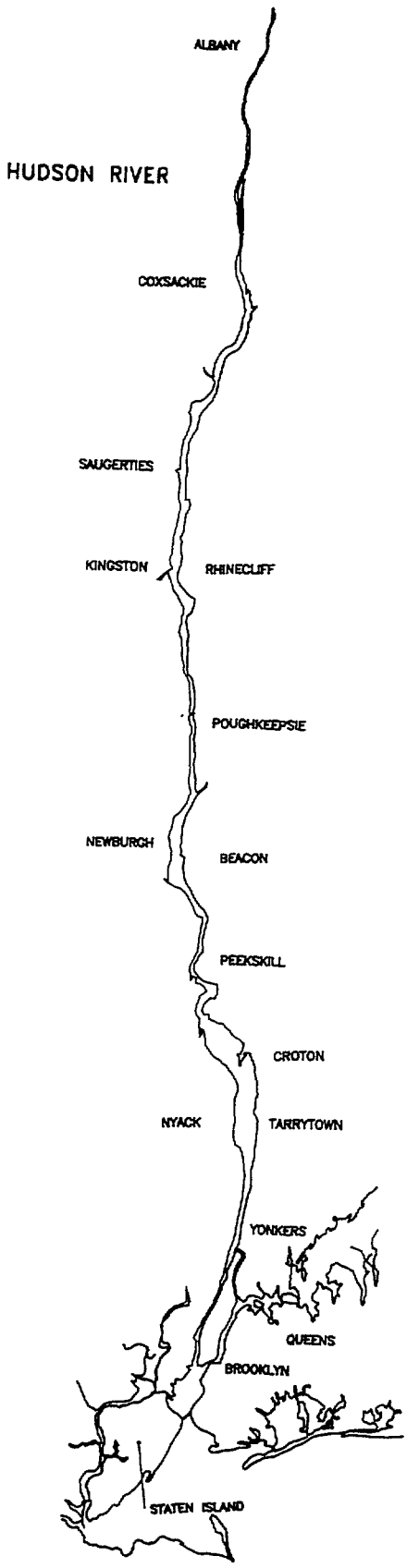


1994 YEAR CLASS REPORT

for the Hudson River Estuary Monitoring Program

Prepared by

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.

Con Edison

CONTENTS

Page

LIST OF FIGURES iii

LIST OF TABLES xii

1. INTRODUCTION 1-1

2. MATERIALS AND METHODS 2-1

2.1 Sampling Design 2-1
2.2 Longitudinal River Ichthyoplankton Survey 2-4

2.2.1 Field Methods 2-4
2.2.2 Laboratory Methods 2-14

2.3 Fall Shoals Survey 2-19

2.3.1 Field Methods 2-19
2.3.2 Laboratory Methods 2-24

2.4 Beach Seine Survey 2-24

2.4.1 Field Methods 2-24
2.4.2 Laboratory Methods 2-26

2.5 Analytical Methods 2-26

2.5.1 Physical/Chemical Parameters 2-26
2.5.2 Spatiotemporal Distribution Indices 2-29

3. PHYSICAL/CHEMICAL PARAMETERS 3-1

3.1 Green Island Dam Flows 3-1
3.2 Poughkeepsie Waterworks Temperatures 3-1
3.3 Hudson River Surveys 3-1

3.3.1 Spatiotemporal Pattern in Temperature 3-1
3.3.2 Spatiotemporal Pattern in Salinity 3-5
3.3.3 Spatiotemporal Pattern in Dissolved Oxygen 3-5

CONTENTS (Continued)

Page

4. SPATIOTEMPORAL DISTRIBUTION OF SELECTED SPECIES OF HUDSON RIVER ESTUARY FISHES 4-1

4.1 Fish Community 4-1

4.1.1 General Description of the Fish Community 4-1
4.1.2 Species Occurrence Through Time 4-2

4.2 Striped Bass 4-10
4.3 White Perch 4-18
4.4 Atlantic Tomcod 4-22
4.5 Bay Anchovy 4-37
4.6 American Shad 4-39
4.7 River Herrings 4-56
4.8 Alewife 4-61
4.9 Blueback Herring 4-68
4.10 Gizzard Shad 4-68
4.11 Rainbow Smelt 4-74
4.12 Hogchoker 4-86
4.13 Spottail Shiner 4-86
4.14 Atlantic Sturgeon 4-92
4.15 Shortnose Sturgeon 4-100
4.16 White Catfish 4-106
4.17 Weakfish 4-111
4.18 Bluefish 4-111

REFERENCES R-1

APPENDIX A: QUALITY ASSURANCE PROGRAM FOR THE 1994 ICHTHYOPLANKTON AND FALL SHOALS LABORATORY PROGRAMS
APPENDIX B: PHYSICAL/CHEMICAL PARAMETERS
APPENDIX C: DENSITY AND STANDING CROP ESTIMATES
APPENDIX D: LENGTH FREQUENCY DISTRIBUTION
APPENDIX E: NUMBERS OF FISH/SPECIES COLLECTED IN THE ICHTHYOPLANKTON, BEACH SEINE, AND FALL SHOALS SAMPLING PROGRAMS, 1988-1994

LIST OF FIGURES

Number	Title	Page
2-1	Location of 13 geographic regions (with river mile boundaries) sampled during 1994 field sampling programs in the Hudson River estuary.	2-2
2-2	Cross sections of the Hudson River estuary showing locations and typical proportional relationships of the shoal, bottom, and channel strata.	2-3
2-3	Sampling schedule for 1994.	2-7
2-4	Design and dimensions of 1.0-m^2 Tucker trawl.	2-10
2-5	Design and dimensions of 1.0-m^2 Tucker trawl mounted on an epibenthic sled.	2-11
2-6	Conceptual diagram of the splitting process.	2-17
2-7	Inspection plan for evaluation of splitting precision.	2-18
2-8	Design and dimensions of the 3.0-m beam trawl used in the 1994 Fall Shoals Survey.	2-20
3-1	Hudson River daily average flow rate in 1994 and monthly average flow rates from 1947 to 1994, Green Island Dam, Troy, New York.	3-2
3-2	Seasonal variations in water temperature from 1951 to 1994.	3-3
3-3	Seasonal variations in water temperature from the 1994 Hudson River surveys, RM 12 - RM 152.	3-4
3-4	Seasonal variations in salinity based on the 1994 Longitudinal River Ichthyoplankton and Fall Shoals surveys, average weekly values, RM 12 - RM 152.	3-6
3-5	Seasonal variations in dissolved oxygen from the 1994 Hudson River surveys, RM 12 - RM 152.	3-7
4-1	Spatiotemporal distribution of egg and yolk-sac stages of striped bass in the Hudson River estuary based on the 1994 Long River Ichthyoplankton Survey.	4-12
4-2	Spatiotemporal distribution of post yolk-sac and young-of-year stages of striped bass in the Hudson River estuary based on the 1994 Long River Ichthyoplankton Survey.	4-13

LIST OF FIGURES (Continued)

Number	Title	Page
4-3	Spatiotemporal distribution of young-of-year striped bass in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine surveys.	4-14
4-4	Spatiotemporal distribution of yearling and older striped bass in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine surveys.	4-15
4-5	Temporal distribution indices for early life stages of striped bass collected during Longitudinal River Ichthyoplankton surveys of the Hudson River estuary, 1974-1994.	4-16
4-6	Geographical distribution indices for early life stages of striped bass collected during Longitudinal River Ichthyoplankton surveys of the Hudson River estuary, 1974-1994.	4-17
4-7	Geographical distribution indices for young-of-year and yearling striped bass collected during Beach Seine surveys of the Hudson River estuary, 1974-1994.	4-19
4-8	Weekly length statistics for striped bass larvae and young-of-year in the Hudson River estuary, 1994.	4-20
4-9	Spatiotemporal distribution of egg and yolk-sac stages of white perch in the Hudson River estuary based on the 1994 Long River Ichthyoplankton Survey.	4-21
4-10	Spatiotemporal distribution of post yolk-sac and young-of-year stages of white perch in the Hudson River estuary based on the 1994 Long River Ichthyoplankton Survey.	4-23
4-11	Spatiotemporal distribution of young-of-year white perch in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine surveys.	4-24
4-12	Spatiotemporal distribution of yearling and older white perch in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine surveys.	4-25
4-13	Temporal distribution indices for early life stages of white perch collected during Longitudinal River Ichthyoplankton surveys of the Hudson River estuary, 1974-1994.	4-26

LIST OF FIGURES (Continued)

Number	Title	Page
4-14	Geographical distribution indices for early life stages of white perch collected during Longitudinal River Ichthyoplankton surveys of the Hudson River estuary, 1974-1994.	4-27
4-15	Geographical distribution indices for young-of-year and yearling white perch collected during Beach Seine surveys of the Hudson River estuary, 1974-1994.	4-28
4-16	Weekly length statistics for white perch larvae and young-of-year in the Hudson River estuary, 1994.	4-29
4-17	Spatiotemporal distribution of post yolk-sac and young-of-year stages of Atlantic tomcod in the Hudson River estuary based on the 1994 Long River Ichthyoplankton Survey.	4-31
4-18	Spatiotemporal distribution of young-of-year Atlantic tomcod in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine surveys.	4-32
4-19	Spatiotemporal distribution of yearling and older Atlantic tomcod in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine surveys.	4-33
4-20	Temporal distribution indices for early life stages of Atlantic tomcod collected during Longitudinal River Ichthyoplankton surveys of the Hudson River estuary, 1974-1994.	4-34
4-21	Geographical distribution indices for early life stages of Atlantic tomcod collected during Longitudinal River Ichthyoplankton surveys of the Hudson River estuary, 1974-1994.	4-35
4-22	Geographical distribution indices for young-of-year and older Atlantic tomcod collected during Beach Seine surveys of the Hudson River estuary, 1974-1994.	4-36
4-23	Weekly length statistics for Atlantic tomcod young-of-year in the Hudson River estuary, 1994.	4-38
4-24	Spatiotemporal distribution of egg and yolk-sac stages of bay anchovy in the Hudson River estuary based on the 1994 Long River Ichthyoplankton Survey.	4-40

LIST OF FIGURES (Continued)

Number	Title	Page
4-25	Spatiotemporal distribution of post yolk-sac and young-of-year stages of bay anchovy in the Hudson River estuary based on the 1994 Long River Ichthyoplankton Survey.	4-41
4-26	Spatiotemporal distribution of young-of-year bay anchovy in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine surveys.	4-42
4-27	Spatiotemporal distribution of yearling and older bay anchovy in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine surveys.	4-43
4-28	Temporal distribution indices for early life stages of bay anchovy collected during Longitudinal River Ichthyoplankton surveys of the Hudson River estuary, 1989-1994.	4-44
4-29	Geographical distribution indices for early life stages of bay anchovy collected during Longitudinal River Ichthyoplankton surveys of the Hudson River estuary, 1989-1994.	4-45
4-30	Geographical distribution indices for young-of-year and yearling and older bay anchovy collected during Beach Seine surveys of the Hudson River estuary, 1974-1994.	4-46
4-31	Weekly length statistics for bay anchovy young-of-year in the Hudson River estuary, 1994.	4-47
4-32	Spatiotemporal distribution of egg and yolk-sac stages of American shad in the Hudson River estuary based on the 1994 Long River Ichthyoplankton Survey.	4-49
4-33	Spatiotemporal distribution of post yolk-sac and young-of-year stages of American shad in the Hudson River estuary based on the 1994 Long River Ichthyoplankton Survey.	4-50
4-34	Spatiotemporal distribution of young-of-year American shad in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine surveys.	4-51
4-35	Spatiotemporal distribution of yearling and older American shad in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine surveys.	4-52

LIST OF FIGURES (Continued)

Number	Title	Page
4-36	Temporal distribution indices for early life stages of American shad collected during Longitudinal River Ichthyoplankton surveys of the Hudson River estuary, 1974-1994.	4-53
4-37	Geographical distribution indices for early life stages of American shad collected during Longitudinal River Ichthyoplankton surveys of the Hudson River estuary, 1974-1994.	4-54
4-38	Geographical distribution indices for young-of-year American shad collected during Beach Seine surveys of the Hudson River estuary, 1974-1994.	4-55
4-39	Weekly length statistics for American shad larvae and young-of-year in the Hudson River estuary, 1994.	4-57
4-40	Spatiotemporal distribution of egg and yolk-sac stages of *Alosa* spp. in the Hudson River estuary based on the 1994 Long River Ichthyoplankton Survey.	4-58
4-41	Spatiotemporal distribution of post yolk-sac and young-of-year stages of *Alosa* spp. in the Hudson River estuary based on the 1994 Long River Ichthyoplankton Survey.	4-59
4-42	Temporal distribution indices for early life stages of *Alosa* spp. collected during Longitudinal River Ichthyoplankton surveys of the Hudson River estuary, 1974-1994.	4-60
4-43	Geographical distribution indices for early life stages of *Alosa* spp. collected during Longitudinal River Ichthyoplankton surveys of the Hudson River estuary, 1974-1994.	4-62
4-44	Spatiotemporal distribution of young-of-year alewife in the Hudson River estuary based on the 1994 Long River Ichthyoplankton Survey.	4-63
4-45	Spatiotemporal distribution of young-of-year alewife in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine surveys.	4-64
4-46	Spatiotemporal distribution of yearling and older alewife in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine surveys.	4-65
4-47	Geographical distribution indices for young-of-year alewife collected during Beach Seine surveys of the Hudson River estuary, 1974-1994.	4-66

LIST OF FIGURES (Continued)

Number	Title	Page
4-48	Weekly length statistics for alewife young-of-year in the Hudson River estuary, 1994.	4-67
4-49	Spatiotemporal distribution of young-of-year blueback herring in the Hudson River estuary based on the 1994 Long River Ichthyoplankton Survey.	4-69
4-50	Spatiotemporal distribution of young-of-year blueback herring in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine surveys.	4-70
4-51	Spatiotemporal distribution of yearling and older blueback herring in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine surveys.	4-71
4-52	Geographical distribution indices for young-of-year blueback herring collected during Beach Seine surveys of the Hudson River estuary, 1974-1994.	4-72
4-53	Weekly length statistics for blueback herring young-of-year in the Hudson River estuary, 1994.	4-73
4-54	Spatiotemporal distribution of young-of-year gizzard shad in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine surveys.	4-75
4-55	Spatiotemporal distribution of yearling and older gizzard shad in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine surveys.	4-76
4-56	Geographical distribution indices for gizzard shad collected during Beach Seine surveys of the Hudson River estuary, 1974-1994.	4-77
4-57	Spatiotemporal distribution of egg and yolk-sac stages of rainbow smelt in the Hudson River estuary based on the 1994 Long River Ichthyoplankton Survey.	4-79
4-58	Spatiotemporal distribution of post yolk-sac and young-of-year stages of rainbow smelt in the Hudson River estuary based on the 1994 Long River Ichthyoplankton Survey.	4-80
4-59	Spatiotemporal distribution of young-of-year rainbow smelt in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine surveys.	4-81

LIST OF FIGURES (Continued)

Number	Title	Page
4-60	Spatiotemporal distribution of yearling and older rainbow smelt in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine surveys.	4-82
4-61	Temporal distribution indices for early life stages of rainbow smelt collected during Longitudinal River Ichthyoplankton surveys of the Hudson River estuary, 1974-1994.	4-83
4-62	Geographical distribution indices for early life stages of rainbow smelt collected during Longitudinal River Ichthyoplankton surveys of the Hudson River estuary, 1974-1994.	4-84
4-63	Geographical distribution indices for rainbow smelt collected during Fall Shoals surveys of the Hudson River estuary, 1979-1994.	4-85
4-64	Spatiotemporal distribution of egg and yolk-sac stages of hogchoker in the Hudson River estuary based on the 1994 Long River Ichthyoplankton Survey.	4-87
4-65	Spatiotemporal distribution of post yolk-sac and young-of-year stages of hogchoker in the Hudson River estuary based on the 1994 Long River Ichthyoplankton Survey.	4-88
4-66	Spatiotemporal distribution of young-of-year hogchoker in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine surveys.	4-89
4-67	Spatiotemporal distribution of yearling and older hogchoker in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine surveys.	4-90
4-68	Geographical distribution indices for hogchoker collected during Fall Shoals surveys of the Hudson River estuary, 1979-1994.	4-91
4-69	Spatiotemporal distribution of egg and yolk-sac stages of spottail shiner in the Hudson River estuary based on the 1994 Long River Ichthyoplankton Survey.	4-93
4-70	Spatiotemporal distribution of post yolk-sac and young-of-year stages of spottail shiner in the Hudson River estuary based on the 1994 Long River Ichthyoplankton Survey.	4-94
4-71	Spatiotemporal distribution of young-of-year spottail shiner in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine surveys.	4-95

LIST OF FIGURES (Continued)

Number	Title	Page
4-72	Spatiotemporal distribution of yearling and older spottail shiner in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine surveys.	4-96
4-73	Geographical distribution indices for spottail shiner collected during Beach Seine surveys of the Hudson River estuary, 1974-1994.	4-97
4-74	Weekly length statistics for spottail shiner young-of-year in the Hudson River estuary, 1994.	4-98
4-75	Spatiotemporal distribution of yearling and older Atlantic sturgeon in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine surveys.	4-102
4-76	Spatiotemporal distribution of yearling and older shortnose sturgeon in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine surveys,	4-105
4-77	Spatiotemporal distribution of young-of-year white catfish in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine surveys.	4-107
4-78	Spatiotemporal distribution of yearling and older white catfish in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine surveys.	4-108
4-79	Geographical distribution indices for white catfish collected during Fall Shoals surveys of the Hudson River estuary, 1979-1994.	4-109
4-80	Weekly length statistics for white catfish young-of-year in the Hudson River estuary, 1994.	4-110
4-81	Spatiotemporal distribution of young-of-year stage of weakfish in the Hudson River estuary based on the 1994 Long River Ichthyoplankton Survey.	4-112
4-82	Spatiotemporal distribution of young-of-year weakfish in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine surveys.	4-113
4-83	Spatiotemporal distribution of yearling and older weakfish in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine surveys.	4-114

LIST OF FIGURES (Continued)

Number	Title	Page
4-84	Geographical distribution indices for weakfish collected during Fall Shoals surveys of the Hudson River estuary, 1979-1994.	4-115
4-85	Weekly length statistics for weakfish young-of-year in the Hudson River estuary, 1994.	4-116
4-86	Spatiotemporal distribution of young-of-year bluefish in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine surveys.	4-118
4-87	Geographical distribution indices for young-of-year bluefish collected during Beach Seine surveys of the Hudson River estuary, 1974-1994.	4-120

LIST OF TABLES

Number	Title	Page
1-1	Fish species treated in depth in the 1994 Year Class Report.	1-3
2-1	Strata sampled within the 13 geographic regions of the Hudson River estuary during 1994.	2-5
2-2	Summary of 1994 Hudson River surveys.	2-6
2-3	Summary of 1994 sample collection information by river region and stratum for the Longitudinal River Ichthyoplankton Survey.	2-9
2-4	Specifications of sampling gear used during the 1994 Longitudinal River Ichthyoplankton Survey.	2-12
2-5	Water quality sampling locations during the 1994 Longitudinal River Ichthyoplankton and Fall Shoals surveys.	2-13
2-6	Summary of 1994 sample analysis information by river region and stratum for the Longitudinal River Ichthyoplankton Survey.	2-15
2-7	Specifications of sampling gear used during the 1994 Fall Shoals Survey.	2-21
2-8	Number of biweekly samples collected during the 1994 Fall Shoals Survey.	2-23
2-9	Specifications of sampling gear used during the 1994 Beach Seine Survey.	2-25
2-10	Number of biweekly samples collected during the 1994 Beach Seine Survey.	2-27
2-11	Stratum and region volumes (m^3) and surface areas (m^2) used in analysis of 1994 Hudson River estuary data.	2-31
4-1	Species composition of fish collected during Hudson River studies from 1974 to 1994.	4-3
4-2	Species composition of fish collected in each of the Hudson River surveys during 1994.	4-7
4-3	Collections of Atlantic sturgeon during the 1994 Hudson River surveys.	4-101
4-4	Collections of shortnose sturgeon during the 1994 Hudson River surveys.	4-104

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

The 1985 Year Class Report (Versar 1987) described the results from the 1985 Longitudinal River Ichthyoplankton 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

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 and 1993 Year Class reports (Con Edison 1996, 1997) presented results from the 1992 and 1993 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 1994. The 1994 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 1994.

- Describe the distribution and abundance of 16 selected species of fish (Table 1-1) in the Hudson River estuary in 1994 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, 1988-1994.

TABLE 1-1 FISH SPECIES[a] TREATED IN DEPTH IN THE 1994 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 NYSDEC 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:

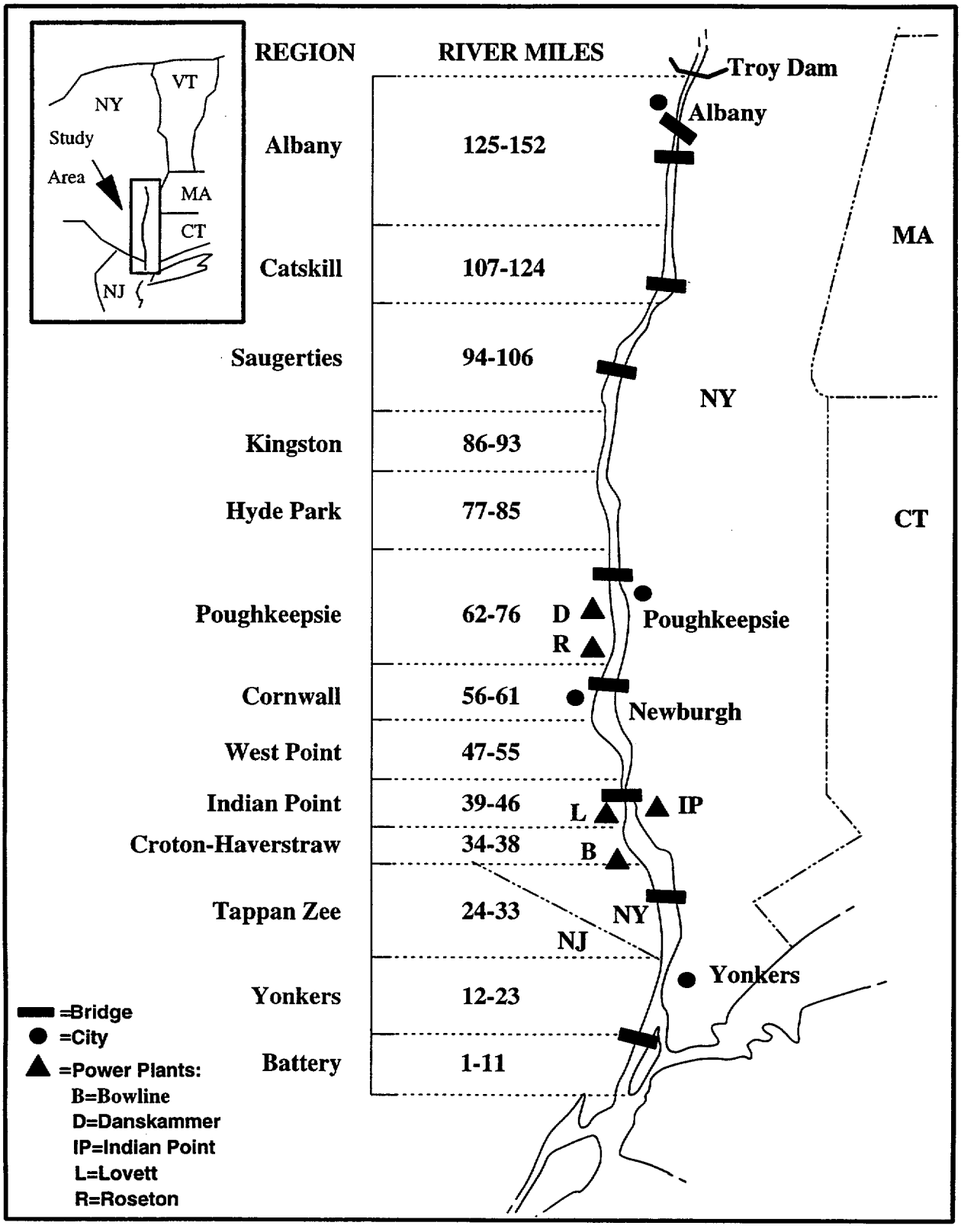


Figure 2-1. Location of 13 geographic regions (with river mile boundaries) sampled during 1994 field sampling programs in the Hudson River estuary.

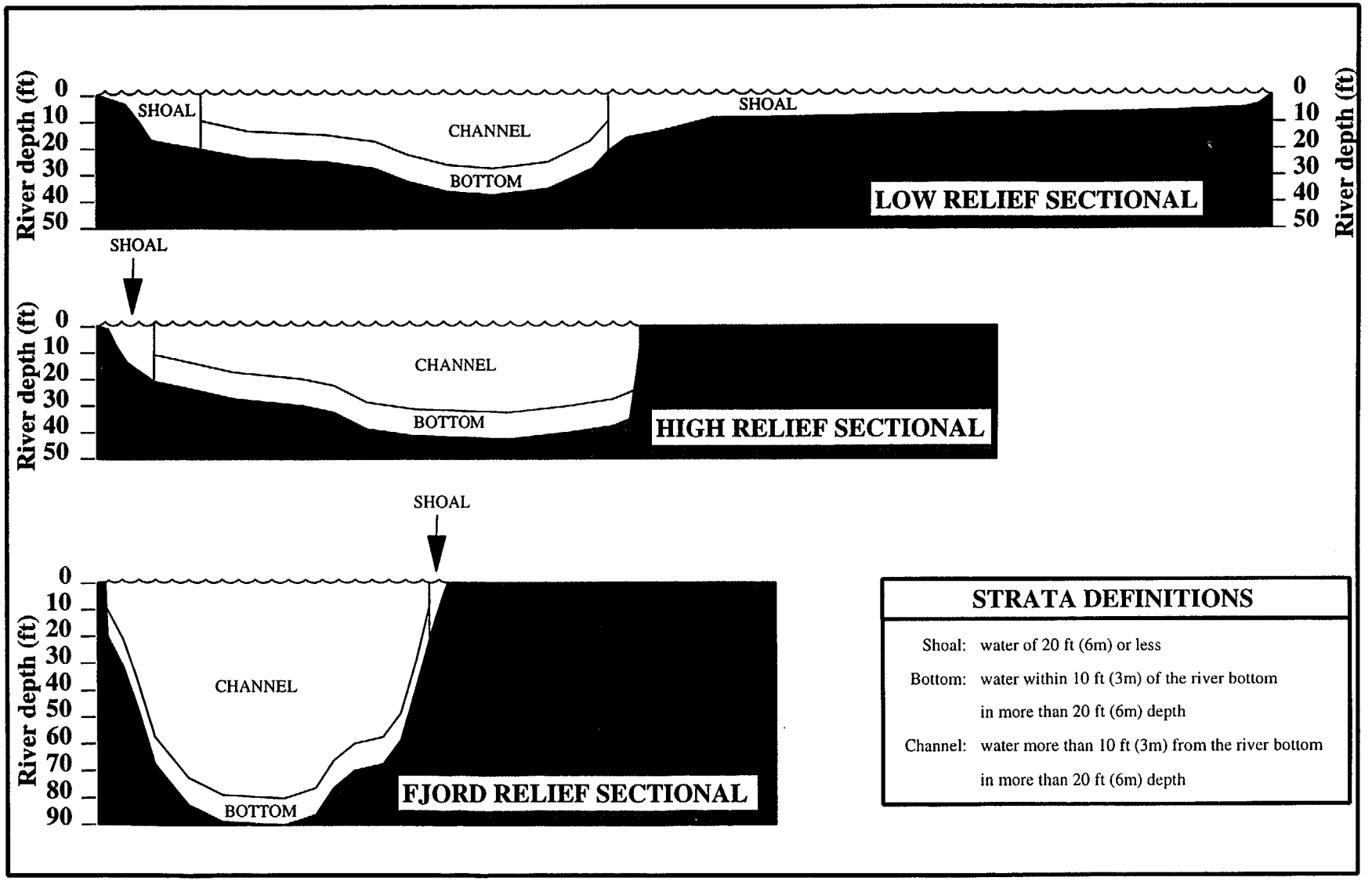


Figure 2-2. Cross sections of the Hudson River estuary showing locations and typical proportional relationships of the shoal, bottom, and channel strata.

- **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 Battery region during the first half of the LRS (11 April through 4 June) or in the Hyde Park through Albany regions during the final 7 weeks of the LRS (12 July through 5 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 1994 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 1994 LRS covered 26 weeks from 11 April to 5 October (Table 2-2 and Figure 2-3) with all sampling conducted at night. Sampling was conducted weekly for the first 8 weeks between RM 12 and RM 152. For the next 5 consecutive weeks, sampling encompassed RM 1 - RM 152. Beginning the week of 11 July and ending the week of 3 October, sampling was conducted biweekly between RM 1 and 76. Between 23 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 1994 LRS sampling program was scheduled as five separate multiweek efforts. The first, which covered the last 3 weeks

TABLE 2-1 STRATA SAMPLED WITHIN THE 13 GEOGRAPHIC REGIONS OF THE HUDSON RIVER ESTUARY DURING 1994

Region	Abbreviation	River Miles	River Kilometers	1994 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.

TABLE 2-2 SUMMARY OF 1994 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	11 APR	5 OCT	20	Weekly/ Biweekly	Shoal	502	501	415	1.0-m^2 net on epibenthic sled or 1.0-m^2 Tucker trawl
					Channel	1,687[a]	1,687	785	1.0-m^2 Tucker trawl
					Bottom	1,157	1,156	786	1.0-m^2 net on epibenthic sled
Fall Shoals Survey	18 JUL	27 OCT	8	Biweekly	Shoal	512	512		3.0-m beam trawl
					Channel	440	440		1.0-m^2 Tucker trawl
					Bottom	728	729		3.0-m beam trawl
Beach Seine Survey	27 JUN	2 NOV	10	Biweekly	Shore	1,000	1,000		30.5-m beach seine

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

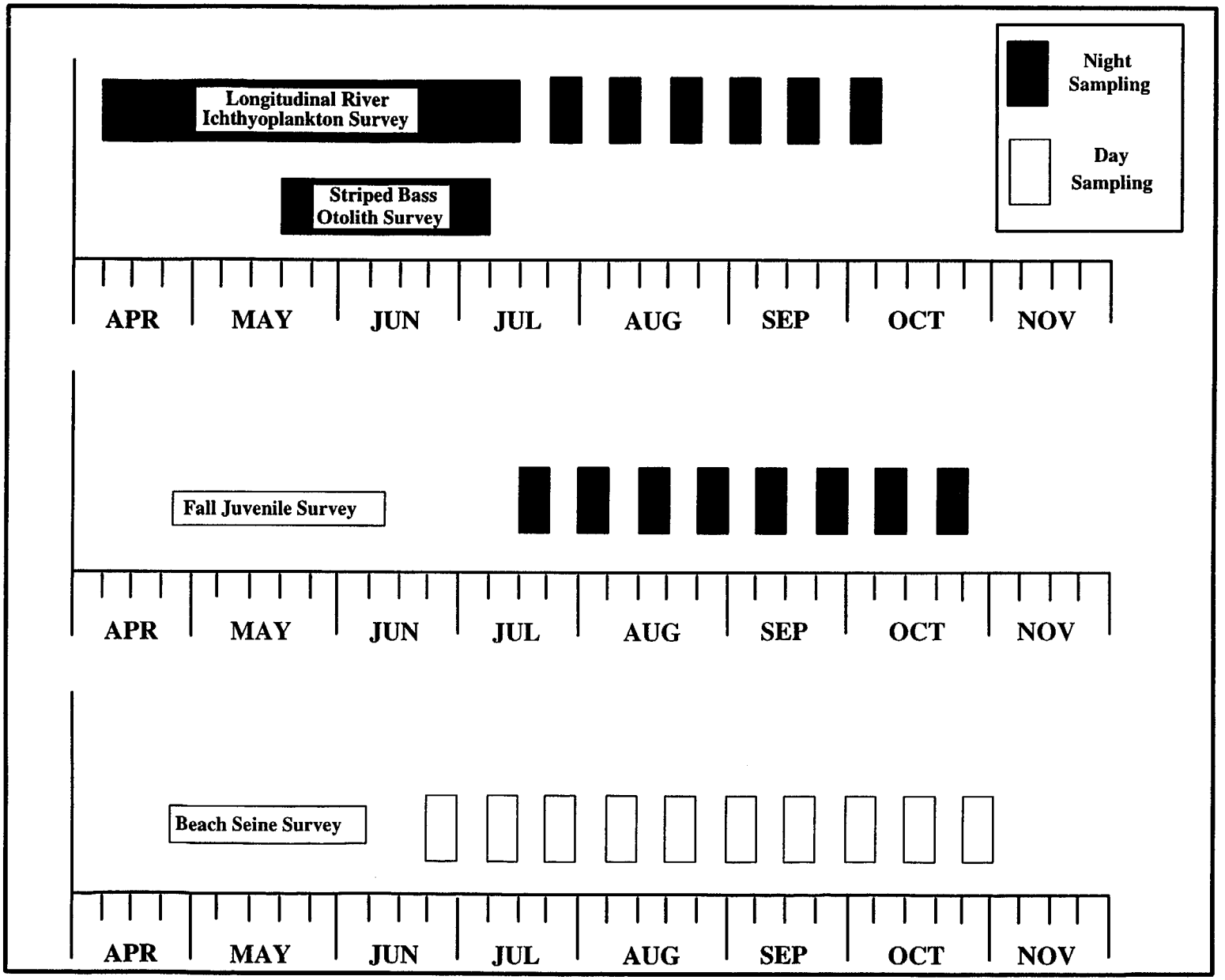


Figure 2-3. Sampling schedule for 1994.

of April, was directed toward the collection of American shad eggs. The second effort covered the first 2 weeks of May and was designed to collect eggs of *Morone* spp. and American shad. The third effort encompassed the next 3 weeks from the middle of May through the beginning of June and targeted *Morone* spp. and American shad yolk-sac larvae (YSL). The fourth effort consisted of 5 weeks extending from the middle of June through the second week in July. This sampling effort was designed to collect *Morone* spp. and American shad post yolk-sac larvae (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 1994, 3,346 ichthyoplankton samples (including 141 striped bass otolith aging samples) were scheduled for collection; 3,344 samples were collected, accounting for 99.94 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 1994 LRS. Physical/chemical measurements were recorded from surface, middepth, and bottom water depth at channel stations and from the surface and bottom water depth at shoal stations. During the 20 collection weeks of the 1994 LRS, 2,899 samples were scheduled, with 2,900 samples actually collected.

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

TABLE 2-3 SUMMARY OF 1994 SAMPLE COLLECTION INFORMATION BY RIVER REGION AND STRATUM FOR THE LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY

	3-Week Period from 11 APR to 30 APR					2-Week Period from 2 MAY to 13 MAY					3-Week Period from 16 MAY to 4 JUN				
	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	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Yonkers	6	6	9	8	29	4	2	6	6	18	6	3	9	9	27
Tappan Zee	12	9	12	12	45	4	2	6	8	20	6	3	12	12	33
Croton-Haverstraw	18	12	12	12	54	8	4	12	6	30	9	6	14	12	41
Indian Point	6	6	9	9	30	6	2	50	14	72	6	3	48	18	75
West Point	--	--	9	9	18	--	--	62	8	70	--	--	79	21	100
Cornwall	9	6	9	9	33	6	4	10	24	44	9	6	19	27	61
Poughkeepsie	--	--	9	10	19	--	--	20	20	40	--	--	76	48	124
Hyde Park	--	--	21	9	30	--	--	22	18	40	--	--	42	21	63
Kingston	--	--	18	24	42	--	--	14	12	26	--	--	18	12	30
Saugerties	--	--	18	30	48	--	--	6	6	12	--	--	9	15	24
Catskill	--	--	30	60	90	--	--	6	6	12	--	--	9	9	18
Albany	--	--	45	96	141	--	--	10	10	20	--	--	9	9	18
Total	51	39	201	288	579	28	14	224	138	404	36	21	344	213	614

	5-Week Period from 6 JUN to 8 JUL					13-Week Period from 12 JUL to 5 OCT				
	Shoal		Channel	Bottom		Shoal		Channel	Bottom	
Region	Sled	Trawl	Trawl	Sled	Total	Sled	Trawl	Trawl	Sled	Total
Battery	--	--	20	10	30	--	--	56	21	77
Yonkers	10	10	35	30	85	14	14	49	21	98
Tappan Zee	10	10	33	25	78	28	21	28	21	98
Croton-Haverstraw	15	10	40	30	95	42	28	28	21	119
Indian Point	14	10	100	24	148	14	14	21	21	70
West Point	--	--	150	40	190	--	--	21	21	42
Cornwall	10	10	80	60	160	14	14	21	21	70
Poughkeepsie	--	--	90	35	125	--	--	21	21	42
Hyde Park	--	--	55	25	80	--	--	--	--	--
Kingston	--	--	30	20	50	--	--	--	--	--
Saugerties	--	--	10	20	30	--	--	--	--	--
Catskill	--	--	15	15	30	--	--	--	--	--
Albany	--	--	15	15	30	--	--	--	--	--
Total	59	50	673	349	1131	112	91	245	168	616

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

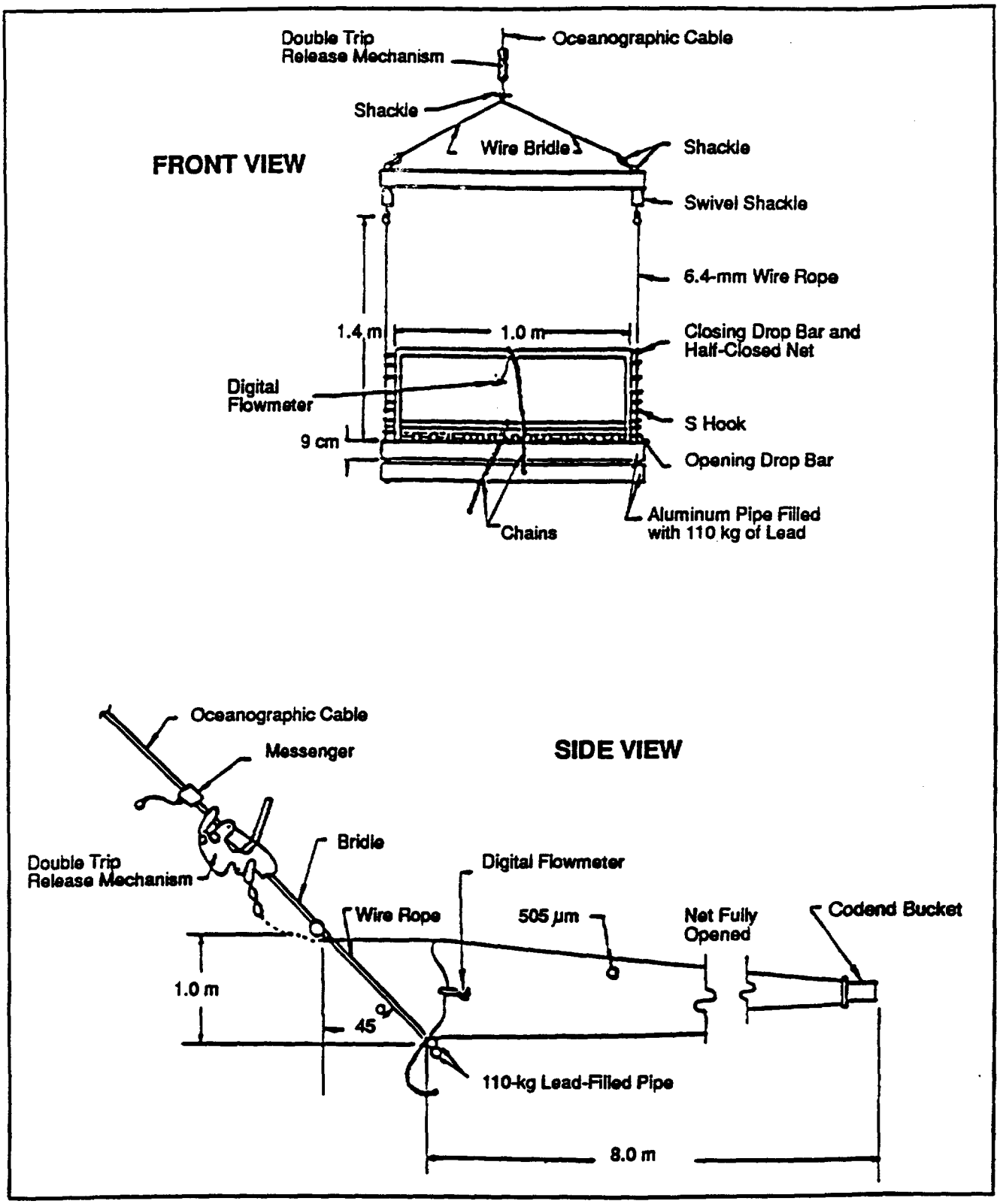


Figure 2-4. Design and dimensions of 1.0-m^2 Tucker trawl.

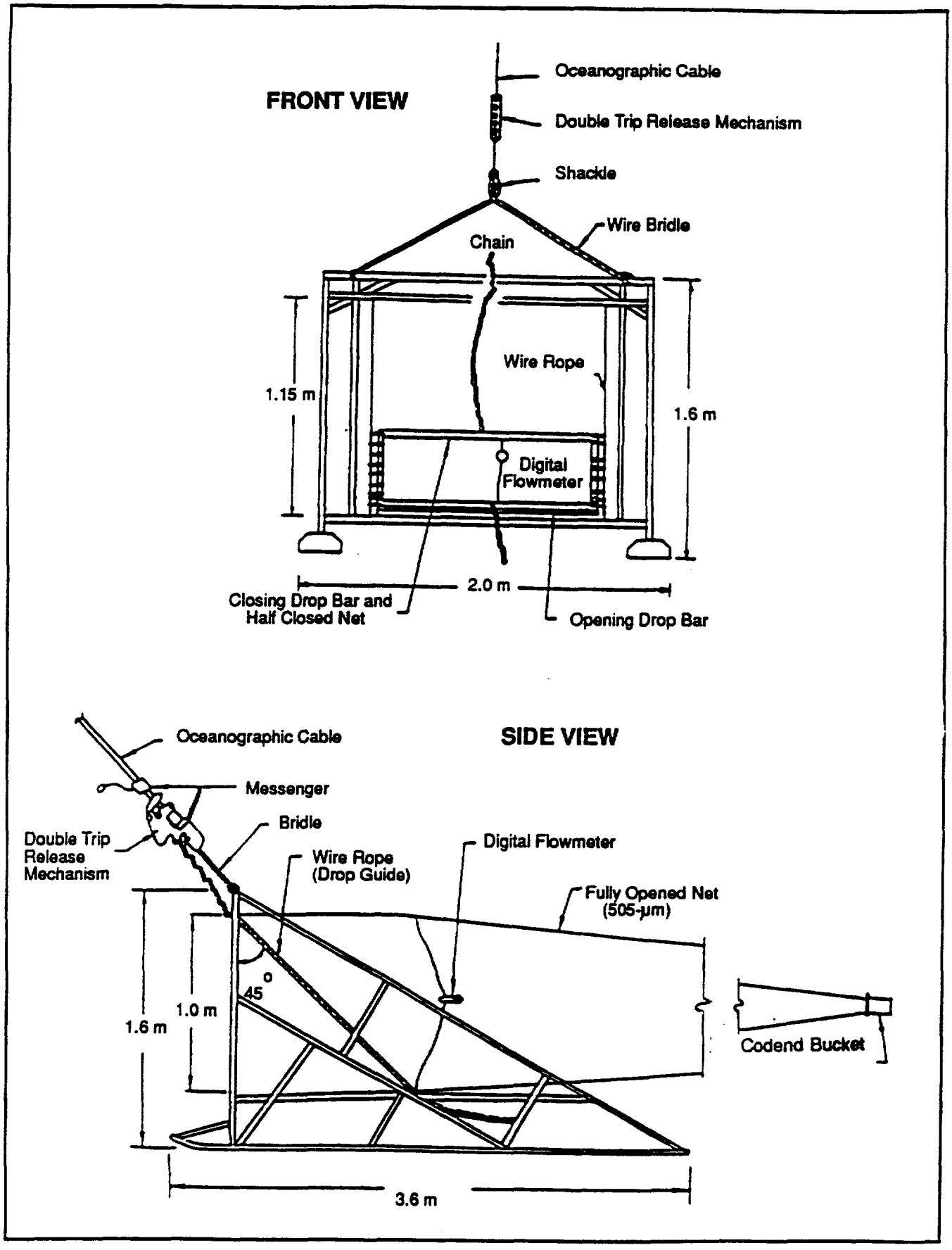


Figure 2-5. Design and dimensions of 1.0-m^2 Tucker trawl mounted on an epibenthic sled.

TABLE 2-4 SPECIFICATIONS OF SAMPLING GEAR USED DURING THE 1994 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)

TABLE 2-5 WATER QUALITY SAMPLING LOCATIONS DURING THE 1994 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	
Yonkers	19	14, 17, 19, 22	16
Tappan Zee	29	25, 27, 29, 32	16
Croton-Haverstraw	36	35, 36, 37, 38	16
Indian Point	43	40, 42, 43, 46	16
West Point	--	49, 51, 53, 55	12
Cornwall	59	56, 57, 59, 61	16
Poughkeepsie	--	63, 67, 71, 75	12
Hyde Park	--	78, 80, 82, 84	12
Kingston	--	87, 89, 91, 93	12
Saugerties	--	96, 99, 102, 105	12
Catskill	--	109, 114, 118, 122	12
Albany	--	126, 131, 135, 138, 142	15
Total			167[b]

a. Sample collected from east and west shoals at designated river mile.
b. For weeks when Longitudinal River Ichthyoplankton Survey sampling was not conducted north of Poughkeepsie (RM 76), the total number of water quality samples scheduled per river run was 104.

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

2.2.2 Laboratory Methods

In 1994, approximately 60 percent of the regular LRS samples were scheduled for analysis. Selection of samples for laboratory analysis began with the grouping of all samples according to river run, region, and strata. Based on these groupings, samples were selected based on one of the following criteria:

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

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

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

The allocation of samples for laboratory analysis among regions, strata, and gear types based on these criteria is listed in Table 2-6. The total number of analyzed samples was 1,986, comprising 62 percent of the collected samples (excluding those collected for otolith analysis).

In 1994, 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 11 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.

TABLE 2-6 SUMMARY OF 1994 SAMPLE ANALYSIS INFORMATION BY RIVER REGION AND STRATUM FOR THE LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY

	3-Week Period from 11 APR to 30 APR					2-Week Period from 2 MAY to 13 MAY					3-Week Period from 16 MAY to 4 JUN				
	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	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Yonkers	6	6	9	8	29	4	2	6	6	18	6	3	8	9	26
Tappan Zee	8	4	12	12	36	4	2	6	8	20	6	3	11	12	32
Croton--Haverstraw	7	8	12	12	39	4	2	6	6	18	9	6	12	12	39
Indian Point	6	6	9	9	30	6	2	10	8	26	6	3	9	9	27
West Point	--	--	9	9	18	--	--	12	8	20	--	--	15	12	27
Cornwall	9	6	9	9	33	6	4	10	12	32	9	6	14	15	44
Poughkeepsie	--	--	9	9	18	--	--	10	10	20	--	--	12	9	21
Hyde Park	--	--	12	9	21	--	--	12	10	22	--	--	18	12	30
Kingston	--	--	9	12	21	--	--	8	6	14	--	--	9	11	20
Saugerties	--	--	9	15	24	--	--	6	6	12	--	--	9	15	24
Catskill	--	--	15	12	27	--	--	6	6	12	--	--	9	9	18
Albany	--	--	9	18	27	--	--	10	10	20	--	--	9	9	18
Total	36	30	123	134	323	24	12	102	96	234	36	21	135	134	326

	5-Week Period from 6 JUN to 8 JUL					13-Week Period from 12 JUL to 5 OCT				
	Shoal		Channel	Bottom		Shoal		Channel	Bottom	
Region	Sled	Trawl	Trawl	Sled	Total	Sled	Trawl	Trawl	Sled	Total
Battery	--	--	20	10	30	--	--	28	21	49
Yonkers	10	10	20	15	55	14	14	28	21	77
Tappan Zee	10	10	25	25	70	17	11	28	21	77
Croton-Haverstraw	15	10	15	15	55	19	16	28	21	84
Indian Point	14	10	15	24	63	14	14	21	21	70
West Point	--	--	25	20	45	--	--	21	21	42
Cornwall	10	10	15	30	65	14	14	21	21	70
Poughkeepsie	--	--	15	20	35	--	--	21	21	42
Hyde Park	--	--	25	25	50	--	--	--	--	--
Kingston	--	--	15	20	35	--	--	--	--	--
Saugerties	--	--	10	20	30	--	--	--	--	--
Catskill	--	--	15	14	29	--	--	--	--	--
Albany	--	--	15	15	30	--	--	--	--	--
Total	59	50	230	253	592	78	69	196	168	511

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

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

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

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

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

where

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

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

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

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

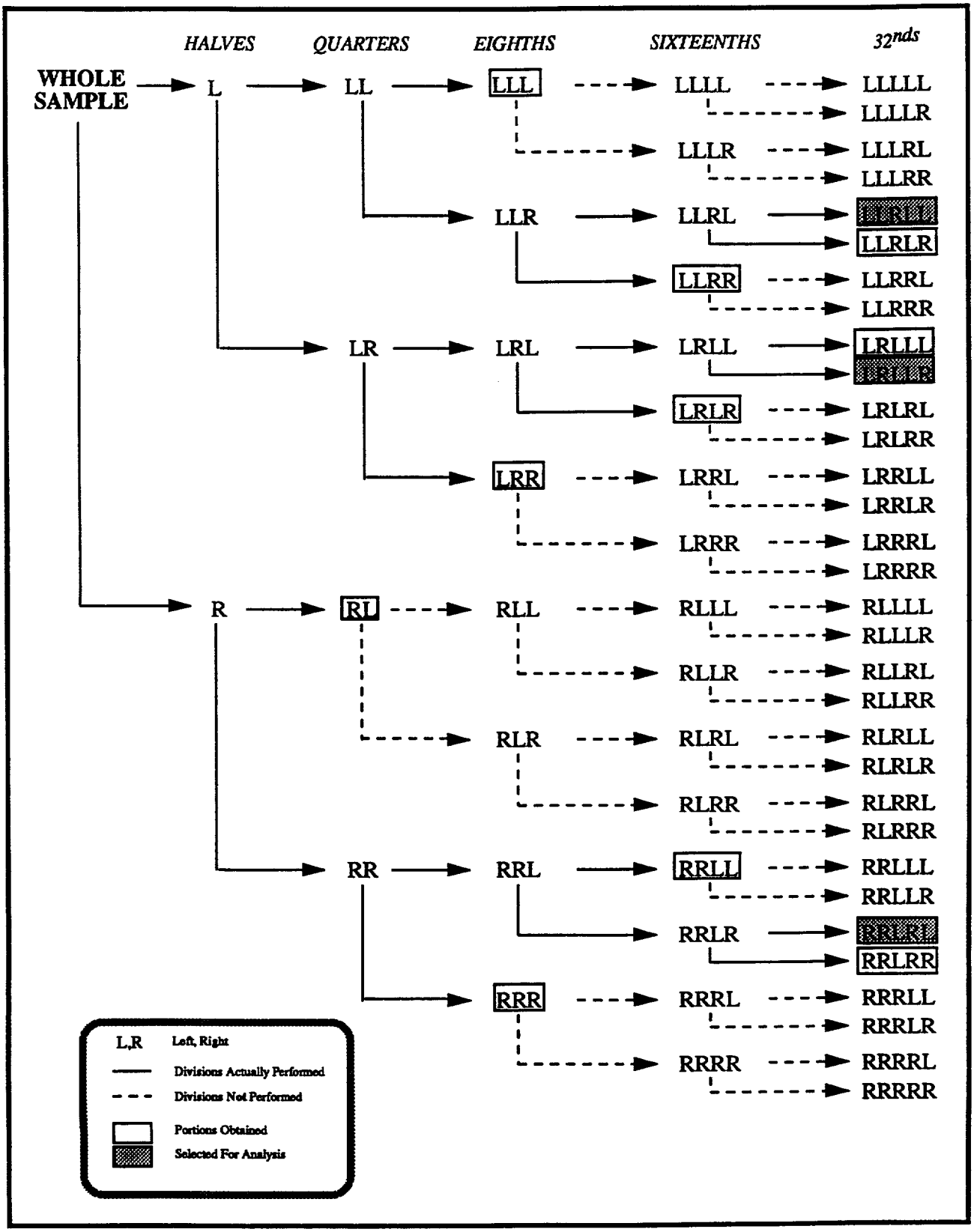


Figure 2-6. Conceptual diagram of the splitting process.

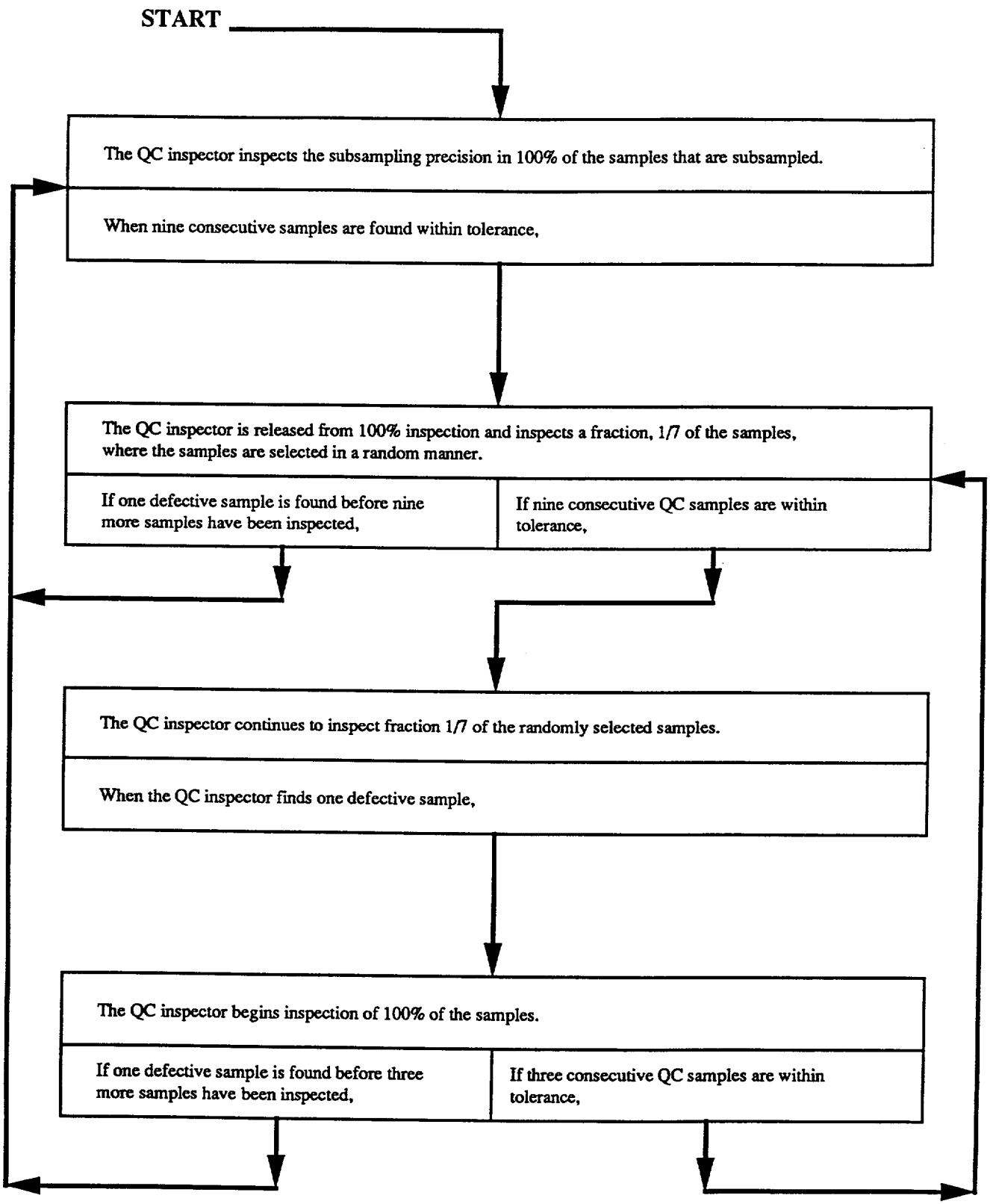


Figure 2-7. Inspection plan for evaluation of splitting precision.

Whenever possible, a maximum of 30 striped bass, 30 white perch, and 30 American shad per sample were measured. Organisms were chosen at random from each taxon regardless of life stage until the required number were obtained; life stages to be included were YSL, PYSL, and YOY. In addition, 30 striped bass eggs were measured and an aggregate dry weight taken from each of the 5 samples with the greatest number of striped bass eggs. Eggs (diameter) and YSL and PYSL (total length) were measured to the nearest 0.1 mm and YOY to the nearest 1 mm. Measurements were recorded on the laboratory data sheet. Selection of specimens for measuring was randomized by spreading them uniformly in a gridded container, selecting a starting point in the grid by means of a random number table, and then measuring the first 30 measurable specimens encountered in a predetermined pattern commencing at the starting point. Every grid space had an equal probability of being selected as the starting point, so every specimen had an equal probability of being included in the subsample.

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

Mode 1—The first eight samples sorted or analyzed for larval identification by an individual are subject to 100 percent QC reanalysis. If all eight pass the reanalysis, i.e., if $\leq$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 1994 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.

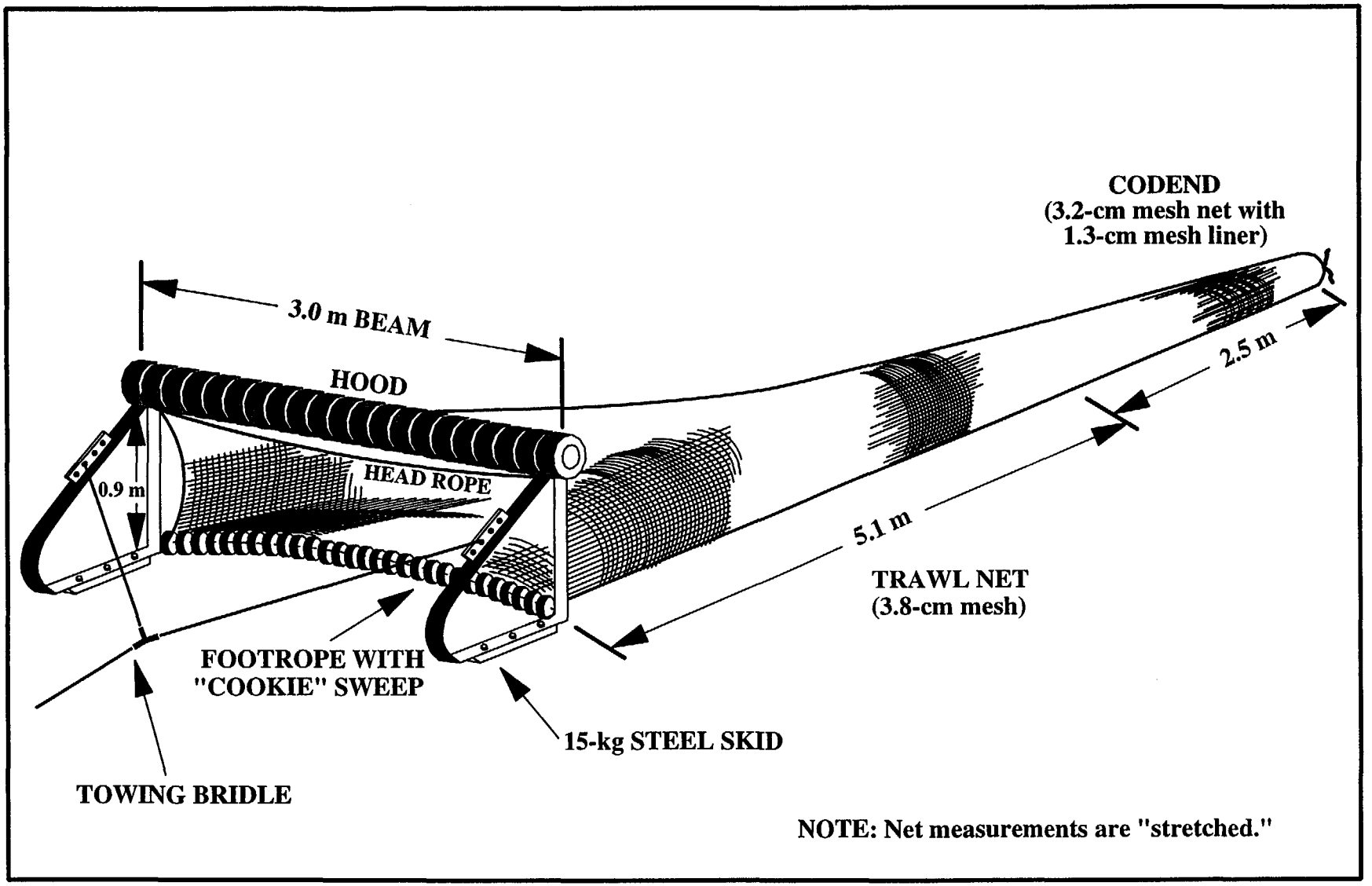


Figure 2-8. Design and dimensions of the 3.0-m beam trawl used in the 1994 Fall Shoals Survey.

TABLE 2-7 SPECIFICATIONS OF SAMPLING GEAR USED DURING THE 1994 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

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. 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 1994 FSS biweekly sampling program covered 15 weeks from 18 July to 27 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 by stratum. In 1994, 1,680 samples were scheduled for collection; 1,681 samples, greater than 100.0 percent of the scheduled number, were actually collected.

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 1994 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 1994 FSS, 1,336 samples were scheduled and 1,336 samples were actually collected, or 100.0 percent of the number of samples scheduled for collection.

Samples collected during the first two sampling periods (River Runs 1 and 2) for the 1994 FSS program were preserved with 10 percent formalin at the time of collection and returned to the laboratory for analysis. Before preservation, samples were examined for sturgeon determined to be yearling or older, based on length categorization; live fish were returned to the river. Samples from the first two river runs were returned to the laboratory for analysis because of the difficulty in differentiating some species, especially YOY *Morone* (striped bass, white perch) and *Alosa* (alewife, blueback herring).

Samples collected following the second biweekly sampling period were evaluated in the field; only fish required to fill length measurement quotas were returned to the laboratory. The quota was to be 20 specimens of a selected species from each river region per run; because of the necessity of returning fish to the river alive, the first 20 specimens of a selected species were brought to the laboratory for length measurements. In 1994, 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

TABLE 2-8 NUMBER OF BIWEEKLY SAMPLES COLLECTED DURING THE 1994 FALL SHOALS SURVEY

18 July - 27 October

Region	Strata: Shoal (Beam Trawl)	Strata: Channel (Tucker Trawl)	Strata: 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	73	121
Saugerties	--	48	96	144
Catskill	--	48	120	168
Albany	--	40	64	104
Total	512	440	729	1,681[a]

a. All samples collected at night.

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

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.

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.

TABLE 2-9 SPECIFICATIONS OF SAMPLING GEAR USED DURING THE 1994 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

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 1994 BSS biweekly sampling program was conducted from 27 June through 2 November (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 1994 BSS are presented in Table 2-10. All of the scheduled 1,000 samples projected for collection in 1994 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 1994 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 1994 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; 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 1994 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).

TABLE 2-10 NUMBER OF BIWEEKLY SAMPLES COLLECTED DURING THE 1994 BEACH SEINE SURVEY

27 June - 2 November

Region	Number of Beaches Sampled
Yonkers	44
Tappan Zee	201
Croton-Haverstraw	119
Indian Point	44
West Point	44
Cornwall	51
Poughkeepsie	59
Hyde Park	59
Kingston	59
Saugerties	108
Catskill	127
Albany	85
Total	1,000

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

where

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

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

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

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

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

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

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

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

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

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.

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

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.

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

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.

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

where

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

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

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

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

* 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.

TABLE 2-11 STRATUM AND REGION VOLUMES (m^3) AND SURFACE AREAS (m^2) USED IN ANALYSIS OF 1994 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).

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

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:

$$C_{rw} = \frac{1}{n_{rw}} \sum_{i=1}^{n_{rw}} C_{irw} \quad (9)$$

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.

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

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.

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

where

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

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

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

where

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

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

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

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

where

SC_w = Standing crop index for week w. 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.

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

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).

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

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).

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

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 1994 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).

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, Atlantic tomcod, bay anchovy, American shad, alewife, blueback herring, gizzard shad, spottail shiner, and bluefish. The FSS was used to calculate geographical distributional indices for rainbow smelt, hogchoker, white catfish, and weakfish.

The periods used for the LRS and BSS spanned 1974-1994, whereas the time period for the FSS extended from 1979 (when the FSS sampled the river from RM 12 to RM 152) through 1994. Temporal and geographic indices for bay anchovy from the LRS used the period from 1989 to 1994, 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:

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

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):

$$T_{wy} = \frac{SC_{wy}}{\sum_{w=1}^{n_y} SC_{wy}} \qquad (20)$$

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.

CHAPTER 3
PHYSICAL/CHEMICAL PARAMETERS

This chapter provides information on the parameters of temperature, salinity, and dissolved oxygen as measured during the 1994 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

During 1994, daily freshwater flow as estimated by the U.S. Geological Survey for the gauging station at Green Island, New York, ranged from approximately 200 to 2,600 m^3/sec/day (Figure 3-1). The primary peak in daily flows occurred between late March and early May with flows of 1,000-2,600 m^3/sec/day. Smaller secondary peaks of 600-800 m^3/sec/day occurred in July, August, and late November - early December. Periods of low daily flows of approximately 200 m^3/sec/day occurred during the rest of the year (Figure 3-1, Appendix Table B-1). The 1994 monthly freshwater flow rates differed from the long-term monthly average (1947-1993) flow rates due to higher than average flows occurring in April (Figure 3-1, Appendix Table B-2). During the other months of 1994, monthly mean flows were generally consistent with the long-term monthly mean flows.

3.2 POUGHKEEPSIE WATERWORKS TEMPERATURES

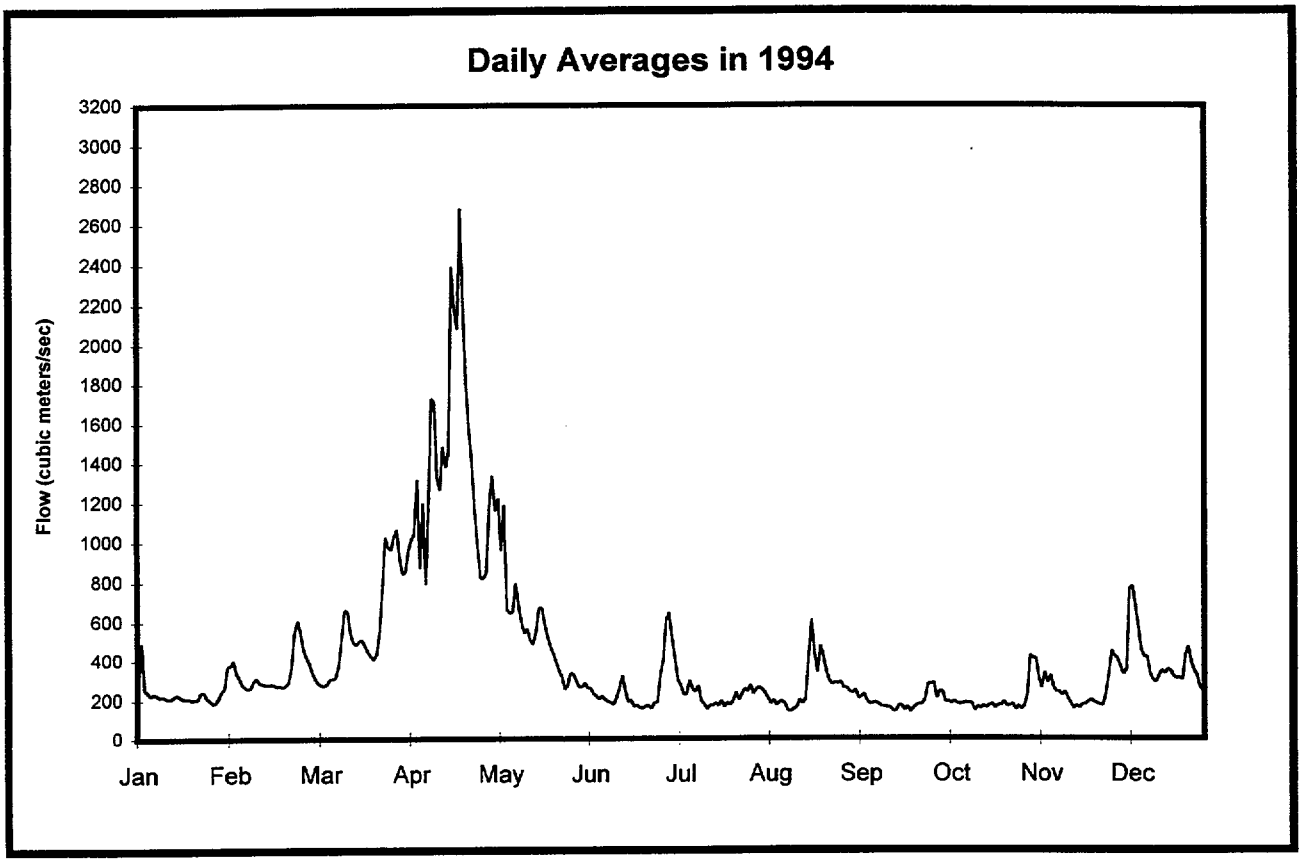
Long-term (1951-1994) daily temperature records are available from the Poughkeepsie Waterworks, located just north of the City of Poughkeepsie, New York, at RM 76. The lowest recorded temperature in 1994 was 0.3°C in January (Appendix Table B-4). Water temperatures in 1994 remained relatively low (<3°C) through March. Water temperature began increasing in April and reached a high of 27.1°C in late July. Temperatures started to decline following the July peak (Figure 3-2).

The 1994 mean water temperature profile generally resembles the long-term pattern (Figure 3-2). However, water temperatures during March through mid-April in 1994 remained cooler than the long-term average. By mid-June, contrastingly, 1994 water temperatures were warmer than the long-term average and even exceeded the long-term maximum for July. During the late summer season, water temperatures were cooler than the long-term average. Fall temperatures were on par with the 1951-1993 long-term average.

3.3 HUDSON RIVER SURVEYS

3.3.1 Spatiotemporal Pattern in Temperature

Mean weekly water temperature measured during the 1994 LRS/FSS increased from the beginning of sampling in April 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



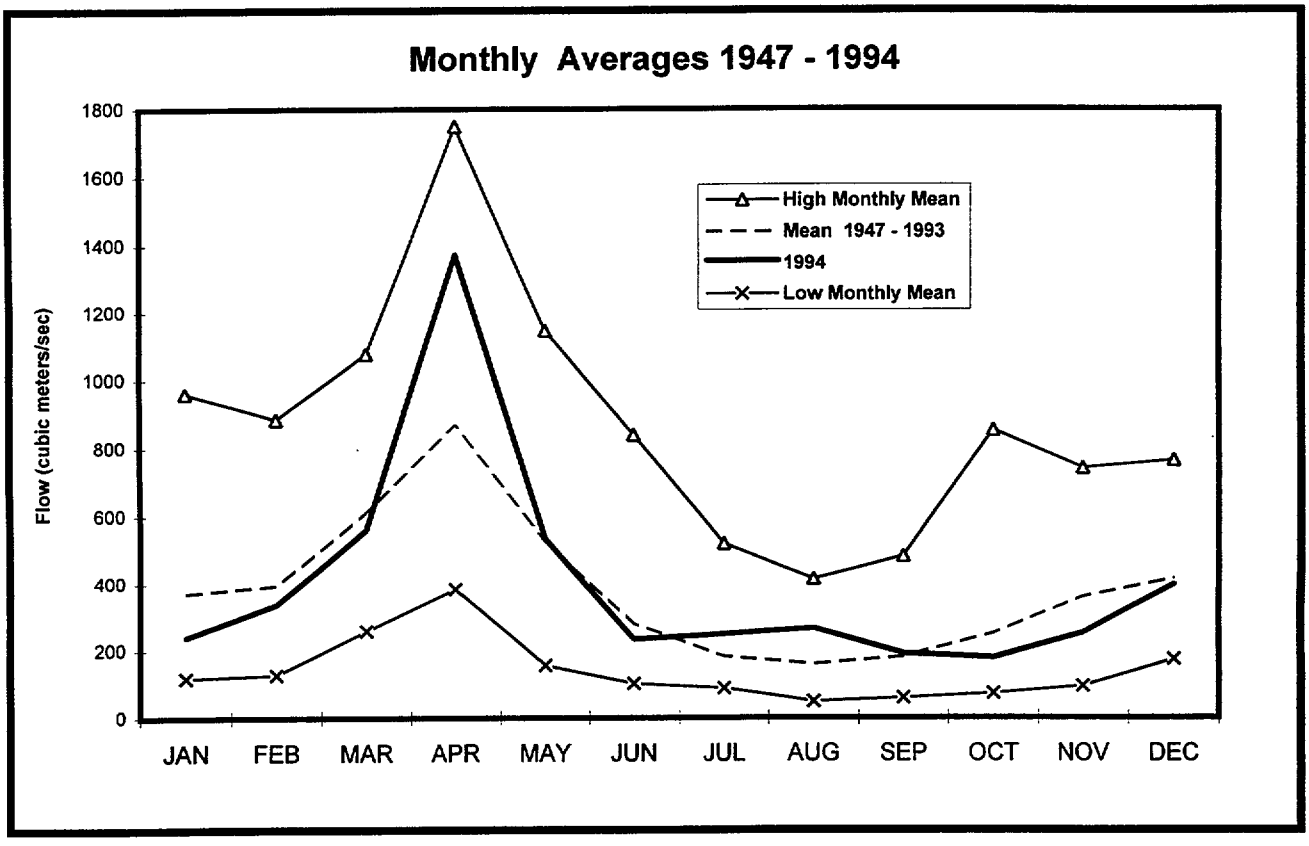


Figure 3-1. Hudson River daily average flow rate in 1994 and monthly average flow rates from 1947 to 1994, Green Island Dam, Troy, New York.

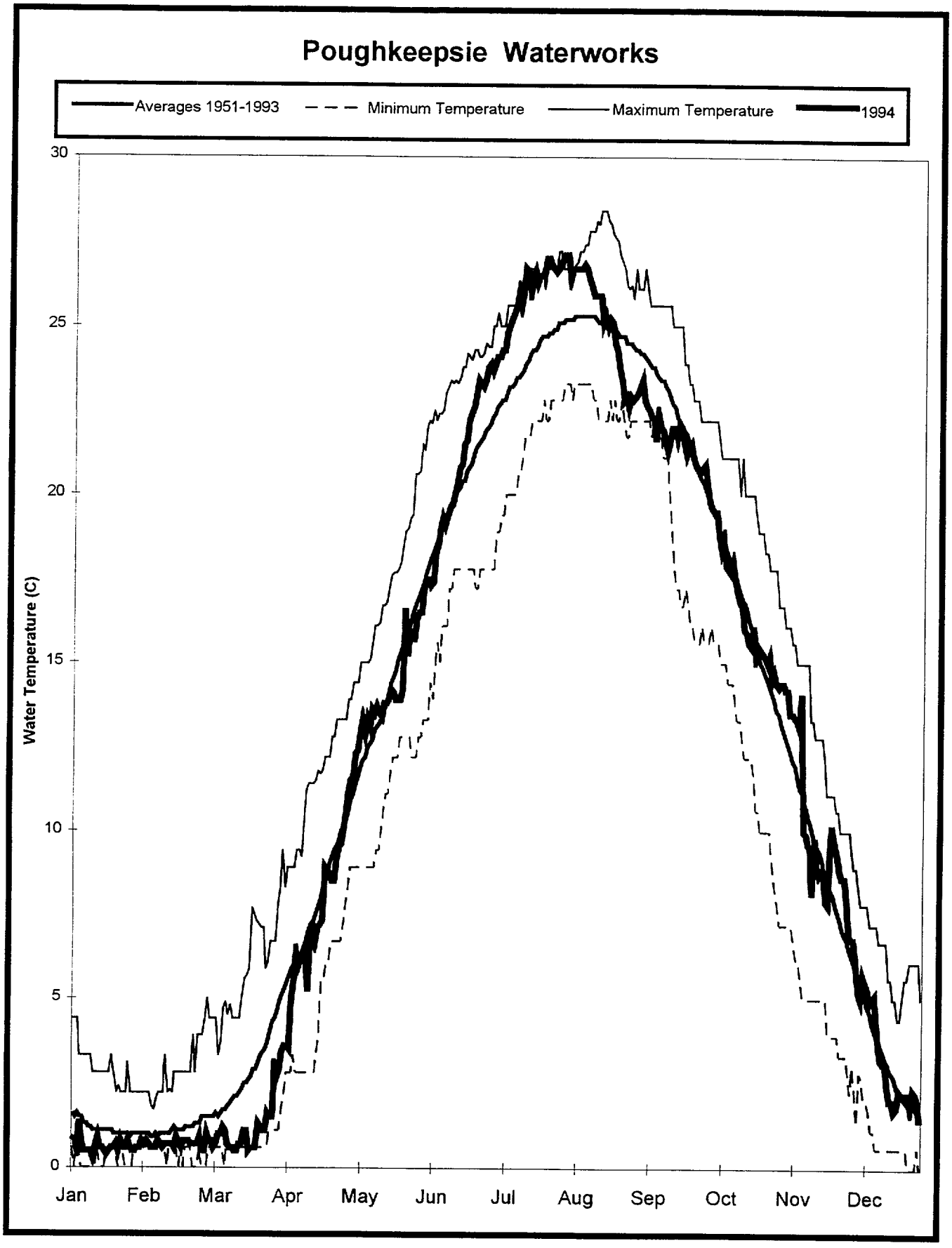


Figure 3-2. Seasonal variations in water temperature from 1951 to 1994.
Source: Poughkeepsie Waterworks.

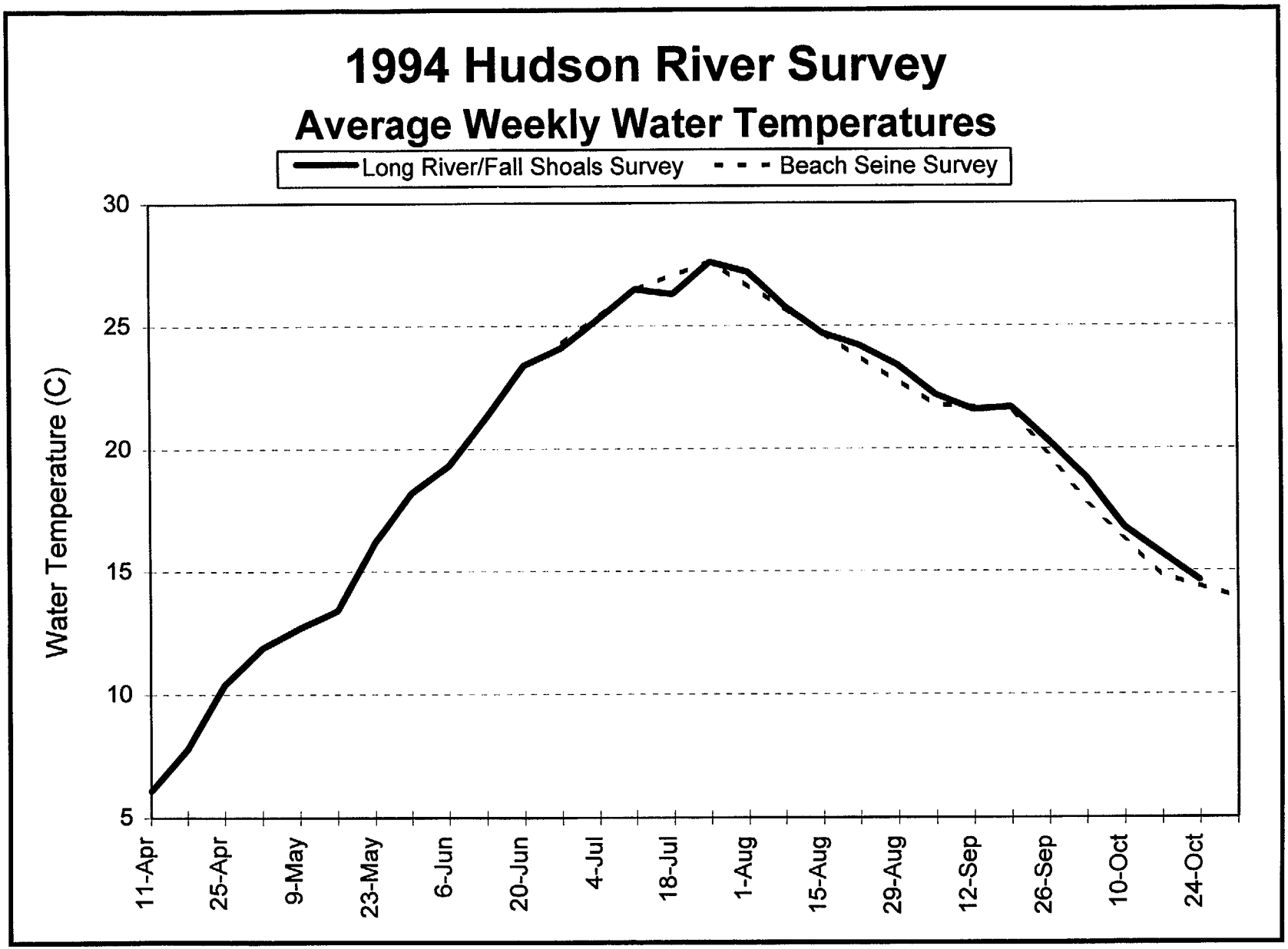


Figure 3-3. Seasonal variations in water temperature from the 1994 Hudson River surveys, RM 12 - RM 152.

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 25 July, as with Poughkeepsie Waterworks, when the river-wide mean temperature was 27.6°C and regional mean values were between 27.1 and 28.0°C (Appendix Table B-5). Lowest values occurred during the first week of sampling when the mean river-wide temperature was 6.1°C (Poughkeepsie Waterworks daily temperatures were 5.2-7.1°C) and regional mean temperatures ranged from 5.1 to 7.2°C.

Temporal patterns in the 1994 BSS temperature data are in close agreement with LRS/FSS measurements (Figure 3-3). Mean weekly regional temperatures reached a peak of over 28°C in the Tappan Zee, Indian Point, and Catskill regions during the 25 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°C were recorded from the uppermost river regions during the last week of sampling that began on 31 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 1994, salinity values were lowest at the beginning of sampling in April as observed previously, but by late May, salinity became established at levels that fluctuated very little until the end of sampling in October (Figure 3-4, Appendix Table B-7).

Salinity in the lower river regions increased after freshwater flow declined in mid-May and remained high through October. Salinity values generally increase during the summer months, because freshwater flows are often at their lowest point during this time. Low flows resulted in salinities generally over 10 ppt in the Yonkers region from mid-May until the end of sampling, except for a period in late August that followed a secondary peak in freshwater flow (Figure 3-4, Appendix Table B-7). Mean salinity levels remained below 0.3 ppt north of the West Point region.

The spatiotemporal pattern of salinity observed during the 1994 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 (1.2-12.0 ppt from West Point to Yonkers) were recorded during the week of 31 October and lowest values (0.3-7.7 ppt from West Point to Yonkers) were observed during the week of 25 July. 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 1994, dissolved oxygen, as recorded in the LRS/FSS, declined from peak mean weekly regional values of 12.5-13.9 mg/L on 11 April to minimum mean levels of 5.1-7.62 mg/L in early August when temperatures and salinity were elevated (Figure 3-5, Appendix Table B-9).

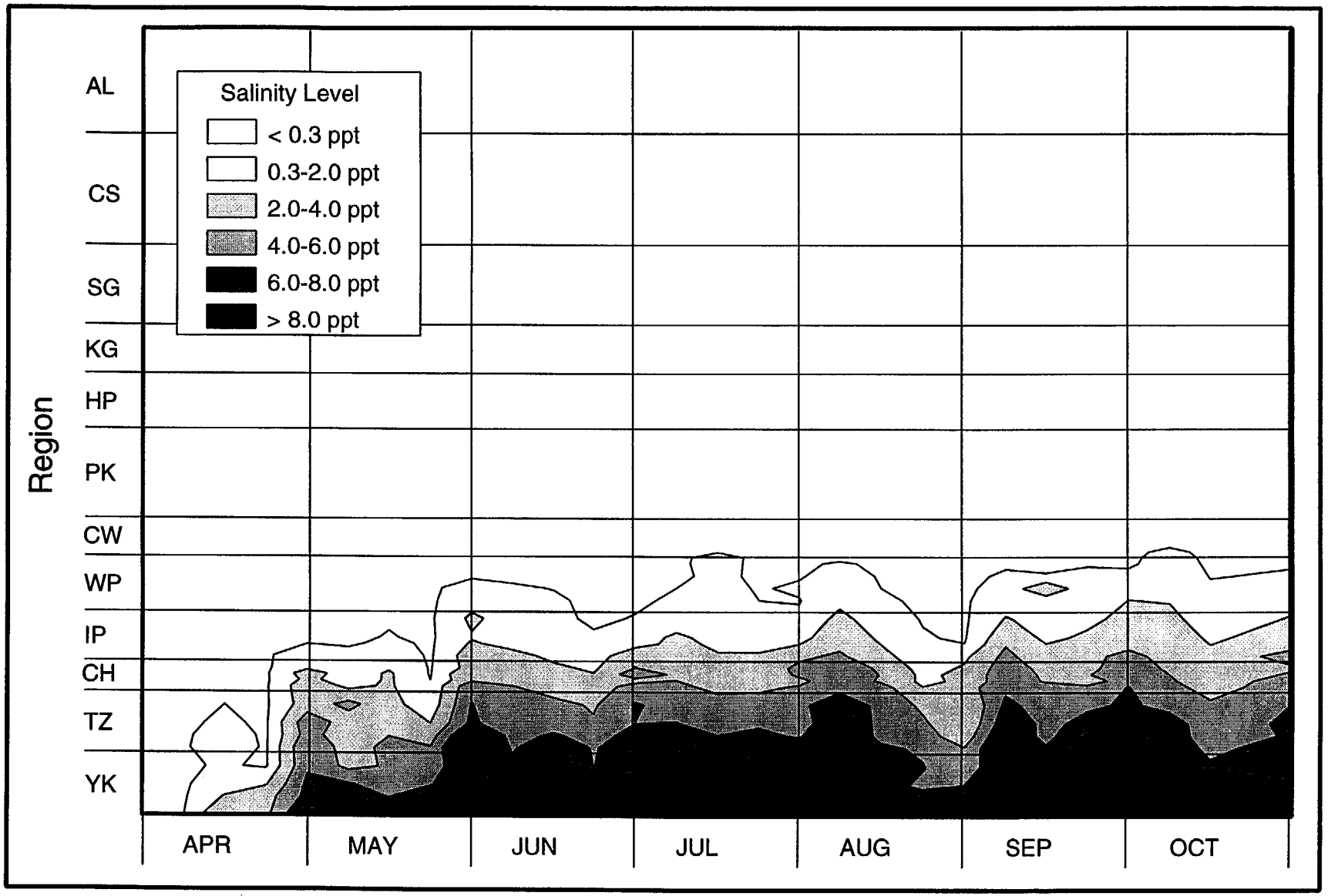


Figure 3-4. Seasonal variations in salinity based on the 1994 Longitudinal River Ichthyoplankton and Fall Shoals surveys, average weekly values, RM 12 - RM 152.

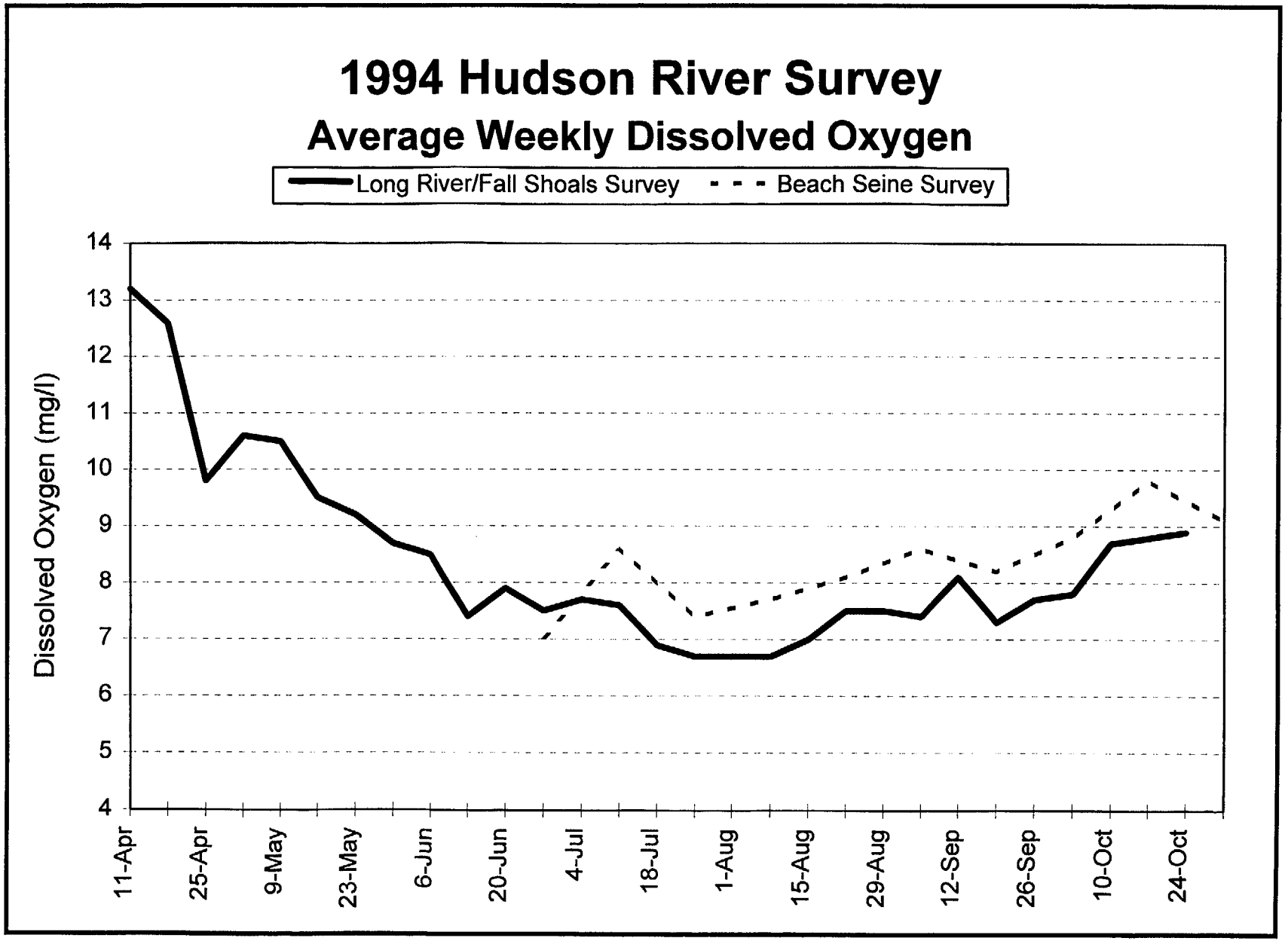


Figure 3-5. Seasonal variations in dissolved oxygen from the 1994 Hudson River surveys, RM 12 - RM 152.

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 66.3 percent, the minimum recorded during the week of 8 August from the Yonkers region.

Data collected in the 1994 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.

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.

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 1994 (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 1994 are provided in Appendix Tables E-1 through E-3. These summary tables also provide the number of samples collected and total sampling volumes used in calculating densities.

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

When the individual species in the freshwater assemblage are examined, there is only one species, bluntnose minnow, that occurred consistently in the early years and has not been recorded recently until 1994 when it was again collected. The bluntnose minnow occurred from 1973 through 1980; more than two-thirds of the occurrences were between RM 125 and RM 152, well beyond the influence of Roseton, Indian Point, or Bowline Point. The new freshwater species recorded in 1994 was brook silverside.

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. There were no new marine species recorded in 1994.

Thirty-one out of the 85 species recorded during 1994 were collected in all three sampling surveys, while 28 of the remaining 54 species were collected in only one of the surveys (Table 4-2). Of the 32 freshwater species, 10 (31 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.

TABLE 4-1 SPECIES COMPOSITION OF FISH COLLECTED DURING HUDSON RIVER STUDIES FROM 1974 TO 1994

Common Name	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
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
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
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
Bluntnose minnow	X	X	X	X	X	X	X														X
Bridle shiner	X		X						X												
Brook silverside																					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
Brown trout			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
Central mudminnow			X				X							X							
Chain pickerel	X	X	X	X	X	X	X	X	X		X					X			X		
Channel catfish	X							X					X	X	X	X	X	X	X	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	
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
Fathead minnow	X	X	X	X	X	X	X					X	X			X					X
Freshwater drum																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
Golden shiner	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
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
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
Rainbow trout						X															
Redbreast sunfish	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
Rosyface shiner	X																				
Satinfin shiner	X	X	X	X	X	X	X				X	X	X		X		X			X	
Shield darter							X														

1994 Year Class Report

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
Silvery minnow	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
Spotfin shiner	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
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
Tiger muskellunge																			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
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
Yellow bullhead		X						X								X					
Yellow perch	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Total	39	39	42	44	40	38	40	32	25	25	29	28	27	29	32	30	29	31	33	31	32
Marine																					
American sandlance													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
Atlantic herring		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
Atlantic needlefish	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
Bay anchovy	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
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
Butterfish	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
Crevalle jack	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
Fourbeard rockling						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
Hickory shad		X			X	X				X			X								
Inshore lizardfish	X					X	X	X			X	X			X	X		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
Northern kingfish	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
Northern puffer		X		X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	

1994 Year Class Report

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
Marine (continued)																					
Northern searobin			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
Orangespotted filefish													X								
Oyster toadfish																			X		
Permit																			X	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		
Rough silverside		X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X
Scup	X																				
Seahorse															X		X	X			
Sea raven							X														
Searobin Unidentified		X	X		X		X	X							X		X	X			
Seaboard goby		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
Smallmouth flounder						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									
Spotfin mojarra									X												X
Spotted goatfish																				X	
Spotted hake							X			X	X	X	X	X	X	X	X	X	X	X	X
Striped anchovy		X				X			X			X							X	X	X
Striped cuskeel							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			
Striped burrfish													X								
Striped searobin		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
Tautog		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
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
Winter flounder	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
Total	27	29	29	24	22	31	37	28	29	24	32	39	40	32	45	37	40	43	44	40	39

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
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
Hogchoker	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
Mummichog	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
Threespine stickleback	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
Total	7	6	7	7	6	7	7	7	7	7	7	7	8	7	7	7	7	7	7	7	6
Catadromous																					
American eel	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
Anadromous																					
Alewife	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
Atlantic sturgeon	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
Blueback herring	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
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
Total	8	8	7	7	7	8	8	8	7	7	8	7	7	7	8	7	8	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

TABLE 4-2 SPECIES COMPOSITION OF FISH COLLECTED IN EACH OF THE HUDSON RIVER SURVEYS DURING 1994

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
Hogchoker	X	X	X
Inland silverside	X		X
Mummichog	X		X
Shortnose sturgeon		X	X
White perch	X	X	X
Total	5	3	6
Freshwater			
Banded killifish	X	X	X
Black crappie	X		
Bluegill	X		X
Bluntnose minnow	X		
Brook silverside	X		
Brown bullhead	X	X	X
Brown trout	X		
Carp	X	X	X
Channel catfish		X	
Emerald shiner	X		
Fallfish	X		
Fathead minnow	X		
Freshwater drum		X	
Gizzard shad	X	X	X
Golden shiner	X		X
Goldfish	X	X	X
Largemouth bass	X		X
Margined madtom		X	
Northern pike	X		
Pumpkinseed	X	X	X
Redbreast sunfish	X	X	
Rock bass		X	
Silvery minnow	X		
Smallmouth bass	X		X
Spotfin shiner	X		

TABLE 4-2 (Continued)

Common Name	BSS	FSS	LRS
Freshwater (Continued)			
Spottail shiner	X	X	X
Tesselated darter	X	X	X
Walleye			X
White catfish	X	X	X
White crappie			X
White sucker	X	X	
Yellow perch	X	X	X
Total	26	16	16
Marine			
American sand lance			X
Atlantic croaker		X	X
Atlantic herring			X
Atlantic menhaden	X	X	X
Atlantic needlefish	X		
Atlantic silverside	X	X	X
Bay anchovy	X	X	X
Black sea bass		X	X
Bluefish	X	X	X
Butterfish		X	X
Conger eel			X
Crevalle jack	X	X	
Cunner			X
Fourbeard rockling			X
Fourspot flounder		X	
Grubby			X
Inshore lizardfish	X	X	X
Lookdown		X	
Moonfish			X
Naked goby		X	X
Northern kingfish	X	X	X
Northern pipefish	X	X	X
Northern searobin	X	X	X
Northern stargazer	X	X	X
Rough silverside	X		X
Silver perch	X	X	X
Smallmouth flounder		X	X
Spanish mackerel	X		X
Spot	X		X
Spotfin mojarra	X		
Spotted hake		X	X
Striped anchovy	X		X
Striped searobin		X	X
Summer flounder	X	X	X
Tautog	X		X
Weakfish	X	X	X
Windowpane		X	X
Winter flounder	X	X	X
Yellowtail flounder			X
Total	21	24	34

TABLE 4-2 (Continued)

Common Name	BSS	FSS	LRS
Undetermined			
Atherinidae			X
Centrarchidae	X	X	X
Clupeidae	X	X	X
Cyprinidae	X		X
Fundulus sp.			X
Gobiidae		X	X
Menidia sp.			X
Morone sp.			X
Sciaenidae			X
Total	3	3	9

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 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, increases 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 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 1994, 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 1994, 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 1994 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 during 1994 throughout the estuary (Figure 4-4).

Comparing the temporal distribution of early life stages of striped bass in 1994 with previous years (1974-1993), peak egg density in 1994 occurred within the historical range from early May to early June but was concentrated in late May (Figure 4-5). YSL peak abundance in 1994 lagged slightly behind the historical trend whereas PYSL and YOY abundance fit the temporal composition of the historical trend. Most of the YOY, however, were collected later in 1994, beyond the temporal limits of this comparison.

Striped bass eggs in the 1994 LRS were primarily in the Kingston region (Figure 4-6). The proportion of eggs in the Kingston region was much higher than observed in the historical trend, which has shown a more even distribution of eggs between West Point and Hyde Park. The YSL and PYSL distribution was generally consistent with the pattern seen across years of greatest distribution in the middle estuary. Although YOY were distributed throughout the Hudson River estuary as in previous years, almost half were found in the Poughkeepsie region in 1994.

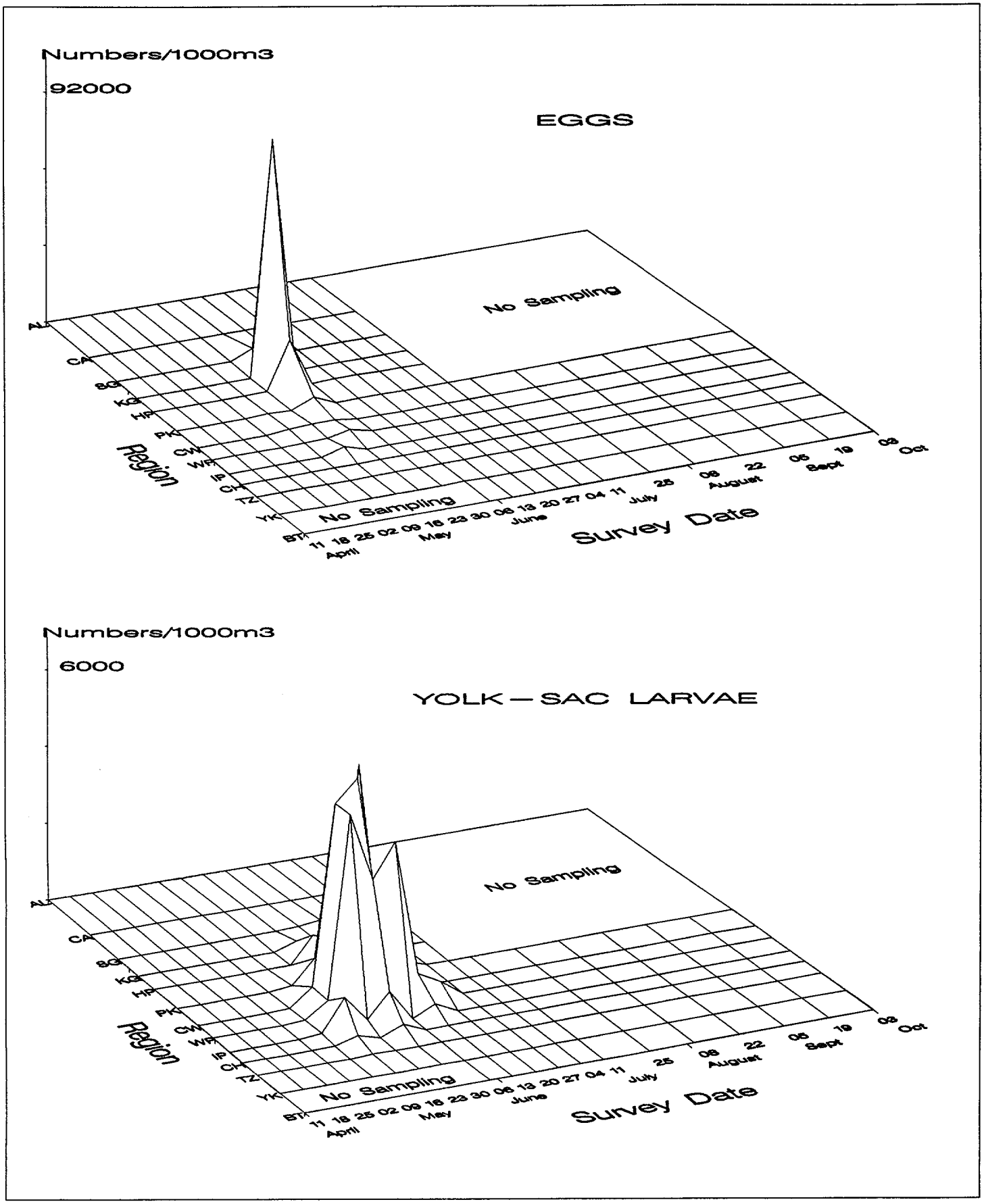


Figure 4—1. Spatiotemporal distribution of egg and yolk—sac stages of striped bass in the Hudson River estuary based on the 1994 Long River Ichthyoplankton Survey.

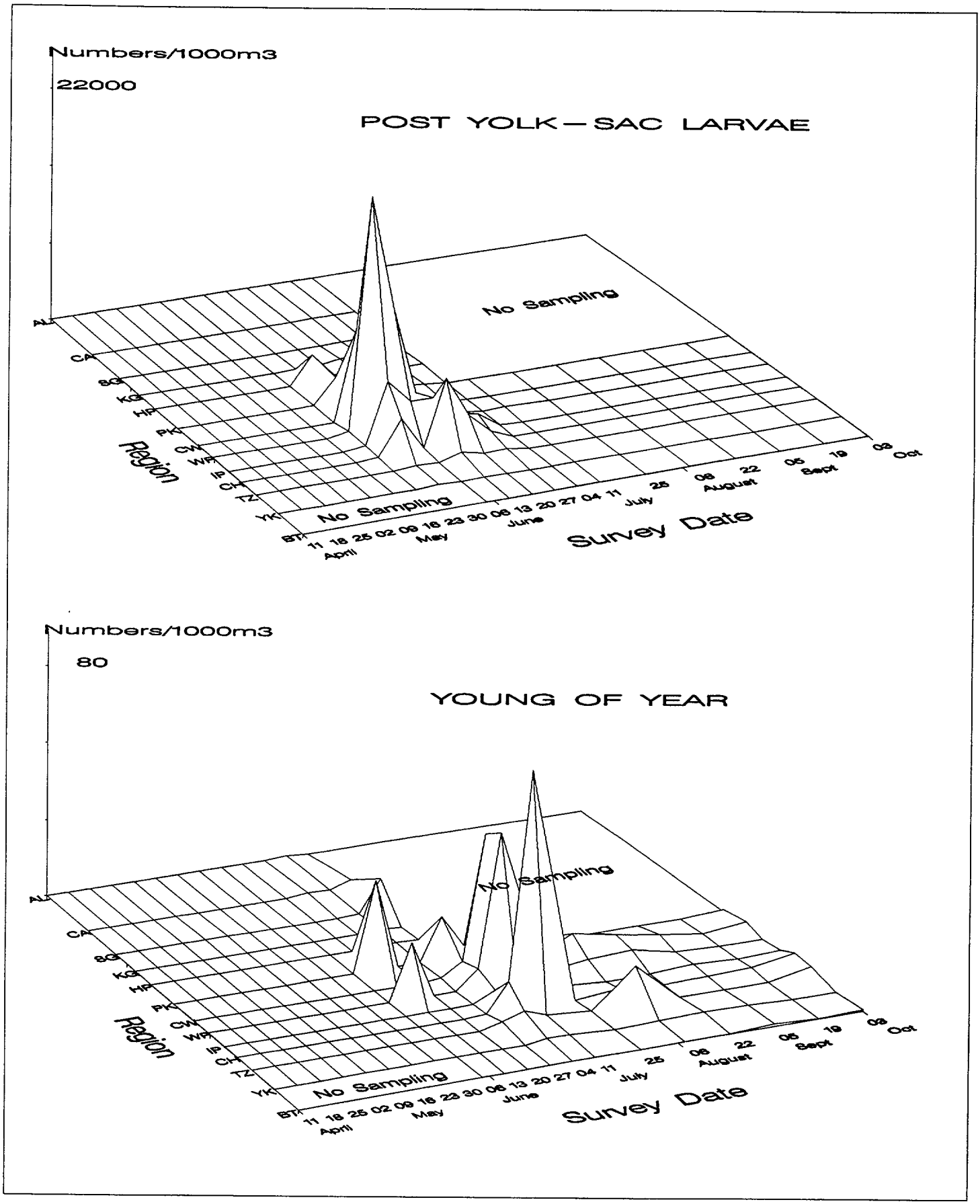


Figure 4-2. Spatiotemporal distribution of post yolk-sac and young-of-year stages of striped bass in the Hudson River estuary based on the 1994 Long River Ichthyoplankton Survey.

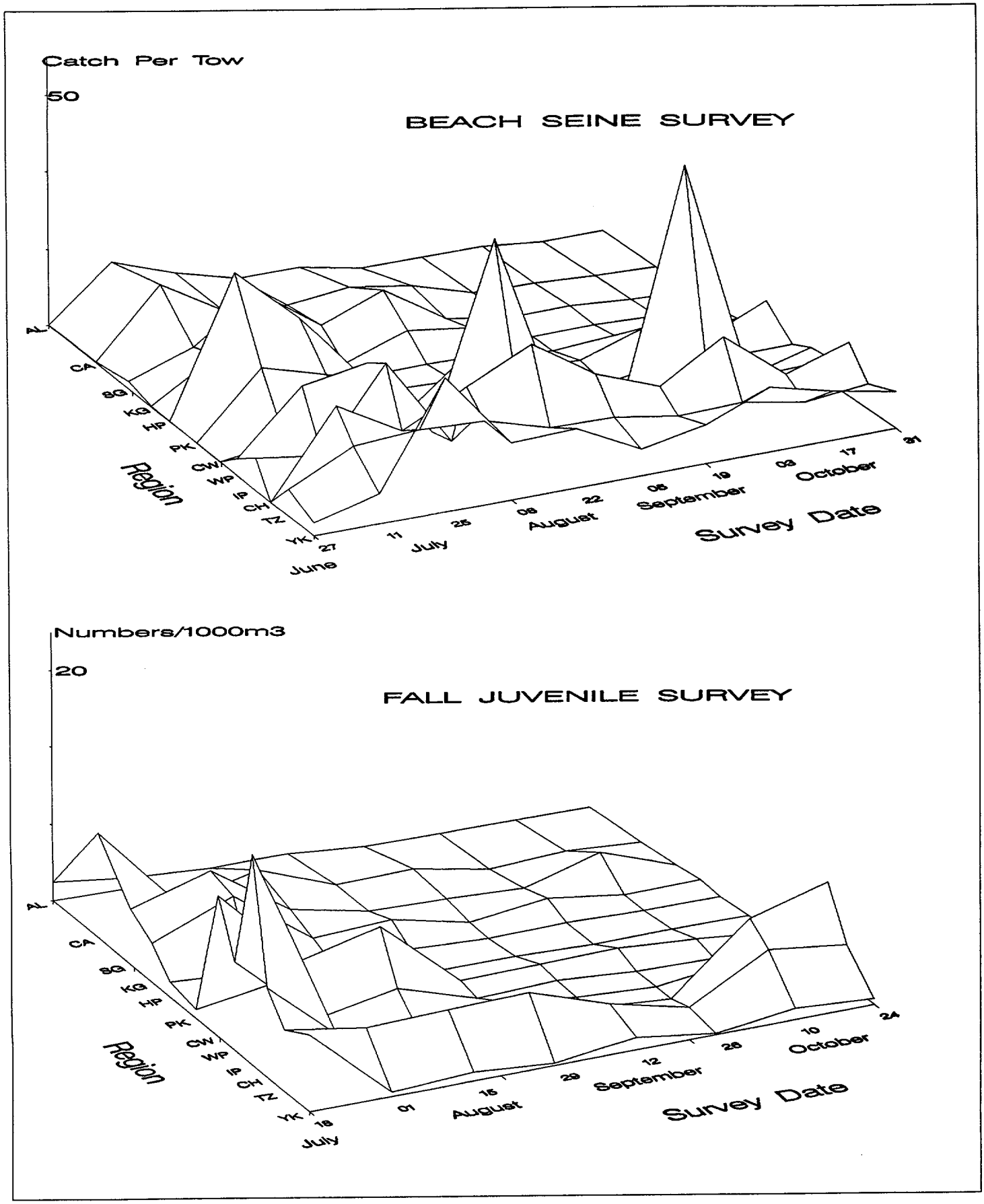


Figure 4–3. Spatiotemporal distribution of young–of–year striped bass in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine Surveys.

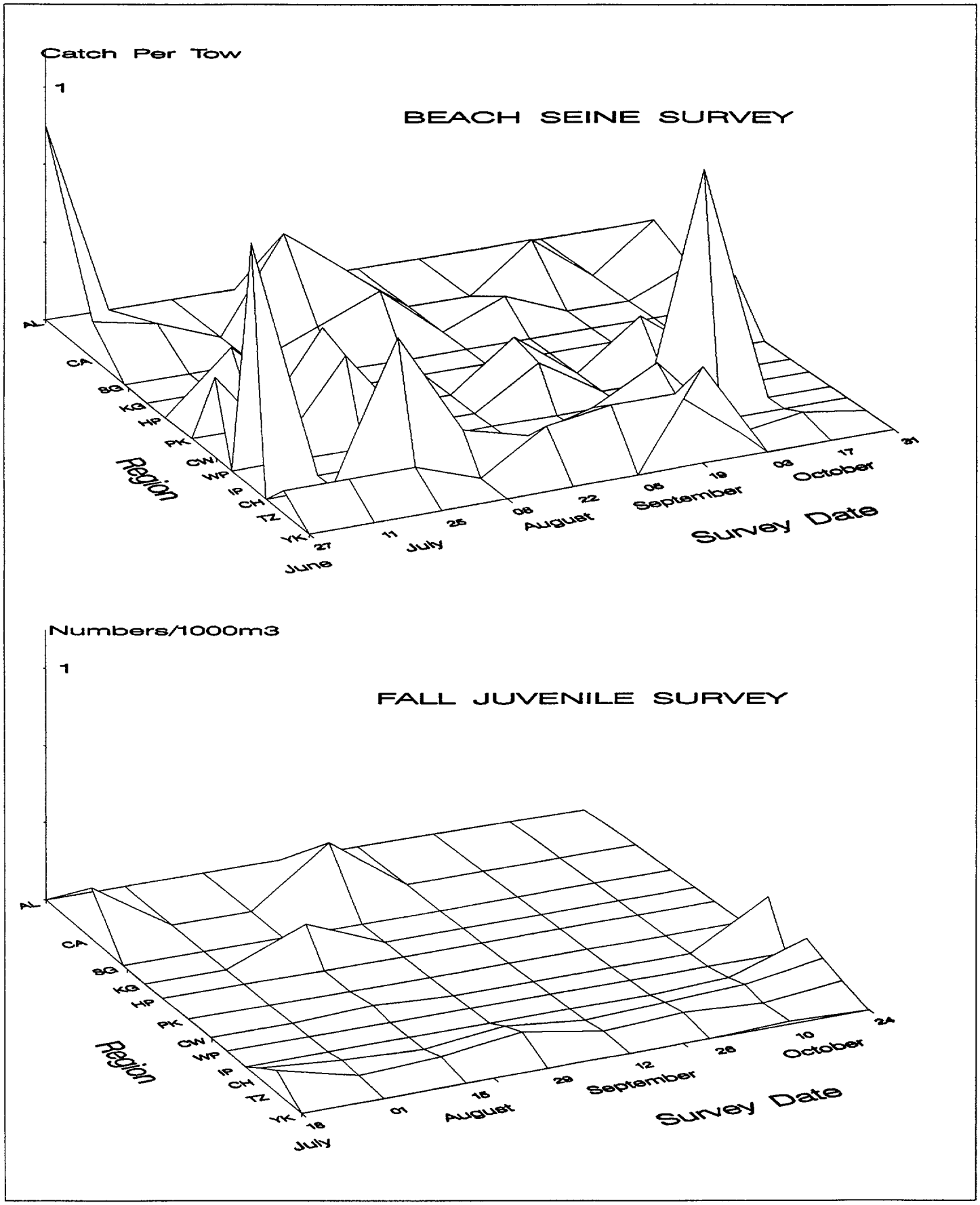


Figure 4–4. Spatiotemporal distribution of yearling and older striped bass in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine Surveys.

