AUG	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
14AUG-16AUG	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
29AUG-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
	SE	0.00	0.00	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
11SEP-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
	SE	0.00	0.00	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
25SEP-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
	SE	0.00	0.00	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
09OCT-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
	SE	0.00	0.00	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
23OCT-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
	SE	0.00	0.00	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 CROP (IN THOUSANDS) OF RAINBOW SMELT YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
22JUN	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
03JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
06JUL	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
17JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
20JUL	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
31JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
02AUG	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
14AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
16AUG	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
29AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
31AUG	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
11SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
14SEP	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
25SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
28SEP	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
09OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
12OCT	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
23OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
26OCT	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, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
08MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
22MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
07APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	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
14APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	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
21APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	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
28APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	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
04MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	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
12MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	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
20MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	DENSITY	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
26MAY	SE	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	DENSITY	0.24	0.40	0.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10
04JUN	SE	0.24	0.40	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.63
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	DENSITY	7848.21	162.76	0.00	0.00	0.00	0.00	0.16	0.00	0.00	0.00	0.49	4.91	0.00	616.66
10JUN	SE	4424.55	113.71	0.00	0.00	0.00	0.00	0.16	0.00	0.00	0.00	0.49	4.91	0.00	4426.01
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-133 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF HOGCHOKER EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	DENSITY	7719.62	2687.84	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	800.58
17JUN	SE	2541.12	1207.38	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2813.37
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	DENSITY	28708.13	524.78	1.16	10.95	0.00	0.00	0.00	0.00	0.00	0.59	0.00	0.00	0.00	2249.66
24JUN	SE	14795.24	509.63	1.16	9.38	0.00	0.00	0.00	0.00	0.00	0.59	0.00	0.00	0.00	14804.02
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	DENSITY	13246.38	2587.53	6.34	0.00	8.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1219.11
01JUL	SE	10256.41	951.41	5.96	0.00	4.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10300.44
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	DENSITY	3771.63	12.19	0.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	291.12
08JUL	SE	1843.16	3.36	0.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1843.16
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	DENSITY	6654.37	758.48	3.29	0.00	0.04	0.00	0.00	0.00	NS	NS	NS	NS	NS	927.02
21JUL	SE	2277.16	345.77	1.85	0.00	0.04	0.00	0.00	0.00						2303.26
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
05AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	DENSITY	0.00	0.00	0.00	0.00	1.17	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.15
16AUG	SE	0.00	0.00	0.00	0.00	1.17	0.00	0.00	0.00						1.17
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
31AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
28SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
12OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-134 REGIONAL STANDING CROP (IN THOUSANDS) OF HOGCHOKER EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
08MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
22MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
07APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	ST. CROP	59	0	0	0	0	0	0	0	0	0	0	0	0	59
26MAY	SE	59	0	0	0	0	0	0	0	0	0	0	0	0	59
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	ST. CROP	50	92	198	0	0	0	0	0	0	0	0	0	0	341
04JUN	SE	50	92	136	0	0	0	0	0	0	0	0	0	0	172
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	ST. CROP	1640375	37340	0	0	0	0	22	0	0	0	86	790	0	1678613
10JUN	SE	924786	26086	0	0	0	0	22	0	0	0	86	790	0	925154
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-134 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF HOGCHOKER EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	ST. CROP	1613499	616644	0	0	30	0	0	0	0	0	0	0	0	2230173
17JUN	SE	531126	276998	0	0	24	0	0	0	0	0	0	0	0	599018
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	ST. CROP	6000359	120395	373	1618	0	0	0	0	0	84	0	0	0	6122828
24JUN	SE	3092392	116920	373	1386	0	0	0	0	0	84	0	0	0	3094601
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	ST. CROP	2768664	593633	2039	0	1717	0	0	0	0	0	0	0	0	3366052
01JUL	SE	2143722	218273	1918	0	857	0	0	0	0	0	0	0	0	2154806
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	ST. CROP	788318	2796	233	0	0	0	0	0	0	0	0	0	0	791347
08JUL	SE	385244	771	233	0	0	0	0	0	0	0	0	0	0	385245
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	ST. CROP	1390849	174010	1058	0	9	0	0	0	NS	NS	NS	NS	NS	1565925
21JUL	SE	475955	79327	596	0	9	0	0	0						482520
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	ST. CROP	0	0	0	0	244	0	0	0	NS	NS	NS	NS	NS	244
16AUG	SE	0	0	0	0	244	0	0	0						244
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
31AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
12OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-135 REGIONAL DENSITY (NO./1,000m3) OF HOGCHOKER YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
08MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
22MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
07APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	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
14APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	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
21APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	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
28APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	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
04MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	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
12MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	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
20MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	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
26MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	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
04JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	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
10JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-135 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF HOGCHOKER YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-17JUN	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	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-24JUN	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	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-01JUL	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	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-08JUL	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	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-21JUL	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	6	11	13	14	12	8	10	6						80
03AUG-05AUG	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	6	10	13	14	13	8	10	6						80
14AUG-16AUG	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	6	11	13	14	13	8	10	6						81
29AUG-31AUG	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	6	11	13	14	13	8	10	6						81
12SEP-14SEP	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	6	11	13	14	13	8	10	6						81
26SEP-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
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-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
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-136. REGIONAL STANDING CROP (IN THOUSANDS) OF HOGCHOKER YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
08MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
22MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
07APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-136 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF HOGCHOKER YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
21JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
16AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
31AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
12OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-137 REGIONAL DENSITY (NO./1,000m3) OF HOGCHOKER POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
08MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
22MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
07APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	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
14APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	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
21APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	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
28APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	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
04MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	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
12MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	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
20MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	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
26MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	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
04JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	DENSITY	0.00	0.00	0.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
10JUN	SE	0.00	0.00	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-137 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF HOGCHOKER POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-17JUN	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	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-24JUN	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	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-01JUL	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	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-08JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	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	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.05
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-21JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.35	0.00	NS	NS	NS	NS	NS	0.04
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.35	0.00						0.35
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-05AUG	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	6	10	13	14	13	8	10	6						80
14AUG-16AUG	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	6	11	13	14	13	8	10	6						81
29AUG-31AUG	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	6	11	13	14	13	8	10	6						81
12SEP-14SEP	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	6	11	13	14	13	8	10	6						81
26SEP-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
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-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
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-138 REGIONAL STANDING CROP (IN THOUSANDS) OF HOGCHOKER POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
08MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
22MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
07APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	ST. CROP	0	0	228	0	0	0	0	0	0	0	0	0	0	228
10JUN	SE	0	0	132	0	0	0	0	0	0	0	0	0	0	132
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-138 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF HOGCHOKER POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	ST. CROP	0	0	0	0	0	0	7	0	0	0	0	0	0	7
08JUL	SE	0	0	0	0	0	0	7	0	0	0	0	0	0	7
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	ST. CROP	0	0	0	0	0	0	49	0	NS	NS	NS	NS	NS	49
21JUL	SE	0	0	0	0	0	0	49	0						49
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
16AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
31AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
12OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-139 REGIONAL DENSITY (NO./1,000m3) OF HOGCHOKER YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
08MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
22MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
07APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	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
14APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	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
21APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	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
28APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	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
04MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	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
12MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	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
20MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	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
26MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	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
04JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	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
10JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-139 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF HOGCHOKER YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
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
17JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
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
24JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
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
01JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	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
08JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
21JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
05AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	NS	NS	NS	NS	NS	0.04
16AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00						0.30
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	1.00	0.65	1.65	NS	NS	NS	NS	NS	0.41
31AUG	SE	0.00	0.00	0.00	0.00	0.00	0.57	0.33	1.65						1.78
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.67	2.51	0.48	NS	NS	NS	NS	NS	0.46
28SEP	SE	0.00	0.00	0.00	0.00	0.00	0.28	1.04	0.48						1.18
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	DENSITY	0.00	0.00	0.00	0.00	0.15	0.24	0.06	0.62	NS	NS	NS	NS	NS	0.13
12OCT	SE	0.00	0.00	0.00	0.00	0.15	0.14	0.06	0.62						0.65
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-140 REGIONAL STANDING CROP (IN THOUSANDS) OF HOGCHOKER YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
08MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
22MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
07APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-140 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF HOGCHOKER YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
21JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	ST. CROP	0	0	0	0	0	0	43	0	NS	NS	NS	NS	NS	43
16AUG	SE	0	0	0	0	0	0	43	0						43
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	ST. CROP	0	0	0	0	0	207	91	492	NS	NS	NS	NS	NS	790
31AUG	SE	0	0	0	0	0	118	46	492						508
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	ST. CROP	0	0	0	0	0	139	351	142	NS	NS	NS	NS	NS	632
28SEP	SE	0	0	0	0	0	58	145	142						211
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	ST. CROP	0	0	0	0	32	50	8	184	NS	NS	NS	NS	NS	274
12OCT	SE	0	0	0	0	32	29	8	184						189
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-141 REGIONAL DENSITY (NO./1,000m3) OF HOGCHOKER YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.63	0.14
15JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.63	1.63
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	1.15	0.00	0.00	0.00	0.48	0.27	0.00	0.16
29JUL	SE	0.00	0.00	0.00	0.00	0.00	1.15	0.00	0.00	0.00	0.48	0.25	0.00	1.27
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	DENSITY	1.60	0.01	0.00	0.00	0.02	0.08	0.00	0.02	0.00	0.00	0.24	0.00	0.16
11AUG	SE	1.60	0.01	0.00	0.00	0.02	0.08	0.00	0.02	0.00	0.00	0.24	0.00	1.62
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.54	0.11	1.07	0.00	0.00	0.00	0.14
25AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.54	0.11	0.76	0.00	0.00	0.00	0.94
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
03SEP-	DENSITY	0.00	0.00	0.00	0.18	1.14	2.57	0.35	0.16	0.18	0.08	0.04	0.05	0.40
08SEP	SE	0.00	0.00	0.00	0.18	0.07	0.45	0.22	0.07	0.08	0.08	0.04	0.05	0.56
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
18SEP-	DENSITY	0.00	0.40	0.00	0.05	0.47	2.01	0.22	0.24	0.16	4.79	0.17	0.05	0.71
22SEP	SE	0.00	0.40	0.00	0.04	0.25	0.55	0.04	0.10	0.07	4.43	0.06	0.05	4.50
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
02OCT-	DENSITY	0.00	0.00	0.00	0.13	0.35	0.48	0.13	0.19	0.43	0.16	0.02	0.00	0.16
05OCT	SE	0.00	0.00	0.00	0.07	0.25	0.25	0.13	0.14	0.13	0.11	0.02	0.00	0.44
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
16OCT-	DENSITY	0.00	0.00	0.11	0.00	0.85	1.80	0.46	0.17	1.05	0.82	0.04	0.00	0.44
20OCT	SE	0.00	0.00	0.05	0.00	0.26	0.59	0.22	0.12	0.34	0.36	0.03	0.00	0.85
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

TABLE C-142 REGIONAL STANDING CROP (IN THOUSANDS) OF HOGCHOKER YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	116	116
15JUL	SE	0	0	0	0	0	0	0	0	0	0	0	116	116
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24JUL-	ST. CROP	0	0	0	0	0	160	0	0	0	85	44	0	290
29JUL	SE	0	0	0	0	0	160	0	0	0	85	40	0	186
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	ST. CROP	367	3	0	0	4	11	0	4	0	0	39	0	428
11AUG	SE	367	3	0	0	4	11	0	4	0	0	39	0	369
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21AUG-	ST. CROP	0	0	0	0	0	0	160	18	152	0	0	0	330
25AUG	SE	0	0	0	0	0	0	160	18	108	0	0	0	194
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
03SEP-	ST. CROP	0	0	0	38	237	360	105	26	26	14	7	4	817
08SEP	SE	0	0	0	38	15	63	65	11	11	14	7	4	102
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
18SEP-	ST. CROP	0	128	0	11	97	281	65	40	23	844	28	4	1520
22SEP	SE	0	128	0	9	53	78	12	16	10	782	10	4	798
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
02OCT-	ST. CROP	0	0	0	27	73	68	38	32	61	28	3	0	330
05OCT	SE	0	0	0	14	52	34	38	23	18	20	3	0	83
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
16OCT-	ST. CROP	0	0	16	0	177	252	138	28	148	145	7	0	911
20OCT	SE	0	0	8	0	53	83	65	20	48	63	5	0	144
	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, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	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
22JUN	SE	0.00	0.00	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
03JUL-	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
06JUL	SE	0.00	0.00	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
17JUL-	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
20JUL	SE	0.00	0.00	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
31JUL-	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
02AUG	SE	0.00	0.00	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
14AUG-	CPUE	0.00	0.00	0.00	1.00	0.40	0.17	0.20	0.00	0.00	0.00	0.10	0.00	0.16
16AUG	SE	0.00	0.00	0.00	1.00	0.40	0.17	0.20	0.00	0.00	0.00	0.10	0.00	1.11
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
29AUG-	CPUE	0.00	0.00	0.00	0.00	0.20	0.50	0.00	0.00	0.00	0.00	0.20	0.00	0.08
31AUG	SE	0.00	0.00	0.00	0.00	0.20	0.34	0.00	0.00	0.00	0.00	0.13	0.00	0.42
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11SEP-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.01
14SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.10
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25SEP-	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
28SEP	SE	0.00	0.00	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
09OCT-	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
12OCT	SE	0.00	0.00	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
23OCT-	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
26OCT	SE	0.00	0.00	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-144 REGIONAL STANDING CROP (IN THOUSANDS) OF HOGCHOKER YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
22JUN	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
03JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
06JUL	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
17JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
20JUL	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
31JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
02AUG	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
14AUG-	ST. CROP	0	0	0	9	1	2	1	0	0	0	2	0	15
16AUG	SE	0	0	0	9	1	2	1	0	0	0	2	0	10
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
29AUG-	ST. CROP	0	0	0	0	1	5	0	0	0	0	4	0	10
31AUG	SE	0	0	0	0	1	4	0	0	0	0	3	0	5
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	2	0	2
14SEP	SE	0	0	0	0	0	0	0	0	0	0	2	0	2
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
28SEP	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
09OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
12OCT	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
23OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
26OCT	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-145 REGIONAL DENSITY (NO./1,000m3) OF HOGCHOKER YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	DENSITY	10.02	4.38	3.46	2.78	0.85	4.98	2.40	0.57	4.60	5.35	4.09	9.56	4.42
15JUL	SE	5.31	0.81	0.58	1.23	0.11	0.82	0.50	0.16	1.29	1.21	1.08	2.06	6.34
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24JUL-	DENSITY	3.45	6.90	2.51	3.13	1.63	4.24	1.65	1.63	3.94	5.20	2.50	6.24	3.58
29JUL	SE	1.12	1.42	0.69	0.90	0.93	1.45	0.54	0.48	1.07	1.68	0.87	1.70	3.96
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	DENSITY	3.82	11.01	8.10	5.42	2.84	5.05	0.76	1.00	0.96	4.59	3.69	4.45	4.31
11AUG	SE	2.87	3.72	0.83	2.13	0.87	0.93	0.51	0.34	0.36	1.22	1.72	1.58	6.04
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21AUG-	DENSITY	2.44	6.54	5.62	5.99	0.66	5.18	2.33	1.57	5.95	3.95	3.52	4.34	4.01
25AUG	SE	0.73	1.35	0.94	1.97	0.22	1.54	0.86	0.64	1.56	1.24	0.96	1.75	4.32
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
03SEP-	DENSITY	0.95	8.82	3.67	1.34	4.29	10.54	2.07	1.67	2.78	14.94	5.17	4.55	5.07
08SEP	SE	0.63	2.32	0.70	0.78	0.38	1.15	0.70	0.25	0.59	4.68	2.62	0.74	6.21
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
18SEP-	DENSITY	0.69	5.24	2.62	2.97	5.36	12.03	3.48	1.99	3.95	10.92	8.23	5.14	5.22
22SEP	SE	0.36	1.68	0.62	1.52	2.70	2.00	0.91	0.82	1.09	4.33	4.04	2.10	7.69
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
02OCT-	DENSITY	11.15	7.81	6.36	9.20	6.82	2.94	2.16	4.70	6.81	13.98	1.55	1.60	6.26
05OCT	SE	4.23	1.83	1.02	4.65	3.71	1.08	2.04	1.16	1.42	3.70	0.84	0.41	9.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
16OCT-	DENSITY	0.10	5.02	6.47	28.83	10.28	21.54	9.29	3.91	15.76	24.68	2.88	1.64	10.87
20OCT	SE	0.06	0.98	1.51	12.39	3.52	4.55	1.76	0.69	4.84	9.08	0.99	1.08	17.37
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

TABLE C-146 REGIONAL STANDING CROP (IN THOUSANDS) OF HOGCHOKER YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-15JUL	ST. CROP	2300	1411	511	579	177	696	715	94	651	944	657	680	9414
	SE	1218	262	86	256	22	115	149	26	182	214	174	147	1339
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24JUL-29JUL	ST. CROP	791	2220	371	651	338	592	492	269	557	916	402	444	8043
	SE	257	457	101	187	192	202	160	79	151	297	140	121	758
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-11AUG	ST. CROP	876	3544	1196	1129	590	705	226	165	136	809	594	316	10287
	SE	659	1198	122	444	181	131	151	56	50	215	277	113	1515
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21AUG-25AUG	ST. CROP	560	2105	830	1247	136	724	696	259	841	696	567	309	8970
	SE	167	433	139	411	45	215	255	106	221	219	154	124	815
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
03SEP-08SEP	ST. CROP	218	2837	542	279	890	1473	618	277	393	2635	831	324	11317
	SE	144	748	104	163	80	161	210	42	84	824	421	53	1250
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
18SEP-22SEP	ST. CROP	157	1686	387	620	1112	1681	1037	329	559	1926	1323	366	11183
	SE	83	539	92	316	560	280	270	135	154	764	650	150	1393
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
02OCT-05OCT	ST. CROP	2557	2513	939	1918	1414	411	645	778	963	2465	249	114	14966
	SE	971	588	150	969	770	150	609	192	201	653	135	29	1939
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
16OCT-20OCT	ST. CROP	24	1614	955	6007	2133	3011	2768	647	2230	4351	463	117	24321
	SE	13	315	224	2582	730	637	524	115	684	1601	159	77	3332
	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, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	CPUE	0.00	0.82	0.29	10.67	0.00	1.67	0.13	0.00	0.00	0.00	1.84	0.00	1.28
22JUN	SE	0.00	0.38	0.18	10.17	0.00	1.67	0.13	0.00	0.00	0.00	0.68	0.00	10.34
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03JUL-	CPUE	0.00	1.73	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.32	0.00	0.27
06JUL	SE	0.00	0.80	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.91	0.00	1.22
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
17JUL-	CPUE	0.33	0.27	3.14	1.33	0.33	0.00	0.00	0.00	0.13	0.07	0.89	0.08	0.55
20JUL	SE	0.33	0.19	1.91	1.33	0.33	0.00	0.00	0.00	0.13	0.07	0.30	0.08	2.41
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
31JUL-	CPUE	0.20	1.92	4.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.80	0.14	0.69
02AUG	SE	0.20	1.13	3.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.27	0.14	3.93
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14AUG-	CPUE	0.00	0.17	0.43	0.40	1.40	0.00	0.00	0.00	0.00	0.00	0.80	0.00	0.27
16AUG	SE	0.00	0.10	0.23	0.24	0.98	0.00	0.00	0.00	0.00	0.00	0.61	0.00	1.21
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
29AUG-	CPUE	0.00	0.21	1.29	0.60	1.60	0.17	0.00	0.00	0.00	0.00	0.10	0.00	0.33
31AUG	SE	0.00	0.08	0.44	0.40	0.68	0.17	0.00	0.00	0.00	0.00	0.10	0.00	0.93
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11SEP-	CPUE	0.00	0.04	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.02
14SEP	SE	0.00	0.04	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.13
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25SEP-	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
28SEP	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
09OCT-	CPUE	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
12OCT	SE	0.00	0.00	0.00	0.20	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
23OCT-	CPUE	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
26OCT	SE	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE C-148 REGIONAL STANDING CROP (IN THOUSANDS) OF HOGCHOKER YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	ST. CROP	0	37	8	98	0	18	1	0	0	0	36	0	198
22JUN	SE	0	17	5	94	0	18	1	0	0	0	13	0	98
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03JUL-	ST. CROP	0	78	4	0	0	0	0	0	0	0	26	0	108
06JUL	SE	0	36	4	0	0	0	0	0	0	0	18	0	41
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
17JUL-	ST. CROP	3	12	85	12	1	0	0	0	1	1	18	1	134
20JUL	SE	3	9	51	12	1	0	0	0	1	1	6	1	54
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
31JUL-	ST. CROP	2	87	113	0	0	0	0	0	0	0	35	2	239
02AUG	SE	2	51	95	0	0	0	0	0	0	0	25	2	111
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14AUG-	ST. CROP	0	8	12	4	4	0	0	0	0	0	16	0	42
16AUG	SE	0	4	6	2	3	0	0	0	0	0	12	0	15
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
29AUG-	ST. CROP	0	9	35	6	4	2	0	0	0	0	2	0	58
31AUG	SE	0	4	12	4	2	2	0	0	0	0	2	0	13
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11SEP-	ST. CROP	0	2	2	0	0	0	0	0	0	0	2	0	6
14SEP	SE	0	2	2	0	0	0	0	0	0	0	2	0	3
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25SEP-	ST. CROP	2	0	0	0	0	0	0	0	0	0	0	0	2
28SEP	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
09OCT-	ST. CROP	0	0	0	2	0	0	0	0	0	0	0	0	2
12OCT	SE	0	0	0	2	0	0	0	0	0	0	0	0	2
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
23OCT-	ST. CROP	0	4	0	0	0	0	0	0	0	0	0	0	4
26OCT	SE	0	3	0	0	0	0	0	0	0	0	0	0	3
	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, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-08MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-22MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-07APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-14APR	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	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-21APR	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	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-28APR	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	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-04MAY	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	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-12MAY	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	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-20MAY	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	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-26MAY	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	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-04JUN	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	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-10JUN	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	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-149 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF SPOTTAIL SHINER EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
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
17JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
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
24JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
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
01JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	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
08JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
21JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
05AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
16AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
31AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
28SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
12OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-150 REGIONAL STANDING CROP (IN THOUSANDS) OF SPOTTAIL SHINER EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
08MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
22MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
07APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-150 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF SPOTTAIL SHINER EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-17JUN	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	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-24JUN	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	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-01JUL	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	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-08JUL	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	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-21JUL	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	6	11	13	14	12	8	10	6						80
03AUG-05AUG	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	6	10	13	14	13	8	10	6						80
14AUG-16AUG	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	6	11	13	14	13	8	10	6						81
29AUG-31AUG	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	6	11	13	14	13	8	10	6						81
12SEP-14SEP	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	6	11	13	14	13	8	10	6						81
26SEP-28SEP	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	6	11	13	14	13	8	10	6						81
10OCT-12OCT	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	6	11	13	14	13	8	10	6						81

