

HUDSON RIVER

ALBANY

COXSACKIE

SAUGERTIES

KINGSTON

RHINECLIFF

POUGHKEEPSIE

NEWBURGH

BEACON

PEEKSKILL

CROTON

NYACK

TARRYTOWN

YONKERS

QUEENS

BROOKLYN

STATEN ISLAND

# **2008 YEAR CLASS REPORT**

**for the  
Hudson River Estuary  
Monitoring Program**

*Prepared on behalf of*

Dynegy Roseton L.L.C.  
Entergy Nuclear Indian Point 2 L.L.C.  
Entergy Nuclear Indian Point 3 L.L.C.  
Mirant Bowline L.L.C.

*Prepared by*

**ASA** A SA Analysis & Communication  
Solutions through Science

# **2008 Year Class Report for the Hudson River Estuary Monitoring Program**

*Prepared on behalf of*

Dynegy Roseton L.L.C.  
Entergy Nuclear Indian Point 2 L.L.C.  
Entergy Nuclear Indian Point 3 L.L.C.  
Mirant Bowline L.L.C.

*Prepared for*

Dynegy Roseton L.L.C.  
Northeast Region Office  
#4 London Avenue, Suite 200  
New Windsor, New York 12553

*Prepared by*

ASA Analysis & Communication  
5 Fairlawn Drive, Suite 207  
Washingtonville, New York 10992

*January 2010*

## CONTENTS

	<u>Page</u>
LIST OF FIGURES .....	iii
LIST OF TABLES.....	x
1. INTRODUCTION.....	1-1
2. MATERIALS AND METHODS .....	2-1
2.1 Sampling Design.....	2-1
2.2 Longitudinal River Ichthyoplankton Survey.....	2-2
2.2.1 Field Methods .....	2-2
2.2.2 Laboratory Methods .....	2-3
2.3 Fall Juvenile Survey.....	2-6
2.3.1 Field Methods .....	2-6
2.3.2 Laboratory Methods .....	2-7
2.4 Beach Seine Survey .....	2-8
2.4.1 Field Methods .....	2-8
2.4.2 Laboratory Methods .....	2-9
2.5 Analytical Methods.....	2-9
2.5.1 Physical/Chemical Parameters .....	2-9
2.5.2 Spatiotemporal Distribution Indices .....	2-11
3. PHYSICAL/CHEMICAL PARAMETERS .....	3-1
3.1 Green Island Dam Flows .....	3-1
3.2 Hudson River Water Temperatures near Poughkeepsie .....	3-1
3.3 Hudson River Surveys .....	3-2
3.3.1 Spatiotemporal Pattern in Temperature .....	3-2
3.3.2 Spatiotemporal Pattern in Salinity .....	3-3
3.3.3 Spatiotemporal Pattern in Dissolved Oxygen.....	3-3

## CONTENTS (Continued)

	<u>Page</u>
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
4.1.3 Species Collected in 2008 .....	4-4
4.2 Striped Bass .....	4-5
4.3 White Perch .....	4-7
4.4 Atlantic Tomcod .....	4-9
4.5 Bay Anchovy .....	4-10
4.6 American Shad .....	4-12
4.7 River Herrings .....	4-13
4.8 Alewife .....	4-14
4.9 Blueback Herring .....	4-15
4.10 Gizzard Shad .....	4-16
4.11 Rainbow Smelt.....	4-17
4.12 Hogchoker .....	4-18
4.13 Spottail Shiner .....	4-19
4.14 Atlantic Sturgeon .....	4-20
4.15 Shortnose Sturgeon.....	4-22
4.16 White Catfish .....	4-24
4.17 Weakfish .....	4-25
4.18 Bluefish .....	4-26
REFERENCES CITED AND PREVIOUS YEAR CLASS REPORTS.....	R-1
APPENDIX A: QUALITY CONTROL REPORT FOR THE 2008 HUDSON RIVER ICHTHYOPLANKTON LABORATORY PROGRAM AND 2008 FALL JUVENILE SURVEY	
APPENDIX B: PHYSICAL/CHEMICAL PARAMETERS	
APPENDIX C: NUMBERS OF FISH COLLECTED IN THE LONG RIVER (1988-2008), FALL SHOALS (1985-2008), AND BEACH SEINE (1985-2008) SURVEYS	
APPENDIX D: ANNUAL ABUNDANCE INDICES	
APPENDIX E: DENSITY AND STANDING CROP ESTIMATES	
APPENDIX F: LENGTH FREQUENCY DISTRIBUTION	



## LIST OF FIGURES

<u>Number</u>	<u>Title</u>
2-1	Location of 13 geographic regions (with river mile boundaries) sampled during the 2008 biological monitoring program in the Hudson River estuary.
2-2	Cross sections of the Hudson River estuary showing locations and typical proportional relationships of the shoal, bottom, and channel strata.
2-3	Completed sampling schedule for 2008.
2-4	Design and dimensions of 1.0-m <sup>2</sup> Tucker trawl.
2-5	Design and dimensions of 1.0-m <sup>2</sup> Tucker trawl mounted on an epibenthic sled.
2-6	Conceptual diagram of the splitting process.
2-7	Inspection plan for evaluation of splitting precision.
2-8	Design and dimensions of the 3.0-m beam trawl.
3-1	Hudson River daily average flow rate in 2008 and monthly average flow rates from 1947 to 2008, Green Island, New York.
3-2	Average annual Hudson River flow from 1947 to 2008, Green Island, New York.
3-3	Seasonal variations in water temperature from 1951 to 2008 from Hudson River near Poughkeepsie.
3-4	Average annual water temperature from 1951 to 2008 from Hudson River near Poughkeepsie.
3-5	Seasonal and annual variations in water temperature from the Long River/Fall Juvenile surveys, 1974-2008.
3-6	Seasonal and annual variations in water temperature from the Beach Seine surveys, 1974-2008.
3-7	Seasonal variations in average weekly salinity from the 2008 Long River/Fall Juvenile surveys.
3-8	Seasonal and annual variations in dissolved oxygen from the Long River/Fall Juvenile surveys, 1974-2008.

## LIST OF FIGURES (Continued)

<u>Number</u>	<u>Title</u>
3-9	Seasonal and annual variations in dissolved oxygen from the Beach Seine surveys, 1974-2008.
4-1	Spatiotemporal distribution of eggs, yolk-sac, and post yolk-sac larval striped bass in the Hudson River estuary based on the 2008 Long River Survey.
4-2	Spatiotemporal distribution of young-of-year striped bass in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.
4-3	Spatiotemporal distribution of yearling striped bass in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.
4-4	Spatiotemporal distribution of older-than-yearling striped bass in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.
4-5	Temporal distribution indices for striped bass collected during Long River surveys of the Hudson River estuary, 1974-2008.
4-6	Geographical distribution indices for striped bass collected during Long River surveys of the Hudson River estuary, 1974-2008.
4-7	Geographical distribution indices for striped bass collected during Beach Seine surveys of the Hudson River estuary, 1974-2008.
4-8	Weekly length statistics for young-of-year striped bass in the Hudson River estuary, 2008.
4-9	Spatiotemporal distribution of eggs, yolk-sac, and post yolk-sac larval white perch in the Hudson River estuary based on the 2008 Long River Survey.
4-10	Spatiotemporal distribution of young-of-year white perch in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.
4-11	Spatiotemporal distribution of yearling white perch in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.
4-12	Spatiotemporal distribution of older-than-yearling white perch in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.
4-13	Temporal distribution indices for white perch collected during Long River surveys of the Hudson River estuary, 1974-2008.

## LIST OF FIGURES (Continued)

<u>Number</u>	<u>Title</u>
4-14	Geographical distribution indices for white perch collected during Long River surveys of the Hudson River estuary, 1974-2008.
4-15	Geographical distribution indices for white perch collected during Beach Seine surveys of the Hudson River estuary, 1974-2008.
4-16	Weekly length statistics for young-of-year white perch in the Hudson River estuary, 2008.
4-17	Spatiotemporal distribution of eggs, yolk-sac, and post yolk-sac larval Atlantic tomcod in the Hudson River estuary based on the 2008 Long River Survey.
4-18	Spatiotemporal distribution of young-of-year Atlantic tomcod in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.
4-19	Spatiotemporal distribution of yearling and older Atlantic tomcod in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.
4-20	Temporal distribution indices for Atlantic tomcod collected during Long River surveys of the Hudson River estuary, 1974-2008.
4-21	Geographical distribution indices for Atlantic tomcod collected during Long River surveys of the Hudson River estuary, 1974-2008.
4-22	Geographical distribution indices for Atlantic tomcod collected during Fall Juvenile surveys of the Hudson River estuary, 1979-2008.
4-23	Weekly length statistics for young-of-year Atlantic tomcod in the Hudson River estuary, 2008.
4-24	Spatiotemporal distribution of eggs, yolk-sac, and post yolk-sac larval bay anchovy in the Hudson River estuary based on the 2008 Long River Survey.
4-25	Spatiotemporal distribution of young-of-year bay anchovy in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.
4-26	Spatiotemporal distribution of yearling and older bay anchovy in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.
4-27	Temporal distribution indices for bay anchovy collected during Long River surveys of the Hudson River estuary, 1988-2008.

## LIST OF FIGURES (Continued)

<u>Number</u>	<u>Title</u>
4-28	Geographical distribution indices for bay anchovy collected during Long River surveys of the Hudson River estuary, 1988-2008.
4-29	Geographical distribution indices for bay anchovy collected during Beach Seine surveys of the Hudson River estuary, 1974-2008.
4-30	Weekly length statistics for young-of-year bay anchovy in the Hudson River estuary, 2008.
4-31	Spatiotemporal distribution of eggs, yolk-sac, and post yolk-sac larval American shad in the Hudson River estuary based on the 2008 Long River Survey.
4-32	Spatiotemporal distribution of young-of-year American shad in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.
4-33	Spatiotemporal distribution of yearling and older American shad in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.
4-34	Temporal distribution indices for American shad collected during Long River surveys of the Hudson River estuary, 1974-2008.
4-35	Geographical distribution indices for American shad collected during Long River surveys of the Hudson River estuary, 1974-2008.
4-36	Geographical distribution indices for American shad collected during Beach Seine surveys of the Hudson River estuary, 1974-2008.
4-37	Weekly length statistics for young-of-year American shad in the Hudson River estuary, 2008.
4-38	Spatiotemporal distribution of eggs, yolk-sac, and post yolk-sac larval <i>Alosa</i> spp. in the Hudson River estuary based on the 2008 Long River Survey.
4-39	Spatiotemporal distribution of young-of-year <i>Alosa</i> spp. in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.
4-40	Temporal distribution indices for <i>Alosa</i> spp. collected during Long River surveys of the Hudson River estuary, 1974-2008.
4-41	Geographical distribution indices for <i>Alosa</i> spp. collected during Long River surveys of the Hudson River estuary, 1974-2008.

## LIST OF FIGURES (Continued)

<u>Number</u>	<u>Title</u>
4-42	Geographical distribution indices for <i>Alosa</i> spp. collected during Beach Seine surveys of the Hudson River estuary, 1974-2008.
4-43	Spatiotemporal distribution of young-of-year alewife in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.
4-44	Spatiotemporal distribution of yearling and older alewife in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.
4-45	Geographical distribution indices for alewife collected during Beach Seine surveys of the Hudson River estuary, 1974-2008.
4-46	Weekly length statistics for young-of-year alewife in the Hudson River estuary, 2008.
4-47	Spatiotemporal distribution of young-of-year blueback herring in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.
4-48	Spatiotemporal distribution of yearling and older blueback herring in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.
4-49	Geographical distribution indices for blueback herring collected during Beach Seine surveys of the Hudson River estuary, 1974-2008.
4-50	Weekly length statistics for young-of-year blueback herring in the Hudson River estuary, 2008.
4-51	Spatiotemporal distribution of young-of-year gizzard shad in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.
4-52	Spatiotemporal distribution of yearling and older gizzard shad in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.
4-53	Geographical distribution indices for gizzard shad collected during Beach Seine surveys of the Hudson River estuary, 1974-2008.
4-54	Spatiotemporal distribution of yearling and older rainbow smelt in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.

## LIST OF FIGURES (Continued)

<u>Number</u>	<u>Title</u>
4-55	Temporal distribution indices for rainbow smelt collected during Long River surveys of the Hudson River estuary, 1974-2008.
4-56	Geographical distribution indices for rainbow smelt collected during Long River surveys of the Hudson River estuary, 1974-2008.
4-57	Geographical distribution indices for rainbow smelt collected during Fall Juvenile surveys of the Hudson River estuary, 1979-2008.
4-58	Spatiotemporal distribution of eggs, yolk-sac, and post yolk-sac larval hogchoker in the Hudson River estuary based on the 2008 Long River Survey.
4-59	Spatiotemporal distribution of young-of-year hogchoker in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.
4-60	Spatiotemporal distribution of yearling and older hogchoker in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.
4-61	Geographical distribution indices for hogchoker collected during Fall Juvenile surveys of the Hudson River estuary, 1979-2008.
4-62	Spatiotemporal distribution of young-of-year spottail shiner in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.
4-63	Spatiotemporal distribution of yearling and older spottail shiner in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.
4-64	Geographical distribution indices for spottail shiner collected during Beach Seine surveys of the Hudson River estuary, 1974-2008.
4-65	Weekly length statistics for young-of-year spottail shiner in the Hudson River estuary, 2008.
4-66	Spatiotemporal distribution of yolk-sac and post yolk-sac larval Atlantic sturgeon in the Hudson River estuary based on the 2008 Long River Survey.
4-67	Spatiotemporal distribution of yearling and older Atlantic sturgeon in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.
4-68	Spatiotemporal distribution of yearling and older shortnose sturgeon in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.

## LIST OF FIGURES (Continued)

<u>Number</u>	<u>Title</u>
4-69	Spatiotemporal distribution of young-of-year white catfish in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.
4-70	Spatiotemporal distribution of yearling and older white catfish in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.
4-71	Geographical distribution indices for white catfish collected during Fall Juvenile surveys of the Hudson River estuary, 1979-2008.
4-72	Weekly length statistics for young-of-year white catfish in the Hudson River estuary, 2008.
4-73	Spatiotemporal distribution of young-of-year weakfish in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.
4-74	Spatiotemporal distribution of yearling and older weakfish in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.
4-75	Geographical distribution indices for weakfish collected during Fall Juvenile surveys of the Hudson River estuary, 1979-2008.
4-76	Weekly length statistics for young-of-year weakfish in the Hudson River estuary, 2008.
4-77	Spatiotemporal distribution of young-of-year bluefish in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.
4-78	Geographical distribution indices for bluefish collected during Beach Seine surveys of the Hudson River estuary, 1974-2008.

## LIST OF TABLES

<u>Number</u>	<u>Title</u>
1-1	Fish species treated in depth in the 2008 Year Class Report.
2-1	Strata sampled within the 13 geographic regions of the Hudson River estuary during 2008.
2-2	Summary of 2008 Hudson River surveys.
2-3	Summary of 2008 sample collection information by river region and stratum for the Longitudinal River Ichthyoplankton Survey.
2-4	Specifications of sampling gear used during the 2008 Longitudinal River Ichthyoplankton Survey.
2-5	Water quality sampling locations during the 2008 Longitudinal River Ichthyoplankton and Fall Juvenile surveys.
2-6	Summary of 2008 sample analysis information by river region and stratum for the Longitudinal River Ichthyoplankton Survey.
2-7	Summary of 2008 sample collection by river region and stratum for the Fall Juvenile Survey.
2-8	Specifications of sampling gear used during the 2008 Fall Juvenile Survey.
2-9	Specifications of sampling gear used during the 2008 Beach Seine Survey.
2-10	Summary of 2008 sample collection by river region for the Beach Seine Survey.
2-11	Stratum and region volumes (m <sup>3</sup> ) and surface areas (m <sup>2</sup> ) used in analysis of 2008 Hudson River estuary data.
4-1	Species composition of fish collected during Hudson River studies from 1974 to 2008.
4-2	Species composition of fish collected in each of the Hudson River surveys during 2008.
4-3	Collections of Atlantic sturgeon during the 2008 Hudson River surveys.
4-4	Collections of shortnose sturgeon during the 2008 Hudson River surveys.

[Link to Chapter 1](#)



## CHAPTER 1

### INTRODUCTION

---

Since 1973, an annual Year Class Report has been prepared on behalf of the several electric utility companies (collectively, the “Utilities”) operating generating stations in the Hudson River estuary. This report, which is based on the 2008 Hudson River Biological Monitoring Program, has been prepared on behalf of Dynegy Roseton L.L.C., Entergy Nuclear Indian Point 2 L.L.C., Entergy Nuclear Indian Point 3 L.L.C., and Mirant Bowline L.L.C. The principal reporting objective has been to present and analyze data on the distribution and abundance of early life stages of selected fish species based on field surveys conducted throughout the Hudson River estuary. The content and scope of these reports have varied over time from estimating the environmental impact of five Hudson River generating stations to focusing on indices of year class strength to describing the spatiotemporal distribution of selected fish species. Since the early 1990’s, the annual Year Class Report has been standardized to describe the physical/chemical parameter patterns in the Hudson River estuary and the spatiotemporal distribution of 16 selected species of fish. These 16 species were identified by the New York State Department of Environmental Conservation (NYSDEC) of interest for discharge permitting purposes.

This report adds to the historical database by describing the results of the Longitudinal River Ichthyoplankton Survey, the Fall Juvenile Survey (formerly, the Fall Shoals Survey), and the Beach Seine Survey for 2008. The 2008 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 2008.
- Describe the distribution and abundance of 16 selected species of fish ([Table 1-1](#)) in the Hudson River estuary in 2008.
- Describe the fish community of the Hudson River estuary in 2008.
- Describe patterns in growth for the 2008 year class of key species.

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 fish community analysis and spatiotemporal distribution of selected fish species are presented in [Chapter 4](#). Detailed data tables supporting report analyses are contained within the appendix sections as follows:

- [Appendix A](#) – Quality Control Report for the 2008 Hudson River Ichthyoplankton Laboratory Program and 2008 Fall Juvenile Survey;
- [Appendix B](#) – Physical/Chemical Parameters;
- [Appendix C](#) – Numbers of Fish Collected in the Long River (1988-2008), Fall Juvenile (1985-2008), and Beach Seine (1985-2008) Surveys;
- [Appendix D](#) – Annual Abundance Indices;
- [Appendix E](#) – Density and Standing Crop Estimates;
- [Appendix F](#) – Length Frequency Distribution.

[Link to Chapter 2](#)

Table 1-1 Fish Species Treated in Depth in the 2008 Year Class Report

---

Common Name	Scientific Name <sup>1</sup>
Alewife	<i>Alosa pseudoharengus</i>
American shad	<i>Alosa sapidissima</i>
Atlantic sturgeon	<i>Acipenser oxyrinchus</i>
Atlantic tomcod	<i>Microgadus tomcod</i>
Bay anchovy	<i>Anchoa mitchilli</i>
Blueback herring	<i>Alosa aestivalis</i>
Bluefish	<i>Pomatomus saltatrix</i>
Gizzard shad	<i>Dorosoma cepedianum</i>
Hogchoker	<i>Trinectes maculatus</i>
Rainbow smelt	<i>Osmerus mordax</i>
Shortnose sturgeon	<i>Acipenser brevirostrum</i>
Spottail shiner	<i>Notropis hudsonius</i>
Striped bass	<i>Morone saxatilis</i>
Weakfish	<i>Cynoscion regalis</i>
White catfish	<i>Ameiurus catus</i>
White perch	<i>Morone americana</i>

---

1. Names listed in Nelson et al. 2004.

## CHAPTER 2

### MATERIALS AND METHODS

---

#### 2.1 SAMPLING DESIGN

Several fishery techniques were employed in three separate sampling surveys to obtain comprehensive information on the abundance and distribution of selected larval, juvenile or young-of-year (YOY), and adult fish species in the Hudson River estuary. Temporally, the monitoring program encompassed the spring through fall season, the period of greatest biological activity in northern U.S. temperate waters. The surveys were designed to sample the full range of Hudson River habitat toward a representative assessment of species-specific spatial distribution patterns. During 2008, survey-specific techniques were employed which were consistent with previous Hudson River Monitoring Programs.

The scope and objectives of the three sampling surveys comprising the overall monitoring program are summarized as follows.

1. **Longitudinal River Ichthyoplankton Survey** (LRS or Long River Survey)—Sampling encompassed 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. The LRS yielded ichthyoplankton data to support 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 have historically been abundant.
2. **Fall Juvenile Survey** (FJS or Fall Shoals Survey)—Samples were collected every other week from the Battery to the Troy Dam in mid-summer and fall. The objective was to provide data on YOY fish to support calculation of standing crop and 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** (BSS)—Beach seine samples were collected in alternate weeks relative to the FJS at stations ranging from the George Washington Bridge (RM 12) 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 during periods when these species were concentrated primarily in the shallow, near-shore areas. The survey was conducted from mid-June through October, when YOY of these species were typically abundant in the shorezone nursery areas.

Sampling for all surveys was conducted according to a stratified random design in which the Hudson River estuary from the Battery (RM 1) to the Federal Dam at Troy (RM 152) was divided into 13 regions (Figure 2-1). Each region was further divided into "strata" on the basis of river depth. The strata, based on river depth, are graphically presented in Figure 2-2 and defined below:

- **Shore**—That portion of the Hudson River estuary extending from the shore to a depth of 10 ft (the stratum defined only for BSS).
- **Shoal**— That portion of the Hudson River estuary extending from the shore to a depth of 20 ft at mean low tide.
- **Bottom**—That portion of the Hudson River estuary extending from the bottom to 10 ft above the bottom where river depth is greater than 20 ft at mean low tide.
- **Channel**—That portion of the Hudson River estuary not considered bottom where river depth is greater than 20 ft at mean low tide.

The relative area and configuration of the shoal, bottom, and channel strata vary over the length of the Hudson River estuary but may be characterized using the three cross section views presented in [Figure 2-2](#). For example, 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 allocated in the Poughkeepsie through Albany regions during the first three sampling weeks of the LRS (3 March – 6 April) nor in the Hyde Park through Albany regions during the final seven sampling weeks of the LRS (14 July – 12 October) because few organisms of the target species were historically present in these regions during these weeks. A minimum of two samples was assigned to each stratum in each region for the FJS except no channel samples were allocated during the final three sampling weeks (27 October – 7 December). A minimum of three samples was allocated in each region for the BSS. Shoal strata samples were not assigned in upriver regions nor were shoal or shore strata samples assigned in the Battery region. The strata actually sampled in each region during the 2008 survey period are presented in [Table 2-1](#).

A general summary of the three sampling surveys for the annual monitoring program 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 2008 LRS was performed over a period of 32 weeks from 3 March to 12 October with all sampling prior to 26 May conducted during the day and all subsequent sampling conducted at night ([Table 2-2](#) and [Figure 2-3](#)). For the first three sampling weeks, sampling was conducted between RM 1 and RM 61. For the next 13 weeks beginning 7 April, weekly sampling encompassed RM 1 to RM 152. In the final phase of sampling from 14 July through 12 October, sampling was conducted biweekly between RM 1 and RM 76.

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 2008 LRS sampling program was scheduled as 6 separate multi-week efforts. The first sampling effort, performed in March, focused on the collection of Atlantic tomcod post yolk-sac larvae (PYSL). The second effort, performed during early April, focused on the collection of American shad eggs. The third effort, from late April to mid-May, was designed to collect eggs of *Morone*

spp. and American shad. The fourth effort, performed from mid-May through early June, targeted *Morone* spp. and American shad yolk-sac larvae (YSL). The fifth effort, in June, was designed to collect *Morone* spp. and American shad PYSL. The LRS sampling program concluded with a 13-week period, sampled biweekly, from the middle of July to early October. The final sampling effort was designed to collect all life stages of bay anchovy.

The allocation of sampling effort among regions and strata is presented in [Table 2-3](#). Of the 3,522 ichthyoplankton samples scheduled for collection during 2008, 3,508 samples were collected, accounting for 99.6 percent of the scheduled total.

Two distinct gear types were used for field collections during the 2008 LRS:

- 1.0-m<sup>2</sup> Tucker trawl ([Figure 2-4](#) and [Table 2-4](#)) to sample the shoal and channel strata (non-bottom), and
- 1.0-m<sup>2</sup> epibenthic sled ([Figure 2-5](#) and [Table 2-4](#)) to sample the bottom-only shoal and channel strata.

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 performed. The tow speed for the Tucker trawl was adjusted to maintain a towing wire angle of approximately 45° averaging approximately 0.9 m/second. The tow speed for the epibenthic sled-mounted net was maintained at 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 deployment and retrieval of the sampling gear, net washing was performed to concentrate the sample into the codend bucket. The samples were then examined for yearling and older fish which were identified, enumerated, and returned to the Hudson River estuary. Special care was taken to observe sturgeon species for physical condition and for the presence of marks and/or tags. All yearling and older sturgeon were measured to the nearest millimeter, weighed to the nearest gram, and, if alive, returned to the river or, if dead, frozen and saved for the NYSDEC. 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 a 10 percent aqueous formalin solution.

*In situ* measurements of water temperature (°C), dissolved oxygen (mg/L), and specific conductance (microsiemen/cm at 25°C) were taken with calibrated meters at fixed river mile and strata stations in conjunction with the biological sampling. The number of physical/chemical sampling locations, by river mile and strata, are presented in [Table 2-5](#) for the 2008 LRS. Physical/chemical measurements were recorded from surface, mid-depth, and bottom water depth at channel stations and from the surface and bottom water depth at shoal stations. During the 23 collection weeks of the 2008 LRS, 3,520 physical/chemical measurements were scheduled and 3,520 measurements were actually recorded, accounting for 100 percent of the scheduled total.

## **2.2.2 Laboratory Methods**

In 2008, approximately 70 percent of the regular LRS samples were selected for laboratory analysis. Selection of samples for laboratory analysis began with the grouping of samples

according to river run (i.e., sampling week), 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 for 2008 was 2,439, comprising 69.5 percent of the collected samples.

In 2008, as in previous years, splitting (or subsampling) was permitted. A trained technician first determined, by visual inspection, if the sample needed splitting. Samples containing large numbers of eggs may have been split so that eggs were only sorted from one or more aliquots containing a total of at least 250 eggs (all species combined).

Two different sets of criteria were used for subsampling of larval stages, 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 typically 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 13 other river runs not covered in the previous paragraph (before and after the period of striped bass abundance). Any sample from these river runs may have been subsampled so that larvae were sorted from one or more splits containing at least 100 larvae (i.e., YSL, PYSL, and YOY combined) of all species combined.

To eliminate 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 demonstrated 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-1235, AOQL = 10 percent).

For each split sample evaluated, three fractions of the same aliquot size were sorted and compared by the chi-square test according to the following procedure. The counts of the three

splits (including any quality control [QC] finds) were averaged to obtain the expected value for the sample. Chi-square was calculated as:

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

where

O<sub>1</sub>, O<sub>2</sub>, and O<sub>3</sub> = Observed counts for splits 1, 2, and 3.

E = Expected value for the sample (average of O<sub>1</sub>, O<sub>2</sub>, and O<sub>3</sub>).

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 ethyl 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 transformation to juvenile form, and
YOY	From completed transformation to Age 1.

Whenever possible, a maximum of 30 striped bass, 30 white perch, 30 American shad, 30 Atlantic tomcod, and 30 bay anchovy per sample were measured. Organisms were chosen at random from each taxon regardless of life stage until the required numbers were obtained; life stages to be included were YSL, PYSL, and YOY. The total length of YSL and PYSL was measured to the nearest 0.1 mm and to the nearest 1 mm for YOY. Measurements were recorded on the laboratory data sheet. Selection of specimens for measuring was randomized by spreading them uniformly in a gridded container, selecting a starting point in the grid by means of a random number table, and then measuring the first 30 measurable specimens encountered in a predetermined pattern commencing 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 limit of 10 percent or better. Two sampling modes were required in the continuous sampling plan (CSP-1):

**Mode 1**—The first eight samples sorted or analyzed for larval identification by an individual are subject to 100 percent QC reanalysis. If all eight pass the reanalysis, i.e., if ≤10 percent of the ichthyoplankton are missed or misidentified per sample,



the individual is placed in CSP Mode 2. If any sample fails during Mode 1, then Mode 1 is continued until eight consecutive samples pass. For example, if a sample with QC No. 7 fails, then samples with QC Nos. 8 through 15 are subject to QC resorting.

**Mode 2**—Lots of seven consecutive samples per individual are assigned for identification QC and per laboratory facility for sort QC. 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, the 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 2008 CSP-1 Quality Control Program are contained in [Appendix A](#).

## 2.3 FALL JUVENILE SURVEY

### 2.3.1 Field Methods

The 2008 FJS biweekly sampling program extended from RM 1 to 152 and covered 22 weeks from 7 July to 7 December ([Figure 2-3](#)). Samples were collected at night for the first 8 river runs from 7 July through 19 October, and during the day for last 3 river runs from 20 October through 7 December. These last river runs, which were conducted with a modified sampling design, were intended to examine Atlantic tomcod distribution. [Table 2-7](#) presents the distribution of the FJS sampling effort among the 13 river regions by stratum. Of the 2,130 samples scheduled for collection, 2,130 were actually collected, yielding 100 percent completion.

A 1.0-m<sup>2</sup> Tucker trawl and a 3.0-m beam trawl were used to collect YOY fish in the 2008 FJS. The Tucker trawl with 3.0-mm mesh was used to collect samples in the channel stratum, 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 FJS; prior to 1985, an epibenthic sled-mounted Tucker trawl was used. With the modified sampling design of the last 3 river runs from 20 October through 7 December, no channel samples or Tucker trawl samples were scheduled for collection. Only beam trawl samples in the shoal and bottom strata were taken during these river runs. Design specifications for FJS gear currently in use are listed in [Table 2-8](#).

Both gear types were towed against the prevailing current for approximately 5 minutes. For the Tucker trawl, vessel speed was adjusted as necessary to achieve and maintain a 45° wire angle; the resultant tow speed was recorded. The beam trawl was towed at a speed of approximately 1.5 m/second. Tow speed was established and maintained by use of an electronic flowmeter mounted along the side of the research vessel and equipped with an on-deck readout display. Tucker trawl samples taken in greater than 20 ft of river depth were remotely opened and closed at sampling depth. A calibrated digital flowmeter mounted in the center of the net mouth was used to calculate the volume of water filtered for each sample.

Calibrated water quality instruments were used to measure water temperature (°C), dissolved oxygen (mg/L), and specific conductance (microsiemen/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 2008 LRS sampling program ([Table 2-5](#)). Measurements of physical/chemical parameters were recorded from surface, mid-, and bottom water depths at channel stations and from surface and bottom water depths at shoal stations. During the 2008 FJS, of the 2,002

samples scheduled for collection, 1,999 were actually collected, yielding 99.9 percent completion.

Because of the difficulty in differentiating some species, especially YOY *Morone* (striped bass, white perch) and *Alosa* (alewife, blueback herring), samples collected during the first three sampling periods (River Runs 1 through 3) for the 2008 FJS program were preserved with 10 percent formalin at the time of collection and returned to the laboratory for analysis. Before preservation, samples were examined for fish determined to be yearling or older, based on length categorization; live fish were returned to the river after count data were determined.

Beginning with the fourth biweekly sampling period, samples were evaluated in the field; only fish required to fill length measurement and food habit quotas were returned to the laboratory. The quota was to be 20 specimens of a selected species from each river region per river 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. The Hyde Park through Albany regions were considered one region for the purpose of filling length measurement quotas during the entire FJS 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 for the specified river regions:

<u>Sampling Program</u>	<u>Region</u>
BSS	YK, IP, WP, CW, PK
FJS	WP, PK

In all other regions, when the sample schedule resulted in 10 or more samples per survey, no more than 5 specimens per species in a sample were used to fill the length measurement quotas. If more specimens of a species were collected than needed, the individuals used to fill the quotas were randomly selected.

All fish not returned to the laboratory were identified and enumerated into length classes as described in the following section. All Atlantic sturgeon, shortnose sturgeon, and striped bass were examined for external and internal magnetic tags. All sturgeon were measured to the nearest millimeter, weighed to the nearest gram, and, if alive, returned to the river or, if dead, frozen and saved for the NYSDEC. All striped bass with external streamer tags were measured and a scale sample was taken.

### 2.3.2 Laboratory Methods

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

**Length Class 1**—Less than or equal to the YOY length limit ("Division 1"), which was determined by 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 determined weekly by 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 per river run were measured for total length (nearest millimeter) in the laboratory (except for sturgeon species which were measured in the field):

- 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 2008 BSS utilized a 30.5-m (nominal 100 ft) total length beach seine to collect YOY fish in the shorezone of each region, except the Battery region. [Table 2-9](#) presents specifications for the beach seine. One end of the net was held on shore and the other end was towed perpendicularly away from the shore by boat. The seine was then hauled, clockwise if possible, in a semicircular path toward shore. The complete beach seine deployment swept an area of approximately 450 m<sup>2</sup> (TI 1981). All BSS samples were collected on a diurnal schedule during alternate weeks of the FJS.

The 2008 BSS biweekly sampling program was conducted from 16 June through 26 October ([Figure 2-3](#)). Ten of the 19 weeks in this time period were collection weeks with 100 beach seine samples per week scheduled for collection. Allocation of the total number of samples by river region collected for the 2008 BSS is presented in [Table 2-10](#). Of the 1,000 samples projected for collection in 2008, 1,000 were collected, yielding 100 percent completion.

Measurements of water temperature (°C), dissolved oxygen (mg/L), and specific conductance (microsiemen/cm at 25°C) were taken with each beach seine sample using *in-situ* water quality instrumentation. 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 2008 BSS, all of the 1,000 scheduled water quality samples were collected.

YOY fishes collected during the first four beach seine river runs in 2008 were processed in the laboratory because of the difficulty in distinguishing species at the YOY life stage; adults were processed in the field. Beginning with River Run 5, all samples 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. Fish from the BSS in both the field and

laboratory were identified and enumerated into length classes as described in Section 2.3.2. Any sturgeon collected during the BSS were measured to the nearest 1 mm and weighed to the nearest 1 g. Sturgeon that remained alive were returned to the Hudson River estuary; dead fish were frozen and held for NYSDEC. All sturgeon and striped bass were examined for external and internal magnetic tags. Striped bass with external tags were measured and a scale sample was taken.

## 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 FJS.

## 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 FJS. Equation 2 was used for data collected in conjunction with the BSS. Salinity data were computed from conductivity data (microsieman/cm at 25°C) using Equation 3 (TI 1976). This equation differs from that used in some of the previous Year Class reports in that pressure data are not required. The maximum deviation between this equation and the previous equation is 0.1 percent (TI 1976).

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

where

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

$W_{idklw}$  = 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.

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

where

$C_{25}$  = Conductivity (millisiemen/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 FJS. For the LRS and FJS, the number of fish (by species and life stage) captured in individual samples was first converted to density (no./m<sup>3</sup> 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:

<u>If This Stratum Was Not Sampled</u>	<u>Its Volume Was Added To This Stratum</u>
Shoal	Bottom
Bottom	Channel
Channel	Bottom

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

where

- $D_{ikrw}$  = Density (for a life stage and species)/m<sup>3</sup> 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<sup>3</sup>) 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.

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

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.

---

\* 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.

### 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 FJS) (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 13 (12 for the BSS) 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

$$SC_{krw} = \text{Standing crop index for stratum } k \text{ in region } r \text{ during week } w.$$

$$V_{kr} = \text{River volume contained by stratum } k \text{ in region } r.$$

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

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

where

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

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

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

where

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

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

---

\*\* 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.



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

where

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

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

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

where

$SC_w$  = Standing crop index for week w. For the LRS and FJS, 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 and FJS, 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 2008 data with historical data, only data from samples collected from Weeks 18 to 26 (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 FJS 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 FJS was used to calculate geographical distribution indices for hogchoker, white catfish, and weakfish. The BSS was used to calculate geographical distribution indices for striped bass, white perch, bay anchovy, American shad, alewife, blueback herring, gizzard shad, spottail shiner, and bluefish.

The periods used for the LRS and BSS spanned 1974-2008, whereas the time period for the FJS extended from 1979 (when the FJS sampled the river from RM 12 to RM 152) through 2008. Temporal and geographic indices for bay anchovy from the LRS used the period from 1988 to 2008, when the sampling design included the Battery region.

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

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

$$r=1 \quad w=1$$

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):

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

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  $y$ .

[Link to Chapter 3](#)

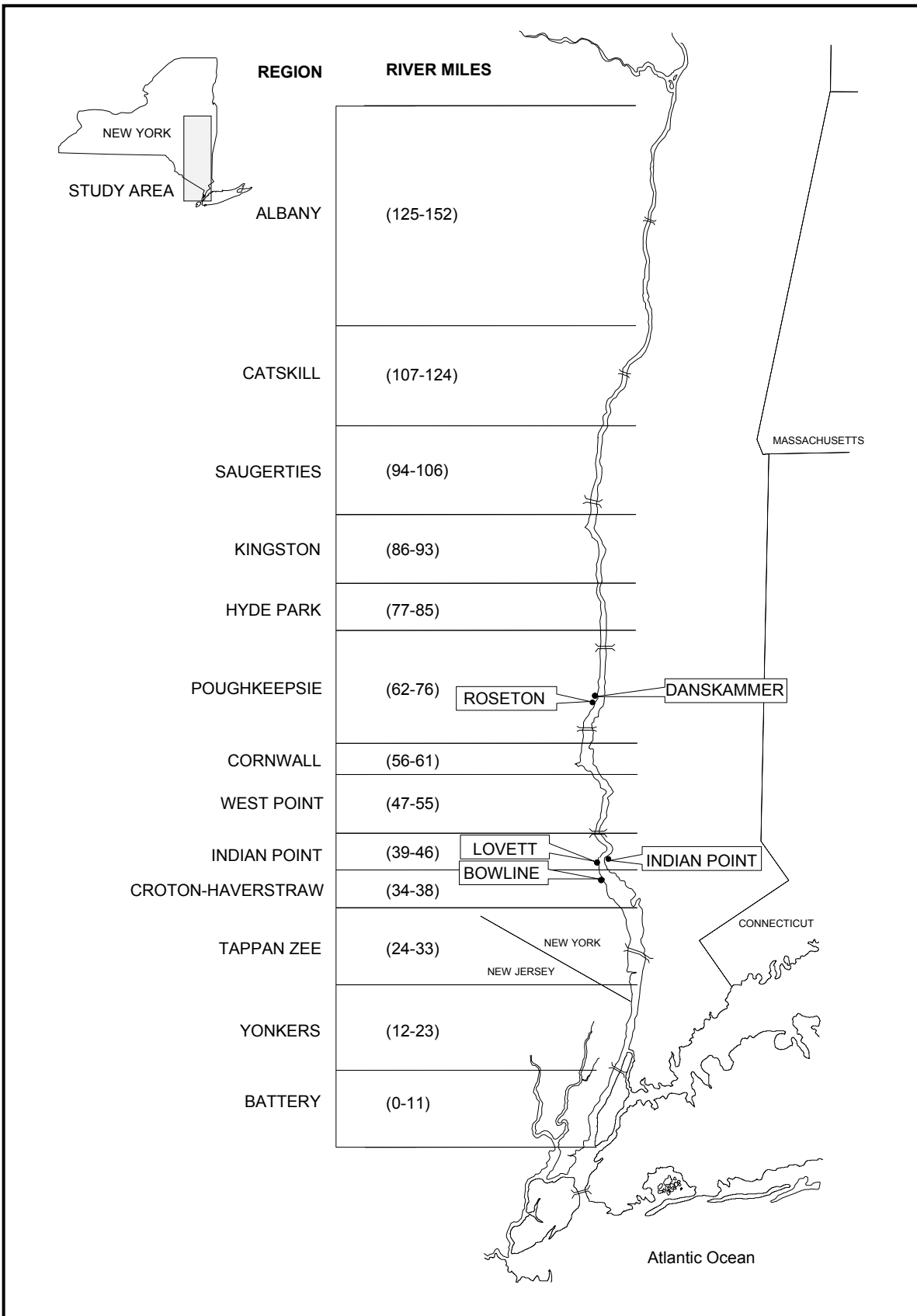


Figure 2-1. Location of 13 geographic regions (with river mile boundaries) sampled during the 2008 biological monitoring program in the Hudson River estuary.

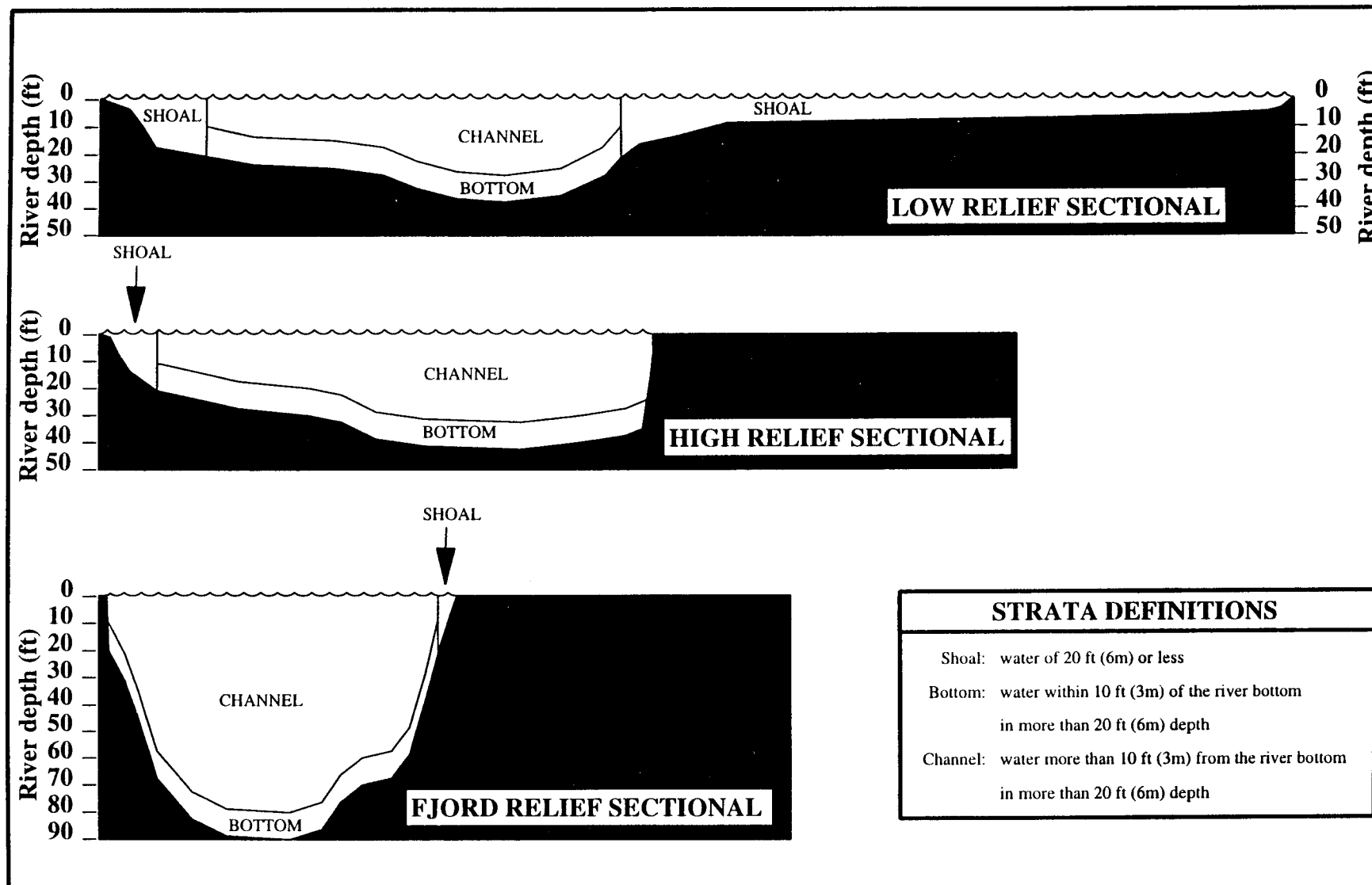


Figure 2-2. Cross sections of the Hudson River estuary showing locations and typical proportional relationships of the shoal, bottom, and channel strata.

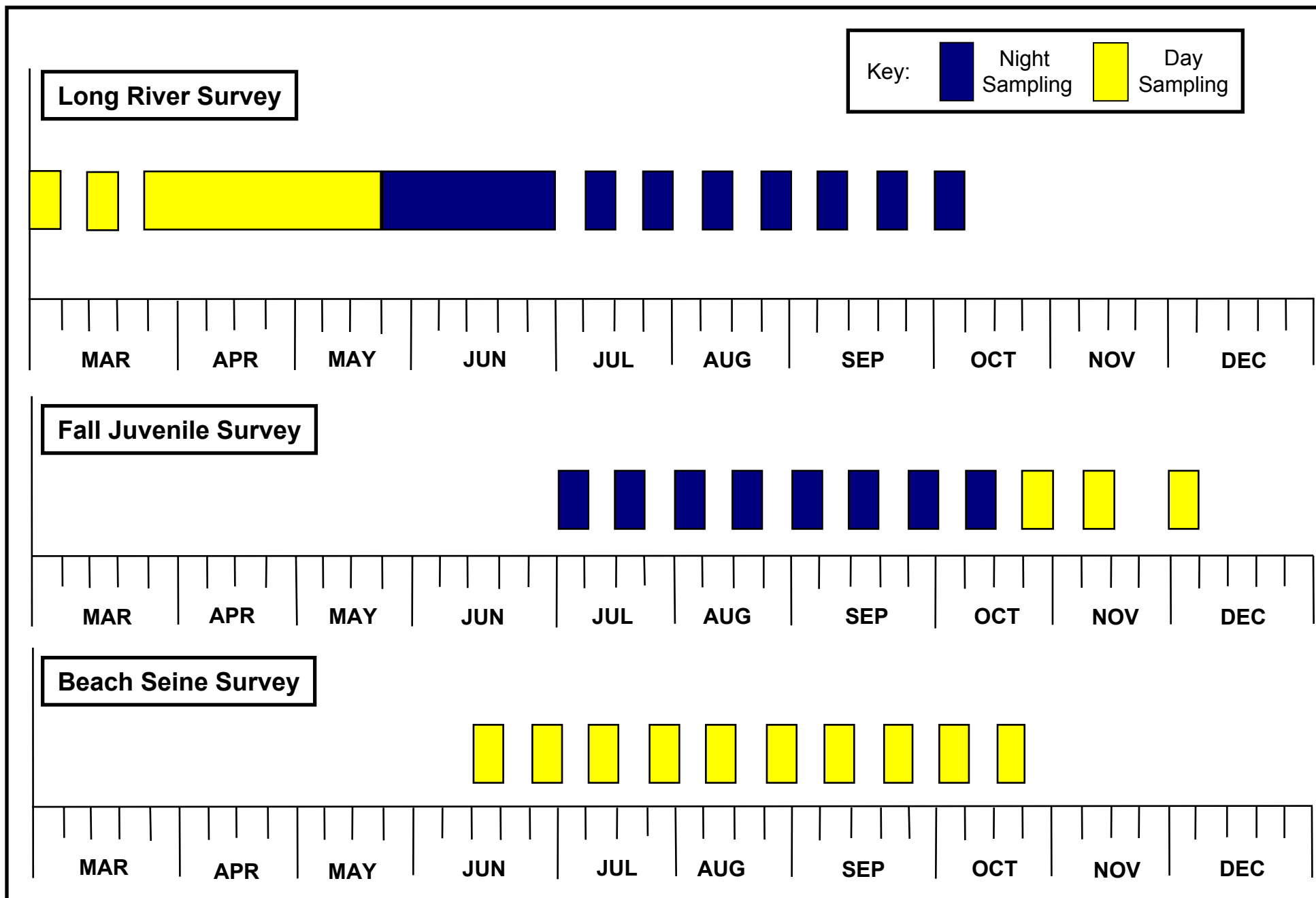


Figure 2-3. Completed sampling schedule for 2008.

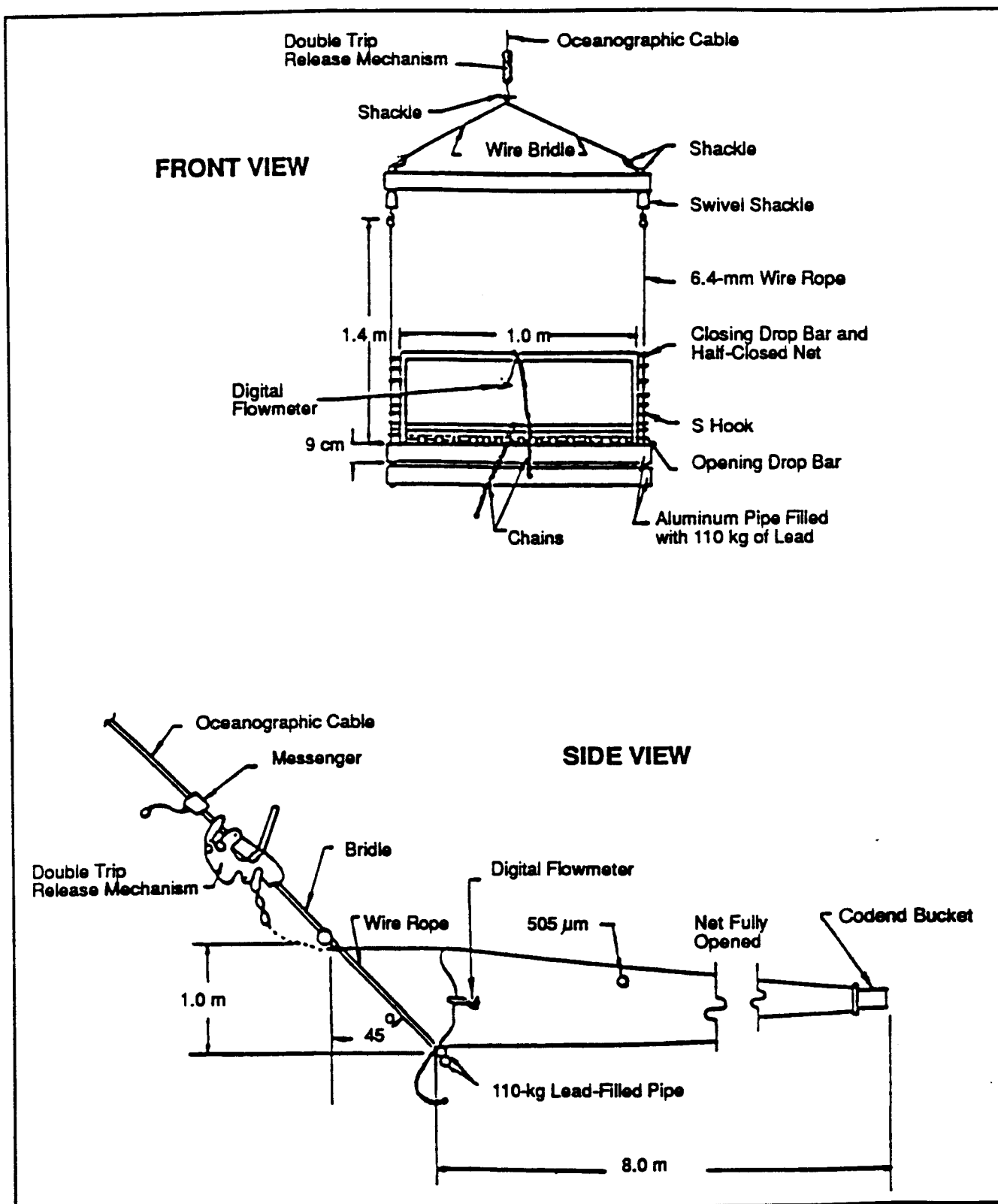


Figure 2-4. Design and dimensions of 1.0-m<sup>2</sup> Tucker trawl.

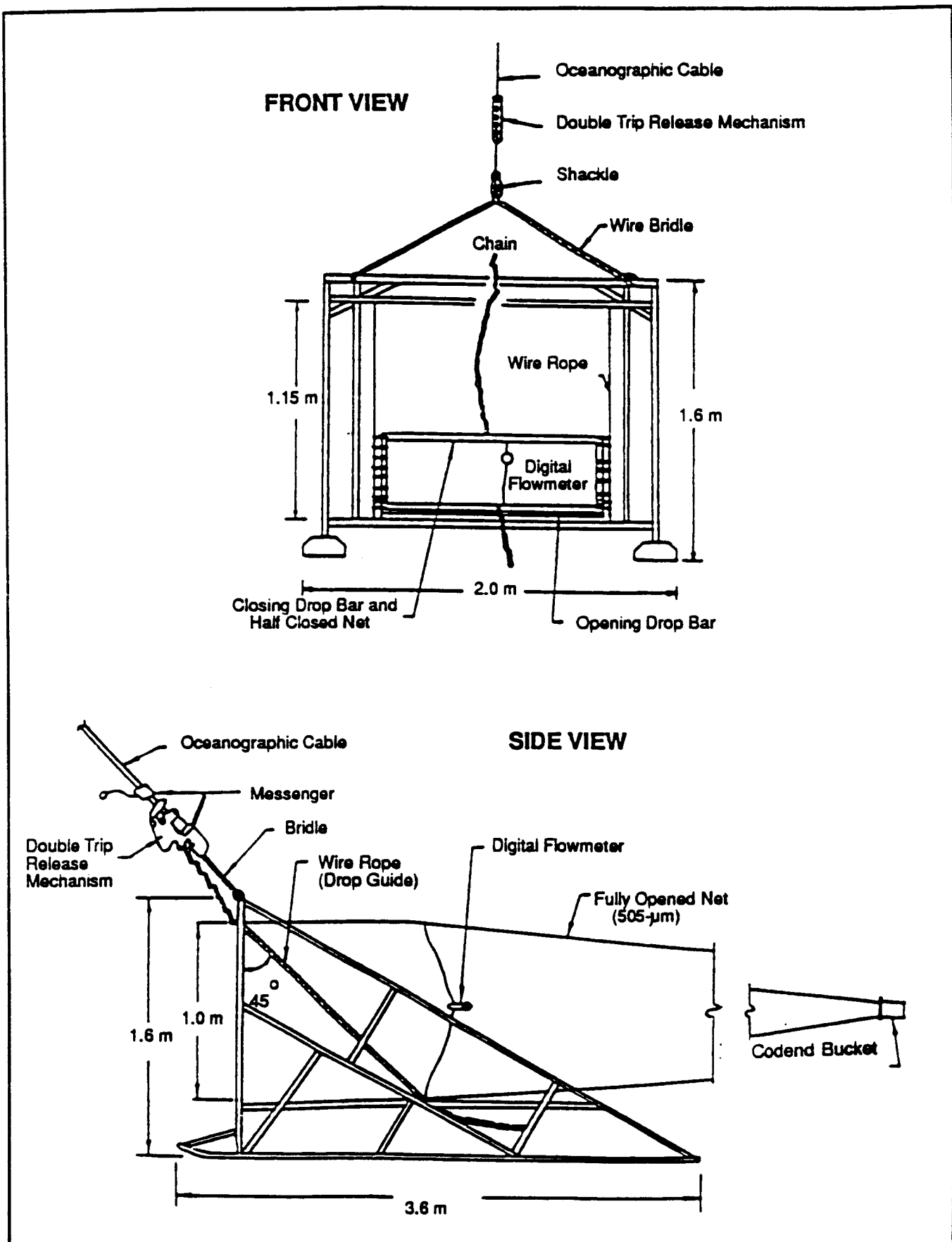
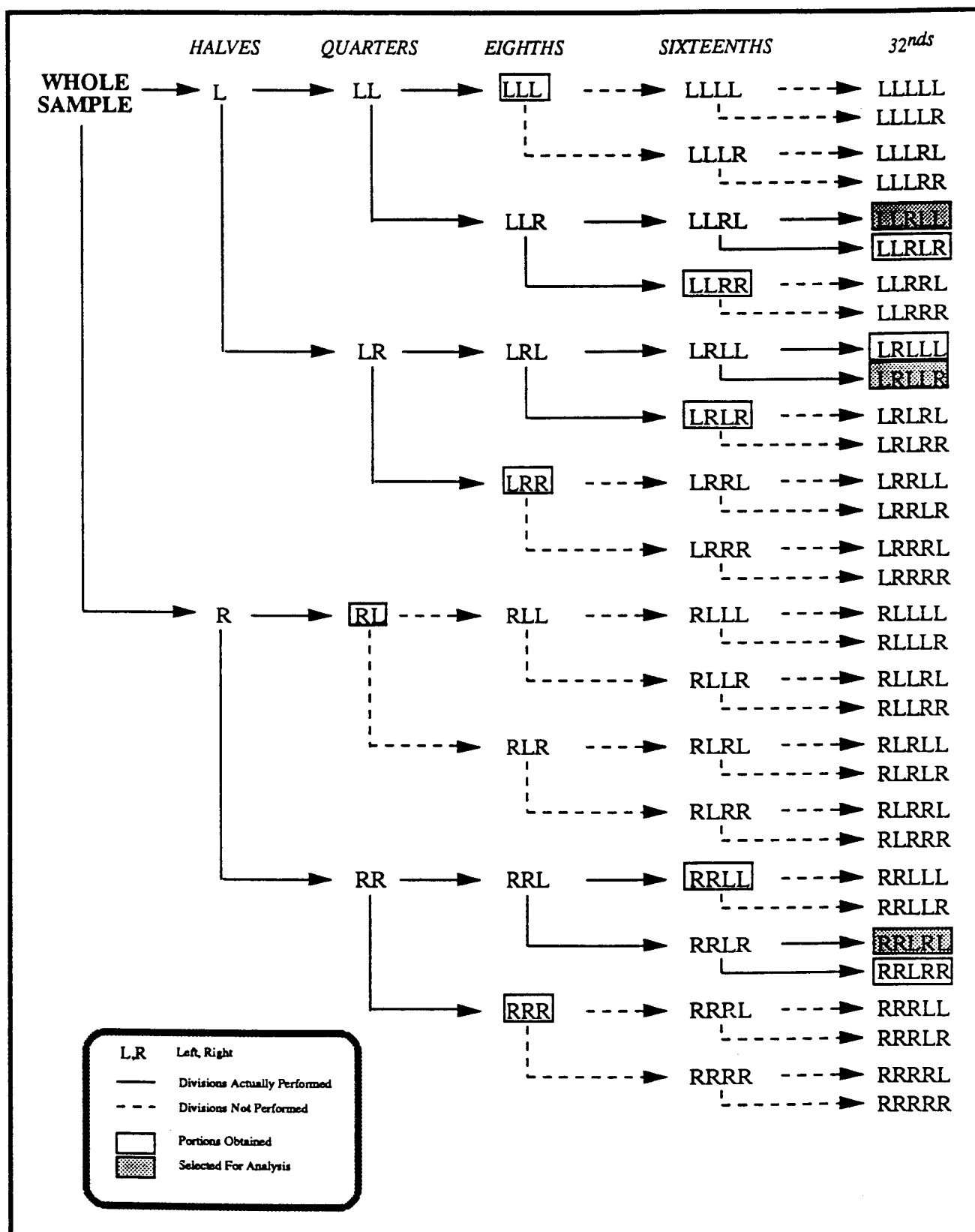


Figure 2-5. Design and dimensions of 1.0-m<sup>2</sup> Tucker trawl mounted on an epibenthic sled.





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

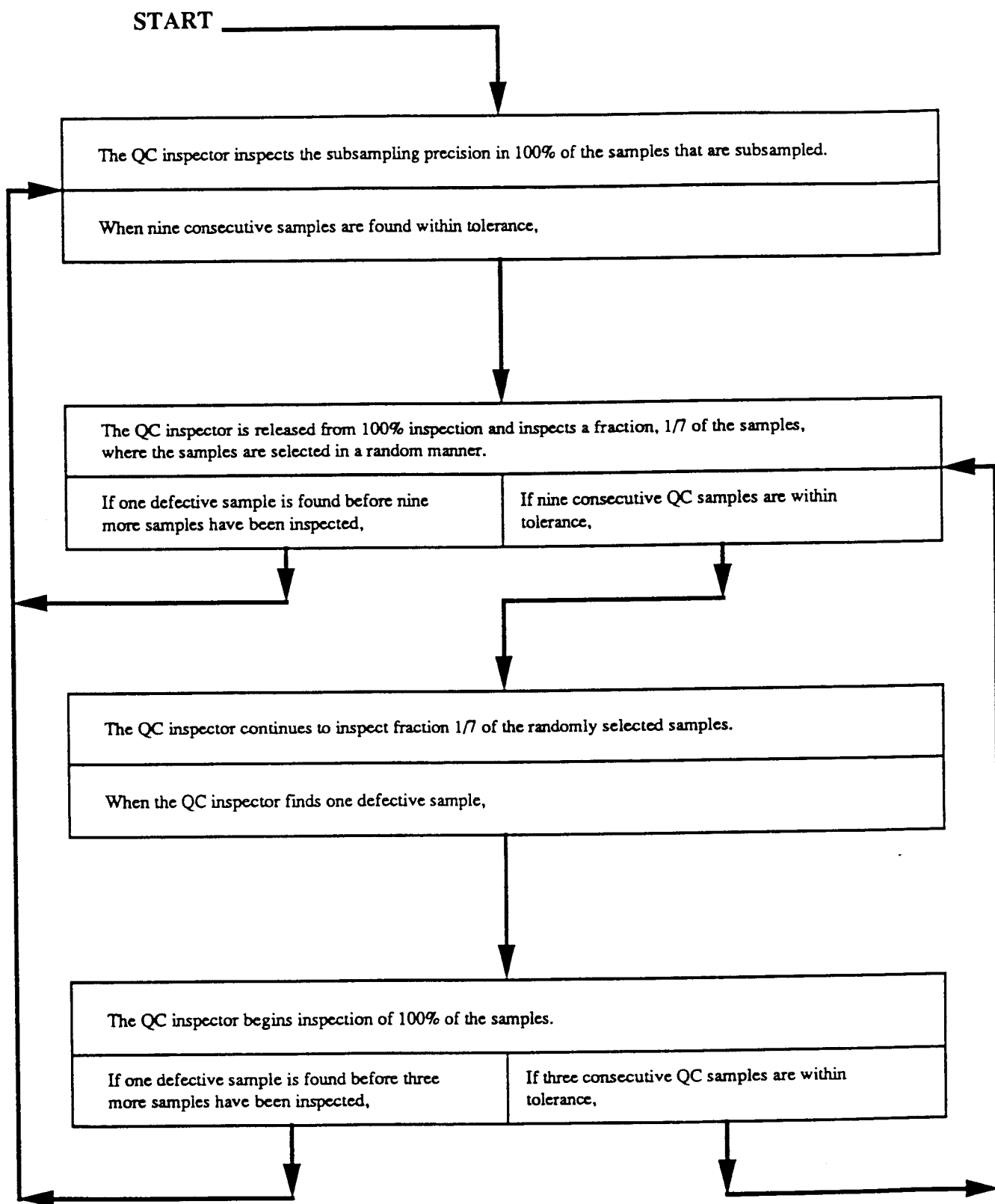


Figure 2-7. Inspection plan for evaluation of splitting precision.