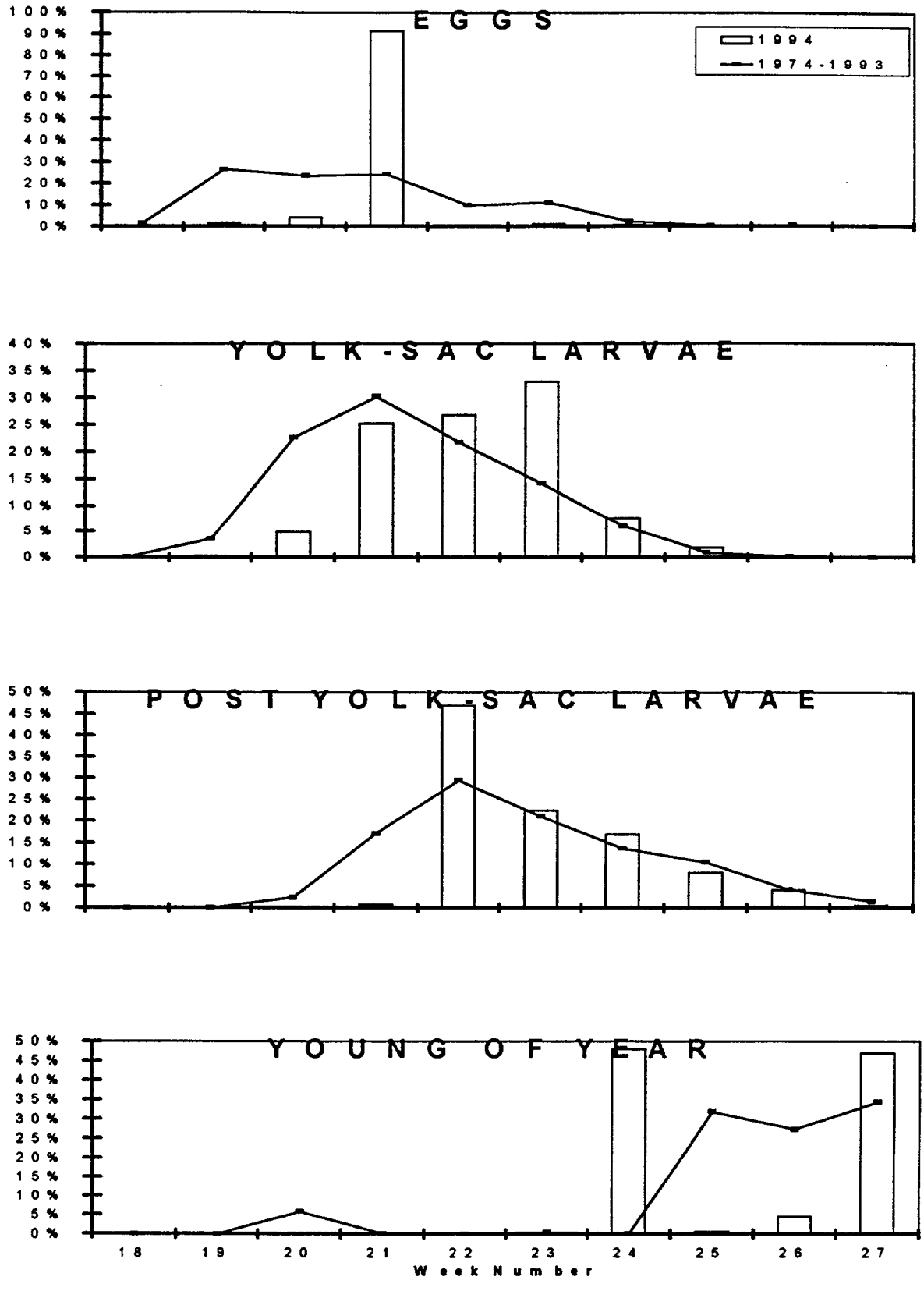


Figure 4-5. Temporal distribution indices for early life stages of striped bass collected during Longitudinal River Ichthyoplankton surveys of the Hudson River estuary, 1974-1994.

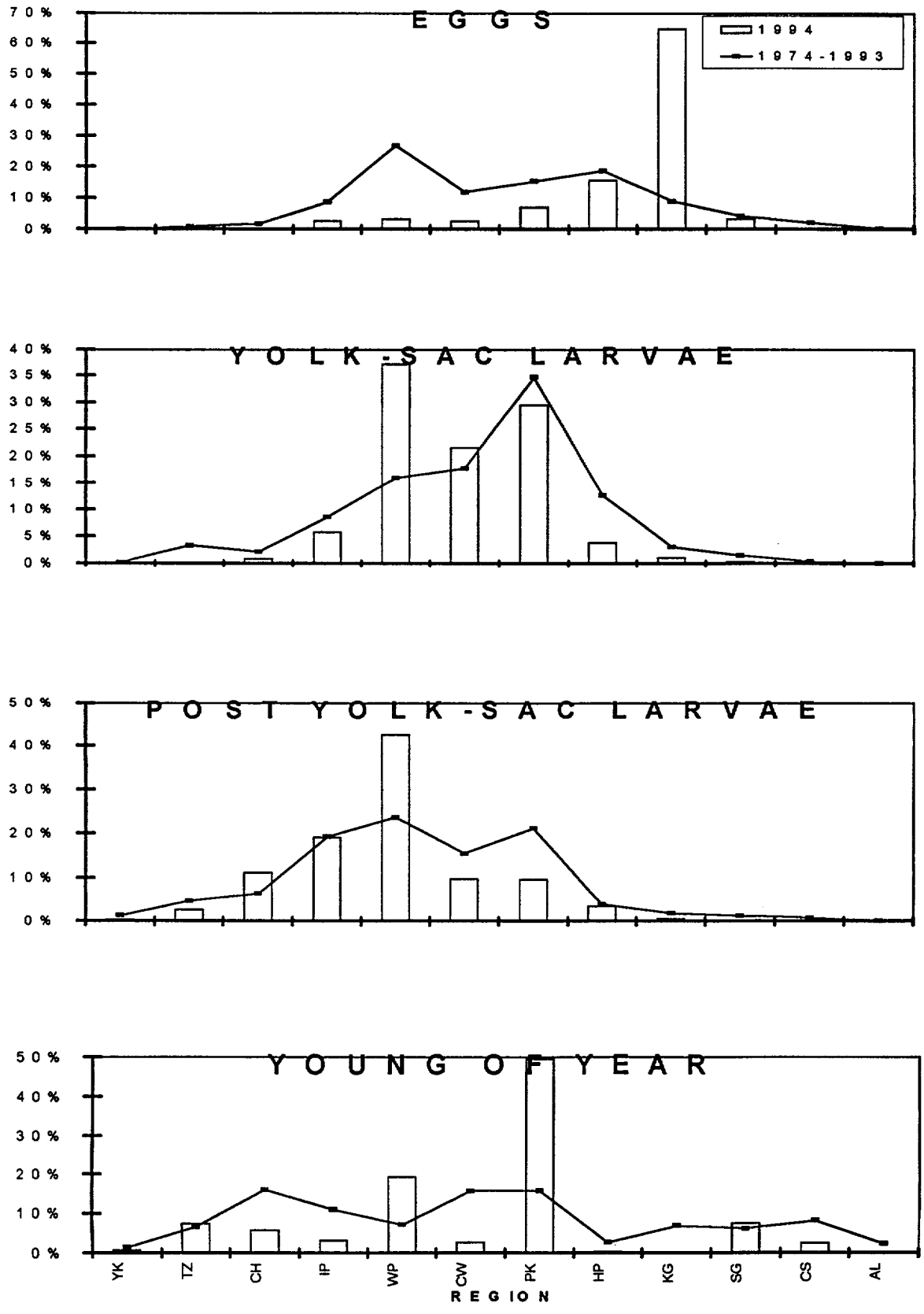


Figure 4-6 Geographical distribution indices for early life stages of striped bass collected during Longitudinal River Ichthyoplankton surveys of the Hudson River Estuary, 1974 - 1994.

The 1994 geographical distribution of YOY, or juvenile, striped bass in the BSS was consistent with the long-term trend (based on data from 1974 to 1993), 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).

Weekly length statistics for striped bass from yolk-sac through juvenile life stages collected in 1994 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.

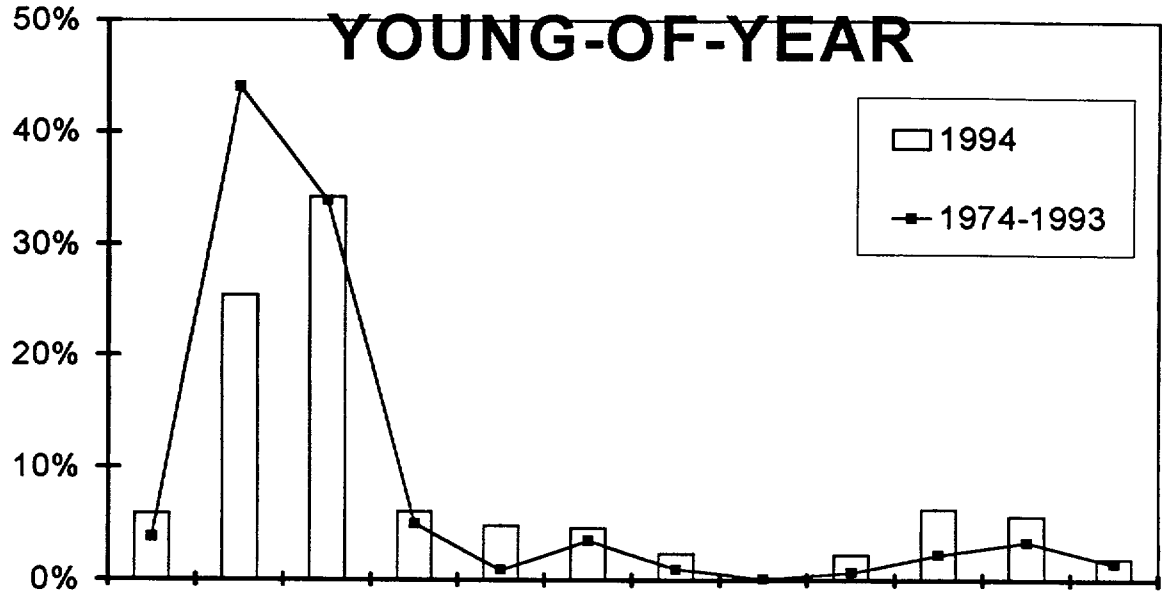
4.3 WHITE PERCH

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 1994, white perch eggs were most abundant in the upper estuary (Figure 4-9).



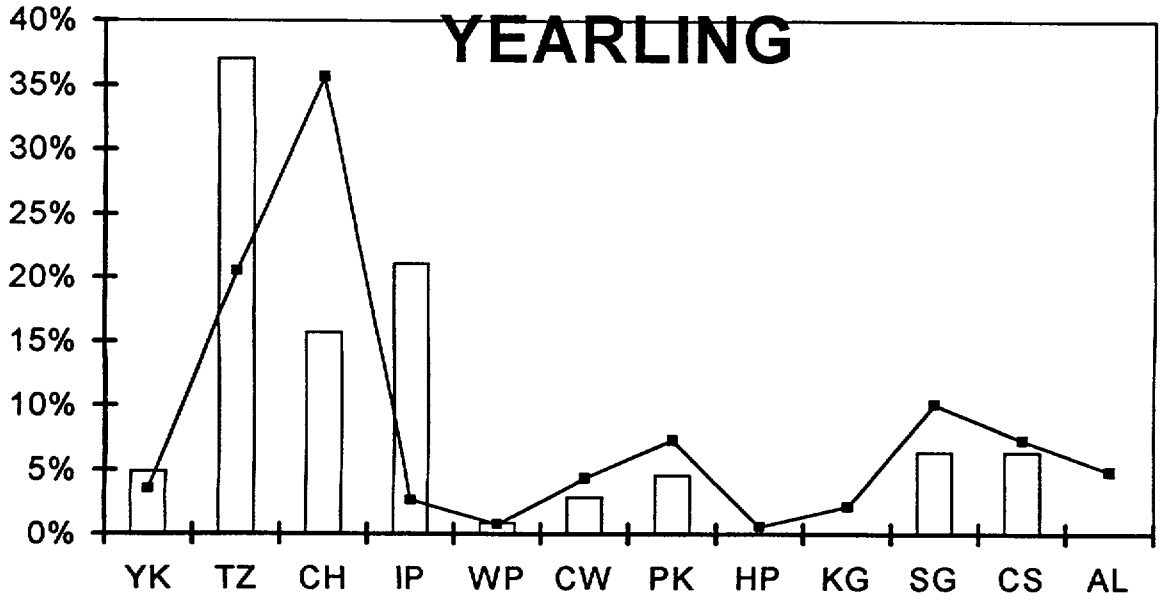


Figure 4-7 Geographical distribution indices for young-of-year and yearling striped bass collected during Beach Seine surveys of the Hudson River Estuary, 1974 - 1994.

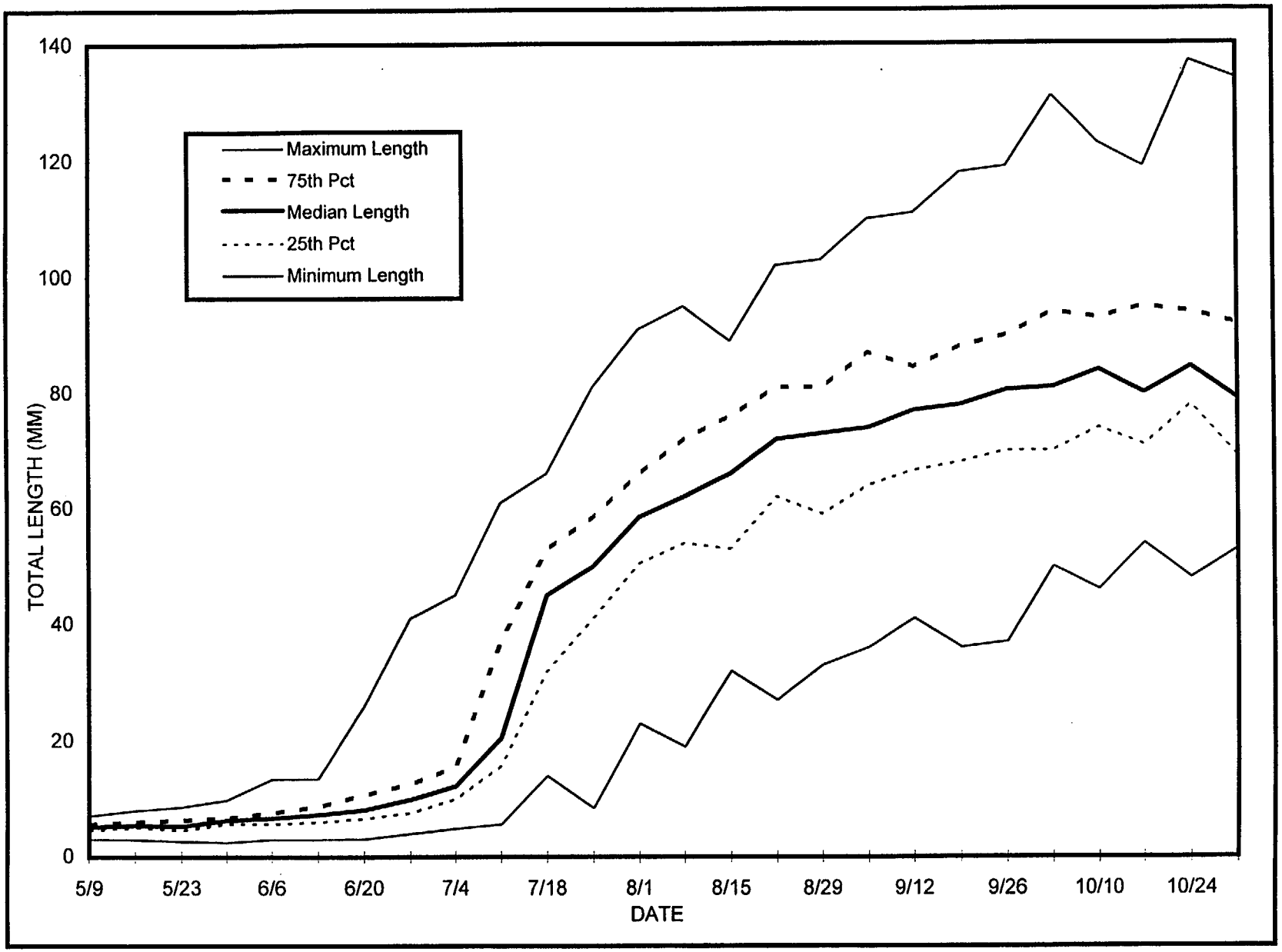


Figure 4-8. Weekly length statistics for striped bass larvae and young-of-year in the Hudson River estuary, 1994.

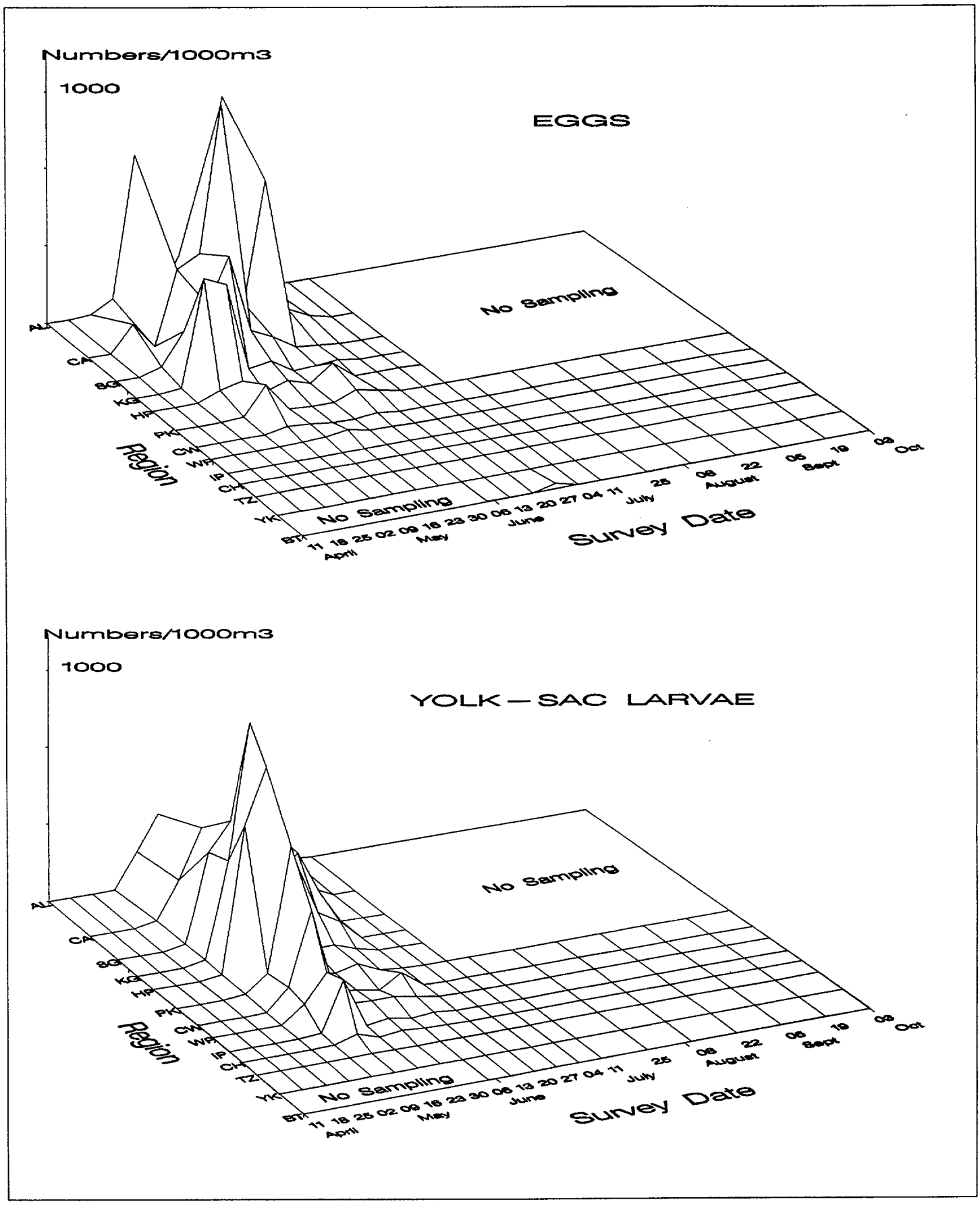


Figure 4 – 9. Spatiotemporal distribution of egg and yolk – sac stages of white perch in the Hudson River estuary based on the 1994 Long River Ichthyoplankton Survey.

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 1994, 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 1994, white perch PYSL were most abundant in the upper estuary but also were found in the middle estuary, from Poughkeepsie south to Croton-Haverstraw (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 1994, 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 1994 FSS, yearling and older white perch were almost evenly 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 1994 with previous years (1974-1993), the 1994 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 1994 LRS were primarily in the Kingston through Albany regions which is consistent with that observed in the historical trend (Figure 4-14). YSL and PYSL distributions in 1994 were also consistent with patterns seen across years with the majority of larvae between Poughkeepsie and Saugerties. The 1994 geographical distribution of YOY and yearling white perch in the BSS showed the main distribution center in the Tappan Zee and Croton-Haverstraw regions and a secondary distribution in the upriver region of Catskill, as also seen in the long-term trend (Figure 4-15).

Weekly length statistics for white perch from yolk-sac through juvenile life stages collected in 1994 show a rapid growth period beginning in early July and steady growth, except during the beginning of FSS in August, 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).

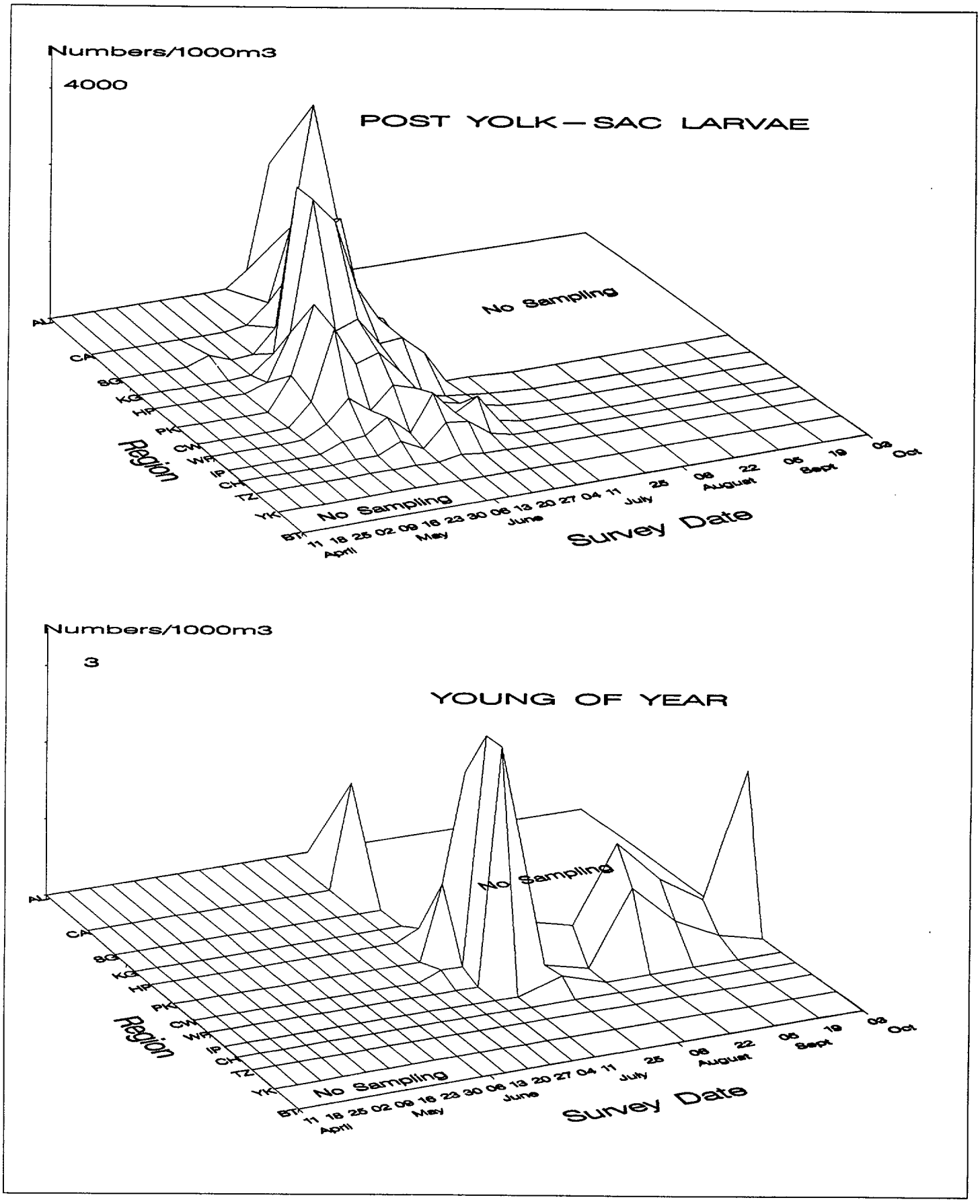


Figure 4–10. Spatiotemporal distribution of post yolk–sac and young–of–year stages of white perch in the Hudson River estuary based on the 1994 Long River Ichthyoplankton Survey.

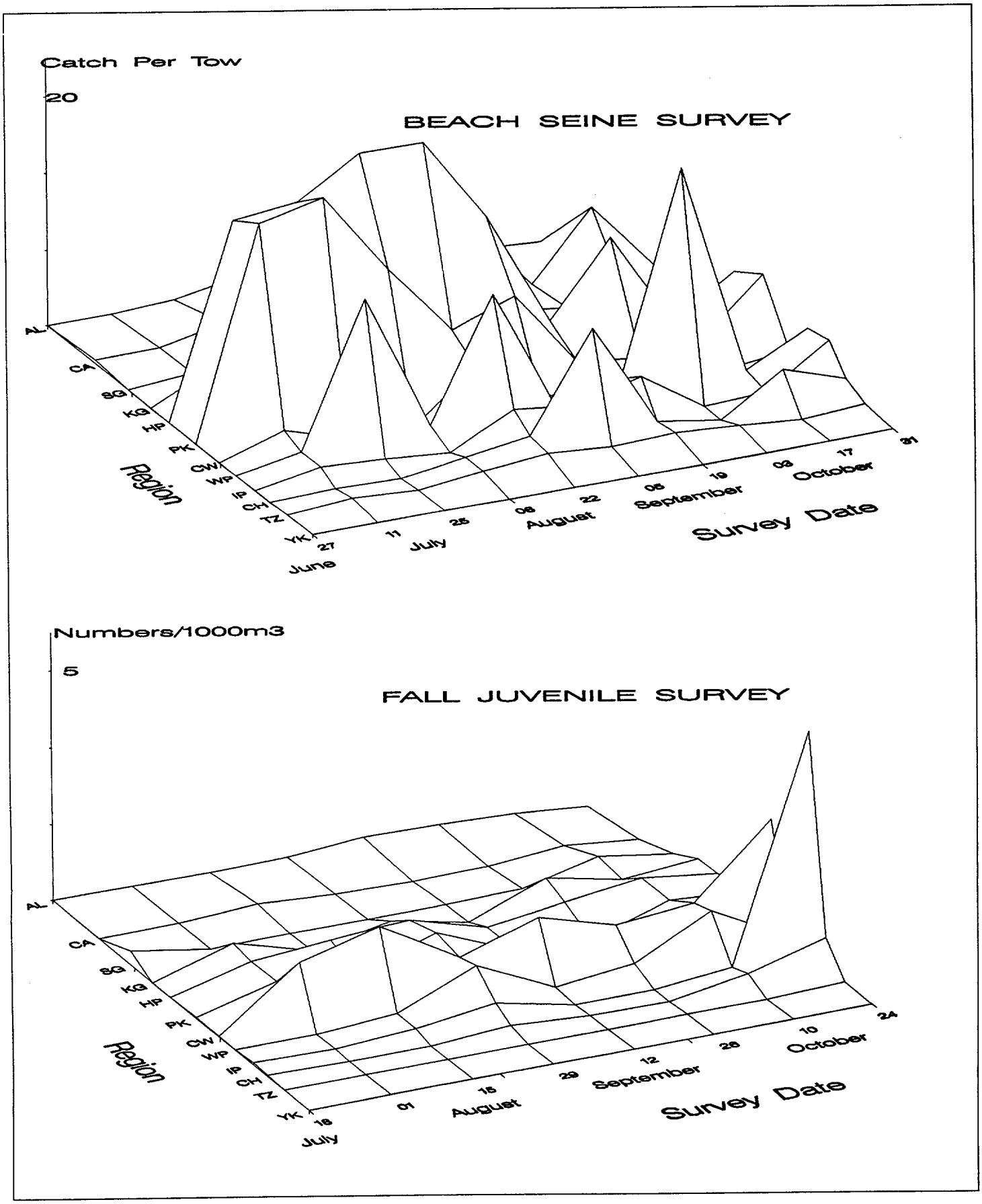


Figure 4–11. Spatiotemporal distribution of young–of–year white perch in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine Surveys.

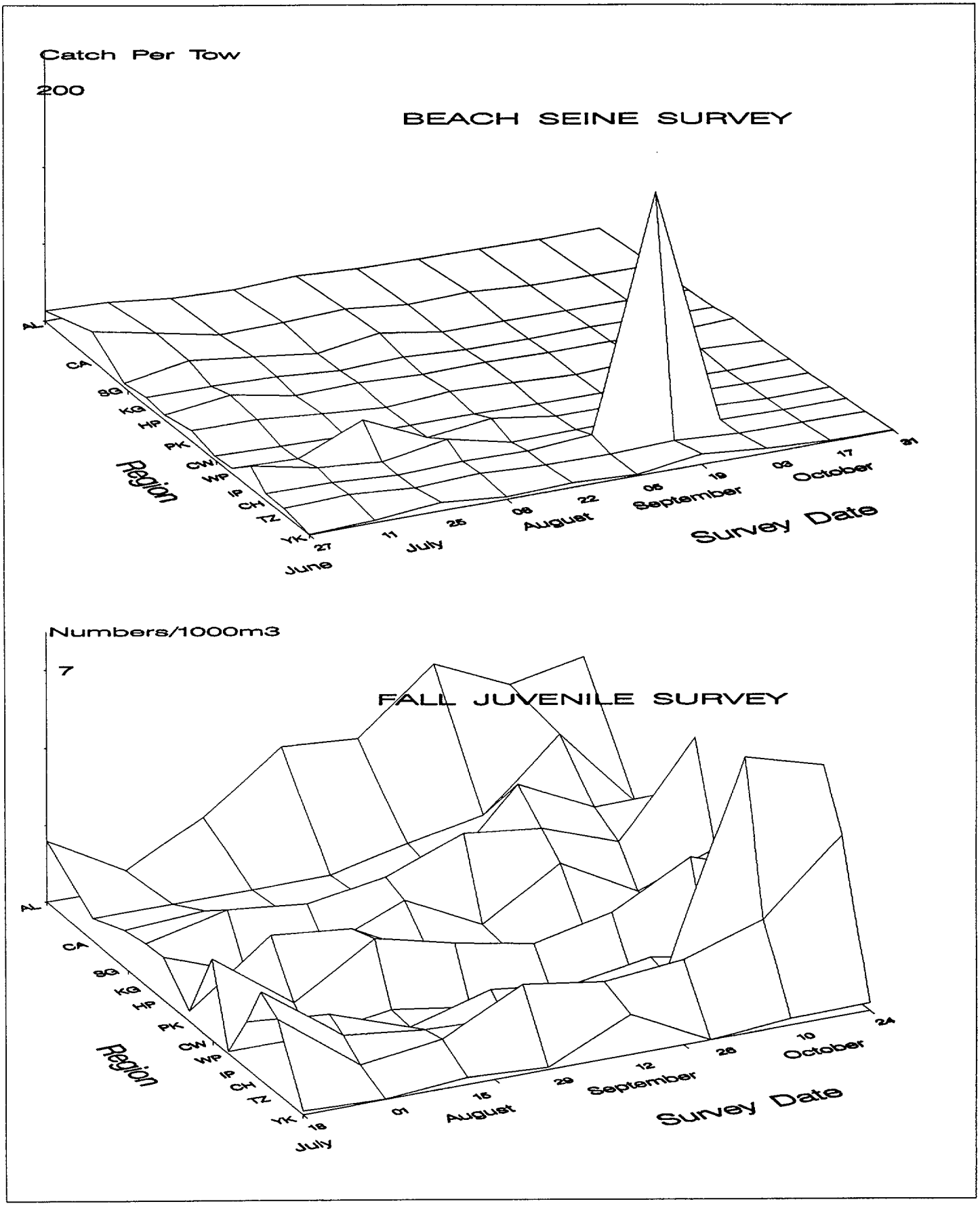


Figure 4–12. Spatiotemporal distribution of yearling and older white perch in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine Surveys.

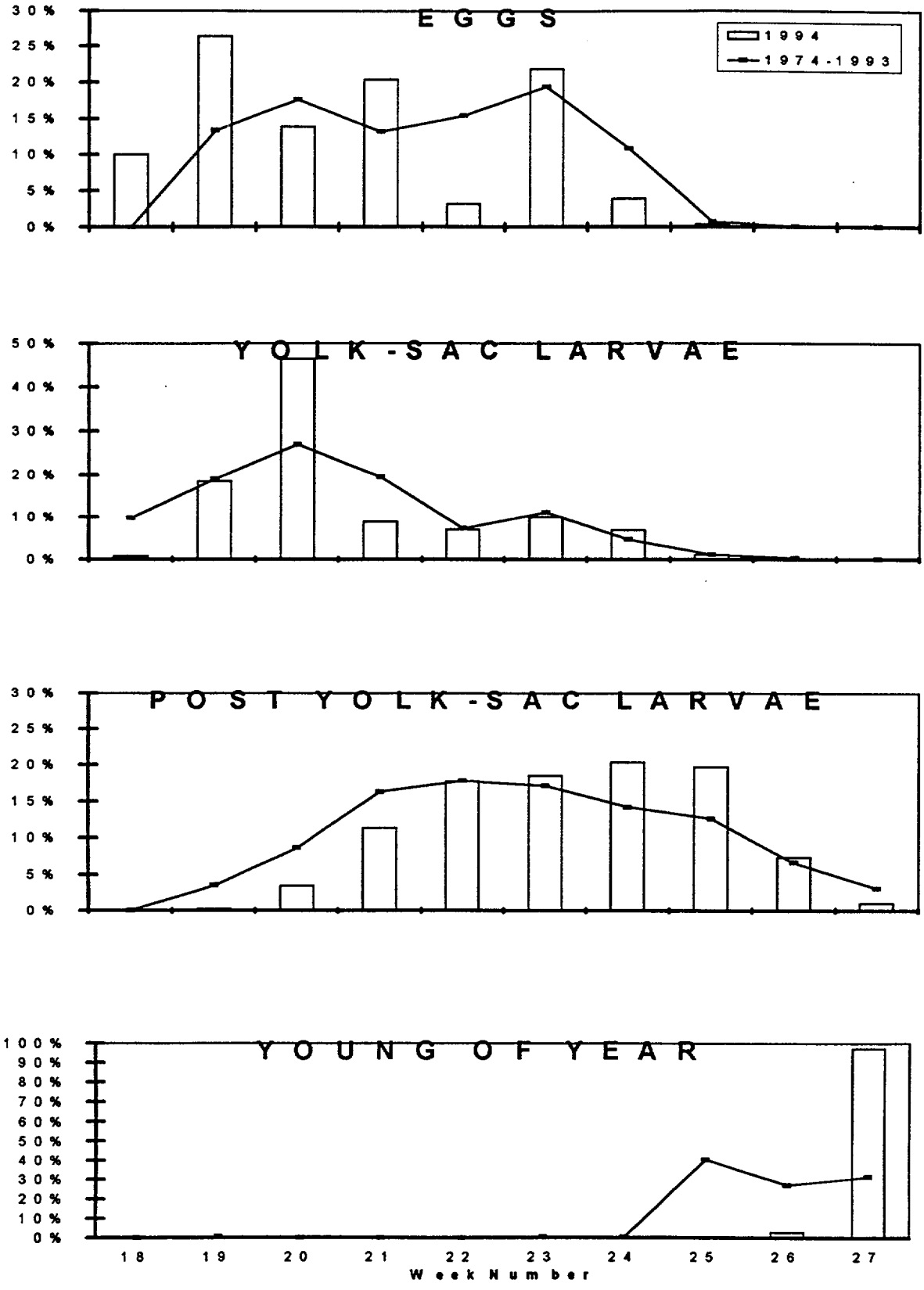


Figure 4-13. Temporal distribution indices for early life stages of white perch collected during Longitudinal River Ichthyoplankton surveys of the Hudson River estuary, 1974-1994.

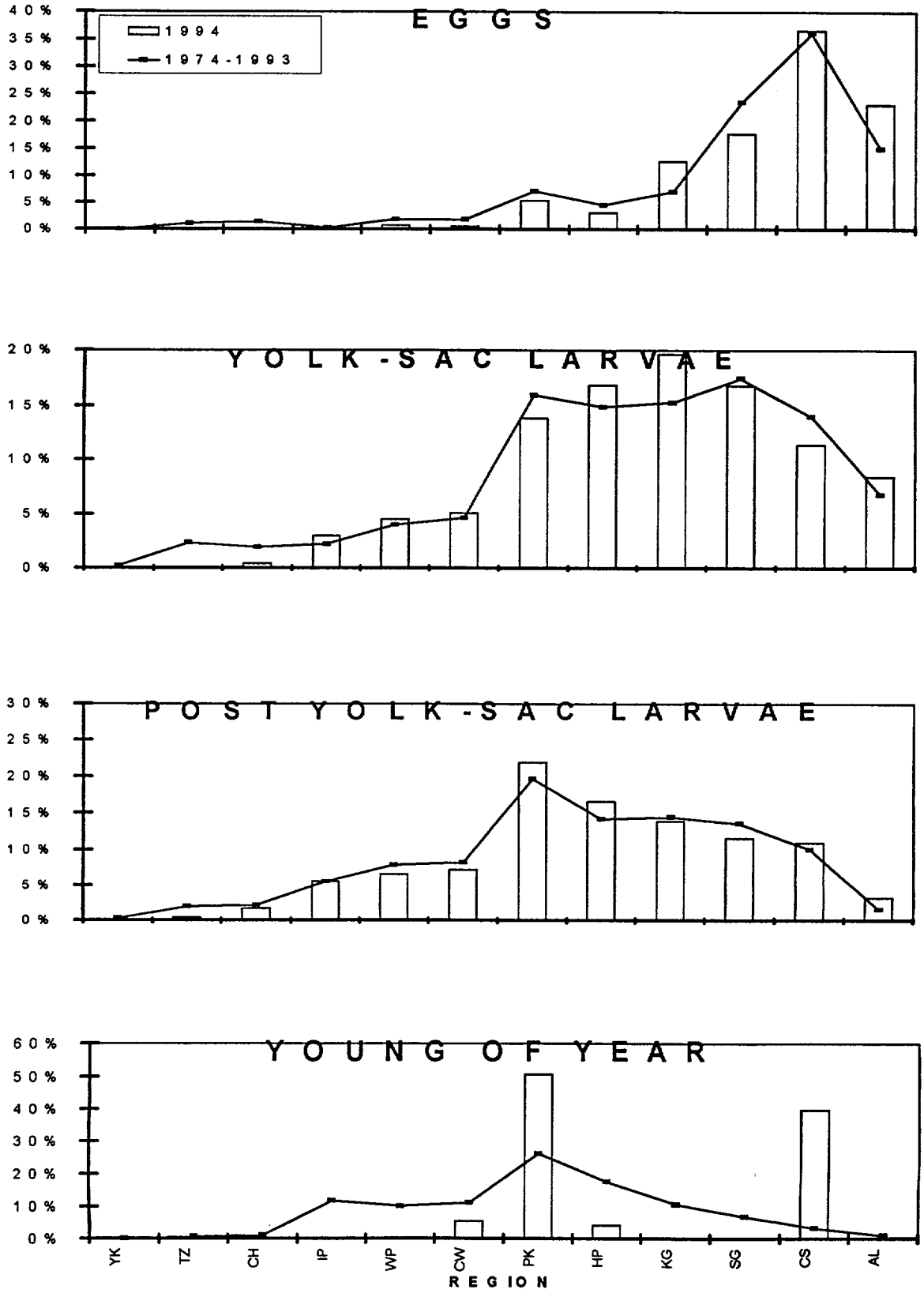


Figure 4-14 Geographical distribution indices for early life stages of white perch collected during Longitudinal River Ichthyoplankton surveys of the Hudson River Estuary, 1974 - 1994

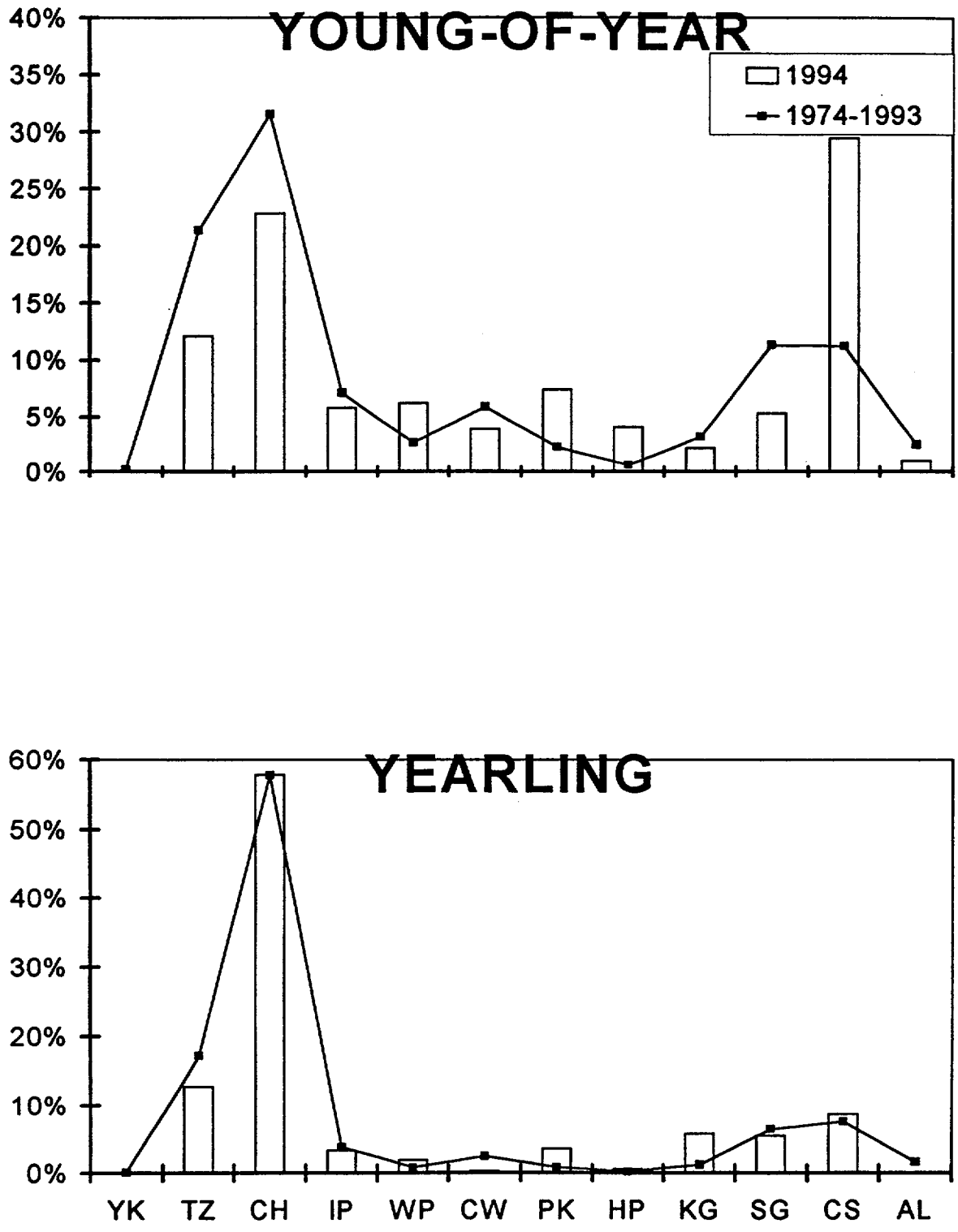


Figure 4-15. Geographical distribution indices for young-of-year and yearling white perch collected during Beach Seine surveys of the Hudson River estuary, 1974-1994.

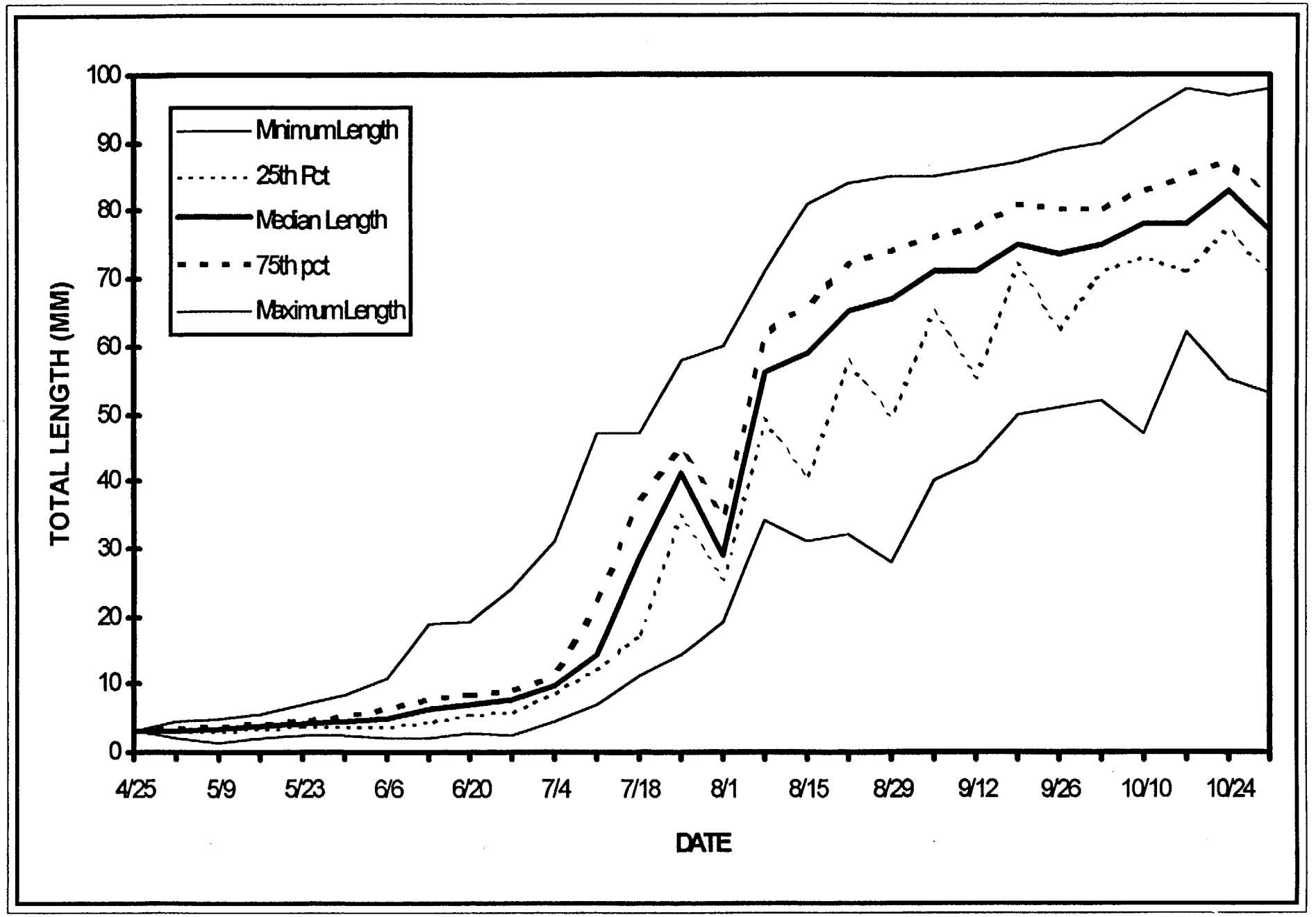


Figure 4-16. Weekly length statistics for white perch larvae and young-of-year in the Hudson River estuary, 1994.

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.

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.

Since the LRS began in mid-April during 1994, no YSL were collected in ichthyoplankton samples. However, during 1994, PYSL were collected from mid-April through early May in the Tappan Zee and Yonkers regions (Figure 4-17). Juvenile Atlantic tomcod collected in the LRS were abundant from early May to mid-June 1994, mainly in the Battery and Yonkers regions, but ranging as far north as Saugerties. Although some juvenile tomcod remain in the Hudson River throughout the summer, some proportion of the population may move out of the lower estuary into New York Bay and Raritan Bay when water temperatures rise during late May and June. Throughout Summer and Fall 1994, the FSS collected juvenile Atlantic tomcod primarily in the Yonkers through Cornwall regions and the BSS collected a few Atlantic tomcod south of the West Point region (Figure 4-18). Few yearling and older Atlantic tomcod were collected in the BSS and FSS and they were found in the lower estuary during October (Figure 4-19).

Comparing the temporal distribution of early life stages of Atlantic tomcod in 1994 with the long-term database (beginning in early May) available from previous years (1974-1993), the 1994 PYSL distribution was consistent with the long-term record with over 70 percent of the PYSL collected in early May (Figure 4-20). The 1994 YOY occurrence was primarily in early and mid-May which agrees with the historical trend. The geographical distributions of PYSL and juveniles collected in the 1994 LRS were also consistent with the long-term trend with the bulk of the population found in the Yonkers and Tappan Zee regions (Figure 4-21). Geographical distribution indices based on the BSS indicated that 1994 was similar to the long-term record, except that most YOY Atlantic tomcod were found in the Yonkers instead of Tappan Zee region (Figure 4-22).

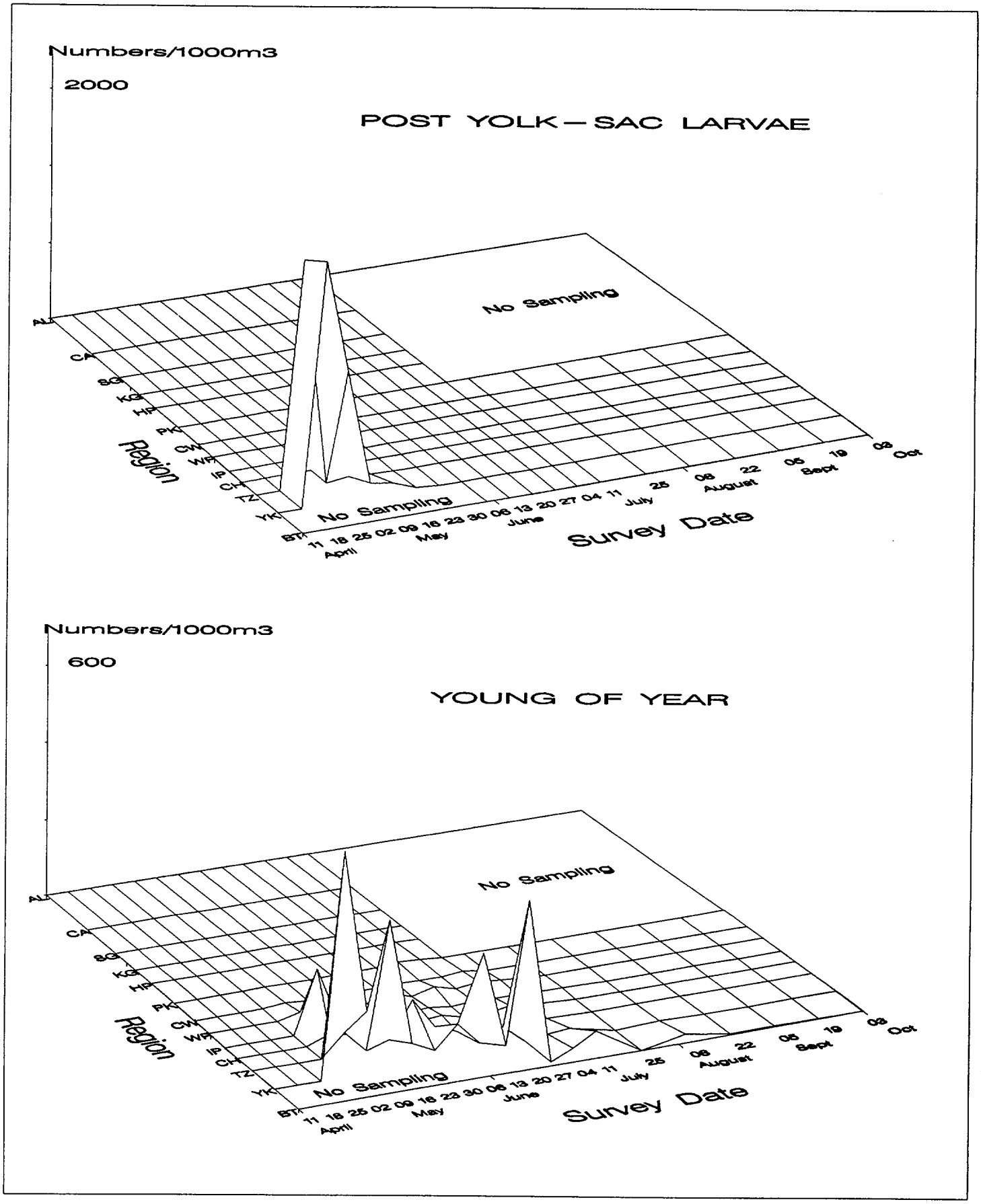


Figure 4–17. Spatiotemporal distribution of post yolk–sac and young–of–year stages of Atlantic tomcod in the Hudson River estuary based on the 1994 Long River Ichthyoplankton Survey.

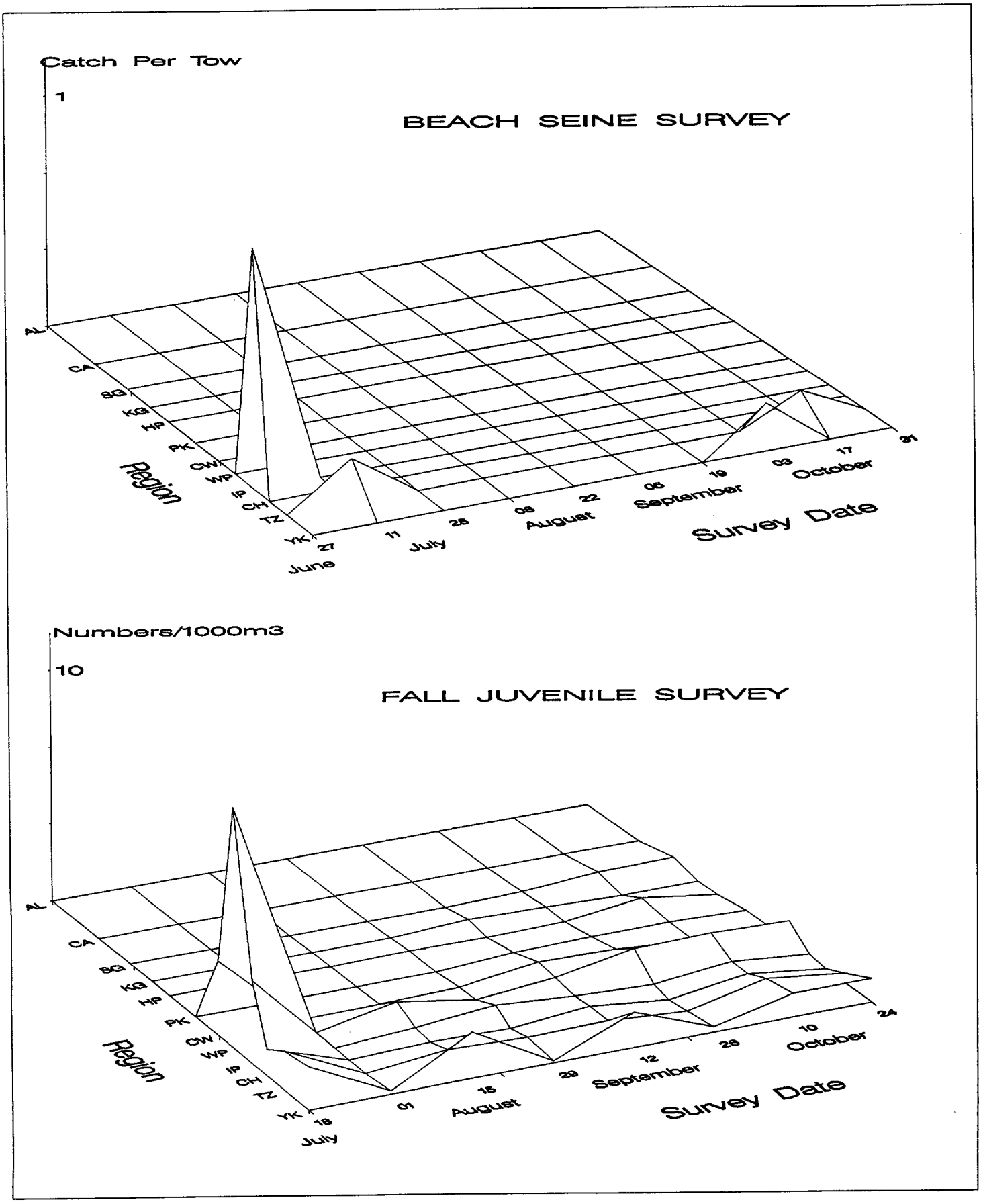


Figure 4–18. Spatiotemporal distribution of young–of–year Atlantic tomcod in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine Surveys.

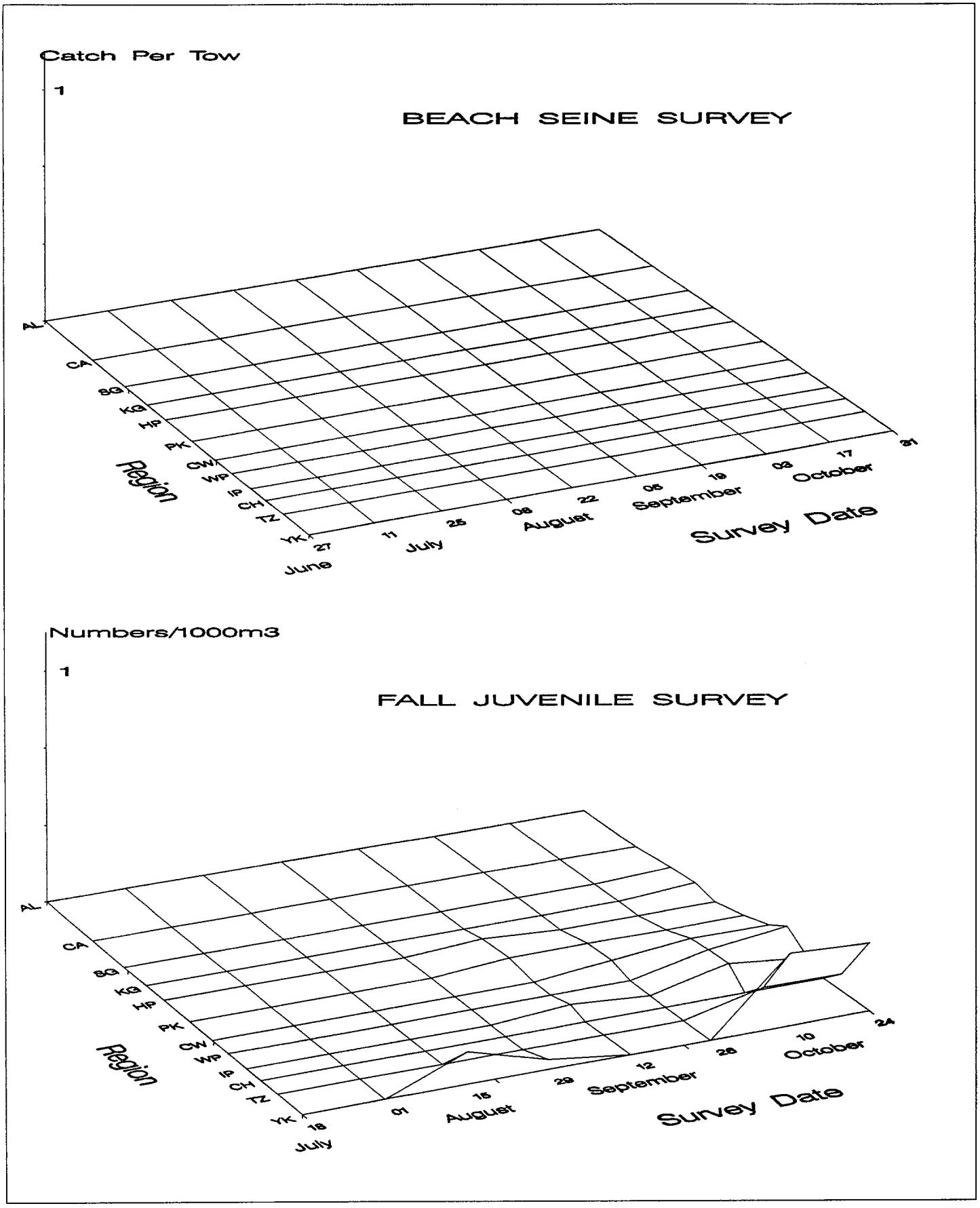


Figure 4–19. Spatiotemporal distribution of yearling and older Atlantic tomcod in the Hudson River estuary based on the 1994 Fall Shoals and Beach Surveys.

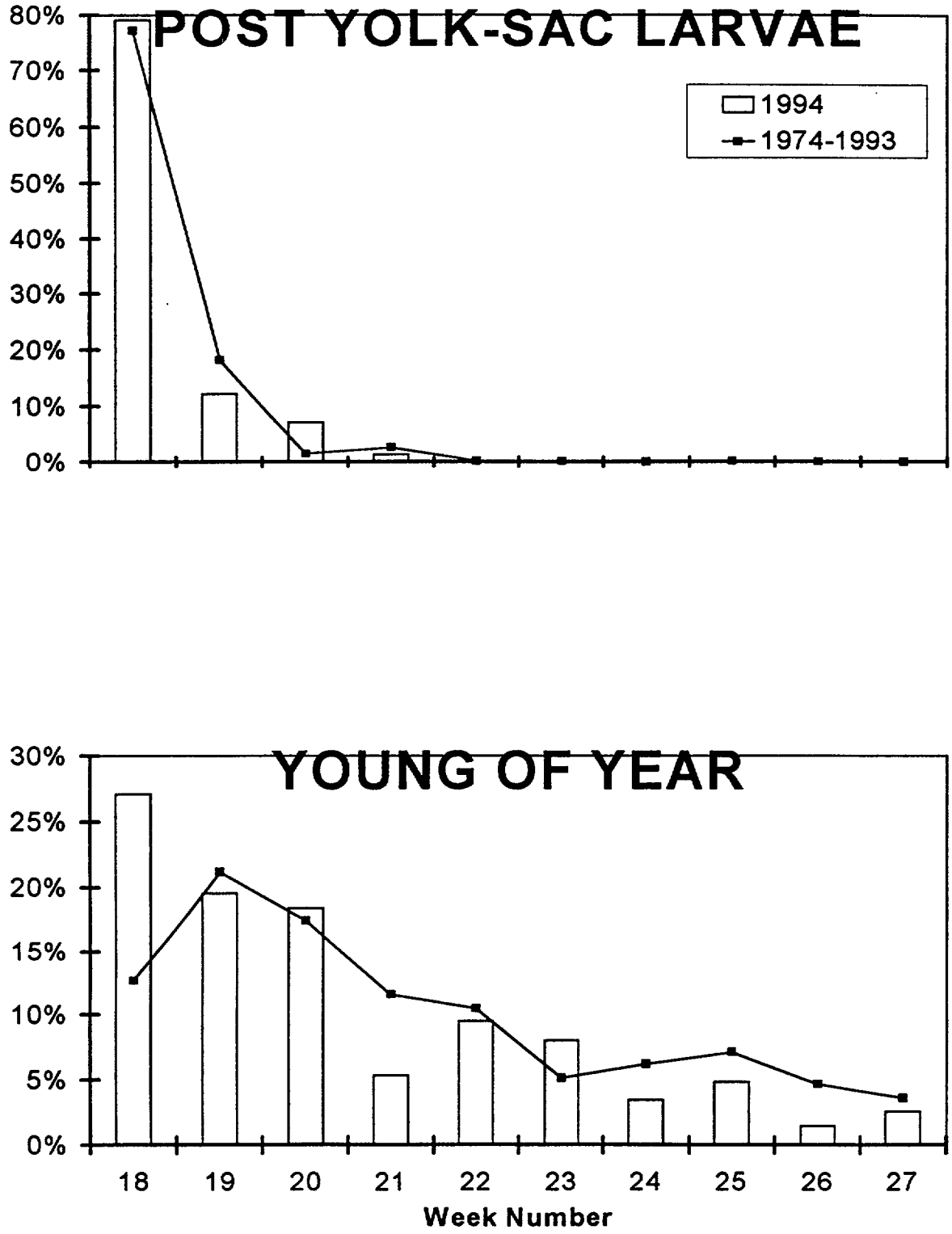
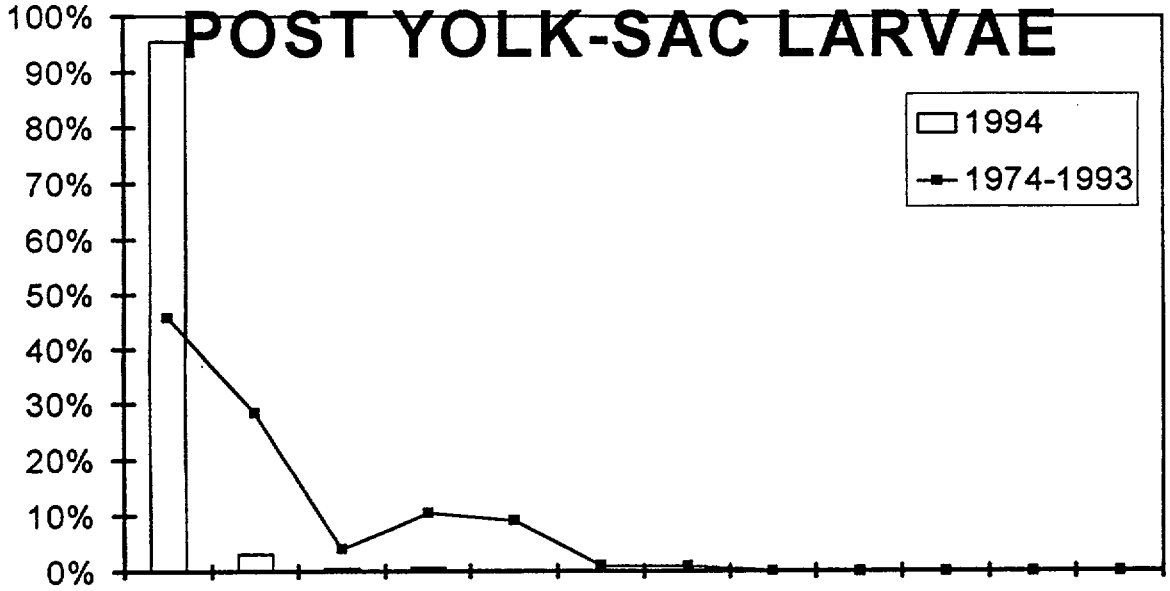


Figure 4-20. Temporal distribution indices for early life stages of Atlantic tomcod collected during Longitudinal River Ichthyoplankton surveys of the Hudson River estuary, 1974-1994.



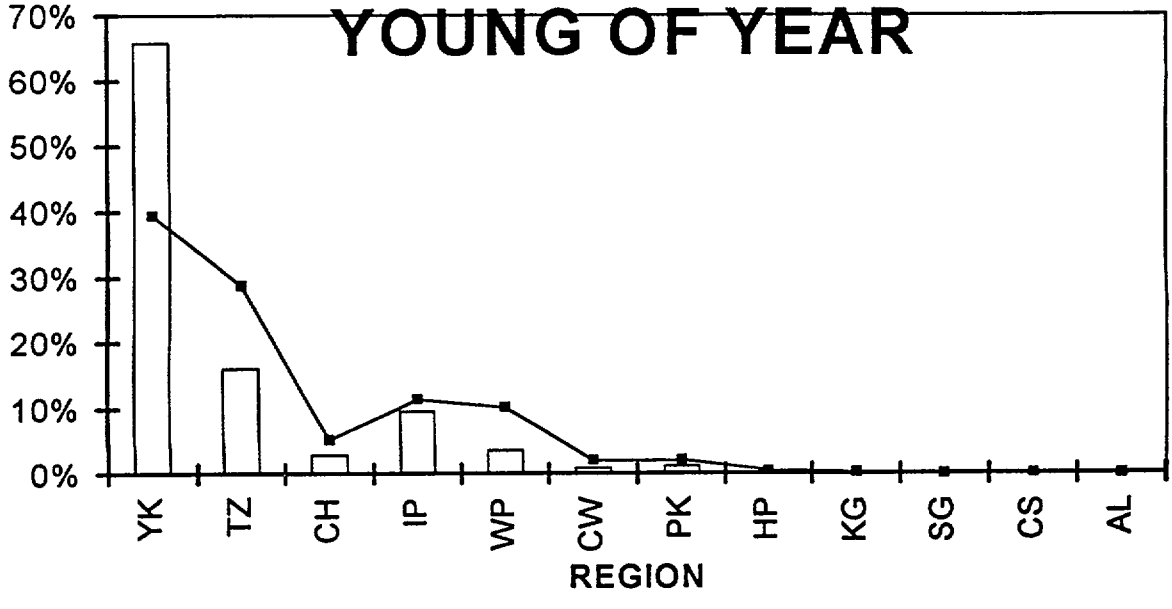


Figure 4-21. Geographical distribution indices for early life stages of Atlantic tomcod collected during Longitudinal River Ichthyoplankton surveys of the Hudson River estuary, 1974-1994.

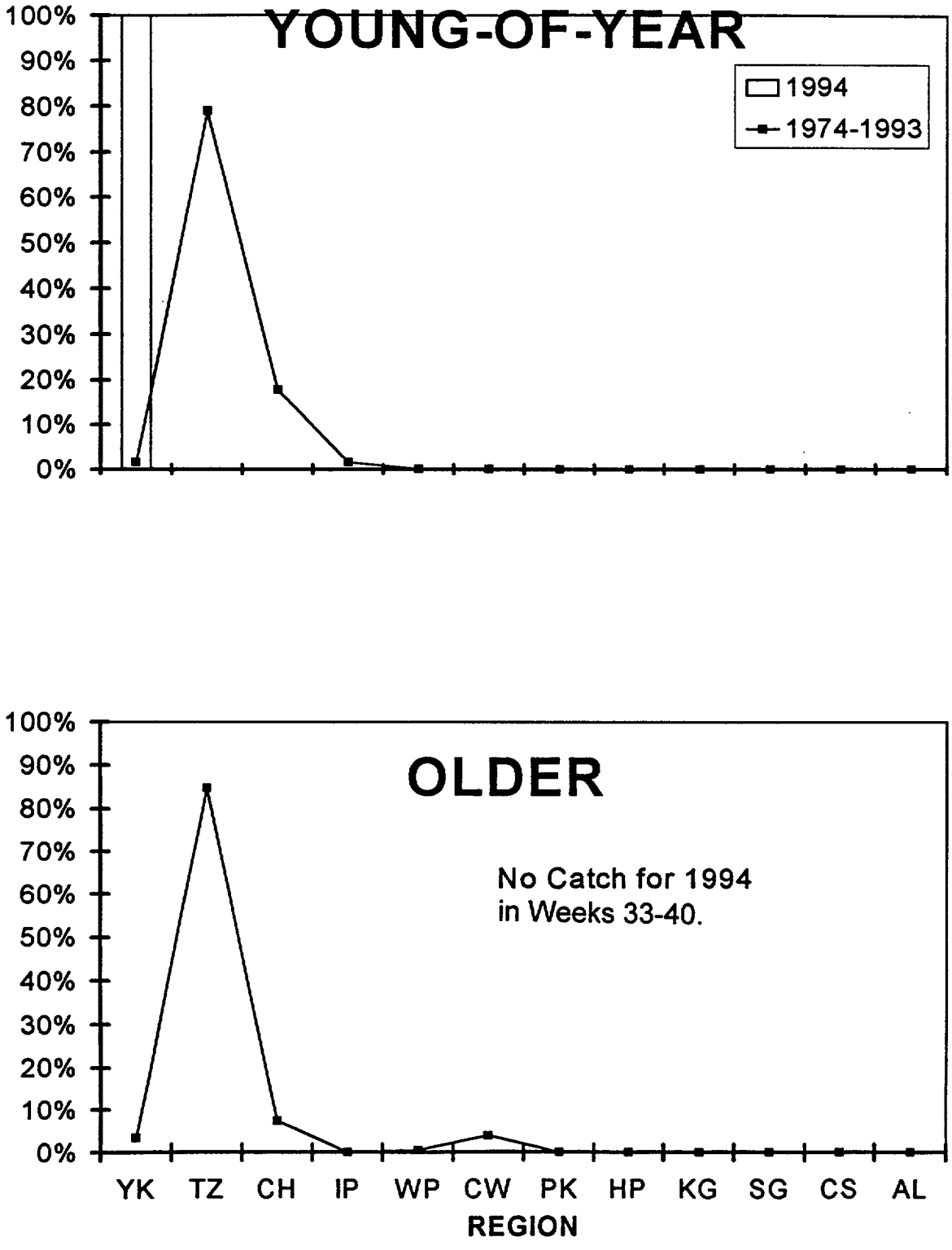


Figure 4-22. Geographical distribution indices for young-of-year and older Atlantic tomcod collected during Beach Seine surveys of the Hudson River estuary, 1974-1994.

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 1994, cessation of growth in the summer is evident from weekly length statistics obtained from BSS and FSS collections (Figure 4-23, Appendix Tables D-7 and D-8). Juvenile tomcod generally double their summer length by December to a mean total length about 6 in. Most of the juvenile Atlantic tomcod in the Hudson River are sexually mature by the end of December and reproduce in early January. 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 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 do 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.

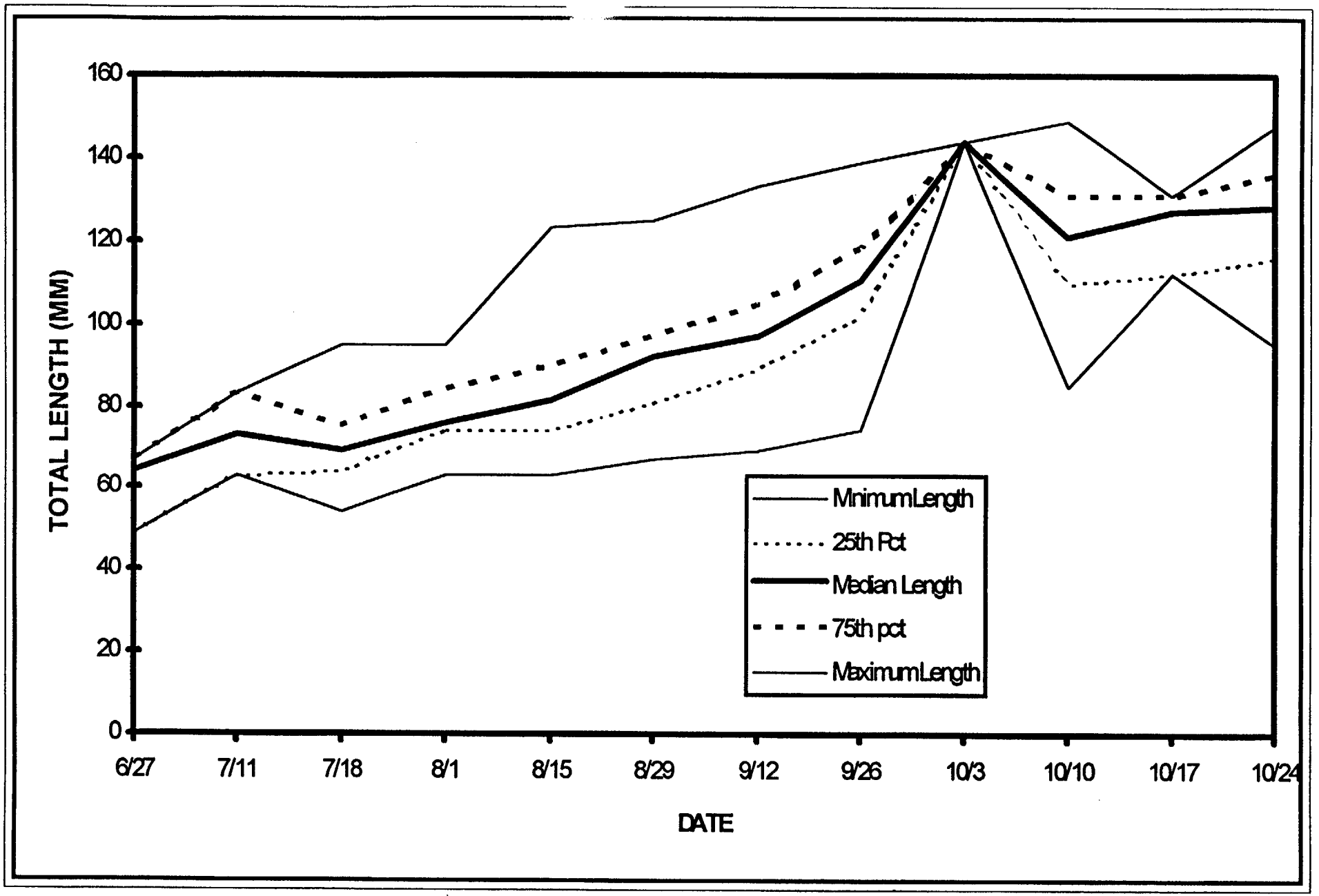


Figure 4-23. Weekly length statistics for Atlantic tomcod young-of-year in the Hudson River estuary, 1994.

Within the Hudson River, bay anchovy eggs are most abundant in the Yonkers and Tappan Zee regions (Figure 4-24). The eggs, which are about 1/16 in. long, are transparent and initially buoyant, but sink after 12-16 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 4-25).

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 1994, most of the juvenile population was located downstream of the Hyde Park region (Figures 4-25 and 4-26). Yearling and older bay anchovy were much less abundant in collections than juveniles (Figure 4-27). They were caught more frequently early in the summer than during fall.

Comparing the temporal distribution of early life stages of bay anchovy in 1994 with the prior 5-year period (1989-1993) when LRS sampling included the Battery region (RM 0 - RM 12), the 1994 bay 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 4-28). Peak PYSL occurrence was also slightly later than normal with the peak distribution in mid-July. Peak juvenile distribution in the 1994 LRS was within the distribution range seen over the 5 previous years, spanning the period from late July through September (Figure 4-28).

The geographical distribution of bay anchovy eggs in 1994 was consistent with the distribution pattern seen over the 1989-1993 period, except that the 1994 distribution was more equally spread between the Battery and Yonkers regions rather than concentrated in the Yonkers region (Figure 4-29). The 1994 PYSL and YOY geographical distribution was similar to the previous 5 years with peak abundance in the Tappan Zee region.

The 1994 geographical distribution of YOY bay anchovy in the BSS was consistent with the 1974-1993 long-term trend, with over 60 percent of the catch located in the Tappan Zee region. The 1994 distribution in yearling and older fish also agreed with the historical trend in that the majority of fish were in the Yonkers and Tappan Zee regions (Figure 4-30).

Weekly length statistics for bay anchovy juvenile life stage collected in 1994 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 wide range in size (up to 1.6 in.) during a collection period reflects the protracted spawning period of bay anchovy (Figure 4-31, 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.

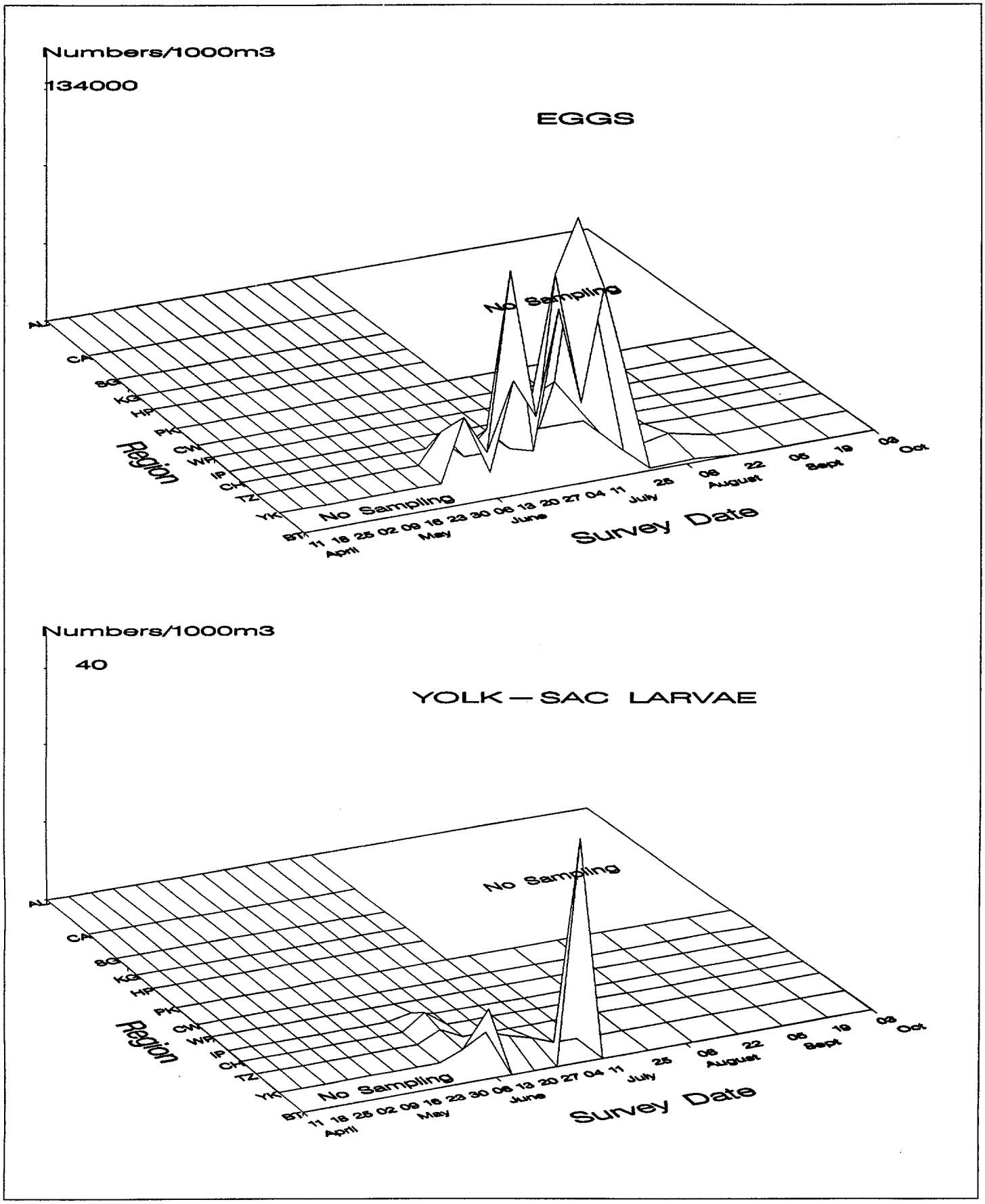


Figure 4–24. Spatiotemporal distribution of egg and yolk–sac stages of bay anchovy in the the Hudson River estuary based on the 1994 Long River Ichthyoplankton Survey.

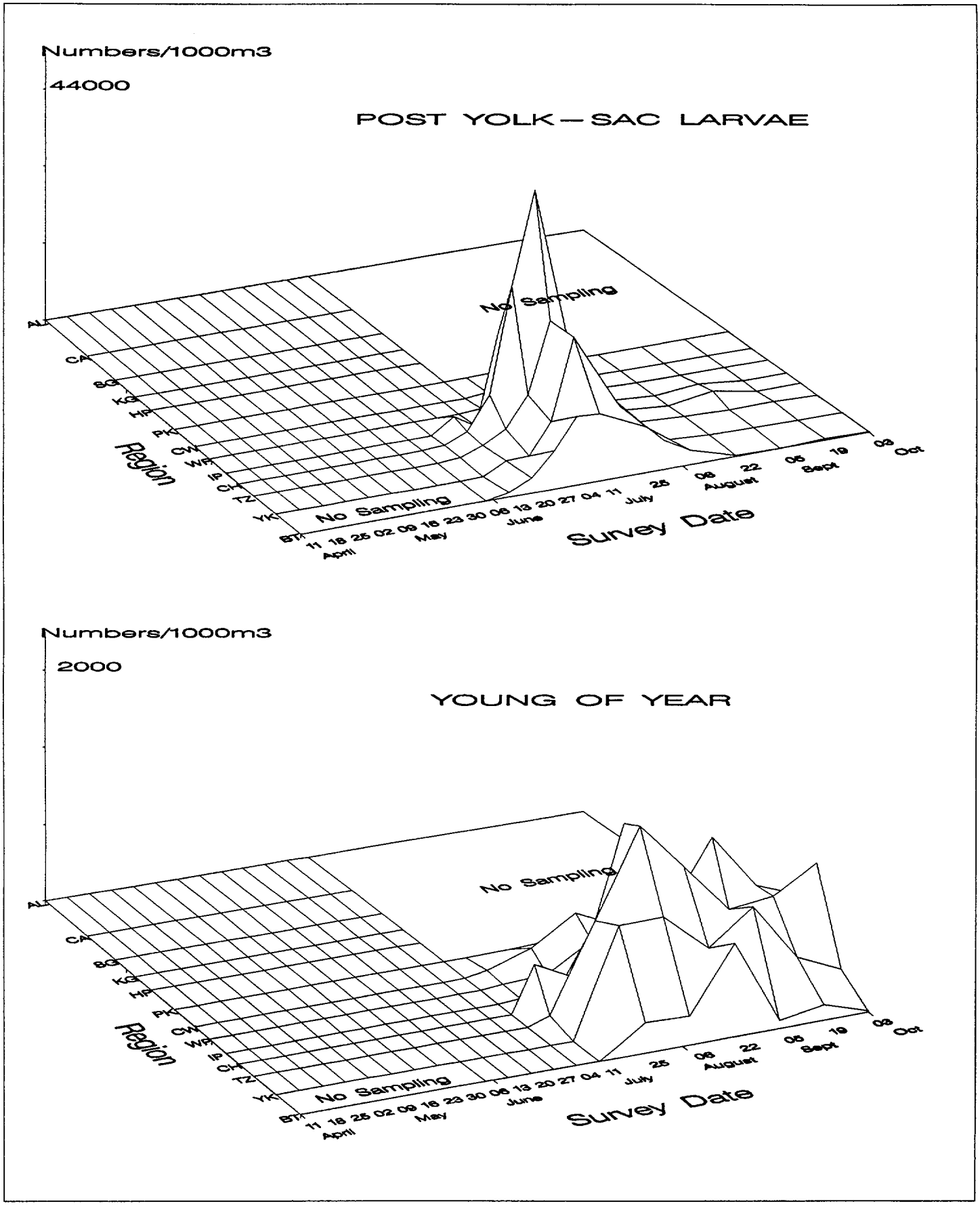


Figure 4-25. Spatiotemporal distribution of post yolk-sac and young-of-year stages of bay anchovy in the Hudson River estuary based on the 1994 Long River Ichthyoplankton Survey.

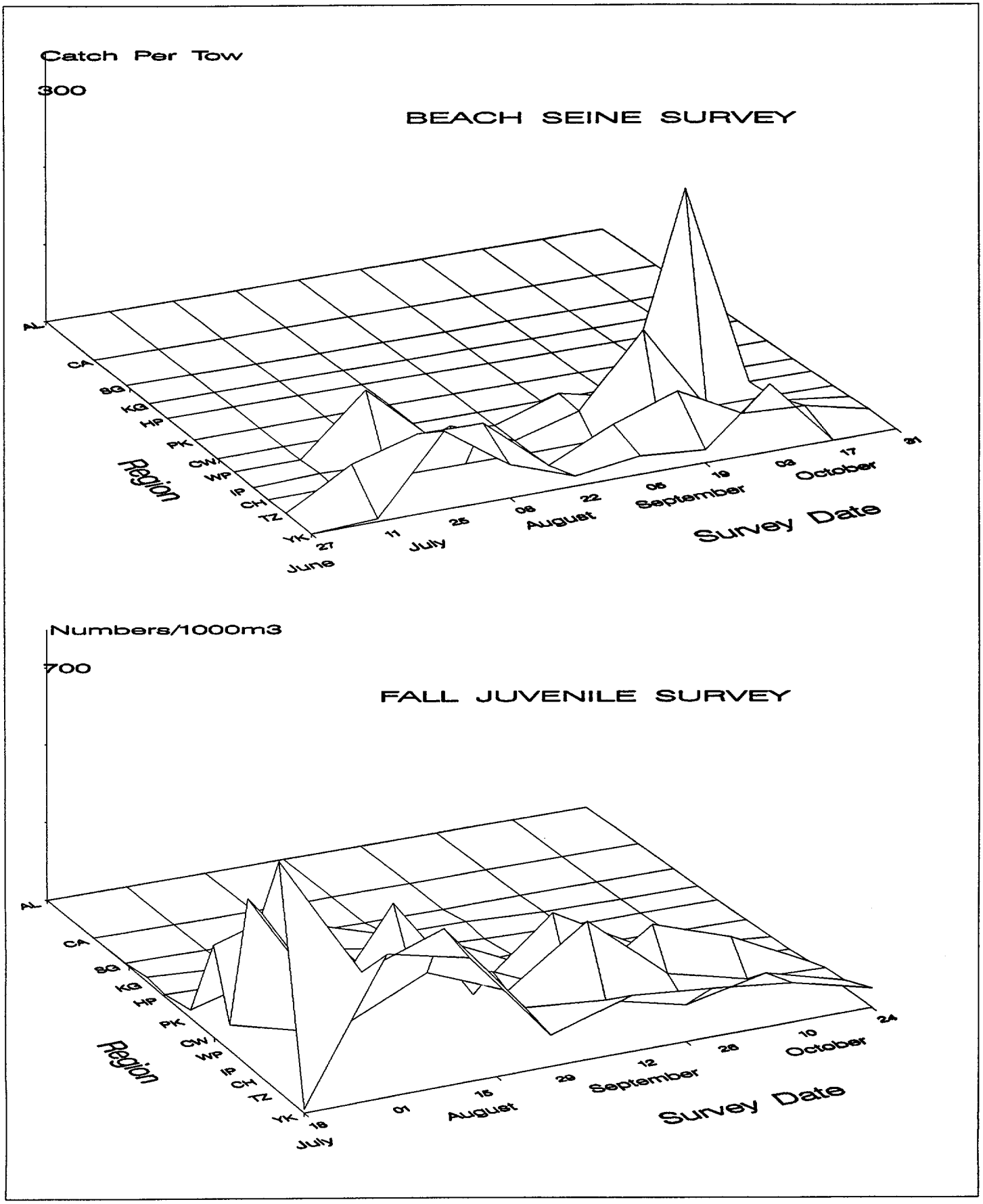


Figure 4–26. Spatiotemporal distribution of young–of–year bay anchovy in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine Surveys.

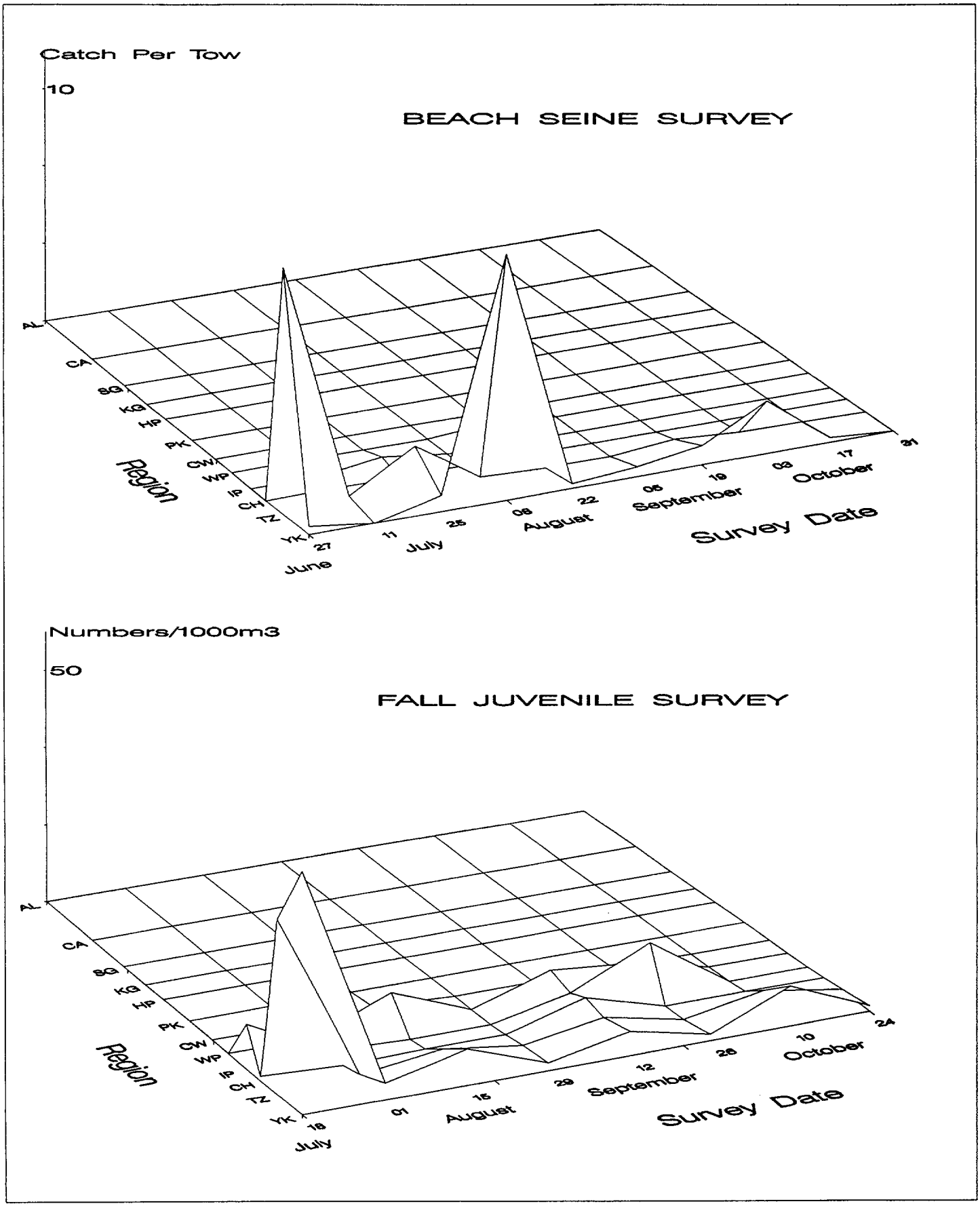


Figure 4–27. Spatiotemporal distribution of yearling and older bay anchovy in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine Surveys.

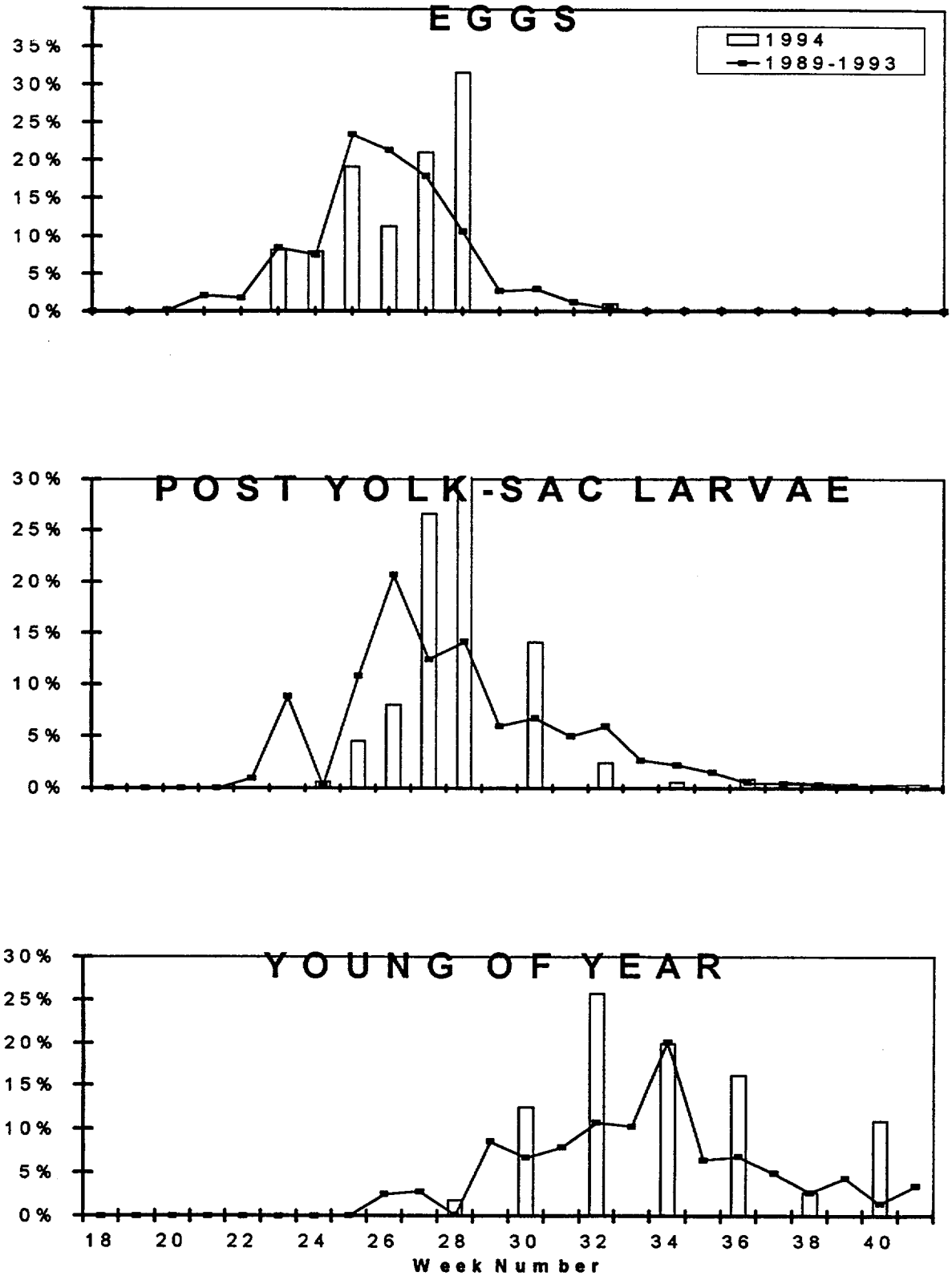


Figure 4-28. Temporal distribution indices for early life stages of bay anchovy collected during Longitudinal River Ichthyoplankton surveys of the Hudson River estuary, 1989-1994.

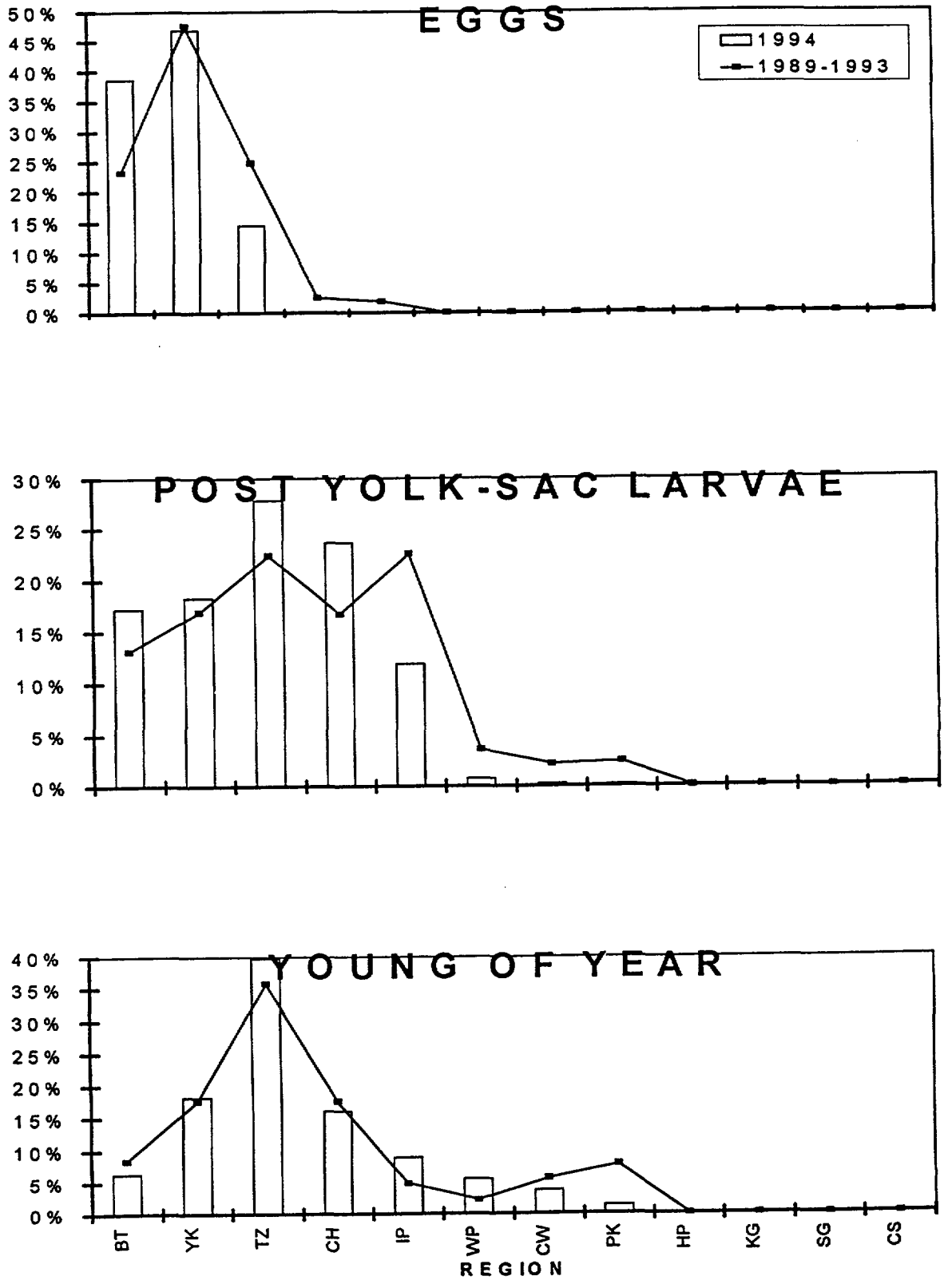


Figure 4-29. Geographical distribution indices for early life stages of bay anchovy collected during Longitudinal River Ichthyoplankton surveys of the Hudson River estuary, 1989-1994.

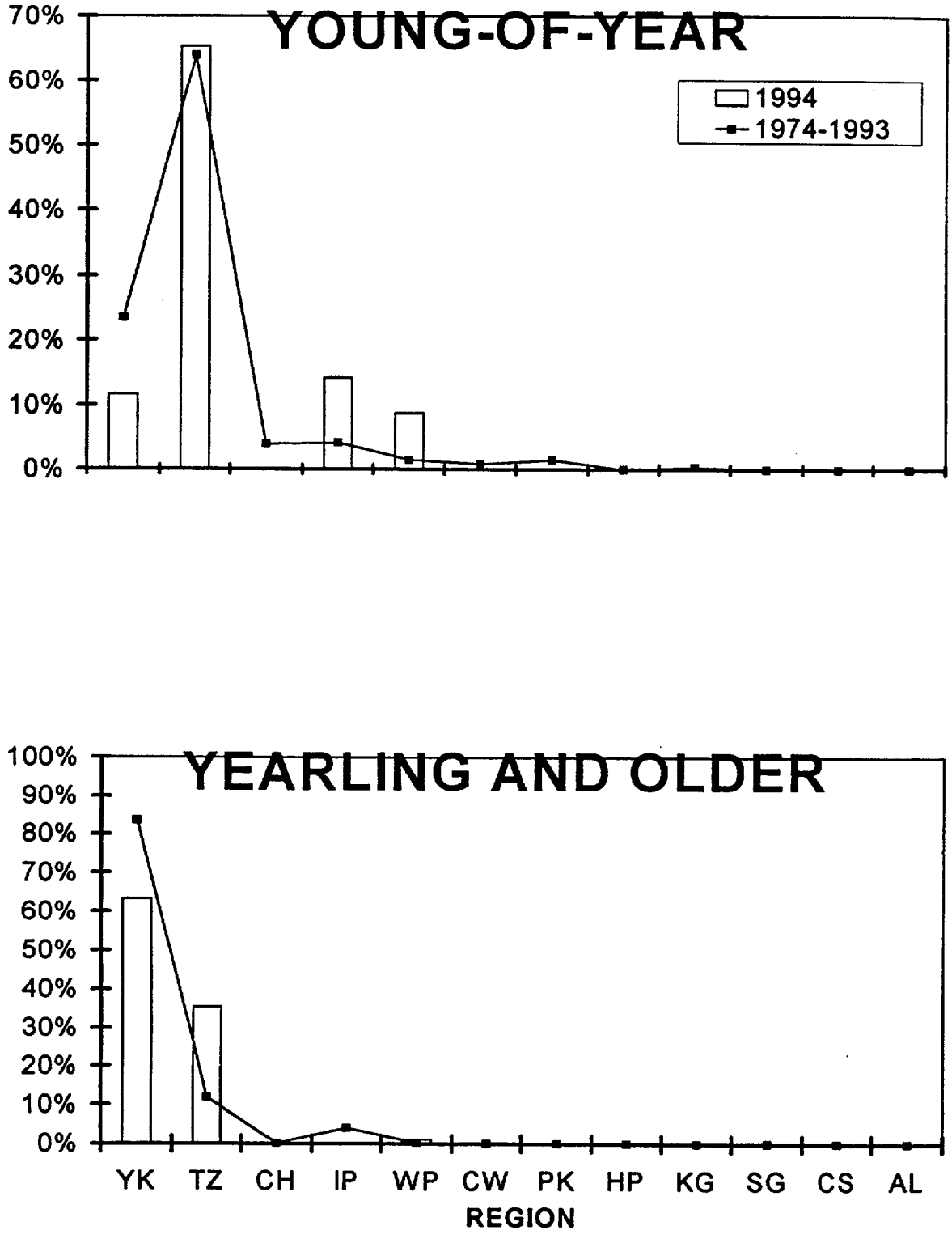


Figure 4-30. Geographical distribution indices for young-of-year and yearling and older bay anchovy collected during Beach Seine surveys of the Hudson River estuary, 1974-1994.

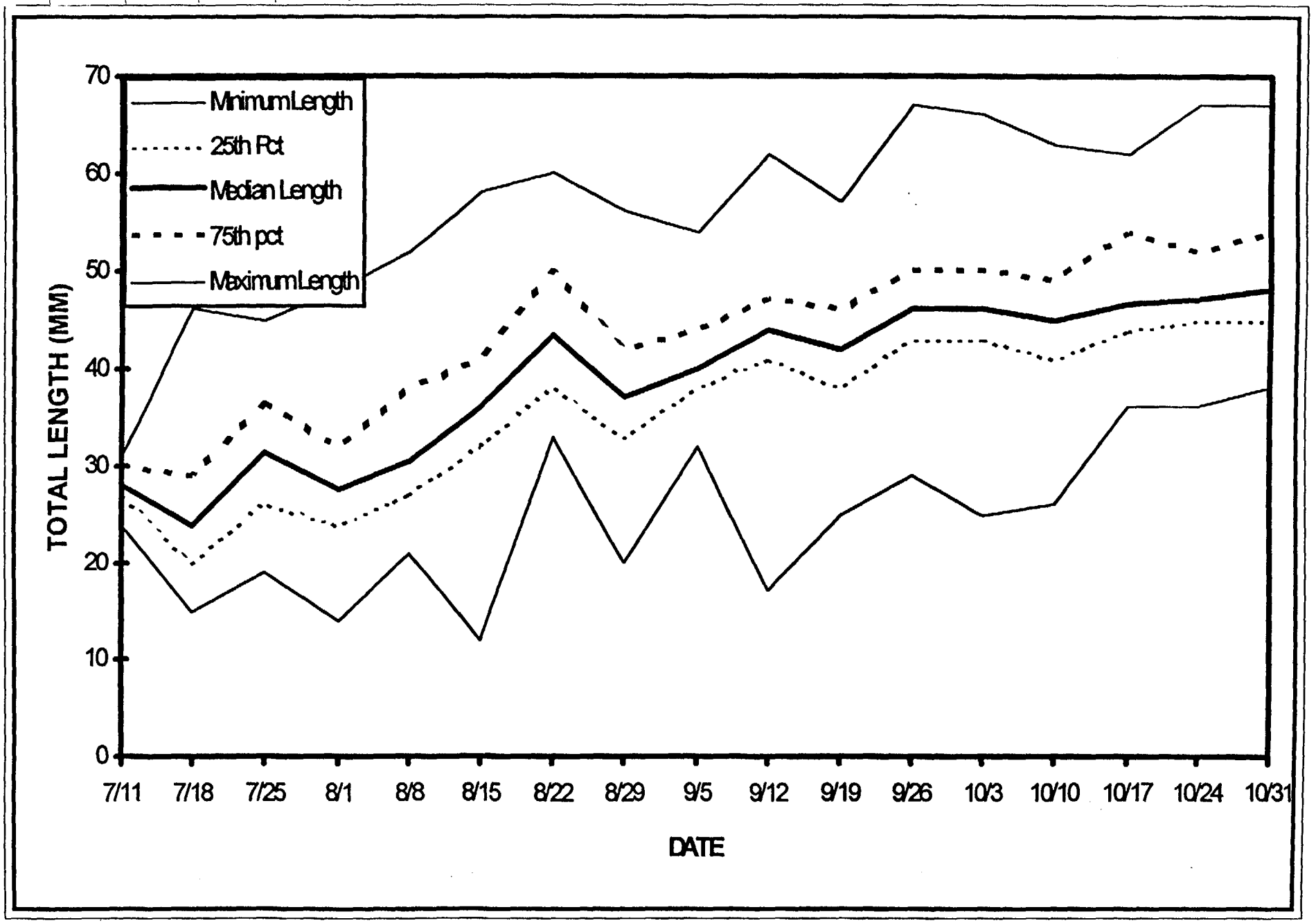


Figure 4-31. Weekly length statistics for bay anchovy young-of-year in the Hudson River estuary, 1994.

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

In the spring, American shad migrate north, and by summer they are feeding in the Gulf of Maine, the Bay of Fundy, Georges Bank, and the Gulf of the St. Lawrence (Neves and Depres 1979; Dadswell et al. 1987). In fall they move south again along the perimeter of the Gulf of Maine and Georges Bank at depths greater than 60 m (Neves and Depres 1979); by winter they may congregate along the edge of the continental shelf. Based on tagging experiments conducted in 1950 and 1951, Talbot (1954) reported that American shad of Hudson River origin were recaptured from Maine to North Carolina. Most recaptured fish were from the fishery along the New Jersey Coast in spring. Prespawning adults move along the coast in the spring to their natal rivers (Dadswell et al. 1987), which they enter as river temperatures reach 50-60 °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 1994, the bulk of American shad eggs were collected in the Albany region during late April (Figure 4-32).

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 1994, both YSL and PYSL American shad were found primarily in the upper estuary between Hyde Park and Albany (Figures 4-32 and 4-33). During 1994 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 4-34). Few yearling and older American shad were collected in 1994 (Figure 4-35), 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 1994 with previous years (1974-1993), the 1994 distributions of early life stages were generally consistent with the long-term record (Figure 4-36). Peak larval distribution in 1994, however, lagged 1-2 weeks behind the historical peaks which are mid-May for YSL, late May for PYSL, and late June for YOY. The geographical distribution of American shad early life stages in 1994 was also consistent with the long-term record with greatest distribution in the upper estuary (Figure 4-37).

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 4-38). The 1994 geographical distribution data supported this distribution pattern.

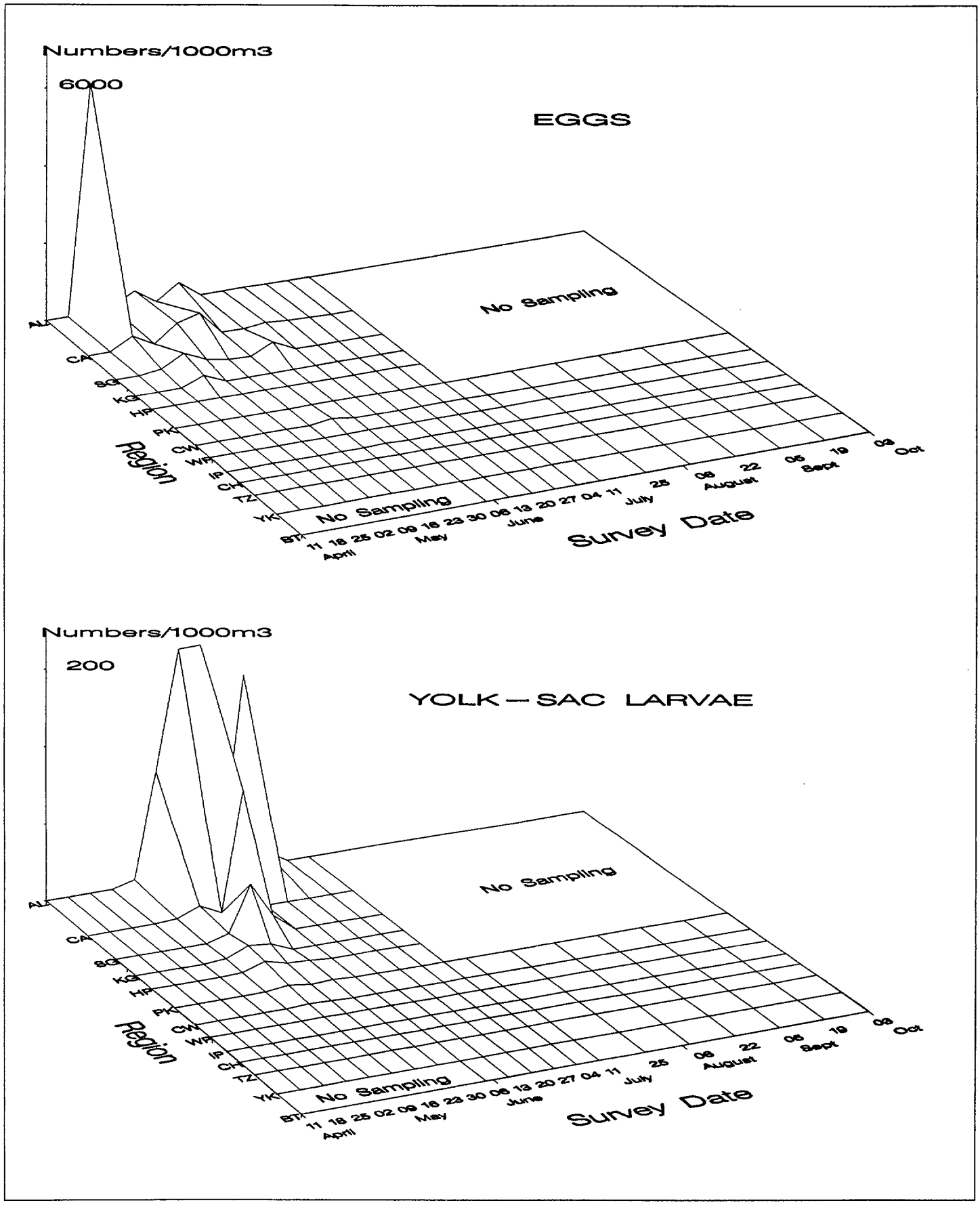


Figure 4—32. Spatiotemporal distribution of egg and yolk—sac stages of American shad in the Hudson River estuary based on the 1994 Long River Ichthyoplankton Survey.