TABLE C-151 REGIONAL DENSITY (NO./1,000m3) OF SPOTTAIL SHINER YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
08MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
22MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
07APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	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
14APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	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
21APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	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
28APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	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
04MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	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
12MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	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
20MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	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
26MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	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
04JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	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
10JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-151 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF SPOTTAIL SHINER YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
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
17JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
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
24JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
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
01JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	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
08JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
21JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
05AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
16AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
31AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
28SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
12OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-152 REGIONAL STANDING CROP (IN THOUSANDS) OF SPOTTAIL SHINER YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
08MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
22MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
07APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-152 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF SPOTTAIL SHINER YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
21JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
16AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
31AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
12OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81

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, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
08MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
22MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
07APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	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
14APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	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
21APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	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
28APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	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
04MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	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
12MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	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
20MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	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
26MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	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
04JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	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
10JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-153 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF SPOTTAIL SHINER POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-17JUN	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	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-24JUN	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	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-01JUL	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	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-08JUL	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	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-21JUL	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	6	11	13	14	12	8	10	6						80
03AUG-05AUG	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	6	10	13	14	13	8	10	6						80
14AUG-16AUG	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	6	11	13	14	13	8	10	6						81
29AUG-31AUG	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	6	11	13	14	13	8	10	6						81
12SEP-14SEP	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	6	11	13	14	13	8	10	6						81
26SEP-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
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-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
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

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, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
08MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
22MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
07APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-154 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF SPOTTAIL SHINER POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
21JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
16AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
31AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
12OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-155 REGIONAL DENSITY (NO./1,000m3) OF SPOTTAIL SHINER YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
08MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
22MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
07APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	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
14APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	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
21APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	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
28APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	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
04MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	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
12MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	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
20MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	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
26MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	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
04JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	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
10JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-155 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF SPOTTAIL SHINER YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-17JUN	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	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-24JUN	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	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-01JUL	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	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-08JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.59	0.00	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	0.59	0.00	0.59
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-21JUL	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	6	11	13	14	12	8	10	6						80
03AUG-05AUG	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	6	10	13	14	13	8	10	6						80
14AUG-16AUG	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	6	11	13	14	13	8	10	6						81
29AUG-31AUG	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	6	11	13	14	13	8	10	6						81
12SEP-14SEP	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	6	11	13	14	13	8	10	6						81
26SEP-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
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-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
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-156 REGIONAL STANDING CROP (IN THOUSANDS) OF SPOTTAIL SHINER YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
08MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
22MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
07APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-156 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF SPOTTAIL SHINER YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	95	0	95
08JUL	SE	0	0	0	0	0	0	0	0	0	0	0	95	0	95
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
21JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
16AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
31AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
12OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-157 REGIONAL DENSITY (NO./1,000m3) OF SPOTTAIL SHINER YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
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
15JUL	SE	0.00	0.00	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
24JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.15	0.02
29JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.07	0.08
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	DENSITY	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
11AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.25
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21AUG-	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
25AUG	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
03SEP-	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
08SEP	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
18SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
22SEP	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
02OCT-	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
05OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	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
16OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.03	0.05	0.00	0.09	0.01
20OCT	SE	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.03	0.03	0.00	0.06	0.07
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

TABLE C-158 REGIONAL STANDING CROP (IN THOUSANDS) OF SPOTTAIL SHINER YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
15JUL	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
24JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	16	10	26
29JUL	SE	0	0	0	0	0	0	0	0	0	0	7	5	9
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	21	21
11AUG	SE	0	0	0	0	0	0	0	0	0	0	0	18	18
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	4	4
25AUG	SE	0	0	0	0	0	0	0	0	0	0	0	4	4
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
03SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	4	4
08SEP	SE	0	0	0	0	0	0	0	0	0	0	0	4	4
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
18SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	7	7
22SEP	SE	0	0	0	0	0	0	0	0	0	0	0	5	5
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
02OCT-	ST. CROP	0	0	0	0	0	0	0	8	0	0	0	0	8
05OCT	SE	0	0	0	0	0	0	0	5	0	0	0	0	5
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
16OCT-	ST. CROP	0	0	0	0	0	1	0	0	4	8	0	7	20
20OCT	SE	0	0	0	0	0	1	0	0	4	5	0	4	8
	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, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.13	4.63	4.63	17.00	1.47	2.33	2.52
22JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.13	2.31	3.23	11.24	0.64	1.79	12.07
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03JUL-	CPUE	0.00	0.09	0.00	0.00	0.00	0.00	3.00	3.75	4.75	0.60	8.32	1.83	1.86
06JUL	SE	0.00	0.09	0.00	0.00	0.00	0.00	3.00	2.52	2.54	0.53	5.44	1.66	7.38
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
17JUL-	CPUE	0.00	0.00	0.00	0.67	0.00	2.33	5.00	65.88	16.38	1.00	18.68	0.33	9.19
20JUL	SE	0.00	0.00	0.00	0.67	0.00	1.45	2.41	17.72	4.07	0.57	5.52	0.33	19.23
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
31JUL-	CPUE	0.00	0.00	0.00	0.40	0.40	0.17	14.40	11.60	18.00	3.67	12.80	1.57	5.25
02AUG	SE	0.00	0.00	0.00	0.40	0.40	0.17	7.90	3.60	7.87	2.11	6.98	1.57	13.90
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14AUG-	CPUE	0.00	0.00	0.00	0.00	0.00	3.00	9.60	6.80	4.00	7.89	21.20	0.00	4.37
16AUG	SE	0.00	0.00	0.00	0.00	0.00	2.05	4.20	3.87	2.14	3.70	17.28	0.00	18.81
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
29AUG-	CPUE	0.00	0.00	0.00	0.20	0.20	0.83	4.40	6.20	4.40	4.44	18.70	0.57	3.33
31AUG	SE	0.00	0.00	0.00	0.20	0.20	0.83	2.56	2.27	2.23	2.52	8.92	0.43	10.18
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11SEP-	CPUE	0.00	0.00	0.00	0.00	0.20	0.00	6.80	13.80	20.60	6.89	13.60	1.14	5.25
14SEP	SE	0.00	0.00	0.00	0.00	0.20	0.00	5.58	6.26	12.12	2.96	4.96	0.99	15.86
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25SEP-	CPUE	0.00	0.00	0.00	0.00	0.60	0.00	3.00	19.80	7.60	3.33	19.10	0.71	4.51
28SEP	SE	0.00	0.00	0.00	0.00	0.40	0.00	2.76	13.99	3.75	1.81	13.91	0.71	20.37
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
09OCT-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	7.40	25.20	10.00	1.89	16.50	2.29	5.27
12OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	4.61	10.04	8.07	1.03	8.29	0.97	16.06
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
23OCT-	CPUE	0.00	0.00	0.00	0.00	2.40	0.67	5.60	30.40	10.80	7.78	15.40	13.43	7.21
26OCT	SE	0.00	0.00	0.00	0.00	1.94	0.42	4.13	10.07	4.87	3.09	4.27	3.98	13.78
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE C-160 REGIONAL STANDING CROP (IN THOUSANDS) OF SPOTTAIL SHINER YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	ST. CROP	0	0	0	0	0	0	1	6	40	298	29	32	406
22JUN	SE	0	0	0	0	0	0	1	3	28	197	13	24	201
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03JUL-	ST. CROP	0	4	0	0	0	0	21	5	41	11	164	25	270
06JUL	SE	0	4	0	0	0	0	21	3	22	9	107	22	114
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
17JUL-	ST. CROP	0	0	0	6	0	25	35	82	141	18	368	5	679
20JUL	SE	0	0	0	6	0	15	17	22	35	10	109	5	119
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
31JUL-	ST. CROP	0	0	0	4	1	2	102	14	155	64	252	21	616
02AUG	SE	0	0	0	4	1	2	56	4	68	37	137	21	169
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14AUG-	ST. CROP	0	0	0	0	0	32	68	8	34	138	417	0	699
16AUG	SE	0	0	0	0	0	22	30	5	18	65	340	0	349
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
29AUG-	ST. CROP	0	0	0	2	1	9	31	8	38	78	368	8	542
31AUG	SE	0	0	0	2	1	9	18	3	19	44	176	6	183
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11SEP-	ST. CROP	0	0	0	0	1	0	48	17	177	121	268	16	647
14SEP	SE	0	0	0	0	1	0	40	8	104	52	98	13	158
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25SEP-	ST. CROP	0	0	0	0	2	0	21	25	65	59	376	10	557
28SEP	SE	0	0	0	0	1	0	20	17	32	32	274	10	279
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
09OCT-	ST. CROP	0	0	0	0	0	0	53	31	86	33	325	31	559
12OCT	SE	0	0	0	0	0	0	33	12	70	18	163	13	182
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
23OCT-	ST. CROP	0	0	0	0	6	7	40	38	93	137	303	182	806
26OCT	SE	0	0	0	0	5	4	29	12	42	54	84	54	126
	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, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.08	0.04	0.11	0.38	0.05
15JUL	SE	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.06	0.03	0.07	0.16	0.19
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.02	0.05	0.02	0.38	0.79	0.11
29JUL	SE	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.02	0.03	0.02	0.25	0.23	0.34
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.17	0.00	0.00	0.46	0.05
11AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.09	0.00	0.00	0.16	0.19
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.05	0.04	0.00	1.31	0.12
25AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.05	0.03	0.00	0.67	0.67
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
03SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.10	0.00	0.05	1.20	0.11
08SEP	SE	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.07	0.00	0.03	0.39	0.40
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
18SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.71	0.06
22SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.36	0.36
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
02OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.17	0.00	0.18	0.03
05OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.08	0.00	0.10	0.13
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
16OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.16	0.02	0.80	0.09
20OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.09	0.02	0.38	0.40
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

TABLE C-162 REGIONAL STANDING CROP (IN THOUSANDS) OF SPOTTAIL SHINER YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	ST. CROP	0	0	0	0	0	6	0	0	12	7	18	27	69
15JUL	SE	0	0	0	0	0	6	0	0	9	5	11	11	19
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24JUL-	ST. CROP	0	0	0	0	0	7	0	4	7	4	61	56	139
29JUL	SE	0	0	0	0	0	4	0	4	4	4	40	16	43
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	ST. CROP	0	0	0	0	0	0	0	5	24	0	0	33	61
11AUG	SE	0	0	0	0	0	0	0	5	13	0	0	12	18
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21AUG-	ST. CROP	0	0	0	0	0	0	9	0	7	7	0	93	116
25AUG	SE	0	0	0	0	0	0	9	0	7	5	0	48	49
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
03SEP-	ST. CROP	0	0	0	0	0	1	0	0	14	0	8	86	109
08SEP	SE	0	0	0	0	0	1	0	0	10	0	5	28	30
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
18SEP-	ST. CROP	0	0	0	0	0	0	0	0	4	0	0	51	55
22SEP	SE	0	0	0	0	0	0	0	0	4	0	0	25	26
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
02OCT-	ST. CROP	0	0	0	0	0	0	0	0	4	30	0	13	47
05OCT	SE	0	0	0	0	0	0	0	0	4	14	0	7	16
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
16OCT-	ST. CROP	0	0	0	0	0	0	0	0	8	28	3	57	96
20OCT	SE	0	0	0	0	0	0	0	0	5	16	3	27	32
	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, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-22JUN	CPUE	0.00	0.00	0.00	1.67	10.67	19.67	38.13	5.00	0.75	1.60	0.89	0.08	6.54
	SE	0.00	0.00	0.00	1.20	2.40	19.17	29.29	2.90	0.49	1.60	0.51	0.08	35.27
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03JUL-06JUL	CPUE	0.00	0.00	0.00	6.67	2.67	0.33	11.75	9.13	0.63	5.73	0.84	3.08	3.40
	SE	0.00	0.00	0.00	5.67	1.76	0.33	4.26	4.02	0.42	2.68	0.73	2.19	9.07
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
17JUL-20JUL	CPUE	0.00	0.00	0.00	0.67	17.33	30.67	10.00	17.88	5.13	2.53	3.89	0.08	7.35
	SE	0.00	0.00	0.00	0.67	6.84	16.25	6.74	6.65	3.60	2.46	1.98	0.08	20.59
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
31JUL-02AUG	CPUE	0.00	0.00	0.00	0.00	5.20	0.00	13.20	8.00	0.60	0.11	0.70	0.00	2.32
	SE	0.00	0.00	0.00	0.00	5.20	0.00	12.21	4.28	0.40	0.11	0.50	0.00	13.96
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14AUG-16AUG	CPUE	0.00	0.00	0.00	0.00	4.60	2.17	37.80	0.20	0.20	1.11	1.30	0.14	3.96
	SE	0.00	0.00	0.00	0.00	4.12	1.38	24.73	0.20	0.20	0.65	1.10	0.14	25.14
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
29AUG-31AUG	CPUE	0.00	0.00	0.00	0.00	2.20	0.00	11.80	19.80	0.00	0.78	3.90	0.00	3.21
	SE	0.00	0.00	0.00	0.00	0.92	0.00	7.48	7.50	0.00	0.52	2.04	0.00	10.84
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11SEP-14SEP	CPUE	0.00	0.00	0.00	0.40	0.00	0.17	8.40	11.40	3.20	5.78	1.70	0.00	2.59
	SE	0.00	0.00	0.00	0.40	0.00	0.17	7.42	8.93	1.96	3.39	1.27	0.00	12.32
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25SEP-28SEP	CPUE	0.00	0.00	0.00	0.00	0.40	0.17	6.40	8.60	3.40	4.22	2.50	0.00	2.14
	SE	0.00	0.00	0.00	0.00	0.40	0.17	5.41	3.94	2.23	2.16	2.18	0.00	7.71
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
09OCT-12OCT	CPUE	0.00	0.00	0.00	0.60	0.00	0.17	4.80	12.00	0.40	4.22	4.60	0.29	2.26
	SE	0.00	0.00	0.00	0.60	0.00	0.17	3.60	8.06	0.24	2.28	3.16	0.29	9.67
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
23OCT-26OCT	CPUE	0.00	0.00	0.00	0.40	2.80	1.17	4.40	13.80	13.00	7.22	6.10	15.29	5.35
	SE	0.00	0.00	0.00	0.24	0.97	1.17	2.11	2.71	5.97	1.78	1.73	6.12	9.67
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE C-164 REGIONAL STANDING CROP (IN THOUSANDS) OF SPOTTAIL SHINER YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	ST. CROP	0	0	0	15	28	209	271	6	6	28	18	1	583
22JUN	SE	0	0	0	11	6	204	208	4	4	28	10	1	293
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03JUL-	ST. CROP	0	0	0	61	7	4	83	11	5	101	17	42	331
06JUL	SE	0	0	0	52	5	4	30	5	4	47	14	30	84
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
17JUL-	ST. CROP	0	0	0	6	46	327	71	22	44	44	77	1	638
20JUL	SE	0	0	0	6	18	173	48	8	31	43	39	1	192
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
31JUL-	ST. CROP	0	0	0	0	14	0	94	10	5	2	14	0	138
02AUG	SE	0	0	0	0	14	0	87	5	3	2	10	0	89
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14AUG-	ST. CROP	0	0	0	0	12	23	268	0	2	20	26	2	352
16AUG	SE	0	0	0	0	11	15	175	<0.5	2	11	22	2	178
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
29AUG-	ST. CROP	0	0	0	0	6	0	84	25	0	14	77	0	204
31AUG	SE	0	0	0	0	2	0	53	9	0	9	40	0	68
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11SEP-	ST. CROP	0	0	0	4	0	2	60	14	28	101	33	0	242
14SEP	SE	0	0	0	4	0	2	53	11	17	60	25	0	86
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25SEP-	ST. CROP	0	0	0	0	1	2	45	11	29	74	49	0	211
28SEP	SE	0	0	0	0	1	2	38	5	19	38	43	0	72
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
09OCT-	ST. CROP	0	0	0	6	0	2	34	15	3	74	91	4	228
12OCT	SE	0	0	0	6	0	2	26	10	2	40	62	4	79
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
23OCT-	ST. CROP	0	0	0	4	7	12	31	17	112	127	120	208	638
26OCT	SE	0	0	0	2	3	12	15	3	51	31	34	83	110
	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, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
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
15JUL	SE	0.00	0.00	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
24JUL-	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
29JUL	SE	0.00	0.00	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
07AUG-	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
11AUG	SE	0.00	0.00	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
21AUG-	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
25AUG	SE	0.00	0.00	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
03SEP-	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
08SEP	SE	0.00	0.00	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
18SEP-	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
22SEP	SE	0.00	0.00	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
02OCT-	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
05OCT	SE	0.00	0.00	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
16OCT-	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
20OCT	SE	0.00	0.00	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 CROP (IN THOUSANDS) OF ATLANTIC STURGEON YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
15JUL	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
24JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
29JUL	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
07AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
11AUG	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
21AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
25AUG	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
03SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
08SEP	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
18SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
22SEP	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
02OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
05OCT	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
16OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
20OCT	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, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	<0.005
15JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.04
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24JUL-	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
29JUL	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
07AUG-	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
11AUG	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
21AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.02	0.00	0.00	0.01
25AUG	SE	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.02	0.00	0.00	0.05
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
03SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	<0.005
08SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.03
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
18SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.03	0.06	0.00	0.00	0.01
22SEP	SE	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.03	0.04	0.00	0.00	0.05
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
02OCT-	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
05OCT	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
16OCT-	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	0.01
20OCT	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

TABLE C-168 REGIONAL STANDING CROP (IN THOUSANDS) OF ATLANTIC STURGEON YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	ST. CROP	0	0	0	0	0	0	0	0	8	0	0	0	8
15JUL	SE	0	0	0	0	0	0	0	0	5	0	0	0	5
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24JUL-	ST. CROP	0	0	0	0	0	0	9	0	0	0	0	0	9
29JUL	SE	0	0	0	0	0	0	9	0	0	0	0	0	9
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	ST. CROP	0	0	3	0	0	0	0	0	0	0	0	0	3
11AUG	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
21AUG-	ST. CROP	0	0	0	0	0	6	0	0	0	4	0	0	9
25AUG	SE	0	0	0	0	0	6	0	0	0	4	0	0	7
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
03SEP-	ST. CROP	0	0	0	0	0	0	0	0	5	0	0	0	5
08SEP	SE	0	0	0	0	0	0	0	0	5	0	0	0	5
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
18SEP-	ST. CROP	0	0	0	0	0	1	0	0	4	11	0	0	16
22SEP	SE	0	0	0	0	0	1	0	0	4	7	0	0	8
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
02OCT-	ST. CROP	0	0	0	0	0	5	0	0	0	0	0	0	5
05OCT	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
16OCT-	ST. CROP	0	0	0	5	0	5	0	0	0	0	0	0	10
20OCT	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