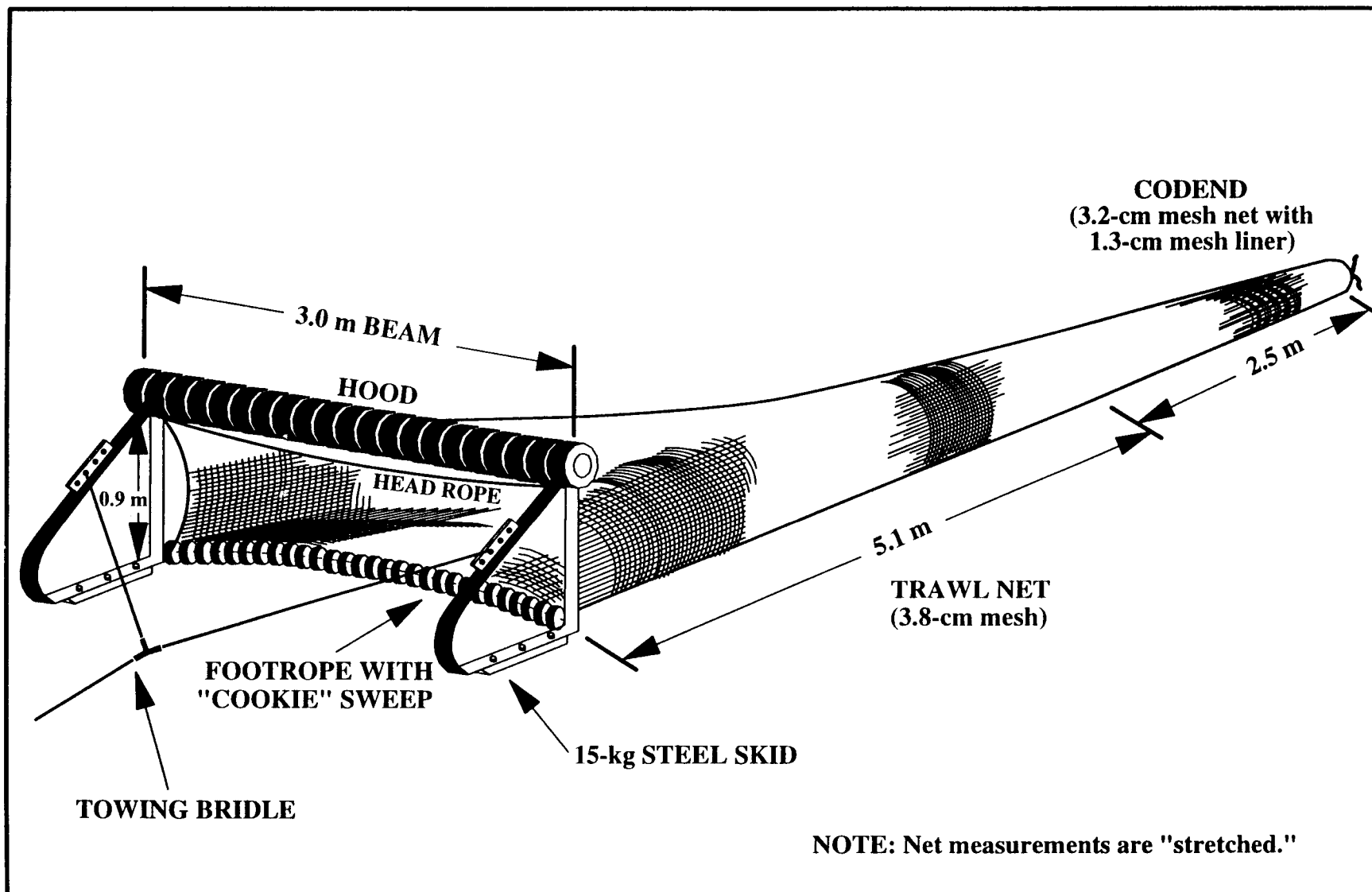


Figure 2-8. Design and dimensions of the 3.0-m beam trawl.

Table 2-1 Strata Sampled within the 13 Geographic Regions of the Hudson River Estuary  
During 2008

<u>Region</u>	<u>Abbreviation</u>	<u>River Miles</u>	<u>River Kilometers</u>	<u>2008 Surveys</u>			
				<u>Shore</u>	<u>Shoal</u>	<u>Channel</u>	<u>Bottom</u>
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 2008 Hudson River Surveys

<u>Program Phase</u>	<u>Sampling Schedule</u>		<u>Number of River Runs</u>	<u>Sampling Frequency</u>	<u>Strata Sampled</u>	<u>Sample Number Collection</u>		<u>Lab Analysis</u>	<u>Sampling Gear</u>
	<u>Start Week</u>	<u>End Week</u>				<u>Projected</u>	<u>Actual</u>		
Longitudinal River Ichthyoplankton Survey	3 MAR	12 OCT	23	Weekly/ Biweekly	Shoal	588	590	556	1.0-m <sup>2</sup> net on epibenthic sled, or 1.0-m <sup>2</sup> Tucker trawl
					Channel	1,545	1,540	954	1.0-m <sup>2</sup> Tucker trawl
					Bottom	1,389	1,378	929	1.0-m <sup>2</sup> net on epibenthic sled
Fall Juvenile Survey	7 JUL	7 DEC	11	Biweekly	Shoal	427	427		3.0-m beam trawl, or 1.0-m <sup>2</sup> Tucker trawl
					Channel	648	648		1.0-m <sup>2</sup> Tucker trawl
					Bottom	1,055	1,055		3.0-m beam trawl
Beach Seine Survey	16 JUN	26 OCT	10	Biweekly	Shore	1,000	1,000		30.5-m beach seine

Table 2-3 Summary of 2008 Sample Collection Information by River Region and Stratum for the Longitudinal River Ichthyoplankton Survey

Region	5-Week Period from 3 MAR to 6 APR					3-Week Period from 7 APR to 27 APR					3-Week Period from 28 APR to 18 MAY				
	Shoal		Bottom		Channel	Shoal		Bottom		Channel	Shoal		Bottom		Channel
	Sled	Trawl	Sled	Trawl		Sled	Trawl	Sled	Trawl		Sled	Trawl	Sled	Trawl	
Battery	--	--	15	15	30	--	--	24	18	42	--	--	18	18	36
Yonkers	6	6	18	18	48	6	6	21	15	48	6	6	21	15	48
Tappan Zee	9	6	18	18	51	18	12	12	12	54	18	12	12	12	54
Croton-Haverstraw	9	6	18	18	51	12	9	12	12	45	12	9	12	12	45
Indian Point	6	6	18	18	48	6	6	12	12	36	6	8	18	30	62
West Point	--	--	15	15	30	--	--	15	15	30	--	--	18	45	63
Cornwall	6	6	12	12	36	9	6	9	9	33	9	6	24	15	54
Poughkeepsie	--	--	--	--	--	--	--	9	9	18	--	--	30	30	60
Hyde Park	--	--	--	--	--	--	--	9	21	30	--	--	27	33	60
Kingston	--	--	--	--	--	--	--	24	18	42	--	--	18	21	39
Saugerties	--	--	--	--	--	--	--	24	18	42	--	--	9	15	24
Catskill	--	--	--	--	--	--	--	38	20	68	--	--	9	13	22
Albany	--	--	--	--	--	--	--	49	30	79	--	--	15	15	30
Total	36	30	114	114	294	51	39	268	209	567	51	41	231	274	597

Region	3-Week Period from 19 MAY to 8 JUN					4-Week Period from 9 JUN to 6 JUL					13-Week Period from 14 JUL to 12 OCT				
	Shoal		Bottom		Channel	Shoal		Bottom		Channel	Shoal		Bottom		Channel
	Sled	Trawl	Sled	Trawl		Sled	Trawl	Sled	Trawl		Sled	Trawl	Sled	Trawl	
Battery	--	--	24	12	36	--	--	24	16	40	--	--	42	42	84
Yonkers	6	3	18	12	39	8	8	24	28	68	14	14	42	28	98
Tappan Zee	12	6	12	12	42	8	8	20	20	56	21	21	28	28	98
Croton-Haverstraw	12	6	12	12	42	12	8	24	24	68	21	21	28	28	98
Indian Point	6	6	18	36	66	12	8	20	64	104	21	21	28	28	98
West Point	--	--	21	45	66	--	--	32	96	128	--	--	28	28	56
Cornwall	9	6	24	15	54	8	8	48	48	112	14	14	21	21	70
Poughkeepsie	--	--	36	54	90	--	--	28	60	88	--	--	21	20	41
Hyde Park	--	--	21	29	50	--	--	20	36	56	--	--	--	--	--
Kingston	--	--	12	18	30	--	--	16	24	40	--	--	--	--	--
Saugerties	--	--	15	9	24	--	--	16	8	24	--	--	--	--	--
Catskill	--	--	9	9	18	--	--	12	12	24	--	--	--	--	--
Albany	--	--	9	9	18	--	--	12	12	24	--	--	--	--	--
Total	45	27	231	272	575	48	40	296	448	832	91	91	238	223	643

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

Table 2-4 Specifications of Sampling Gear Used During the 2008 Longitudinal River Ichthyoplankton Survey

1.0-m <sup>2</sup> Tucker Trawl	
Length	8.0 m
Mouth (width)	1.0 m
Mouth (height)	1.4 m
Mesh size	500 $\mu\text{m}$
Net material	Nytex (monofilament nylon)
Collection cup	
Length	30 cm
Length with net-retaining ring	37 cm
Mesh size	500 $\mu\text{m}$
Net material	Nytex (monofilament nylon)
1.0-m <sup>2</sup> Net Mounted on Epibenthic Sled	
Length	8.0 m
Mouth (width)	1.0 m
Mouth (height)	1.4 m
Mesh size	500 $\mu\text{m}$
Net material	Nytex (monofilament nylon)
Collection cup	
Length	30 cm
Length with net-retaining ring	37 cm
Mesh size	500 $\mu\text{m}$
Net material	Nytex (monofilament nylon)

Table 2-5 Water Quality Sampling Locations During the 2008 Longitudinal River Ichthyoplankton and Fall Juvenile Surveys

River Region	Scheduled Sampling Locations (RM)		Number of Water Quality Samples Scheduled Per Region Per River Run			
	Shoals <sup>1</sup>	Channel	LRS River Runs 1-3	LRS River Runs 4-16	LRS River Runs 17-23	FJS River Runs 1-11
Battery	--	1, 3, 6, 9	12	12	12	12
Yonkers	19	12, 14, 17, 19, 22	19	19	19	19
Tappan Zee	29	25, 27, 29, 32	16	16	16	16
Croton-Haverstraw	36	35, 36, 37, 38	16	16	16	16
Indian Point	43	40, 42, 43, 46	16	16	16	16
West Point	--	49, 51, 53, 55	12	12	12	12
Cornwall	59	56, 57, 59, 61	16	16	16	16
Poughkeepsie	--	63, 67, 71, 75	--	12	12	12
Hyde Park	--	78, 80, 82, 84	--	12	--	12
Kingston	--	87, 89, 91, 93	--	12	--	12
Saugerties	--	96, 99, 102, 105	--	12	--	12
Catskill	--	109, 114, 118, 122	--	12	--	12
Albany	--	126, 131, 135, 138, 142	--	15	--	15
Total per River Run			107	182	119	182

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

<sup>1</sup> Sample collected from east and west shoals at designated river mile.



Table 2-6 Summary of 2008 Sample Analysis Information by River Region and Stratum for the Longitudinal River Ichthyoplankton Survey

Region	5-Week Period from 3 MAR to 6 APR					3-Week Period from 7 APR to 27 APR					3-Week Period from 28 APR to 18 MAY				
	Shoal		Bottom	Channel		Shoal		Bottom	Channel		Shoal		Bottom	Channel	
	Sled	Trawl	Sled	Trawl	Total	Sled	Trawl	Sled	Trawl	Total	Sled	Trawl	Sled	Trawl	Total
Battery	--	--	15	15	30	--	--	12	9	21	--	--	9	9	18
Yonkers	6	6	9	9	30	6	6	12	15	39	6	6	12	15	39
Tappan Zee	9	6	9	9	33	9	12	12	12	45	9	12	12	12	45
Croton-Haverstraw	9	6	9	9	33	12	9	12	12	45	12	9	12	12	45
Indian Point	6	6	9	9	30	6	6	12	12	36	6	6	9	15	36
West Point	--	--	15	15	30	--	--	15	15	30	--	--	9	9	18
Cornwall	6	6	12	12	36	9	6	9	9	33	9	6	12	15	42
Poughkeepsie	--	--	--	--	--	--	--	9	9	18	--	--	15	15	30
Hyde Park	--	--	--	--	--	--	--	9	12	21	--	--	15	18	33
Kingston	--	--	--	--	--	--	--	12	9	21	--	--	9	12	21
Saugerties	--	--	--	--	--	--	--	12	9	21	--	--	9	15	24
Catskill	--	--	--	--	--	--	--	9	12	21	--	--	9	13	22
Albany	--	--	--	--	--	--	--	12	15	27	--	--	15	15	30
Total	36	30	78	78	222	42	39	147	150	378	42	39	147	175	403

Region	3-Week Period from 19 MAY to 8 JUN					4-Week Period from 9 JUN to 6 JUL					13-Week Period from 14 JUL to 12 OCT				
	Shoal		Bottom	Channel		Shoal		Bottom	Channel		Shoal		Bottom	Channel	
	Sled	Trawl	Sled	Trawl	Total	Sled	Trawl	Sled	Trawl	Total	Sled	Trawl	Sled	Trawl	Total
Battery	--	--	12	12	24	--	--	12	16	28	--	--	21	21	42
Yonkers	6	3	9	12	30	8	8	12	16	44	14	14	21	28	77
Tappan Zee	12	6	12	12	42	8	8	20	20	56	14	21	28	28	91
Croton-Haverstraw	12	6	12	12	42	12	8	12	12	44	21	21	28	28	98
Indian Point	6	6	9	18	39	12	8	20	12	52	14	21	28	28	91
West Point	--	--	12	9	21	--	--	16	20	36	--	--	28	28	56
Cornwall	9	6	12	15	42	8	8	24	24	64	14	14	21	21	70
Poughkeepsie	--	--	18	12	30	--	--	16	12	28	--	--	21	20	41
Hyde Park	--	--	12	15	27	--	--	20	20	40	--	--	--	--	--
Kingston	--	--	12	9	21	--	--	16	12	28	--	--	--	--	--
Saugerties	--	--	15	9	24	--	--	16	8	24	--	--	--	--	--
Catskill	--	--	9	9	18	--	--	12	12	24	--	--	--	--	--
Albany	--	--	9	9	18	--	--	12	12	24	--	--	--	--	--
Total	45	27	153	153	378	48	40	208	196	492	77	91	196	202	566

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

Table 2-7 Summary of 2008 Sample Collection by River Region and Stratum for the Fall Juvenile Survey

Region	15-Week Period from 7 JUL to 19 OCT					6-Week Period from 27 OCT to 7 DEC				
	Shoal		Bottom	Channel	Total	Shoal		Bottom	Channel	Total
	Beam	Tucker	Beam	Tucker		Beam	Tucker	Beam	Tucker	
Battery	--	--	63	48	111	--	--	37	--	37
Yonkers	16	16	64	48	144	15	--	33	--	48
Tappan Zee	48	48	51	48	195	15	--	24	--	39
Croton-Haverstraw	40	40	48	48	176	15	--	18	--	33
Indian Point	32	32	55	56	175	15	--	30	--	45
West Point	--	--	80	96	176	--	--	36	--	36
Cornwall	40	40	48	49	177	15	--	30	--	45
Poughkeepsie	--	--	88	87	175	--	--	30	--	30
Hyde Park	--	--	63	48	111	--	--	30	--	30
Kingston	--	--	32	48	80	--	--	24	--	24
Saugerties	--	--	32	16	48	--	--	30	--	30
Catskill	--	--	24	24	48	--	--	29	--	29
Albany	--	--	32	32	64	--	--	24	--	24
Total	176	176	680	648	1680	75	--	375	--	450

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

Table 2-8 Specifications of Sampling Gear Used During the 2008 Fall Juvenile Survey

1.0-m <sup>2</sup> 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 <sup>2</sup>

---

Table 2-9 Specifications of Sampling Gear Used During the 2008 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 <sup>2</sup>

Table 2-10 Summary of 2008 Sample Collection by River Region for the Beach Seine Survey

<u>Region</u>	<u>5-Week Period from 16 JUN to 20 JUL</u>	<u>13-Week Period from 28 JUL to 26 OCT</u>	<u>Total</u>
Yonkers	9	35	44
Tappan Zee	33	168	201
Croton-Haverstraw	21	98	119
Indian Point	9	35	44
West Point	9	35	44
Cornwall	9	42	51
Poughkeepsie	24	35	59
Hyde Park	24	35	59
Kingston	24	35	59
Saugerties	45	63	108
Catskill	57	70	127
Albany	36	49	85
Total	300	700	1000

Table 2-11 Stratum and Region Volumes (m<sup>3</sup>) and Surface Areas (m<sup>2</sup>) Used in Analysis of 2008 Hudson River Estuary Data

<u>Geographic Region</u>	<u>Channel Volume</u>	<u>Bottom Volume</u>	<u>Shoal Volume</u>	<u>Region Volume</u>	<u>Shorezone Surface Area</u>
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.

## CHAPTER 3

### PHYSICAL/CHEMICAL PARAMETERS

---

This chapter provides information on the parameters of temperature, salinity, and dissolved oxygen as measured during the 2008 surveys. Although parameters were measured with the BSS, emphasis will be placed on data from the LRS/FJS because these surveys encompassed the entire fish sampling period. In addition, freshwater flow data obtained from the U.S. Geological Survey (USGS) for the Green Island Dam near Troy, New York, and daily water temperature data from Poughkeepsie's Water Treatment Facility and the near-by USGS gaging site are discussed. Physical and chemical parameters are presented in [Appendix B](#).

#### 3.1 GREEN ISLAND DAM FLOWS

During 2008, daily freshwater flow for Green Island, New York was estimated from discharge data provided by the USGS for the Hudson River above Lock 1, the Mohawk River at Cohoes, and the Mohawk River diversion at Crescent Dam. At the time of publication, the data from October through December 2008 were provisional. The daily flow in 2008 ranged from 65 to 2,706 m<sup>3</sup>/sec/day ([Figure 3-1](#), [Appendix Table B-1](#)). The primary peak in daily flow occurred in early March with flows near 2,700 m<sup>3</sup>/sec/day and secondary peaks occurred from January through April and in December with flows about 1,500 m<sup>3</sup>/sec/day. Periods of daily flow less than 200 m<sup>3</sup>/sec/day occurred from late May to late October with an unusually high flow occurring in late July ([Figure 3-1](#), [Appendix Table B-1](#)).

The 2008 monthly freshwater flow rates were similar to the long-term (1947-2007) monthly average flow rates, in that the highest flows were observed in April and lowest flows in the summer months ([Figure 3-1](#), [Appendix Table B-2](#)). The monthly average flows from January through April 2008 were higher than the long-term average. For the rest of 2008, monthly average flows were slightly lower than average in the late spring, slightly above average during the summer, and about average during the fall. When compared to monthly average flow rates since the Hudson River surveys began in 1974 ([Appendix Table B-3](#)), the 2008 monthly flows were greater than the long-term average flows during the winter and early spring and similar to the long-term average for the rest of the year.

Average annual freshwater flow for the Hudson River as estimated at Green Island during 1947 to 2008 has varied from a minimum of 219 m<sup>3</sup>/sec/day in 1965 to a maximum of 604 m<sup>3</sup>/sec/day in 1976 ([Figure 3-2](#), [Appendix Table B-4](#)). For 2008, the provisional average annual flow of 541 m<sup>3</sup>/sec/day was the 6<sup>th</sup> highest flow in the 62 years of data.

#### 3.2 HUDSON RIVER WATER TEMPERATURES NEAR POUGHKEEPSIE

Long-term (since 1951) daily temperature records are available from Poughkeepsie's Water Treatment Facility, located just north of the City of Poughkeepsie, New York, at RM 77. In addition, water temperature records dating back to 1993 are available from the USGS gaging site (#01372058) on the Hudson River 2.3 miles below Poughkeepsie, New York, at RM 72. Because of the consistency and verification of the USGS records, they were substituted for the Water Treatment Facility records beginning with 1993 and continuing to 2008. Temperature records from the Water Treatment Facility were retained for 1951 through 1992.

In 2008, the lowest recorded temperature was 0.0°C occurring in February ([Appendix Table B-5](#)). Water temperatures in 2008 remained relatively low (<5°C) through early April, increased steadily during the spring and early summer, and reached a high of 27.0°C in late July. Temperatures declined slowly in late August and September and then cooled rapidly until mid-December ([Figure 3-3](#)).

The 2008 mean water temperature profile was similar to the long-term (1951-2007) average temperatures for most of the year ([Figure 3-3](#)). Exceptions to this similarity, when 2008 temperatures were cooler than long-term averages, occurred in February, May, and August. The 2008 temperatures were warmer than long-term averages in late April and July when 2008 temperatures equaled the long-term maximum temperatures. Average annual water temperature for the Hudson River as measured near Poughkeepsie during 1951 to 2008 has varied from a minimum of 11.29°C in 1960 to a maximum of 13.67°C in 1991 ([Figure 3-4](#), [Appendix Table B-6](#)). For 2008, the average annual temperature of 12.54°C was the 27<sup>th</sup> highest temperature in the 58 years of data.

### **3.3 HUDSON RIVER SURVEYS**

#### **3.3.1 Spatiotemporal Pattern in Temperature**

Average weekly water temperature measured during the 2008 LRS/FJS increased from the beginning of sampling in March to late July and then began decreasing until the end of the sampling program in December ([Figure 3-5](#)). This temporal pattern observed throughout the Hudson River estuary closely reflected that recorded for the Hudson River near Poughkeepsie. Average weekly temperatures measured during the LRS/FJS were similar to concurrent temperatures recorded near Poughkeepsie. Peak river temperatures occurred during late July when the river-wide mean temperature, as measured from Battery to Albany, was 26.8°C and regional mean values were between 24.1 and 28.1°C ([Appendix Table B-7](#)) (Hudson River temperatures near Poughkeepsie averaged 26.8°C for this period). Lowest values occurred during early March when the mean temperature in the lower river was 3.1°C and regional mean temperatures from Battery to Cornwall ranged from 1.8 to 4.4°C (Hudson River temperatures near Poughkeepsie averaged 1.3°C for this period).

Average weekly water temperatures in 2008 were consistent with the long-term (1974-2007) average temperatures observed in previous Hudson River surveys ([Figure 3-5](#)). Average temperatures in the spring and fall of 2008 were very similar to the long-term averages, but in June and July of 2008, temperatures averaged above normal for the period. Average annual water temperatures measured during the LRS/FJS from 1974 through 2008 have varied from 19.14°C in 1983 to 23.59°C in 1991 ([Figure 3-5](#), [Appendix Table B-8](#)). For 2008, the average annual temperature of 22.22°C was the 4<sup>th</sup> highest temperature in the 35 years of data.

Temporal patterns in the 2008 BSS temperature data resembled the pattern observed in LRS/FJS measurements with summer peak temperatures of 26.7°C achieved in mid-July ([Figure 3-6](#)). Mean weekly regional temperatures at the peak were 25.1 to 28.7°C ([Appendix Table B-9](#)). Minimum mean temperatures of 13-18°C were recorded during the last week of sampling that began on 20 October.

Average weekly temperatures during the 2008 BSS were comparable to the average temperatures observed in the long-term (1974-2007) record for most of the sampling season except that early summer temperatures in 2008 were higher than the long-term average ([Figure 3-6](#)). Average annual water temperatures measured during the BSS from 1974 through



2008 have varied from 21.34°C in 1974 to 25.69°C in 2005 ([Figure 3-6](#), [Appendix Table B-10](#)). For 2008, the average annual temperature of 23.85°C was the 11<sup>th</sup> highest temperature in the 35 years of data.

### 3.3.2 Spatiotemporal Pattern in Salinity

Seasonal variations in salinity occur in response to freshwater inputs to the Hudson River estuary: increasing freshwater flows lead to decreasing salinity and, likewise, decreasing flows will increase salinity. The overall pattern of salinity, as measured during the 2008 LRS/FJS, showed fluctuating levels in spring during periods of varying freshwater inputs, increasing values in summer, and stable values in fall ([Figure 3-7](#)). Salinity was lowest in late April (following a prolonged period of high freshwater inputs) when the river-wide mean value was 1.6 parts per thousand (ppt) and regional values were as low as 11.7 ppt in the Battery region ([Appendix Table B-11](#)). Maximum salinity was observed in mid-July when regional values were above 21 ppt in the Battery region and extended to 2.6 ppt in the West Point region.

The spatiotemporal pattern of salinity observed during the BSS typically resembles that observed during the LRS/FJS: increasing salinity during the summer and decreasing levels in the fall. Actual salinity measured during the BSS was lower than during the LRS/FJS because of the tendency for the denser, saline water to follow the deeper channel rather than the shorezone area. In the 2008 BSS, the salinity pattern was nearly typical with low salinity in the late spring and increasing values during the summer, but salinity remained high in the fall instead of declining as is typical ([Appendix Table B-12](#)). Maximum salinity of 10.9 ppt in the Yonkers region occurred in late October; low values were observed in mid-August when salinity averaged 3.3 ppt in the Yonkers region following several days of above-average freshwater inputs ([Appendix Table B-12](#)). Mean weekly regional salinity was highest in the Yonkers region and decreased upstream.

### 3.3.3 Spatiotemporal Pattern in Dissolved Oxygen

Dissolved oxygen concentration varies inversely with temperature and salinity. The seasonal pattern of dissolved oxygen typically observed during the Hudson River surveys consists of high concentrations in the spring, declining to minimum values in the summer, and increasing levels in the fall. As temperatures rose in the spring and summer of 2008, dissolved oxygen, as recorded in the LRS/FJS, declined from peak mean weekly regional values of 10-14 mg/L in early March to minimum mean levels of 4-7 mg/L in early September ([Figure 3-8](#), [Appendix Table B-13](#)).

Average weekly dissolved oxygen concentrations in 2008 were lower than the long-term (1974-2007) average values for most of the sampling season ([Figure 3-8](#)). High temperatures in June 2008 contributed to dissolved oxygen values in 2008 that exceeded the low weekly mean for the long-term record. Average annual dissolved oxygen measured during the LRS/FJS from 1974 through 2008 has varied from a new low of 6.81 mg/L in 2008 to 8.64 mg/L in 1984 ([Figure 3-8](#), [Appendix Table B-14](#)). For 2008, the average annual dissolved oxygen concentration of 6.81°C was the lowest concentration in the 35 years of data.

Percent oxygen saturation relates the theoretical limit of oxygen saturation (adjusted for temperature and salinity influences) to the observed dissolved oxygen concentrations. Mean weekly regional percent saturation based on measurements taken during the 2008 LRS/FJS were usually above 70 percent for most of the sampling season with values in the 60<sup>th</sup> percentile common in the summer and fall in the downriver regions ([Appendix Table B-17](#)). Individual

mean weekly regional values were never lower than 55 percent, the minimum recorded during August from the Battery region.

Data collected in the 2008 BSS ([Appendix Tables B-15](#) and [B-18](#)) indicated similar mean regional dissolved oxygen and percent oxygen saturation to that recorded in the LRS/FJS. When compared to the long-term (1974-2007) average weekly dissolved oxygen, 2008 values were well below average for the sampling season and were below historic minimum values during some weeks ([Figure 3-9](#)), but percent oxygen saturation levels did not drop below 69 percent and were usually in the 70 to 85 percent range.

Average annual dissolved oxygen measured during the BSS from 1974 through 2008 has varied from 6.44 mg/L in 2005 to 8.82 mg/L in 1991 ([Figure 3-9, Appendix Table B-16](#)). For 2008, the average annual dissolved oxygen concentration of 6.86°C was the 4<sup>th</sup> lowest concentration in the 35 years of data.

[Link to Chapter 4](#)

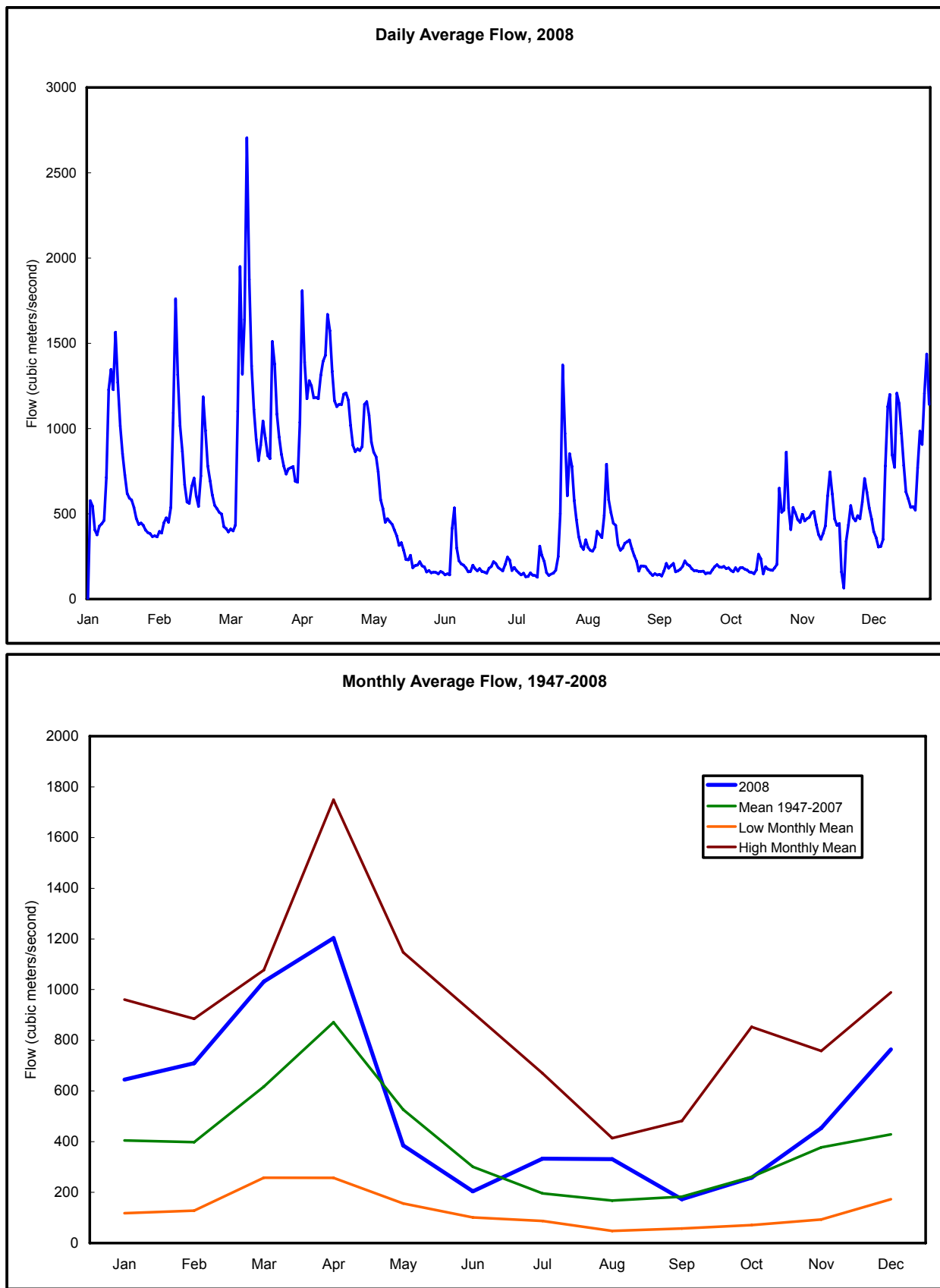


Figure 3-1. Hudson River daily average flow rate in 2008 and monthly average flow rates from 1947 to 2008, Green Island, New York. (Note: Data for October through December 2008 are provisional.)

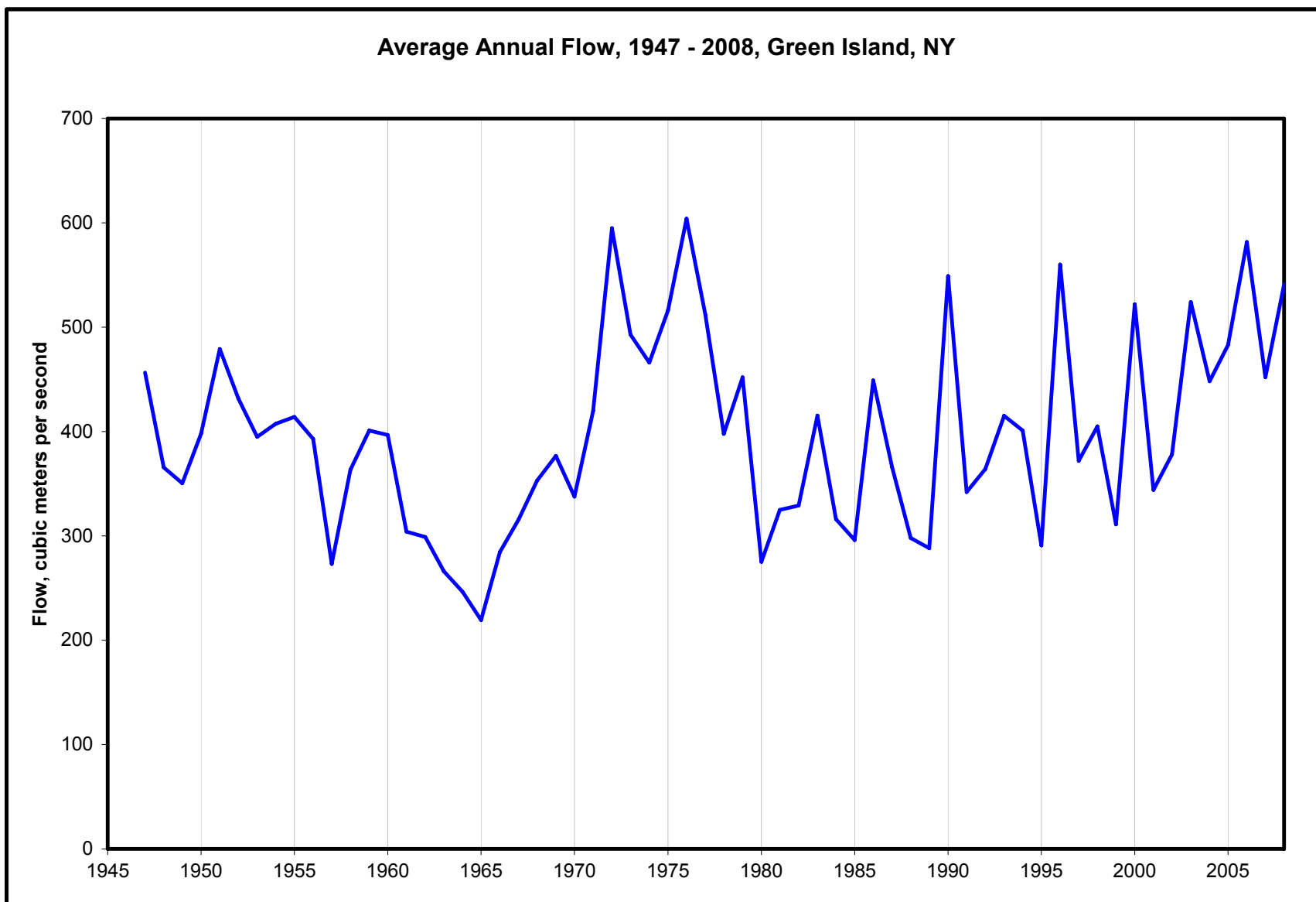


Figure 3-2. Average annual Hudson River flow from 1947 to 2008, Green Island, New York. (Note: Data for 2008 are provisional.)

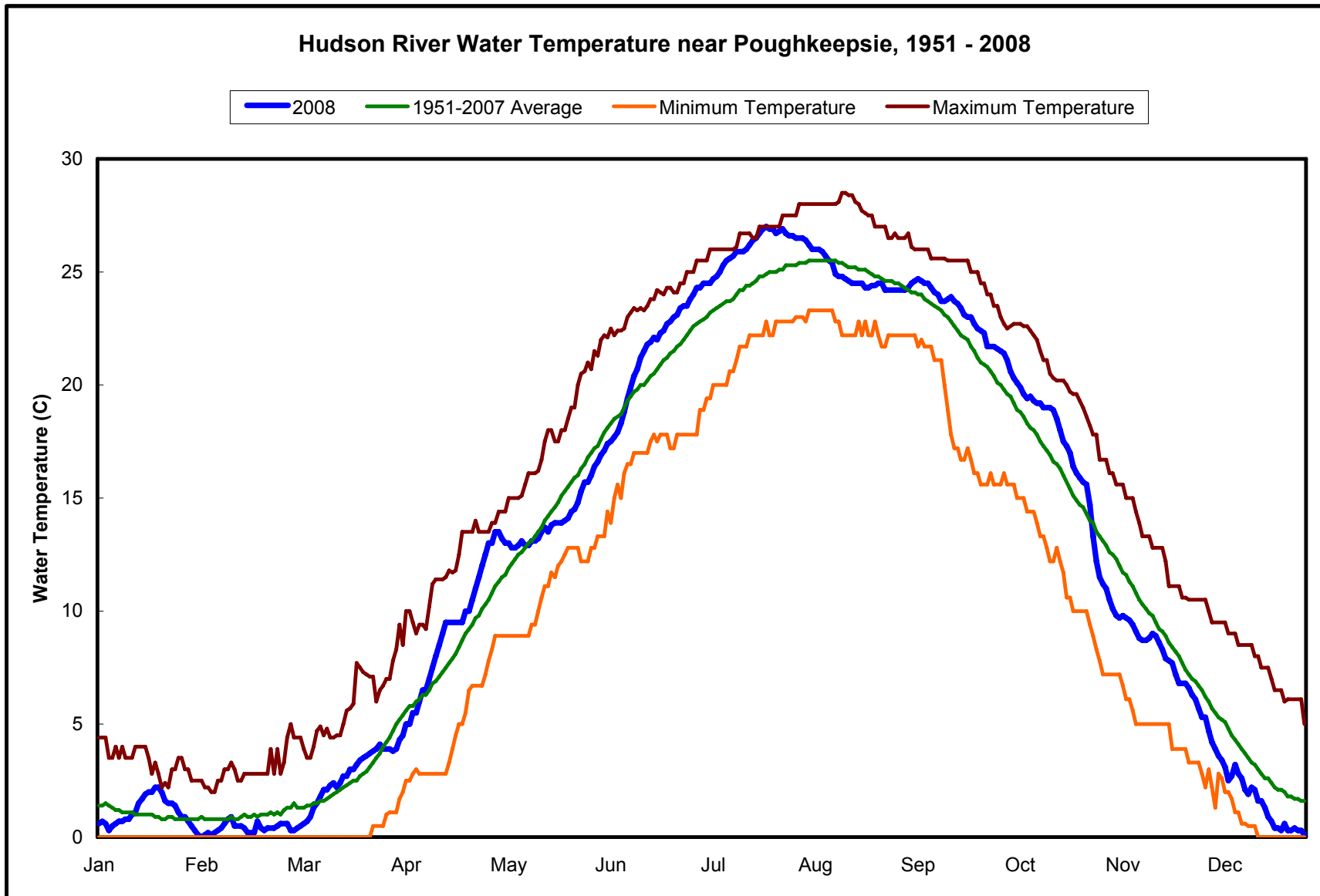


Figure 3-3. Seasonal variations in water temperature from 1951 to 2008 from Hudson River near Poughkeepsie. (Data from 1951 through 1992 from Poughkeepsie's Water Treatment Facility. Data from 1993 through 2008 from USGS gaging site 01372058 Hudson River below Poughkeepsie, NY.)

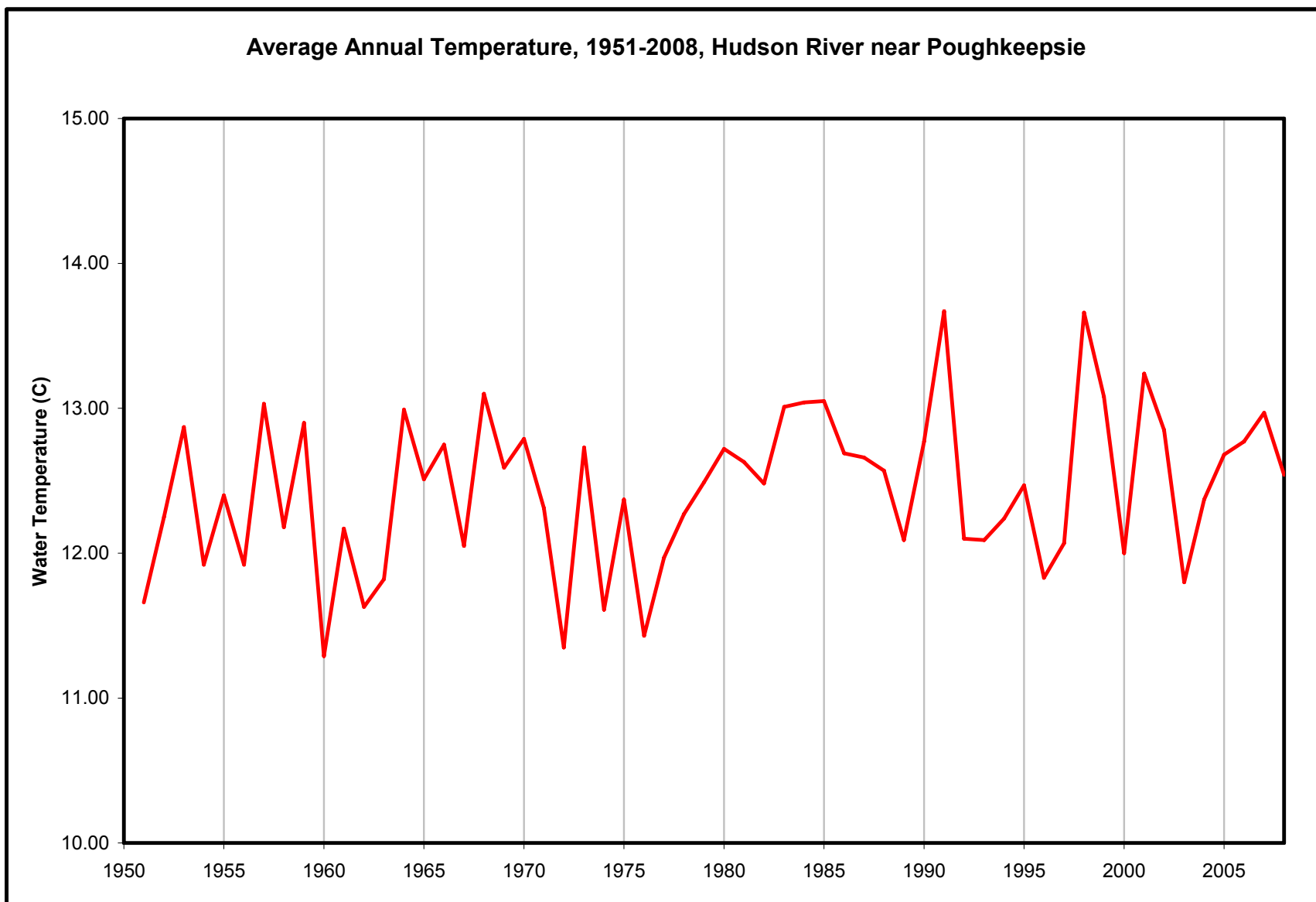


Figure 3-4. Average annual water temperature from 1951 to 2008 from Hudson River near Poughkeepsie. (Data from 1951 through 1992 from Poughkeepsie's Water Treatment Facility. Data from 1993 through 2008 from USGS gaging site 01372058 Hudson River below Poughkeepsie, NY.)

## Long River/Fall Juvenile Survey

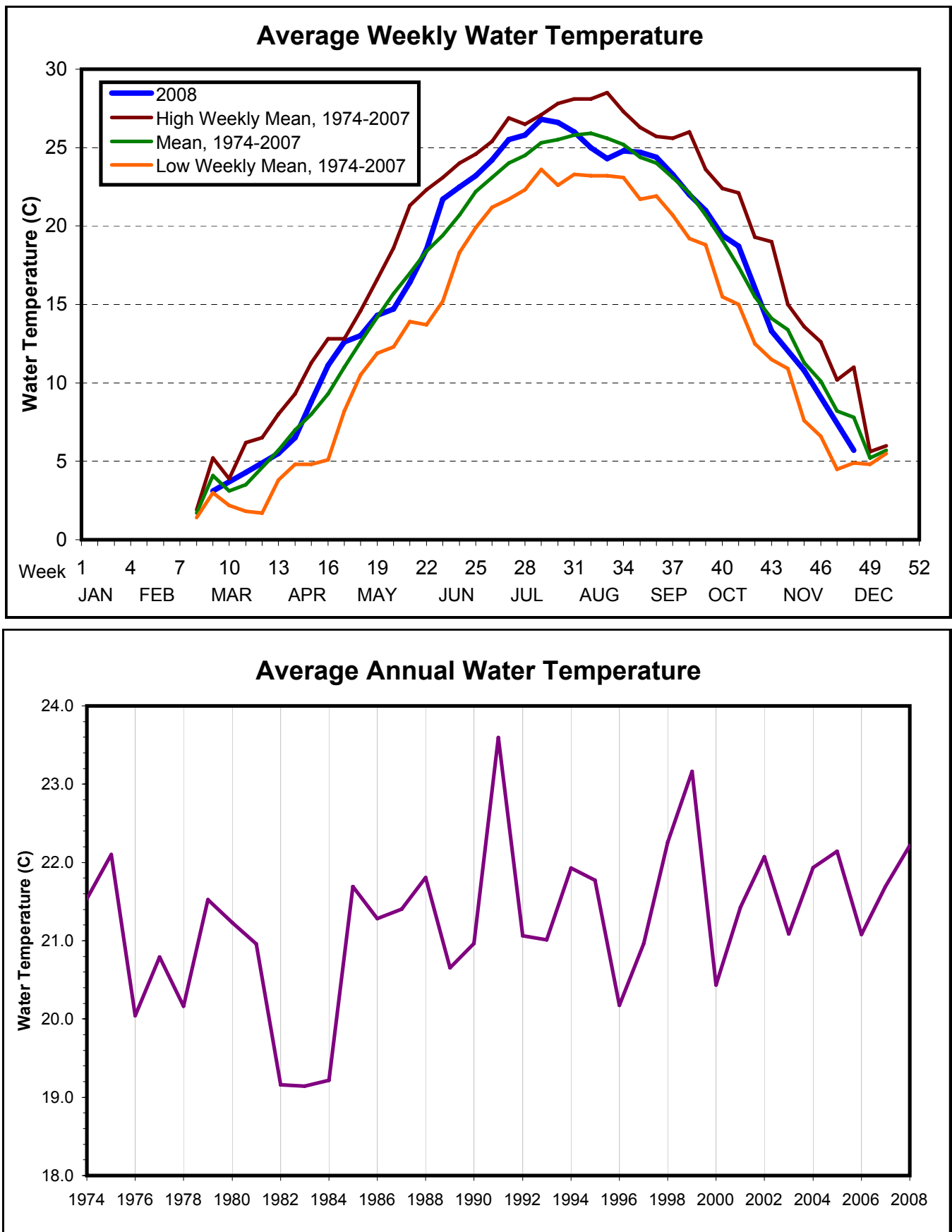


Figure 3-5. Seasonal and annual variations in water temperature from the Long River/Fall Juvenile surveys, 1974 - 2008.

## Beach Seine Survey

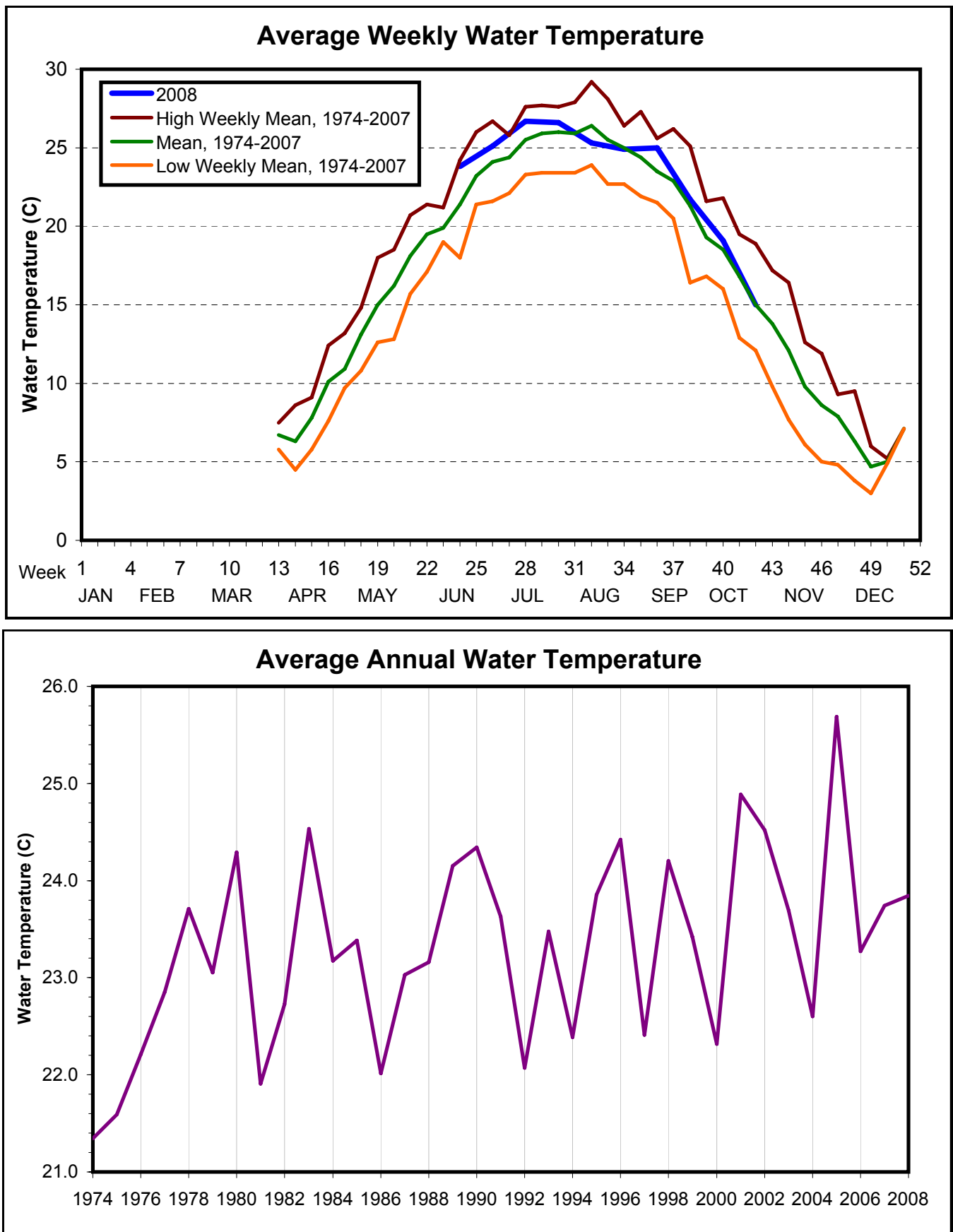


Figure 3-6. Seasonal and annual variations in water temperature from the Beach Seine surveys, 1974 - 2008.



## Average Weekly Salinity 2008 Long River/Fall Juvenile Surveys

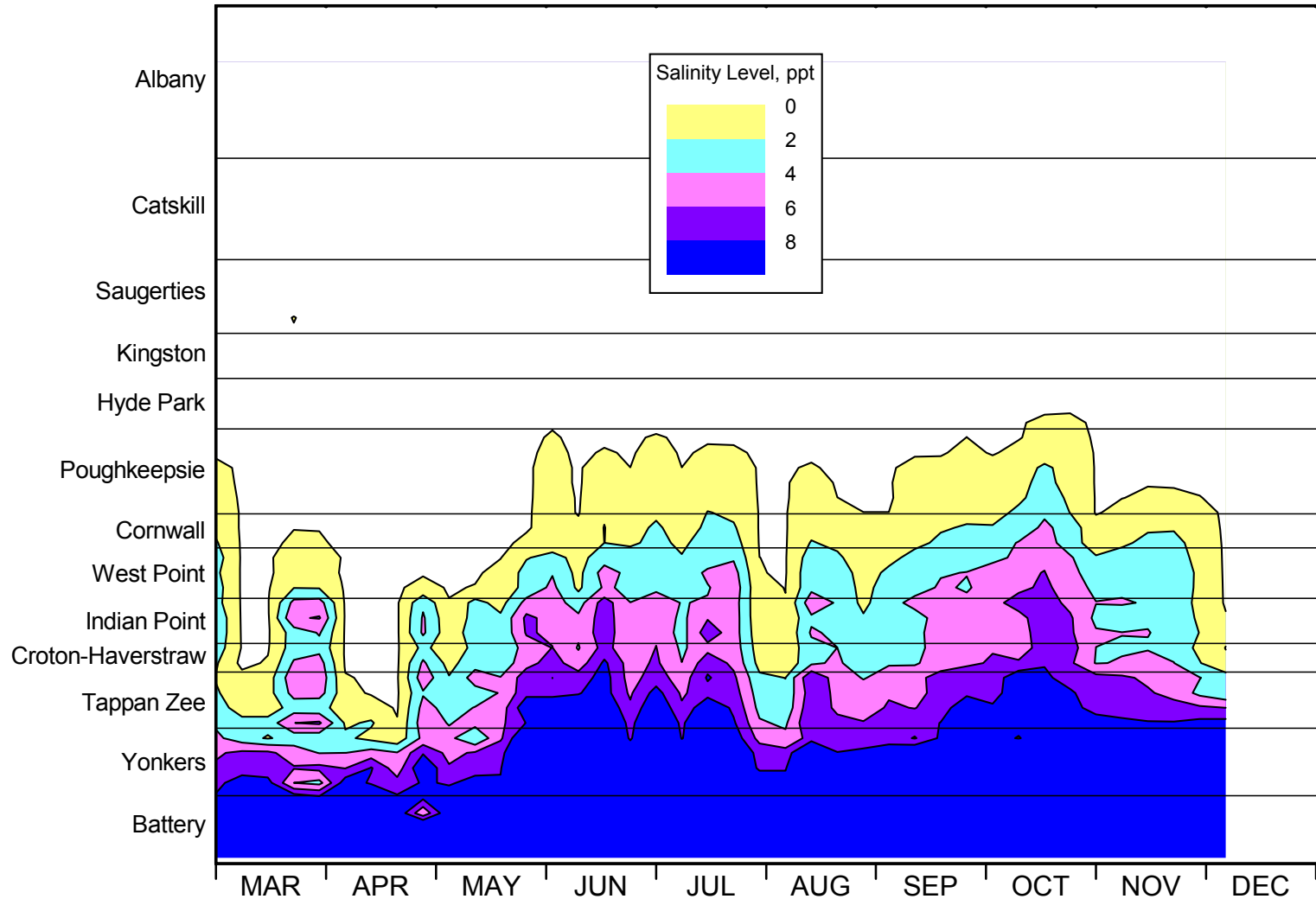


Figure 3-7. Seasonal variations in average weekly salinity from the 2008 Long River/Fall Juvenile surveys.

## Long River/Fall Juvenile Survey

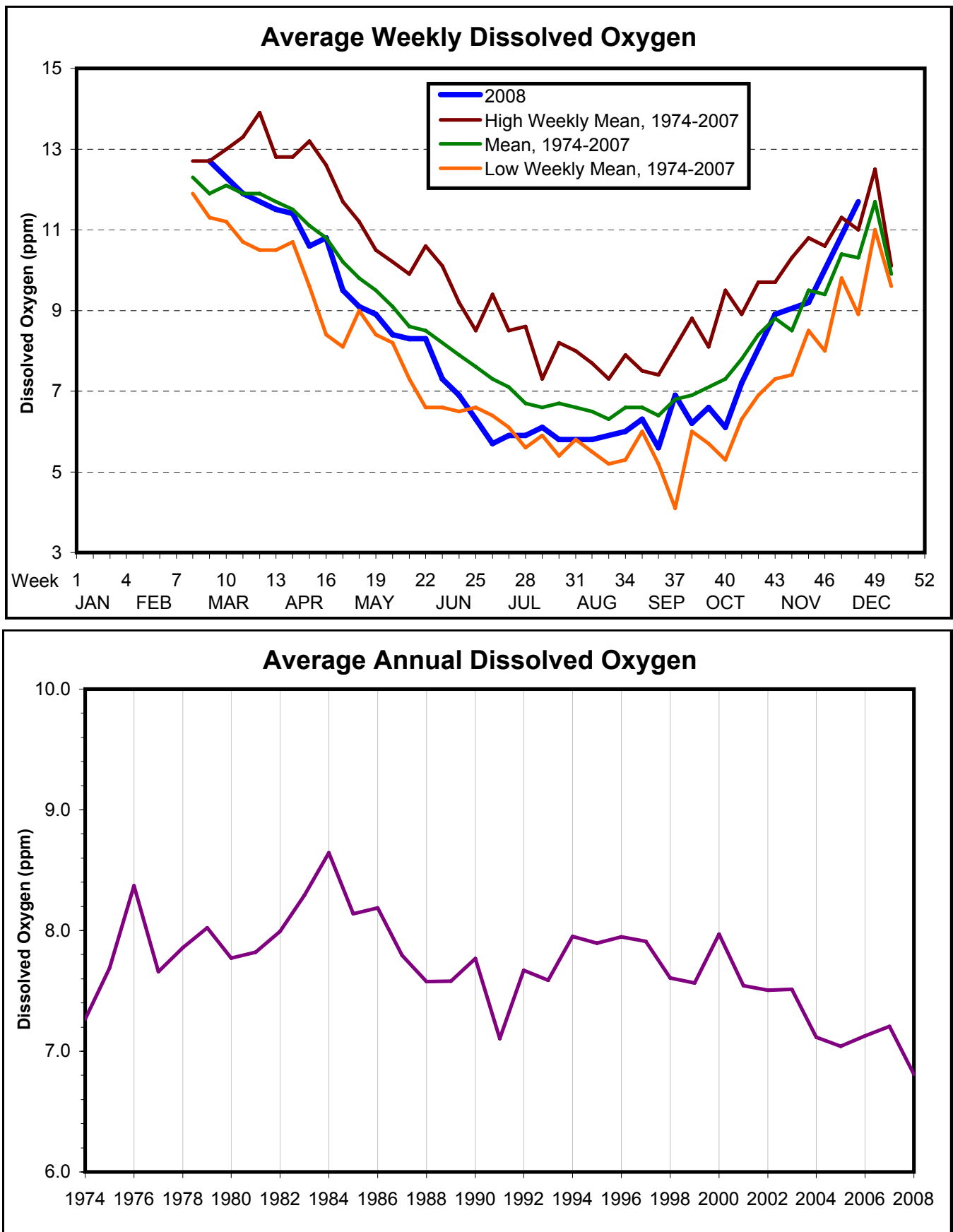


Figure 3-8. Seasonal and annual variations in dissolved oxygen from the Long River/Fall Juvenile surveys, 1974 - 2008.

## Beach Seine Survey

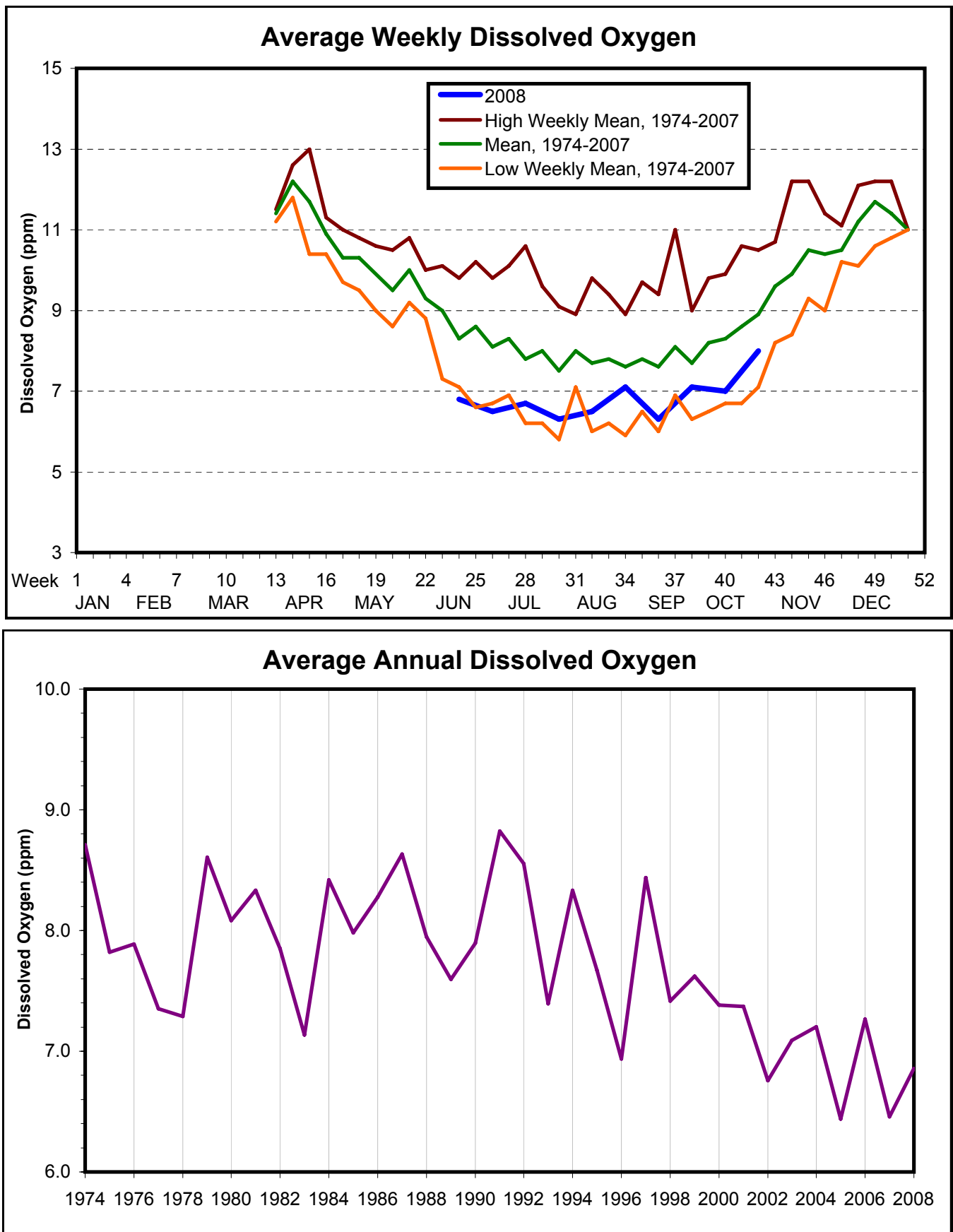


Figure 3-9. Seasonal and annual variations in dissolved oxygen from the Beach Seine surveys, 1974 - 2008.