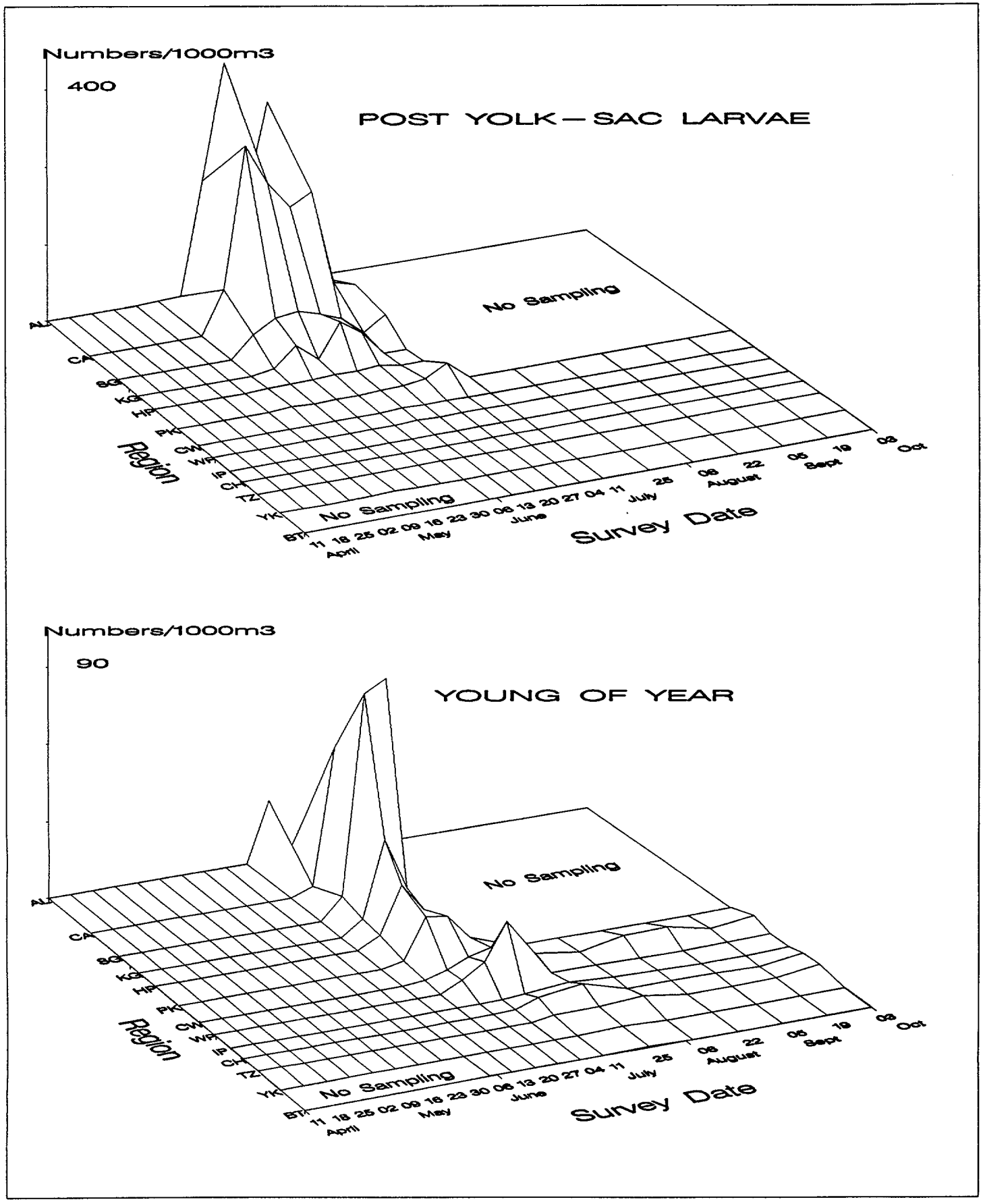


Figure 4-33. Spatiotemporal distribution of post yolk-sac and young-of-year stages of American shad in the Hudson River estuary based on the 1994 Long River Ichthyoplankton Survey.

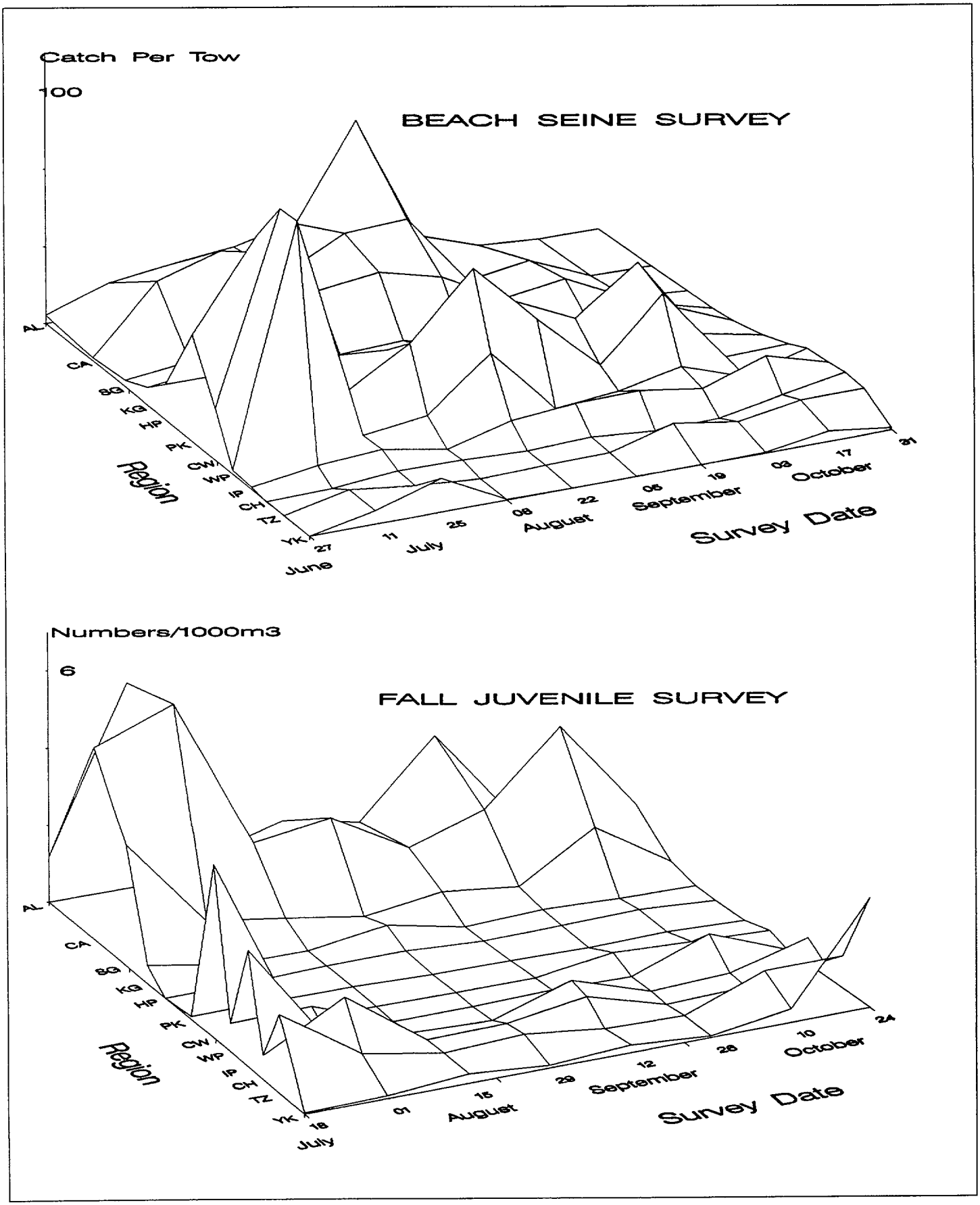


Figure 4–34. Spatiotemporal distribution of young–of–year American shad in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine Surveys.

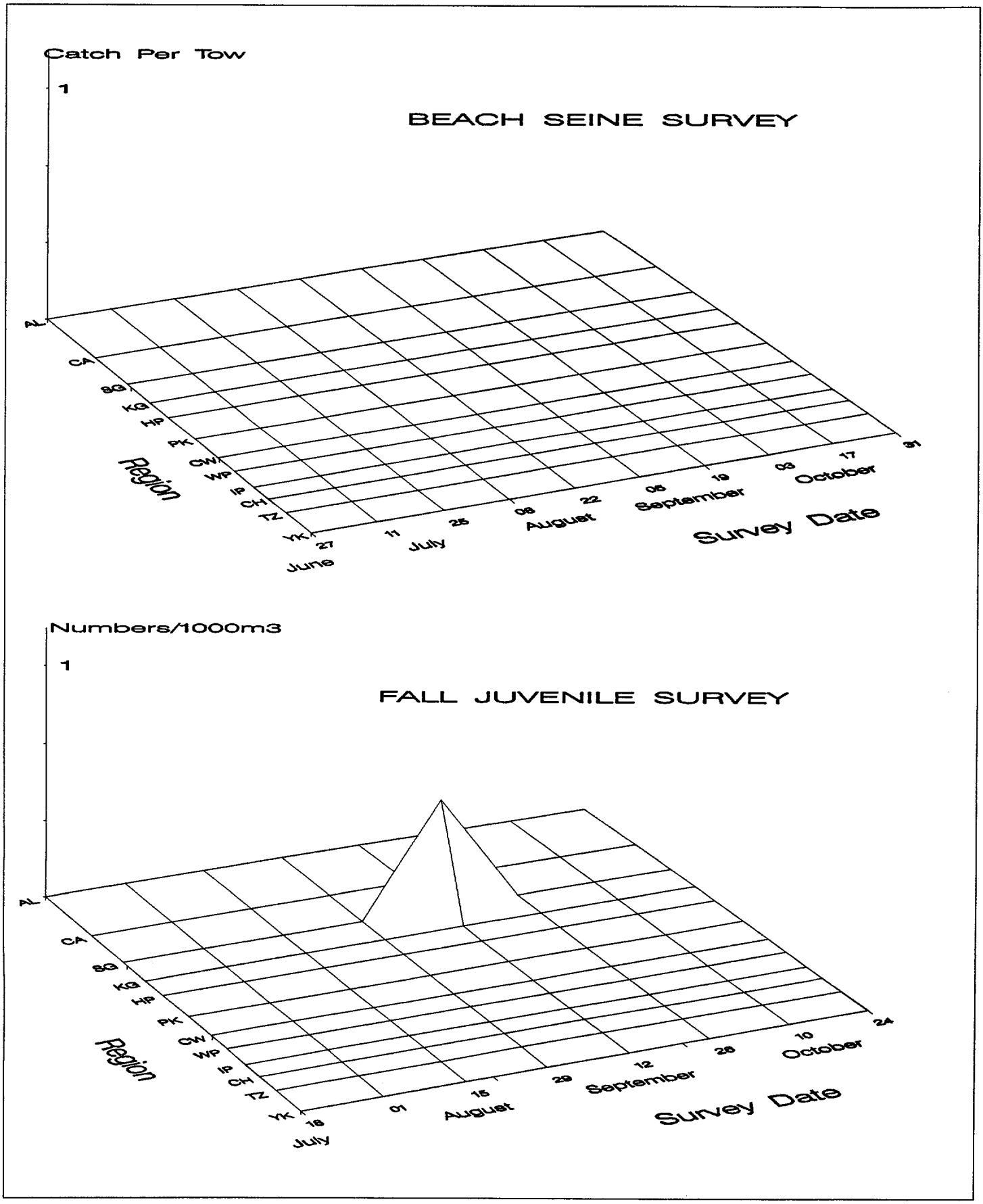


Figure 4–35. Spatiotemporal distribution of yearling and older American shad in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine Surveys.

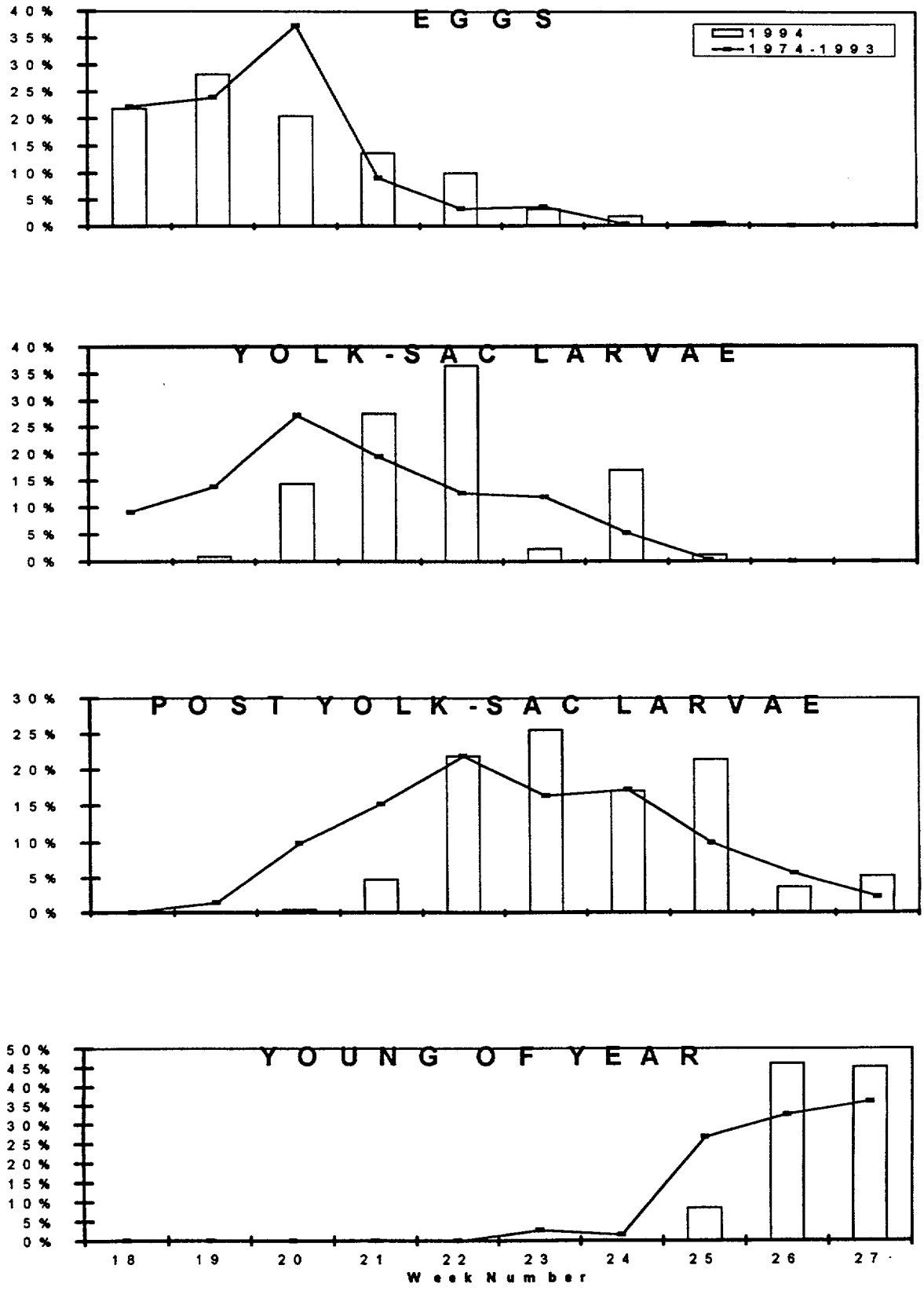


Figure 4-36. Temporal distribution indices for early life stages of American shad collected during Longitudinal River Ichthyoplankton surveys of the Hudson River estuary, 1974-1994.

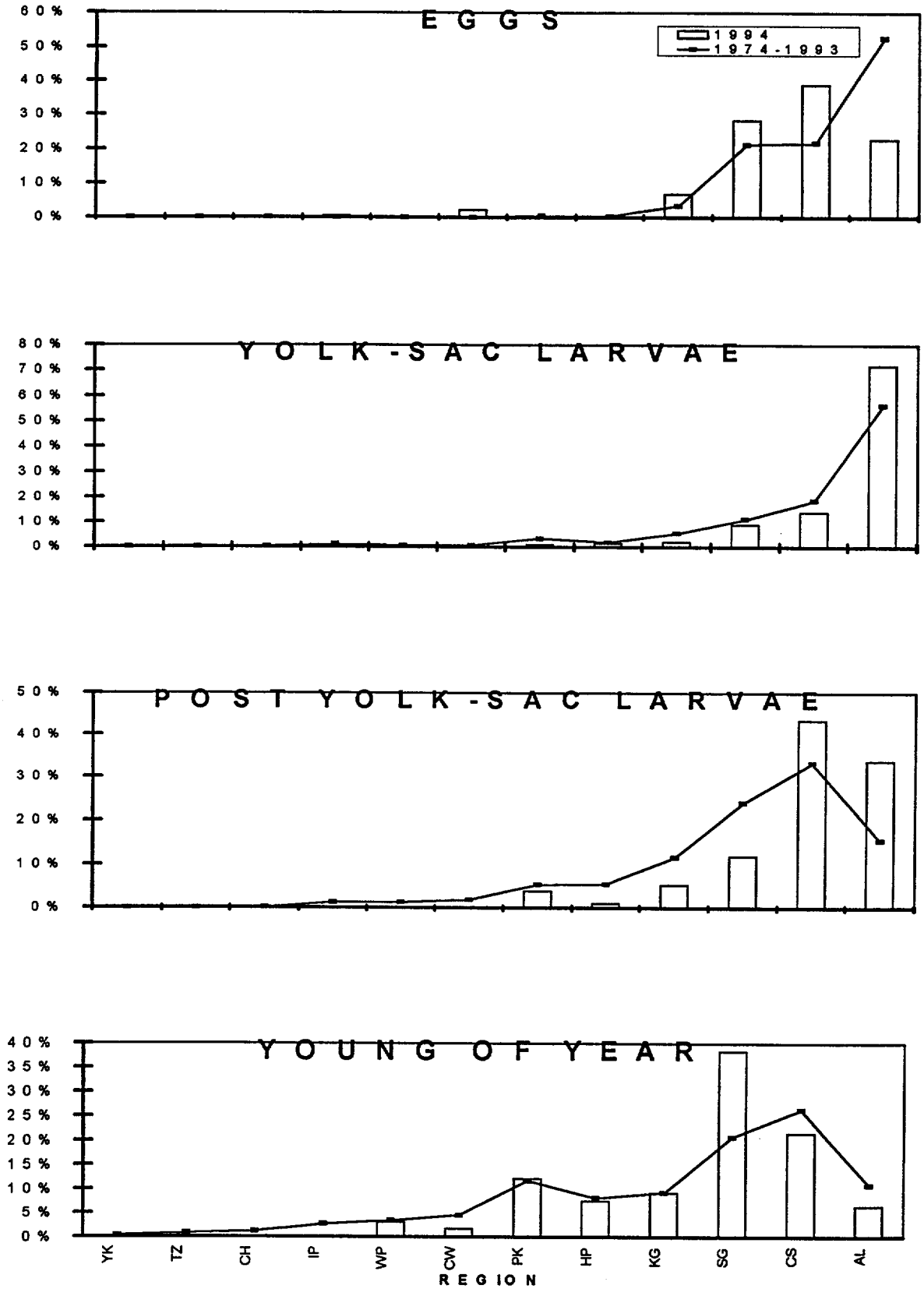


Figure 4-37 Geographical distribution indices for early life stages of American shad collected during Longitudinal River Ichthyoplankton Surveys of the Hudson River Estuary, 1974 - 1994.

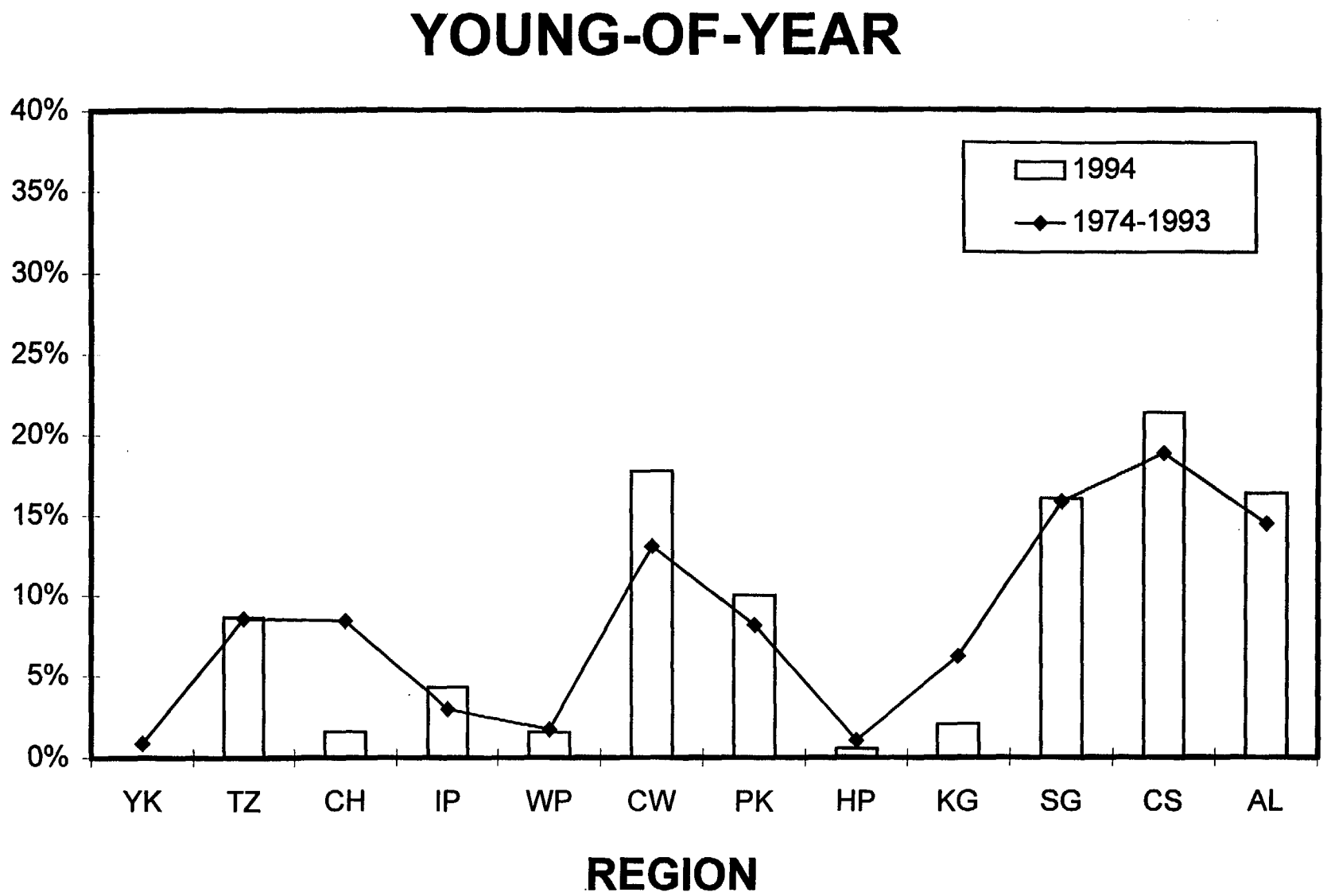


Figure 4-38. Geographical distribution indices for young-of-year American shad collected during Beach Seine surveys of the Hudson River estuary, 1974-1994.

Weekly length statistics for American shad from YSL through juvenile life stages collected in 1994 show a rapid growth period from early June through mid-July and steady growth thereafter through the end of BSS/FSS collections in October (Figure 4-39, Appendix Tables D-11 through D-13). At the time they emigrate from the Hudson at the end of the summer, juvenile shad range from 3 to 4 in. long. This emigration is triggered by declining water temperatures and may be related to size (Schmidt et al. 1988); larger juveniles may tend to emigrate earlier. The shad emigration is a gradual movement of the population seaward over several months. Shad emigrate from the estuary earlier than either of the other two anadromous herrings commonly found in the Hudson River, 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.

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, 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 1994, peak abundance of *Alosa* spp. eggs occurred in the upper estuary, mainly from Catskill to Albany during mid-May (Figure 4-40). YSL and PYSL were also most abundant in the upper estuary but PYSL were found downriver in the Cornwall region by late June (Figure 4-41).

Comparing the temporal distribution of early life stages of *Alosa* spp. in 1994 with previous years (1974-1993), the 1994 peak distribution of eggs and YSL, although generally consistent with the long-term record, occurred later in May than the historical peak (Figure 4-42). PYSL and YOY temporal

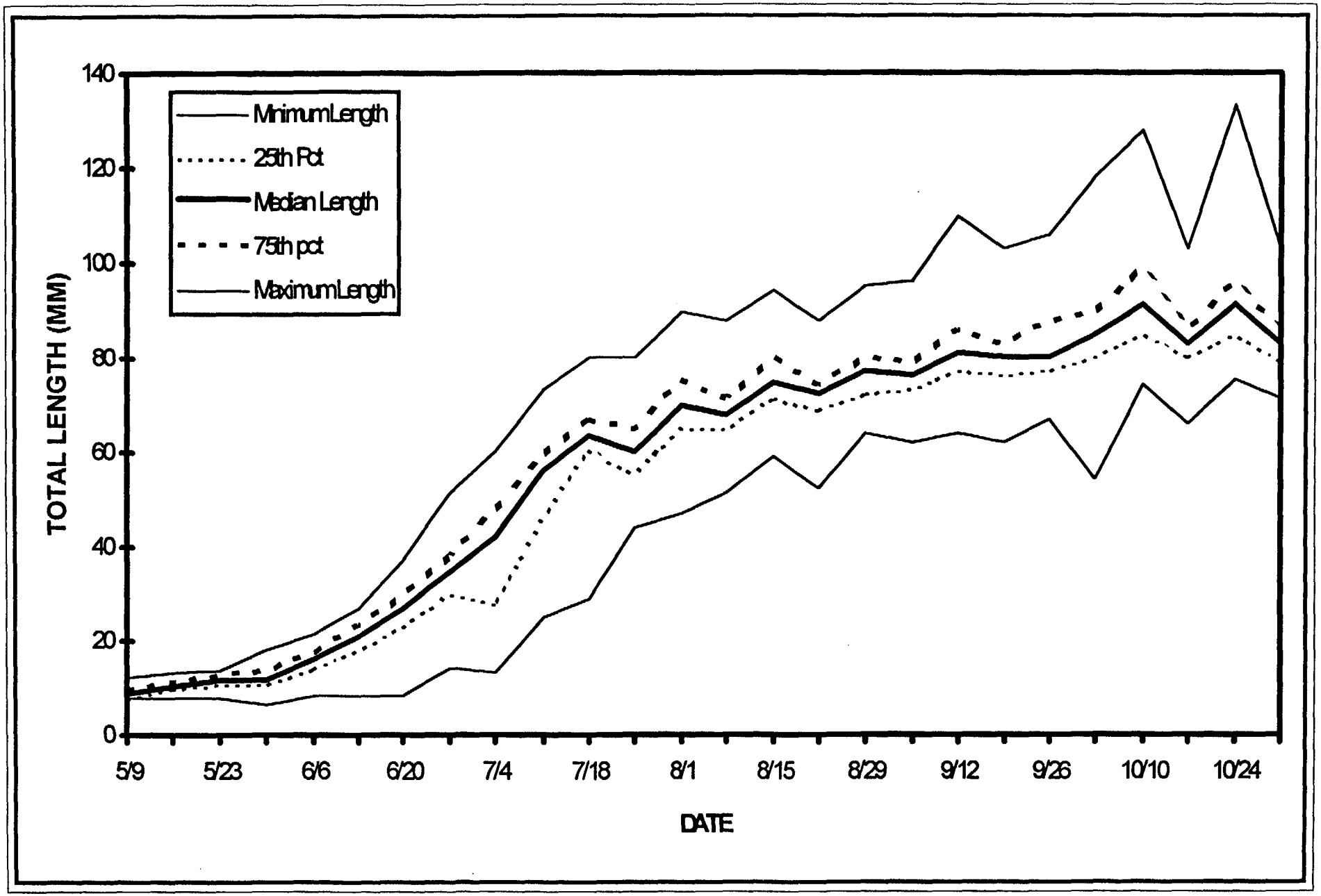


Figure 4-39. Weekly length statistics for American shad larvae and young-of-year in the Hudson River estuary, 1994.

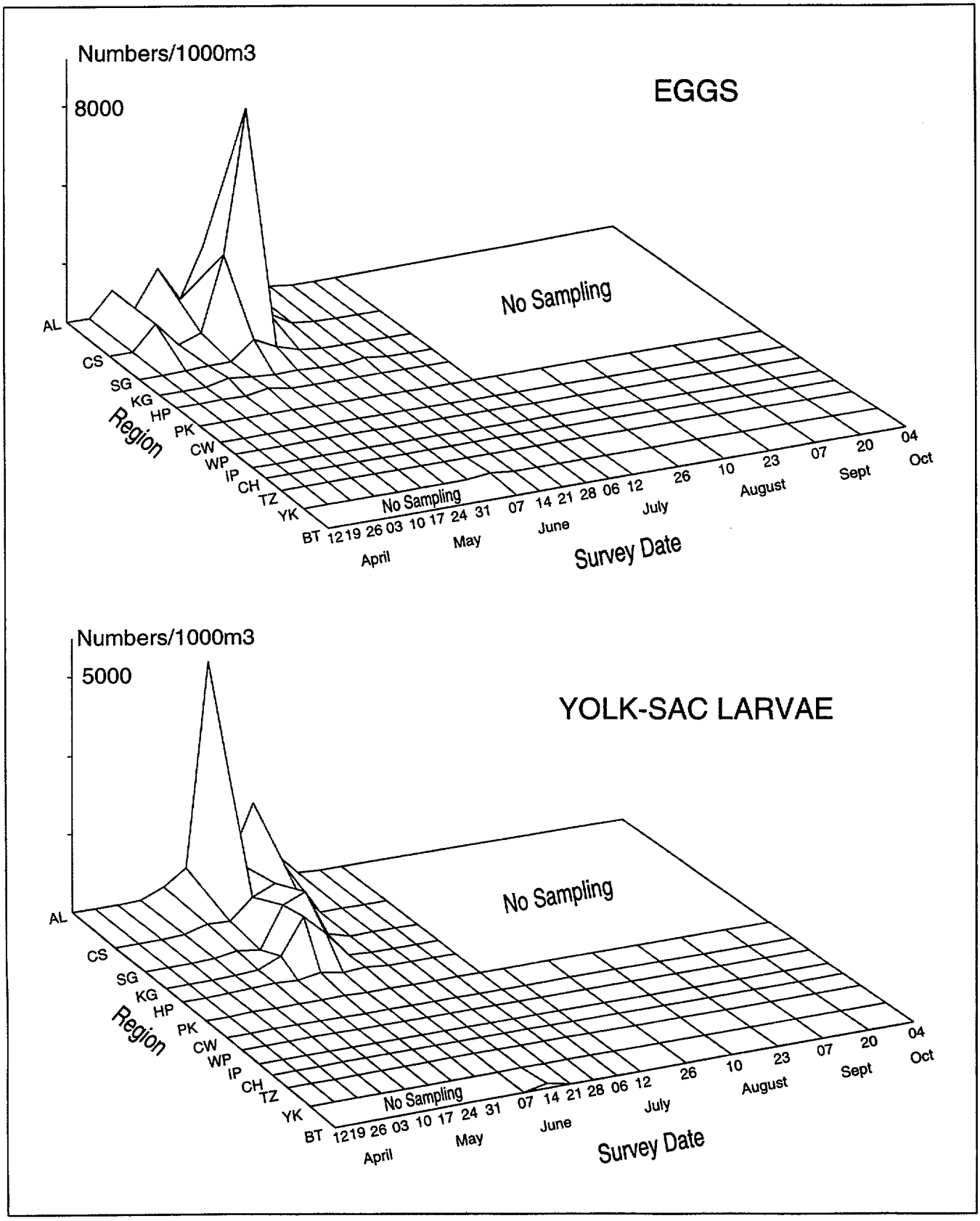


Figure 4-40. Spatiotemporal distribution of egg and yolk-sac stages of *Alosa* spp. in the Hudson River estuary based on the 1994 Long River Ichthyoplankton Survey.

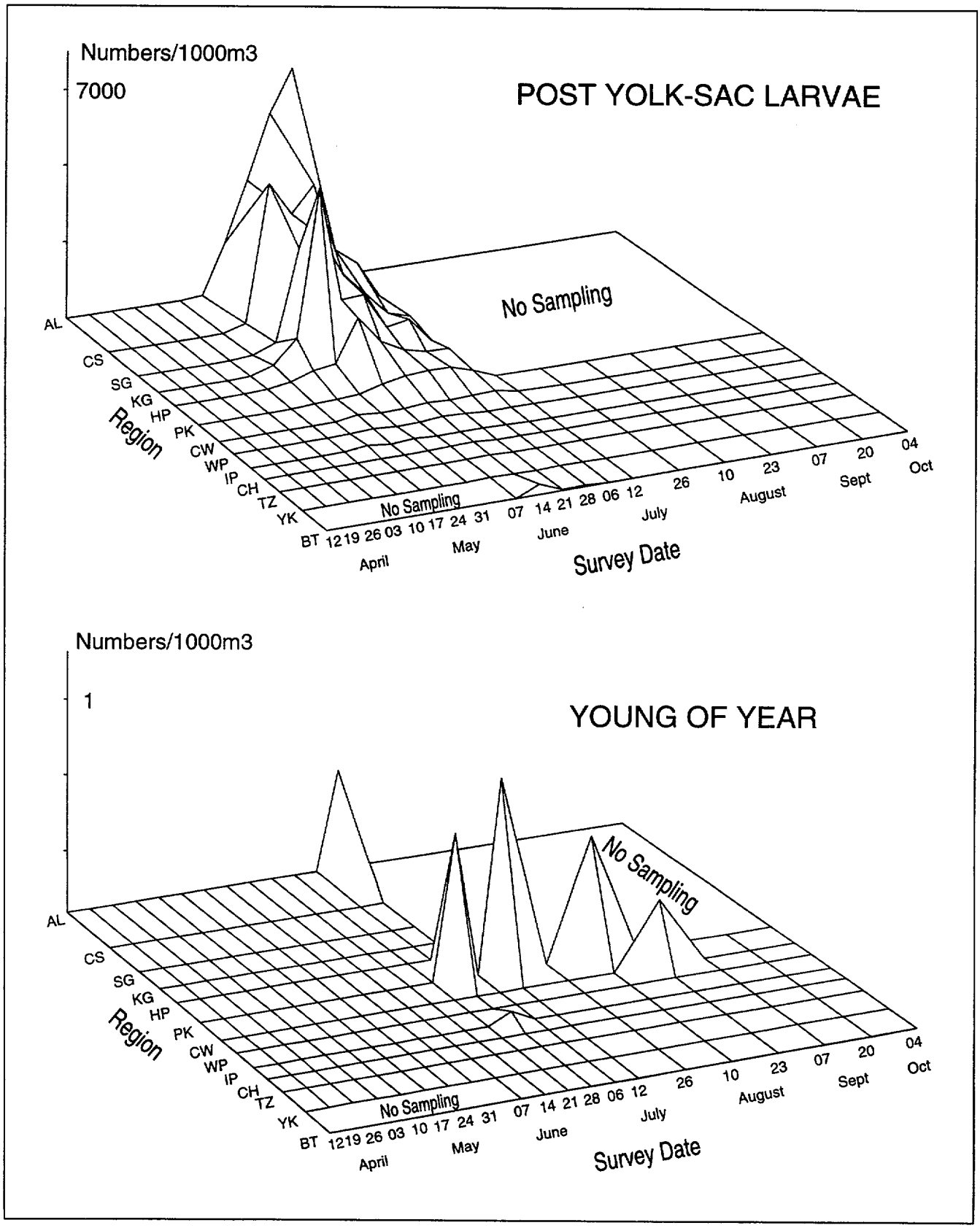


Figure 4-41. Spatiotemporal distribution of post yolk-sac and young-of-year stages of *Alosa* spp. in the Hudson River estuary based on the 1994 Long River Ichthyoplankton Survey.

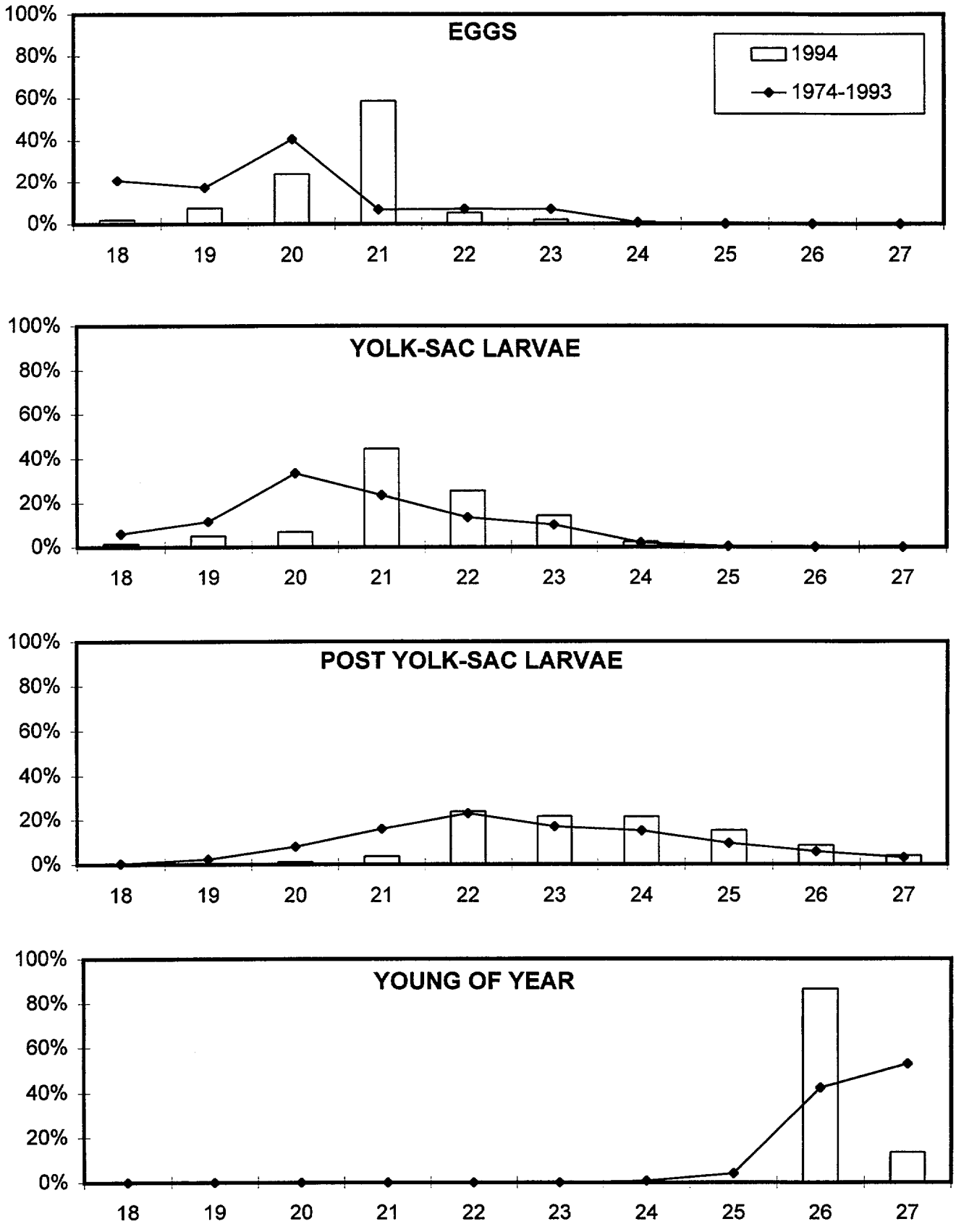


Figure 4-42. Temporal distribution indices for early life stages of *Alosa* spp. collected during Longitudinal River Ichthyoplankton surveys of the Hudson River estuary, 1974-1994.

distributions in 1994 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 1994 distribution is consistent with the long-term record, except that the major proportion of YOY in 1994 occurred in Poughkeepsie instead of throughout the mid- and upper estuary (Figure 4-43).

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 1994 LRS in late June in the upper estuary with the highest density found in the Catskill region (Figure 4-44). Spatiotemporal distribution of juvenile alewife based on the 1994 BSS shows high CPUE in the Hyde Park region in early August and progressing downriver to West Point by October. Juvenile alewife captured in the FSS were found throughout the upper and middle estuary (Figure 4-45). Few yearling and older alewife were collected in the BSS and FSS gear (Figure 4-46).

Comparing the geographical distribution of juvenile alewife based on the 1994 BSS with previous years (1974-1993), the 1994 distribution of juveniles was generally consistent with the long-term trend of a tri-modal peak in distribution (Figure 4-47). However, in 1994 the lower estuary peak usually found in the Tappan Zee region occurred further upriver in the Indian Point region.

Weekly length statistics for alewife juveniles collected in 1994 show steady growth from early July through the end of BSS/FSS collections in October (Figure 4-48, Appendix Tables D-14 and D-15).

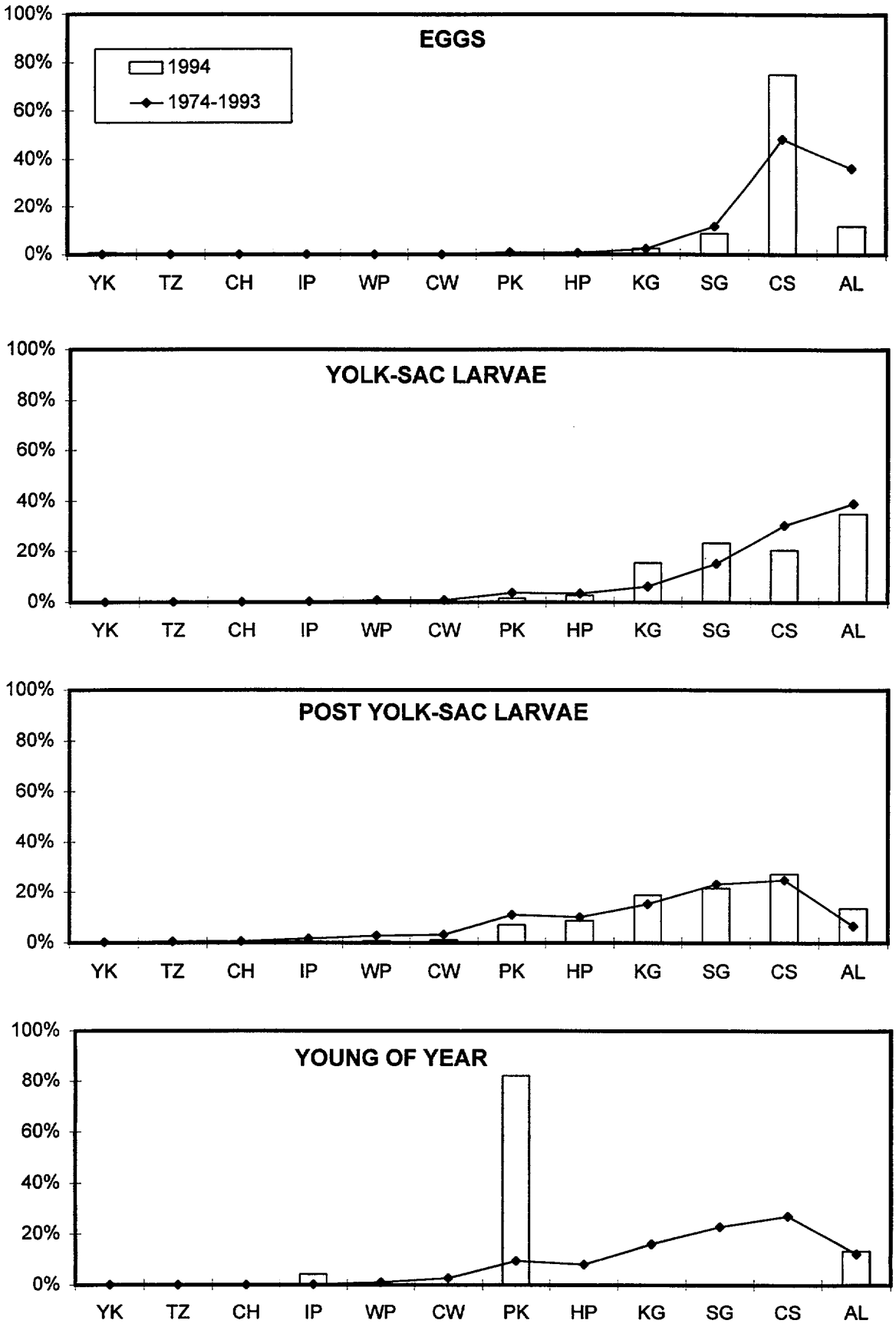


Figure 4-43. Geographical distribution indices for early life stages of *Alosa* spp. collected during Longitudinal River Ichthyoplankton surveys of the Hudson River estuary, 1974-1994.

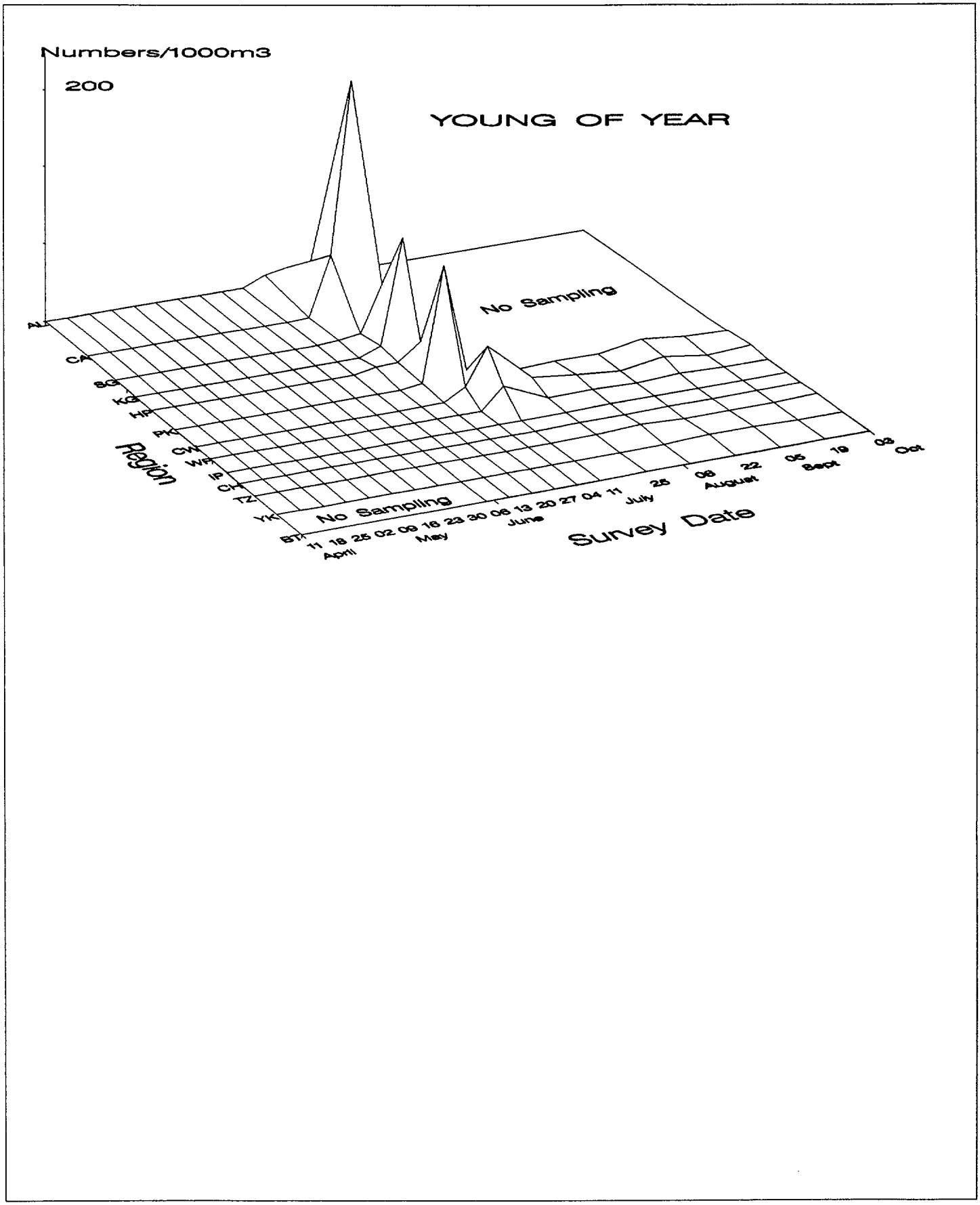


Figure 4–44. Spatiotemporal distribution of young–of–year alewife in the Hudson River estuary based on the 1994 Long River Ichthyoplankton Survey.

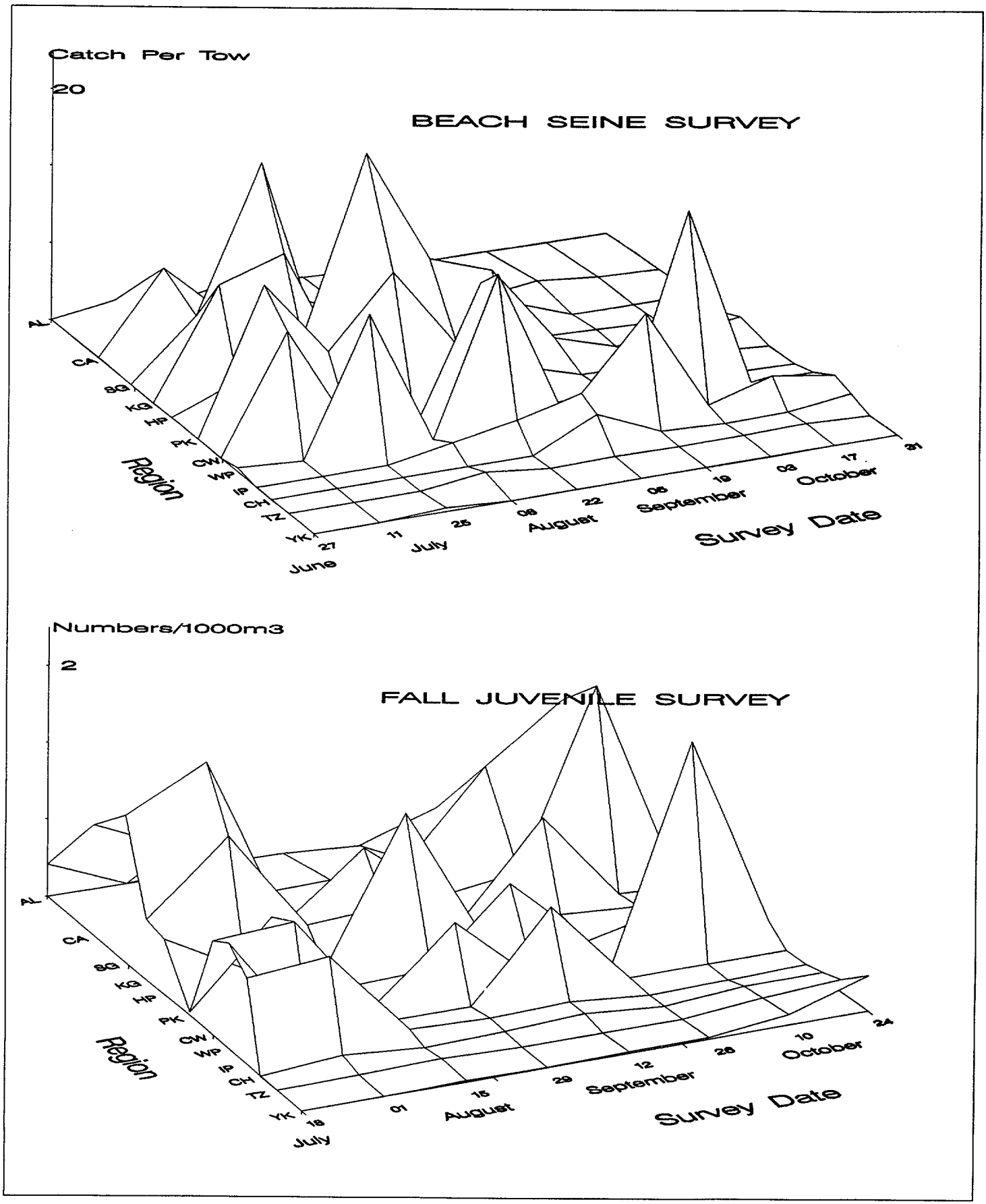


Figure 4-45. Spatiotemporal distribution of young-of-year alewife in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine surveys.

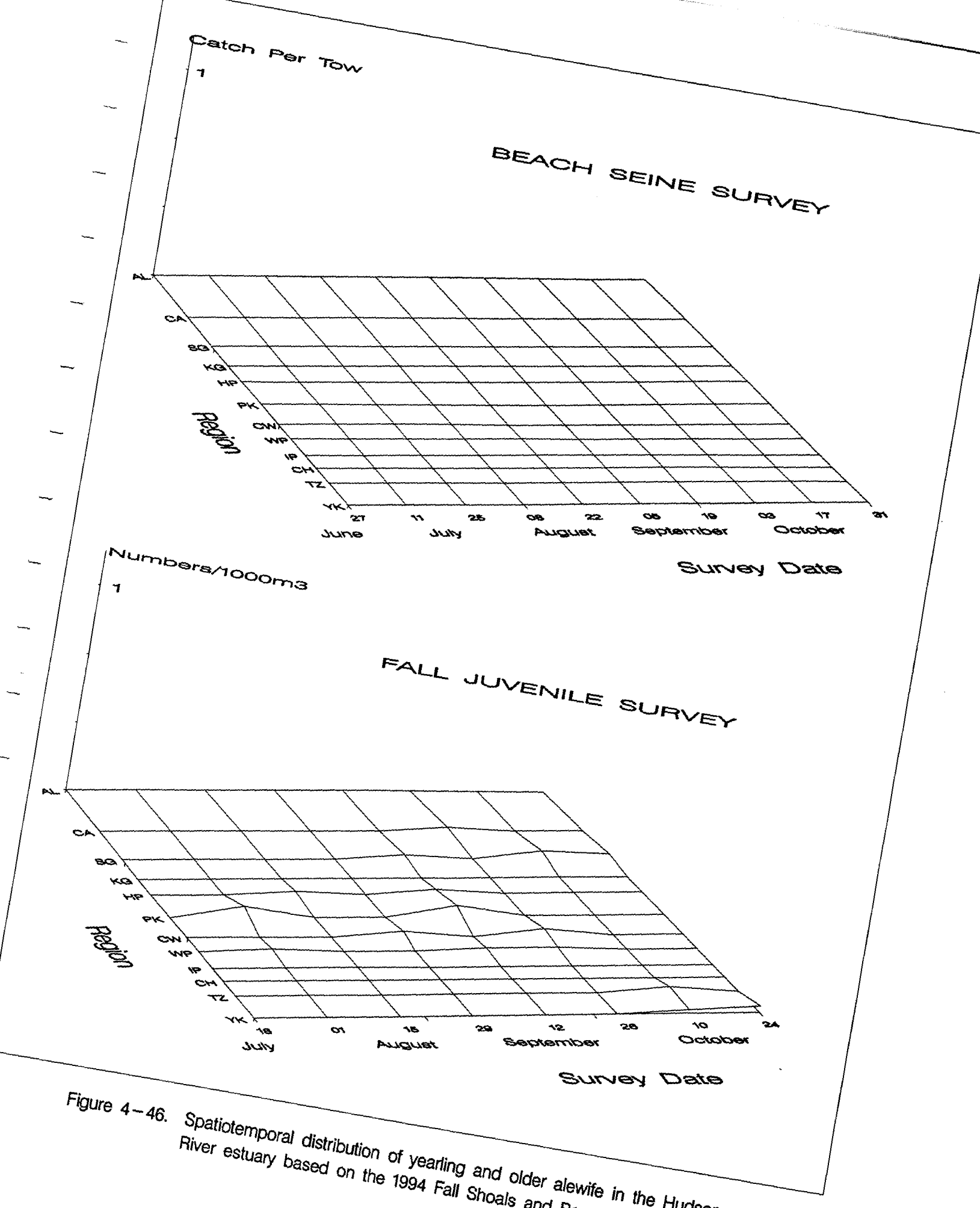


Figure 4–46. Spatiotemporal distribution of yearling and older alewife in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine Surveys.

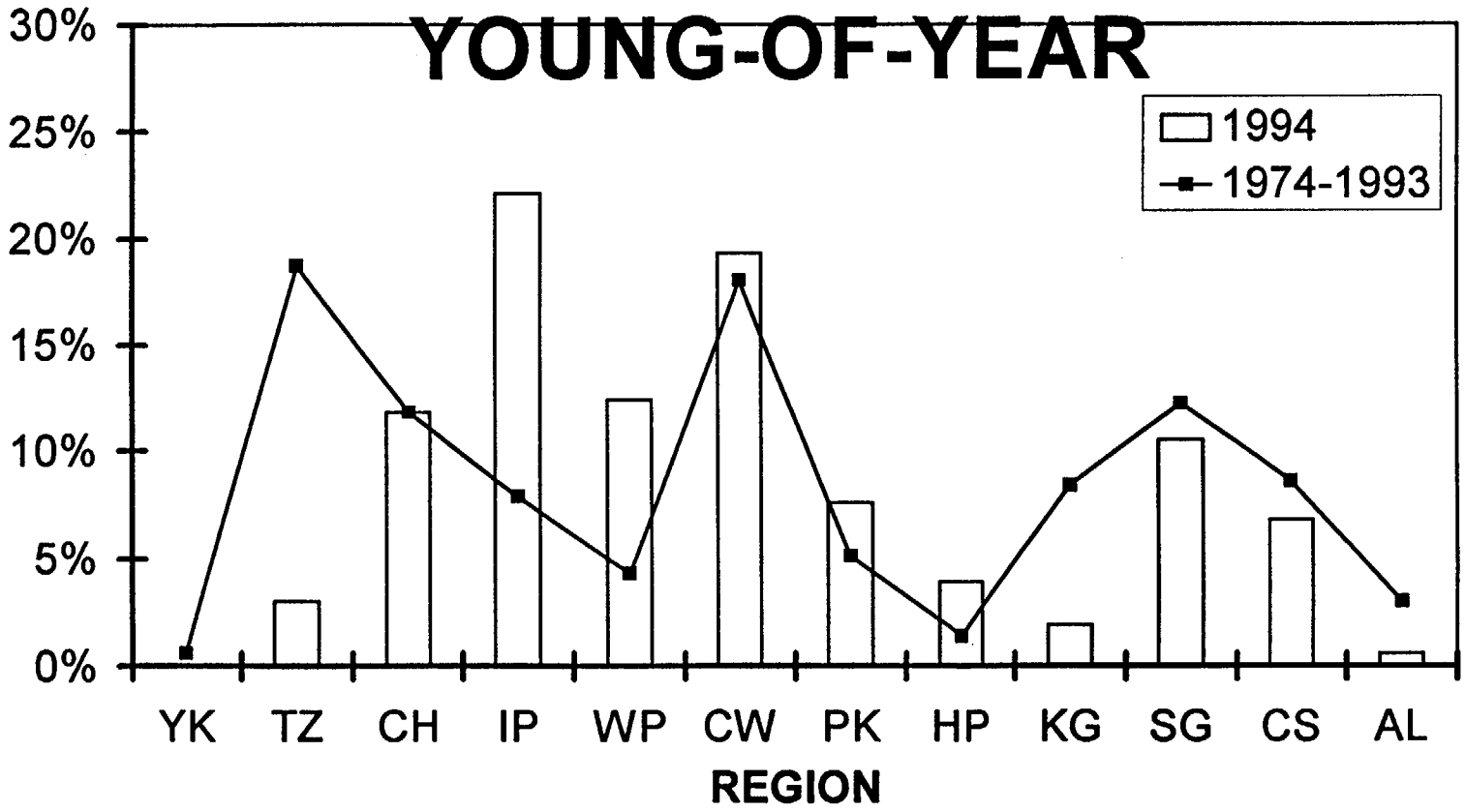


Figure 4-47. Geographical distribution indices for young-of-year alewife collected during Beach Seine surveys of the Hudson River estuary, 1974-1994.

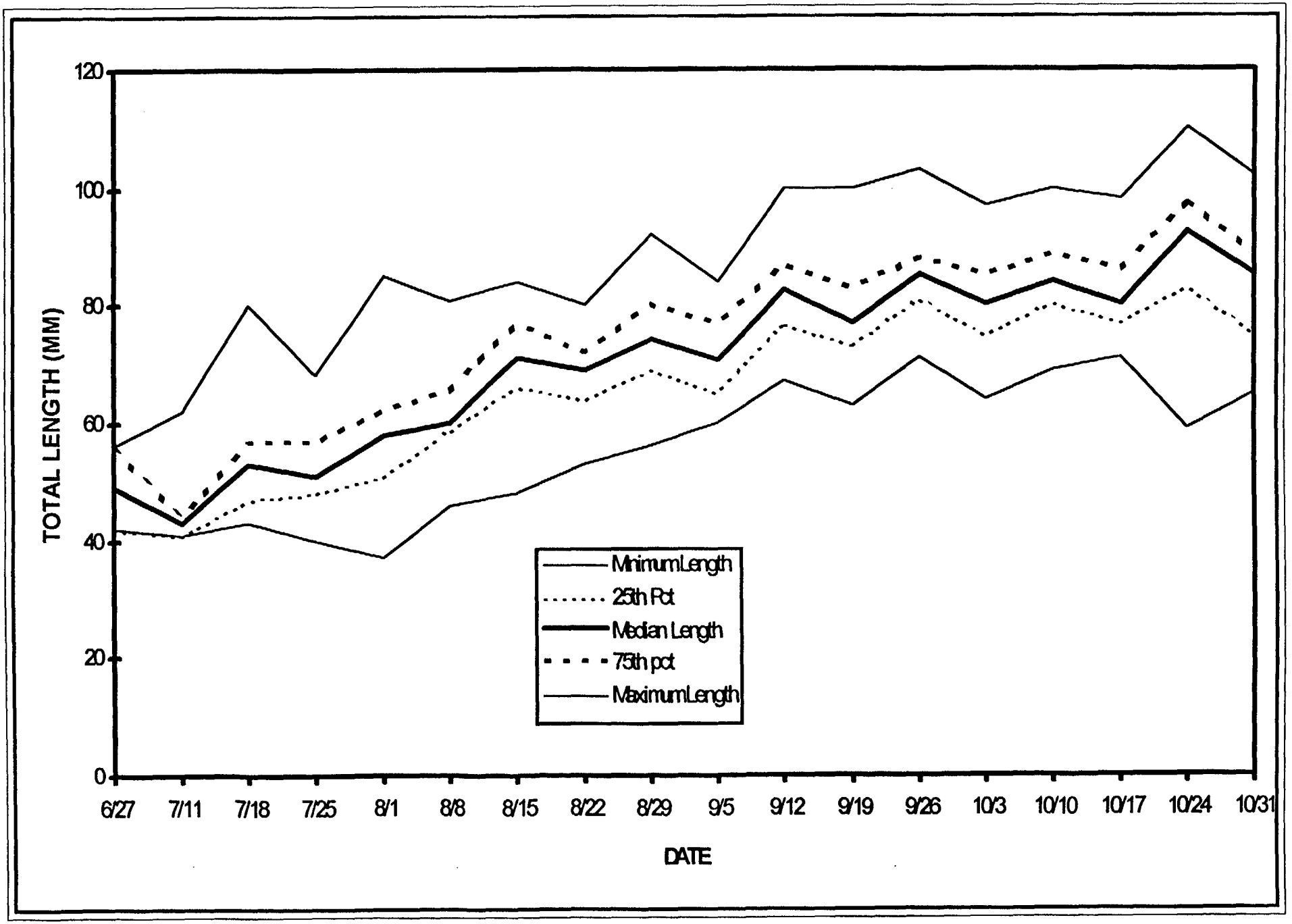


Figure 4-48. Weekly length statistics for alewife young-of-year in the Hudson River estuary, 1994.

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 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 1994, early juveniles collected in the LRS were abundant in the mid-estuary region of Cornwall from July through October (Figure 4-49). Juvenile blueback herring began appearing in the 1994 BSS and FSS in early July, with collections gradually increasing in downriver regions by October, reflecting the downriver migration (Figure 4-50). Few yearling and older blueback herring were collected in the BSS and FSS gear (Figure 4-51). Comparing the geographical distribution of juvenile blueback herring based on the 1994 BSS with previous years (1974-1993), the 1994 distribution of juveniles was consistent with the long-term record, with a slightly higher proportion of the population caught in the Cornwall and Kingston regions than in previous years (Figure 4-52).

Weekly length statistics for juvenile blueback herring collected in 1994 show very slow but steady growth from early July through the end of BSS/FSS collections in October (Figure 4-53, 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.

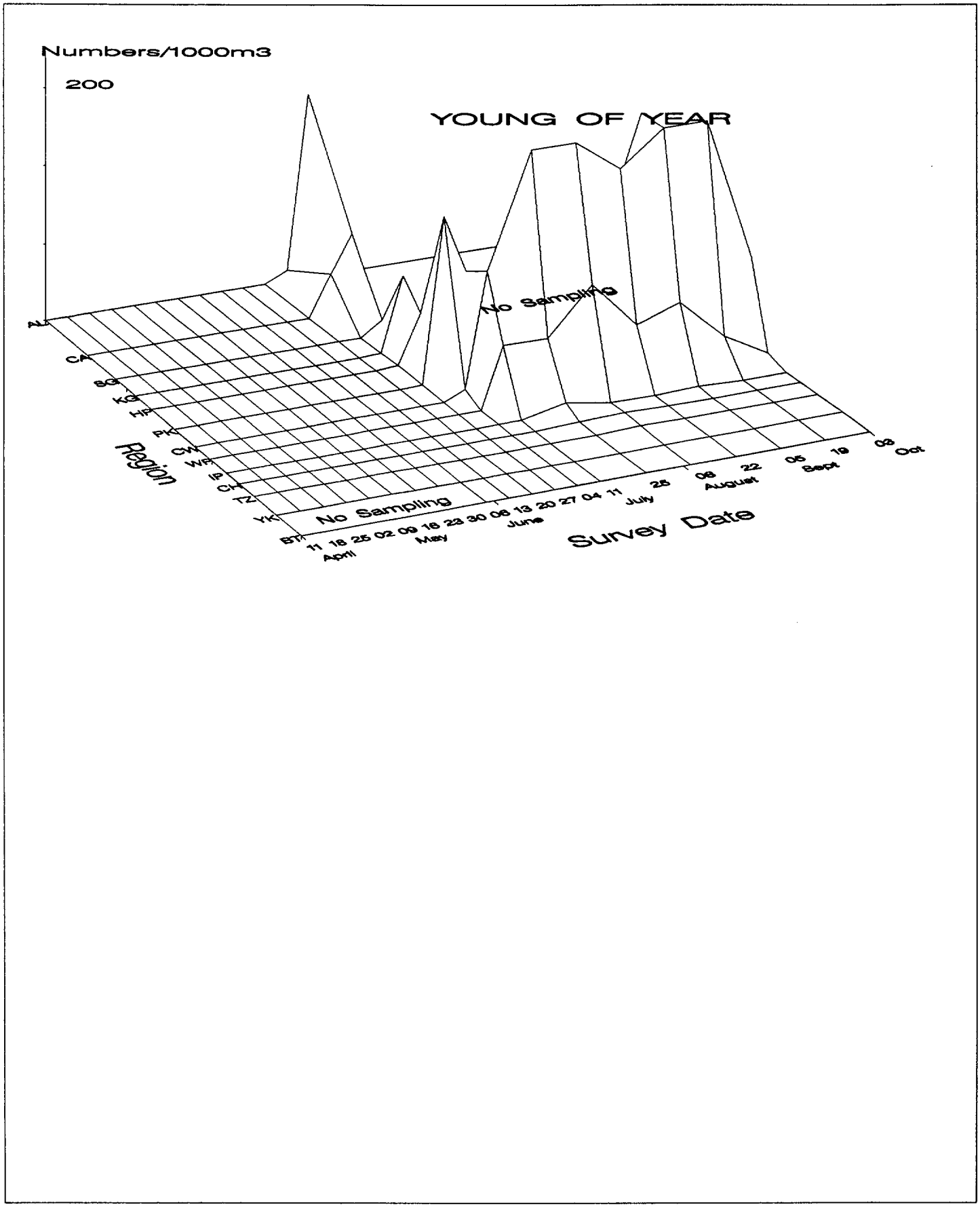


Figure 4–49. Spatiotemporal distribution of young–of–year blueback herring in the Hudson River estuary based on the 1994 Long River Ichthyoplankton Survey.

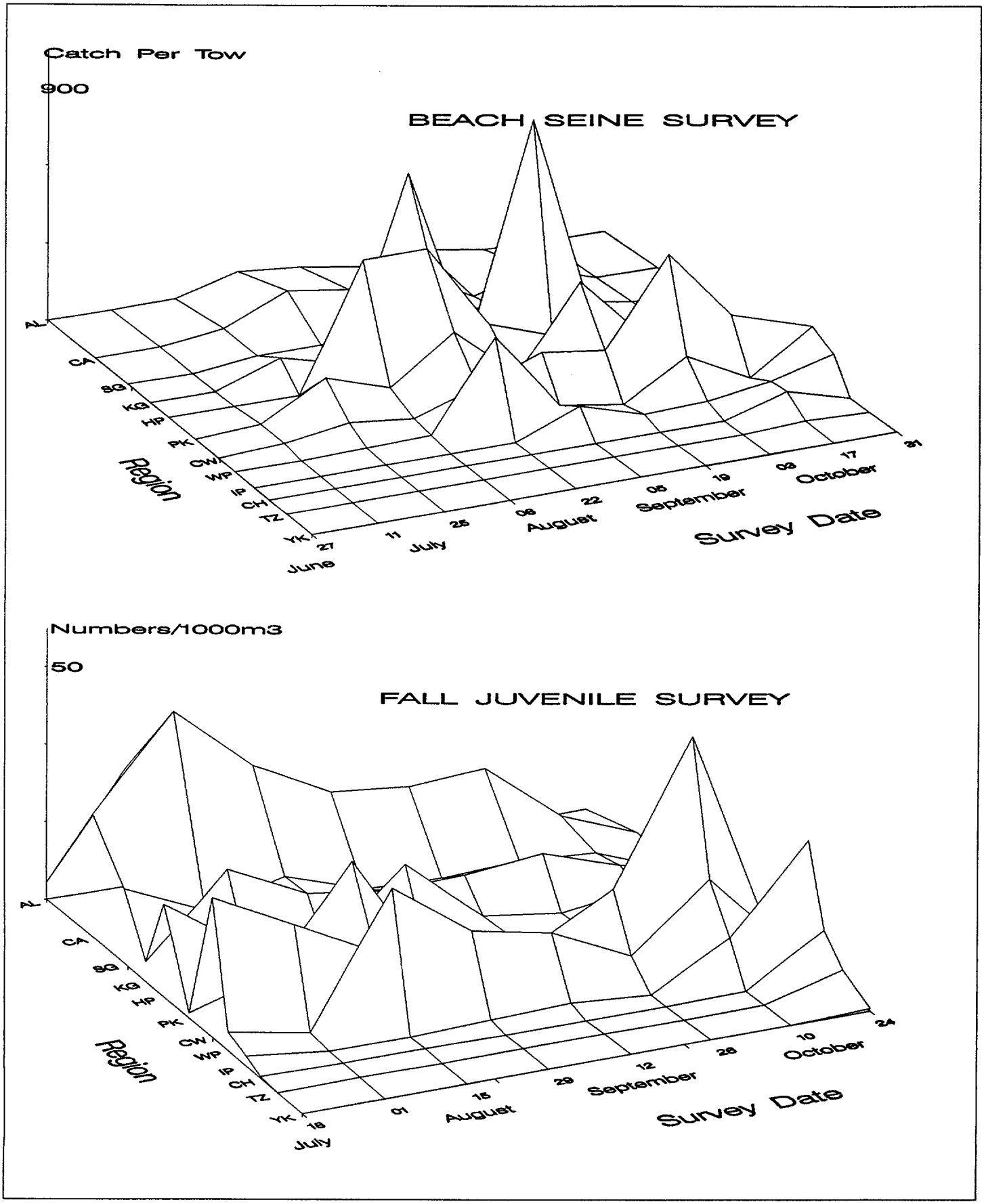


Figure 4–50. Spatiotemporal distribution of young–of–year blueback herring in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine Surveys.

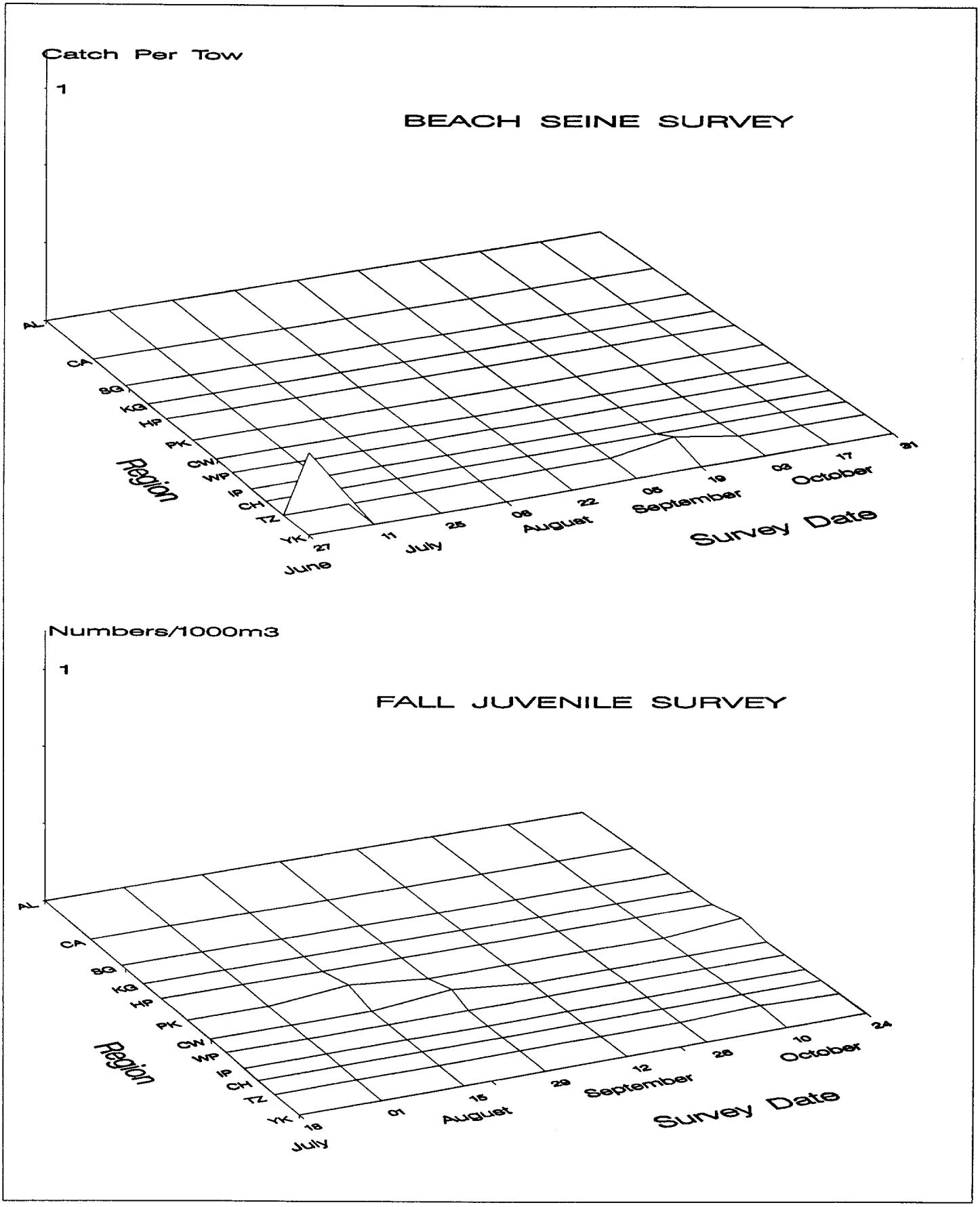


Figure 4–51. Spatiotemporal distribution of yearling and older blueback herring in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine Surveys.

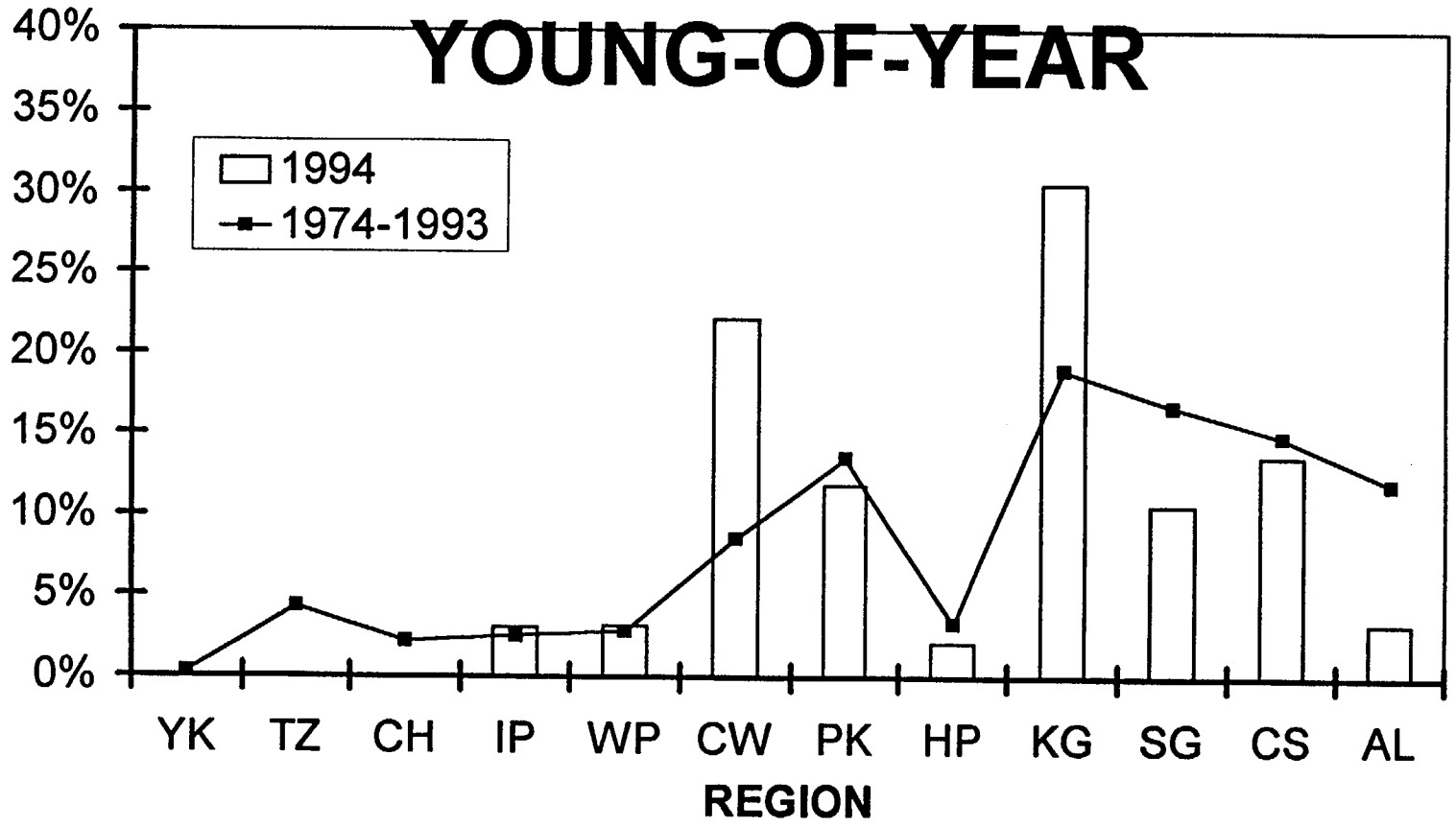


Figure 4-52. Geographical distribution indices for young-of-year blueback herring collected during Beach Seine surveys of the Hudson River estuary, 1974-1994.

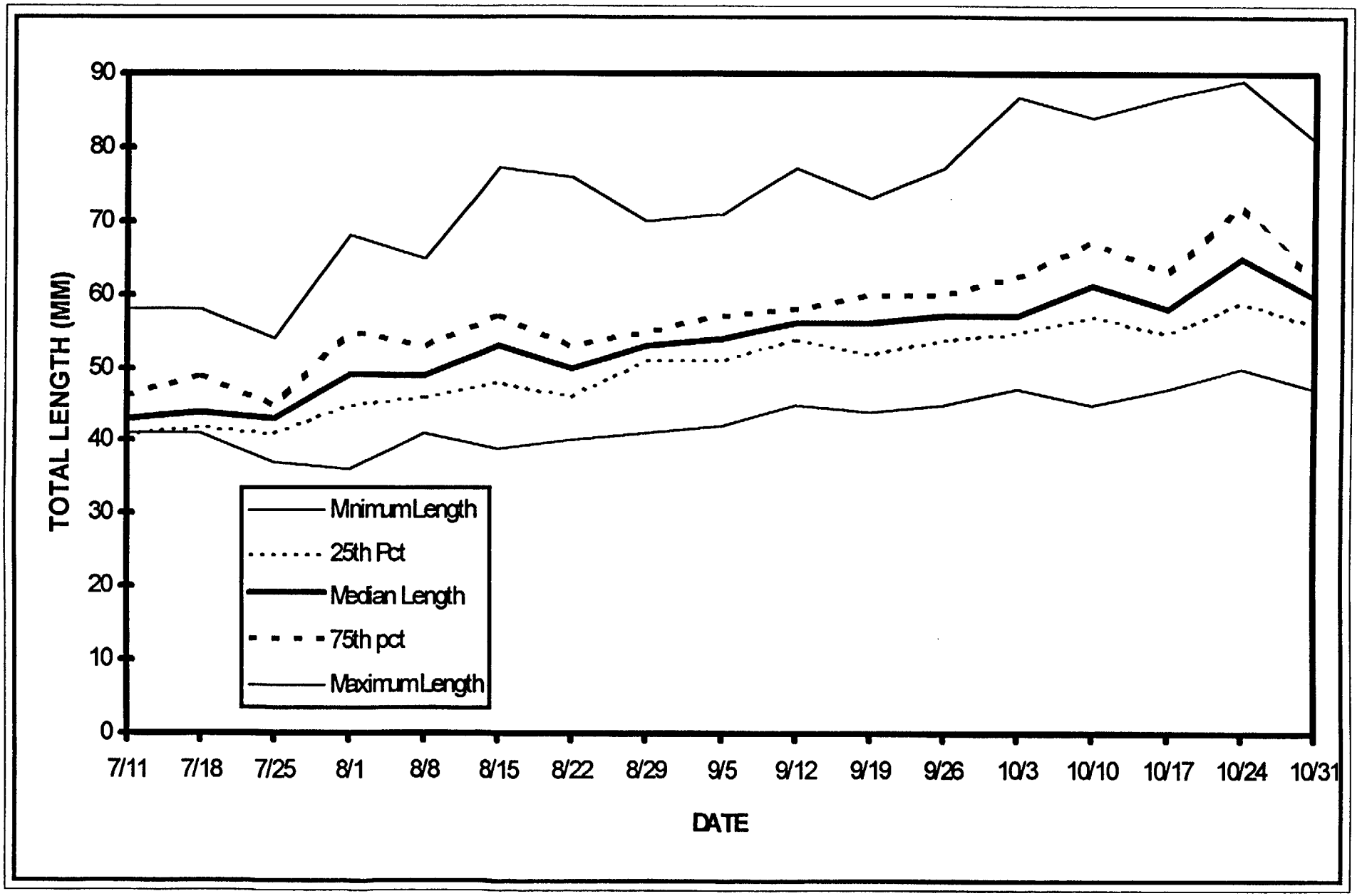


Figure 4-53. Weekly length statistics for blueback herring young-of-year in the Hudson River estuary, 1994.

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

Growth during the first 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.

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 1994 BSS between Poughkeepsie and West Point and no gizzard shad were collected during the 1994 FSS (Figure 4-54). However, adult gizzard shad appear regularly in winter impingement samples at all of the power plants. These fish may be emigrants from established populations located in the Mohawk River (Smith 1985) or there may be a small resident population in the lower Hudson. The few yearling and older gizzard shad recorded in river surveys in 1994 were collected in beach seines between Poughkeepsie and West Point (Figure 4-55).

Comparing both juvenile and yearling and older distributions of gizzard shad during 1994 with the long-term record (1974-1993) is difficult as few gizzard shad were collected in 1994 (Figure 4-56). Gizzard shad were primarily found in the middle Hudson River (Poughkeepsie and West Point) whereas in the long-term record there also was an upriver distribution in the Kingston through Albany 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.

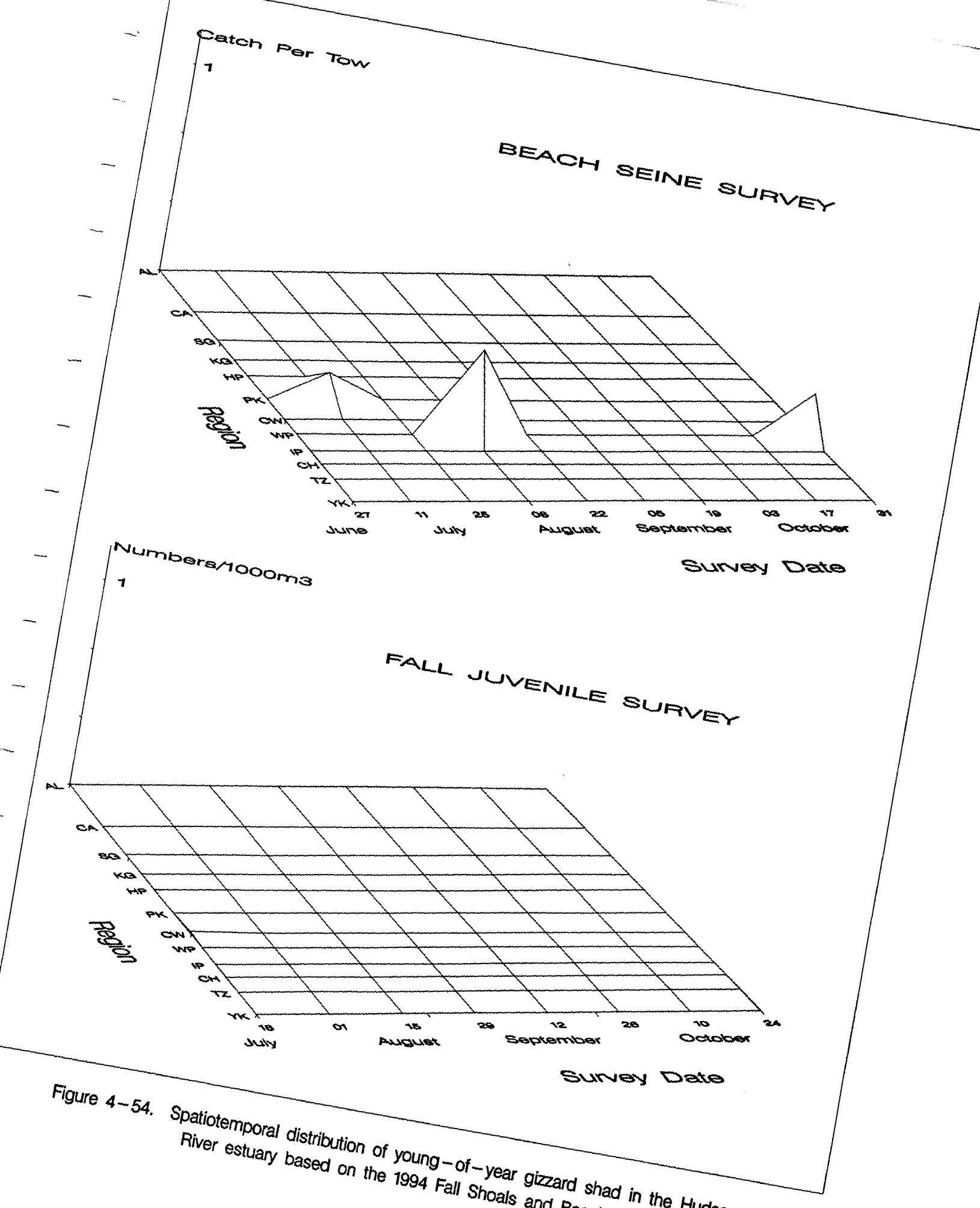


Figure 4-54. Spatiotemporal distribution of young-of-year gizzard shad in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine Surveys.

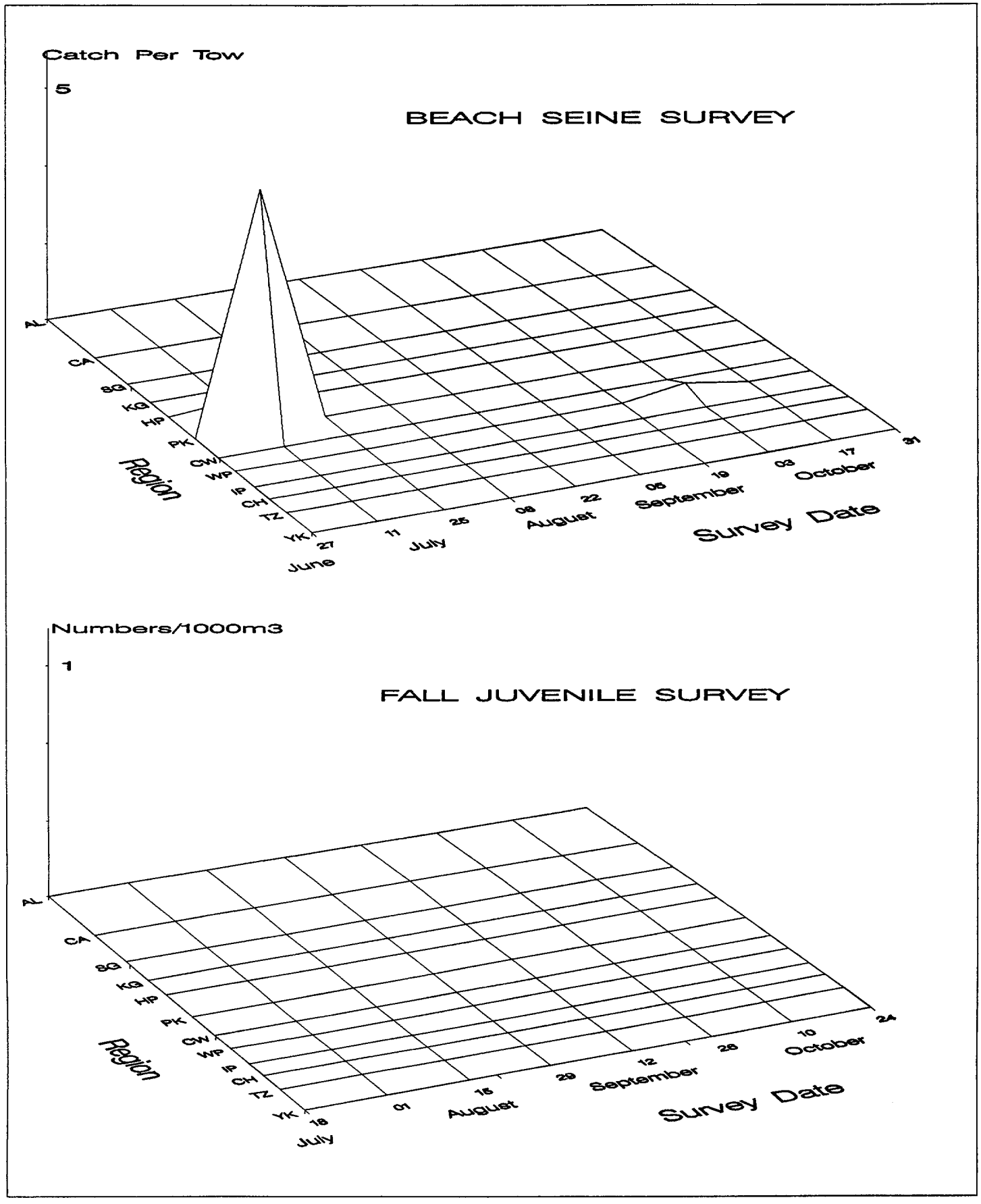


Figure 4–55. Spatiotemporal distribution of yearling and older gizzard shad in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine Surveys.

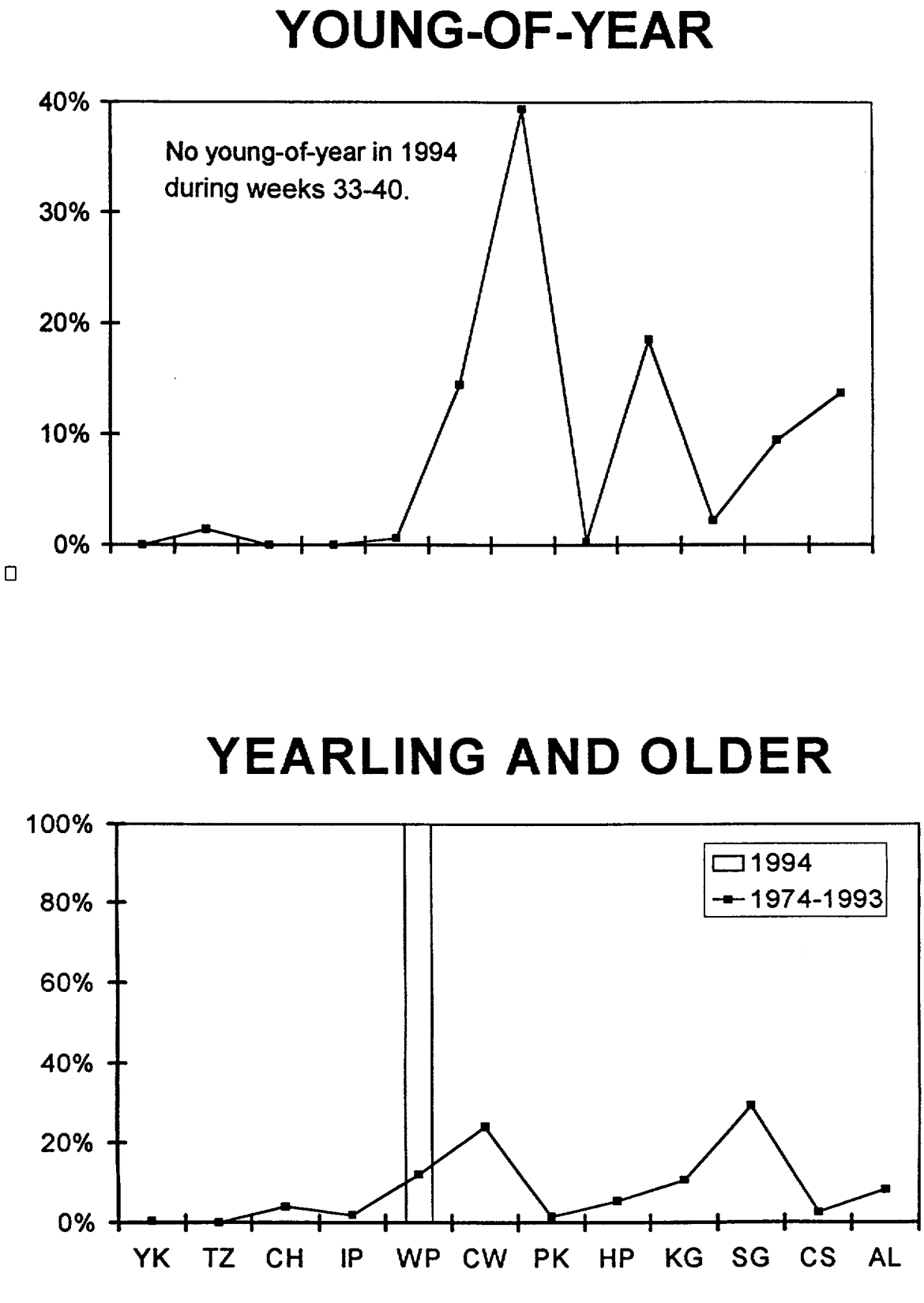


Figure 4-56. Geographical distribution indices for gizzard shad collected during Beach Seine surveys of the Hudson River estuary, 1974-1994.

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). In the Hudson River during 1994 rainbow smelt eggs were found in the upper estuary from mid-April to mid-May (Figure 4-57). 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.

Newly hatched larvae are about 1/5 in. long. These larvae are carried downstream and out of the tributaries by current flows. During 1994, YSL were abundant from late April through late May and were found throughout the Hudson River estuary (Figure 4-57). The yolk-sac is absorbed when the fish are about 1/4 in. in length. In 1994 PYSL were commonly found from the Kingston through Battery regions and were abundant from late April into July (Figure 4-58). 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 1994 LRS catches from mid-June to August (Figure 4-58). 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 1994 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 West Point through Yonkers regions (Figure 4-59). By late summer the young smelt leave the estuary. The few yearling and older rainbow smelt collected in the 1994 FSS were found in the middle estuary in the West Point region (Figure 4-60).

Comparing the temporal distribution of early life stages of rainbow smelt in 1994 with previous years (1974-1993), the 1994 distributions of the larval stages closely paralleled the long-term record (Figure 4-61). Most YSL were collected in early May, PYSL were found throughout May and June, and YOY were prevalent in late June. Although still present throughout May and June, the 1994 distribution of PYSL was slightly later than the historical trend.

The geographical distribution of rainbow smelt early stages during 1994 was generally consistent with the long-term record (Figure 4-62). Peak egg distribution, however, was shifted downriver to the Kingston region, rather than in the Saugerties region. YSL in 1994 were also shifted downriver of the historical trend and were concentrated in the Poughkeepsie region. PYSL and YOY were evenly distributed in the middle and lower estuary, as seen in the long-term pattern. The 1994 geographical distribution of YOY and yearling and older rainbow smelt in the FSS was consistent with the long-term trend of greatest distribution in the mid-Hudson River regions except that fish were concentrated in the West Point region in 1994 (Figure 4-63).

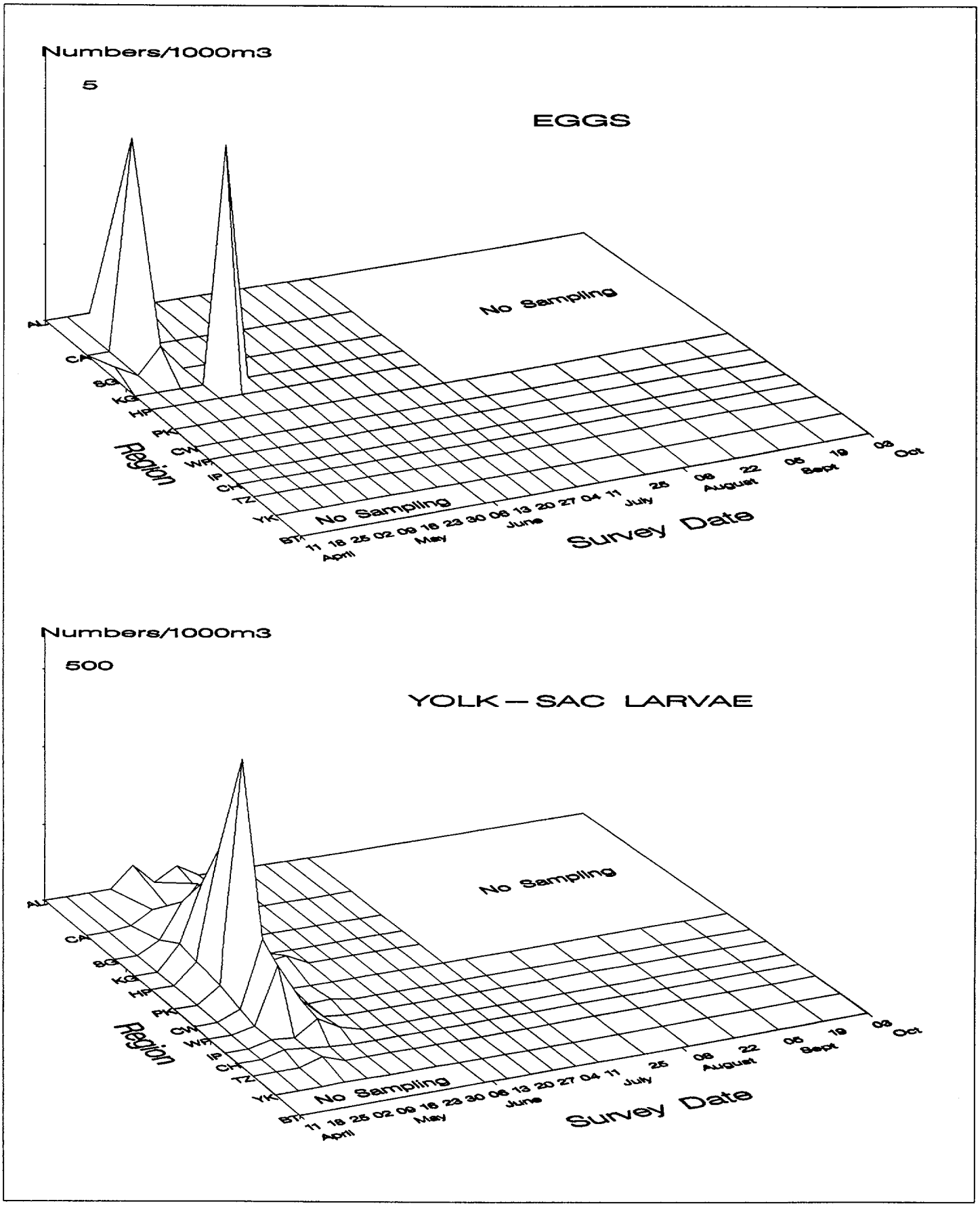


Figure 4–57. Spatiotemporal distribution of egg and yolk–sac stages of rainbow smelt in the Hudson River estuary based on the 1994 Long River Ichthyoplankton Survey.

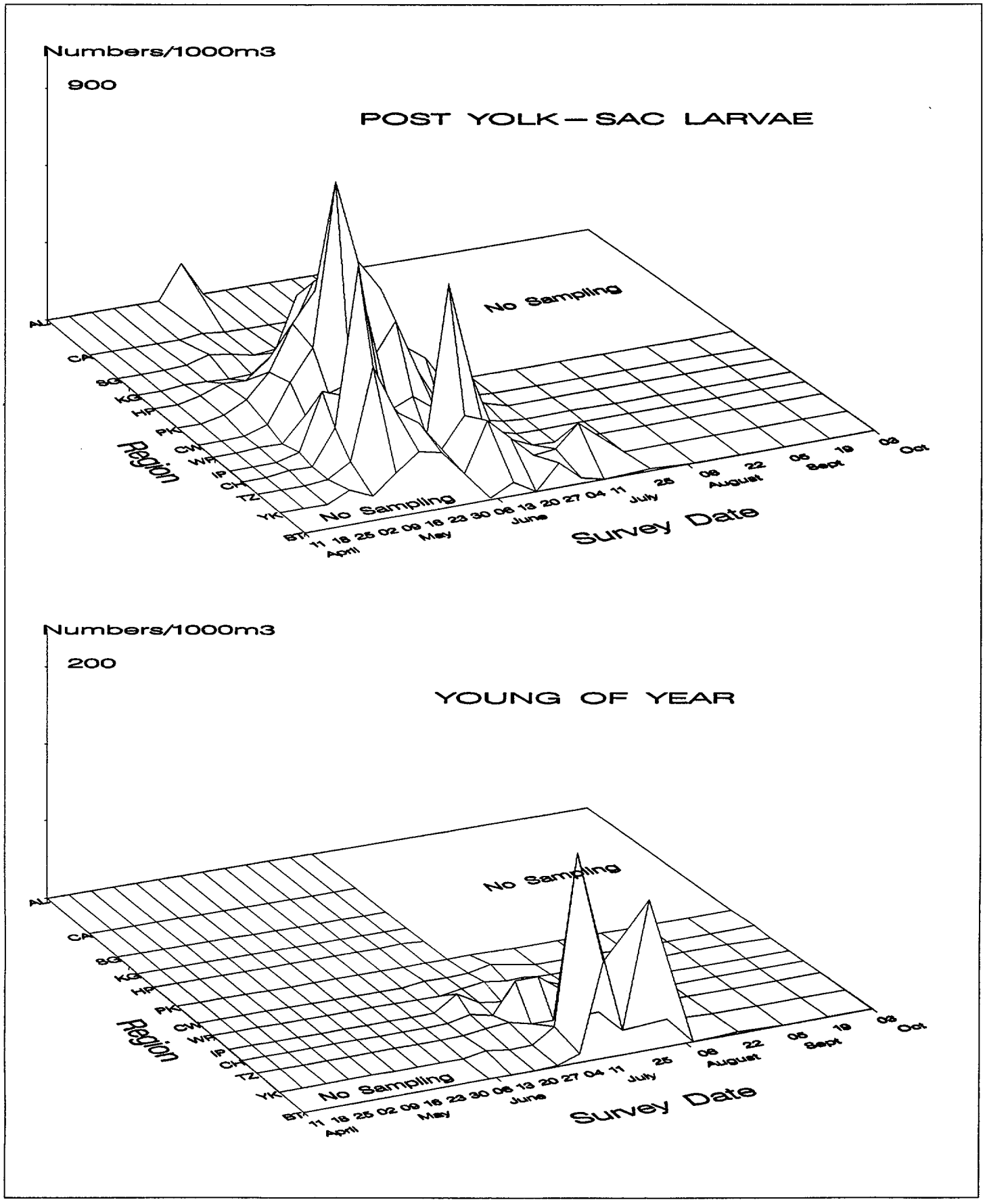


Figure 4-58. Spatiotemporal distribution of post yolk-sac and young-of-year stages of rainbow smelt in the Hudson River estuary based on the 1994 Long River Ichthyoplankton Survey.

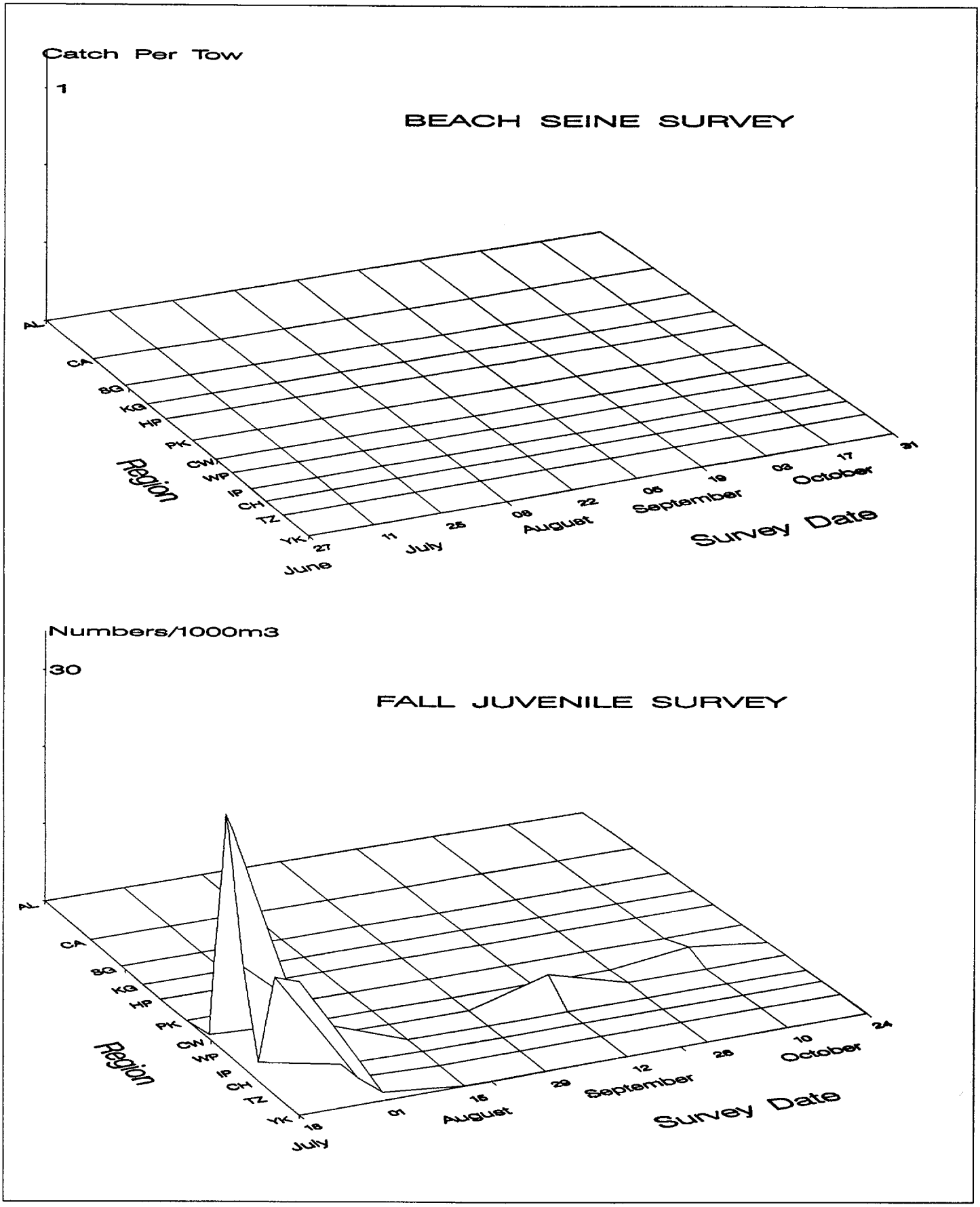


Figure 4–59. Spatiotemporal distribution of young–of–year rainbow smelt in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine Surveys.

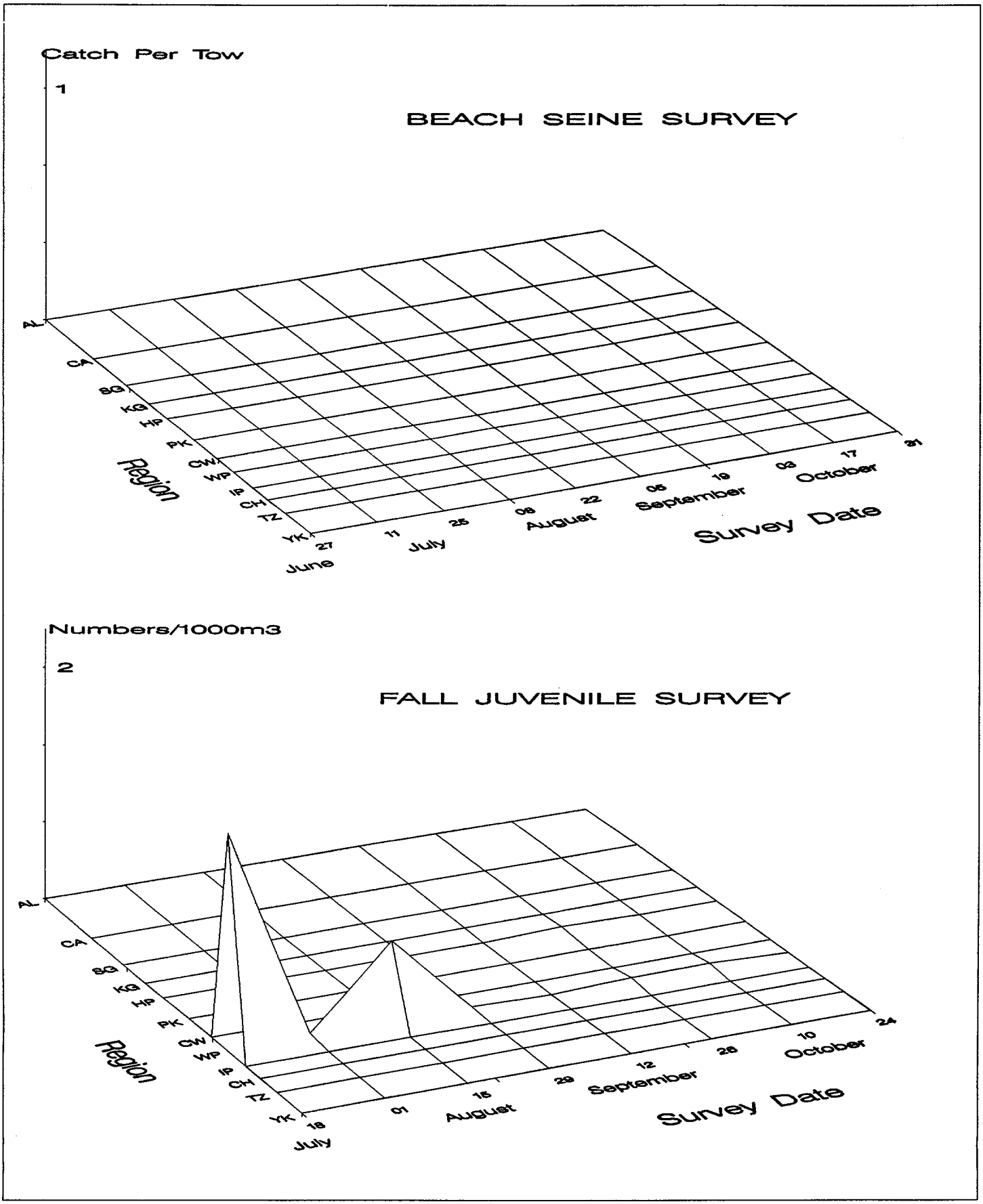


Figure 4–60. Spatiotemporal distribution of yearling and older rainbow smelt in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine Surveys.

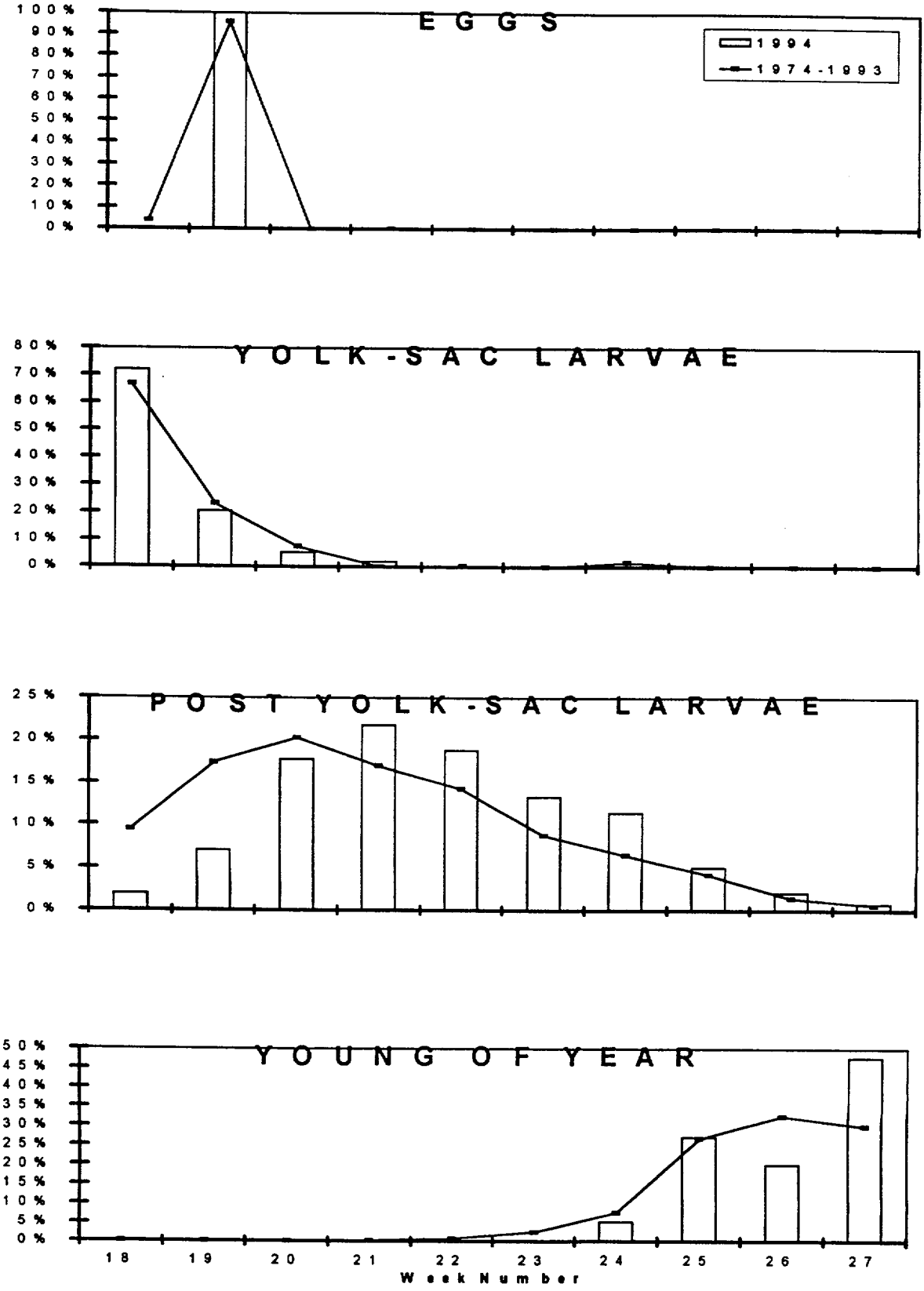


Figure 4-61. Temporal distribution indices for early life stages of rainbow smelt collected during Longitudinal River Ichthyoplankton surveys of the Hudson River estuary, 1974-1994.