TABLE C-169 REGIONAL DENSITY (NO./1,000m3) OF SHORTNOSE STURGEON YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-15JUL	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
24JUL-29JUL	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
07AUG-11AUG	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
21AUG-25AUG	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
03SEP-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
	SE	0.00	0.00	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
18SEP-22SEP	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
02OCT-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
	SE	0.00	0.00	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
16OCT-20OCT	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 CROP (IN THOUSANDS) OF SHORTNOSE STURGEON YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
15JUL	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
24JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
29JUL	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
07AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
11AUG	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
21AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
25AUG	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
03SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
08SEP	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
18SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
22SEP	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
02OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
05OCT	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
16OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
20OCT	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, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.02	0.00	0.00	0.00	0.01
15JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.02	0.00	0.00	0.00	0.05
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24JUL-	DENSITY	0.00	0.00	0.00	0.02	0.02	0.03	0.03	0.05	0.00	0.00	0.00	0.00	0.01
29JUL	SE	0.00	0.00	0.00	0.02	0.02	0.03	0.03	0.03	0.00	0.00	0.00	0.00	0.06
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	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
11AUG	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
21AUG-	DENSITY	0.00	0.04	0.00	0.02	0.02	0.05	0.00	0.04	0.11	0.00	0.00	0.00	0.02
25AUG	SE	0.00	0.04	0.00	0.02	0.02	0.05	0.00	0.03	0.06	0.00	0.00	0.00	0.09
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
03SEP-	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
08SEP	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
18SEP-	DENSITY	0.00	0.04	0.06	0.00	0.00	0.00	0.00	0.02	0.00	0.04	0.00	0.00	0.01
22SEP	SE	0.00	0.04	0.04	0.00	0.00	0.00	0.00	0.02	0.00	0.03	0.00	0.00	0.07
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
02OCT-	DENSITY	0.00	0.02	0.00	0.00	0.02	0.04	0.00	0.00	0.02	0.00	0.00	0.00	0.01
05OCT	SE	0.00	0.02	0.00	0.00	0.02	0.04	0.00	0.00	0.02	0.00	0.00	0.00	0.05
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
16OCT-	DENSITY	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	<0.005
20OCT	SE	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.04
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

TABLE C-172 REGIONAL STANDING CROP (IN THOUSANDS) OF SHORTNOSE STURGEON YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	ST. CROP	0	0	0	0	0	0	0	7	3	0	0	0	11
15JUL	SE	0	0	0	0	0	0	0	7	3	0	0	0	8
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24JUL-	ST. CROP	0	0	0	5	5	5	8	8	0	0	0	0	30
29JUL	SE	0	0	0	5	5	5	8	5	0	0	0	0	13
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	ST. CROP	0	0	0	0	0	0	9	0	0	0	0	0	9
11AUG	SE	0	0	0	0	0	0	9	0	0	0	0	0	9
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21AUG-	ST. CROP	0	12	0	5	3	6	0	7	15	0	0	0	49
25AUG	SE	0	12	0	5	3	6	0	4	9	0	0	0	18
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
03SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	4	0	0	4
08SEP	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
18SEP-	ST. CROP	0	13	8	0	0	0	0	3	0	8	0	0	32
22SEP	SE	0	13	6	0	0	0	0	3	0	5	0	0	15
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
02OCT-	ST. CROP	0	6	0	0	4	5	0	0	3	0	0	0	18
05OCT	SE	0	6	0	0	4	5	0	0	3	0	0	0	9
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
16OCT-	ST. CROP	0	0	3	0	0	0	0	0	4	0	0	0	7
20OCT	SE	0	0	3	0	0	0	0	0	4	0	0	0	5
	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, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-08MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-22MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-07APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-14APR	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	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-21APR	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	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-28APR	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	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-04MAY	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	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-12MAY	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	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-20MAY	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	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-26MAY	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	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-04JUN	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	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-10JUN	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	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-173 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF WHITE CATFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-17JUN	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	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-24JUN	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	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-01JUL	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	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-08JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.65	0.00	1.30	0.15
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.65	0.00	1.30	1.46
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-21JUL	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	6	11	13	14	12	8	10	6						80
03AUG-05AUG	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	6	10	13	14	13	8	10	6						80
14AUG-16AUG	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	6	11	13	14	13	8	10	6						81
29AUG-31AUG	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	6	11	13	14	13	8	10	6						81
12SEP-14SEP	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	6	11	13	14	13	8	10	6						81
26SEP-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
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-12OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	NS	NS	NS	NS	NS	0.01
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00						0.05
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-174 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE CATFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	115	0	93	207
08JUL	SE	0	0	0	0	0	0	0	0	0	0	115	0	93	148
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
21JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
16AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
31AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	ST. CROP	0	0	0	0	0	0	7	0	NS	NS	NS	NS	NS	7
12OCT	SE	0	0	0	0	0	0	7	0						7
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-174 REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE CATFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-08MAR	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-22MAR	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-07APR	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-14APR	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	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-21APR	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	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-28APR	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	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-04MAY	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	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-12MAY	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	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-20MAY	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	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-26MAY	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	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-04JUN	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	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-10JUN	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	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-175 REGIONAL DENSITY (NO./1,000m3) OF WHITE CATFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.07	0.15	1.53	0.15
15JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.05	0.87	0.88
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.14	0.29	2.25	0.23
29JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.06	0.10	0.60	0.61
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.21	2.07	0.20
11AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.08	0.94	0.94
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.18	0.66	1.47	0.19
25AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.14	0.21	0.66	0.71
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
03SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.02	0.00	0.19	0.07	2.27	0.23
08SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.02	0.00	0.11	0.04	0.50	0.53
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
18SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.05	0.10	0.24	0.15	1.40	0.17
22SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.05	0.06	0.12	0.05	0.46	0.49
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
02OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.18	0.42	0.11	0.41	0.10
05OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.10	0.18	0.05	0.19	0.29
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
16OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.08	0.15	0.25	1.52	0.14	0.18
20OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.08	0.07	0.12	0.97	0.10	0.99
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

TABLE C-176 REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE CATFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	ST. CROP	0	0	0	0	0	0	0	0	4	12	25	109	150
15JUL	SE	0	0	0	0	0	0	0	0	4	6	9	62	63
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24JUL-	ST. CROP	0	0	0	0	0	0	0	0	15	25	46	160	246
29JUL	SE	0	0	0	0	0	0	0	0	8	10	16	43	47
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	13	34	148	195
11AUG	SE	0	0	0	0	0	0	0	0	0	10	12	67	69
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21AUG-	ST. CROP	0	0	0	0	0	0	0	0	4	32	105	105	246
25AUG	SE	0	0	0	0	0	0	0	0	4	24	34	47	63
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
03SEP-	ST. CROP	0	0	0	0	0	0	64	4	0	33	12	162	275
08SEP	SE	0	0	0	0	0	0	40	4	0	19	6	35	58
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
18SEP-	ST. CROP	0	0	0	0	0	0	29	9	15	43	24	99	219
22SEP	SE	0	0	0	0	0	0	29	9	8	21	9	33	50
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
02OCT-	ST. CROP	0	0	0	0	0	0	0	4	25	74	18	30	151
05OCT	SE	0	0	0	0	0	0	0	4	14	31	9	14	38
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
16OCT-	ST. CROP	0	0	0	0	0	0	21	13	21	43	245	10	353
20OCT	SE	0	0	0	0	0	0	13	13	10	21	156	7	159
	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, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	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
22JUN	SE	0.00	0.00	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
03JUL-	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
06JUL	SE	0.00	0.00	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
17JUL-	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
20JUL	SE	0.00	0.00	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
31JUL-	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
02AUG	SE	0.00	0.00	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
14AUG-	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
16AUG	SE	0.00	0.00	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
29AUG-	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
31AUG	SE	0.00	0.00	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
11SEP-	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
14SEP	SE	0.00	0.00	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
25SEP-	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
28SEP	SE	0.00	0.00	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
09OCT-	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
12OCT	SE	0.00	0.00	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
23OCT-	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
26OCT	SE	0.00	0.00	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 CROP (IN THOUSANDS) OF WHITE CATFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
22JUN	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
03JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
06JUL	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
17JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
20JUL	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
31JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
02AUG	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
14AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
16AUG	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
29AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
31AUG	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
11SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
14SEP	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
25SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
28SEP	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
09OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
12OCT	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
23OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
26OCT	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, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	DENSITY	0.00	0.03	0.30	0.10	0.00	0.15	0.03	0.04	0.20	0.49	0.11	0.38	0.15
15JUL	SE	0.00	0.02	0.12	0.07	0.00	0.07	0.03	0.03	0.12	0.11	0.05	0.18	0.29
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24JUL-	DENSITY	0.00	0.00	0.36	0.17	0.02	0.12	0.21	0.20	0.23	0.22	0.31	0.25	0.17
29JUL	SE	0.00	0.00	0.14	0.10	0.02	0.04	0.10	0.07	0.11	0.08	0.09	0.10	0.29
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	DENSITY	0.00	0.03	0.30	0.36	0.07	0.21	0.06	0.02	0.09	0.12	0.38	0.05	0.14
11AUG	SE	0.00	0.03	0.13	0.15	0.05	0.10	0.04	0.02	0.04	0.09	0.27	0.05	0.37
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21AUG-	DENSITY	0.00	0.01	0.06	0.37	0.23	0.20	0.07	0.08	0.00	0.06	0.36	1.65	0.26
25AUG	SE	0.00	0.01	0.03	0.11	0.05	0.17	0.07	0.06	0.00	0.03	0.12	1.42	1.45
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
03SEP-	DENSITY	0.00	0.01	0.06	0.13	0.28	0.24	0.44	0.04	0.00	0.03	0.18	0.00	0.12
08SEP	SE	0.00	0.01	0.03	0.06	0.08	0.11	0.26	0.04	0.00	0.03	0.11	0.00	0.32
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
18SEP-	DENSITY	0.00	0.01	0.00	0.35	0.25	0.54	0.30	0.00	0.11	0.22	0.24	0.55	0.21
22SEP	SE	0.00	0.01	0.00	0.19	0.07	0.23	0.13	0.00	0.06	0.06	0.07	0.25	0.43
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
02OCT-	DENSITY	0.00	0.00	0.08	0.19	0.04	0.15	0.06	0.00	0.00	0.19	0.05	0.38	0.09
05OCT	SE	0.00	0.00	0.04	0.07	0.02	0.07	0.04	0.00	0.00	0.09	0.03	0.13	0.20
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
16OCT-	DENSITY	0.00	0.11	0.22	0.31	0.03	0.32	0.00	0.02	0.03	0.13	0.43	0.23	0.15
20OCT	SE	0.00	0.03	0.12	0.08	0.02	0.08	0.00	0.02	0.03	0.05	0.26	0.14	0.35
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

TABLE C-180 REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE CATFISH YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	ST. CROP	0	10	45	21	0	21	8	7	28	87	17	27	273
15JUL	SE	0	8	18	15	0	9	8	5	17	20	8	12	41
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24JUL-	ST. CROP	0	0	53	35	5	17	62	33	32	39	50	18	345
29JUL	SE	0	0	21	21	5	6	31	12	16	14	15	7	52
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	ST. CROP	0	8	44	74	15	29	18	4	12	22	62	4	291
11AUG	SE	0	8	19	30	11	14	11	4	6	16	43	4	63
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21AUG-	ST. CROP	0	4	8	77	47	27	20	14	0	11	57	117	384
25AUG	SE	0	4	5	24	10	24	20	10	0	6	19	101	111
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
03SEP-	ST. CROP	0	3	9	28	58	34	130	7	0	5	28	0	302
08SEP	SE	0	3	5	12	16	15	78	7	0	5	17	0	84
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
18SEP-	ST. CROP	0	3	0	73	52	76	88	0	15	39	38	39	424
22SEP	SE	0	3	0	39	14	32	38	0	9	11	12	18	69
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
02OCT-	ST. CROP	0	0	11	40	7	20	19	0	0	34	7	27	166
05OCT	SE	0	0	5	14	4	10	11	0	0	16	5	9	29
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
16OCT-	ST. CROP	0	34	33	64	7	45	0	4	5	23	69	17	301
20OCT	SE	0	9	18	17	4	11	0	4	5	9	43	10	54
	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, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	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
22JUN	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
03JUL-	CPUE	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.04
06JUL	SE	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.36
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
17JUL-	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
20JUL	SE	0.00	0.00	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
31JUL-	CPUE	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
02AUG	SE	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14AUG-	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
16AUG	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
29AUG-	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
31AUG	SE	0.00	0.00	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
11SEP-	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
14SEP	SE	0.00	0.00	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
25SEP-	CPUE	0.00	0.00	0.00	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
28SEP	SE	0.00	0.00	0.00	0.40	0.00	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
09OCT-	CPUE	0.00	0.00	0.00	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
12OCT	SE	0.00	0.00	0.00	0.40	0.00	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
23OCT-	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
26OCT	SE	0.00	0.00	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-182 REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE CATFISH YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	ST. CROP	0	4	0	0	0	0	0	0	0	0	0	0	4
22JUN	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
03JUL-	ST. CROP	0	0	0	3	0	0	0	0	0	0	0	0	3
06JUL	SE	0	0	0	3	0	0	0	<0.5	0	0	0	0	3
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
17JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
20JUL	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
31JUL-	ST. CROP	0	0	2	0	0	0	0	0	0	0	0	0	2
02AUG	SE	0	0	2	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
14AUG-	ST. CROP	0	2	0	0	0	0	0	0	0	0	0	0	2
16AUG	SE	0	2	0	0	0	0	0	<0.5	0	0	0	0	2
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
29AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
31AUG	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
11SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
14SEP	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
25SEP-	ST. CROP	0	0	0	4	0	0	0	0	0	0	0	0	4
28SEP	SE	0	0	0	4	0	0	0	0	0	0	0	0	4
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
09OCT-	ST. CROP	0	0	0	4	0	0	0	0	0	0	0	0	4
12OCT	SE	0	0	0	4	0	0	0	0	0	0	0	0	4
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
23OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
26OCT	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-183 REGIONAL DENSITY (NO./1,000m3) OF WEAKFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
08MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
22MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
07APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	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
14APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	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
21APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	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
28APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	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
04MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	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
12MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	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
20MAY	SE	0.00	0.00	0.00	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	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	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
26MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	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
04JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	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
10JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-183 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF WEAKFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-17JUN	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	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-24JUN	DENSITY	0.00	0.00	0.00	1.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15
	SE	0.00	0.00	0.00	1.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.98
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-01JUL	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	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-08JUL	DENSITY	0.00	0.00	0.00	0.00	0.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06
	SE	0.00	0.00	0.00	0.00	0.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.84
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-21JUL	DENSITY	0.00	16.47	3.16	0.00	0.47	1.12	0.28	0.00	NS	NS	NS	NS	NS	2.69
	SE	0.00	16.47	3.16	0.00	0.31	0.83	0.28	0.00						16.80
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-05AUG	DENSITY	194.04	65.31	3.27	0.00	0.36	3.41	0.00	0.00	NS	NS	NS	NS	NS	33.30
	SE	124.16	26.46	1.75	0.00	0.36	2.01	0.00	0.00						126.97
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-16AUG	DENSITY	21.23	14.00	5.52	1.66	2.79	0.25	0.62	0.00	NS	NS	NS	NS	NS	5.76
	SE	11.57	4.96	4.00	1.18	1.08	0.25	0.62	0.00						13.32
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-31AUG	DENSITY	2.89	5.02	2.28	0.00	0.09	5.31	2.66	1.68	NS	NS	NS	NS	NS	2.49
	SE	1.76	2.32	1.43	0.00	0.09	2.58	2.23	0.83						4.78
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-14SEP	DENSITY	0.94	0.75	0.00	0.45	0.33	0.12	0.00	0.00	NS	NS	NS	NS	NS	0.32
	SE	0.94	0.75	0.00	0.45	0.33	0.12	0.00	0.00						1.33
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-28SEP	DENSITY	7.83	3.48	0.00	0.00	0.00	0.00	0.19	0.00	NS	NS	NS	NS	NS	1.44
	SE	6.73	1.77	0.00	0.00	0.00	0.00	0.13	0.00						6.96
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-12OCT	DENSITY	3.83	6.18	0.31	0.00	0.30	0.00	0.00	0.00	NS	NS	NS	NS	NS	1.33
	SE	2.16	6.18	0.31	0.00	0.18	0.00	0.00	0.00						6.56
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-184 REGIONAL STANDING CROP (IN THOUSANDS) OF WEAKFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
08MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
22MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
07APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-184 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF WEAKFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	ST. CROP	0	0	0	293	0	0	0	0	0	0	0	0	0	293
24JUN	SE	0	0	0	293	0	0	0	0	0	0	0	0	0	293
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	ST. CROP	0	0	0	0	174	0	0	0	0	0	0	0	0	174
08JUL	SE	0	0	0	0	174	0	0	0	0	0	0	0	0	174
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	ST. CROP	0	3779	1018	0	98	232	40	0	NS	NS	NS	NS	NS	5166
21JUL	SE	0	3779	1018	0	65	172	40	0						3919
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	ST. CROP	40557	14984	1052	0	75	708	0	0	NS	NS	NS	NS	NS	57375
05AUG	SE	25950	6070	564	0	75	417	0	0						26660
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	ST. CROP	4437	3212	1775	246	582	53	86	0	NS	NS	NS	NS	NS	10390
16AUG	SE	2419	1138	1288	174	224	53	86	0						2982
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	ST. CROP	604	1151	733	0	18	1101	372	501	NS	NS	NS	NS	NS	4480
31AUG	SE	368	531	459	0	18	535	312	246						1036
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	ST. CROP	196	173	0	66	70	25	0	0	NS	NS	NS	NS	NS	529
14SEP	SE	196	173	0	66	70	25	0	0						279
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	ST. CROP	1637	799	0	0	0	0	26	0	NS	NS	NS	NS	NS	2462
28SEP	SE	1408	406	0	0	0	0	18	0						1465
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	ST. CROP	801	1418	100	0	63	0	0	0	NS	NS	NS	NS	NS	2383
12OCT	SE	452	1418	100	0	37	0	0	0						1492
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-185 REGIONAL DENSITY (NO./1,000m3) OF WEAKFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	DENSITY	0.00	0.14	0.09	4.71	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.42
15JUL	SE	0.00	0.14	0.05	3.56	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	3.56
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24JUL-	DENSITY	1.09	3.71	0.46	9.20	14.80	0.26	0.00	0.00	0.00	0.00	0.00	0.00	2.46
29JUL	SE	0.49	1.38	0.19	7.51	8.20	0.16	0.00	0.00	0.00	0.00	0.00	0.00	11.22
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	DENSITY	33.52	8.64	3.40	1.58	1.64	0.08	0.00	0.00	0.00	0.00	0.00	0.00	4.07
11AUG	SE	19.10	3.06	0.30	0.86	0.86	0.04	0.00	0.00	0.00	0.00	0.00	0.00	19.39
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21AUG-	DENSITY	3.40	5.35	0.90	0.97	2.27	2.93	0.18	0.00	0.00	0.00	0.00	0.00	1.33
25AUG	SE	0.49	0.88	0.24	0.62	0.98	1.50	0.12	0.00	0.00	0.00	0.00	0.00	2.16
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
03SEP-	DENSITY	8.32	2.58	0.94	0.03	3.34	0.62	0.17	0.00	0.00	0.00	0.00	0.00	1.33
08SEP	SE	1.73	0.79	0.41	0.02	3.30	0.59	0.05	0.00	0.00	0.00	0.00	0.00	3.88
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
18SEP-	DENSITY	0.15	0.78	0.52	0.18	1.00	0.13	0.18	0.00	0.91	0.00	0.00	0.00	0.32
22SEP	SE	0.10	0.21	0.17	0.12	0.52	0.04	0.10	0.00	0.91	0.00	0.00	0.00	1.10
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
02OCT-	DENSITY	1.85	0.63	0.82	0.21	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.29
05OCT	SE	0.64	0.16	0.16	0.18	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.70
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
16OCT-	DENSITY	1.46	0.15	0.47	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17
20OCT	SE	0.30	0.06	0.09	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