## 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, bulk-heading, 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 Hudson River estuary's fish community is species rich. The total number of fish species collected in the Utilities' monitoring program in the Hudson River estuary has varied from 64 to 104 between 1974 and 2008 ([Table 4-1](#)). Such high levels of species richness are often used as an indicator of a healthy ecosystem in which habitat and other water quality conditions allow a wide variety of species to occupy the habitat.

Despite the large number of species which can occasionally be found in the estuary, most of the fish are from a limited number of species. In fact, only 10 – 15 percent of the species collected typically account for more than 99 percent of the catch. In an environmentally stable system, low species diversity is often associated with environmental stress. However in highly dynamic and unstable systems like the Hudson River estuary, the biological communities are typically dominated by a few species well adapted to such naturally dynamic systems. Most of the energy in estuaries is directed towards production of a few species, many of which have considerable commercial and recreational importance to man.

In each of the four major fish assemblages (anadromous, freshwater, estuarine, and marine), the persistence of most of the species over long periods of time shows broad-scale suitability of the environment for each assemblage. The fish community in brackish areas of the estuary is dominated by marine species whereas in tidal freshwater areas the fish community is dominated by anadromous species as larvae and young of year and by freshwater and estuarine species as yearling and older. Marine species appear largely limited to areas with salinities greater than 1 ppt, which in the Hudson River typically includes areas downstream from Region 6, the Cornwall region. Most of the fish production in low salinity brackish and freshwater areas of the estuary during spring and summer is directed towards anadromous species including river herring (alewife and blueback herring), striped bass, and American shad. These anadromous fish leave the estuary in fall of their first year of life leaving the community of older individuals consisting primarily of resident species.

Although the estuarine and anadromous assemblages have fluctuated very little over time, there have been some minor changes in the freshwater and marine assemblages. The disappearance or appearance of species may indicate some change has taken place, such as degradation or improvement of environmental conditions, introduction of competing or exotic species, and overexploitation or proper fisheries management. In the Hudson River estuary, significant changes in habitat (expansion of water chestnut beds), water quality (improvement in New York City wastewater treatment), and fisheries management practices (striped bass) may have contributed to changes in fish assemblages.

The freshwater assemblage has shown fewer species in recent years compared to the years from 1974 to 1980 ([Table 4-1](#)). However, the fewest species in this assemblage occurred in 1982 and 1983, and numbers have increased slowly since then. When the individual species in the freshwater assemblage are examined, there are several species that occurred consistently in the early years and not in the later years, such as cutlips minnow, common shiner, blacknose dace, redbfin pickerel, longnose dace, and trout perch. Conversely, there are several species that were not present in the early years but have been recorded recently, such as brook silverside, channel catfish, and freshwater drum. 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 early 1980s, the shortened program typically ran

from July or August to October. Beginning in the late 1980s and continuing to the present, the BSS program covered the period from mid-June through October. Alternatively, the expansion of water chestnut beds following cessation of herbicide treatments in the 1970s may have changed the availability of preferred habitat for some species in shallow freshwater areas of the estuary, which may have been a contributing factor to the apparent decline in species richness.

The dominant freshwater species collected in the Utilities' monitoring program were spottail shiner and tessellated darter, but freshwater drum and channel catfish are becoming increasingly dominant ([Appendix Tables C-1 through C-3](#)). These first two species also dominated the freshwater assemblages of near-shore collections in fisheries surveys conducted in 1936 and 1990 (Daniels and Lawrence 1991), but ranked density for these species especially from upper regions of the Hudson River has been lower in recent years than in the earlier years of the monitoring program (Pace et al. 1993). However, further analysis of the abundance levels of seven species from the Utilities' monitoring data concluded that there was no general pattern of abundance over time, suggesting that there has been no river wide fish decline (Pace et al. 1993).

The number of species in the marine assemblage shows 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 regions. Among the recent recruits to the marine assemblage are Atlantic croaker, Atlantic mackerel, fourbeard rockling, grubby, naked goby, rock gunnel, spotted hake, and yellowtail flounder. The opposing trends in the number of freshwater and marine species 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 and 1990s, freshwater flow was typically below normal, and freshwater species declined while the number of marine species increased. 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 estuary. Extension of the LRS sampling program in 1988 and the FJS sampling program in 1996 into the more saline portion of the Hudson River estuary, namely the Battery region, also increased the possibility of collecting more marine species.

The dominant marine species collected in the Utilities' monitoring program was bay anchovy ([Appendix Tables C-1 through C-3](#)). Likewise, in 1968, bay anchovy was the principal species in trawl collections south of the Indian Point region (RM 40) (Carlson and McCann 1969). Overall abundance has increased in brackish areas of the estuary since the monitoring program began in 1974, largely as a result of recent increases in the abundance of bay anchovy and Atlantic silverside, both important prey species in inshore marine systems. Reasons for these apparent changes are unknown. However, much of the change appears to have occurred since 1990, a date which coincides with completion of major wastewater treatment facility upgrades in New York City. Perhaps improvements in water quality contributed to increased overall abundance of these two species.

Estuarine species are generally euryhaline, year-round residents of the Hudson River fish community. Dominant species in the estuarine assemblage as collected in the Utilities' monitoring program included white perch, banded killifish, Atlantic silverside, and hogchoker ([Appendix Tables C-1 through C-3](#)). White perch and banded killifish were also dominant in near-shore collections in 1936 and 1990 (Daniels and Lawrence 1991) as well as 1966 (Carlson and McCann 1969). Abundance of Atlantic silverside, as noted above, has been increasing in recent years, whereas banded killifish have been found in lower abundance in recent years (Pace et al. 1993).

Perhaps the most important fish assemblage in the Hudson River estuary is composed of the anadromous species, which use the estuary as spawning and nursery grounds. Adult fish enter the estuary in the spring and migrate upstream to low salinity brackish and freshwater areas to spawn. The young fish then use the near-shore shoal areas for food and habitat as they make their way downstream and generally leave the estuary in the fall. Most of the energy in the Hudson River estuary is directed towards the production of these anadromous species: striped bass, blueback herring, alewife, American shad, and Atlantic tomcod. The early life stages of these species have dominated catches in the Utilities' monitoring program ([Appendix Tables C-1 through C-3](#)). Other investigators have noted that these ubiquitous species, especially blueback herring, comprise the numerically most important species in their study areas (MRL 1970; Heller et al. 1969; Carlson and McCann 1969; Daniels and Lawrence 1991). Curiously, Daniels (undated), in summarizing a 1936 fisheries survey in the Hudson River, noted the near absence of blueback herring from the sampling sites. In the last three decades, blueback herring have been the numerical dominant in most of the summer catches at near-shore sites.

Other species of the anadromous assemblage have shown fluctuations in abundance over the years. Striped bass and perhaps American shad appear to have increased over the period 1974-1989, especially at the larval stage (Pace et al. 1993). Despite their numerical dominance in catches, the overall abundance of blueback herring has declined since the early years of the monitoring program. Declines in the abundance of this anadromous species appear to have occurred to all stocks throughout their geographic range and appear a result of factors outside of the Hudson River, including overfishing in open ocean waters.

In all, it appears that the Hudson River estuary has a healthy and robust fish population. Species richness is high for all life stages as a result of the estuary serving as an interface between fresh and saltwater and between warmer and temperate climatic conditions. On the other hand, species diversity is relatively low reflecting the fact that the individual members of this community are comprised primarily of a limited number of species which are well adapted to the highly dynamic estuarine conditions. Spatially, the composition and abundance of the fish community is largely influenced by salinity with the interface between a marine-dominated and a freshwater-dominated fish community occurring in the reach of the estuary through the Hudson Highlands. However, considerable overlap in the spatial distribution of individual species occurs. There is no evidence of any substantial long-term changes in composition or abundance of the fish community over the 35-year period, 1974-2008.

#### **4.1.3 Species Collected in 2008**

Of the 98 species of fish collected in 2008, 34 were freshwater species, which is consistent with the number of freshwater species collected since the late 1980s ([Table 4-1](#)). The marine species in 2008 numbered 43, continuing the trend begun in the early 1990s of greater numbers of marine species than freshwater species. The diadromous and estuarine assemblages in 2008 were nearly identical to similar assemblages collected since 1974, with 9 to 12 species, respectively. No new species were collected in 2008.

Each of the surveys sampled a different habitat within the Hudson River estuary and, therefore, collected different assemblages of fish. More freshwater taxa were collected in the BSS than in the other two surveys and more marine species were captured in the LRS ([Table 4-2](#)). Of the 98 species recorded during 2008, 34 were collected in all three sampling surveys, while 41 of the remaining 64 species were collected in only one of the surveys. Of the 34 freshwater



species, 17 (50 percent) of them were collected only in the BSS. Likewise, 14 (33 percent) of the 43 marine species were only collected in the LRS.

The dominant species in the monitoring program since the mid-1980s, when the spatial and temporal extent of the surveys has been relatively uniform, have remained relatively stable ([Appendix Tables C-1 through C-3](#)). The early life stages of bay anchovy, striped bass, *Alosa* spp., and white perch dominated the 2008 LRS, as they have in previous years ([Appendix Table C-1](#)). Cunner and tautog were more abundant in the 2008 LRS than in most previous years whereas Atlantic croaker were less abundant. The 2008 FJS was dominated by bay anchovy, hogchoker, and blueback herring ([Appendix Table C-2](#)). Compared to previous years, channel catfish were more abundant in the 2008 FJS, but American shad and Atlantic menhaden were less abundant than in the past. Catches of several species, namely rainbow smelt, tessellated darter, summer flounder, and winter flounder have been markedly reduced since the mid-1990s than in earlier years of the FJS whereas catches of Atlantic croaker, Atlantic menhaden, brown bullhead, and channel catfish have increased in the last decade. In the 2008 BSS, *Alosa* spp. was the dominant taxon, followed by blueback herring, bay anchovy, and spottail shiner ([Appendix Table C-3](#)). Compared to most previous years, *Alosa* spp., bay anchovy, alewife, and pumpkinseed were more abundant in the 2008 BSS than in the past, but American shad were less abundant than in the past.

Annual abundance indices ([Appendix Figures D-1 through D-13 and Tables D-2 through D-14](#)) for selected species compare the year-to-year variation in abundance since the beginning of the monitoring program in 1974 (or 1979 for the FJS when sampling included the upper Hudson River). The predominant life stages for each selected species were chosen for comparison. In 2008, alewife (juveniles) had abundance indices that ranked 4<sup>th</sup> and 7<sup>th</sup> highest since 1974 and 1979 and the spottail shiner (juveniles) abundance index ranked 5<sup>th</sup> highest since 1974. Species with low abundance indices in 2008 were American shad (eggs/YSL/PYSL/juveniles), Atlantic tomcod (PYSL/juveniles), and weakfish (juveniles).

## 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 Moronidae). 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. From 1983 to 1995, the Utilities' striped bass hatchery 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 2008, striped bass eggs and YSL were most abundant in mid-river, with greatest YSL abundance slightly upriver of greatest egg abundance ([Figure 4-1](#); supporting density and standing crop tables for striped bass are presented in [Appendix Tables E-1 through E-24](#)). As in other years in the Hudson River, 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 is 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 2008, striped bass PYSL were present throughout the middle and lower estuary and were most abundant in the Cornwall region ([Figure 4-1](#)).

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 juvenile, or YOY, striped bass is evident in the 2008 spatiotemporal distribution pattern seen in the FJS and BSS, as YOY striped bass were found in the middle estuary regions during the summer, but were increasingly found in lower estuary regions during the fall ([Figure 4-2](#)). 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 and older-than-yearling striped bass were collected in the LRS, FJS, and BSS throughout the estuary during 2008 ([Figures 4-3 and 4-4](#)) with many of the yearling and older-than-yearling from the LRS collected in the lower estuary during the early spring and yearling from the BSS collected in the upper reaches of the estuary during late spring.

Comparing the temporal distribution of early life stages of striped bass in 2008 with previous years (1974-2007), peak egg and YSL density in 2008 occurred in late May which was similar to the historical pattern of peak occurrence ([Figure 4-5](#)). Peak PYSL abundance in 2008 occurred in early June, which was similar to the historical peak from late May to mid-June. Many YOY

were collected in late June in 2008, but also in the weeks beyond the temporal limits (Weeks 18-26 which is May through June) of this comparison.

Striped bass eggs in the 2008 LRS were most abundant from the West Point to Hyde Park regions, downriver of the historical peak in Kingston (Figure 4-6). The YSL distribution in 2008 was similar to the long-term distribution pattern with greatest abundance in the middle estuary, especially in the Poughkeepsie region. PYSL were also most abundant in the middle estuary in 2008 as in the past.

The 2008 geographical distribution of YOY striped bass in the BSS was consistent with the long-term trend (based on data from 1974 to 2007) 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). Most yearling and older-than-yearling striped bass in the 2008 BSS were collected in the lower estuary with few collected in the middle estuary (Figure 4-7).

Weekly length statistics for young-of-year striped bass collected in 2008 show the most growth during July and August with slower rates of growth later in the summer (Figure 4-8, supporting length frequency tables for striped bass are presented in Appendix Tables F-1 through F-3). The slight variances in the growth curve may reflect the size selectivity of the FJS gear over that of the BSS gear. 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 2008, white perch eggs were most abundant in the upper estuary from Hyde Park to Albany during May ([Figure 4-9](#), [Appendix Tables E-25 through E-48](#)).

Hatching occurs in 1.5 to 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 2008, in the same areas that eggs were most abundant but also extending downriver to the West Point region ([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 2008, white perch PYSL were most abundant in the upper estuary in June ([Figure 4-9](#)), but were also present in the middle estuary where they co-occur extensively with striped bass PYSL.

White perch reach the juvenile stage beginning in mid-June; and during 2008, YOY fish were found in the middle estuary by late June and throughout the entire estuary by August ([Figure 4-10](#)). 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). Yearling and older-than-yearling white perch were also distributed throughout the Hudson River based on the 2008 monitoring program with the greatest concentration in the lower estuary in early spring ([Figures 4-11](#) and [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 2008 with previous years (1974-2007), the 2008 distribution was very similar to the long-term record. Egg abundance occurred throughout May as in the historical pattern ([Figure 4-13](#)). YSL were present from mid-May to mid-June, with peak abundance in early May, earlier than the long-term trend. PYSL occurrence extended from mid-May into July with peak abundance in early June as in the long-term pattern. Most YOY white perch were collected in late June in the 2008 LRS with others collected during weeks beyond the temporal limits of this comparison.

White perch eggs in the 2008 LRS were primarily in the Saugerties through Albany regions which agrees with the historical trend ([Figure 4-14](#)). YSL were distributed mainly in the upper and middle regions of the estuary in 2008 as seen in the long term pattern with peak distribution in the Poughkeepsie and Hyde Park regions. Also similar to the long-term trend, PYSL were well distributed throughout the estuary in 2008.

Historically, as well as in 2008, the geographical distribution of YOY, yearling, and older-than-yearling white perch in the BSS has shown two main distribution centers, the larger one in the Tappan Zee and Croton-Haverstraw regions and the other in the upriver regions of Saugerties and Catskill ([Figure 4-15](#)). In 2008, however, the upper estuary was the larger distribution

center for yearling white perch. Lesser numbers of white perch in these age groups have been collected from the middle estuary.

Weekly length statistics for young-of-year white perch collected in 2008 showed increasing growth from July through August with only a slight increase through the fall months ([Figure 4-16](#), [Appendix Tables F-4 through F-6](#)). The zigzag pattern in the growth curve may reflect size selectivity of the various sampling gears used in the surveys.

#### 4.4 ATLANTIC TOMCOD

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

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

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

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.

March sampling in the 2008 LRS collected YSL mainly in the middle estuary regions from West Point to Croton-Haverstraw ([Figure 4-17](#), [Appendix Tables E-49 through E-66](#)). PYSL were collected in March and April predominantly in the lower estuary to the West Point region ([Figure 4-17](#)). Juvenile Atlantic tomcod collected in the 2008 LRS were most abundant in May in the lower estuary regions ([Figure 4-18](#)). Although some juvenile tomcod remain in the Hudson River throughout the summer, some proportion of the population may move out of the lower estuary into New York Bay and Raritan Bay when water temperatures rise during late May and June. The 2008 FJS collected juvenile Atlantic tomcod primarily in middle and lower estuary during July and the few juvenile Atlantic tomcod collected in the 2008 BSS were found in the

lower estuary in July (Figure 4-18). The few yearling and older Atlantic tomcod collected in the 2008 monitoring program were found in the lower estuary in summer and fall (Figure 4-19).

Comparing the temporal distribution of early life stages of Atlantic tomcod in 2008 with the long-term database (beginning in early May) available from previous years (1974-2007), the 2008 distribution for PYSL was consistent with the long-term record showing that most were collected in early May (Figure 4-20). However, in 2008 YOY distribution was slightly later than the historic pattern with more YOY collected in late May rather than early May.

The geographical distribution of early life stages of Atlantic tomcod in the 2008 LRS was upriver from the primary distribution in the long-term pattern (Figure 4-21). Peak abundance for both PYSL and YOY occurred in the Indian Point region in 2008 rather than the Yonkers and Tappan Zee regions, as in the historic pattern. YOY Atlantic tomcod distribution has historically extended into the middle estuary and did so in 2008. The historical geographical distribution index based on the FJS for YOY and yearling-and-older Atlantic tomcod showed two distribution peaks, one in the Yonkers and Tappan Zee regions and the other further upriver in the West Point region (Figure 4-22). In 2008, the distribution pattern for YOY Atlantic tomcod was similar to the long-term pattern, except more YOY were found upriver in the Tappan Zee and Cornwall regions. Yearling-and-older Atlantic tomcod were collected mainly in the Tappan Zee and Indian Point regions in 2008.

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 2008, the weekly length statistics obtained from the monitoring program exemplified this pattern, showing more rapid growth in the spring and fall than during the summer (Figure 4-23, Appendix Tables F-7 through F-9). Juvenile tomcod generally double their summer length by December to a mean total length approximately 6 in. Most of the juvenile Atlantic tomcod in the Hudson River are sexually mature by the end of December and reproduce in early January. Following the period of rapid growth during the fall, mature YOY migrate upriver to spawn.

#### 4.5 BAY ANCHOVY

Bay anchovy (*Anchoa mitchilli*) is a small, slender fish, from 1.5- to 4-in. long, that is ubiquitous in shallow coastal waters of North America from southern Maine to the Yucatan Peninsula. They have a wide salinity tolerance from fresh water to more than twice the salinity of normal sea water, but they prefer salinities found at seaward ends of estuaries. Where temperatures do not drop below 41°F during the winter, bay anchovy remain in the estuaries throughout the year (Wang and Kernehan 1979).

However, north of Delaware Bay, where water temperatures go below 41°F during the winter, National Marine Fisheries Service trawl data indicate a movement of bay anchovy out of coastal estuaries and southward during the fall, resulting in an overwintering distribution ranging from Cape Hatteras to Delaware Bay and the virtual absence of bay anchovy from the inshore continental shelf of New York and New Jersey during the winter months (Voughlitois 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 macro-zooplankton, 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 inches. 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 Kull, and the Upper and Lower New York bays as well as throughout Long Island Sound.

Within the Hudson River, bay anchovy eggs are most abundant in the Battery through Tappan Zee regions from June through July (Figure 4-24, Appendix Tables E-67 through E-84). 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 the summer and the center of their distribution shifts upriver compared to that of eggs and YSL (Figure 4-24).

Bay anchovy are about 1/2 in. long at the beginning of the juvenile stage. Juvenile bay anchovy are found in the Hudson River estuary from mid-August through October and as far upriver as Albany (Schmidt 1992). During 2008, most of the YOY population was located downstream of the Cornwall region and were collected from July into October (Figure 4-25). Yearling and older bay anchovy were much less abundant in collections than YOY and they were caught more frequently in the summer than during fall in the lower estuary (Figure 4-26).

Comparing the temporal distribution of early life stages of bay anchovy in 2008 with the years when LRS sampling included the Battery region (1988-2007), the 2008 egg distribution, which began in early June, peaked earlier than the long-term trend (Figure 4-27). A few YSL bay anchovy were collected in early June and early July 2008. PYSL distribution in 2008 was also earlier than the long-term pattern, peaking in early July. YOY distribution in 2008 was similar to the historic trend extending from late July into October, with most collected in late August (Figure 4-27).

The geographical distribution of bay anchovy early life stages in 2008 was very consistent with the distribution pattern seen over the 1988-2007 period with greatest egg abundance in the lower estuary and PYSL abundance distributed from the Battery to Indian Point regions (Figure 4-28). The 2008 YOY geographical distribution from the LRS was similar to the historic

pattern with peak abundance in the Tappan Zee region. The 2008 geographical distribution of YOY bay anchovy in the BSS was also similar to the 1974-2007 long-term pattern with peak abundance in the Tappan Zee region (Figure 4-29). Yearling and older bay anchovy were also collected in the Tappan Zee region in 2008, whereas in the past, most were found in just the Yonkers region.

Weekly length statistics for bay anchovy juvenile life stage collected in 2008 showed an increase in growth during early summer, lesser growth during August and September as later spawned fish were recruited to the sampling gear, and declining growth in the late fall (Figure 4-30, Appendix Tables F-10 through F-12). The wide range in size (up to 2 in.) during a collection period reflects the protracted spawning period of bay anchovy.

#### 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.

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

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

Peak spawning activity for American shad in the Hudson River occurs during May in the upper estuary. Shad have been reported to spawn on dark afternoons or evening hours over shallow, broad flats washed by moderate currents in the main body of coastal rivers (Leggett 1976). At present shad are not known to utilize Hudson River tributaries, the Mohawk River, or the upper Hudson River for spawning (Schmidt et al. 1988), although historically the Mohawk and upper Hudson may have been part of the shad spawning and nursery range. During 2008, most American shad eggs were collected from Albany to Hyde Park from late April to late May (Figure 4-31, Appendix Tables E-85 through E-102).

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. The downriver dispersal was apparent during 2008, with YSL American shad found primarily in the upper estuary between Kingston and Albany during May and PYSL found further downriver from late May into June (Figure 4-31).

During 2008, YOY shad appeared to have been fully recruited to the beach seine gear by June with high abundance in the upper and middle estuary, but primarily in the upper estuary for the LRS gear and the upper and middle estuary for the FJS gear (Figure 4-32). Few yearling and older American shad were collected in 2008 (Figure 4-33), since adult spawning fish (3- to 6-year-old fish) effectively avoid the juvenile gear.

Comparing the temporal distribution of early life stages of American shad in 2008 with previous years (1974-2007), the 2008 distribution for eggs was later than the historic pattern with peak abundance in late May rather than mid-May (Figure 4-34). YSL abundance in 2008 was similar to the historic occurrence trend from mid-May to early June, but more were collected in late May than in the past. PYSL abundance peaked in mid-June 2008, slightly later than the long-term pattern. YOY were collected beginning in late June. The geographical distribution of American shad early life stages in 2008 was generally consistent with the long-term record with greatest distribution in the upper estuary, although peak distributions for eggs and YSL were further downriver than in the past and PYSL were further upriver than in the past (Figure 4-35). YOY American shad collected in the 2008 LRS were predominately found in the Catskill region rather than distributed throughout the upper and middle estuary.

The long-term geographical distribution of YOY American shad in the BSS showed tri-modal peaks, one in the lower estuary (Tappan Zee and Croton-Haverstraw), one in the mid-estuary (Cornwall and Poughkeepsie), and one in the upper estuary (Saugerties, Catskill, and Albany) (Figure 4-36). The 2008 geographical distribution of YOY American shad was concentrated in the middle estuary region of Cornwall, with fewer YOY found in either the upper or lower estuary than in the past.

Weekly length statistics for YOY American shad collected in 2008 showed steady growth during the spring and early summer and slower growth in the late summer and fall (Figure 4-37, Appendix Tables F-13 through F-15). At the time they emigrate from the Hudson River at the end of the summer, juvenile shad range from 3 to 4 in. long. This emigration is triggered by declining water temperatures and may be related to size (Schmidt et al. 1988); larger juveniles may tend to emigrate earlier. The shad emigration is a gradual movement of the population seaward over several months. Shad emigrate from the estuary earlier than either of the other two anadromous herrings commonly found in the Hudson River, alewife and blueback herring; and Schmidt et al. (1988) speculated that the earlier migration might be a behavioral adaptation that reduces competition with juveniles of the other two herring species.

#### **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. When juveniles of these two species reach sufficient size, they are differentiated by the size of the eyes and the mouth morphology. The differentiated juveniles are discussed separately below. Occasionally other members of the Clupeidae family, such as Atlantic menhaden, which are also difficult to distinguish during the early life stages may be included in this *Alosa* spp. grouping.

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

Alewife eggs are semidemersal, slightly adhesive, but easily torn free and carried by currents. The egg diameter is about 1/16 in. Hatching takes 2-15 days depending upon temperature (Smith 1985). Blueback herring produce 45,000-350,000 eggs per female. The eggs are 1/16 in. in diameter and adhesive upon release, but they may later become dislodged and be pelagic. Development proceeds rapidly and hatching occurs in 2-3 days. Newly hatched blueback herring are 1/8 in. long and the yolk-sac is absorbed in about 4 days. At the beginning of the PYSL stage, the larvae are about 3/16 in. long.

In the Hudson River during 2008, peak abundance of *Alosa* spp. eggs occurred in the upper estuary at Albany in early May (Figure 4-38, Appendix Tables E-103 through E-114). YSL and PYSL were also most abundant in the upper estuary in May with PYSL found throughout the middle estuary by late May. Individuals present in the lower estuary were probably Atlantic menhaden, another member of the Clupeidae family. YOY *Alosa* spp. were found mainly in the upper and middle estuary in late June and July (Figure 4-39).

Comparing the temporal distribution of early life stages of *Alosa* spp. in 2008 with previous years (1974-2007), the 2008 peak abundance for eggs occurred in mid-May, which was similar to the historical pattern. YSL and PYSL occurrence were within the historical range, peaking in early May for YSL and mid-June for PYSL (Figure 4-40). No YOY *Alosa* spp. were collected in the 2008 LRS.

The geographical distribution of *Alosa* spp. early life stages in previous years (1974-2007) showed that most of the *Alosa* spp. eggs are found in the Catskill and Albany regions and the larvae gradually disperse downriver throughout the estuary (Figure 4-41). The 2008 distribution is consistent with this long-term record. Geographic distribution of YOY *Alosa* spp. from the BSS in the historic record indicated abundance in the upper estuary and a secondary peak in Cornwall (Figure 4-42). In 2008, all YOY in the BSS were collected before the temporal limits (mid-August to October) of this index and were found primarily in the upper and middle estuary.

#### **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 0.5 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).

YOY alewife began appearing in the 2008 LRS in late June mainly in the upper estuary ([Figure 4-43](#), [Appendix Tables E-115 through E-126](#)). YOY alewife were most abundant in the upper and middle estuary in the 2008 FJS during the early summer and in the upper and middle estuary in the 2008 BSS during the summer and early fall. The few yearling and older alewife collected in the 2008 monitoring program were found throughout the estuary during the spring and summer. Those found in the spring were presumably on their spawning migration ([Figure 4-44](#)). Very few yearling and older alewife were collected in the estuary by fall 2008.

Comparing the geographical distribution of YOY alewife based on the 2008 BSS with previous years (1974-2007), the 2008 distribution of juveniles agreed with the historic tri-modal pattern, however, more juveniles were concentrated in the Croton-Haverstraw region than in the past ([Figure 4-45](#)). The historic pattern suggested a more even distribution throughout the estuary, with tri-modal peaks in the Tappan Zee/Croton-Haverstraw, Cornwall, and Saugerties/Catskill regions.

Weekly length statistics for YOY alewife collected in 2008 showed slow, steady growth during the summer and a leveling off of growth beginning in October ([Figure 4-46](#), [Appendix Tables F-16 and F-17](#)). The zigzag pattern in the growth curve may reflect size selectivity of the various gears used in the surveys.

#### **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 2008, early juveniles collected in the LRS were found in the upper and middle estuary beginning in June (Figure 4-47, Appendix Tables E-127 through E-138). YOY blueback herring began appearing in the 2008 FJS and 2008 BSS in early July and late July, respectively. They were present in the upper and middle estuary only until October when collections ceased, possibly reflecting the downriver migration out of the estuary. A few yearling and older blueback herring were collected in 2008 during the spring spawning run, mainly in the upper estuary (Figure 4-48).

Comparing the geographical distribution of juvenile blueback herring based on the 2008 BSS with previous years (1974-2007), the 2008 distribution of YOY was similar to the long-term record with most of the population in the upper estuary regions and extending down to the middle estuary (Figure 4-49). In 2008, more juveniles were found in the middle estuary regions of Poughkeepsie and Cornwall than in the past.

Weekly length statistics for juvenile blueback herring collected in 2008 showed slow, steady increase in growth during the summer and early fall and an increase in growth in October (Figure 4-50, Appendix Tables F-18 and F-19).

#### **4.10 GIZZARD SHAD**

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

Gizzard shad spawn when the water temperature reaches 50-70°F (April-June, depending upon the location). Adults mill near the surface and spawning sometimes takes place in water less than a foot deep. The eggs sink slowly and adhere to the bottom. The eggs are less than 1/16 in. in diameter and the number of eggs produced by adult females ranges from 59,000 to almost 400,000. Hatching occurs from 1-1/2 to 7 days, depending upon the temperature. Gizzard shad larvae are generally pelagic and widely distributed in many types of habitat. They begin to eat by the fifth day after hatching and feed on 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 YOY gizzard shad were collected in the 2008 BSS predominantly in the middle estuary in the summer ([Figure 4-51](#), [Appendix Tables E-139 through E-146](#)). However, adult gizzard shad appear regularly in winter impingement samples at all of the power plants on the Hudson River. These fish may be emigrants from established populations located in the Mohawk River (Smith 1985) or there may be a small resident population in the lower Hudson River. The few yearling and older gizzard shad recorded in river surveys in 2008 were collected in beach seines in the middle estuary primarily in the summer and early fall ([Figure 4-52](#)).

Comparing the geographic distribution of gizzard shad during the 2008 BSS with the long-term record (1974-2007), peak 2008 distribution for YOY differed from the historic trend in that most were found in the middle estuary and fewer in the upper estuary ([Figure 4-53](#)). Abundance of yearling and older gizzard shad in 2008 agreed with the long-term concentration in the middle estuary, but in 2008 peak abundance occurred in the upriver region of Saugerties.

#### **4.11 RAINBOW SMELT**

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

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

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

The eggs are approximately 1/16 in. or less in diameter and sink to the bottom, where they stick in clusters to pebbles or whatever they happen to touch (Bigelow and Schroeder 1953). Rainbow smelt eggs hatch in about a week to almost a month, depending on temperature and, historically, eggs have been present in the Hudson River ichthyoplankton catches for about two weeks, which suggests a short spawning period. No rainbow smelt eggs were collected in 2008.

Newly hatched larvae are about 1/5 in. long. These larvae are carried downstream and out of the tributaries by current flows. In the Hudson River, YSL have been found in late April throughout the upper half of the Hudson River estuary but none were collected in 2008. The yolk-sac is absorbed when the fish are about 1/4 in. in length. PYSL in the Hudson River were commonly found in the upper and middle estuary and were abundant from late April through June but none were collected in 2008. 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 historically found in the Hudson River from mid-June to August in the middle and lower estuary but, again, none were collected in 2008. 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 have been reflected in BSS and FJS collections in the past where beach seines conducted during the day collected no rainbow smelt and fall shoals sampling conducted at night collected juveniles primarily in the middle estuary regions in the early summer. By late summer the young smelt leave the estuary. No yearling and older rainbow smelt were collected in the Hudson River in 2008 ([Figure 4-54](#), [Appendix Tables E-147 through E-152](#)). Historically they were found mainly in the Indian Point through Hyde Park regions.

The long-term temporal distribution record (1974-2007) of the early life stages of rainbow smelt in the Hudson River showed a short occurrence of eggs and YSL in early May and a protracted occurrence of PYSL throughout May and June ([Figure 4-55](#)). The historical geographic distribution (1974-2007) of the early life stages of rainbow smelt demonstrate a downriver migration from peak egg abundance in Saugerties to middle and lower estuary presence of YOY ([Figure 4-56](#)). The long-term distribution record (1979-2007) from the FJS indicated that most YOY and yearling and older smelt were found in the middle estuary ([Figure 4-57](#)).

#### 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 2008 hogchoker eggs were collected primarily in the Yonkers region in June ([Figure 4-58](#), [Appendix Tables E-153 through E-170](#)).

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. In 2008, YSL were also collected from Yonkers to Croton-Haverstraw in June, but PYSL were collected further upriver in middle estuary regions in June and July ([Figure 4-58](#)). YOY hogchoker in 2008 were found primarily in the middle estuary during late summer and fall ([Figure 4-59](#)). Yearling and older hogchoker were collected throughout the Hudson River in 2008 but were most abundant in the middle estuary ([Figure 4-60](#)).

The 2008 geographical distribution of YOY hogchoker in the FJS was similar to the long-term trend (1979-2007) which showed a presence in most regions of the estuary, but in 2008 more YOY were collected in the middle estuary region of Cornwall than in the past ([Figure 4-61](#)). Yearling and older hogchoker were also found throughout the estuary with peak abundance in the Cornwall region in 2008, not in the Tappan Zee region as in the historic pattern.

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

#### **4.13 SPOTTAIL SHINER**

Spottail shiner (*Notropis hudsonius*) is a small, silvery, freshwater minnow that reaches a maximum total length of over 5 in. in the Hudson River. It is usually recognizable by a large oval spot at the base of the tail, but in large individuals the spot is sometimes small and somewhat masked by silvery pigment. It occurs in a variety of freshwater habitats from large lakes and rivers to small streams and is widely distributed in Canada and the United States (Smith 1985). Spottail shiner is a freshwater species and does not enter marine coastal waters. Thus, the Hudson River population is probably isolated from those in other coastal rivers along the East Coast of the United States.

Adult spottail shiner may form large spawning aggregations over sand or gravel substrates in shallow water or at the mouths of tributaries. In the Hudson River adult spottail shiner appear in the ichthyoplankton samples from the upper, freshwater regions of the estuary during April. 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.

Juvenile spottail shiner first appeared in the 2008 BSS during June and were most abundant in late July in the shorezone above the Cornwall region ([Figure 4-62](#), [Appendix Tables E-171 through E-182](#)), which is also the portion of the estuary with the greatest number of tributaries.

Yearling and older spottail shiner were also found throughout the middle and upper Hudson River generally above Cornwall in 2008 (Figure 4-63).

Comparing the geographical distribution of YOY and yearling and older spottail shiner based on the BSS in 2008 with previous years (1974-2007), the 2008 distribution of these life stages was consistent with the long-term record of major distribution in the upper estuary with lesser concentrations in the middle estuary, except that more YOY spottail shiner were found in the Saugerties region in 2008 than in the long-term record and more yearling and older spottail shiner were collected from the Albany region in 2008 (Figure 4-64).

Weekly length statistics for juvenile spottail shiner collected in 2008 show a rapid increase in length from June to September and a leveling off of growth in the fall as the fish were recruited to the adult stage (Figure 4-65, Appendix Tables F-20 and F-21). The erratic growth pattern for some weeks can be attributed to a few individuals collected during the FJS sampling weeks.

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 oxyrinchus*, has two recognized subspecies, *A. o. oxyrinchus* 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 1997). Tagging studies reported by Dovel and Berggren (1983) indicate that Atlantic sturgeon disperse over great distances and spend at least part of their lives in other estuary systems. Atlantic sturgeon tagged in the Hudson River have been recaptured as far north as Marblehead, Massachusetts, and as far south as Ocracoke, North Carolina. Many of the tags were returned by Delaware Bay and Chesapeake Bay commercial fisherman. Presumably, Atlantic sturgeon that spawned in other rivers and estuaries find their way into the Hudson River.

Atlantic sturgeon are long-lived, slow-maturing, large fishes. Dovel and Berggren (1983) reported that by age 29, Atlantic sturgeon averaged 7.8 ft. The largest known Atlantic sturgeon was a 14-ft specimen weighing 811 lb from Saint John River, New Brunswick (Van Den Avyle 1984). While in the Hudson River the maximum reported age is 36 (Van Eenennaam et al. 1996), the oldest known Atlantic sturgeon is a 60-year-old individual from the St. Lawrence River (Gilbert 1989). Adults are large fishes with barbels extending across most of the width of the snout, heavy bony plates (called scutes) covering the body, and an extended upper lobe of the tail fin.

Male Atlantic sturgeon reach maturity at about 12 years and females at 18-19 years (Dovel and Berggren 1983), although some females may reach maturity at 15 years (Van Eenennaam et al. 1996). They are believed to spawn at intervals ranging from 1 to 5 years (Bain 1997); 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 of adults to marine waters began in August and was completed by October (Nack and Bain 1996).

Atlantic sturgeon produce large numbers of eggs. Fecundity estimates derived from a number of river systems indicate that Atlantic sturgeon produce between 0.8 and 3.75 million eggs per female and that the number of eggs is closely related to the weight of the fish. 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). Hatching time ranges from about 4 days at about 20 C (Dean 1895) to 7 days at 17.8 C (Vladykov and Greeley 1963).

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

Juvenile Atlantic sturgeon remain in the Hudson estuary for 2-6 years before migrating to marine waters. During the first 3 years of life, they quickly grow to over 2 ft (Bain 1997). From July through September, juvenile Atlantic sturgeon are distributed over much of the Hudson estuary (Bain 1997), but one section of the estuary (RM 43-48) contained high numbers of juveniles (Haley et al. 1996). As water temperatures drop in the fall, juveniles form an overwintering congregation in deep waters (>25 ft) between the Bear Mountain Bridge and the George Washington Bridge (Dovel and Berggren 1983).

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

The Atlantic sturgeon has been 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).

Evidence of a decline in the Hudson River estuary stock of Atlantic sturgeon in recent years comes from two population estimates. The population of immature Atlantic sturgeon in the



Hudson River estuary was estimated at 14,500 to 36,000 fish for the 1976 year class at age one (Dovel and Berggren 1983). Kahnle and Hattala (1998) estimated that there were 4,600 age zero Atlantic sturgeon in the estuary in 1994, a substantial decline from the abundance of the 1976 year class.

The Utilities' monitoring program in 2008 collected 27 Atlantic sturgeon. One YSL, one PYSL, and one yearling and older Atlantic sturgeon were collected in the LRS in the Hyde Park and Cornwall regions in June (Table 4-3, Figure 4-66). All of the remaining 24 yearling and older Atlantic sturgeon were caught in the FJS between Yonkers and Hyde Park (RM 23 to 77) from July to December (Figure 4-67, Appendix Tables E-183 through E-192).

#### 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). Nineteen distinct stocks of shortnose sturgeon are recognized, ranging in size from less than about 100 adults in the Merrimack River, Massachusetts to greater than about 38,000 (now 60,000 [Bain et al. 1998]) adults in the Hudson River, New York (NMFS 1998). Shortnose sturgeon are amphidromous, using mainly fresh and brackish waters, and only occasionally marine waters, during its life cycle (Bain 1997). 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, annual spawning has been suggested by tagging studies on the Hudson River that tracked shortnose sturgeon to the spawning grounds in successive years (Dovel et al. 1992).

During their spawning migrations, shortnose sturgeon move upriver as far as accessible habitat permits (Dovel et al. 1992). In the Hudson River, adult shortnose sturgeon reach the spawning grounds between Coeymans and Troy (RM 124-153) as early as the first week of April and spawning occurs from late April to early May (Bain 1997). After spawning, adults move downriver to feed and disperse over the tidal portion of the Hudson estuary, but are primarily south of Kingston (Bain 1997). 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 1997).

Shortnose sturgeon are broadcast spawners with external fertilization of eggs (NMFS 1987). Similar to Atlantic sturgeon, the eggs are demersal and adhere to objects on the river bottom within minutes of fertilization. Between 8 and 12 C, eggs hatch 13 days after fertilization. At 17 C, hatching occurs in 8 days (Buckley and Kynard 1981).

Research on shortnose sturgeon larval behavior indicates that hatchlings are photonegative and vigorously seek cover under any available structure immediately after hatching (Richmond and Kynard 1995). During the first 1-2 days following hatch, larvae denied or dislodged from cover will exhibit "swim-up and drift" behavior, which in the wild allows them to move short distances to seek available cover. At 9-12 days post hatch, larvae are 15 mm long (TL), the yolk sac is completely absorbed, and the fry are feeding on zooplankton (Buckley and Kynard 1981; Washburn and Gillis Associates 1981). By about 14-17 mm TL, shortnose sturgeon, resembling miniature adults, become photopositive and leave cover to swim in the water column, although remaining bottom oriented. In the wild, larvae of this size probably migrate downstream (Richmond and Kynard 1995).

Little information is available on the actual distribution of the early life stages of Hudson River sturgeon during their first growth season because of the infrequency of their capture and the difficulty in distinguishing between the two species of sturgeon. Data from 21 years of the LRS (1974-1994) document the collection of 186 larvae and early juveniles of both species (Con Edison 1997a). These data show two concentration areas of sturgeon larvae and early juveniles in the Hudson River 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, but shortnose sturgeon over 39 in. have been captured in the Hudson River (Hoff and Klauda 1979).

Juvenile shortnose sturgeon use a large portion of the Hudson estuary as nursery ground (Bain 1997). During the summer, more juvenile shortnose sturgeon were found in the relatively shallow, freshwater zone of the estuary around Poughkeepsie (RM 67-86) than in the deeper, more saline zone near West Point (RM 42-56) (Haley et al. 1996). By late fall and early winter, most juveniles occupy the broad region of the Hudson River near Haverstraw (RM 34-39) (Bain 1997). 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 1997).

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 1996). 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 has recommended that the status of the Connecticut, Delaware, and Hudson rivers' populations of shortnose sturgeon be changed from endangered to threatened (NMFS 1998).

The Hudson River estuary appears presently to contain the largest stock of shortnose sturgeon that has been reported anywhere. In the late 1970's, Dovel (1979) estimated the shortnose sturgeon population in the Hudson River estuary at 13,000 fish. Bain et al. (1995) estimated the adult population size to be 38,024, with lower and upper 95% confidence intervals of 26,427 and 55,072, respectively. This latter population estimate suggests a 2- to 4-fold increase in abundance since the late 1970's (NMFS 1998). Further refined analytical techniques indicate that the most appropriate population estimate based on this most recent study is 61,057 fish, 1-year-old and older (Bain et al. 1998). These estimates reflect those fish in the overwintering and spawning concentration areas and, thus are likely just a subset of the total adult population. Additionally, because shortnose sturgeon do not appear to spawn every year, the majority of the population may be non-spawners and, thus, not included in this population estimate.

The Utilities' monitoring program conducted during 2008 resulted in a total of 19 shortnose sturgeon collected in the LRS and FJS from Yonkers to Albany (RM 14 to 139) from May to December ([Figure 4-68](#), [Table 4-4](#), and [Appendix Tables E-193 through E-198](#)).

#### **4.16 WHITE CATFISH**

White catfish (*Ameiurus catus*) 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, and 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 and larvae were rarely collected during the Utilities' ichthyoplankton surveys. However, the 2008 LRS and FJS captured low numbers of YOY white catfish primarily in the upper estuary during the summer, then after migration, in the middle estuary by fall (Figure 4-69, Appendix Tables E-199 through E-210). Yearling and older white catfish were captured in low numbers during the 2008 surveys throughout the estuary (Figure 4-70).

The 2008 geographical distribution of YOY white catfish in the FJS differed from the 1979-2007 long-term trend of juveniles mainly in the upper Hudson River in that the 2008 peak occurred further downriver in the Cornwall through Kingston regions (Figure 4-71). In the historical pattern, yearling and older white catfish were found throughout the estuary, as was the case in 2008 (Figure 4-71). 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 2008 showed rapid growth from July to September with a leveling off in size during the fall as larger fish were able to avoid the sampling gear (Figure 4-72, Appendix Tables F-22 and F-23).

#### 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 2008 LRS, YOY weakfish were present from July through October from the

Battery to Croton-Haverstraw regions with greatest abundance in July (Figure 4-73, Appendix Tables E-211 through E-222). In the 2008 FJS, peak YOY abundance occurred in July with abundance declining through October when they gradually emigrated from the Hudson estuary. A few yearling and older weakfish were collected in the 2008 monitoring program in the lower estuary (Figure 4-74).

The 2008 geographical distribution of YOY weakfish in the FJS is similar to the 1979-2007 long-term trend in which the majority of weakfish were found in the lower estuary regions of Yonkers and Tappan Zee (Figure 4-75). Yearling and older weakfish were collected primarily in the Indian Point region in 2008, further upriver than in the past.

Weekly length statistics for juvenile weakfish collected in 2008 showed an overall rapid increase in growth in the early summer but declining growth through the fall (Figure 4-76, Appendix Tables F-24 and F-25). Decreasing lengths in the fall reflected entry of late-spawned fish to the year class. The zigzag pattern in growth resulted from the size-selectivity of the sampling gears.

#### **4.18 BLUEFISH**

Bluefish (*Pomatomus saltatrix*) is a predaceous oceanic fish species; in the western Atlantic Ocean its range is from Argentina to Maine and occasionally to Nova Scotia. In the New York Bight bluefish is a common inshore inhabitant that arrives in May and usually departs by November. North Atlantic bluefish migrate from New England to Cape Hatteras, North Carolina in summer and to the Florida area and the southern Gulf Stream in winter, but migration patterns have not been positively identified. During migrations, smaller fish migrate closer to shore than larger fish.

There are two major spawning aggregations in the mid-Atlantic: a spring spawning stock and a summer spawning stock. The degree to which the stocks are isolated is not known, but consistent morphological differences suggest some isolation of the stocks (Pottern et al. 1989). Most of the bluefish population in the New York Bight probably originates from the spring-spawning stock (Chiarella and Conover 1990). The spring spawners move into the waters where the Gulf Stream and the continental shelf water meet between northern Florida and Cape Hatteras. Bluefish spawn as they migrate northward. North of Cape Hatteras the adults move shoreward. The smaller spent bluefish may spend summers in the Chesapeake and Delaware bays and Albemarle Sound. Larger fish move north longer than the smaller bluefish and migrate farther. Some move into Long Island Sound and more northern areas. In autumn, bluefish migrate back to the wintering areas off south Florida and the south Atlantic (Pottern et al. 1989).

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

Some summer-spawned larvae have also been reported in the more saline parts of estuaries in the mid-Atlantic Bight. Summer-spawned juveniles may spend only about a month in estuaries,

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

Bluefish eggs are buoyant and pelagic and hatch in about 2 days. The newly hatched larvae are also pelagic and remain in offshore waters for 1-2 months before migrating shoreward toward shallow-water 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 2008, YOY bluefish were collected predominantly in the lower and middle estuary in June and July, but most had emigrated from the Hudson River above the George Washington Bridge by October ([Figure 4-77](#), [Appendix Tables E-223 through E-228](#)). Salinity intrusions into the estuary appear to be a major determinant of geographic distribution within the estuary. YOY bluefish are also abundant in areas of the estuary south of the George Washington Bridge and adjacent waterways, which are part of the larger, coastal distribution.

The 2008 geographical distribution of YOY bluefish in the BSS is consistent with the 1974-2007 long-term trend with the majority of fish collected in the lower estuary, especially in the shallow areas of the Tappan Zee and Croton-Haverstraw regions ([Figure 4-78](#)).

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.

[Link to References](#)



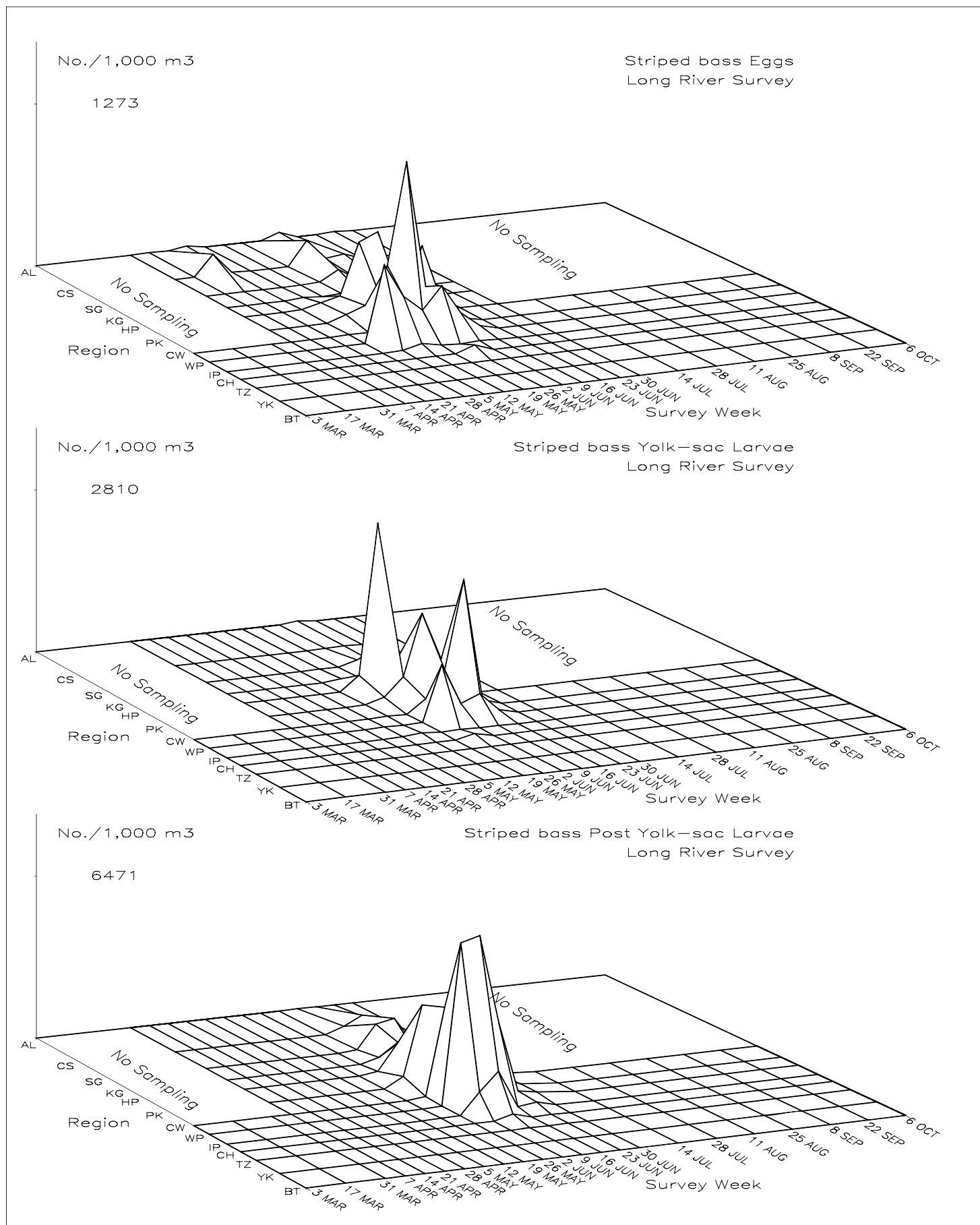


Figure 4-1. Spatiotemporal distribution of eggs, yolk-sac, and post yolk-sac larval striped bass in the Hudson River estuary based on the 2008 Long River Survey.

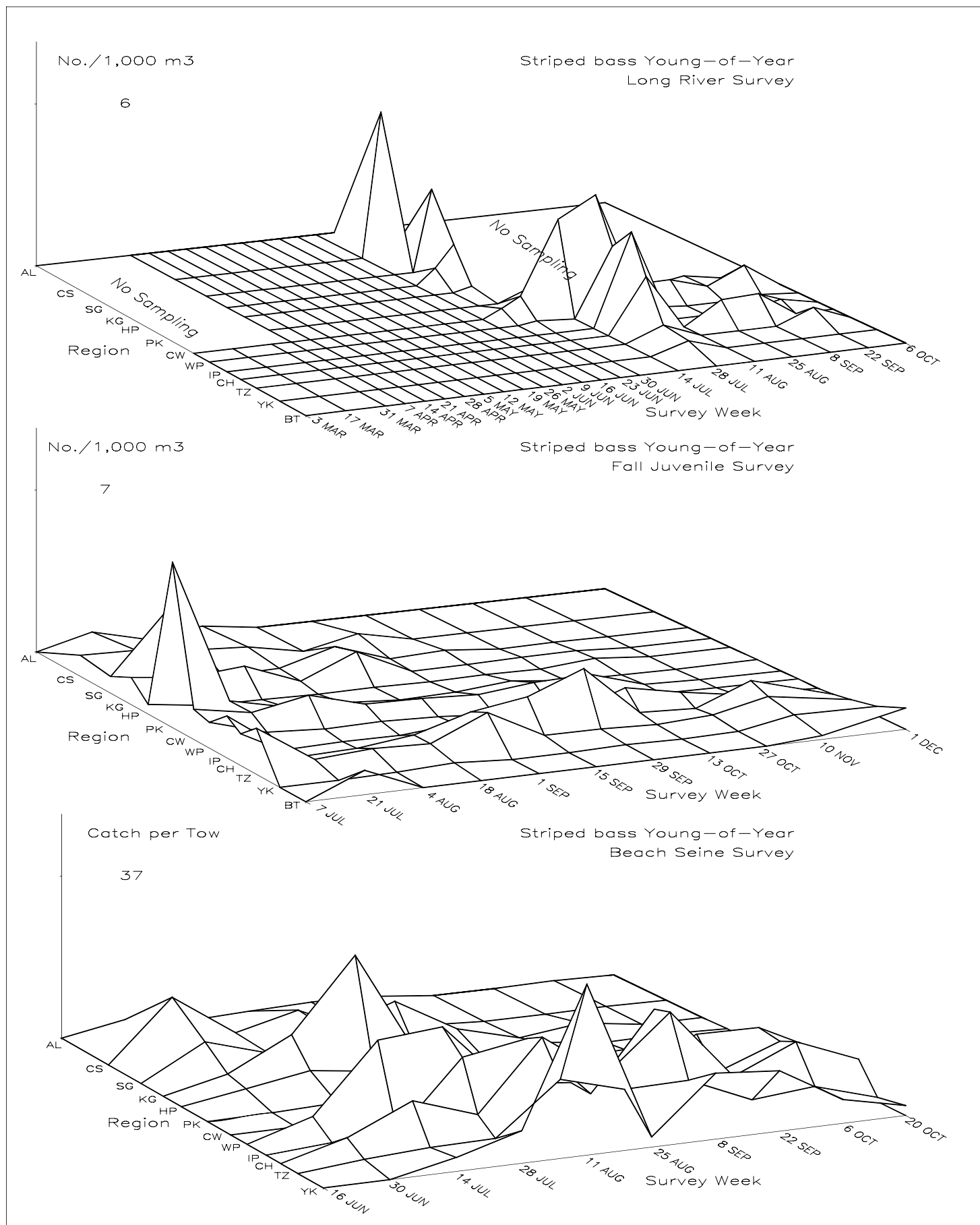


Figure 4-2. Spatiotemporal distribution of young-of-year striped bass in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.



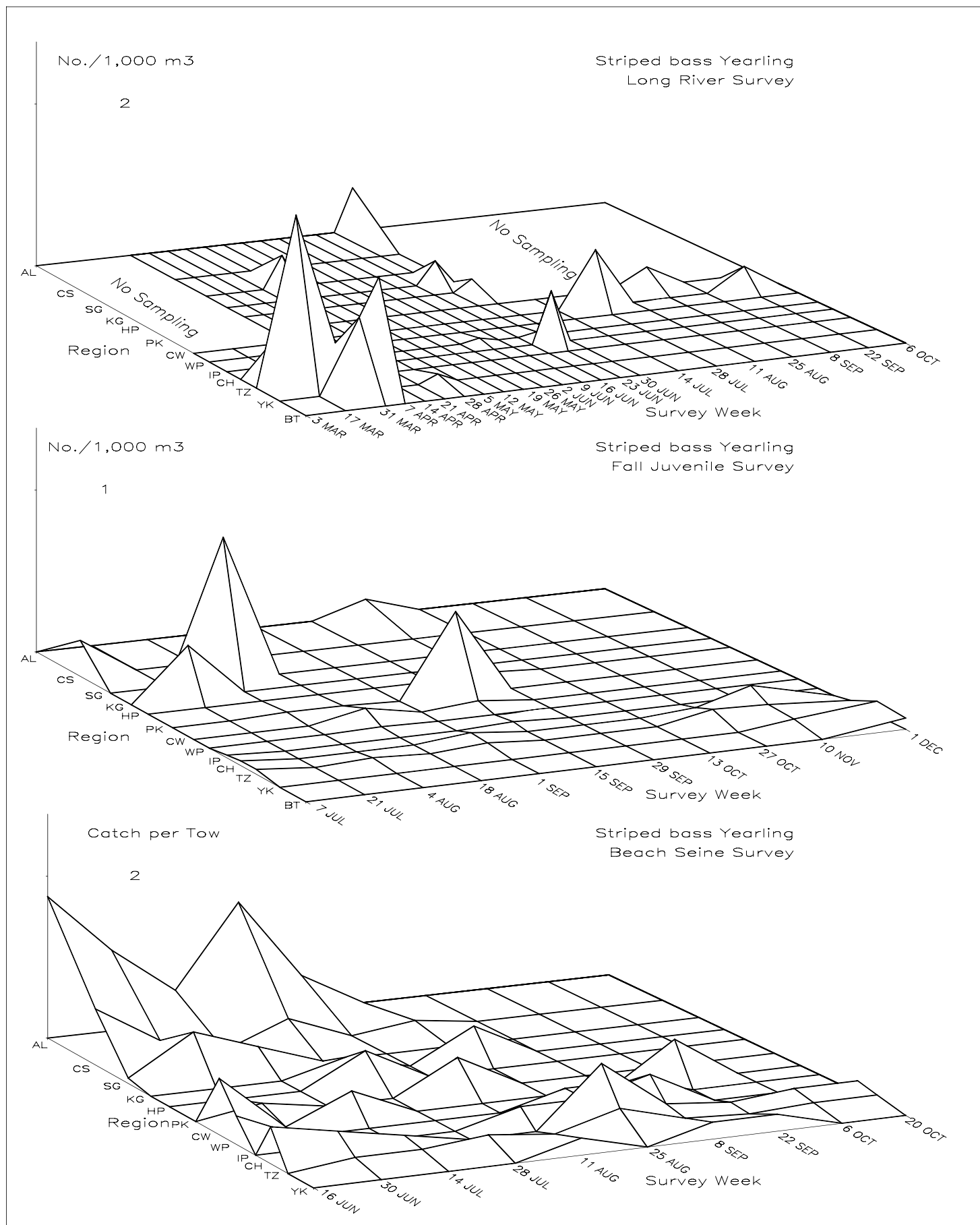


Figure 4–3. Spatiotemporal distribution of yearling striped bass in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.

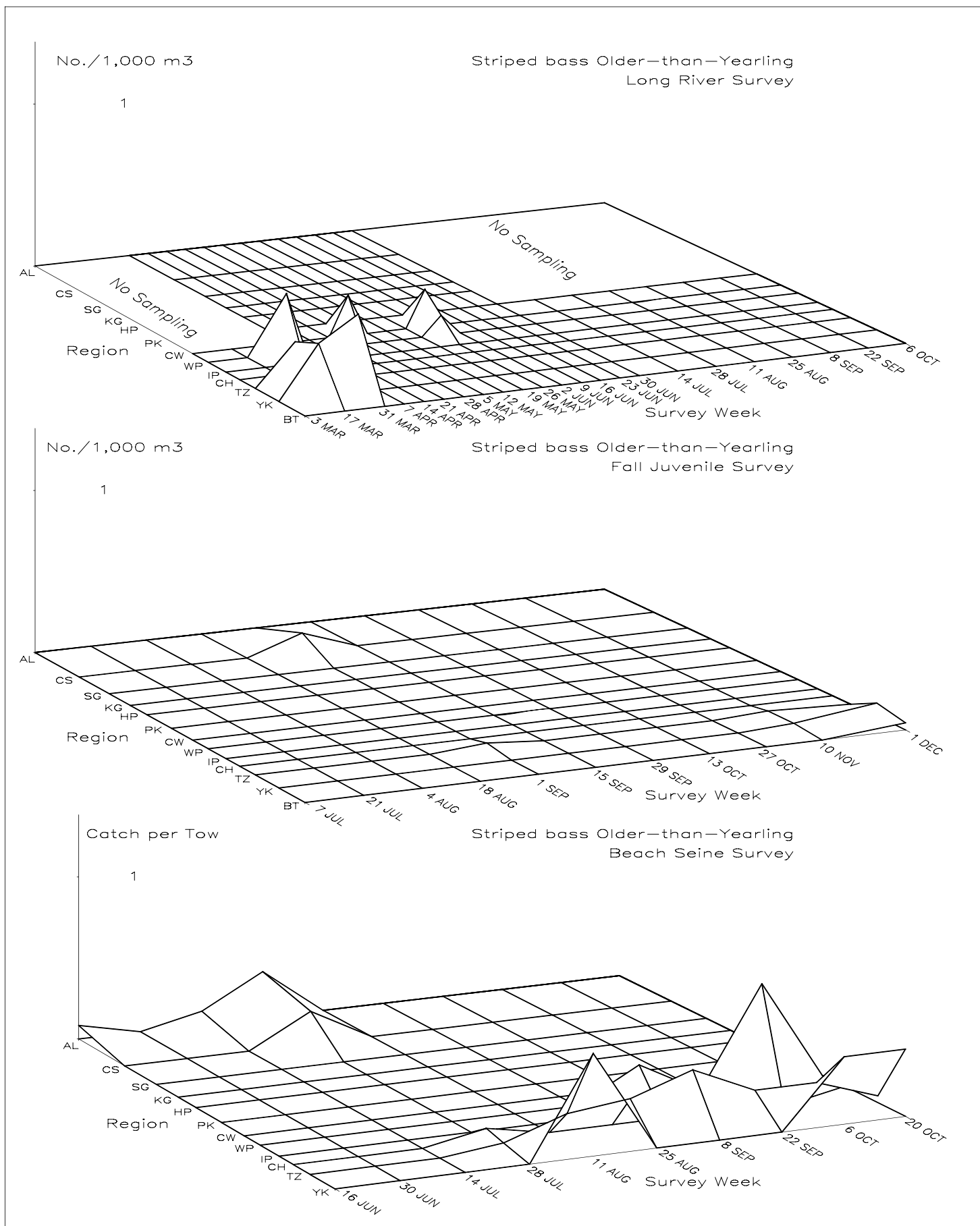


Figure 4-4. Spatiotemporal distribution of older-than-yearling striped bass in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.