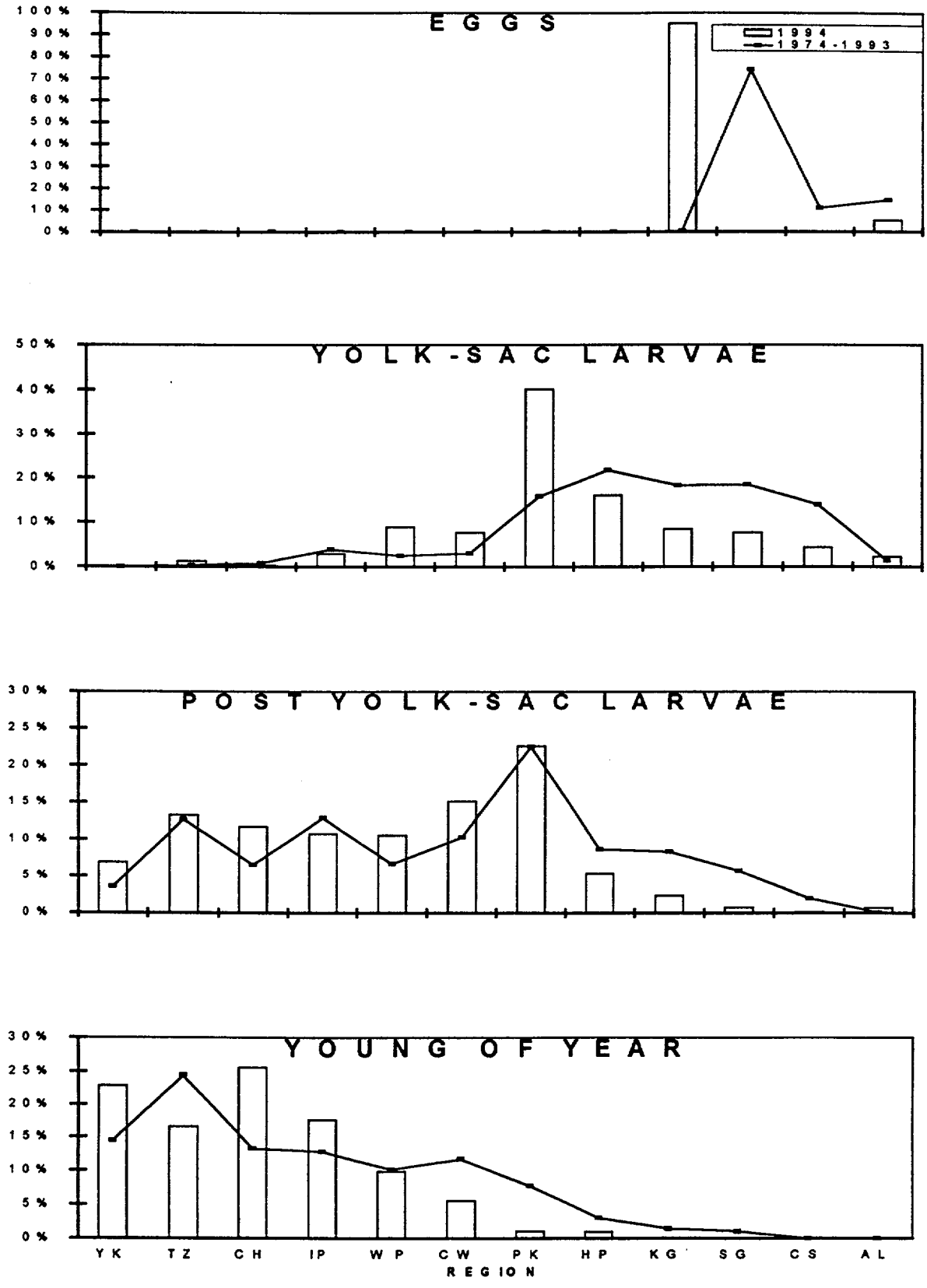


Figure 4-62. Geographical distribution indices for early life stages of rainbow smelt collected during Longitudinal River Ichthyoplankton surveys of the Hudson River estuary, 1974-1994.

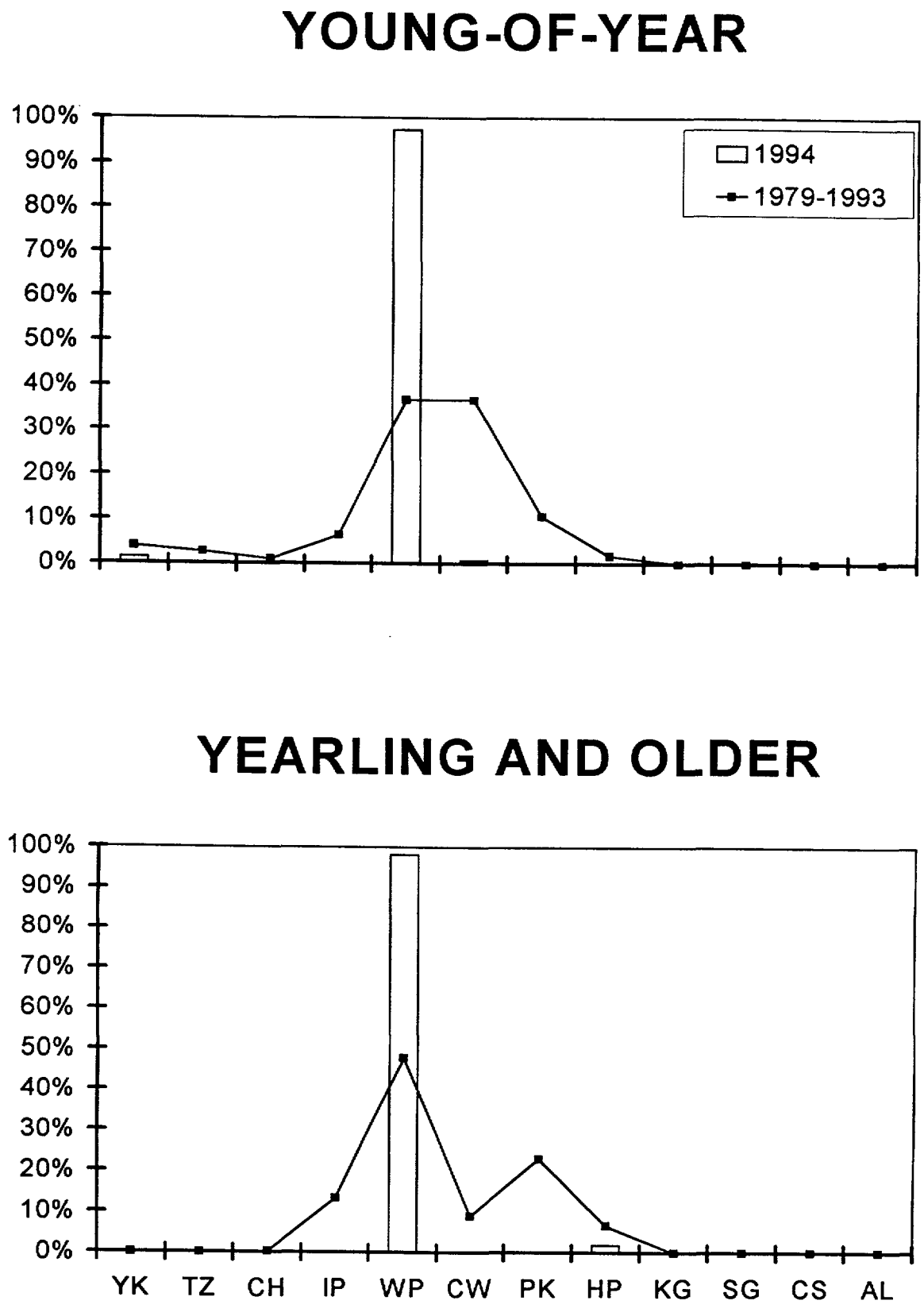


Figure 4-63 Geographical distribution indices for rainbow smelt collected during Fall Shoals surveys of the Hudson River Estuary, 1979 - 1994.

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 estuary, such as the Battery and Yonkers regions. During 1994 hogchoker eggs were collected primarily in the Yonkers and Battery regions from mid-June through early August (Figure 4-64).

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 1994 LRS, centers of abundance for each successive life stage progressed upriver; with YSL hogchoker most abundant in the Tappan Zee region (Figure 4-64), PYSL most abundant in the Indian Point region, and YOY most abundant in the Cornwall region (Figure 4-65). Juvenile hogchoker were collected in the 1994 BSS primarily in the lower and middle estuary during the summer and in the 1994 FSS through the fall (Figure 4-66). During 1994 yearling and older hogchoker were collected throughout the Hudson River but were most abundant in the lower and middle estuary (Figure 4-67).

The 1994 geographical distribution of YOY and yearling and older hogchoker in the FSS is generally consistent with the long-term trend (1979-1993) showing a fairly even distribution throughout most of the Hudson River estuary, although in 1994 more YOY were found in Indian Point and fewer yearling and older were found in Tappan Zee (Figure 4-68). 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 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

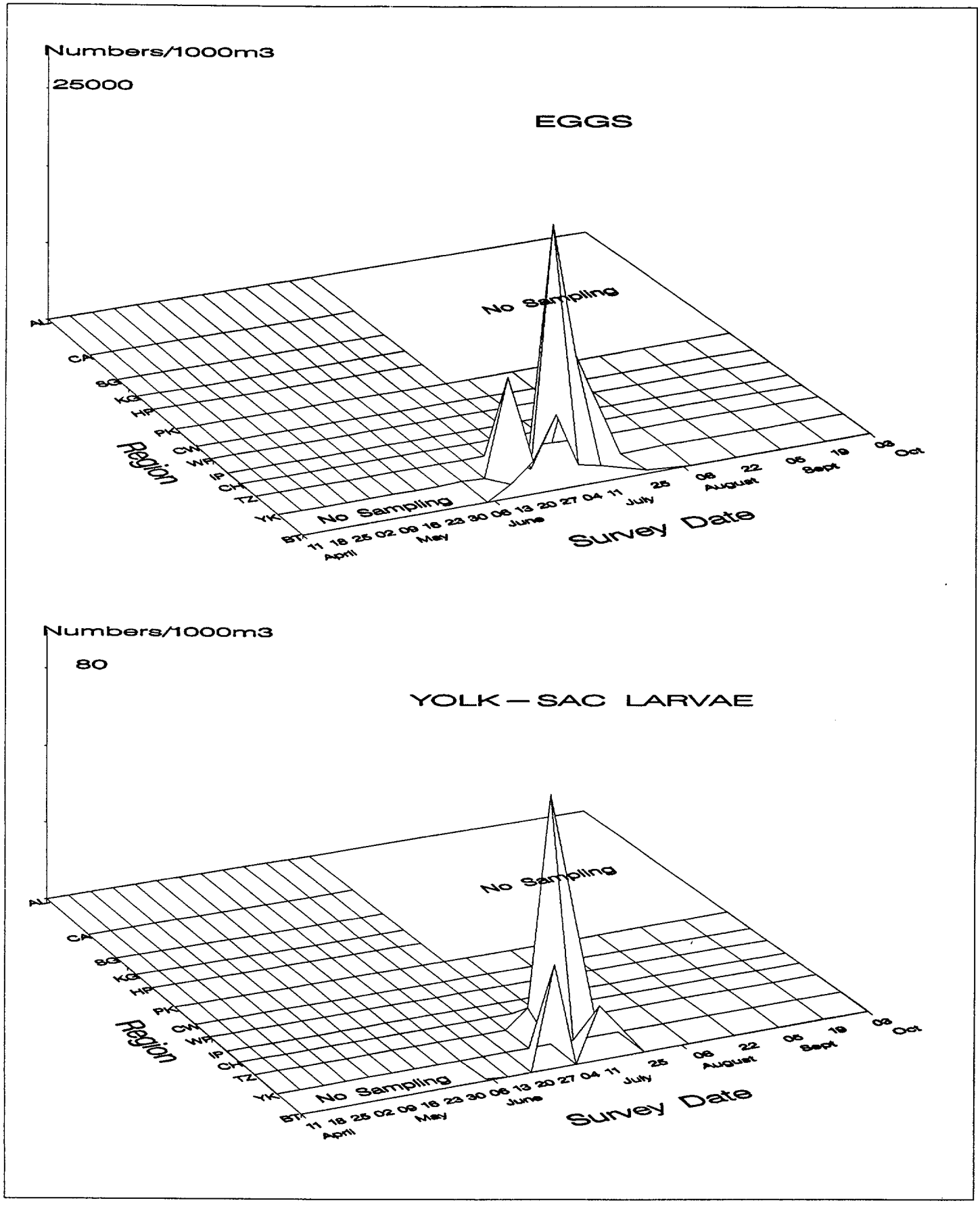


Figure 4—64. Spatiotemporal distribution of egg and yolk—sac stages of hogchoker in the Hudson River estuary based on the 1994 Long River Ichthyoplankton Survey.

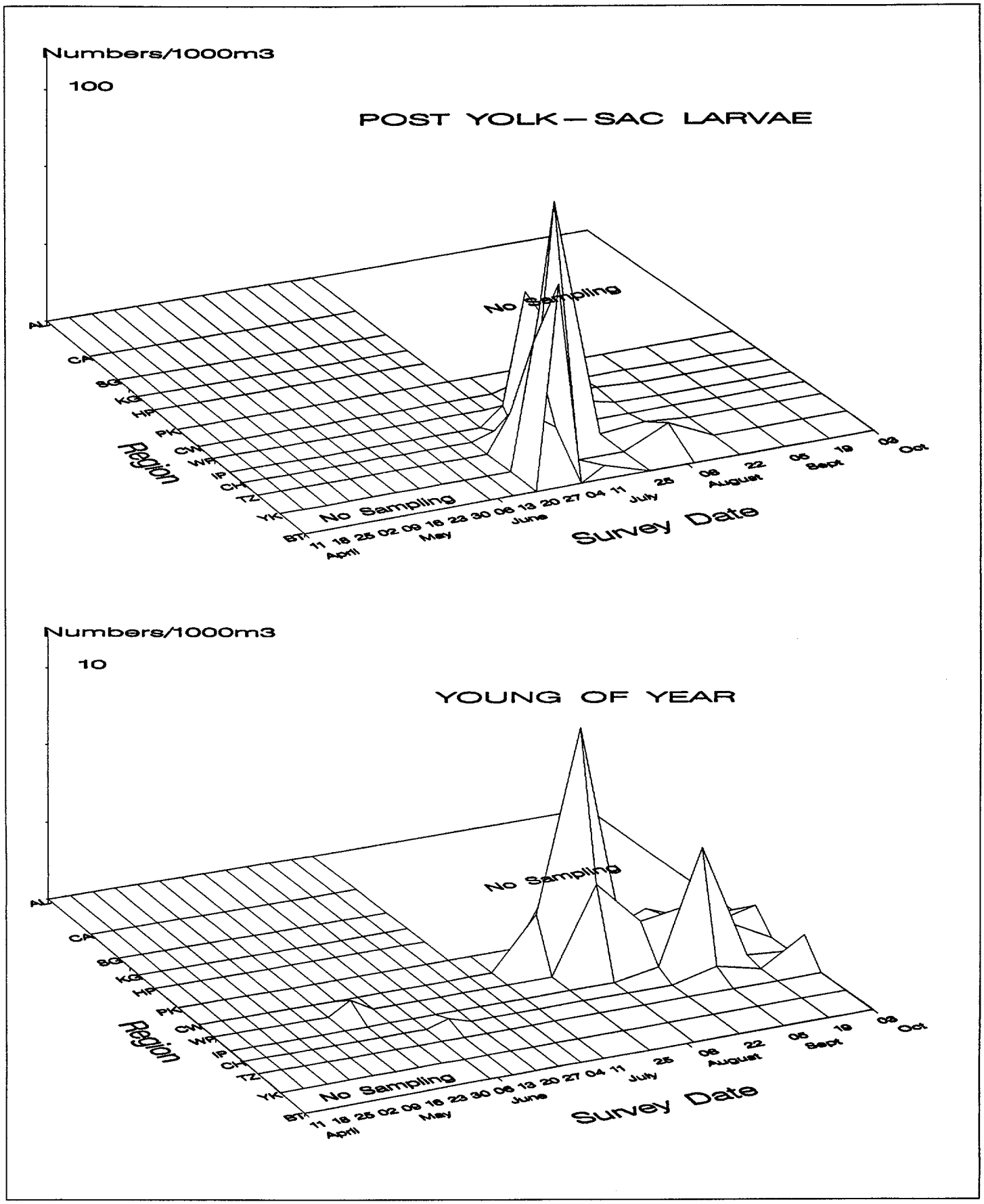


Figure 4-65. Spatiotemporal distribution of post yolk-sac and young-of-year stages of hogchoker in the Hudson River estuary based on the 1994 Long River Ichthyoplankton Survey.

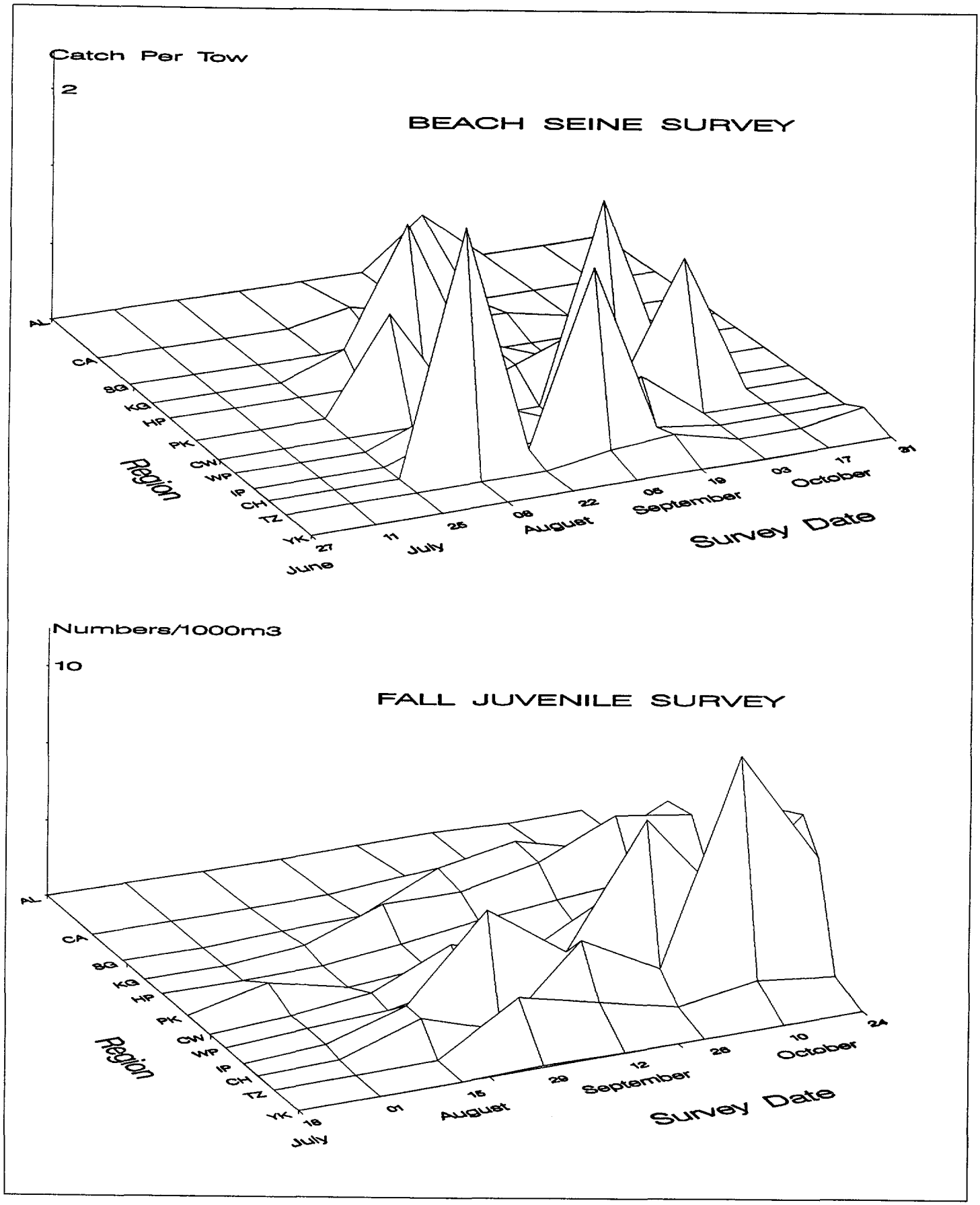


Figure 4–66. Spatiotemporal distribution of young–of–year hogchoker in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine Surveys.

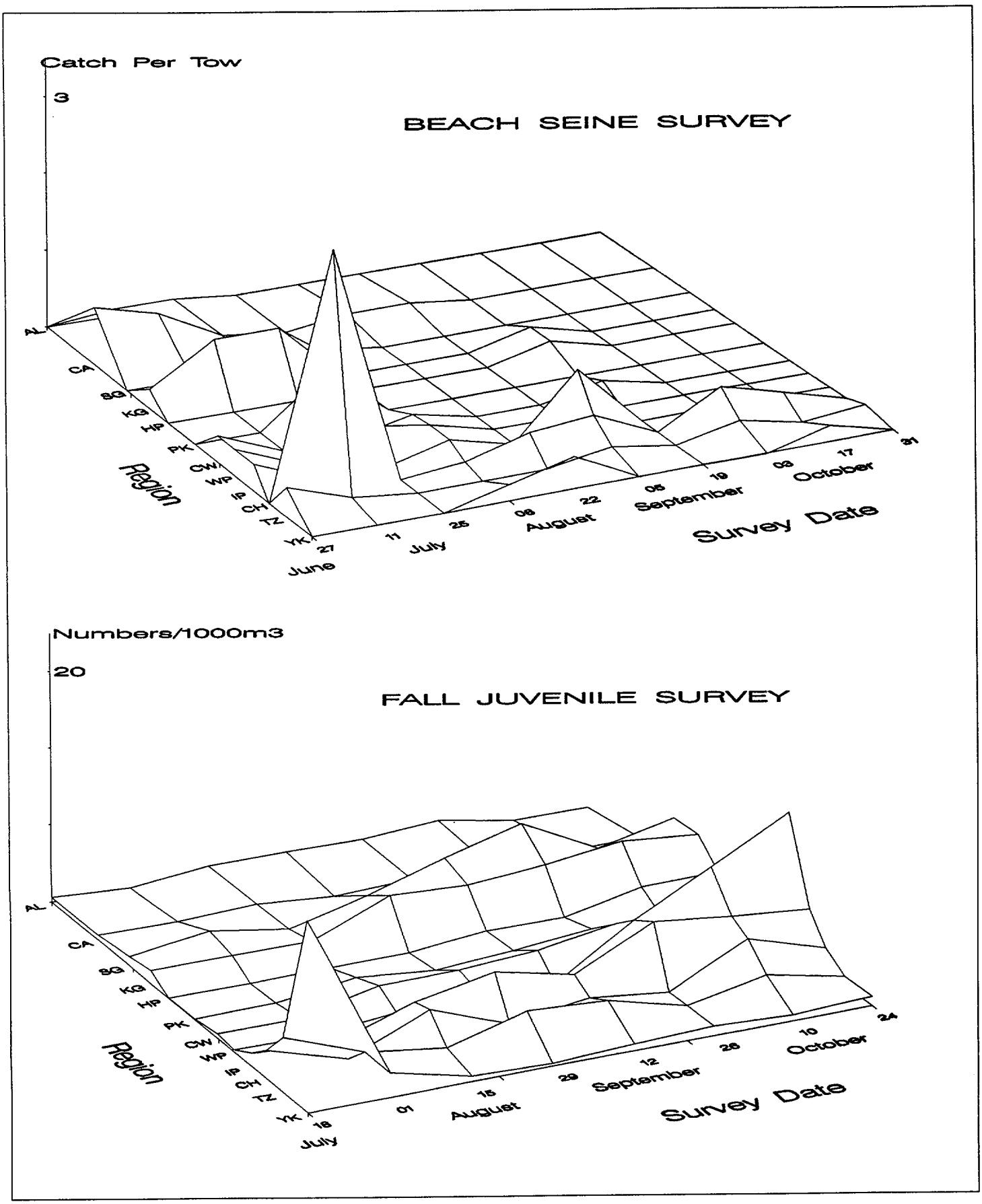


Figure 4–67. Spatiotemporal distribution of yearling and older hogchoker in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine Surveys.

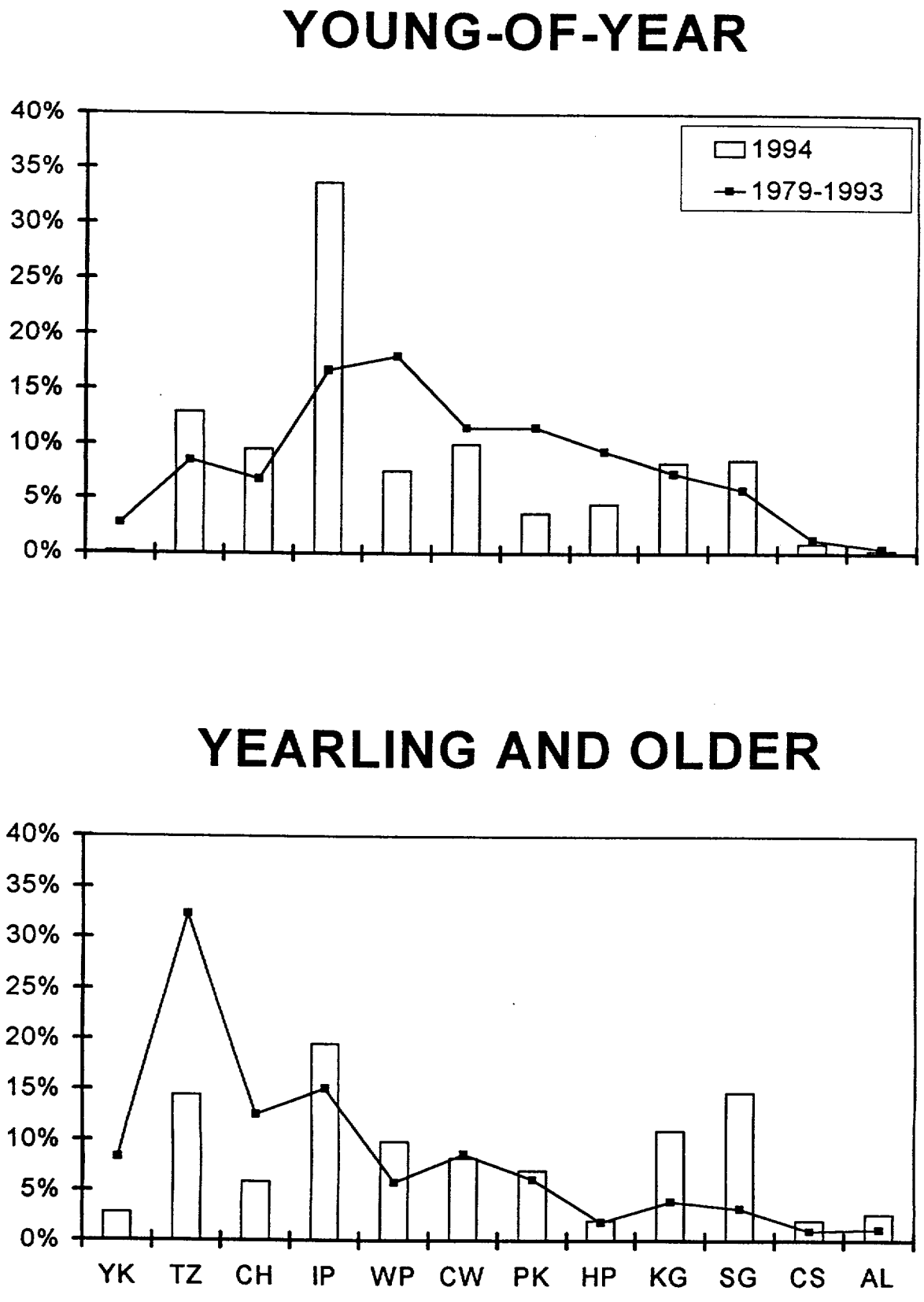


Figure 4-68. Geographical distribution indices for hogchoker collected during Fall Shoals surveys of the Hudson River estuary, 1979-1994.

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 1994, no eggs, YSL, or PYSL and very few juveniles were collected in the LRS (Figures 4-69 and 4-70). Juvenile spottail shiner first appeared in the BSS during late June and were most abundant in the shorezone above the Cornwall region (Figure 4-71), which is also the portion of the estuary with the greatest number of tributaries. Yearling and older spottail shiner were also found throughout the middle and upper Hudson above Croton-Haverstraw (Figure 4-72).

Comparing the geographical distribution of juvenile and yearling and older spottail shiner based on BSS in 1994 with previous years (1974-1993), the 1994 distribution of these life stages was generally consistent with the long-term record (Figure 4-73). However, in 1994 the peak distributions for each life stage occurred further downriver in Catskill (for YOY) or Poughkeepsie (for yearling and older) rather than in the Albany or Saugerties regions as seen in the long-term record.

Weekly length statistics for juvenile spottail shiner collected in 1994 show steady growth from late June through early October and then not much change in growth by the end of BSS/FSS collections (Figure 4-74, 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.

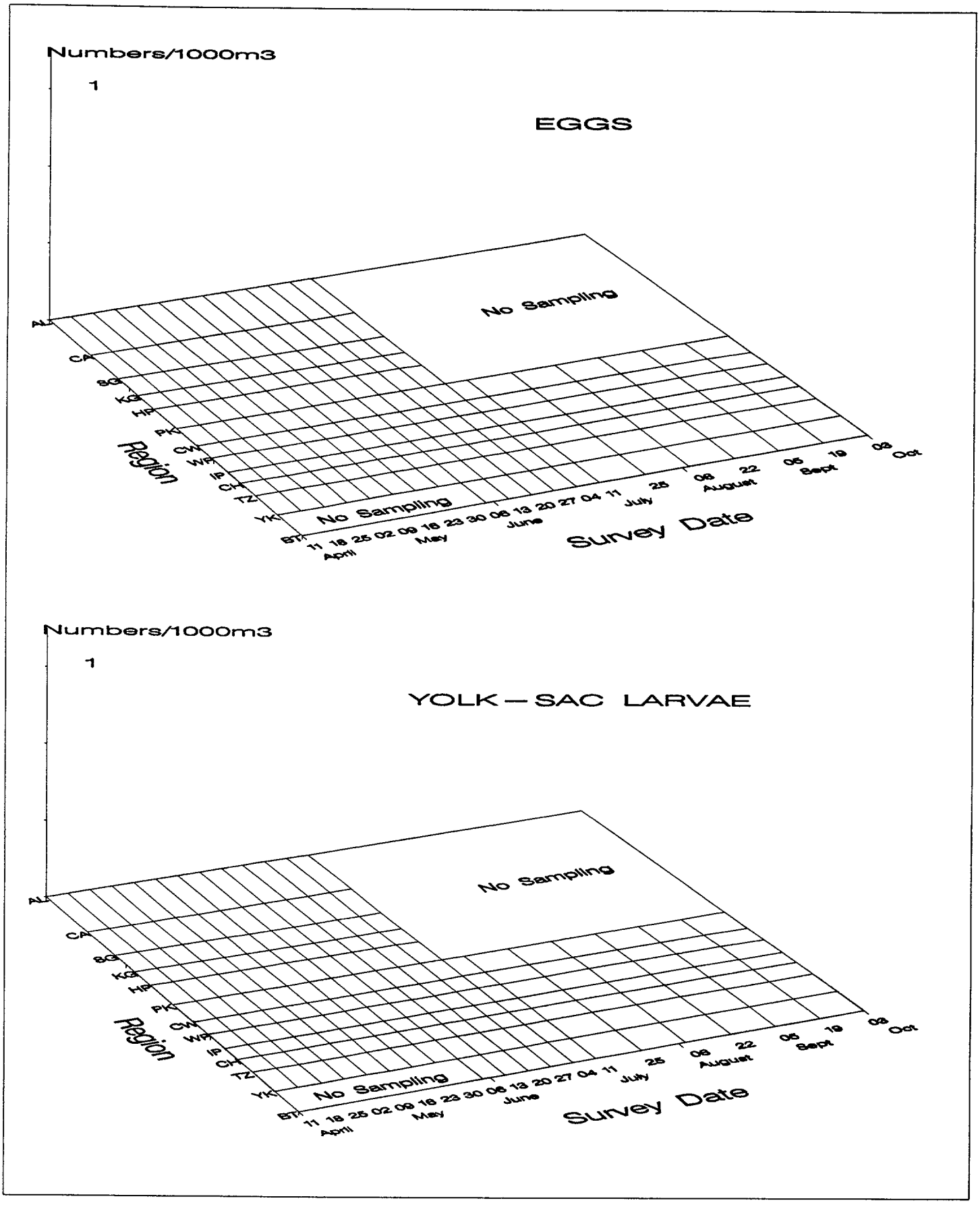


Figure 4 – 69 Spatiotemporal distribution of egg and yolk – sac stages of spottail shiner in the Hudson River estuary based on the 1994 Long River Ichthyoplankton Survey.

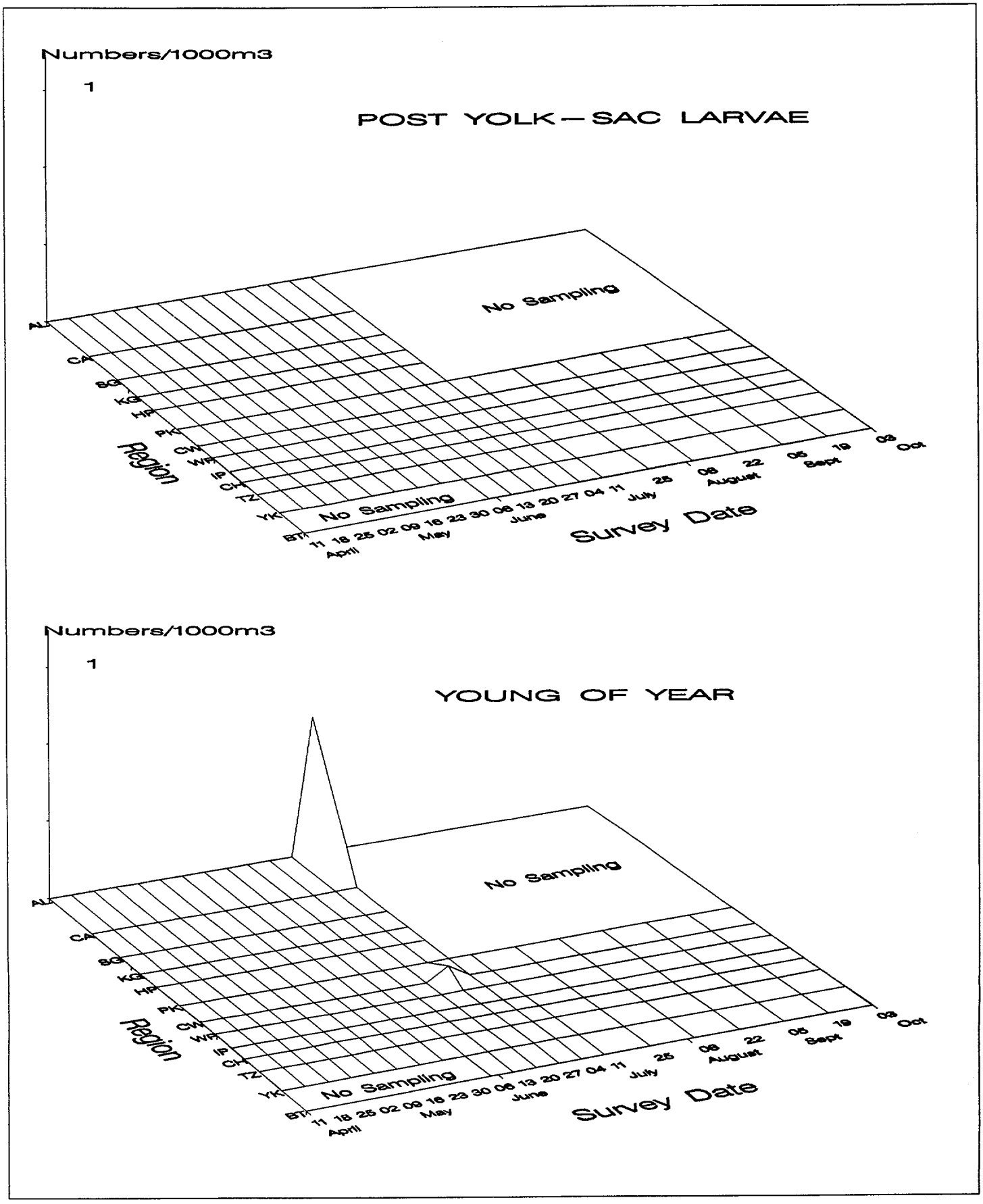


Figure 4-70. Spatiotemporal distribution of post yolk-sac and young-of-year stages of spottail shiner in the Hudson River estuary based on the 1994 Long River Ichthyoplankton Survey.

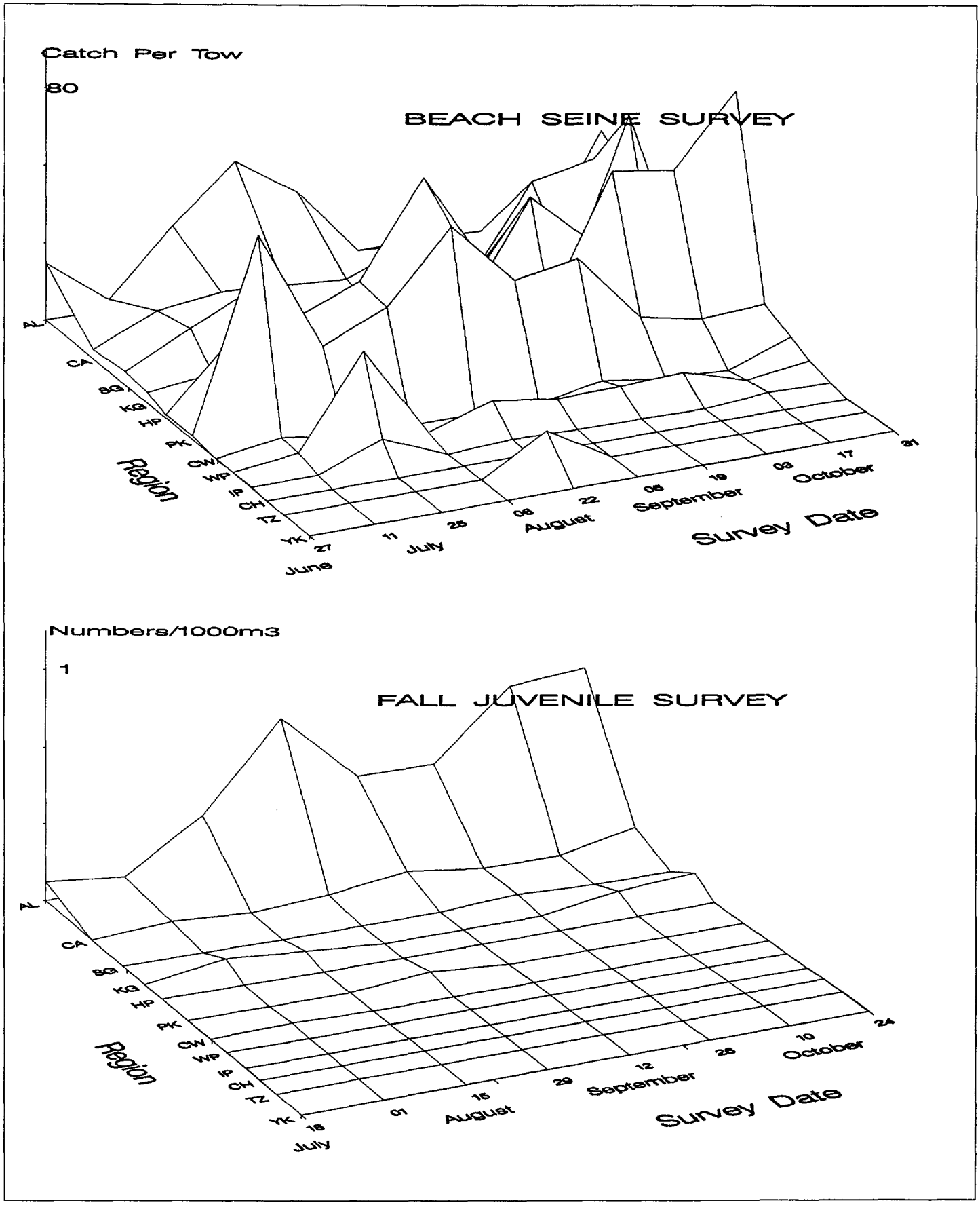


Figure 4–71. Spatiotemporal distribution of young–of–year spottail shiner in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine Surveys.

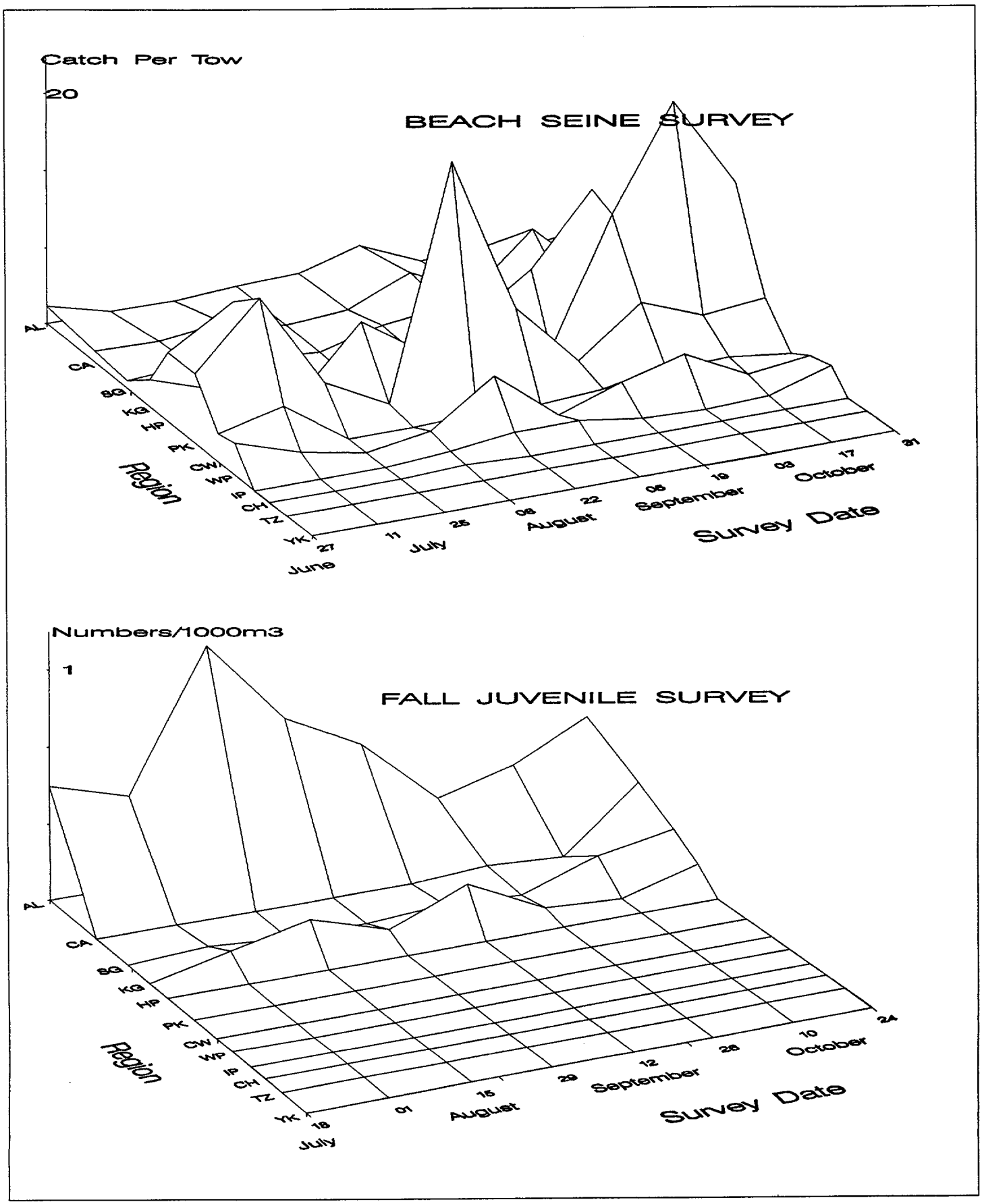


Figure 4–72. Spatiotemporal distribution of yearling and older spottail shiner in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine Surveys.

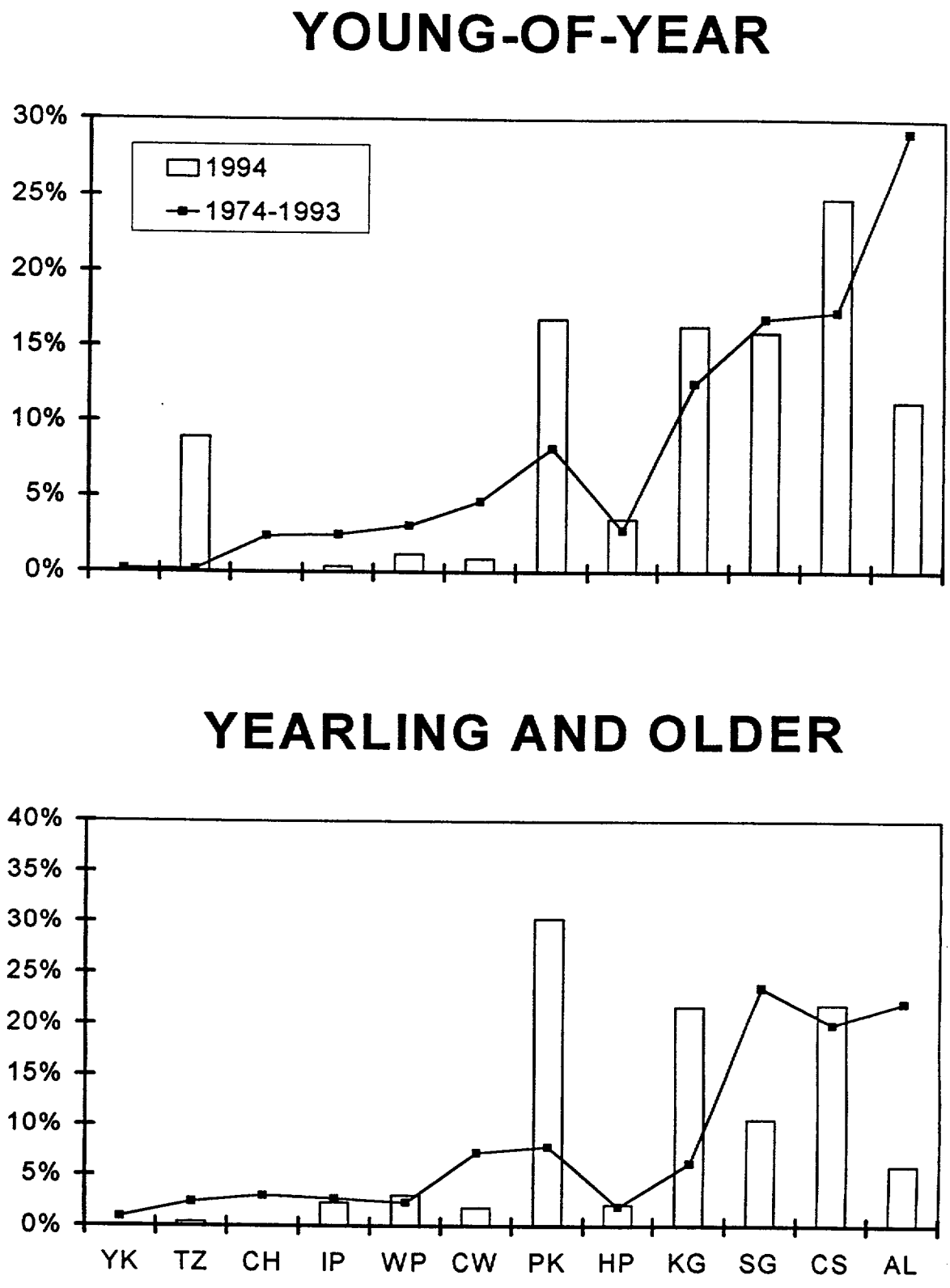


Figure 4-73. Geographical distribution indices for spottail shiner collected during Beach Seine surveys of the Hudson River estuary, 1974-1994.

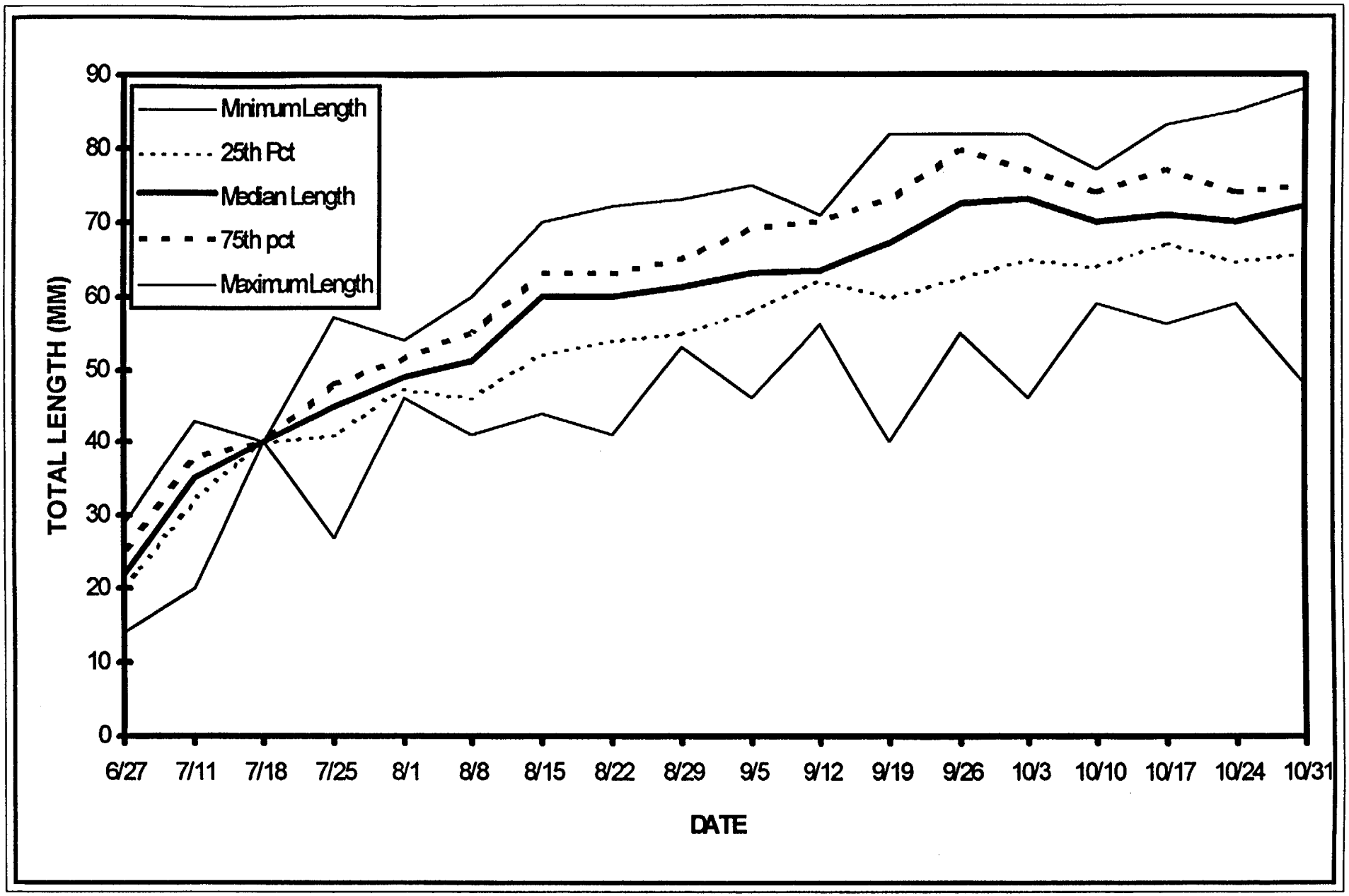


Figure 4-74. Weekly length statistics for spottail shiner young-of-year in the Hudson River estuary, 1994.

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 - RM 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 1997).

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 - RM 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 1994 resulted in a total of 4 YSL and 19 yearling and older Atlantic sturgeon collected in the LRS and FSS between the Croton-Haverstraw and Catskill regions from June through October (Table 4-3 and Figure 4-75).

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).

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). 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).

TABLE 4-3 COLLECTIONS OF ATLANTIC STURGEON DURING THE 1994 HUDSON RIVER SURVEYS

	Date	Survey	Region	River Mile	Number Collected	Total Length (mm)
1	June	LRS	Hyde Park	81	4	YSL
10	June	LRS	Indian Point	44	1	530
7	July	LRS	Indian Point	39	1	482
19	July	FSS	Croton-Haverstraw	35	1	650
21	July	FSS	Catskill	111	1	119
3	August	FSS	West Point	48	1	1175
3	August	FSS	Indian Point	41	1	473
4	August	FSS	Saugerties	103	1	121
18	August	FSS	Catskill	120	1	149
24	August	LRS	West Point	55	1	158
15	September	FSS	Kingston	91	1	371
15	September	FSS	Hyde Park	84	1	230
28	September	FSS	Cornwall	58	1	235
28	September	FSS	West Point	55	1	231
29	September	FSS	Kingston	92	1	230
11	October	FSS	Catskill	121	1	200
12	October	FSS	Kingston	89	2	284,260
27	October	FSS	Cornwall	61	1	276
27	October	FSS	West Point	55	1	270

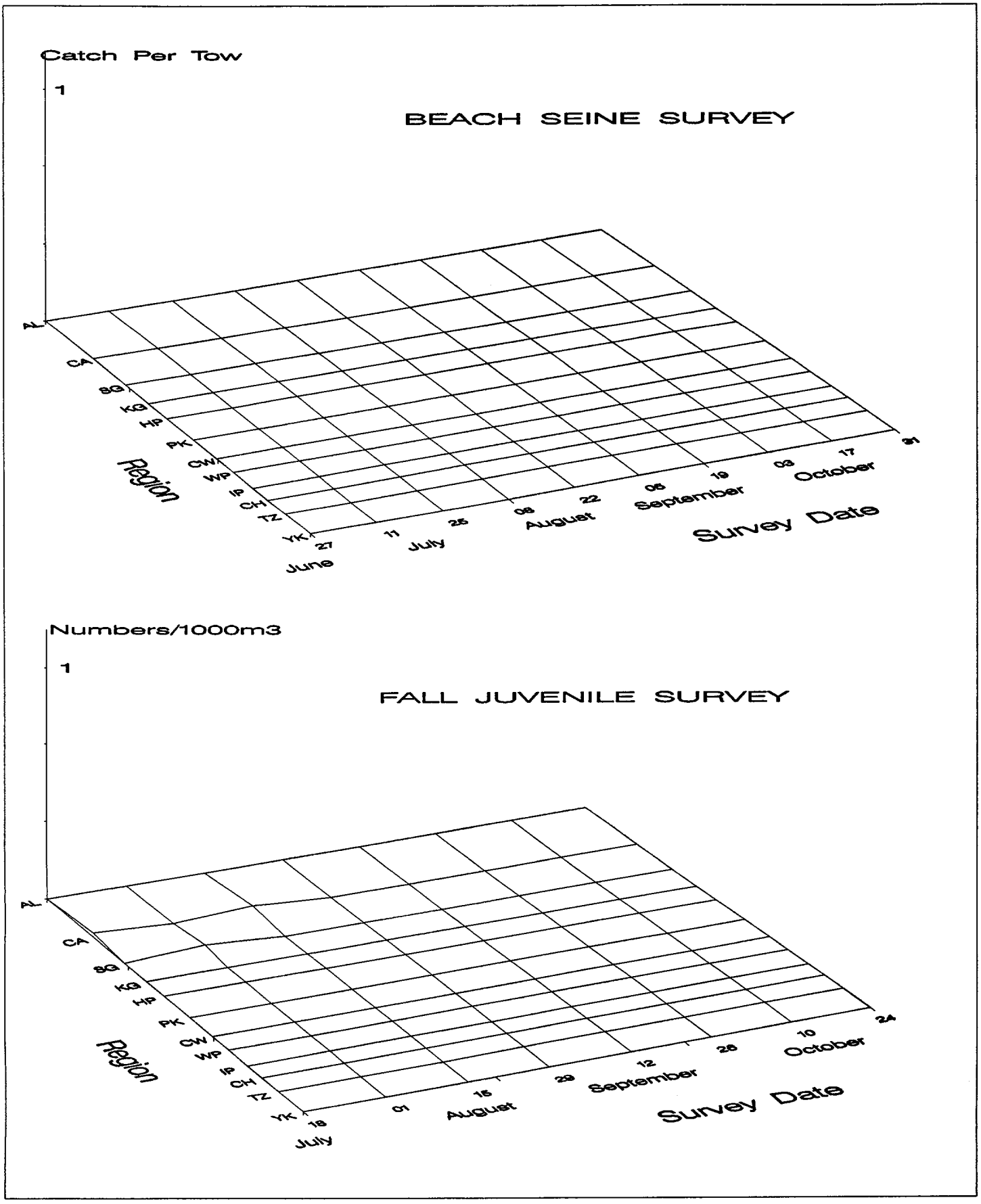


Figure 4–75. Spatiotemporal distribution of yearling and older Atlantic sturgeon in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine Surveys.

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 1997). 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 - RM 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 - RM 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).

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 1994 resulted in a total of 63 shortnose sturgeon collected in the LRS and FSS. Although shortnose sturgeon were caught from Yonkers to Albany, the majority of fish were collected between the Poughkeepsie and Kingston regions from mid-July though October (Table 4-4 and Figure 4-76).

TABLE 4-4 COLLECTIONS OF SHORTNOSE STURGEON DURING THE 1994 HUDSON RIVER SURVEYS

Date		Survey	Region	River Mile	Number Collected	Total Length (mm)
13	April	LRS	Hyde Park	77	1	720
14	April	LRS	Albany	131	1	680
14	April	LRS	Saugerties	105	1	680
27	April	LRS	Albany	143	1	800
28	April	LRS	Catskill	124	1	775
9	May	LRS	Yonkers	16	1	555
11	May	LRS	Hyde Park	79	1	810
16	May	LRS	Catskill	124	1	805
26	May	LRS	Cornwall	59	1	715
31	May	LRS	Catskill	124	1	660
22	June	LRS	Kingston	88	1	850
7	July	LRS	Croton-Haverstraw	38	1	724
20	July	FSS	Kingston	90	3	845,700,775
20	July	FSS	Hyde Park	83	5	730,775,705,610,705
20	July	FSS	Hyde Park	81	1	740
4	August	FSS	Kingston	88	2	540,650
4	August	FSS	Hyde Park	84	1	790
5	August	FSS	Poughkeepsie	71,64	1	540,655
18	August	FSS	Kingston	88,88,88,87	4	619,630,615,670
19	August	FSS	Hyde Park	83,83,82	3	685,825,550
24	August	LRS	West Point	55	1	664
1	September	FSS	Saugerties	94	1	725
2	September	FSS	Hyde Park	83	1	686
13	September	FSS	Tappan Zee	33,29	2	759,765
14	September	FSS	Indian Point	39	1	715
14	September	FSS	Croton-Haverstraw	37,36	2	710,695
15	September	FSS	Saugerties	94	1	620
15	September	FSS	Kingston	92	1	669
15	September	FSS	Hyde Park	85	1	746
16	September	FSS	Cornwall	58	1	720
26	September	FSS	Tappan Zee	25	1	719
28	September	FSS	West Point	54	4	760,695,522,699
29	September	FSS	Saugerties	97	1	709
29	September	FSS	Hyde Park	78	1	726
12	October	FSS	Kingston	93,92	2	570,614
13	October	FSS	West Point	55,54	2	653,524
26	October	FSS	Saugerties	94	1	606
26	October	FSS	Kingston	87	6	750,718,809,684,670,681

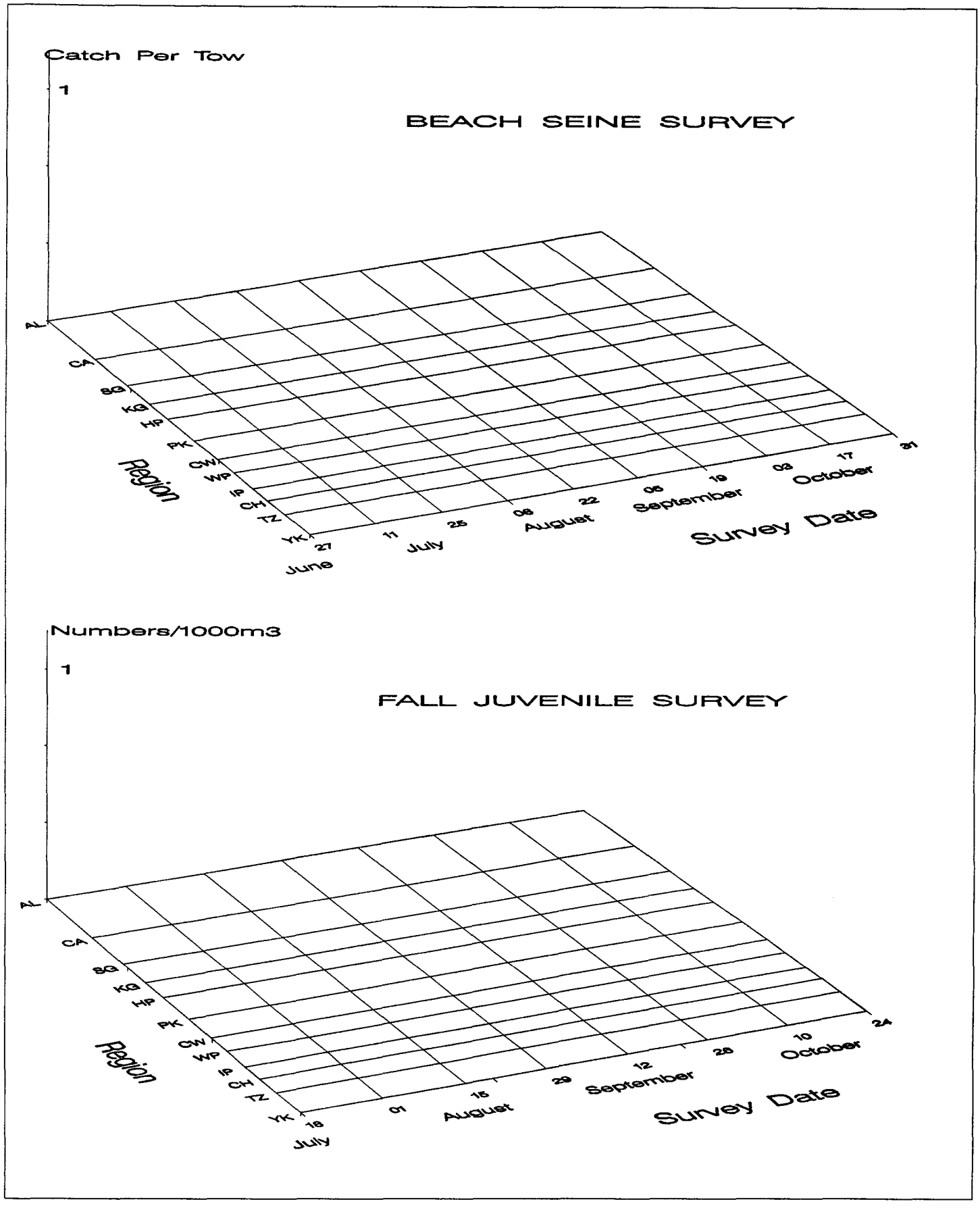


Figure 4–76. Spatiotemporal distribution of yearling and older shortnose sturgeon in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine Surveys.

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 1994 FSS consistently captured low numbers of YOY white catfish primarily in the upper estuary but extending as far south as Croton-Haverstraw (Figure 4-77). A few yearling and older white catfish were captured in the 1994 BSS and FSS from the lower reaches of the Hudson River estuary (Figure 4-78).

The 1994 geographical distribution of YOY and yearling and older white catfish in the FSS is generally consistent with the 1979-1993 long-term trend (Figure 4-79). Juveniles tend to occur in the mid- to upper Hudson with the bulk of the distribution in the Catskill and Albany regions. Yearling and older white catfish are found throughout the river and their distribution tends to be bimodal with peaks in the Croton-Haverstraw and Catskill regions, although in 1994 few yearling and older white catfish were found in the upper estuary regions (Figure 4-79). After moving into the deeper river strata during September and October, yearling and older white catfish migrate downstream to overwinter in the lower estuary when temperatures in the upper estuary drop below 59°F (NAI 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 1994 show an overall increase in growth from mid-July to mid-September and little increase in size through the end of FSS collections in October (Figure 4-80, Appendix Table D-20).

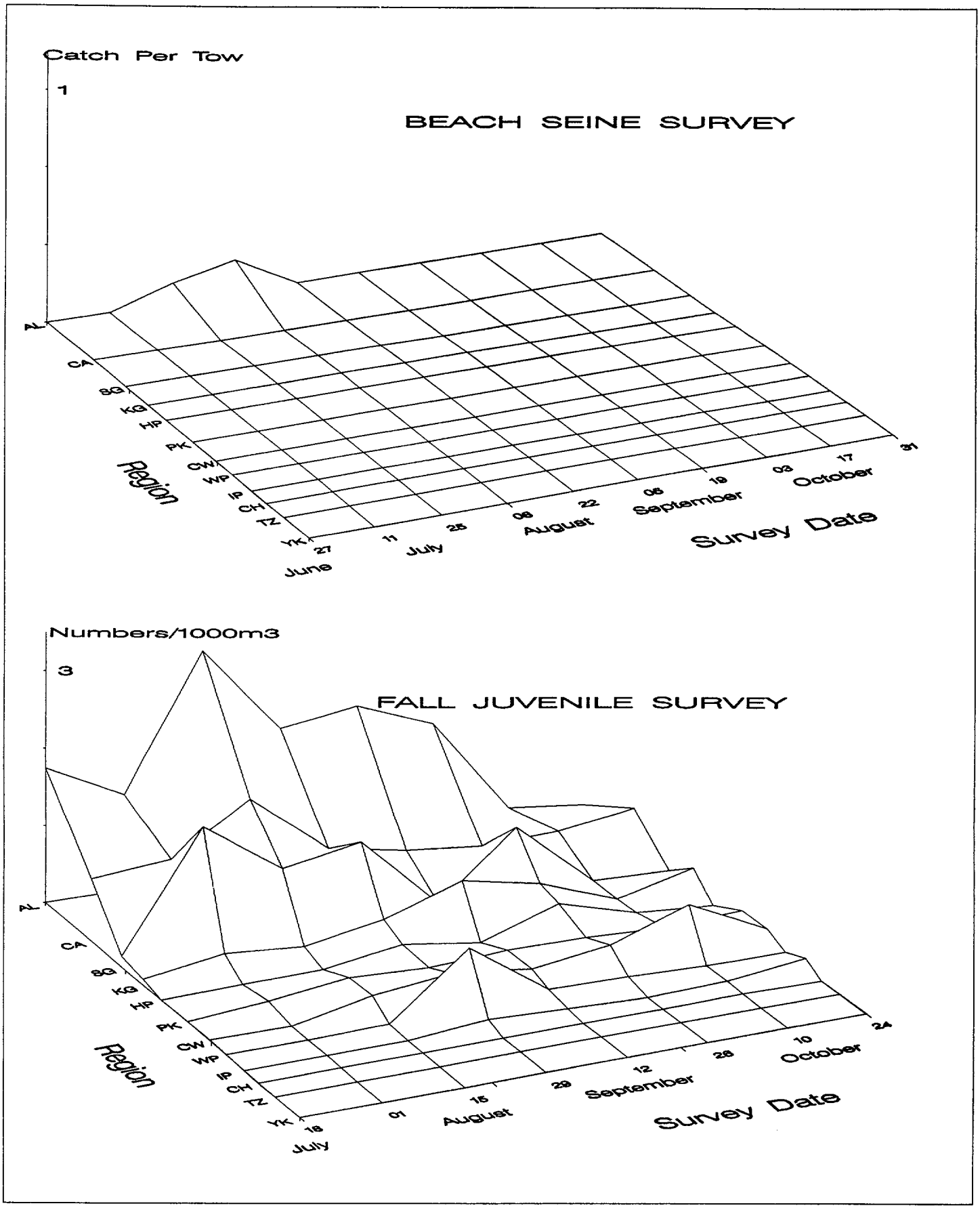


Figure 4-77. Spatiotemporal distribution of young-of-year white catfish in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine Surveys.

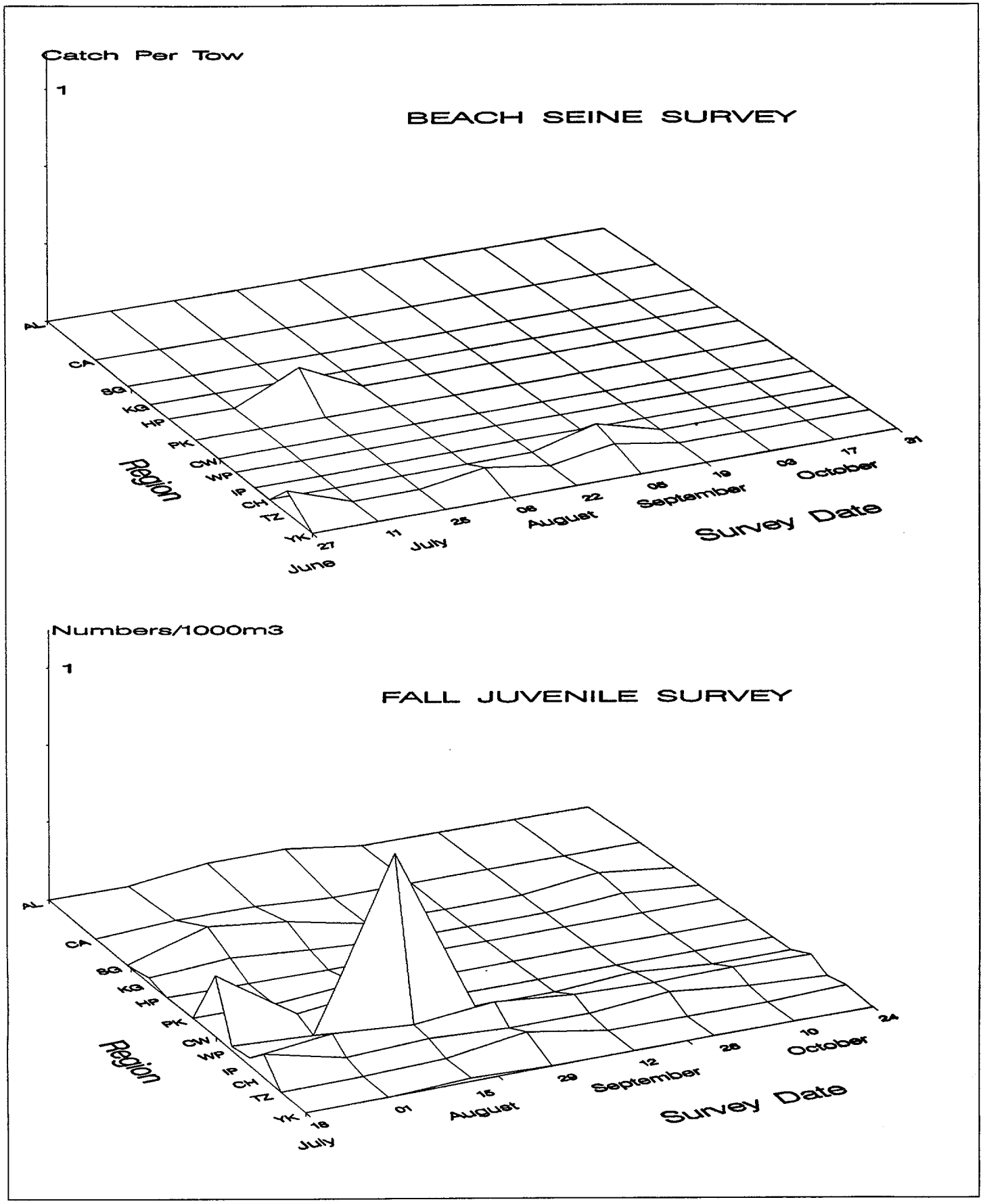


Figure 4–78. Spatiotemporal distribution of yearling and older white catfish in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine Surveys.

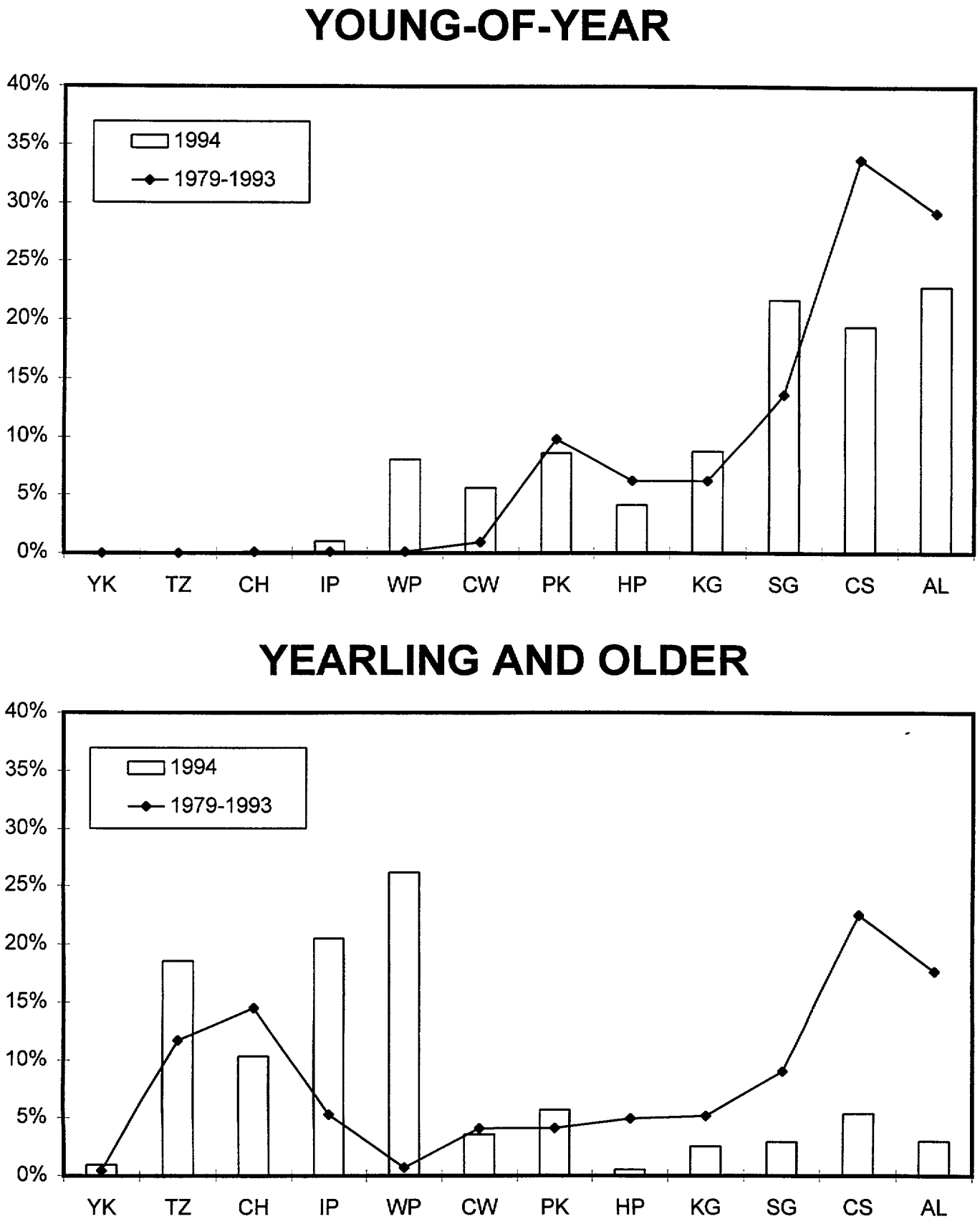


Figure 4-79. Geographical distribution indices for white catfish collected during Fall Shoals surveys of the Hudson River estuary, 1979-1994.

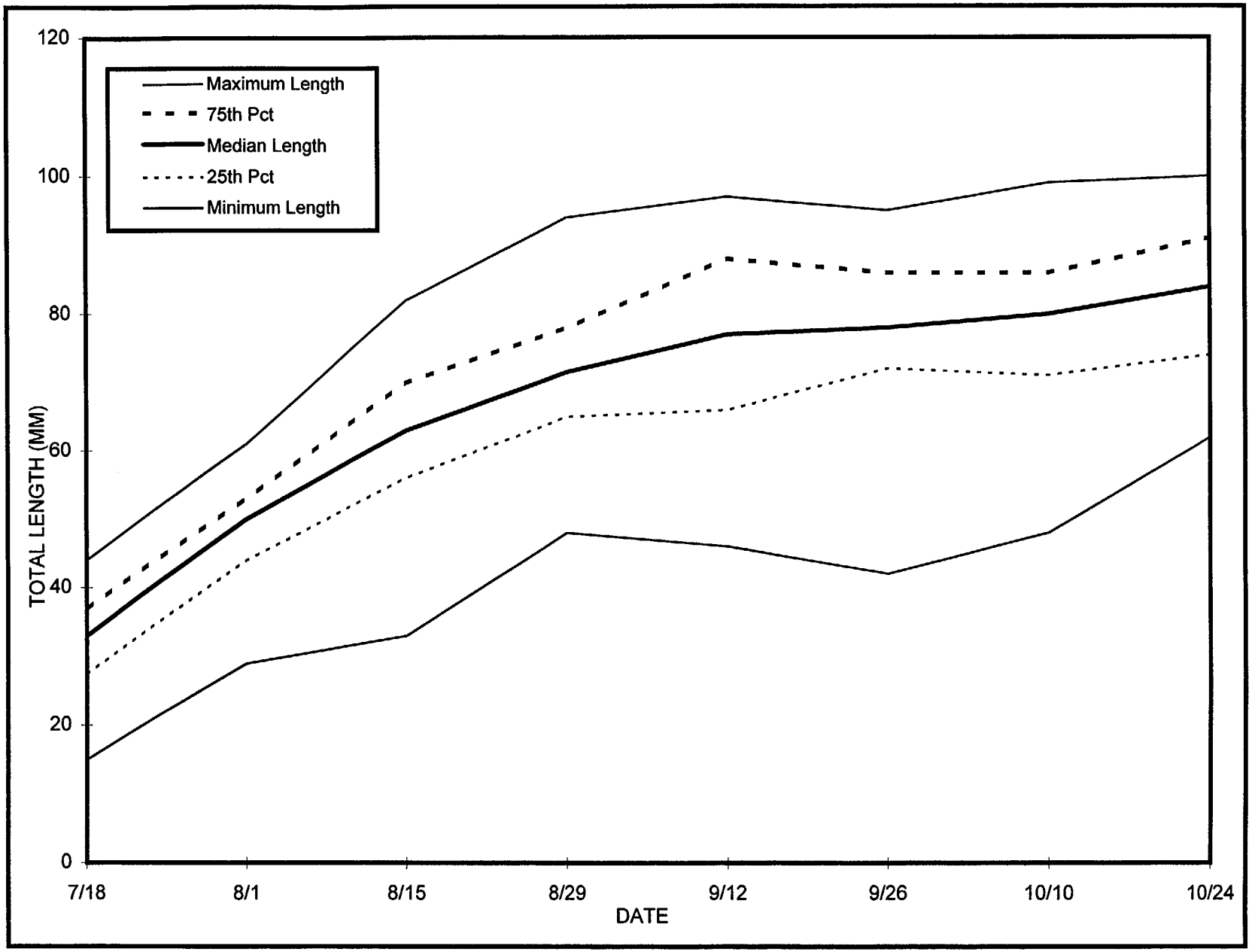


Figure 4-80. Weekly length statistics for white catfish young-of-year in the Hudson River estuary, 1994.

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 1994 LRS, weakfish juveniles were abundant in July and August from the Battery to Indian Point regions (Figure 4-81). In the 1994 FSS juvenile weakfish abundance peaked in mid-July but were found through October from Yonkers to Indian Point, showing a gradual emigration from the Hudson estuary (Figure 4-82). 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 4-83).

The 1994 geographical distribution of YOY weakfish in the FSS is consistent with the 1979-1993 long-term trend in which the majority of juveniles were distributed in the lower estuary (Figure 4-84). Historically, YOY weakfish have ranged as far upriver as Poughkeepsie, but Indian Point was the northernmost region for most of the juveniles in 1994. Most of the yearling and older weakfish in the 1994 FSS collections were found in the Yonkers region, as in the long-term record.

Weekly length statistics for juvenile weakfish collected in 1994 show steady growth during the FSS collection period from mid-July through October (Figure 4-85 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.

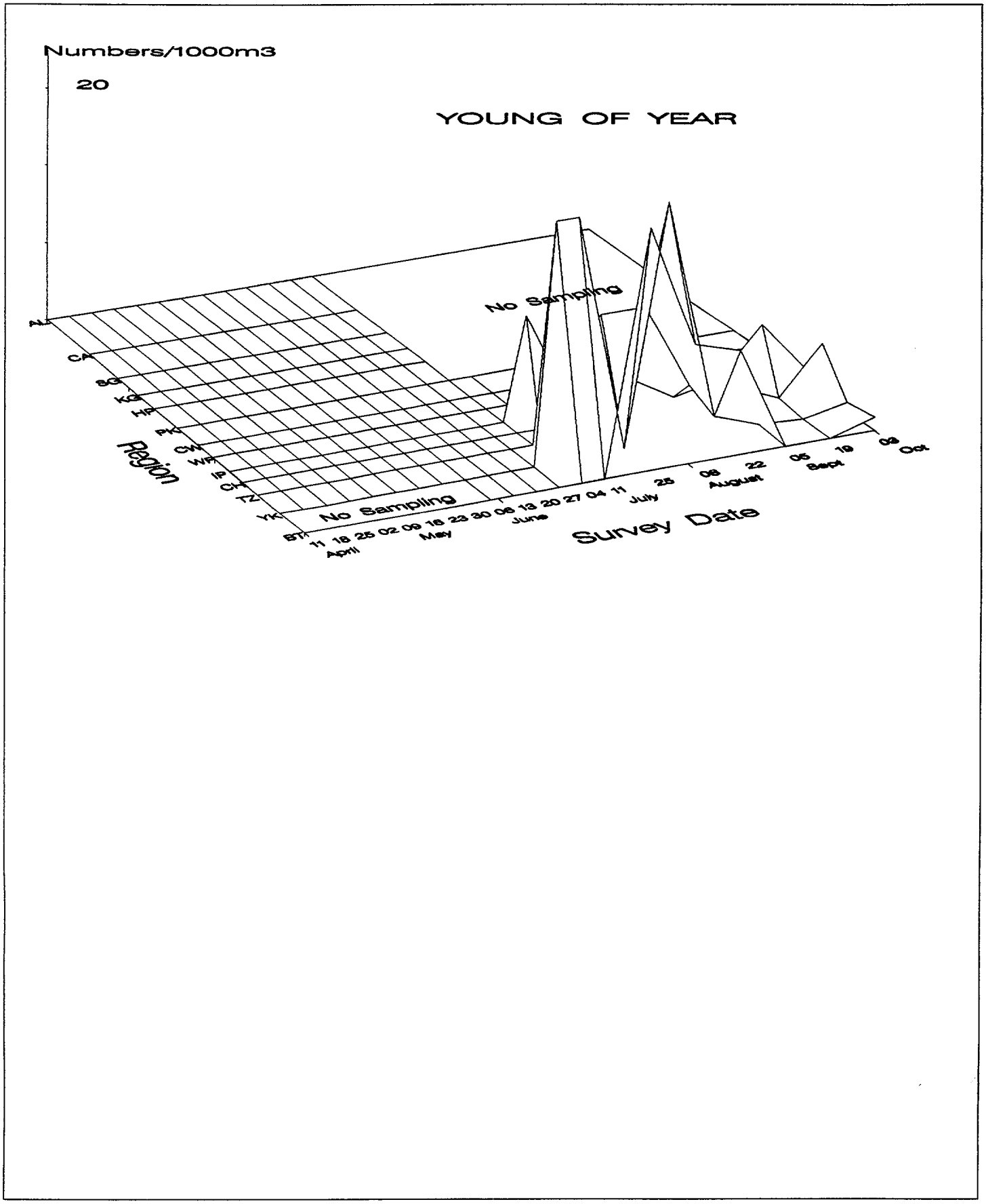


Figure 4–81. Spatiotemporal distribution of young–of–year stage of weakfish in the Hudson River estuary based on the 1994 Long River Ichthyoplankton Survey.

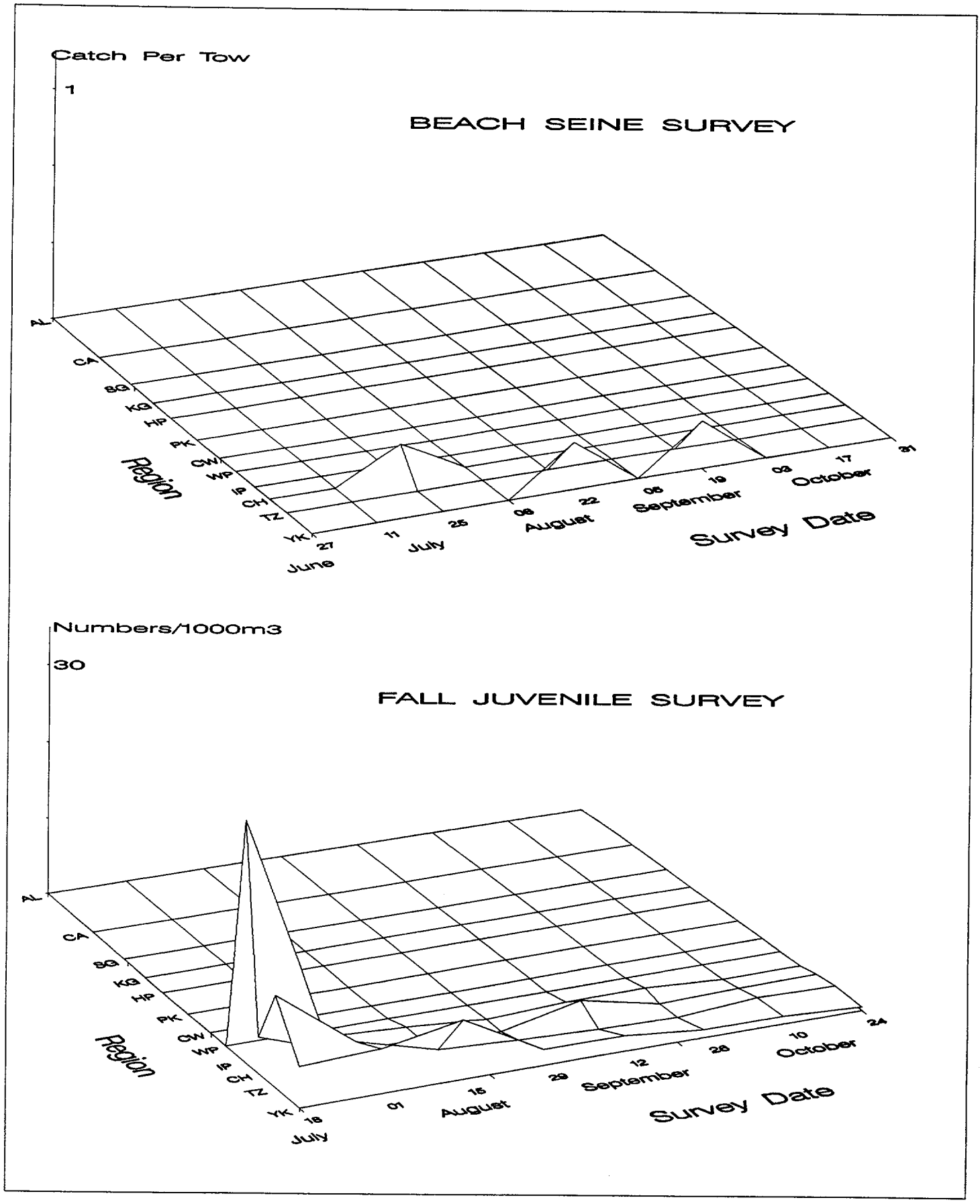


Figure 4–82. Spatiotemporal distribution of young–of–year weakfish in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine Surveys.

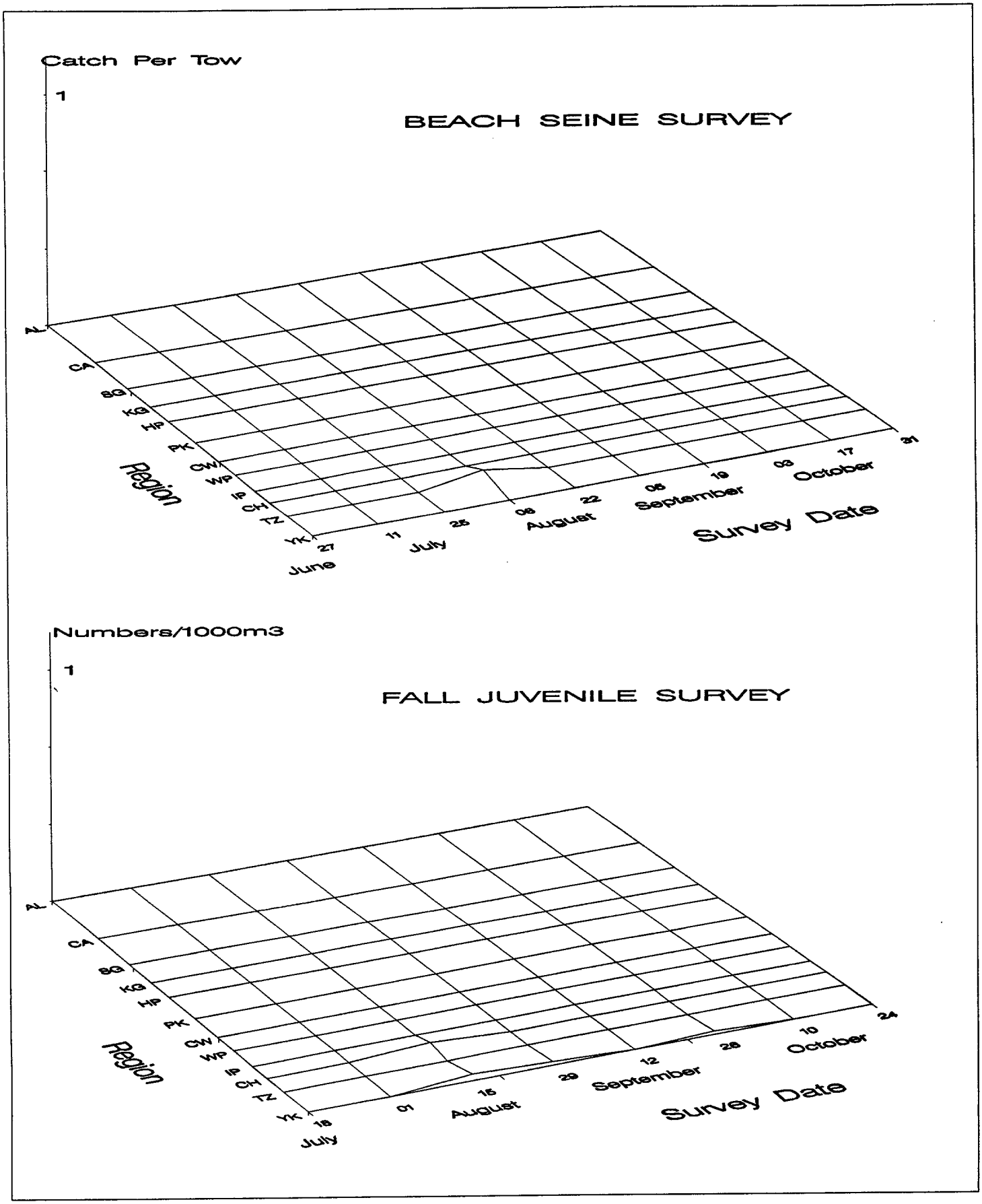
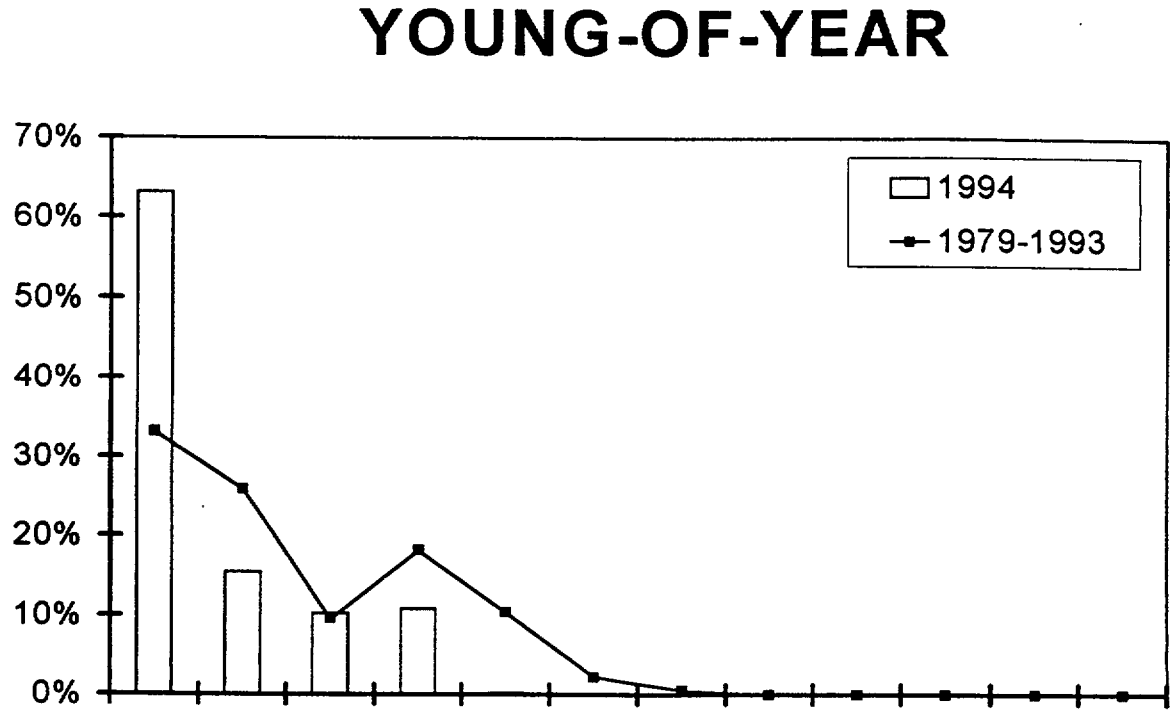


Figure 4–83. Spatiotemporal distribution of yearling and older weakfish in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine Surveys.



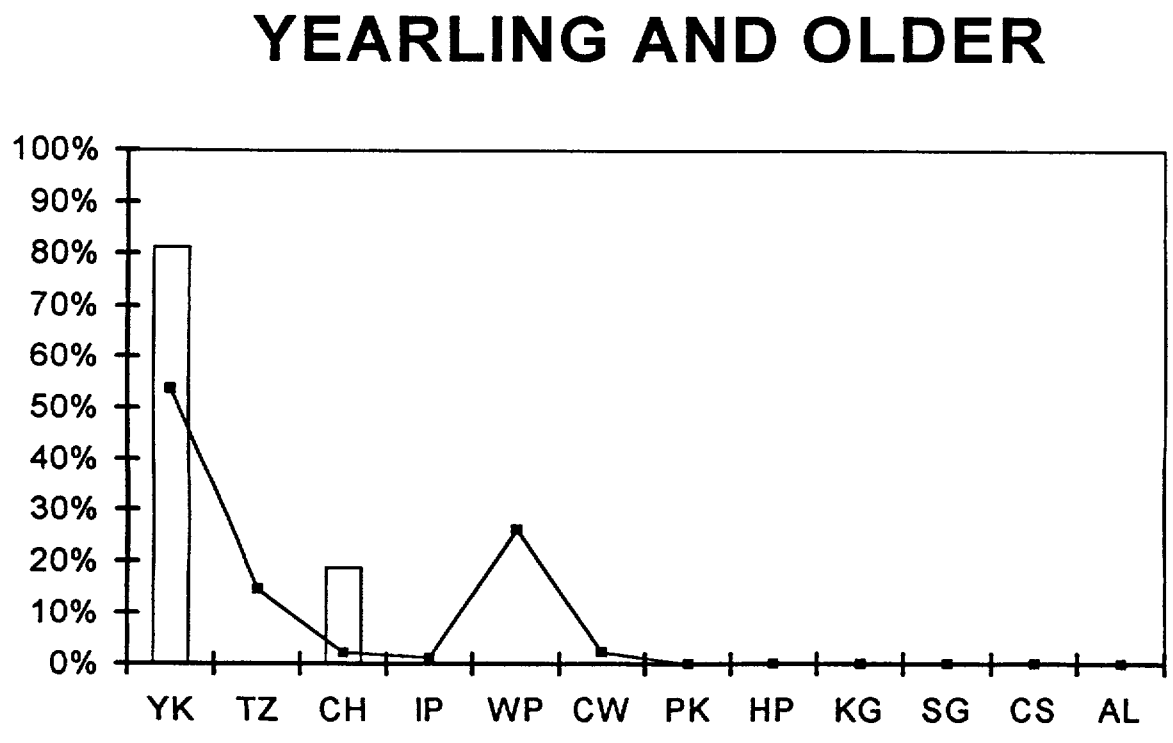


Figure 4-84. Geographical distribution indices for weakfish collected during Fall Shoals surveys of the Hudson River estuary, 1979-1994.

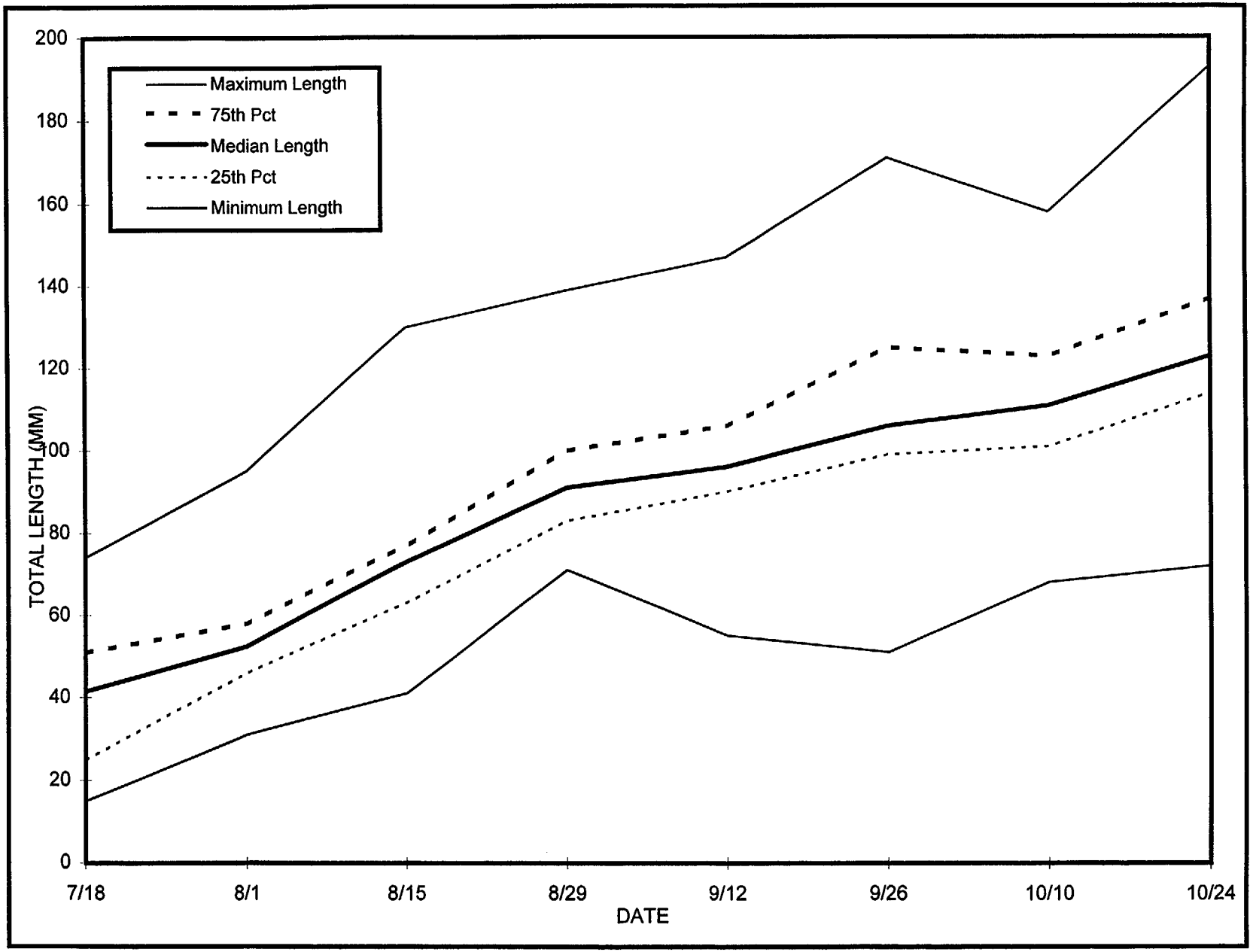


Figure 4-85. Weekly length statistics for weakfish young-of-year in the Hudson River estuary, 1994.

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 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 1994 juvenile bluefish were collected as far north as the Cornwall region and most had emigrated from the Hudson River above the George Washington Bridge by late October (Figure 4-86). Salinity intrusions into the estuary appear to be a major determinant of geographic distribution within the estuary. YOY bluefish are also abundant in areas of the estuary south of the George Washington Bridge and adjacent waterways, which are part of the larger, coastal distribution.

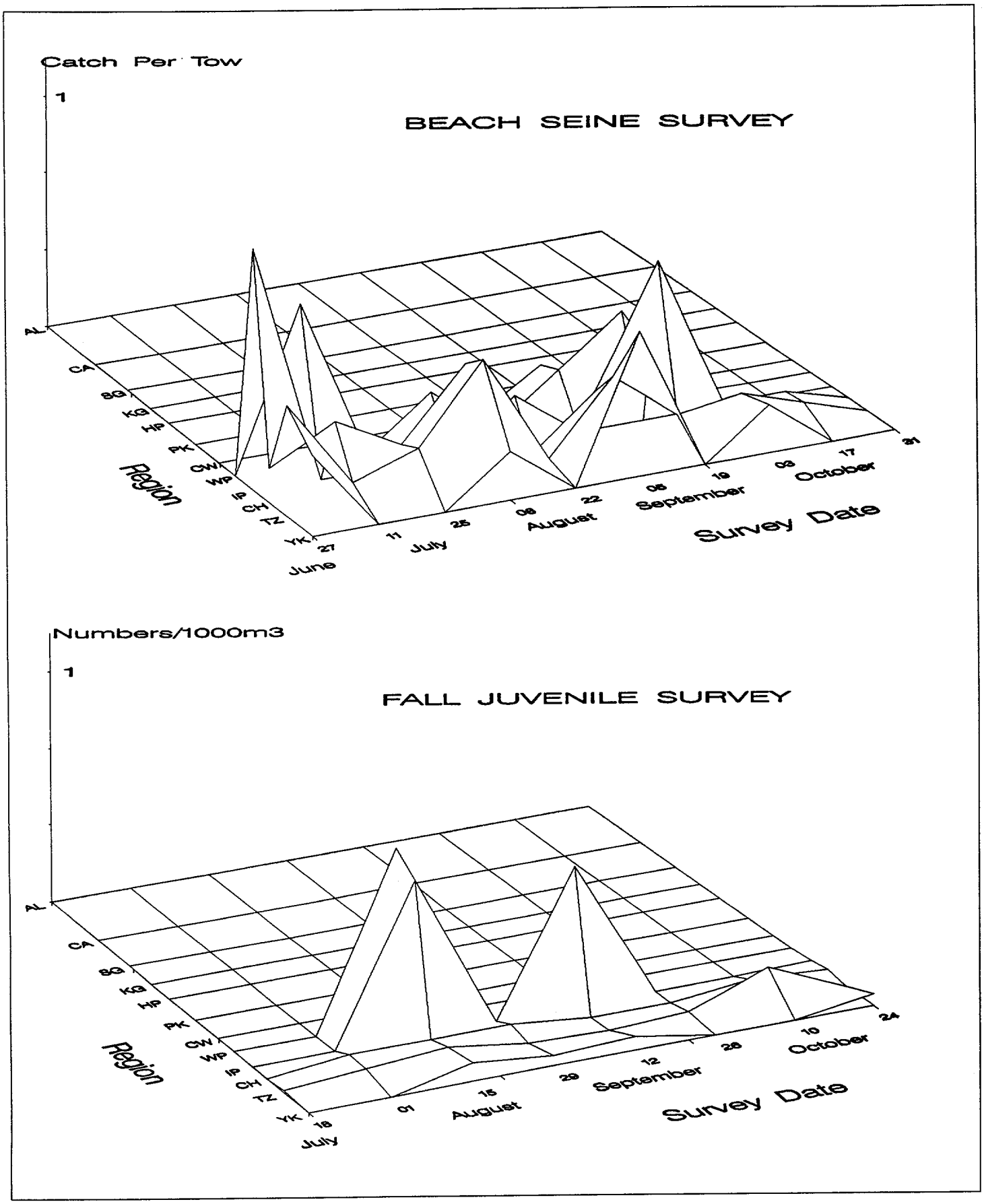


Figure 4–86. Spatiotemporal distribution of young–of–year bluefish in the Hudson River estuary based on the 1994 Fall Shoals and Beach Seine Surveys.

The 1994 geographical distribution of YOY bluefish in the BSS is very consistent with the 1974-1993 long-term trend with the majority of fish in the Tappan Zee and Croton-Haverstraw regions (Figure 4-87).

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.

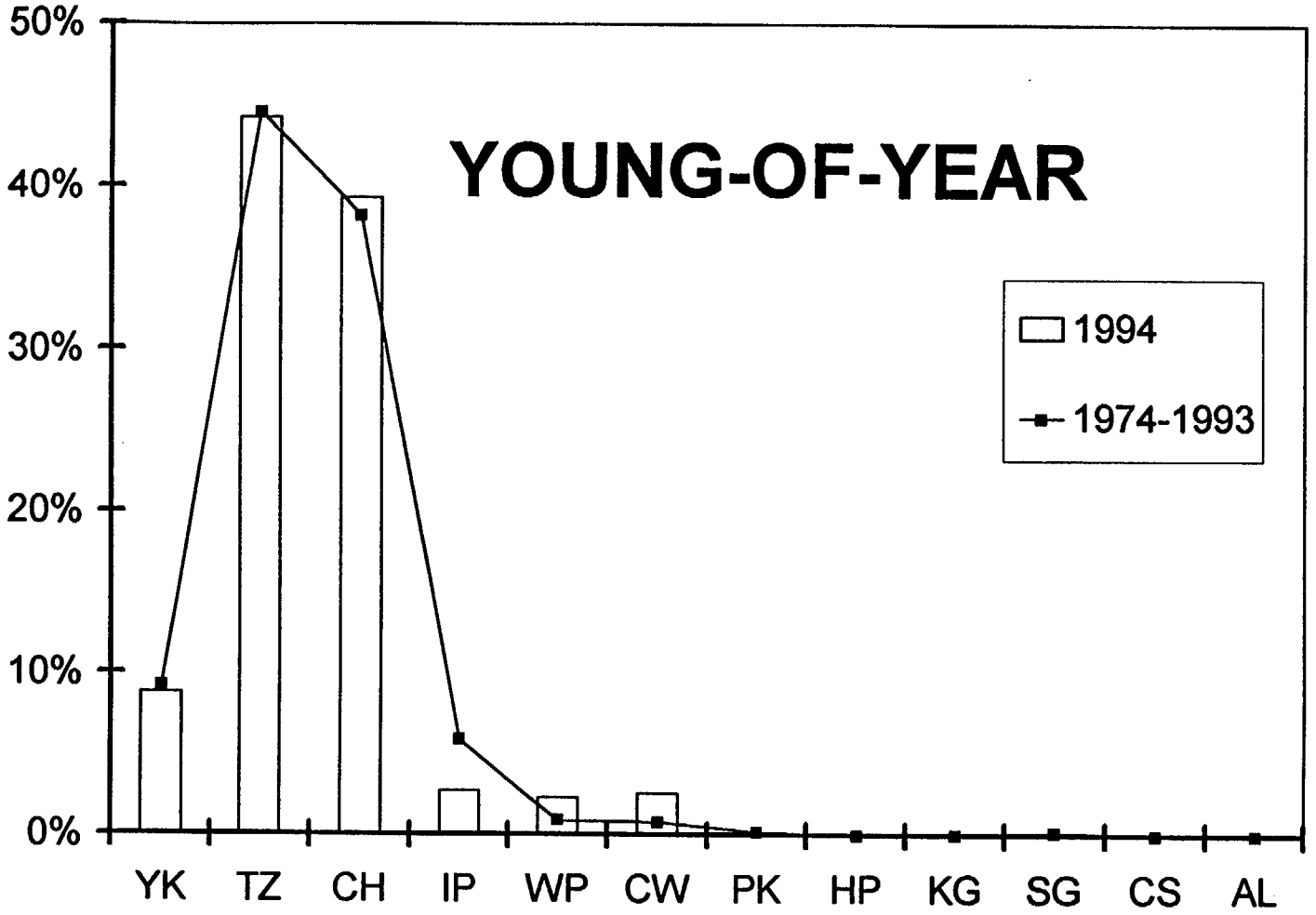


Figure 4-87. Geographical distribution indices for young-of-year bluefish collected during Beach Seine surveys of the Hudson River estuary, 1974-1994.

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Appendix A

Quality Assurance Program

1994 Ichthyoplankton and Fall Shoals Laboratory Program

QUALITY ASSURANCE REPORT FOR THE 1994 HUDSON RIVER ICHTHYOPLANKTON LABORATORY PROGRAM AND 1994 FALL JUVENILE SURVEY

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TABLE OF CONTENTS

		PAGE
1.0	INTRODUCTION	1
2.0	QUALITY CONTROL/QUALITY ASSURANCE METHODS	2
2.1	QUALITY CONTROL PROGRAMS	2
2.2	QUALITY CONTROL REPORTING METHODS	5
2.2.1	Fraction Inspected	7
2.2.2	Process Average (Percent Nonconforming)	7
2.2.3	Percent Measurement Error	8
2.2.4	Average Outgoing Quality	10
2.2.5	Cumulative Error Rates	12
3.0	RESULTS	14
3.1	HUDSON RIVER ICHTHYOPLANKTON LABORATORY PROGRAM	14
3.2	FALL JUVENILE SURVEY	25
4.0	BIBLIOGRAPHY	26

LIST OF FIGURES

PAGE

1. Quality control inspection plan for ichthyoplankton sorting and identification tasks 3

2. Quality control inspection plan for identification and length measurement of young-of-the-year fishes 6

3. Example of percent measurement error calculations for individual taxa during the identification task 11

LIST OF TABLES

PAGE

1. TASK SPECIFIC APPLICATIONS OF CONTINUOUS SAMPLING PLANS FOR THE 1994 HUDSON RIVER ICHTHYOPLANKTON LABORATORY PROGRAM 4

2. TASK SPECIFIC APPLICATIONS OF CONTINUOUS SAMPLING PLANS FOR THE 1994 FALL JUVENILE SURVEY 5

3. FRACTION INSPECTED, PROCESS AVERAGE, MEAN PERCENT MEASUREMENT ERROR, AND AVERAGE OUTGOING QUALITY OF TASKS PERFORMED BY NAI FOR THE 1994 HUDSON RIVER ICHTHYOPLANKTON LABORATORY PROGRAM 14

4. SAMPLE SORTING FRACTION INSPECTED RESULTS, 1994 HUDSON RIVER ICHTHYOPLANKTON LABORATORY PROGRAM 15

5. SAMPLE SORTING PERCENT NONCONFORMANCE RESULTS, 1994 HUDSON RIVER ICHTHYOPLANKTON LABORATORY PROGRAM 17

6. SAMPLE SORTING MEAN PERCENT MEASUREMENT ERROR RESULTS, 1994 HUDSON RIVER ICHTHYOPLANKTON LABORATORY PROGRAM . . . 18

7. SAMPLE IDENTIFICATION FRACTION INSPECTED RESULTS, 1994 HUDSON RIVER ICHTHYOPLANKTON LABORATORY PROGRAM 19

8. SAMPLE IDENTIFICATION PERCENT NONCONFORMANCE RESULTS, 1994 HUDSON RIVER ICHTHYOPLANKTON LABORATORY PROGRAM . . . 20

9. SAMPLE IDENTIFICATION MEAN PERCENT MEASUREMENT ERROR RESULTS, 1994 HUDSON RIVER ICHTHYOPLANKTON LABORATORY PROGRAM 21

10. RANKING OF SPECIES MISSED DURING INITIAL SORT AND FOUND DURING SORT QC 22

11. SUMMARY BY LIFE STAGE OF THE SIX HIGHEST RANKED TAXA MISSED DURING ORIGINAL SORT AND FOUND DURING SORT QC COMPARED TO TOTAL COUNT 23

12. CUMULATIVE NET AND ABSOLUTE ERROR RATES FOR COMMONLY ENCOUNTERED TAXA IN SAMPLES SELECTED FOR QC INSPECTION OF IDENTIFICATION AND COUNTING PROCESS 24

PAGE

13. FRACTION INSPECTED, PROCESS AVERAGE, AND AVERAGE OUTGOING QUALITY OF LABORATORY TASKS PERFORMED BY NAI FOR THE 1994 FALL JUVENILE SURVEY 25

QUALITY ASSURANCE REPORT FOR THE 1994 HUDSON RIVER ICHTHYOPLANKTON LABORATORY PROGRAM AND 1994 FALL JUVENILE SURVEY

1.0 INTRODUCTION

This quality assurance report for the laboratory tasks of the 1994 Hudson River Ichthyoplankton Survey and the 1994 Fall Juvenile Survey was prepared for Con Edison by Normandeau Associates (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 1994 Hudson River Ichthyoplankton Laboratory Program and 1994 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 1994 Hudson River Ichthyoplankton Laboratory Program the results include percent measurement error, a summary of the number of each taxon-life stage found during sorting QA, and cumulative error rates for each taxon-life stage.