TABLE C-186 REGIONAL STANDING CROP (IN THOUSANDS) OF WEAKFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	ST. CROP	0	47	14	982	0	5	0	0	0	0	0	0	1048
15JUL	SE	0	47	7	741	0	3	0	0	0	0	0	0	743
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24JUL-	ST. CROP	250	1196	68	1918	3070	36	0	0	0	0	0	0	6537
29JUL	SE	113	445	28	1565	1701	23	0	0	0	0	0	0	2357
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	ST. CROP	7690	2782	502	330	341	11	0	0	0	0	0	0	11655
11AUG	SE	4383	985	45	179	178	6	0	0	0	0	0	0	4499
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
21AUG-	ST. CROP	780	1723	133	203	470	410	54	0	0	0	0	0	3773
25AUG	SE	111	283	36	129	203	210	35	0	0	0	0	0	443
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
03SEP-	ST. CROP	1909	830	138	6	692	87	51	0	0	0	0	0	3714
08SEP	SE	396	253	61	5	685	83	15	0	0	0	0	0	838
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
18SEP-	ST. CROP	35	251	76	37	208	18	53	0	129	0	0	0	807
22SEP	SE	22	67	25	25	107	5	28	0	129	0	0	0	188
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
02OCT-	ST. CROP	425	204	121	43	0	1	0	0	0	0	0	0	795
05OCT	SE	147	51	23	38	0	1	0	0	0	0	0	0	162
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
16OCT-	ST. CROP	335	48	69	2	0	0	0	0	0	0	0	0	454
20OCT	SE	68	18	14	2	0	0	0	0	0	0	0	0	72
	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, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	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
22JUN	SE	0.00	0.00	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
03JUL-	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
06JUL	SE	0.00	0.00	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
17JUL-	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
20JUL	SE	0.00	0.00	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
31JUL-	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
02AUG	SE	0.00	0.00	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
14AUG-	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
16AUG	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
29AUG-	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
31AUG	SE	0.00	0.00	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
11SEP-	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
14SEP	SE	0.00	0.00	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
25SEP-	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
28SEP	SE	0.00	0.00	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
09OCT-	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
12OCT	SE	0.00	0.00	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
23OCT-	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
26OCT	SE	0.00	0.00	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 CROP (IN THOUSANDS) OF WEAKFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
22JUN	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
03JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
06JUL	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
17JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
20JUL	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
31JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
02AUG	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
14AUG-	ST. CROP	2	0	0	0	0	0	0	0	0	0	0	0	2
16AUG	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
29AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
31AUG	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
11SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
14SEP	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
25SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
28SEP	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
09OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
12OCT	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
23OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
26OCT	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, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
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
15JUL	SE	0.00	0.00	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
24JUL-	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
29JUL	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
07AUG-	DENSITY	0.04	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<0.005
11AUG	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
21AUG-	DENSITY	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<0.005
25AUG	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
03SEP-	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
08SEP	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
18SEP-	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
22SEP	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
02OCT-	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
05OCT	SE	0.00	0.00	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
16OCT-	DENSITY	0.05	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
20OCT	SE	0.05	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

TABLE C-190 REGIONAL STANDING CROP (IN THOUSANDS) OF WEAKFISH YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
15JUL	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
24JUL-	ST. CROP	0	3	0	0	0	0	0	0	0	0	0	0	3
29JUL	SE	0	3	0	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
07AUG-	ST. CROP	9	6	0	0	0	0	0	0	0	0	0	0	15
11AUG	SE	9	6	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
21AUG-	ST. CROP	0	0	0	0	6	0	0	0	0	0	0	0	6
25AUG	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
03SEP-	ST. CROP	0	0	3	0	0	0	0	0	0	0	0	0	3
08SEP	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
18SEP-	ST. CROP	0	6	0	0	0	0	0	0	0	0	0	0	6
22SEP	SE	0	6	0	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
02OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
05OCT	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
16OCT-	ST. CROP	11	6	3	0	0	0	0	0	0	0	0	0	20
20OCT	SE	11	6	3	0	0	0	0	0	0	0	0	0	13
	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, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	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
22JUN	SE	0.00	0.00	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
03JUL-	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
06JUL	SE	0.00	0.00	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
17JUL-	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
20JUL	SE	0.00	0.00	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
31JUL-	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
02AUG	SE	0.00	0.00	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
14AUG-	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
16AUG	SE	0.00	0.00	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
29AUG-	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
31AUG	SE	0.00	0.00	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
11SEP-	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
14SEP	SE	0.00	0.00	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
25SEP-	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
28SEP	SE	0.00	0.00	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
09OCT-	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
12OCT	SE	0.00	0.00	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
23OCT-	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
26OCT	SE	0.00	0.00	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 CROP (IN THOUSANDS) OF WEAKFISH YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
22JUN	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
03JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
06JUL	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
17JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
20JUL	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
31JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
02AUG	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
14AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
16AUG	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
29AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
31AUG	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
11SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
14SEP	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
25SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
28SEP	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
09OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
12OCT	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
23OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
26OCT	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, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-08MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-22MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-07APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-14APR	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	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-21APR	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	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-28APR	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	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-04MAY	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	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-12MAY	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	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-20MAY	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	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-26MAY	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	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-04JUN	DENSITY	0.54	0.00	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	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.54
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-10JUN	DENSITY	0.32	0.87	0.00	0.20	0.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18
	SE	0.32	0.87	0.00	0.20	0.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.08
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-193 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF BLUEFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	DENSITY	0.00	0.00	0.00	2.29	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25
17JUN	SE	0.00	0.00	0.00	0.94	0.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.27
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	DENSITY	0.00	0.00	0.27	0.24	0.04	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.05
24JUN	SE	0.00	0.00	0.16	0.24	0.04	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.29
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	DENSITY	0.00	0.00	0.00	0.25	0.11	0.46	0.81	0.00	0.00	0.00	0.00	0.00	0.00	0.13
01JUL	SE	0.00	0.00	0.00	0.25	0.11	0.46	0.81	0.00	0.00	0.00	0.00	0.00	0.00	0.97
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	DENSITY	0.00	0.00	0.64	0.00	0.04	0.00	0.69	0.00	0.00	0.00	0.00	0.00	0.00	0.11
08JUL	SE	0.00	0.00	0.39	0.00	0.04	0.00	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.59
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	DENSITY	0.00	0.37	0.19	0.56	0.08	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.15
21JUL	SE	0.00	0.37	0.19	0.41	0.05	0.00	0.00	0.00						0.58
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.72	0.90	NS	NS	NS	NS	NS	0.20
05AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.72	0.90						1.15
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	DENSITY	0.92	0.00	0.00	0.00	0.08	0.65	1.53	0.00	NS	NS	NS	NS	NS	0.40
16AUG	SE	0.92	0.00	0.00	0.00	0.05	0.65	1.53	0.00						1.89
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	1.46	0.00	0.00	NS	NS	NS	NS	NS	0.18
31AUG	SE	0.00	0.00	0.00	0.00	0.00	0.84	0.00	0.00						0.84
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	DENSITY	1.02	0.00	0.00	0.00	0.00	0.00	0.70	0.00	NS	NS	NS	NS	NS	0.22
14SEP	SE	1.02	0.00	0.00	0.00	0.00	0.00	0.70	0.00						1.24
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	DENSITY	0.75	0.15	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.11
28SEP	SE	0.75	0.15	0.00	0.00	0.00	0.00	0.00	0.00						0.77
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	DENSITY	0.00	0.00	0.62	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.08
12OCT	SE	0.00	0.00	0.36	0.00	0.00	0.00	0.00	0.00						0.36
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-194 REGIONAL STANDING CROP (IN THOUSANDS) OF BLUEFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
06MAR-08MAR	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
20MAR-22MAR	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	9							71
03APR-07APR	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	9	10	11							72
10APR-14APR	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	7	13	15	15	12	9	10	6	7	7	7	8	9	125
17APR-21APR	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	7	13	15	15	12	10	11	6	7	7	7	7	9	126
24APR-28APR	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	7	13	15	15	12	10	10	5	7	7	7	7	9	124
30APR-04MAY	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	13	15	15	12	6	14	10	11	7	8	8	10	135
08MAY-12MAY	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	13	15	15	12	6	14	10	11	7	8	8	10	135
15MAY-20MAY	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	13	15	15	12	6	14	10	11	7	8	8	10	135
21MAY-26MAY	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	8	10	14	14	13	7	14	10	9	7	8	6	6	126
30MAY-04JUN	ST. CROP	113	0	0	0	0	0	0	0	0	0	0	0	0	113
	SE	113	0	0	0	0	0	0	0	0	0	0	0	0	113
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
05JUN-10JUN	ST. CROP	67	199	0	29	191	0	0	0	0	0	0	0	0	486
	SE	67	199	0	29	110	0	0	0	0	0	0	0	0	239
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE C-194 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF BLUEFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
12JUN-	ST. CROP	0	0	0	339	208	0	0	0	0	0	0	0	0	547
17JUN	SE	0	0	0	139	176	0	0	0	0	0	0	0	0	225
	NO. TOWS	7	11	13	11	13	9	16	7	10	7	6	6	6	122
19JUN-	ST. CROP	0	0	86	35	8	0	7	0	0	0	0	0	0	135
24JUN	SE	0	0	53	35	8	0	7	0	0	0	0	0	0	64
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
26JUN-	ST. CROP	0	0	0	37	22	96	113	0	0	0	0	0	0	269
01JUL	SE	0	0	0	37	22	96	113	0	0	0	0	0	0	155
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
02JUL-	ST. CROP	0	0	207	0	8	0	96	0	0	0	0	0	0	311
08JUL	SE	0	0	127	0	8	0	61	0	0	0	0	0	0	141
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
19JUL-	ST. CROP	0	85	61	83	17	0	0	0	NS	NS	NS	NS	NS	246
21JUL	SE	0	85	61	60	11	0	0	0						121
	NO. TOWS	6	11	13	14	12	8	10	6						80
03AUG-	ST. CROP	0	0	0	0	0	0	101	268	NS	NS	NS	NS	NS	369
05AUG	SE	0	0	0	0	0	0	101	268						286
	NO. TOWS	6	10	13	14	13	8	10	6						80
14AUG-	ST. CROP	192	0	0	0	16	134	213	0	NS	NS	NS	NS	NS	556
16AUG	SE	192	0	0	0	10	134	213	0						317
	NO. TOWS	6	11	13	14	13	8	10	6						81
29AUG-	ST. CROP	0	0	0	0	0	303	0	0	NS	NS	NS	NS	NS	303
31AUG	SE	0	0	0	0	0	175	0	0						175
	NO. TOWS	6	11	13	14	13	8	10	6						81
12SEP-	ST. CROP	213	0	0	0	0	0	98	0	NS	NS	NS	NS	NS	311
14SEP	SE	213	0	0	0	0	0	98	0						234
	NO. TOWS	6	11	13	14	13	8	10	6						81
26SEP-	ST. CROP	157	35	0	0	0	0	0	0	NS	NS	NS	NS	NS	192
28SEP	SE	157	35	0	0	0	0	0	0						161
	NO. TOWS	6	11	13	14	13	8	10	6						81
10OCT-	ST. CROP	0	0	200	0	0	0	0	0	NS	NS	NS	NS	NS	200
12OCT	SE	0	0	117	0	0	0	0	0						117
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE C-195 REGIONAL DENSITY (NO./1,000m3) OF BLUEFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	DENSITY	0.05	0.01	0.02	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.01
15JUL	SE	0.05	0.01	0.02	0.00	0.00	0.04	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
24JUL-	DENSITY	0.04	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.01
29JUL	SE	0.04	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.08
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	DENSITY	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
11AUG	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
21AUG-	DENSITY	0.04	0.19	0.48	0.00	0.82	0.02	0.75	0.00	0.00	0.00	0.00	0.00	0.19
25AUG	SE	0.04	0.17	0.40	0.00	0.82	0.02	0.75	0.00	0.00	0.00	0.00	0.00	1.19
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
03SEP-	DENSITY	1.14	0.01	0.02	0.01	0.02	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.10
08SEP	SE	0.74	0.01	0.02	0.01	0.02	0.00	0.03	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
18SEP-	DENSITY	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<0.005
22SEP	SE	0.00	0.00	0.02	0.01	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
02OCT-	DENSITY	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<0.005
05OCT	SE	0.01	0.00	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
16OCT-	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
20OCT	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

TABLE C-196 REGIONAL STANDING CROP (IN THOUSANDS) OF BLUEFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUL-	ST. CROP	10	3	3	0	0	6	0	0	0	0	0	0	22
15JUL	SE	10	3	3	0	0	6	0	0	0	0	0	0	13
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24JUL-	ST. CROP	8	0	0	0	0	10	0	0	0	0	0	0	18
29JUL	SE	8	0	0	0	0	10	0	0	0	0	0	0	13
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
07AUG-	ST. CROP	0	20	0	0	0	0	0	0	0	0	0	0	20
11AUG	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
21AUG-	ST. CROP	9	61	70	0	171	3	222	0	0	0	0	0	536
25AUG	SE	9	54	59	0	171	3	222	0	0	0	0	0	292
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
03SEP-	ST. CROP	262	3	3	2	3	0	9	0	0	0	0	0	282
08SEP	SE	169	3	3	2	3	0	9	0	0	0	0	0	169
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
18SEP-	ST. CROP	0	0	3	2	0	0	0	0	0	0	0	0	5
22SEP	SE	0	0	3	2	0	0	0	0	0	0	0	0	3
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
02OCT-	ST. CROP	3	0	0	0	0	0	0	0	0	0	0	0	3
05OCT	SE	3	0	0	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
16OCT-	ST. CROP	0	6	0	0	0	0	0	0	0	0	0	0	6
20OCT	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

TABLE C-197 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF BLUEFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	CPUE	0.67	0.36	1.43	0.67	0.67	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48
22JUN	SE	0.33	0.20	0.37	0.33	0.33	2.00	0.00	0.00	0.00	0.00	0.00	0.00	2.12
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03JUL-	CPUE	1.67	3.09	0.57	0.00	0.33	0.67	0.00	0.00	0.00	0.00	0.00	0.00	0.53
06JUL	SE	1.20	2.50	0.57	0.00	0.33	0.67	0.00	0.00	0.00	0.00	0.00	0.00	2.93
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
17JUL-	CPUE	0.67	0.64	0.71	0.00	1.00	1.00	0.13	0.00	0.00	0.00	0.00	0.00	0.35
20JUL	SE	0.33	0.20	0.36	0.00	0.58	0.58	0.13	0.00	0.00	0.00	0.00	0.00	0.98
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
31JUL-	CPUE	1.60	0.13	0.14	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.17
02AUG	SE	1.36	0.13	0.10	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	1.39
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14AUG-	CPUE	0.40	0.67	0.07	0.20	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16
16AUG	SE	0.24	0.30	0.07	0.20	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.74
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
29AUG-	CPUE	1.20	0.38	0.14	0.20	1.40	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.29
31AUG	SE	0.58	0.26	0.14	0.20	1.40	0.00	0.20	0.00	0.00	0.00	0.00	0.00	1.57
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11SEP-	CPUE	0.80	2.00	0.36	0.40	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31
14SEP	SE	0.80	1.71	0.17	0.24	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.92
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25SEP-	CPUE	0.00	0.21	1.07	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.13
28SEP	SE	0.00	0.17	0.66	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.76
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
09OCT-	CPUE	0.00	0.00	0.43	0.00	0.40	0.33	0.20	0.00	0.00	0.00	0.00	0.00	0.11
12OCT	SE	0.00	0.00	0.17	0.00	0.40	0.33	0.20	0.00	0.00	0.00	0.00	0.00	0.58
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
23OCT-	CPUE	0.00	0.08	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
26OCT	SE	0.00	0.08	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE C-198 REGIONAL STANDING CROP (IN THOUSANDS) OF BLUEFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1995

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
19JUN-	ST. CROP	5	17	38	6	2	21	0	0	0	0	0	0	89
22JUN	SE	3	9	10	3	1	21	0	0	0	0	0	0	26
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
03JUL-	ST. CROP	13	140	15	0	1	7	0	0	0	0	0	0	176
06JUL	SE	9	114	15	0	1	7	0	0	0	0	0	0	115
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
17JUL-	ST. CROP	5	29	19	0	3	11	1	0	0	0	0	0	67
20JUL	SE	3	9	10	0	2	6	1	0	0	0	0	0	15
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
31JUL-	ST. CROP	12	6	4	0	0	0	1	0	0	0	0	0	23
02AUG	SE	10	6	3	0	0	0	1	0	0	0	0	0	12
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
14AUG-	ST. CROP	3	30	2	2	2	0	0	0	0	0	0	0	39
16AUG	SE	2	14	2	2	2	0	0	0	0	0	0	0	14
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
29AUG-	ST. CROP	9	17	4	2	4	0	1	0	0	0	0	0	37
31AUG	SE	4	12	4	2	4	0	1	0	0	0	0	0	14
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11SEP-	ST. CROP	6	91	10	4	1	0	0	0	0	0	0	0	111
14SEP	SE	6	78	5	2	1	0	0	0	0	0	0	0	78
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25SEP-	ST. CROP	0	9	29	0	0	4	0	0	0	0	0	0	42
28SEP	SE	0	8	18	0	0	4	0	0	0	0	0	0	20
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
09OCT-	ST. CROP	0	0	12	0	1	4	1	0	0	0	0	0	18
12OCT	SE	0	0	5	0	1	4	1	0	0	0	0	0	6
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
23OCT-	ST. CROP	0	4	2	0	0	0	0	0	0	0	0	0	6
26OCT	SE	0	4	2	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

Appendix D

Length Frequency Distribution

APPENDIX D

LIST OF TABLES

Number	Title
D-1	Length frequency distribution of larval and young-of-year striped bass in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1995.
D-2	Length frequency distribution of striped bass in Hudson River estuary determined from Fall Shoals Survey, 1995.
D-3	Length frequency distribution of striped bass in Hudson River estuary determined from Beach Seine Survey, 1995.
D-4	Length frequency distribution of larval and young-of-year white perch in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1995.
D-5	Length frequency distribution of white perch in Hudson River estuary determined from Fall Shoals Survey, 1995.
D-6	Length frequency distribution of white perch in Hudson River estuary determined from Beach Seine Survey, 1995.
D-7	Length frequency distribution of Atlantic tomcod in Hudson River estuary determined from Fall Shoals Survey, 1995.
D-8	Length frequency distribution of Atlantic tomcod in Hudson River estuary determined from Beach Seine Survey, 1995.
D-9	Length frequency distribution of bay anchovy in Hudson River estuary determined from Fall Shoals Survey, 1995.
D-10	Length frequency distribution of bay anchovy in Hudson River estuary determined from Beach Seine Survey, 1995.
D-11	Length frequency distribution of larval and young-of-year American shad in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1995.
D-12	Length frequency distribution of American shad in Hudson River estuary determined from Fall Shoals Survey, 1995.
D-13	Length frequency distribution of American shad in Hudson River estuary determined from Beach Seine Survey, 1995.
D-14	Length frequency distribution of alewife in Hudson River estuary determined from Fall Shoals Survey, 1995.

APPENDIX D

LIST OF TABLES (continued)

Number	Title
D-15	Length frequency distribution of alewife in Hudson River estuary determined from Beach Seine Survey, 1995.
D-16	Length frequency distribution of blueback herring in Hudson River estuary determined from Fall Shoals Survey, 1995.
D-17	Length frequency distribution of blueback herring in Hudson River estuary determined from Beach Seine Survey, 1995.
D-18	Length frequency distribution of spottail shiner in Hudson River estuary determined from Fall Shoals Survey, 1995.
D-19	Length frequency distribution of spottail shiner in Hudson River estuary determined from Beach Seine Survey, 1995.
D-20	Length frequency distribution of white catfish in Hudson River estuary determined from Fall Shoals Survey, 1995.
D-21	Length frequency distribution of weakfish in Hudson River estuary determined from Fall Shoals Survey, 1995.

TABLE D-1 LENGTH FREQUENCY DISTRIBUTION OF LARVAL AND YOUNG-OF-YEAR STRIPED BASS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

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	30.0-31.9
06MAR-08MAR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20MAR-22MAR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03APR-07APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR-14APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR-21APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR-28APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30APR-04MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08MAY-12MAY	0	2	16	4	0	0	0	0	0	0	0	0	0	0	0	0
15MAY-20MAY	0	23	146	85	1	0	0	0	0	0	0	0	0	0	0	0
21MAY-26MAY	0	43	410	561	0	0	0	0	0	0	0	0	0	0	0	0
30MAY-04JUN	0	148	955	730	72	1	0	0	0	0	0	0	0	0	0	0
05JUN-10JUN	0	55	806	900	106	9	1	0	0	0	0	0	0	0	0	0
12JUN-17JUN	0	7	375	1225	509	112	34	3	0	0	0	0	0	0	0	0
19JUN-24JUN	0	2	140	733	769	455	116	28	15	8	14	3	0	0	0	0

DATES	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	60.0-61.9	62.0-63.9
06MAR-08MAR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20MAR-22MAR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03APR-07APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR-14APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR-21APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR-28APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30APR-04MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08MAY-12MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY-20MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21MAY-26MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30MAY-04JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05JUN-10JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12JUN-17JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN-24JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

DATES	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	90.0-91.9	92.0-93.9	94.0-95.9
06MAR-08MAR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20MAR-22MAR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03APR-07APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR-14APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR-21APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR-28APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30APR-04MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08MAY-12MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY-20MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21MAY-26MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30MAY-04JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05JUN-10JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12JUN-17JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN-24JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

DATES	96.0-97.9	98.0-99.9	100.0-101.9	102.0-103.9	104.0-105.9	106.0-107.9	108.0-109.9+	N	MEAN	MIN	MED	MAX	SD
06MAR-08MAR	0	0	0	0	0	0	0	0	.	.	.	.	.
20MAR-22MAR	0	0	0	0	0	0	0	0	.	.	.	.	.
03APR-07APR	0	0	0	0	0	0	0	0	.	.	.	.	.
10APR-14APR	0	0	0	0	0	0	0	0	.	.	.	.	.
17APR-21APR	0	0	0	0	0	0	0	0	.	.	.	.	.
24APR-28APR	0	0	0	0	0	0	0	0	.	.	.	.	.
30APR-04MAY	0	0	0	0	0	0	0	0	.	.	.	.	.
08MAY-12MAY	0	0	0	0	0	0	0	22	5.3	3.5	5.4	6.0	0.7
15MAY-20MAY	0	0	0	0	0	0	0	255	5.3	3.0	5.3	8.0	1.0
21MAY-26MAY	0	0	0	0	0	0	0	1014	5.9	2.8	6.1	7.8	0.9
30MAY-04JUN	0	0	0	0	0	0	0	1906	5.7	2.6	5.8	11.2	1.2
05JUN-10JUN	0	0	0	0	0	0	0	1877	6.1	2.3	6.0	12.6	1.1
12JUN-17JUN	0	0	0	0	0	0	0	2265	7.3	3.0	7.0	14.9	1.6
19JUN-24JUN	0	0	0	0	0	0	0	2283	8.9	3.1	8.6	23.0	2.4

NOTE: N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

TABLE D-1 (CONT.)