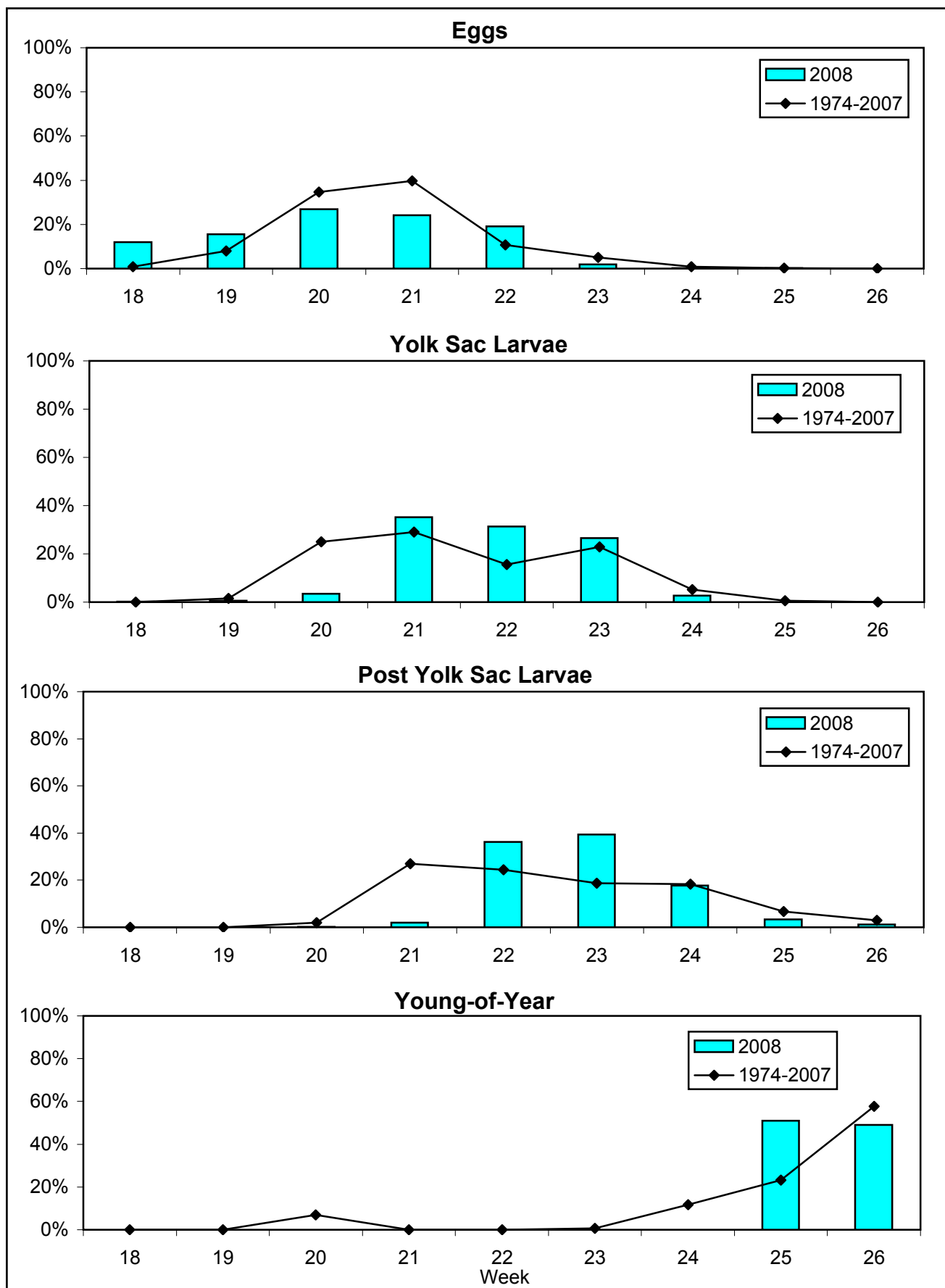


Figure 4-5. Temporal distribution indices for striped bass collected during Long River surveys of the Hudson River estuary, 1974-2008.

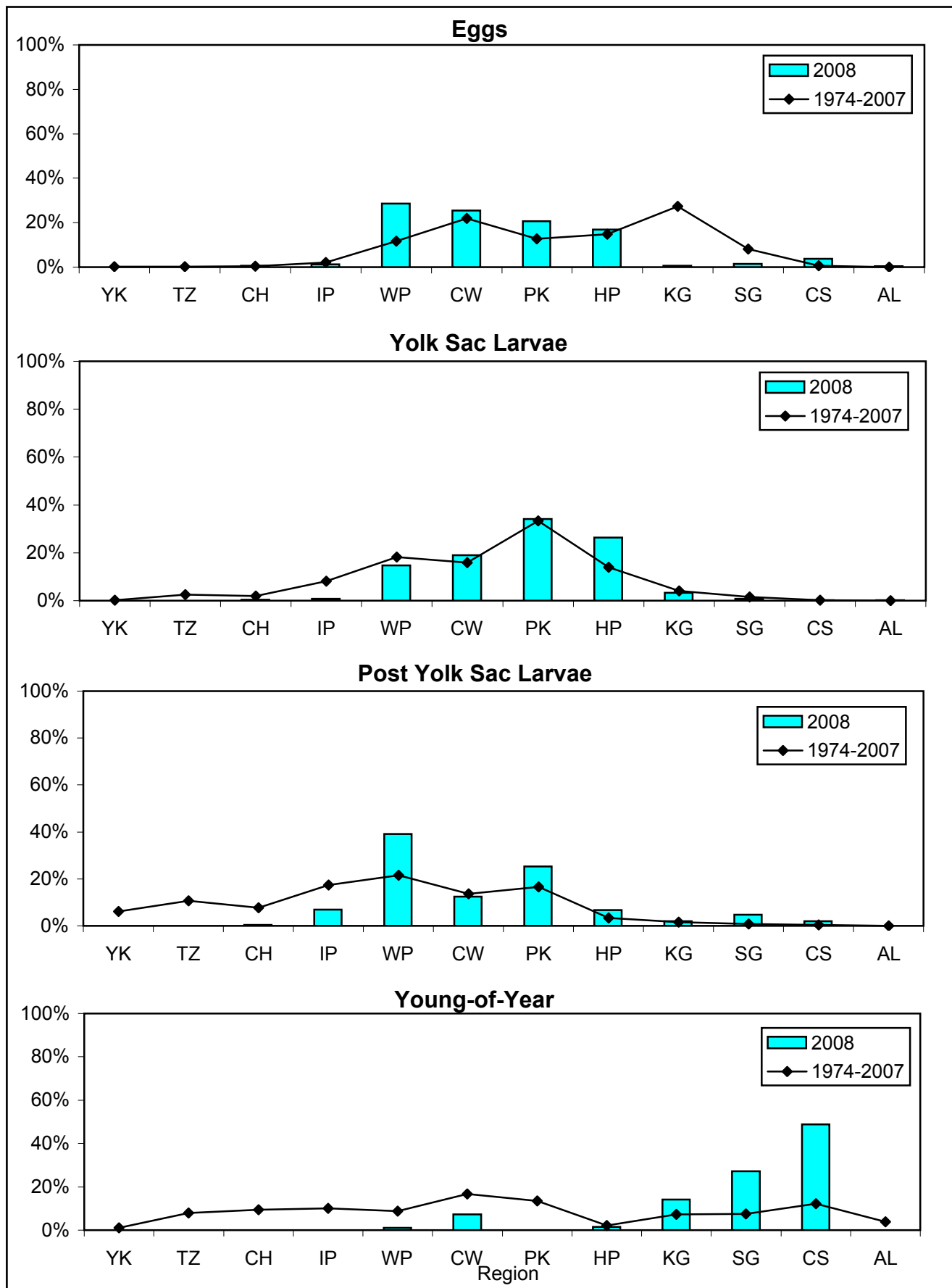


Figure 4-6. Geographic distribution indices for striped bass collected during Long River surveys of the Hudson River estuary, 1974-2008.

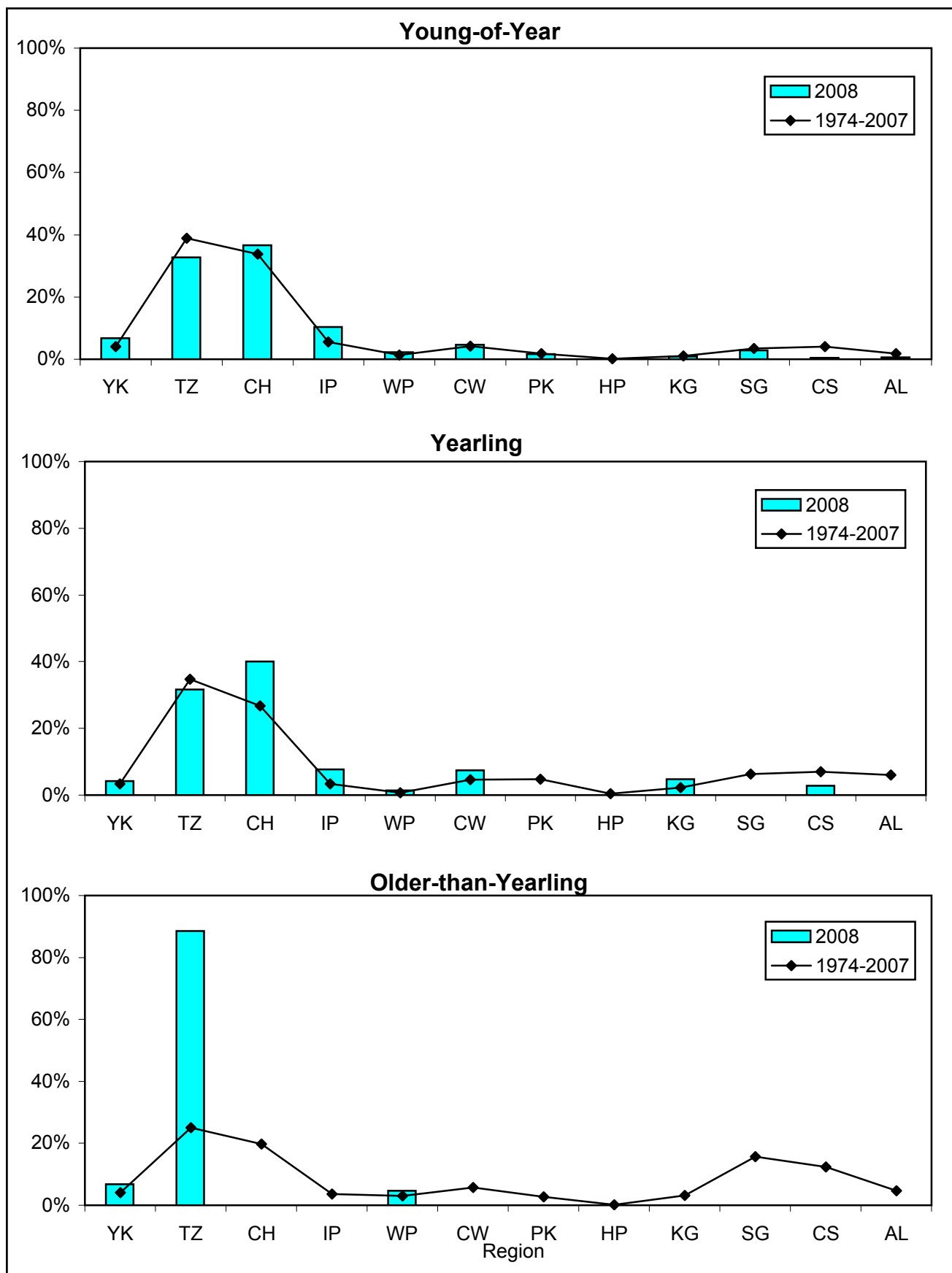


Figure 4-7. Geographic distribution indices for striped bass collected during Beach Seine surveys of the Hudson River estuary, 1974-2008.

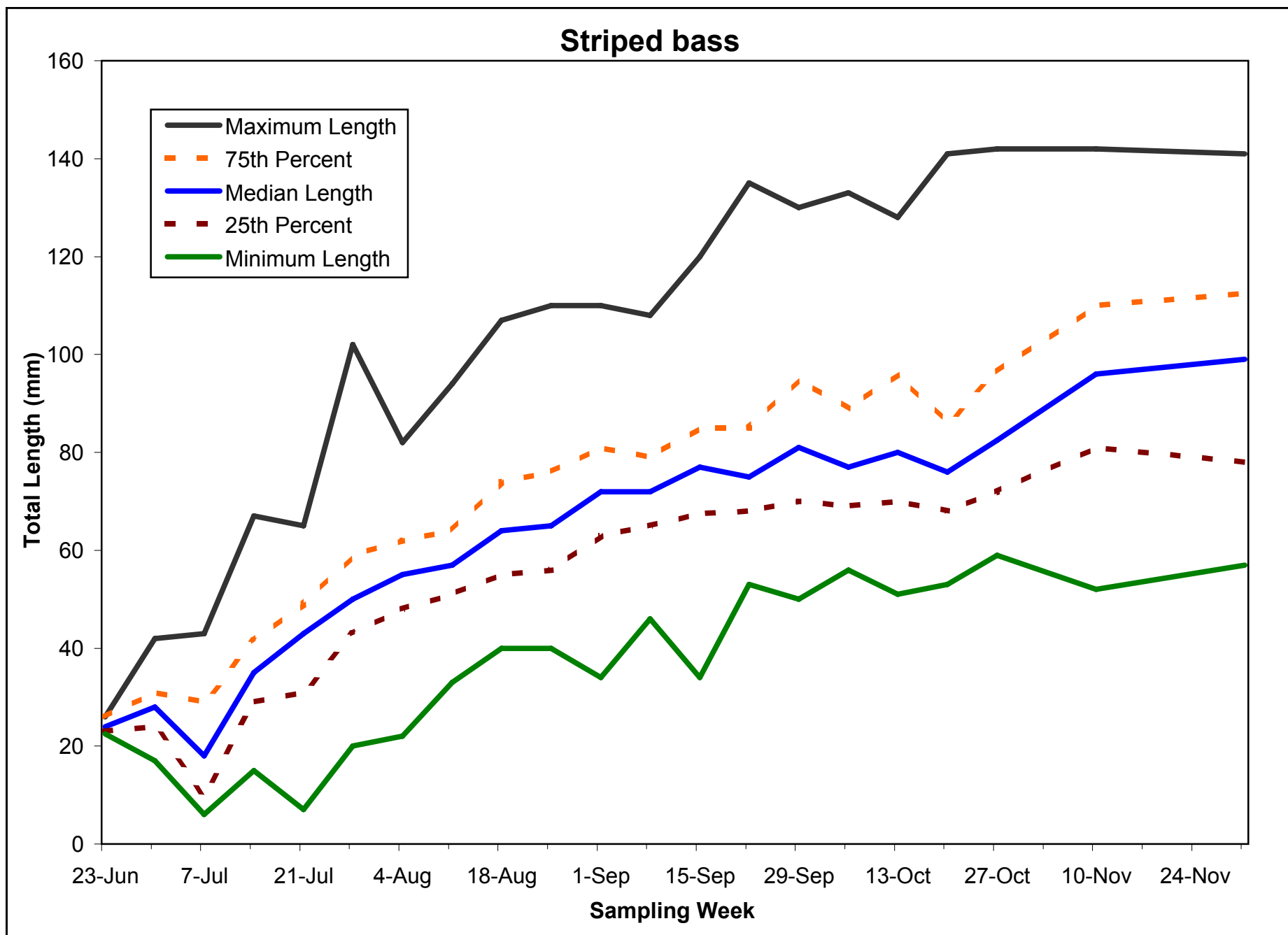


Figure 4-8. Weekly length statistics for young-of-year striped bass in the Hudson River estuary, 2008.

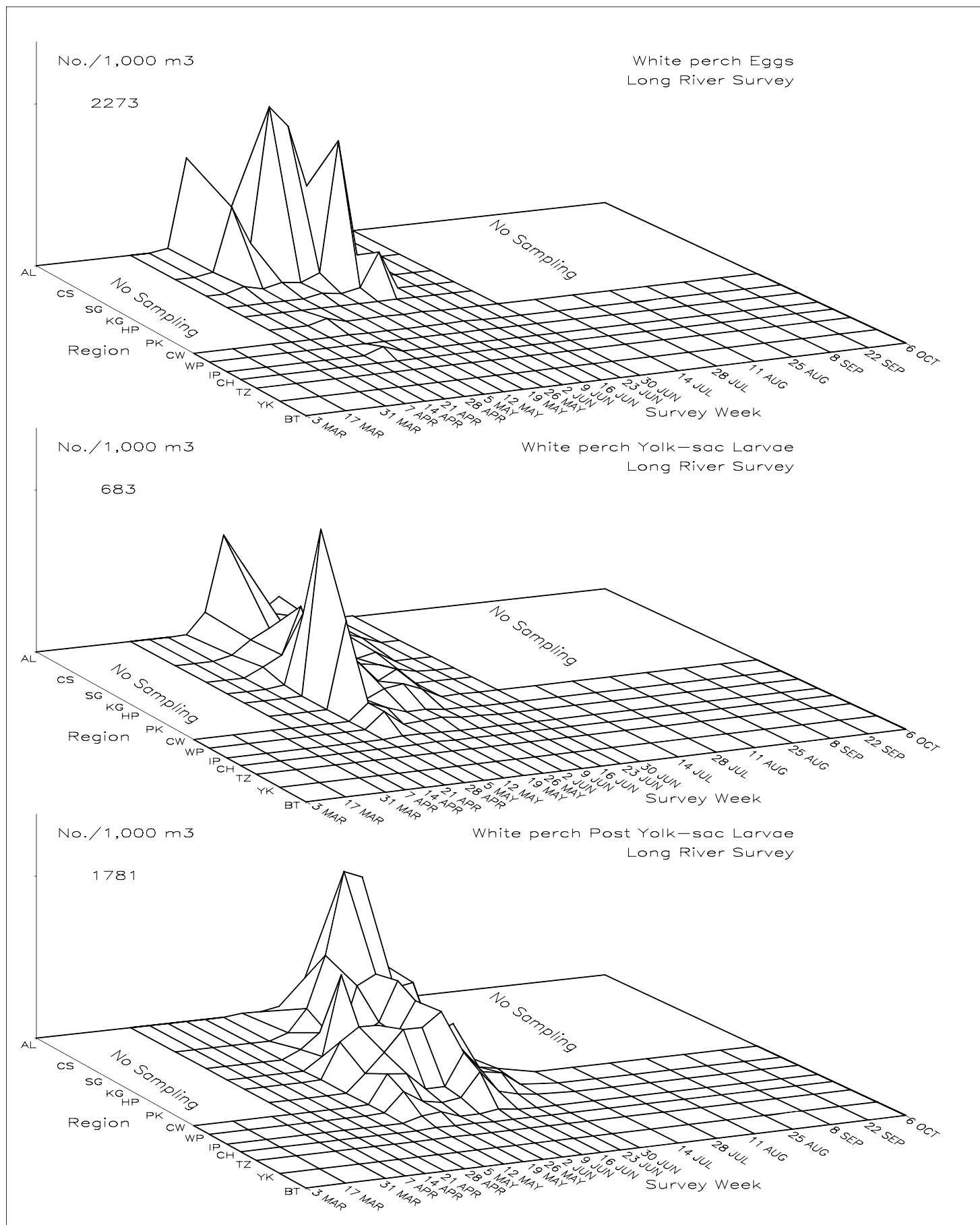


Figure 4-9. Spatiotemporal distribution of eggs, yolk-sac, and post yolk-sac larval white perch in the Hudson River estuary based on the 2008 Long River Survey.

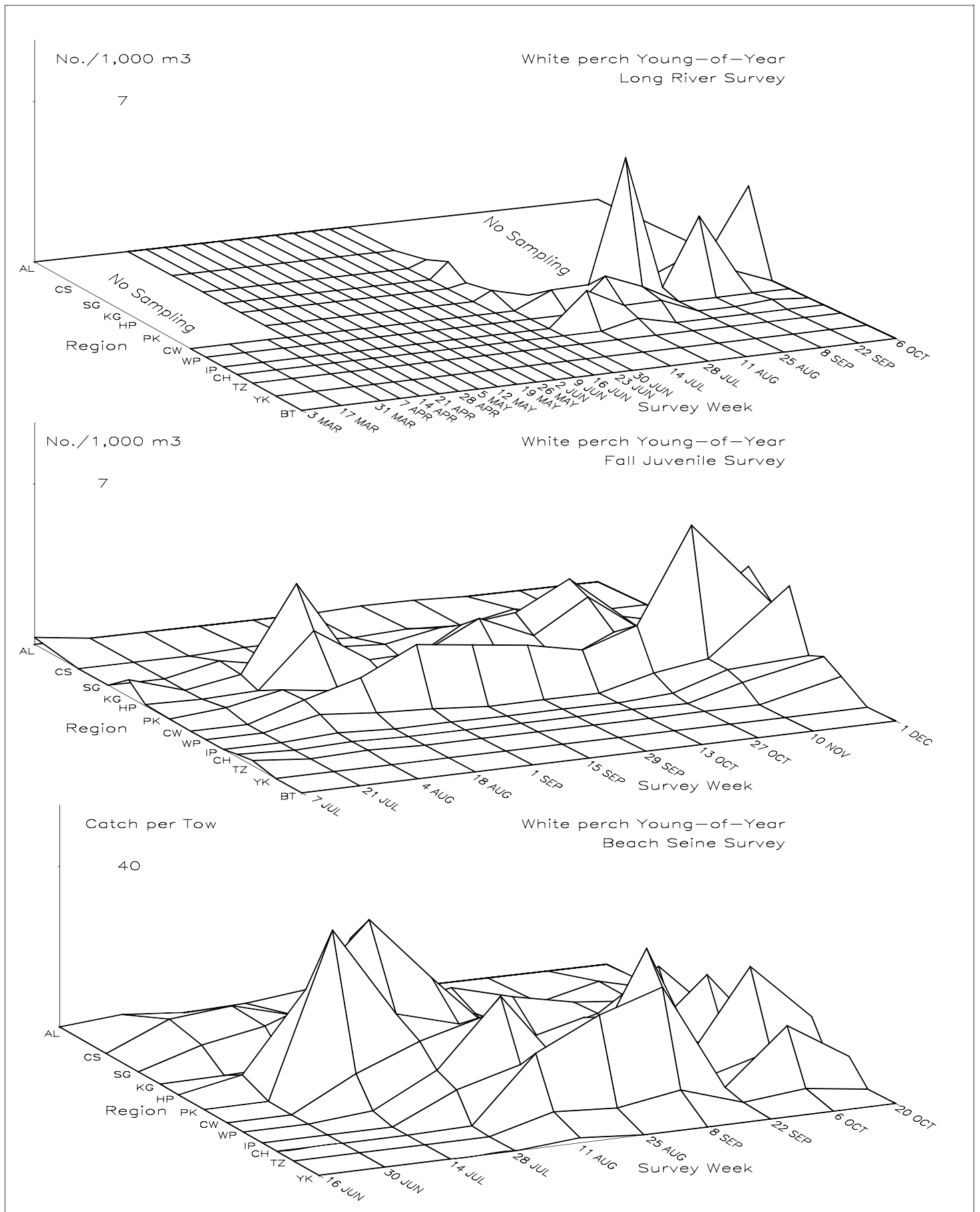


Figure 4–10. Spatiotemporal distribution of young-of-year white perch in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.



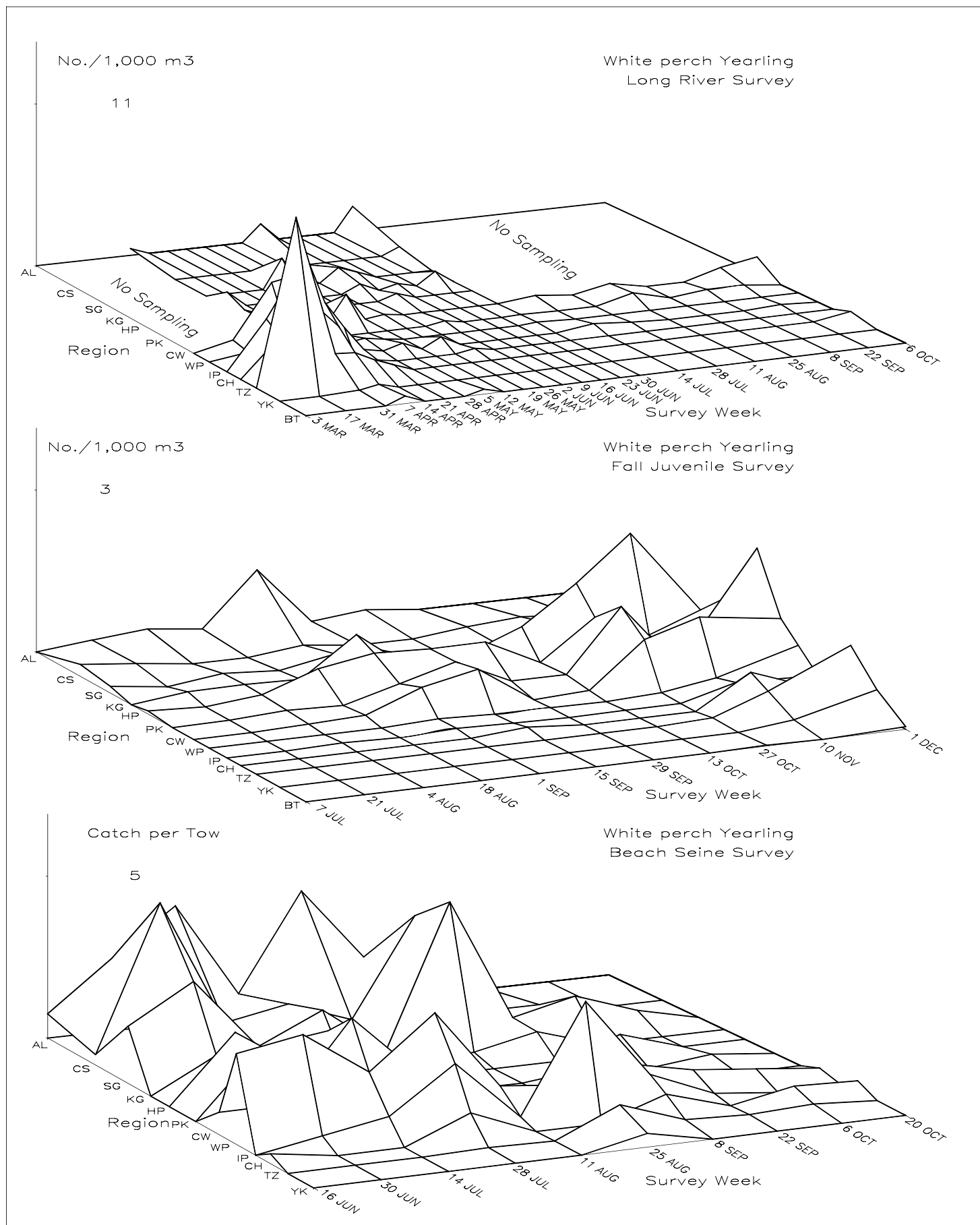


Figure 4–11. Spatiotemporal distribution of yearling white perch in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.

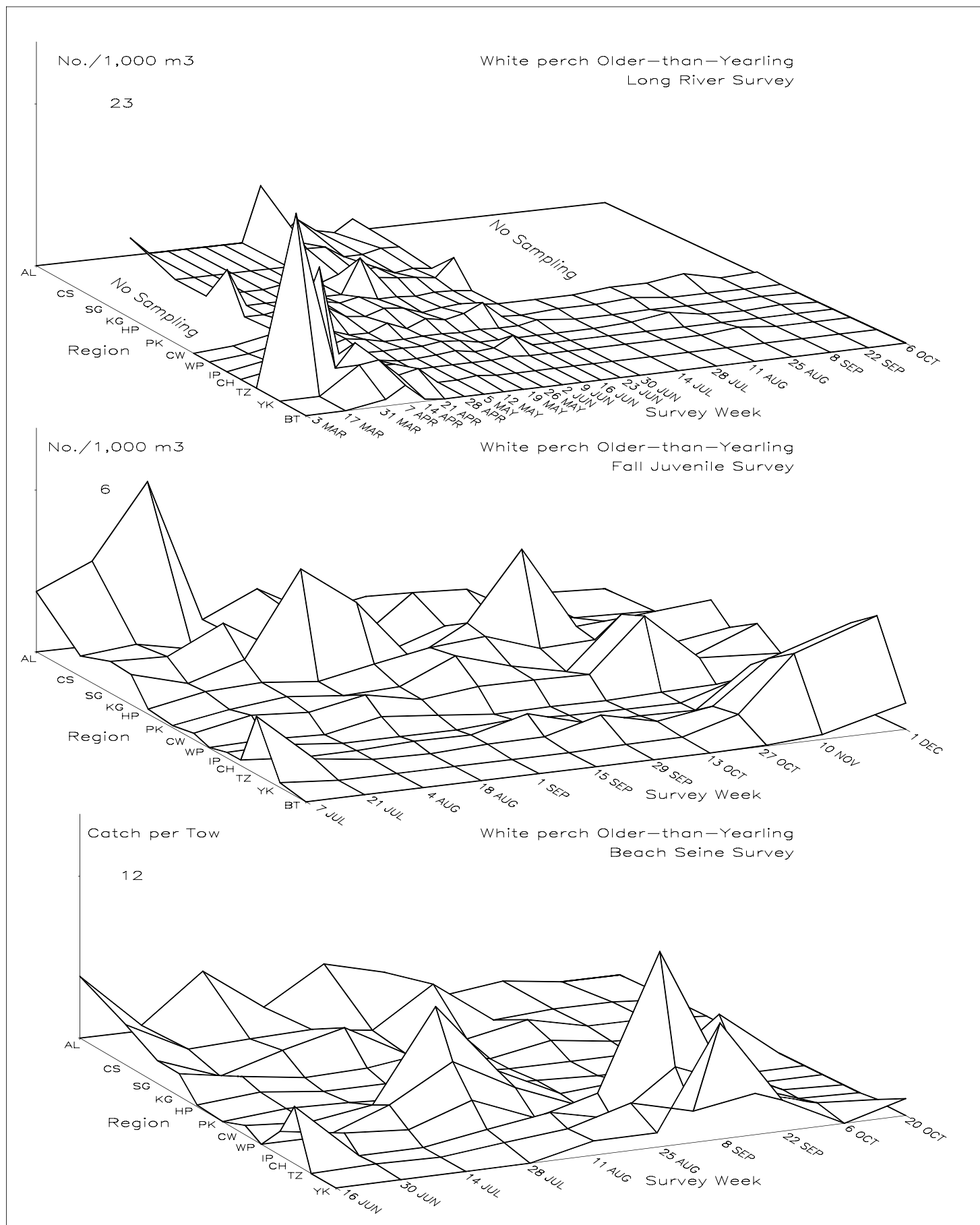


Figure 4–12. Spatiotemporal distribution of older-than-yearling white perch in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.

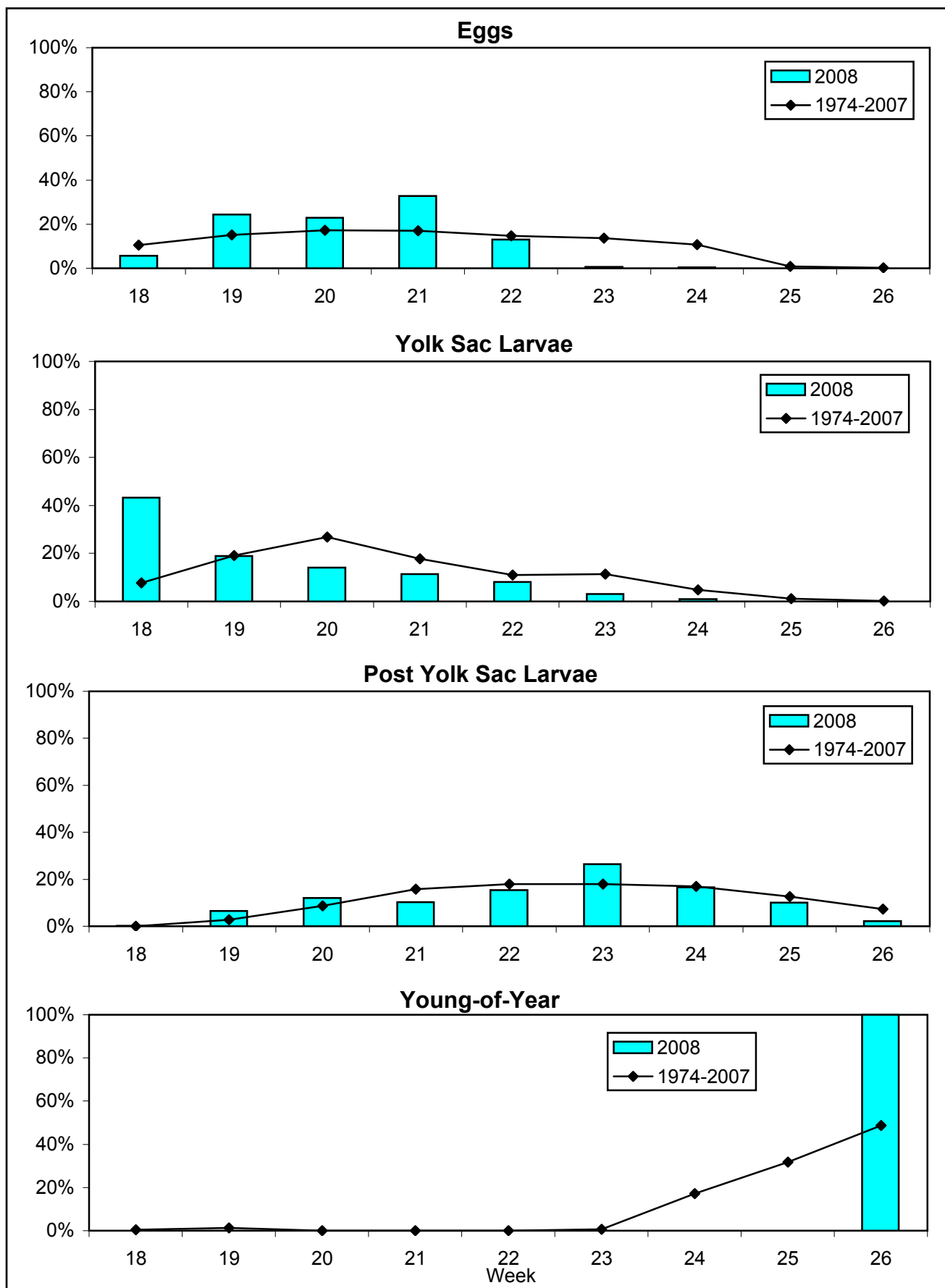


Figure 4-13. Temporal distribution indices for white perch collected during Long River surveys of the Hudson River estuary, 1974-2008.

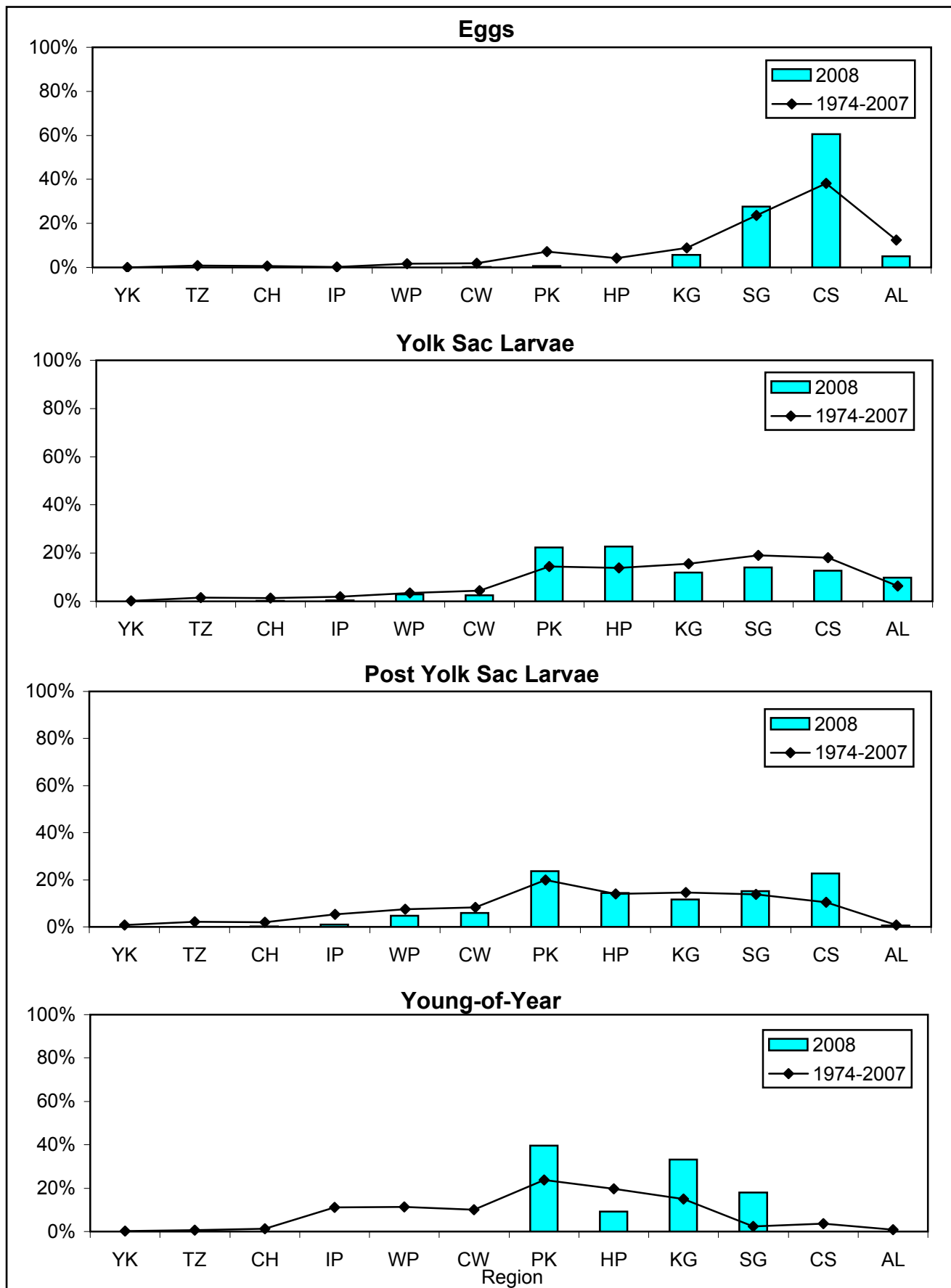


Figure 4-14. Geographic distribution indices for white perch collected during Long River surveys of the Hudson River estuary, 1974-2008.

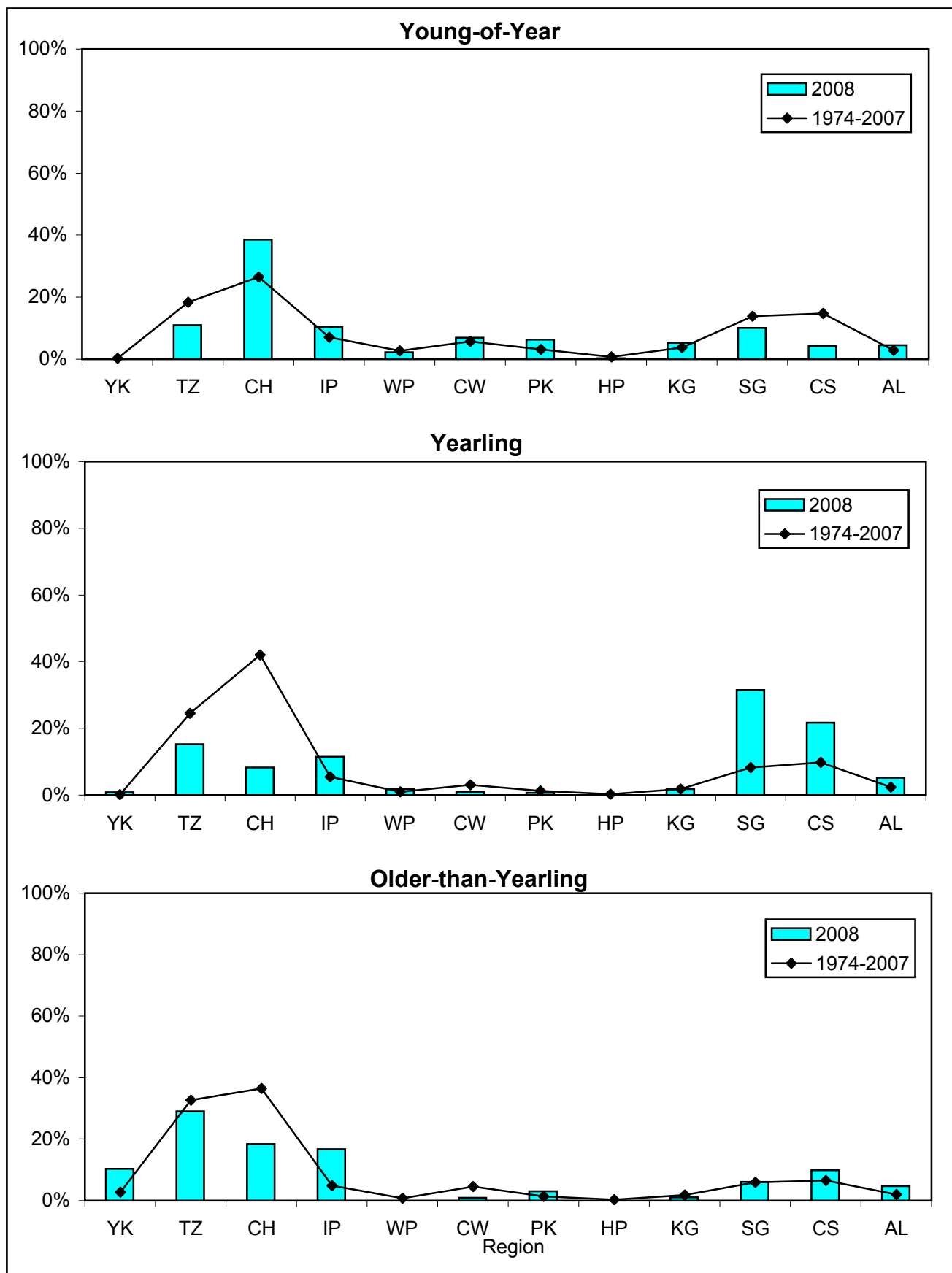


Figure 4-15. Geographic distribution indices for white perch collected during Beach Seine surveys of the Hudson River estuary, 1974-2008.

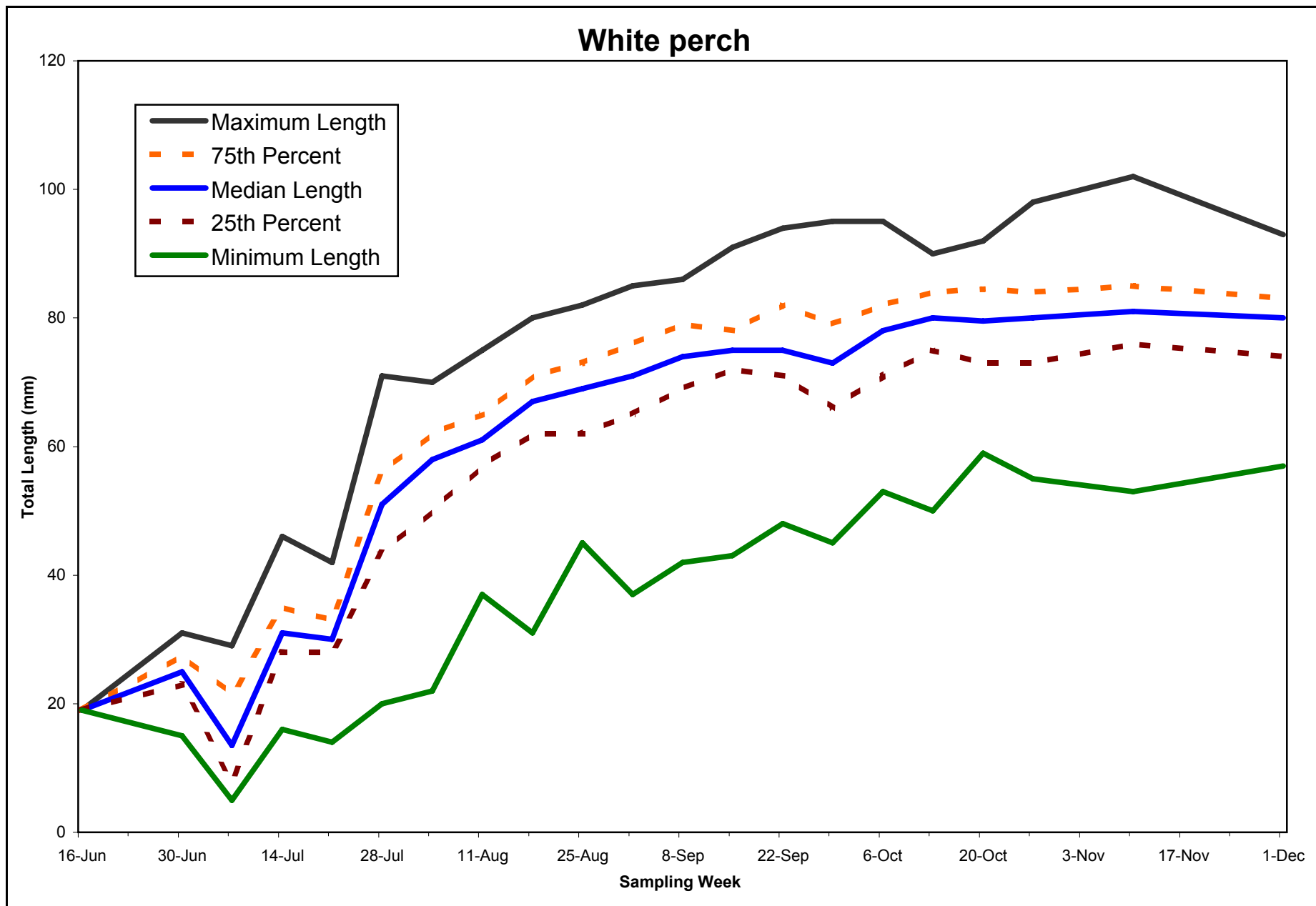


Figure 4-16. Weekly length statistics for young-of-year white perch in the Hudson River estuary, 2008.

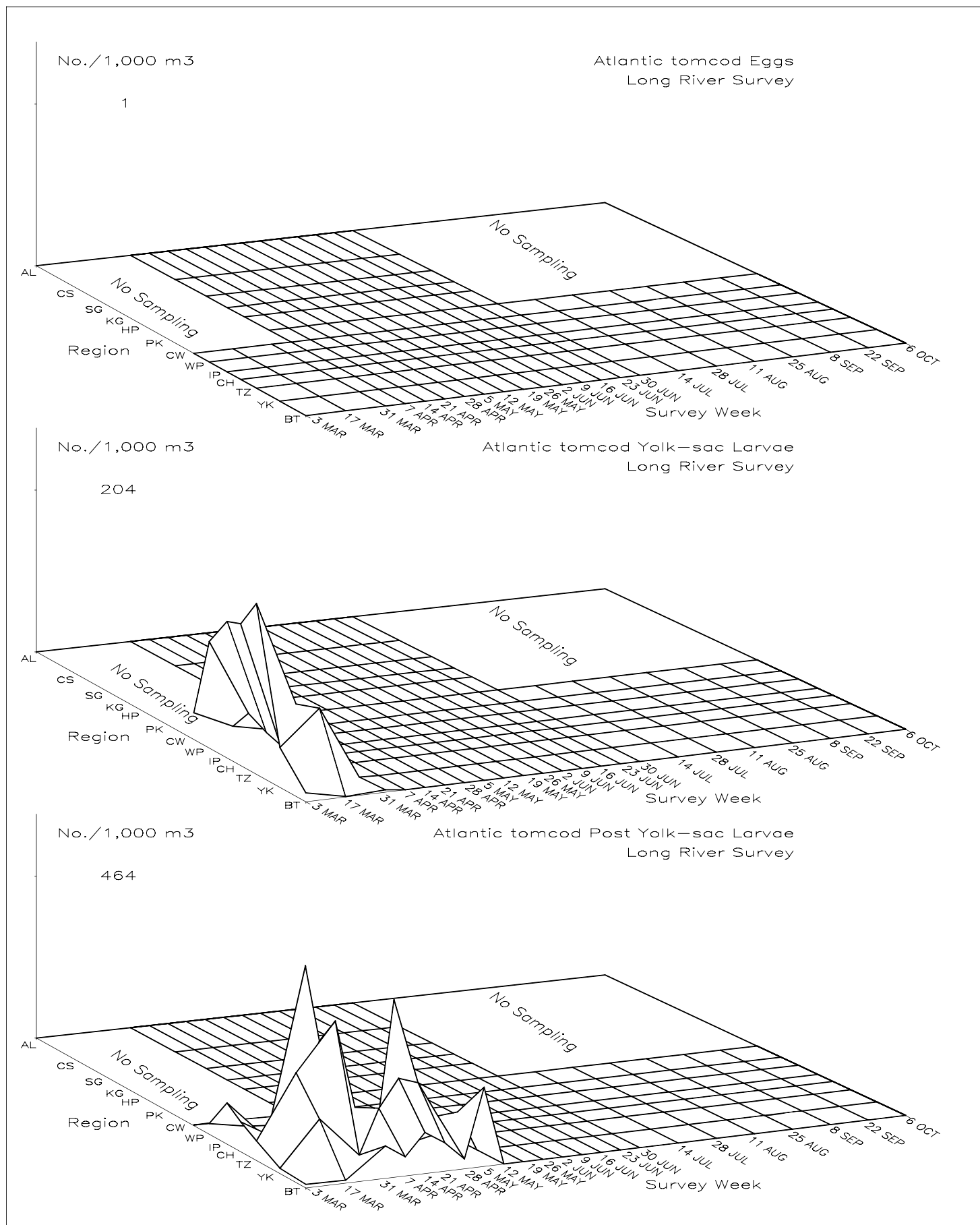


Figure 4-17. Spatiotemporal distribution of eggs, yolk-sac, and post yolk-sac larval Atlantic tomcod in the Hudson River estuary based on the 2008 Long River Survey.

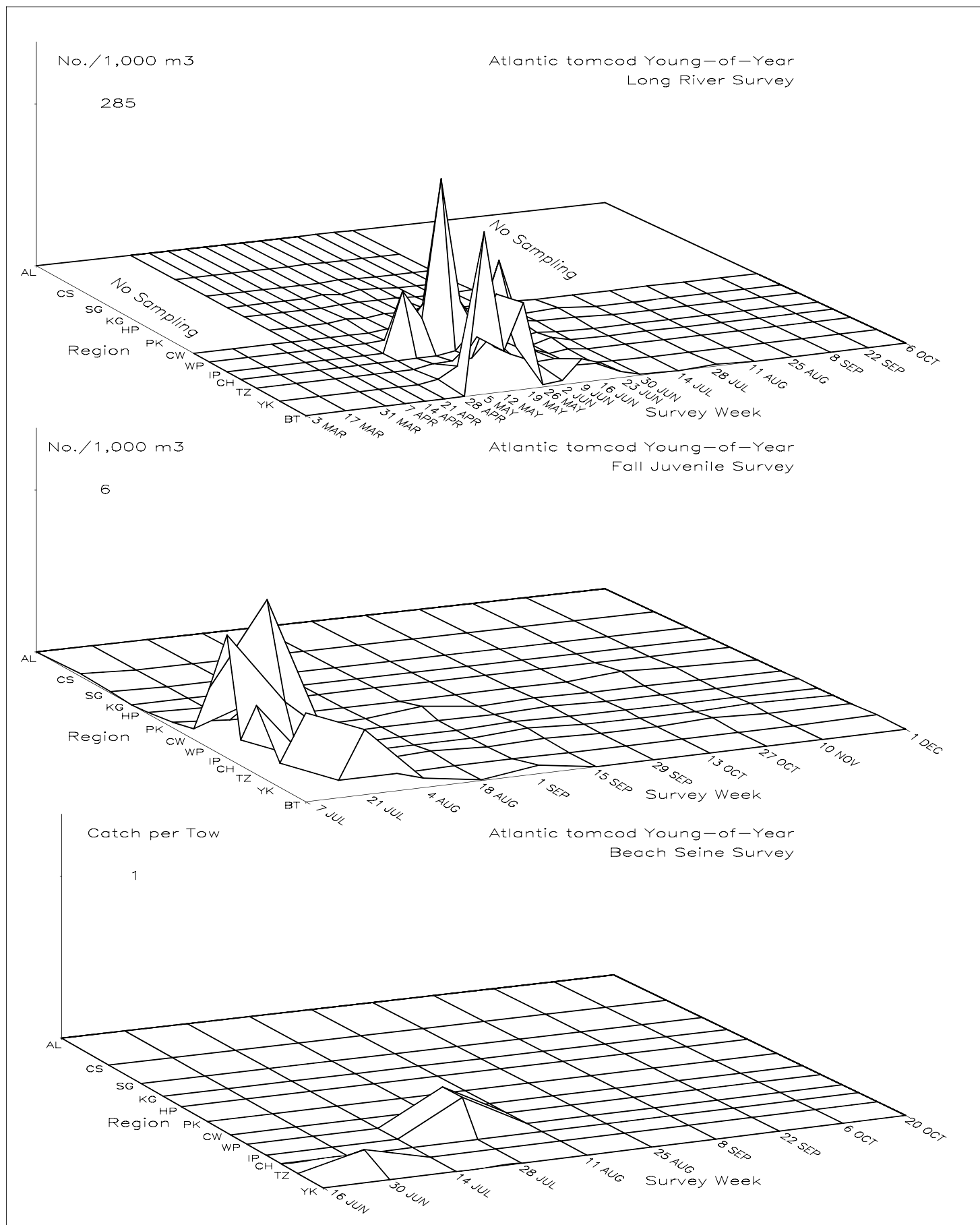


Figure 4–18. Spatiotemporal distribution of young-of-year Atlantic tomcod in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.



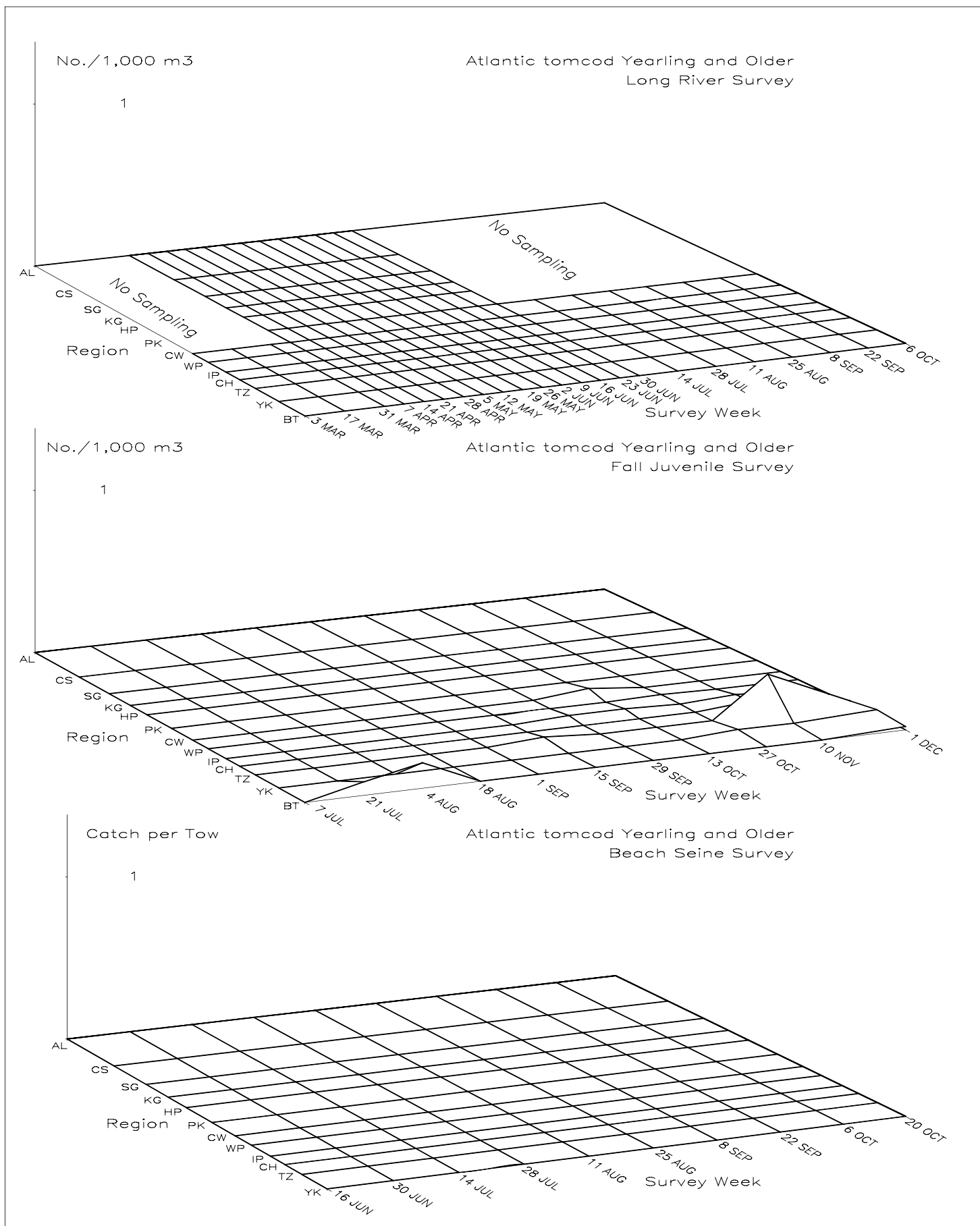


Figure 4–19. Spatiotemporal distribution of yearling and older Atlantic tomcod in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.

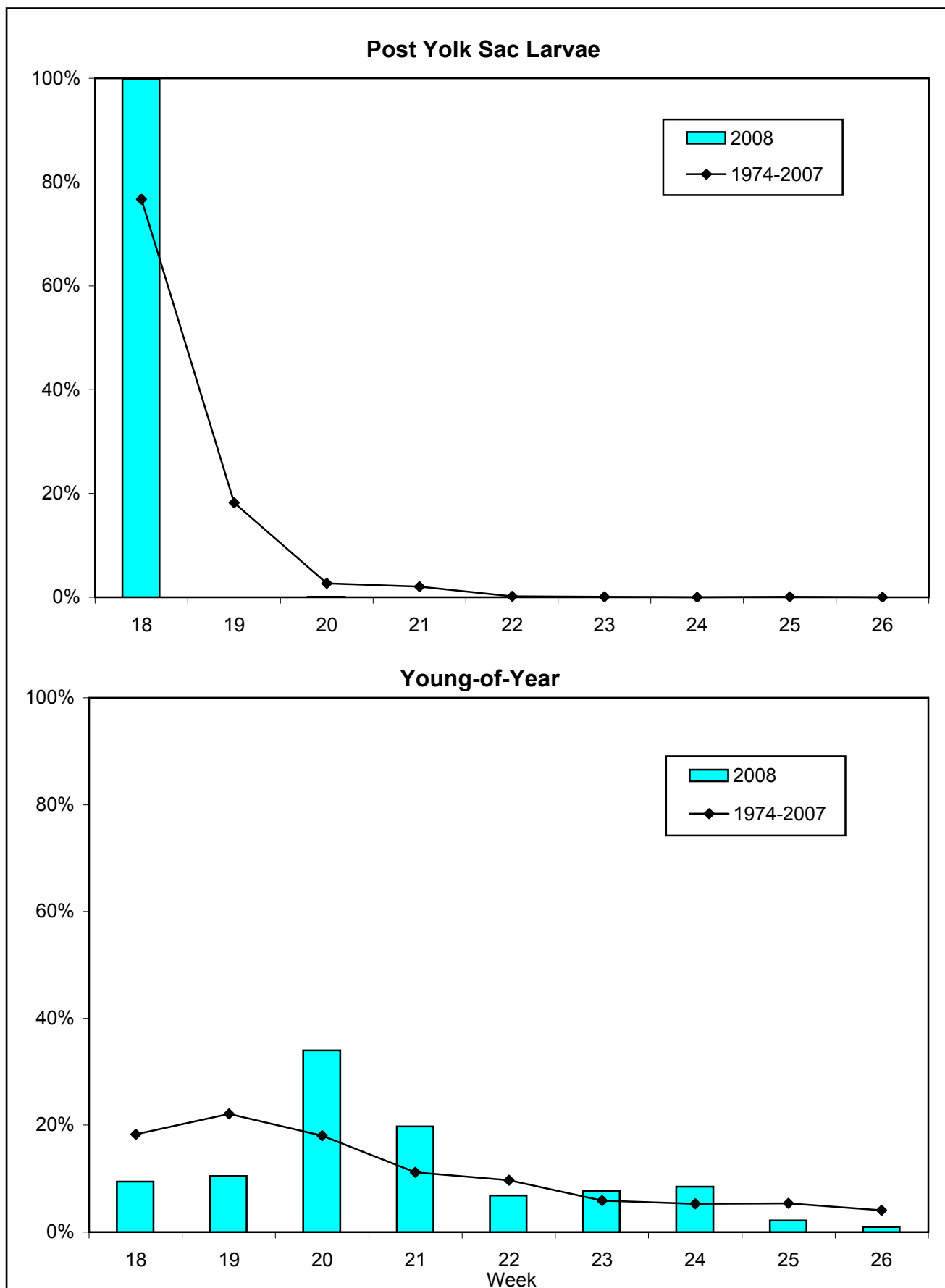


Figure 4-20. Temporal distribution indices for Atlantic tomcod collected during Long River surveys of the Hudson River estuary, 1974-2008.