2.0 QUALITY CONTROL/QUALITY ASSURANCE METHODS

2.1 QUALITY CONTROL PROGRAMS

For sorting and identification of samples from the 1994 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 Quality

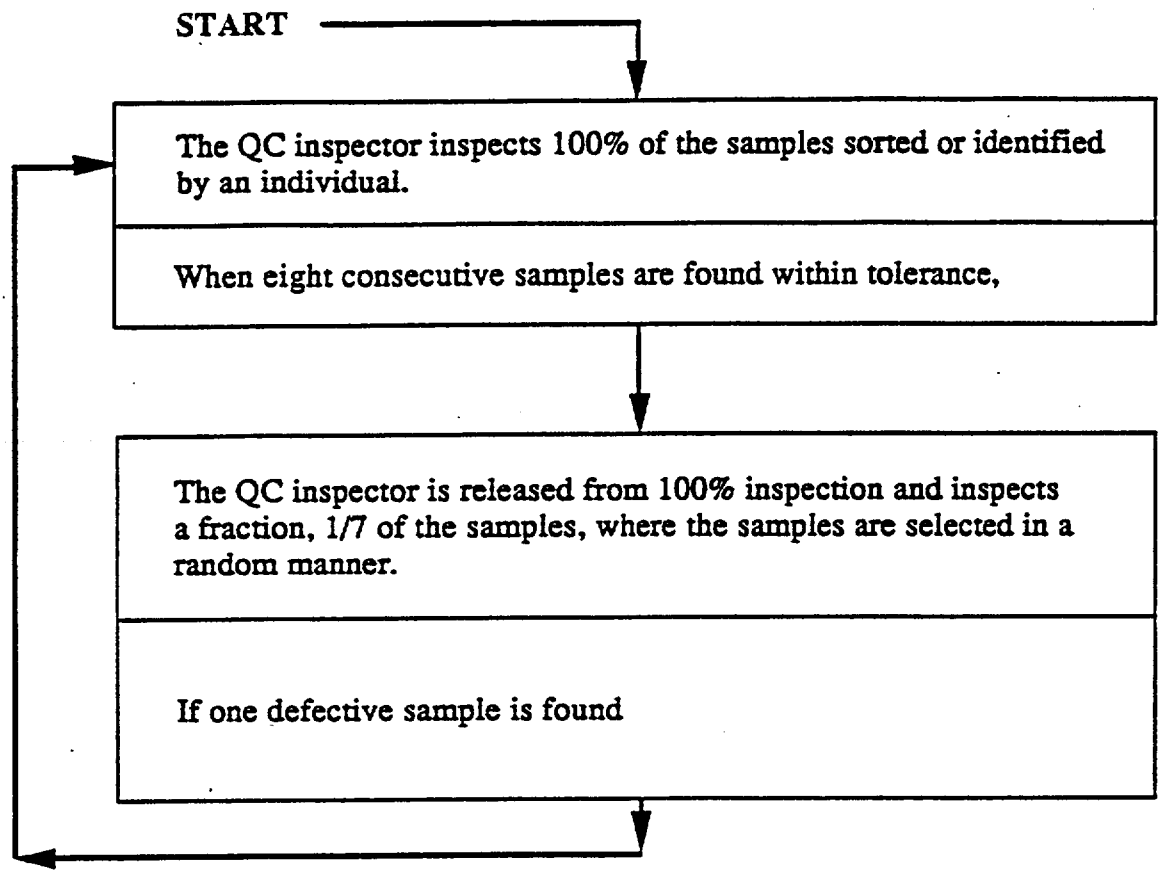

Figure 1. Quality control inspection plan for ichthyoplankton sorting and identification.

Assurance Plan for the 1993 and 1994 Hudson River Ichthyoplankton Laboratory Programs (Rev. 2, Change 0, Feb 95) documents specific QA/QC methods utilized for this program.

TABLE 1. TASK SPECIFIC APPLICATIONS OF CONTINUOUS SAMPLING PLANS FOR THE 1994 HUDSON RIVER ICHTHYOPLANKTON LABORATORY PROGRAM.

LABORATORY TASK	CSP-1 AOQL-10% i	f	SAMPLE TOLERANCE	QC SAMPLE DEFNITION
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

In some cases an experienced QC inspector was able to determine the taxon or life stage of damaged specimens when the original identifier 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 the original identifier included the more specific category used by the QC inspector, 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.

For laboratory identification and length measurements of young-of-the-year fishes in the 1994 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 1994 Hudson River Fall Juvenile and Beach Seine Surveys Standard Operating Procedures (Rev. 10, Change 3, 2/15/95). Young-of-the-year fishes were identified in the laboratory for the first two Fall Shoals river runs and the first three Beach Seine Survey river runs. Young-of-the-year fishes were identified in the field starting with Fall Shoals river run 3 and Beach Seine Survey river run 4. The same quality control procedures applied to both field and laboratory identifications. All length measurements of young-of-the-year fishes occurred in the laboratory.

TABLE 2. TASK SPECIFIC APPLICATIONS OF CONTINUOUS SAMPLING PLANS FOR THE 1994 FALL JUVENILE SURVEY.

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

2.2 QUALITY CONTROL REPORTING METHODS

The 1994 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

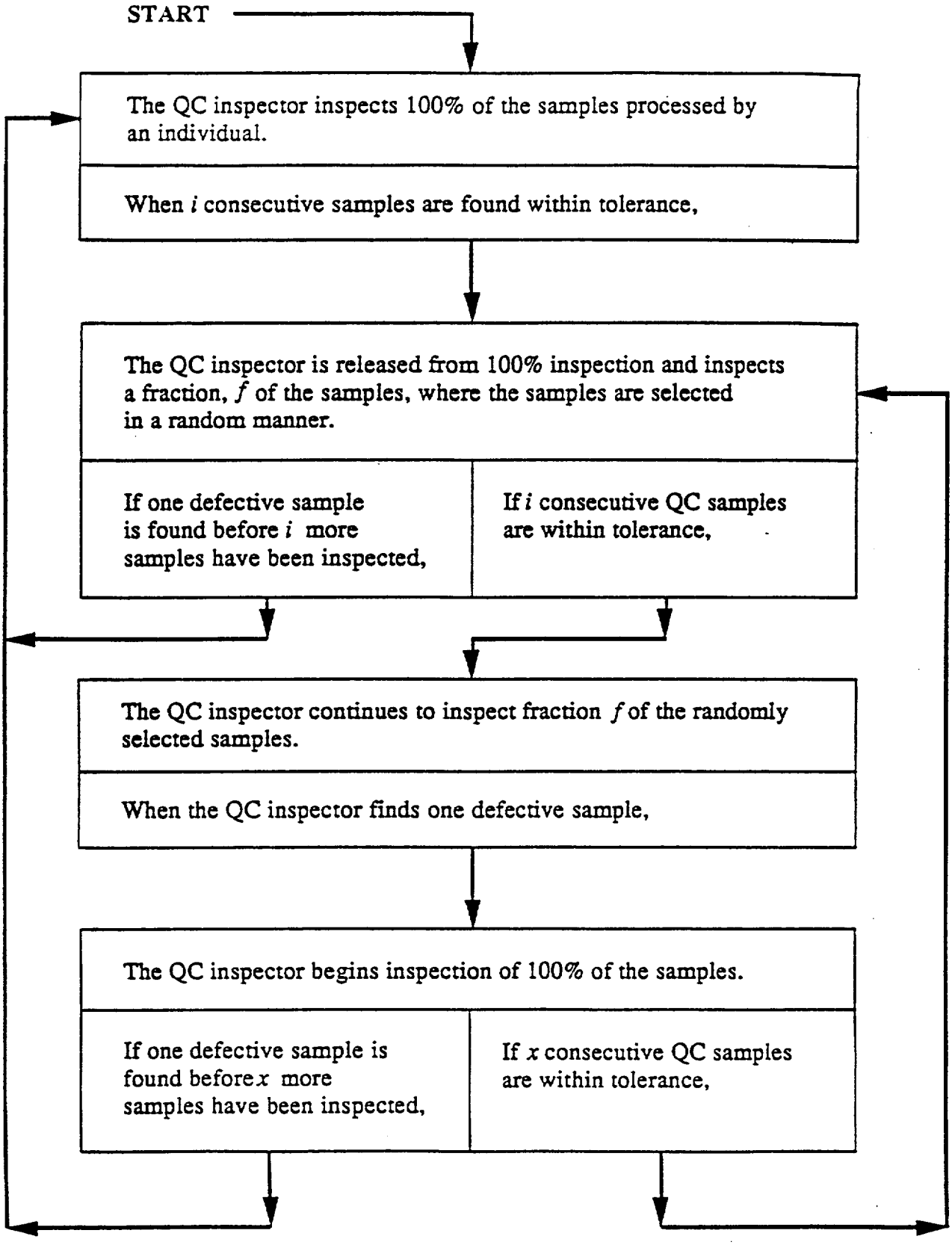

Figure 2. Quality control inspection plan for identification and length measurement of young-of-the-year fishes.

measurement error (precision) were determined for each river run and for the entire study. For the 1994 Fall Juvenile Survey, QC data were used to determine fraction inspected and process average (percent nonconforming) for the entire study (combining all river runs of both the Fall Shoals Survey and the Beach Seine Survey).

2.2.1 Fraction Inspected

Fraction Inspected

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

River Run: Fraction inspected for a river run (Equation 1) was one hundred times the number of samples inspected divided by the total number of samples analyzed for that river run. For 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.

2.2.2 Process Average (Percent Nonconforming)

Process Average (Percent Nonconforming)

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

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

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

2.2.3 Percent Measurement Error

2.2.3.1 Sorting Task

Sorting Percent Measurement Error =

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

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).

2.2.3.2 Identification Task

Life Stage Percent Measurement Error =

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

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.

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

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

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

where

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

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

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

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

Example:

$p' = 0.0689$

$f = 1/7 = 0.1429$

$q = 1-0.0689 = 0.9311$

$i = 8$

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

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

2.2.5 Cumulative Error Rates

Due to the non-independence of identification errors across taxa and life stages, and to the cumulation of errors within taxa, a relatively high fraction of samples may fail QC inspection even though only a small fraction of organisms are incorrectly identified or counted.

In order to present the error frequencies more realistically for particular taxa-life stages, two additional statistics were calculated for each taxon-life stage for the identification/counting process.

Absolute Error Rate =

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

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.

3.0 RESULTS

3.1 HUDSON RIVER ICHTHYOPLANKTON LABORATORY PROGRAM

The Average Outgoing Quality (AOQ) of the 1994 Hudson River Ichthyoplankton Laboratory Program was 3.70% for the sorting task and 0.00% 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 12.03% for sorting and 18.14% 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 1994 HUDSON RIVER ICHTHYOPLANKTON LABORATORY PROGRAM.

TASK	FRACTION INSPECTED(%)	PROCESS AVERAGE(%)	MEAN PERCENT MEASUREMENT ERROR(%)	AOQ(%)
Sorting	12.03	4.60	2.30	3.70
Identification	18.14	0.00	0.76	0.00

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

Sorting and identification tasks were also evaluated on a sampling week basis representing river runs (sampling weeks) 1 through 20. Sorted samples were inspected at a rate of 6.84% to 16.44% for individual river runs (Table 4). River run nonconformities for the sorting task among the inspected samples ranged from 0% to 23.08% and was 4.60%

TABLE 4. SAMPLE SORTING FRACTION INSPECTED RESULTS, 1994 HUDSON RIVER ICHTHYOPLANKTON LABORATORY PROGRAM.

SAMPLING WEEK (BEGINNING MONDAY)	FRACTION INSPECTED SORTING QC: TOTAL # OF SAMPLES INSPECTED	TOTAL # OF SAMPLES SORTED	FRACTION INSPECTED
04/11/94	13	108	12.04
04/18/94	12	107	11.21
04/25/94	9	108	8.33
05/02/94	13	117	11.11
05/09/94	18	117	15.38
05/16/94	13	110	11.82
05/23/94	8	109	7.34
05/30/94	15	107	14.02
06/06/94	15	119	12.61
06/13/94	17	119	14.29
06/20/94	13	118	11.02
06/27/94	8	117	6.84
07/04/94	16	119	13.45
07/11/94	10	73	13.70
07/25/94	10	73	13.70
08/08/94	8	73	10.96
08/22/94	9	73	12.33
09/05/94	12	73	16.44
09/19/94	10	73	13.70
10/03/94	10	73	13.70
STUDY	239	1986	12.03

overall (Table 5). Sorting measurement error was between 0% and 8.45% and averaged 2.30% for the study (Table 6). For the task of sample identification, 12.33% to 34.25% of samples were inspected from individual river runs (Table 7). Percent nonconforming for the identification task was 0% for each of the 20 river runs (Table 8) and measurement error ranged from 0% to 1.46% (Table 9). Overall measurement error was 0.76% (Table 9) for the identification task of this study.

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

Additional organisms found during the sort QC were identified independently to determine the frequency of species and life stages missed during the initial sort. Four taxa accounted for 87% of the additional organisms found during sort QC: white perch, striped bass, clupeids, and bay anchovy (Table 10). The additional number found on the QC sort was less than 1.5% 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 cyprinids and eggs for American shad. 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

TABLE 5. SAMPLE SORTING PERCENT NONCONFORMANCE RESULTS, 1994 HUDSON RIVER ICHTHYOPLANKTON LABORATORY PROGRAM.

SAMPLING WEEK (BEGINNING MONDAY)	% NONCONFORMANCE SORTING QC # OF NONCON-FORMITIES	TOTAL # OF SAMPLES INSPECTED	% NON-CONFORMANCE (WEEK)	% NON-CONFORMANCE (STUDY)
04/11/94	0	13	0.00	0.00
04/18/94	0	12	0.00	0.00
04/25/94	1	9	11.11	2.94
05/02/94	1	13	7.69	4.26
05/09/94	1	18	5.56	4.62
05/16/94	1	13	7.69	5.13
05/23/94	0	8	0.00	4.65
05/30/94	0	15	0.00	3.96
06/06/94	1	15	6.67	4.31
06/13/94	1	17	5.88	4.51
06/20/94	3	13	23.08	6.16
06/27/94	0	8	0.00	5.84
07/04/94	1	16	6.25	5.88
07/11/94	1	10	10.00	6.11
07/25/94	0	10	0.00	5.79
08/08/94	0	8	0.00	5.56
08/22/94	0	9	0.00	5.31
09/05/94	0	12	0.00	5.02
09/19/94	0	10	0.00	4.80
10/03/94	0	10	0.00	4.60
STUDY	11	239		

TABLE 6. SAMPLE SORTING MEAN PERCENT MEASUREMENT ERROR RESULTS, 1994 HUDSON RIVER ICHTHYOPLANKTON LABORATORY PROGRAM.

SAMPLING WEEK (BEGINNING MONDAY)	MEAN PERCENT MEASUREMENT ERROR SORTING QC: TOTAL # OF SAMPLES INSPECTED	MEAN PERCENT MEASUREMENT ERROR
04/11/94	13	0.00
04/18/94	12	0.00
04/25/94	9	6.36
05/02/94	13	8.45
05/09/94	18	2.98
05/16/94	13	2.45
05/23/94	8	2.05
05/30/94	15	1.41
06/06/94	15	1.48
06/13/94	17	3.23
06/20/94	13	6.34
06/27/94	8	1.54
07/04/94	16	1.96
07/11/94	10	2.40
07/25/94	10	1.62
08/08/94	8	1.22
08/22/94	9	0.03
09/05/94	12	0.54
09/19/94	10	0.00
10/03/94	10	0.08
STUDY	239	2.30

TABLE 7. SAMPLE IDENTIFICATION FRACTION INSPECTED RESULTS, 1994 HUDSON RIVER ICHTHYOPLANKTON LABORATORY PROGRAM.

SAMPLING WEEK (BEGINNING MONDAY)	FRACTION INSPECTED IDENTIFICATION QC: TOTAL # OF SAMPLES INSPECTED	TOTAL # OF SAMPLES IDENTIFIED	FRACTION INSPECTED
04/11/94	5	35	14.29
04/18/94	5	38	13.16
04/25/94	28	103	27.18
05/02/94	15	117	12.82
05/09/94	16	117	13.68
05/16/94	16	110	14.55
05/23/94	14	109	12.84
05/30/94	15	107	14.02
06/06/94	21	119	17.65
06/13/94	33	119	27.73
06/20/94	18	118	15.25
06/27/94	16	117	13.68
07/04/94	25	119	21.01
07/11/94	10	73	13.70
07/25/94	25	73	34.25
08/08/94	11	73	15.07
08/22/94	9	73	12.33
09/05/94	10	72	13.89
09/19/94	24	73	32.88
10/03/94	17	71	23.94
STUDY	333	1836	18.14

TABLE 8. SAMPLE IDENTIFICATION PERCENT NONCONFORMANCE RESULTS, 1994 HUDSON RIVER ICHTHYOPLANKTON LABORATORY PROGRAM.

	% NONCONFORMANCE IDENTIFICATION QC			
SAMPLING WEEK (BEGINNING MONDAY)	# OF NONCON-FORMITIES	TOTAL # OF SAMPLES INSPECTED	% NON-CONFORMANCE (WEEK)	% NON-CONFORMANCE (STUDY)
04/11/94	0	5	0.00	0.00
04/18/94	0	5	0.00	0.00
04/25/94	0	28	0.00	0.00
05/02/94	0	15	0.00	0.00
05/09/94	0	16	0.00	0.00
05/16/94	0	16	0.00	0.00
05/23/94	0	14	0.00	0.00
05/30/94	0	15	0.00	0.00
06/06/94	0	21	0.00	0.00
06/13/94	0	33	0.00	0.00
06/20/94	0	18	0.00	0.00
06/27/94	0	16	0.00	0.00
07/04/94	0	25	0.00	0.00
07/11/94	0	10	0.00	0.00
07/25/94	0	25	0.00	0.00
08/08/94	0	11	0.00	0.00
08/22/94	0	9	0.00	0.00
09/05/94	0	10	0.00	0.00
09/19/94	0	24	0.00	0.00
10/03/94	0	17	0.00	0.00
STUDY	0	333		

TABLE 9. SAMPLE IDENTIFICATION MEAN PERCENT MEASUREMENT ERROR RESULTS, 1994 HUDSON RIVER ICHTHYOPLANKTON LABORATORY PROGRAM.

SAMPLING WEEK (BEGINNING MONDAY)	TOTAL # OF SAMPLES INSPECTED	MEAN PERCENT MEASUREMENT ERROR IDENTIFICATION QC	NUMBER OF TAXA INSPECTED
04/11/94	5	0.00	8
04/18/94	5	0.00	6
04/25/94	28	0.13	85
05/02/94	15	0.62	53
05/09/94	16	0.99	91
05/16/94	16	1.03	87
05/23/94	14	0.89	71
05/30/94	15	1.46	96
06/06/94	21	1.05	143
06/13/94	33	0.56	231
06/20/94	18	1.10	133
06/27/94	16	1.24	104
07/04/94	25	0.78	139
07/11/94	10	0.40	70
07/25/94	25	0.31	87
08/08/94	11	0.84	51
08/22/94	9	0.15	22
09/05/94	10	0.64	24
09/19/94	24	0.05	53
10/03/94	17	0.04	40
STUDY	333	0.76	1594

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	2306	39.74
STRIPED BASS	1345	23.18
HERRING FAMILY	874	15.06
BAY ANCHOVY	525	9.05
AMERICAN SHAD	196	3.38
CARP AND MINNOW FAMILY	153	2.64
UNIDENTIFIED	141	2.43
MORONE SPECIES	94	1.62
RAINBOW SMELT	89	1.53
TESSELLATED DARTER	40	0.69
HOGCHOKER	22	0.38
GOBIOSOMA SPECIES	4	0.07
ATLANTIC TOMCOD	2	0.03
WINDOWPANE	2	0.03
YELLOW PERCH	2	0.03
AMERICAN EEL	1	0.02
SILVERSIDE FAMILY	1	0.02
FOURSPINE STICKLEBACK	1	0.02
GIZZARD SHAD	1	0.02
NORTHERN PIPEFISH	1	0.02
TAUTOG	1	0.02
WEAKFISH	1	0.02
TOTAL	5802	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]
AMERICAN SHAD	EGGS	166	84.69	2.24	7397
	YOLK-SAC LARVAE	6	3.06	2.11	284
	POST YOLK-SAC LARVAE	22	11.22	2.42	910
	YOUNG-OF-THE-YEAR	2	1.02	0.20	1018
	UNIDENTIFIED	0	0.00	0.00	5
BAY ANCHOVY	EGGS	197	37.52	0.30	66479
	YOLK-SAC LARVAE	1	0.19	1.92	52
	POST YOLK-SAC LARVAE	325	61.90	0.62	52186
	YOUNG-OF-THE-YEAR	1	0.19	0.00	40237
	UNIDENTIFIED	1	0.19	4.35	23
HERRING FAMILY	EGGS	357	40.85	2.55	14009
	YOLK-SAC LARVAE	56	6.41	1.03	5418
	POST YOLK-SAC LARVAE	457	52.29	1.70	26921
	YOUNG-OF-THE-YEAR	0	0.00	0.00	8
	UNIDENTIFIED	4	0.46	3.60	111
CARP AND MINNOW	EGGS	10	6.54	15.87	63
FAMILY	YOLK-SAC LARVAE	129	84.31	20.09	642
	POST YOLK-SAC LARVAE	14	9.15	9.59	146
	UNIDENTIFIED	0	0.00	0.00	7
STRIPED BASS	EGGS	286	21.26	0.86	33446
	YOLK-SAC LARVAE	633	47.06	1.69	37531
	POST YOLK-SAC LARVAE	425	31.60	0.41	103319
	YOUNG-OF-THE-YEAR	0	0.00	0.00	1394
	UNIDENTIFIED	1	0.07	1.92	52
WHITE PERCH	EGGS	312	13.53	3.14	9940
	YOLK-SAC LARVAE	205	8.89	1.35	15157
	POST YOLK-SAC LARVAE	1789	77.58	2.04	87492
	YOUNG-OF-THE-YEAR	0	0.00	0.00	67
	UNIDENTIFIED	0	0.00	0.00	42

[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	UNIDENTIFIED	1	1.00000	1.00000	1
	EGGS	908	0.00441	0.01322	34
	YOLK-SAC LARVAE	57	0.01754	0.01754	8
	POST YOLK SAC LARVAE	182	-0.00549	0.06044	29
	YOUNG OF THE YEAR	112	0.01786	0.01786	25
ATLANTIC TOMCOD	POST YOLK SAC LARVAE	1447	0.00138	0.00415	20
	YOUNG OF THE YEAR	1195	-0.00335	0.00669	77
BAY ANCHOVY	UNIDENTIFIED	5	0.00000	0.00000	2
	EGGS	14618	0.00876	0.01423	60
	YOLK-SAC LARVAE	5	0.00000	0.00000	1
	POST YOLK SAC LARVAE	10297	0.00320	0.01602	156
	YOUNG OF THE YEAR	6059	0.00083	0.00479	89
BLUEBACK HERRING	POST YOLK SAC LARVAE	4	0.00000	0.00000	1
	YOUNG OF THE YEAR	656	0.00457	0.02287	35
CARP AND MINNOW FAMILY	UNIDENTIFIED	0	1.00000	1.00000	1
	EGGS	30	0.00000	0.00000	9
	YOLK-SAC LARVAE	158	-0.05063	0.06329	31
	POST YOLK SAC LARVAE	14	0.50000	0.50000	10
HERRING FAMILY	UNIDENTIFIED	6	0.50000	0.50000	3
	EGGS	2316	-0.00130	0.01425	38
	YOLK-SAC LARVAE	980	0.00714	0.03367	64
	POST YOLK SAC LARVAE	4965	-0.00181	0.02759	114
HOGCHOKER	EGGS	562	0.01246	0.04448	23
	POST YOLK SAC LARVAE	62	0.06452	0.06452	12
	YOUNG OF THE YEAR	5	0.00000	0.00000	4
MORONE SPECIES	UNIDENTIFIED	11	0.18182	0.18182	4
	YOLK-SAC LARVAE	19	0.05263	0.15789	2
	POST YOLK SAC LARVAE	331	0.11782	0.16616	51
RAINBOW SMELT	UNIDENTIFIED	12	-0.08333	0.58333	7
	YOLK-SAC LARVAE	568	-0.01056	0.02113	33
	POST YOLK SAC LARVAE	3352	-0.00179	0.01551	123
	YOUNG OF THE YEAR	39	0.12821	0.17949	23
STRIPED BASS	UNIDENTIFIED	6	0.66667	0.66667	2
	EGGS	2634	0.01253	0.01936	47
	YOLK-SAC LARVAE	3834	-0.01982	0.03652	54
	POST YOLK SAC LARVAE	14952	-0.00140	0.02080	127
	YOUNG OF THE YEAR	119	0.00840	0.04202	24
WHITE PERCH	UNIDENTIFIED	2	0.00000	0.00000	2
	EGGS	1739	-0.00173	0.01783	40
	YOLK-SAC LARVAE	2843	-0.00703	0.02462	78
	POST YOLK SAC LARVAE	12981	0.00239	0.02103	122
	YOUNG OF THE YEAR	6	0.00000	0.00000	5

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.

3.2 FALL JUVENILE SURVEY

Results of the laboratory quality control program for the 1994 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 1994 Hudson River Ichthyoplankton Laboratory Program (Section 2.2) and are presented in Table 13.

TABLE 13. FRACTION INSPECTED, PROCESS AVERAGE, AND AVERAGE OUTGOING QUALITY OF LABORATORY TASKS PERFORMED BY NAI FOR THE 1994 FALL JUVENILE SURVEY.

TASK	AVERAGE FRACTION INSPECTED(%)	PROCESS AVERAGE(%)	AVERAGE OUTGOING QUALITY(%)
Identification	8.57	2.03	1.83
Measurement	2.40	0.00	0.00

A total of 1605 and 1265 young-of-the-year fish identification records were made in the laboratory for the Fall Shoals and Beach Seine surveys respectively and 6546 and 6527 young-of-the-year fish length measurement records were made for the Fall Shoals and Beach Seine surveys respectively.

4.0 BIBLIOGRAPHY

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Appendix B

Physical/Chemical Parameters

APPENDIX B

LIST OF TABLES

Number	Title
B-1	Daily freshwater flow (m^3/s) recorded at Green Island, New York, 1994.
B-2	Long-term (1947-1993) and 1994 monthly mean freshwater flow (m^3/sec) recorded at Green Island, New York.
B-3	Monthly mean freshwater flow (m^3/s) recorded at Green Island Dam, New York, from 1974 to 1994.
B-4	Poughkeepsie Waterworks data, mean, minimum, and maximum temperature (°C) for each day of the year, 1951-1994.
B-5	Weighted mean temperature (°C) by region and week from 1994 Long River/Fall Shoals surveys.
B-6	Mean temperature (°C) by region and week from 1994 Beach Seine Survey.
B-7	Weighted mean salinity (ppt) by region and week from 1994 Long River/Fall Shoals surveys.
B-8	Mean salinity (ppt) by region and week from 1994 Beach Seine Survey.
B-9	Weighted mean dissolved oxygen (mg/L) by region and week from 1994 Long River/Fall Shoals surveys.
B-10	Mean dissolved oxygen (mg/L) by region and week from 1994 Beach Seine Survey.
B-11	Weighted mean percent oxygen saturation by region and week from 1994 Long River/Fall Shoals surveys.
B-12	Mean percent oxygen saturation by region and week from 1994 Beach Seine Survey.
B-13	Weighted mean conductivity (mS/cm @ 25°C) by region and week from 1994 Long River/Fall Shoals surveys.
B-14	Mean conductivity (mS/cm @ 25°C) by region and week from 1994 Beach Seine Survey.

TABLE B-1 DAILY FRESHWATER FLOW (M3/S) RECORDED AT GREEN ISLAND DAM, NEW YORK, 1994

DAY OF MONTH	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	243	402	308	852	957	266	645	260	238	207	226	419
2	492	340	286	957	1186	283	521	252	232	241	425	408
3	255	314	275	2052	.	258	410	235	246	238	408	365
4	241	280	272	2185	.	258	300	209	204	187	410	328
5	224	266	280	1987	.	229	272	181	215	190	308	354
6	232	258	306	1200	659	218	226	195	224	181	260	764
7	229	263	308	1726	645	204	229	173	190	190	337	778
8	218	297	314	1704	648	218	297	187	178	181	286	685
9	221	311	379	1324	792	201	252	190	181	175	323	569
10	215	286	521	1265	685	192	241	175	184	181	263	456
11	209	283	659	1480	597	187	269	142	175	184	238	416
12	209	277	654	1381	541	178	192	142	164	181	238	419
13	221	277	546	1457	566	212	178	153	164	181	221	334
14	229	280	495	2389	507	260	153	161	161	144	238	300
15	218	275	484	2171	484	323	170	198	158	164	207	289
16	209	269	501	2080	555	246	173	181	142	156	181	320
17	209	272	509	2683	671	190	181	201	142	167	156	348
18	209	266	478	2185	671	198	170	427	170	161	170	334
19	408	275	444	1803	586	167	195	608	167	170	158	354
20	207	291	422	1576	524	173	164	433	147	178	175	345
21	241	365	405	1407	470	161	184	337	164	158	178	317
22	241	541	436	1163	433	158	175	473	139	173	190	308
23	212	608	552	976	388	167	195	416	156	170	198	311
24	201	549	767	818	345	170	235	342	170	190	187	303
25	187	458	1024	818	314	158	198	297	175	167	181	427
26	190	416	976	846	255	187	226	275	178	170	175	470
27	215	385	962	1169	272	187	255	286	198	178	173	388
28	246	340	1030	1336	334	325	241	280	280	150	229	348
29	263	.	1064	1160	328	399	272	289	277	167	328	323
30	374	.	920	1220	291	608	229	258	286	153	450	263
31	374	.	841	.	263	.	252	258	.	167	.	246

TABLE B-2 LONG-TERM (1947-1993) AND 1994 MONTHLY MEAN FRESHWATER FLOW (m^3/sec) RECORDED AT GREEN ISLAND, NEW YORK

	Flow (m^3/sec)			
Month	1994 Average	Long-Term Average	Long-Term Minimum[a]	Long-Term Maximum[a]
JAN	239	372	118	961
FEB	337	395	128	885
MAR	562	612	258	1,077
APR	1,375	870	384	1,749
MAY	535	526	156	1,147
JUN	233	280	101	839
JUL	248	182	87	520
AUG	265	160	48	414
SEP	190	181	58	482
OCT	177	250	71	853
NOV	251	359	93	740
DEC	396	415	173	764
Annual Average[b]	400	383		

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

TABLE B-3 MONTHLY MEAN FRESHWATER FLOW (m3/s) RECORDED AT GREEN ISLAND DAM, NEW YORK FROM 1974 TO 1994

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

TABLE B-4 POUGHKEEPSIE WATERWORKS DATA, MEAN, MINIMUM, AND MAXIMUM TEMPERATURE (C) FOR EACH DAY OF THE YEAR, 1951-1994

MONTH	DAY	LONG-TERM TEMPERATURE (1951-1993) MEAN	MINIMUM	MAXIMUM	1994 ACTUAL TEMPERATURES
1	1	1.6	0.6	4.4	0.8
1	2	1.5	0.0	4.4	0.9
1	3	1.6	0.6	4.4	0.6
1	4	1.5	0.6	3.3	1.4
1	5	1.5	0.0	3.3	0.8
1	6	1.3	0.0	3.3	0.5
1	7	1.3	0.0	3.3	0.5
1	8	1.2	0.0	3.3	0.5
1	9	1.2	0.0	3.3	0.5
1	10	1.1	0.0	2.8	0.3
1	11	1.1	0.0	2.8	0.6
1	12	1.1	0.6	2.8	0.9
1	13	1.1	0.0	2.8	0.6
1	14	1.1	0.0	2.8	0.6
1	15	1.1	0.0	2.8	0.5
1	16	1.1	0.5	2.8	0.4
1	17	1.1	0.6	2.8	0.5
1	18	1.1	0.6	3.3	0.6
1	19	1.0	0.6	2.8	0.6
1	20	1.0	0.5	2.2	0.7
1	21	1.0	0.0	2.4	0.5
1	22	1.0	0.6	2.2	0.8
1	23	1.0	0.6	2.2	0.6
1	24	1.0	0.0	2.2	0.6
1	25	1.0	0.0	3.1	0.8
1	26	0.9	0.0	2.2	0.6
1	27	1.0	0.0	2.2	0.5
1	28	1.0	0.6	2.2	0.5
1	29	1.0	0.6	2.2	0.6
1	30	1.0	0.6	2.2	0.6
1	31	1.0	0.6	2.2	0.8
2	1	1.0	0.6	2.2	0.7
2	2	1.0	0.6	2.2	0.8
2	3	1.0	0.6	2.2	0.7
2	4	0.9	0.6	1.8	0.6
2	5	0.9	0.6	1.7	0.6
2	6	1.0	0.5	2.0	0.6
2	7	0.9	0.6	2.2	0.8
2	8	1.0	0.6	2.2	0.7
2	9	1.0	0.6	2.2	0.6
2	10	1.0	0.6	3.3	0.7
2	11	1.0	0.0	2.2	0.7
2	12	1.0	0.6	2.3	0.7
2	13	1.1	0.6	2.2	0.7
2	14	1.2	0.6	2.8	0.6
2	15	1.1	0.6	2.8	0.9
2	16	1.1	0.0	2.8	0.7
2	17	1.1	0.6	2.8	0.6
2	18	1.1	0.0	2.8	0.8
2	19	1.2	0.6	2.8	0.8
2	20	1.2	0.6	2.8	0.8
2	21	1.2	0.6	2.8	0.7
2	22	1.2	0.0	3.9	0.7
2	23	1.3	0.0	2.8	0.7
2	24	1.3	0.0	3.9	0.7
2	25	1.3	0.6	3.9	0.9
2	26	1.5	0.0	3.9	0.5
2	27	1.5	0.0	4.4	0.5
2	28	1.5	0.0	5.0	1.0
2	29	1.8	0.6	4.4	
3	1	1.5	0.6	4.4	0.8
3	2	1.5	0.6	4.4	0.8
3	3	1.5	0.6	4.4	0.6
3	4	1.6	0.6	4.4	0.7
3	5	1.5	0.6	3.3	1.0
3	6	1.6	0.6	3.7	1.0
3	7	1.7	0.6	4.7	1.2
3	8	1.7	0.0	4.9	1.1
3	9	1.8	0.6	4.5	0.7

TABLE B-4 (CONT.)

MONTH	DAY	LONG-TERM TEMPERATURE (1951-1993) MEAN	MINIMUM	MAXIMUM	1994 ACTUAL TEMPERATURES
3	10	1.9	0.6	4.8	0.6
3	11	2.0	0.6	4.4	0.6
3	12	2.1	0.6	4.4	0.5
3	13	2.1	0.6	4.4	0.5
3	14	2.2	0.6	4.4	0.7
3	15	2.3	0.6	5.0	0.7
3	16	2.5	0.6	5.6	1.1
3	17	2.5	0.6	5.7	1.1
3	18	2.6	0.5	5.9	0.5
3	19	2.7	0.6	7.7	0.6
3	20	2.9	0.6	7.5	0.6
3	21	2.9	0.6	7.3	0.6
3	22	3.1	0.6	7.2	1.3
3	23	3.3	0.6	7.1	1.2
3	24	3.4	0.6	7.1	1.1
3	25	3.5	0.6	5.9	1.1
3	26	3.7	0.6	6.1	1.6
3	27	4.0	1.1	6.7	1.5
3	28	4.3	1.1	6.7	1.5
3	29	4.4	1.1	6.7	3.0
3	30	4.6	1.1	7.8	2.7
3	31	4.9	1.1	8.3	2.9
4	1	5.1	1.7	9.4	3.4
4	2	5.3	2.2	8.3	3.6
4	3	5.5	2.8	8.9	3.6
4	4	5.7	2.8	8.9	3.5
4	5	5.9	2.8	8.9	4.9
4	6	6.0	3.3	8.9	5.5
4	7	6.2	2.8	9.4	6.4
4	8	6.3	2.8	9.4	6.0
4	9	6.3	2.8	9.2	6.2
4	10	6.5	2.8	10.2	6.3
4	11	6.7	2.8	11.2	6.4
4	12	7.0	2.8	11.4	5.2
4	13	7.2	2.8	11.4	6.9
4	14	7.3	2.8	11.4	7.1
4	15	7.5	2.8	11.5	6.7
4	16	7.7	3.3	11.8	7.1
4	17	7.9	3.9	11.7	7.2
4	18	8.2	5.6	11.8	7.3
4	19	8.4	5.6	12.2	8.9
4	20	8.7	6.1	12.2	8.8
4	21	9.0	6.1	12.2	8.7
4	22	9.2	6.7	12.8	8.5
4	23	9.4	6.7	12.8	8.5
4	24	9.5	6.7	13.3	9.1
4	25	9.7	6.7	13.3	9.5
4	26	10.0	6.7	13.3	9.6
4	27	10.1	7.2	13.3	10.0
4	28	10.3	7.8	13.3	10.5
4	29	10.5	8.3	13.9	11.1
4	30	10.9	8.9	13.9	11.5
5	1	11.1	8.9	14.4	11.6
5	2	11.4	8.9	14.4	12.3
5	3	11.6	8.9	14.4	12.4
5	4	11.9	8.9	15.0	12.9
5	5	12.1	8.9	15.0	13.3
5	6	12.2	8.9	15.0	12.9
5	7	12.5	8.9	15.0	13.3
5	8	12.6	8.9	15.1	13.1
5	9	12.7	8.9	15.6	13.6
5	10	13.0	8.9	16.1	13.5
5	11	13.1	9.4	16.1	13.7
5	12	13.2	9.4	16.2	13.5
5	13	13.4	10.0	16.7	13.4
5	14	13.6	10.6	16.7	13.8
5	15	13.8	11.1	16.8	13.8
5	16	14.1	11.1	17.2	13.9
5	17	14.4	11.7	17.6	14.2

TABLE B-4 (CONT.)

MONTH	DAY	LONG-TERM MEAN	TEMPERATURE (1951-1993) MINIMUM	MAXIMUM	1994 ACTUAL TEMPERATURES
5	18	14.6	12.2	17.7	14.1
5	19	14.8	12.2	17.7	13.9
5	20	15.1	12.2	17.8	13.9
5	21	15.3	12.8	18.0	13.9
5	22	15.5	12.8	18.5	14.2
5	23	15.8	12.8	18.9	16.6
5	24	16.0	12.8	19.0	15.2
5	25	16.1	12.8	19.3	15.9
5	26	16.4	12.2	19.4	15.7
5	27	16.6	12.2	20.6	15.7
5	28	16.8	12.2	20.6	16.3
5	29	17.0	12.8	20.7	16.5
5	30	17.2	12.8	21.5	16.5
5	31	17.4	13.3	21.3	17.2
6	1	17.7	13.3	22.0	17.5
6	2	17.9	13.3	22.2	17.5
6	3	18.1	14.4	22.1	17.3
6	4	18.3	13.9	22.5	17.4
6	5	18.5	15.0	22.2	18.3
6	6	18.7	15.6	22.4	18.5
6	7	18.8	15.0	22.4	19.0
6	8	19.1	16.1	22.5	19.3
6	9	19.2	16.1	23.0	19.1
6	10	19.5	16.1	23.2	19.4
6	11	19.7	17.2	23.4	19.6
6	12	19.8	17.2	23.3	19.7
6	13	20.0	17.8	23.4	20.0
6	14	20.1	17.8	23.3	20.3
6	15	20.2	17.8	23.5	20.8
6	16	20.4	17.8	23.8	20.9
6	17	20.4	17.8	23.8	21.5
6	18	20.7	17.8	24.2	21.6
6	19	20.8	17.8	24.1	22.2
6	20	20.9	17.8	24.0	22.4
6	21	21.2	17.8	24.3	22.6
6	22	21.4	17.2	24.3	23.0
6	23	21.5	17.2	24.1	23.4
6	24	21.6	17.8	24.1	23.3
6	25	21.7	17.8	24.2	23.2
6	26	21.9	17.8	24.5	23.4
6	27	22.0	17.8	24.4	23.8
6	28	22.1	17.8	24.4	23.9
6	29	22.3	17.8	25.0	23.7
6	30	22.4	17.8	25.0	23.9
7	1	22.6	18.9	25.4	24.1
7	2	22.7	18.9	25.0	24.1
7	3	22.8	19.4	25.0	24.3
7	4	22.8	19.4	25.0	24.3
7	5	23.0	20.0	25.6	24.8
7	6	23.2	20.0	25.6	25.0
7	7	23.2	20.0	25.6	25.2
7	8	23.3	20.0	25.6	25.4
7	9	23.5	20.0	25.6	25.6
7	10	23.5	20.6	25.6	26.0
7	11	23.6	20.6	25.9	25.6
7	12	23.7	21.1	26.1	26.0
7	13	23.9	21.7	26.7	26.7
7	14	24.0	21.7	26.7	26.6
7	15	24.2	21.7	26.7	26.0
7	16	24.3	22.2	26.7	26.4
7	17	24.3	22.2	26.2	26.6
7	18	24.4	22.2	26.1	26.3
7	19	24.6	22.2	26.3	26.5
7	20	24.7	22.2	26.7	26.5
7	21	24.7	22.8	26.1	26.6
7	22	24.7	22.2	26.7	27.0
7	23	24.8	22.2	26.7	27.0
7	24	24.8	22.8	26.7	26.8
7	25	24.9	22.8	26.7	26.7

TABLE B-4 (CONT.)

MONTH	DAY	LONG-TERM TEMPERATURE (1951-1993) MEAN	MINIMUM	MAXIMUM	1994 ACTUAL TEMPERATURES
7	26	24.9	22.8	26.7	26.6
7	27	25.1	22.8	27.2	26.7
7	28	25.1	22.8	27.2	26.8
7	29	25.1	22.8	26.7	27.0
7	30	25.2	23.3	26.7	27.1
7	31	25.2	23.3	26.7	27.1
8	1	25.2	23.3	26.7	26.4
8	2	25.2	22.8	26.7	26.7
8	3	25.3	23.3	26.8	26.7
8	4	25.3	23.3	26.9	26.7
8	5	25.3	23.3	27.2	26.7
8	6	25.3	23.3	27.2	26.7
8	7	25.3	23.3	27.4	26.8
8	8	25.3	23.3	27.4	26.7
8	9	25.3	23.3	27.8	26.4
8	10	25.3	23.3	27.8	26.2
8	11	25.3	22.8	27.8	25.9
8	12	25.2	22.8	28.1	25.9
8	13	25.1	22.2	28.0	25.9
8	14	25.1	22.2	28.4	25.9
8	15	25.0	22.2	28.4	25.1
8	16	25.0	22.2	28.4	25.3
8	17	24.9	22.2	28.1	25.0
8	18	24.9	22.8	28.0	25.2
8	19	24.9	22.2	27.7	25.1
8	20	24.9	22.8	27.6	24.5
8	21	24.8	22.2	27.5	24.3
8	22	24.7	22.2	27.1	23.8
8	23	24.7	22.8	26.9	23.4
8	24	24.7	22.2	26.7	22.8
8	25	24.5	21.7	26.2	22.9
8	26	24.5	21.7	26.1	22.6
8	27	24.5	22.2	26.2	22.9
8	28	24.4	22.2	25.8	22.8
8	29	24.3	22.2	26.7	22.9
8	30	24.3	22.2	26.1	23.0
8	31	24.2	22.2	26.1	23.2
9	1	24.2	22.2	26.1	23.4
9	2	24.1	22.2	26.7	22.8
9	3	24.0	22.2	26.1	22.6
9	4	23.9	22.2	25.6	22.5
9	5	23.8	21.7	25.6	22.3
9	6	23.8	22.2	25.6	22.3
9	7	23.6	21.7	25.6	21.6
9	8	23.5	21.7	25.6	22.4
9	9	23.4	21.7	25.6	22.0
9	10	23.4	21.1	25.6	21.9
9	11	23.2	21.1	25.6	21.6
9	12	23.1	21.1	25.6	21.3
9	13	22.9	20.0	25.6	21.6
9	14	22.7	18.9	25.0	22.0
9	15	22.6	17.8	25.0	22.0
9	16	22.3	17.2	25.0	21.7
9	17	22.2	17.2	25.0	22.1
9	18	22.0	16.7	25.0	22.0
9	19	21.9	16.7	23.9	21.6
9	20	21.8	17.2	23.9	21.2
9	21	21.5	16.7	23.3	21.4
9	22	21.3	16.1	23.3	21.5
9	23	21.1	16.1	22.8	21.1
9	24	20.8	15.6	22.8	20.9
9	25	20.7	15.6	22.8	20.8
9	26	20.5	15.6	22.2	20.7
9	27	20.4	16.1	22.2	20.8
9	28	20.2	15.6	22.2	20.9
9	29	20.0	15.6	22.2	20.3
9	30	19.7	15.6	22.2	19.8
10	1	19.6	16.1	22.2	19.6
10	2	19.4	15.6	22.2	19.5

TABLE B-4 (CONT.)

MONTH	DAY	LONG-TERM TEMPERATURE (1951-1993) MEAN	MINIMUM	MAXIMUM	1994 ACTUAL TEMPERATURES
10	3	19.3	15.6	22.2	19.5
10	4	19.0	15.6	21.7	18.8
10	5	18.7	15.0	21.1	18.4
10	6	18.6	15.0	21.1	18.7
10	7	18.4	15.0	21.1	17.9
10	8	18.2	14.4	21.1	17.8
10	9	18.0	14.4	21.1	17.7
10	10	17.8	14.4	21.1	18.0
10	11	17.7	13.9	21.1	17.5
10	12	17.4	13.3	21.1	17.1
10	13	17.1	13.3	20.0	16.8
10	14	16.9	12.8	21.1	16.7
10	15	16.8	12.2	20.0	16.0
10	16	16.6	12.2	20.0	15.9
10	17	16.3	12.2	20.0	15.6
10	18	16.1	12.2	20.0	15.5
10	19	15.9	11.7	20.0	16.1
10	20	15.6	10.6	19.4	15.2
10	21	15.3	10.6	18.9	15.5
10	22	15.0	10.0	18.9	15.4
10	23	14.9	10.0	18.9	15.3
10	24	14.7	10.0	18.3	15.2
10	25	14.5	10.0	18.3	15.0
10	26	14.3	10.0	17.8	15.2
10	27	14.1	9.4	17.8	14.5
10	28	13.9	8.9	17.8	14.7
10	29	13.6	8.3	17.8	14.4
10	30	13.5	7.8	16.7	14.3
10	31	13.2	7.2	16.7	14.4
11	1	13.0	7.2	16.7	14.4
11	2	12.8	7.2	16.1	14.2
11	3	12.6	7.2	16.1	14.2
11	4	12.4	7.2	16.1	13.5
11	5	12.1	7.2	15.6	13.5
11	6	12.0	6.7	15.6	13.4
11	7	11.7	6.1	15.0	13.3
11	8	11.3	6.1	15.0	13.1
11	9	11.2	5.6	15.0	14.1
11	10	10.9	5.0	15.0	10.0
11	11	10.7	5.0	15.0	9.9
11	12	10.4	5.0	15.0	9.6
11	13	10.2	5.0	13.3	9.5
11	14	9.9	5.0	13.3	8.1
11	15	9.7	5.0	12.8	9.8
11	16	9.5	5.0	12.8	8.9
11	17	9.4	5.0	12.8	8.7
11	18	9.2	5.0	12.8	8.8
11	19	8.9	5.0	12.2	8.7
11	20	8.7	5.0	11.1	7.9
11	21	8.5	3.9	11.1	7.8
11	22	8.2	3.9	11.1	10.2
11	23	8.1	3.9	11.1	9.8
11	24	7.8	3.9	10.6	9.5
11	25	7.6	3.9	10.6	9.2
11	26	7.4	3.3	10.0	8.8
11	27	7.1	3.3	10.0	8.6
11	28	6.9	3.3	10.0	8.6
11	29	6.8	3.3	10.0	7.9
11	30	6.5	2.8	10.0	6.9
12	1	6.3	2.2	9.4	6.8
12	2	6.1	3.0	8.9	6.8
12	3	5.8	2.2	8.9	5.9
12	4	5.6	1.3	8.3	5.2
12	5	5.4	2.8	7.8	5.0
12	6	5.3	2.6	7.8	5.7
12	7	5.1	2.0	7.8	5.5
12	8	4.8	2.0	7.8	5.3
12	9	4.6	1.7	7.2	4.9
12	10	4.3	1.1	7.2	5.0

TABLE B-4 (CONT.)

MONTH	DAY	LONG-TERM MEAN	TEMPERATURE (1951-1993) MINIMUM	MAXIMUM	1994 ACTUAL TEMPERATURES
12	11	4.1	1.1	7.2	5.1
12	12	3.9	0.6	7.2	4.3
12	13	3.8	0.6	6.7	3.6
12	14	3.6	0.6	6.7	3.2
12	15	3.4	0.6	6.7	3.1
12	16	3.2	0.6	6.7	3.1
12	17	3.1	0.6	5.6	2.4
12	18	2.9	0.6	5.6	2.0
12	19	2.8	0.6	5.0	2.0
12	20	2.7	0.6	5.0	1.7
12	21	2.4	0.6	4.4	1.8
12	22	2.2	0.6	4.4	2.3
12	23	2.1	0.6	5.0	2.2
12	24	2.1	0.6	5.6	2.2
12	25	2.0	0.6	5.6	2.2
12	26	1.9	0.0	6.1	2.2
12	27	1.9	0.0	6.1	1.8
12	28	1.8	0.0	6.1	2.3
12	29	1.8	0.0	6.1	2.2
12	30	1.7	0.6	6.1	2.0
12	31	1.7	0.0	5.0	1.4

TABLE B-5 WEIGHTED MEAN TEMPERATURE (C) BY REGION AND WEEK FROM 1994 LONG RIVER/FALL SHOALS SURVEYS

WEEK BEGINNING MONDAY	REGIONS											
	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
11APR94	7.2	7.1	7.1	6.7	6.2	5.8	5.4	5.3	5.5	5.7	5.3	5.1
18APR94	7.8	7.8	7.8	7.6	7.9	7.9	8.1	8.3	8.0	7.7	7.0	7.1
25APR94	10.2	10.0	9.9	10.3	11.0	10.9	10.1	10.5	10.7	10.8	10.9	10.4
02MAY94	12.2	11.8	11.1	11.4	11.0	12.3	12.6	12.4	12.2	12.1	11.7	11.3
09MAY94	11.7	11.5	11.4	12.5	13.5	14.0	14.1	14.0	12.6	12.5	12.7	10.9
16MAY94	13.4	13.4	13.4	13.1	12.6	13.0	13.7	13.8	13.8	13.7	13.1	13.1
23MAY94	17.2	17.3	17.5	16.7	16.3	16.6	15.8	15.9	15.1	15.6	14.1	14.8
30MAY94	18.1	18.6	19.0	18.3	17.7	18.1	17.3	17.9	18.2	18.6	18.9	18.5
06JUN94	18.8	18.8	19.5	19.4	19.4	19.5	18.9	19.8	19.3	19.9	19.9	19.7
13JUN94	21.3	22.0	21.3	21.7	21.0	21.1	20.6	21.1	21.2	21.5	21.6	21.9
20JUN94	22.0	23.7	21.3	23.3	22.6	22.8	23.0	24.1	24.1	24.4	25.2	26.2
27JUN94	23.7	24.2	24.9	24.0	23.7	23.9	23.6	24.0	24.1	24.2	24.8	24.8
04JUL94	25.1	25.6	25.7	25.1	25.2	24.9	25.3	25.3	26.1	25.2	24.8	24.2
11JUL94	25.9	26.3	26.8	26.7	26.5	26.9	26.7	.	.	.	.	.
18JUL94	24.5	25.9	26.9	26.9	26.3	26.7	26.9	26.7	26.5	26.2	26.5	26.2
25JUL94	27.1	27.4	28.0	28.0	27.4	27.9	27.6	.	.	.	.	.
01AUG94	26.2	27.4	28.1	27.7	27.3	27.5	27.5	26.8	26.9	26.7	26.9	26.4
08AUG94	23.8	24.8	26.0	26.9	26.5	26.7	26.6	.	.	.	.	.
15AUG94	24.0	24.8	25.8	26.3	25.4	25.3	25.1	24.5	23.7	23.6	23.8	23.6
22AUG94	24.2	24.2	24.4	24.9	24.1	24.0	23.5	.	.	.	.	.
29AUG94	24.2	24.3	24.9	24.9	24.0	23.5	22.8	22.4	22.6	22.1	22.0	22.2
05SEP94	21.5	21.8	22.2	22.9	22.6	22.3	22.4	.	.	.	.	.
12SEP94	20.9	20.9	22.9	23.1	22.3	22.1	22.1	21.6	21.1	20.7	20.8	20.3
19SEP94	21.0	21.4	22.1	22.5	21.9	21.8	21.6	.	.	.	.	.
26SEP94	20.6	21.0	21.4	21.4	20.9	20.9	20.0	19.7	19.0	19.1	19.2	19.3
03OCT94	18.9	18.2	19.4	19.7	19.2	18.9	18.7	.	.	14.9	.	.
10OCT94	17.3	17.0	18.0	18.1	17.2	17.2	17.4	16.3	15.4	14.8	14.8	14.8
24OCT94	15.4	15.5	15.5	15.9	15.3	15.3	14.5	13.5	13.1	12.9	12.8	13.1

NOTE: Dots (.) indicate no sampling.

TABLE B-6 MEAN TEMPERATURE (C) BY REGION AND WEEK FROM 1994 BEACH SEINE SURVEY

WEEK BEGINNING MONDAY	REGIONS											
	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
27JUN94	24.2	26.1	23.6	22.9	22.6	23.1	23.6	23.5	23.6	24.3	25.4	23.9
11JUL94	26.3	26.0	25.1	27.1	26.1	26.9	27.2	27.0	27.3	26.1	27.0	25.3
25JUL94	28.0	28.2	27.8	29.9	26.8	27.7	27.2	27.1	26.2	27.4	28.1	26.9
08AUG94	25.5	25.3	24.3	25.9	26.8	26.6	25.0	25.1	26.5	26.3	26.2	25.1
22AUG94	24.7	25.0	23.8	25.8	24.7	24.4	23.1	22.7	21.6	22.0	21.3	21.8
05SEP94	22.2	22.3	22.5	21.7	21.7	22.7	22.5	21.2	20.3	20.7	21.9	19.9
19SEP94	22.5	22.0	22.0	23.6	21.1	20.7	20.8	20.4	20.7	21.2	21.9	21.2
03OCT94	18.1	18.1	19.2	19.2	19.4	18.6	18.4	16.8	16.5	16.9	16.0	15.3
17OCT94	15.8	14.9	15.7	16.0	16.3	16.2	16.6	14.4	13.6	13.1	12.4	12.0
31OCT94	15.1	14.8	15.2	14.6	14.4	13.8	13.7	13.3	12.8	12.1	12.0	11.9

TABLE B-7 WEIGHTED MEAN SALINITY (PPT) BY REGION AND WEEK FROM 1994 LONG RIVER/FALL SHOALS SURVEYS

WEEK BEGINNING MONDAY	REGIONS											
	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
11APR94	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
18APR94	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
25APR94	2.0	0.7	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
02MAY94	2.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
09MAY94	6.8	4.7	2.6	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
16MAY94	6.1	3.3	1.1	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
23MAY94	5.6	3.7	2.1	0.6	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
30MAY94	7.1	2.5	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
06JUN94	9.4	7.9	4.0	2.4	0.6	0.1	0.1	0.1	0.1	0.1	0.1	0.1
13JUN94	9.5	5.0	3.2	1.6	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1
20JUN94	13.6	6.1	2.9	1.1	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.2
27JUN94	9.8	4.8	2.2	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1
04JUL94	10.1	6.6	4.4	1.6	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1
11JUL94	9.0	6.7	3.9	2.2	0.3	0.2	0.2	.	.	.	.	.
18JUL94	14.0	6.2	3.1	1.7	0.7	0.2	0.1	0.2	0.2	0.1	0.1	0.1
25JUL94	9.6	6.1	3.1	1.3	0.2	0.2	0.2	.	.	.	.	.
01AUG94	12.4	6.0	4.1	1.9	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1
08AUG94	14.4	8.9	5.2	3.5	1.0	0.2	0.1	.	.	.	.	.
15AUG94	10.6	5.7	4.1	1.8	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1
22AUG94	6.5	4.6	1.6	0.5	0.2	0.2	0.2	.	.	.	.	.
29AUG94	7.0	2.7	2.6	0.6	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
05SEP94	9.8	7.8	5.4	3.5	0.7	0.1	0.1	.	.	.	.	.
12SEP94	12.3	5.6	3.9	1.9	1.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1
19SEP94	12.6	7.4	3.7	2.4	0.6	0.2	0.1	.	.	.	.	.
26SEP94	12.5	7.2	5.4	3.4	1.0	0.2	0.1	0.1	0.1	0.1	0.1	0.1
03OCT94	10.5	7.1	4.1	2.9	1.3	0.3	0.1	.	.	0.1	.	.
10OCT94	10.6	4.8	3.0	1.9	0.4	0.2	0.1	0.1	0.1	0.1	0.1	0.1
24OCT94	11.4	6.7	4.8	3.2	0.8	0.1	0.1	0.1	0.1	0.1	0.1	0.1

NOTE: Dots (.) indicate no sampling.

TABLE B-8 MEAN SALINITY (PPT) BY REGION AND WEEK FROM 1994 BEACH SEINE SURVEY

WEEK BEGINNING MONDAY	REGIONS											
	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
27JUN94	8.0	4.6	2.3	0.6	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
11JUL94	8.3	4.3	2.8	3.0	0.6	0.2	0.1	0.1	0.1	0.1	0.1	0.1
25JUL94	7.7	5.6	3.2	1.7	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1
08AUG94	9.9	6.8	4.2	3.2	0.6	0.2	0.1	0.1	0.1	0.1	0.1	0.1
22AUG94	7.0	2.8	1.0	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1
05SEP94	11.0	6.6	4.3	3.3	0.9	0.2	0.1	0.1	0.1	0.1	0.1	0.1
19SEP94	12.1	6.1	3.3	1.6	0.5	0.2	0.2	0.1	0.1	0.1	0.1	0.1
03OCT94	11.6	5.8	3.4	2.3	0.5	0.2	0.1	0.1	0.1	0.1	0.1	0.1
17OCT94	10.4	5.3	3.5	2.7	0.5	0.2	0.1	0.1	0.1	0.1	0.1	0.1
31OCT94	12.0	6.1	4.1	2.8	1.2	0.3	0.2	0.1	0.1	0.1	0.1	0.1

TABLE B-9 WEIGHTED MEAN DISSOLVED OXYGEN (MG/L) BY REGION AND WEEK FROM 1994 LONG RIVER/FALL SHOALS SURVEYS

WEEK BEGINNING MONDAY	REGIONS											
	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
11APR94	12.6	12.5	12.7	12.8	13.5	13.5	13.8	13.9	13.6	12.9	13.5	13.6
18APR94	12.7	12.5	12.6	12.6	12.7	12.7	12.6	12.5	12.5	12.3	12.6	12.6
25APR94	10.7	10.3	10.8	10.9	9.0	8.4	9.0	9.7	8.7	9.5	9.6	10.2
02MAY94	11.1	11.0	10.8	10.8	9.9	10.2	8.7	10.0	11.4	11.8	12.1	.
09MAY94	9.6	10.6	10.8	10.1	10.4	10.5	10.3	10.8	10.6	10.5	10.9	11.3
16MAY94	9.5	9.4	9.6	9.7	9.7	9.8	9.1	9.1	9.2	9.4	9.6	9.8
23MAY94	8.4	8.7	8.7	9.0	9.5	9.6	9.3	9.2	9.3	9.5	10.0	9.9
30MAY94	8.0	8.8	9.2	9.1	8.8	9.0	8.4	8.6	8.8	8.6	8.4	9.1
06JUN94	8.6	9.0	8.8	8.4	8.9	8.8	8.0	8.5	8.5	8.4	8.1	8.4
13JUN94	7.3	7.6	8.1	7.6	8.0	8.4	6.5	6.8	7.2	7.3	6.9	6.9
20JUN94	6.9	8.0	7.2	8.0	8.1	8.2	8.0	8.3	8.0	8.3	7.6	7.6
27JUN94	6.5	7.3	7.6	7.2	7.6	7.8	8.1	8.0	8.0	7.9	7.1	6.8
04JUL94	7.4	7.9	6.9	7.6	8.3	8.0	7.8	7.6	7.8	7.7	8.0	8.2
11JUL94	7.4	8.2	8.0	7.1	7.6	7.6	7.4	.	.	.	.	.
18JUL94	5.7	7.1	6.8	6.2	6.6	7.7	7.7	6.9	7.0	7.3	7.1	7.2
25JUL94	6.1	6.9	6.8	6.3	6.9	7.2	6.9	.	.	.	.	.
01AUG94	5.4	6.6	6.6	6.3	7.0	7.2	7.1	6.9	7.6	7.2	6.8	7.0
08AUG94	5.1	6.5	7.1	6.7	6.8	7.6	7.6	.	.	.	.	.
15AUG94	5.5	6.7	6.4	5.6	7.3	7.5	7.4	7.5	7.9	7.9	7.4	7.5
22AUG94	7.2	7.5	7.5	7.2	7.6	7.7	7.7	.	.	.	.	.
29AUG94	6.5	6.6	7.6	7.7	8.2	7.9	7.5	7.5	8.5	8.0	8.0	8.1
05SEP94	7.0	7.2	7.4	7.1	7.7	8.0	7.7	.	.	.	.	.
12SEP94	6.3	7.9	8.0	7.3	7.9	8.3	7.9	8.0	9.1	10.0	9.6	8.9
19SEP94	6.3	7.5	7.9	7.2	7.4	7.6	7.5	.	.	.	.	.
26SEP94	6.6	7.1	7.3	7.0	7.7	7.8	7.9	8.0	8.2	8.8	9.0	8.4
03OCT94	6.7	7.8	7.7	7.8	8.0	8.4	8.1	.	.	9.7	.	.
10OCT94	7.3	8.7	8.5	8.2	8.4	8.4	8.2	8.4	9.2	10.4	10.9	9.7
24OCT94	7.8	8.4	8.5	8.4	8.7	8.8	8.8	9.3	9.6	10.0	10.3	9.6

NOTE: Dots (.) indicate no sampling.

TABLE B-10 MEAN DISSOLVED OXYGEN (mg/L) BY REGION AND WEEK FROM 1994 BEACH SEINE SURVEY

WEEK BEGINNING MONDAY	REGIONS											
	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
27JUN94	5.1	6.3	7.1	6.8	7.1	7.2	7.1	7.1	7.2	7.6	7.7	6.7
11JUL94	8.6	11.5	8.7	8.1	7.7	6.7	9.2	7.0	7.8	7.8	7.7	7.3
25JUL94	5.4	7.4	7.6	7.4	6.9	8.8	7.8	8.5	7.6	7.1	7.7	6.7
08AUG94	6.1	7.7	7.3	8.1	6.9	7.7	6.8	7.8	7.9	7.9	9.4	7.1
22AUG94	6.9	8.3	7.9	7.9	7.8	8.5	8.6	8.5	7.6	8.1	8.7	8.2
05SEP94	6.8	8.2	9.1	8.4	8.2	9.7	9.2	8.6	9.5	9.4	9.3	8.6
19SEP94	6.3	8.0	8.6	8.0	7.1	7.5	7.1	7.2	8.4	9.0	11.5	8.5
03OCT94	7.0	8.7	8.3	7.9	8.0	8.4	8.0	8.4	8.6	10.1	11.3	9.3
17OCT94	8.8	9.8	9.3	8.7	9.2	9.7	9.5	9.7	10.2	10.7	11.5	10.0
31OCT94	8.1	8.9	8.7	8.6	9.2	9.3	9.3	9.7	9.9	9.8	9.6	9.3

TABLE B-11 WEIGHTED MEAN PERCENT OXYGEN SATURATION BY REGION AND WEEK FROM 1994 LONG RIVER/FALL SHOALS SURVEYS

WEEK BEGINNING MONDAY	REGIONS											
	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
11APR94	104.7	103.6	104.7	104.9	109.0	108.0	109.5	109.4	107.9	103.4	107.2	107.3
18APR94	106.4	105.6	106.4	105.6	106.8	106.8	106.4	106.4	105.5	103.4	104.0	104.5
25APR94	96.4	92.2	95.7	96.7	82.1	76.3	80.3	86.8	78.3	85.9	87.0	91.9
02MAY94	105.2	101.3	98.0	99.1	89.8	95.8	81.9	93.2	106.4	109.4	111.7	.
09MAY94	93.1	100.5	100.6	95.2	99.7	101.8	100.5	104.3	99.7	98.9	102.6	102.6
16MAY94	94.7	92.4	92.4	92.6	91.4	92.7	87.4	88.3	88.6	90.2	91.5	92.9
23MAY94	90.3	92.4	92.3	92.8	96.8	98.4	93.6	93.5	92.6	94.9	97.3	97.5
30MAY94	88.1	95.8	98.9	97.2	92.9	95.0	88.0	90.3	92.8	92.1	90.7	96.9
06JUN94	98.6	101.7	98.9	92.6	97.0	96.2	85.8	92.7	91.9	92.0	88.9	92.0
13JUN94	87.1	90.1	92.9	87.2	90.0	94.3	72.7	76.6	80.9	82.9	77.9	78.5
20JUN94	86.3	98.0	82.3	94.7	93.6	95.1	93.2	99.0	95.3	98.8	92.0	93.6
27JUN94	81.5	90.0	93.1	86.3	89.8	93.0	95.4	95.1	95.6	94.7	85.4	82.0
04JUL94	95.3	100.4	86.7	92.3	100.4	96.2	94.7	92.3	96.5	93.4	97.0	97.3
11JUL94	96.0	105.3	102.4	90.2	94.5	95.5	92.8	.	.	.	.	.
18JUL94	74.3	90.7	86.2	78.1	81.6	95.5	96.4	85.5	87.1	90.7	88.8	89.6
25JUL94	81.4	90.1	88.0	81.4	86.6	92.1	87.8	.	.	.	.	.
01AUG94	72.6	86.1	85.8	80.2	88.0	91.0	89.6	85.7	94.5	90.0	84.7	87.0
08AUG94	66.3	82.7	90.9	86.1	84.9	94.4	94.4	.	.	.	.	.
15AUG94	69.9	83.8	80.0	69.8	89.6	91.2	89.7	89.7	93.0	93.6	87.5	88.3
22AUG94	89.4	92.2	91.0	87.6	90.6	91.7	90.1	.	.	.	.	.
29AUG94	81.2	79.9	92.9	93.1	97.2	93.6	87.0	86.7	98.1	91.4	91.5	92.8
05SEP94	84.3	86.0	87.7	84.6	89.8	92.5	88.5	.	.	.	.	.
12SEP94	76.5	92.1	95.7	86.3	91.5	94.5	90.9	91.3	102.3	111.5	107.1	98.3
19SEP94	76.2	89.1	92.3	84.0	84.7	87.0	84.7	.	.	.	.	.
26SEP94	79.1	83.5	85.6	81.2	86.5	87.7	86.8	87.4	88.9	95.2	97.7	90.6
03OCT94	77.8	86.7	86.4	86.6	86.9	90.3	87.3	.	.	96.5	.	.
10OCT94	80.9	93.1	91.8	87.5	87.6	87.9	85.3	85.7	92.3	102.7	108.1	96.4
24OCT94	84.0	88.4	88.1	86.6	86.9	87.4	86.7	89.0	91.4	95.2	97.3	91.6

NOTE: Dots (.) indicate no sampling.

TABLE B-12 MEAN PERCENT OXYGEN SATURATION BY REGION AND WEEK FROM 1994 BEACH SEINE SURVEY

WEEK BEGINNING MONDAY	REGIONS											
	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
27JUN94	63.8	80.2	84.5	79.7	82.6	84.3	83.2	83.3	85.2	90.9	94.4	79.9
11JUL94	112.8	144.8	107.7	102.9	94.9	83.7	115.6	87.8	98.9	95.9	96.3	89.1
25JUL94	72.6	98.1	98.4	98.9	86.9	112.0	97.9	106.7	93.5	89.1	98.6	83.8
08AUG94	79.2	98.3	90.0	101.9	87.1	95.6	82.3	94.2	98.5	97.2	116.4	85.9
22AUG94	86.8	102.0	93.9	97.3	94.2	101.8	100.0	98.3	86.2	92.8	98.4	92.9
05SEP94	84.2	98.9	108.4	97.3	93.1	112.1	106.0	96.3	105.1	104.9	105.8	93.9
19SEP94	79.0	95.2	100.8	95.7	79.6	83.4	79.1	80.0	93.3	101.1	132.0	95.7
03OCT94	79.9	95.6	92.0	87.2	86.5	89.9	85.7	86.6	88.1	104.7	114.3	92.8
17OCT94	94.8	100.7	95.8	89.7	94.5	98.6	97.6	94.9	98.0	101.7	107.8	93.1
31OCT94	87.4	91.4	89.7	85.8	90.8	89.6	89.6	93.1	93.3	91.3	89.5	86.1

TABLE B-13 WEIGHTED MEAN CONDUCTIVITY (MS/CM @ 25 C) BY REGION AND WEEK FROM 1994 LONG RIVER/FALL SHOALS SURVEYS

WEEK BEGINNING MONDAY	REGIONS											
	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
11APR94	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
18APR94	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
25APR94	3.4	1.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1
02MAY94	3.7	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1
09MAY94	11.7	8.2	4.5	0.7	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2
16MAY94	10.5	5.7	1.9	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
23MAY94	9.6	6.5	3.8	1.1	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2
30MAY94	12.1	4.4	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
06JUN94	15.9	13.6	6.9	4.2	1.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2
13JUN94	16.1	8.6	5.6	2.8	0.6	0.2	0.2	0.2	0.2	0.2	0.2	0.2
20JUN94	22.6	10.5	5.1	2.0	0.5	0.3	0.2	0.2	0.2	0.2	0.3	0.3
27JUN94	16.6	8.3	3.9	1.0	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3
04JUL94	17.0	11.4	7.6	2.7	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.2
11JUL94	15.3	11.5	6.8	4.0	0.5	0.3	0.3	.	.	.	.	.
18JUL94	23.2	10.7	5.5	3.0	1.2	0.5	0.3	0.3	0.3	0.2	0.2	0.2
25JUL94	16.3	10.6	5.4	2.3	0.4	0.3	0.3	.	.	.	.	.
01AUG94	20.6	10.3	7.2	3.3	0.5	0.3	0.3	0.3	0.2	0.2	0.2	0.2
08AUG94	23.9	15.1	9.0	6.1	1.7	0.3	0.3	.	.	.	.	.
15AUG94	17.8	9.9	7.1	3.1	0.5	0.3	0.3	0.2	0.2	0.3	0.3	0.3
22AUG94	11.2	8.1	2.9	0.9	0.3	0.3	0.3	.	.	.	.	.
29AUG94	12.0	4.6	4.5	1.0	0.3	0.2	0.3	0.3	0.3	0.2	0.2	0.2
05SEP94	16.7	13.3	9.3	6.1	1.3	0.3	0.3	.	.	.	.	.
12SEP94	20.6	9.8	6.9	3.4	2.2	0.3	0.3	0.3	0.2	0.2	0.2	0.2
19SEP94	21.0	12.8	6.5	4.3	1.0	0.3	0.3	.	.	.	.	.
26SEP94	20.9	12.4	9.4	5.9	1.8	0.3	0.3	0.2	0.2	0.2	0.2	0.2
03OCT94	17.8	12.1	7.1	5.1	2.2	0.5	0.2	.	.	0.2	.	.
10OCT94	17.8	8.4	5.2	3.3	0.6	0.3	0.2	0.2	0.2	0.2	0.2	0.2
24OCT94	19.1	11.5	8.4	5.6	1.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2

NOTE: Dots (.) indicate no sampling.

TABLE B-14 MEAN CONDUCTIVITY (MS/CM AT 25 C) BY REGION AND WEEK FROM 1994 BEACH SEINE SURVEY

WEEK BEGINNING MONDAY	REGIONS											
	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
27JUN94	13.7	8.0	4.1	1.1	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.3
11JUL94	14.3	7.5	4.9	5.2	1.1	0.3	0.2	0.3	0.3	0.2	0.2	0.2
25JUL94	13.2	9.7	5.6	3.0	0.5	0.3	0.3	0.3	0.2	0.3	0.3	0.2
08AUG94	16.8	11.8	7.3	5.6	1.0	0.3	0.3	0.2	0.2	0.2	0.2	0.2
22AUG94	12.0	4.9	1.8	0.6	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
05SEP94	18.6	11.5	7.6	5.7	1.5	0.3	0.3	0.3	0.3	0.2	0.2	0.2
19SEP94	20.4	10.5	5.8	2.9	0.8	0.3	0.3	0.2	0.2	0.2	0.2	0.2
03OCT94	19.6	10.0	6.0	4.1	0.9	0.3	0.2	0.2	0.2	0.2	0.2	0.2
17OCT94	17.6	9.2	6.1	4.7	0.9	0.3	0.2	0.2	0.2	0.2	0.2	0.3
31OCT94	20.2	10.6	7.2	4.9	2.1	0.5	0.3	0.2	0.2	0.2	0.2	0.2

Appendix C

Density and Standing Crop Estimates

APPENDIX C

LIST OF TABLES

Number	Title
C-1	Regional density (no./1,000 m^3) of striped bass eggs in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-2	Regional standing crop (in thousands) of striped bass eggs in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-3	Regional density (no./1,000 m^3) of striped bass yolk-sac larvae in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-4	Regional standing crop (in thousands) of striped bass yolk-sac larvae in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-5	Regional density (no./1,000 m^3) of striped bass post yolk-sac larvae in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-6	Regional standing crop (in thousands) of striped bass post yolk-sac larvae in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-7	Regional density (no./1,000 m^3) of striped bass young-of-year in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-8	Regional standing crop (in thousands) of striped bass young-of-year in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-9	Regional density (no./1,000 m^3) of striped bass young-of-year in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-10	Regional standing crop (in thousands) of striped bass young-of-year in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-11	Regional catch-per-unit-effort of striped bass young-of-year in Hudson River estuary determined from Beach Seine Survey, 1994.
C-12	Regional standing crop (in thousands) of striped bass young-of-year in Hudson River estuary determined from Beach Seine Survey, 1994.
C-13	Regional density (no./1,000 m^3) of striped bass yearling and older in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-14	Regional standing crop (in thousands) of striped bass yearling and older in Hudson River estuary determined from Fall Shoals Survey, 1994.

APPENDIX C

LIST OF TABLES (Continued)

Number	Title
C-15	Regional catch-per-unit-effort of striped bass yearling and older in Hudson River estuary determined from Beach Seine Survey, 1994.
C-16	Regional standing crop (in thousands) of striped bass yearling and older in Hudson River estuary determined from Beach Seine Survey, 1994.
C-17	Regional density (no./1,000 m^3) of white perch eggs in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-18	Regional standing crop (in thousands) of white perch eggs in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-19	Regional density (no./1,000 m^3) of white perch yolk-sac larvae in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-20	Regional standing crop (in thousands) of white perch yolk-sac larvae in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-21	Regional density (no./1,000 m^3) of white perch post yolk-sac larvae in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-22	Regional standing crop (in thousands) of white perch post yolk-sac larvae in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-23	Regional density (no./1,000 m^3) of white perch young-of-year in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-24	Regional standing crop (in thousands) of white perch young-of-year in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-25	Regional density (no./1,000 m^3) of white perch young-of-year in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-26	Regional standing crop (in thousands) of white perch young-of-year in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-27	Regional catch-per-unit-effort of white perch young-of-year in Hudson River estuary determined from Beach Seine Survey, 1994.
C-28	Regional standing crop (in thousands) of white perch young-of-year in Hudson River estuary determined from Beach Seine Survey, 1994.
C-29	Regional density (no./1,000 m^3) of white perch yearling and older in Hudson River estuary determined from Fall Shoals Survey, 1994.

APPENDIX C

LIST OF TABLES (Continued)

Number	Title
C-30	Regional standing crop (in thousands) of white perch yearling and older in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-31	Regional catch-per-unit-effort of white perch yearling and older in Hudson River estuary determined from Beach Seine Survey, 1994.
C-32	Regional standing crop (in thousands) of white perch yearling and older in Hudson River estuary determined from Beach Seine Survey, 1994.
C-33	Regional density (no./1,000 m^3) of Atlantic tomcod yolk-sac larvae in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-34	Regional standing crop (in thousands) of Atlantic tomcod yolk-sac larvae in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-35	Regional density (no./1,000 m^3) of Atlantic tomcod post yolk-sac larvae in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-36	Regional standing crop (in thousands) of Atlantic tomcod post yolk-sac larvae in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-37	Regional density (no./1,000 m^3) of Atlantic tomcod young-of-year in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-38	Regional standing crop (in thousands) of Atlantic tomcod young-of-year in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-39	Regional density (no./1,000 m^3) of Atlantic tomcod young-of-year in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-40	Regional standing crop (in thousands) of Atlantic tomcod young-of-year in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-41	Regional catch-per-unit-effort of Atlantic tomcod young-of-year in Hudson River estuary determined from Beach Seine Survey, 1994.
C-42	Regional standing crop (in thousands) of Atlantic tomcod young-of-year in Hudson River estuary determined from Beach Seine Survey, 1994.
C-43	Regional density (no./1,000 m^3) of Atlantic tomcod yearling and older in Hudson River estuary determined from Fall Shoals Survey, 1994.

APPENDIX C

LIST OF TABLES (Continued)

Number	Title
C-44	Regional standing crop (in thousands) of Atlantic tomcod yearling and older in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-45	Regional catch-per-unit-effort of Atlantic tomcod yearling and older in Hudson River estuary determined from Beach Seine Survey, 1994.
C-46	Regional standing crop (in thousands) of Atlantic tomcod yearling and older in Hudson River estuary determined from Beach Seine Survey, 1994.
C-47	Regional density (no./1,000 m^3) of bay anchovy eggs in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-48	Regional standing crop (in thousands) of bay anchovy eggs in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-49	Regional density (no./1,000 m^3) of bay anchovy yolk-sac larvae in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-50	Regional standing crop (in thousands) of bay anchovy yolk-sac larvae in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-51	Regional density (no./1,000 m^3) of bay anchovy post yolk-sac larvae in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-52	Regional standing crop (in thousands) of bay anchovy post yolk-sac larvae in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-53	Regional density (no./1,000 m^3) of bay anchovy young-of-year in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-54	Regional standing crop (in thousands) of bay anchovy young-of-year in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-55	Regional density (no./1,000 m^3) of bay anchovy young-of-year in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-56	Regional standing crop (in thousands) of bay anchovy young-of-year in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-57	Regional catch-per-unit-effort of bay anchovy young-of-year in Hudson River estuary determined from Beach Seine Survey, 1994.
C-58	Regional standing crop (in thousands) of bay anchovy young-of-year in Hudson River estuary determined from Beach Seine Survey, 1994.

APPENDIX C

LIST OF TABLES (Continued)

Number	Title
C-59	Regional density (no./1,000 m^3) of bay anchovy yearling and older in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-60	Regional standing crop (in thousands) of bay anchovy yearling and older in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-61	Regional catch-per-unit-effort of bay anchovy yearling and older in Hudson River estuary determined from Beach Seine Survey, 1994.
C-62	Regional standing crop (in thousands) of bay anchovy yearling and older in Hudson River estuary determined from Beach Seine Survey, 1994.
C-63	Regional density (no./1,000 m^3) of American shad eggs in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-64	Regional standing crop (in thousands) of American shad eggs in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-65	Regional density (no./1,000 m^3) of American shad yolk-sac larvae in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-66	Regional standing crop (in thousands) of American shad yolk-sac larvae in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-67	Regional density (no./1,000 m^3) of American shad post yolk-sac larvae in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-68	Regional standing crop (in thousands) of American shad post yolk-sac larvae in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-69	Regional density (no./1,000 m^3) of American shad young-of-year in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-70	Regional standing crop (in thousands) of American shad young-of-year in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-71	Regional density (no./1,000 m^3) of American shad young-of-year in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-72	Regional standing crop (in thousands) of American shad young-of-year in Hudson River estuary determined from Fall Shoals Survey, 1994.

APPENDIX C

LIST OF TABLES (Continued)

Number	Title
C-73	Regional catch-per-unit-effort of American shad young-of-year in Hudson River estuary determined from Beach Seine Survey, 1994.
C-74	Regional standing crop (in thousands) of American shad young-of-year in Hudson River estuary determined from Beach Seine Survey, 1994.
C-75	Regional density (no./1,000 m^3) of American shad yearling and older in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-76	Regional standing crop (in thousands) of American shad yearling and older in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-77	Regional catch-per-unit-effort of American shad yearling and older in Hudson River estuary determined from Beach Seine Survey, 1994.
C-78	Regional standing crop (in thousands) of American shad yearling and older in Hudson River estuary determined from Beach Seine Survey, 1994.
C-79	Regional density (no./1,000 m^3) of *Alosa* spp. eggs in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-80	Regional standing crop (in thousands) of *Alosa* spp. eggs in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-81	Regional density (no./1,000 m^3) of *Alosa* spp. yolk-sac larvae in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-82	Regional standing crop (in thousands) of *Alosa* spp. yolk-sac larvae in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994
C-83	Regional density (no./1,000 m^3) of *Alosa* spp. post yolk-sac larvae in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-84	Regional standing crop (in thousands) of *Alosa* spp. post yolk-sac larvae in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-85	Regional density (no./1,000 m^3) of *Alosa* spp. young-of-year in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-86	Regional standing crop (in thousands) of *Alosa* spp. young-of-year in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-87	Regional density (no./1,000 m^3) of alewife young-of-year in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.

APPENDIX C

LIST OF TABLES (Continued)

Number	Title
C-88	Regional standing crop (in thousands) of alewife young-of-year in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-89	Regional density (no./1,000 m^3) of alewife young-of-year in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-90	Regional standing crop (in thousands) of alewife young-of-year in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-91	Regional catch-per-unit-effort of alewife young-of-year in Hudson River estuary determined from Beach Seine Survey, 1994.
C-92	Regional standing crop (in thousands) of alewife young-of-year in Hudson River estuary determined from Beach Seine Survey, 1994.
C-93	Regional density (no./1,000 m^3) of alewife yearling and older in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-94	Regional standing crop (in thousands) of alewife yearling and older in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-95	Regional catch-per-unit-effort of alewife yearling and older in Hudson River estuary determined from Beach Seine Survey, 1994.
C-96	Regional standing crop (in thousands) of alewife yearling and older in Hudson River estuary determined from Beach Seine Survey, 1994.
C-97	Regional density (no./1,000 m^3) of blueback herring young-of-year in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-98	Regional standing crop (in thousands) of blueback herring young-of-year in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-99	Regional density (no./1,000 m^3) of blueback herring young-of-year in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-100	Regional standing crop (in thousands) of blueback herring young-of-year in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-101	Regional catch-per-unit-effort of blueback herring young-of-year in Hudson River estuary determined from Beach Seine Survey, 1994.
C-102	Regional standing crop (in thousands) of blueback herring young-of-year in Hudson River estuary determined from Beach Seine Survey, 1994.

APPENDIX C

LIST OF TABLES (Continued)

Number	Title
C-103	Regional density (no./1,000 m^3) of blueback herring yearling and older in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-104	Regional standing crop (in thousands) of blueback herring yearling and older in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-105	Regional catch-per-unit-effort of blueback herring yearling and older in Hudson River estuary determined from Beach Seine Survey, 1994.
C-106	Regional standing crop (in thousands) of blueback herring yearling and older in Hudson River estuary determined from Beach Seine Survey, 1994.
C-107	Regional density (no./1,000 m^3) of gizzard shad young-of-year in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-108	Regional standing crop (in thousands) of gizzard shad young-of-year in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-109	Regional density (no./1,000 m^3) of gizzard shad young-of-year in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-110	Regional standing crop (in thousands) of gizzard shad young-of-year in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-111	Regional catch-per-unit-effort of gizzard shad young-of-year in Hudson River estuary determined from Beach Seine Survey, 1994.
C-112	Regional standing crop (in thousands) of gizzard shad young-of-year in Hudson River estuary determined from Beach Seine Survey, 1994.
C-113	Regional density (no./1,000 m^3) of gizzard shad yearling and older in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-114	Regional standing crop (in thousands) of gizzard shad yearling and older in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-115	Regional catch-per-unit-effort of gizzard shad yearling and older in Hudson River estuary determined from Beach Seine Survey, 1994.
C-116	Regional standing crop (in thousands) of gizzard shad yearling and older in Hudson River estuary determined from Beach Seine Survey, 1994.
C-117	Regional density (no./1,000 m^3) of rainbow smelt eggs in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.

APPENDIX C

LIST OF TABLES (Continued)

Number	Title
C-118	Regional standing crop (in thousands) of rainbow smelt eggs in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-119	Regional density (no./1,000 m^3) of rainbow smelt yolk-sac larvae in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-120	Regional standing crop (in thousands) of rainbow smelt yolk-sac larvae in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-121	Regional density (no./1,000 m^3) of rainbow smelt post yolk-sac larvae in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-122	Regional standing crop (in thousands) of rainbow smelt post yolk-sac larvae in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-123	Regional density (no./1,000 m^3) of rainbow smelt young-of-year in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-124	Regional standing crop (in thousands) of rainbow smelt young-of-year in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-125	Regional density (no./1,000 m^3) of rainbow smelt young-of-year in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-126	Regional standing crop (in thousands) of rainbow smelt young-of-year in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-127	Regional catch-per-unit-effort of rainbow smelt young-of-year in Hudson River estuary determined from Beach Seine Survey, 1994.
C-128	Regional standing crop (in thousands) of rainbow smelt young-of-year in Hudson River estuary determined from Beach Seine Survey, 1994.
C-129	Regional density (no./1,000 m^3) of rainbow smelt yearling and older in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-130	Regional standing crop (in thousands) of rainbow smelt yearling and older in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-131	Regional catch-per-unit-effort of rainbow smelt yearling and older in Hudson River estuary determined from Beach Seine Survey, 1994.

APPENDIX C

LIST OF TABLES (Continued)

Number	Title
C-132	Regional standing crop (in thousands) of rainbow smelt yearling and older in Hudson River estuary determined from Beach Seine Survey, 1994.
C-133	Regional density (no./1,000 m^3) of hogchoker eggs in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-134	Regional standing crop (in thousands) of hogchoker eggs in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-135	Regional density (no./1,000 m^3) of hogchoker yolk-sac larvae in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-136	Regional standing crop (in thousands) of hogchoker yolk-sac larvae in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-137	Regional density (no./1,000 m^3) of hogchoker post yolk-sac larvae in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-138	Regional standing crop (in thousands) of hogchoker post yolk-sac larvae in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-139	Regional density (no./1,000 m^3) of hogchoker young-of-year in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-140	Regional standing crop (in thousands) of hogchoker young-of-year in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-141	Regional density (no./1,000 m^3) of hogchoker young-of-year in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-142	Regional standing crop (in thousands) of hogchoker young-of-year in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-143	Regional catch-per-unit-effort of hogchoker young-of-year in Hudson River estuary determined from Beach Seine Survey, 1994.
C-144	Regional standing crop (in thousands) of hogchoker young-of-year in Hudson River estuary determined from Beach Seine Survey, 1994.
C-145	Regional density (no./1,000 m^3) of hogchoker yearling and older in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-146	Regional standing crop (in thousands) of hogchoker yearling and older in Hudson River estuary determined from Fall Shoals Survey, 1994.

APPENDIX C

LIST OF TABLES (Continued)

Number	Title
C-147	Regional catch-per-unit-effort of hogchoker yearling and older in Hudson River estuary determined from Beach Seine Survey, 1994.
C-148	Regional standing crop (in thousands) of hogchoker yearling and older in Hudson River estuary determined from Beach Seine Survey, 1994.
C-149	Regional density (no./1,000 m^3) of spottail shiner eggs in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-150	Regional standing crop (in thousands) of spottail shiner eggs in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-151	Regional density (no./1,000 m^3) of spottail shiner yolk-sac larvae in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-152	Regional standing crop (in thousands) of spottail shiner yolk-sac larvae in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-153	Regional density (no./1,000 m^3) of spottail shiner post yolk-sac larvae in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-154	Regional standing crop (in thousands) of spottail shiner post yolk-sac larvae in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-155	Regional density (no./1,000 m^3) of spottail shiner young-of-year in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-156	Regional standing crop (in thousands) of spottail shiner young-of-year in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-157	Regional density (no./1,000 m^3) of spottail shiner young-of-year in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-158	Regional standing crop (in thousands) of spottail shiner young-of-year in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-159	Regional catch-per-unit-effort of spottail shiner young-of-year in Hudson River estuary determined from Beach Seine Survey, 1994.
C-160	Regional standing crop (in thousands) of spottail shiner young-of-year in Hudson River estuary determined from Beach Seine Survey, 1994.

APPENDIX C

LIST OF TABLES (Continued)

Number	Title
C-161	Regional density (no./1,000 m^3) of spottail shiner yearling and older in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-162	Regional standing crop (in thousands) of spottail shiner yearling and older in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-163	Regional catch-per-unit-effort of spottail shiner yearling and older in Hudson River estuary determined from Beach Seine Survey, 1994.
C-164	Regional standing crop (in thousands) of spottail shiner yearling and older in Hudson River estuary determined from Beach Seine Survey, 1994.
C-165	Regional density (no./1,000 m^3) of Atlantic sturgeon yolk-sac larvae in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-166	Regional standing crop (in thousands) of Atlantic sturgeon yolk-sac larvae in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-167	Regional density (no./1,000 m^3) of Atlantic sturgeon young-of-year in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-168	Regional standing crop (in thousands) of Atlantic sturgeon young-of-year in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-169	Regional density (no./1,000 m^3) of Atlantic sturgeon yearling and older in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-170	Regional standing crop (in thousands) of Atlantic sturgeon yearling and older in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-171	Regional density (no./1,000 m^3) of shortnose sturgeon young-of-year in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-172	Regional standing crop (in thousands) of shortnose sturgeon young-of-year in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-173	Regional density (no./1,000 m^3) of shortnose sturgeon yearling and older in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-174	Regional standing crop (in thousands) of shortnose sturgeon yearling and older in Hudson River estuary determined from Fall Shoals Survey, 1994.

APPENDIX C

LIST OF TABLES (Continued)

Number	Title
C-175	Regional density (no./1,000 m^3) of white catfish young-of-year in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-176	Regional standing crop (in thousands) of white catfish young-of-year in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-177	Regional density (no./1,000 m^3) of white catfish young-of-year in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-178	Regional standing crop (in thousands) of white catfish young-of-year in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-179	Regional catch-per-unit-effort of white catfish young-of-year in Hudson River estuary determined from Beach Seine Survey, 1994.
C-180	Regional standing crop (in thousands) of white catfish young-of-year in Hudson River estuary determined from Beach Seine Survey, 1994.
C-181	Regional density (no./1,000 m^3) of white catfish yearling and older in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-182	Regional standing crop (in thousands) of white catfish yearling and older in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-183	Regional catch-per-unit-effort of white catfish yearling and older in Hudson River estuary determined from Beach Seine Survey, 1994.
C-184	Regional standing crop (in thousands) of white catfish yearling and older in Hudson River estuary determined from Beach Seine Survey, 1994.
C-185	Regional density (no./1,000 m^3) of weakfish young-of-year in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-186	Regional standing crop (in thousands) of weakfish young-of-year in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-187	Regional density (no./1,000 m^3) of weakfish young-of-year in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-188	Regional standing crop (in thousands) of weakfish young-of-year in Hudson River estuary determined from Fall Shoals Survey, 1994.

APPENDIX C

LIST OF TABLES (Continued)

Number	Title
C-189	Regional catch-per-unit-effort of weakfish young-of-year in Hudson River estuary determined from Beach Seine Survey, 1994.
C-190	Regional standing crop (in thousands) of weakfish young-of-year in Hudson River estuary determined from Beach Seine Survey, 1994.
C-191	Regional density (no./1,000 m^3) of weakfish yearling and older in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-192	Regional standing crop (in thousands) of weakfish yearling and older in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-193	Regional catch-per-unit-effort of weakfish yearling and older in Hudson River estuary determined from Beach Seine Survey, 1994.
C-194	Regional standing crop (in thousands) of weakfish yearling and older in Hudson River estuary determined from Beach Seine Survey, 1994.
C-195	Regional density (no./1,000 m^3) of bluefish young-of-year in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-196	Regional standing crop (in thousands) of bluefish young-of-year in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
C-197	Regional density (no./1,000 m^3) of bluefish young-of-year in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-198	Regional standing crop (in thousands) of bluefish young-of-year in Hudson River estuary determined from Fall Shoals Survey, 1994.
C-199	Regional catch-per-unit-effort of bluefish young-of-year in Hudson River estuary determined from Beach Seine Survey, 1994.
C-200	Regional standing crop (in thousands) of bluefish young-of-year in Hudson River estuary determined from Beach Seine Survey, 1994.

TABLE C-1 REGIONAL DENSITY (NO./1,000m3) OF STRIPED BASS EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.12	0.50	0.00	6.28	0.00	0.00	0.00	0.00	0.57
06MAY	SE		0.00	0.00	0.00	0.00	0.12	0.33	0.00	3.36	0.00	0.00	0.00	0.00	3.38
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	DENSITY	NS	0.00	0.00	0.00	27.31	236.56	878.70	563.69	13.26	3.51	0.00	0.00	0.00	143.59
13MAY	SE		0.00	0.00	0.00	10.97	65.94	409.38	256.29	6.88	2.56	0.00	0.00	0.00	487.64
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	DENSITY	NS	0.00	0.37	0.90	2516.74	429.49	1336.94	129.25	64.59	3.56	0.00	7.75	0.00	374.13
20MAY	SE		0.00	0.37	0.64	1587.17	140.18	395.44	112.93	29.22	3.56	0.00	6.72	0.00	1645.85
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	DENSITY	NS	0.60	0.24	0.68	0.07	2186.70	1348.40	3714.84	18287.50	92329.19	3605.12	0.00	0.78	10122.84
27MAY	SE		0.42	0.24	0.68	0.07	946.68	516.15	671.66	4928.95	27410.04	3601.83	0.00	0.78	28110.35
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	DENSITY	NS	0.00	0.00	11.48	35.09	110.20	140.36	18.35	25.51	5.46	50.09	5.61	0.00	33.51
04JUN	SE		0.00	0.00	8.80	24.08	46.37	63.44	5.93	12.00	3.23	14.71	1.92	0.00	85.10
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	DENSITY	0.00	255.25	0.00	0.26	55.84	146.71	183.94	144.04	295.67	36.14	25.75	76.14	3.85	94.12
10JUN	SE	0.00	159.57	0.00	0.26	45.55	92.97	118.42	93.18	144.33	26.78	23.85	52.23	2.51	289.37
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	DENSITY	0.00	43.92	0.31	0.00	15.39	2.88	0.28	220.40	356.18	94.06	25.84	14.03	0.00	59.48
16JUN	SE	0.00	43.92	0.31	0.00	6.48	1.63	0.28	82.34	115.72	54.23	10.12	8.77	0.00	158.95
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

TABLE C-1 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF STRIPED BASS EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	DENSITY	0.00	110.46	0.30	0.00	0.30	38.76	1.34	16.65	0.18	0.00	0.00	3.00	0.64	13.20
23JUN	SE	0.00	110.46	0.30	0.00	0.30	17.35	1.25	13.35	0.18	0.00	0.00	2.12	0.64	112.64
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	7.32	0.00	0.85	0.82	0.00	0.35	0.00	0.00	0.72
01JUL	SE	0.00	0.00	0.00	0.00	0.00	3.25	0.00	0.85	0.65	0.00	0.35	0.00	0.00	3.44
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	DENSITY	13.79	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.07
08JUL	SE	13.79	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.79
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
28JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
10AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
24AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
08SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
22SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
05OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-2 REGIONAL STANDING CROP (IN THOUSANDS) OF STRIPED BASS EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
30APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	ST. CROP	NS	0	0	0	0	25	69	0	1039	0	0	0	0	1134
06MAY	SE		0	0	0	0	25	47	0	556	0	0	0	0	559
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	ST. CROP	NS	0	0	0	5689	49076	122835	168053	2195	496	0	0	0	348344
13MAY	SE		0	0	0	2286	13679	57228	76407	1138	362	0	0	0	96472
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	ST. CROP	NS	0	119	133	524328	89101	186892	38534	10689	503	0	1245	0	851544
20MAY	SE		0	119	95	330666	29082	55278	33667	4836	503	0	1080	0	338230
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	ST. CROP	NS	137	76	101	14	453643	188494	1107518	3026301	13061799	635566	0	55	18473704
27MAY	SE		97	76	101	14	196394	72153	200246	815666	3877695	634988	0	55	4023545
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	ST. CROP	NS	0	0	1696	7310	22862	19622	5472	4221	772	8830	901	0	71686
04JUN	SE		0	0	1300	5017	9620	8869	1767	1986	458	2594	309	0	14566
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	ST. CROP	0	58560	0	38	11634	30437	25713	42944	48930	5113	4540	12238	274	240420
10JUN	SE	0	36608	0	38	9489	19287	16554	27781	23884	3789	4204	8395	178	59338
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	ST. CROP	0	10076	100	0	3207	598	39	65710	58942	13307	4556	2255	0	158788
16JUN	SE	0	10076	100	0	1351	338	39	24547	19150	7672	1783	1409	0	33716
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

TABLE C-2 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF STRIPED BASS EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	ST. CROP	0	25342	95	0	62	8042	187	4965	29	0	0	482	46	39250
23JUN	SE	0	25342	95	0	62	3600	175	3980	29	0	0	340	46	25908
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	ST. CROP	0	0	0	0	0	1520	0	254	136	0	62	0	0	1971
01JUL	SE	0	0	0	0	0	674	0	254	107	0	62	0	0	730
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	ST. CROP	2882	0	0	0	0	24	0	0	0	0	0	0	0	2906
08JUL	SE	2882	0	0	0	0	24	0	0	0	0	0	0	0	2882
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
10AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
24AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
08SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
22SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-3 REGIONAL DENSITY (NO./1,000m3) OF STRIPED BASS YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-15APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-22APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-30APR	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-06MAY	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-13MAY	DENSITY	NS	0.00	0.00	0.00	46.88	41.94	21.33	8.75	0.00	0.00	0.00	0.00	0.42	9.94
	SE		0.00	0.00	0.00	28.96	21.04	4.01	7.78	0.00	0.00	0.00	0.00	0.42	36.85
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-20MAY	DENSITY	NS	0.00	25.55	158.15	832.62	424.09	463.82	75.74	0.71	0.00	0.00	3.13	0.00	165.32
	SE		0.00	10.89	37.24	92.18	150.59	66.03	26.77	0.71	0.00	0.00	3.13	0.00	194.34
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-27MAY	DENSITY	NS	0.80	0.00	9.39	191.18	4961.25	4961.48	660.82	7.09	0.00	1.42	0.54	0.00	899.50
	SE		0.69	0.00	3.79	80.65	1368.02	1586.67	206.92	2.72	0.00	0.84	0.54	0.00	2106.73
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-04JUN	DENSITY	NS	0.00	0.00	242.73	791.43	3255.82	5503.34	1018.28	656.27	182.02	4.20	0.00	1.61	971.31
	SE		0.00	0.00	43.75	72.65	767.16	1901.03	644.02	141.05	79.55	1.60	0.00	1.16	2156.53
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-10JUN	DENSITY	0.00	0.62	0.32	0.00	11.90	4104.89	322.85	5361.26	324.99	43.89	30.02	1.24	0.00	784.77
	SE	0.00	0.62	0.32	0.00	4.44	816.66	103.26	3474.67	61.97	16.65	13.01	0.62	0.00	3571.45
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-16JUN	DENSITY	0.00	0.00	0.00	0.00	277.42	696.73	653.97	357.07	773.40	305.12	97.61	2.27	0.00	243.35
	SE	0.00	0.00	0.00	0.00	128.43	296.70	286.93	94.81	185.83	150.10	61.39	2.27	0.00	506.64
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	DENSITY	0.00	0.00	0.00	6.72	0.95	394.38	55.17	181.91	14.44	1.72	0.69	2.31	0.00	50.64
23JUN	SE	0.00	0.00	0.00	2.36	0.54	95.15	22.47	128.18	5.96	1.46	0.69	1.16	0.00	161.36
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	DENSITY	0.00	0.00	0.00	0.00	0.63	9.09	1.78	11.53	0.00	0.34	0.00	0.00	0.46	1.83
01JUL	SE	0.00	0.00	0.00	0.00	0.63	5.29	0.80	10.43	0.00	0.34	0.00	0.00	0.46	11.76
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.81	1.35	1.53	0.45	0.00	0.00	0.00	0.00	0.32
08JUL	SE	0.00	0.00	0.00	0.00	0.00	0.81	1.35	1.53	0.45	0.00	0.00	0.00	0.00	2.24
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
28JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
10AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
24AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
08SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
22SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
05OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-4 REGIONAL STANDING CROP (IN THOUSANDS) OF STRIPED BASS YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
30APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
06MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	ST. CROP	NS	0	0	0	9766	8700	2982	2609	0	0	0	0	30	24087
13MAY	SE		0	0	0	6033	4364	560	2320	0	0	0	0	30	7819
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	ST. CROP	NS	0	8223	23365	173465	87979	64837	22580	118	0	0	503	0	381071
20MAY	SE		0	3504	5502	19205	31241	9230	7980	118	0	0	503	0	39199
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	ST. CROP	NS	184	0	1387	39831	1029240	693570	197012	1173	0	251	86	0	1962734
27MAY	SE		157	0	560	16803	283803	221802	61689	450	0	148	86	0	365826
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	ST. CROP	NS	0	0	35860	164883	675439	769317	303584	108603	25751	741	0	114	2084292
04JUN	SE		0	0	6464	15135	159153	265747	192005	23342	11253	282	0	83	365731
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	ST. CROP	0	142	104	0	2479	851583	45131	1598370	53781	6209	5292	199	0	2563290
10JUN	SE	0	142	104	0	926	169420	14435	1035916	10254	2356	2294	100	0	1049833
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	ST. CROP	0	0	0	0	57796	144540	91419	106455	127987	43165	17207	365	0	588935
16JUN	SE	0	0	0	0	26758	61552	40110	28265	30752	21235	10823	365	0	91794
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	ST. CROP	0	0	0	993	197	81816	7712	54233	2389	244	121	372	0	148078
23JUN	SE	0	0	0	348	113	19740	3142	38216	986	207	121	186	0	43142
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	ST. CROP	0	0	0	0	132	1887	249	3437	0	49	0	0	33	5786
01JUL	SE	0	0	0	0	132	1098	113	3110	0	49	0	0	33	3303
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	ST. CROP	0	0	0	0	0	169	188	456	75	0	0	0	0	888
08JUL	SE	0	0	0	0	0	169	188	456	75	0	0	0	0	526
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
10AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
24AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
08SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
22SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	DENSITY	NS	0.00	0.36	5.63	1.66	3.38	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.94
20MAY	SE		0.00	0.36	2.34	0.90	3.26	0.30	0.00	0.00	0.00	0.00	0.00	0.00	4.14
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	DENSITY	NS	0.84	26.17	131.01	257.19	334.74	27.02	6.71	0.70	0.00	0.50	0.00	0.00	65.41
27MAY	SE		0.72	14.13	26.84	84.56	219.39	10.65	3.98	0.70	0.00	0.31	0.00	0.00	237.35
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	DENSITY	NS	103.05	171.28	3375.44	5802.48	21677.39	8226.01	2290.06	2630.32	60.57	0.26	0.55	0.00	3694.78
04JUN	SE		27.20	27.58	371.25	1113.36	6044.39	2677.07	420.76	848.95	33.35	0.26	0.55	0.00	6780.79
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	DENSITY	0.55	7.89	57.84	317.26	3604.43	10971.15	1933.22	2157.59	407.84	66.51	43.01	0.65	0.00	1505.23
10JUN	SE	0.55	2.89	12.95	124.69	2104.44	4421.19	540.26	797.96	108.48	14.15	13.92	0.65	0.00	4993.20
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	DENSITY	9.03	84.31	702.68	6370.92	3630.03	2782.73	1649.29	621.71	477.92	365.95	51.74	21.09	0.00	1289.80
16JUN	SE	3.71	41.86	208.27	2865.14	2255.01	650.23	292.34	207.82	131.46	129.71	41.25	8.71	0.00	3731.83
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	DENSITY	0.00	36.70	242.71	2656.10	1876.97	1143.16	765.66	469.10	187.44	250.39	109.05	84.68	9.84	602.45
23JUN	SE	0.00	9.52	116.85	330.66	372.39	92.84	164.34	94.30	29.21	93.38	48.43	44.46	9.84	565.92
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	DENSITY	2.04	30.41	324.20	838.54	1450.97	340.82	121.75	269.10	42.35	85.52	52.06	42.82	3.08	277.20
01JUL	SE	2.04	13.59	225.60	427.15	723.40	40.47	55.86	66.96	14.94	21.81	17.59	8.85	3.08	875.89
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	DENSITY	0.78	10.45	9.94	47.99	115.27	89.63	62.27	43.72	90.80	23.83	31.31	5.07	1.31	40.95
08JUL	SE	0.78	3.14	1.72	11.85	63.62	26.50	19.63	8.91	53.57	20.62	15.56	2.85	0.73	94.42
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	DENSITY	2.14	5.47	2.62	19.55	39.23	141.54	27.30	17.47	NS	NS	NS	NS	NS	31.91
14JUL	SE	1.26	2.01	1.38	7.10	10.52	62.18	15.29	5.26						65.55
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	DENSITY	0.00	0.00	0.19	0.00	0.00	0.14	0.00	0.00	NS	NS	NS	NS	NS	0.04
28JUL	SE	0.00	0.00	0.19	0.00	0.00	0.14	0.00	0.00						0.24
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	1.11	0.00	NS	NS	NS	NS	NS	0.14
10AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	1.11	0.00						1.11
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
24AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
08SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
22SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
05OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-6 REGIONAL STANDING CROP (IN THOUSANDS) OF STRIPED BASS POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
30APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
06MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
13MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	ST. CROP	NS	0	117	831	346	701	42	0	0	0	0	0	0	2036
20MAY	SE		0	117	346	188	676	42	0	0	0	0	0	0	792
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	ST. CROP	NS	192	8421	19356	53583	69444	3778	1999	116	0	89	0	0	156978
27MAY	SE		164	4548	3965	17617	45514	1489	1187	116	0	54	0	0	49213
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	ST. CROP	NS	23642	55121	498676	1208867	4497099	1149922	682743	435278	8569	46	89	0	8560052
04JUN	SE		6241	8876	54848	231954	1253944	374230	125441	140488	4718	46	89	0	1343446
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	ST. CROP	114	1811	18615	46871	750934	2276028	270247	643250	67492	9409	7583	105	0	4092458
10JUN	SE	114	662	4167	18421	438431	917201	75524	237898	17951	2001	2454	105	0	1047123
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	ST. CROP	1887	19342	226132	941219	756268	577294	230555	185354	79089	51771	9121	3390	0	3081421
16JUN	SE	776	9604	67024	423287	469799	134894	40866	61958	21754	18351	7271	1400	0	655010
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	ST. CROP	0	8420	78106	392404	391041	237155	107032	139855	31018	35423	19225	13611	700	1453990
23JUN	SE	0	2185	37603	48850	77583	19260	22974	28114	4834	13210	8537	7145	700	108792
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	ST. CROP	427	6976	104331	123884	302289	70704	17019	80227	7008	12099	9178	6883	219	741245
01JUL	SE	427	3118	72599	63105	150710	8395	7809	19963	2472	3085	3101	1422	219	180371
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	ST. CROP	163	2397	3200	7089	24014	18593	8704	13034	15026	3371	5519	816	93	102022
08JUL	SE	163	720	554	1751	13255	5499	2745	2656	8866	2917	2743	458	52	17869
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	ST. CROP	447	1255	842	2889	8173	29363	3816	5209	NS	NS	NS	NS	NS	51993
14JUL	SE	264	460	446	1049	2193	12899	2138	1568						13409
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	ST. CROP	0	0	62	0	0	29	0	0	NS	NS	NS	NS	NS	91
28JUL	SE	0	0	62	0	0	29	0	0						68
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	ST. CROP	0	0	0	0	0	0	156	0	NS	NS	NS	NS	NS	156
10AUG	SE	0	0	0	0	0	0	156	0						156
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
24AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
08SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
22SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-7 REGIONAL DENSITY (NO./1,000m3) OF STRIPED BASS YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	DENSITY	0.00	0.00	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	18.97	0.00	30.65	0.00	0.00	0.00	0.00	0.00	3.82
16JUN	SE	0.00	0.00	0.00	0.00	0.00	18.97	0.00	30.65	0.00	0.00	0.00	0.00	0.00	36.05
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.96	0.00	0.07
23JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.96	0.00	0.96
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	DENSITY	0.00	0.00	1.93	0.45	0.35	0.00	0.42	0.00	0.51	0.65	0.35	0.57	0.62	0.45
01JUL	SE	0.00	0.00	1.55	0.32	0.35	0.00	0.26	0.00	0.51	0.38	0.35	0.57	0.62	1.99
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	DENSITY	0.00	0.99	4.36	10.17	3.93	6.33	4.85	14.60	0.14	0.00	11.35	2.91	0.00	4.59
08JUL	SE	0.00	0.64	4.36	4.80	2.64	3.62	1.70	10.75	0.14	0.00	4.79	1.64	0.00	14.38
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	DENSITY	0.00	0.98	1.67	83.71	3.10	51.32	47.12	3.30	NS	NS	NS	NS	NS	23.90
14JUL	SE	0.00	0.52	0.72	26.76	1.46	35.98	25.93	2.64						51.89
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	DENSITY	0.00	0.09	0.47	0.00	1.49	1.38	0.79	0.47	NS	NS	NS	NS	NS	0.59
28JUL	SE	0.00	0.09	0.34	0.00	0.83	0.70	0.46	0.47						1.32
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	DENSITY	0.00	0.59	12.99	1.59	0.16	3.22	8.07	1.01	NS	NS	NS	NS	NS	3.45
10AUG	SE	0.00	0.47	9.04	0.22	0.16	1.09	5.06	1.01						10.48
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	DENSITY	0.00	0.97	0.00	0.21	0.33	3.98	5.20	0.00	NS	NS	NS	NS	NS	1.34
24AUG	SE	0.00	0.97	0.00	0.21	0.17	2.47	1.22	0.00						2.94
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	DENSITY	0.83	0.64	0.00	0.43	1.09	0.80	2.68	0.24	NS	NS	NS	NS	NS	0.84
08SEP	SE	0.83	0.64	0.00	0.21	0.63	0.23	1.52	0.24						1.99
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	DENSITY	0.00	0.00	0.00	0.80	0.30	0.00	0.30	0.00	NS	NS	NS	NS	NS	0.17
22SEP	SE	0.00	0.00	0.00	0.45	0.30	0.00	0.26	0.00						0.60
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	DENSITY	0.46	0.00	2.65	3.33	0.68	0.00	2.09	0.82	NS	NS	NS	NS	NS	1.25
05OCT	SE	0.46	0.00	1.60	3.33	0.68	0.00	2.05	0.82						4.39
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-8 REGIONAL STANDING CROP (IN THOUSANDS) OF STRIPED BASS YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
30APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
06MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
13MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	ST. CROP	NS	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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
27MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	ST. CROP	NS	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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	ST. CROP	0	0	0	0	0	3935	0	9139	0	0	0	0	0	13074
16JUN	SE	0	0	0	0	0	3935	0	9139	0	0	0	0	0	9950
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	154	0	154
23JUN	SE	0	0	0	0	0	0	0	0	0	0	0	154	0	154
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	ST. CROP	0	0	620	67	74	0	58	0	85	92	62	92	44	1195
01JUL	SE	0	0	500	47	74	0	36	0	85	53	62	92	44	532
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	ST. CROP	0	227	1402	1503	819	1313	679	4354	23	0	2001	468	0	12790
08JUL	SE	0	146	1402	709	550	751	237	3206	23	0	845	263	0	3804
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	ST. CROP	0	224	539	12367	646	10646	6587	984	NS	NS	NS	NS	NS	31994
14JUL	SE	0	120	230	3954	304	7463	3625	787						9233
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	ST. CROP	0	20	152	0	310	286	111	141	NS	NS	NS	NS	NS	1020
28JUL	SE	0	20	110	0	173	145	65	141						296
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	ST. CROP	0	135	4181	234	33	667	1128	302	NS	NS	NS	NS	NS	6680
10AUG	SE	0	109	2909	33	33	226	707	302						3019
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	ST. CROP	0	222	0	30	69	827	726	0	NS	NS	NS	NS	NS	1875
24AUG	SE	0	222	0	30	35	513	171	0						587
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	ST. CROP	174	147	0	63	227	165	374	72	NS	NS	NS	NS	NS	1224
08SEP	SE	174	147	0	32	131	48	212	72						350
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	ST. CROP	0	0	0	118	63	0	42	0	NS	NS	NS	NS	NS	222
22SEP	SE	0	0	0	67	63	0	36	0						99
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	ST. CROP	95	0	854	492	143	0	293	243	NS	NS	NS	NS	NS	2120
05OCT	SE	95	0	516	492	143	0	287	243						824
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-9 REGIONAL DENSITY (NO./1,000m3) OF STRIPED BASS YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	DENSITY	6.26	5.03	7.31	17.47	7.28	11.77	0.74	1.26	3.28	4.76	9.13	1.68	6.33
21JUL	SE	3.29	0.76	1.31	6.65	3.84	7.48	0.23	0.55	0.96	1.15	2.53	0.63	11.72
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
01AUG-	DENSITY	0.37	3.98	1.59	1.58	1.39	5.08	1.79	0.86	6.15	6.87	1.89	0.90	2.70
05AUG	SE	0.33	1.51	0.56	0.32	0.81	1.24	0.58	0.22	2.02	2.47	0.57	0.30	4.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
15AUG-	DENSITY	0.73	4.16	1.68	0.72	2.64	6.70	2.26	0.60	1.27	2.31	3.58	0.52	2.26
19AUG	SE	0.32	1.83	0.54	0.20	0.09	1.92	0.74	0.11	0.34	0.81	1.95	0.19	3.56
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	DENSITY	0.17	4.35	2.41	1.61	0.60	0.94	0.24	0.33	1.68	0.94	1.08	0.58	1.24
02SEP	SE	0.06	0.88	0.63	0.66	0.15	0.32	0.18	0.12	0.76	0.35	0.73	0.18	1.74
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	DENSITY	1.01	2.15	0.71	0.66	0.80	1.10	0.22	0.02	0.23	0.82	1.32	0.05	0.76
16SEP	SE	0.25	0.50	0.15	0.32	0.74	0.63	0.04	0.02	0.15	0.32	0.39	0.05	1.28
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	DENSITY	0.08	0.62	0.22	0.29	0.35	1.23	0.00	0.19	1.12	0.58	0.10	0.04	0.40
30SEP	SE	0.05	0.17	0.10	0.15	0.11	0.58	0.00	0.08	0.38	0.25	0.04	0.04	0.79
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	DENSITY	0.93	4.17	5.45	0.85	0.19	0.75	0.15	0.04	0.25	2.46	0.45	0.00	1.31
14OCT	SE	0.35	0.80	0.85	0.33	0.09	0.59	0.07	0.03	0.10	0.91	0.16	0.00	1.68
	NO. TOWS	17	46	28	15	8	13	8	10	15	18	21	13	212
24OCT-	DENSITY	0.49	3.37	5.48	1.53	0.03	0.15	0.09	0.08	0.41	0.20	0.06	0.00	0.99
27OCT	SE	0.13	0.52	0.93	0.69	0.02	0.04	0.06	0.04	0.15	0.06	0.03	0.00	1.29
	NO. TOWS	17	46	35	17	8	13	8	10	15	18	21	13	221