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	30.0-31.9
26JUN-01JUL	0	0	5	153	662	515	131	51	28	11	20	21	14	9	8	5
02JUL-08JUL	0	0	10	50	197	405	288	90	32	12	29	14	25	22	19	11
19JUL-21JUL	0	0	0	0	0	6	10	2	1	1	3	3	3	5	4	10
03AUG-05AUG	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2	0
14AUG-16AUG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
29AUG-31AUG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12SEP-14SEP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26SEP-28SEP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100CT-120CT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	======	======	======	======	======	======	======	======	======	======	======	======	======	======	======	======
	0	280	2863	4441	2316	1503	580	174	76	32	67	41	42	37	33	28

DATES	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	60.0-61.9	62.0-63.9
26JUN-01JUL	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0
02JUL-08JUL	7	4	2	5	2	0	0	0	0	0	0	0	0	0	0	0
19JUL-21JUL	6	11	8	14	5	7	7	2	4	3	2	0	0	1	0	0
03AUG-05AUG	5	1	2	3	2	2	5	5	6	3	7	2	4	2	4	2
14AUG-16AUG	0	0	1	1	0	2	3	0	1	3	3	2	3	0	3	5
29AUG-31AUG	0	0	0	0	0	0	0	0	1	0	0	1	1	1	2	3
12SEP-14SEP	0	0	0	0	0	0	0	0	0	0	0	0	2	1	1	1
26SEP-28SEP	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1	4
100CT-120CT	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0
	======	======	======	======	======	======	======	======	======	======	======	======	======	======	======	======
	19	18	14	23	9	11	15	7	12	9	12	5	11	9	13	15

DATES	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	90.0-91.9	92.0-93.9	94.0-95.9
26JUN-01JUL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02JUL-08JUL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUL-21JUL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03AUG-05AUG	2	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0
14AUG-16AUG	3	0	1	1	1	2	0	0	1	0	0	1	0	0	0	0
29AUG-31AUG	2	1	2	0	3	3	4	2	2	2	2	1	0	0	0	0
12SEP-14SEP	2	0	2	1	5	1	2	5	2	3	0	2	0	2	3	0
26SEP-28SEP	1	2	3	0	1	0	2	1	2	1	3	0	1	0	0	0
100CT-120CT	3	0	0	2	0	1	1	0	1	0	0	0	0	0	0	0
	======	======	======	======	======	======	======	======	======	======	======	======	======	======	======	======
	13	4	8	4	10	7	9	9	8	6	5	5	1	2	3	0

DATES	96.0-97.9	98.0-99.9	100.0-101.9	102.0-103.9	104.0-105.9	106.0-107.9	108.0-109.9+	N	MEAN	MIN	MED	MAX	SD
26JUN-01JUL	0	0	0	0	0	0	0	1637	10.8	5.6	9.9	36.0	3.8
02JUL-08JUL	0	0	0	0	0	0	0	1224	13.2	5.1	11.8	41.0	5.5
19JUL-21JUL	0	0	0	0	0	0	0	118	32.5	10.6	34.5	59.0	11.6
03AUG-05AUG	0	0	0	0	0	0	1	65	49.3	20.0	48.0	110.0	14.2
14AUG-16AUG	0	0	0	0	0	0	0	39	56.6	30.0	57.0	86.0	12.8
29AUG-31AUG	0	0	0	0	0	0	0	33	70.9	48.0	73.0	86.0	9.8
12SEP-14SEP	1	0	0	0	0	0	0	36	76.4	57.0	77.5	97.0	10.7
26SEP-28SEP	0	0	0	1	0	0	0	26	72.2	56.0	68.5	102.0	11.3
100CT-120CT	1	0	0	0	0	1	7	21	88.4	58.0	77.0	142.0	27.1
	======	======	======	======	======	======	======	======					
	2	0	0	1	0	1	8	12821					

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, 1995

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
10JUL-15JUL	1	17	9	28	37	29	27	7	5	0	0	0
24JUL-29JUL	0	3	12	7	15	14	39	25	23	10	5	0
07AUG-11AUG	0	0	0	0	2	0	3	15	25	19	12	23
21AUG-25AUG	0	0	0	0	1	1	5	11	8	20	12	12
03SEP-08SEP	0	0	0	0	0	0	2	1	5	6	18	9
18SEP-22SEP	0	0	0	0	0	0	0	0	0	4	4	13
02OCT-05OCT	0	0	0	0	0	0	0	1	0	0	5	5
16OCT-20OCT	0	0	0	0	0	0	0	0	3	4	6	12
	1	20	21	35	55	44	76	60	69	63	62	74

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
10JUL-15JUL	0	0	0	0	0	0	0	0	0	0	0	0
24JUL-29JUL	0	0	0	0	0	0	0	0	0	0	0	0
07AUG-11AUG	15	7	2	0	0	0	0	0	0	0	0	0
21AUG-25AUG	25	13	16	5	1	2	1	0	0	0	0	0
03SEP-08SEP	17	17	20	12	14	4	4	1	0	0	0	0
18SEP-22SEP	16	10	20	13	19	5	11	4	1	4	0	0
02OCT-05OCT	21	13	12	8	8	5	9	7	7	4	7	4
16OCT-20OCT	15	16	17	8	8	4	2	2	9	3	1	4
	109	76	87	46	50	20	27	14	17	11	8	8

DATES	130.0-134.9	135.0-139.9	140.0-144.9	145.0-149.9+	N	MEAN	MIN	MED	MAX	SD
10JUL-15JUL	0	0	0	0	160	32.6	14.0	33.0	54.0	9.0
24JUL-29JUL	0	0	0	0	154	41.9	17.0	42.0	64.0	10.7
07AUG-11AUG	0	0	0	0	130	59.5	32.0	60.0	82.0	10.2
21AUG-25AUG	0	0	0	0	135	66.1	33.0	67.0	104.0	13.7
03SEP-08SEP	0	0	0	0	132	75.5	42.0	76.0	108.0	13.5
18SEP-22SEP	0	0	0	0	126	83.3	56.0	83.0	117.0	14.0
02OCT-05OCT	4	2	0	0	123	91.3	47.0	86.0	137.0	20.9
16OCT-20OCT	0	0	1	0	116	83.5	50.0	80.0	142.0	18.9
	4	2	1	0	1076					

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, 1995

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
19JUN-22JUN	6	6	0	0	0	0	0	0	0	0	0
03JUL-06JUL	5	23	21	22	13	7	3	1	0	0	0
17JUL-20JUL	0	3	26	20	27	26	28	15	7	4	0
31JUL-02AUG	0	0	2	3	11	16	27	17	17	26	18
14AUG-16AUG	0	0	0	0	4	9	8	20	24	20	25
29AUG-31AUG	0	0	0	0	0	4	2	5	24	17	26
11SEP-14SEP	0	0	0	0	0	0	0	0	2	6	20
25SEP-28SEP	0	0	0	0	0	0	1	0	1	7	12
09OCT-12OCT	0	0	0	0	0	0	0	0	4	9	18
23OCT-26OCT	0	0	0	0	0	0	1	3	6	8	16
	======	======	======	======	======	======	======	======	======	======	======
	11	32	49	45	55	62	70	61	85	97	135

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
19JUN-22JUN	0	0	0	0	0	0	0	0	0	0	0
03JUL-06JUL	0	0	0	0	0	0	0	0	0	0	0
17JUL-20JUL	0	0	0	0	0	0	0	0	0	0	0
31JUL-02AUG	7	6	2	0	0	0	0	0	0	0	0
14AUG-16AUG	14	21	10	4	0	3	1	0	0	0	0
29AUG-31AUG	24	17	17	10	6	4	3	0	0	0	0
11SEP-14SEP	16	31	20	22	23	9	7	4	5	2	0
25SEP-28SEP	26	17	20	15	17	15	11	8	7	2	4
09OCT-12OCT	10	28	13	22	8	6	8	10	5	4	2
23OCT-26OCT	15	19	11	10	11	9	12	9	7	7	6
	======	======	======	======	======	======	======	======	======	======	======
	112	139	93	83	65	46	42	31	24	15	12

DATES	125.0-129.9	130.0-134.9	135.0-139.9	140.0-144.9	145.0-149.9+	N	MEAN	MIN	MED	MAX	SD
19JUN-22JUN	0	0	0	0	0	12	19.9	18.0	19.5	23.0	1.6
03JUL-06JUL	0	0	0	0	0	95	29.8	16.0	29.0	50.0	7.6
17JUL-20JUL	0	0	0	0	0	158	40.3	21.0	40.0	64.0	9.9
31JUL-02AUG	0	0	0	0	0	163	54.8	29.0	56.0	82.0	11.7
14AUG-16AUG	0	0	0	0	0	164	63.8	35.0	63.5	100.0	13.2
29AUG-31AUG	0	0	0	0	0	166	70.1	40.0	69.0	104.0	12.8
11SEP-14SEP	0	0	0	0	0	168	82.6	56.0	81.5	115.0	12.8
25SEP-28SEP	0	0	0	0	0	164	85.4	48.0	84.0	124.0	15.4
09OCT-12OCT	3	1	0	1	2	155	86.1	57.0	83.0	148.0	18.8
23OCT-26OCT	2	1	1	1	1	158	87.0	45.0	83.5	145.0	20.7
	======	======	======	======	======	======					
	5	2	1	2	3	1403					

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, 1995

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	30.0-31.9	32.0-33.9	34.0-35.9
06MAR-08MAR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20MAR-22MAR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03APR-07APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR-14APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR-21APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR-28APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30APR-04MAY	0	170	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08MAY-12MAY	0	729	230	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY-20MAY	0	731	848	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21MAY-26MAY	0	392	1200	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30MAY-04JUN	0	355	1353	307	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05JUN-10JUN	0	606	669	674	47	0	0	0	0	0	0	0	0	0	0	0	0	0
12JUN-17JUN	0	342	614	777	613	134	4	0	0	0	0	0	0	0	0	0	0	0
19JUN-24JUN	0	82	221	813	595	159	15	0	1	0	0	0	0	0	0	0	0	0
26JUN-01JUL	0	17	159	470	728	242	42	5	1	1	0	0	1	0	0	0	0	0
02JUL-08JUL	0	4	38	211	475	360	87	9	0	0	1	0	0	0	1	0	0	0
19JUL-21JUL	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0
03AUG-05AUG	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
14AUG-16AUG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29AUG-31AUG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12SEP-14SEP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

DATES	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	60.0-61.9	62.0-63.9	64.0-65.9	66.0-67.9	68.0-69.9	70.0-71.9
06MAR-08MAR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20MAR-22MAR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03APR-07APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR-14APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR-21APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR-28APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30APR-04MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08MAY-12MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY-20MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21MAY-26MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30MAY-04JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05JUN-10JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12JUN-17JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN-24JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26JUN-01JUL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02JUL-08JUL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUL-21JUL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03AUG-05AUG	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0
14AUG-16AUG	0	0	0	0	1	1	0	0	0	0	1	1	0	1	0	1	0	1
29AUG-31AUG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
12SEP-14SEP	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	1	1

DATES	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	90.0-91.9+	N	MEAN	MIN	MED	MAX	SD
06MAR-08MAR	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
20MAR-22MAR	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
03APR-07APR	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
10APR-14APR	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
17APR-21APR	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
24APR-28APR	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
30APR-04MAY	0	0	0	0	0	0	0	0	0	0	184	3.2	2.3	3.3	4.3	0.4
08MAY-12MAY	0	0	0	0	0	0	0	0	0	0	959	3.6	2.0	3.7	4.7	0.5
15MAY-20MAY	0	0	0	0	0	0	0	0	0	0	1579	3.9	2.1	4.0	5.8	0.5
21MAY-26MAY	0	0	0	0	0	0	0	0	0	0	1603	4.3	2.6	4.3	6.6	0.5
30MAY-04JUN	0	0	0	0	0	0	0	0	0	0	2015	5.0	2.3	5.0	7.8	1.0
05JUN-10JUN	0	0	0	0	0	0	0	0	0	0	1996	5.2	2.1	4.9	9.6	1.5
12JUN-17JUN	0	0	0	0	0	0	0	0	0	0	2484	6.6	2.5	6.6	12.3	2.1
19JUN-24JUN	0	0	0	0	0	0	0	0	0	0	1886	7.5	2.3	7.5	17.0	1.8
26JUN-01JUL	0	0	0	0	0	0	0	0	0	0	1666	8.4	3.3	8.5	24.0	1.9
02JUL-08JUL	0	0	0	0	0	0	0	0	0	0	1186	9.4	3.4	9.3	29.0	2.0
19JUL-21JUL	0	0	0	0	0	0	0	0	0	0	3	27.7	25.0	28.0	30.0	2.5
03AUG-05AUG	0	0	0	0	0	0	0	0	0	0	3	48.0	17.0	62.0	65.0	26.9
14AUG-16AUG	1	0	0	0	0	0	0	0	0	0	8	59.8	45.0	60.0	73.0	10.6
29AUG-31AUG	0	0	0	1	0	0	0	0	0	0	3	72.7	69.0	71.0	78.0	4.7
12SEP-14SEP	1	3	0	2	1	1	0	0	1	0	14	74.0	63.0	74.5	89.0	7.6

NOTE: N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

TABLE D-4 (CONT.)

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	30.0-31.9	32.0-33.9	34.0-35.9
26SEP-28SEP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10OCT-12OCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	3428	5346	3263	2458	895	148	14	3	1	1	0	2	0	2	1	0	0

DATES	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	60.0-61.9	62.0-63.9	64.0-65.9	66.0-67.9	68.0-69.9	70.0-71.9
26SEP-28SEP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
10OCT-12OCT	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	3
	0	0	0	0	1	1	0	0	0	0	1	2	1	3	3	1	3	7

DATES	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	90.0-91.9+	N	MEAN	MIN	MED	MAX	SD
26SEP-28SEP	2	1	0	2	1	4	2	4	2	0	20	80.7	68.0	82.0	89.0	6.3
10OCT-12OCT	5	4	1	1	2	6	3	5	1	2	35	78.9	58.0	81.0	93.0	7.9
	9	8	1	6	4	11	5	9	4	2	15644					

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, 1995

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
10JUL-15JUL	3	5	3	1	1	1	0	0	0	0	0	0
24JUL-29JUL	0	2	12	8	7	7	5	2	0	0	0	0
07AUG-11AUG	0	0	0	0	1	3	11	16	12	5	7	0
21AUG-25AUG	0	0	0	0	1	1	4	5	4	13	12	17
03SEP-08SEP	0	0	0	0	0	1	0	3	6	2	9	24
18SEP-22SEP	0	0	0	0	0	0	0	0	1	6	7	10
02OCT-05OCT	0	0	0	0	0	0	0	0	1	3	4	7
16OCT-20OCT	0	0	0	0	0	0	0	1	0	6	6	12
	======	======	======	======	======	======	======	======	======	======	======	======
	3	7	15	9	10	13	20	27	24	35	45	70

DATES	75.0-79.9	80.0-84.9	85.0-89.9	90.0-94.9	95.0-99.9	100.0-104.9+	N	MEAN	MIN	MED	MAX	SD
10JUL-15JUL	0	0	0	0	0	0	14	25.0	18.0	22.5	41.0	7.2
24JUL-29JUL	0	0	0	0	0	0	43	35.0	21.0	32.0	53.0	8.3
07AUG-11AUG	0	0	0	0	0	0	57	54.0	38.0	53.0	69.0	7.4
21AUG-25AUG	3	0	0	0	0	0	64	63.2	35.0	64.5	76.0	8.9
03SEP-08SEP	14	5	0	0	0	0	70	69.2	44.0	71.0	84.0	8.4
18SEP-22SEP	14	27	8	2	0	0	78	76.8	55.0	78.0	90.0	8.4
02OCT-05OCT	8	11	2	1	0	0	37	75.7	58.0	77.0	90.0	7.8
16OCT-20OCT	22	26	12	2	2	0	89	78.0	53.0	79.0	98.0	8.2
	======	======	======	======	======	======	======					
	61	69	22	5	2	0	452					

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, 1995

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
19JUN-22JUN	0	0	0	0	0	0	0	0	0	0	0	0
03JUL-06JUL	0	16	20	10	2	0	0	0	0	0	0	0
17JUL-20JUL	3	5	25	30	41	24	8	0	0	0	0	0
31JUL-02AUG	0	0	2	13	14	26	24	19	2	1	4	1
14AUG-16AUG	0	0	0	0	2	5	12	19	19	14	10	2
29AUG-31AUG	0	0	0	0	1	1	2	7	10	12	27	24
11SEP-14SEP	0	0	0	0	0	0	2	1	7	7	6	18
25SEP-28SEP	0	0	0	0	0	0	0	1	1	5	16	18
09OCT-12OCT	0	0	0	0	0	0	0	0	0	2	6	13
23OCT-26OCT	0	0	0	0	0	0	0	1	3	3	12	23
	3	21	47	53	60	56	48	48	42	44	81	99

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
19JUN-22JUN	0	0	0	0	0	0	.	.	.	.	.
03JUL-06JUL	0	0	0	0	0	48	26.7	20.0	26.0	35.0	3.7
17JUL-20JUL	0	0	0	0	0	136	34.5	16.0	35.0	49.0	6.8
31JUL-02AUG	0	0	0	0	0	106	44.2	28.0	44.0	74.0	8.9
14AUG-16AUG	0	0	0	0	0	85	55.6	36.0	57.0	72.0	8.0
29AUG-31AUG	16	3	0	0	0	111	66.1	37.0	67.0	82.0	8.7
11SEP-14SEP	23	10	2	0	0	78	71.2	48.0	73.0	86.0	8.8
25SEP-28SEP	19	13	5	0	0	79	73.5	54.0	74.0	89.0	7.5
09OCT-12OCT	25	21	9	2	0	78	77.9	64.0	78.0	90.0	6.4
23OCT-26OCT	23	20	9	3	1	98	75.9	52.0	76.0	100.0	8.4
	106	67	25	5	1	819					

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 LARVAL AND YOUNG-OF-YEAR AMERICAN SHAD IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1995

DATES	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	30.0-31.9
06MAR-08MAR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20MAR-22MAR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03APR-07APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR-14APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR-21APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR-28APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30APR-04MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08MAY-12MAY	0	5	48	29	1	0	0	0	0	0	0	0	0	0
15MAY-20MAY	0	0	54	206	31	3	1	0	1	0	0	0	0	0
21MAY-26MAY	0	6	32	153	44	9	1	0	0	0	0	0	0	0
30MAY-04JUN	0	0	14	40	18	12	7	0	0	0	0	0	0	0
05JUN-10JUN	0	0	7	12	19	8	4	3	1	0	0	0	0	0
12JUN-17JUN	0	0	1	4	13	39	44	40	21	19	21	15	3	1
19JUN-24JUN	0	0	0	0	0	2	4	14	19	17	21	13	7	15

DATES	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
06MAR-08MAR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20MAR-22MAR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03APR-07APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR-14APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR-21APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR-28APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30APR-04MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08MAY-12MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY-20MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21MAY-26MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30MAY-04JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05JUN-10JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12JUN-17JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN-24JUN	9	5	1	0	1	0	0	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
06MAR-08MAR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20MAR-22MAR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03APR-07APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR-14APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR-21APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR-28APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30APR-04MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08MAY-12MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY-20MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21MAY-26MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30MAY-04JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05JUN-10JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12JUN-17JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN-24JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0

DATES	88.0-89.9	90.0-91.9	92.0-93.9	94.0-95.9	96.0-97.9	98.0-99.9	100.0-101.9+	N	MEAN	MIN	MED	MAX	SD
06MAR-08MAR	0	0	0	0	0	0	0	0	.	.	.	.	.
20MAR-22MAR	0	0	0	0	0	0	0	0	.	.	.	.	.
03APR-07APR	0	0	0	0	0	0	0	0	.	.	.	.	.
10APR-14APR	0	0	0	0	0	0	0	0	.	.	.	.	.
17APR-21APR	0	0	0	0	0	0	0	0	.	.	.	.	.
24APR-28APR	0	0	0	0	0	0	0	0	.	.	.	.	.
30APR-04MAY	0	0	0	0	0	0	0	0	.	.	.	.	.
08MAY-12MAY	0	0	0	0	0	0	0	83	9.7	6.8	9.6	12.2	1.1
15MAY-20MAY	0	0	0	0	0	0	0	296	10.9	8.0	10.8	20.6	1.2
21MAY-26MAY	0	0	0	0	0	0	0	245	11.1	6.4	10.9	16.1	1.5
30MAY-04JUN	0	0	0	0	0	0	0	91	12.2	9.3	11.5	17.6	2.2
05JUN-10JUN	0	0	0	0	0	0	0	54	13.0	8.7	12.3	21.1	2.6
12JUN-17JUN	0	0	0	0	0	0	0	221	19.1	9.6	18.6	30.8	4.4
19JUN-24JUN	0	0	0	0	0	0	0	128	25.2	15.7	24.5	40.0	5.0

NOTE: N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

TABLE D-11 (CONT.)