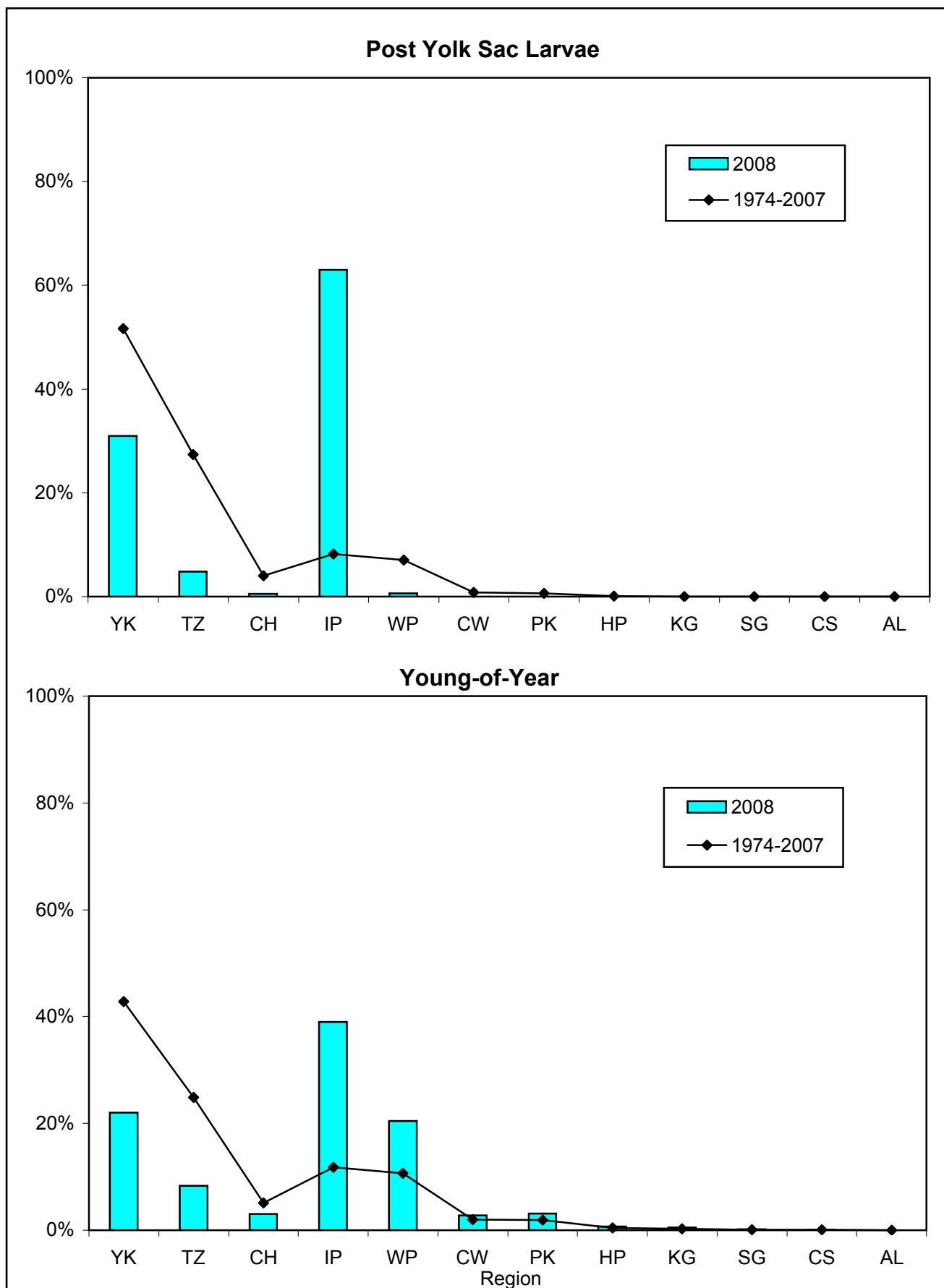


Figure 4-21. Geographic distribution indices for Atlantic tomcod collected during Long River surveys of the Hudson River estuary, 1974-2008.

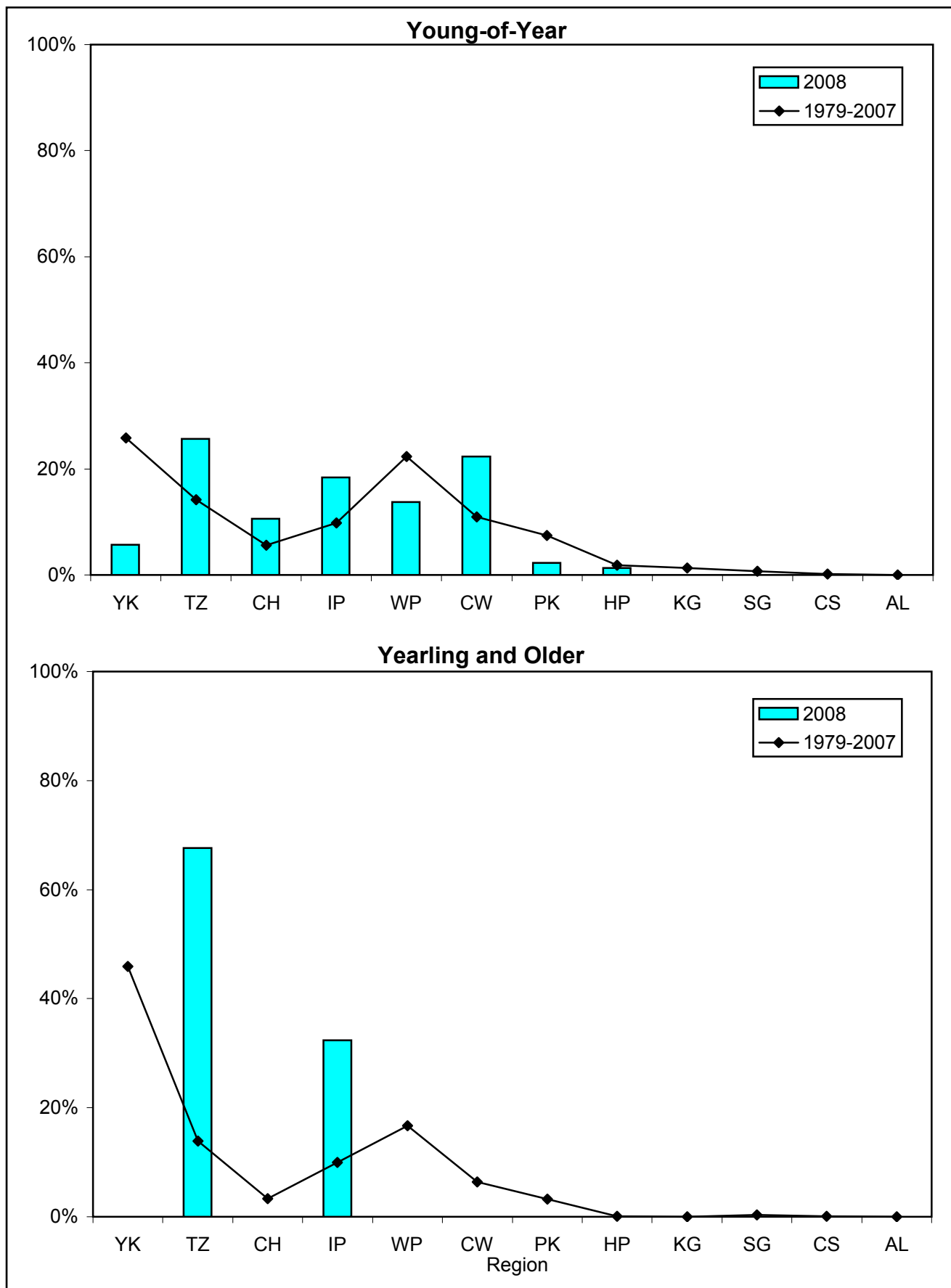


Figure 4-22. Geographic distribution indices for Atlantic tomcod collected during Fall Juvenile surveys of the Hudson River estuary, 1979-2008.

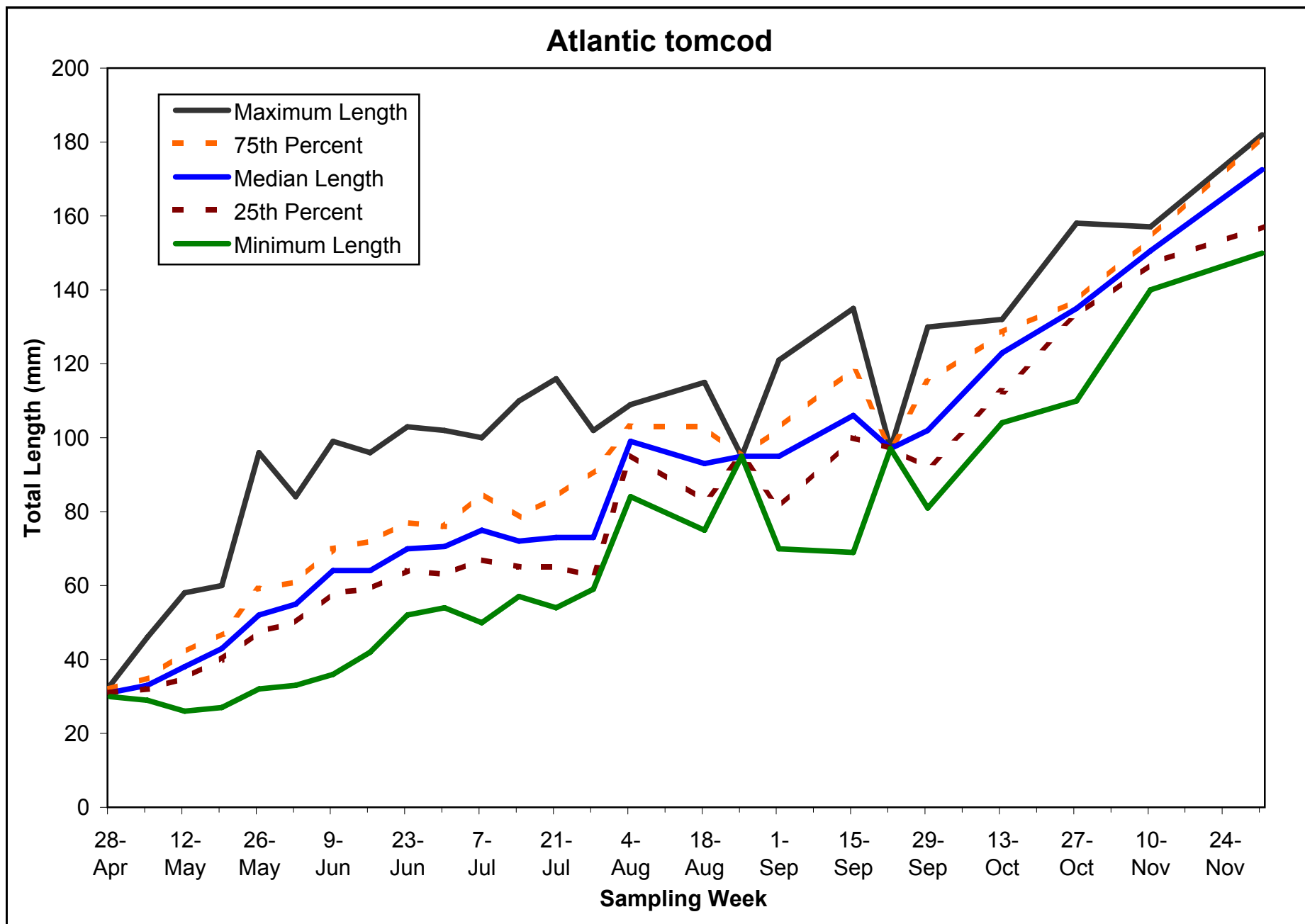


Figure 4-23. Weekly length statistics for young-of-year Atlantic tomcod in the Hudson River estuary, 2008.

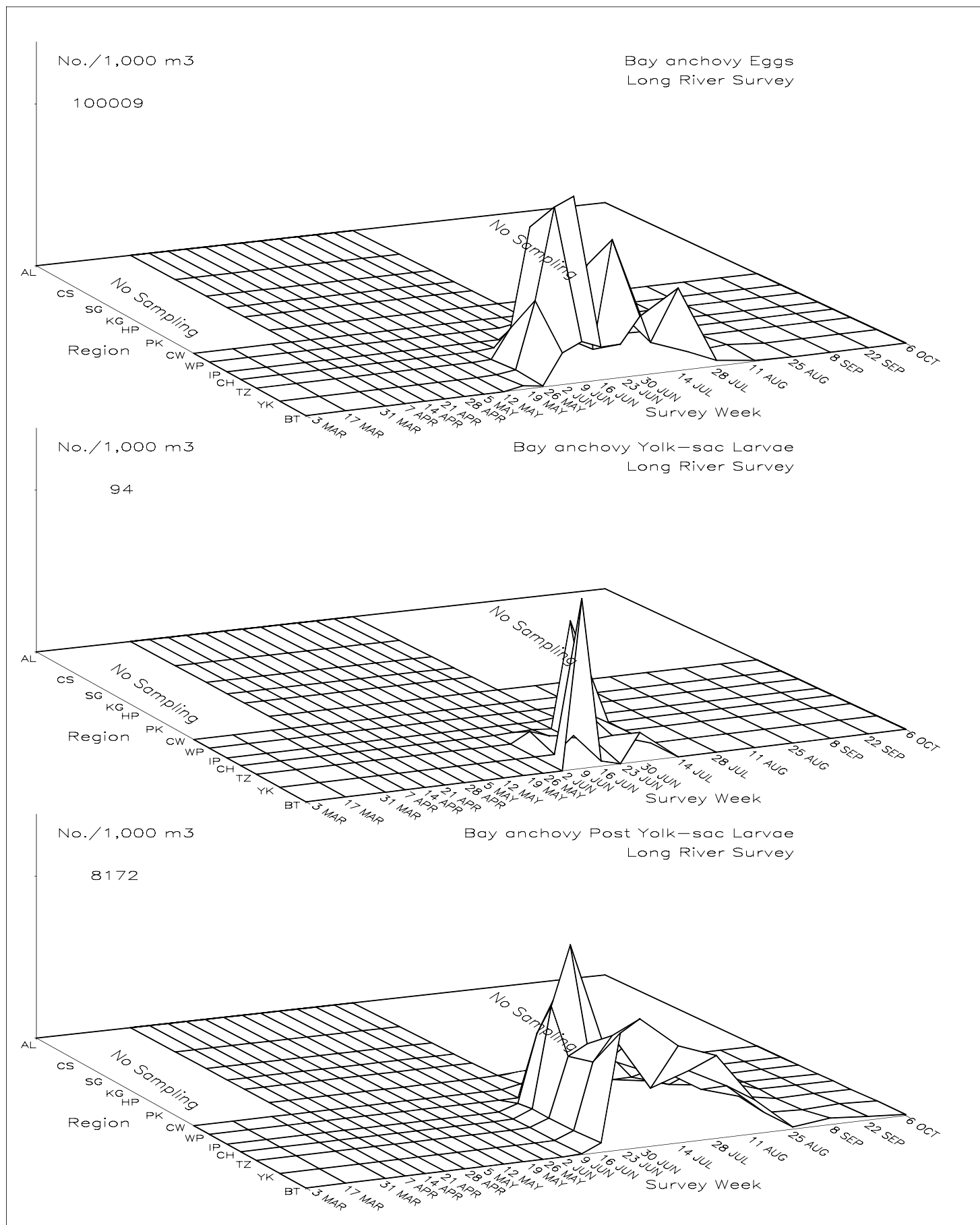


Figure 4-24. Spatiotemporal distribution of eggs, yolk-sac, and post yolk-sac larval bay anchovy in the Hudson River estuary based on the 2008 Long River Survey.

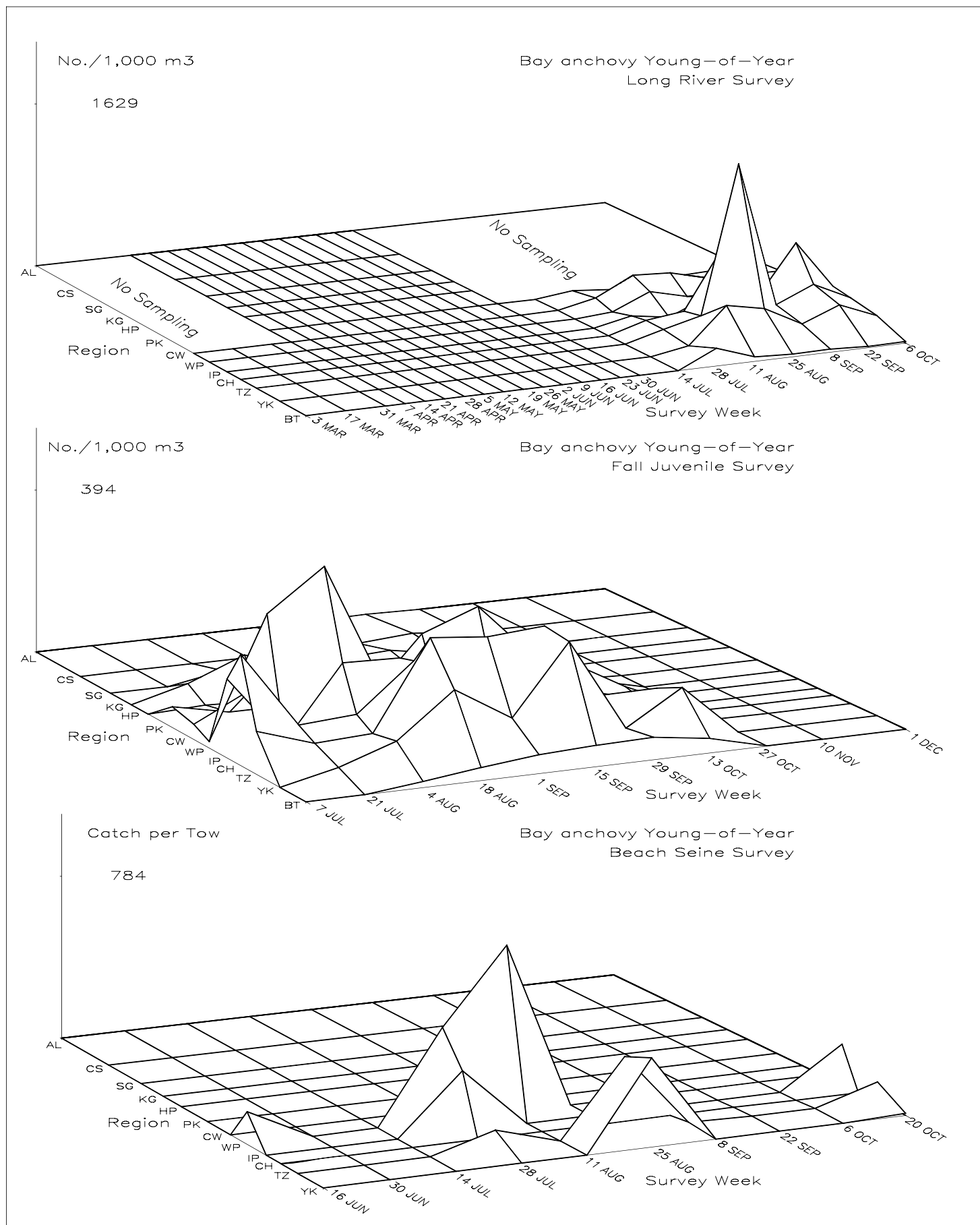


Figure 4–25. Spatiotemporal distribution of young-of-year bay anchovy in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.

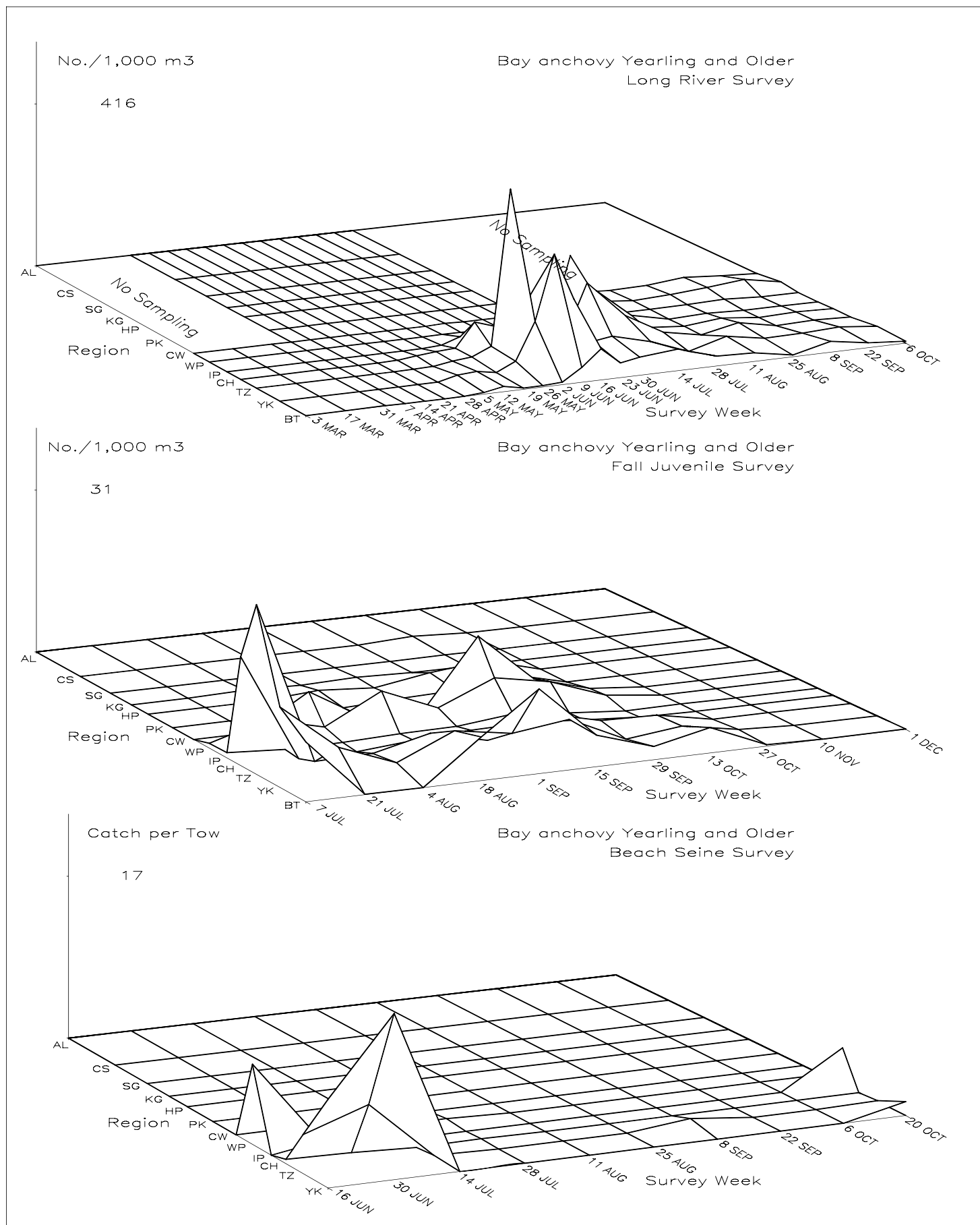


Figure 4–26. Spatiotemporal distribution of yearling and older bay anchovy in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.



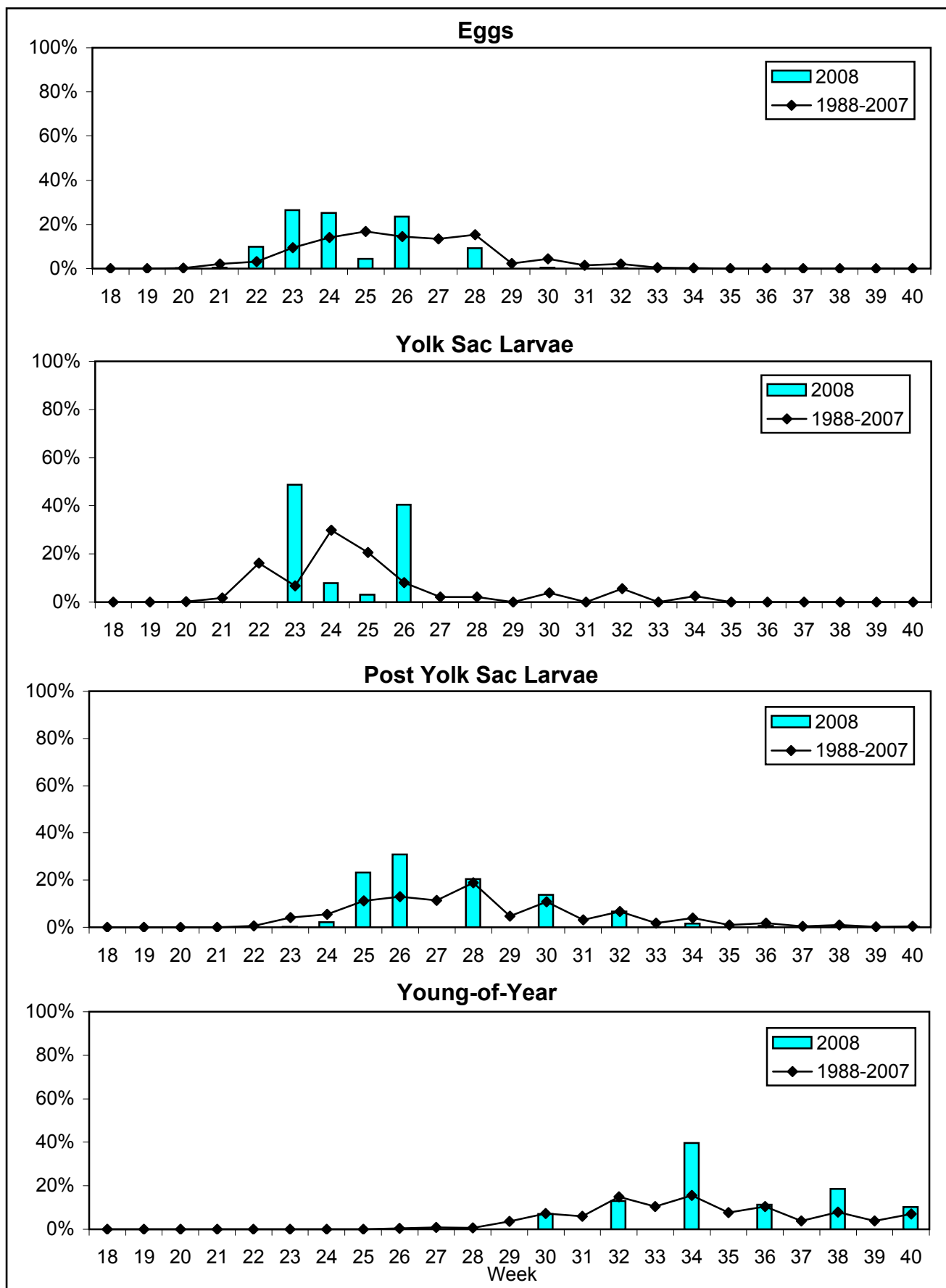


Figure 4-27. Temporal distribution indices for bay anchovy collected during Long River surveys of the Hudson River estuary, 1988-2008.

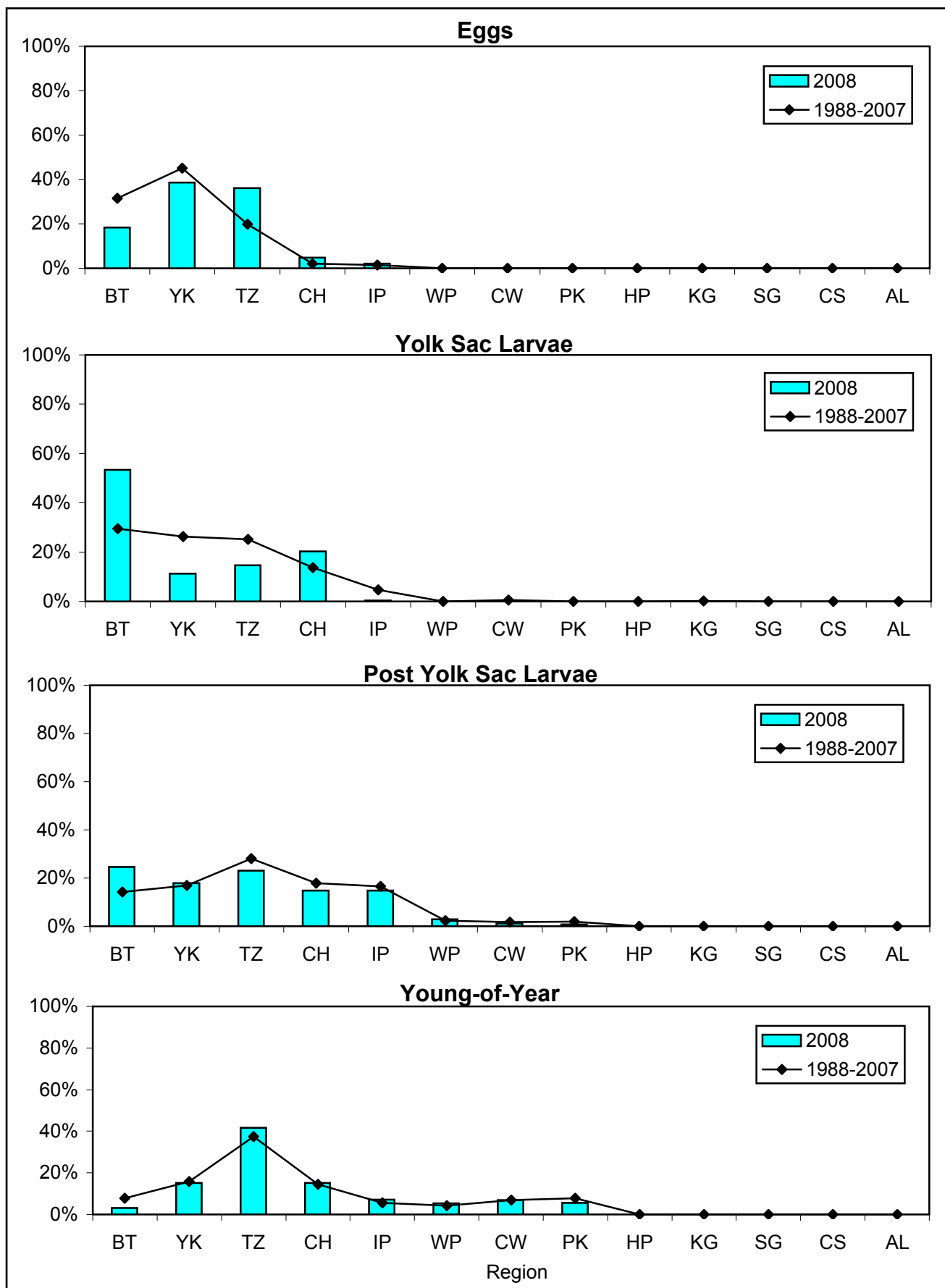


Figure 4-28. Geographic distribution indices for bay anchovy collected during Long River surveys of the Hudson River estuary, 1988-2008.

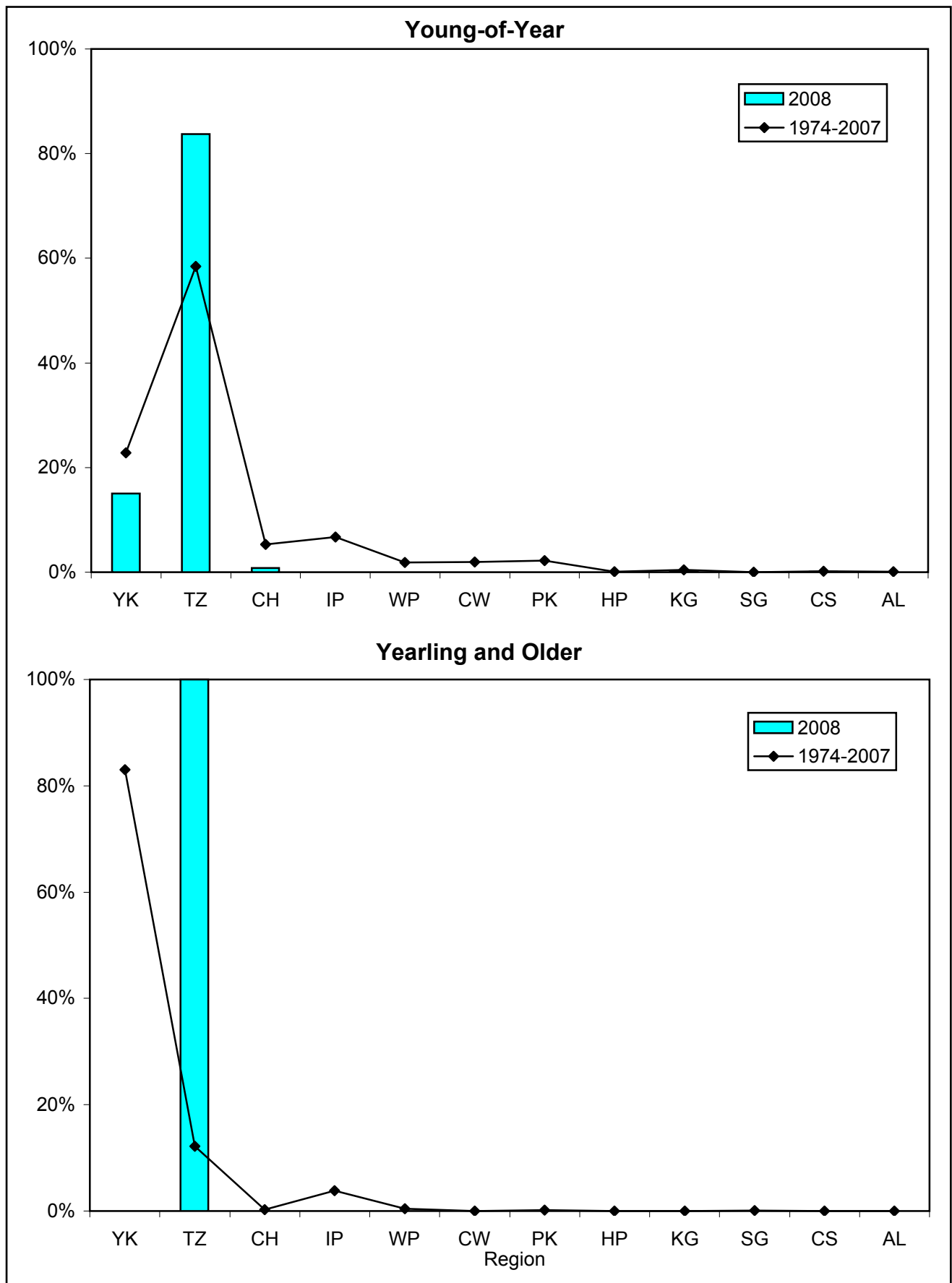


Figure 4-29. Geographic distribution indices for bay anchovy collected during Beach Seine surveys of the Hudson River estuary, 1974-2008.

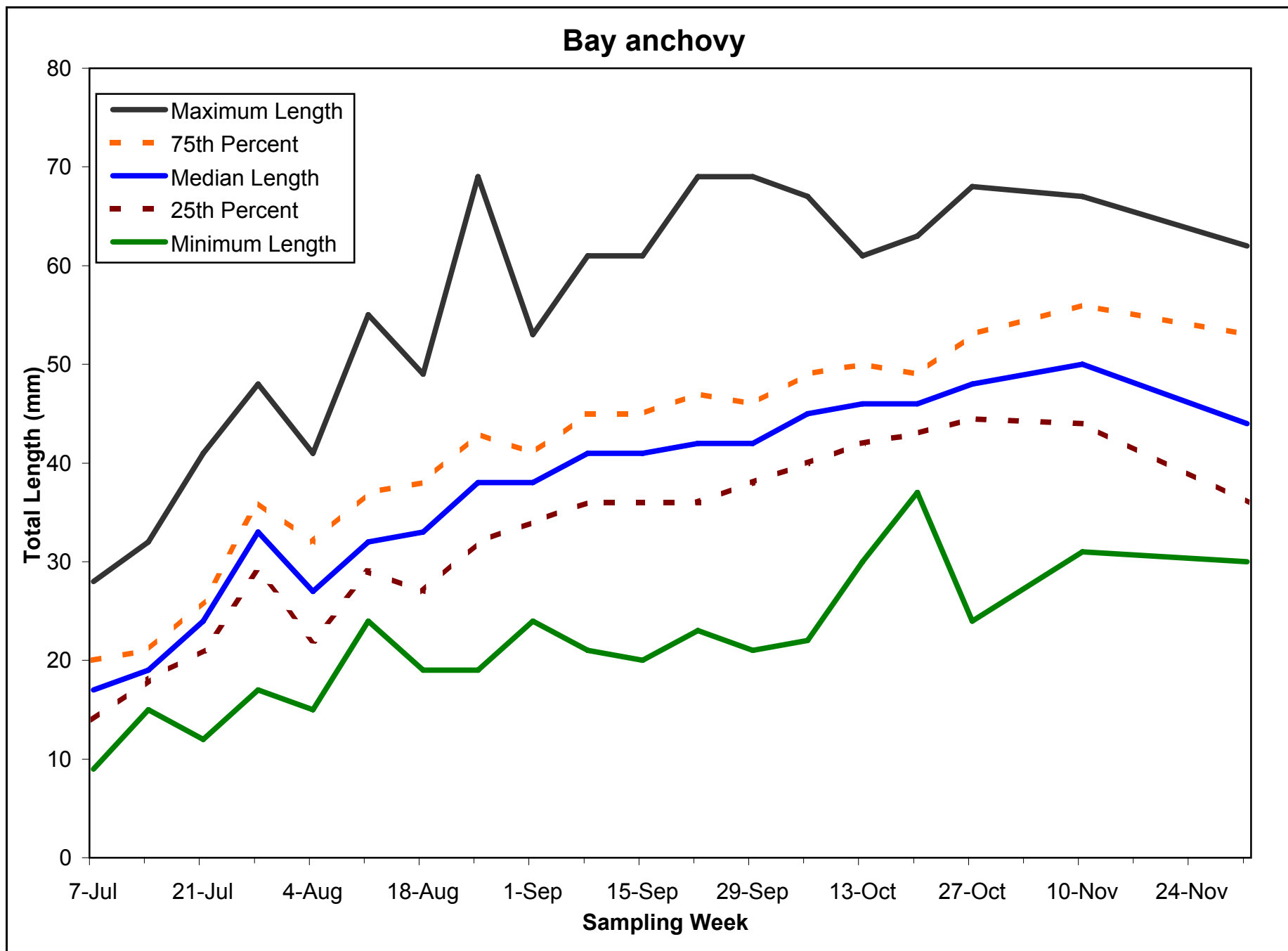


Figure 4-30. Weekly length statistics for young-of-year bay anchovy in the Hudson River estuary, 2008.

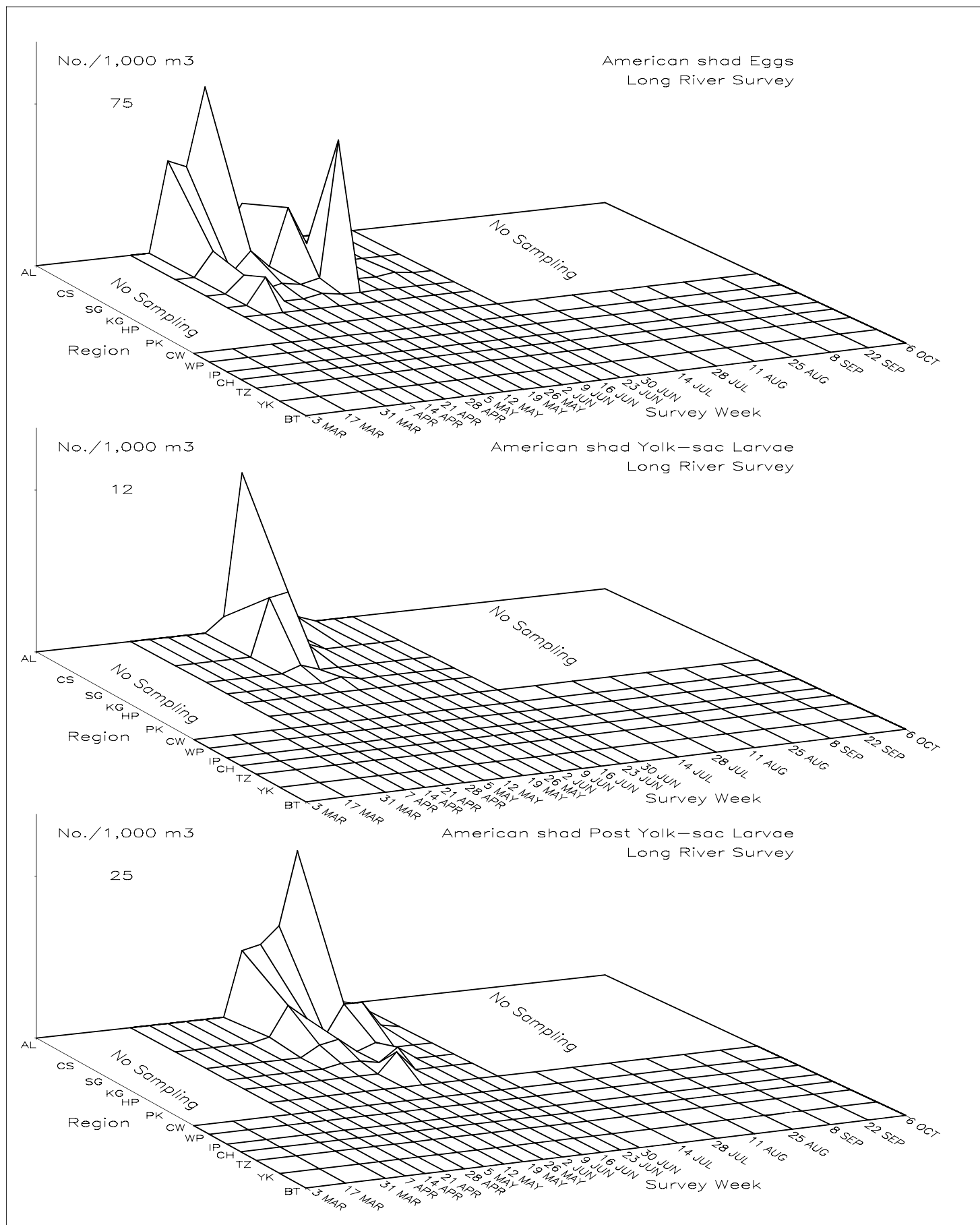


Figure 4–31. Spatiotemporal distribution of eggs, yolk-sac, and post yolk-sac larval American shad in the Hudson River estuary based on the 2008 Long River Survey.

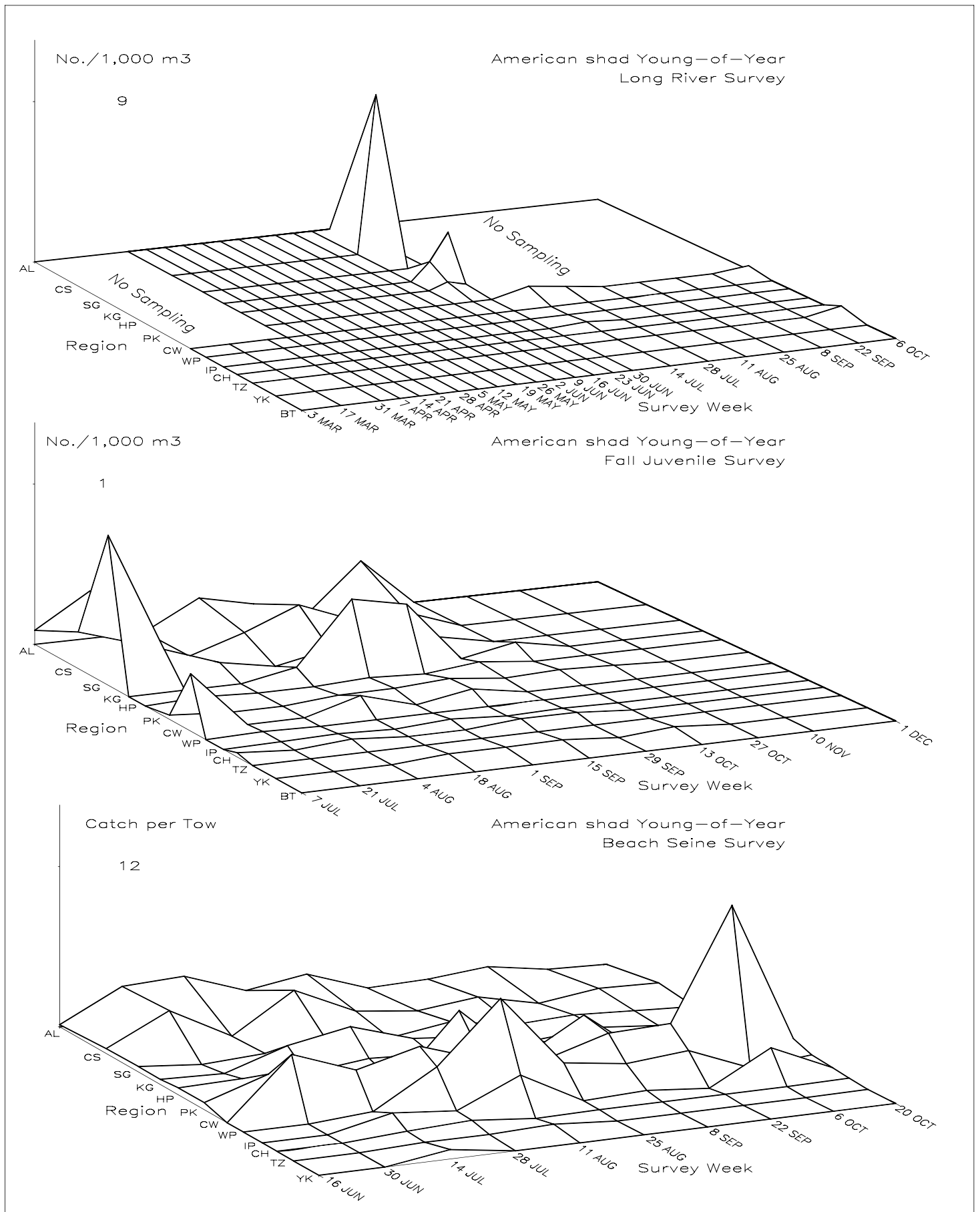


Figure 4–32. Spatiotemporal distribution of young-of-year American shad in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.

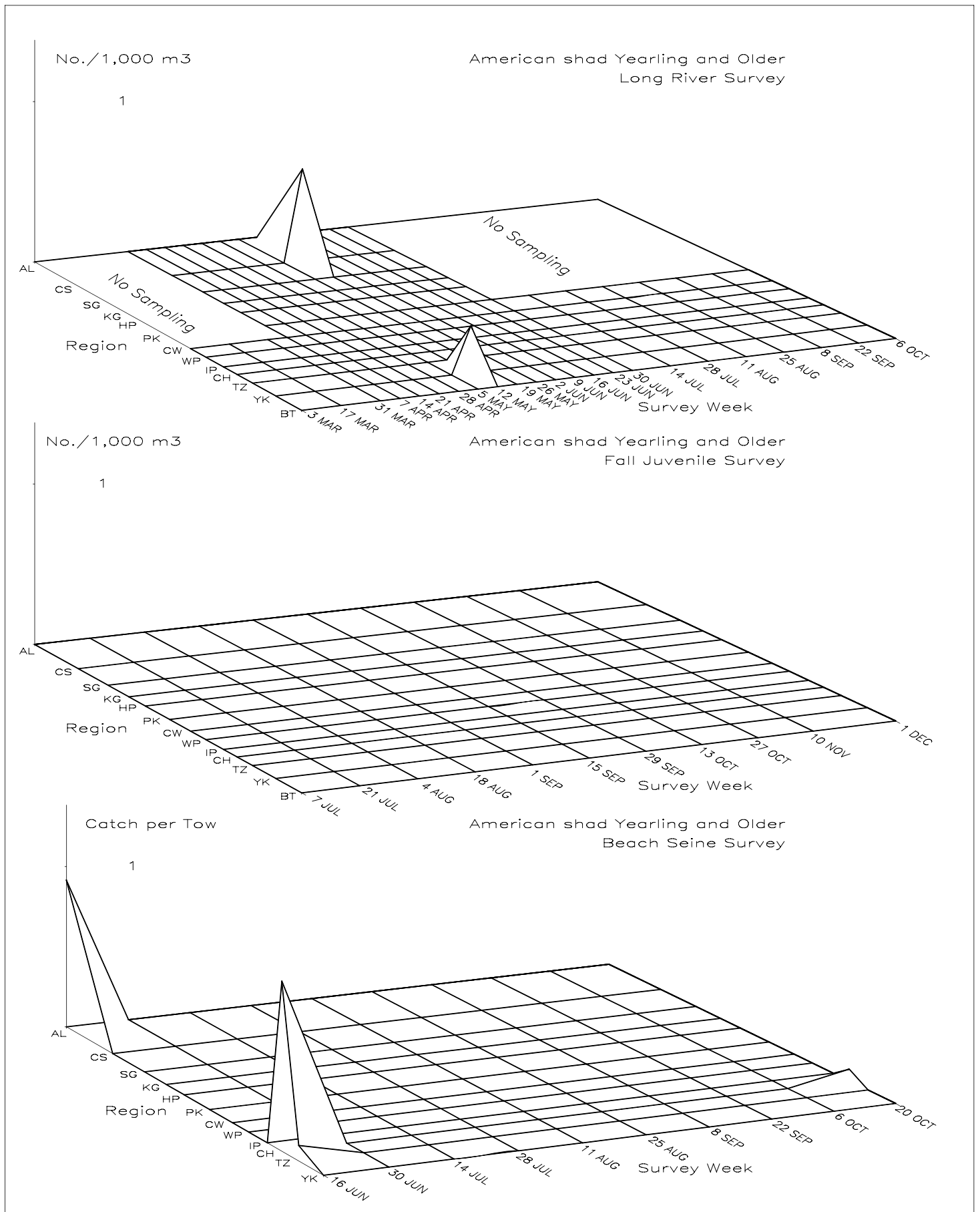


Figure 4–33. Spatiotemporal distribution of yearling and older American shad in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.

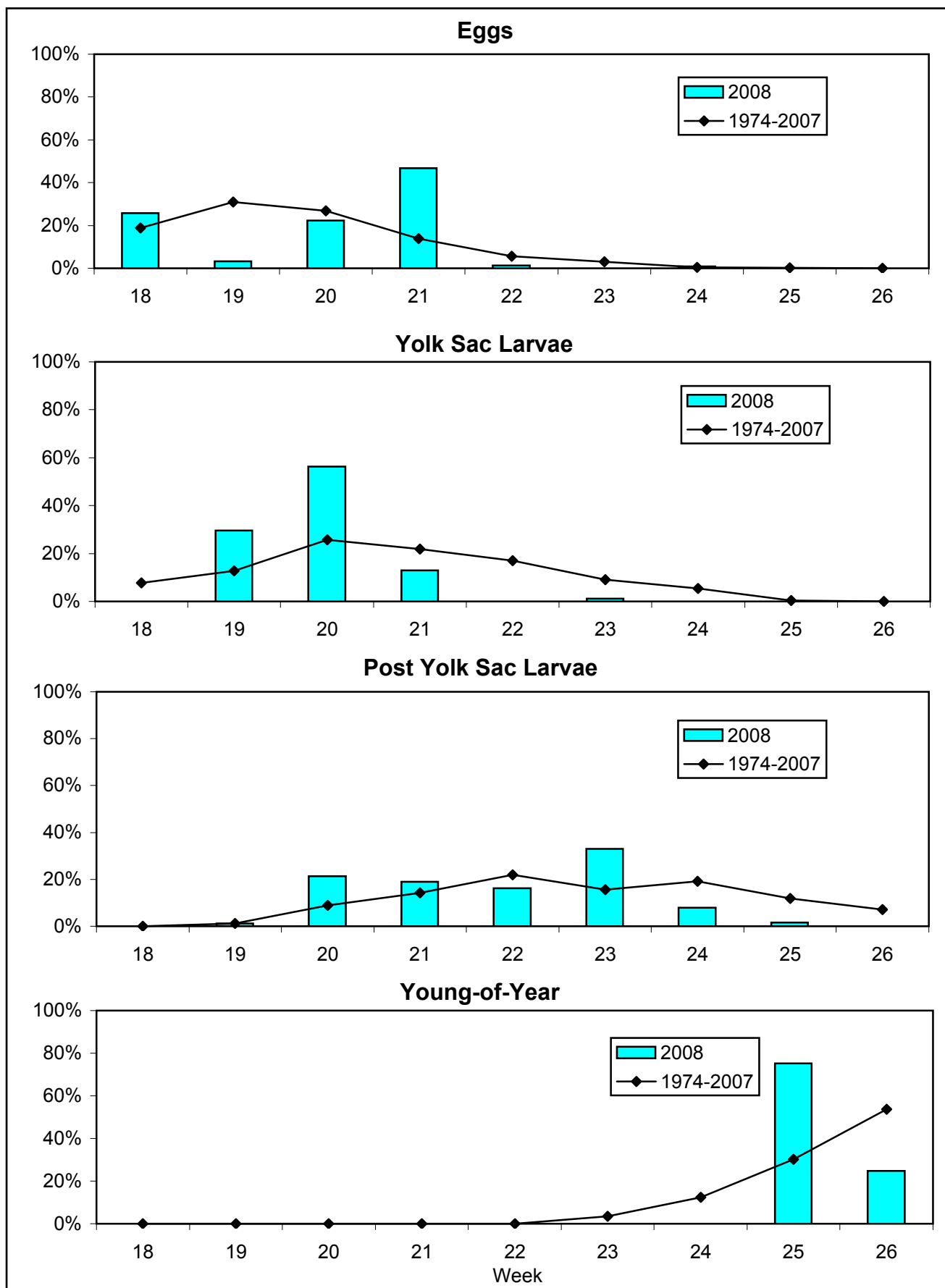


Figure 4-34. Temporal distribution indices for American shad collected during Long River surveys of the Hudson River estuary, 1974-2008.



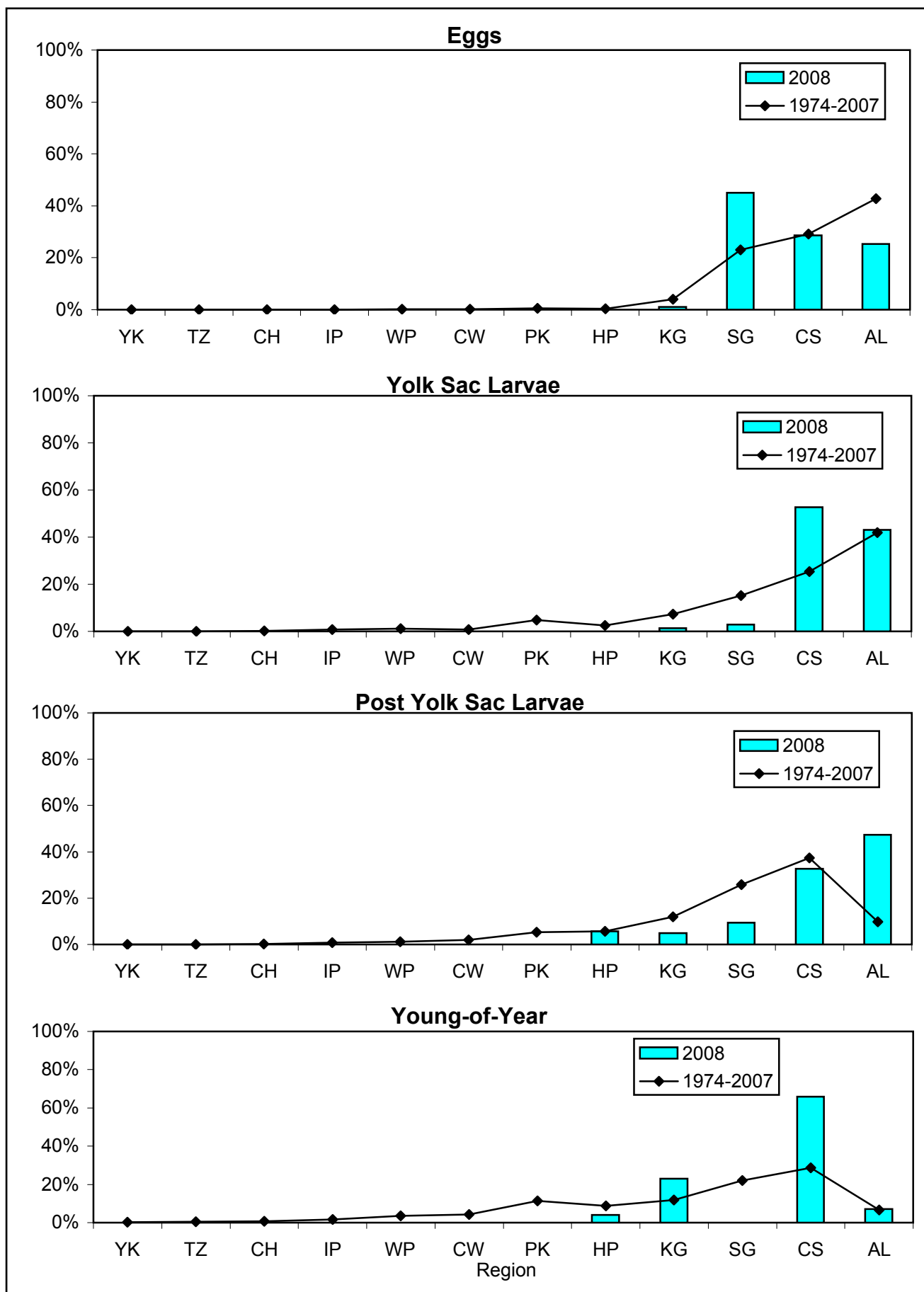


Figure 4-35. Geographic distribution indices for American shad collected during Long River surveys of the Hudson River estuary, 1974-2008.

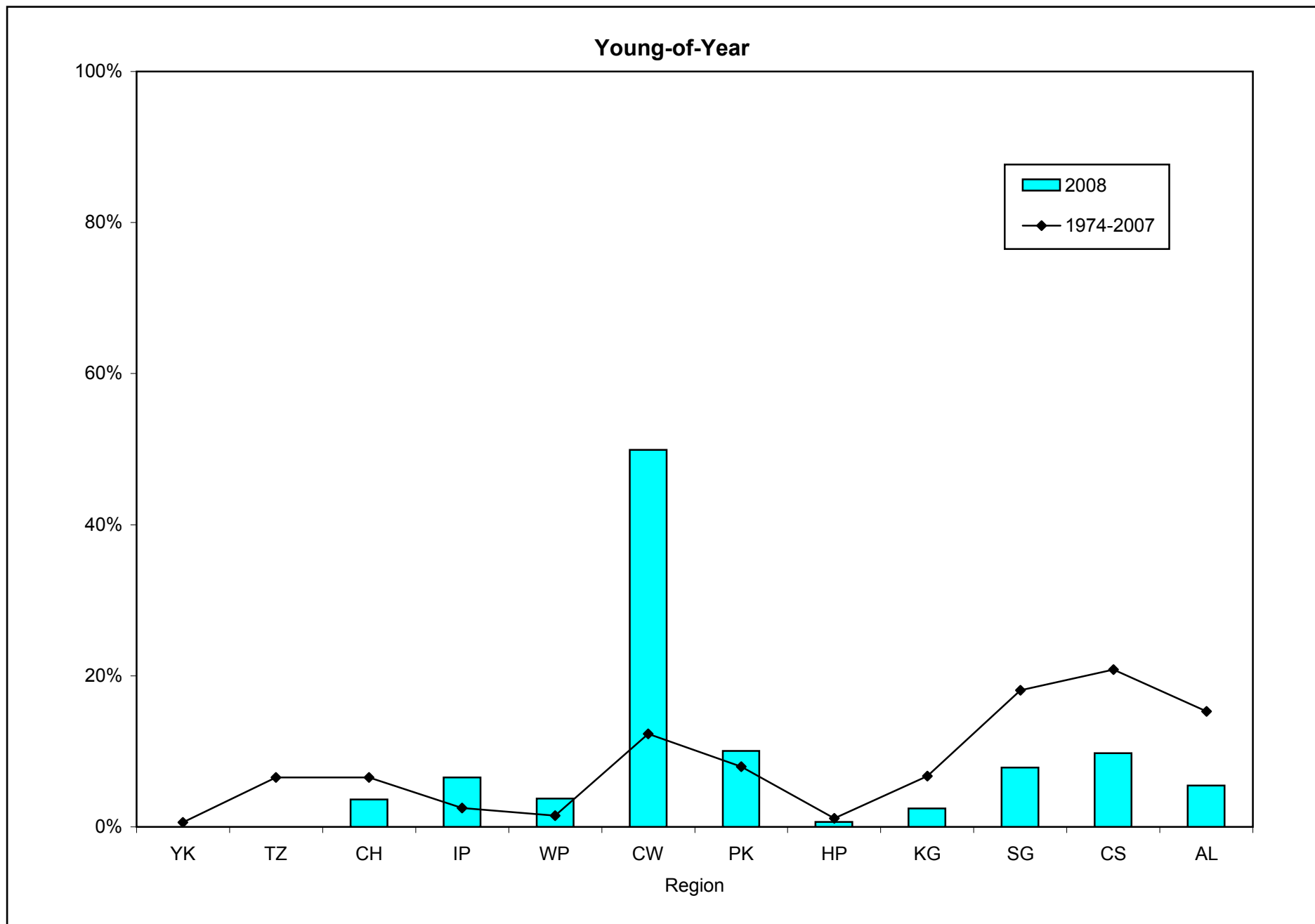


Figure 4-36. Geographic distribution indices for American shad collected during Beach Seine surveys of the Hudson River estuary, 1974-2008.

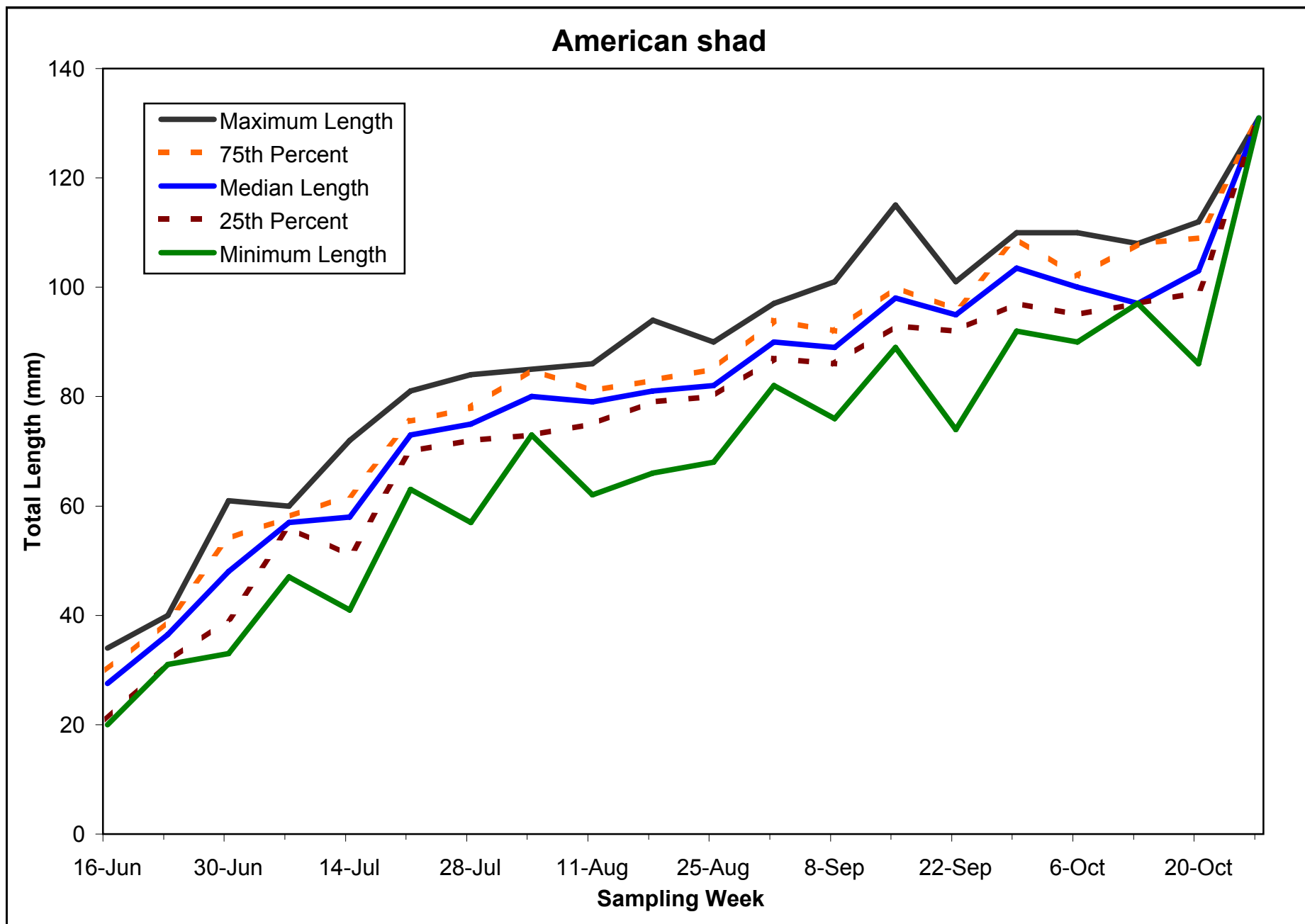


Figure 4-37. Weekly length statistics for young-of-year American shad in the Hudson River estuary, 2008.