TABLE C-10 REGIONAL STANDING CROP (IN THOUSANDS) OF STRIPED BASS YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	ST. CROP	1436	1618	1080	3640	1510	1646	220	209	464	838	1467	120	14248
21JUL	SE	756	246	194	1385	797	1046	68	90	136	203	407	45	2135
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
01AUG-	ST. CROP	85	1280	235	330	289	710	534	142	870	1212	304	64	6054
05AUG	SE	76	487	83	67	167	173	173	37	286	435	92	22	790
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
15AUG-	ST. CROP	168	1340	248	149	548	937	674	99	179	407	575	37	5361
19AUG	SE	74	588	80	43	18	269	220	18	49	143	313	13	776
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	ST. CROP	39	1399	355	335	125	131	73	55	238	166	173	41	3131
02SEP	SE	13	282	93	137	31	44	54	19	108	62	117	13	378
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	ST. CROP	231	690	105	137	167	153	67	3	32	144	212	3	1945
16SEP	SE	58	161	23	67	153	88	11	3	21	56	62	3	270
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	ST. CROP	19	200	33	60	73	172	0	31	159	103	16	3	867
30SEP	SE	10	54	14	31	22	81	0	13	53	43	6	3	127
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	ST. CROP	213	1343	806	178	39	105	45	7	35	435	73	0	3277
14OCT	SE	80	256	126	68	18	82	21	4	14	160	26	0	356
	NO. TOWS	17	46	28	15	8	13	8	10	15	18	21	13	212
24OCT-	ST. CROP	113	1084	809	320	6	21	26	13	58	36	10	0	2495
27OCT	SE	30	167	137	145	4	6	17	7	21	10	5	0	264
	NO. TOWS	17	46	35	17	8	13	8	10	15	18	21	13	221

TABLE C-11 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF STRIPED BASS YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	CPUE	2.67	5.64	0.14	6.67	3.33	0.00	0.00	0.13	0.25	1.67	0.26	0.08	1.74
30JUN	SE	1.45	2.28	0.14	3.28	2.03	0.00	0.00	0.13	0.25	1.33	0.15	0.08	4.91
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
11JUL-	CPUE	6.33	11.82	17.29	4.67	16.00	1.67	13.25	29.25	8.50	6.60	14.74	11.67	11.81
14JUL	SE	3.53	3.53	4.93	3.18	11.37	0.33	6.83	13.89	3.64	2.10	4.56	3.18	21.84
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
25JUL-	CPUE	27.33	12.64	9.71	21.33	18.33	3.00	9.50	17.25	11.25	16.20	6.68	6.92	13.35
27JUL	SE	22.33	4.53	3.50	5.78	14.34	1.53	5.33	13.43	5.20	4.32	2.64	2.50	32.26
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
08AUG-	CPUE	11.60	12.00	16.29	2.80	1.60	4.50	3.80	2.20	2.00	6.67	5.60	3.43	6.04
11AUG	SE	3.22	3.02	3.72	1.11	0.60	1.78	1.93	0.73	0.71	2.57	1.56	1.49	7.36
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	CPUE	12.00	8.17	22.79	13.00	39.80	14.83	3.40	2.60	6.80	11.89	7.20	3.57	12.17
25AUG	SE	4.54	2.45	3.65	8.84	21.77	7.79	1.03	1.29	5.35	4.97	3.05	1.02	26.81
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	CPUE	5.40	7.88	14.21	8.20	0.20	0.83	3.20	2.20	5.00	3.44	5.10	1.14	4.73
09SEP	SE	2.34	1.95	3.28	2.08	0.20	0.31	2.01	0.97	3.56	0.84	3.20	0.55	7.30
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
19SEP-	CPUE	8.00	5.75	9.21	4.40	1.40	1.67	2.80	0.60	0.60	1.22	1.20	1.14	3.17
22SEP	SE	3.36	1.05	3.71	1.69	0.60	0.42	0.86	0.60	0.40	0.49	0.81	0.77	5.69
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	CPUE	13.40	6.21	12.05	6.33	48.40	4.00	7.40	1.60	1.00	1.44	1.00	1.29	8.68
07OCT	SE	3.26	1.44	2.98	1.96	25.73	1.51	3.75	0.68	0.77	0.78	0.47	0.99	26.58
	NO. TOWS	5	24	20	6	5	6	5	5	5	9	10	7	107
17OCT-	CPUE	10.20	3.92	5.50	4.17	1.20	2.67	3.00	1.40	0.60	0.56	0.30	0.00	2.79
19OCT	SE	1.98	1.07	0.87	1.68	0.73	0.80	0.71	0.75	0.24	0.44	0.30	0.00	3.36
	NO. TOWS	5	24	18	6	5	6	5	5	5	9	10	7	105
31OCT-	CPUE	7.80	5.38	9.41	4.50	4.17	3.00	8.80	0.60	0.00	0.11	0.00	0.14	3.66
02NOV	SE	2.44	0.82	2.42	1.59	1.38	1.63	3.43	0.24	0.00	0.11	0.00	0.14	5.60
	NO. TOWS	5	24	17	6	6	6	5	5	5	9	10	7	105

TABLE C-12 REGIONAL STANDING CROP (IN THOUSANDS) OF STRIPED BASS YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	ST. CROP	20	256	4	61	9	0	0	0	2	29	5	1	388
30JUN	SE	11	104	4	30	5	0	0	<0.5	2	23	3	1	111
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
11JUL-	ST. CROP	48	537	465	43	42	18	94	36	73	116	290	159	1920
14JUL	SE	27	160	132	29	30	4	48	17	31	37	90	43	246
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
25JUL-	ST. CROP	206	574	261	197	48	32	67	21	97	284	132	94	2014
27JUL	SE	168	206	94	53	38	16	38	17	45	76	52	34	312
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
08AUG-	ST. CROP	87	545	438	26	4	48	27	3	17	117	110	47	1469
11AUG	SE	24	137	100	10	2	19	14	1	6	45	31	20	183
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	ST. CROP	90	371	613	120	105	158	24	3	59	209	142	49	1942
25AUG	SE	34	111	98	81	57	83	7	2	46	87	60	14	232
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	ST. CROP	41	358	382	76	1	9	23	3	43	60	100	16	1111
09SEP	SE	18	88	88	19	1	3	14	1	31	15	63	8	147
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
19SEP-	ST. CROP	60	261	248	41	4	18	20	1	5	21	24	16	718
22SEP	SE	25	48	100	16	2	4	6	1	3	9	16	10	117
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	ST. CROP	101	282	324	58	128	43	53	2	9	25	20	17	1061
07OCT	SE	25	66	80	18	68	16	27	1	7	14	9	13	133
	NO. TOWS	5	24	20	6	5	6	5	5	5	9	10	7	107
17OCT-	ST. CROP	77	178	148	38	3	28	21	2	5	10	6	0	516
19OCT	SE	15	48	23	15	2	9	5	1	2	8	6	0	60
	NO. TOWS	5	24	18	6	5	6	5	5	5	9	10	7	105
31OCT-	ST. CROP	59	244	253	41	11	32	62	1	0	2	0	2	708
02NOV	SE	18	37	65	15	4	17	24	<0.5	0	2	0	2	84
	NO. TOWS	5	24	17	6	6	6	5	5	5	9	10	7	105

TABLE C-13 REGIONAL DENSITY (NO./1,000m3) OF STRIPED BASS YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	DENSITY	0.00	0.09	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.03
21JUL	SE	0.00	0.04	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.22
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
01AUG-	DENSITY	0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<0.005
05AUG	SE	0.00	0.01	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
15AUG-	DENSITY	0.00	0.03	0.00	0.00	0.00	0.02	0.00	0.00	0.13	0.00	0.00	0.00	0.01
19AUG	SE	0.00	0.02	0.00	0.00	0.00	0.02	0.00	0.00	0.13	0.00	0.00	0.00	0.14
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	DENSITY	0.00	0.07	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.03
02SEP	SE	0.00	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.24
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	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
16SEP	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	16	18	21	13	211
26SEP-	DENSITY	0.00	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<0.005
30SEP	SE	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	DENSITY	0.01	0.01	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
14OCT	SE	0.01	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
	NO. TOWS	17	46	28	15	8	13	8	10	15	18	21	13	212
24OCT-	DENSITY	0.00	0.04	0.06	0.08	0.00	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.03
27OCT	SE	0.00	0.03	0.04	0.04	0.00	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.19
	NO. TOWS	17	46	35	17	8	13	8	10	15	18	21	13	221

TABLE C-14 REGIONAL STANDING CROP (IN THOUSANDS) OF STRIPED BASS YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	ST. CROP	0	29	7	0	0	0	0	0	0	0	35	0	70
21JUL	SE	0	12	4	0	0	0	0	0	0	0	35	0	37
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
01AUG-	ST. CROP	0	3	2	0	0	0	0	0	0	0	0	0	5
05AUG	SE	0	3	2	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
15AUG-	ST. CROP	0	8	0	0	0	2	0	0	19	0	0	0	30
19AUG	SE	0	6	0	0	0	2	0	0	19	0	0	0	20
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	ST. CROP	0	21	5	0	0	0	0	0	0	0	38	0	64
02SEP	SE	0	10	4	0	0	0	0	0	0	0	38	0	39
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	ST. CROP	0	3	0	0	0	0	0	0	0	0	0	0	3
16SEP	SE	0	3	0	0	0	0	0	0	0	0	0	0	3
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	ST. CROP	0	9	3	0	0	0	0	0	0	0	0	0	11
30SEP	SE	0	6	3	0	0	0	0	0	0	0	0	0	7
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	ST. CROP	3	3	5	3	0	0	0	0	0	0	0	0	14
14OCT	SE	3	3	3	2	0	0	0	0	0	0	0	0	6
	NO. TOWS	17	46	28	15	8	13	8	10	15	18	21	13	212
24OCT-	ST. CROP	0	14	8	17	0	26	0	0	0	0	0	0	65
27OCT	SE	0	8	6	8	0	26	0	0	0	0	0	0	29
	NO. TOWS	17	46	35	17	8	13	8	10	15	18	21	13	221

TABLE C-15 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF STRIPED BASS YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	CPUE	0.00	0.09	0.00	1.33	0.00	0.33	0.00	0.00	0.00	0.00	0.16	0.83	0.23
30JUN	SE	0.00	0.09	0.00	0.88	0.00	0.33	0.00	0.00	0.00	0.00	0.16	0.83	1.27
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
11JUL-	CPUE	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.11	0.00	0.04
14JUL	SE	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.07	0.00	0.28
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
25JUL-	CPUE	0.00	0.09	0.57	0.00	0.00	0.33	0.38	0.00	0.00	0.00	0.00	0.00	0.11
27JUL	SE	0.00	0.09	0.43	0.00	0.00	0.33	0.38	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
08AUG-	CPUE	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.40	0.00	0.05
11AUG	SE	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.40	0.00	0.43
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	CPUE	0.00	0.17	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.20	0.00	0.06
25AUG	SE	0.00	0.10	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.20	0.00	0.32
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	CPUE	0.00	0.21	0.14	0.00	0.00	0.17	0.20	0.00	0.00	0.00	0.00	0.00	0.06
09SEP	SE	0.00	0.13	0.14	0.00	0.00	0.17	0.20	0.00	0.00	0.00	0.00	0.00	0.33
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
19SEP-	CPUE	0.40	0.21	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.08
22SEP	SE	0.40	0.10	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.48
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	CPUE	0.00	0.00	0.00	1.17	0.20	0.00	0.20	0.00	0.00	0.00	0.20	0.00	0.15
07OCT	SE	0.00	0.00	0.00	1.17	0.20	0.00	0.20	0.00	0.00	0.00	0.20	0.00	1.22
	NO. TOWS	5	24	20	6	5	6	5	5	5	9	10	7	107
17OCT-	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
19OCT	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	18	6	5	6	5	5	5	9	10	7	105
31OCT-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.11	0.20	0.00	0.04
02NOV	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.11	0.13	0.00	0.26
	NO. TOWS	5	24	17	6	6	6	5	5	5	9	10	7	105

TABLE C-16 REGIONAL STANDING CROP (IN THOUSANDS) OF STRIPED BASS YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	ST. CROP	0	4	0	12	0	4	0	0	0	0	3	11	34
30JUN	SE	0	4	0	8	0	4	0	0	0	0	3	11	15
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
11JUL-	ST. CROP	0	4	0	0	0	0	0	0	0	0	2	0	7
14JUL	SE	0	4	0	0	0	0	0	<0.5	0	0	1	0	4
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
25JUL-	ST. CROP	0	4	15	0	0	4	3	0	0	0	0	0	26
27JUL	SE	0	4	12	0	0	4	3	0	0	0	0	0	13
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
08AUG-	ST. CROP	0	0	4	0	0	0	0	0	0	2	8	0	14
11AUG	SE	0	0	3	0	0	0	0	0	0	2	8	0	9
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	ST. CROP	0	8	2	0	0	0	0	0	0	4	4	0	17
25AUG	SE	0	4	2	0	0	0	0	0	0	4	4	0	7
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	ST. CROP	0	9	4	0	0	2	1	0	0	0	0	0	17
09SEP	SE	0	6	4	0	0	2	1	0	0	0	0	0	8
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
19SEP-	ST. CROP	3	9	8	0	0	0	0	0	0	2	0	0	22
22SEP	SE	3	5	6	0	0	0	0	0	0	2	0	0	8
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	ST. CROP	0	0	0	11	1	0	1	0	0	0	4	0	17
07OCT	SE	0	0	0	11	1	0	1	0	0	0	4	0	12
	NO. TOWS	5	24	20	6	5	6	5	5	5	9	10	7	107
17OCT-	ST. CROP	0	2	0	0	0	0	0	0	0	0	0	0	2
19OCT	SE	0	2	0	0	0	0	0	0	0	0	0	0	2
	NO. TOWS	5	24	18	6	5	6	5	5	5	9	10	7	105
31OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	2	4	0	6
02NOV	SE	0	0	0	0	0	0	0	<0.5	0	2	3	0	3
	NO. TOWS	5	24	17	6	6	6	5	5	5	9	10	7	105

TABLE C-17 REGIONAL DENSITY (NO./1,000m3) OF WHITE PERCH EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.35	0.00	1.87	8.58	29.70	113.42	6.28	13.35
30APR	SE		0.00	0.00	0.00	0.00	0.00	0.35	0.00	0.56	8.58	14.66	47.31	5.80	50.61
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	1.65	0.20	6.39	38.60	458.85	168.93	1.20	58.00	61.15
06MAY	SE		0.00	0.00	0.00	0.00	0.82	0.12	2.96	10.63	72.65	55.79	0.61	21.56	94.75
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	DENSITY	NS	0.00	0.00	0.00	0.38	3.55	18.68	123.15	60.89	417.52	265.13	313.47	664.84	155.63
13MAY	SE		0.00	0.00	0.00	0.33	2.32	6.26	94.45	51.88	407.24	138.53	144.12	129.40	483.94
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	DENSITY	NS	0.00	0.00	0.19	0.00	8.38	13.83	6.85	0.83	41.97	452.33	363.73	24.53	76.05
20MAY	SE		0.00	0.00	0.19	0.00	2.45	13.83	5.22	0.49	41.97	258.97	117.03	15.86	288.10
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	DENSITY	NS	0.35	0.17	0.19	0.00	22.28	1.40	1.03	28.99	57.01	122.42	999.46	192.88	118.85
27MAY	SE		0.35	0.17	0.19	0.00	13.92	0.66	1.03	28.14	57.01	45.00	509.80	154.81	538.63
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	DENSITY	NS	0.00	0.00	0.00	0.07	4.11	0.36	0.00	0.00	0.00	78.00	121.06	8.20	17.65
04JUN	SE		0.00	0.00	0.00	0.07	3.77	0.36	0.00	0.00	0.00	34.11	35.10	4.29	49.28
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	DENSITY	2.24	0.00	0.00	1.65	1.02	2.27	10.20	39.22	70.84	3.80	17.39	632.76	860.66	126.31
10JUN	SE	2.24	0.00	0.00	1.01	0.81	1.62	5.01	20.69	64.83	3.80	13.84	204.38	465.88	513.50
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.12	0.00	20.56	0.50	13.31	8.71	65.85	178.46	22.12
16JUN	SE	0.00	0.00	0.00	0.00	0.00	0.12	0.00	20.27	0.34	10.21	7.08	20.75	150.80	154.07
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

TABLE C-17 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF WHITE PERCH EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	DENSITY	0.00	0.00	0.00	0.48	0.45	0.00	0.00	1.62	0.00	0,00	0.70	21.49	3.86	2.20
23JUN	SE	0.00	0.00	0.00	0.48	0.45	0.00	0.00	1.62	0.00	0.00	0.70	9.93	2.59	10.43
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	DENSITY	20.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56	0.00	0.00	0.00	0.00	1.70
01JUL	SE	20.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56	0.00	0.00	0.00	0.00	20.57
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	DENSITY	0.00	0.00	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
28JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
10AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
24AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
08SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
22SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
05OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-18 REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE PERCH EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	ST. CROP	NS	0	0	0	0	0	49	0	309	1214	5237	18230	447	25486
30APR	SE		0	0	0	0	0	49	0	93	1214	2585	7605	412	8134
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	ST. CROP	NS	0	0	0	0	341	27	1905	6387	64914	29781	192	4126	107674
06MAY	SE		0	0	0	0	169	17	883	1760	10278	9835	98	1534	14444
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	ST. CROP	NS	0	0	0	78	737	2611	36714	10077	59066	46740	50385	47303	253711
13MAY	SE		0	0	0	68	482	875	28158	8585	57612	24422	23165	9206	73515
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	ST. CROP	NS	0	0	29	0	1739	1934	2042	137	5938	79744	58463	1745	151770
20MAY	SE		0	0	29	0	509	1934	1556	81	5938	45656	18811	1129	49813
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	ST. CROP	NS	80	53	27	0	4623	196	306	4797	8065	21582	160644	13724	214099
27MAY	SE		80	53	27	0	2889	92	306	4657	8065	7933	81941	11014	83629
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	ST. CROP	NS	0	0	0	14	852	50	0	0	0	13751	19458	583	34708
04JUN	SE		0	0	0	14	782	50	0	0	0	6014	5641	305	8289
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	ST. CROP	469	0	0	243	212	470	1426	11693	11722	538	3065	101705	61235	192780
10JUN	SE	469	0	0	149	169	335	701	6169	10728	538	2440	32850	33147	48354
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	ST. CROP	0	0	0	0	0	24	0	6130	82	1882	1536	10584	12697	32935
16JUN	SE	0	0	0	0	0	24	0	6044	56	1444	1247	3335	10730	12901
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

TABLE C-18 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE PERCH EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	ST. CROP	0	0	0	71	94	0	0	482	0	0	123	3454	274	4498
23JUN	SE	0	0	0	71	94	0	0	482	0	0	123	1595	185	1685
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	ST. CROP	4288	0	0	0	0	0	0	0	258	0	0	0	0	4545
01JUL	SE	4288	0	0	0	0	0	0	0	258	0	0	0	0	4295
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
10AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
24AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
08SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
22SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-19 REGIONAL DENSITY (NO./1,000m3) OF WHITE PERCH YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.54	0.96	0.00	0.00	0.00	0.15
30APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.54	0.73	0.00	0.00	0.00	0.94
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.49	2.73	9.03	13.14	19.57	20.17	19.19	1.93	7.19
06MAY	SE		0.00	0.00	0.00	0.00	0.20	0.70	3.46	3.89	8.70	4.79	9.44	1.09	14.71
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	DENSITY	NS	0.73	0.42	2.77	7.58	70.43	91.94	80.71	625.27	423.74	392.69	175.86	151.09	168.60
13MAY	SE		0.73	0.42	0.96	2.96	22.00	33.91	20.88	154.64	53.56	166.71	39.68	37.20	244.16
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	DENSITY	NS	0.00	1.28	29.42	213.29	188.01	401.85	599.22	857.15	1289.85	510.63	383.99	298.46	397.76
20MAY	SE		0.00	0.59	7.24	125.77	54.50	81.44	218.44	124.19	291.15	75.33	33.99	90.61	434.07
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	DENSITY	NS	0.00	0.00	0.62	5.75	39.65	42.00	44.60	205.10	169.57	153.01	97.86	240.48	83.22
27MAY	SE		0.00	0.00	0.62	1.61	10.49	13.29	12.68	41.05	68.91	28.82	21.84	108.46	141.26
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	DENSITY	NS	0.00	0.00	12.01	19.52	34.50	29.21	31.86	52.85	373.04	176.03	28.84	23.22	65.09
04JUN	SE		0.00	0.00	4.36	7.18	16.39	8.50	18.58	19.65	92.12	62.45	7.67	9.20	116.92
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	DENSITY	0.00	0.00	0.93	3.88	0.92	36.06	12.03	54.03	56.74	140.16	326.05	353.47	90.61	82.68
10JUN	SE	0.00	0.00	0.61	0.96	0.40	15.66	2.56	31.33	14.23	32.09	123.55	91.84	43.74	167.57
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	DENSITY	0.59	0.00	0.27	2.38	9.71	19.20	69.11	12.86	24.36	85.84	141.39	168.95	279.23	62.61
16JUN	SE	0.59	0.00	0.27	2.14	8.21	7.25	39.63	5.48	8.78	46.93	39.52	51.99	85.91	125.10
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	2.80	2.21	3.75	1.56	0.00	1.71	44.13	95.15	11.64
23JUN	SE	0.00	0.00	0.00	0.00	0.00	1.61	1.28	0.82	0.81	0.00	1.23	16.07	60.21	62.37
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.13	0.00	5.94	0.54
01JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.13	0.00	2.53	2.77
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	DENSITY	0.00	0.00	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
28JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
10AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
24AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
08SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
22SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
05OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-20 REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE PERCH YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	ST. CROP	NS	0	0	0	0	0	0	79	89	136	0	0	0	303
30APR	SE		0	0	0	0	0	0	79	89	103	0	0	0	157
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	ST. CROP	NS	0	0	0	0	101	381	2691	2175	2769	3555	3084	137	14894
06MAY	SE		0	0	0	0	41	98	1031	644	1230	845	1517	78	2455
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	ST. CROP	NS	169	137	409	1580	14611	12852	24061	103472	59946	69230	28266	10750	325484
13MAY	SE		169	137	141	616	4565	4740	6224	25590	7577	29391	6379	2646	41307
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	ST. CROP	NS	0	411	4347	44437	39003	56176	178646	141845	182475	90022	61719	21235	820317
20MAY	SE		0	190	1070	26203	11306	11384	65124	20552	41189	13280	5463	6447	86908
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	ST. CROP	NS	0	0	91	1198	8225	5871	13298	33941	23989	26974	15729	17110	146428
27MAY	SE		0	0	91	335	2177	1858	3781	6794	9749	5082	3510	7717	16170
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	ST. CROP	NS	0	0	1775	4068	7157	4083	9499	8746	52773	31033	4635	1652	125421
04JUN	SE		0	0	644	1496	3400	1189	5540	3251	13032	11009	1233	654	18705
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	ST. CROP	0	0	298	572	193	7482	1682	16108	9389	19829	57480	56814	6447	176294
10JUN	SE	0	0	196	142	84	3249	358	9340	2354	4540	21782	14761	3112	28743
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	ST. CROP	124	0	87	352	2023	3983	9661	3834	4032	12144	24927	27156	19867	108190
16JUN	SE	124	0	87	317	1711	1504	5540	1635	1454	6639	6967	8357	6112	15511
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	ST. CROP	0	0	0	0	0	581	309	1117	258	0	301	7092	6770	16428
23JUN	SE	0	0	0	0	0	334	179	243	135	0	217	2582	4284	5029
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	199	0	422	621
01JUL	SE	0	0	0	0	0	0	0	0	0	0	199	0	180	268
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
10AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
24AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
08SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
22SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-21 REGIONAL DENSITY (NO./1,000m3) OF WHITE PERCH POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.13	0.00	0.00	0.00	0.00	0.51
06MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.13	0.00	0.00	0.00	0.00	6.13
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	DENSITY	NS	0.00	0.00	0.00	2.92	13.72	10.25	3.29	0.27	0.00	146.17	0.00	0.00	14.72
13MAY	SE		0.00	0.00	0.00	1.75	4.75	2.82	1.03	0.27	0.00	146.17	0.00	0.00	146.29
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	DENSITY	NS	0.00	4.86	32.35	147.37	218.75	405.83	565.23	123.80	25.57	0.57	0.00	0.00	127.03
20MAY	SE		0.00	2.17	7.76	61.02	47.66	53.36	226.60	51.15	14.34	0.57	0.00	0.00	251.15
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	DENSITY	NS	2.47	3.73	30.23	189.85	605.42	1555.93	1690.10	896.05	320.97	33.00	0.00	0.00	443.98
27MAY	SE		2.17	1.75	6.25	32.73	99.90	231.88	377.35	117.06	54.04	20.62	0.00	0.00	473.61
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	DENSITY	NS	0.34	13.22	206.50	443.82	333.65	913.38	1178.61	3106.19	3103.68	424.61	54.98	0.52	814.96
04JUN	SE		0.34	3.55	31.79	39.40	87.58	356.65	314.84	1360.85	1314.57	121.19	18.77	0.52	1957.45
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	DENSITY	0.54	1.19	0.00	19.19	106.72	698.45	1037.73	1325.06	2671.48	2178.94	1466.75	378.29	14.42	761.44
10JUN	SE	0.54	1.03	0.00	6.09	19.07	135.59	330.63	181.60	391.55	355.41	234.62	105.57	7.10	712.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	DENSITY	0.00	3.16	65.11	401.15	729.89	579.19	655.24	849.96	1477.50	2448.97	2131.54	1637.15	283.64	866.35
16JUN	SE	0.00	2.13	18.73	97.08	239.01	126.26	101.95	176.68	347.42	411.55	239.11	137.23	249.34	743.45
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	DENSITY	0.00	2.02	20.38	358.51	332.35	284.36	190.70	885.91	896.28	778.49	1715.09	3706.14	2102.47	867.13
23JUN	SE	0.00	1.03	13.38	56.05	79.85	41.89	31.93	136.36	109.78	103.76	314.54	768.29	737.89	1134.71
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	DENSITY	1.63	5.22	16.24	92.28	549.21	198.08	123.52	563.90	339.98	603.36	390.23	828.52	70.91	291.01
01JUL	SE	0.55	1.82	4.41	45.94	234.43	30.54	28.02	106.20	35.19	133.52	129.96	226.67	31.63	398.02
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	DENSITY	0.00	0.00	0.43	5.06	72.52	117.84	84.45	36.68	165.67	34.89	45.99	4.56	0.42	43.73
08JUL	SE	0.00	0.00	0.31	2.02	64.74	42.89	46.40	7.82	96.06	26.88	21.70	2.45	0.42	136.66
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	DENSITY	0.00	0.00	0.00	0.54	1.47	43.46	43.14	46.22	NS	NS	NS	NS	NS	16.85
14JUL	SE	0.00	0.00	0.00	0.54	0.68	17.04	28.23	19.00						38.07
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	NS	NS	NS	NS	NS	0.03
28JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24						0.24
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
10AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
24AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
08SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
22SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
05OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-22 REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE PERCH POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
30APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	ST. CROP	NS	0	0	0	0	0	0	0	1014	0	0	0	0	1014
06MAY	SE		0	0	0	0	0	0	0	1014	0	0	0	0	1014
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	ST. CROP	NS	0	0	0	608	2845	1433	982	46	0	25769	0	0	31682
13MAY	SE		0	0	0	365	986	394	306	46	0	25769	0	0	25795
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	ST. CROP	NS	0	1564	4779	30702	45380	56732	168513	20488	3617	101	0	0	331876
20MAY	SE		0	697	1146	12713	9887	7460	67557	8464	2029	101	0	0	70403
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	ST. CROP	NS	567	1199	4467	39552	125597	217505	503874	148282	45408	5817	0	0	1092267
27MAY	SE		498	564	924	6818	20724	32415	112501	19372	7644	3635	0	0	120960
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	ST. CROP	NS	78	4255	30508	92464	69217	127682	351384	514027	439078	74857	8836	37	1712425
04JUN	SE		78	1141	4696	8209	18169	49857	93864	225199	185972	21365	3017	37	312222
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	ST. CROP	113	274	0	2835	22234	144896	145065	395045	442089	308254	258581	60803	1026	1781216
10JUN	SE	113	236	0	900	3973	28129	46219	54142	64795	50280	41362	16968	505	120834
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	ST. CROP	0	726	20952	59265	152063	120157	91597	253402	244503	346455	375781	263142	20180	1948224
16JUN	SE	0	488	6028	14342	49795	26194	14252	52673	57492	58222	42154	22058	17741	125136
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	ST. CROP	0	462	6558	52965	69240	58991	26659	264120	148321	110132	302362	595694	149589	1785095
23JUN	SE	0	237	4306	8280	16635	8690	4463	40655	18167	14678	55452	123489	52500	154073
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	ST. CROP	341	1199	5227	13633	114421	41092	17267	168118	56262	85357	68797	133170	5045	709928
01JUL	SE	115	418	1418	6787	48840	6337	3917	31661	5824	18889	22911	36433	2250	75760
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	ST. CROP	0	0	138	747	15109	24446	11805	10935	27416	4936	8108	732	30	104404
08JUL	SE	0	0	100	299	13487	8897	6487	2331	15897	3802	3825	393	30	24303
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	ST. CROP	0	0	0	79	307	9016	6031	13780	NS	NS	NS	NS	NS	29212
14JUL	SE	0	0	0	79	141	3535	3946	5666						7758
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	ST. CROP	0	0	0	0	0	0	0	71	NS	NS	NS	NS	NS	71
28JUL	SE	0	0	0	0	0	0	0	71						71
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
10AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
24AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
08SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
22SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-23 REGIONAL DENSITY (NO./1,000m3) OF WHITE PERCH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	DENSITY	0.00	0.00	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.01
01JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.11
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.94	0.14	0.00	0.00	1.37	0.00	0.20
08JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.94	0.14	0.00	0.00	1.37	0.00	1.67
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	3.33	3.09	2.34	NS	NS	NS	NS	NS	1.10
14JUL	SE	0.00	0.00	0.00	0.00	0.00	3.19	2.76	2.34						4.83
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	DENSITY	0.00	0.00	0.00	0.00	0.17	0.14	0.53	0.00	NS	NS	NS	NS	NS	0.10
28JUL	SE	0.00	0.00	0.00	0.00	0.17	0.14	0.26	0.00						0.34
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.40	0.00	NS	NS	NS	NS	NS	0.05
10AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00						0.30
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.92	1.35	0.24	NS	NS	NS	NS	NS	0.31
24AUG	SE	0.00	0.00	0.00	0.00	0.00	0.77	0.26	0.24						0.85
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.41	0.80	0.24	NS	NS	NS	NS	NS	0.18
08SEP	SE	0.00	0.00	0.00	0.00	0.00	0.25	0.46	0.24						0.58
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.13	0.45	0.00	NS	NS	NS	NS	NS	0.07
22SEP	SE	0.00	0.00	0.00	0.00	0.00	0.13	0.45	0.00						0.47
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	2.03	0.00	NS	NS	NS	NS	NS	0.25
05OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.68	0.00						0.68
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-24 REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE PERCH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
30APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
06MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
13MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	ST. CROP	NS	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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
27MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	ST. CROP	NS	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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	ST. CROP	0	0	0	0	0	0	15	0	0	0	0	0	0	15
01JUL	SE	0	0	0	0	0	0	15	0	0	0	0	0	0	15
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	ST. CROP	0	0	0	0	0	0	15	281	23	0	0	220	0	539
08JUL	SE	0	0	0	0	0	0	15	281	23	0	0	220	0	358
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	ST. CROP	0	0	0	0	0	690	432	699	NS	NS	NS	NS	NS	1821
14JUL	SE	0	0	0	0	0	662	386	699						1037
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	ST. CROP	0	0	0	0	36	29	74	0	NS	NS	NS	NS	NS	138
28JUL	SE	0	0	0	0	36	29	37	0						59
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	ST. CROP	0	0	0	0	0	0	55	0	NS	NS	NS	NS	NS	55
10AUG	SE	0	0	0	0	0	0	42	0						42
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	ST. CROP	0	0	0	0	0	192	188	72	NS	NS	NS	NS	NS	452
24AUG	SE	0	0	0	0	0	160	36	72						180
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	ST. CROP	0	0	0	0	0	86	112	71	NS	NS	NS	NS	NS	268
08SEP	SE	0	0	0	0	0	51	65	71						109
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	ST. CROP	0	0	0	0	0	27	63	0	NS	NS	NS	NS	NS	90
22SEP	SE	0	0	0	0	0	27	63	0						68
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	ST. CROP	0	0	0	0	0	0	283	0	NS	NS	NS	NS	NS	283
05OCT	SE	0	0	0	0	0	0	95	0						95
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-25 REGIONAL DENSITY (NO./1,000m3) OF WHITE PERCH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	DENSITY	0.00	0.00	0.03	0.05	0.00	0.02	0.02	0.00	0.00	0.30	0.00	0.00	0.04
21JUL	SE	0.00	0.00	0.02	0.03	0.00	0.02	0.02	0.00	0.00	0.28	0.00	0.00	0.28
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
01AUG-	DENSITY	0.00	0.00	0.00	0.02	0.01	1.23	0.46	0.44	0.52	0.02	0.02	0.00	0.23
05AUG	SE	0.00	0.00	0.00	0.02	0.01	0.52	0.13	0.25	0.18	0.02	0.02	0.00	0.62
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
15AUG-	DENSITY	0.00	0.00	0.00	0.12	0.13	1.67	0.27	0.59	0.05	0.04	0.12	0.00	0.25
19AUG	SE	0.00	0.00	0.00	0.05	0.04	0.33	0.14	0.22	0.03	0.03	0.06	0.00	0.43
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	DENSITY	0.00	0.00	0.12	0.34	0.81	0.72	0.85	0.69	0.36	0.04	0.02	0.04	0.33
02SEP	SE	0.00	0.00	0.06	0.13	0.68	0.19	0.42	0.25	0.23	0.03	0.02	0.04	0.90
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	DENSITY	0.00	0.00	0.02	0.00	0.06	1.25	0.19	0.24	0.04	0.04	0.00	0.19	0.17
16SEP	SE	0.00	0.00	0.02	0.00	0.03	0.52	0.12	0.14	0.03	0.03	0.00	0.10	0.56
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	DENSITY	0.00	0.02	0.00	0.01	0.24	0.80	0.11	0.47	0.69	0.09	0.04	0.17	0.22
30SEP	SE	0.00	0.01	0.00	0.01	0.10	0.25	0.08	0.10	0.30	0.04	0.03	0.06	0.43
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	DENSITY	0.00	0.01	0.27	0.16	1.05	0.95	0.64	0.70	0.37	0.50	0.21	0.12	0.42
14OCT	SE	0.00	0.01	0.06	0.10	0.71	0.60	0.21	0.24	0.17	0.17	0.09	0.08	1.03
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24OCT-	DENSITY	0.00	0.05	0.71	4.88	0.18	2.46	0.54	0.49	0.53	0.27	0.06	0.00	0.85
27OCT	SE	0.00	0.03	0.23	2.02	0.10	0.36	0.22	0.19	0.14	0.07	0.04	0.00	2.10
	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	ST. CROP	0	0	5	11	0	3	7	0	0	52	0	0	78
21JUL	SE	0	0	3	6	0	3	7	0	0	49	0	0	50
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
01AUG-	ST. CROP	0	0	0	5	2	172	136	72	74	4	3	0	468
05AUG	SE	0	0	0	3	2	73	38	42	25	4	3	0	96
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
15AUG-	ST. CROP	0	0	0	26	28	233	82	97	7	8	19	0	499
19AUG	SE	0	0	0	11	8	46	43	36	5	5	10	0	75
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	ST. CROP	0	0	18	71	168	100	254	115	51	7	4	3	792
02SEP	SE	0	0	9	26	141	27	125	41	32	5	4	3	199
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	ST. CROP	0	0	3	0	12	175	55	40	6	7	0	14	311
16SEP	SE	0	0	3	0	5	72	35	24	4	5	0	7	84
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	ST. CROP	0	6	0	2	51	111	33	77	97	15	6	12	410
30SEP	SE	0	4	0	2	22	34	24	16	42	7	4	4	66
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	ST. CROP	0	3	40	34	219	133	191	116	52	89	34	9	918
14OCT	SE	0	3	9	22	148	84	64	40	24	30	14	6	192
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24OCT-	ST. CROP	0	17	106	1016	38	343	160	81	75	48	10	0	1895
27OCT	SE	0	10	34	421	22	50	65	32	20	12	7	0	433
	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.03
30JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.15
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
11JUL-	CPUE	0.00	0.45	0.14	1.00	1.00	1.67	17.50	16.13	2.50	0.47	0.42	0.08	3.45
14JUL	SE	0.00	0.37	0.14	1.00	1.00	1.20	9.06	6.23	1.09	0.24	0.12	0.08	11.22
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
25JUL-	CPUE	0.00	0.09	0.00	0.67	12.67	0.00	18.75	16.75	4.38	5.60	1.58	0.42	5.07
27JUL	SE	0.00	0.09	0.00	0.67	7.45	0.00	10.43	8.95	1.32	2.14	0.94	0.26	15.88
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
08AUG-	CPUE	0.00	0.75	0.79	0.20	1.20	0.00	11.80	21.60	1.80	0.00	2.50	1.43	3.51
11AUG	SE	0.00	0.29	0.37	0.20	0.73	0.00	4.79	11.57	1.56	0.00	1.08	1.27	12.76
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	CPUE	0.00	1.25	1.57	2.80	11.20	4.00	5.60	21.40	2.00	2.00	3.00	0.71	4.63
25AUG	SE	0.00	0.64	0.80	2.80	6.13	2.83	4.63	9.05	0.71	1.00	1.60	0.71	12.74
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	CPUE	0.00	0.88	9.50	2.20	0.40	0.50	7.60	12.80	1.20	0.78	11.30	0.00	3.93
09SEP	SE	0.00	0.71	3.75	0.97	0.40	0.34	5.05	4.26	0.80	0.52	3.91	0.00	8.69
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
19SEP-	CPUE	0.00	1.00	0.86	3.60	2.20	0.50	1.00	2.80	0.40	1.11	6.40	0.00	1.66
22SEP	SE	0.00	0.52	0.78	1.47	1.74	0.50	0.63	1.39	0.40	0.65	5.35	0.00	6.15
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	CPUE	0.00	0.63	0.00	0.20	19.20	0.17	0.40	9.20	0.00	0.33	0.30	0.29	2.56
07OCT	SE	0.00	0.20	0.00	0.20	12.43	0.17	0.24	3.88	0.00	0.24	0.30	0.18	13.04
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17OCT-	CPUE	0.00	0.17	3.21	0.40	1.00	0.00	1.00	0.80	0.20	0.00	6.20	0.00	1.08
19OCT	SE	0.00	0.08	1.08	0.24	0.45	0.00	1.00	0.49	0.20	0.00	6.20	0.00	6.42
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31OCT-	CPUE	0.00	0.50	1.50	3.80	3.60	0.67	5.80	4.40	0.00	0.00	0.30	0.00	1.71
02NOV	SE	0.00	0.24	0.70	2.22	1.36	0.49	5.80	2.73	0.00	0.00	0.15	0.00	6.98
	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	6	0	6
30JUN	SE	0	0	0	0	0	0	0	0	0	0	3	0	3
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
11JUL-	ST. CROP	0	21	4	9	3	18	124	20	22	8	8	1	237
14JUL	SE	0	17	4	9	3	13	64	8	9	4	2	1	70
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
25JUL-	ST. CROP	0	4	0	6	33	0	133	21	38	98	31	6	370
27JUL	SE	0	4	0	6	20	0	74	11	11	38	19	4	89
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
08AUG-	ST. CROP	0	34	21	2	3	0	84	27	15	0	49	19	255
11AUG	SE	0	13	10	2	2	0	34	14	13	0	21	17	51
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	ST. CROP	0	57	42	26	30	43	40	27	17	35	59	10	384
25AUG	SE	0	29	22	26	16	30	33	11	6	18	31	10	76
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	ST. CROP	0	40	255	20	1	5	54	16	10	14	222	0	638
09SEP	SE	0	32	101	9	1	4	36	5	7	9	77	0	137
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
19SEP-	ST. CROP	0	45	23	33	6	5	7	3	3	20	126	0	272
22SEP	SE	0	24	21	14	5	5	4	2	3	11	105	0	112
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	ST. CROP	0	28	0	2	51	2	3	11	0	6	6	4	113
07OCT	SE	0	9	0	2	33	2	2	5	0	4	6	3	35
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17OCT-	ST. CROP	0	8	86	4	3	0	7	1	2	0	122	0	232
19OCT	SE	0	4	29	2	1	0	7	1	2	0	122	0	126
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31OCT-	ST. CROP	0	23	40	35	9	7	41	5	0	0	6	0	167
02NOV	SE	0	11	19	20	4	5	41	3	0	0	3	0	51
	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	DENSITY	0.11	2.14	2.54	1.35	0.07	2.34	0.30	1.27	1.23	1.09	0.67	1.84	1.25
21JUL	SE	0.05	0.86	0.44	0.33	0.02	0.80	0.14	0.94	0.35	0.33	0.13	0.47	1.75
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
01AUG-	DENSITY	0.01	0.42	0.88	1.14	0.05	0.65	2.08	0.40	1.80	1.24	0.68	0.53	0.82
05AUG	SE	0.01	0.14	0.31	0.58	0.04	0.25	0.73	0.14	0.39	0.19	0.21	0.15	1.15
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
15AUG-	DENSITY	0.21	0.72	0.60	0.34	0.41	2.10	1.86	0.70	1.56	0.77	0.68	1.79	0.98
19AUG	SE	0.16	0.35	0.13	0.20	0.24	0.54	0.84	0.31	0.61	0.19	0.16	0.47	1.41
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	DENSITY	0.07	1.87	0.52	1.01	0.04	1.55	0.64	1.67	1.93	0.80	0.71	3.54	1.20
02SEP	SE	0.05	0.28	0.13	0.44	0.03	0.84	0.18	0.59	0.64	0.17	0.23	1.75	2.22
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	DENSITY	1.15	1.54	0.78	0.72	0.17	1.11	0.37	0.55	2.85	0.96	1.27	3.39	1.24
16SEP	SE	0.48	0.35	0.24	0.23	0.09	0.51	0.17	0.15	1.08	0.20	0.21	0.66	1.57
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	DENSITY	0.00	1.76	0.99	1.12	0.28	1.63	0.39	1.96	2.61	3.47	1.77	5.30	1.77
30SEP	SE	0.00	0.34	0.25	0.73	0.08	0.36	0.24	0.65	0.88	1.07	0.34	1.07	2.12
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	DENSITY	0.18	2.51	6.92	0.71	0.14	2.85	0.14	0.72	1.79	2.36	3.84	4.30	2.21
14OCT	SE	0.08	0.44	0.89	0.22	0.03	1.79	0.07	0.12	0.45	0.24	0.90	1.78	2.91
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24OCT-	DENSITY	0.21	4.57	6.32	2.37	0.07	2.12	0.73	1.60	4.58	2.45	1.38	4.77	2.60
27OCT	SE	0.06	0.60	0.93	0.61	0.05	0.42	0.28	0.75	1.31	0.51	0.53	1.03	2.39
	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	ST. CROP	25	689	375	281	14	328	88	209	174	191	108	131	2615
21JUL	SE	12	276	66	69	4	112	42	155	50	58	21	34	362
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
01AUG-	ST. CROP	3	134	130	237	10	90	621	66	255	219	109	38	1913
05AUG	SE	3	46	46	122	7	35	216	23	55	33	34	11	270
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
15AUG-	ST. CROP	48	233	89	71	86	293	554	116	220	135	110	127	2082
19AUG	SE	37	111	19	41	49	75	249	51	86	33	26	33	314
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	ST. CROP	15	602	76	211	9	216	191	276	273	142	114	252	2377
02SEP	SE	12	90	19	91	6	117	54	98	91	31	36	124	263
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	ST. CROP	264	494	116	150	35	155	110	91	404	169	204	241	2435
16SEP	SE	109	114	35	49	18	72	50	25	153	35	34	47	255
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	ST. CROP	0	566	146	233	58	227	115	324	369	611	284	377	3310
30SEP	SE	0	108	36	152	17	50	72	107	124	189	55	76	340
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	ST. CROP	42	808	1023	148	30	398	41	119	254	416	617	306	4200
14OCT	SE	19	142	132	46	7	250	21	20	63	42	144	127	382
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24OCT-	ST. CROP	49	1469	934	494	15	297	219	264	648	432	221	339	5383
27OCT	SE	14	193	137	127	10	58	83	124	185	90	85	73	391
	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	CPUE	0.33	4.91	5.57	18.33	4.33	3.33	8.75	4.38	7.00	3.33	24.05	9.08	7.78
30JUN	SE	0.33	2.60	2.80	10.35	1.76	2.03	5.67	1.21	2.58	1.20	7.84	5.79	16.30
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
11JUL-	CPUE	2.00	6.64	5.00	7.67	2.33	1.67	8.50	12.25	7.00	12.67	13.53	7.25	7.21
14JUL	SE	1.15	3.13	2.53	4.41	2.33	0.88	2.40	3.59	3.04	3.79	3.41	3.79	10.56
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
25JUL-	CPUE	7.00	2.55	1.71	3.00	25.33	0.33	3.88	2.38	5.38	6.73	3.26	2.00	5.30
27JUL	SE	3.51	0.84	0.89	1.53	24.84	0.33	2.69	0.78	3.17	2.47	1.20	1.27	25.69
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
08AUG-	CPUE	2.20	5.04	3.64	12.00	0.80	0.17	0.20	3.20	1.00	0.22	4.10	0.14	2.73
11AUG	SE	0.58	1.08	0.95	10.77	0.80	0.17	0.20	1.24	0.77	0.22	2.21	0.14	11.24
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	CPUE	3.80	2.25	2.71	0.40	7.60	0.50	4.20	1.00	3.00	8.11	6.70	3.00	3.61
25AUG	SE	1.77	1.14	0.97	0.40	4.19	0.50	4.20	0.77	2.53	3.40	2.81	1.70	8.39
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	CPUE	1.40	1.88	6.86	1.40	0.20	0.17	2.60	1.80	0.40	0.00	1.50	0.43	1.55
09SEP	SE	0.75	0.69	3.16	0.87	0.20	0.17	1.12	1.36	0.40	0.00	1.19	0.43	4.09
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
19SEP-	CPUE	8.80	3.46	208.64	2.60	0.60	0.00	0.00	0.80	0.20	0.11	3.30	0.00	19.04
22SEP	SE	8.55	0.87	208.57	1.63	0.40	0.00	0.00	0.49	0.20	0.11	1.81	0.00	208.76
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	CPUE	4.20	0.33	0.50	2.20	1.20	0.00	2.00	0.80	1.00	0.00	0.00	0.14	1.03
07OCT	SE	1.56	0.13	0.23	2.20	0.73	0.00	1.10	0.58	0.55	0.00	0.00	0.14	3.12
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17OCT-	CPUE	1.00	0.29	0.07	0.40	0.20	0.00	2.60	0.20	0.00	0.00	0.10	0.00	0.41
19OCT	SE	1.00	0.13	0.07	0.40	0.20	0.00	1.78	0.20	0.00	0.00	0.10	0.00	2.11
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31OCT-	CPUE	0.40	0.29	0.64	0.60	0.00	0.17	0.80	2.20	0.00	0.00	0.40	1.00	0.54
02NOV	SE	0.40	0.19	0.44	0.60	0.00	0.17	0.58	1.43	0.00	0.00	0.27	0.58	1.89
	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	ST. CROP	3	223	150	169	11	36	62	5	60	59	473	123	1374
30JUN	SE	3	118	75	95	5	22	40	1	22	21	154	79	249
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
11JUL-	ST. CROP	15	302	134	71	6	18	60	15	60	222	266	99	1268
14JUL	SE	9	142	68	41	6	9	17	4	26	67	67	51	198
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
25JUL-	ST. CROP	53	116	46	28	67	4	27	3	46	118	64	27	599
27JUL	SE	26	38	24	14	65	4	19	1	27	43	24	17	105
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
08AUG-	ST. CROP	17	229	98	111	2	2	1	4	9	4	81	2	559
11AUG	SE	4	49	26	99	2	2	1	2	7	4	43	2	122
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	ST. CROP	29	102	73	4	20	5	30	1	26	142	132	41	605
25AUG	SE	13	52	26	4	11	5	30	1	22	60	55	23	110
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	ST. CROP	11	85	184	13	1	2	18	2	3	0	30	6	355
09SEP	SE	6	31	85	8	1	2	8	2	3	0	23	6	95
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
19SEP-	ST. CROP	66	157	5611	24	2	0	0	1	2	2	65	0	5929
22SEP	SE	64	40	5609	15	1	0	0	1	2	2	36	0	5609
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	ST. CROP	32	15	13	20	3	0	14	1	9	0	0	2	109
07OCT	SE	12	6	6	20	2	0	8	1	5	0	0	2	27
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17OCT-	ST. CROP	8	13	2	4	1	0	18	0	0	0	2	0	48
19OCT	SE	8	6	2	4	1	0	13	<0.5	0	0	2	0	16
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31OCT-	ST. CROP	3	13	17	6	0	2	6	3	0	0	8	14	71
02NOV	SE	3	8	12	6	0	2	4	2	0	0	5	8	19
	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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	DENSITY	0.00	0.00	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	DENSITY	0.00	0.00	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	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	DENSITY	0.00	0.00	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
28JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
10AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
24AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
08SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
22SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
05OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-34 REGIONAL STANDING CROP (IN THOUSANDS) OF ATLANTIC TOMCOD YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
30APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
06MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
13MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	ST. CROP	NS	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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
27MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	ST. CROP	NS	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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	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	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
10AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
24AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
08SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
22SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-35 REGIONAL DENSITY (NO./1,000m3) OF ATLANTIC TOMCOD POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	DENSITY	NS	3.62	0.17	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.34
15APR	SE		0.86	0.17	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.91
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	DENSITY	NS	1.99	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19
22APR	SE		0.79	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.82
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	DENSITY	NS	1997.40	1868.61	1.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	322.28
30APR	SE		216.20	1618.94	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1633.31
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	DENSITY	NS	1064.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	88.68
06MAY	SE		682.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	682.29
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	DENSITY	NS	118.24	20.86	8.94	9.86	0.00	0.00	1.63	0.00	0.00	0.00	0.00	0.40	13.33
13MAY	SE		60.54	10.05	5.03	8.34	0.00	0.00	1.10	0.00	0.00	0.00	0.00	0.40	62.15
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	DENSITY	NS	85.96	6.29	1.83	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.86
20MAY	SE		48.42	6.29	1.23	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.84
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	DENSITY	NS	16.07	1.19	0.31	0.00	0.00	1.50	0.00	0.00	0.00	0.00	0.00	0.00	1.59
27MAY	SE		7.63	0.91	0.31	0.00	0.00	1.50	0.00	0.00	0.00	0.00	0.00	0.00	7.83
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	DENSITY	1.16	0.00	1.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17
10JUN	SE	1.16	0.00	1.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.55
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	DENSITY	0.00	0.00	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	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	DENSITY	0.00	0.00	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
28JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
10AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
24AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
08SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
22SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
05OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-36 REGIONAL STANDING CROP (IN THOUSANDS) OF ATLANTIC TOMCOD POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	ST. CROP	NS	831	55	37	0	0	0	0	0	0	0	0	0	922
15APR	SE		197	55	37	0	0	0	0	0	0	0	0	0	208
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	ST. CROP	NS	457	0	34	0	0	0	0	0	0	0	0	0	491
22APR	SE		182	0	34	0	0	0	0	0	0	0	0	0	185
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	ST. CROP	NS	458243	601341	204	0	0	0	0	0	0	0	0	0	1059788
30APR	SE		49600	520992	81	0	0	0	0	0	0	0	0	0	523348
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	ST. CROP	NS	244128	0	0	0	0	0	0	0	0	0	0	0	244128
06MAY	SE		156530	0	0	0	0	0	0	0	0	0	0	0	156530
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	ST. CROP	NS	27127	6713	1321	2055	0	0	486	0	0	0	0	29	37731
13MAY	SE		13890	3234	743	1737	0	0	327	0	0	0	0	29	14390
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	ST. CROP	NS	19721	2025	271	42	0	0	0	0	0	0	0	0	22059
20MAY	SE		11108	2025	181	42	0	0	0	0	0	0	0	0	11292
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	ST. CROP	NS	3687	382	46	0	0	210	0	0	0	0	0	0	4324
27MAY	SE		1750	292	46	0	0	210	0	0	0	0	0	0	1787
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	ST. CROP	NS	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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	ST. CROP	242	0	331	0	0	0	0	0	0	0	0	0	0	573
10JUN	SE	242	0	331	0	0	0	0	0	0	0	0	0	0	410
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	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	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
10AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
24AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
08SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
22SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-37 REGIONAL DENSITY (NO./1,000m3) OF ATLANTIC TOMCOD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	DENSITY	NS	557.49	0.43	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.52
06MAY	SE		494.12	0.43	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	494.12
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	DENSITY	NS	152.77	55.92	21.29	154.89	12.89	5.59	1.38	0.00	0.00	0.00	0.00	0.00	33.73
13MAY	SE		55.36	28.33	10.25	84.65	5.53	2.83	0.69	0.00	0.00	0.00	0.00	0.00	105.72
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	DENSITY	NS	365.77	1.99	10.84	1.31	0.46	1.33	0.57	0.38	0.00	0.00	0.00	0.00	31.89
20MAY	SE		162.83	0.92	3.60	1.01	0.46	0.65	0.57	0.38	0.00	0.00	0.00	0.00	162.87
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	DENSITY	NS	54.75	18.25	7.17	13.87	11.20	0.70	0.00	0.17	0.70	0.00	0.00	0.00	8.90
27MAY	SE		16.71	3.24	3.91	5.20	4.12	0.51	0.00	0.17	0.70	0.00	0.00	0.00	18.71
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	DENSITY	NS	28.30	106.22	1.85	10.53	5.13	1.07	1.67	0.00	0.00	0.00	0.00	0.00	12.90
04JUN	SE		13.80	52.31	0.74	4.73	2.21	0.58	0.93	0.00	0.00	0.00	0.00	0.00	54.36
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	DENSITY	303.43	82.63	31.54	13.75	10.09	18.13	2.44	0.65	0.14	0.60	0.00	0.00	0.00	35.65
10JUN	SE	225.27	25.88	8.29	3.12	4.14	6.05	0.95	0.42	0.14	0.60	0.00	0.00	0.00	227.04
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	DENSITY	70.01	26.56	9.87	18.57	9.85	2.93	4.51	2.22	0.63	0.31	0.64	0.00	0.00	11.24
16JUN	SE	34.19	6.50	3.12	5.35	3.73	0.95	2.32	1.95	0.38	0.31	0.64	0.00	0.00	35.70
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	DENSITY	416.35	56.63	6.00	4.46	3.95	18.04	2.77	7.63	0.35	0,00	0.00	0.00	0.00	39.71
23JUN	SE	412.12	12.26	1.84	0.94	1.66	3.38	0.99	1.02	0.35	0.00	0.00	0.00	0.00	412.33
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	DENSITY	10.13	11.13	1.24	1.04	6.85	2.97	2.38	3.82	0.00	0.33	0.00	0.00	0.00	3.07
01JUL	SE	4.68	6.80	0.49	0.20	3.08	1.51	0.68	1.67	0.00	0.33	0.00	0.00	0.00	9.14
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	DENSITY	34.90	19.12	4.34	12.70	4.94	10.52	8.10	0.00	0.00	0.00	0.00	0.00	0.00	7.28
08JUL	SE	5.18	13.67	1.95	2.45	1.49	3.67	5.72	0.00	0.00	0.00	0.00	0.00	0.00	16.49
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	DENSITY	66.88	24.29	2.51	6.01	3.91	6.76	0.00	0.00	NS	NS	NS	NS	NS	13.79
14JUL	SE	5.03	22.05	1.17	0.68	2.36	6.04	0.00	0.00						23.56
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	DENSITY	0.32	0.00	0.00	0.00	2.14	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.31
28JUL	SE	0.32	0.00	0.00	0.00	1.21	0.00	0.00	0.00						1.26
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	DENSITY	21.01	4.84	1.04	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	3.36
10AUG	SE	7.67	2.80	0.57	0.00	0.00	0.00	0.00	0.00						8.19
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	DENSITY	1.41	1.10	0.00	0.00	0.31	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.35
24AUG	SE	1.41	1.10	0.00	0.00	0.16	0.00	0.00	0.00						1.80
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	DENSITY	2.55	0.00	0.00	0.00	1.36	0.14	0.27	0.26	NS	NS	NS	NS	NS	0.57
08SEP	SE	2.55	0.00	0.00	0.00	0.72	0.14	0.27	0.26						2.68
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	DENSITY	0.00	0.00	0.00	0.00	0.30	0.00	0.51	0.00	NS	NS	NS	NS	NS	0.10
22SEP	SE	0.00	0.00	0.00	0.00	0.30	0.00	0.51	0.00						0.59
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	DENSITY	0.00	0.00	0.55	0.00	0.19	0.87	0.59	1.61	NS	NS	NS	NS	NS	0.48
05OCT	SE	0.00	0.00	0.55	0.00	0.19	0.87	0.59	1.25						1.74
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-38 REGIONAL STANDING CROP (IN THOUSANDS) OF ATLANTIC TOMCOD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
30APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	ST. CROP	NS	127899	139	41	0	0	0	0	0	0	0	0	0	128078
06MAY	SE		113362	139	41	0	0	0	0	0	0	0	0	0	113362
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	ST. CROP	NS	35048	17994	3145	32268	2675	781	412	0	0	0	0	0	92324
13MAY	SE		12702	9117	1514	17636	1147	395	206	0	0	0	0	0	23649
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	ST. CROP	NS	83914	641	1601	272	95	186	169	63	0	0	0	0	86942
20MAY	SE		37356	295	532	210	95	91	169	63	0	0	0	0	37362
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	ST. CROP	NS	12561	5872	1059	2889	2323	99	0	29	99	0	0	0	24931
27MAY	SE		3834	1043	578	1084	855	71	0	29	99	0	0	0	4248
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	ST. CROP	NS	6492	34182	273	2193	1065	149	497	0	0	0	0	0	44851
04JUN	SE		3165	16834	109	985	458	81	278	0	0	0	0	0	17166
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	ST. CROP	63421	18956	10150	2032	2103	3761	341	195	23	84	0	0	0	101065
10JUN	SE	47084	5936	2669	461	862	1255	133	124	23	84	0	0	0	47558
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	ST. CROP	14633	6094	3177	2743	2052	608	630	662	104	44	113	0	0	30860
16JUN	SE	7147	1492	1002	790	777	196	324	582	63	44	113	0	0	7486
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	ST. CROP	87022	12992	1930	659	822	3743	388	2275	58	0	0	0	0	109890
23JUN	SE	86139	2813	593	138	346	701	139	304	58	0	0	0	0	86191
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	ST. CROP	2116	2554	400	153	1428	615	332	1139	0	47	0	0	0	8786
01JUL	SE	978	1560	158	29	642	314	95	497	0	47	0	0	0	2046
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	ST. CROP	7294	4387	1397	1876	1029	2183	1132	0	0	0	0	0	0	19297
08JUL	SE	1083	3137	628	362	310	761	799	0	0	0	0	0	0	3585
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	ST. CROP	13979	5572	809	887	814	1403	0	0	NS	NS	NS	NS	NS	23464
14JUL	SE	1050	5058	376	101	491	1253	0	0						5352
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	ST. CROP	66	0	0	0	445	0	0	0	NS	NS	NS	NS	NS	511
28JUL	SE	66	0	0	0	253	0	0	0						262
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	ST. CROP	4391	1111	333	0	0	0	0	0	NS	NS	NS	NS	NS	5835
10AUG	SE	1603	643	183	0	0	0	0	0						1737
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	ST. CROP	294	253	0	0	65	0	0	0	NS	NS	NS	NS	NS	613
24AUG	SE	294	253	0	0	33	0	0	0						390
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	ST. CROP	532	0	0	0	283	29	37	78	NS	NS	NS	NS	NS	960
08SEP	SE	532	0	0	0	150	29	37	78						560
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	ST. CROP	0	0	0	0	63	0	71	0	NS	NS	NS	NS	NS	133
22SEP	SE	0	0	0	0	63	0	71	0						94
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	ST. CROP	0	0	176	0	40	181	82	480	NS	NS	NS	NS	NS	959
05OCT	SE	0	0	176	0	40	181	82	374						460
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-39 REGIONAL DENSITY (NO./1,000m3) OF ATLANTIC TOMCOD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	DENSITY	1.76	1.57	1.08	3.40	14.18	3.11	0.00	0.00	0.00	0.00	0.00	0.00	2.09
21JUL	SE	0.69	0.77	0.32	1.25	9.67	1.88	0.00	0.00	0.00	0.00	0.00	0.00	9.99
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
01AUG-	DENSITY	0.13	0.02	0.02	0.02	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
05AUG	SE	0.06	0.02	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
15AUG-	DENSITY	1.88	0.34	0.10	0.22	0.68	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.27
19AUG	SE	0.81	0.25	0.05	0.15	0.68	0.04	0.00	0.00	0.00	0.00	0.00	0.00	1.10
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	DENSITY	0.07	0.23	0.04	0.52	0.12	0.09	0.00	0.06	0.03	0.00	0.00	0.00	0.10
02SEP	SE	0.05	0.10	0.02	0.21	0.04	0.06	0.00	0.06	0.03	0.00	0.00	0.00	0.26
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	DENSITY	1.44	0.29	0.34	0.30	0.44	0.57	0.22	0.04	0.21	0.00	0.00	0.00	0.32
16SEP	SE	0.32	0.06	0.17	0.17	0.16	0.12	0.10	0.02	0.09	0.00	0.00	0.00	0.47
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	DENSITY	0.22	0.07	0.00	0.17	1.09	0.54	0.30	0.12	0.14	0.05	0.00	0.00	0.23
30SEP	SE	0.08	0.02	0.00	0.05	0.49	0.20	0.27	0.05	0.06	0.03	0.00	0.00	0.61
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	DENSITY	0.98	0.80	0.47	0.52	1.17	0.30	0.36	0.55	0.05	0.33	0.02	0.00	0.46
14OCT	SE	0.19	0.19	0.14	0.15	0.34	0.22	0.16	0.20	0.03	0.11	0.02	0.00	0.60
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24OCT-	DENSITY	0.98	0.40	0.05	0.22	1.08	0.22	0.26	0.08	0.07	0.38	0.00	0.00	0.31
27OCT	SE	0.24	0.13	0.02	0.05	0.44	0.10	0.11	0.03	0.05	0.13	0.00	0.00	0.56
	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	ST. CROP	405	505	159	709	2942	434	0	0	0	0	0	0	5154
21JUL	SE	158	248	48	260	2006	263	0	0	0	0	0	0	2062
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
01AUG-	ST. CROP	30	7	3	4	5	0	0	0	0	0	0	0	49
05AUG	SE	14	7	3	4	3	0	0	0	0	0	0	0	17
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
15AUG-	ST. CROP	432	109	14	47	142	5	0	0	0	0	0	0	749
19AUG	SE	185	80	7	31	142	5	0	0	0	0	0	0	249
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	ST. CROP	16	74	5	109	25	13	0	10	4	0	0	0	256
02SEP	SE	12	34	4	43	8	9	0	10	4	0	0	0	58
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	ST. CROP	331	93	51	61	91	80	67	6	29	0	0	0	809
16SEP	SE	74	20	25	35	33	17	30	4	13	0	0	0	101
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	ST. CROP	51	24	0	35	226	75	91	20	19	9	0	0	549
30SEP	SE	19	7	0	11	101	27	81	8	8	5	0	0	135
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	ST. CROP	224	258	69	109	243	42	108	91	6	58	3	0	1213
14OCT	SE	43	61	21	32	71	30	48	33	4	20	3	0	130
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24OCT-	ST. CROP	226	129	8	47	224	31	77	13	10	67	0	0	831
27OCT	SE	55	41	4	10	92	13	31	4	7	24	0	0	123
	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	CPUE	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
30JUN	SE	0.00	0.00	0.00	1.00	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
11JUL-	CPUE	0.00	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
14JUL	SE	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	3	11	7	3	3	3	8	8	8	15	19	12	100
25JUL-	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
27JUL	SE	0.00	0.00	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
08AUG-	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
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	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	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
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	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	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
09SEP	SE	0.00	0.00	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
19SEP-	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
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	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	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
07OCT	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
17OCT-	CPUE	0.00	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
19OCT	SE	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31OCT-	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
02NOV	SE	0.00	0.00	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	ST. CROP	0	0	0	9	0	0	0	0	0	0	0	0	9
30JUN	SE	0	0	0	9	0	0	0	0	0	0	0	0	9
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
11JUL-	ST. CROP	0	8	0	0	0	0	0	0	0	0	0	0	8
14JUL	SE	0	8	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
25JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
27JUL	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
08AUG-	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	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	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	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
09SEP	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
19SEP-	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	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	ST. CROP	2	0	0	0	0	0	0	0	0	0	0	0	2
07OCT	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
17OCT-	ST. CROP	0	6	0	0	0	0	0	0	0	0	0	0	6
19OCT	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
31OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
02NOV	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21JUL	SE	0.00	0.00	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
01AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05AUG	SE	0.00	0.00	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
15AUG-	DENSITY	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
19AUG	SE	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	DENSITY	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<0.005
02SEP	SE	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	DENSITY	0.00	0.00	0.00	0.02	0.00	0.00	0.03	0.02	0.00	0.00	0.00	0.00	0.01
16SEP	SE	0.00	0.00	0.00	0.02	0.00	0.00	0.03	0.02	0.00	0.00	0.00	0.00	0.04
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.00	<0.005
30SEP	SE	0.00	0.00	0.00	0.00	0.00	0.03	0.03	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
10OCT-	DENSITY	0.30	0.08	0.00	0.08	0.07	0.07	0.03	0.00	0.00	0.00	0.00	0.00	0.05
14OCT	SE	0.15	0.04	0.00	0.04	0.02	0.07	0.03	0.00	0.00	0.00	0.00	0.00	0.17
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24OCT-	DENSITY	0.28	0.07	0.00	0.04	0.11	0.06	0.03	0.00	0.02	0.02	0.00	0.00	0.05
27OCT	SE	0.12	0.03	0.00	0.04	0.04	0.04	0.03	0.00	0.02	0.02	0.00	0.00	0.15
	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
21JUL	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
01AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
05AUG	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
15AUG-	ST. CROP	31	0	0	0	0	0	0	0	0	0	0	0	31
19AUG	SE	28	0	0	0	0	0	0	0	0	0	0	0	28
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	ST. CROP	10	0	0	0	0	0	0	0	0	0	0	0	10
02SEP	SE	10	0	0	0	0	0	0	0	0	0	0	0	10
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	ST. CROP	0	0	0	5	0	0	8	3	0	0	0	0	16
16SEP	SE	0	0	0	5	0	0	8	3	0	0	0	0	10
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	ST. CROP	0	0	0	0	0	4	8	0	0	0	0	0	13
30SEP	SE	0	0	0	0	0	4	8	0	0	0	0	0	9
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	ST. CROP	69	25	0	16	15	9	8	0	0	0	0	0	141
14OCT	SE	34	13	0	7	5	9	8	0	0	0	0	0	39
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24OCT-	ST. CROP	65	24	0	9	24	9	9	0	3	3	0	0	145
27OCT	SE	27	9	0	7	9	5	9	0	3	3	0	0	33
	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	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
30JUN	SE	0.00	0.00	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
11JUL-	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
14JUL	SE	0.00	0.00	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
25JUL-	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
27JUL	SE	0.00	0.00	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
08AUG-	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
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	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	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
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	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	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
09SEP	SE	0.00	0.00	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
19SEP-	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
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	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	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
07OCT	SE	0.00	0.00	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
17OCT-	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
19OCT	SE	0.00	0.00	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
31OCT-	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
02NOV	SE	0.00	0.00	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
30JUN	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
11JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
14JUL	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
25JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
27JUL	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
08AUG-	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	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	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	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
09SEP	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
19SEP-	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	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
07OCT	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
17OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
19OCT	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
31OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
02NOV	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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	DENSITY	NS	80.26	10.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.57
27MAY	SE		36.42	4.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	36.76
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	DENSITY	NS	111.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.26
04JUN	SE		107.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	107.82
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	DENSITY	14859.18	34248.42	16422.27	159.79	399.03	0.00	0.00	0.65	1.55	0.00	0.33	0.00	0.00	5083.94
10JUN	SE	3986.18	15685.52	5627.05	51.84	369.84	0.00	0.00	0.65	1.55	0.00	0.33	0.00	0.00	17138.51
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	DENSITY	62822.19	12393.35	17.69	0.43	0.87	0.98	0.00	1.71	0.00	0.76	0.32	0.57	0.00	5787.60
16JUN	SE	11182.90	6915.16	11.19	0.43	0.87	0.98	0.00	1.21	0.00	0.76	0.32	0.57	0.00	13148.27
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

TABLE C-47 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF BAY ANCHOVY EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	DENSITY	40990.95	110835.4	13143.05	1.53	0.40	1.64	0.00	0.00	0.69	18.32	0.00	0.96	0.64	12691.82
23JUN	SE	14385.89	48953.14	8238.38	1.07	0.25	1.09	0.00	0.00	0.56	18.32	0.00	0.96	0.64	51683.99
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	DENSITY	98344.82	9012.57	5.29	3.70	0.00	0.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8259.00
01JUL	SE	43588.68	4053.31	2.79	2.76	0.00	0.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43776.73
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	DENSITY	44133.38	104647.1	27113.16	270.72	146.07	5.47	0.00	0.58	0.00	0.00	0.00	0.00	0.57	13562.85
08JUL	SE	17919.96	15060.45	12328.91	98.28	50.28	5.47	0.00	0.58	0.00	0.00	0.00	0.00	0.57	26456.69
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	DENSITY	105887.8	133671.7	32936.78	87.27	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	34072.94
14JUL	SE	32057.96	40521.24	17339.33	34.55	0.00	0.00	0.00	0.00						54500.80
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	DENSITY	1294.88	215.44	0.92	0.22	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	188.93
28JUL	SE	121.97	22.14	0.46	0.22	0.00	0.00	0.00	0.00						123.96
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	DENSITY	2018.07	5267.63	601.05	15.72	0.00	0.00	1.93	0.00	NS	NS	NS	NS	NS	988.05
10AUG	SE	670.76	1127.35	458.75	8.28	0.00	0.00	1.93	0.00						1389.74
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
24AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
08SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
22SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
05OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-48 REGIONAL STANDING CROP (IN THOUSANDS) OF BAY ANCHOVY EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
30APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
06MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
13MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	ST. CROP	NS	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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	ST. CROP	NS	18414	3402	0	0	0	0	0	0	0	0	0	0	21816
27MAY	SE		8356	1595	0	0	0	0	0	0	0	0	0	0	8507
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	ST. CROP	NS	25505	0	0	0	0	0	0	0	0	0	0	0	25505
04JUN	SE		24737	0	0	0	0	0	0	0	0	0	0	0	24737
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	ST. CROP	3105760	7857281	5284874	23607	83132	0	0	194	257	0	59	0	0	16355163
10JUN	SE	833162	3598577	1810849	7659	77052	0	0	194	257	0	59	0	0	4114497
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	ST. CROP	13130642	2843285	5694	63	182	202	0	509	0	107	56	91	0	15980833
16JUN	SE	2337371	1586479	3603	63	182	202	0	360	0	107	56	91	0	2824931
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

TABLE C-48 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF BAY ANCHOVY EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	ST. CROP	8567636	25427899	4229585	226	83	340	0	0	114	2592	0	154	46	38228675
23JUN	SE	3006837	11230844	2651206	158	51	226	0	0	92	2592	0	154	46	11924840
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	ST. CROP	20555333	2067667	1703	546	0	120	0	0	0	0	0	0	0	22625370
01JUL	SE	9110597	929910	899	408	0	120	0	0	0	0	0	0	0	9157932
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	ST. CROP	9224444	24008159	8725327	39995	30431	1135	0	173	0	0	0	0	40	42029705
08JUL	SE	3745502	3455174	3967585	14520	10474	1135	0	173	0	0	0	0	40	6458255
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	ST. CROP	22131912	30667003	10599434	12893	0	0	0	0	NS	NS	NS	NS	NS	63411242
14JUL	SE	6700527	9296395	5579995	5104	0	0	0	0						12745838
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	ST. CROP	270646	49427	295	33	0	0	0	0	NS	NS	NS	NS	NS	320401
28JUL	SE	25493	5079	149	33	0	0	0	0						25994
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	ST. CROP	421803	1208501	193425	2322	0	0	270	0	NS	NS	NS	NS	NS	1826321
10AUG	SE	140197	258638	147633	1223	0	0	270	0						329159
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
24AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
08SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
22SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-49 REGIONAL DENSITY (NO./1,000m3) OF BAY ANCHOVY YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	DENSITY	11.43	1.54	1.79	2.64	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40
10JUN	SE	8.58	0.82	1.46	2.64	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.17
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	DENSITY	0.00	3.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28
16JUN	SE	0.00	3.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.69
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	DENSITY	0.00	2.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19
23JUN	SE	0.00	1.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.91
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	DENSITY	0.00	1.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11
01JUL	SE	0.00	1.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.41
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	DENSITY	36.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.83
08JUL	SE	36.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	36.75
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
28JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
10AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
24AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
08SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
22SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
05OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-50 REGIONAL STANDING CROP (IN THOUSANDS) OF BAY ANCHOVY YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
30APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
06MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
13MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	ST. CROP	NS	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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
27MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	ST. CROP	NS	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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	ST. CROP	2390	353	577	390	166	0	0	0	0	0	0	0	0	3876
10JUN	SE	1794	187	469	390	166	0	0	0	0	0	0	0	0	1912
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	ST. CROP	0	847	0	0	0	0	0	0	0	0	0	0	0	847
16JUN	SE	0	847	0	0	0	0	0	0	0	0	0	0	0	847
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	ST. CROP	0	568	0	0	0	0	0	0	0	0	0	0	0	568
23JUN	SE	0	438	0	0	0	0	0	0	0	0	0	0	0	438
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	ST. CROP	0	324	0	0	0	0	0	0	0	0	0	0	0	324
01JUL	SE	0	324	0	0	0	0	0	0	0	0	0	0	0	324
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	ST. CROP	7681	0	0	0	0	0	0	0	0	0	0	0	0	7681
08JUL	SE	7681	0	0	0	0	0	0	0	0	0	0	0	0	7681
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
10AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
24AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
08SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
22SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-51 REGIONAL DENSITY (NO./1,000m3) OF BAY ANCHOVY POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	DENSITY	19.86	20.45	23.43	37.17	0.79	0.00	0.00	1.08	0.00	0.00	0.00	0.00	0.00	7.91
10JUN	SE	9.16	10.88	14.90	23.28	0.65	0.00	0.00	1.08	0.00	0.00	0.00	0.00	0.00	31.11
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	DENSITY	893.19	125.60	271.24	249.85	54.40	8.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	123.30
16JUN	SE	483.42	51.42	76.36	70.65	22.34	6.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	497.70
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	DENSITY	2779.26	2286.99	1756.78	2009.22	2790.98	5.11	14.52	0.00	13.12	0.00	0.00	0.00	0.00	896.61
23JUN	SE	632.86	1059.92	593.01	198.57	463.90	3.13	12.80	0.00	13.12	0.00	0.00	0.00	0.00	1459.66
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	DENSITY	6909.88	2411.64	4007.43	8034.98	324.25	0.62	0.00	0.41	0.00	0.00	0.00	0.00	0.00	1668.40
01JUL	SE	288.34	417.46	594.34	1099.25	111.49	0.52	0.00	0.41	0.00	0.00	0.00	0.00	0.00	1353.30
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	DENSITY	12331.94	7834.48	9545.41	27086.66	16688.56	363.88	2.05	0.95	0.00	0.00	0.00	0.00	0.00	5681.07
08JUL	SE	1840.27	1957.22	2385.92	2739.23	4007.91	220.36	1.67	0.79	0.00	0.00	0.00	0.00	0.00	6043.61
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	DENSITY	12091.43	22322.14	22194.70	44367.45	8768.99	920.99	463.16	66.54	NS	NS	NS	NS	NS	13899.43
14JUL	SE	5875.89	7796.22	5360.93	4796.12	2306.44	762.50	78.87	19.04						12367.58
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	DENSITY	8253.32	8509.80	9251.68	5677.06	1655.34	235.22	308.64	94.60	NS	NS	NS	NS	NS	4248.21
28JUL	SE	3287.99	985.09	2084.55	1471.54	444.18	30.84	130.28	17.41						4302.04
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	DENSITY	2556.56	811.81	887.12	878.99	745.00	295.08	131.39	69.29	NS	NS	NS	NS	NS	796.90
10AUG	SE	971.74	216.08	282.50	184.26	236.13	91.42	18.52	20.81						1081.48
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	DENSITY	170.47	346.47	372.47	214.78	140.30	81.16	84.58	27.29	NS	NS	NS	NS	NS	179.69
24AUG	SE	77.06	134.23	41.11	88.50	38.58	28.07	71.21	16.84						202.76
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	DENSITY	10.96	181.94	199.76	1462.81	855.08	19.01	15.43	5.76	NS	NS	NS	NS	NS	343.84
08SEP	SE	5.07	19.32	49.00	277.34	484.89	8.03	5.29	2.16						561.20
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	DENSITY	337.44	105.16	320.38	101.18	110.55	33.73	20.32	6.26	NS	NS	NS	NS	NS	129.38
22SEP	SE	147.20	18.80	89.99	27.57	34.57	26.94	13.16	1.95						181.60
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	DENSITY	154.07	95.24	40.46	103.80	41.51	2.44	1.34	1.02	NS	NS	NS	NS	NS	54.99
05OCT	SE	71.06	29.93	4.65	16.35	18.07	1.64	1.18	0.80						81.02
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-52 REGIONAL STANDING CROP (IN THOUSANDS) OF BAY ANCHOVY POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
30APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
06MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
13MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	ST. CROP	NS	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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
27MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	ST. CROP	NS	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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	ST. CROP	4151	4693	7539	5491	164	0	0	323	0	0	0	0	0	22361
10JUN	SE	1914	2496	4795	3440	135	0	0	323	0	0	0	0	0	6696
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	ST. CROP	186688	28816	87289	36911	11334	1780	0	0	0	0	0	0	0	352820
16JUN	SE	101041	11798	24573	10438	4653	1310	0	0	0	0	0	0	0	105284
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	ST. CROP	580900	524683	565353	296836	581462	1061	2029	0	2172	0	0	0	0	2554496
23JUN	SE	132276	243168	190838	29336	96648	650	1789	0	2172	0	0	0	0	351080
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	ST. CROP	1444253	553278	1289637	1187062	67552	129	0	121	0	0	0	0	0	4542032
01JUL	SE	60266	95773	191264	162399	23228	108	0	121	0	0	0	0	0	276223
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	ST. CROP	2577535	1797389	3071823	4001695	3476832	75489	287	284	0	0	0	0	0	15001334
08JUL	SE	384641	449025	767816	404685	834994	45715	233	235	0	0	0	0	0	1342456
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	ST. CROP	2527265	5121153	7142509	6554704	1826898	191064	64746	19838	NS	NS	NS	NS	NS	23448176
14JUL	SE	1228137	1788612	1725207	708563	480514	158185	11025	5675						2905499
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	ST. CROP	1725050	1952322	2977295	838711	344866	48799	43145	28205	NS	NS	NS	NS	NS	7958392
28JUL	SE	687233	226000	670831	217401	92538	6397	18212	5190						1014695
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	ST. CROP	534355	186245	285484	129859	155210	61216	18367	20657	NS	NS	NS	NS	NS	1391393
10AUG	SE	203105	49573	90912	27222	49194	18966	2589	6204						235670
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	ST. CROP	35631	79487	119867	31731	29229	16836	11824	8137	NS	NS	NS	NS	NS	332742
24AUG	SE	16107	30796	13230	13074	8038	5822	9955	5021						42150
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	ST. CROP	2290	41741	64285	216110	178144	3943	2157	1718	NS	NS	NS	NS	NS	510388
08SEP	SE	1060	4433	15768	40974	101021	1666	740	643						110260
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	ST. CROP	70529	24126	103102	14947	23032	6998	2840	1868	NS	NS	NS	NS	NS	247443
22SEP	SE	30768	4314	28960	4073	7202	5590	1839	583						43673
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	ST. CROP	32202	21850	13021	15336	8647	507	187	305	NS	NS	NS	NS	NS	92054
05OCT	SE	14852	6866	1496	2416	3764	341	165	238						17034
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-53 REGIONAL DENSITY (NO./1,000m3) OF BAY ANCHOVY YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	DENSITY	0.00	0.00	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.79	0.14
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	1.79	1.79
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	DENSITY	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<0.005
08JUL	SE	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	DENSITY	0.00	1.60	60.05	382.93	10.53	17.95	33.34	0.55	NS	NS	NS	NS	NS	63.37
14JUL	SE	0.00	1.60	30.45	163.49	10.53	11.05	16.35	0.55						167.81
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	DENSITY	247.49	883.08	777.89	196.96	119.51	35.15	157.69	8.24	NS	NS	NS	NS	NS	303.25
28JUL	SE	108.20	205.33	334.45	45.90	38.35	23.99	135.74	7.38						434.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	DENSITY	235.85	888.25	1515.22	1441.27	720.52	248.85	386.46	23.03	NS	NS	NS	NS	NS	682.43
10AUG	SE	41.92	183.24	132.82	331.13	318.88	52.25	134.21	7.06						533.94
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	DENSITY	763.69	566.92	1109.54	612.07	486.40	319.65	212.47	21.63	NS	NS	NS	NS	NS	511.55
24AUG	SE	141.03	162.77	184.03	119.87	136.61	81.50	169.59	12.49						385.80
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	DENSITY	65.10	846.51	683.71	1195.22	248.14	292.34	231.46	47.17	NS	NS	NS	NS	NS	451.21
08SEP	SE	14.67	89.22	313.37	346.57	145.54	117.57	142.67	28.67						531.66
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	DENSITY	124.86	361.54	727.36	726.75	247.85	256.66	165.93	101.45	NS	NS	NS	NS	NS	339.05
22SEP	SE	44.48	77.95	217.16	147.56	68.60	86.02	98.49	46.40						317.72
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	DENSITY	7.25	194.44	952.43	577.72	204.66	104.50	84.43	7.40	NS	NS	NS	NS	NS	266.60
05OCT	SE	3.14	59.57	373.27	216.86	81.45	26.39	13.35	4.89						444.35
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-54 REGIONAL STANDING CROP (IN THOUSANDS) OF BAY ANCHOVY YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
30APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
06MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
13MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	ST. CROP	NS	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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
27MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	ST. CROP	NS	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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	128	128
01JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	128	128
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	ST. CROP	0	0	0	0	9	0	0	0	0	0	0	0	0	9
08JUL	SE	0	0	0	0	9	0	0	0	0	0	0	0	0	9
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	ST. CROP	0	368	19324	56572	2194	3725	4660	163	NS	NS	NS	NS	NS	87008
14JUL	SE	0	368	9798	24153	2194	2293	2286	163						26360
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	ST. CROP	51729	202597	250334	29098	24899	7293	22043	2455	NS	NS	NS	NS	NS	590448
28JUL	SE	22616	47106	107629	6780	7989	4978	18976	2200						121713
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	ST. CROP	49296	203783	487616	212929	150111	51626	54024	6867	NS	NS	NS	NS	NS	1216251
10AUG	SE	8763	42039	42741	48920	66434	10840	18762	2104						104649
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	ST. CROP	159620	130064	357062	90425	101335	66313	29701	6448	NS	NS	NS	NS	NS	940967
24AUG	SE	29477	37342	59222	17709	28461	16908	23707	3723						88068
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	ST. CROP	13607	194207	220026	176578	51696	60647	32356	14064	NS	NS	NS	NS	NS	763180
08SEP	SE	3067	20468	100846	51201	30321	24391	19944	8548						123308
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	ST. CROP	26098	82945	234073	107368	51636	53245	23196	30246	NS	NS	NS	NS	NS	608809
22SEP	SE	9298	17883	69883	21800	14292	17846	13768	13833						81663
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	ST. CROP	1516	44609	306502	85350	42638	21680	11803	2205	NS	NS	NS	NS	NS	516303
05OCT	SE	657	13667	120122	32038	16969	5475	1866	1459						126358
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-55 REGIONAL DENSITY (NO./1,000m3) OF BAY ANCHOVY YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	DENSITY	10.76	656.86	473.50	482.96	72.87	265.78	24.08	7.06	12.97	2.43	1.33	0.18	167.57
21JUL	SE	7.15	309.06	88.63	268.53	47.87	134.74	22.09	4.28	4.86	1.37	0.70	0.18	443.30
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
01AUG-	DENSITY	403.24	296.08	107.75	123.75	12.46	345.24	91.35	0.06	0.05	0.13	0.07	0.00	115.01
05AUG	SE	80.81	63.68	33.22	73.51	4.96	105.79	59.54	0.04	0.05	0.07	0.03	0.00	178.47
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
15AUG-	DENSITY	352.55	382.80	214.04	183.33	344.61	75.26	83.99	58.13	89.65	0.00	0.00	0.00	148.69
19AUG	SE	108.87	91.84	46.09	25.27	204.10	22.01	34.20	27.94	28.78	0.00	0.00	0.00	260.71
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	DENSITY	89.68	111.50	120.03	141.55	31.85	142.95	12.68	14.56	15.90	0.00	0.22	0.23	56.76
02SEP	SE	23.69	17.77	53.11	31.78	16.54	103.14	1.97	5.56	7.68	0.00	0.22	0.23	125.35
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	DENSITY	160.65	89.58	285.28	39.99	235.56	27.79	15.59	4.27	14.68	0.00	0.00	0.00	72.78
16SEP	SE	82.86	26.02	149.48	16.19	34.60	6.49	11.82	3.46	4.02	0.00	0.00	0.00	177.64
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	DENSITY	138.16	34.50	86.49	201.83	102.24	34.79	5.77	0.65	4.07	0.00	0.00	0.00	50.71
30SEP	SE	20.48	12.09	7.80	59.73	39.83	9.62	5.66	0.54	3.37	0.00	0.00	0.00	76.93
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	DENSITY	111.89	85.09	28.93	123.36	3.97	19.03	3.60	1.12	0.05	0.00	0.00	0.00	31.42
14OCT	SE	22.75	11.11	5.52	99.74	2.35	8.35	1.76	1.03	0.03	0.00	0.00	0.00	103.43
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24OCT-	DENSITY	56.05	22.41	19.80	6.13	0.70	1.14	0.78	0.00	0.00	0.00	0.00	0.00	8.92
27OCT	SE	20.70	3.28	7.67	1.40	0.69	0.63	0.67	0.00	0.00	0.00	0.00	0.00	22.39
	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	ST. CROP	2469	211386	69954	100618	15117	37154	7178	1168	1834	429	213	13	447533
21JUL	SE	1641	99460	13094	55945	9931	18836	6586	707	687	241	112	13	117022
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
01AUG-	ST. CROP	92511	95283	15919	25781	2585	48261	27233	10	7	23	10	0	307623
05AUG	SE	18540	20492	4908	15314	1029	14788	17752	7	7	13	6	0	39460
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
15AUG-	ST. CROP	80881	123188	31621	38194	71491	10520	25039	9619	12683	0	0	0	403237
19AUG	SE	24976	29554	6809	5264	42342	3077	10197	4623	4071	0	0	0	59292
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	ST. CROP	20574	35882	17733	29489	6608	19983	3781	2410	2249	0	35	17	138761
02SEP	SE	5436	5720	7847	6621	3431	14418	588	920	1087	0	35	17	19741
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	ST. CROP	36857	28829	42146	8332	48869	3885	4648	706	2077	0	0	0	176349
16SEP	SE	19010	8375	22083	3373	7179	908	3524	572	568	0	0	0	31559
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	ST. CROP	31697	11102	12778	42049	21210	4863	1721	107	576	0	0	0	126103
30SEP	SE	4699	3892	1152	12445	8263	1345	1688	90	476	0	0	0	16328
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	ST. CROP	25671	27383	4274	25701	824	2660	1075	185	7	0	0	0	87779
14OCT	SE	5220	3575	815	20779	488	1167	524	171	4	0	0	0	21780
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24OCT-	ST. CROP	12858	7212	2925	1278	145	160	231	0	0	0	0	0	24809
27OCT	SE	4749	1055	1132	291	142	88	201	0	0	0	0	0	5010
	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	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
30JUN	SE	0.00	0.00	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
11JUL-	CPUE	3.33	45.00	0.14	2.67	0.33	0.00	0.00	0.25	0.00	0.00	0.00	0.00	4.31
14JUL	SE	1.20	17.94	0.14	2.67	0.33	0.00	0.00	0.25	0.00	0.00	0.00	0.00	18.18
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
25JUL-	CPUE	95.33	67.73	0.57	0.00	72.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19.66
27JUL	SE	8.41	46.08	0.57	0.00	72.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	86.18
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
08AUG-	CPUE	40.60	67.04	0.00	32.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.67
11AUG	SE	20.71	36.26	0.00	32.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	52.85
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	CPUE	12.40	0.92	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.13
25AUG	SE	7.15	0.60	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.17
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	CPUE	23.00	37.58	0.00	23.20	26.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.20
09SEP	SE	15.32	25.95	0.00	22.46	26.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.05
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
19SEP-	CPUE	16.60	64.63	0.14	112.20	7.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.78
22SEP	SE	7.50	31.90	0.14	71.58	7.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	79.11
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	CPUE	84.40	23.21	0.00	0.00	259.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	30.55
07OCT	SE	81.41	12.72	0.00	0.00	245.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	258.67
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17OCT-	CPUE	0.40	18.63	9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.34
19OCT	SE	0.40	10.74	9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.02
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31OCT-	CPUE	0.40	1.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12
02NOV	SE	0.40	0.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70
	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
30JUN	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
11JUL-	ST. CROP	25	2045	4	25	1	0	0	0	0	0	0	0	2099
14JUL	SE	9	815	4	25	1	0	0	<0.5	0	0	0	0	816
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
25JUL-	ST. CROP	718	3077	15	0	191	0	0	0	0	0	0	0	4001
27JUL	SE	63	2094	15	0	191	0	0	0	0	0	0	0	2103
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
08AUG-	ST. CROP	306	3046	0	299	0	0	0	0	0	0	0	0	3650
11AUG	SE	156	1647	0	299	0	0	0	0	0	0	0	0	1681
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	ST. CROP	93	42	0	0	1	0	0	0	0	0	0	0	136
25AUG	SE	54	27	0	0	1	0	0	0	0	0	0	0	60
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	ST. CROP	173	1708	0	214	70	0	0	0	0	0	0	0	2165
09SEP	SE	115	1179	0	207	70	0	0	0	0	0	0	0	1205
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
19SEP-	ST. CROP	125	2936	4	1034	21	0	0	0	0	0	0	0	4120
22SEP	SE	56	1449	4	660	21	0	0	0	0	0	0	0	1594
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	ST. CROP	636	1054	0	0	683	0	0	0	0	0	0	0	2373
07OCT	SE	613	578	0	0	646	0	0	0	0	0	0	0	1062
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17OCT-	ST. CROP	3	846	242	0	0	0	0	0	0	0	0	0	1091
19OCT	SE	3	488	242	0	0	0	0	0	0	0	0	0	545
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31OCT-	ST. CROP	3	47	0	0	0	0	0	0	0	0	0	0	50
02NOV	SE	3	26	0	0	0	0	0	0	0	0	0	0	26
	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	DENSITY	49.29	38.46	0.96	9.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.15
21JUL	SE	18.65	11.60	0.75	7.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23.07
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
01AUG-	DENSITY	3.56	1.12	0.20	0.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47
05AUG	SE	1.63	0.43	0.08	0.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.84
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
15AUG-	DENSITY	7.44	3.35	0.54	0.04	6.47	0.60	0.00	0.00	0.00	0.00	0.00	0.00	1.54
19AUG	SE	2.14	0.98	0.51	0.02	3.35	0.60	0.00	0.00	0.00	0.00	0.00	0.00	4.16
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	DENSITY	1.56	0.95	0.43	0.04	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.25
02SEP	SE	0.77	0.32	0.38	0.03	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.92
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	DENSITY	4.90	3.64	5.01	3.61	5.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.87
16SEP	SE	2.10	1.52	3.08	2.21	4.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.15
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	DENSITY	1.31	0.19	0.21	11.15	3.74	0.02	0.00	0.00	0.00	0.00	0.00	0.00	1.38
30SEP	SE	0.99	0.06	0.06	9.17	1.98	0.01	0.00	0.00	0.00	0.00	0.00	0.00	9.44
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	DENSITY	8.23	3.23	0.34	0.04	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.99
14OCT	SE	1.83	0.73	0.10	0.04	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.97
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24OCT-	DENSITY	1.09	0.52	0.16	0.09	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16
27OCT	SE	0.27	0.17	0.07	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

TABLE C-60 REGIONAL STANDING CROP (IN THOUSANDS) OF BAY ANCHOVY YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	ST. CROP	11308	12377	142	1892	0	0	0	0	0	0	0	0	25720
21JUL	SE	4279	3732	111	1466	0	0	0	0	0	0	0	0	5865
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
01AUG-	ST. CROP	817	359	29	160	0	0	0	0	0	0	0	0	1365
05AUG	SE	374	139	12	150	0	0	0	0	0	0	0	0	427
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
15AUG-	ST. CROP	1707	1078	80	7	1343	83	0	0	0	0	0	0	4299
19AUG	SE	491	316	75	4	694	83	0	0	0	0	0	0	914
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	ST. CROP	358	306	63	8	0	9	0	0	0	0	0	0	745
02SEP	SE	177	102	55	5	0	9	0	0	0	0	0	0	212
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	ST. CROP	1124	1173	740	753	1088	0	0	0	0	0	0	0	4878
16SEP	SE	483	489	456	460	848	0	0	0	0	0	0	0	1269
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	ST. CROP	302	60	31	2322	776	2	0	0	0	0	0	0	3493
30SEP	SE	227	18	10	1911	411	1	0	0	0	0	0	0	1968
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	ST. CROP	1888	1039	51	8	6	0	0	0	0	0	0	0	2992
14OCT	SE	419	236	15	8	6	0	0	0	0	0	0	0	482
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24OCT-	ST. CROP	251	167	24	19	3	0	0	0	0	0	0	0	464
27OCT	SE	63	56	10	11	3	0	0	0	0	0	0	0	85
	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	CPUE	0.33	11.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.01
30JUN	SE	0.33	4.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.23
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
11JUL-	CPUE	0.00	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
14JUL	SE	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
25JUL-	CPUE	0.67	1.82	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23
27JUL	SE	0.33	0.94	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.05
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
08AUG-	CPUE	10.40	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.88
11AUG	SE	10.40	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.40
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	CPUE	0.20	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
25AUG	SE	0.20	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	CPUE	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
09SEP	SE	0.40	0.00	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
19SEP-	CPUE	0.80	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09
22SEP	SE	0.80	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.81
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	CPUE	2.20	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19
07OCT	SE	1.74	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.74
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17OCT-	CPUE	0.20	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
19OCT	SE	0.20	0.04	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
31OCT-	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
02NOV	SE	0.00	0.00	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-62 REGIONAL STANDING CROP (IN THOUSANDS) OF BAY ANCHOVY YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	ST. CROP	3	537	0	0	0	0	0	0	0	0	0	0	539
30JUN	SE	3	191	0	0	0	0	0	0	0	0	0	0	191
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
11JUL-	ST. CROP	0	12	0	0	0	0	0	0	0	0	0	0	12
14JUL	SE	0	6	0	0	0	0	0	0	0	0	0	0	6
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
25JUL-	ST. CROP	5	83	0	3	0	0	0	0	0	0	0	0	91
27JUL	SE	3	43	0	3	0	0	0	0	0	0	0	0	43
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
08AUG-	ST. CROP	78	6	0	0	0	0	0	0	0	0	0	0	84
11AUG	SE	78	3	0	0	0	0	0	0	0	0	0	0	78
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	ST. CROP	2	0	0	0	1	0	0	0	0	0	0	0	2
25AUG	SE	2	0	0	0	1	0	0	0	0	0	0	0	2
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	ST. CROP	3	0	0	0	0	0	0	0	0	0	0	0	3
09SEP	SE	3	0	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
19SEP-	ST. CROP	6	11	0	0	0	0	0	0	0	0	0	0	17
22SEP	SE	6	7	0	0	0	0	0	0	0	0	0	0	9
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	ST. CROP	17	4	0	0	0	0	0	0	0	0	0	0	20
07OCT	SE	13	3	0	0	0	0	0	0	0	0	0	0	13
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17OCT-	ST. CROP	2	2	0	0	0	0	0	0	0	0	0	0	3
19OCT	SE	2	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
31OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
02NOV	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-63 REGIONAL DENSITY (NO./1,000m3) OF AMERICAN SHAD EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.34	0.00	0.05
22APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.34	0.00	0.43
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.07	10.54	74.78	298.24	5950.41	527.92
30APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.65	6.12	23.96	33.70	2393.58	2393.94
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.97	0.00	0.17	1.44	241.57	379.58	1.67	67.91	57.78
06MAY	SE		0.00	0.00	0.00	0.00	0.97	0.00	0.17	0.71	66.61	105.19	1.67	16.53	125.61
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.17	0.55	0.90	0.00	123.76	443.90	386.39	79.64
13MAY	SE		0.00	0.00	0.00	0.00	0.00	0.17	0.55	0.90	0.00	30.72	343.79	95.27	358.07
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.83	0.00	32.22	600.33	10.33	53.64
20MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.83	0.00	17.86	354.65	5.78	355.14
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	DENSITY	NS	0.00	0.00	0.00	0.19	0.00	79.35	0.00	0.00	0.00	5.22	23.03	418.71	43.87
27MAY	SE		0.00	0.00	0.00	0.19	0.00	79.35	0.00	0.00	0.00	3.07	9.51	254.22	266.50
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	DENSITY	NS	0.00	0.00	0.00	11.21	0.00	0.00	0.00	0.00	0.00	265.72	7.00	0.00	23.66
04JUN	SE		0.00	0.00	0.00	11.21	0.00	0.00	0.00	0.00	0.00	208.47	2.32	0.00	208.78
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.86	4.33	0.00	4.54	81.24	7.93	7.61
10JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.86	4.33	0.00	4.54	53.72	4.93	54.32
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.60	3.13	1.76	39.15	9.38	4.46
16JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.60	1.90	1.32	35.75	6.05	36.62
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

TABLE C-63 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF AMERICAN SHAD EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70	20.76	1.32	1.75
23JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70	11.02	1.32	11.12
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	3.45	0.00	0.29
01JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	3.45	0.00	3.47
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	DENSITY	0.00	0.00	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
28JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
10AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
24AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
08SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
22SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
05OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-64 REGIONAL STANDING CROP (IN THOUSANDS) OF AMERICAN SHAD EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	ST. CROP	NS	0	0	0	0	0	0	0	44	0	0	55	0	99
22APR	SE		0	0	0	0	0	0	0	44	0	0	55	0	70
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	ST. CROP	NS	0	0	0	0	0	0	0	177	1491	13183	47936	423367	486153
30APR	SE		0	0	0	0	0	0	0	108	866	4224	5416	170301	170441
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	ST. CROP	NS	0	0	0	0	202	0	51	238	34176	66919	268	4832	106686
06MAY	SE		0	0	0	0	202	0	51	117	9424	18544	268	1176	20837
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	ST. CROP	NS	0	0	0	0	0	23	164	149	0	21819	71349	27491	120996
13MAY	SE		0	0	0	0	0	23	164	149	0	5415	55258	6778	55935
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	ST. CROP	NS	0	0	0	0	0	0	0	137	0	5680	96492	735	103044
20MAY	SE		0	0	0	0	0	0	0	137	0	3149	57003	412	57091
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	ST. CROP	NS	0	0	0	39	0	11092	0	0	0	920	3701	29791	45544
27MAY	SE		0	0	0	39	0	11092	0	0	0	541	1529	18087	21280
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	ST. CROP	NS	0	0	0	2336	0	0	0	0	0	46845	1126	0	50306
04JUN	SE		0	0	0	2336	0	0	0	0	0	36752	374	0	36828
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	ST. CROP	0	0	0	0	0	0	0	255	716	0	800	13058	564	15393
10JUN	SE	0	0	0	0	0	0	0	255	716	0	800	8634	351	8712
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	ST. CROP	0	0	0	0	0	0	0	0	760	443	310	6292	668	8473
16JUN	SE	0	0	0	0	0	0	0	0	760	269	233	5746	431	5823
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

TABLE C-64 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF AMERICAN SHAD EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	123	3337	94	3554
23JUN	SE	0	0	0	0	0	0	0	0	0	0	123	1772	94	1779
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	68	554	0	622
01JUL	SE	0	0	0	0	0	0	0	0	0	0	68	554	0	558
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
10AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
24AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
08SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
22SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-65 REGIONAL DENSITY (NO./1,000m3) OF AMERICAN SHAD YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.59	1.48	0.00	1.15	5.26	0.72
13MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.48	1.16	0.00	1.15	2.73	3.22
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.23	0.86	2.93	7.00	9.52	5.89	8.99	96.27	10.98
20MAY	SE		0.00	0.00	0.00	0.00	0.23	0.86	1.72	4.45	4.83	2.50	8.99	33.38	35.33
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.50	0.28	2.14	7.39	44.70	0.00	200.34	21.28
27MAY	SE		0.00	0.00	0.00	0.00	0.00	0.50	0.28	1.03	3.32	18.01	0.00	90.01	91.86
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	1.30	1.69	0.00	15.11	102.20	207.63	27.33
04JUN	SE		0.00	0.00	0.00	0.00	0.00	0.00	1.30	1.27	0.00	11.62	16.68	102.07	104.09
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23.08	1.78
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	10.86	10.86
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	167.92	12.92
16JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	124.70	124.70
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.62	0.00	0.00	0.00	11.39	0.92
23JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.62	0.00	0.00	0.00	11.39	11.41
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	DENSITY	0.00	0.00	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	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	DENSITY	0.00	0.00	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
28JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
10AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
24AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
08SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
22SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
05OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-66 REGIONAL STANDING CROP (IN THOUSANDS) OF AMERICAN SHAD YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
30APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
06MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	ST. CROP	NS	0	0	0	0	0	0	57	98	209	0	185	375	923
13MAY	SE		0	0	0	0	0	0	57	79	164	0	185	194	329
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	ST. CROP	NS	0	0	0	0	48	120	874	1159	1347	1039	1446	6850	12882
20MAY	SE		0	0	0	0	48	120	514	736	683	441	1446	2375	3035
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	ST. CROP	NS	0	0	0	0	0	70	82	354	1045	7880	0	14254	23686
27MAY	SE		0	0	0	0	0	70	82	171	469	3176	0	6404	7167
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	ST. CROP	NS	0	0	0	0	0	0	386	280	0	2664	16427	14773	34530
04JUN	SE		0	0	0	0	0	0	386	210	0	2049	2681	7262	8020
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	1642	1642
10JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	773	773
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	11947	11947
16JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	8872	8872
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	ST. CROP	0	0	0	0	0	0	0	0	102	0	0	0	811	912
23JUN	SE	0	0	0	0	0	0	0	0	102	0	0	0	811	817
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	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	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
10AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
24AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
08SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
22SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-67 REGIONAL DENSITY (NO./1,000m3) OF AMERICAN SHAD POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	DENSITY	NS	1.60	0.00	0.00	0.13	0.00	0.00	2.56	1.52	0.00	0.00	0.00	2.44	0.69
20MAY	SE		1.60	0.00	0.00	0.13	0.00	0.00	2.56	1.52	0.00	0.00	0.00	2.44	4.17
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	DENSITY	NS	0.67	0.00	0.48	0.00	0.00	0.50	0.00	2.48	6.31	36.23	74.86	3.91	10.45
27MAY	SE		0.67	0.00	0.29	0.00	0.00	0.50	0.00	1.25	5.62	36.23	50.13	3.91	62.25
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	DENSITY	NS	0.00	0.19	0.00	0.35	0.00	0.00	1.65	3.06	39.51	58.95	316.74	199.83	51.69
04JUN	SE		0.00	0.19	0.00	0.35	0.00	0.00	1.34	2.49	18.53	24.45	85.88	86.80	125.93
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	DENSITY	0.00	0.00	0.97	0.28	0.00	0.00	0.10	1.14	5.26	9.36	63.94	246.10	433.87	58.54
10JUN	SE	0.00	0.00	0.97	0.28	0.00	0.00	0.10	1.14	4.29	9.36	38.33	78.00	164.60	186.42
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	DENSITY	0.00	0.00	0.55	0.00	0.08	2.08	2.12	3.41	4.81	66.33	53.00	198.60	152.81	37.21
16JUN	SE	0.00	0.00	0.55	0.00	0.08	2.08	2.12	3.41	3.00	51.99	26.76	69.56	112.82	144.97
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.32	8.17	41.02	38.74	218.74	317.66	48.43
23JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.88	2.37	6.56	14.35	83.17	105.44	135.33
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	DENSITY	0.00	0.00	0.00	0.00	0.81	1.16	0.89	9.96	1.56	0.00	7.49	55.63	12.65	6.93
01JUL	SE	0.00	0.00	0.00	0.00	0.81	0.65	0.89	5.26	1.03	0.00	4.00	22.94	5.82	24.63
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.23	0.17	30.76	2.11	0.00	31.92	44.97	1.41	8.58
08JUL	SE	0.00	0.00	0.00	0.00	0.00	0.23	0.17	30.76	2.11	0.00	20.46	18.83	1.01	41.54
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
28JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
10AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
24AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
08SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
22SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
05OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-68 REGIONAL STANDING CROP (IN THOUSANDS) OF AMERICAN SHAD POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
30APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
06MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
13MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	ST. CROP	NS	368	0	0	28	0	0	765	251	0	0	0	174	1585
20MAY	SE		368	0	0	28	0	0	765	251	0	0	0	174	902
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	ST. CROP	NS	154	0	70	0	0	70	0	411	893	6388	12033	278	20297
27MAY	SE		154	0	43	0	0	70	0	206	795	6388	8058	278	10321
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	ST. CROP	NS	0	60	0	73	0	0	491	507	5590	10392	50910	14217	82240
04JUN	SE		0	60	0	73	0	0	400	411	2622	4310	13804	6175	15952
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	ST. CROP	0	0	313	41	0	0	13	340	870	1324	11273	39556	30869	84599
10JUN	SE	0	0	313	41	0	0	13	340	710	1324	6757	12537	11711	18506
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	ST. CROP	0	0	175	0	16	431	296	1018	795	9383	9344	31922	10873	64253
16JUN	SE	0	0	175	0	16	431	296	1018	496	7355	4717	11180	8027	16351
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	ST. CROP	0	0	0	0	0	0	0	1585	1352	5803	6829	35158	22601	73328
23JUN	SE	0	0	0	0	0	0	0	1454	392	928	2530	13368	7502	15637
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	ST. CROP	0	0	0	0	169	240	124	2969	258	0	1321	8941	900	14922
01JUL	SE	0	0	0	0	169	135	124	1568	170	0	706	3687	414	4100
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	ST. CROP	0	0	0	0	0	48	23	9171	349	0	5627	7229	100	22547
08JUL	SE	0	0	0	0	0	48	23	9171	349	0	3608	3027	72	10316
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
10AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
24AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
08SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
22SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-69 REGIONAL DENSITY (NO./1,000m3) OF AMERICAN SHAD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	DENSITY	0.00	0.00	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.74	1.88	4.55	5.74	8.32	3.12	24.01	3.72
23JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.74	1.64	2.13	4.14	4.31	1.21	17.38	18.63
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	3.86	3.23	17.25	22.31	35.07	85.33	55.76	3.62	17.42
01JUL	SE	0.00	0.00	0.00	0.00	0.00	2.13	1.07	8.12	8.21	11.45	29.47	24.50	2.10	41.75
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	DENSITY	0.00	0.00	0.00	0.23	0.13	9.08	6.64	15.92	11.54	14.90	92.76	55.56	14.50	17.02
08JUL	SE	0.00	0.00	0.00	0.23	0.09	4.42	2.40	10.37	3.80	11.30	40.02	39.61	8.14	59.26
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	DENSITY	0.00	0.09	1.29	3.34	0.81	23.04	8.76	6.35	NS	NS	NS	NS	NS	5.46
14JUL	SE	0.00	0.09	0.67	1.96	0.52	13.19	3.83	3.26						14.28
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	DENSITY	0.44	0.78	1.54	5.43	2.10	0.56	3.54	0.24	NS	NS	NS	NS	NS	1.83
28JUL	SE	0.44	0.55	0.93	1.80	1.44	0.28	1.34	0.24						2.93
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	DENSITY	0.00	0.00	2.53	0.53	1.04	0.46	0.92	0.25	NS	NS	NS	NS	NS	0.72
10AUG	SE	0.00	0.00	1.89	0.38	0.56	0.28	0.49	0.25						2.10
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	DENSITY	0.00	0.00	0.00	0.62	0.67	0.15	4.42	0.00	NS	NS	NS	NS	NS	0.73
24AUG	SE	0.00	0.00	0.00	0.62	0.33	0.15	1.96	0.00						2.09
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	DENSITY	0.00	0.00	0.00	0.45	0.17	0.00	4.81	0.00	NS	NS	NS	NS	NS	0.68
08SEP	SE	0.00	0.00	0.00	0.45	0.17	0.00	2.45	0.00						2.50
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	DENSITY	0.00	0.00	0.29	0.00	0.15	0.28	1.21	0.00	NS	NS	NS	NS	NS	0.24
22SEP	SE	0.00	0.00	0.29	0.00	0.15	0.28	0.22	0.00						0.48
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	DENSITY	0.00	0.00	2.35	2.15	0.60	0.69	3.28	0.27	NS	NS	NS	NS	NS	1.17
05OCT	SE	0.00	0.00	1.22	1.08	0.52	0.14	0.17	0.27						1.74
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-70 REGIONAL STANDING CROP (IN THOUSANDS) OF AMERICAN SHAD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
30APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
06MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
13MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	ST. CROP	NS	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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
27MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	ST. CROP	NS	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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	ST. CROP	0	0	0	0	0	0	103	561	754	812	1467	502	1709	5908
23JUN	SE	0	0	0	0	0	0	103	489	353	586	759	194	1236	1691
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	ST. CROP	0	0	0	0	0	800	452	5143	3692	4962	15042	8962	257	39311
01JUL	SE	0	0	0	0	0	441	150	2422	1359	1620	5195	3938	149	7285
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	ST. CROP	0	0	0	35	28	1884	928	4745	1910	2108	16354	8931	1032	37954
08JUL	SE	0	0	0	35	19	918	335	3091	629	1599	7055	6366	579	10203
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	ST. CROP	0	21	416	493	169	4780	1225	1893	NS	NS	NS	NS	NS	8996
14JUL	SE	0	21	214	290	109	2737	535	973						2978
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	ST. CROP	92	179	497	802	438	115	495	71	NS	NS	NS	NS	NS	2689
28JUL	SE	92	127	300	266	299	58	187	71						564
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	ST. CROP	0	0	816	78	217	96	128	76	NS	NS	NS	NS	NS	1411
10AUG	SE	0	0	608	56	116	59	68	76						632
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	ST. CROP	0	0	0	91	139	30	617	0	NS	NS	NS	NS	NS	878
24AUG	SE	0	0	0	91	70	30	274	0						299
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	ST. CROP	0	0	0	66	36	0	672	0	NS	NS	NS	NS	NS	774
08SEP	SE	0	0	0	66	36	0	343	0						351
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	ST. CROP	0	0	93	0	31	57	170	0	NS	NS	NS	NS	NS	351
22SEP	SE	0	0	93	0	31	57	31	0						118
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	ST. CROP	0	0	756	318	126	142	458	81	NS	NS	NS	NS	NS	1881
05OCT	SE	0	0	392	159	109	28	23	81						446
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-71 REGIONAL DENSITY (NO./1,000m3) OF AMERICAN SHAD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	DENSITY	0.03	1.91	0.59	2.88	0.70	4.33	0.08	0.00	0.47	3.09	4.94	1.18	1.68
21JUL	SE	0.02	1.02	0.38	1.83	0.70	3.35	0.03	0.00	0.29	0.95	0.88	0.65	4.30
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
01AUG-	DENSITY	0.07	0.59	1.64	0.25	0.76	0.12	0.08	0.02	0.10	0.79	5.72	5.36	1.29
05AUG	SE	0.05	0.20	1.28	0.06	0.76	0.04	0.06	0.02	0.05	0.43	1.35	3.04	3.68
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
15AUG-	DENSITY	0.22	0.24	0.23	0.11	0.01	0.05	0.08	0.08	0.10	0.51	1.80	0.48	0.33
19AUG	SE	0.07	0.08	0.07	0.05	0.01	0.04	0.05	0.03	0.06	0.30	1.30	0.29	1.38
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	DENSITY	0.07	0.34	0.27	0.05	0.01	0.04	0.03	0.11	0.42	0.20	2.10	1.08	0.39
02SEP	SE	0.03	0.07	0.10	0.03	0.01	0.03	0.03	0.07	0.29	0.10	0.34	0.68	0.83
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	DENSITY	0.19	0.10	0.56	0.68	0.07	0.04	0.03	0.02	0.02	0.48	0.98	0.70	0.32
16SEP	SE	0.09	0.04	0.12	0.60	0.04	0.03	0.03	0.02	0.02	0.20	0.22	0.38	0.80
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	DENSITY	0.04	0.05	0.00	0.05	0.04	0.33	0.00	0.06	0.12	0.26	1.65	2.65	0.44
30SEP	SE	0.04	0.02	0.00	0.03	0.03	0.15	0.00	0.04	0.08	0.09	0.21	0.75	0.80
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	DENSITY	0.33	0.80	0.07	0.13	0.78	0.25	0.06	0.13	0.05	1.46	3.49	0.25	0.65
14OCT	SE	0.10	0.11	0.04	0.06	0.75	0.12	0.03	0.03	0.03	0.30	0.56	0.21	1.02
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24OCT-	DENSITY	2.77	0.82	0.36	0.68	0.01	0.19	0.00	0.00	0.02	0.22	1.11	0.44	0.55
27OCT	SE	0.59	0.32	0.08	0.63	0.01	0.06	0.00	0.00	0.02	0.13	0.25	0.16	0.98
	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	ST. CROP	7	615	87	600	145	605	24	0	66	545	794	84	3573
21JUL	SE	4	329	56	382	145	469	10	0	41	168	142	46	742
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
01AUG-	ST. CROP	16	190	243	51	157	16	25	3	14	139	919	381	2156
05AUG	SE	11	65	189	13	157	6	17	3	8	76	218	216	406
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
15AUG-	ST. CROP	51	78	34	23	3	6	24	13	15	90	289	34	660
19AUG	SE	15	24	10	9	3	5	15	4	8	53	210	21	220
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	ST. CROP	16	109	39	9	3	6	9	18	59	35	338	77	717
02SEP	SE	6	23	14	6	3	5	9	11	40	17	55	48	91
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	ST. CROP	43	33	83	141	15	6	9	4	3	85	157	50	627
16SEP	SE	21	12	18	126	8	4	9	4	3	36	36	27	142
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	ST. CROP	9	16	0	9	8	46	0	10	17	46	264	189	615
30SEP	SE	9	7	0	6	5	21	0	7	12	15	34	53	71
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	ST. CROP	75	257	10	28	161	34	17	21	7	258	560	18	1446
14OCT	SE	23	36	6	12	155	17	10	5	5	53	89	15	194
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24OCT-	ST. CROP	636	264	53	143	3	26	0	0	3	38	178	31	1375
27OCT	SE	134	103	12	132	3	8	0	0	3	23	40	11	220
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