DATES	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	30.0-31.9
26JUN-01JUL	0	0	0	0	0	1	0	0	3	17	15	19	23	20
02JUL-08JUL	0	0	0	0	0	0	2	0	1	0	1	1	9	7
19JUL-21JUL	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03AUG-05AUG	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14AUG-16AUG	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29AUG-31AUG	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12SEP-14SEP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26SEP-28SEP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10OCT-12OCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	======	======	======	======	======	======	======	======	======	======	======	======	======	======
	0	11	156	444	126	74	63	57	46	53	58	48	42	43

DATES	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
26JUN-01JUL	17	25	16	17	9	6	2	1	2	0	0	0	0	0
02JUL-08JUL	5	13	13	12	15	9	12	12	9	15	15	6	5	2
19JUL-21JUL	0	0	0	0	0	0	0	1	0	1	1	1	1	5
03AUG-05AUG	0	0	0	0	0	0	0	0	0	0	0	0	0	1
14AUG-16AUG	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29AUG-31AUG	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12SEP-14SEP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26SEP-28SEP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10OCT-12OCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	======	======	======	======	======	======	======	======	======	======	======	======	======	======
	31	43	30	29	25	15	14	14	11	16	16	7	6	8

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
26JUN-01JUL	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02JUL-08JUL	1	0	1	0	0	0	0	0	0	0	0	0	0	0
19JUL-21JUL	3	5	5	3	6	0	0	0	0	0	0	0	0	0
03AUG-05AUG	1	1	0	1	1	0	1	1	0	0	2	2	0	0
14AUG-16AUG	0	0	1	0	2	2	1	1	3	2	0	1	1	1
29AUG-31AUG	0	0	0	0	0	0	0	0	2	3	2	0	2	1
12SEP-14SEP	0	0	0	0	0	0	0	0	1	2	5	1	0	0
26SEP-28SEP	0	0	0	0	0	0	0	0	1	1	0	1	2	0
10OCT-12OCT	0	0	0	0	0	0	0	0	0	0	0	1	1	0
	======	======	======	======	======	======	======	======	======	======	======	======	======	======
	5	6	7	4	9	2	2	2	7	8	9	6	6	2

DATES	88.0-89.9	90.0-91.9	92.0-93.9	94.0-95.9	96.0-97.9	98.0-99.9	100.0-101.9+	N	MEAN	MIN	MED	MAX	SD
26JUN-01JUL	0	0	0	0	0	0	0	193	31.7	15.9	31.0	48.0	6.2
02JUL-08JUL	0	0	0	0	0	0	0	166	42.4	17.0	42.0	64.0	9.0
19JUL-21JUL	0	0	0	0	0	0	0	32	62.0	46.0	63.0	69.0	5.6
03AUG-05AUG	0	0	0	0	0	0	0	11	71.8	59.0	73.0	83.0	9.2
14AUG-16AUG	0	0	0	0	0	0	0	15	75.1	65.0	76.0	86.0	6.2
29AUG-31AUG	0	1	0	0	0	0	0	11	81.3	76.0	80.0	91.0	4.6
12SEP-14SEP	1	1	0	1	1	0	2	15	86.3	77.0	81.0	102.0	8.5
26SEP-28SEP	1	0	1	2	0	1	2	12	91.4	76.0	90.5	120.0	11.9
10OCT-12OCT	0	2	0	0	1	0	1	6	92.0	83.0	90.0	109.0	9.6
	======	======	======	======	======	======	======	======					
	2	4	1	3	2	1	5	1579					

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, 1995

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	100.0-104.9
10JUL-15JUL	0	0	0	0	1	4	7	25	26	26	30	24	18	6	3
24JUL-29JUL	0	0	0	0	0	4	5	9	28	16	15	7	5	1	0
07AUG-11AUG	0	0	0	0	0	0	0	1	2	2	5	7	4	0	2
21AUG-25AUG	0	0	0	0	0	0	0	0	1	0	0	1	3	0	1
03SEP-08SEP	0	0	0	0	0	0	0	0	1	0	2	2	0	1	0
18SEP-22SEP	0	0	0	0	0	0	0	0	0	0	2	1	0	1	0
02OCT-05OCT	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
16OCT-20OCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	1	8	12	35	58	44	54	42	30	10	6

DATES	105.0-109.9	110.0-114.9	115.0-119.9	120.0-124.9	125.0-129.9	130.0-134.9	135.0-139.9	140.0-144.9+	N	MEAN	MIN	MED	MAX	SD
10JUL-15JUL	1	0	1	0	0	0	0	0	172	78.8	53.0	79.0	115.0	10.9
24JUL-29JUL	2	1	0	0	0	0	0	0	93	76.3	55.0	75.0	112.0	10.3
07AUG-11AUG	0	0	0	0	0	0	0	0	23	85.3	69.0	85.0	102.0	8.4
21AUG-25AUG	0	0	1	0	0	0	0	0	7	93.3	70.0	94.0	117.0	14.2
03SEP-08SEP	0	0	0	0	0	0	0	0	6	84.2	72.0	83.5	96.0	8.1
18SEP-22SEP	0	2	0	0	1	0	0	0	7	100.3	80.0	98.0	128.0	17.8
02OCT-05OCT	1	1	2	1	1	1	0	1	9	118.4	96.0	118.0	142.0	14.1
16OCT-20OCT	0	0	2	0	0	0	0	0	2	115.5	115.0	115.5	116.0	0.7
	4	4	6	1	2	1	0	1	319					

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, 1995

DATES	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	115.0-119.9
19JUN-22JUN	6	4	1	1	0	1	0	0	0	0	0
03JUL-06JUL	0	0	1	1	1	0	0	0	0	0	0
17JUL-20JUL	0	0	0	2	0	1	0	0	0	0	0
31JUL-02AUG	0	0	0	0	0	0	0	0	0	0	0
14AUG-16AUG	0	0	0	0	0	0	0	0	0	0	0
29AUG-31AUG	0	0	0	0	0	0	0	0	0	0	0
11SEP-14SEP	0	0	0	0	0	0	0	0	0	0	0
25SEP-28SEP	0	0	0	0	0	0	0	0	0	0	0
09OCT-12OCT	0	0	0	0	0	0	0	0	0	0	0
23OCT-26OCT	0	0	0	0	0	0	0	0	0	0	0
	======	======	======	======	======	======	======	======	======	======	======
	6	4	2	4	1	2	0	0	0	0	0

DATES	120.0-124.9	125.0-129.9	130.0-134.9	135.0-139.9+	N	MEAN	MIN	MED	MAX	SD
19JUN-22JUN	0	0	0	0	16	69.1	54.0	68.0	92.0	9.4
03JUL-06JUL	0	0	0	0	3	81.7	78.0	80.0	87.0	4.7
17JUL-20JUL	0	0	0	0	3	84.3	80.0	83.0	90.0	5.1
31JUL-02AUG	0	0	0	0	0	.	.	.	.	.
14AUG-16AUG	0	0	0	0	0	.	.	.	.	.
29AUG-31AUG	0	0	0	0	0	.	.	.	.	.
11SEP-14SEP	0	0	0	0	0	.	.	.	.	.
25SEP-28SEP	0	0	0	0	0	.	.	.	.	.
09OCT-12OCT	0	0	0	0	0	.	.	.	.	.
23OCT-26OCT	0	0	0	0	0	.	.	.	.	.
	======	======	======	======	======					
	0	0	0	0	22					

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 BAY ANCHOVY IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

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
10JUL-15JUL	0	7	88	80	4	0	0	0	0	0
24JUL-29JUL	0	4	32	27	66	42	7	0	0	0
07AUG-11AUG	0	0	23	61	30	11	29	20	2	0
21AUG-25AUG	0	0	16	35	69	40	8	3	2	0
03SEP-08SEP	0	0	1	5	47	50	27	19	9	7
18SEP-22SEP	0	0	0	9	42	64	45	12	0	1
02OCT-05OCT	0	0	1	2	13	38	55	36	9	4
16OCT-20OCT	0	0	2	4	9	26	60	45	14	5
	======	======	======	======	======	======	======	======	======	======
	0	11	163	223	280	271	231	135	36	17

DATES	60.0-64.9	65.0-69.9	70.0-74.9+	N	MEAN	MIN	MED	MAX	SD
10JUL-15JUL	0	0	0	179	24.2	15.0	24.0	31.0	2.6
24JUL-29JUL	0	0	0	178	30.6	16.0	32.0	42.0	5.9
07AUG-11AUG	0	0	0	176	32.6	21.0	30.0	51.0	8.1
21AUG-25AUG	0	0	0	173	32.0	20.0	32.0	53.0	5.8
03SEP-08SEP	0	0	0	165	38.7	20.0	37.0	58.0	7.3
18SEP-22SEP	0	0	0	173	37.3	28.0	37.0	57.0	5.0
02OCT-05OCT	4	3	0	166	42.6	22.0	42.0	68.0	7.5
16OCT-20OCT	2	1	0	169	43.1	20.0	43.0	65.0	6.9
	======	======	======	======					
	6	4	0	1379					

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 BAY ANCHOVY IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1995

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
19JUN-22JUN	0	0	0	0	0	0	0	0
03JUL-06JUL	7	9	0	0	0	0	0	0
17JUL-20JUL	4	24	10	2	1	0	0	0
31JUL-02AUG	5	11	18	28	22	4	1	0
14AUG-16AUG	0	25	34	21	11	13	1	0
29AUG-31AUG	5	11	15	23	15	6	4	1
11SEP-14SEP	3	8	8	14	31	11	3	0
25SEP-28SEP	1	1	11	16	27	24	8	0
09OCT-12OCT	0	3	8	14	22	42	11	9
23OCT-26OCT	0	1	1	9	16	31	17	3
	======	======	======	======	======	======	======	======
	25	93	105	127	145	131	45	13

DATES	60.0-64.9	65.0-69.9+	N	MEAN	MIN	MED	MAX	SD
19JUN-22JUN	0	0	0	.	.	.	.	.
03JUL-06JUL	0	0	16	24.5	22.0	25.0	26.0	1.5
17JUL-20JUL	0	0	41	28.8	23.0	28.0	40.0	3.9
31JUL-02AUG	0	0	89	35.6	22.0	36.0	53.0	5.9
14AUG-16AUG	0	0	105	34.7	25.0	33.0	52.0	6.5
29AUG-31AUG	0	0	80	36.2	22.0	37.0	56.0	7.6
11SEP-14SEP	0	0	78	38.4	21.0	40.0	54.0	7.2
25SEP-28SEP	1	1	91	42.6	21.0	43.0	66.0	7.3
09OCT-12OCT	2	1	112	44.9	26.0	46.0	67.0	7.4
23OCT-26OCT	0	1	80	46.1	27.0	46.0	65.0	6.2
	======	======	======					
	3	3	692					

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 AMERICAN SHAD IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

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	70.0-74.9	75.0-79.9	80.0-84.9	85.0-89.9
10JUL-15JUL	0	1	0	1	4	8	7	6	9	6	0	0	0
24JUL-29JUL	0	0	0	0	0	1	7	8	11	7	6	3	1
07AUG-11AUG	0	0	0	0	0	0	0	6	8	9	4	2	1
21AUG-25AUG	0	0	0	0	0	0	0	0	3	9	13	3	1
03SEP-08SEP	0	0	0	0	0	0	0	0	0	4	3	6	4
18SEP-22SEP	0	0	0	0	0	0	0	0	3	5	5	20	8
02OCT-05OCT	0	0	0	0	0	0	0	0	0	1	5	11	14
16OCT-20OCT	0	0	0	0	0	0	0	0	0	0	3	10	14
	0	1	0	1	4	9	14	20	34	41	39	55	43

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+	N	MEAN	MIN	MED	MAX	SD
10JUL-15JUL	0	0	0	0	0	0	0	44	58.9	32.0	60.0	72.0	9.2
24JUL-29JUL	0	0	0	0	0	0	0	47	67.1	52.0	65.0	86.0	7.8
07AUG-11AUG	0	0	1	0	0	0	0	33	70.6	60.0	70.0	100.0	8.2
21AUG-25AUG	0	0	1	0	0	0	0	30	75.7	66.0	75.0	102.0	6.7
03SEP-08SEP	2	0	0	0	0	0	0	19	80.6	70.0	80.0	93.0	6.6
18SEP-22SEP	6	2	0	0	0	0	0	49	82.1	66.0	82.0	96.0	7.1
02OCT-05OCT	5	3	3	1	1	2	0	46	88.5	73.0	86.0	118.0	10.4
16OCT-20OCT	10	5	2	1	0	0	0	45	88.4	76.0	88.0	108.0	6.7
	23	10	7	2	1	2	0	313					

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 AMERICAN SHAD IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1995

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
19JUN-22JUN	46	23	17	1	0	0	0	0	0	0	0	0
03JUL-06JUL	3	23	37	24	4	1	0	13	11	1	0	0
17JUL-20JUL	0	0	0	1	34	48	34	26	14	14	1	1
31JUL-02AUG	0	0	0	0	0	5	5	16	17	20	12	1
14AUG-16AUG	0	0	0	0	0	0	0	1	7	51	29	6
29AUG-31AUG	0	0	0	0	0	0	0	0	2	13	45	24
11SEP-14SEP	0	0	0	0	0	0	0	0	0	0	16	46
25SEP-28SEP	0	0	0	0	0	0	0	0	0	0	6	22
09OCT-12OCT	0	0	0	0	0	0	0	0	0	0	2	13
23OCT-26OCT	0	0	0	0	0	0	0	0	0	0	2	8
	======	======	======	======	======	======	======	======	======	======	======	======
	49	46	54	26	38	54	39	56	51	99	113	121

DATES	80.0-84.9	85.0-89.9	90.0-94.9	95.0-99.9	100.0-104.9+	N	MEAN	MIN	MED	MAX	SD
19JUN-22JUN	0	0	0	0	0	94	25.0	15.0	24.0	38.0	4.8
03JUL-06JUL	0	0	0	0	0	121	38.9	22.0	34.0	69.0	12.5
17JUL-20JUL	0	0	0	0	0	178	51.9	38.0	51.0	75.0	7.7
31JUL-02AUG	1	0	0	0	0	88	62.5	45.0	62.0	83.0	7.3
14AUG-16AUG	2	0	0	0	0	96	68.7	59.0	68.0	83.0	3.9
29AUG-31AUG	6	1	0	0	0	91	73.0	64.0	73.0	85.0	4.2
11SEP-14SEP	18	9	2	0	0	91	78.3	70.0	78.0	91.0	4.6
25SEP-28SEP	32	15	3	2	0	80	81.6	72.0	81.0	96.0	4.9
09OCT-12OCT	47	31	14	2	0	109	84.2	71.0	84.0	98.0	4.7
23OCT-26OCT	58	57	10	3	0	138	84.7	72.0	85.0	98.0	4.3
	======	======	======	======	======	======					
	164	113	29	7	0	1086					

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 ALEWIFE IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

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
10JUL-15JUL	0	0	4	12	8	1	1	0	0	1	0
24JUL-29JUL	0	0	2	2	6	9	10	3	3	2	1
07AUG-11AUG	0	0	0	0	1	2	1	4	4	3	0
21AUG-25AUG	0	0	0	1	0	1	3	8	5	4	1
03SEP-08SEP	0	0	0	0	0	1	0	2	10	6	6
18SEP-22SEP	0	0	0	0	0	0	0	0	4	6	14
02OCT-05OCT	0	0	0	0	0	1	1	1	2	7	10
16OCT-20OCT	0	0	0	0	0	0	0	0	3	7	5
	======	======	======	======	======	======	======	======	======	======	======
	0	0	6	15	15	15	16	18	31	36	37

DATES	85.0-89.9	90.0-94.9	95.0-99.9	100.0-104.9+	N	MEAN	MIN	MED	MAX	SD
10JUL-15JUL	0	0	0	0	27	49.3	41.0	49.0	75.0	6.8
24JUL-29JUL	0	0	0	0	41	60.1	41.0	60.0	80.0	8.9
07AUG-11AUG	1	0	0	0	16	68.9	54.0	69.0	88.0	8.4
21AUG-25AUG	0	1	1	0	25	70.6	49.0	68.0	97.0	9.9
03SEP-08SEP	5	2	1	0	33	78.1	58.0	77.0	98.0	8.1
18SEP-22SEP	6	4	1	1	36	82.9	70.0	83.0	102.0	6.9
02OCT-05OCT	7	8	2	2	41	83.6	57.0	83.0	109.0	10.3
16OCT-20OCT	7	11	4	3	41	86.3	60.0	88.0	105.0	9.6
	======	======	======	======	======					
	26	26	9	6	260					

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 ALEWIFE IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1995

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
19JUN-22JUN	0	0	0	0	0	0	0	0	0	0	0	0
03JUL-06JUL	0	17	14	1	0	1	0	0	0	0	0	0
17JUL-20JUL	0	28	35	26	20	9	9	4	1	1	0	1
31JUL-02AUG	0	0	5	1	21	2	4	4	1	1	0	0
14AUG-16AUG	0	0	0	0	4	7	17	3	6	0	2	0
29AUG-31AUG	0	0	0	0	2	6	13	14	10	1	0	0
11SEP-14SEP	0	0	0	0	1	4	14	14	8	6	1	0
25SEP-28SEP	0	0	0	0	1	6	5	9	3	11	1	0
09OCT-12OCT	0	0	0	0	0	0	4	3	3	2	0	0
23OCT-26OCT	0	0	0	0	0	1	0	1	10	3	6	4
	======	======	======	======	======	======	======	======	======	======	======	======
	0	45	54	28	49	36	66	52	42	25	10	5

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
19JUN-22JUN	0	0	0	0	0	0	0	.	.	.	.	.
03JUL-06JUL	0	0	0	0	0	0	33	45.0	41.0	44.0	62.0	4.0
17JUL-20JUL	0	0	0	0	0	0	139	52.6	41.0	51.0	91.0	9.3
31JUL-02AUG	0	0	0	0	0	0	44	59.7	48.0	58.0	80.0	7.1
14AUG-16AUG	0	0	0	0	0	0	41	67.4	55.0	66.0	89.0	7.4
29AUG-31AUG	0	0	0	0	0	0	46	69.6	57.0	70.0	80.0	5.4
11SEP-14SEP	0	0	0	1	1	3	53	75.9	58.0	71.0	121.0	14.9
25SEP-28SEP	0	0	0	0	0	0	36	73.0	59.0	73.0	86.0	7.9
09OCT-12OCT	0	0	0	0	0	0	12	73.4	65.0	73.0	84.0	6.0
23OCT-26OCT	2	4	0	0	0	0	31	84.7	63.0	85.0	103.0	10.1
	======	======	======	======	======	======	======					
	2	4	0	1	1	3	435					

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 BLUEBACK HERRING IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1995

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
10JUL-15JUL	0	18	2	1	1	0	0	0	0	0
24JUL-29JUL	0	14	13	15	7	0	4	0	0	0
07AUG-11AUG	6	7	12	8	9	3	0	0	0	0
21AUG-25AUG	0	5	9	25	11	3	1	1	0	0
03SEP-08SEP	0	1	0	8	13	8	7	1	0	0
18SEP-22SEP	1	0	5	16	12	9	4	3	0	0
02OCT-05OCT	0	0	0	24	18	3	7	11	0	1
16OCT-20OCT	0	0	1	29	33	10	23	23	13	5
	======	======	======	======	======	======	======	======	======	======
	7	45	42	126	104	36	46	39	13	6