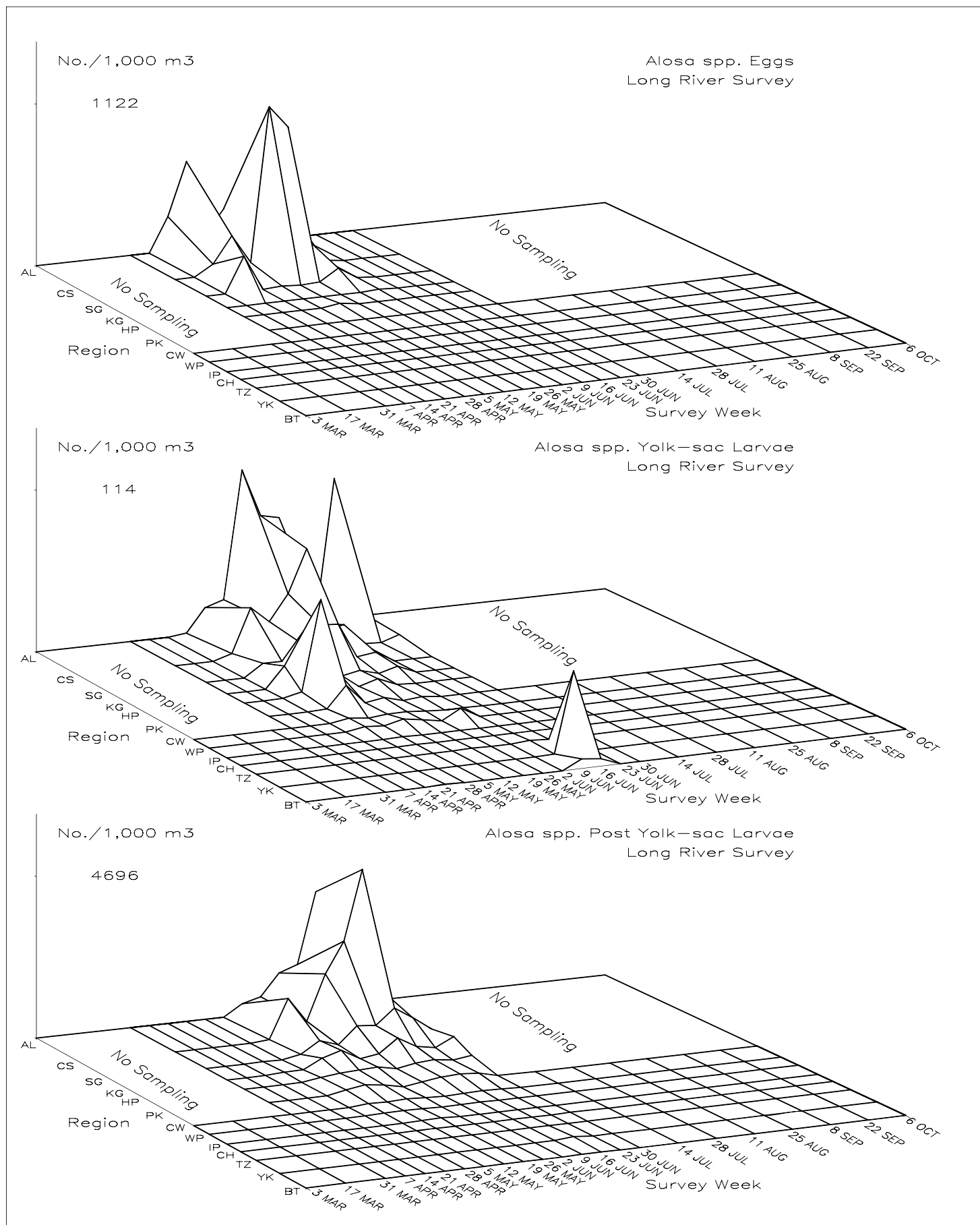


Figure 4–38. Spatiotemporal distribution of eggs, yolk-sac, and post yolk-sac larval *Alosa* spp. in the Hudson River estuary based on the 2008 Long River Survey.

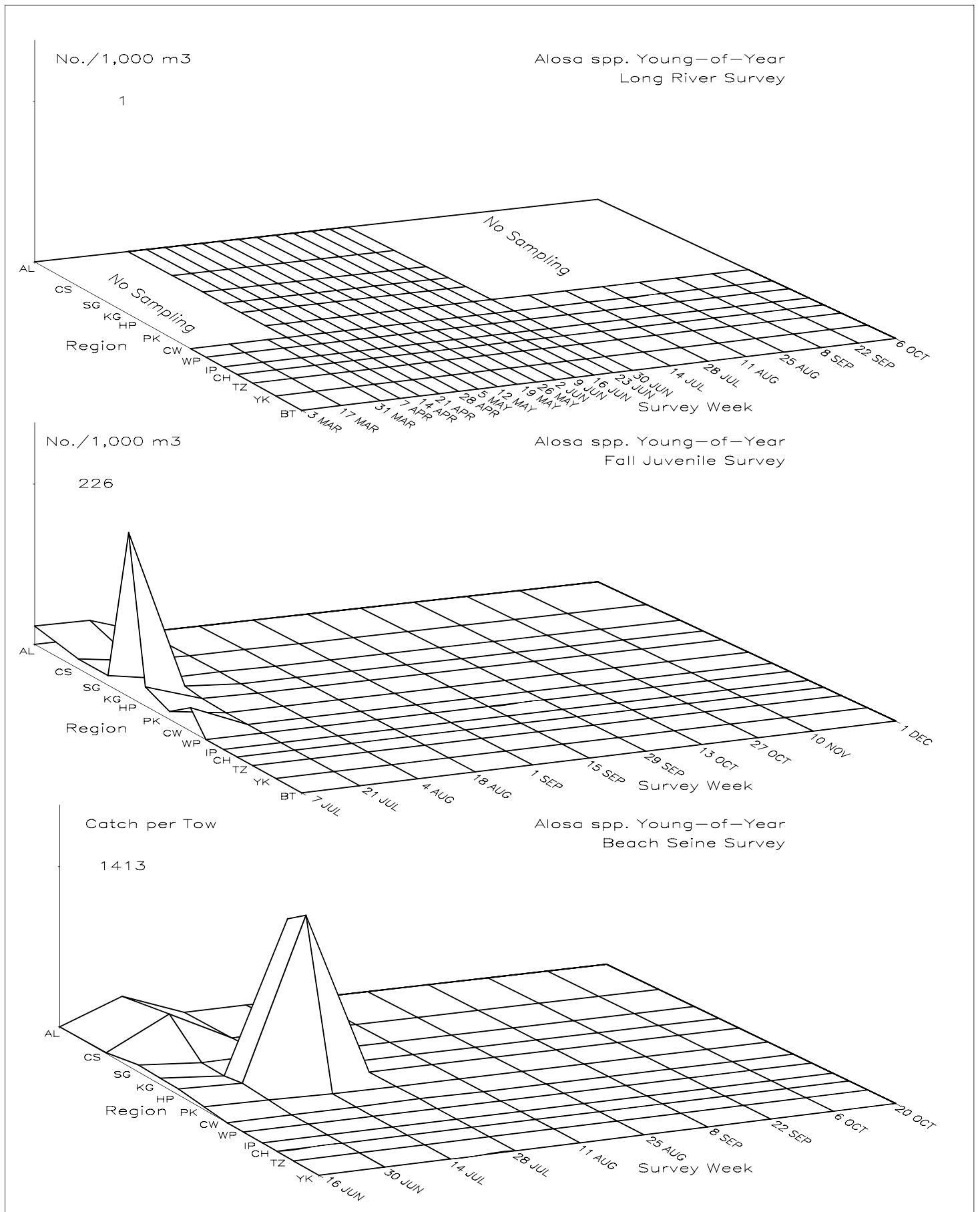


Figure 4–39. Spatiotemporal distribution of young-of-year *Alosa* spp. in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.

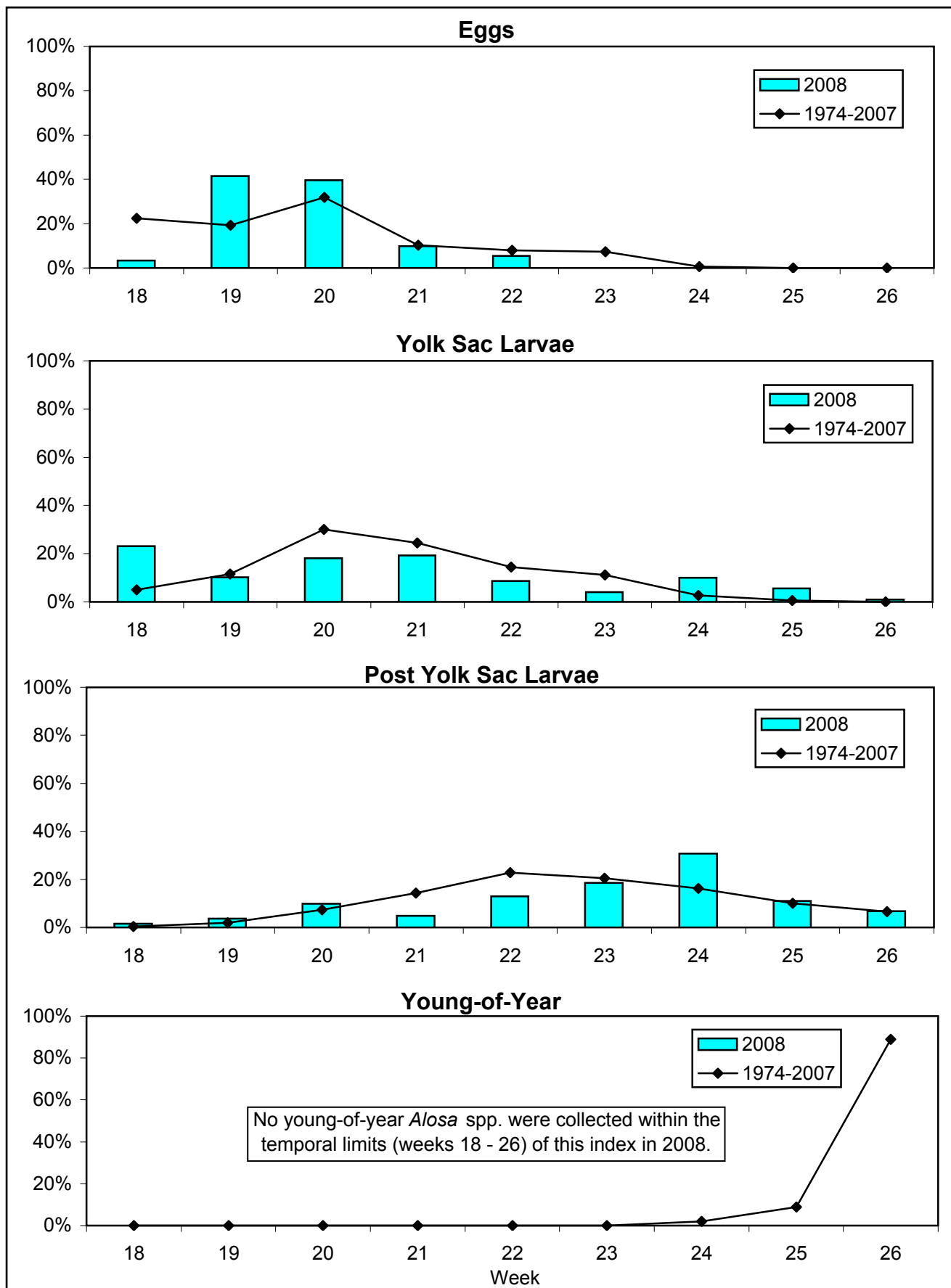


Figure 4-40. Temporal distribution indices for *Alosa* spp. collected during Long River surveys of the Hudson River estuary, 1974-2008.

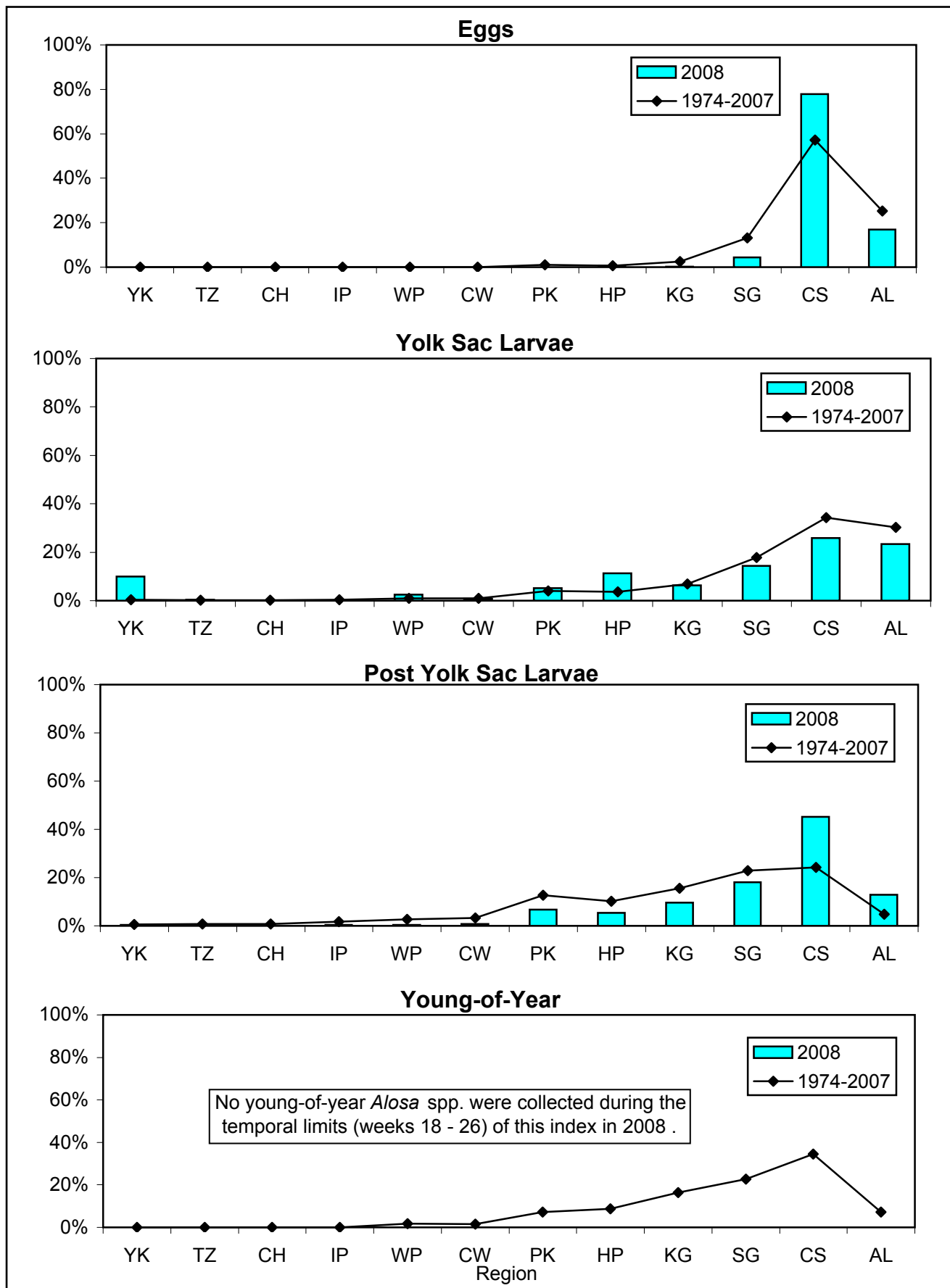


Figure 4-41. Geographic distribution indices for *Alosa* spp. collected during Long River surveys of the Hudson River estuary, 1974-2008.

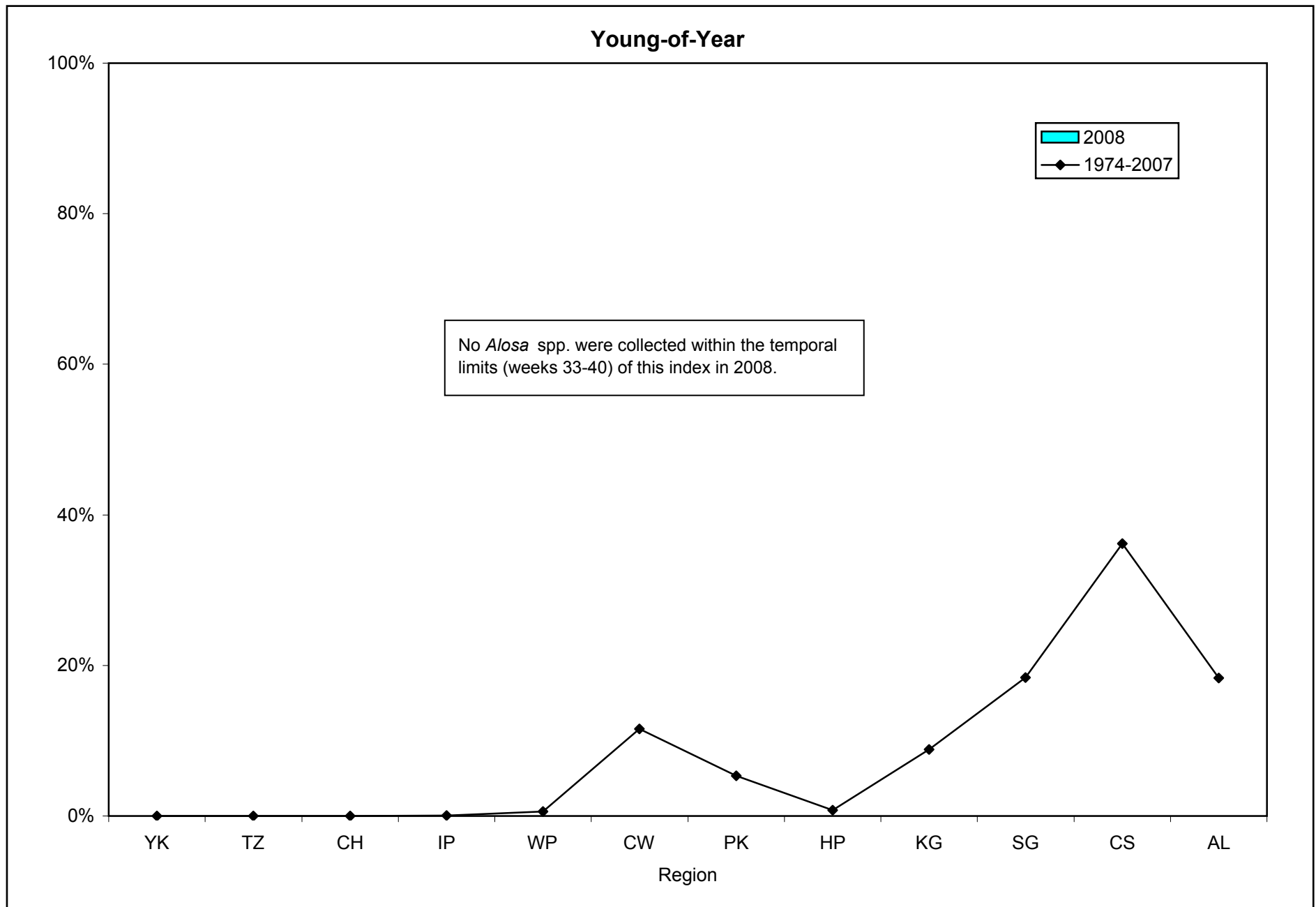


Figure 4-42. Geographic distribution indices for *Alosa* spp. collected during Beach Seine surveys of the Hudson River estuary, 1974-2008.



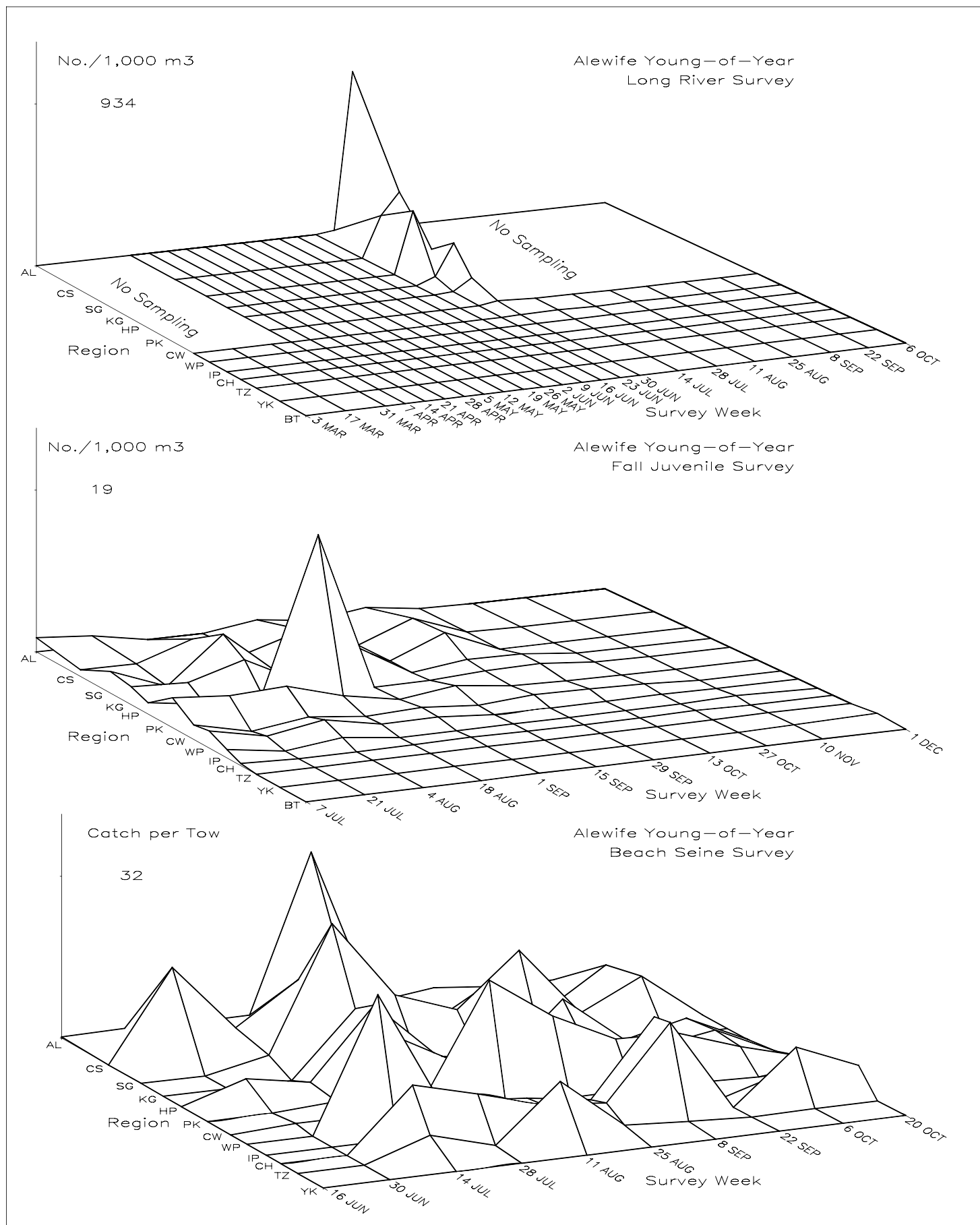


Figure 4-43. Spatiotemporal distribution of young-of-year alewife in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.

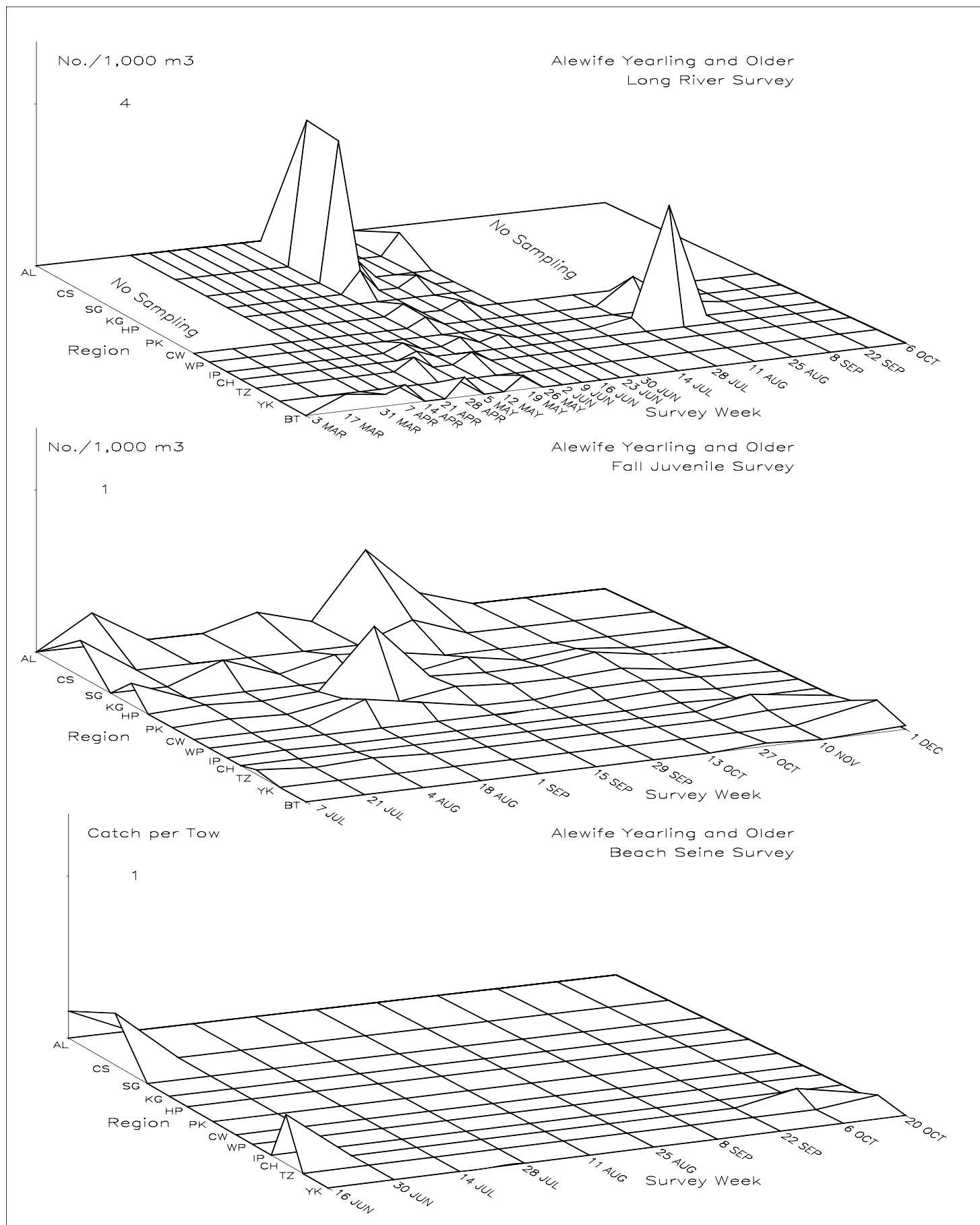


Figure 4-44. Spatiotemporal distribution of yearling and older alewife in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.

### Young-of-Year

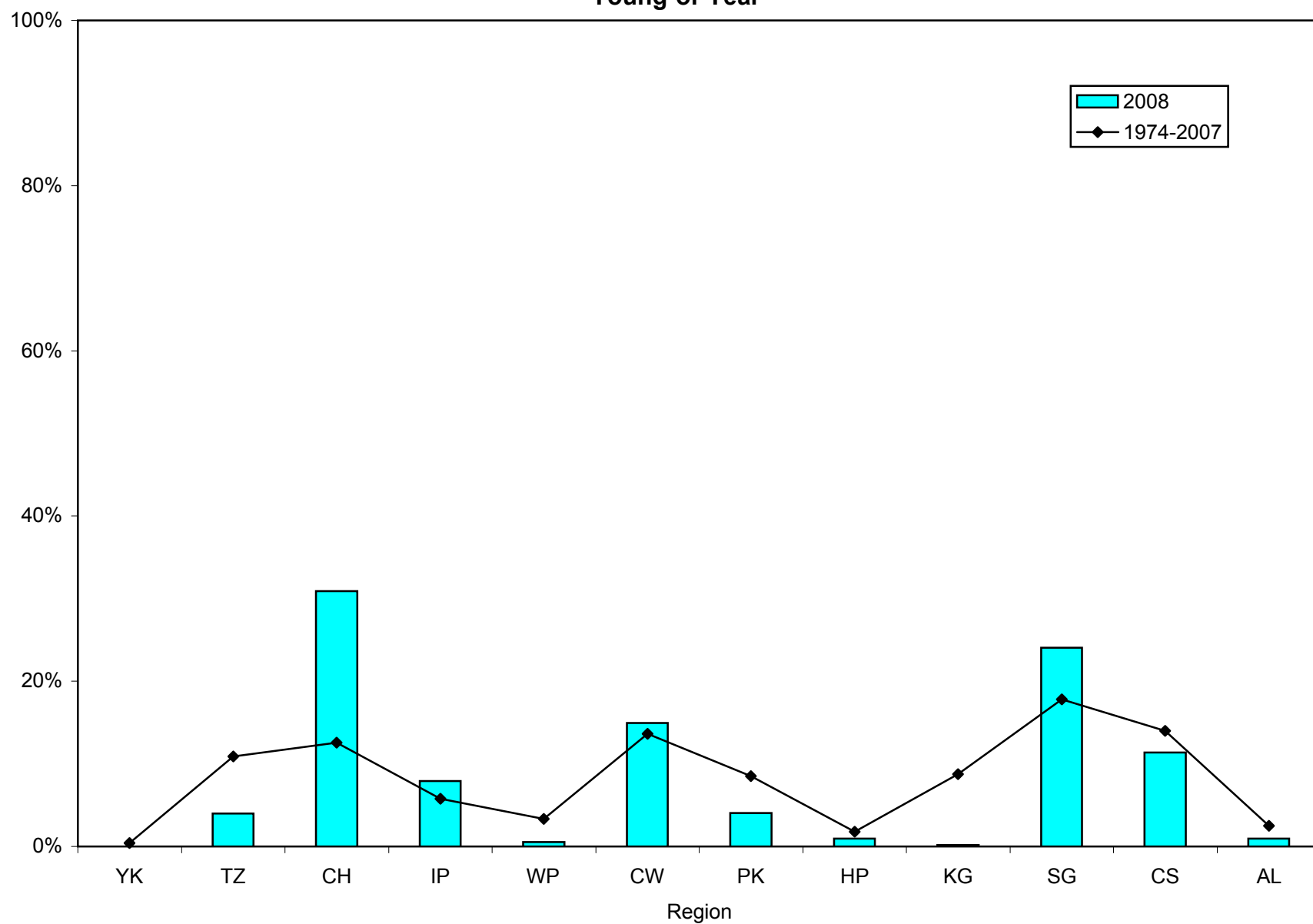


Figure 4-45. Geographic distribution indices for alewife collected during Beach Seine surveys of the Hudson River estuary, 1974-2008.

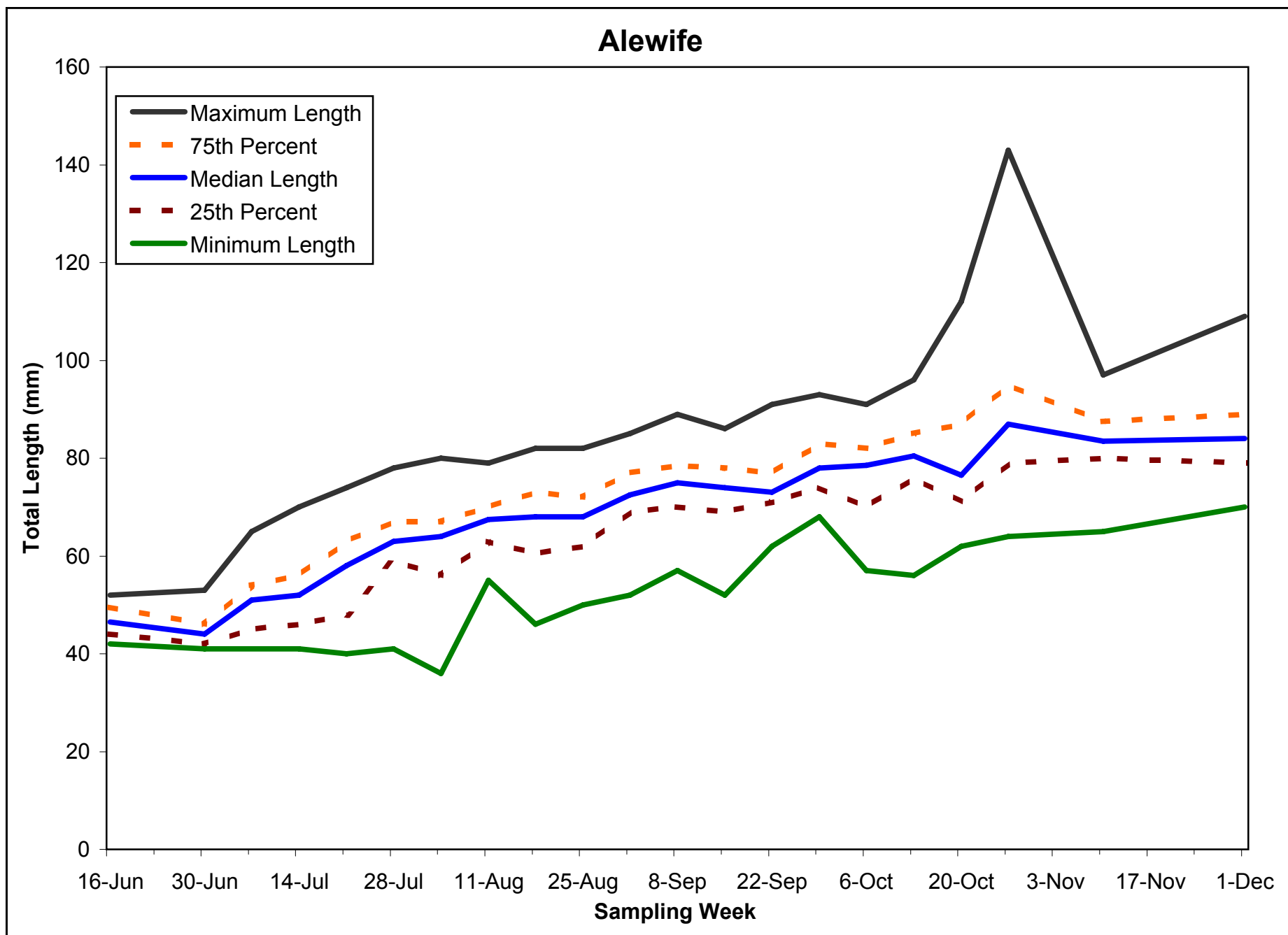


Figure 4-46. Weekly length statistics for young-of-year alewife in the Hudson River estuary, 2008.

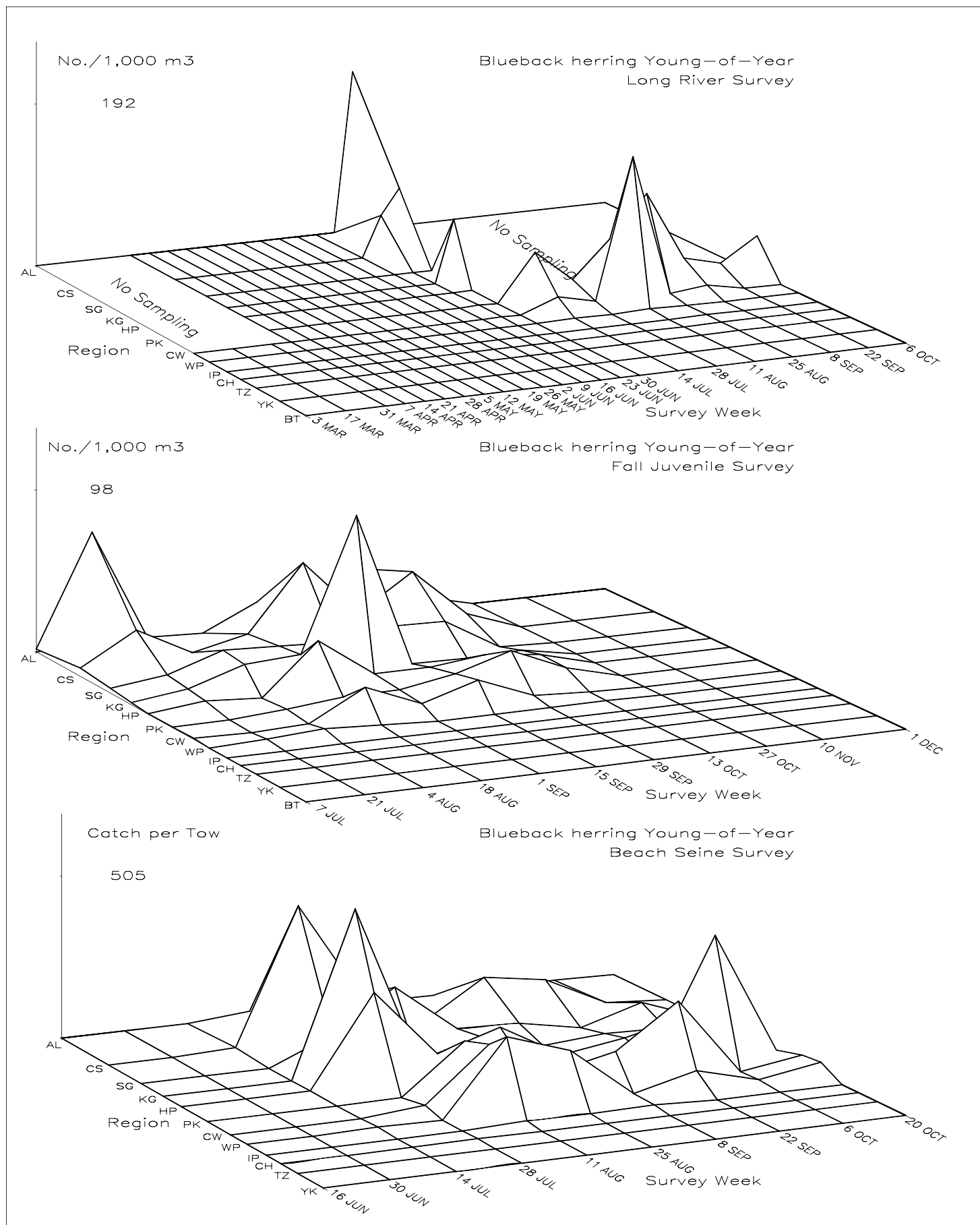


Figure 4-47. Spatiotemporal distribution of young-of-year blueback herring in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.

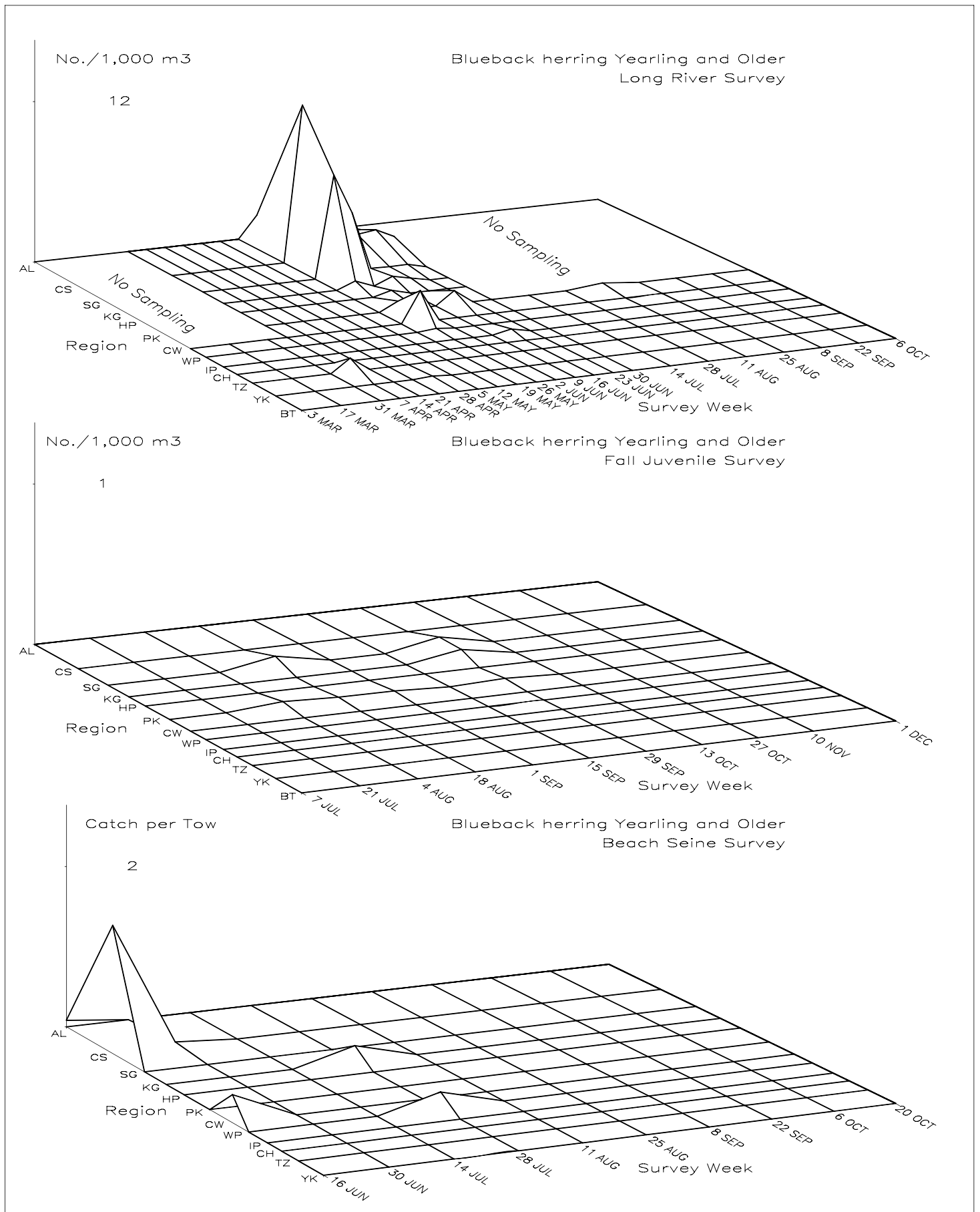


Figure 4–48. Spatiotemporal distribution of yearling and older blueback herring in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.

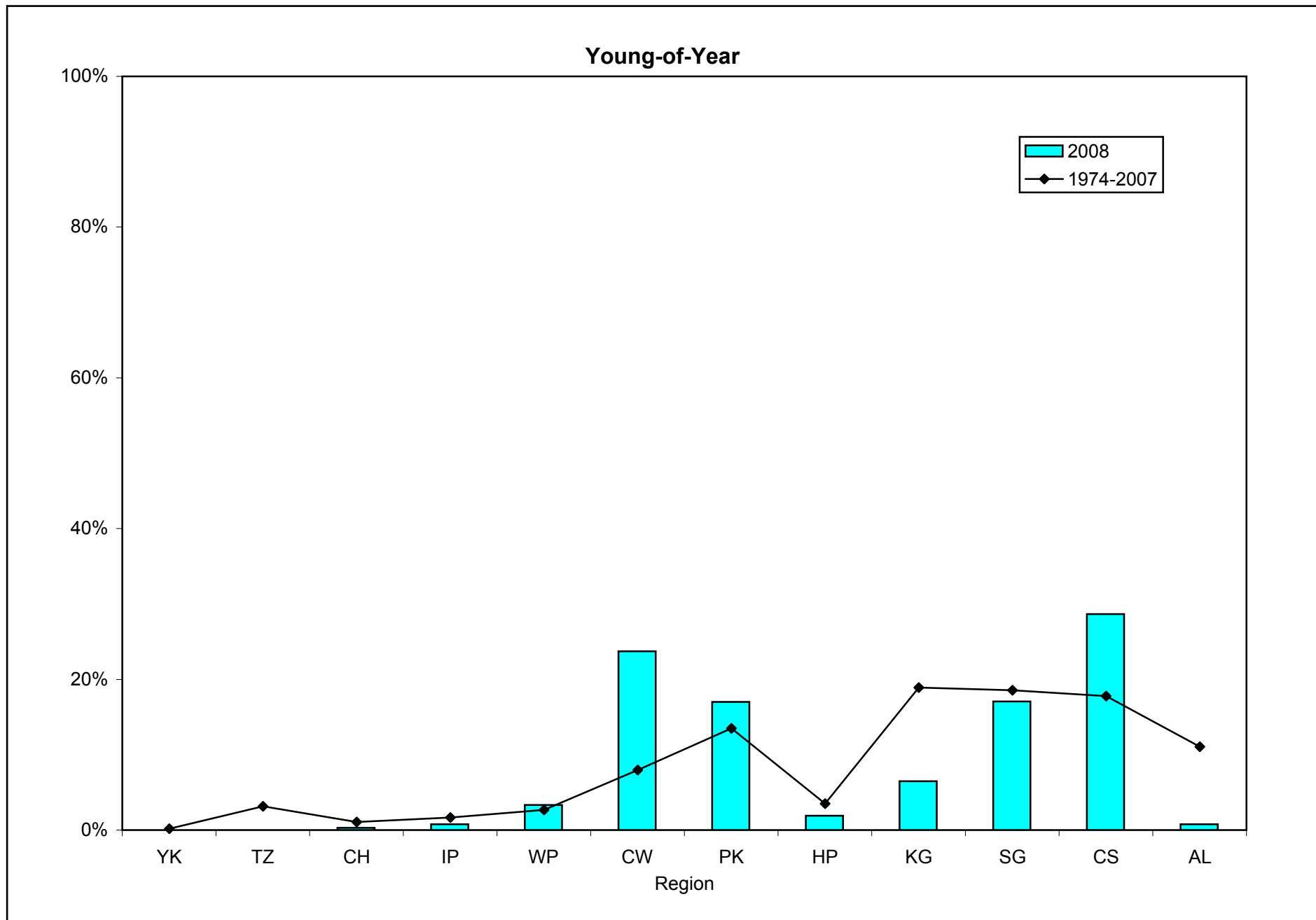


Figure 4-49. Geographic distribution indices for blueback herring collected during Beach Seine surveys of the Hudson River estuary, 1974-2008.

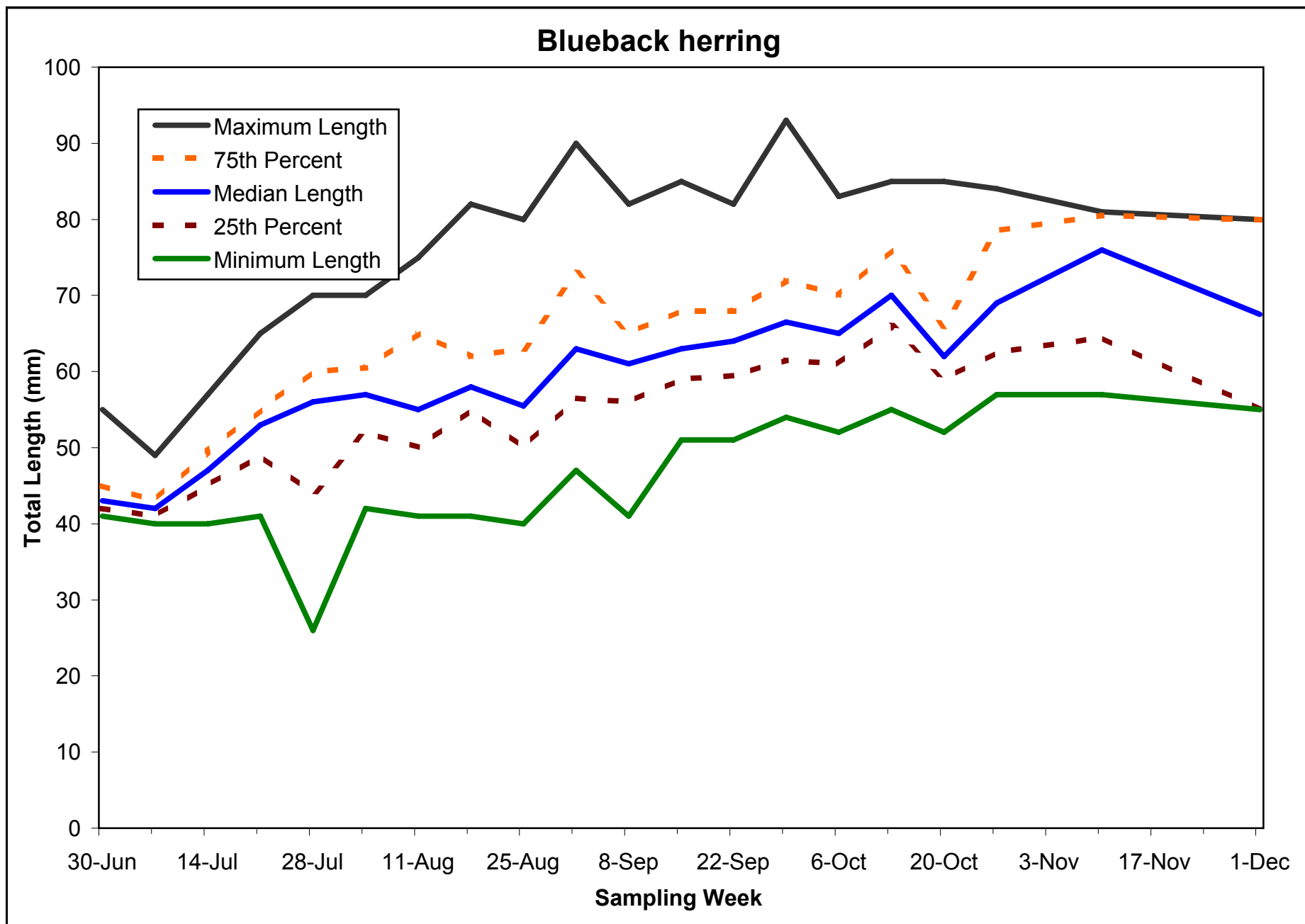


Figure 4-50. Weekly length statistics for young-of-year blueback herring in the Hudson River estuary, 2008.



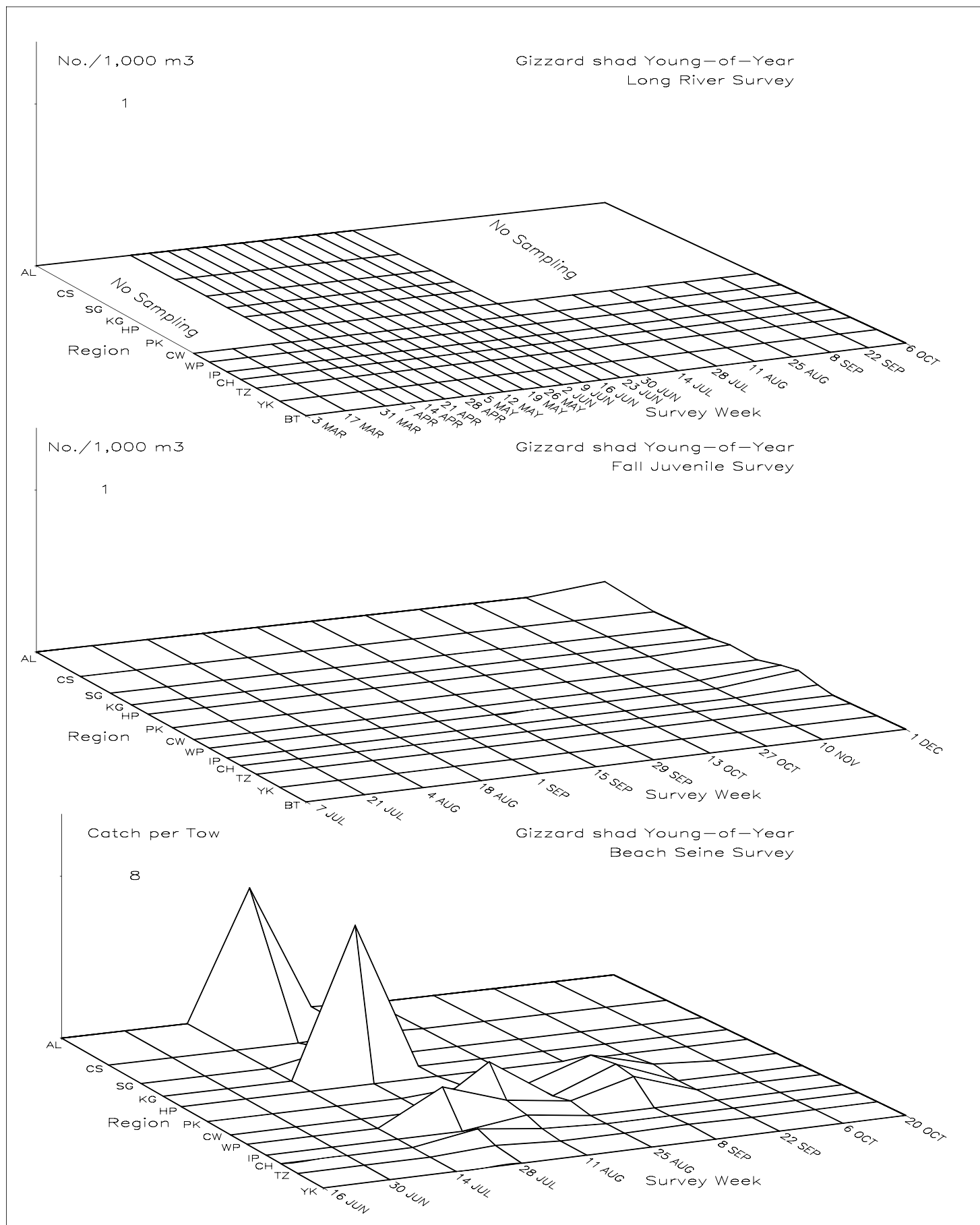


Figure 4–51. Spatiotemporal distribution of young-of-year gizzard shad in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.

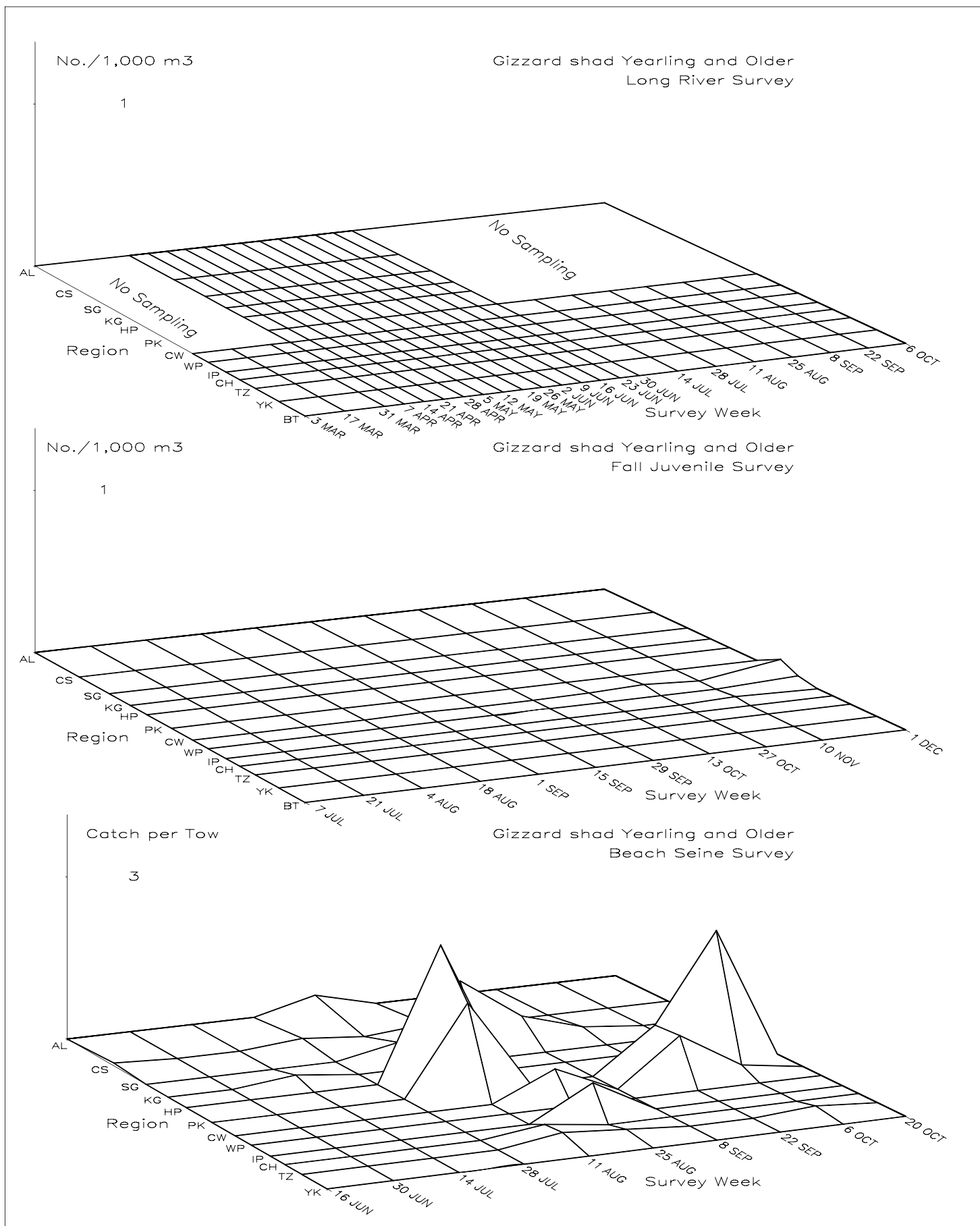


Figure 4–52. Spatiotemporal distribution of yearling and older gizzard shad in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.

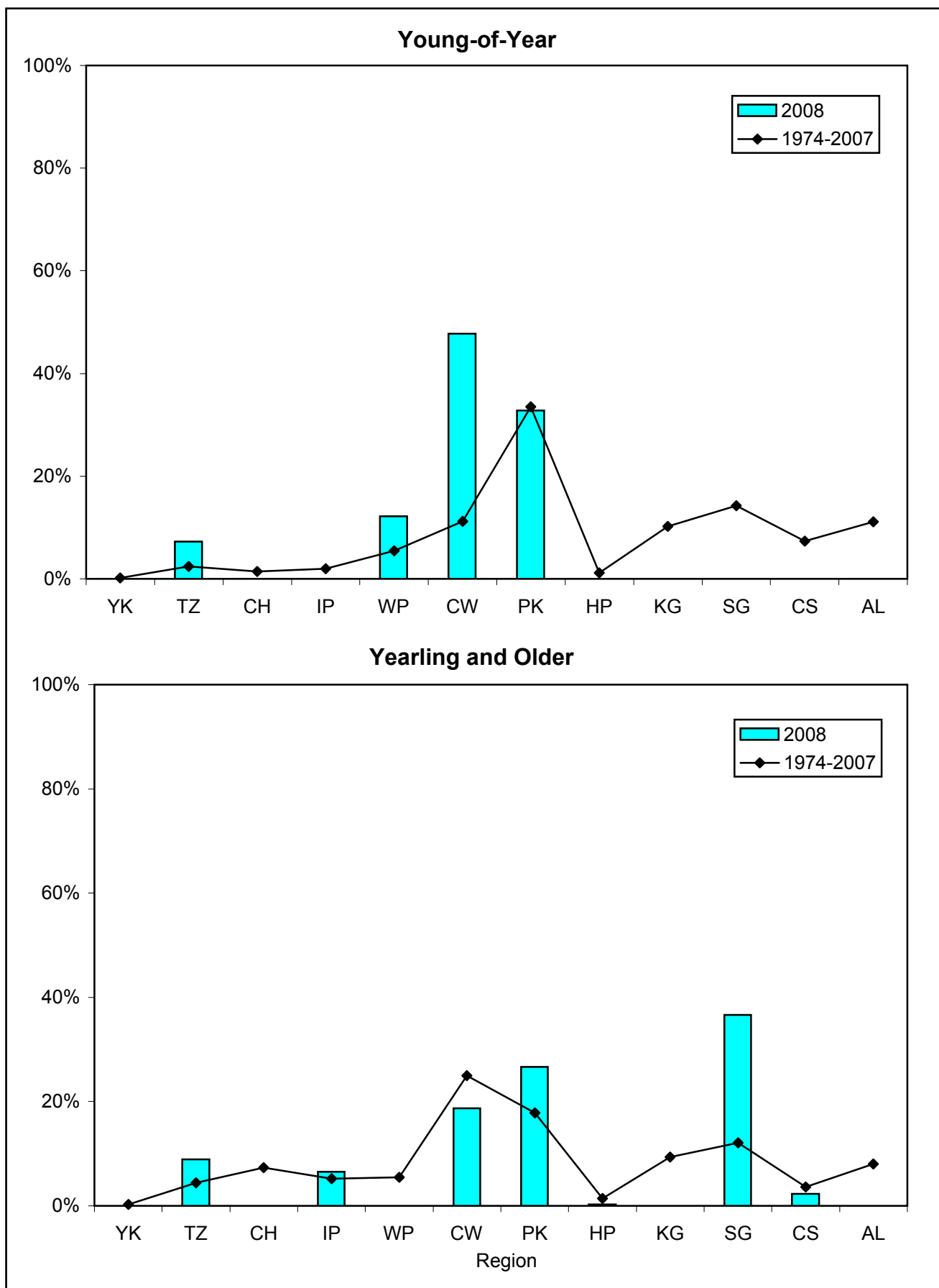


Figure 4-53. Geographic distribution indices for gizzard shad collected during Beach Seine surveys of the Hudson River estuary, 1974-2008.