TABLE C-73 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF AMERICAN SHAD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	CPUE	0.00	0.00	0.00	1.00	1.67	21.33	44.63	14.75	7.25	2.80	1.47	3.58	8.21
30JUN	SE	0.00	0.00	0.00	1.00	1.20	15.38	25.67	4.81	3.28	2.24	1.11	2.97	30.77
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
11JUL-	CPUE	5.33	5.55	0.43	5.00	130.67	144.33	81.63	14.88	11.38	6.13	29.74	12.83	37.32
14JUL	SE	1.76	1.83	0.30	2.08	97.53	79.41	36.16	2.75	3.55	1.96	11.39	4.64	131.57
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
25JUL-	CPUE	13.67	2.45	3.00	7.00	6.33	18.33	25.75	7.63	18.13	48.73	38.42	16.67	17.18
27JUL	SE	13.67	1.11	1.21	1.53	2.60	5.04	5.69	2.03	9.65	14.29	8.37	4.76	25.51
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
08AUG-	CPUE	0.40	0.54	2.64	2.20	9.80	34.50	24.20	7.00	7.60	27.11	23.80	19.86	13.30
11AUG	SE	0.24	0.23	0.78	1.50	4.07	13.43	11.23	3.22	2.69	6.53	5.88	7.28	21.77
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	CPUE	0.00	1.38	1.71	9.20	31.20	61.67	20.40	12.80	9.00	30.78	37.00	25.43	20.05
25AUG	SE	0.00	0.48	0.62	2.96	19.12	13.03	5.13	4.84	3.02	6.39	11.41	6.77	28.64
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	CPUE	0.00	1.71	2.57	11.60	3.20	35.83	36.00	15.40	4.20	24.33	38.80	66.29	19.99
09SEP	SE	0.00	0.77	1.30	8.47	0.49	13.61	10.74	7.66	1.74	5.87	12.41	30.26	39.25
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
19SEP-	CPUE	0.00	8.83	0.21	12.00	5.60	11.33	24.00	3.00	4.60	10.56	7.60	11.43	8.26
22SEP	SE	0.00	3.53	0.15	6.40	2.48	4.08	13.17	1.14	2.44	4.34	3.10	3.50	17.25
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	CPUE	0.40	4.88	0.64	8.20	11.40	37.33	43.40	7.80	3.00	14.56	11.90	2.71	12.19
07OCT	SE	0.24	1.65	0.25	4.27	3.59	10.08	7.95	3.97	1.67	7.72	6.30	1.80	17.88
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17OCT-	CPUE	4.40	9.04	5.57	17.60	2.40	5.67	8.20	11.20	6.40	1.89	0.60	1.00	6.16
19OCT	SE	2.18	1.66	1.26	3.17	1.03	1.38	3.44	3.31	2.52	0.93	0.34	0.53	7.25
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31OCT-	CPUE	1.00	9.04	10.50	10.20	10.20	6.83	3.00	0.80	0.00	0.22	0.30	1.14	4.44
02NOV	SE	1.00	2.96	1.99	3.50	8.73	2.21	2.14	0.37	0.00	0.15	0.15	0.86	10.61
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE C-74 REGIONAL STANDING CROP (IN THOUSANDS) OF AMERICAN SHAD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	ST. CROP	0	0	0	9	4	227	317	18	62	49	29	49	765
30JUN	SE	0	0	0	9	3	164	182	6	28	39	22	40	254
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
11JUL-	ST. CROP	40	252	12	46	344	1537	579	18	98	108	585	174	3794
14JUL	SE	13	83	8	19	257	846	257	3	31	34	224	63	955
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
25JUL-	ST. CROP	103	112	81	65	17	195	183	9	156	856	756	226	2758
27JUL	SE	103	51	33	14	7	54	40	3	83	251	165	65	347
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
08AUG-	ST. CROP	3	25	71	20	26	367	172	9	65	476	468	270	1972
11AUG	SE	2	11	21	14	11	143	80	4	23	115	116	99	254
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	ST. CROP	0	62	46	85	82	657	145	16	77	540	728	345	2784
25AUG	SE	0	22	17	27	50	139	36	6	26	112	225	92	311
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	ST. CROP	0	78	69	107	8	382	255	19	36	427	763	901	3046
09SEP	SE	0	35	35	78	1	145	76	9	15	103	244	411	524
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
19SEP-	ST. CROP	0	401	6	111	15	121	170	4	40	185	150	155	1357
22SEP	SE	0	160	4	59	7	43	93	1	21	76	61	48	228
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	ST. CROP	3	221	17	76	30	398	308	10	26	256	234	37	1615
07OCT	SE	2	75	7	39	9	107	56	5	14	135	124	24	238
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17OCT-	ST. CROP	33	411	150	162	6	60	58	14	55	33	12	14	1008
19OCT	SE	16	75	34	29	3	15	24	4	22	16	7	7	98
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31OCT-	ST. CROP	8	411	282	94	27	73	21	1	0	4	6	16	942
02NOV	SE	8	135	53	32	23	24	15	<0.5	0	3	3	12	153
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE C-75 REGIONAL DENSITY (NO./1,000m3) OF AMERICAN SHAD YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21JUL	SE	0.00	0.00	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
01AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05AUG	SE	0.00	0.00	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
15AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19AUG	SE	0.00	0.00	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
29AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.00	0.00	0.04
16SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.00	0.00	0.47
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14OCT	SE	0.00	0.00	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
24OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

TABLE C-76 REGIONAL STANDING CROP (IN THOUSANDS) OF AMERICAN SHAD YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
21JUL	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
01AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
05AUG	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
15AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
19AUG	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
29AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
02SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	83	0	0	83
16SEP	SE	0	0	0	0	0	0	0	0	0	83	0	0	83
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
30SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
14OCT	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
24OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
27OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

TABLE C-77 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF AMERICAN SHAD YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	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
30JUN	SE	0.00	0.00	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
11JUL-	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
14JUL	SE	0.00	0.00	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
25JUL-	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
27JUL	SE	0.00	0.00	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
08AUG-	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
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	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	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
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	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	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
09SEP	SE	0.00	0.00	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
19SEP-	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
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	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	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
07OCT	SE	0.00	0.00	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
17OCT-	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
19OCT	SE	0.00	0.00	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
31OCT-	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
02NOV	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE C-78 REGIONAL STANDING CROP (IN THOUSANDS) OF AMERICAN SHAD YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
30JUN	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
11JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
14JUL	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
25JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
27JUL	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
08AUG-	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	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	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	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
09SEP	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
19SEP-	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	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
07OCT	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
17OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
19OCT	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
31OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
02NOV	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE C-79 REGIONAL DENSITY (NO./1,000m3) OF ALOSA SPP. EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	DENSITY	NS	0.00	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.73	1.25	0.19
22APR	SE		0.00	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.52	0.64	0.89
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.73	7.21	35.84	863.70	874.06	149.96
30APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.72	4.68	15.92	132.19	335.24	360.96
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	DENSITY	NS	0.00	0.00	0.00	0.47	0.58	0.00	6.24	3.54	182.18	55.20	0.66	115.22	30.34
06MAY	SE		0.00	0.00	0.00	0.47	0.48	0.00	3.66	1.52	20.31	28.77	0.66	52.93	63.71
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.12	0.17	0.00	139.88	87.70	70.62	268.44	1380.53	162.29
13MAY	SE		0.00	0.00	0.00	0.00	0.12	0.17	0.00	134.66	78.09	28.30	148.62	232.87	318.35
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	1.59	0.00	0.28	0.00	24.83	701.13	2885.37	164.26	314.79
20MAY	SE		0.00	0.00	0.00	0.00	1.59	0.00	0.28	0.00	19.55	397.19	1240.06	104.40	1306.44
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	DENSITY	NS	0.00	2.86	0.00	0.00	1.44	0.00	0.00	0.00	57.01	320.44	7945.76	1881.56	850.76
27MAY	SE		0.00	2.86	0.00	0.00	1.16	0.00	0.00	0.00	57.01	185.87	3704.82	753.13	3785.59
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.48	86.86	552.12	379.51	85.00
04JUN	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.48	44.65	55.94	189.17	202.26
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	DENSITY	0.00	81.19	0.00	0.00	0.00	0.00	0.00	3.00	0.00	0.00	0.00	98.32	148.90	25.49
10JUN	SE	0.00	81.19	0.00	0.00	0.00	0.00	0.00	2.60	0.00	0.00	0.00	28.28	59.95	104.84
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	87.82	0.00	17.08	105.55	16.20
16JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	87.82	0.00	10.88	105.55	137.73
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

TABLE C-79 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF ALOSA SPP. EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	DENSITY	0.00	0.00	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	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	DENSITY	0.00	0.00	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
28JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
10AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
24AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
08SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
22SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
05OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-80 REGIONAL STANDING CROP (IN THOUSANDS) OF ALOSA SPP. EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	ST. CROP	NS	0	111	0	0	0	0	0	0	0	0	118	89	318
22APR	SE		0	111	0	0	0	0	0	0	0	0	84	45	147
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	ST. CROP	NS	0	0	0	0	0	0	0	3100	1020	6318	138825	62188	211450
30APR	SE		0	0	0	0	0	0	0	2105	662	2806	21246	23852	32141
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	ST. CROP	NS	0	0	0	97	121	0	1860	586	25773	9732	106	8198	46472
06MAY	SE		0	0	0	97	99	0	1091	251	2873	5072	106	3766	7032
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	ST. CROP	NS	0	0	0	0	26	23	0	23149	12407	12450	43147	98223	189425
13MAY	SE		0	0	0	0	26	23	0	22285	11047	4989	23888	16569	38583
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	ST. CROP	NS	0	0	0	0	330	0	85	0	3512	123606	463771	11687	602992
20MAY	SE		0	0	0	0	330	0	85	0	2766	70023	199317	7428	211408
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	ST. CROP	NS	0	922	0	0	300	0	0	0	8065	56491	1277135	133871	1476785
27MAY	SE		0	922	0	0	241	0	0	0	8065	32768	595482	53584	598840
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	210	15313	88743	27002	131267
04JUN	SE		0	0	0	0	0	0	0	0	210	7872	8991	13459	18000
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	ST. CROP	0	18626	0	0	0	0	0	895	0	0	0	15803	10594	45918
10JUN	SE	0	18626	0	0	0	0	0	776	0	0	0	4545	4265	19657
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	ST. CROP	0	0	0	0	0	0	0	0	26	12423	0	2746	7510	22705
16JUN	SE	0	0	0	0	0	0	0	0	26	12423	0	1748	7510	14622
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

TABLE C-80 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF ALOSA SPP. EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	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	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
10AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
24AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
08SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
22SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-81 REGIONAL DENSITY (NO./1,000m3) OF ALOSA SPP. YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	DENSITY	NS	0.00	0.00	0.00	0.00	1.95	19.79	26.37	13.21	0.32	0.27	0.35	0.00	5.19
30APR	SE		0.00	0.00	0.00	0.00	1.65	11.68	5.82	5.22	0.32	0.27	0.35	0.00	14.16
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	DENSITY	NS	0.00	1.52	3.50	2.83	16.36	15.24	10.00	31.65	12.19	25.54	18.47	9.02	12.19
06MAY	SE		0.00	0.97	1.43	1.51	7.14	2.96	3.00	5.36	6.38	6.22	8.06	2.76	15.97
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	DENSITY	NS	0.00	0.00	1.56	2.96	7.49	15.55	15.59	54.55	40.59	100.30	165.36	216.58	51.71
13MAY	SE		0.00	0.00	0.79	1.70	3.76	3.96	9.79	11.34	10.91	30.00	42.57	26.38	61.52
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	DENSITY	NS	0.00	0.00	1.28	3.93	5.04	2.59	17.42	22.42	249.78	39.84	140.58	536.60	84.96
20MAY	SE		0.00	0.00	0.69	3.42	2.44	1.43	4.54	9.18	127.63	12.80	74.46	123.33	193.22
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	DENSITY	NS	1.05	0.00	0.00	0.00	5.10	4.19	28.73	101.05	989.33	898.99	564.47	4880.21	622.76
27MAY	SE		1.05	0.00	0.00	0.00	3.84	1.62	20.74	29.87	550.43	121.08	115.62	2168.48	2243.80
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.23	6.60	2.49	19.65	541.32	1092.37	776.09	565.69	250.37
04JUN	SE		0.00	0.00	0.00	0.00	0.13	2.49	2.49	17.29	93.65	242.36	260.62	135.68	392.62
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	DENSITY	1.09	0.75	0.00	0.00	1.74	0.00	1.52	11.04	48.43	33.04	124.94	520.05	1710.85	188.73
10JUN	SE	1.09	0.75	0.00	0.00	1.58	0.00	0.78	9.18	36.00	19.95	53.50	177.51	500.44	535.34
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	DENSITY	97.48	6.65	0.27	0.00	0.00	0.00	1.44	1.15	2.40	3.58	0.00	7.05	504.09	48.01
16JUN	SE	56.29	4.83	0.27	0.00	0.00	0.00	1.44	1.15	1.58	2.50	0.00	6.51	43.94	71.96
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-23JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.00	4.72	30.71	2.74
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.00	4.72	30.71	31.07
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-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	1.95	0.15
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.95	1.95
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-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	0.60	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	0.00	0.60	0.60
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-14JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-28JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-10AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-24AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-08SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-22SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-05OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-82 REGIONAL STANDING CROP (IN THOUSANDS) OF ALOSA SPP. YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	ST. CROP	NS	0	0	0	0	405	2766	7862	2187	45	48	56	0	13369
30APR	SE		0	0	0	0	343	1633	1736	863	45	48	56	0	2560
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	ST. CROP	NS	0	488	517	589	3393	2131	2981	5238	1725	4503	2969	642	25174
06MAY	SE		0	313	212	316	1482	414	894	887	903	1097	1296	197	2817
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	ST. CROP	NS	0	0	231	617	1554	2174	4648	9027	5742	17683	26579	15410	83665
13MAY	SE		0	0	117	355	780	553	2917	1876	1544	5288	6842	1877	9683
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	ST. CROP	NS	0	0	190	819	1046	362	5192	3709	35336	7024	22595	38179	114453
20MAY	SE		0	0	102	711	506	200	1352	1520	18056	2256	11968	8775	23586
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	ST. CROP	NS	241	0	0	0	1059	585	8567	16722	139961	158489	90728	347222	763573
27MAY	SE		241	0	0	0	797	227	6182	4943	77870	21347	18584	154285	175306
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	ST. CROP	NS	0	0	0	0	48	923	741	3252	76580	192580	124742	40248	439115
04JUN	SE		0	0	0	0	28	348	741	2861	13248	42727	41890	9653	62112
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	ST. CROP	228	173	0	0	362	0	212	3291	8015	4674	22027	83588	121725	244295
10JUN	SE	228	173	0	0	329	0	109	2737	5958	2822	9431	28532	35606	47137
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	ST. CROP	20374	1525	87	0	0	0	202	344	398	506	0	1133	35865	60434
16JUN	SE	11766	1107	87	0	0	0	202	344	262	354	0	1046	3127	12283
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

TABLE C-82 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF ALOSA SPP. YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	ST. CROP	0	0	0	0	0	0	19	0	0	0	0	759	2185	2963
23JUN	SE	0	0	0	0	0	0	19	0	0	0	0	759	2185	2313
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	139	139
01JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	139	139
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	43	43
08JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	43	43
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
10AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
24AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
08SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
22SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	DENSITY	NS	0.00	0.29	0.18	0.00	0.00	2.51	10.64	1.18	0.00	0.26	0.00	0.00	1.26
30APR	SE		0.00	0.29	0.18	0.00	0.00	0.93	6.44	0.68	0.00	0.26	0.00	0.00	6.56
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	DENSITY	NS	0.13	0.00	0.00	0.49	1.63	6.11	0.00	2.70	1.84	1.44	0.00	0.00	1.19
06MAY	SE		0.13	0.00	0.00	0.49	0.98	2.19	0.00	1.86	1.43	1.44	0.00	0.00	3.69
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	DENSITY	NS	0.00	3.38	5.38	10.88	5.46	7.15	11.99	31.44	26.50	13.22	0.60	0.30	9.69
13MAY	SE		0.00	2.79	3.04	4.26	1.81	2.65	9.65	12.12	12.80	10.33	0.60	0.30	23.59
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	DENSITY	NS	0.00	0.39	4.04	77.83	9.92	10.66	50.83	143.33	252.11	65.00	15.54	0.00	52.47
20MAY	SE		0.00	0.39	1.81	51.11	3.74	4.52	21.02	67.39	103.92	22.35	10.44	0.00	137.99
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	DENSITY	NS	0.00	0.00	0.51	5.72	52.82	114.04	75.85	367.49	936.84	338.04	214.41	54.55	180.02
27MAY	SE		0.00	0.00	0.38	2.68	16.20	24.45	18.16	76.36	219.89	136.75	62.34	54.55	284.51
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	DENSITY	NS	0.12	0.92	5.12	61.20	10.66	57.44	114.22	465.02	5363.35	3086.06	4356.41	1523.86	1253.70
04JUN	SE		0.12	0.66	0.92	16.73	3.48	14.42	30.92	149.99	1529.92	469.48	1332.79	371.94	2121.25
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	DENSITY	6.14	25.93	9.46	32.03	18.56	23.40	70.86	302.48	1748.14	1920.60	3323.21	3341.32	3364.35	1091.27
10JUN	SE	3.38	15.89	5.13	20.05	4.22	8.28	16.07	272.68	336.52	420.88	357.29	772.37	795.25	1312.41
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	DENSITY	294.60	8.66	27.50	48.16	32.97	85.31	137.06	444.72	915.60	1964.50	2096.07	4124.08	5339.58	1193.76
16JUN	SE	186.95	8.06	11.33	36.08	11.90	28.81	22.94	50.54	233.66	622.87	552.49	982.71	1424.24	1944.86
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	DENSITY	21.19	0.00	0.19	0.00	38.27	63.25	100.88	494.94	556.55	850.01	1409.77	2037.03	6658.27	940.80
23JUN	SE	21.19	0.00	0.19	0.00	27.17	10.30	17.44	255.95	58.62	161.73	492.99	452.44	2959.65	3050.24
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	DENSITY	44.08	20.60	0.82	4.81	14.04	15.74	130.25	479.44	387.54	985.03	708.86	1525.44	925.30	403.23
01JUL	SE	41.30	10.00	0.62	4.41	4.08	4.93	31.09	196.31	50.74	355.37	89.65	345.60	314.21	629.63
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	DENSITY	0.00	8.44	0.00	0.00	0.00	29.49	162.54	272.35	379.76	233.36	499.93	434.33	120.79	164.69
08JUL	SE	0.00	8.44	0.00	0.00	0.00	16.06	69.34	213.35	82.53	65.47	175.49	115.63	50.04	329.28
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	18.62	42.22	19.75	NS	NS	NS	NS	NS	10.07
14JUL	SE	0.00	0.00	0.00	0.00	0.00	10.90	8.12	7.21						15.39
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.17	NS	NS	NS	NS	NS	0.15
28JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24						0.24
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
10AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
24AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
08SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
22SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
05OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-84 REGIONAL STANDING CROP (IN THOUSANDS) OF ALOSA SPP. POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	ST. CROP	NS	0	92	27	0	0	351	3173	194	0	46	0	0	3884
30APR	SE		0	92	27	0	0	131	1921	112	0	46	0	0	1931
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	ST. CROP	NS	29	0	0	101	338	854	0	447	260	253	0	0	2282
06MAY	SE		29	0	0	101	203	306	0	308	203	253	0	0	588
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	ST. CROP	NS	0	1086	795	2267	1132	1000	3576	5202	3750	2330	96	21	21255
13MAY	SE		0	899	449	887	376	370	2876	2006	1811	1820	96	21	4580
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	ST. CROP	NS	0	124	596	16215	2059	1490	15153	23718	35667	11459	2497	0	108978
20MAY	SE		0	124	267	10649	776	632	6268	11153	14701	3941	1678	0	22641
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	ST. CROP	NS	0	0	76	1192	10959	15941	22614	60814	132535	59594	34462	3881	342068
27MAY	SE		0	0	56	558	3360	3418	5414	12636	31108	24109	10021	3881	43321
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	ST. CROP	NS	27	296	757	12751	2210	8030	34051	76954	758753	544058	700213	108421	2246522
04JUN	SE		27	211	135	3485	721	2016	9219	24820	216437	82767	214222	26463	317812
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	ST. CROP	1282	5949	3045	4732	3868	4854	9905	90179	289290	271707	585868	537056	239371	2047105
10JUN	SE	707	3645	1651	2962	879	1719	2247	81295	55689	59542	62989	124144	56581	189394
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	ST. CROP	61575	1988	8849	7115	6869	17698	19160	132586	151517	277918	369528	662871	379907	2097581
16JUN	SE	39075	1850	3645	5330	2480	5977	3206	15069	38668	88117	97401	157953	101334	236253
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	ST. CROP	4430	0	60	0	7973	13121	14102	147557	92101	120250	248536	327415	473730	1449275
23JUN	SE	4430	0	60	0	5660	2137	2438	76308	9700	22881	86912	72722	210576	252363
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	ST. CROP	9213	4727	264	710	2925	3265	18208	142938	64132	139353	124969	245186	65834	821726
01JUL	SE	8632	2295	200	652	851	1022	4346	58526	8396	50275	15804	55549	22356	99797
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	ST. CROP	0	1937	0	0	0	6119	22722	81196	62844	33014	88136	69811	8594	374373
08JUL	SE	0	1937	0	0	0	3332	9693	63607	13658	9263	30939	18586	3560	75778
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	ST. CROP	0	0	0	0	0	3862	5902	5887	NS	NS	NS	NS	NS	15651
14JUL	SE	0	0	0	0	0	2262	1135	2149						3320
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	ST. CROP	0	0	0	0	0	0	0	347	NS	NS	NS	NS	NS	347
28JUL	SE	0	0	0	0	0	0	0	72						72
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
10AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
24AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
08SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
22SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-85 REGIONAL DENSITY (NO./1,000m3) OF ALOSA SPP. YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	DENSITY	0.00	0.00	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	DENSITY	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.61	0.00	0.00	0.00	0.00	0.00	0.05
01JUL	SE	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.61	0.00	0.00	0.00	0.00	0.00	0.61
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.03
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	0.42	0.42
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.81	NS	NS	NS	NS	NS	0.10
14JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.81						0.81
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
28JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.51	NS	NS	NS	NS	NS	0.06
10AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.51						0.51
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.00	NS	NS	NS	NS	NS	0.03
24AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.00						0.28
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
08SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
22SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
05OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-86 REGIONAL STANDING CROP (IN THOUSANDS) OF ALOSA SPP. YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
30APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
06MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
13MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	ST. CROP	NS	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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
27MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	ST. CROP	NS	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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	ST. CROP	0	0	0	0	10	0	0	182	0	0	0	0	0	192
01JUL	SE	0	0	0	0	10	0	0	182	0	0	0	0	0	182
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	30	30
08JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	30	30
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	ST. CROP	0	0	0	0	0	0	0	240	NS	NS	NS	NS	NS	240
14JUL	SE	0	0	0	0	0	0	0	240						240
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	ST. CROP	0	0	0	0	0	0	0	151	NS	NS	NS	NS	NS	151
10AUG	SE	0	0	0	0	0	0	0	151						151
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	ST. CROP	0	0	0	0	0	0	39	0	NS	NS	NS	NS	NS	39
24AUG	SE	0	0	0	0	0	0	39	0						39
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
08SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
22SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-87 REGIONAL DENSITY (NO./1,000m3) OF ALEWIFE YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	DENSITY	0.00	0.00	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

TABLE C-87 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF ALEWIFE YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.28	0.00	1.37	0.96	7.70	1.02
23JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.28	0.00	1.37	0.96	7.70	8.54
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.38	2.44	4.19	6.90	3.83	51.11	11.06	6.15
01JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.21	1.42	2.61	4.43	1.62	23.25	9.31	25.65
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	DENSITY	0.00	0.00	0.23	0.00	0.46	0.00	10.36	98.83	18.52	96.10	43.15	212.48	4.66	37.29
08JUL	SE	0.00	0.00	0.23	0.00	0.46	0.00	3.36	49.73	5.78	92.55	10.16	50.02	3.19	117.04
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	17.65	40.94	7.23	NS	NS	NS	NS	NS	8.23
14JUL	SE	0.00	0.00	0.00	0.00	0.00	10.30	11.83	6.17						16.86
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	DENSITY	0.49	0.00	0.27	0.21	0.27	1.11	8.54	0.00	NS	NS	NS	NS	NS	1.36
28JUL	SE	0.49	0.00	0.27	0.21	0.27	0.50	4.39	0.00						4.47
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	DENSITY	0.00	0.00	1.88	0.00	0.90	1.75	3.82	1.52	NS	NS	NS	NS	NS	1.23
10AUG	SE	0.00	0.00	1.60	0.00	0.46	1.07	3.23	1.52						4.08
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	DENSITY	0.00	1.65	0.00	0.54	0.32	0.00	0.28	0.74	NS	NS	NS	NS	NS	0.44
24AUG	SE	0.00	1.15	0.00	0.31	0.17	0.00	0.28	0.42						1.30
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	DENSITY	0.00	1.23	0.00	0.00	0.08	1.63	5.65	6.83	NS	NS	NS	NS	NS	1.93
08SEP	SE	0.00	1.23	0.00	0.00	0.08	0.95	2.56	3.06						4.28
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	DENSITY	0.00	0.00	0.00	0.27	0.08	0.14	0.00	2.39	NS	NS	NS	NS	NS	0.36
22SEP	SE	0.00	0.00	0.00	0.27	0.08	0.14	0.00	1.71						1.73
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	DENSITY	0.00	0.08	0.94	0.00	0.00	0.00	2.50	1.26	NS	NS	NS	NS	NS	0.60
05OCT	SE	0.00	0.08	0.62	0.00	0.00	0.00	1.57	0.80						1.87
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-88 REGIONAL STANDING CROP (IN THOUSANDS) OF ALEWIFE YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
30APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
06MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
13MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	ST. CROP	NS	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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
27MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	ST. CROP	NS	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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

TABLE C-88 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF ALEWIFE YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	ST. CROP	0	0	0	0	0	0	0	0	543	0	242	154	548	1487
23JUN	SE	0	0	0	0	0	0	0	0	543	0	242	154	548	823
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	ST. CROP	0	0	0	0	0	0	53	727	693	976	675	8215	787	12126
01JUL	SE	0	0	0	0	0	0	30	423	433	626	286	3737	662	3904
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	ST. CROP	0	0	74	0	95	0	1449	29464	3065	13596	7607	34153	332	89834
08JUL	SE	0	0	74	0	95	0	470	14825	957	13092	1791	8040	227	21454
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	ST. CROP	0	0	0	0	0	3661	5724	2154	NS	NS	NS	NS	NS	11539
14JUL	SE	0	0	0	0	0	2137	1654	1839						3269
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	ST. CROP	102	0	88	31	57	231	1194	0	NS	NS	NS	NS	NS	1703
28JUL	SE	102	0	88	31	57	105	614	0						641
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	ST. CROP	0	0	605	0	188	363	535	453	NS	NS	NS	NS	NS	2143
10AUG	SE	0	0	515	0	96	222	451	453						856
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	ST. CROP	0	378	0	81	67	0	39	219	NS	NS	NS	NS	NS	784
24AUG	SE	0	264	0	47	35	0	39	125						300
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	ST. CROP	0	282	0	0	17	338	790	2037	NS	NS	NS	NS	NS	3464
08SEP	SE	0	282	0	0	17	197	358	912						1039
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	ST. CROP	0	0	0	40	17	29	0	712	NS	NS	NS	NS	NS	798
22SEP	SE	0	0	0	40	17	29	0	508						511
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	ST. CROP	0	18	303	0	0	0	350	377	NS	NS	NS	NS	NS	1048
05OCT	SE	0	18	201	0	0	0	219	237						381
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-89 REGIONAL DENSITY (NO./1,000m3) OF ALEWIFE YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	SL	ALL REGIONS COMBINED
18JUL-	DENSITY	0.00	0.00	0.00	0.71	0.88	0.79	0.03	0.47	0.51	1.24	0.93	0.28	0.49
21JUL	SE	0.00	0.00	0.00	0.69	0.88	0.73	0.03	0.47	0.27	0.82	0.48	0.28	1.75
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
01AUG-	DENSITY	0.00	0.01	0.05	0.78	0.00	0.83	0.72	0.11	1.10	1.59	0.64	0.00	0.49
05AUG	SE	0.00	0.01	0.03	0.72	0.00	0.60	0.66	0.06	0.41	0.83	0.27	0.00	1.50
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
15AUG-	DENSITY	0.01	0.02	0.00	0.05	0.00	0.01	0.03	0.00	0.24	0.11	0.13	0.05	0.05
19AUG	SE	0.01	0.02	0.00	0.05	0.00	0.01	0.03	0.00	0.10	0.06	0.05	0.05	0.14
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	DENSITY	0.00	0.00	0.02	0.03	0.00	0.61	0.06	1.20	0.29	0.64	0.14	0.04	0.25
02SEP	SE	0.00	0.00	0.02	0.02	0.00	0.56	0.04	1.03	0.07	0.36	0.06	0.04	1.23
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	DENSITY	0.01	0.00	0.05	0.05	0.73	0.04	0.67	0.04	0.09	0.12	0.21	0.00	0.17
16SEP	SE	0.01	0.00	0.03	0.03	0.73	0.03	0.67	0.04	0.05	0.05	0.07	0.00	1.00
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	DENSITY	0.01	0.00	0.00	0.00	0.03	0.04	0.07	0.12	0.83	0.21	0.92	0.23	0.20
30SEP	SE	0.01	0.00	0.00	0.00	0.03	0.03	0.04	0.03	0.32	0.11	0.20	0.23	0.46
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	DENSITY	0.08	0.07	0.06	0.02	0.03	1.81	0.23	0.08	0.07	1.72	1.39	0.22	0.48
14OCT	SE	0.06	0.02	0.04	0.01	0.02	1.01	0.07	0.04	0.05	0.75	0.17	0.22	1.29
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24OCT-	DENSITY	0.31	0.11	0.06	0.04	0.03	0.17	0.06	0.00	0.04	0.02	0.19	0.00	0.09
27OCT	SE	0.17	0.08	0.04	0.02	0.03	0.07	0.03	0.00	0.03	0.02	0.07	0.00	0.22
	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	ST. CROP	0	0	0	149	182	110	8	77	72	218	150	20	986
21JUL	SE	0	0	0	144	182	102	8	77	39	144	77	20	314
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
01AUG-	ST. CROP	0	3	8	163	0	116	213	18	155	280	102	0	1059
05AUG	SE	0	3	4	150	0	83	198	10	59	147	43	0	309
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
15AUG-	ST. CROP	3	8	0	11	0	1	8	0	34	19	20	3	108
19AUG	SE	3	5	0	10	0	1	8	0	13	10	9	3	24
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	ST. CROP	0	0	3	6	0	85	17	199	41	112	23	3	488
02SEP	SE	0	0	3	5	0	79	11	170	10	63	10	3	199
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	ST. CROP	3	0	8	11	152	5	200	7	12	22	33	0	453
16SEP	SE	3	0	4	6	152	4	200	7	7	9	12	0	252
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	ST. CROP	3	0	0	0	5	5	20	20	117	37	147	6	372
30SEP	SE	3	0	0	0	5	5	13	5	46	19	32	6	64
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	ST. CROP	19	22	8	3	6	252	69	14	10	304	223	6	946
14OCT	SE	13	7	6	2	4	141	20	7	7	132	27	6	198
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24OCT-	ST. CROP	71	36	9	8	6	24	17	0	6	4	30	0	210
27OCT	SE	39	26	6	5	6	10	10	0	4	4	11	0	51
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

TABLE C-91 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF ALEWIFE YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	CPUE	0.00	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.03
30JUN	SE	0.00	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.34
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
11JUL-	CPUE	0.00	0.00	0.00	0.00	0.00	9.67	12.00	2.25	9.13	5.00	6.84	0.83	3.81
14JUL	SE	0.00	0.00	0.00	0.00	0.00	7.67	7.68	1.56	7.35	1.65	4.29	0.46	13.98
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
25JUL-	CPUE	0.33	0.00	0.00	0.00	11.33	0.67	5.63	5.00	10.88	17.20	1.95	0.00	4.42
27JUL	SE	0.33	0.00	0.00	0.00	9.84	0.67	3.47	1.54	5.47	6.35	1.00	0.00	13.52
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
08AUG-	CPUE	0.00	0.67	0.00	1.00	0.00	0.00	11.40	19.80	0.00	0.00	2.80	1.00	3.06
11AUG	SE	0.00	0.67	0.00	1.00	0.00	0.00	9.19	15.04	0.00	0.00	1.17	1.00	17.73
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	CPUE	0.00	0.08	0.00	2.00	13.00	11.17	4.60	10.00	0.20	1.89	0.30	0.29	3.63
25AUG	SE	0.00	0.06	0.00	1.76	6.20	10.39	3.64	4.74	0.20	0.72	0.21	0.18	13.63
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	CPUE	0.00	0.17	2.57	3.40	0.80	0.00	1.80	8.20	0.60	0.00	1.20	0.00	1.56
09SEP	SE	0.00	0.17	2.35	3.40	0.58	0.00	1.11	4.96	0.40	0.00	1.20	0.00	6.70
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
19SEP-	CPUE	0.00	0.04	0.21	9.20	0.20	0.33	0.20	1.60	0.40	1.89	0.00	0.00	1.17
22SEP	SE	0.00	0.04	0.21	7.17	0.20	0.33	0.20	1.12	0.40	1.55	0.00	0.00	7.44
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	CPUE	0.00	0.13	0.00	0.60	15.80	0.00	0.20	0.00	0.20	0.00	0.70	0.00	1.47
07OCT	SE	0.00	0.09	0.00	0.60	12.40	0.00	0.20	0.00	0.20	0.00	0.52	0.00	12.42
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17OCT-	CPUE	0.00	0.21	0.07	2.20	0.40	0.17	0.40	0.00	0.00	0.00	0.20	0.00	0.30
19OCT	SE	0.00	0.17	0.07	2.20	0.40	0.17	0.40	0.00	0.00	0.00	0.13	0.00	2.29
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31OCT-	CPUE	0.00	0.00	0.79	1.40	0.40	0.00	0.00	0.80	0.00	0.00	0.00	0.00	0.28
02NOV	SE	0.00	0.00	0.54	1.40	0.40	0.00	0.00	0.80	0.00	0.00	0.00	0.00	1.75
	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	ST. CROP	0	0	0	0	1	0	0	0	0	0	1	0	2
30JUN	SE	0	0	0	0	1	0	0	0	0	0	1	0	1
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
11JUL-	ST. CROP	0	0	0	0	0	103	85	3	79	88	135	11	503
14JUL	SE	0	0	0	0	0	82	54	2	63	29	84	6	147
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
25JUL-	ST. CROP	3	0	0	0	30	7	40	6	94	302	38	0	519
27JUL	SE	3	0	0	0	26	7	25	2	47	111	20	0	128
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
08AUG-	ST. CROP	0	30	0	9	0	0	81	25	0	0	55	14	214
11AUG	SE	0	30	0	9	0	0	65	19	0	0	23	14	79
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	ST. CROP	0	4	0	18	34	119	33	12	2	33	6	4	265
25AUG	SE	0	3	0	16	16	111	26	6	2	13	4	3	117
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	ST. CROP	0	8	69	31	2	0	13	10	5	0	24	0	162
09SEP	SE	0	8	63	31	2	0	8	6	3	0	24	0	76
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
19SEP-	ST. CROP	0	2	6	85	1	4	1	2	3	33	0	0	137
22SEP	SE	0	2	6	66	1	4	1	1	3	27	0	0	72
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	ST. CROP	0	6	0	6	42	0	1	0	2	0	14	0	70
07OCT	SE	0	4	0	6	33	0	1	0	2	0	10	0	35
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17OCT-	ST. CROP	0	9	2	20	1	2	3	0	0	0	4	0	41
19OCT	SE	0	8	2	20	1	2	3	0	0	0	3	0	22
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31OCT-	ST. CROP	0	0	21	13	1	0	0	1	0	0	0	0	36
02NOV	SE	0	0	14	13	1	0	0	1	0	0	0	0	19
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE C-93 REGIONAL DENSITY (NO./1,000m3) OF ALEWIFE YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21JUL	SE	0.00	0.00	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
01AUG-	DENSITY	0.00	0.01	0.00	0.00	0.01	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.01
05AUG	SE	0.00	0.01	0.00	0.00	0.01	0.00	0.03	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
15AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	<0.005
19AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	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
29AUG-	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
02SEP	SE	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.03
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	DENSITY	0.00	0.00	0.00	0.00	0.01	0.00	0.05	0.02	0.00	0.02	0.00	0.00	0.01
16SEP	SE	0.00	0.00	0.00	0.00	0.01	0.00	0.03	0.02	0.00	0.02	0.00	0.00	0.05
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	DENSITY	0.00	0.00	0.00	0.00	0.01	0.03	0.00	0.00	0.00	0.00	0.02	0.00	0.01
30SEP	SE	0.00	0.00	0.00	0.00	0.01	0.03	0.00	0.00	0.00	0.00	0.02	0.00	0.04
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	DENSITY	0.02	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.01
14OCT	SE	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.04
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24OCT-	DENSITY	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	<0.005
27OCT	SE	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.03
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

TABLE C-94 REGIONAL STANDING CROP (IN THOUSANDS) OF ALEWIFE YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
21JUL	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
01AUG-	ST. CROP	0	5	0	0	2	0	16	0	0	0	0	0	23
05AUG	SE	0	5	0	0	2	0	10	0	0	0	0	0	11
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
15AUG-	ST. CROP	0	0	0	0	0	0	0	3	0	0	0	0	3
19AUG	SE	0	0	0	0	0	0	0	3	0	0	0	0	3
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	ST. CROP	0	0	0	0	0	4	0	0	0	0	0	0	4
02SEP	SE	0	0	0	0	0	4	0	0	0	0	0	0	4
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	ST. CROP	0	0	0	0	3	0	16	4	0	4	0	0	25
16SEP	SE	0	0	0	0	3	0	9	4	0	4	0	0	11
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	ST. CROP	0	0	0	0	3	4	0	0	0	0	3	0	10
30SEP	SE	0	0	0	0	3	4	0	0	0	0	3	0	6
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	ST. CROP	4	9	0	0	0	0	0	0	0	10	0	0	22
14OCT	SE	4	6	0	0	0	0	0	0	0	5	0	0	9
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24OCT-	ST. CROP	7	0	0	0	0	0	0	0	0	4	0	0	10
27OCT	SE	4	0	0	0	0	0	0	0	0	4	0	0	6
	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	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
30JUN	SE	0.00	0.00	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
11JUL-	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
14JUL	SE	0.00	0.00	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
25JUL-	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
27JUL	SE	0.00	0.00	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
08AUG-	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
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	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	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
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	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	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
09SEP	SE	0.00	0.00	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
19SEP-	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
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	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	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
07OCT	SE	0.00	0.00	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
17OCT-	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
19OCT	SE	0.00	0.00	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
31OCT-	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
02NOV	SE	0.00	0.00	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
30JUN	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
11JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
14JUL	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
25JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
27JUL	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
08AUG-	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	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	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	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
09SEP	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
19SEP-	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	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
07OCT	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
17OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
19OCT	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
31OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
02NOV	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-97 REGIONAL DENSITY (NO./1,000m3) OF BLUEBACK HERRING YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	DENSITY	0.00	0.00	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	DENSITY	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.80	1.54	0.72	0.00	35.56	9.85	3.73
01JUL	SE	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.80	1.54	0.72	0.00	19.71	9.85	22.12
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	7.71	140.88	43.10	64.33	12.38	67.64	158.80	38.06
08JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	6.09	103.64	34.17	50.87	4.27	18.84	105.34	161.26
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	51.69	105.28	91.80	NS	NS	NS	NS	NS	31.09
14JUL	SE	0.00	0.00	0.00	0.00	0.00	45.84	55.37	54.36						90.12
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	DENSITY	0.00	0.00	0.00	0.94	7.68	51.08	222.46	9.19	NS	NS	NS	NS	NS	36.42
28JUL	SE	0.00	0.00	0.00	0.76	6.35	15.20	72.02	5.23						74.07
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	DENSITY	0.00	0.00	1.15	1.50	1.18	89.86	217.10	63.70	NS	NS	NS	NS	NS	46.81
10AUG	SE	0.00	0.00	1.15	0.95	0.70	49.64	48.55	45.39						82.97
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	DENSITY	0.00	0.00	0.00	0.21	0.33	49.42	171.82	93.08	NS	NS	NS	NS	NS	39.36
24AUG	SE	0.00	0.00	0.00	0.21	0.17	20.47	30.52	5.96						37.23
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	DENSITY	0.00	0.00	0.00	0.00	1.41	61.73	241.91	233.57	NS	NS	NS	NS	NS	67.33
08SEP	SE	0.00	0.00	0.00	0.00	1.41	14.54	57.63	77.06						97.33
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	DENSITY	0.00	0.00	0.00	0.00	0.04	26.54	200.18	48.18	NS	NS	NS	NS	NS	34.37
22SEP	SE	0.00	0.00	0.00	0.00	0.04	8.46	45.11	26.80						53.15
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	5.57	78.67	68.66	NS	NS	NS	NS	NS	19.11
05OCT	SE	0.00	0.00	0.00	0.00	0.00	1.07	29.68	19.55						35.56
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-98 REGIONAL STANDING CROP (IN THOUSANDS) OF BLUEBACK HERRING YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
30APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
06MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
13MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	ST. CROP	NS	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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
27MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	ST. CROP	NS	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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	ST. CROP	0	0	0	0	10	0	0	239	254	102	0	5716	701	7021
01JUL	SE	0	0	0	0	10	0	0	239	254	102	0	3169	701	3266
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	ST. CROP	0	0	0	0	0	0	1078	42002	7132	9101	2183	10871	11299	83666
08JUL	SE	0	0	0	0	0	0	851	30898	5654	7197	752	3028	7495	33243
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	ST. CROP	0	0	0	0	0	10722	14717	27368	NS	NS	NS	NS	NS	52807
14JUL	SE	0	0	0	0	0	9510	7740	16205						20322
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	ST. CROP	0	0	0	138	1599	10597	31097	2738	NS	NS	NS	NS	NS	46171
28JUL	SE	0	0	0	112	1323	3153	10068	1559						10747
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	ST. CROP	0	0	369	222	246	18643	30349	18990	NS	NS	NS	NS	NS	68819
10AUG	SE	0	0	369	140	145	10299	6787	13531						18314
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	ST. CROP	0	0	0	30	69	10253	24019	27749	NS	NS	NS	NS	NS	62121
24AUG	SE	0	0	0	30	35	4246	4266	1776						6276
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	ST. CROP	0	0	0	0	295	12807	33816	69635	NS	NS	NS	NS	NS	116553
08SEP	SE	0	0	0	0	295	3016	8056	22976						24535
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	ST. CROP	0	0	0	0	9	5505	27983	14364	NS	NS	NS	NS	NS	47861
22SEP	SE	0	0	0	0	9	1754	6307	7990						10329
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	ST. CROP	0	0	0	0	0	1156	10997	20470	NS	NS	NS	NS	NS	32623
05OCT	SE	0	0	0	0	0	223	4150	5830						7159
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-99 REGIONAL DENSITY (NO./1,000m3) OF BLUEBACK HERRING YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	DENSITY	0.00	0.00	0.39	2.09	3.80	29.02	1.11	19.61	4.13	16.10	26.26	3.63	8.84
21JUL	SE	0.00	0.00	0.37	1.20	1.90	20.20	0.29	16.40	1.03	4.82	7.39	2.03	27.66
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
01AUG-	DENSITY	0.00	0.11	0.20	0.14	0.79	20.49	6.11	7.66	21.12	8.67	45.58	25.50	11.36
05AUG	SE	0.00	0.08	0.12	0.04	0.76	9.78	4.00	4.64	9.15	2.49	6.35	11.98	20.19
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
15AUG-	DENSITY	0.00	0.00	0.19	0.06	28.09	11.83	27.33	4.71	13.21	13.07	31.10	3.48	11.09
19AUG	SE	0.00	0.00	0.06	0.03	24.97	3.91	8.29	1.24	3.18	5.13	12.65	1.11	30.11
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	DENSITY	0.00	0.00	0.00	0.76	16.17	4.96	2.09	19.57	10.98	7.52	22.77	15.49	8.36
02SEP	SE	0.00	0.00	0.00	0.70	7.56	1.57	0.65	6.56	2.34	2.30	3.44	7.50	13.51
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	DENSITY	0.00	0.00	0.02	1.25	12.88	7.59	5.70	5.73	11.58	7.16	21.15	1.73	6.23
16SEP	SE	0.00	0.00	0.02	0.58	6.43	2.83	2.24	2.34	3.12	1.43	3.70	1.07	9.32
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	DENSITY	0.00	0.00	0.00	0.00	5.02	16.75	3.73	3.53	13.28	8.07	22.39	1.32	6.17
30SEP	SE	0.00	0.00	0.00	0.00	1.41	10.16	2.69	0.81	3.69	1.97	3.00	0.52	11.83
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	DENSITY	0.00	0.11	0.21	9.11	18.68	46.01	5.68	6.03	7.95	6.92	9.45	0.00	9.18
14OCT	SE	0.00	0.04	0.04	8.81	15.74	24.35	1.06	2.04	2.19	1.49	2.46	0.00	30.60
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24OCT-	DENSITY	0.49	4.46	10.09	26.97	1.22	1.14	0.17	0.11	4.32	0.69	3.11	0.12	4.41
27OCT	SE	0.12	1.03	6.74	12.52	0.69	0.36	0.08	0.07	1.92	0.48	0.52	0.08	14.43
	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	ST. CROP	0	0	58	436	788	4057	331	3245	584	2838	4221	258	16816
21JUL	SE	0	0	55	250	393	2824	85	2713	146	849	1188	144	4212
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
01AUG-	ST. CROP	0	37	29	30	165	2864	1822	1268	2988	1528	7326	1814	19871
05AUG	SE	0	25	18	9	159	1367	1193	768	1295	439	1021	852	2747
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
15AUG-	ST. CROP	0	0	28	13	5828	1654	8147	779	1869	2304	4999	248	25869
19AUG	SE	0	0	8	6	5179	547	2472	206	450	904	2034	79	6200
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	ST. CROP	0	0	0	159	3354	694	622	3238	1554	1326	3660	1102	15708
02SEP	SE	0	0	0	145	1569	220	194	1086	331	405	553	534	2148
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	ST. CROP	0	0	3	259	2671	1060	1698	948	1638	1262	3400	123	13064
16SEP	SE	0	0	3	120	1335	396	667	387	442	252	595	76	1779
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	ST. CROP	0	0	0	0	1041	2342	1112	584	1878	1422	3599	94	12071
30SEP	SE	0	0	0	0	292	1421	801	135	523	346	482	37	1841
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	ST. CROP	0	34	32	1898	3875	6432	1693	999	1125	1220	1520	0	18827
14OCT	SE	0	12	6	1836	3266	3403	315	337	309	262	395	0	5114
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24OCT-	ST. CROP	112	1436	1490	5619	253	160	50	19	611	122	500	8	10379
27OCT	SE	27	331	995	2609	143	50	24	12	271	84	84	6	2832
	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	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
30JUN	SE	0.00	0.00	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
11JUL-	CPUE	0.00	0.00	0.00	0.00	0.00	14.00	13.88	1.38	0.25	0.53	5.11	0.42	2.96
14JUL	SE	0.00	0.00	0.00	0.00	0.00	11.06	8.45	1.10	0.16	0.32	2.25	0.19	14.15
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
25JUL-	CPUE	0.00	0.55	0.14	0.67	4.67	49.33	147.50	2.88	89.50	30.67	36.95	5.17	30.67
27JUL	SE	0.00	0.55	0.14	0.33	2.91	24.73	74.70	1.68	63.52	10.21	18.54	2.48	103.40
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
08AUG-	CPUE	0.00	0.04	0.00	0.00	11.40	23.67	68.60	480.60	28.40	34.11	143.90	71.86	71.88
11AUG	SE	0.00	0.04	0.00	0.00	3.64	13.26	56.62	454.30	13.60	19.07	104.33	38.37	471.90
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	CPUE	0.00	0.00	0.00	1.00	343.80	104.17	247.00	486.40	719.80	76.44	108.70	50.57	178.16
25AUG	SE	0.00	0.00	0.00	0.63	281.70	69.99	136.08	227.12	354.29	30.63	49.73	26.11	532.89
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	CPUE	0.00	0.00	0.00	95.20	42.20	196.67	44.60	157.80	31.60	112.56	132.70	13.43	68.90
09SEP	SE	0.00	0.00	0.00	94.45	17.90	156.17	18.17	50.95	27.65	66.64	64.76	7.11	214.49
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
19SEP-	CPUE	0.00	0.00	0.00	22.00	3.00	163.00	358.60	76.80	854.80	45.89	5.00	42.86	131.00
22SEP	SE	0.00	0.00	0.00	17.64	1.48	148.46	116.56	54.72	536.54	43.40	2.39	33.75	574.31
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	CPUE	0.00	0.00	0.00	30.80	147.80	490.00	111.80	43.60	23.20	42.78	72.70	5.86	80.71
07OCT	SE	0.00	0.00	0.00	30.30	74.10	232.21	51.01	24.97	12.54	22.34	52.98	5.53	258.94
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17OCT-	CPUE	0.00	10.13	70.57	66.20	23.20	220.50	0.00	9.00	0.00	4.78	0.20	0.00	33.71
19OCT	SE	0.00	5.48	32.04	53.09	19.21	166.77	0.00	8.04	0.00	3.70	0.20	0.00	179.26
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31OCT-	CPUE	0.00	0.13	5.14	131.80	186.00	147.33	0.40	5.20	5.60	0.11	0.40	0.00	40.18
02NOV	SE	0.00	0.09	2.51	97.55	130.90	146.73	0.40	4.24	5.60	0.11	0.40	0.00	219.63
	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
30JUN	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
11JUL-	ST. CROP	0	0	0	0	0	149	98	2	2	9	100	6	367
14JUL	SE	0	0	0	0	0	118	60	1	1	6	44	3	140
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
25JUL-	ST. CROP	0	25	4	6	12	525	1047	4	770	538	727	70	3729
27JUL	SE	0	25	4	3	8	263	530	2	547	179	365	34	904
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
08AUG-	ST. CROP	0	2	0	0	30	252	487	596	244	599	2831	976	6018
11AUG	SE	0	2	0	0	10	141	402	563	117	335	2053	521	2261
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	ST. CROP	0	0	0	9	906	1109	1753	603	6197	1342	2139	687	14745
25AUG	SE	0	0	0	6	742	745	966	282	3050	538	979	355	3577
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	ST. CROP	0	0	0	877	111	2095	316	196	272	1976	2611	182	8637
09SEP	SE	0	0	0	870	47	1663	129	63	238	1170	1274	97	2570
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
19SEP-	ST. CROP	0	0	0	203	8	1736	2544	95	7359	806	98	582	13432
22SEP	SE	0	0	0	163	4	1581	827	68	4619	762	47	459	5034
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	ST. CROP	0	0	0	284	390	5219	793	54	200	751	1430	80	9200
07OCT	SE	0	0	0	279	195	2473	362	31	108	392	1042	75	2761
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17OCT-	ST. CROP	0	460	1898	610	61	2349	0	11	0	84	4	0	5477
19OCT	SE	0	249	862	489	51	1776	0	10	0	65	4	0	2051
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31OCT-	ST. CROP	0	6	138	1215	490	1569	3	6	48	2	8	0	3485
02NOV	SE	0	4	67	899	345	1563	3	5	48	2	8	0	1838
	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21JUL	SE	0.00	0.00	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
01AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05AUG	SE	0.00	0.00	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
15AUG-	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
19AUG	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
29AUG-	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
02SEP	SE	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.03
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	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
14OCT	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
24OCT-	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
27OCT	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-104 REGIONAL STANDING CROP (IN THOUSANDS) OF BLUEBACK HERRING YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
21JUL	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
01AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
05AUG	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
15AUG-	ST. CROP	0	0	0	0	0	0	9	0	0	0	0	0	9
19AUG	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
29AUG-	ST. CROP	0	0	0	0	0	4	0	0	0	0	0	0	4
02SEP	SE	0	0	0	0	0	4	0	0	0	0	0	0	4
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
16SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
30SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	ST. CROP	0	3	0	0	0	0	0	0	0	0	0	0	3
14OCT	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
24OCT-	ST. CROP	0	0	0	0	0	0	8	0	0	0	0	0	8
27OCT	SE	0	0	0	0	0	0	8	0	0	0	0	0	8
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

TABLE C-105 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF BLUEBACK HERRING YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	CPUE	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
30JUN	SE	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
11JUL-	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
14JUL	SE	0.00	0.00	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
25JUL-	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
27JUL	SE	0.00	0.00	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
08AUG-	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
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	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	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
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	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	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
09SEP	SE	0.00	0.00	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
19SEP-	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
22SEP	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
04OCT-	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
07OCT	SE	0.00	0.00	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
17OCT-	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
19OCT	SE	0.00	0.00	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
31OCT-	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
02NOV	SE	0.00	0.00	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	ST. CROP	3	0	0	0	0	0	0	0	0	0	0	0	3
30JUN	SE	3	0	0	0	0	0	0	0	0	0	0	0	3
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
11JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
14JUL	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
25JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
27JUL	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
08AUG-	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	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	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	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
09SEP	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
19SEP-	ST. CROP	0	2	0	0	0	0	0	0	0	0	0	0	2
22SEP	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
04OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
07OCT	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
17OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
19OCT	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
31OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
02NOV	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-107 REGIONAL DENSITY (NO./1,000m3) OF GIZZARD SHAD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	DENSITY	0.00	0.00	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-23JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-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	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-14JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-28JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-10AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-24AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-08SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-22SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-05OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-108 REGIONAL STANDING CROP (IN THOUSANDS) OF GIZZARD SHAD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
30APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
06MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
13MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	ST. CROP	NS	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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
27MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	ST. CROP	NS	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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	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	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
10AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
24AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
08SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
22SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-109 REGIONAL DENSITY (NO./1,000m3) OF GIZZARD SHAD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	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
21JUL	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
01AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05AUG	SE	0.00	0.00	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
15AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19AUG	SE	0.00	0.00	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
29AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14OCT	SE	0.00	0.00	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
24OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27OCT	SE	0.00	0.00	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	ST. CROP	0	0	0	0	0	1	0	0	0	0	0	0	1
21JUL	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
01AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
05AUG	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
15AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
19AUG	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
29AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
02SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
16SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
30SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
14OCT	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
24OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
27OCT	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	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
30JUN	SE	0.00	0.00	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
11JUL-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.00	0.01
14JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.00	0.13
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
25JUL-	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
27JUL	SE	0.00	0.00	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
08AUG-	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
11AUG	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
22AUG-	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
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	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	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
09SEP	SE	0.00	0.00	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
19SEP-	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
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	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	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
07OCT	SE	0.00	0.00	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
17OCT-	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
19OCT	SE	0.00	0.00	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
31OCT-	CPUE	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
02NOV	SE	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE C-112 REGIONAL STANDING CROP (IN THOUSANDS) OF GIZZARD SHAD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
30JUN	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
11JUL-	ST. CROP	0	0	0	0	0	0	1	0	0	0	0	0	1
14JUL	SE	0	0	0	0	0	0	1	0	0	0	0	0	1
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
25JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
27JUL	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
08AUG-	ST. CROP	0	0	0	0	1	0	0	0	0	0	0	0	1
11AUG	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
22AUG-	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	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
09SEP	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
19SEP-	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	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
07OCT	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
17OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
19OCT	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
31OCT-	ST. CROP	0	0	0	0	1	0	0	0	0	0	0	0	1
02NOV	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

TABLE C-113 REGIONAL DENSITY (NO./1,000m3) OF GIZZARD SHAD YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21JUL	SE	0.00	0.00	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
01AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05AUG	SE	0.00	0.00	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
15AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19AUG	SE	0.00	0.00	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
29AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14OCT	SE	0.00	0.00	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
24OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

TABLE C-114 REGIONAL STANDING CROP (IN THOUSANDS) OF GIZZARD SHAD YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
21JUL	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
01AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
05AUG	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
15AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
19AUG	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
29AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
02SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
16SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
30SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
14OCT	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
24OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
27OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

TABLE C-115 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF GIZZARD SHAD YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	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
30JUN	SE	0.00	0.00	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
11JUL-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	5.38	0.13	0.00	0.00	0.00	0.00	0.46
14JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	3.54	0.13	0.00	0.00	0.00	0.00	3.54
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
25JUL-	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
27JUL	SE	0.00	0.00	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
08AUG-	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
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	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	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
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	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	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
09SEP	SE	0.00	0.00	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
19SEP-	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
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	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	CPUE	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
07OCT	SE	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17OCT-	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
19OCT	SE	0.00	0.00	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
31OCT-	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
02NOV	SE	0.00	0.00	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-116 REGIONAL STANDING CROP (IN THOUSANDS) OF GIZZARD SHAD YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
30JUN	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
11JUL-	ST. CROP	0	0	0	0	0	0	38	0	0	0	0	0	38
14JUL	SE	0	0	0	0	0	0	25	<0.5	0	0	0	0	25
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
25JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
27JUL	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
08AUG-	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	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	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	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
09SEP	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
19SEP-	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	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	ST. CROP	0	0	0	0	1	0	0	0	0	0	0	0	1
07OCT	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
17OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
19OCT	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
31OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
02NOV	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-117 REGIONAL DENSITY (NO./1,000m3) OF RAINBOW SMELT EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00	0.02
15APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00	0.26
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.54	4.49	0.00	0.42
30APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.54	4.49	0.00	4.52
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.12	0.00	0.00	0.30	0.45
13MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.12	0.00	0.00	0.30	5.13
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	DENSITY	0.00	0.00	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

TABLE C-117 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF RAINBOW SMELT EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	DENSITY	0.00	0.00	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	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	DENSITY	0.00	0.00	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
28JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
10AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
24AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
08SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
22SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
05OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-118 REGIONAL STANDING CROP (IN THOUSANDS) OF RAINBOW SMELT EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	46	0	0	46
15APR	SE		0	0	0	0	0	0	0	0	0	46	0	0	46
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	96	721	0	817
30APR	SE		0	0	0	0	0	0	0	0	0	96	721	0	728
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
06MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	725	0	0	21	746
13MAY	SE		0	0	0	0	0	0	0	0	725	0	0	21	725
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	ST. CROP	NS	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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
27MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	ST. CROP	NS	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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

TABLE C-118 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF RAINBOW SMELT EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	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	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
10AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
24AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
08SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
22SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-119 REGIONAL DENSITY (NO./1,000m3) OF RAINBOW SMELT YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	DENSITY	NS	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
22APR	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		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	DENSITY	NS	0.00	1.07	12.79	11.75	9.66	18.97	32.54	42.34	52.84	25.42	4.89	0.00	17.69
30APR	SE		0.00	1.07	4.55	6.30	8.17	11.74	3.12	17.69	8.72	20.88	2.17	0.00	33.25
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	DENSITY	NS	0.70	16.15	8.08	7.35	126.70	156.51	511.54	274.54	173.10	98.35	31.25	0.55	117.07
06MAY	SE		0.70	7.20	3.43	6.38	55.67	42.23	109.67	104.91	55.67	24.03	6.69	0.34	178.17
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	DENSITY	NS	0.00	0.00	3.27	37.85	47.46	59.04	51.03	92.32	58.31	76.06	11.41	45.33	40.17
13MAY	SE		0.00	0.00	3.27	19.50	26.10	20.94	20.99	17.92	13.58	21.23	7.90	43.65	69.82
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	DENSITY	NS	0.00	0.00	0.00	12.77	5.50	6.47	1.63	16.14	17.40	7.39	71.59	0.00	11.57
20MAY	SE		0.00	0.00	0.00	12.50	4.21	3.35	1.31	8.10	4.05	3.60	57.32	0.00	59.73
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.55	7.39	0.00	23.04	0.00	0.00	0.00	28.06	4.92
27MAY	SE		0.00	0.00	0.00	0.00	0.55	7.39	0.00	23.04	0.00	0.00	0.00	28.06	37.05
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	DENSITY	0.00	0.00	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	DENSITY	0.00	0.00	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	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	DENSITY	0.00	0.00	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
28JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
10AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
24AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
08SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
22SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
05OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-120 REGIONAL STANDING CROP (IN THOUSANDS) OF RAINBOW SMELT YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	ST. CROP	NS	0	0	0	0	0	5	0	0	0	0	0	0	5
22APR	SE		0	0	0	0	0	5	0	0	0	0	0	0	5
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	ST. CROP	NS	0	345	1889	2448	2004	2651	9700	7007	7475	4481	786	0	38787
30APR	SE		0	345	673	1313	1695	1642	930	2927	1234	3680	350	0	5700
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	ST. CROP	NS	160	5196	1194	1531	26285	21879	152507	45432	24489	17339	5023	39	301074
06MAY	SE		160	2317	507	1330	11549	5903	32697	17361	7876	4237	1075	24	40340
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	ST. CROP	NS	0	0	483	7885	9845	8253	15213	15278	8249	13409	1835	3225	83675
13MAY	SE		0	0	483	4062	5414	2927	6258	2965	1921	3743	1270	3106	11468
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	ST. CROP	NS	0	0	0	2660	1142	904	486	2671	2462	1304	11506	0	23134
20MAY	SE		0	0	0	2605	872	468	392	1340	573	635	9213	0	9763
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	ST. CROP	NS	0	0	0	0	114	1033	0	3813	0	0	0	1996	6957
27MAY	SE		0	0	0	0	114	1033	0	3813	0	0	0	1996	4427
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	ST. CROP	NS	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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	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	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
10AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
24AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
08SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
22SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-121 REGIONAL DENSITY (NO./1,000m3) OF RAINBOW SMELT POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	DENSITY	NS	0.00	1.42	11.23	3.21	6.12	2.93	17.89	18.73	8.68	3.28	0.35	0.00	6.15
30APR	SE		0.00	1.00	3.14	1.52	2.97	1.00	10.71	8.09	4.62	1.16	0.35	0.00	15.03
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	DENSITY	NS	37.55	9.13	11.86	26.11	4.94	30.22	61.64	50.12	6.88	6.87	0.00	0.00	20.44
06MAY	SE		19.93	4.78	4.02	16.01	2.98	9.85	23.69	38.48	1.91	6.41	0.00	0.00	53.71
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	DENSITY	NS	0.72	61.53	141.50	235.42	96.96	174.82	150.92	46.68	2.85	34.06	0.51	0.00	78.83
13MAY	SE		0.72	31.70	27.82	94.43	24.78	46.38	61.85	17.67	2.15	28.14	0.51	0.00	135.63
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	DENSITY	NS	71.09	395.31	726.30	205.19	164.03	291.15	321.83	113.92	6.42	21.51	10.41	0.00	193.93
20MAY	SE		18.03	136.96	103.49	71.50	55.03	57.61	134.24	36.19	4.76	21.51	8.24	0.00	247.26
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	DENSITY	NS	137.05	215.06	236.15	490.02	186.86	941.81	429.82	206.37	73.04	1.97	0.00	132.48	254.22
27MAY	SE		32.62	27.89	37.48	237.44	98.22	411.51	194.92	39.68	38.76	1.97	0.00	132.48	545.20
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	DENSITY	NS	117.60	158.23	133.83	123.38	267.99	586.40	509.92	378.85	278.16	12.46	0.00	0.00	213.90
04JUN	SE		6.63	31.77	14.34	24.60	108.97	167.17	100.59	83.84	163.27	5.10	0.00	0.00	292.43
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	DENSITY	7.31	22.55	48.13	51.62	159.07	393.13	468.24	464.72	54.51	38.64	24.20	0.00	0.00	133.24
10JUN	SE	0.61	13.84	12.49	7.55	46.20	198.73	95.77	226.16	10.40	12.04	24.20	0.00	0.00	321.24
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	DENSITY	49.82	205.92	158.28	603.59	96.53	187.64	241.87	92.60	17.30	19.93	0.00	0.00	0.00	128.73
16JUN	SE	23.23	51.28	29.42	255.53	50.44	87.65	69.34	24.95	4.52	9.43	0.00	0.00	0.00	291.71
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	DENSITY	0.57	126.23	42.48	247.10	54.56	37.53	178.49	34.57	8.47	13.93	8.66	2.36	0.00	58.07
23JUN	SE	0.57	29.97	10.34	16.26	22.74	12.62	74.00	9.01	2.90	7.45	8.66	2.36	0.00	87.45
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	DENSITY	92.58	48.03	39.70	23.40	24.68	37.70	55.57	19.05	14.14	5.61	0.00	0.00	0.00	27.73
01JUL	SE	46.81	16.94	11.33	19.60	15.61	21.29	21.87	6.69	10.55	3.13	0.00	0.00	0.00	65.82
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	DENSITY	20.85	56.70	3.61	0.00	7.73	22.66	7.01	0.00	0.93	0.00	0.32	0.00	0.00	9.22
08JUL	SE	20.85	34.42	3.61	0.00	7.73	7.30	2.81	0.00	0.93	0.00	0.32	0.00	0.00	41.89
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	DENSITY	0.00	135.89	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	16.99
14JUL	SE	0.00	134.37	0.00	0.00	0.00	0.00	0.00	0.00						134.37
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	DENSITY	10.12	0.00	0.00	0.00	3.06	0.14	0.00	0.00	NS	NS	NS	NS	NS	1.66
28JUL	SE	10.12	0.00	0.00	0.00	2.81	0.14	0.00	0.00						10.51
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
10AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
24AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
08SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
22SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
05OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-122 REGIONAL STANDING CROP (IN THOUSANDS) OF RAINBOW SMELT POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	ST. CROP	NS	0	457	1659	668	1270	410	5333	3099	1228	578	56	0	14758
30APR	SE		0	322	464	316	616	140	3192	1339	653	204	56	0	3643
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	ST. CROP	NS	8616	2939	1751	5439	1024	4225	18376	8295	974	1212	0	0	52851
06MAY	SE		4572	1537	594	3335	619	1377	7063	6367	270	1131	0	0	11349
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	ST. CROP	NS	165	19801	20905	49046	20116	24439	44994	7724	404	6004	82	0	193681
13MAY	SE		165	10201	4110	19672	5141	6484	18439	2924	305	4960	82	0	30817
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	ST. CROP	NS	16309	127214	107301	42748	34029	40701	95948	18852	908	3792	1673	0	489476
20MAY	SE		4136	44076	15290	14897	11417	8053	40022	5988	673	3792	1325	0	65306
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	ST. CROP	NS	31443	69209	34889	102089	38766	131657	128145	34151	10333	347	0	9426	590455
27MAY	SE		7483	8975	5537	49468	20376	57526	58113	6567	5484	347	0	9426	99388
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	ST. CROP	NS	26980	50922	19771	25705	55597	81973	152024	62695	39351	2196	0	0	517214
04JUN	SE		1521	10224	2119	5125	22607	23369	29988	13874	23098	898	0	0	53112
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	ST. CROP	1529	5172	15489	7626	33139	81557	65456	138548	9021	5467	4266	0	0	367270
10JUN	SE	128	3175	4021	1115	9625	41227	13388	67427	1721	1703	4266	0	0	81053
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	ST. CROP	10412	47243	50937	89173	20112	38927	33811	27607	2862	2820	0	0	0	323904
16JUN	SE	4856	11765	9468	37751	10509	18184	9693	7437	747	1334	0	0	0	47639
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	ST. CROP	119	28961	13671	36505	11367	7786	24952	10307	1402	1970	1526	380	0	138945
23JUN	SE	119	6875	3328	2402	4738	2619	10344	2686	480	1055	1526	380	0	14541
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	ST. CROP	19351	11020	12777	3457	5142	7820	7768	5680	2340	793	0	0	0	76148
01JUL	SE	9784	3886	3647	2895	3252	4417	3057	1995	1746	443	0	0	0	13385
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	ST. CROP	4358	13009	1162	0	1611	4700	980	0	154	0	56	0	0	26030
08JUL	SE	4358	7897	1162	0	1611	1514	393	0	154	0	56	0	0	9369
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	ST. CROP	0	31176	0	0	0	0	0	0	NS	NS	NS	NS	NS	31176
14JUL	SE	0	30826	0	0	0	0	0	0						30826
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	ST. CROP	2116	0	0	0	636	29	0	0	NS	NS	NS	NS	NS	2781
28JUL	SE	2116	0	0	0	586	29	0	0						2196
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
10AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
24AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
08SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
22SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-123 REGIONAL DENSITY (NO./1,000m3) OF RAINBOW SMELT YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	DENSITY	0.00	0.00	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	DENSITY	0.00	3.18	0.54	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31
16JUN	SE	0.00	1.66	0.54	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.77
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	DENSITY	0.00	0.64	3.20	4.71	13.03	0.00	2.33	0.00	0.00	0.00	0.00	0.00	0.00	1.84
23JUN	SE	0.00	0.64	1.03	3.34	12.25	0.00	1.35	0.00	0.00	0.00	0.00	0.00	0.00	12.82
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	DENSITY	1.02	1.17	5.06	0.42	2.35	3.14	2.02	0.23	1.09	0.00	0.00	0.00	0.00	1.27
01JUL	SE	1.02	0.76	3.92	0.42	1.70	2.79	0.95	0.23	1.09	0.00	0.00	0.00	0.00	5.47
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	DENSITY	7.11	13.06	0.57	25.98	0.00	5.40	2.79	0.39	0.00	0.00	0.00	0.00	0.00	4.25
08JUL	SE	7.11	9.43	0.57	25.98	0.00	2.73	1.42	0.39	0.00	0.00	0.00	0.00	0.00	28.72
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	DENSITY	79.72	153.05	0.00	26.45	17.64	2.62	6.74	0.67	NS	NS	NS	NS	NS	35.86
14JUL	SE	58.51	107.80	0.00	26.45	15.21	1.39	4.80	0.38						126.50
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	DENSITY	124.31	0.00	0.00	0.00	3.31	1.77	0.00	0.00	NS	NS	NS	NS	NS	16.17
28JUL	SE	63.96	0.00	0.00	0.00	1.85	1.64	0.00	0.00						64.01
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	DENSITY	0.00	2.41	0.00	2.12	3.00	1.52	0.12	0.00	NS	NS	NS	NS	NS	1.14
10AUG	SE	0.00	0.96	0.00	1.83	1.46	0.87	0.12	0.00						2.68
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	DENSITY	1.41	0.00	0.00	0.00	0.70	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.26
24AUG	SE	1.41	0.00	0.00	0.00	0.70	0.00	0.00	0.00						1.57
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	DENSITY	0.00	0.00	0.00	0.00	0.04	0.66	0.00	0.00	NS	NS	NS	NS	NS	0.09
08SEP	SE	0.00	0.00	0.00	0.00	0.04	0.14	0.00	0.00						0.15
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.69	0.00	0.00	NS	NS	NS	NS	NS	0.09
22SEP	SE	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00						0.50
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	1.10	0.00	NS	NS	NS	NS	NS	0.14
05OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.71	0.00						0.71
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-124 REGIONAL STANDING CROP (IN THOUSANDS) OF RAINBOW SMELT YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
30APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
06MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
13MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	ST. CROP	NS	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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
27MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	ST. CROP	NS	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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	ST. CROP	0	730	174	39	0	0	0	0	0	0	0	0	0	943
16JUN	SE	0	381	174	39	0	0	0	0	0	0	0	0	0	420
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	ST. CROP	0	147	1029	696	2714	0	326	0	0	0	0	0	0	4911
23JUN	SE	0	147	332	494	2552	0	188	0	0	0	0	0	0	2631
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	ST. CROP	214	269	1627	62	489	652	282	67	180	0	0	0	0	3842
01JUL	SE	214	175	1262	62	353	578	133	67	180	0	0	0	0	1478
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	ST. CROP	1486	2996	184	3839	0	1121	390	116	0	0	0	0	0	10131
08JUL	SE	1486	2163	184	3839	0	567	199	116	0	0	0	0	0	4694
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	ST. CROP	16663	35113	0	3908	3676	544	942	199	NS	NS	NS	NS	NS	61045
14JUL	SE	12230	24732	0	3908	3169	288	671	113						28055
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	ST. CROP	25983	0	0	0	689	368	0	0	NS	NS	NS	NS	NS	27040
28JUL	SE	13368	0	0	0	386	340	0	0						13378
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	ST. CROP	0	552	0	313	625	315	17	0	NS	NS	NS	NS	NS	1821
10AUG	SE	0	220	0	271	304	180	17	0						497
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	ST. CROP	294	0	0	0	145	0	0	0	NS	NS	NS	NS	NS	439
24AUG	SE	294	0	0	0	145	0	0	0						328
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	ST. CROP	0	0	0	0	9	137	0	0	NS	NS	NS	NS	NS	146
08SEP	SE	0	0	0	0	9	29	0	0						30
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	ST. CROP	0	0	0	0	0	144	0	0	NS	NS	NS	NS	NS	144
22SEP	SE	0	0	0	0	0	103	0	0						103
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	ST. CROP	0	0	0	0	0	0	154	0	NS	NS	NS	NS	NS	154
05OCT	SE	0	0	0	0	0	0	99	0						99
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-125 REGIONAL DENSITY (NO./1,000m3) OF RAINBOW SMELT YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	DENSITY	16.24	14.38	2.27	12.58	29.60	0.56	0.00	0.00	0.00	0.00	0.00	0.00	6.30
21JUL	SE	11.30	7.31	0.99	4.21	10.54	0.56	0.00	0.00	0.00	0.00	0.00	0.00	17.65
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
01AUG-	DENSITY	1.02	0.34	0.20	3.63	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44
05AUG	SE	0.35	0.16	0.12	2.61	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.64
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
15AUG-	DENSITY	0.04	0.00	0.02	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.01
19AUG	SE	0.04	0.00	0.02	0.00	0.00	0.04	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
29AUG-	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
02SEP	SE	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	DENSITY	0.00	0.00	0.00	0.00	2.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23
16SEP	SE	0.00	0.00	0.00	0.00	2.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.76
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	DENSITY	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
30SEP	SE	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	DENSITY	0.00	0.00	0.00	0.00	0.03	1.16	0.00	0.00	0.00	0.00	0.00	0.00	0.10
14OCT	SE	0.00	0.00	0.00	0.00	0.02	1.16	0.00	0.00	0.00	0.00	0.00	0.00	1.16
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24OCT-	DENSITY	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<0.005
27OCT	SE	0.00	0.00	0.00	0.00	0.04	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

TABLE C-126 REGIONAL STANDING CROP (IN THOUSANDS) OF RAINBOW SMELT YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	ST. CROP	3726	4626	335	2620	6140	78	0	0	0	0	0	0	17527
21JUL	SE	2593	2351	147	878	2188	78	0	0	0	0	0	0	4223
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
01AUG-	ST. CROP	235	110	30	756	10	0	0	0	0	0	0	0	1141
05AUG	SE	81	52	18	544	6	0	0	0	0	0	0	0	553
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
15AUG-	ST. CROP	9	0	2	0	0	5	0	0	0	0	0	0	17
19AUG	SE	9	0	2	0	0	5	0	0	0	0	0	0	11
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	ST. CROP	0	0	0	0	6	0	0	0	0	0	0	0	6
02SEP	SE	0	0	0	0	6	0	0	0	0	0	0	0	6
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	ST. CROP	0	0	0	0	585	0	0	0	0	0	0	0	585
16SEP	SE	0	0	0	0	573	0	0	0	0	0	0	0	573
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	ST. CROP	0	0	0	0	20	0	0	0	0	0	0	0	20
30SEP	SE	0	0	0	0	14	0	0	0	0	0	0	0	14
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	ST. CROP	0	0	0	0	6	163	0	0	0	0	0	0	169
14OCT	SE	0	0	0	0	4	163	0	0	0	0	0	0	163
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24OCT-	ST. CROP	0	0	0	0	9	0	0	0	0	0	0	0	9
27OCT	SE	0	0	0	0	9	0	0	0	0	0	0	0	9
	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	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
30JUN	SE	0.00	0.00	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
11JUL-	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
14JUL	SE	0.00	0.00	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
25JUL-	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
27JUL	SE	0.00	0.00	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
08AUG-	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
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	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	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
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	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	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
09SEP	SE	0.00	0.00	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
19SEP-	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
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	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	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
07OCT	SE	0.00	0.00	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
17OCT-	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
19OCT	SE	0.00	0.00	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
31OCT-	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
02NOV	SE	0.00	0.00	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
30JUN	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
11JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
14JUL	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
25JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
27JUL	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
08AUG-	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	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	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	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
09SEP	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
19SEP-	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	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
07OCT	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
17OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
19OCT	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
31OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
02NOV	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	DENSITY	0.00	0.00	0.00	0.00	2.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21
21JUL	SE	0.00	0.00	0.00	0.00	1.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.53
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
01AUG-	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
05AUG	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
15AUG-	DENSITY	0.00	0.00	0.00	0.00	0.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06
19AUG	SE	0.00	0.00	0.00	0.00	0.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	DENSITY	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<0.005
02SEP	SE	0.00	0.00	0.00	0.00	0.01	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
12SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	DENSITY	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.02	0.00	0.00	0.00	0.00	<0.005
30SEP	SE	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.02	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
10OCT-	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
14OCT	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
24OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27OCT	SE	0.00	0.00	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	ST. CROP	0	0	0	0	519	0	0	0	0	0	0	0	519
21JUL	SE	0	0	0	0	317	0	0	0	0	0	0	0	317
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
01AUG-	ST. CROP	0	0	0	0	6	0	0	0	0	0	0	0	6
05AUG	SE	0	0	0	0	3	0	0	0	0	0	0	0	3
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
15AUG-	ST. CROP	0	0	0	0	142	0	0	0	0	0	0	0	142
19AUG	SE	0	0	0	0	142	0	0	0	0	0	0	0	142
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	ST. CROP	0	0	0	0	3	0	0	0	0	0	0	0	3
02SEP	SE	0	0	0	0	3	0	0	0	0	0	0	0	3
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
16SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	ST. CROP	0	0	0	0	6	0	0	3	0	0	0	0	8
30SEP	SE	0	0	0	0	3	0	0	3	0	0	0	0	4
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	ST. CROP	0	0	0	0	6	0	0	0	0	0	0	0	6
14OCT	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
24OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
27OCT	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	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
30JUN	SE	0.00	0.00	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
11JUL-	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
14JUL	SE	0.00	0.00	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
25JUL-	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
27JUL	SE	0.00	0.00	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
08AUG-	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
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	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	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
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	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	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
09SEP	SE	0.00	0.00	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
19SEP-	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
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	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	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
07OCT	SE	0.00	0.00	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
17OCT-	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
19OCT	SE	0.00	0.00	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
31OCT-	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
02NOV	SE	0.00	0.00	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
30JUN	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
11JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
14JUL	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
25JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
27JUL	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
08AUG-	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	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	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	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
09SEP	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
19SEP-	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	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
07OCT	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
17OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
19OCT	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
31OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
02NOV	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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	DENSITY	11.32	127.73	0.00	0.00	1.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.78
10JUN	SE	8.18	89.27	0.00	0.00	1.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	89.65
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	DENSITY	1435.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	110.43
16JUN	SE	1068.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1068.94
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

TABLE C-133 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF HOGCHOKER EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	DENSITY	3395.81	10030.37	12.06	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1033.73
23JUN	SE	892.82	7247.33	11.22	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7302.13
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	DENSITY	7724.93	110.15	0.00	2.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	602.92
01JUL	SE	3087.22	51.34	0.00	2.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3087.65
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	DENSITY	2179.24	25392.57	269.54	0.00	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2141.67
08JUL	SE	586.66	8715.32	111.56	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8735.75
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	DENSITY	1701.41	11101.80	121.88	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	1615.64
14JUL	SE	926.58	7156.41	59.09	0.00	0.00	0.00	0.00	0.00						7216.39
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	DENSITY	374.16	9.92	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	48.01
28JUL	SE	104.87	6.73	0.00	0.00	0.00	0.00	0.00	0.00						105.08
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	DENSITY	0.72	66.75	0.98	0.00	0.00	0.14	0.00	0.00	NS	NS	NS	NS	NS	8.57
10AUG	SE	0.72	32.08	0.98	0.00	0.00	0.14	0.00	0.00						32.10
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
24AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
08SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
22SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
05OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-134 REGIONAL STANDING CROP (IN THOUSANDS) OF HOGCHOKER EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
30APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
06MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
13MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	ST. CROP	NS	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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
27MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	ST. CROP	NS	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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	ST. CROP	2367	29303	0	0	222	0	0	0	0	0	0	0	0	31892
10JUN	SE	1710	20479	0	0	222	0	0	0	0	0	0	0	0	20552
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	ST. CROP	300065	0	0	0	0	0	0	0	0	0	0	0	0	300065
16JUN	SE	223422	0	0	0	0	0	0	0	0	0	0	0	0	223422
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

TABLE C-134 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF HOGCHOKER EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	ST. CROP	709768	2301169	3881	32	0	0	0	0	0	0	0	0	0	3014851
23JUN	SE	186611	1662685	3610	32	0	0	0	0	0	0	0	0	0	1673129
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	ST. CROP	1614610	25270	0	421	0	0	0	0	0	0	0	0	0	1640300
01JUL	SE	645269	11779	0	390	0	0	0	0	0	0	0	0	0	645377
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	ST. CROP	455489	5825571	86742	0	75	0	0	0	0	0	0	0	0	6367876
08JUL	SE	122619	1999471	35900	0	49	0	0	0	0	0	0	0	0	2003549
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	ST. CROP	355617	2546979	39221	0	0	0	0	0	NS	NS	NS	NS	NS	2941817
14JUL	SE	193667	1641825	19017	0	0	0	0	0						1653317
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	ST. CROP	78204	2277	0	0	0	0	0	0	NS	NS	NS	NS	NS	80481
28JUL	SE	21919	1543	0	0	0	0	0	0						21973
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	ST. CROP	151	15313	316	0	0	28	0	0	NS	NS	NS	NS	NS	15807
10AUG	SE	151	7360	316	0	0	28	0	0						7368
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
24AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
08SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
22SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-135 REGIONAL DENSITY (NO./1,000m3) OF HOGCHOKER YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	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
10JUN	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

TABLE C-135 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF HOGCHOKER YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	DENSITY	34.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.62
01JUL	SE	25.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.40
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	DENSITY	0.00	0.00	5.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46
08JUL	SE	0.00	0.00	5.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.95
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	DENSITY	17.60	0.00	75.99	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	11.70
14JUL	SE	17.60	0.00	66.74	0.00	0.00	0.00	0.00	0.00						69.02
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
28JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
10AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
24AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
08SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
22SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
05OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-136 REGIONAL STANDING CROP (IN THOUSANDS) OF HOGCHOKER YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
30APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
06MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
13MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	ST. CROP	NS	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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
27MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	ST. CROP	NS	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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	ST. CROP	113	0	0	0	0	0	0	0	0	0	0	0	0	113
10JUN	SE	113	0	0	0	0	0	0	0	0	0	0	0	0	113
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

TABLE C-136 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF HOGCHOKER YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	ST. CROP	7112	0	0	0	0	0	0	0	0	0	0	0	0	7112
01JUL	SE	5308	0	0	0	0	0	0	0	0	0	0	0	0	5308
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	ST. CROP	0	0	1914	0	0	0	0	0	0	0	0	0	0	1914
08JUL	SE	0	0	1914	0	0	0	0	0	0	0	0	0	0	1914
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	ST. CROP	3679	0	24455	0	0	0	0	0	NS	NS	NS	NS	NS	28134
14JUL	SE	3679	0	21476	0	0	0	0	0						21789
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
10AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
24AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
08SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
22SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-137 REGIONAL DENSITY (NO./1,000m3) OF HOGCHOKER POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.01
13MAY	SE		0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.15
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	DENSITY	NS	0.00	0.00	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
27MAY	SE		0.00	0.00	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	DENSITY	0.00	0.00	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	DENSITY	83.80	51.97	15.47	2.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.85
01JUL	SE	81.66	26.66	8.75	2.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	86.38
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	DENSITY	0.00	15.51	12.42	0.00	7.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.72
08JUL	SE	0.00	15.51	6.73	0.00	7.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.47
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	DENSITY	5.66	0.00	141.12	49.88	53.57	0.41	0.00	0.00	NS	NS	NS	NS	NS	31.33
14JUL	SE	5.66	0.00	115.25	37.71	22.66	0.41	0.00	0.00						123.50
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	DENSITY	0.00	0.00	0.00	0.00	4.37	0.00	5.21	0.00	NS	NS	NS	NS	NS	1.20
28JUL	SE	0.00	0.00	0.00	0.00	3.38	0.00	5.21	0.00						6.21
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	DENSITY	0.00	8.50	1.69	0.00	0.42	1.18	0.00	0.00	NS	NS	NS	NS	NS	1.47
10AUG	SE	0.00	8.50	1.69	0.00	0.25	0.84	0.00	0.00						8.71
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	DENSITY	0.00	0.00	0.00	0.33	0.00	0.00	0.37	0.00	NS	NS	NS	NS	NS	0.09
24AUG	SE	0.00	0.00	0.00	0.33	0.00	0.00	0.31	0.00						0.45
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
08SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
22SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
05OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-138 REGIONAL STANDING CROP (IN THOUSANDS) OF HOGCHOKER POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
30APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
06MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	ST. CROP	NS	0	0	0	0	0	21	0	0	0	0	0	0	21
13MAY	SE		0	0	0	0	0	21	0	0	0	0	0	0	21
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	ST. CROP	NS	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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	ST. CROP	NS	0	0	46	0	0	0	0	0	0	0	0	0	46
27MAY	SE		0	0	46	0	0	0	0	0	0	0	0	0	46
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	ST. CROP	NS	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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	ST. CROP	17516	11923	4979	418	0	0	0	0	0	0	0	0	0	34835
01JUL	SE	17068	6117	2814	361	0	0	0	0	0	0	0	0	0	18352
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	ST. CROP	0	3558	3997	0	1548	0	0	0	0	0	0	0	0	9103
08JUL	SE	0	3558	2165	0	1548	0	0	0	0	0	0	0	0	4443
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	ST. CROP	1183	0	45413	7370	11162	85	0	0	NS	NS	NS	NS	NS	65212
14JUL	SE	1183	0	37090	5571	4720	85	0	0						37821
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	ST. CROP	0	0	0	0	911	0	728	0	NS	NS	NS	NS	NS	1639
28JUL	SE	0	0	0	0	704	0	728	0						1012
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	ST. CROP	0	1950	543	0	87	244	0	0	NS	NS	NS	NS	NS	2824
10AUG	SE	0	1950	543	0	53	173	0	0						2033
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	ST. CROP	0	0	0	48	0	0	51	0	NS	NS	NS	NS	NS	100
24AUG	SE	0	0	0	48	0	0	44	0						65
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
08SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
22SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-139 REGIONAL DENSITY (NO./1,000m3) OF HOGCHOKER YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
27MAY	SE		0.00	0.00	0.00	0.00	0.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.53
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	DENSITY	0.00	0.00	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	DENSITY	0.00	0.00	0.00	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
16JUN	SE	0.00	0.00	0.00	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

TABLE C-139 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF HOGCHOKER YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	DENSITY	0.00	0.00	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	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	DENSITY	0.00	0.00	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	2.13	0.00	NS	NS	NS	NS	NS	0.27
28JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	2.13	0.00						2.13
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	3.57	9.69	3.04	NS	NS	NS	NS	NS	2.04
10AUG	SE	0.00	0.00	0.00	0.00	0.00	1.66	4.89	3.04						5.99
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	DENSITY	0.00	0.00	0.00	0.00	0.31	1.69	0.35	0.00	NS	NS	NS	NS	NS	0.29
24AUG	SE	0.00	0.00	0.00	0.00	0.16	0.78	0.27	0.00						0.84
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	DENSITY	0.00	0.00	0.00	0.43	5.06	1.98	1.07	0.72	NS	NS	NS	NS	NS	1.16
08SEP	SE	0.00	0.00	0.00	0.43	2.98	0.83	0.71	0.42						3.23
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	DENSITY	0.00	0.00	0.00	0.00	0.15	0.97	0.45	0.00	NS	NS	NS	NS	NS	0.20
22SEP	SE	0.00	0.00	0.00	0.00	0.15	0.97	0.45	0.00						1.08
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	DENSITY	0.00	0.00	0.00	1.11	0.00	0.00	0.89	0.00	NS	NS	NS	NS	NS	0.25
05OCT	SE	0.00	0.00	0.00	0.74	0.00	0.00	0.05	0.00						0.74
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-140 REGIONAL STANDING CROP (IN THOUSANDS) OF HOGCHOKER YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
30APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
06MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
13MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	ST. CROP	NS	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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	ST. CROP	NS	0	0	0	0	110	0	0	0	0	0	0	0	110
27MAY	SE		0	0	0	0	110	0	0	0	0	0	0	0	110
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	ST. CROP	NS	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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	ST. CROP	0	0	0	39	0	0	0	0	0	0	0	0	0	39
16JUN	SE	0	0	0	39	0	0	0	0	0	0	0	0	0	39
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

TABLE C-140 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF HOGCHOKER YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	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	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	ST. CROP	0	0	0	0	0	0	298	0	NS	NS	NS	NS	NS	298
28JUL	SE	0	0	0	0	0	0	298	0						298
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	ST. CROP	0	0	0	0	0	741	1355	907	NS	NS	NS	NS	NS	3003
10AUG	SE	0	0	0	0	0	344	684	907						1187
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	ST. CROP	0	0	0	0	65	351	49	0	NS	NS	NS	NS	NS	465
24AUG	SE	0	0	0	0	33	161	38	0						169
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	ST. CROP	0	0	0	63	1055	411	150	216	NS	NS	NS	NS	NS	1895
08SEP	SE	0	0	0	63	620	172	99	125						666
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	ST. CROP	0	0	0	0	31	202	63	0	NS	NS	NS	NS	NS	296
22SEP	SE	0	0	0	0	31	202	63	0						214
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	ST. CROP	0	0	0	164	0	0	125	0	NS	NS	NS	NS	NS	288
05OCT	SE	0	0	0	109	0	0	7	0						109
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-141 REGIONAL DENSITY (NO./1,000m3) OF HOGCHOKER YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21JUL	SE	0.00	0.00	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
01AUG-	DENSITY	0.00	0.00	0.06	0.22	0.25	0.22	0.79	0.00	0.00	0.00	0.00	0.00	0.13
05AUG	SE	0.00	0.00	0.03	0.11	0.13	0.11	0.68	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
15AUG-	DENSITY	0.00	0.05	1.23	1.25	0.41	0.60	0.06	0.07	0.33	0.17	0.03	0.00	0.35
19AUG	SE	0.00	0.05	0.29	0.69	0.07	0.30	0.04	0.05	0.13	0.08	0.03	0.00	0.83
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	DENSITY	0.07	2.06	0.17	4.68	1.06	2.08	0.32	0.45	1.55	0.26	0.07	0.00	1.06
02SEP	SE	0.06	0.76	0.09	2.01	0.68	0.82	0.15	0.08	0.39	0.15	0.05	0.00	2.44
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	DENSITY	0.01	1.28	3.32	2.37	0.32	1.25	0.27	0.91	1.53	1.82	0.37	0.09	1.13
16SEP	SE	0.01	0.48	0.64	0.96	0.21	0.26	0.14	0.11	0.47	0.54	0.12	0.06	1.49
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	DENSITY	0.00	0.52	1.56	7.43	1.73	3.02	0.57	1.23	2.27	2.46	0.10	0.12	1.75
30SEP	SE	0.00	0.17	0.32	1.99	0.57	1.50	0.37	0.61	0.82	0.59	0.05	0.08	2.87
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	DENSITY	0.00	1.05	10.08	3.49	3.81	1.32	0.38	1.50	3.79	1.58	0.11	0.00	2.26
14OCT	SE	0.00	0.47	2.06	1.74	1.50	0.32	0.18	0.42	1.43	0.62	0.06	0.00	3.53
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24OCT-	DENSITY	0.00	0.64	5.23	6.60	6.16	1.77	3.38	1.09	3.27	3.13	0.00	0.04	2.61
27OCT	SE	0.00	0.14	1.16	0.58	1.92	0.24	2.48	0.52	0.64	1.23	0.00	0.04	3.71
	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
21JUL	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
01AUG-	ST. CROP	0	0	9	47	51	31	236	0	0	0	0	0	374
05AUG	SE	0	0	4	23	27	15	203	0	0	0	0	0	207
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
15AUG-	ST. CROP	0	15	181	261	86	83	17	12	47	29	4	0	736
19AUG	SE	0	15	43	145	14	41	10	8	18	14	4	0	160
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	ST. CROP	16	664	25	975	221	291	95	75	219	45	11	0	2637
02SEP	SE	13	244	14	418	142	114	45	13	56	27	8	0	523
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	ST. CROP	3	411	491	493	67	174	80	151	216	320	60	6	2473
16SEP	SE	3	156	94	200	43	36	41	18	67	95	19	4	303
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	ST. CROP	0	167	230	1548	360	422	171	204	321	434	15	8	3882
30SEP	SE	0	55	48	416	119	209	112	100	116	104	9	6	532
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	ST. CROP	0	339	1489	727	791	184	114	248	536	278	17	0	4724
14OCT	SE	0	153	304	362	311	45	55	69	202	109	9	0	637
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24OCT-	ST. CROP	0	207	[illegible]	1376	1279	248	1008	180	462	552	0	3	6086
27OCT	SE	0	44	171	120	399	33	739	86	90	217	0	3	902
	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	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
30JUN	SE	0.00	0.00	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
11JUL-	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
14JUL	SE	0.00	0.00	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
25JUL-	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
27JUL	SE	0.00	0.00	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
08AUG-	CPUE	0.00	0.00	2.21	0.20	0.20	0.00	0.80	0.00	0.20	0.00	0.00	0.00	0.30
11AUG	SE	0.00	0.00	1.58	0.20	0.20	0.00	0.58	0.00	0.20	0.00	0.00	0.00	1.72
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	CPUE	0.00	0.00	0.07	0.00	0.20	0.00	0.00	0.00	1.20	0.00	0.10	0.00	0.13
25AUG	SE	0.00	0.00	0.07	0.00	0.20	0.00	0.00	0.00	0.73	0.00	0.10	0.00	0.77
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	CPUE	0.00	0.08	1.50	0.00	0.00	0.00	0.20	0.20	0.00	0.11	0.00	0.00	0.17
09SEP	SE	0.00	0.06	0.99	0.00	0.00	0.00	0.20	0.20	0.00	0.11	0.00	0.00	1.04
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
19SEP-	CPUE	0.00	0.13	0.07	0.40	0.20	1.67	0.40	0.00	0.00	0.11	0.00	0.43	0.28
22SEP	SE	0.00	0.07	0.07	0.40	0.20	0.92	0.40	0.00	0.00	0.11	0.00	0.30	1.15
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	CPUE	0.00	0.00	0.00	0.00	1.20	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.11
07OCT	SE	0.00	0.00	0.00	0.00	1.20	0.17	0.00	0.00	0.00	0.00	0.00	0.00	1.21
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17OCT-	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
19OCT	SE	0.00	0.00	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
31OCT-	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
02NOV	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-144 REGIONAL STANDING CROP (IN THOUSANDS) OF HOGCHOKER YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
30JUN	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
11JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
14JUL	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
25JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
27JUL	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
08AUG-	ST. CROP	0	0	60	2	1	0	6	0	2	0	0	0	69
11AUG	SE	0	0	42	2	1	0	4	0	2	0	0	0	43
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	ST. CROP	0	0	2	0	1	0	0	0	10	0	2	0	15
25AUG	SE	0	0	2	0	1	0	0	0	6	0	2	0	7
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	ST. CROP	0	4	40	0	0	0	1	0	0	2	0	0	48
09SEP	SE	0	3	27	0	0	0	1	<0.5	0	2	0	0	27
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
19SEP-	ST. CROP	0	6	2	4	1	18	3	0	0	2	0	6	40
22SEP	SE	0	3	2	4	1	10	3	0	0	2	0	4	12
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	ST. CROP	0	0	0	0	3	2	0	0	0	0	0	0	5
07OCT	SE	0	0	0	0	3	2	0	0	0	0	0	0	4
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
19OCT	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
31OCT-	ST. CROP	0	4	0	0	0	0	0	0	0	0	0	0	4
02NOV	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-145 REGIONAL DENSITY (NO./1,000m3) OF HOGCHOKER YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	DENSITY	15.69	4.53	2.34	1.41	0.14	0.39	0.08	0.06	1.12	0.77	0.45	0.40	2.28
21JUL	SE	4.29	1.42	0.49	0.72	0.04	0.22	0.03	0.04	0.25	0.21	0.11	0.20	4.63
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
01AUG-	DENSITY	1.97	2.08	0.39	0.59	0.09	0.42	0.16	0.05	1.18	1.80	0.41	0.04	0.76
05AUG	SE	0.61	0.80	0.12	0.25	0.07	0.14	0.10	0.03	0.28	0.77	0.16	0.04	1.35
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
15AUG-	DENSITY	0.47	1.15	3.22	2.89	0.78	1.92	1.05	0.14	1.21	0.79	0.72	0.73	1.26
19AUG	SE	0.25	0.54	0.77	1.43	0.28	0.93	0.74	0.06	0.47	0.24	0.18	0.48	2.24
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	DENSITY	0.23	2.95	0.80	4.12	1.66	1.98	0.42	0.20	3.97	2.47	0.20	0.80	1.65
02SEP	SE	0.12	1.48	0.25	1.09	0.66	0.90	0.19	0.09	0.95	0.64	0.08	0.27	2.47
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	DENSITY	0.71	2.53	1.69	2.66	0.58	2.43	0.89	0.88	3.61	4.46	0.44	0.74	1.80
16SEP	SE	0.30	1.28	0.63	1.18	0.21	1.11	0.49	0.25	0.58	1.23	0.24	0.26	2.66
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	DENSITY	0.81	0.89	0.93	5.95	4.88	3.50	1.54	0.83	4.15	6.22	0.73	1.19	2.64
30SEP	SE	0.39	0.13	0.28	1.99	2.13	1.30	1.01	0.38	1.05	1.72	0.46	0.55	4.03
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	DENSITY	0.49	2.27	4.18	5.19	8.18	1.31	0.40	2.25	4.97	6.01	0.42	0.05	2.98
14OCT	SE	0.17	0.49	0.83	1.66	1.93	0.64	0.11	0.70	1.12	2.13	0.15	0.05	3.76
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24OCT-	DENSITY	0.79	0.85	2.18	4.61	11.56	2.72	4.72	2.28	4.35	4.36	0.53	0.00	3.25
27OCT	SE	0.31	0.19	0.96	1.91	4.97	1.00	2.80	0.52	1.33	1.13	0.22	0.00	6.45
	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	ST. CROP	3599	1457	345	295	29	54	23	9	158	135	72	28	6205
21JUL	SE	984	458	72	151	9	31	9	6	35	37	18	14	1100
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
01AUG-	ST. CROP	451	670	57	123	18	58	47	8	167	318	67	3	1986
05AUG	SE	139	257	18	52	14	20	29	5	40	135	25	3	332
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
15AUG-	ST. CROP	107	369	476	601	163	268	314	24	172	139	116	52	2800
19AUG	SE	56	173	113	299	59	130	219	11	66	42	29	34	461
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	ST. CROP	53	949	119	858	345	276	125	33	561	435	32	57	3843
02SEP	SE	27	475	38	227	137	126	56	15	135	114	12	19	590
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	ST. CROP	163	814	250	554	121	339	266	146	511	786	71	52	4073
16SEP	SE	69	411	93	246	43	155	147	42	83	217	39	18	590
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	ST. CROP	185	287	138	1239	1013	490	460	137	586	1097	118	85	5834
30SEP	SE	91	42	42	415	443	182	302	64	149	303	73	39	794
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	ST. CROP	112	730	618	1081	1698	184	118	373	703	1059	67	3	6746
14OCT	SE	39	159	122	345	401	89	32	116	158	376	24	3	715
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24OCT-	ST. CROP	182	275	321	960	2397	380	1407	378	615	768	85	0	7769
27OCT	SE	70	61	142	398	1032	139	835	86	189	199	36	0	1433
	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	CPUE	0.00	0.36	0.00	0.33	0.33	0.33	0.00	0.00	0.25	0.00	0.74	0.00	0.20
30JUN	SE	0.00	0.24	0.00	0.33	0.33	0.33	0.00	0.00	0.16	0.00	0.42	0.00	0.77
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
11JUL-	CPUE	0.00	0.09	3.29	0.00	0.00	0.00	0.00	0.00	0.75	0.00	0.53	0.08	0.39
14JUL	SE	0.00	0.09	2.63	0.00	0.00	0.00	0.00	0.00	0.49	0.00	0.27	0.08	2.70
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
25JUL-	CPUE	0.00	0.00	0.00	0.00	0.33	0.00	0.63	0.00	0.75	0.07	0.11	0.08	0.16
27JUL	SE	0.00	0.00	0.00	0.00	0.33	0.00	0.63	0.00	0.25	0.07	0.07	0.08	0.76
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
08AUG-	CPUE	0.20	0.00	0.07	0.20	0.20	0.17	0.00	0.00	0.00	0.11	0.00	0.00	0.08
11AUG	SE	0.20	0.00	0.07	0.20	0.20	0.17	0.00	0.00	0.00	0.11	0.00	0.00	0.41
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	CPUE	0.40	0.00	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.07
25AUG	SE	0.40	0.00	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.44
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	CPUE	0.00	0.13	0.36	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.12
09SEP	SE	0.00	0.09	0.36	0.58	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.70
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
19SEP-	CPUE	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.20	0.20	0.00	0.00	0.00	0.05
22SEP	SE	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.20	0.20	0.00	0.00	0.00	0.33
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	CPUE	0.00	0.17	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
07OCT	SE	0.00	0.10	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17OCT-	CPUE	0.20	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
19OCT	SE	0.20	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31OCT-	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
02NOV	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	ST. CROP	0	17	0	3	1	4	0	0	2	0	14	0	41
30JUN	SE	0	11	0	3	1	4	0	0	1	0	8	0	15
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
11JUL-	ST. CROP	0	4	88	0	0	0	0	0	6	0	10	1	110
14JUL	SE	0	4	71	0	0	0	0	0	4	0	5	1	71
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
25JUL-	ST. CROP	0	0	0	0	1	0	4	0	6	1	2	1	16
27JUL	SE	0	0	0	0	1	0	4	0	2	1	1	1	5
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
08AUG-	ST. CROP	2	0	2	2	1	2	0	0	0	2	0	0	10
11AUG	SE	2	0	2	2	1	2	0	0	0	2	0	0	4
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	ST. CROP	3	0	8	0	0	0	0	0	0	0	2	0	13
25AUG	SE	3	0	4	0	0	0	0	0	0	0	2	0	6
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	ST. CROP	0	6	10	7	0	0	0	0	0	0	2	0	25
09SEP	SE	0	4	10	5	0	0	0	0	0	0	2	0	12
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
19SEP-	ST. CROP	0	0	0	0	0	2	0	0	2	0	0	0	4
22SEP	SE	0	0	0	0	0	2	0	<0.5	2	0	0	0	2
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	ST. CROP	0	8	12	0	0	0	0	0	0	0	0	0	19
07OCT	SE	0	4	8	0	0	0	0	0	0	0	0	0	9
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17OCT-	ST. CROP	2	0	6	0	0	0	0	0	0	0	0	0	7
19OCT	SE	2	0	6	0	0	0	0	0	0	0	0	0	6
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31OCT-	ST. CROP	0	4	0	0	0	0	0	0	0	0	0	0	4
02NOV	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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	DENSITY	0.00	0.00	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

TABLE C-149 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF SPOTTAIL SHINER EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-23JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-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	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-14JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-28JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-10AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-24AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-08SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-22SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-05OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-150 REGIONAL STANDING CROP (IN THOUSANDS) OF SPOTTAIL SHINER EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
30APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
06MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
13MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	ST. CROP	NS	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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
27MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	ST. CROP	NS	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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

TABLE C-150 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF SPOTTAIL SHINER EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	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	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
10AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
24AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
08SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
22SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-151 REGIONAL DENSITY (NO./1,000m3) OF SPOTTAIL SHINER YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	DENSITY	0.00	0.00	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	DENSITY	0.00	0.00	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	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	DENSITY	0.00	0.00	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
28JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
10AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
24AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
08SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
22SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
05OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-152 REGIONAL STANDING CROP (IN THOUSANDS) OF SPOTTAIL SHINER YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
30APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
06MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
13MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	ST. CROP	NS	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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
27MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	ST. CROP	NS	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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	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	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
10AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
24AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
08SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
22SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-153 REGIONAL DENSITY (NO./1,000m3) OF SPOTTAIL SHINER POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	DENSITY	0.00	0.00	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	DENSITY	0.00	0.00	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	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	DENSITY	0.00	0.00	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
28JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
10AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
24AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
08SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
22SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
05OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-154 REGIONAL STANDING CROP (IN THOUSANDS) OF SPOTTAIL SHINER POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
30APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
06MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
13MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	ST. CROP	NS	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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
27MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	ST. CROP	NS	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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	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	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
10AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
24AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
08SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
22SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-155 REGIONAL DENSITY (NO./1,000m3) OF SPOTTAIL SHINER YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	DENSITY	0.00	0.00	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	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	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.05
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	0.60	0.60
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
28JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
10AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
24AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
08SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
22SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
05OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-156 REGIONAL STANDING CROP (IN THOUSANDS) OF SPOTTAIL SHINER YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
30APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
06MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
13MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	ST. CROP	NS	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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
27MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	ST. CROP	NS	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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

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, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	ST. CROP	0	0	0	0	0	0	8	0	0	0	0	0	0	8
01JUL	SE	0	0	0	0	0	0	8	0	0	0	0	0	0	8
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	43	43
08JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	43	43
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
10AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
24AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
08SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
22SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-157 REGIONAL DENSITY (NO./1,000m3) OF SPOTTAIL SHINER YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
21JUL	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
01AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.05	0.00	0.02	0.04	0.01
05AUG	SE	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.05	0.00	0.02	0.04	0.07
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
15AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.26	0.02
19AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.14	0.14
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.02	0.63	0.06
02SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.02	0.20	0.20
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.32	0.03
16SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.11	0.12
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.32	0.03
30SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.12	0.12
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.02	0.61	0.06
14OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.02	0.34	0.34
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.08	0.64	0.07
27OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.05	0.31	0.31
	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	6	6
21JUL	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
01AUG-	ST. CROP	0	0	0	0	0	1	0	0	7	0	3	3	15
05AUG	SE	0	0	0	0	0	1	0	0	7	0	3	3	9
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
15AUG-	ST. CROP	0	0	0	0	0	0	0	0	4	0	0	18	22
19AUG	SE	0	0	0	0	0	0	0	0	4	0	0	10	11
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	ST. CROP	0	0	0	0	0	0	9	0	0	0	3	45	56
02SEP	SE	0	0	0	0	0	0	9	0	0	0	3	14	17
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	10	23	33
16SEP	SE	0	0	0	0	0	0	0	0	0	0	7	8	11
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	3	3	23	29
30SEP	SE	0	0	0	0	0	0	0	0	0	3	3	9	10
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	ST. CROP	0	0	0	0	0	0	0	0	7	0	3	43	53
14OCT	SE	0	0	0	0	0	0	0	0	5	0	3	24	25
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24OCT-	ST. CROP	0	0	0	0	0	0	0	0	10	0	13	45	68
27OCT	SE	0	0	0	0	0	0	0	0	7	0	8	22	24
	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	CPUE	0.00	0.00	0.00	0.33	0.00	0.00	1.25	1.25	3.75	4.67	3.11	19.50	2.82
30JUN	SE	0.00	0.00	0.00	0.33	0.00	0.00	0.73	0.56	2.16	1.86	1.45	12.17	12.62
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
11JUL-	CPUE	0.00	0.00	0.00	0.67	2.67	3.33	64.75	23.50	6.63	15.80	13.00	3.67	11.17
14JUL	SE	0.00	0.00	0.00	0.67	2.19	3.33	36.34	8.65	1.94	8.32	3.40	1.51	38.71
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
25JUL-	CPUE	0.00	0.00	0.00	8.67	33.00	0.00	24.25	27.00	17.63	26.33	15.89	25.58	14.86
27JUL	SE	0.00	0.00	0.00	8.67	16.26	0.00	9.97	6.90	7.60	13.87	12.04	18.18	34.81
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
08AUG-	CPUE	0.00	0.00	0.00	0.00	2.20	0.00	33.80	35.60	2.40	2.00	14.80	44.71	11.29
11AUG	SE	0.00	0.00	0.00	0.00	1.43	0.00	13.76	26.55	2.40	1.15	8.22	32.58	45.08
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	CPUE	0.00	12.29	0.00	1.20	9.20	0.17	57.40	67.20	24.60	9.56	13.40	30.71	18.81
25AUG	SE	0.00	12.29	0.00	1.20	2.44	0.17	31.96	24.99	14.67	3.87	5.25	16.31	48.25
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	CPUE	0.00	0.00	0.00	0.60	6.00	0.00	35.80	34.00	15.00	3.78	22.00	6.86	10.34
09SEP	SE	0.00	0.00	0.00	0.60	2.35	0.00	14.42	16.28	10.67	2.68	9.49	5.31	26.80
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
19SEP-	CPUE	0.00	0.00	0.00	0.40	6.60	4.00	39.60	17.20	49.00	31.56	7.00	7.71	13.59
22SEP	SE	0.00	0.00	0.00	0.40	2.71	4.00	19.42	9.03	39.75	17.28	3.45	4.85	48.95
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	CPUE	0.00	0.00	0.00	0.20	7.60	1.17	16.00	59.20	30.00	11.78	36.80	6.71	14.12
07OCT	SE	0.00	0.00	0.00	0.20	4.13	1.17	11.64	18.98	9.58	6.69	22.75	2.78	34.29
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17OCT-	CPUE	0.00	0.00	0.00	2.20	1.40	0.33	12.00	56.00	11.20	64.78	41.30	0.43	15.80
19OCT	SE	0.00	0.00	0.00	2.20	1.17	0.33	8.03	11.03	6.88	60.99	41.30	0.30	75.26
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31OCT-	CPUE	0.00	0.00	0.00	1.60	4.40	8.17	13.40	84.60	1.20	0.67	17.90	35.29	13.93
02NOV	SE	0.00	0.00	0.00	1.12	3.43	7.57	10.31	67.06	0.97	0.55	6.96	19.54	71.46
	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	ST. CROP	0	0	0	3	0	0	9	2	32	82	61	265	454
30JUN	SE	0	0	0	3	0	0	5	1	19	33	29	165	172
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
11JUL-	ST. CROP	0	0	0	6	7	36	459	29	57	277	256	50	1177
14JUL	SE	0	0	0	6	6	36	258	11	17	146	67	21	307
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
25JUL-	ST. CROP	0	0	0	80	87	0	172	33	152	462	313	348	1647
27JUL	SE	0	0	0	80	43	0	71	9	65	243	237	247	440
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
08AUG-	ST. CROP	0	0	0	0	6	0	240	44	21	35	291	608	1244
11AUG	SE	0	0	0	0	4	0	98	33	21	20	162	443	483
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	ST. CROP	0	558	0	11	24	2	407	83	212	168	264	417	2147
25AUG	SE	0	558	0	11	6	2	227	31	126	68	103	222	667
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	ST. CROP	0	0	0	6	16	0	254	42	129	66	433	93	1039
09SEP	SE	0	0	0	6	6	0	102	20	92	47	187	72	248
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
19SEP-	ST. CROP	0	0	0	4	17	43	281	21	422	554	138	105	1584
22SEP	SE	0	0	0	4	7	43	138	11	342	303	68	66	489
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	ST. CROP	0	0	0	2	20	12	114	73	258	207	724	91	1502
07OCT	SE	0	0	0	2	11	12	83	24	82	117	448	38	480
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17OCT-	ST. CROP	0	0	0	20	4	4	85	69	96	1137	813	6	2234
19OCT	SE	0	0	0	20	3	4	57	14	59	1071	813	4	1347
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31OCT-	ST. CROP	0	0	0	15	12	87	95	105	10	12	352	479	1167
02NOV	SE	0	0	0	10	9	81	73	83	8	10	137	266	329
	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.04
21JUL	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
01AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.02	0.00	0.40	0.04
05AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.02	0.00	0.14	0.15
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
15AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	1.06	0.10
19AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.34	0.35
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.63	0.06
02SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.30	0.30
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.02	0.00	0.46	0.05
16SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.02	0.00	0.18	0.20
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02	0.16	0.02
30SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02	0.12	0.13
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.25	0.03
14OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.17	0.17
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45	0.17	0.27	0.41	0.11
27OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.35	0.07	0.09	0.16	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	35	35
21JUL	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
01AUG-	ST. CROP	0	0	0	0	0	0	0	0	11	4	0	28	43
05AUG	SE	0	0	0	0	0	0	0	0	5	4	0	10	12
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
15AUG-	ST. CROP	0	0	0	0	0	0	0	0	21	0	0	75	97
19AUG	SE	0	0	0	0	0	0	0	0	14	0	0	24	28
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	ST. CROP	0	0	0	0	0	0	0	0	7	0	0	45	51
02SEP	SE	0	0	0	0	0	0	0	0	5	0	0	21	22
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	ST. CROP	0	0	0	0	0	0	0	0	26	4	0	32	62
16SEP	SE	0	0	0	0	0	0	0	0	11	4	0	13	17
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	ST. CROP	0	0	0	0	0	0	0	0	3	0	3	12	18
30SEP	SE	0	0	0	0	0	0	0	0	3	0	3	9	10
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	20	0	18	38
14OCT	SE	0	0	0	0	0	0	0	0	0	9	0	12	15
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24OCT-	ST. CROP	0	0	0	0	0	0	0	0	63	31	44	29	167
27OCT	SE	0	0	0	0	0	0	0	0	49	12	14	11	54
	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	CPUE	0.00	0.00	0.00	0.00	2.67	2.33	5.75	5.75	2.25	0.67	0.95	1.50	1.82
30JUN	SE	0.00	0.00	0.00	0.00	2.19	1.33	3.33	2.62	1.49	0.54	0.40	1.50	5.43
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
11JUL-	CPUE	0.00	0.00	0.00	0.00	1.00	3.67	11.13	9.13	0.50	1.07	0.84	0.17	2.29
14JUL	SE	0.00	0.00	0.00	0.00	1.00	3.67	6.07	4.68	0.50	0.42	0.64	0.17	8.61
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
25JUL-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	3.13	0.25	0.38	0.67	1.53	0.17	0.51
27JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	2.84	0.25	0.26	0.41	1.53	0.17	3.28
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
08AUG-	CPUE	0.00	0.00	0.21	0.40	0.80	0.00	0.40	5.60	0.20	0.33	0.40	0.57	0.74
11AUG	SE	0.00	0.00	0.15	0.40	0.49	0.00	0.40	2.54	0.20	0.33	0.27	0.57	2.76
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	CPUE	0.00	0.04	0.00	1.00	4.40	0.17	24.60	2.00	1.40	1.67	0.80	0.86	3.08
25AUG	SE	0.00	0.04	0.00	1.00	3.23	0.17	13.08	1.14	1.40	0.99	0.47	0.86	13.71
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	CPUE	0.00	0.00	0.00	1.00	0.20	0.00	6.60	1.00	2.40	2.33	3.20	2.43	1.60
09SEP	SE	0.00	0.00	0.00	1.00	0.20	0.00	3.89	0.32	1.94	1.43	2.03	2.27	5.60
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
19SEP-	CPUE	0.00	0.00	0.00	0.20	2.00	0.33	1.20	0.40	6.20	0.11	0.60	0.14	0.93
22SEP	SE	0.00	0.00	0.00	0.20	1.14	0.33	0.73	0.40	5.26	0.11	0.34	0.14	5.47
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	CPUE	0.00	0.04	0.00	0.00	3.40	1.00	5.20	11.20	12.20	1.22	5.20	0.43	3.32
07OCT	SE	0.00	0.04	0.00	0.00	2.01	0.82	2.31	3.53	5.75	0.62	4.04	0.30	8.50
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17OCT-	CPUE	0.00	0.00	0.00	0.20	0.80	1.17	3.20	24.20	0.40	0.00	0.60	0.00	2.55
19OCT	SE	0.00	0.00	0.00	0.20	0.37	1.17	2.27	14.54	0.24	0.00	0.60	0.00	14.78
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31OCT-	CPUE	0.00	0.00	0.00	1.80	1.40	0.50	3.80	12.20	0.00	0.11	1.60	0.86	1.86
02NOV	SE	0.00	0.00	0.00	1.32	0.75	0.50	2.37	11.95	0.00	0.11	0.72	0.86	12.34
	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, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	ST. CROP	0	0	0	0	7	25	41	7	19	12	19	20	150
30JUN	SE	0	0	0	0	6	14	24	3	13	9	8	20	39
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
11JUL-	ST. CROP	0	0	0	0	3	39	79	11	4	19	17	2	174
14JUL	SE	0	0	0	0	3	39	43	6	4	7	13	2	60
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
25JUL-	ST. CROP	0	0	0	0	0	0	22	0	3	12	30	2	70
27JUL	SE	0	0	0	0	0	0	20	<0.5	2	7	30	2	37
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
08AUG-	ST. CROP	0	0	6	4	2	0	3	7	2	6	8	8	45
11AUG	SE	0	0	4	4	1	0	3	3	2	6	5	8	13
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	ST. CROP	0	2	0	9	12	2	175	2	12	29	16	12	270
25AUG	SE	0	2	0	9	9	2	93	1	12	17	9	12	97
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	ST. CROP	0	0	0	9	1	0	47	1	21	41	63	33	215
09SEP	SE	0	0	0	9	1	0	28	<0.5	17	25	40	31	66
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
19SEP-	ST. CROP	0	0	0	2	5	4	9	0	53	2	12	2	89
22SEP	SE	0	0	0	2	3	4	5	<0.5	45	2	7	2	46
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	ST. CROP	0	2	0	0	9	11	37	14	105	21	102	6	307
07OCT	SE	0	2	0	0	5	9	16	4	49	11	79	4	96
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17OCT-	ST. CROP	0	0	0	2	2	12	23	30	3	0	12	0	84
19OCT	SE	0	0	0	2	1	12	16	18	2	0	12	0	30
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31OCT-	ST. CROP	0	0	0	17	4	5	27	15	0	2	31	12	113
02NOV	SE	0	0	0	12	2	5	17	15	0	2	14	12	32
	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 YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.77	0.00	0.00	0.00	0.00	0.06
04JUN	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.77	0.00	0.00	0.00	0.00	0.77
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	DENSITY	0.00	0.00	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