DATES	85.0-89.9	90.0-94.9	95.0-99.9+	N	MEAN	MIN	MED	MAX	SD
10JUL-15JUL	0	0	0	23	44.4	41.0	43.0	60.0	5.0
24JUL-29JUL	0	0	0	55	50.2	41.0	50.0	68.0	7.0
07AUG-11AUG	0	0	0	50	47.8	33.0	48.5	64.0	8.3
21AUG-25AUG	0	0	0	57	52.1	33.0	51.0	74.0	6.5
03SEP-08SEP	0	0	0	39	59.1	43.0	59.0	71.0	6.3
18SEP-22SEP	1	0	0	53	57.2	35.0	56.0	89.0	8.0
02OCT-05OCT	1	0	0	68	59.5	50.0	56.0	87.0	8.4
16OCT-20OCT	0	1	0	146	63.2	47.0	61.0	91.0	9.0
	======	======	======	======					
	2	1	0	491					

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 BLUEBACK HERRING IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1995

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
19JUN-22JUN	0	0	0	0	0	0	0	0	0
03JUL-06JUL	0	0	7	0	0	0	0	0	0
17JUL-20JUL	0	0	63	33	25	9	0	0	0
31JUL-02AUG	5	16	20	17	13	14	8	2	1
14AUG-16AUG	0	0	6	23	19	7	5	1	1
29AUG-31AUG	0	0	2	5	12	18	18	5	0
11SEP-14SEP	0	0	1	0	2	10	16	16	1
25SEP-28SEP	0	0	0	3	9	25	8	12	5
09OCT-12OCT	0	0	0	3	10	22	12	17	21
23OCT-26OCT	0	0	0	2	19	48	22	21	35
	======	======	======	======	======	======	======	======	======
	5	16	99	86	109	153	89	74	64

DATES	75.0-79.9	80.0-84.9	85.0-89.9+	N	MEAN	MIN	MED	MAX	SD
19JUN-22JUN	0	0	0	0	.	.	.	.	.
03JUL-06JUL	0	0	0	7	42.6	41.0	43.0	44.0	1.1
17JUL-20JUL	0	0	0	132	46.3	41.0	45.0	60.0	5.2
31JUL-02AUG	0	0	0	103	48.4	32.0	47.0	70.0	9.6
14AUG-16AUG	0	0	0	63	51.3	42.0	50.0	71.0	6.4
29AUG-31AUG	0	0	0	66	57.2	41.0	58.0	66.0	5.9
11SEP-14SEP	0	0	0	50	61.8	43.0	62.0	71.0	5.0
25SEP-28SEP	1	0	0	67	60.0	48.0	58.0	75.0	6.7
09OCT-12OCT	14	7	2	110	65.9	46.0	67.0	85.0	9.6
23OCT-26OCT	13	4	0	166	63.4	48.0	62.0	83.0	8.4
	======	======	======	======					
	28	11	2	764					

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, 1995

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
10JUL-15JUL	0	0	0	0	0	0	0	0
24JUL-29JUL	1	3	2	1	0	0	0	0
07AUG-11AUG	0	0	0	2	0	0	0	0
21AUG-25AUG	0	0	0	0	0	0	0	0
03SEP-08SEP	0	0	0	0	0	1	0	0
18SEP-22SEP	0	0	0	0	0	0	1	1
02OCT-05OCT	0	0	0	0	1	1	0	0
16OCT-20OCT	0	0	0	0	0	0	0	1
	======	======	======	======	======	======	======	======
	1	3	2	3	1	2	1	2

DATES	75.0-79.9	80.0-84.9+	N	MEAN	MIN	MED	MAX	SD
10JUL-15JUL	0	0	0	.	.	.	.	.
24JUL-29JUL	0	0	7	44.4	39.0	43.0	50.0	4.8
07AUG-11AUG	0	0	2	50.5	50.0	50.5	51.0	0.7
21AUG-25AUG	0	0	0	.	.	.	.	.
03SEP-08SEP	0	0	1	63.0	63.0	63.0	63.0	.
18SEP-22SEP	0	0	2	69.5	66.0	69.5	73.0	4.9
02OCT-05OCT	0	0	2	59.5	56.0	59.5	63.0	4.9
16OCT-20OCT	3	2	6	78.2	70.0	78.5	85.0	5.0
	======	======	======					
	3	2	20					

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, 1995

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
19JUN-22JUN	4	50	40	0	0	0	0	0	0	0	0
03JUL-06JUL	0	4	15	31	34	4	0	0	0	0	0
17JUL-20JUL	0	0	0	4	11	29	42	24	0	0	0
31JUL-02AUG	0	0	0	0	3	10	16	16	6	3	0
14AUG-16AUG	0	0	0	0	0	0	7	8	21	22	2
29AUG-31AUG	0	0	0	0	0	0	0	1	7	8	14
11SEP-14SEP	0	0	0	0	0	0	0	0	2	7	6
25SEP-28SEP	0	0	0	0	0	0	0	0	1	3	2
09OCT-12OCT	0	0	0	0	0	0	0	0	1	7	15
23OCT-26OCT	0	0	0	0	0	0	0	1	0	4	7
	======	======	======	======	======	======	======	======	======	======	======
	4	54	55	35	48	43	65	50	38	54	46

DATES	65.0-69.9	70.0-74.9	75.0-79.9	80.0-84.9	85.0-89.9+	N	MEAN	MIN	MED	MAX	SD
19JUN-22JUN	0	0	0	0	0	94	18.6	11.0	19.0	23.0	2.5
03JUL-06JUL	0	0	0	0	0	88	28.2	16.0	29.0	36.0	4.5
17JUL-20JUL	0	0	0	0	0	110	40.0	26.0	41.0	49.0	5.2
31JUL-02AUG	0	0	0	0	0	54	43.4	30.0	43.0	55.0	5.8
14AUG-16AUG	1	0	0	0	0	64	52.9	40.0	53.0	65.0	5.6
29AUG-31AUG	8	4	1	0	0	48	61.4	47.0	62.0	75.0	6.3
11SEP-14SEP	8	13	0	0	0	37	65.1	54.0	66.0	74.0	6.0
25SEP-28SEP	10	14	4	1	0	35	68.9	50.0	70.0	82.0	6.8
09OCT-12OCT	10	6	3	2	0	48	65.1	52.0	63.5	83.0	6.7
23OCT-26OCT	8	9	11	8	1	49	70.9	49.0	71.0	85.0	8.4
	======	======	======	======	======	======					
	45	46	19	11	1	627					

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, 1995

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
10JUL-15JUL	8	7	6	1	0	0	0	0	0	0	0	0	0
24JUL-29JUL	0	2	2	4	5	4	4	2	0	0	0	0	0
07AUG-11AUG	0	0	1	0	3	3	4	5	5	0	1	0	0
21AUG-25AUG	0	0	0	0	2	2	2	2	5	5	3	2	0
03SEP-08SEP	0	0	0	0	0	0	0	0	1	1	2	8	4
18SEP-22SEP	0	0	0	0	0	0	0	0	0	1	1	1	3
02OCT-05OCT	0	0	0	0	0	0	0	0	0	0	0	4	1
16OCT-20OCT	0	0	0	0	0	0	0	0	1	0	0	2	1
	8	9	9	5	10	9	10	9	12	7	7	17	9

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
10JUL-15JUL	0	0	0	0	0	0	22	22.0	15.0	21.5	33.0	4.5
24JUL-29JUL	0	0	0	0	0	0	23	38.0	23.0	38.0	52.0	8.6
07AUG-11AUG	0	0	0	0	0	0	22	47.6	27.0	48.5	65.0	9.0
21AUG-25AUG	0	0	0	0	0	0	23	56.3	36.0	59.0	73.0	10.5
03SEP-08SEP	7	3	4	0	0	0	30	77.5	55.0	78.5	94.0	9.2
18SEP-22SEP	4	6	6	1	1	0	24	84.6	63.0	85.5	100.0	8.9
02OCT-05OCT	6	3	3	5	2	0	24	87.0	70.0	87.0	103.0	9.7
16OCT-20OCT	2	4	4	3	3	0	20	88.1	58.0	89.5	103.0	11.4
	19	16	17	9	6	0	188					

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, 1995

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	70.0-74.9	75.0-79.9
10JUL-15JUL	1	3	1	1	1	3	3	3	3	0	1	0	1	0
24JUL-29JUL	0	2	6	9	20	27	19	11	5	7	1	0	4	4
07AUG-11AUG	0	1	2	2	7	8	15	9	8	8	6	17	11	3
21AUG-25AUG	0	0	0	0	1	0	1	0	11	19	26	26	29	13
03SEP-08SEP	0	0	0	1	0	0	2	1	1	4	1	2	7	8
18SEP-22SEP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02OCT-05OCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16OCT-20OCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1	6	9	13	29	38	40	24	28	38	35	45	52	28

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	135.0-139.9	140.0-144.9	145.0-149.9
10JUL-15JUL	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24JUL-29JUL	5	3	0	0	0	0	0	0	0	0	0	0	0	0
07AUG-11AUG	9	2	1	0	0	0	0	0	0	0	0	0	0	0
21AUG-25AUG	5	5	1	1	0	3	1	0	0	0	0	0	0	0
03SEP-08SEP	14	10	14	7	4	1	0	1	0	0	0	1	0	0
18SEP-22SEP	0	3	6	3	17	26	14	15	9	3	1	1	0	1
02OCT-05OCT	2	0	1	2	8	4	9	12	12	5	8	3	2	1
16OCT-20OCT	0	0	0	1	0	0	2	3	6	4	9	7	8	9
	35	23	23	14	29	34	26	31	27	12	18	12	10	11

DATES	150.0-154.9	155.0-159.9	160.0-164.9	165.0-169.9	170.0-174.9	175.0-179.9	180.0-184.9+	N	MEAN	MIN	MED	MAX	SD
10JUL-15JUL	0	0	0	0	0	0	0	23	40.7	11.0	43.0	73.0	16.3
24JUL-29JUL	0	0	0	0	0	0	0	124	43.5	16.0	39.0	88.0	16.6
07AUG-11AUG	0	0	0	0	0	0	0	109	55.9	19.0	56.0	93.0	17.1
21AUG-25AUG	0	0	0	0	0	0	0	147	67.6	34.0	67.0	111.0	11.8
03SEP-08SEP	0	0	0	0	0	0	0	79	82.3	28.0	84.0	135.0	16.7
18SEP-22SEP	0	2	1	1	0	0	0	103	111.3	87.0	109.0	166.0	14.2
02OCT-05OCT	0	0	0	0	0	2	0	71	118.6	80.0	118.0	176.0	16.6
16OCT-20OCT	2	1	0	0	0	0	0	52	134.0	98.0	135.0	157.0	12.3
	2	3	1	1	0	2	0	708					

NOTE: N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

Appendix E

Numbers of Fish Collected in the Ichthyoplankton, Fall Shoals, and Beach Seine Surveys 1988-1995

APPENDIX E

LIST OF TABLES

Number	Title
E-1	Total number of fish collected in the Longitudinal River Ichthyoplankton Survey, 1988-1995.
E-2	Total number of fish collected in the Beach Seine Survey, 1985-1995.
E-3	Total number of fish collected in the Fall Shoals Survey, 1985-1995.

TABLE E-1 TOTAL NUMBER OF FISH COLLECTED IN THE LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1988-1995

		YEAR OF DATA COLLECTION							
		88	89	90	91	92	93	94	95
GROUP	NAME								
ANADROMOUS	ALEWIFE	8,200	624	60	2,727	555	1,275	1,677	293
	ALOSA UNIDENTIFIED	258,802	423,742	714,369	250,755	465,613	191,558	206,821	122,644
	AMERICAN SHAD	51,162	62,755	49,242	25,128	30,345	15,867	31,214	12,120
	ATLANTIC STURGEON	11	2	5	26	4	.	7	3
	ATLANTIC TOMCOD	25,414	37,397	38,431	40,804	10,558	21,343	20,724	64,680
	BLUEBACK HERRING	4,992	2,568	1,230	28,397	30,496	3,290	9,315	1,412
	HICKORY SHAD	.	.	.	.	.	.	.	1
	MORONE UNIDENTIFIED	2,180	13,473	955	17,620	7,246	12,406	8,349	5,416
	RAINBOW SMELT	24,693	767	6,838	2,494	23,035	12,002	59,830	2,354
	STRIPED BASS	61,072	225,498	264,907	359,994	462,382	459,384	674,877	383,781
	STURGEON UNIDENTIFIED	4	6	18	9	.	.	.	.
CATADROMOUS	AMERICAN EEL	789	917	848	1,372	827	1,505	917	1,388
ESTUARINE	ATLANTIC SILVERSIDE	152	11	67	49	27	19	144	323
	BANDED KILLIFISH	5	2,274	1	.	5	3	4	24
	FOURSPINE STICKLEBACK	6	1	1	2	1	7	5	.
	HOGCHOKER	301,192	589,469	13,591	908,378	44,337	87,673	159,012	130,281
	INLAND SILVERSIDE	98	101	.	58	42	209	857	149
	MUMMICHOG	1	.	.	.	.	.	2	6
	NORTHERN PIPEFISH	1,135	153	102	2,059	137	416	186	277
	SCUP	.	.	.	1	.	.	.	.
	SEA HORSE	11	.	1	9	.	.	.	2
	SHORTNOSE STURGEON	3	.	2	3	3	14	9	5
	THREESPINE STICKLEBACK	2	.	1	.	.	2	.	2
	WHITE CATFISH	77	100	87	76	52	25	214	196
	WHITE PERCH	138,753	198,953	157,348	147,232	265,656	221,021	172,991	115,842
FRESHWATER	BLUEGILL	.	.	.	5	.	.	1	1
	BROWN BULLHEAD	1	12	33	30	4	7	18	25
	BROWN TROUT	.	.	1	.	1	.	.	.
	CARP	730	651	.	340	731	136	121	147
	CATOSTOMIDAE UNIDENT.	.	.	.	1	1	.	.	.
	CENTRARCHID UNIDENT	30	66	46	40	132	40	125	11
	CHANNEL CATFISH	.	.	.	1	1	.	.	5
	COMMON SHINER	.	.	12	.	.	.	.	.
	FATHEAD MINNOW	.	.	1	.	.	.	.	.
	FRESHWATER DRUM	.	.	.	.	1	1	.	8
	FUNDULUS SP.	.	2	4	3	1	111	4	3
	GIZZARD SHAD	.	85	5	3	535	123	441	1,065
	GOLDEN SHINER	.	1	7	.	.	1	2	11
	GOLDFISH	113	217	.	97	22	7	18	.
	LARGEMOUTH BASS	.	1	.	2	.	1	1	.
	LOGPERCH	48	20	.	.	179	.	.	.
	MINNOW UNIDENTIFIED	470	1,736	6,839	1,764	2,576	2,276	2,043	910
	NORTHERN HOGSUCKER	19	.	.	.	.	.	.	.
	PERCID UNIDENTIFIED	2	15	.	18	.	.	.	.
	PUMPKINSEED	132	1	.	2	.	4	1	.
	ROCK BASS	.	.	.	.	1	.	.	.
	SMALLMOUTH BASS	.	3	1	.	23	.	1	.
	SPOTTAIL SHINER	60	98	55	83	45	33	62	94
	TESSELATED DARTER	2,898	2,805	2,290	1,566	2,836	1,936	1,718	2,205
	WALLEYE	.	26	.	1	2	12	32	.
	WHITE CRAPPIE	.	.	.	.	.	.	4	.
	WHITE SUCKER	.	10	44	.	1	.	.	1
	YELLOW BULLHEAD	.	.	.	.	.	.	.	2
	YELLOW PERCH	152	325	610	157	369	225	333	69
MARINE	AMERICAN SANDLANCE	48	8	2	4	4	.	1	42
	ATHERINID UNIDENTIFIED	.	1	.	259	.	16	45	19
	ATLANTIC COD	68	.	.	.	.	.	.	.
	ATLANTIC CROAKER	.	.	.	.	157	1	5	409
	ATLANTIC HERRING	522	178	76	1,177	842	1,151	37	3,986
	ATLANTIC MACKEREL	4	.	.	1	2	.	.	.
	ATLANTIC MENHADEN	6	12	671	1,301	404	268	13,008	2,678
	ATLANTIC NEEDLEFISH	.	.	3	.	.	1	.	1
	BAY ANCHOVY	2,852,331	444,854	900,354	3,831,982	1,341,076	1,849,143	3,051,491	1,271,339
	BLACK SEA BASS	.	.	.	.	.	.	4	.
	BLACKCHEEK TONGUEFISH	.	.	.	.	10	.	.	.
	BLUEFISH	85	54	165	151	147	78	73	61
	BOTHID UNIDENTIFIED	.	.	.	1	.	.	.	.
	BUTTERFISH	143	18	18	27	46	38	108	11
	CONGER EEL	132	72	54	29	124	195	175	45
	CREVALLE JACK	1	4	.	1	.	.	.	.
	CUNNER	11,129	1,429	.	1,955	4,221	996	2,176	3,790
	FOUR BEARDED ROCKLING	108	209	2	404	691	4	4,157	6,487
	FOUR SPOT FLOUNDER	.	1	.	.	.	.	.	.
	GADIDAE	6	.	.	.	.	10	.	1
	GOBIIDAE	9,007	5,593	22,569	78,349	26,599	3,794	3,410	2,683

TABLE E-1 (CONT.)

GROUP	NAME	88	89	90	91	92	93	94	
		YEAR OF DATA COLLECTION							
MARINE	GOOSEFISH	.	.	.	8	12	.	.	
	GRUBBY	605	387	167	521	248	66	98	2
	HIGHTAIL GOBY	.	.	1	.	.	.	.	
	INSHORE LIZARDFISH	8	8	.	3	14	1	2	
	KING MACKEREL	.	.	.	1	.	.	.	
	LABRIDAE UNIDENTIFIED	.	.	.	48	.	.	.	
	LONGHORN SCULPIN	.	2	.	.	.	2	.	
	MENIDIA SP.	12	7	193	.	2	.	1	
	MOONFISH	.	.	.	.	.	.	1	
	NAKED GOBY	279	44	1,619	8	73	9	1	
	NORTHERN KINGFISH	.	118	.	10	10	1	39	
	NORTHERN PUFFER	1	5	32	279	.	2	.	
	NORTHERN SEAROBIN	40	2	17	19	1	4	27	
	NORTHERN STARGAZER	129	.	.	.	.	.	53	
	OYSTER TOADFISH	.	1	.	.	.	.	.	
	PLEURONECTID UNIDENT.	.	.	.	144	.	.	.	
	RED HAKE	3	1	1	.	1	1	.	
	ROCK GUNNEL	9	2	1	5	6	.	.	
	ROUGH SILVERSIDE	110	19	.	41	44	30	447	
	SEA ROBIN	8	.	312	26	.	16	.	
	SEABORD GOBY	1	.	.	4	19	1	.	
	SILVER HAKE	1	3	.	.	.	.	.	
	SILVER PERCH	.	.	.	.	.	.	2	
	SMALLMOUTH FLOUNDER	38	.	1	91	71	32	175	
	SPANISH MACKEREL	.	.	.	20	.	2	1	
	SPECKLED WORM EEL	1	.	.	.	.	.	.	
	SPOT	.	.	2	.	.	20	9	
	SPOTTED HAKE	62	1	1	19	40	13	6	
	STRIPED ANCHOVY	.	.	.	.	.	.	.	
	STRIPED CUSKEEL	2	1	.	4	3	1	.	
	STRIPED KILLIFISH	.	.	.	.	1	.	.	
	STRIPED SEAROBIN	43	4	.	234	5	41	671	
	SUMMER FLOUNDER	.	24	1	39	18	.	7	
	TAUTOG	1,205	3,432	.	969	488	241	438	3,
	TETRAODONTIDAE	.	3	.	.	.	.	.	
	WEAKFISH	1,586	2,602	122,082	6,821	1,206	1,621	2,804	
	WINDOWPANE FLOUNDER	8,866	5,162	49	1,500	14,953	166,221	6,917	17,
	WINTER FLOUNDER	900	178	64	340	794	188	362	4,
	YELLOWTAIL FLOUNDER	.	.	.	.	2	.	1	
UNIDENTIFIED	COTTID UNIDENTIFIED	128	.	.	.	.	.	.	
	CYPRINODONTID UNIDENT.	.	8	.	.	.	5	.	
	SCIAENIDAE	.	3	.	.	.	2	65	
	UNIDENTIFIED	49,244	7,031	36,103	113,576	18,496	9,938	32,547	1,

SAMPLING STATISTICS FOR LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1988-1995

	88	89	90	91	92	93	94	95
	YEAR OF DATA COLLECTION							
START DATE	18APR88	17APR89	19APR90	15APR91	13APR92	12APR93	11APR94	06MAR
END DATE	25AUG88	23AUG89	16AUG90	17OCT91	14OCT92	05OCT93	05OCT94	12OCT
VOLUME SAMPLED (m^3)	524,777	519,252	419,294	537,825	632,978	596,043	579,959	649,9
SAMPLE SIZE	1,663	1,641	1,561	1,991	1,986	1,987	1,986	2,4

TABLE E-2 TOTAL NUMBER OF FISH COLLECTED IN THE BEACH SEINE SURVEY, 1985-1995.