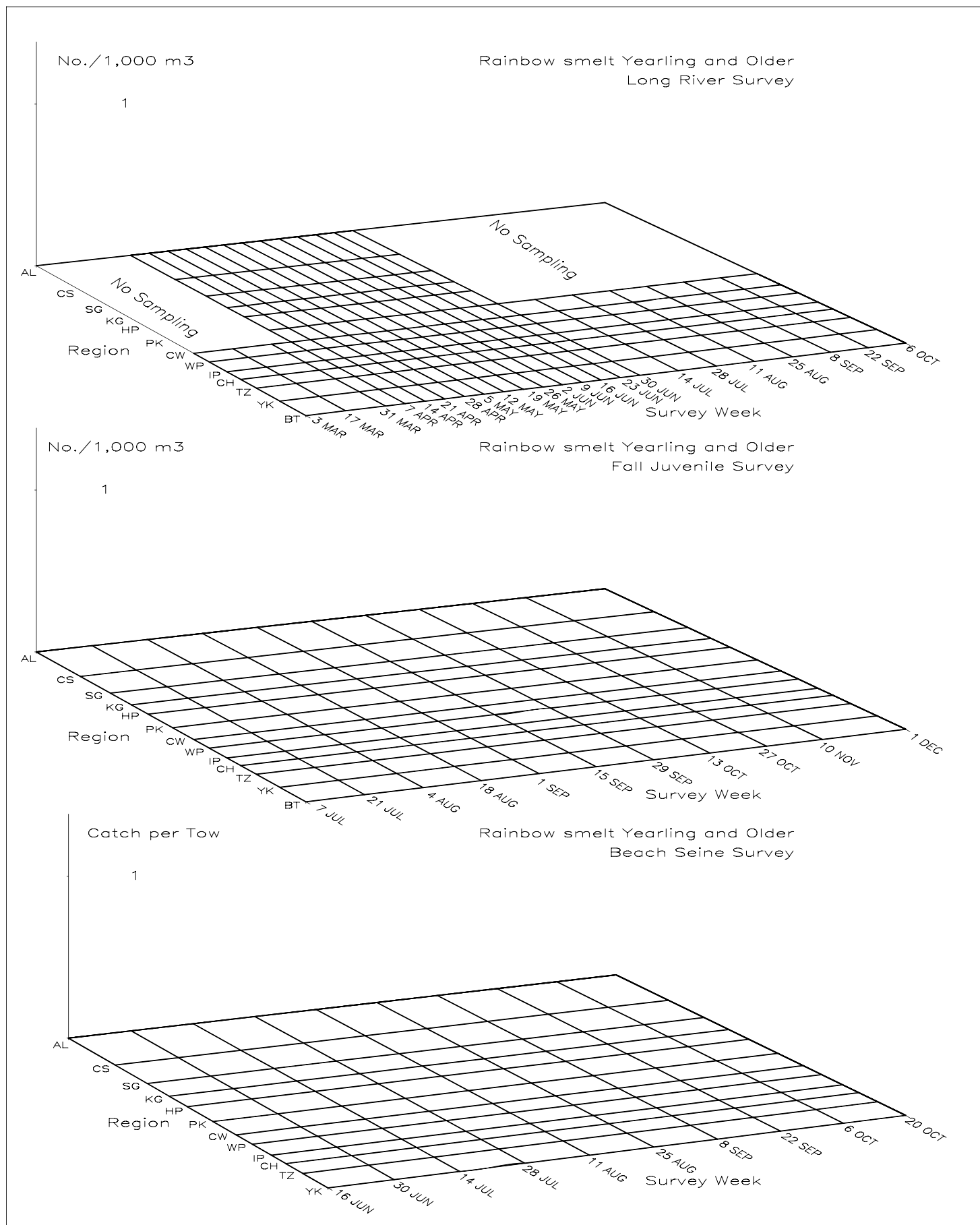


Figure 4–54. Spatiotemporal distribution of yearling and older rainbow smelt in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.

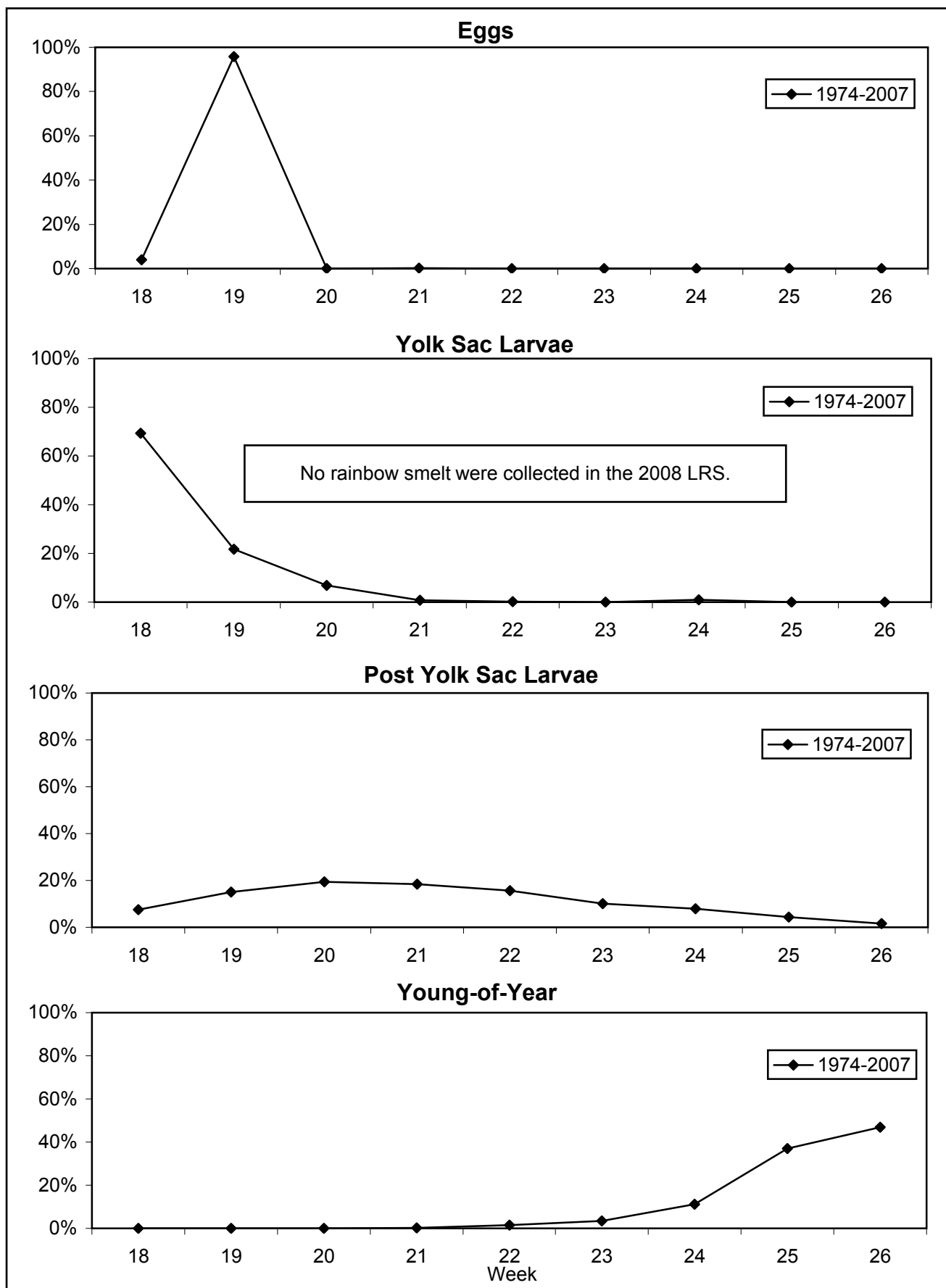


Figure 4-55. Temporal distribution indices for rainbow smelt collected during Long River surveys of the Hudson River estuary, 1974-2008.

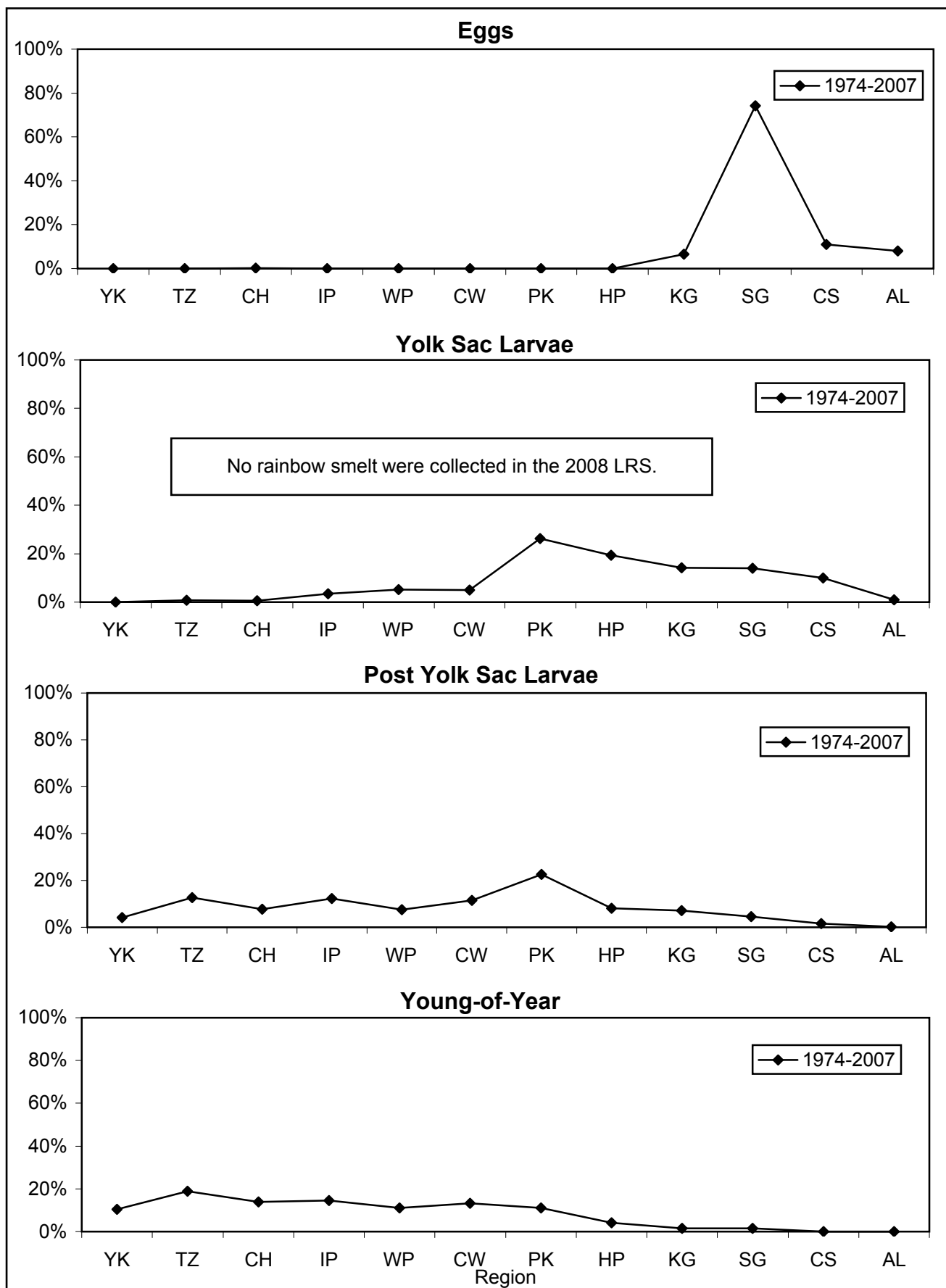


Figure 4-56. Geographic distribution indices for rainbow smelt collected during Long River surveys of the Hudson River estuary, 1974-2008.

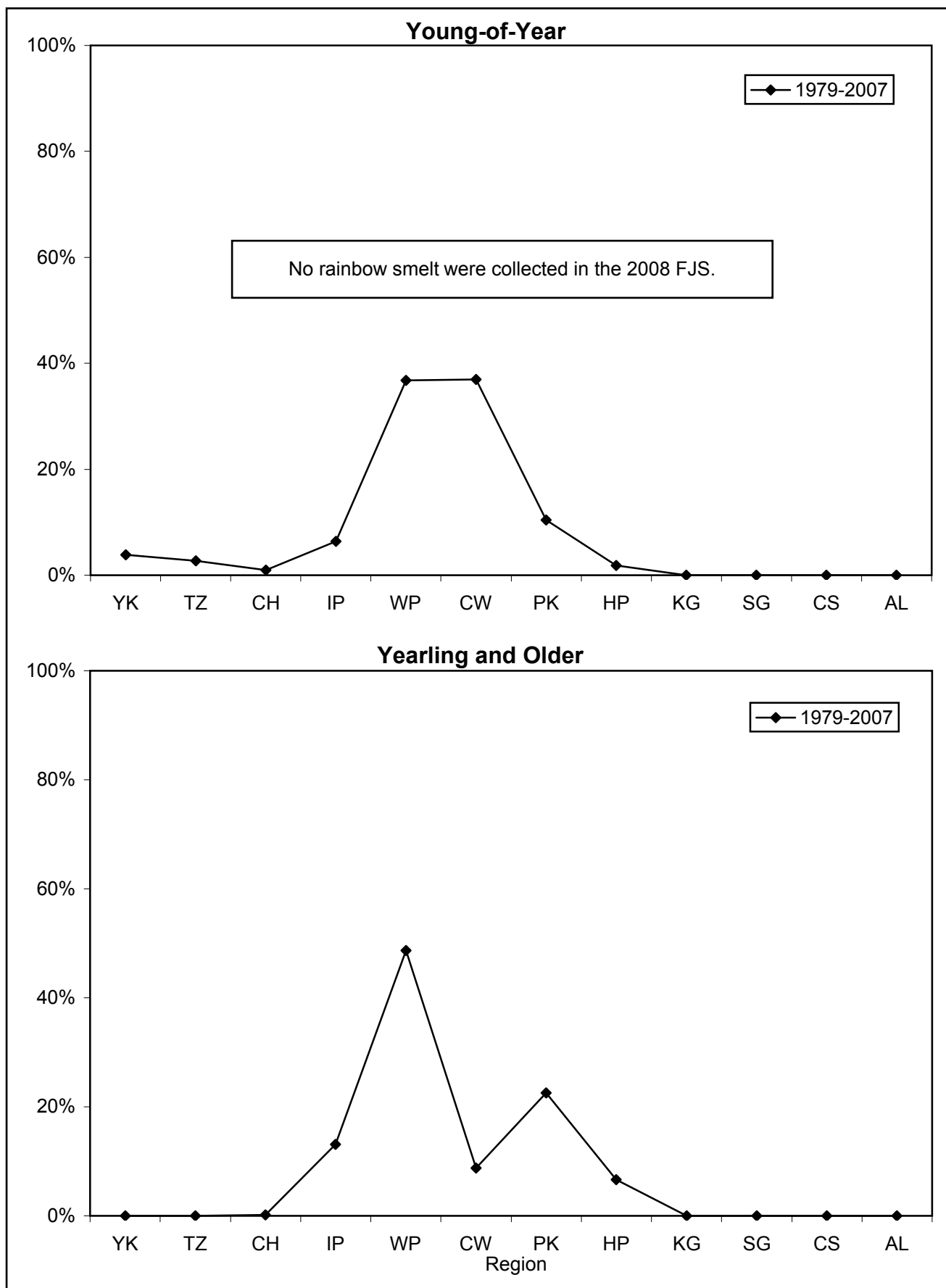


Figure 4-57. Geographic distribution indices for rainbow smelt collected during Fall Juvenile surveys of the Hudson River estuary, 1979-2008.

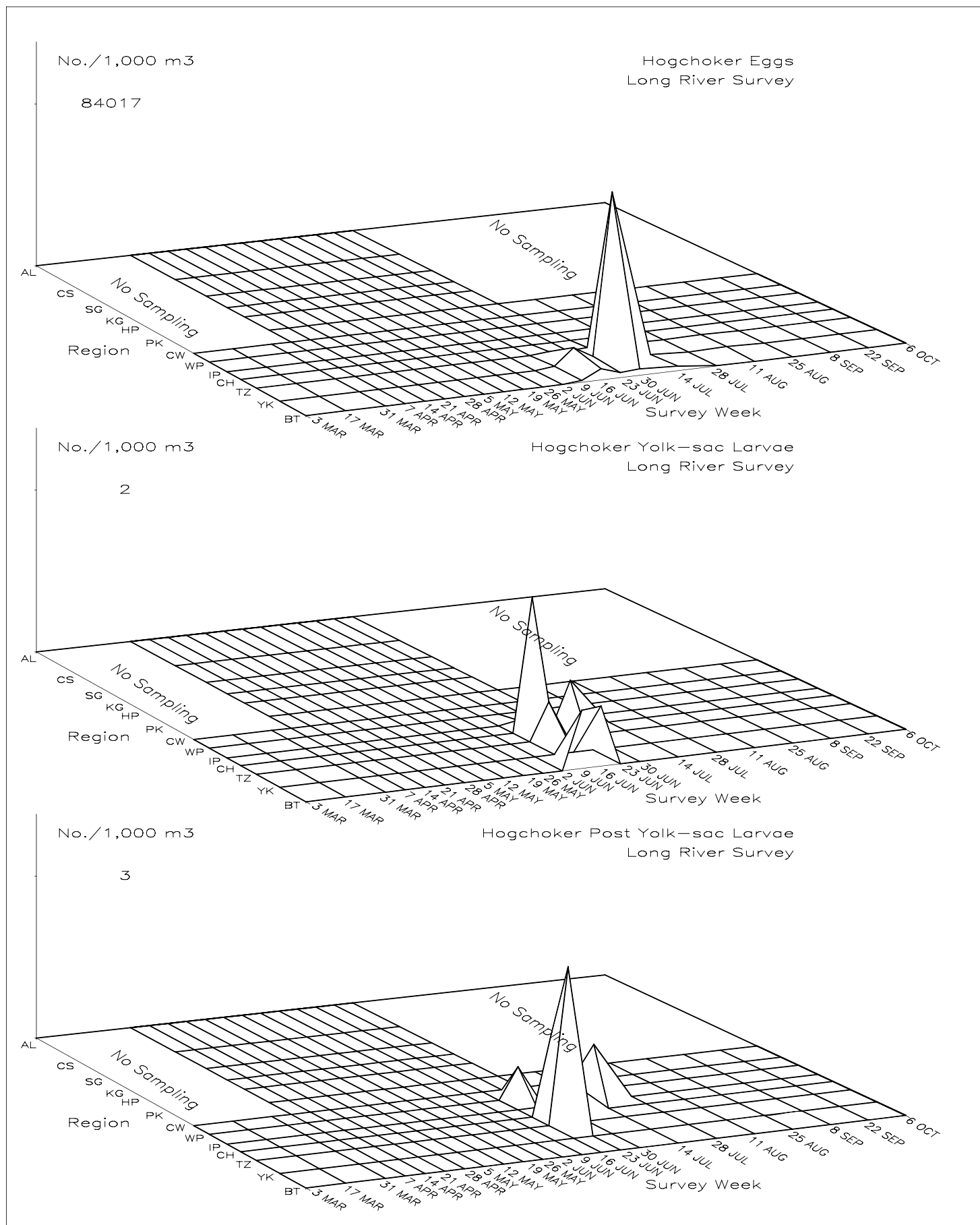


Figure 4-58. Spatiotemporal distribution of eggs, yolk-sac, and post yolk-sac larval hogchoker in the Hudson River estuary based on the 2008 Long River Survey.



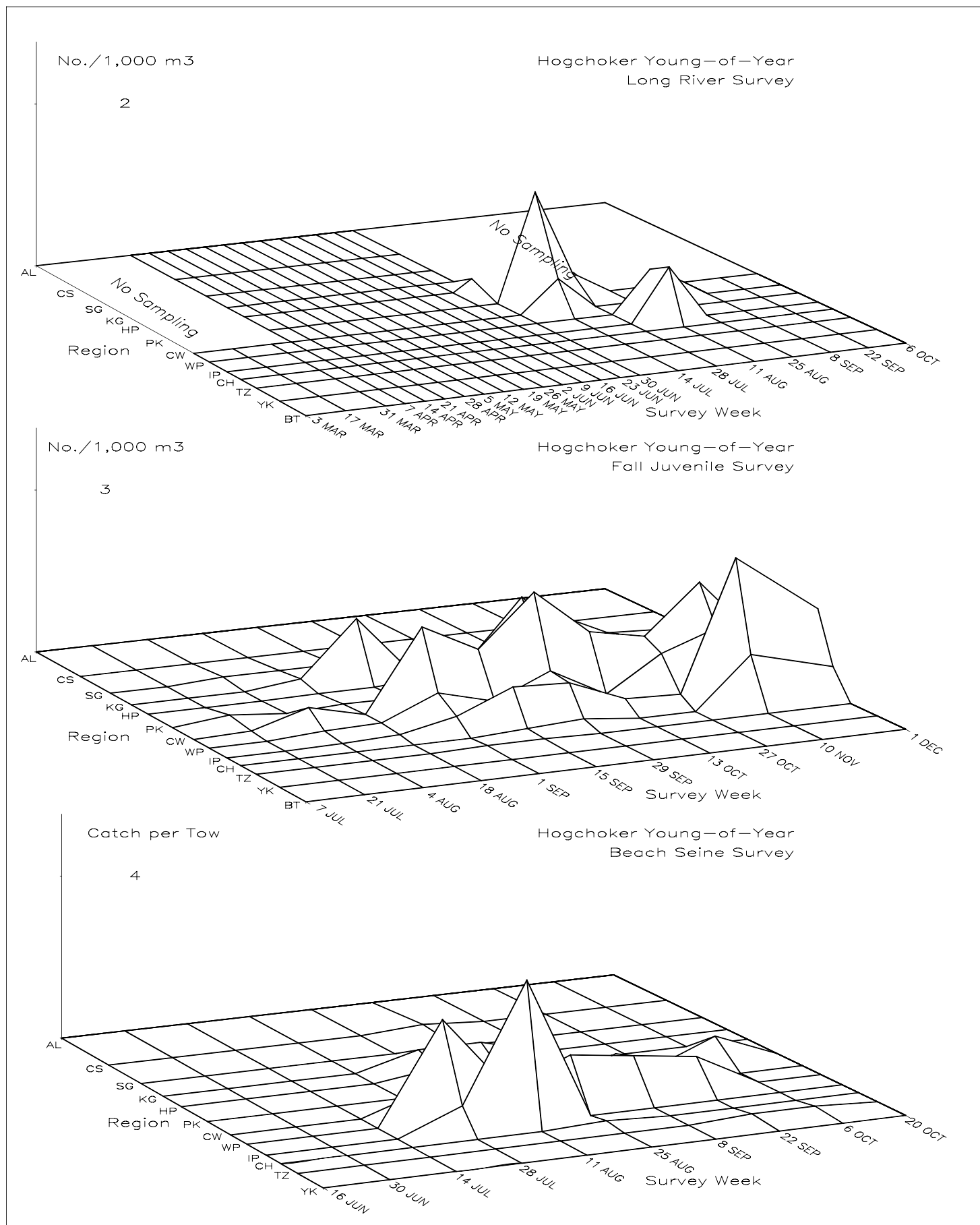


Figure 4-59. Spatiotemporal distribution of young-of-year hogchoker in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.

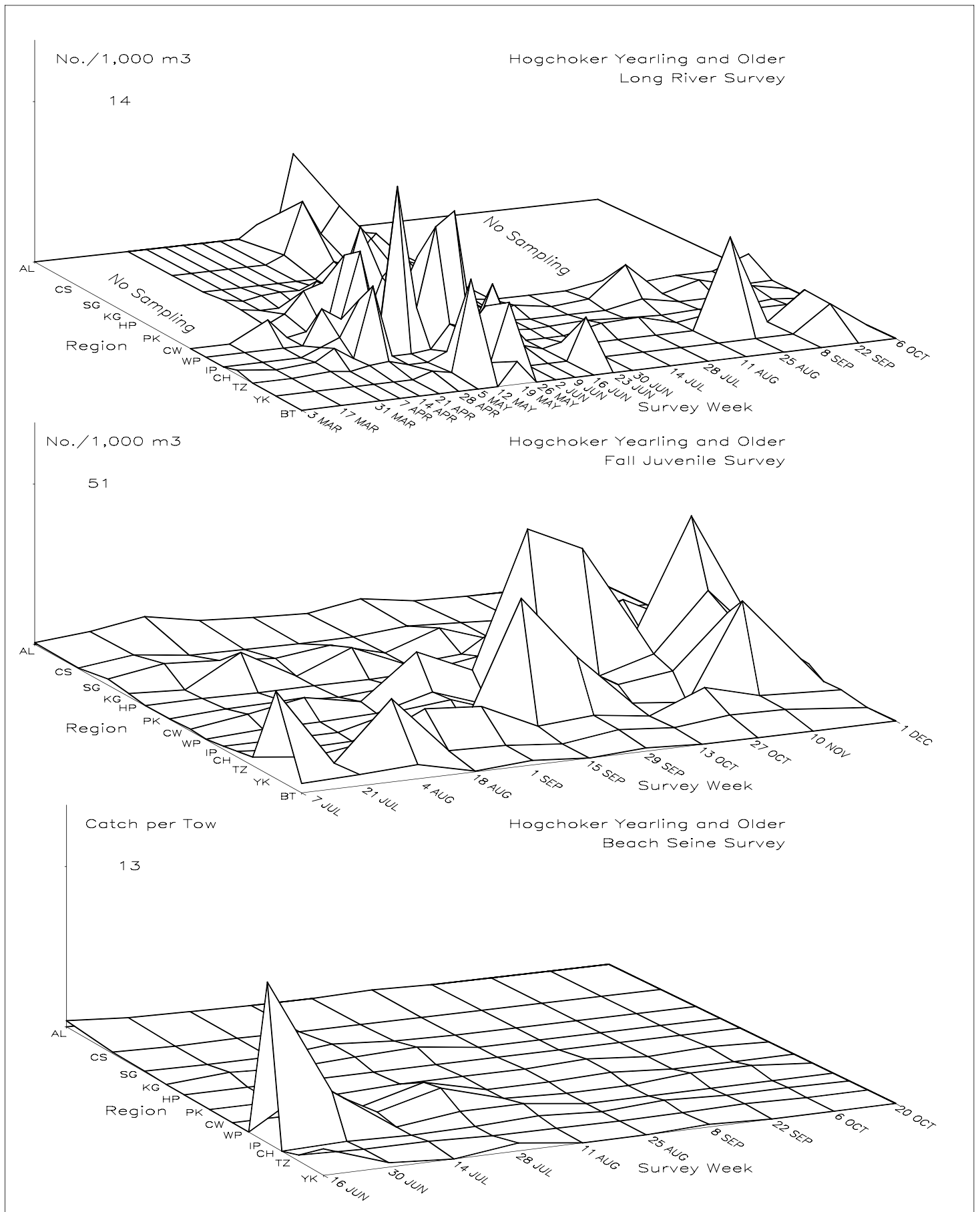


Figure 4–60. Spatiotemporal distribution of yearling and older hogchoker in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.

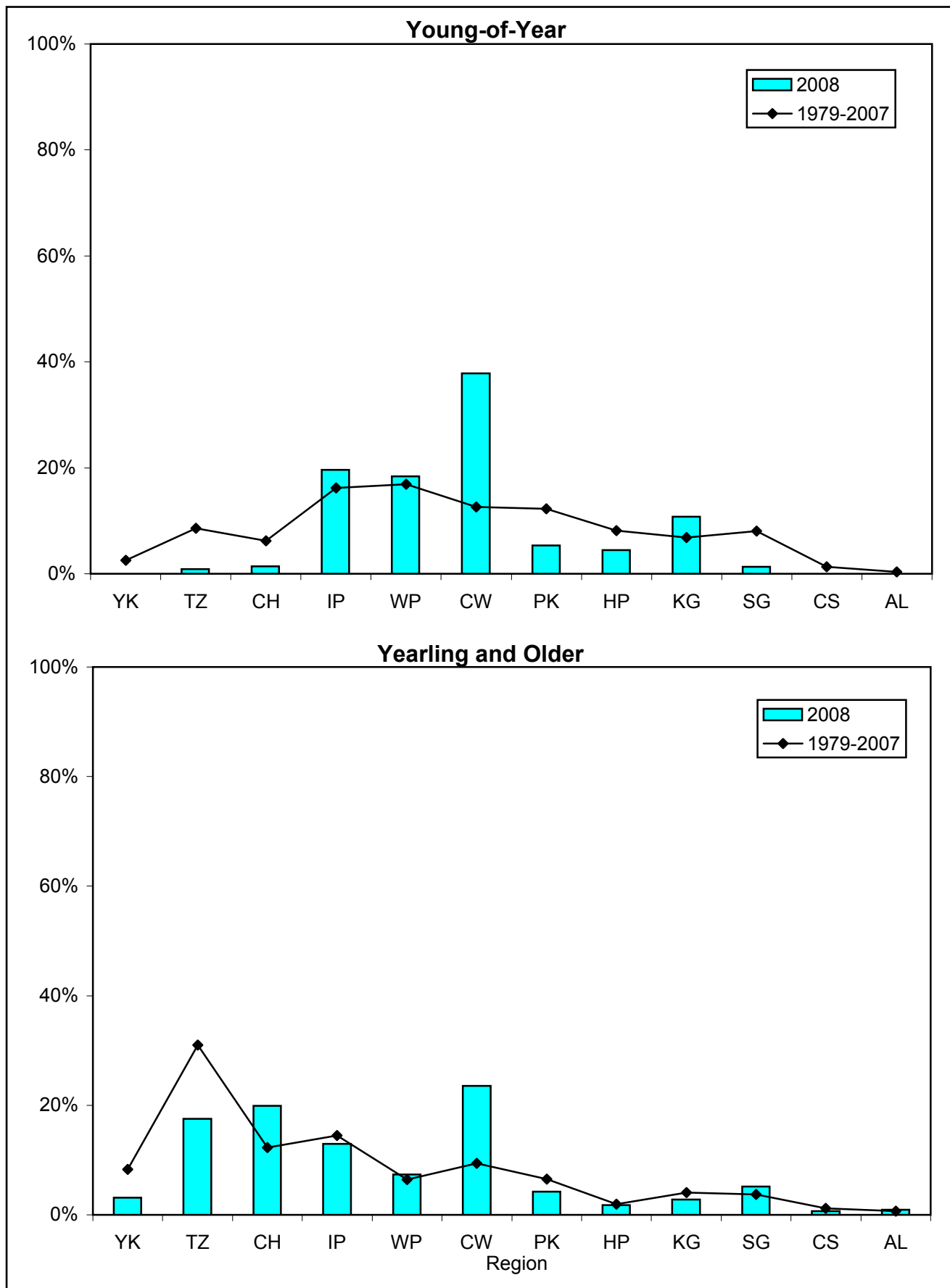


Figure 4-61. Geographic distribution indices for hogchoker collected during Fall Juvenile surveys of the Hudson River estuary, 1979-2008.

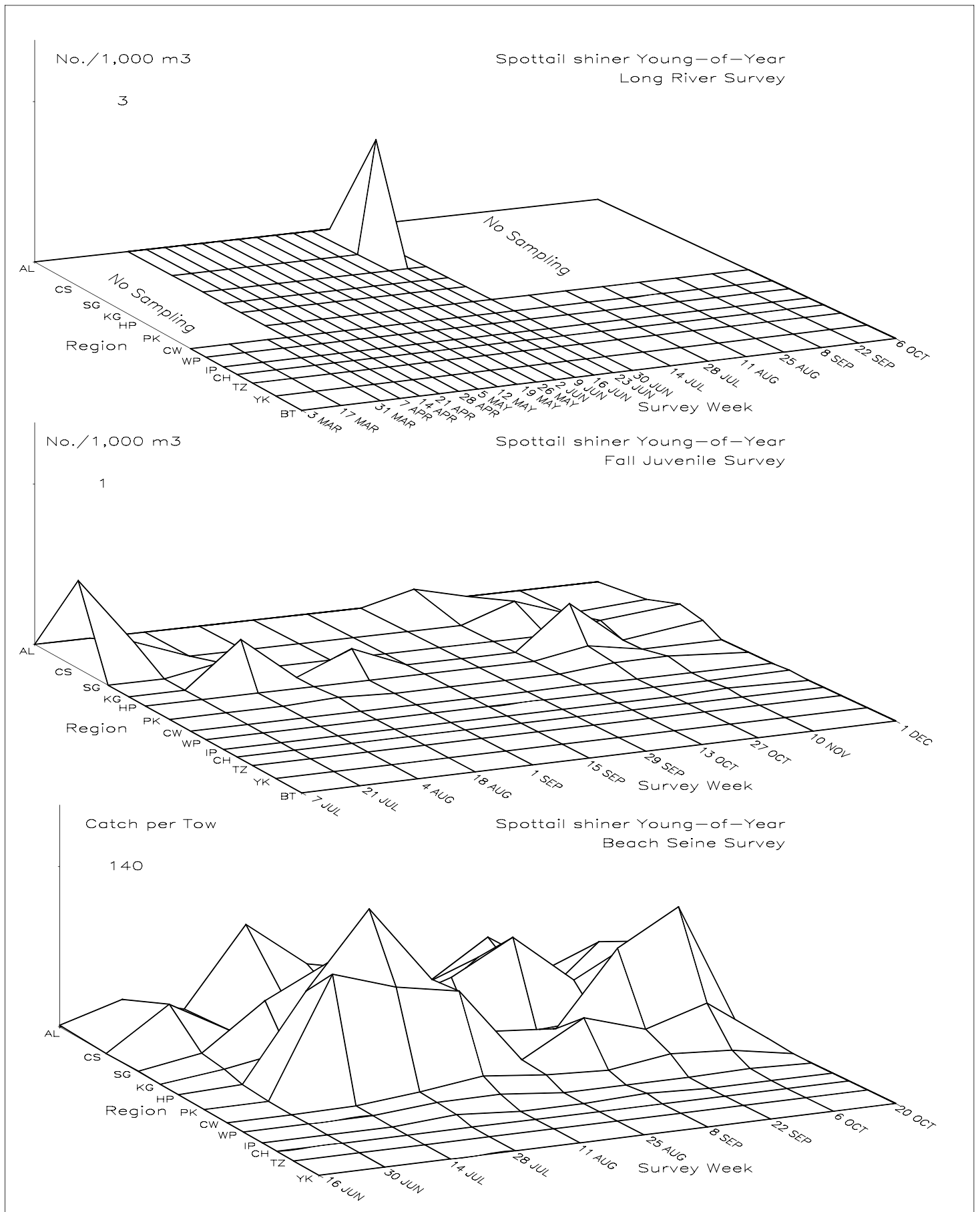


Figure 4-62. Spatiotemporal distribution of young-of-year spottail shiner in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.

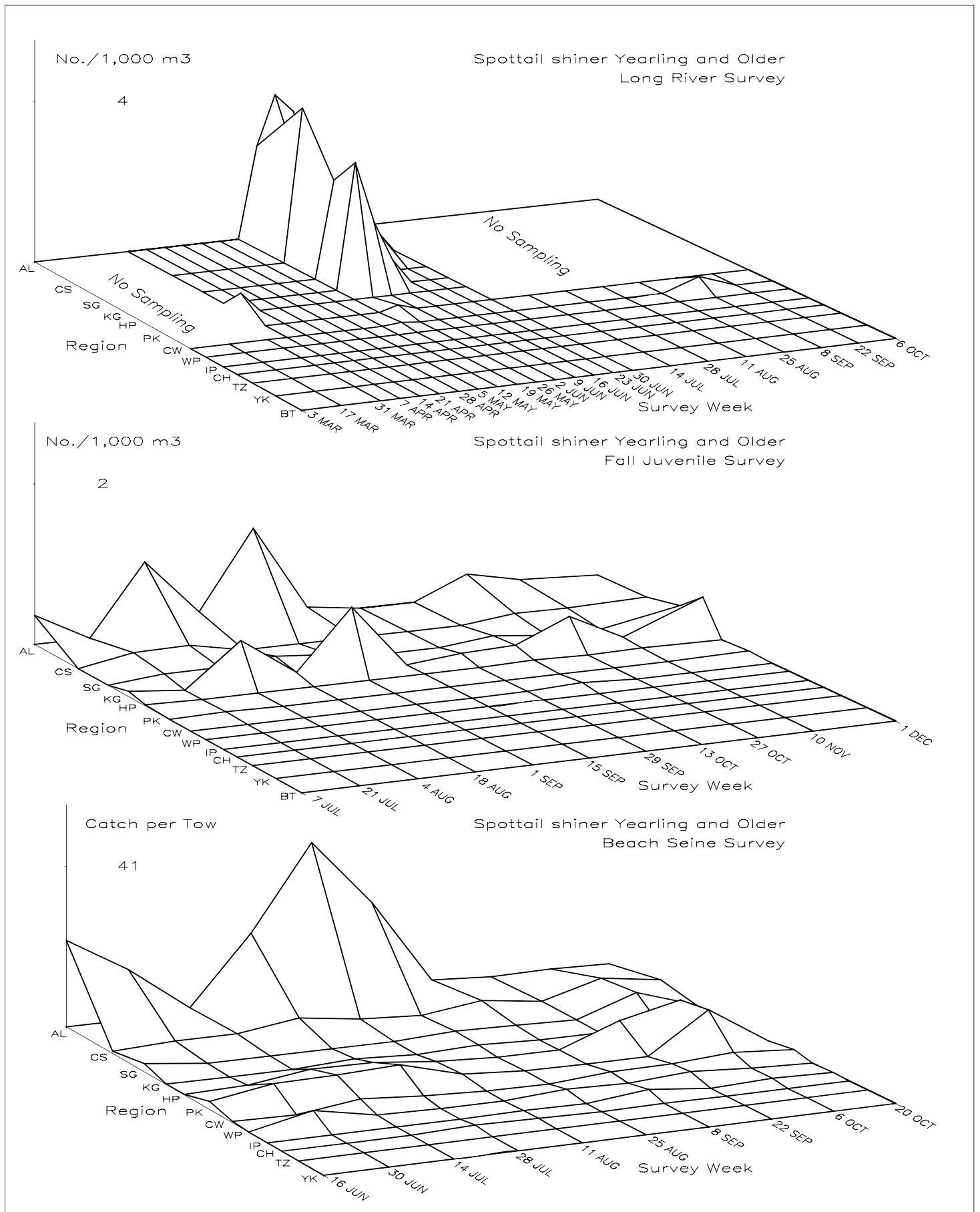


Figure 4–63. Spatiotemporal distribution of yearling and older spottail shiner in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.

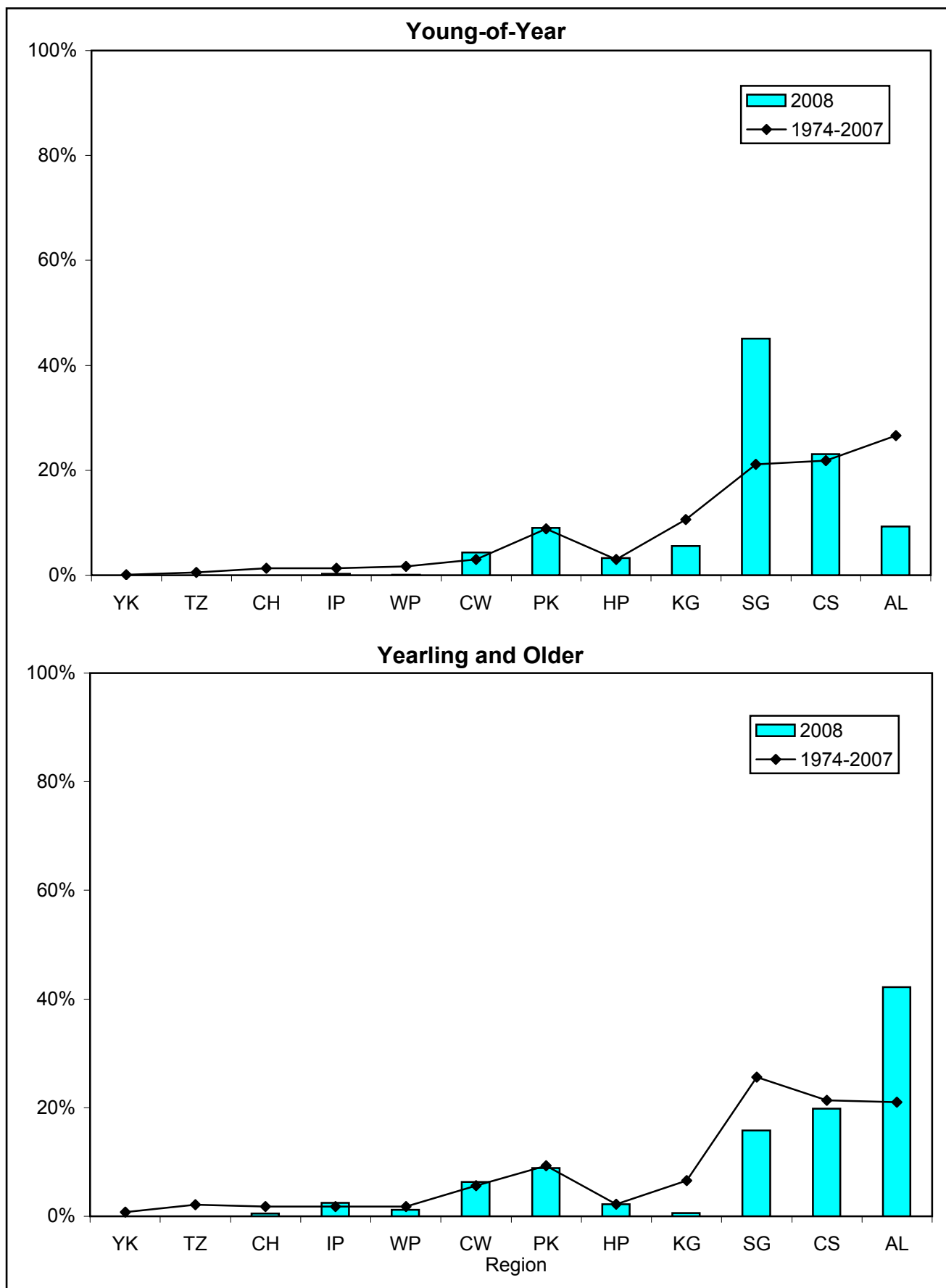


Figure 4-64. Geographic distribution indices for spottail shiner collected during Beach Seine surveys of the Hudson River estuary, 1974-2008.

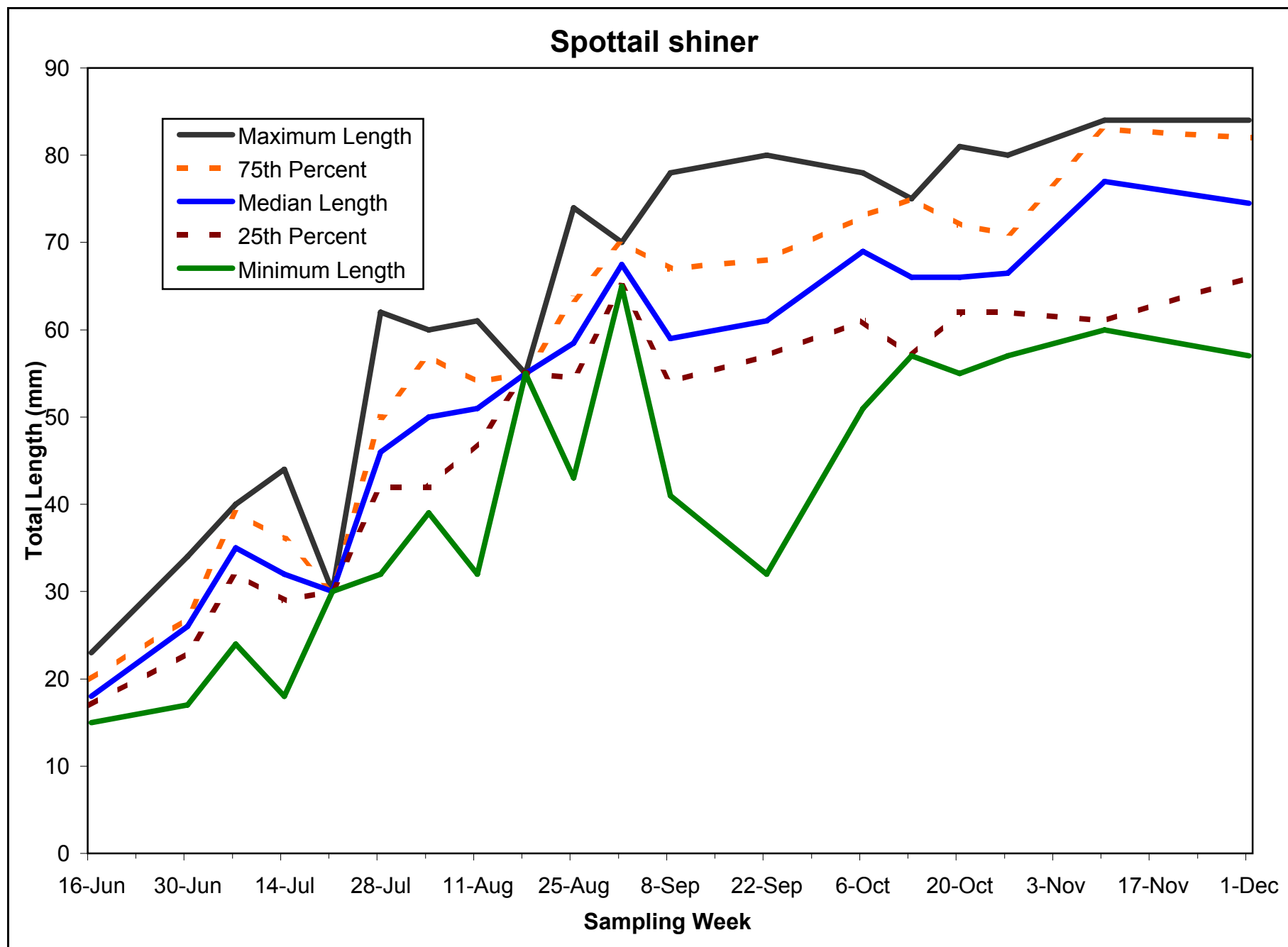


Figure 4-65. Weekly length statistics for young-of-year spottail shiner in the Hudson River estuary, 2008.

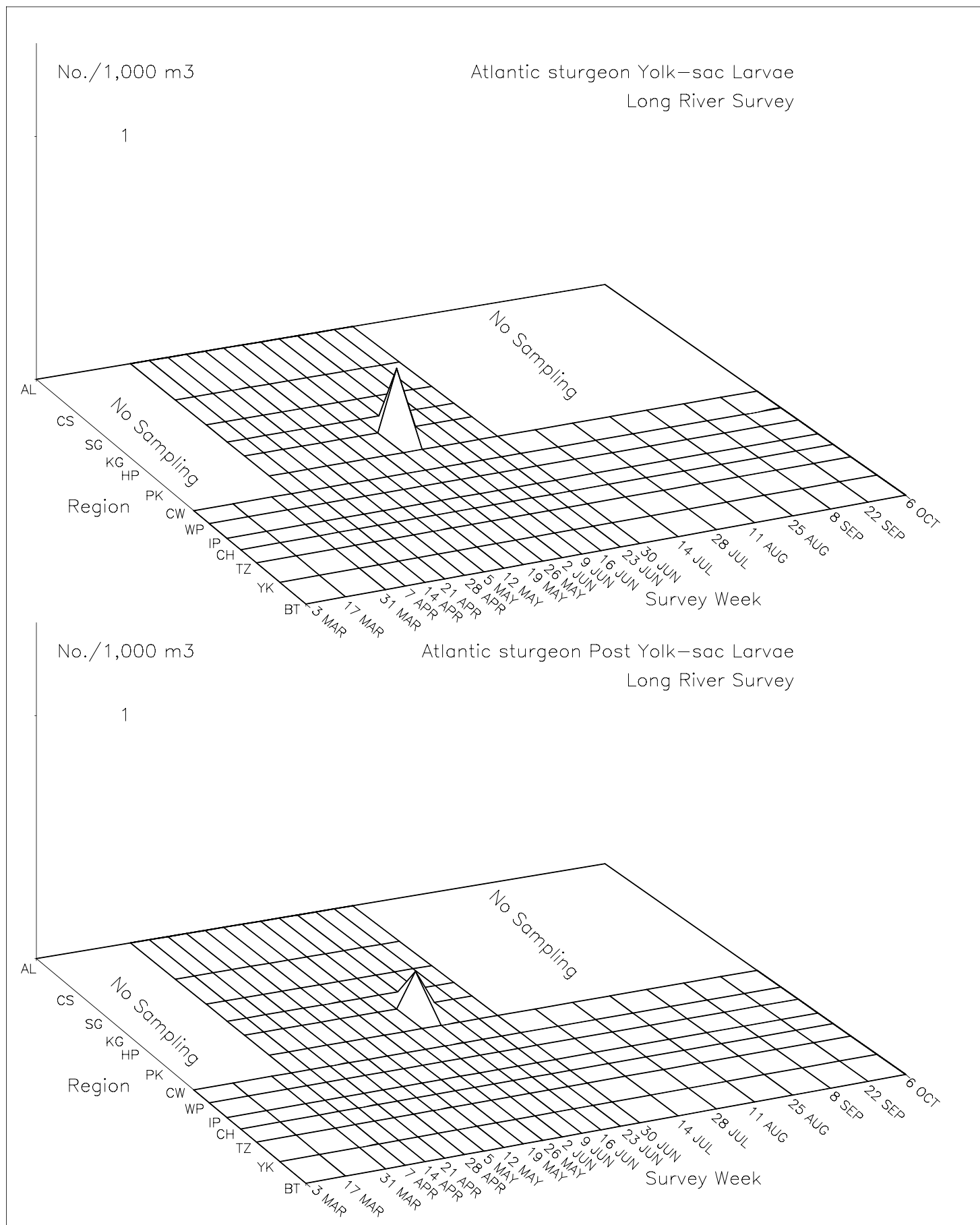


Figure 4–66. Spatiotemporal distribution of yolk-sac and post yolk-sac larval Atlantic sturgeon in the Hudson River estuary based on the 2008 Long River Survey.



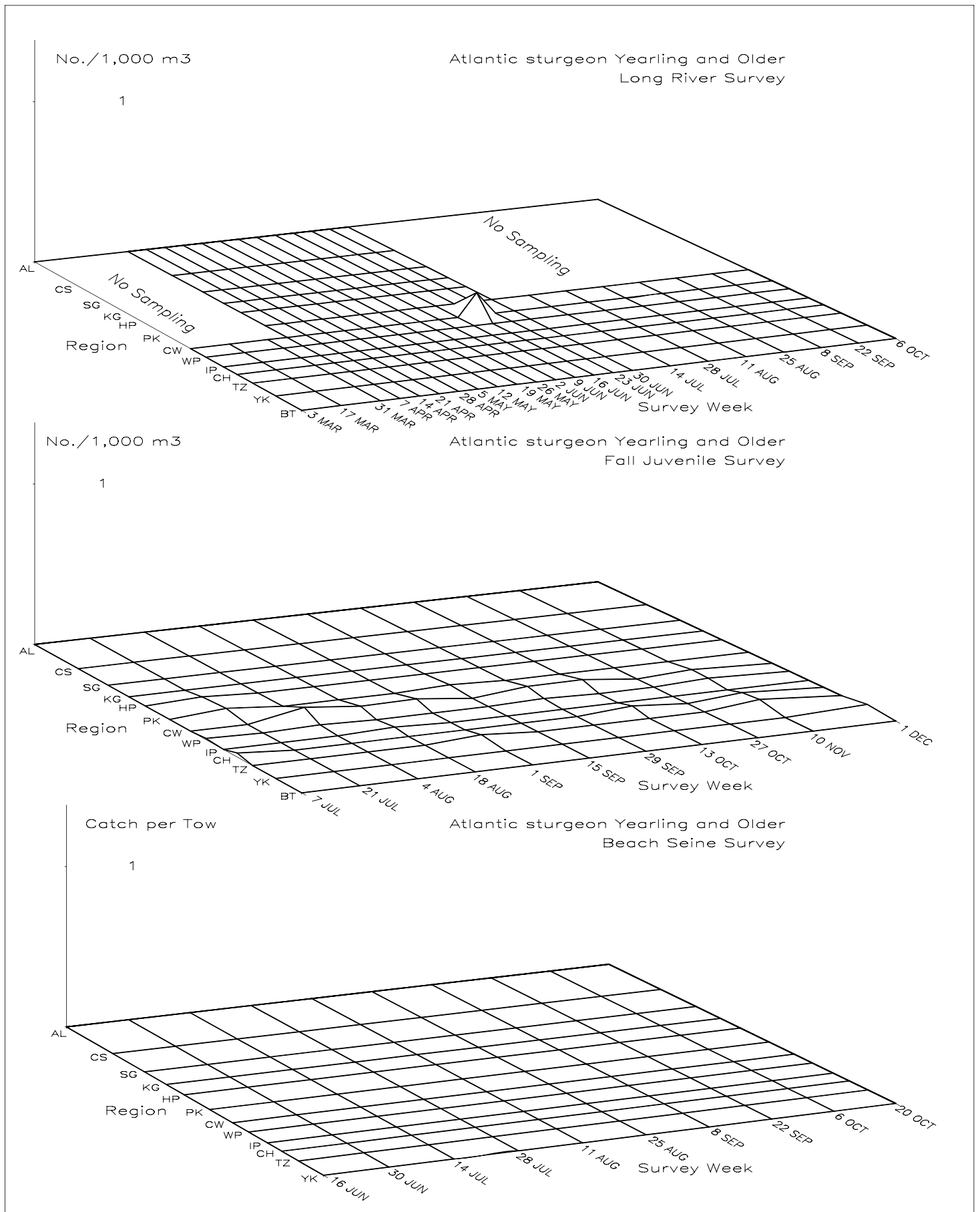


Figure 4–67. Spatiotemporal distribution of yearling and older Atlantic sturgeon in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.

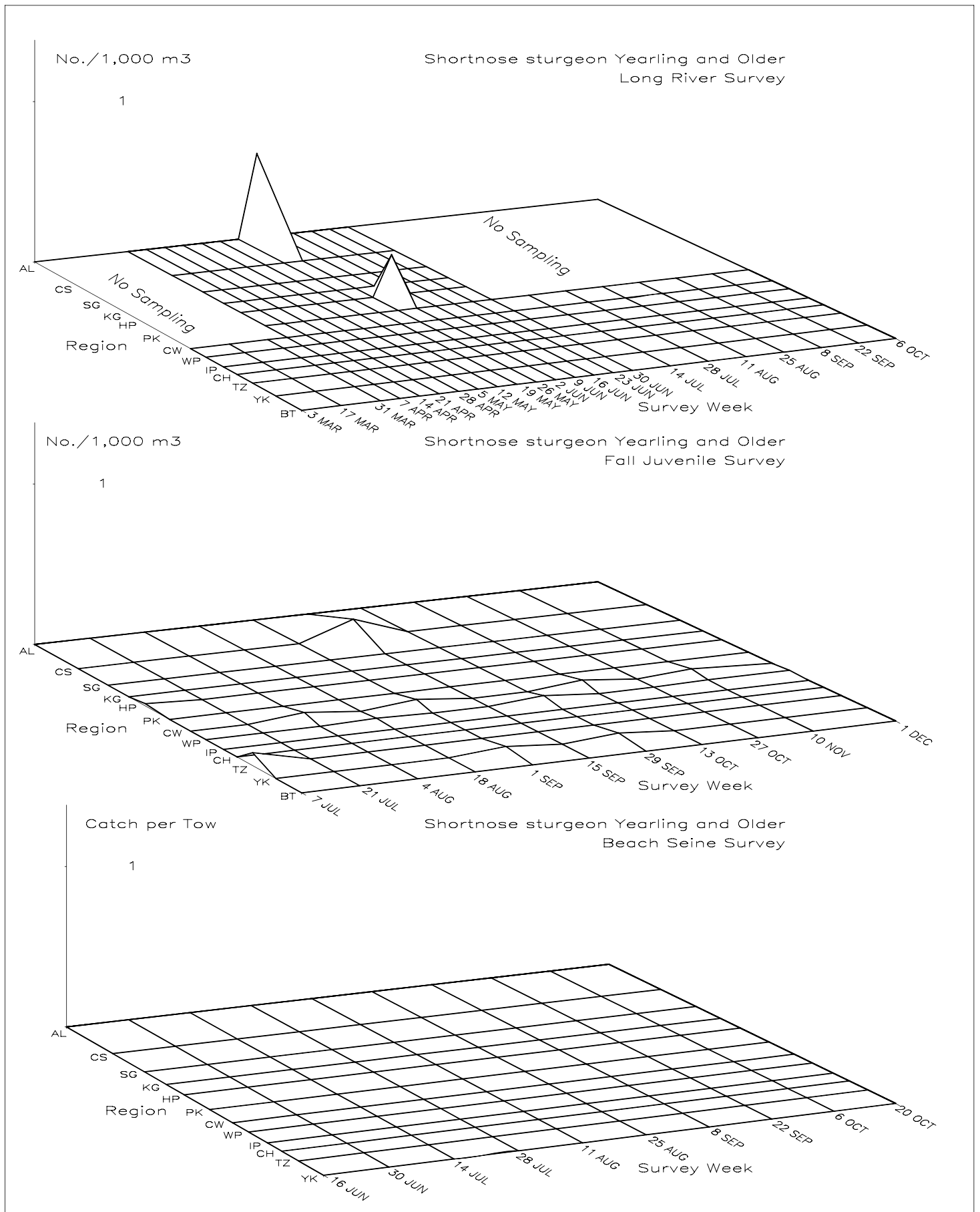


Figure 4–68. Spatiotemporal distribution of yearling and older shortnose sturgeon in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.

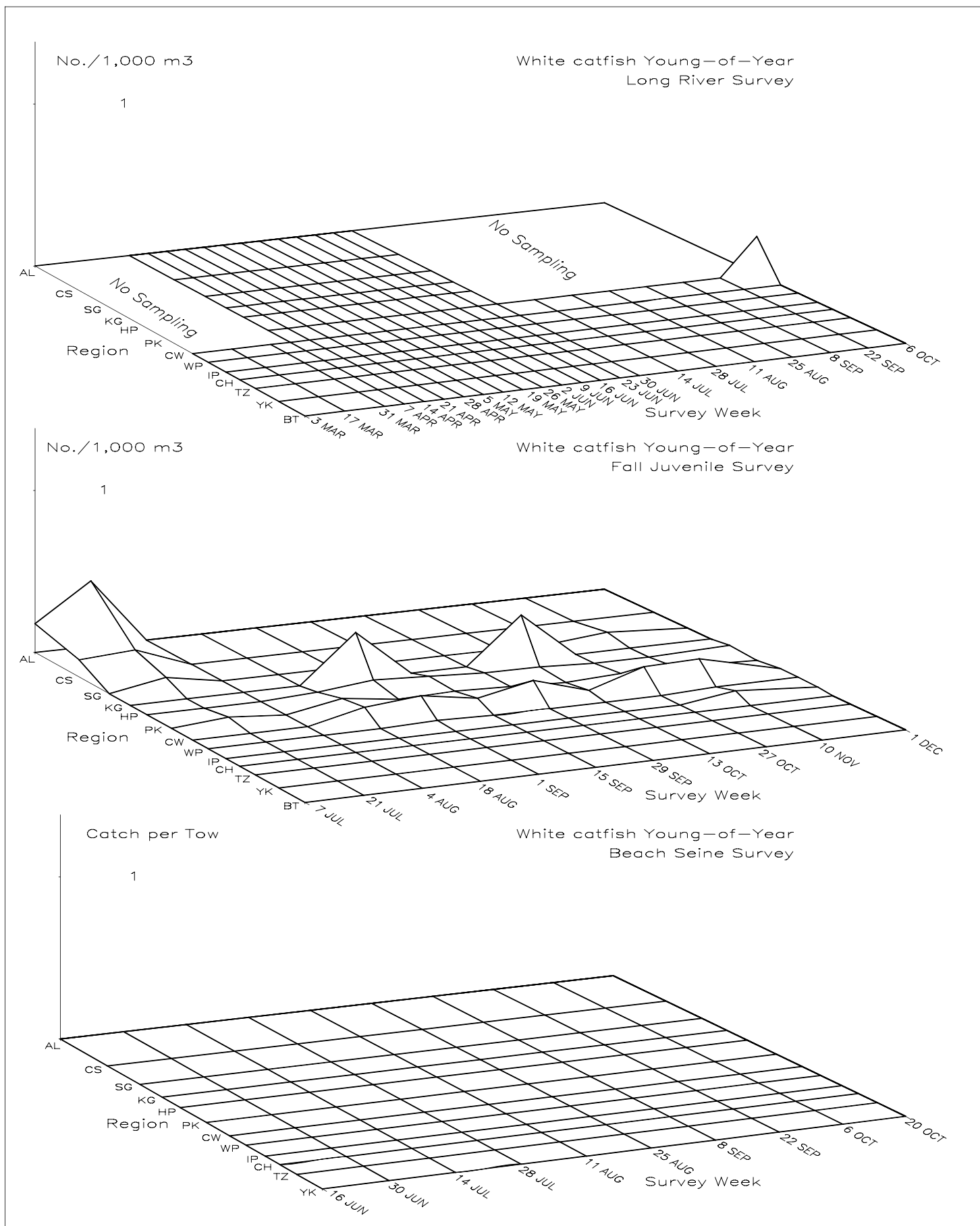


Figure 4–69. Spatiotemporal distribution of young-of-year white catfish in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.