TABLE C-165 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF ATLANTIC STURGEON YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-23JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-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	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-14JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-28JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-10AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-24AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-08SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-22SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-05OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-166 REGIONAL STANDING CROP (IN THOUSANDS) OF ATLANTIC STURGEON YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
30APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
06MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
13MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	ST. CROP	NS	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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
27MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	ST. CROP	NS	0	0	0	0	0	0	0	127	0	0	0	0	127
04JUN	SE		0	0	0	0	0	0	0	127	0	0	0	0	127
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

TABLE C-166 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF ATLANTIC STURGEON YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	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	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
10AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
24AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
08SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
22SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
05OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-167 REGIONAL DENSITY (NO./1,000m3) OF ATLANTIC STURGEON YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21JUL	SE	0.00	0.00	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
01AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05AUG	SE	0.00	0.00	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
15AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19AUG	SE	0.00	0.00	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
29AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14OCT	SE	0.00	0.00	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
24OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27OCT	SE	0.00	0.00	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-168 REGIONAL STANDING CROP (IN THOUSANDS) OF ATLANTIC STURGEON YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
21JUL	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
01AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
05AUG	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
15AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
19AUG	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
29AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
02SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
16SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
30SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
14OCT	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
24OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
27OCT	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-169 REGIONAL DENSITY (NO./1,000m3) OF ATLANTIC STURGEON YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	DENSITY	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	<0.005
21JUL	SE	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.03
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
01AUG-	DENSITY	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.02	0.00	0.00	<0.005
05AUG	SE	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.03
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
15AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	<0.005
19AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.00	<0.005
16SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.03
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	DENSITY	0.00	0.00	0.00	0.00	0.01	0.03	0.00	0.00	0.02	0.00	0.00	0.00	0.01
30SEP	SE	0.00	0.00	0.00	0.00	0.01	0.03	0.00	0.00	0.02	0.00	0.00	0.00	0.04
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.02	0.00	0.01
14OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.02	0.00	0.05
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24OCT-	DENSITY	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<0.005
27OCT	SE	0.00	0.00	0.00	0.00	0.01	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-170 REGIONAL STANDING CROP (IN THOUSANDS) OF ATLANTIC STURGEON YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	ST. CROP	0	0	3	0	0	0	0	0	0	0	3	0	6
21JUL	SE	0	0	3	0	0	0	0	0	0	0	3	0	4
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
01AUG-	ST. CROP	0	0	0	5	3	0	0	0	0	4	0	0	12
05AUG	SE	0	0	0	5	3	0	0	0	0	4	0	0	7
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
15AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	3	0	3
19AUG	SE	0	0	0	0	0	0	0	0	0	0	3	0	3
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
02SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	ST. CROP	0	0	0	0	0	0	0	3	3	0	0	0	6
16SEP	SE	0	0	0	0	0	0	0	3	3	0	0	0	4
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	ST. CROP	0	0	0	0	3	4	0	0	3	0	0	0	10
30SEP	SE	0	0	0	0	3	4	0	0	3	0	0	0	6
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	ST. CROP	0	0	0	0	0	0	0	0	7	0	3	0	9
14OCT	SE	0	0	0	0	0	0	0	0	7	0	3	0	7
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24OCT-	ST. CROP	0	0	0	0	3	0	0	0	0	0	0	0	3
27OCT	SE	0	0	0	0	3	0	0	0	0	0	0	0	3
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

TABLE C-171 REGIONAL DENSITY (NO./1,000m3) OF SHORTNOSE STURGEON YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21JUL	SE	0.00	0.00	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
01AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05AUG	SE	0.00	0.00	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
15AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19AUG	SE	0.00	0.00	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
29AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14OCT	SE	0.00	0.00	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
24OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27OCT	SE	0.00	0.00	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-172 REGIONAL STANDING CROP (IN THOUSANDS) OF SHORTNOSE STURGEON YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
21JUL	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
01AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
05AUG	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
15AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
19AUG	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
29AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
02SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
16SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
30SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
14OCT	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
24OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
27OCT	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-173 REGIONAL DENSITY (NO./1,000m3) OF SHORTNOSE STURGEON YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.06	0.00	0.00	0.00	0.01
21JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	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
01AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.02	0.05	0.00	0.00	0.00	0.01
05AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.02	0.05	0.00	0.00	0.00	0.07
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
15AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.10	0.00	0.00	0.00	0.01
19AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.06	0.00	0.00	0.00	0.06
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02	0.00	0.00	<0.005
02SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02	0.00	0.00	0.03
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	DENSITY	0.00	0.03	0.04	0.02	0.00	0.03	0.00	0.02	0.02	0.02	0.00	0.00	0.02
16SEP	SE	0.00	0.02	0.03	0.02	0.00	0.03	0.00	0.02	0.02	0.02	0.00	0.00	0.06
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	DENSITY	0.00	0.01	0.00	0.00	0.05	0.00	0.00	0.02	0.00	0.02	0.00	0.00	0.01
30SEP	SE	0.00	0.01	0.00	0.00	0.04	0.00	0.00	0.02	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
10OCT-	DENSITY	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.01
14OCT	SE	0.00	0.00	0.00	0.00	0.02	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
24OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.02	0.00	0.00	0.01
27OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.02	0.00	0.00	0.13
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

TABLE C-174 REGIONAL STANDING CROP (IN THOUSANDS) OF SHORTNOSE STURGEON YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	ST. CROP	0	0	0	0	0	0	0	18	9	0	0	0	27
21JUL	SE	0	0	0	0	0	0	0	11	9	0	0	0	14
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
01AUG-	ST. CROP	0	0	0	0	0	0	16	4	7	0	0	0	27
05AUG	SE	0	0	0	0	0	0	10	4	7	0	0	0	13
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
15AUG-	ST. CROP	0	0	0	0	0	0	0	9	14	0	0	0	23
19AUG	SE	0	0	0	0	0	0	0	4	8	0	0	0	9
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	ST. CROP	0	0	0	0	0	0	0	3	0	3	0	0	7
02SEP	SE	0	0	0	0	0	0	0	3	0	3	0	0	5
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	ST. CROP	0	11	6	5	0	4	0	4	3	3	0	0	36
16SEP	SE	0	7	4	5	0	4	0	4	3	3	0	0	12
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	ST. CROP	0	5	0	0	11	0	0	3	0	3	0	0	22
30SEP	SE	0	5	0	0	8	0	0	3	0	3	0	0	10
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	ST. CROP	0	0	0	0	6	0	0	0	7	0	0	0	13
14OCT	SE	0	0	0	0	4	0	0	0	5	0	0	0	6
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24OCT-	ST. CROP	0	0	0	0	0	0	0	0	18	3	0	0	22
27OCT	SE	0	0	0	0	0	0	0	0	18	3	0	0	19
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

TABLE C-175 REGIONAL DENSITY (NO./1,000m3) OF WHITE CATFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	DENSITY	0.00	0.00	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

TABLE C-175 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF WHITE CATFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	DENSITY	0.00	0.00	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	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.78	0.00	0.00	0.37	0.00	43.75	3.45
08JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.78	0.00	0.00	0.37	0.00	19.72	19.74
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.00	NS	NS	NS	NS	NS	0.03
14JUL	SE	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00						0.13
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
28JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
10AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.18	0.26	0.00	NS	NS	NS	NS	NS	0.05
24AUG	SE	0.00	0.00	0.00	0.00	0.00	0.18	0.26	0.00						0.31
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	DENSITY	0.00	0.00	0.00	0.00	0.18	0.13	1.34	0.00	NS	NS	NS	NS	NS	0.21
08SEP	SE	0.00	0.00	0.00	0.00	0.18	0.13	0.97	0.00						0.99
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.25	NS	NS	NS	NS	NS	0.06
22SEP	SE	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.25						0.28
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.15	0.27	0.25	NS	NS	NS	NS	NS	0.08
05OCT	SE	0.00	0.00	0.00	0.00	0.00	0.15	0.27	0.25						0.40
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-176 REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE CATFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
30APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
06MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
13MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	ST. CROP	NS	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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
27MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	ST. CROP	NS	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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

TABLE C-176 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE CATFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	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	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	ST. CROP	0	0	0	0	0	0	0	231	0	0	65	0	3113	3410
08JUL	SE	0	0	0	0	0	0	0	231	0	0	65	0	1403	1423
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	ST. CROP	0	0	0	0	0	56	0	0	NS	NS	NS	NS	NS	56
14JUL	SE	0	0	0	0	0	28	0	0						28
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
28JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
10AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	ST. CROP	0	0	0	0	0	37	36	0	NS	NS	NS	NS	NS	72
24AUG	SE	0	0	0	0	0	37	36	0						51
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	ST. CROP	0	0	0	0	38	27	187	0	NS	NS	NS	NS	NS	252
08SEP	SE	0	0	0	0	38	27	135	0						143
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	ST. CROP	0	0	0	0	0	57	0	73	NS	NS	NS	NS	NS	130
22SEP	SE	0	0	0	0	0	28	0	73						78
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	ST. CROP	0	0	0	0	0	30	38	75	NS	NS	NS	NS	NS	143
05OCT	SE	0	0	0	0	0	30	38	75						89
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-177 REGIONAL DENSITY (NO./1,000m3) OF WHITE CATFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.08	0.14	0.80	1.74	0.23
21JUL	SE	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.08	0.05	0.25	0.47	0.54
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
01AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.02	0.23	1.63	0.89	1.24	0.34
05AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.02	0.07	0.39	0.18	0.31	0.53
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
15AUG-	DENSITY	0.00	0.00	0.00	0.00	0.01	0.20	0.20	0.04	0.14	0.93	1.50	2.95	0.50
19AUG	SE	0.00	0.00	0.00	0.00	0.01	0.02	0.07	0.02	0.07	0.22	0.37	0.61	0.75
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	DENSITY	0.00	0.00	0.00	0.08	0.80	0.31	0.15	0.19	0.32	1.10	0.69	1.77	0.45
02SEP	SE	0.00	0.00	0.00	0.05	0.72	0.14	0.08	0.07	0.11	0.25	0.21	0.41	0.92
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	DENSITY	0.00	0.00	0.00	0.04	0.09	0.19	0.20	0.04	0.66	0.14	0.50	1.91	0.31
16SEP	SE	0.00	0.00	0.00	0.03	0.06	0.09	0.07	0.03	0.22	0.05	0.12	0.23	0.37
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	DENSITY	0.00	0.00	0.00	0.00	0.08	0.31	0.19	0.37	0.45	0.96	0.39	1.52	0.36
30SEP	SE	0.00	0.00	0.00	0.00	0.04	0.10	0.10	0.16	0.14	0.47	0.14	0.31	0.64
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	DENSITY	0.00	0.00	0.02	0.04	0.04	0.67	0.14	0.08	0.08	0.09	0.41	0.25	0.15
14OCT	SE	0.00	0.00	0.02	0.02	0.02	0.58	0.07	0.06	0.04	0.06	0.11	0.14	0.62
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24OCT-	DENSITY	0.00	0.00	0.00	0.15	0.04	0.18	0.19	0.00	0.31	0.05	0.55	0.12	0.13
27OCT	SE	0.00	0.00	0.00	0.09	0.03	0.11	0.09	0.00	0.16	0.03	0.18	0.06	0.30
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

TABLE C-178 REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE CATFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	ST. CROP	0	0	0	0	0	1	0	0	11	25	129	124	291
21JUL	SE	0	0	0	0	0	1	0	0	11	10	40	33	54
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
01AUG-	ST. CROP	0	0	0	0	0	0	24	4	32	287	143	88	578
05AUG	SE	0	0	0	0	0	0	16	4	9	69	29	22	80
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
15AUG-	ST. CROP	0	0	0	0	3	28	59	6	20	164	240	210	732
19AUG	SE	0	0	0	0	3	3	21	4	10	39	59	43	86
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	ST. CROP	0	0	0	18	165	43	45	31	45	194	111	126	778
02SEP	SE	0	0	0	11	150	20	25	11	15	44	34	29	167
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	ST. CROP	0	0	0	8	19	27	58	7	93	25	80	136	453
16SEP	SE	0	0	0	5	12	13	22	4	31	8	19	17	50
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	ST. CROP	0	0	0	0	17	44	56	61	63	169	62	108	580
30SEP	SE	0	0	0	0	8	15	31	26	19	83	22	22	101
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	ST. CROP	0	0	3	8	9	93	42	13	11	16	66	17	278
14OCT	SE	0	0	3	4	4	82	19	10	5	10	18	10	88
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24OCT-	ST. CROP	0	0	0	32	9	26	58	0	43	9	89	8	274
27OCT	SE	0	0	0	19	6	15	28	0	22	5	29	4	53
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

TABLE C-179 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF WHITE CATFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-30JUN	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
11JUL-14JUL	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
25JUL-27JUL	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.08
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
08AUG-11AUG	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.01
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.14
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-25AUG	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
06SEP-09SEP	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
19SEP-22SEP	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
04OCT-07OCT	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
17OCT-19OCT	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
31OCT-02NOV	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-180 REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE CATFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
30JUN	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
11JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
14JUL	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
25JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	1	1
27JUL	SE	0	0	0	0	0	0	0	0	0	0	0	1	1
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
08AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	2	2
11AUG	SE	0	0	0	0	0	0	0	0	0	0	0	2	2
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	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	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
09SEP	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
19SEP-	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	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
07OCT	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
17OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
19OCT	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
31OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
02NOV	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-181 REGIONAL DENSITY (NO./1,000m3) OF WHITE CATFISH YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	DENSITY	0.00	0.00	0.13	0.03	0.02	0.26	0.00	0.00	0.12	0.08	0.02	0.12	0.06
21JUL	SE	0.00	0.00	0.05	0.02	0.02	0.24	0.00	0.00	0.05	0.05	0.02	0.09	0.27
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
01AUG-	DENSITY	0.00	0.00	0.02	0.16	0.00	0.04	0.00	0.00	0.05	0.15	0.02	0.04	0.04
05AUG	SE	0.00	0.00	0.02	0.05	0.00	0.04	0.00	0.00	0.05	0.06	0.02	0.04	0.12
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
15AUG-	DENSITY	0.01	0.02	0.15	0.13	0.71	0.15	0.03	0.00	0.02	0.07	0.08	0.08	0.12
19AUG	SE	0.01	0.01	0.08	0.08	0.68	0.09	0.03	0.00	0.02	0.07	0.03	0.05	0.70
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	DENSITY	0.01	0.11	0.11	0.25	0.00	0.00	0.00	0.00	0.00	0.02	0.05	0.09	0.05
02SEP	SE	0.01	0.05	0.06	0.09	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.09	0.16
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	DENSITY	0.00	0.18	0.11	0.12	0.05	0.01	0.09	0.00	0.00	0.00	0.05	0.05	0.05
16SEP	SE	0.00	0.07	0.05	0.05	0.04	0.01	0.09	0.00	0.00	0.00	0.03	0.05	0.15
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	DENSITY	0.00	0.05	0.07	0.12	0.03	0.00	0.00	0.02	0.09	0.02	0.04	0.04	0.04
30SEP	SE	0.00	0.02	0.03	0.07	0.02	0.00	0.00	0.02	0.09	0.02	0.03	0.04	0.13
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	DENSITY	0.01	0.13	0.19	0.14	0.01	0.12	0.00	0.00	0.05	0.04	0.09	0.00	0.06
14OCT	SE	0.01	0.06	0.06	0.05	0.01	0.07	0.00	0.00	0.03	0.04	0.05	0.00	0.14
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24OCT-	DENSITY	0.00	0.06	0.04	0.83	0.01	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.08
27OCT	SE	0.00	0.03	0.04	0.62	0.01	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.63
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

TABLE C-182 REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE CATFISH YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	ST. CROP	0	0	19	7	3	36	0	0	17	14	3	9	107
21JUL	SE	0	0	7	5	3	33	0	0	7	10	3	6	37
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
01AUG-	ST. CROP	0	0	3	33	0	6	0	0	7	26	3	3	81
05AUG	SE	0	0	3	11	0	5	0	0	7	11	3	3	19
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
15AUG-	ST. CROP	3	6	22	27	147	21	9	0	3	12	12	6	268
19AUG	SE	3	4	12	16	142	13	9	0	3	12	5	4	145
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	ST. CROP	3	35	16	52	0	0	0	0	0	3	8	6	123
02SEP	SE	3	16	9	20	0	0	0	0	0	3	5	6	28
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	ST. CROP	0	57	17	25	11	1	26	0	0	0	7	3	147
16SEP	SE	0	24	8	11	8	1	26	0	0	0	5	3	39
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	ST. CROP	0	18	10	24	6	0	0	3	13	3	6	3	85
30SEP	SE	0	7	5	14	3	0	0	3	13	3	4	3	22
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	ST. CROP	3	43	28	28	3	16	0	0	7	7	14	0	149
14OCT	SE	3	19	9	11	3	10	0	0	5	7	8	0	29
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24OCT-	ST. CROP	0	19	5	172	3	0	0	0	0	0	10	0	209
27OCT	SE	0	9	5	130	3	0	0	0	0	0	5	0	130
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

TABLE C-183 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF WHITE CATFISH YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	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
30JUN	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
11JUL-	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
14JUL	SE	0.00	0.00	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
25JUL-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.01
27JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.13
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
08AUG-	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
11AUG	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
22AUG-	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
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	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	CPUE	0.00	0.04	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
09SEP	SE	0.00	0.04	0.07	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
19SEP-	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
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	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	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
07OCT	SE	0.00	0.00	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
17OCT-	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
19OCT	SE	0.00	0.00	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
31OCT-	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
02NOV	SE	0.00	0.00	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-184 REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE CATFISH YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	ST. CROP	0	4	0	0	0	0	0	0	0	0	0	0	4
30JUN	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
11JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
14JUL	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
25JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
27JUL	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
08AUG-	ST. CROP	0	2	0	0	0	0	0	0	0	0	0	0	2
11AUG	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
22AUG-	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	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	ST. CROP	0	2	2	0	0	0	0	0	0	0	0	0	4
09SEP	SE	0	2	2	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
19SEP-	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	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
07OCT	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
17OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
19OCT	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
31OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
02NOV	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-185 REGIONAL DENSITY (NO./1,000m3) OF WEAKFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	DENSITY	0.00	0.00	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

TABLE C-185 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF WEAKFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	DENSITY	0.00	0.00	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	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	DENSITY	0.00	23.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.79
08JUL	SE	0.00	17.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.32
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	DENSITY	0.00	20.15	3.22	0.00	8.61	0.00	0.00	0.00	NS	NS	NS	NS	NS	4.00
14JUL	SE	0.00	17.37	2.48	0.00	4.62	0.00	0.00	0.00						18.14
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	DENSITY	22.05	0.16	9.90	2.46	0.67	0.00	0.00	0.00	NS	NS	NS	NS	NS	4.41
28JUL	SE	9.18	0.16	4.49	0.49	0.67	0.00	0.00	0.00						10.25
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	DENSITY	9.73	20.46	9.89	2.87	1.79	0.00	0.00	0.00	NS	NS	NS	NS	NS	5.59
10AUG	SE	3.94	7.26	3.26	1.77	1.51	0.00	0.00	0.00						9.18
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	DENSITY	8.55	1.56	2.65	0.70	1.63	0.00	0.00	0.00	NS	NS	NS	NS	NS	1.88
24AUG	SE	4.87	1.19	1.87	0.50	0.96	0.00	0.00	0.00						5.46
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	DENSITY	0.00	0.19	1.84	1.38	0.75	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.52
08SEP	SE	0.00	0.19	1.44	0.38	0.48	0.00	0.00	0.00						1.58
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	DENSITY	0.00	0.00	0.29	5.48	0.95	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.84
22SEP	SE	0.00	0.00	0.29	2.55	0.50	0.00	0.00	0.00						2.62
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	DENSITY	1.12	0.74	4.19	1.11	1.19	0.00	0.00	0.00	NS	NS	NS	NS	NS	1.04
05OCT	SE	1.12	0.74	1.91	1.11	0.19	0.00	0.00	0.00						2.59
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-186 REGIONAL STANDING CROP (IN THOUSANDS) OF WEAKFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
30APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
06MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
13MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	ST. CROP	NS	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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
27MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	ST. CROP	NS	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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

TABLE C-186 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF WEAKFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	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	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	ST. CROP	0	5327	0	0	0	0	0	0	0	0	0	0	0	5327
08JUL	SE	0	3973	0	0	0	0	0	0	0	0	0	0	0	3973
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	ST. CROP	0	4623	1035	0	1794	0	0	0	NS	NS	NS	NS	NS	7452
14JUL	SE	0	3984	797	0	962	0	0	0						4176
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	ST. CROP	4610	37	3187	364	139	0	0	0	NS	NS	NS	NS	NS	8338
28JUL	SE	1919	37	1444	73	139	0	0	0						2407
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	ST. CROP	2034	4693	3184	425	373	0	0	0	NS	NS	NS	NS	NS	10708
10AUG	SE	823	1665	1051	262	314	0	0	0						2172
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	ST. CROP	1787	357	851	103	340	0	0	0	NS	NS	NS	NS	NS	3438
24AUG	SE	1019	274	603	74	200	0	0	0						1233
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	ST. CROP	0	44	591	204	156	0	0	0	NS	NS	NS	NS	NS	995
08SEP	SE	0	44	462	56	101	0	0	0						479
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	ST. CROP	0	0	93	810	198	0	0	0	NS	NS	NS	NS	NS	1101
22SEP	SE	0	0	93	377	103	0	0	0						402
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	ST. CROP	234	169	1348	164	248	0	0	0	NS	NS	NS	NS	NS	2163
05OCT	SE	234	169	615	164	39	0	0	0						700
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-187 REGIONAL DENSITY (NO./1,000m3) OF WEAKFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	DENSITY	5.10	11.40	4.49	32.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.45
21JUL	SE	3.58	2.35	2.02	6.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.69
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
01AUG-	DENSITY	5.52	3.89	1.06	1.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.98
05AUG	SE	2.61	2.01	0.34	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.32
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
15AUG-	DENSITY	7.43	1.18	0.70	0.89	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.85
19AUG	SE	2.24	0.53	0.52	0.67	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.45
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	DENSITY	1.95	0.63	0.02	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23
02SEP	SE	0.44	0.18	0.02	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	DENSITY	1.96	0.26	2.27	0.59	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42
16SEP	SE	0.69	0.07	1.20	0.37	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.43
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	DENSITY	1.00	0.08	0.15	0.70	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16
30SEP	SE	0.36	0.04	0.07	0.68	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.77
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	DENSITY	0.98	0.87	0.40	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19
14OCT	SE	0.42	0.23	0.09	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24OCT-	DENSITY	0.48	0.65	0.44	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14
27OCT	SE	0.12	0.14	0.12	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

TABLE C-188 REGIONAL STANDING CROP (IN THOUSANDS) OF WEAKFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	ST. CROP	1171	3669	663	6758	0	0	0	0	0	0	0	0	12261
21JUL	SE	822	758	298	1261	0	0	0	0	0	0	0	0	1711
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
01AUG-	ST. CROP	1267	1253	157	279	0	0	0	0	0	0	0	0	2955
05AUG	SE	599	645	51	46	0	0	0	0	0	0	0	0	883
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
15AUG-	ST. CROP	1704	379	103	185	3	0	0	0	0	0	0	0	2375
19AUG	SE	513	171	77	139	3	0	0	0	0	0	0	0	564
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	ST. CROP	448	203	3	36	0	0	0	0	0	0	0	0	690
02SEP	SE	101	59	3	18	0	0	0	0	0	0	0	0	118
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	ST. CROP	450	84	335	124	3	0	0	0	0	0	0	0	995
16SEP	SE	158	24	177	77	3	0	0	0	0	0	0	0	251
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	ST. CROP	229	25	22	146	6	0	0	0	0	0	0	0	428
30SEP	SE	83	13	11	142	3	0	0	0	0	0	0	0	165
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
10OCT-	ST. CROP	224	280	59	10	0	0	0	0	0	0	0	0	573
14OCT	SE	95	74	14	9	0	0	0	0	0	0	0	0	122
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24OCT-	ST. CROP	111	210	65	15	0	0	0	0	0	0	0	0	401
27OCT	SE	28	46	18	6	0	0	0	0	0	0	0	0	57
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

TABLE C-189 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF WEAKFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	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
30JUN	SE	0.00	0.00	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
11JUL-	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
14JUL	SE	0.00	0.00	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
25JUL-	CPUE	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
27JUL	SE	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
08AUG-	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
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	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	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
25AUG	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
06SEP-	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
09SEP	SE	0.00	0.00	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
19SEP-	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
22SEP	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
04OCT-	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
07OCT	SE	0.00	0.00	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
17OCT-	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
19OCT	SE	0.00	0.00	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
31OCT-	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
02NOV	SE	0.00	0.00	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-190 REGIONAL STANDING CROP (IN THOUSANDS) OF WEAKFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
30JUN	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
11JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
14JUL	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
25JUL-	ST. CROP	0	0	4	0	0	0	0	0	0	0	0	0	4
27JUL	SE	0	0	4	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
08AUG-	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	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	ST. CROP	2	0	0	0	0	0	0	0	0	0	0	0	2
25AUG	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
06SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
09SEP	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
19SEP-	ST. CROP	2	0	0	0	0	0	0	0	0	0	0	0	2
22SEP	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
04OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
07OCT	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
17OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
19OCT	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
31OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
02NOV	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-191 REGIONAL DENSITY (NO./1,000m3) OF WEAKFISH YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21JUL	SE	0.00	0.00	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
01AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05AUG	SE	0.00	0.00	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
15AUG-	DENSITY	0.03	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<0.005
19AUG	SE	0.02	0.00	0.02	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
29AUG-	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
02SEP	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
12SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	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
30SEP	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
10OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14OCT	SE	0.00	0.00	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
24OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27OCT	SE	0.00	0.00	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-192 REGIONAL STANDING CROP (IN THOUSANDS) OF WEAKFISH YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
21JUL	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
01AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
05AUG	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
15AUG-	ST. CROP	6	0	3	0	0	0	0	0	0	0	0	0	9
19AUG	SE	4	0	3	0	0	0	0	0	0	0	0	0	5
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	ST. CROP	3	0	0	0	0	0	0	0	0	0	0	0	3
02SEP	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
12SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
16SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	ST. CROP	3	0	0	0	0	0	0	0	0	0	0	0	3
30SEP	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
10OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
14OCT	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
24OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
27OCT	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-193 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF WEAKFISH YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	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
30JUN	SE	0.00	0.00	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
11JUL-	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
14JUL	SE	0.00	0.00	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
25JUL-	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
27JUL	SE	0.00	0.00	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
08AUG-	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
11AUG	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
22AUG-	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
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	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	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
09SEP	SE	0.00	0.00	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
19SEP-	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
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	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	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
07OCT	SE	0.00	0.00	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
17OCT-	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
19OCT	SE	0.00	0.00	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
31OCT-	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
02NOV	SE	0.00	0.00	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-194 REGIONAL STANDING CROP (IN THOUSANDS) OF WEAKFISH YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
30JUN	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
11JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
14JUL	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
25JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
27JUL	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
08AUG-	ST. CROP	0	2	0	0	0	0	0	0	0	0	0	0	2
11AUG	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
22AUG-	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	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
09SEP	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
19SEP-	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	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
07OCT	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
17OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
19OCT	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
31OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
02NOV	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-195 REGIONAL DENSITY (NO./1,000m3) OF BLUEFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30APR	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27MAY	SE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	DENSITY	NS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	DENSITY	0.00	0.00	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	DENSITY	0.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06
16JUN	SE	0.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.81
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

TABLE C-195 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF BLUEFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	DENSITY	0.00	0.34	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
23JUN	SE	0.00	0.34	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	DENSITY	0.64	0.00	0.00	0.88	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14
01JUL	SE	0.64	0.00	0.00	0.88	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.12
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	DENSITY	0.00	0.26	0.00	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
08JUL	SE	0.00	0.26	0.00	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	DENSITY	0.00	0.00	1.41	0.72	0.27	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.30
28JUL	SE	0.00	0.00	0.82	0.42	0.27	0.00	0.00	0.00						0.96
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	DENSITY	0.00	0.00	3.27	0.00	0.00	0.29	0.00	0.00	NS	NS	NS	NS	NS	0.44
10AUG	SE	0.00	0.00	3.27	0.00	0.00	0.14	0.00	0.00						3.27
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	DENSITY	0.00	0.00	0.00	0.00	0.68	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.08
24AUG	SE	0.00	0.00	0.00	0.00	0.68	0.00	0.00	0.00						0.68
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	DENSITY	0.00	0.00	0.48	0.22	0.04	0.78	0.00	0.00	NS	NS	NS	NS	NS	0.19
08SEP	SE	0.00	0.00	0.48	0.22	0.04	0.78	0.00	0.00						0.95
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	DENSITY	0.00	0.00	0.00	0.27	0.90	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.15
22SEP	SE	0.00	0.00	0.00	0.27	0.77	0.00	0.00	0.00						0.81
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	DENSITY	0.00	0.00	0.33	0.19	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.07
05OCT	SE	0.00	0.00	0.33	0.19	0.00	0.00	0.00	0.00						0.38
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-196 REGIONAL STANDING CROP (IN THOUSANDS) OF BLUEFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
11APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
15APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
18APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
22APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	12	13	10	6	11	6	7	7	8	9	9	107
25APR-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
30APR	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		10	12	13	10	6	11	6	7	7	8	9	9	108
02MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
06MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
09MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
13MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	10	9	13	10	16	10	11	7	6	6	10	117
16MAY-	ST. CROP	NS	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
	NO. TOWS		9	11	13	9	9	15	7	10	7	8	6	6	110
23MAY-	ST. CROP	NS	0	0	0	0	0	0	0	0	0	0	0	0	0
27MAY	SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS		9	11	13	9	9	15	7	10	6	8	6	6	109
31MAY-	ST. CROP	NS	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
	NO. TOWS		8	10	13	9	9	14	7	10	7	8	6	6	107
06JUN-	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	6	11	14	11	13	9	13	7	10	7	6	6	6	119
13JUN-	ST. CROP	170	0	0	0	0	0	0	0	0	0	0	0	0	170
16JUN	SE	170	0	0	0	0	0	0	0	0	0	0	0	0	170
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119

TABLE C-196 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF BLUEFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
20JUN-	ST. CROP	0	78	0	35	0	0	0	0	0	0	0	0	0	113
23JUN	SE	0	78	0	35	0	0	0	0	0	0	0	0	0	86
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	5	6	118
27JUN-	ST. CROP	135	0	0	130	66	0	0	0	0	0	0	0	0	330
01JUL	SE	135	0	0	130	56	0	0	0	0	0	0	0	0	195
	NO. TOWS	6	11	14	11	11	9	13	7	10	7	6	6	6	117
05JUL-	ST. CROP	0	61	0	54	0	0	0	0	0	0	0	0	0	114
08JUL	SE	0	61	0	54	0	0	0	0	0	0	0	0	0	81
	NO. TOWS	6	11	14	11	13	9	13	7	10	7	6	6	6	119
12JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	7	11	11	12	10	6	10	6						73
26JUL-	ST. CROP	0	0	453	106	57	0	0	0	NS	NS	NS	NS	NS	616
28JUL	SE	0	0	265	62	57	0	0	0						278
	NO. TOWS	7	11	11	12	10	6	10	6						73
08AUG-	ST. CROP	0	0	1052	0	0	60	0	0	NS	NS	NS	NS	NS	1112
10AUG	SE	0	0	1052	0	0	30	0	0						1053
	NO. TOWS	7	11	11	12	10	6	10	6						73
22AUG-	ST. CROP	0	0	0	0	141	0	0	0	NS	NS	NS	NS	NS	141
24AUG	SE	0	0	0	0	141	0	0	0						141
	NO. TOWS	7	11	11	12	10	6	10	6						73
06SEP-	ST. CROP	0	0	155	33	9	162	0	0	NS	NS	NS	NS	NS	359
08SEP	SE	0	0	155	33	9	162	0	0						227
	NO. TOWS	7	11	11	12	10	6	10	6						73
20SEP-	ST. CROP	0	0	0	40	188	0	0	0	NS	NS	NS	NS	NS	229
22SEP	SE	0	0	0	40	159	0	0	0						164
	NO. TOWS	7	11	11	12	10	6	10	6						73
03OCT-	ST. CROP	0	0	106	28	0	0	0	0	NS	NS	NS	NS	NS	134
05OCT	SE	0	0	106	28	0	0	0	0						110
	NO. TOWS	7	11	11	12	10	6	10	6						73

TABLE C-197 REGIONAL DENSITY (NO./1,000m3) OF BLUEFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	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
21JUL	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
01AUG-	DENSITY	0.00	0.03	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
05AUG	SE	0.00	0.03	0.03	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
15AUG-	DENSITY	0.08	0.06	0.03	0.65	0.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13
19AUG	SE	0.05	0.04	0.02	0.65	0.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.97
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	DENSITY	0.04	0.01	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
02SEP	SE	0.04	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
12SEP-	DENSITY	0.06	0.00	0.00	0.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
16SEP	SE	0.05	0.00	0.00	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.54
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	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
30SEP	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
10OCT-	DENSITY	0.00	0.14	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
14OCT	SE	0.00	0.13	0.02	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
24OCT-	DENSITY	0.05	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
27OCT	SE	0.04	0.00	0.02	0.01	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

TABLE C-198 REGIONAL STANDING CROP (IN THOUSANDS) OF BLUEFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL SHOALS SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
18JUL-	ST. CROP	0	3	0	0	0	0	0	0	0	0	0	0	3
21JUL	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
01AUG-	ST. CROP	0	11	5	0	0	0	0	0	0	0	0	0	16
05AUG	SE	0	11	4	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
15AUG-	ST. CROP	17	19	5	135	150	0	0	0	0	0	0	0	326
19AUG	SE	10	12	4	135	150	0	0	0	0	0	0	0	202
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
29AUG-	ST. CROP	10	3	5	0	0	0	0	0	0	0	0	0	18
02SEP	SE	10	3	3	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
12SEP-	ST. CROP	13	0	0	122	0	0	0	0	0	0	0	0	135
16SEP	SE	10	0	0	112	0	0	0	0	0	0	0	0	113
	NO. TOWS	17	46	27	14	8	13	8	10	16	18	21	13	211
26SEP-	ST. CROP	0	6	0	0	0	0	0	0	0	0	0	0	6
30SEP	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
10OCT-	ST. CROP	0	45	5	0	0	0	0	0	0	0	0	0	51
14OCT	SE	0	42	3	0	0	0	0	0	0	0	0	0	43
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210
24OCT-	ST. CROP	11	0	2	1	0	0	0	0	0	0	0	0	15
27OCT	SE	9	0	2	1	0	0	0	0	0	0	0	0	9
	NO. TOWS	17	46	27	14	8	13	8	10	15	18	21	13	210

TABLE C-199 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF BLUEFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	CPUE	0.33	0.45	0.14	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16
30JUN	SE	0.33	0.28	0.14	0.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.74
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
11JUL-	CPUE	0.00	0.09	0.29	0.00	0.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09
14JUL	SE	0.00	0.09	0.29	0.00	0.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.73
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
25JUL-	CPUE	0.00	0.18	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
27JUL	SE	0.00	0.12	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
08AUG-	CPUE	0.20	0.50	0.43	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11
11AUG	SE	0.20	0.18	0.17	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	CPUE	0.00	0.04	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
25AUG	SE	0.00	0.04	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
06SEP-	CPUE	0.60	0.33	0.21	0.00	0.20	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.13
09SEP	SE	0.40	0.18	0.11	0.00	0.20	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.52
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
19SEP-	CPUE	0.00	0.13	0.71	0.00	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10
22SEP	SE	0.00	0.07	0.49	0.00	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.63
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	CPUE	0.20	0.17	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
07OCT	SE	0.20	0.10	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
17OCT-	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
19OCT	SE	0.00	0.06	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
31OCT-	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
02NOV	SE	0.00	0.00	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-200 REGIONAL STANDING CROP (IN THOUSANDS) OF BLUEFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 1994

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
27JUN-	ST. CROP	3	21	4	9	0	0	0	0	0	0	0	0	36
30JUN	SE	3	13	4	5	0	0	0	0	0	0	0	0	15
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
11JUL-	ST. CROP	0	4	8	0	2	0	0	0	0	0	0	0	14
14JUL	SE	0	4	8	0	2	0	0	0	0	0	0	0	9
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
25JUL-	ST. CROP	0	8	4	0	0	0	0	0	0	0	0	0	12
27JUL	SE	0	6	4	0	0	0	0	0	0	0	0	0	7
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
08AUG-	ST. CROP	2	23	12	0	1	0	0	0	0	0	0	0	36
11AUG	SE	2	8	5	0	1	0	0	0	0	0	0	0	10
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22AUG-	ST. CROP	0	2	0	2	0	0	0	0	0	0	0	0	4
25AUG	SE	0	2	0	2	0	0	0	0	0	0	0	0	3
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06SEP-	ST. CROP	5	15	6	0	1	2	0	0	0	0	0	0	28
09SEP	SE	3	8	3	0	1	2	0	0	0	0	0	0	9
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
19SEP-	ST. CROP	0	6	19	0	1	0	0	0	0	0	0	0	26
22SEP	SE	0	3	13	0	1	0	0	0	0	0	0	0	13
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
04OCT-	ST. CROP	2	8	2	0	0	0	0	0	0	0	0	0	11
07OCT	SE	2	4	2	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
17OCT-	ST. CROP	0	4	2	0	0	0	0	0	0	0	0	0	6
19OCT	SE	0	3	2	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
31OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
02NOV	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

Appendix D

Length Frequency Distribution

APPENDIX D

LIST OF TABLES

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, 1994.
D-2	Length frequency distribution of striped bass in Hudson River estuary determined from Fall Shoals Survey, 1994.
D-3	Length frequency distribution of striped bass in Hudson River estuary determined from Beach Seine Survey, 1994.
D-4	Length frequency distribution of larval and young-of-year white perch in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
D-5	Length frequency distribution of white perch in Hudson River estuary determined from Fall Shoals Survey, 1994.
D-6	Length frequency distribution of white perch in Hudson River estuary determined from Beach Seine Survey, 1994.
D-7	Length frequency distribution of Atlantic tomcod in Hudson River estuary determined from Fall Shoals Survey, 1994.
D-8	Length frequency distribution of Atlantic tomcod in Hudson River estuary determined from Beach Seine Survey, 1994.
D-9	Length frequency distribution of bay anchovy in Hudson River estuary determined from Fall Shoals Survey, 1994.
D-10	Length frequency distribution of bay anchovy in Hudson River estuary determined from Beach Seine Survey, 1994.
D-11	Length frequency distribution of larval and young-of-year American shad in Hudson River estuary determined from Longitudinal River Ichthyoplankton Survey, 1994.
D-12	Length frequency distribution of American shad in Hudson River estuary determined from Fall Shoals Survey, 1994.
D-13	Length frequency distribution of American shad in Hudson River estuary determined from Beach Seine Survey, 1994.
D-14	Length frequency distribution of alewife in Hudson River estuary determined from Fall Shoals Survey, 1994.

APPENDIX D

LIST OF TABLES (Continued)

Number	Title
D-15	Length frequency distribution of alewife in Hudson River estuary determined from Beach Seine Survey, 1994.
D-16	Length frequency distribution of blueback herring in Hudson River estuary determined from Fall Shoals Survey, 1994.
D-17	Length frequency distribution of blueback herring in Hudson River estuary determined from Beach Seine Survey, 1994.
D-18	Length frequency distribution of spottail shiner in Hudson River estuary determined from Fall Shoals Survey, 1994.
D-19	Length frequency distribution of spottail shiner in Hudson River estuary determined from Beach Seine Survey, 1994.
D-20	Length frequency distribution of white catfish in Hudson River estuary determined from Fall Shoals Survey, 1994.
D-21	Length frequency distribution of weakfish in Hudson River estuary determined from Fall Shoals Survey, 1994.

TABLE D-1 LENGTH FREQUENCY DISTRIBUTION OF LARVAL AND YOUNG OF YEAR STRIPED BASS IN HUDSON RIVER ESTUARY DETERMINED FROM LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1994

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
11APR-15APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18APR-22APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25APR-30APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02MAY-06MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09MAY-13MAY	0	11	185	29	0	0	0	0	0	0	0	0	0	0	0	0
16MAY-20MAY	0	39	810	364	1	0	0	0	0	0	0	0	0	0	0	0
23MAY-27MAY	0	140	889	594	18	0	0	0	0	0	0	0	0	0	0	0
31MAY-04JUN	0	94	673	1596	44	0	0	0	0	0	0	0	0	0	0	0
06JUN-10JUN	0	112	556	1169	376	53	1	0	0	0	0	0	0	0	0	0
13JUN-16JUN	0	31	580	1091	729	256	34	0	0	0	0	0	0	0	0	0
20JUN-23JUN	0	10	375	882	528	449	249	71	44	15	8	2	3	0	0	0
27JUN-01JUL	0	0	105	532	484	408	300	157	67	45	45	16	12	7	3	1
05JUL-08JUL	0	0	24	96	213	308	282	118	54	29	24	21	23	30	21	31
12JUL-14JUL	0	0	1	9	14	32	83	99	130	67	54	25	14	14	9	11
26JUL-28JUL	0	0	0	0	1	0	0	1	1	1	0	3	0	3	0	0
08AUG-10AUG	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1	2

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
11APR-15APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18APR-22APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25APR-30APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02MAY-06MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09MAY-13MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16MAY-20MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23MAY-27MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31MAY-04JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06JUN-10JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13JUN-16JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20JUN-23JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27JUN-01JUL	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05JUL-08JUL	33	13	18	12	2	5	2	0	0	0	0	0	0	0	0	0
12JUL-14JUL	16	7	30	18	15	24	15	16	13	11	8	7	3	3	1	0
26JUL-28JUL	0	2	1	0	1	0	1	0	0	0	0	1	0	3	0	0
08AUG-10AUG	3	1	2	1	0	1	0	0	1	0	2	1	3	2	4	3

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
11APR-15APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18APR-22APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25APR-30APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02MAY-06MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09MAY-13MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16MAY-20MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23MAY-27MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31MAY-04JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06JUN-10JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13JUN-16JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20JUN-23JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27JUN-01JUL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05JUL-08JUL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12JUL-14JUL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26JUL-28JUL	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08AUG-10AUG	2	6	3	2	2	7	4	0	2	2	3	0	0	0	0	1

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
11APR-15APR	0	0	0	0	0	0	0	0	.	.	.	.	.
18APR-22APR	0	0	0	0	0	0	0	0	.	.	.	.	.
25APR-30APR	0	0	0	0	0	0	0	0	.	.	.	.	.
02MAY-06MAY	0	0	0	0	0	0	0	0	.	.	.	.	.
09MAY-13MAY	0	0	0	0	0	0	0	225	5.1	3.1	5.2	7.1	0.7
16MAY-20MAY	0	0	0	0	0	0	0	1214	5.5	3.0	5.5	8.0	0.7
23MAY-27MAY	0	0	0	0	0	0	0	1641	5.5	2.7	5.3	8.6	1.1
31MAY-04JUN	0	0	0	0	0	0	0	2407	6.1	2.5	6.3	9.8	1.0
06JUN-10JUN	0	0	0	0	0	0	0	2267	6.6	3.0	6.7	13.4	1.6
13JUN-16JUN	0	0	0	0	0	0	0	2721	7.5	3.0	7.3	13.5	1.8
20JUN-23JUN	0	0	0	0	0	0	0	2636	8.8	3.1	8.1	25.9	3.0
27JUN-01JUL	0	0	0	0	0	0	0	2184	10.6	4.0	9.7	33.5	4.0
05JUL-08JUL	0	0	0	0	0	0	0	1359	14.6	4.9	12.2	45.0	7.6
12JUL-14JUL	0	0	0	0	0	0	0	749	23.4	5.6	18.0	61.0	12.3
26JUL-28JUL	0	0	0	0	0	0	0	21	36.1	8.4	34.0	66.0	17.9
08AUG-10AUG	0	0	0	0	0	0	0	65	60.3	19.0	65.0	95.0	18.5

NOTE: N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

TABLE D-1 (CONT.)

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
22AUG-24AUG	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
06SEP-08SEP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20SEP-22SEP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
030CT-050CT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	437	4198	6362	2408	1506	949	446	296	158	131	68	53	56	35	45

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
22AUG-24AUG	0	2	1	0	1	3	0	1	0	0	0	2	4	1	1	3
06SEP-08SEP	0	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0
20SEP-22SEP	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
030CT-050CT	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0
	54	25	54	31	19	34	18	18	14	11	12	11	11	9	6	6

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
22AUG-24AUG	1	1	1	0	1	2	1	4	2	0	1	0	3	0	0	0
06SEP-08SEP	2	0	1	0	1	1	0	2	2	2	3	0	0	1	1	1
20SEP-22SEP	0	0	0	0	0	0	0	1	0	0	0	1	3	1	0	0
030CT-050CT	0	2	0	1	1	1	0	0	0	1	0	0	0	0	0	0
	6	10	5	3	5	11	5	7	6	5	7	1	6	2	1	2

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
22AUG-24AUG	0	0	0	0	0	0	0	38	61.5	27.0	62.0	88.0	17.9
06SEP-08SEP	1	2	0	0	1	0	0	25	77.3	36.0	80.0	104.0	18.2
20SEP-22SEP	0	0	0	0	0	0	0	7	79.4	36.0	88.0	90.0	19.5
030CT-050CT	0	0	0	1	1	0	1	11	78.2	52.0	73.0	110.0	19.6
	1	2	0	1	2	0	1	17570					

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, 1994

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
18JUL-21JUL	2	13	17	8	6	20	19	22	34	22	6
01AUG-05AUG	0	0	2	16	7	6	8	1	17	33	19
15AUG-19AUG	0	0	0	0	2	11	19	6	10	11	19
29AUG-02SEP	0	0	0	0	1	2	10	4	12	12	10
12SEP-16SEP	0	0	0	0	0	0	2	3	5	8	8
26SEP-30SEP	0	0	0	0	0	1	0	1	8	5	3
10OCT-14OCT	0	0	0	0	0	0	0	2	2	2	4
24OCT-27OCT	0	0	0	0	0	0	0	1	0	3	3
	2	13	19	24	16	40	58	40	88	96	72

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
18JUL-21JUL	1	0	0	0	0	0	0	0	0	0	0
01AUG-05AUG	24	17	6	1	1	1	0	0	0	0	0
15AUG-19AUG	17	29	22	24	4	0	0	0	0	0	0
29AUG-02SEP	12	16	23	20	14	5	5	1	0	0	0
12SEP-16SEP	11	22	16	25	17	8	6	1	1	1	0
26SEP-30SEP	7	16	12	18	15	14	7	3	2	3	1
10OCT-14OCT	12	13	16	17	15	24	17	6	1	1	2
24OCT-27OCT	5	9	17	24	16	16	8	6	5	5	3
	89	122	112	129	82	68	43	17	9	10	6

DATES	120.0-124.9	125.0-129.9	130.0-134.9+	N	MEAN	MIN	MED	MAX	SD
18JUL-21JUL	0	0	0	171	41.8	14.0	45.0	66.0	13.6
01AUG-05AUG	0	0	0	168	55.7	23.0	58.5	91.0	14.8
15AUG-19AUG	0	0	0	176	63.8	32.0	66.0	89.0	14.9
29AUG-02SEP	0	0	0	148	69.7	33.0	73.0	103.0	15.4
12SEP-16SEP	0	0	0	136	75.6	41.0	77.0	111.0	13.3
26SEP-30SEP	0	0	0	118	79.4	37.0	80.5	119.0	15.5
10OCT-14OCT	2	0	0	137	83.5	46.0	84.0	123.0	14.3
24OCT-27OCT	2	0	2	126	86.7	48.0	84.5	137.0	15.6
	4	0	2	1180					

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, 1994

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
27JUN-30JUN	5	16	9	6	2	1	0	0	0	0	0
11JUL-14JUL	2	9	17	34	36	23	30	12	8	0	0
25JUL-27JUL	0	1	6	3	18	18	31	30	24	12	11
08AUG-11AUG	0	0	0	0	2	3	12	21	26	22	13
22AUG-25AUG	0	0	0	0	0	2	6	11	8	19	27
06SEP-09SEP	0	0	0	0	0	4	1	5	5	18	13
19SEP-22SEP	0	0	0	0	0	0	2	2	6	10	24
04OCT-07OCT	0	0	0	0	0	0	0	3	8	10	19
17OCT-19OCT	0	0	0	0	0	0	0	1	3	8	22
31OCT-02NOV	0	0	0	0	0	0	0	2	9	11	15
	7	26	32	43	58	51	82	87	97	110	144

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
27JUN-30JUN	0	0	0	0	0	0	0	0	0	0	0
11JUL-14JUL	0	0	0	0	0	0	0	0	0	0	0
25JUL-27JUL	6	1	1	0	0	0	0	0	0	0	0
08AUG-11AUG	19	12	9	4	1	0	0	0	0	0	0
22AUG-25AUG	18	25	21	18	11	4	1	0	0	0	0
06SEP-09SEP	17	8	11	15	8	8	3	2	1	0	0
19SEP-22SEP	17	19	16	18	9	6	5	6	2	2	0
04OCT-07OCT	21	18	24	17	20	9	17	4	5	5	1
17OCT-19OCT	12	22	22	10	8	12	12	8	1	5	0
31OCT-02NOV	17	22	14	12	15	11	8	6	3	2	2
	127	127	118	94	72	50	46	26	12	14	3

DATES	125.0-129.9	130.0-134.9	135.0-139.9+	N	MEAN	MIN	MED	MAX	SD
27JUN-30JUN	0	0	0	39	25.6	17.0	24.0	41.0	5.7
11JUL-14JUL	0	0	0	172	38.5	19.0	38.0	60.0	9.2
25JUL-27JUL	0	0	0	171	50.9	22.0	50.0	81.0	11.2
08AUG-11AUG	0	0	0	150	62.5	38.0	61.0	91.0	11.4
22AUG-25AUG	0	0	0	173	72.1	44.0	72.0	102.0	12.7
06SEP-09SEP	0	0	0	123	74.4	40.0	72.0	110.0	15.3
19SEP-22SEP	0	0	0	146	78.6	47.0	77.0	118.0	14.5
04OCT-07OCT	2	2	0	188	83.3	50.0	82.0	131.0	17.0
17OCT-19OCT	0	0	0	147	82.6	54.0	80.0	119.0	15.0
31OCT-02NOV	1	2	0	154	82.2	53.0	79.0	134.0	17.0
	3	4	0	1463					

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, 1994

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
11APR-15APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18APR-22APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25APR-30APR	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
02MAY-06MAY	0	179	12	0	0	0	0	0	0	0	0	0	0	0	0
09MAY-13MAY	1	1212	416	0	0	0	0	0	0	0	0	0	0	0	0
16MAY-20MAY	0	1098	1248	0	0	0	0	0	0	0	0	0	0	0	0
23MAY-27MAY	0	653	1547	37	0	0	0	0	0	0	0	0	0	0	0
31MAY-04JUN	0	585	1445	264	1	0	0	0	0	0	0	0	0	0	0
06JUN-10JUN	0	505	1019	569	69	4	0	0	0	0	0	0	0	0	0
13JUN-16JUN	0	371	856	918	447	91	10	1	0	1	0	0	0	0	0
20JUN-23JUN	0	247	582	878	605	153	33	6	0	1	0	0	0	0	0
27JUN-01JUL	0	118	402	691	616	278	61	6	3	2	0	0	0	0	0
05JUL-08JUL	0	0	11	129	337	256	95	32	10	1	0	1	2	0	0
12JUL-14JUL	0	0	0	2	20	53	99	53	21	11	4	0	1	1	0
26JUL-28JUL	0	0	0	0	0	0	0	1	1	1	0	1	0	0	0
08AUG-10AUG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22AUG-24AUG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06SEP-08SEP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20SEP-22SEP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
030CT-050CT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1	4970	7538	3488	2095	835	298	99	35	17	4	2	3	1	0

DATES	30.0-31.9	32.0-33.9	34.0-35.9	36.0-37.9	38.0-39.9	40.0-41.9	42.0-43.9	44.0-45.9	46.0-47.9	48.0-49.9	50.0-51.9	52.0-53.9	54.0-55.9	56.0-57.9	58.0-59.9
11APR-15APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18APR-22APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25APR-30APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02MAY-06MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09MAY-13MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16MAY-20MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23MAY-27MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31MAY-04JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06JUN-10JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13JUN-16JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20JUN-23JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27JUN-01JUL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05JUL-08JUL	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12JUL-14JUL	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26JUL-28JUL	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
08AUG-10AUG	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
22AUG-24AUG	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0
06SEP-08SEP	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
20SEP-22SEP	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
030CT-050CT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	1	0	0	0	1	0	0	0	0	3	0	1	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+	N	MEAN	MIN	MED	MAX	SD
11APR-15APR	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
18APR-22APR	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
25APR-30APR	0	0	0	0	0	0	0	0	0	2	3.0	3.0	3.0	3.0	0.0
02MAY-06MAY	0	0	0	0	0	0	0	0	0	191	3.3	2.0	3.2	4.4	0.4
09MAY-13MAY	0	0	0	0	0	0	0	0	0	1629	3.6	1.5	3.6	4.8	0.4
16MAY-20MAY	0	0	0	0	0	0	0	0	0	2346	4.0	2.0	4.0	5.5	0.5
23MAY-27MAY	0	0	0	0	0	0	0	0	0	2237	4.3	2.5	4.3	6.8	0.6
31MAY-04JUN	0	0	0	0	0	0	0	0	0	2295	4.7	2.5	4.6	8.4	0.9
06JUN-10JUN	0	0	0	0	0	0	0	0	0	2166	5.2	2.2	4.9	10.9	1.4
13JUN-16JUN	0	0	0	0	0	0	0	0	0	2695	6.3	2.0	6.1	18.7	2.0
20JUN-23JUN	0	0	0	0	0	0	0	0	0	2505	7.0	2.7	6.9	19.0	2.1
27JUN-01JUL	0	0	0	0	0	0	0	0	0	2177	7.6	2.3	7.6	19.0	2.3
05JUL-08JUL	0	0	0	0	0	0	0	0	0	875	10.0	4.4	9.7	31.0	2.4
12JUL-14JUL	0	0	0	0	0	0	0	0	0	266	13.4	7.0	13.1	31.0	2.9
26JUL-28JUL	0	0	0	0	0	0	0	0	0	5	21.3	14.4	19.0	33.0	7.3
08AUG-10AUG	0	1	0	0	0	0	0	0	0	2	56.5	51.0	56.5	62.0	7.8
22AUG-24AUG	1	2	0	1	1	0	1	0	0	8	61.1	40.0	63.0	72.0	10.0
06SEP-08SEP	0	0	0	0	0	2	1	0	3	7	71.7	51.0	72.0	81.0	10.2
20SEP-22SEP	0	0	0	0	0	0	0	1	0	2	62.5	50.0	62.5	75.0	17.7
030CT-050CT	0	0	0	0	0	0	3	1	3	7	76.7	72.0	75.0	86.0	5.3
	1	3	0	1	1	2	5	2	6	19415					

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, 1994

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
18JUL-21JUL	2	1	0	0	3	1	1	0	0	0	0
01AUG-05AUG	1	13	24	14	4	0	4	1	5	0	0
15AUG-19AUG	0	0	0	7	12	13	4	3	4	10	16
29AUG-02SEP	0	0	1	1	2	10	12	7	3	5	15
12SEP-16SEP	0	0	0	0	0	1	6	6	4	3	3
26SEP-30SEP	0	0	0	0	0	0	0	4	8	8	6
10OCT-14OCT	0	0	0	0	0	0	1	0	2	6	11
24OCT-27OCT	0	0	0	0	0	0	0	0	3	2	3
	3	14	25	22	21	25	28	21	29	34	54

DATES	70.0-74.9	75.0-79.9	80.0-84.9	85.0-89.9+	N	MEAN	MIN	MED	MAX	SD
18JUL-21JUL	0	0	0	0	10	28.0	11.0	28.5	47.0	13.0
01AUG-05AUG	0	0	0	0	67	32.0	19.0	29.0	60.0	10.3
15AUG-19AUG	5	5	1	0	83	54.1	31.0	59.0	81.0	14.8
29AUG-02SEP	18	22	1	1	99	62.6	28.0	67.0	85.0	13.8
12SEP-16SEP	12	10	5	1	52	66.4	43.0	71.0	86.0	12.1
26SEP-30SEP	11	13	11	7	70	71.1	51.0	73.5	89.0	10.2
10OCT-14OCT	19	22	30	22	114	77.5	47.0	78.0	94.0	8.8
24OCT-27OCT	15	14	33	52	124	81.5	55.0	83.0	97.0	8.6
	80	86	81	83	619					

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, 1994

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
27JUN-30JUN	5	1	0	0	0	0	0	0	0	0	0	0
11JUL-14JUL	4	12	29	26	11	7	3	0	0	0	0	0
25JUL-27JUL	0	2	12	12	22	37	21	11	8	0	0	0
08AUG-11AUG	0	0	0	1	6	3	14	10	22	15	6	2
22AUG-25AUG	0	0	0	2	0	3	6	10	16	15	21	17
06SEP-09SEP	0	0	0	0	0	1	0	3	8	7	13	24
19SEP-22SEP	0	0	0	0	0	0	0	1	2	4	6	20
04OCT-07OCT	0	0	0	0	0	0	0	1	2	2	6	16
17OCT-19OCT	0	0	0	0	0	0	0	0	0	4	5	5
31OCT-02NOV	0	0	0	0	0	0	0	2	1	2	15	12
	9	15	41	41	39	51	44	38	59	49	72	96

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
27JUN-30JUN	0	0	0	0	0	6	18.8	16.0	18.5	24.0	2.8
11JUL-14JUL	0	0	0	0	0	92	30.5	16.0	30.0	47.0	6.6
25JUL-27JUL	0	0	0	0	0	125	41.2	23.0	42.0	58.0	8.0
08AUG-11AUG	0	0	0	0	0	85	54.8	34.0	56.0	71.0	8.8
22AUG-25AUG	18	4	0	0	0	117	64.0	32.0	65.0	84.0	10.5
06SEP-09SEP	17	11	2	0	0	88	70.4	40.0	71.0	85.0	8.8
19SEP-22SEP	17	21	6	0	0	79	75.1	54.0	75.0	87.0	7.5
04OCT-07OCT	18	10	4	3	0	62	75.1	52.0	75.0	90.0	8.0
17OCT-19OCT	9	9	7	4	1	44	78.0	62.0	78.0	98.0	9.0
31OCT-02NOV	23	17	9	6	4	92	77.1	53.0	77.0	98.0	9.5
	102	72	28	13	5	790					

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, 1994

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
18JUL-21JUL	0	0	0	0	1	6	18	23	22	11	8	4	4	1	0
01AUG-05AUG	0	0	0	0	0	0	1	0	3	4	1	1	0	2	0
15AUG-19AUG	0	0	0	0	0	0	2	5	6	9	6	8	4	5	3
29AUG-02SEP	0	0	0	0	0	0	0	2	4	4	8	5	7	10	3
12SEP-16SEP	0	0	0	0	0	0	0	1	4	6	11	13	22	15	17
26SEP-30SEP	0	0	0	0	0	0	0	0	1	1	1	1	6	10	7
10OCT-14OCT	0	0	0	0	0	0	0	0	0	0	0	2	7	3	10
24OCT-27OCT	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4
	0	0	0	0	1	6	21	31	40	35	35	34	50	48	44

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
18JUL-21JUL	0	0	0	0	0	0	0	0	102	70.5	54.0	69.0	95.0	9.0
01AUG-05AUG	0	0	0	0	0	0	0	0	12	78.8	63.0	76.0	95.0	9.4
15AUG-19AUG	0	0	1	1	0	0	0	0	50	82.8	63.0	81.5	123.0	13.0
29AUG-02SEP	2	1	0	2	1	0	0	0	49	91.0	67.0	92.0	125.0	13.6
12SEP-16SEP	19	2	11	6	1	1	0	0	129	97.6	69.0	97.0	133.0	13.2
26SEP-30SEP	12	14	17	9	3	3	1	0	86	109.4	74.0	110.5	139.0	12.5
10OCT-14OCT	18	17	18	23	20	20	8	15	161	119.9	85.0	121.0	149.0	14.0
24OCT-27OCT	7	10	13	11	13	18	17	22	117	126.5	95.0	128.0	148.0	12.9
	58	44	60	52	38	42	26	37	706					

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, 1994

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
27JUN-30JUN	1	0	0	0	0	0	0	0	0	0	0
11JUL-14JUL	0	0	0	1	0	0	0	0	0	0	0
25JUL-27JUL	0	0	0	0	0	0	0	0	0	0	0
08AUG-11AUG	0	0	0	0	0	0	0	0	0	0	0
22AUG-25AUG	0	0	0	0	0	0	0	0	0	0	0
06SEP-09SEP	0	0	0	0	0	0	0	0	0	0	0
19SEP-22SEP	0	0	0	0	0	0	0	0	0	0	0
04OCT-07OCT	0	0	0	0	0	0	0	0	0	0	0
17OCT-19OCT	0	0	0	0	0	0	0	0	0	1	0
31OCT-02NOV	0	0	0	0	0	0	0	0	0	0	0
	1	0	0	1	0	0	0	0	0	1	0

DATES	120.0-124.9	125.0-129.9	130.0-134.9	135.0-139.9+	N	MEAN	MIN	MED	MAX	SD
27JUN-30JUN	0	0	0	0	3	60.0	49.0	64.0	67.0	9.6
11JUL-14JUL	0	0	0	0	2	73.0	63.0	73.0	83.0	14.1
25JUL-27JUL	0	0	0	0	0	.	.	.	.	.
08AUG-11AUG	0	0	0	0	0	.	.	.	.	.
22AUG-25AUG	0	0	0	0	0	.	.	.	.	.
06SEP-09SEP	0	0	0	0	0	.	.	.	.	.
19SEP-22SEP	0	0	0	0	0	.	.	.	.	.
04OCT-07OCT	0	0	0	1	1	144.0	144.0	144.0	144.0	.
17OCT-19OCT	0	1	1	0	3	123.3	112.0	127.0	131.0	10.0
31OCT-02NOV	0	0	0	0	0	.	.	.	.	.
	0	1	1	1	9					

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, 1994

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
18JUL-21JUL	0	34	49	45	24	12	0	1	0
01AUG-05AUG	1	14	30	59	32	15	6	5	0
15AUG-19AUG	3	2	9	12	38	59	22	16	8
29AUG-02SEP	0	0	10	11	37	57	38	14	6
12SEP-16SEP	0	1	2	0	5	20	65	53	16
26SEP-30SEP	0	0	0	2	2	10	45	56	28
10OCT-14OCT	0	0	0	2	1	16	68	57	35
24OCT-27OCT	0	0	0	0	0	3	20	41	23
	4	51	100	131	139	192	264	243	116

DATES	55.0-59.9	60.0-64.9+	N	MEAN	MIN	MED	MAX	SD
18JUL-21JUL	0	0	165	25.0	15.0	24.0	46.0	6.1
01AUG-05AUG	0	0	162	28.3	14.0	27.5	48.0	6.7
15AUG-19AUG	2	0	171	36.1	12.0	36.0	58.0	8.1
29AUG-02SEP	2	0	175	36.9	20.0	37.0	56.0	6.9
12SEP-16SEP	8	1	171	43.8	17.0	44.0	62.0	6.3
26SEP-30SEP	8	5	157	46.6	29.0	46.0	67.0	6.4
10OCT-14OCT	7	2	189	45.4	26.0	45.0	63.0	5.6
24OCT-27OCT	7	4	98	48.3	36.0	47.0	67.0	5.5
	34	12	1288					

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, 1994

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+	N	MEAN	MIN	MED	MAX	SD
27JUN-30JUN	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
11JUL-14JUL	1	18	8	0	0	0	0	0	0	27	28.0	24.0	28.0	31.0	1.9
25JUL-27JUL	4	3	8	5	2	1	0	0	0	24	31.2	19.0	31.5	45.0	6.8
08AUG-11AUG	5	16	9	11	2	3	2	0	0	48	32.6	21.0	30.5	52.0	7.5
22AUG-25AUG	0	0	3	7	8	7	4	4	0	34	44.8	33.0	43.5	60.0	8.1
06SEP-09SEP	0	0	2	25	23	12	4	0	0	66	41.3	32.0	40.0	54.0	4.9
19SEP-22SEP	0	7	6	8	29	20	6	2	0	78	41.6	25.0	42.0	57.0	7.1
04OCT-07OCT	0	1	0	6	12	25	10	6	2	62	47.0	25.0	46.0	66.0	6.9
17OCT-19OCT	0	0	0	3	6	10	6	4	1	30	48.1	36.0	46.5	62.0	6.6
31OCT-02NOV	0	0	0	1	2	7	3	3	1	17	49.8	38.0	48.0	67.0	7.1
	10	45	36	66	84	85	35	19	4	386					

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, 1994

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
11APR-15APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18APR-22APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25APR-30APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02MAY-06MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09MAY-13MAY	0	4	13	3	1	0	0	0	0	0	0	0	0	0
16MAY-20MAY	0	1	47	69	6	0	0	0	0	0	0	0	0	0
23MAY-27MAY	0	1	9	47	48	0	0	0	0	0	0	0	0	0
31MAY-04JUN	0	4	14	58	29	25	1	1	0	0	0	0	0	0
06JUN-10JUN	0	0	5	7	21	29	41	27	6	0	0	0	0	0
13JUN-16JUN	0	0	7	7	2	5	6	17	19	28	14	3	0	0
20JUN-23JUN	0	0	3	0	0	9	12	17	24	27	47	33	46	43
27JUN-01JUL	0	0	0	0	0	1	9	17	10	10	6	9	14	29
05JUL-08JUL	0	0	0	0	3	1	2	11	18	22	21	19	13	13
12JUL-14JUL	0	0	0	0	0	0	0	0	0	0	1	1	0	0
26JUL-28JUL	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08AUG-10AUG	0	0	0	0	0	0	0	0	0	0	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
11APR-15APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18APR-22APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25APR-30APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02MAY-06MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09MAY-13MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16MAY-20MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23MAY-27MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31MAY-04JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06JUN-10JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13JUN-16JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20JUN-23JUN	23	7	2	0	0	0	0	0	0	0	0	0	0	0
27JUN-01JUL	33	42	37	32	25	13	7	2	1	0	0	0	0	0
05JUL-08JUL	12	9	17	11	14	20	30	40	46	34	22	3	4	3
12JUL-14JUL	1	0	0	0	0	0	0	1	0	2	5	14	29	28
26JUL-28JUL	0	0	0	0	0	0	0	0	0	0	0	0	0	1
08AUG-10AUG	0	0	0	0	0	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
11APR-15APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18APR-22APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25APR-30APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02MAY-06MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09MAY-13MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16MAY-20MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23MAY-27MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31MAY-04JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06JUN-10JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13JUN-16JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20JUN-23JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27JUN-01JUL	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05JUL-08JUL	1	0	0	0	0	0	0	0	0	0	0	0	0	0
12JUL-14JUL	24	23	7	4	1	0	1	0	0	0	0	0	0	0
26JUL-28JUL	4	3	8	7	10	7	8	3	2	7	1	0	0	0
08AUG-10AUG	0	0	0	3	3	0	4	6	1	2	3	3	1	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
11APR-15APR	0	0	0	0	0	0	0	0	.	.	.	.	.
18APR-22APR	0	0	0	0	0	0	0	0	.	.	.	.	.
25APR-30APR	0	0	0	0	0	0	0	0	.	.	.	.	.
02MAY-06MAY	0	0	0	0	0	0	0	0	.	.	.	.	.
09MAY-13MAY	0	0	0	0	0	0	0	21	9.0	7.7	8.8	12.1	1.1
16MAY-20MAY	0	0	0	0	0	0	0	123	10.3	7.9	10.3	13.4	1.0
23MAY-27MAY	0	0	0	0	0	0	0	105	11.6	7.8	11.9	13.9	1.2
31MAY-04JUN	0	0	0	0	0	0	0	132	11.9	6.1	11.6	18.2	2.1
06JUN-10JUN	0	0	0	0	0	0	0	136	15.9	8.5	16.2	21.5	2.7
13JUN-16JUN	0	0	0	0	0	0	0	108	19.7	8.4	20.9	27.0	4.8
20JUN-23JUN	0	0	0	0	0	0	0	293	25.9	8.4	26.6	37.0	5.1
27JUN-01JUL	0	0	0	0	0	0	0	297	32.7	14.3	34.0	48.0	7.2
05JUL-08JUL	0	0	0	0	0	0	0	389	38.7	13.1	42.0	60.0	11.3
12JUL-14JUL	0	0	0	0	0	0	0	142	58.3	25.0	59.0	72.0	5.9
26JUL-28JUL	0	0	0	0	0	0	0	61	69.4	58.0	69.0	80.0	5.4
08AUG-10AUG	0	0	0	0	0	0	0	26	75.0	66.0	74.5	84.0	5.6

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
22AUG-24AUG	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06SEP-08SEP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20SEP-22SEP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
030CT-050CT	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	10	98	191	110	70	71	90	77	87	89	65	73	85

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
22AUG-24AUG	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06SEP-08SEP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20SEP-22SEP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
030CT-050CT	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	69	58	56	43	39	33	37	43	47	36	27	17	33	32

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
22AUG-24AUG	0	0	1	0	2	0	3	2	4	3	2	3	2	1
06SEP-08SEP	0	0	0	0	0	0	2	4	3	4	2	4	0	1
20SEP-22SEP	0	0	0	0	0	0	0	0	1	0	0	0	1	0
030CT-050CT	0	0	0	0	0	0	0	1	0	1	1	2	4	5
	29	26	16	14	16	7	18	16	11	17	9	12	8	7

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
22AUG-24AUG	1	0	0	0	0	0	0	24	77.5	65.0	77.5	88.0	5.9
06SEP-08SEP	2	1	0	0	1	0	0	24	80.2	72.0	78.0	96.0	6.1
20SEP-22SEP	2	1	1	0	1	0	1	8	89.9	76.0	89.5	103.0	8.0
030CT-050CT	2	6	4	4	0	2	8	40	92.6	75.0	90.5	118.0	9.6
	7	8	5	4	2	2	9	1929					

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, 1994

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
18JUL-21JUL	1	0	1	3	3	1	9	26	32	5	2	1	0
01AUG-05AUG	0	0	0	0	2	1	2	11	29	30	21	3	1
15AUG-19AUG	0	0	0	0	0	0	1	4	13	23	18	15	5
29AUG-02SEP	0	0	0	0	0	0	0	1	6	19	21	17	3
12SEP-16SEP	0	0	0	0	0	0	0	1	5	7	19	24	11
26SEP-30SEP	0	0	0	0	0	0	0	0	2	5	14	10	7
10OCT-14OCT	0	0	0	0	0	0	0	0	0	1	6	8	20
24OCT-27OCT	0	0	0	0	0	0	0	0	0	0	11	14	15
	1	0	1	3	5	2	12	43	87	90	112	92	62

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
18JUL-21JUL	0	0	0	0	0	0	0	88	62.5	29.0	63.5	80.0	8.1
01AUG-05AUG	1	0	0	0	0	0	0	103	69.9	47.0	70.0	90.0	6.9
15AUG-19AUG	3	0	0	0	0	0	0	82	75.2	59.0	74.5	94.0	7.1
29AUG-02SEP	3	1	0	0	0	0	0	71	76.8	64.0	77.0	95.0	6.4
12SEP-16SEP	9	2	0	1	1	0	0	80	81.7	64.0	81.0	110.0	8.4
26SEP-30SEP	3	5	2	1	0	0	0	49	82.9	67.0	80.0	106.0	9.1
10OCT-14OCT	12	12	6	7	2	2	1	77	92.7	74.0	91.0	128.0	10.7
24OCT-27OCT	31	10	6	7	4	1	3	102	92.5	75.0	91.0	133.0	11.1
	62	30	14	16	7	3	4	652					

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, 1994

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	80.0-84.9
27JUN-30JUN	15	6	28	42	15	11	2	0	0	0	0	0	0
11JUL-14JUL	0	0	7	29	29	35	27	35	10	5	3	0	0
25JUL-27JUL	0	0	0	0	2	14	37	52	37	13	6	0	0
08AUG-11AUG	0	0	0	0	0	0	1	5	28	63	33	3	1
22AUG-25AUG	0	0	0	0	0	0	2	3	13	31	77	18	4
06SEP-09SEP	0	0	0	0	0	0	0	0	5	13	37	61	21
19SEP-22SEP	0	0	0	0	0	0	0	0	1	9	19	36	53
04OCT-07OCT	0	0	0	0	0	0	1	0	1	4	9	23	45
17OCT-19OCT	0	0	0	0	0	0	0	0	0	2	3	32	69
31OCT-02NOV	0	0	0	0	0	0	0	0	0	0	7	29	47
	15	6	35	71	46	60	70	95	95	140	194	202	240

DATES	85.0-89.9	90.0-94.9	95.0-99.9	100.0-104.9	105.0-109.9	110.0-114.9+	N	MEAN	MIN	MED	MAX	SD
27JUN-30JUN	0	0	0	0	0	0	123	34.4	16.0	36.0	51.0	7.7
11JUL-14JUL	0	0	0	0	0	0	186	48.7	30.0	48.0	73.0	9.2
25JUL-27JUL	0	0	0	0	0	0	181	57.8	44.0	59.0	73.0	5.8
08AUG-11AUG	2	0	0	0	0	0	137	67.1	51.0	67.0	88.0	4.8
22AUG-25AUG	0	0	0	0	0	0	148	70.5	52.0	71.0	81.0	4.9
06SEP-09SEP	2	0	1	0	0	0	140	75.1	62.0	75.0	95.0	5.1
19SEP-22SEP	13	4	2	0	0	0	137	79.0	62.0	80.0	97.0	6.1
04OCT-07OCT	37	16	6	1	0	0	143	82.8	54.0	83.0	101.0	7.1
17OCT-19OCT	44	11	1	2	0	0	164	82.9	66.0	83.0	103.0	5.2
31OCT-02NOV	32	14	2	1	0	0	132	82.9	71.0	83.0	103.0	5.7
	130	45	12	4	0	0	1491					

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, 1994

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
18JUL-21JUL	0	0	2	8	8	4	2	1	2	0	1
01AUG-05AUG	0	1	2	6	10	9	9	1	4	2	0
15AUG-19AUG	0	0	0	1	0	2	2	5	9	7	1
29AUG-02SEP	0	0	0	0	0	2	3	4	7	5	6
12SEP-16SEP	0	0	0	0	0	0	0	3	4	4	8
26SEP-30SEP	0	0	0	0	0	0	0	0	3	4	7
10OCT-14OCT	0	0	0	0	0	0	0	1	1	10	15
24OCT-27OCT	0	0	0	0	0	1	0	0	2	6	7
	0	1	4	15	18	18	16	15	32	38	45

DATES	85.0-89.9	90.0-94.9	95.0-99.9	100.0-104.9+	N	MEAN	MIN	MED	MAX	SD
18JUL-21JUL	0	0	0	0	29	54.3	43.0	53.0	80.0	9.0
01AUG-05AUG	1	0	0	0	53	57.7	37.0	58.0	85.0	9.5
15AUG-19AUG	0	0	0	0	27	70.0	48.0	71.0	84.0	7.9
29AUG-02SEP	1	1	0	0	29	73.2	56.0	74.0	92.0	8.0
12SEP-16SEP	9	3	0	1	32	81.3	67.0	82.5	100.0	7.8
26SEP-30SEP	11	4	1	1	31	84.6	71.0	85.0	103.0	7.0
10OCT-14OCT	13	6	5	1	52	84.5	69.0	84.0	100.0	7.1
24OCT-27OCT	5	11	12	8	52	90.3	59.0	92.5	110.0	10.5
	40	25	18	11	305					

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, 1994

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
27JUN-30JUN	0	1	0	0	1	0	0	0	0
11JUL-14JUL	0	98	20	6	0	2	0	0	0
25JUL-27JUL	0	10	36	35	22	9	2	0	0
08AUG-11AUG	0	0	2	4	12	8	8	4	2
22AUG-25AUG	0	0	0	1	5	14	20	27	9
06SEP-09SEP	0	0	0	0	0	9	14	13	13
19SEP-22SEP	0	0	0	0	0	2	1	14	11
04OCT-07OCT	0	0	0	0	0	1	2	5	8
17OCT-19OCT	0	0	0	0	0	0	0	5	4
31OCT-02NOV	0	0	0	0	0	0	3	2	4
	0	109	58	46	40	45	50	70	51

DATES	80.0-84.9	85.0-89.9	90.0-94.9+	N	MEAN	MIN	MED	MAX	SD
27JUN-30JUN	0	0	0	2	49.0	42.0	49.0	56.0	9.9
11JUL-14JUL	0	0	0	126	43.5	41.0	43.0	62.0	3.5
25JUL-27JUL	0	0	0	119	52.0	40.0	51.0	68.0	5.8
08AUG-11AUG	1	0	0	48	61.8	46.0	60.0	81.0	7.2
22AUG-25AUG	1	0	0	78	68.1	53.0	69.0	80.0	5.7
06SEP-09SEP	7	0	0	58	71.1	60.0	70.5	84.0	6.6
19SEP-22SEP	7	4	4	43	77.6	63.0	77.0	100.0	7.7
04OCT-07OCT	10	7	2	35	79.6	64.0	80.0	97.0	7.0
17OCT-19OCT	7	4	3	23	81.0	71.0	80.0	98.0	6.8
31OCT-02NOV	1	8	5	23	83.1	65.0	85.0	102.0	10.5
	34	23	14	555					

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, 1994

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
18JUL-21JUL	0	36	18	9	8	0	0	0
01AUG-05AUG	2	16	35	20	12	12	3	0
15AUG-19AUG	1	11	20	33	23	3	3	7
29AUG-02SEP	0	1	10	58	20	2	1	1
12SEP-16SEP	0	0	1	30	51	5	5	1
26SEP-30SEP	0	0	1	25	39	10	8	0
10OCT-14OCT	0	0	1	14	39	22	20	15
24OCT-27OCT	0	0	0	9	33	26	28	22
	3	64	86	198	225	80	68	46

DATES	75.0-79.9	80.0-84.9+	N	MEAN	MIN	MED	MAX	SD
18JUL-21JUL	0	0	71	46.0	41.0	44.0	58.0	5.1
01AUG-05AUG	0	0	101	50.8	36.0	49.0	68.0	7.0
15AUG-19AUG	2	0	105	53.5	39.0	53.0	77.0	8.2
29AUG-02SEP	0	0	93	52.9	41.0	53.0	70.0	3.9
12SEP-16SEP	2	0	101	56.9	45.0	56.0	77.0	5.1
26SEP-30SEP	1	0	87	57.3	45.0	57.0	77.0	4.9
10OCT-14OCT	5	1	124	61.9	45.0	61.0	84.0	7.1
24OCT-27OCT	18	14	163	66.0	50.0	65.0	89.0	8.6
	28	15	845					

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, 1994

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
27JUN-30JUN	0	0	0	0	0	0	0	0	0
11JUL-14JUL	0	0	58	18	7	1	0	0	0
25JUL-27JUL	0	1	115	37	7	0	0	0	0
08AUG-11AUG	0	0	16	36	29	13	2	1	0
22AUG-25AUG	0	0	15	28	30	8	3	2	0
06SEP-09SEP	0	0	2	14	34	26	7	5	2
19SEP-22SEP	0	0	2	6	28	37	16	6	3
04OCT-07OCT	0	0	0	1	21	42	10	7	5
17OCT-19OCT	0	0	0	4	14	53	18	6	10
31OCT-02NOV	0	0	0	2	12	31	16	5	9
	0	1	208	146	182	211	72	32	29

DATES	75.0-79.9	80.0-84.9	85.0-89.9+	N	MEAN	MIN	MED	MAX	SD
27JUN-30JUN	0	0	0	0	.	.	.	.	.
11JUL-14JUL	0	0	0	84	44.1	41.0	43.0	58.0	3.5
25JUL-27JUL	0	0	0	160	43.5	37.0	43.0	54.0	2.9
08AUG-11AUG	0	0	0	98	49.4	41.0	49.0	65.0	5.2
22AUG-25AUG	1	0	0	89	50.2	40.0	50.0	76.0	6.3
06SEP-09SEP	0	0	0	93	54.5	42.0	54.0	71.0	5.9
19SEP-22SEP	0	0	0	104	56.5	44.0	56.0	73.0	5.8
04OCT-07OCT	2	3	1	96	59.7	47.0	57.0	87.0	7.8
17OCT-19OCT	4	3	2	124	60.3	47.0	58.0	87.0	7.9
31OCT-02NOV	2	3	0	90	60.5	47.0	59.5	81.0	7.3
	9	9	3	938					

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, 1994

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
18JUL-21JUL	0	2	0	0	0	0	0	0
01AUG-05AUG	0	0	3	1	0	0	0	0
15AUG-19AUG	0	1	0	2	0	2	0	1
29AUG-02SEP	0	0	0	3	3	3	4	1
12SEP-16SEP	0	0	0	0	1	5	1	3
26SEP-30SEP	0	0	0	0	1	2	0	2
10OCT-14OCT	0	0	0	0	1	3	1	4
24OCT-27OCT	0	0	0	0	1	3	5	6
	0	3	3	6	7	18	11	17

DATES	75.0-79.9	80.0-84.9+	N	MEAN	MIN	MED	MAX	SD
18JUL-21JUL	0	0	2	40.0	40.0	40.0	40.0	0.0
01AUG-05AUG	0	0	4	49.5	46.0	49.0	54.0	3.3
15AUG-19AUG	0	0	7	57.4	44.0	60.0	70.0	8.6
29AUG-02SEP	0	0	16	60.7	53.0	61.0	73.0	6.0
12SEP-16SEP	0	0	10	65.0	56.0	63.5	71.0	4.9
26SEP-30SEP	1	2	8	70.8	55.0	72.5	82.0	9.8
10OCT-14OCT	2	0	11	69.0	59.0	70.0	77.0	5.9
24OCT-27OCT	2	2	20	70.1	59.0	70.0	85.0	7.2
	5	4	78					

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, 1994

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
27JUN-30JUN	2	17	54	31	0	0	0	0	0	0	0
11JUL-14JUL	0	0	2	26	48	59	23	0	0	0	0
25JUL-27JUL	0	0	0	1	8	21	44	51	25	4	0
08AUG-11AUG	0	0	0	0	0	0	5	13	14	13	0
22AUG-25AUG	0	0	0	0	0	0	3	3	11	12	18
06SEP-09SEP	0	0	0	0	0	0	0	2	6	11	17
19SEP-22SEP	0	0	0	0	0	0	2	4	4	4	7
04OCT-07OCT	0	0	0	0	0	0	0	1	3	6	6
17OCT-19OCT	0	0	0	0	0	0	0	0	0	2	3
31OCT-02NOV	0	0	0	0	0	0	0	1	0	3	7
	2	17	56	58	56	80	77	75	63	55	58

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
27JUN-30JUN	0	0	0	0	0	104	22.1	14.0	22.0	29.0	3.1
11JUL-14JUL	0	0	0	0	0	158	34.4	20.0	35.0	43.0	4.7
25JUL-27JUL	0	0	0	0	0	154	44.2	27.0	45.0	57.0	5.7
08AUG-11AUG	0	0	0	0	0	46	50.8	41.0	51.0	60.0	4.8
22AUG-25AUG	9	4	0	0	0	67	58.8	41.0	60.0	72.0	7.2
06SEP-09SEP	16	12	2	0	0	67	63.1	46.0	63.0	75.0	7.0
19SEP-22SEP	22	14	9	4	0	75	65.8	40.0	67.0	82.0	9.5
04OCT-07OCT	15	17	17	11	0	78	70.4	46.0	73.0	82.0	8.3
17OCT-19OCT	10	14	16	6	0	53	71.7	56.0	71.0	83.0	6.5
31OCT-02NOV	15	23	13	4	8	75	71.6	48.0	72.0	88.0	7.9
	87	84	57	25	8	877					

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, 1994

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
18JUL-21JUL	4	1	1	9	5	4	0	0	0	0	0	0	0
01AUG-05AUG	0	0	1	0	3	4	5	9	3	0	0	0	0
15AUG-19AUG	0	0	0	1	1	0	0	5	8	5	5	6	3
29AUG-02SEP	0	0	0	0	0	0	2	3	3	2	11	8	10
12SEP-16SEP	0	0	0	0	0	0	3	1	1	4	4	4	7
26SEP-30SEP	0	0	0	0	0	1	0	1	0	3	2	8	12
10OCT-14OCT	0	0	0	0	0	0	1	2	1	0	2	11	1
24OCT-27OCT	0	0	0	0	0	0	0	0	0	3	2	8	5
	4	1	2	10	9	9	11	21	16	17	26	45	38

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
18JUL-21JUL	0	0	0	0	0	0	24	31.5	15.0	33.0	44.0	8.4
01AUG-05AUG	0	0	0	0	0	0	26	47.5	29.0	48.0	60.0	7.7
15AUG-19AUG	0	0	0	0	0	0	36	61.7	33.0	62.0	78.0	9.8
29AUG-02SEP	7	3	1	0	0	0	52	70.5	48.0	71.5	94.0	10.6
12SEP-16SEP	3	12	5	1	0	0	47	75.8	46.0	77.0	97.0	13.7
26SEP-30SEP	5	7	6	1	0	0	46	77.7	42.0	78.0	95.0	10.7
10OCT-14OCT	9	6	4	1	0	0	39	76.9	48.0	80.0	99.0	12.1
24OCT-27OCT	8	9	8	6	1	0	50	83.0	62.0	84.0	100.0	10.2
	32	37	24	9	1	0	320					

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, 1994

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	80.0-84.9
18JUL-21JUL	0	5	15	6	10	6	9	13	12	8	1	2	1	0	0
01AUG-05AUG	0	0	0	0	2	3	14	15	19	20	6	1	2	3	1
15AUG-19AUG	0	0	0	0	0	0	1	1	3	7	8	8	11	15	4
29AUG-02SEP	0	0	0	0	0	0	0	0	0	0	0	0	3	4	8
12SEP-16SEP	0	0	0	0	0	0	0	0	0	1	0	1	1	3	4
26SEP-30SEP	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
10OCT-14OCT	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
24OCT-27OCT	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
	0	5	15	6	12	9	24	29	35	36	15	13	19	26	18

DATES	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	150.0-154.9	155.0-159.9
18JUL-21JUL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01AUG-05AUG	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0
15AUG-19AUG	3	2	1	2	0	1	1	0	0	0	0	0	0	0	0
29AUG-02SEP	6	12	5	9	1	0	0	0	1	3	1	0	0	0	0
12SEP-16SEP	8	17	9	11	12	7	0	2	2	0	0	0	1	0	0
26SEP-30SEP	0	2	7	7	2	4	3	2	5	1	0	0	0	1	1
10OCT-14OCT	0	4	6	8	7	7	3	8	3	5	2	1	1	0	2
24OCT-27OCT	0	1	0	4	4	9	8	11	7	7	3	3	7	2	1
	17	40	29	41	26	28	15	23	18	16	6	4	9	3	4

DATES	160.0-164.9	165.0-169.9	170.0-174.9	175.0-179.9	180.0-184.9	185.0-189.9	190.0-194.9+	N	MEAN	MIN	MED	MAX	SD
18JUL-21JUL	0	0	0	0	0	0	0	88	39.2	15.0	41.5	74.0	14.1
01AUG-05AUG	0	0	0	0	0	0	0	90	53.9	31.0	52.5	95.0	12.1
15AUG-19AUG	0	0	0	0	0	0	0	68	72.3	41.0	72.5	117.0	14.1
29AUG-02SEP	0	0	0	0	0	0	0	53	93.4	71.0	91.0	139.0	15.4
12SEP-16SEP	0	0	0	0	0	0	0	79	97.7	55.0	96.0	147.0	13.6
26SEP-30SEP	0	1	1	0	0	0	0	39	112.1	51.0	106.0	171.0	22.9
10OCT-14OCT	0	0	0	0	0	0	0	59	113.2	68.0	111.0	158.0	17.8
24OCT-27OCT	0	0	1	0	0	1	1	71	126.3	72.0	123.0	193.0	19.7
	0	1	2	0	0	1	1	547					

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 1988-1994

APPENDIX E

LIST OF TABLES

Number	Title
E-1	Total number of fish collected in the Longitudinal River Ichthyoplankton Survey, 1988-1994.
E-2	Total number of fish collected in the Beach Seine Survey, 1985-1994.
E-3	Total number of fish collected in the Fall Shoals Survey, 1985-1994.

TABLE E-1 TOTAL NUMBER OF FISH COLLECTED IN THE LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1988-1994

		YEAR OF DATA COLLECTION						
		88	89	90	91	92	93	94
GROUP	NAME							
ANADROMOUS	ALEWIFE	8,200	624	60	2,727	555	1,275	1,677
	ALOSA UNIDENTIFIED	258,802	423,742	714,369	250,755	465,613	191,558	206,821
	AMERICAN SHAD	51,162	62,755	49,242	25,128	30,345	15,867	31,214
	ATLANTIC STURGEON	11	2	5	26	4	.	7
	ATLANTIC TOMCOD	25,414	37,397	38,431	40,804	10,558	21,343	20,724
	BLUEBACK HERRING	4,992	2,568	1,230	28,397	30,496	3,290	9,315
	HICKORY SHAD	.	.	.	.	.	.	.
	MORONE UNIDENTIFIED	2,180	13,473	955	17,620	7,246	12,406	8,349
	RAINBOW SMELT	24,693	767	6,838	2,494	23,035	12,002	59,830
	STRIPED BASS	61,072	225,498	264,907	359,994	462,382	459,384	674,877
	STURGEON UNIDENTIFIED	4	6	18	9	.	.	.
CATADROMOUS	AMERICAN EEL	789	917	848	1,372	827	1,505	917
ESTUARINE	ATLANTIC SILVERSIDE	152	11	67	49	27	19	144
	BANDED KILLIFISH	5	2,274	1	.	5	3	4
	FOURSPINE STICKLEBACK	6	1	1	2	1	7	5
	HOGCHOKER	301,192	589,469	13,591	908,378	44,337	87,673	159,012
	INLAND SILVERSIDE	98	101	.	58	42	209	857
	MUMMICHOG	1	.	.	.	.	.	2
	NORTHERN PIPEFISH	1,135	153	102	2,059	137	416	186
	SCUP	.	.	.	1	.	.	.
	SEA HORSE	11	.	1	9	.	.	.
	SHORTNOSE STURGEON	3	.	2	3	3	14	9
	THREESPINE STICKLEBACK	2	.	1	.	.	2	.
	WHITE CATFISH	77	100	87	76	52	25	214
	WHITE PERCH	138,753	198,953	157,348	147,232	265,656	221,021	172,991
FRESHWATER	BLUEGILL	.	.	.	5	.	.	1
	BROWN BULLHEAD	1	12	33	30	4	7	18
	BROWN TROUT	.	.	1	.	1	.	.
	CARP	730	651	.	340	731	136	121
	CATOSTOMIDAE UNIDENT.	.	.	.	1	1	.	.
	CENTRARCHID UNIDENT	30	66	46	40	132	40	125
	CHANNEL CATFISH	.	.	.	1	1	.	.
	COMMON SHINER	.	.	12	.	.	.	.
	FATHEAD MINNOW	.	.	1	.	.	.	.
	FRESHWATER DRUM	.	.	.	.	1	1	.
	FUNDULUS SP.	.	2	4	3	1	111	4
	GIZZARD SHAD	.	85	5	3	535	123	441
	GOLDEN SHINER	.	1	7	.	.	1	2
	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
	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
	TESSELATED DARTER	2,898	2,805	2,290	1,566	2,836	1,936	1,718
	WALLEYE	.	26	.	1	2	12	32
	WHITE CRAPPIE	.	.	.	.	.	.	4
	WHITE SUCKER	.	10	44	.	1	.	.
	YELLOW BULLHEAD	.	.	.	.	.	.	.
	YELLOW PERCH	152	325	610	157	369	225	333
MARINE	AMERICAN SANDLANCE	48	8	2	4	4	.	1
	ATHERINID UNIDENTIFIED	.	1	.	259	.	16	45
	ATLANTIC COD	68	.	.	.	.	.	.
	ATLANTIC CROAKER	.	.	.	.	157	1	5
	ATLANTIC HERRING	522	178	76	1,177	842	1,151	37
	ATLANTIC MACKEREL	4	.	.	1	2	.	.
	ATLANTIC MENHADEN	6	12	671	1,301	404	268	13,008
	ATLANTIC NEEDLEFISH	.	.	3	.	.	1	.
	BAY ANCHOVY	2,852,331	444,854	900,354	3,831,982	1,341,076	1,849,143	3,051,491
	BLACK SEA BASS	.	.	.	.	.	.	4
	BLACKCHEEK TONGUEFISH	.	.	.	.	10	.	.
	BLUEFISH	85	54	165	151	147	78	73
	BOTHID UNIDENTIFIED	.	.	.	1	.	.	.
	BUTTERFISH	143	18	18	27	46	38	108
	CONGER EEL	132	72	54	29	124	195	175
	CREVALLE JACK	1	4	.	1	.	.	.
	CUNNER	11,129	1,429	.	1,955	4,221	996	2,176
	FOUR BEARDED ROCKLING	108	209	2	404	691	4	4,157
	FOUR SPOT FLOUNDER	.	1	.	.	.	.	.
	GADIDAE	6	.	.	.	.	10	.
	GOBIIDAE	9,007	5,593	22,569	78,349	26,599	3,794	3,410

TABLE E-1 (CONT.)

GROUP	NAME	YEAR OF DATA COLLECTION 88	89	90	91	92	93	94
MARINE	GOOSEFISH	.	.	.	8	12	.	.
	GRUBBY	605	387	167	521	248	66	98
	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
	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
	WINTER FLOUNDER	900	178	64	340	794	188	362
	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

SAMPLING STATISTICS FOR LONGITUDINAL RIVER ICHTHYOPLANKTON SURVEY, 1988-1994

	YEAR OF DATA COLLECTION 88	89	90	91	92	93	94
START DATE	18APR88	17APR89	19APR90	15APR91	13APR92	12APR93	11APR94
END DATE	25AUG88	23AUG89	16AUG90	17OCT91	14OCT92	05OCT93	05OCT94
VOLUME SAMPLED (m^3)	524,777	519,252	419,294	537,825	632,978	596,043	579,959
SAMPLE SIZE	1,663	1,641	1,561	1,991	1,986	1,987	1,986

TABLE E-2 TOTAL NUMBER OF FISH COLLECTED IN THE BEACH SEINE SURVEY, 1985-1994.

		YEAR OF DATA COLLECTION									
		85	86	87	88	89	90	91	92	93	94
GROUP	NAME										
ANADROMOUS	ALEWIFE	1,272	818	515	675	439	925	2,323	870	638	1,738
	ALOSA UNIDENTIFIED	8,272	2,529	5,685	21,022	8,346	10,853	38,966	3,490	5,237	14,468
	AMERICAN SHAD	9,171	14,716	7,641	10,780	13,026	12,261	15,771	15,366	5,122	13,007
	ATLANTIC STURGEON	1	.	.	.	3	.	.	.	.	.
	ATLANTIC TOMCOD	243	148	209	230	81	115	46	328	13	9
	BLUEBACK HERRING	25,362	12,522	31,373	36,245	19,037	43,555	40,731	29,105	29,722	46,040
	HICKORY SHAD	.	.	.	.	.	.	.	.	.	.
	MORONE UNIDENTIFIED	.	.	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
CATADROMOUS	AMERICAN EEL	315	163	125	151	107	81	208	127	97	86
ESTUARINE	ATLANTIC SILVERSIDE	1,197	4,406	1,459	6,760	686	8,383	17,291	6,668	14,493	21,101
	BANDED KILLIFISH	5,959	3,514	4,369	4,917	1,948	1,513	3,232	1,243	2,708	6,402
	FAT SLEEPER	.	1	.	.	.	.	.	.	.	.
	FOURSPINE STICKLEBACK	359	525	296	194	12	11	24	15	32	29
	HOGCHOKER	1,033	276	312	305	261	150	652	329	143	230
	INLAND SILVERSIDE	464	653	146	406	234	190	160	1,129	9	4
	MUMMICHOG	455	38	496	414	68	109	183	128	208	448
	NORTHERN PIPEFISH	844	166	348	297	156	86	689	51	124	16
	SHORTNOSE STURGEON	.	.	.	.	.	.	.	.	.	.
	STRIPED MULLET	2	6	1	1	.	.	5	.	.	.
	THREESPINE STICKLEBACK	2	17	10	3	4	2	4	1	.	.
	WHITE CATFISH	52	83	86	101	66	23	25	18	16	7
	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
FRESHWATER	BLACK CRAPPIE	.	47	52	10	10	8	12	20	4	14
	BLACKNOSE DACE	2	.	1	1	.	.	.	.	.	.
	BLUEGILL	64	57	76	355	159	89	69	61	94	89
	BLUNTNOSE MINNOW	.	.	.	.	.	.	.	.	.	3
	BROOK SILVERSIDE	.	.	.	.	.	.	.	.	.	44
	BROOK STICKLEBACK	.	.	.	.	1	.	.	.	.	.
	BROWN BULLHEAD	6	41	12	53	28	10	42	40	252	117
	BROWN TROUT	.	.	.	.	.	.	.	.	.	1
	CARP	50	102	78	133	86	57	111	90	62	41
	CENTRARCHID UNIDENT	673	327	388	351	100	106	64	29	42	216
	CHAIN PICKEREL	.	.	.	.	4	.	.	1	.	.
	CHANNEL CATFISH	.	.	.	.	.	3	.	.	.	.
	COMELY SHINER	.	.	.	.	.	.	.	.	1	.
	COMMON SHINER	.	.	.	1	.	.	.	1	1	.
	CREEK CHUB	1	.	.	.	.	.	4	.	1	.
	EMERALD SHINER	4	4	5	22	.	11	8	4	2	1
	FALLFISH	.	2	.	.	.	.	9	8	2	11
	FATHEAD MINNOW	1	10	.	.	1	.	.	.	.	2
	GIZZARD SHAD	3	13	100	10	7	28	22	158	38	49
	GOLDEN SHINER	460	1,223	647	676	640	817	672	787	659	760
	GOLDFISH	14	25	16	97	1	3	33	1	29	3
	GRASS PICKEREL	.	.	.	.	.	1	.	.	.	.
	GREEN SUNFISH	.	.	.	1	.	.	.	.	.	.
	LARGEMOUTH BASS	44	71	44	57	51	34	85	55	55	74
	LOGPERCH	.	.	.	.	.	.	.	1	1	.
	LONGEAR SUNFISH	.	.	.	.	.	10	.	.	.	.
	LONGNOSE DACE	1	.	.	.	.	.	.	.	.	.
	MINNOW UNIDENTIFIED	1	6	6	.	.	.	134	.	5	2
	NORTHERN HOGSUCKER	.	.	1	3	.	1	4	2	.	.
	NORTHERN PIKE	.	2	4	2	4	2	2	2	3	2

TABLE E-2 (CONT.)

GROUP	NAME	YEAR OF DATA COLLECTION									
		85	86	87	88	89	90	91	92	93	94
FRESHWATER	PUGNOSE SHINER	.	.	.	.	.	.	2	.	.	.
	PUMPKINSEED	740	496	609	1,070	633	724	1,195	602	774	1,535
	RAINBOW TROUT	.	.	.	.	.	.	.	.	.	.
	REDBREAST SUNFISH	115	158	185	160	111	76	200	259	251	382
	REDFIN PICKEREL	.	.	.	2	.	.	1	.	.	.
	ROCK BASS	6	8	1	12	3	.	22	1	1	.
	SATINFIN SHINER	1	2	.	1	.	2	.	.	1	.
	SILVERY MINNOW	3	13	23	119	2	9	387	68	568	1,027
	SMALLMOUTH BASS	7	25	8	28	25	21	25	28	30	73
	SPOTFIN SHINER	5	8	17	5	.	.	.	.	12	8
	SPOTTAIL SHINER	5,316	5,177	4,452	5,407	5,129	5,500	12,385	7,727	7,169	12,452
	SWALLOWTAIL SHINER	.	.	.	.	.	.	.	3	.	.
	TESSELATED DARTER	1,198	1,372	820	1,697	415	479	2,385	929	1,251	1,669
	TIGER MUSKELLUNGE	.	.	.	.	.	.	.	1	.	.
	WHITE CRAPPIE	.	4	1	3	.	1	2	1	.	.
	WHITE SUCKER	7	16	17	32	9	15	12	21	11	12
	YELLOW PERCH	22	67	44	49	34	12	27	23	22	29
MARINE	ATLANTIC CROAKER	.	1	.	.	.	26	.	1	.	.
	ATLANTIC MENHADEN	118	834	30	99	159	1,063	678	415	16	1,637
	ATLANTIC NEEDLEFISH	92	77	54	48	41	96	476	9	11	12
	BAY ANCHOVY	4,081	4,155	3,746	3,989	9,507	4,134	4,669	8,729	8,106	10,447
	BLUEFISH	567	400	533	280	224	348	314	375	223	80
	BUTTERFISH	.	.	.	4	.	1	.	1	9	.
	CREVALLE JACK	71	10	3	22	40	32	58	53	30	2
	CUNNER	.	.	.	.	.	.	.	1	.	.
	GOOSEFISH	.	.	.	.	.	.	1	.	.	.
	GRAY SMAPPER	7	1	3	.	.	.	2	.	.	.
	GRUBBY	.	.	.	.	.	.	.	.	.	.
	INSHORE LIZARDFISH	.	.	.	1	1	.	14	8	11	5
	LOOKDOWN	18	1	.	.	10	1	.	.	.	.
	MOONFISH	.	.	.	.	3	.	.	.	.	.
	NAKED GOBY	20	9	11	4	4	7	14	22	2	.
	NORTHERN KINGFISH	20	8	.	9	1	4	42	2	17	13
	NORTHERN PUFFER	2	1	.	1	.	.	10	.	4	.
	NORTHERN SEAROBIN	.	2	.	.	.	.	8	.	.	1
	NORTHERN STARGAZER	1	.	.	.	.	.	1	.	1	1
	ORANGE SPOTTED FILEFISH	.	1	.	.	.	.	.	.	.	.
	PERMIT	.	.	.	.	.	.	.	1	2	.
	ROUGH SILVERSIDE	35	4	23	258	9	4	.	2	.	1
	SEA ROBIN	.	.	.	.	.	.	5	.	.	.
	SEABORD GOBY	.	.	.	1	.	.	.	.	.	.
	SILVER HAKE	.	.	.	.	.	1	.	.	.	.
	SILVER PERCH	13	1	.	19	.	.	29	8	61	25
	SMALLMOUTH FLOUNDER	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
	STRIPED SEAROBIN	5	16	.	3	.	.	34	1	11	.
	SUMMER FLOUNDER	48	45	4	1	2	2	46	26	20	18
	TAUTOG	2	5	2	20	.	6	31	1	.	1
	WEAKFISH	72	5	.	2	.	27	111	1	4	4
	WINDOWPANE FLOUNDER	.	.	3	.	.	.	1	.	.	.
	WINTER FLOUNDER	282	80	29	41	9	23	154	35	74	45

TABLE E-2 (CONT.)

SAMPLING STATISTICS FOR BEACH SEINE SURVEY, 1985-1994

	YEAR OF DATA COLLECTION									
	85	86	87	88	89	90	91	92	93	94
START DATE	16JUL85	15JUL86	24JUN87	14JUN88	13JUN89	18JUN90	24JUN91	23JUN92	01JUL93	27JUN94
END DATE	21NOV85	21NOV86	13NOV87	03NOV88	02NOV89	24OCT90	01NOV91	28OCT92	04NOV93	02NOV94
SAMPLE SIZE	1,000	1,000	1,101	1,100	1,100	1,000	1,000	1,000	1,000	1,000

TABLE E-3 TOTAL NUMBER OF FISH COLLECTED IN THE FALL SHOALS SURVEY, 1985-1994.

		YEAR OF DATA COLLECTION									
		85	86	87	88	89	90	91	92	93	94
GROUP	NAME										
ANADROMOUS	ALEWIFE	1,142	554	702	379	327	459	994	790	730	719
	ALOSA UNIDENTIFIED	3,341	282	2,591	4,193	4,331	3,543	1,276	10,650	1,905	1,725
	AMERICAN SHAD	1,717	2,166	776	1,483	3,646	1,323	1,291	3,406	961	2,095
	ATLANTIC STURGEON	96	184	149	117	63	6	10	1	7	15
	ATLANTIC TOMCOD	5,083	10,046	7,908	8,210	14,060	1,105	4,914	7,299	3,664	1,679
	BLUEBACK HERRING	41,919	6,525	18,596	37,957	22,112	15,982	55,299	38,090	22,442	18,790
	HICKORY SHAD	.	3	.	.	.	.	.	.	.	.
	MORONE UNIDENTIFIED	1	.	.	.	3	2	.	.	.	.
	RAINBOW SMELT	126	389	429	576	34	216	256	2,549	757	363
	SEA LAMPREY	.	.	.	.	.	1	.	.	.	.
	STRIPED BASS	888	2,348	11,633	18,679	8,472	3,624	4,672	3,773	8,339	8,719
CATADROMOUS	AMERICAN EEL	1,872	2,906	2,254	2,076	1,444	342	984	19	1,406	1,647
ESTUARINE	ATLANTIC SILVERSIDE	.	2	.	3	1	2	18	2	29	25
	BANDED KILLIFISH	78	12	3	3	3	.	2	.	6	21
	FOURSPINE STICKLEBACK	1	9	.	1	1	.	.	.	2	.
	HOGCHOKER	89,948	108,036	89,042	74,672	73,613	22,760	42,916	62,300	43,064	15,581
	INLAND SILVERSIDE	.	.	.	1	.	2	.	.	2	.
	MUMMICHOG	.	.	.	.	.	4	.	.	.	.
	NORTHERN PIPEFISH	40	13	22	25	12	4	16	12	65	15
	SCUP	1	.	.	.	.	.	3	.	.	.
	SEA HORSE	.	.	.	.	.	.	.	.	.	.
	SHORTNOSE STURGEON	16	8	11	20	12	2	18	.	82	56
	WHITE CATFISH	721	677	775	806	740	352	547	72	939	1,363
	WHITE PERCH	19,721	31,771	27,008	25,760	20,106	5,381	11,019	13,832	8,341	9,007
FRESHWATER	BLACK BULLHEAD	1	.	.	.	.	.	.	.	.	.
	BLUEGILL	.	.	1	.	1	.	1	3	2	.
	BROOK TROUT	.	.	.	.	.	.	1	.	.	.
	BROWN BULLHEAD	37	127	109	171	172	17	125	70	92	278
	CARP	4	13	5	4	10	1	6	1	7	3
	CENTRAL MUDMINNOW	.	.	1	.	.	.	.	.	.	.
	CENTRARCHID UNIDENT	1	4	1	5	3	.	.	.	.	4
	CHANNEL CATFISH	.	5	10	9	12	1	4	7	38	187
	EMERALD SHINER	.	.	.	.	1	.	.	.	.	.
	FRESHWATER DRUM	.	.	.	.	3	.	.	1	2	1
	GIZZARD SHAD	4	6	8	2	8	1	.	.	3	1
	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
	REDBREAST SUNFISH	1	.	.	1	2	.	.	.	.	1
	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
	TESSELATED DARTER	89	747	197	370	120	10	187	225	306	684
	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
	ATLANTIC HERRING	.	.	.	.	.	.	.	.	3	.
	ATLANTIC MENHADEN	51	139	67	9	38	129	478	81	13	78
	ATLANTIC NEEDLEFISH	.	.	.	1	.	1	1	.	.	.

TABLE E-3 (CONT.)

GROUP	NAME	YEAR OF DATA COLLECTION 85	86	87	88	89	90	91	92	93	94
MARINE	BAY ANCHOVY	27,902	20,988	39,348	59,244	41,475	16,465	44,815	37,231	53,437	54,615
	BLACK SEA BASS	1	.	.	1	.	.	.	.	.	2
	BLUEFISH	60	51	107	116	62	82	58	81	53	37
	BUTTERFISH	61	106	48	110	81	43	35	138	121	109
	CONGER EEL	.	.	.	14	.	.	.	.	.	.
	CREVALLE JACK	2	1	1	10	8	7	3	1	10	1
	CUNNER	.	.	.	.	.	1	.	1	.	.
	FOUR SPOT FLOUNDER	2	2	.	1	.	1	.	.	.	25
	GOBIIDAE	.	.	.	4	.	.	.	38	.	2
	GOOSEFISH	.	.	.	.	.	.	.	.	.	.
	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
	NORTHERN KINGFISH	9	6	.	20	3	3	10	2	4	16
	NORTHERN PUFFER	9	1	5	3	2	.	36	3	1	.
	NORTHERN SEAROBIN	.	2	7	21	3	16	7	12	53	305
	NORTHERN STARGAZER	1	.	.	20	.	4	3	10	2	7
	OYSTER TOADFISH	.	.	.	.	.	.	.	1	.	.
	RED HAKE	1	.	.	.	.	1	.	.	.	.
	ROUGH SILVERSIDE	1	.	3	1	.	.	.	3	2	.
	SEABORD GOBY	.	.	.	12	.	.	2	.	.	.
	SILVER HAKE	.	3	.	.	.	1	1	.	.	.
	SILVER PERCH	.	.	.	13	.	.	1	.	7	11
	SMALLMOUTH FLOUNDER	.	.	.	8	.	.	.	1	1	9
	SPANISH MACKEREL	.	.	.	.	.	1	17	.	7	.
	SPOT	5	14	1	1,257	.	.	2	.	4	.
	SPOTFIN BUTTERFLYFISH	1	.	.	.	.	.	.	.	.	.
	SPOTTED HAKE	2	1	.	.	.	.	3	1	7	3
	STRIPED ANCHOVY	.	.	.	.	.	.	.	1	.	.
	STRIPED BURRFISH	.	1	.	.	.	.	.	.	.	.
	STRIPED CUSKEEL	3	.	.	1	.	.	1	1	.	.
	STRIPED SEAROBIN	321	148	10	101	25	26	310	52	96	648
	SUMMER FLOUNDER	232	447	58	7	42	35	102	35	39	32
	TAUTOG	.	.	.	2	.	3	.	1	.	.
	TETRAODONTIDAE	.	.	1	.	.	.	.	.	.	.
	WEAKFISH	2,214	1,482	749	3,777	2,842	770	5,878	750	2,332	2,416
	WINDOWPANE FLOUNDER	1	1	5	17	.	5	9	32	1	5
	WINTER FLOUNDER	226	196	92	39	23	13	28	35	51	21

SAMPLING STATISTICS FOR FALL SHOALS SURVEY, 1985-1994

	YEAR OF DATA COLLECTION 85	86	87	88	89	90	91	92	93	94
START DATE	22JUL85	21JUL86	13JUL87	18JUL88	17JUL89	09JUL90	15JUL91	13JUL92	19JUL93	18JUL94
END DATE	14NOV85	02DEC86	05NOV87	28OCT88	26OCT89	17OCT90	25OCT91	23OCT92	29OCT93	27OCT94
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
SAMPLE SIZE	1,802	2,098	1,958	1,680	1,679	1,680	1,678	1,680	1,680	1,681