GROUP	NAME	YEAR OF DATA COLLECTION 85	86	87	88	89	90	91	92	93	94	95
ANADROMOUS	ALEWIFE	1,272	818	515	675	439	925	2,323	870	638	1,738	1,051
	ALOSA UNIDENTIFIED	8,272	2,529	5,685	21,022	8,346	10,853	38,966	3,490	5,237	14,468	10,653
	AMERICAN SHAD	9,171	14,716	7,641	10,780	13,026	12,261	15,771	15,366	5,122	13,007	4,049
	ATLANTIC STURGEON	1	.	.	.	3	.	.	.	.	.	.
	ATLANTIC TOMCOD	243	148	209	230	81	115	46	328	13	9	22
	BLUEBACK HERRING	25,362	12,522	31,373	36,245	19,037	43,555	40,731	29,105	29,722	46,040	21,506
	HICKORY SHAD	.	.	.	.	.	.	.	.	.	.	1
	MORONE UNIDENTIFIED	.	.	1	.	.	.	.	.	.	.	1
	RAINBOW SMELT	.	1	.	.	.	2	5	.	5	.	.
	STRIPED BASS	1,413	1,854	11,987	6,151	5,585	6,906	10,813	6,156	10,765	7,273	6,463
CATADROMOUS	AMERICAN EEL	315	163	125	151	107	81	208	127	97	86	121
ESTUARINE	ATLANTIC SILVERSIDE	1,197	4,406	1,459	6,760	686	8,383	17,291	6,668	14,493	21,101	28,061
	BANDED KILLIFISH	5,959	3,514	4,369	4,917	1,948	1,513	3,232	1,243	2,708	6,402	8,659
	FAT SLEEPER	.	1	.	.	.	.	.	.	.	.	.
	FOURSPINE STICKLEBACK	359	525	296	194	12	11	24	15	32	29	20
	HOGCHOKER	1,033	276	312	305	261	150	652	329	143	230	392
	INLAND SILVERSIDE	464	653	146	406	234	190	160	1,129	9	4	12
	MUMMICHOG	455	38	496	414	68	109	183	128	208	448	613
	NORTHERN PIPEFISH	844	166	348	297	156	86	689	51	124	16	248
	SHORTNOSE STURGEON	.	.	.	.	.	.	.	.	.	.	1
	STRIPED MULLET	2	6	1	1	.	.	5	.	.	.	2
	THREESPINE STICKLEBACK	2	17	10	3	4	2	4	1	.	.	.
	WHITE CATFISH	52	83	86	101	66	23	25	18	16	7	10
	WHITE MULLET	4	3	.	.	3	1	2	.	1	.	.
	WHITE PERCH	9,938	12,082	12,303	14,607	11,407	8,485	10,033	9,497	11,771	8,789	6,368
FRESHWATER	BLACK CRAPPIE	.	47	52	10	10	8	12	20	4	14	19
	BLACKNOSE DACE	2	.	1	1	.	.	.	.	.	.	.
	BLUEGILL	64	57	76	355	159	89	69	61	94	89	201
	BLUNTNOSE MINNOW	.	.	.	.	.	.	.	.	.	3	.
	BROOK SILVERSIDE	.	.	.	.	.	.	.	.	.	44	6
	BROOK STICKLEBACK	.	.	.	.	1	.	.	.	.	.	.
	BROWN BULLHEAD	6	41	12	53	28	10	42	40	252	117	23
	BROWN TROUT	.	.	.	.	.	.	.	.	.	1	1
	CARP	50	102	78	133	86	57	111	90	62	41	64
	CENTRARCHID UNIDENT	673	327	388	351	100	106	64	29	42	216	89
	CHAIN PICKEREL	.	.	.	.	4	.	.	1	.	.	1
	CHANNEL CATFISH	.	.	.	.	.	3	.	.	.	.	.
	COMELY SHINER	.	.	.	.	.	.	.	.	1	.	.
	COMMON SHINER	.	.	.	1	.	.	.	1	1	.	.
	CREEK CHUB	1	.	.	.	.	.	4	.	1	.	2
	EMERALD SHINER	4	4	5	22	.	11	8	4	2	1	.
	FALLFISH	.	2	.	.	.	.	9	8	2	11	2
	FATHEAD MINNOW	1	10	.	.	1	.	.	.	.	2	.
	GIZZARD SHAD	3	13	100	10	7	28	22	158	38	49	61
	GOLDEN SHINER	460	1,223	647	676	640	817	672	787	659	760	404
	GOLDFISH	14	25	16	97	1	3	33	1	29	3	16
	GRASS PICKEREL	.	.	.	.	.	1	.	.	.	.	.
	GREEN SUNFISH	.	.	.	1	.	.	.	.	.	.	.
	LARGEMOUTH BASS	44	71	44	57	51	34	85	55	55	74	169
	LOGPERCH	.	.	.	.	.	.	.	1	1	.	.
	LONGEAR SUNFISH	.	.	.	.	.	10	.	.	.	.	.
	LONGNOSE DACE	1	.	.	.	.	.	.	.	.	.	.
	MINNOW UNIDENTIFIED	1	6	6	.	.	.	134	.	5	2	18
	NORTHERN HOGSUCKER	.	.	1	3	.	1	4	2	.	.	.
	NORTHERN PIKE	.	2	4	2	4	2	2	2	3	2	.

TABLE E-2 (CONT.)

GROUP	NAME	85	86	87	88	89	90	91	92	93	94	95
		YEAR OF DATA COLLECTION										
FRESHWATER	PUGNOSE SHINER	.	.	.	.	.	.	2	.	.	.	.
	PUMPKINSEED	740	496	609	1,070	633	724	1,195	602	774	1,535	1,648
	RAINBOW TROUT	.	.	.	.	.	.	.	.	.	.	1
	REDBREAST SUNFISH	115	158	185	160	111	76	200	259	251	382	454
	REDFIN PICKEREL	.	.	.	2	.	.	1	.	.	.	.
	ROCK BASS	6	8	1	12	3	.	22	1	1	.	10
	SATINFIN SHINER	1	2	.	1	.	2	.	.	1	.	6
	SILVERY MINNOW	3	13	23	119	2	9	387	68	568	1,027	8
	SMALLMOUTH BASS	7	25	8	28	25	21	25	28	30	73	81
	SPOTFIN SHINER	5	8	17	5	.	.	.	.	12	8	8
	SPOTTAIL SHINER	5,316	5,177	4,452	5,407	5,129	5,500	12,385	7,727	7,169	12,452	7,529
	SWALLOWTAIL SHINER	.	.	.	.	.	.	.	3	.	.	.
	TESSELATED DARTER	1,198	1,372	820	1,697	415	479	2,385	929	1,251	1,669	700
	TIGER MUSKELLUNGE	.	.	.	.	.	.	.	1	.	.	.
	WHITE CRAPPIE	.	4	1	3	.	1	2	1	.	.	.
	WHITE SUCKER	7	16	17	32	9	15	12	21	11	12	14
	YELLOW PERCH	22	67	44	49	34	12	27	23	22	29	16
MARINE	ATLANTIC CROAKER	.	1	.	.	.	26	.	1	.	.	7
	ATLANTIC MENHADEN	118	834	30	99	159	1,063	678	415	16	1,637	56
	ATLANTIC NEEDLEFISH	92	77	54	48	41	96	476	9	11	12	22
	BAY ANCHOVY	4,081	4,155	3,746	3,989	9,507	4,134	4,669	8,729	8,106	10,447	17,615
	BLUEFISH	567	400	533	280	224	348	314	375	223	80	252
	BUTTERFISH	.	.	.	4	.	1	.	1	9	.	.
	CREVALLE JACK	71	10	3	22	40	32	58	53	30	2	2
	CUNNER	.	.	.	.	.	.	.	1	.	.	.
	GOOSEFISH	.	.	.	.	.	.	1	.	.	.	.
	GRAY SMAPPER	7	1	3	.	.	.	2	.	.	.	.
	GRUBBY	.	.	.	.	.	.	.	.	.	.	1
	INSHORE LIZARDFISH	.	.	.	1	1	.	14	8	11	5	1
	LOOKDOWN	18	1	.	.	10	1	.	.	.	.	.
	MOONFISH	.	.	.	.	3	.	.	.	.	.	.
	NAKED GOBY	20	9	11	4	4	7	14	22	2	.	9
	NORTHERN KINGFISH	20	8	.	9	1	4	42	2	17	13	8
	NORTHERN PUFFER	2	1	.	1	.	.	10	.	4	.	2
	NORTHERN SEAROBIN	.	2	.	.	.	.	8	.	.	1	.
	NORTHERN STARGAZER	1	.	.	.	.	.	1	.	1	1	1
	ORANGE SPOTTED FILEFISH	.	1	.	.	.	.	.	.	.	.	.
	PERMIT	.	.	.	.	.	.	.	1	2	.	.
	ROUGH SILVERSIDE	35	4	23	258	9	4	.	2	.	1	1
	SEA ROBIN	.	.	.	.	.	.	5	.	.	.	.
	SEABORD GOBY	.	.	.	1	.	.	.	.	.	.	.
	SILVER HAKE	.	.	.	.	.	1	.	.	.	.	.
	SILVER PERCH	13	1	.	19	.	.	29	8	61	25	5
	SMALLMOUTH FLOUNDER	1	.	.	.	.	.	.	.	.	.	1
	SPANISH MACKEREL	.	.	.	.	.	.	12	.	4	1	.
	SPOT	35	106	4	32	.	1	8	2	39	24	.
	SPOTFIN MOJARRA	.	.	.	.	.	.	.	.	.	2	.
	SPOTTED GOATFISH	.	.	.	.	.	.	.	.	17	.	.
	SPOTTED HAKE	.	.	.	.	.	1	.	.	.	.	.
	STRIPED ANCHOVY	1	.	.	.	.	.	.	.	1	15	25
	STRIPED SEAROBIN	5	16	.	3	.	.	34	1	11	.	.
	SUMMER FLOUNDER	48	45	4	1	2	2	46	26	20	18	10
	TAUTOG	2	5	2	20	.	6	31	1	.	1	.
	WEAKFISH	72	5	.	2	.	27	111	1	4	4	1
	WINDOWPANE FLOUNDER	.	.	3	.	.	.	1	.	.	.	.
	WINTER FLOUNDER	282	80	29	41	9	23	154	35	74	45	110

TABLE E-2 (CONT.)

SAMPLING STATISTICS FOR BEACH SEINE SURVEY, 1985-1995

	YEAR OF DATA COLLECTION										
	85	86	87	88	89	90	91	92	93	94	95
START DATE	16JUL85	15JUL86	24JUN87	14JUN88	13JUN89	18JUN90	24JUN91	23JUN92	01JUL93	27JUN94	19JUN95
END DATE	21NOV85	21NOV86	13NOV87	03NOV88	02NOV89	24OCT90	01NOV91	28OCT92	04NOV93	02NOV94	26OCT95
SAMPLE SIZE	1,000	1,000	1,101	1,100	1,100	1,000	1,000	1,000	1,000	1,000	1,000

TABLE E-3 TOTAL NUMBER OF FISH COLLECTED IN THE FALL SHOALS SURVEY, 1985-1995.

GROUP	NAME	YEAR OF DATA COLLECTION 85	86	87	88	89	90	91	92	93	94	95
ANADROMOUS	ALEWIFE	1,142	554	702	379	327	459	994	790	730	719	519
	ALOSA UNIDENTIFIED	3,341	282	2,591	4,193	4,331	3,543	1,276	10,650	1,905	1,725	2,895
	AMERICAN SHAD	1,717	2,166	776	1,483	3,646	1,323	1,291	3,406	961	2,095	831
	ATLANTIC STURGEON	96	184	149	117	63	6	10	1	7	15	15
	ATLANTIC TOMCOD	5,083	10,046	7,908	8,210	14,060	1,105	4,914	7,299	3,664	1,679	3,649
	BLUEBACK HERRING	41,919	6,525	18,596	37,957	22,112	15,982	55,299	38,090	22,442	18,790	14,006
	HICKORY SHAD	.	3	.	.	.	.	.	.	.	.	.
	MORONE UNIDENTIFIED	1	.	.	.	3	2	.	.	.	.	.
	RAINBOW SMELT	126	389	429	576	34	216	256	2,549	757	363	136
	SEA LAMPREY	.	.	.	.	.	1	.	.	.	.	.
	STRIPED BASS	888	2,348	11,633	18,679	8,472	3,624	4,672	3,773	8,339	8,719	10,327
CATADROMOUS	AMERICAN EEL	1,872	2,906	2,254	2,076	1,444	342	984	19	1,406	1,647	1,627
ESTUARINE	ATLANTIC SILVERSIDE	.	2	.	3	1	2	18	2	29	25	33
	BANDED KILLIFISH	78	12	3	3	3	.	2	.	6	21	24
	FOURSPINE STICKLEBACK	1	9	.	1	1	.	.	.	2	.	1
	HOGCHOKER	89,948	108,036	89,042	74,672	73,613	22,760	42,916	62,300	43,064	15,581	23,823
	INLAND SILVERSIDE	.	.	.	1	.	2	.	.	2	.	4
	MUMMICHOG	.	.	.	.	.	4	.	.	.	.	.
	NORTHERN PIPEFISH	40	13	22	25	12	4	16	12	65	15	24
	SCUP	1	.	.	.	.	.	3	.	.	.	8
	SEA HORSE	.	.	.	.	.	.	.	.	.	.	1
	SHORTNOSE STURGEON	16	8	11	20	12	2	18	.	82	56	36
	WHITE CATFISH	721	677	775	806	740	352	547	72	939	1,363	1,077
	WHITE PERCH	19,721	31,771	27,008	25,760	20,106	5,381	11,019	13,832	8,341	9,007	10,272
FRESHWATER	BLACK BULLHEAD	1	.	.	.	.	.	.	.	.	.	.
	BLUEGILL	.	.	1	.	1	.	1	3	2	.	1
	BROOK TROUT	.	.	.	.	.	.	1	.	.	.	.
	BROWN BULLHEAD	37	127	109	171	172	17	125	70	92	278	211
	CARP	4	13	5	4	10	1	6	1	7	3	6
	CENTRAL MUDMINNOW	.	.	1	.	.	.	.	.	.	.	.
	CENTRARCHID UNIDENT	1	4	1	5	3	.	.	.	.	4	.
	CHANNEL CATFISH	.	5	10	9	12	1	4	7	38	187	95
	EMERALD SHINER	.	.	.	.	1	.	.	.	.	.	.
	FRESHWATER DRUM	.	.	.	.	3	.	.	1	2	1	4
	GIZZARD SHAD	4	6	8	2	8	1	.	.	3	1	5
	GOLDEN SHINER	.	1	.	.	.	.	.	29	.	.	.
	GOLDFISH	.	.	.	.	1	.	.	1	.	1	.
	LOGPERCH	.	.	.	.	.	.	.	.	4	.	.
	MARGINED MADTOM	.	.	1	.	.	.	1	.	.	1	.
	MINNOW UNIDENTIFIED	48	.	.	.	.	.	.	.	.	.	.
	PUMPKINSEED	57	2	13	5	1	6	12	2	16	12	49
	REDBREAST SUNFISH	1	.	.	1	2	.	.	.	.	1	3
	ROCK BASS	.	1	.	.	.	.	.	.	.	1	.
	SATINFIN SHINER	.	.	.	.	.	1	.	.	.	.	.
	SILVERY MINNOW	.	1	.	.	.	.	.	.	.	.	.
	SMALLMOUTH BASS	.	.	.	.	1	1	.	.	.	.	.
	SPOTTAIL SHINER	244	685	333	369	102	43	404	259	351	248	204
	TESSELATED DARTER	89	747	197	370	120	10	187	225	306	684	228
	WHITE SUCKER	1	8	4	2	1	.	.	.	.	1	.
	YELLOW BULLHEAD	.	.	.	.	30	.	.	.	.	.	.
	YELLOW PERCH	.	.	1	1	.	.	.	.	.	1	.
MARINE	ATLANTIC CROAKER	1	4	7	.	1	4	.	4	18	97	336
	ATLANTIC HERRING	.	.	.	.	.	.	.	.	3	.	.
	ATLANTIC MENHADEN	51	139	67	9	38	129	478	81	13	78	26
	ATLANTIC NEEDLEFISH	.	.	.	1	.	1	1	.	.	.	3

TABLE E-3 (CONT.)

GROUP	NAME	85	86	87	88	89	90	91	92	93	94	95
		YEAR OF DATA COLLECTION										
MARINE	BAY ANCHOVY	27,902	20,988	39,348	59,244	41,475	16,465	44,815	37,231	53,437	54,615	93,826
	BLACK SEA BASS	1	.	.	1	.	.	.	.	.	2	.
	BLUEFISH	60	51	107	116	62	82	58	81	53	37	42
	BUTTERFISH	61	106	48	110	81	43	35	138	121	109	21
	CONGER EEL	.	.	.	14	.	.	.	.	.	.	2
	CREVALLE JACK	2	1	1	10	8	7	3	1	10	1	4
	CUNNER	.	.	.	.	.	1	.	1	.	.	.
	FOUR SPOT FLOUNDER	2	2	.	1	.	1	.	.	.	25	.
	GOBIIDAE	.	.	.	4	.	.	.	38	.	2	.
	GOOSEFISH	.	.	.	.	.	.	.	.	.	.	1
	GRUBBY	.	.	.	2	.	.	.	.	1	.	.
	INSHORE LIZARDFISH	1	.	.	1	4	.	1	4	8	1	.
	LONGHORN SCULPIN	.	.	.	.	.	.	.	.	3	.	.
	LOOKDOWN	1	.	1	1	1	.	.	.	.	1	.
	MOONFISH	.	1	2	.	5	.	.	1	.	.	.
	NAKED GOBY	3	6	47	9	21	1	7	30	3	1	26
	NORTHERN KINGFISH	9	6	.	20	3	3	10	2	4	16	7
	NORTHERN PUFFER	9	1	5	3	2	.	36	3	1	.	3
	NORTHERN SEAROBIN	.	2	7	21	3	16	7	12	53	305	6
	NORTHERN STARGAZER	1	.	.	20	.	4	3	10	2	7	.
	OYSTER TOADFISH	.	.	.	.	.	.	.	1	.	.	1
	RED HAKE	1	.	.	.	.	1	.	.	.	.	.
	ROUGH SILVERSIDE	1	.	3	1	.	.	.	3	2	.	4
	SEABORD GOBY	.	.	.	12	.	.	2	.	.	.	.
	SILVER HAKE	.	3	.	.	.	1	1	.	.	.	.
	SILVER PERCH	.	.	.	13	.	.	1	.	7	11	36
	SMALLMOUTH FLOUNDER	.	.	.	8	.	.	.	1	1	9	3
	SPANISH MACKEREL	.	.	.	.	.	1	17	.	7	.	.
	SPOT	5	14	1	1,257	.	.	2	.	4	.	.
	SPOTFIN BUTTERFLYFISH	1	.	.	.	.	.	.	.	.	.	1
	SPOTTED HAKE	2	1	.	.	.	.	3	1	7	3	3
	STRIPED ANCHOVY	.	.	.	.	.	.	.	1	.	.	2
	STRIPED BURRFISH	.	1	.	.	.	.	.	.	.	.	.
	STRIPED CUSKEEL	3	.	.	1	.	.	1	1	.	.	.
	STRIPED SEAROBIN	321	148	10	101	25	26	310	52	96	648	15
	SUMMER FLOUNDER	232	447	58	7	42	35	102	35	39	32	108
	TAUTOG	.	.	.	2	.	3	.	1	.	.	.
	TETRAODONTIDAE	.	.	1	.	.	.	.	.	.	.	.
	WEAKFISH	2,214	1,482	749	3,777	2,842	770	5,878	750	2,332	2,416	3,773
	WINDOWPANE FLOUNDER	1	1	5	17	.	5	9	32	1	5	19
	WINTER FLOUNDER	226	196	92	39	23	13	28	35	51	21	62

SAMPLING STATISTICS FOR FALL SHOALS SURVEY, 1985-1995

	85	86	87	88	89	90	91	92	93	94	95
	YEAR OF DATA COLLECTION										
START DATE	22JUL85	21JUL86	13JUL87	18JUL88	17JUL89	09JUL90	15JUL91	13JUL92	19JUL93	18JUL94	10JUL95
END DATE	14NOV85	02DEC86	05NOV87	28OCT88	26OCT89	17OCT90	25OCT91	23OCT92	29OCT93	27OCT94	20OCT95
VOLUME SAMPLED (m^3)	1,886,745	2,298,278	2,035,357	1,826,628	1,590,047	1,252,910	1,707,237	1,865,365	2,010,162	2,018,414	1,782,105
SAMPLE SIZE	1,802	2,098	1,958	1,680	1,679	1,680	1,678	1,680	1,680	1,681	1,680