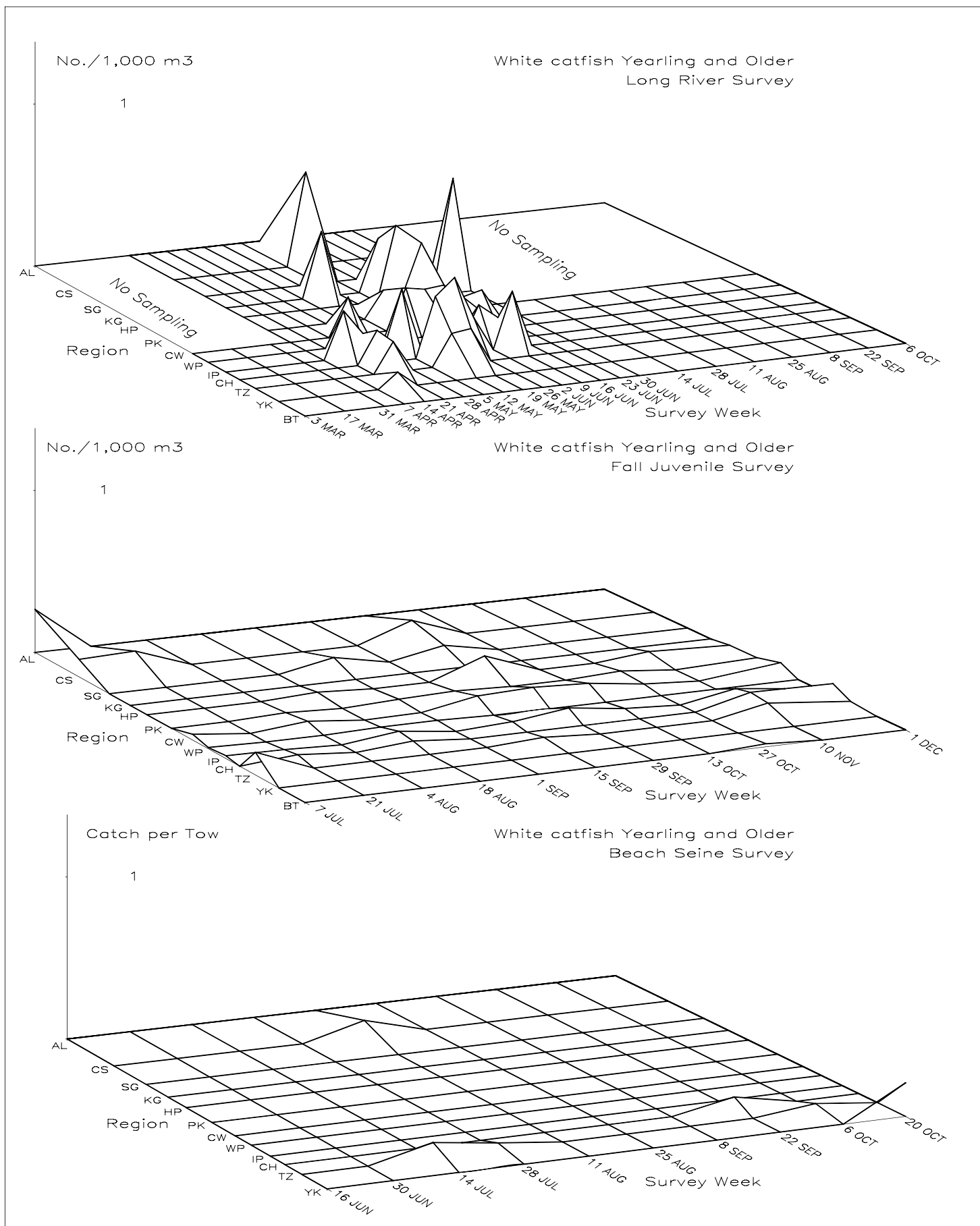


Figure 4–70. Spatiotemporal distribution of yearling and older white catfish in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.

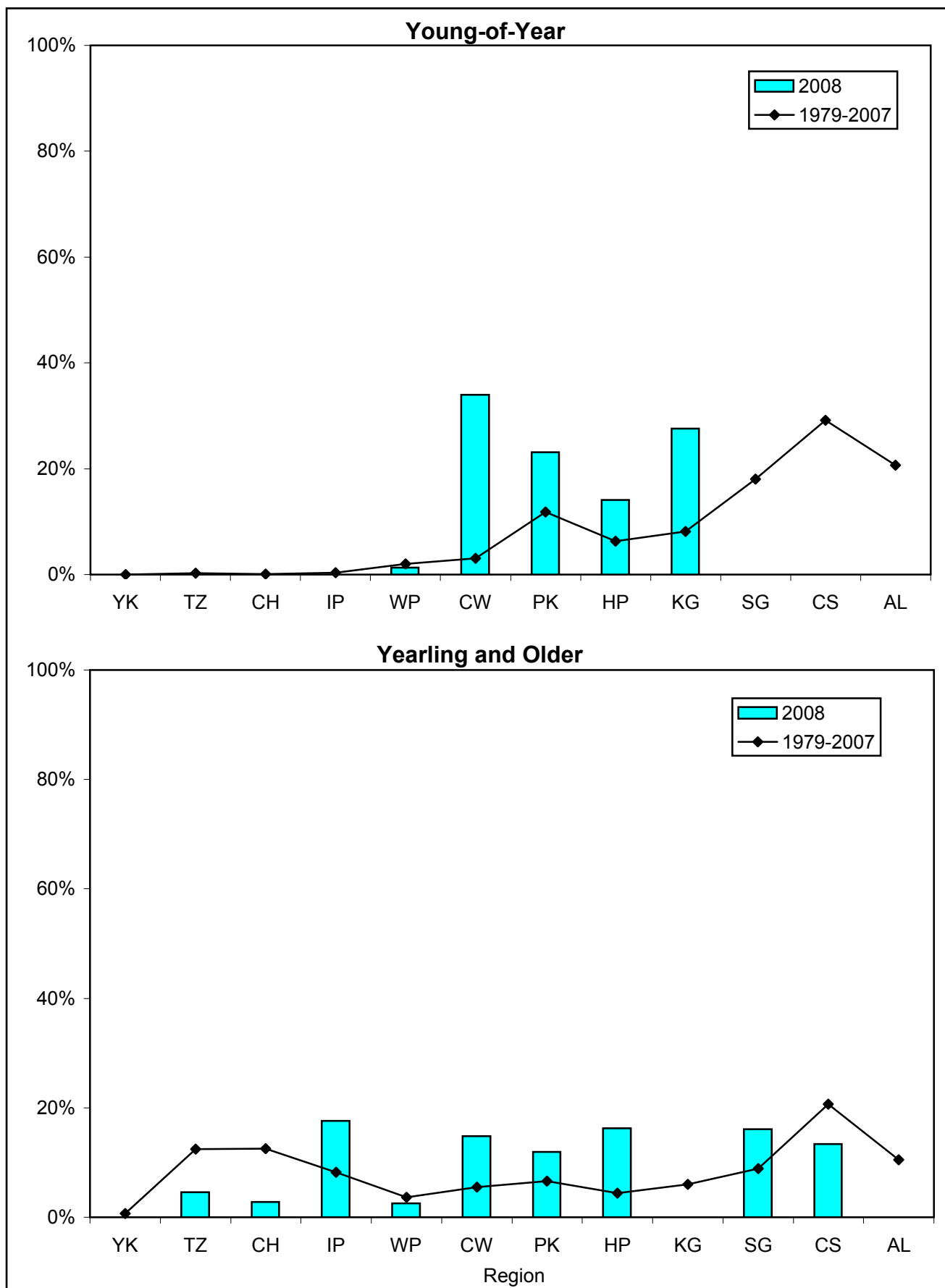


Figure 4-71. Geographic distribution indices for white catfish collected during Fall Juvenile surveys of the Hudson River estuary, 1979-2008.

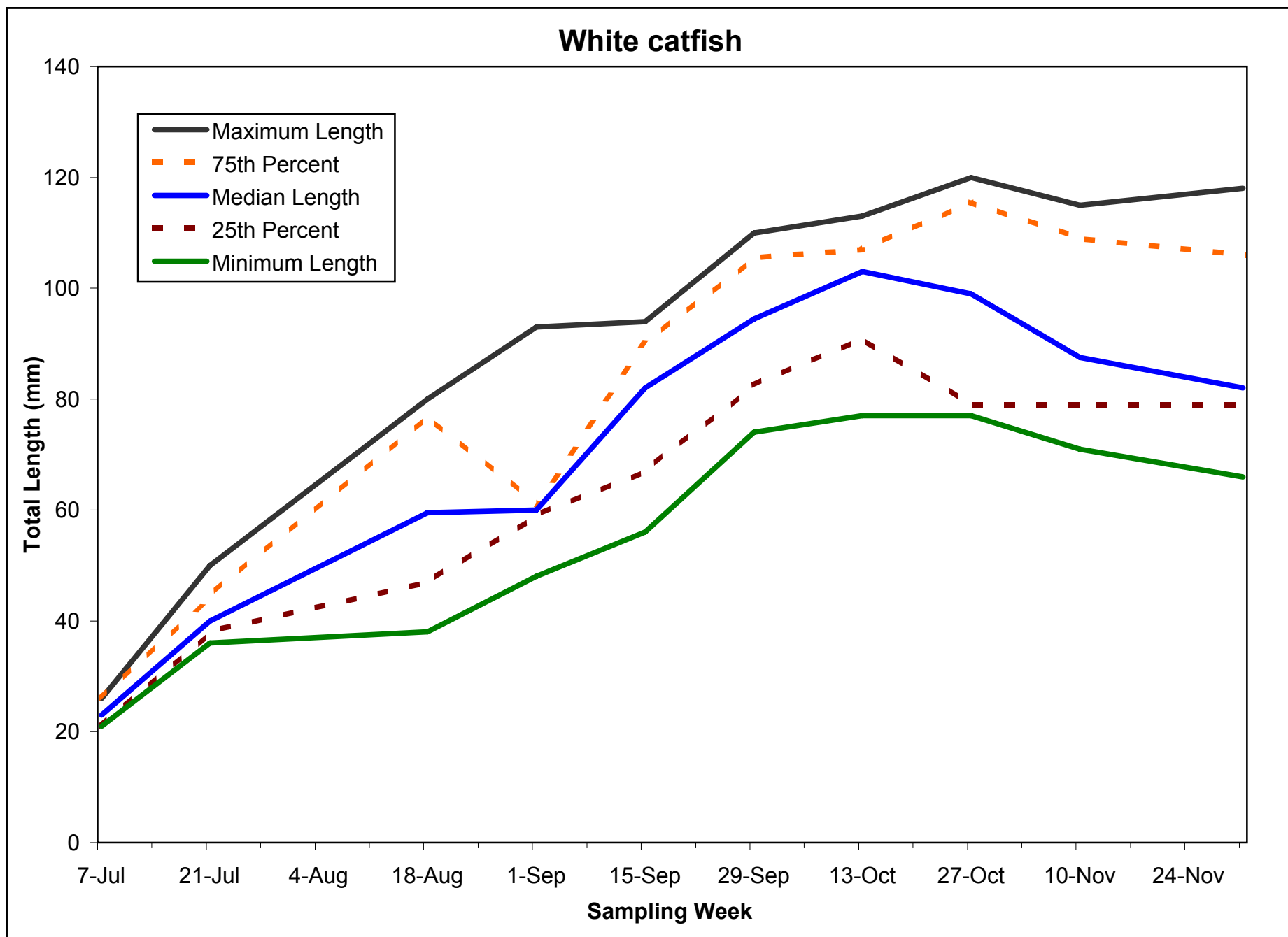


Figure 4-72. Weekly length statistics for young-of-year white catfish in the Hudson River estuary, 2008.

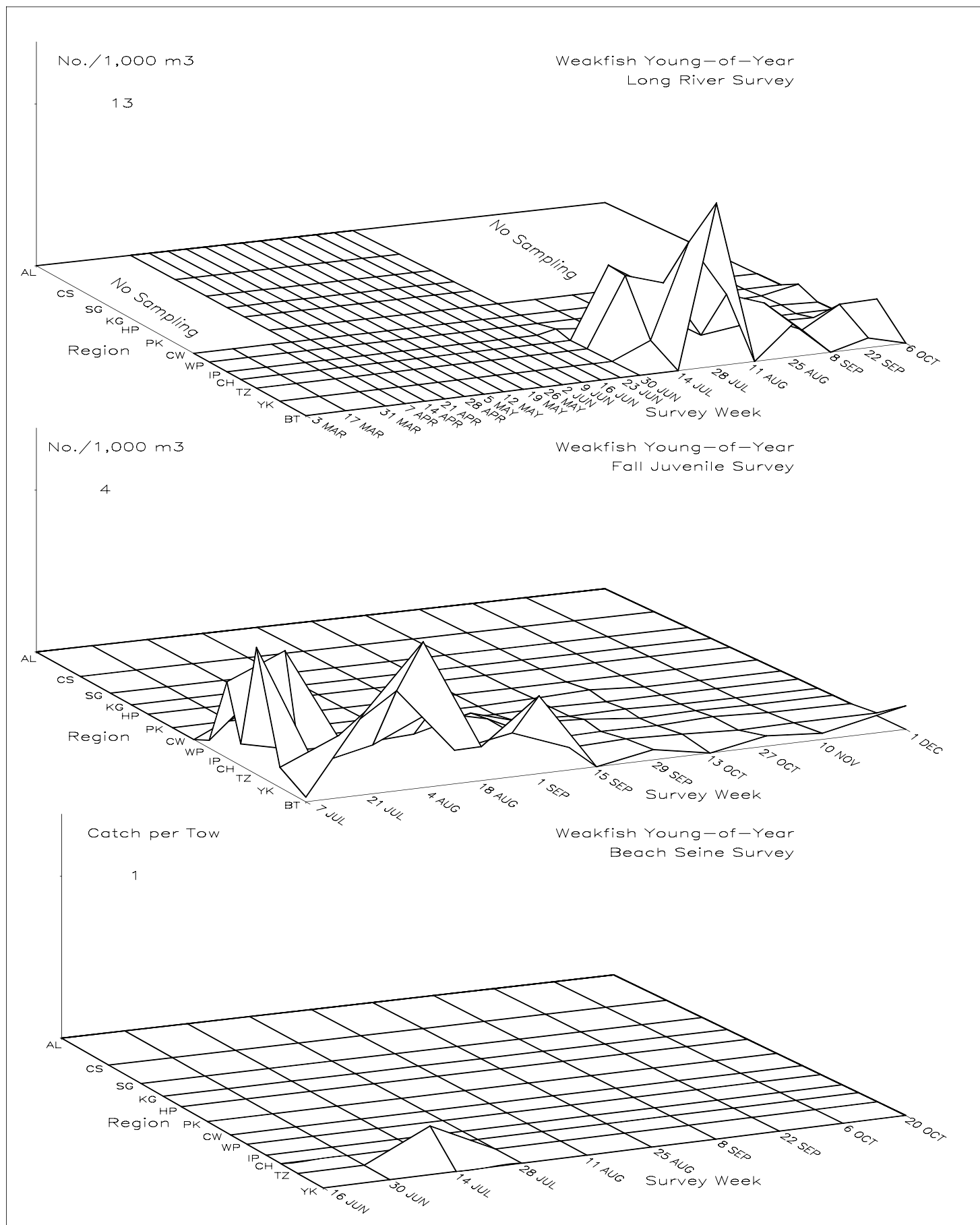


Figure 4-73. Spatiotemporal distribution of young-of-year weakfish in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.

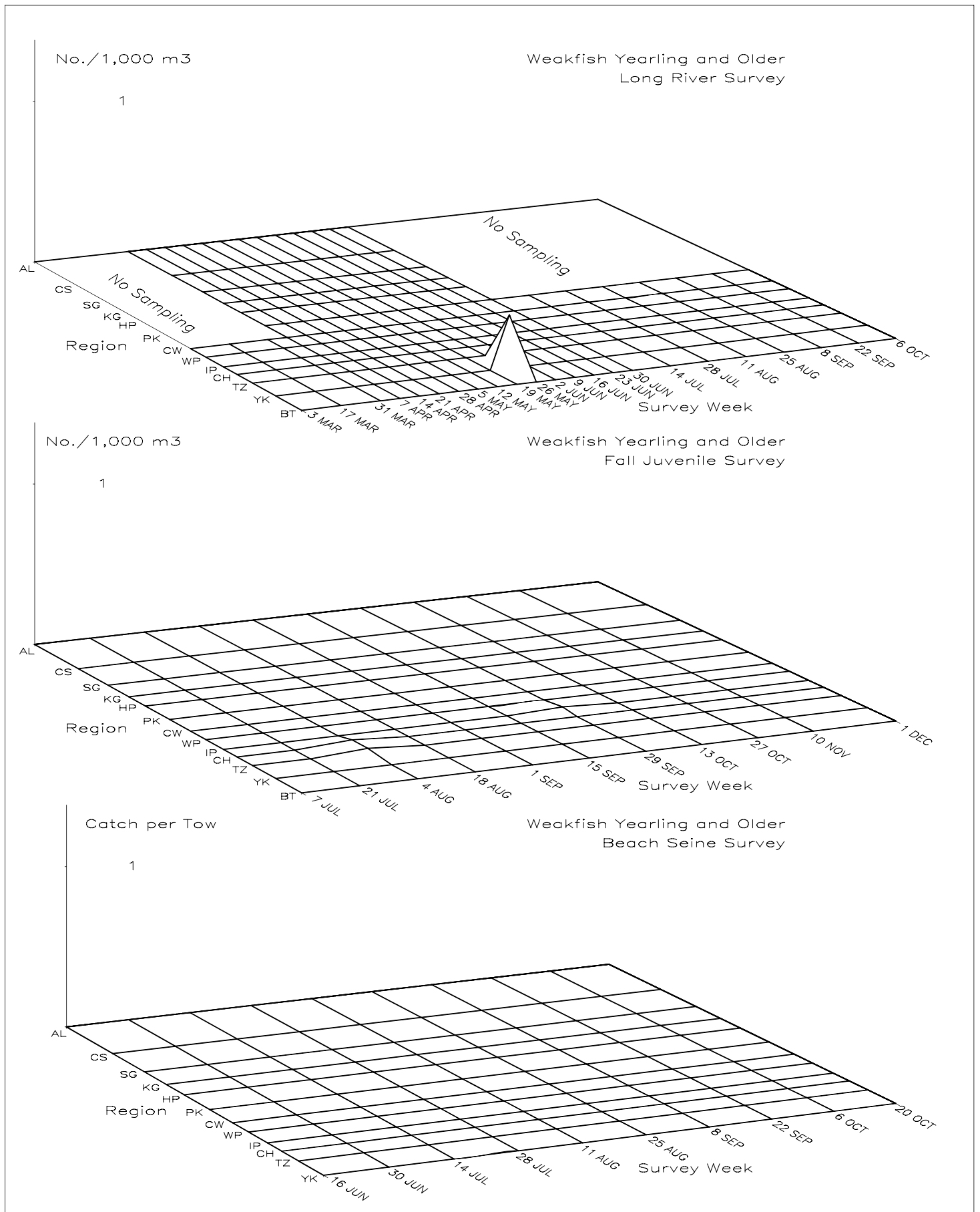


Figure 4–74. Spatiotemporal distribution of yearling and older weakfish in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.



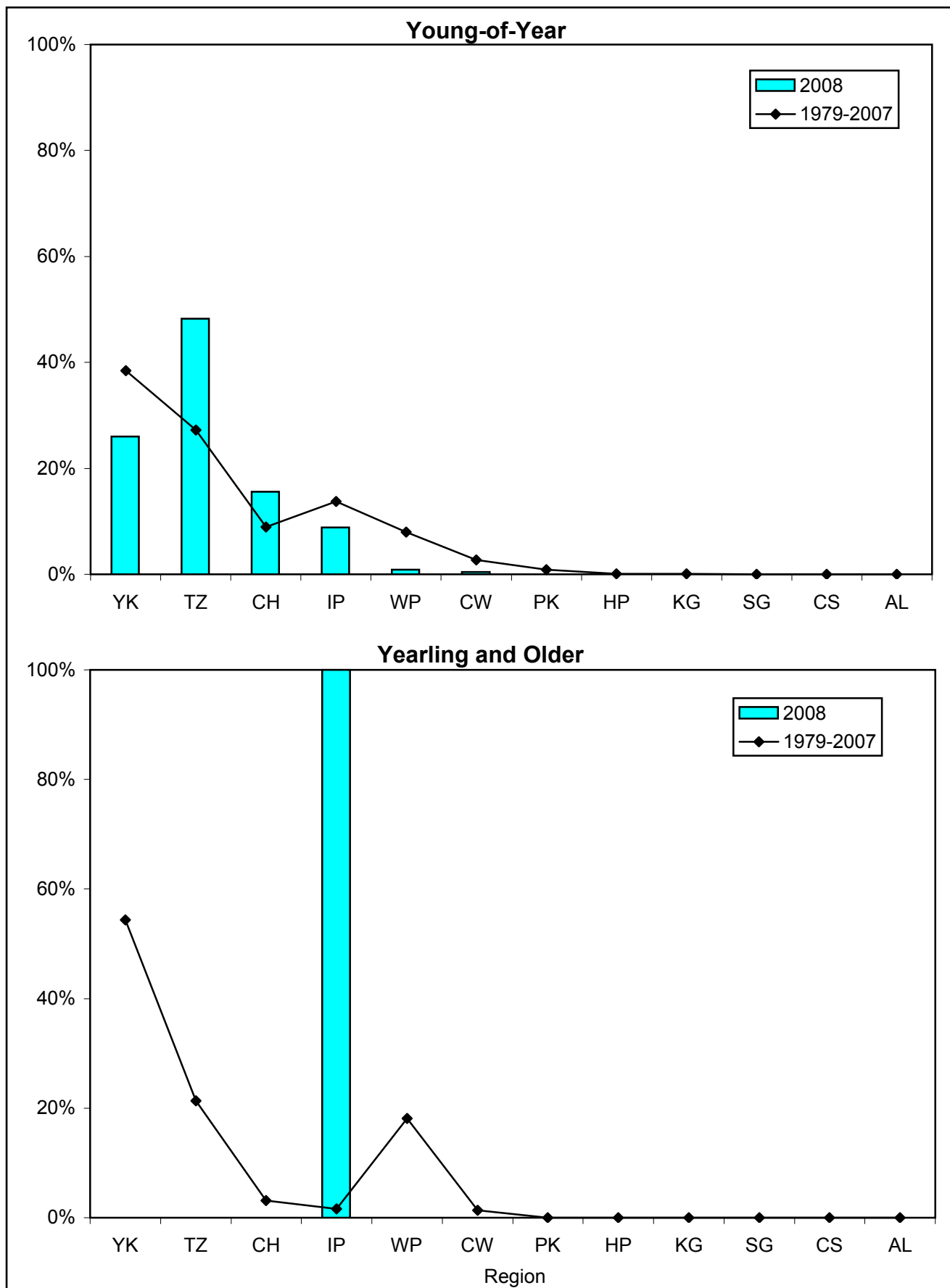


Figure 4-75. Geographic distribution indices for weakfish collected during Fall Juvenile surveys of the Hudson River estuary, 1979-2008.

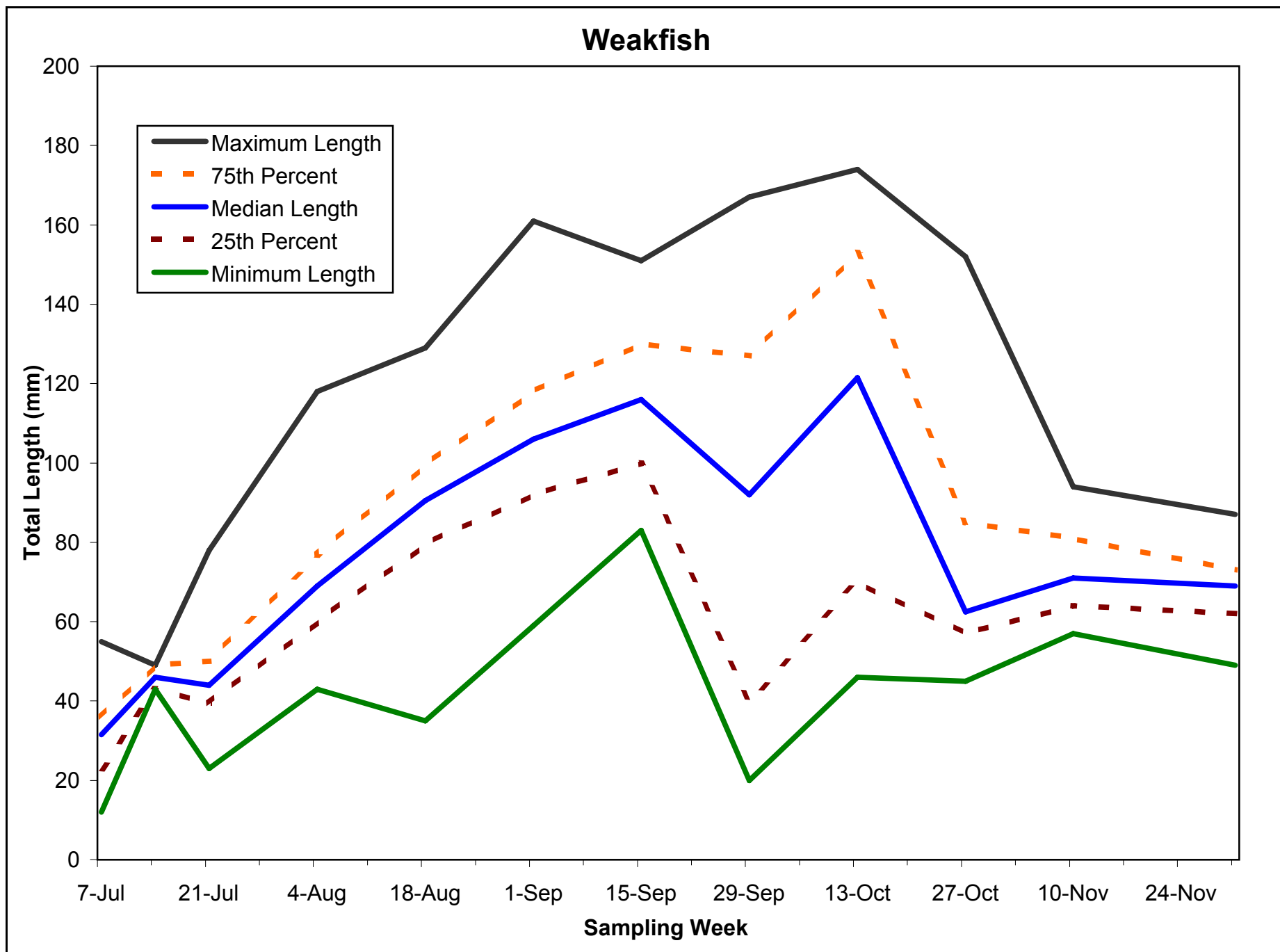


Figure 4-76. Weekly length statistics for young-of-year weakfish in the Hudson River estuary, 2008.

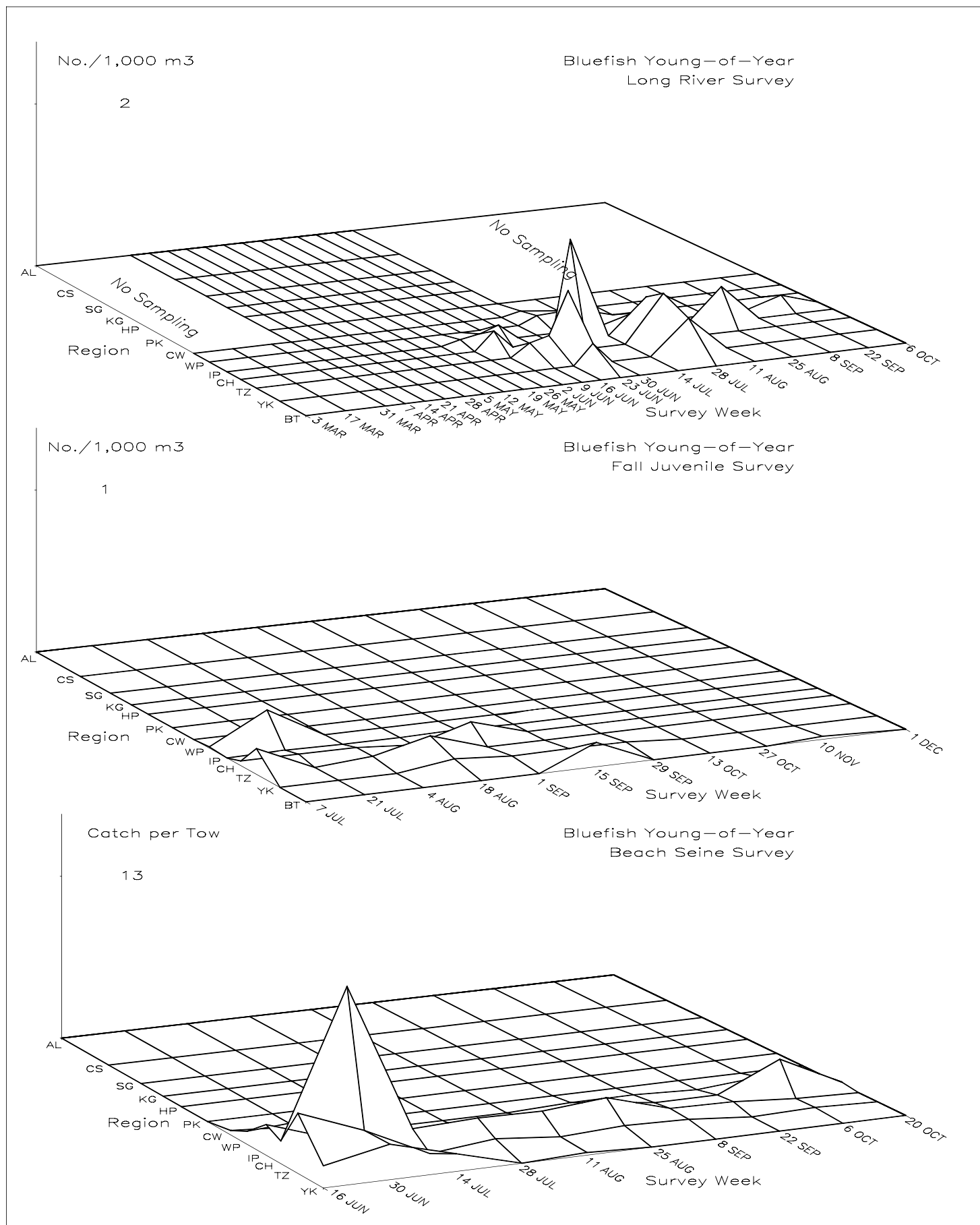


Figure 4-77. Spatiotemporal distribution of young-of-year bluefish in the Hudson River estuary based on the 2008 Long River, Fall Juvenile, and Beach Seine surveys.

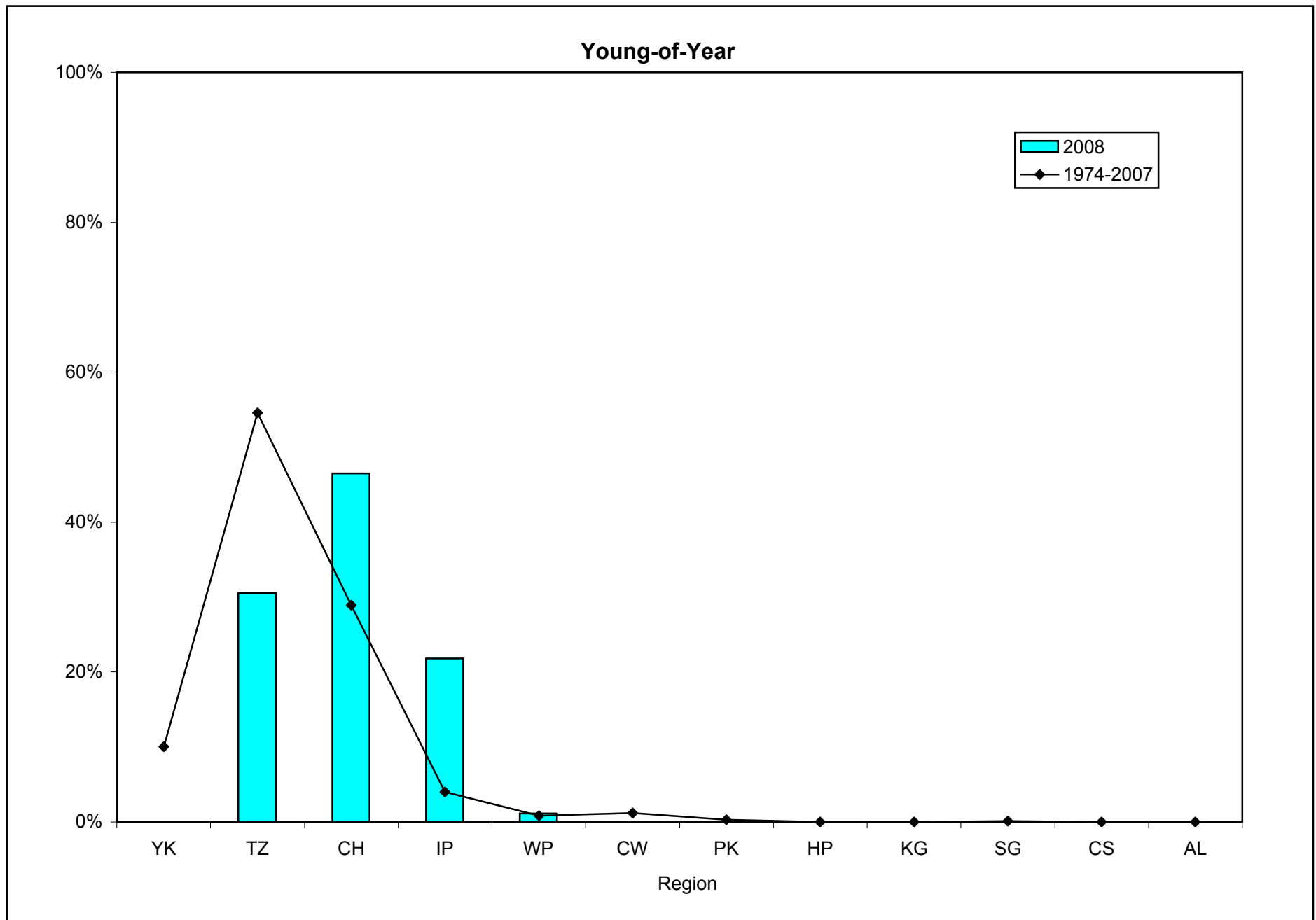


Figure 4-78. Geographic distribution indices for bluefish collected during Beach Seine surveys of the Hudson River estuary, 1974-2008.

Table 4-1 Species Composition of Fish Collected During Hudson River Studies from 1974 to 2008

Common Name	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
<b><u>Anadromous</u></b>																										
Alewife	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
American shad	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Atlantic sturgeon	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Atlantic tomcod	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Blueback herring	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Hickory shad		X			X	X				X			X								X	X	X	X	X	X
Rainbow smelt	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				X	X
Sea lamprey	X	X				X	X	X			X				X		X							X	X	
Striped bass	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Total	8	9	7	7	8	9	8	8	7	8	8	7	8	7	8	7	8	7	7	7	7	8	7	8	9	8
<b><u>Catadromous</u></b>																										
American eel	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Total	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
<b><u>Estuarine</u></b>																										
Atlantic silverside	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Banded killifish	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Fat sleeper													X													X
Fourspine stickleback	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Hogchoker	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Inland silverside	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Lined seahorse															X		X	X			X			X	X	X
Mummichog	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Northern pipefish	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Shortnose sturgeon	X		X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Threespine stickleback	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X			X
White catfish	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
White mullet	X	X	X	X	X	X	X		X	X	X	X			X	X	X	X	X					X	X	X
White perch	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Total	12	11	12	12	11	12	12	11	12	12	12	12	13	11	12	12	13	13	11	12	10	12	11	12	11	13
<b><u>Freshwater</u></b>																										
Black bullhead				X				X			X	X														
Black crappie	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Blacknose dace	X	X	X	X	X	X	X					X		X	X									X		X
Bluegill		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Bluntnose minnow	X	X	X	X	X	X	X													X		X		X	X	X
Bridle shiner	X		X						X																X	X
Brook silverside																				X	X	X	X	X	X	X
Brook stickleback	X	X	X	X				X								X										
Brook trout				X	X													X								

Table 4-1 (Continued)

Common Name	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Brown bullhead	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Brown trout			X	X	X	X	X	X				X					X	X	X		X	X				
Carp			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Central mudminnow			X				X							X												
Chain pickerel	X	X	X	X	X	X	X	X	X		X					X			X			X	X	X	X	X
Channel catfish	X							X					X	X	X	X	X	X	X	X	X	X	X	X	X	X
Comely shiner	X																			X						
Common shiner	X	X	X	X	X	X	X	X		X					X		X		X							
Creek chub		X	X	X	X	X	X			X		X						X		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		X	X	X	X
Fallfish		X	X	X	X	X	X	X	X	X				X				X	X	X	X	X	X	X	X	X
Fathead minnow	X	X	X	X	X	X	X					X	X								X		X			X
Freshwater drum																X			X	X	X	X	X	X	X	X
Gizzard shad	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Golden shiner	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Goldfish	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Grass carp																										
Grass pickerel	X				X												X									
Green sunfish		X		X			X								X											
Largemouth bass	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Logperch	X		X	X		X	X			X					X	X				X	X					X
Longear sunfish																	X									
Longnose dace		X	X	X	X				X			X														
Margined madtom														X												
Mimic shiner	X																						X			
Northern hog sucker	X		X	X	X		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		X	X	X	X
Pugnose shiner																		X								
Pumpkinseed	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	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	X	X	X	X	X
Redfin pickerel	X	X	X	X	X	X	X	X	X		X				X			X					X		X	X
Rock bass	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X
Rosyface shiner	X																									
Rudd																										
Satinfin shiner	X	X	X	X	X	X	X				X	X	X		X		X					X	X	X	X	X
Shield darter							X																			
Silvery minnow	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Slimy sculpin																										
Smallmouth bass	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Spotfin shiner	X	X	X	X	X	X	X	X			X	X	X	X	X				X	X	X	X	X	X	X	X
Spottail shiner	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Swallowtail shiner																			X						X	X
Tessellated darter	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Tiger muskellunge																			X							
Trout perch	X	X	X	X	X	X					X											X	X			
Walleye			X	X	X	X				X	X			X		X		X	X	X	X		X	X	X	
White bass				X																						
White crappie	X	X	X	X	X	X	X	X			X		X	X	X		X	X	X		X				X	

Table 4-1 (Continued)

Common Name	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	
White sucker	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Yellow bullhead		X						X								X					X						
Yellow perch	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Total	37	36	40	42	38	36	38	30	23	23	27	26	24	28	30	28	26	30	31	29	30	29	35	30	35	33	
<b>Marine</b>																											
American sandlance													X	X	X	X	X	X	X		X	X	X		X	X	
<i>Ammodytes</i> sp.		X	X	X	X	X	X	X				X									X	X	X				
Atlantic cod							X								X												
Atlantic croaker			X	X		X						X	X	X			X		X	X	X	X	X	X	X	X	
Atlantic cutlassfish																										X	
Atlantic herring		X	X		X	X			X				X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Atlantic mackerel															X			X	X				X	X	X	X	
Atlantic menhaden	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Atlantic needlefish	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Atlantic seasnail																											
Bay anchovy	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Black seabass					X							X				X					X			X	X	X	
Blackcheek tonguefish																			X								
Bluefish	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Butterfish	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Cobia																											
Conger eel						X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Creville jack	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	
Cunner									X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	
Cusk																											
Feather blenny																									X	X	
Fourbeard rockling						X	X									X	X	X	X	X	X	X	X	X	X	X	
Fourspot flounder	X						X	X			X	X	X			X	X	X			X			X		X	
Goosefish																			X	X							
Gray snapper							X					X	X	X					X								
Grubby													X						X	X	X	X	X	X	X	X	
Gulf Stream flounder																								X	X	X	
Harvestfish																										X	
Hightail goby																	X									X	
Inshore lizardfish	X					X	X	X			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			X	X	X	
Moonfish			X										X	X		X			X		X				X	X	
Naked goby	X		X								X	X	X	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	X	X	X	X	X	X	
Northern puffer		X		X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Northern searobin			X		X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Northern stargazer	X						X		X	X	X	X			X		X	X	X	X	X	X	X	X	X	X	
Orangespotted filefish													X														
Oyster toadfish																			X		X	X		X	X		
Permit																			X	X					X		

Table 4-1 (Continued)

Common Name	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Pinfish																						X				
Pollack		X																						X		
Radiated shanny																										X
Red hake	X		X			X	X	X			X	X			X	X	X		X	X			X	X	X	X
Rock gunnel			X	X											X	X	X	X	X	X		X	X	X	X	X
Rough silverside		X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Scup	X																					X				
Seaboard goby		X	X												X			X	X	X		X		X	X	X
Sea raven							X																			
Sheepshead minnow								X																		
Silver hake	X	X		X									X		X	X	X	X					X	X		X
Silver perch	X					X					X	X	X		X		X	X	X	X	X	X	X	X	X	X
Smallmouth flounder						X	X		X		X	X			X		X	X	X	X	X	X	X	X	X	X
Spanish mackerel																	X	X		X	X					
Speckled worm eel					X		X				X			X	X								X			
Spot	X	X	X	X			X		X	X		X	X	X	X		X	X	X	X	X	X	X		X	X
Spotfin butterflyfish									X			X										X				
Spotfin mojarra									X												X				X	
Spotted goatfish																				X						
Spotted hake							X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Striped anchovy		X				X			X			X				X	X	X	X	X	X	X	X	X	X	X
Striped burrfish													X													
Striped cuskeel							X					X	X	X	X	X		X	X	X		X	X	X	X	X
Striped killifish			X																X							
Striped mullet	X		X	X		X	X	X	X	X	X	X	X	X	X			X				X				
Striped searobin		X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Summer flounder	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Tautog		X				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Weakfish	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Windowpane	X	X	X	X		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Winter flounder	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Witch flounder																							X			
Yellowtail flounder	X																		X		X	X	X	X	X	X
Total	24	24	24	20	16	26	33	24	25	20	28	35	35	29	41	34	35	38	42	37	37	39	39	40	45	49
<b>All Categories</b>																										
Total	82	81	84	82	74	84	92	74	68	64	76	81	81	76	92	82	83	89	92	86	85	89	93	91	101	104



Table 4-1 (Continued)

<u>Common Name</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>
<b><u>Anadromous</u></b>									
Alewife	X	X	X	X	X	X	X	X	X
American shad	X	X	X	X	X	X	X	X	X
Atlantic sturgeon	X	X	X	X	X	X	X	X	X
Atlantic tomcod	X	X	X	X	X	X	X	X	X
Blueback herring	X	X	X	X	X	X	X	X	X
Hickory shad						X			X
Rainbow smelt	X	X	X				X	X	
Sea lamprey							X	X	X
Striped bass	X	X	X	X	X	X	X	X	X
Total	7	7	7	6	6	7	8	8	8
<b><u>Catadromous</u></b>									
American eel	X	X	X	X	X	X	X	X	X
Total	1	1	1	1	1	1	1	1	1
<b><u>Estuarine</u></b>									
Atlantic silverside	X	X	X	X	X	X	X	X	X
Banded killifish	X	X	X	X	X	X	X	X	X
Fat sleeper									
Fourspine stickleback	X	X	X	X	X	X	X	X	X
Hogchoker	X	X	X	X	X	X	X	X	X
Inland silverside	X	X	X	X	X	X	X	X	X
Lined seahorse	X	X	X	X			X		X
Mummichog	X	X	X	X	X	X	X	X	X
Northern pipefish	X	X	X	X	X	X	X	X	X
Shortnose sturgeon	X	X	X	X	X	X	X	X	X
Threespine stickleback		X	X			X		X	
White catfish	X	X	X	X	X	X	X	X	X
White mullet			X	X			X	X	X
White perch	X	X	X	X	X	X	X	X	X
Total	11	12	13	12	10	11	12	12	12
<b><u>Freshwater</u></b>									
Black bullhead				X					
Black crappie	X	X	X	X	X	X	X	X	X
Blacknose dace					X				
Bluegill	X	X	X	X	X	X	X	X	X
Bluntnose minnow	X			X	X			X	
Bridle shiner									
Brook silverside	X		X	X	X	X	X	X	X
Brook stickleback									
Brook trout									
Brown bullhead	X	X	X	X	X	X	X	X	X
Brown trout									
Carp	X	X	X	X	X	X	X	X	X
Central mudminnow									

Table 4-1 (Continued)

Common Name	2000	2001	2002	2003	2004	2005	2006	2007	2008
Chain pickerel	X		X		X	X			X
Channel catfish	X	X	X	X	X	X	X	X	X
Comely shiner									
Common shiner		X							
Creek chub				X	X				
Cutlips minnow									X
Eastern mudminnow									
Emerald shiner	X	X	X	X	X	X	X	X	X
Fallfish				X	X	X	X		X
Fathead minnow	X				X		X		
Freshwater drum	X	X	X	X	X	X	X	X	X
Gizzard shad	X	X	X	X	X	X	X	X	X
Golden shiner	X	X	X	X	X	X	X	X	X
Goldfish	X	X	X	X	X	X	X	X	X
Grass carp						X			
Grass pickerel									
Green sunfish				X					
Largemouth bass	X		X	X	X	X	X	X	X
Logperch		X	X	X	X	X	X	X	X
Longear sunfish								X	
Longnose dace									
Margined madtom									
Mimic shiner									
Northern hog sucker	X		X	X	X	X		X	X
Northern pike	X	X		X	X		X	X	X
Pugnose shiner									
Pumpkinseed	X	X	X	X	X	X	X	X	X
Rainbow trout									
Redbreast sunfish	X	X	X	X	X	X	X	X	X
Redfin pickerel	X			X	X				X
Rock bass	X	X	X	X	X	X	X		X
Rosyface shiner									
Rudd					X				X
Satinfin shiner		X	X	X	X	X	X	X	X
Shield darter									X
Silvery minnow	X	X	X	X	X	X	X	X	X
Slimy sculpin			X						
Smallmouth bass	X	X	X	X	X	X	X	X	X
Spotfin shiner	X	X	X	X	X	X	X	X	X
Spottail shiner	X	X	X	X	X	X	X	X	X
Swallowtail shiner		X		X					
Tessellated darter	X	X	X	X	X	X	X	X	X
Tiger muskellunge									
Trout perch				X					X
Walleye	X	X	X	X	X	X	X	X	X
White bass									
White crappie									
White sucker	X	X	X	X	X	X	X	X	X
Yellow bullhead									
Yellow perch	X	X	X	X	X	X	X	X	X
Total	29	27	28	35	35	29	28	28	34

Table 4-1 (Continued)

<u>Common Name</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>
<b><u>Marine</u></b>									
American sandlance	X	X	X	X	X	X	X	X	X
<i>Ammodytes</i> sp.									
Atlantic cod				X		X			X
Atlantic croaker	X	X	X	X	X	X	X	X	X
Atlantic cutlassfish		X					X		
Atlantic herring	X	X	X	X	X	X	X	X	X
Atlantic mackerel	X	X	X	X	X			X	
Atlantic menhaden	X	X	X	X	X	X	X	X	X
Atlantic needlefish	X	X	X	X	X	X	X	X	X
Atlantic seasnail				X					
Bay anchovy	X	X	X	X	X	X	X	X	X
Black seabass								X	
Blackcheek tonguefish									
Bluefish	X	X	X	X	X	X	X	X	X
Butterfish	X	X	X	X	X	X	X	X	X
Cobia						X			
Conger eel	X	X	X	X	X	X	X	X	X
Crevalle jack	X	X	X	X	X	X	X	X	X
Cunner	X	X	X	X	X	X	X	X	X
Cusk	X							X	
Feather blenny	X		X						X
Fourbeard rockling	X	X	X	X	X	X	X	X	X
Fourspot flounder		X							X
Goosefish									
Gray snapper		X		X		X		X	
Grubby	X	X	X	X	X	X	X	X	X
Gulf Stream flounder			X		X				
Harvestfish			X						
Hightail goby									
Inshore lizardfish	X	X	X				X		X
Longhorn sculpin									
Lookdown	X			X		X	X		X
Moonfish	X	X	X	X	X	X	X	X	X
Naked goby	X	X	X	X	X	X	X	X	X
Northern kingfish	X	X	X		X	X	X	X	X
Northern puffer	X	X	X		X	X		X	X
Northern searobin		X	X	X	X	X	X	X	X
Northern stargazer	X	X	X	X	X	X	X	X	X
Orangespotted filefish									
Oyster toadfish	X	X	X	X	X	X	X		X
Permit	X	X						X	
Pinfish					X				
Pollack									
Radiated shanny									
Red hake	X	X		X		X	X		X
Rock gunnel	X	X	X	X	X	X	X	X	X
Rough silverside	X	X	X	X	X	X	X	X	X

Table 4-1 (Continued)

<u>Common Name</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>
Scup	X	X	X	X	X	X		X	
Seaboard goby	X	X	X	X	X	X	X	X	X
Sea raven									
Sheepshead minnow									
Silver hake	X	X	X		X	X	X	X	X
Silver perch	X		X		X	X		X	
Smallmouth flounder	X	X	X	X	X	X	X	X	X
Spanish mackerel					X				
Speckled worm eel	X		X						
Spot	X	X	X	X		X	X		X
Spotfin butterflyfish									
Spotfin mojarra									
Spotted goatfish									
Spotted hake	X	X	X	X	X	X	X	X	X
Striped anchovy	X		X	X	X		X	X	X
Striped burrfish							X		
Striped cuskeel	X	X		X	X	X	X	X	X
Striped killifish									
Striped mullet	X		X				X		X
Striped searobin	X	X	X	X	X	X	X	X	X
Summer flounder	X	X	X	X	X	X	X	X	X
Tautog	X	X	X	X	X	X	X	X	X
Weakfish	X	X	X	X	X	X	X	X	X
Windowpane	X	X	X	X	X	X	X	X	X
Winter flounder	X	X	X	X	X	X	X	X	X
Witch flounder									
Yellowtail flounder	X	X	X			X			X
Total	46	43	44	39	40	42	40	40	43
<b><u>All Categories</u></b>									
Total	94	90	93	93	92	90	89	89	98

Table 4-2 Species Composition of Fish Collected in Each of the Hudson River Surveys During 2008

<u>Common Name</u>	<u>BSS</u>	<u>FSS</u>	<u>LRS</u>
<b><u>Anadromous</u></b>			
Alewife	X	X	X
American shad	X	X	X
Atlantic sturgeon		X	X
Atlantic tomcod	X	X	X
Blueback herring	X	X	X
Hickory shad		X	
Sea lamprey			X
Striped bass	X	X	X
Total	5	7	7
<b><u>Catadromous</u></b>			
American eel	X	X	X
Total	1	1	1
<b><u>Estuarine</u></b>			
Atlantic silverside	X	X	X
Banded killifish	X	X	X
Fourspine stickleback	X		
Hogchoker	X	X	X
Inland silverside	X		X
Lined seahorse			X
Mummichog	X		X
Northern pipefish	X	X	X
Shortnose sturgeon		X	X
White catfish	X	X	X
White mullet	X		
White perch	X	X	X
Total	10	7	10
<b><u>Freshwater</u></b>			
Black crappie	X		
Bluegill	X	X	X
Brook silverside	X		
Brown bullhead	X	X	X
Carp	X	X	X
Chain pickerel	X		
Channel catfish	X	X	X
Cutlips minnow	X		
Emerald shiner	X	X	
Fall fish	X	X	
Freshwater drum	X		X
Gizzard shad	X	X	X
Golden shiner	X		X
Goldfish	X		
Largemouth bass	X	X	X
Logperch	X		
Northern hog sucker	X	X	
(Continued)			

Table 4-2 (Continued)

<u>Common name</u>	<u>BSS</u>	<u>FSS</u>	<u>LRS</u>
<b><u>Freshwater (continued)</u></b>			
Northern pike	X		
Pumpkinseed	X	X	
Redbreast sunfish	X		
Redfin pickerel	X		
Rock bass	X	X	
Rudd	X		
Satinfin shiner	X		
Shield darter	X		
Silvery minnow	X		
Smallmouth bass	X		
Spotfin shiner	X		
Spottail shiner	X	X	X
Tesselated darter	X	X	X
Trout perch	X		
Walleye			X
White sucker	X	X	X
Yellow perch	X	X	X
Total	33	15	13
<b><u>Marine</u></b>			
American sand lance			X
Atlantic cod			X
Atlantic croaker		X	X
Atlantic herring			X
Atlantic menhaden	X	X	X
Atlantic needlefish	X		X
Bay anchovy	X	X	X
Bluefish	X	X	X
Butterfish		X	X
Conger eel			X
Crevalle jack	X	X	X
Cunner			X
Feather blenny			X
Fourbeard rockling			X
Fourspot flounder	X	X	X
Grubby			X
Inshore lizardfish	X		X
Lookdown		X	
Moonfish	X	X	X
Naked goby	X	X	X
Northern kingfish	X	X	
Northern puffer	X		X
Northern searobin			X
Northern stargazer	X		
Oyster toadfish		X	X
Red hake		X	
Rock gunnel			X
Rough silverside	X	X	X
Seaboard goby			X
(Continued)			

Table 4-2 (Continued)

<u>Common name</u>	<u>BSS</u>	<u>FSS</u>	<u>LRS</u>
<b><u>Marine (continued)</u></b>			
Silver hake		X	
Smallmouth flounder			X
Spot		X	X
Spotted hake		X	X
Striped anchovy	X		X
Striped cuskeel		X	X
Striped mullet	X		
Striped searobin	X	X	X
Summer flounder	X	X	X
Tautog			X
Weakfish	X	X	X
Windowpane		X	X
Winter flounder	X	X	X
Yellowtail flounder			X
Total	19	23	37
<b><u>Undetermined</u></b>			
Alosa spp.	X	X	X
Atherinidae			X
Centrarchidae	X	X	X
Cyprinidae	X		X
Fundulus spp.			X
Gobiidae			X
Labridae			X
Menidia spp.			X
Morone unidentified			X
Searobin	X	X	X
Unidentified hake			X
Unidentified lamprey			X
Unidentifiable			X
Total	4	3	13

Table 4-3 Collections Of Atlantic Sturgeon During The 2008 Hudson River Surveys

<u>Date</u>	<u>Survey</u>	<u>Region</u>	<u>River Mile</u>	<u>Gear</u>	<u>Number Collected</u>	<u>Total Length (mm)</u>
3-Jun	LRS	Hyde Park	82	1-m Epibenthic sled	1	YSL
11-Jun	LRS	Hyde Park	83	1-m Epibenthic sled	1	PYSL
18-Jun	LRS	Cornwall	58	1-m Epibenthic sled	1	578
9-Jul	FJS	West Point	54	3-m Beam Trawl	1	534
10-Jul	FJS	Croton- Haverstraw	38	3-m Beam Trawl	1	453
22-Jul	FJS	Hyde Park	77	3-m Beam Trawl	1	133
23-Jul	FJS	Poughkeepsie	63	3-m Beam Trawl	2	124,125
6-Aug	FJS	West Point	55	3-m Beam Trawl	1	671
6-Aug	FJS	Cornwall	59	3-m Beam Trawl	2	430,471
20-Aug	FJS	Cornwall	58	3-m Beam Trawl	1	519
21-Aug	FJS	Indian Point	40	3-m Beam Trawl	1	487
4-Sep	FJS	Cornwall	60	3-m Beam Trawl	1	472
5-Sep	FJS	Tappan Zee	30	3-m Beam Trawl	1	535
16-Sep	FJS	Poughkeepsie	71	3-m Beam Trawl	1	247
1-Oct	FJS	West Point	55	3-m Beam Trawl	1	524
1-Oct	FJS	Cornwall	57	3-m Beam Trawl	1	483
14-Oct	FJS	Cornwall	58	3-m Beam Trawl	1	485
16-Oct	FJS	Croton- Haverstraw	37	3-m Beam Trawl	1	679
12-Nov	FJS	West Point	55	3-m Beam Trawl	2	299,548
12-Nov	FJS	Cornwall	58	3-m Beam Trawl	1	530
13-Nov	FJS	Tappan Zee	31	3-m Beam Trawl	2	499,581
13-Nov	FJS	Croton- Haverstraw	36	3-m Beam Trawl	1	718
1-Dec	FJS	Yonkers	23	3-m Beam Trawl	1	511



Table 4-4 Collections of Shortnose Sturgeon During the 2008 Hudson River Surveys

<u>Date</u>	<u>Survey</u>	<u>Region</u>	<u>River Mile</u>	<u>Gear</u>	<u>Number Collected</u>	<u>Total Length (mm)</u>
27-May	LRS	Albany	139	1-m Epibenthic sled	1	760
3-Jun	LRS	Hyde Park	82	1-m Epibenthic sled	1	402
8-Jul	FJS	Hyde Park	81	3-m Beam Trawl	1	590
10-Jul	FJS	Tappan Zee	24	3-m Beam Trawl	1	794
10-Jul	FJS	Tappan Zee	26	3-m Beam Trawl	1	803
10-Jul	FJS	Tappan Zee	33	3-m Beam Trawl	1	695
6-Aug	FJS	Cornwall	59	3-m Beam Trawl	1	740
20-Aug	FJS	West Point	55	3-m Beam Trawl	1	810
4-Sep	FJS	Yonkers	15	3-m Beam Trawl	1	730
4-Sep	FJS	Cornwall	58	3-m Beam Trawl	1	740
15-Sep	FJS	Catskill	123	3-m Beam Trawl	1	781
1-Oct	FJS	Yonkers	14	3-m Beam Trawl	1	848
1-Oct	FJS	West Point	55	3-m Beam Trawl	3	500,737,764
14-Oct	FJS	Cornwall	58	3-m Beam Trawl	1	670
11-Nov	FJS	Cornwall	61	3-m Beam Trawl	1	790
12-Nov	FJS	West Point	50	3-m Beam Trawl	1	413
2-Dec	FJS	West Point	48	3-m Beam Trawl	1	445

## ***REFERENCES CITED AND PREVIOUS YEAR CLASS REPORTS***

- Albrecht, A.B. 1964. Some observations on factors associated with survival of striped bass eggs and larvae. Calif. Fish & Game 50(2):100-113.
- Applied Science Associates, Inc. 2000. 1996 Year Class Report for the Hudson River estuary monitoring program. Prepared for Central Hudson Gas & Electric Corporation.
- Applied Science Associates, Inc. 2001. 1997 Year Class Report for the Hudson River estuary monitoring program. Prepared for Central Hudson Gas & Electric Corporation.
- ASA Analysis & Communication, Inc. 2001. 1998 Year Class Report for the Hudson River estuary monitoring program. Prepared for Central Hudson Gas & Electric Corporation.
- ASA Analysis & Communication, Inc. 2002. 1999 Year Class Report for the Hudson River estuary monitoring program. Prepared for Dynegy Roseton L.L.C., Entergy Nuclear Indian Point 2 L.L.C., Entergy Nuclear Indian Point 3 L.L.C., and Mirant Bowline L.L.C.
- ASA Analysis & Communication, Inc. 2003. 2000 Year Class Report for the Hudson River estuary monitoring program. Prepared for Dynegy Roseton L.L.C., Entergy Nuclear Indian Point 2 L.L.C., Entergy Nuclear Indian Point 3 L.L.C., and Mirant Bowline L.L.C.
- ASA Analysis & Communication, Inc. 2004. 2001 Year Class Report for the Hudson River estuary monitoring program. Prepared for Dynegy Roseton L.L.C., Entergy Nuclear Indian Point 2 L.L.C., Entergy Nuclear Indian Point 3 L.L.C., and Mirant Bowline L.L.C.
- ASA Analysis & Communication, Inc. 2004. 2002 Year Class Report for the Hudson River estuary monitoring program. Prepared for Dynegy Roseton L.L.C., Entergy Nuclear Indian Point 2 L.L.C., Entergy Nuclear Indian Point 3 L.L.C., and Mirant Bowline L.L.C.
- ASA Analysis & Communication, Inc. 2005. 2003 Year Class Report for the Hudson River estuary monitoring program. Prepared for Dynegy Roseton L.L.C., Entergy Nuclear Indian Point 2 L.L.C., Entergy Nuclear Indian Point 3 L.L.C., and Mirant Bowline L.L.C.
- ASA Analysis & Communication, Inc. 2006. 2004 Year Class Report for the Hudson River estuary monitoring program. Prepared for Dynegy Roseton L.L.C., Entergy Nuclear Indian Point 2 L.L.C., Entergy Nuclear Indian Point 3 L.L.C., and Mirant Bowline L.L.C.
- ASA Analysis & Communication, Inc. 2007. 2005 Year Class Report for the Hudson River estuary monitoring program. Prepared for Dynegy Roseton L.L.C., Entergy Nuclear Indian Point 2 L.L.C., Entergy Nuclear Indian Point 3 L.L.C., and Mirant Bowline L.L.C.
- ASA Analysis & Communication, Inc. 2008. 2006 Year Class Report for the Hudson River estuary monitoring program. Prepared for Dynegy Roseton L.L.C., Entergy Nuclear Indian Point 2 L.L.C., Entergy Nuclear Indian Point 3 L.L.C., and Mirant Bowline L.L.C.

- ASA Analysis & Communication, Inc. 2009. 2007 Year Class Report for the Hudson River estuary monitoring program. Prepared for Dynegy Roseton L.L.C., Entergy Nuclear Indian Point 2 L.L.C., Entergy Nuclear Indian Point 3 L.L.C., and Mirant Bowline L.L.C.
- Bain, M.B. 1996. Trends in the abundance of Hudson River sturgeons. *Sturgeon Notes* 4:16. Department of Natural Resources, Cornell University, Ithaca, New York.
- Bain, M.B. 1997. Atlantic and shortnose sturgeons of the Hudson river: Common and divergent life history attributes. *Envir. Biol. of Fishes* 48:347-358.
- Bain, M.B., S. Nack, and J.G. Knight. 1995. Population status of shortnose sturgeon in the Hudson River. Phase 1 project report to the U.S. Army Corps of Engineers, North Atlantic Division, New York, New York.
- Bain, M.B., S. Nack, and B. Dovel. 1996. Senescence in shortnose sturgeon. *Sturgeon Notes* 4:15. Department of Natural Resources, Cornell University, Ithaca, New York.
- Bain, M.B., D.L. Peterson, and K.K. Arend. 1998. Population status of shortnose sturgeon in the Hudson River. Final Report. Prepared for National Marine Fisheries Services, Milford, Connecticut. October.
- Bath, D.W. and J.M. O'Connor. 1982. The biology of the white perch, *Morone americana*, in the Hudson River estuary. *Fishery Bulletin* 80:599-610.
- Battelle New England Marine Research Laboratory (Battelle). 1983. 1980 and 1981 Year Class Report for the Hudson River estuary monitoring program. Prepared for Consolidated Edison Company of New York, Inc.
- Beebe, C.A. and I.R. Savidge. 1988. Historical perspective on fish species composition and distribution in the Hudson River estuary. in *Science, Law, and Hudson River Power Plants: A Case Study in Environmental Impact Assessment* (L.W. Barnhouse, R.J. Klauda, D.S. Vaughan, and R.L. Kendall, eds.). *Am. Fish. Soc. Monograph* 4, pp. 25-36. Bethesda, Maryland.
- Bigelow, H.B. and W.C. Schroeder. 1953. Fishes of the Gulf of Maine. *Fish. Bull. Fish. Wildl. Serv.* 53(74):1-577.
- Buckley, J.L. 1989. Species profiles: Life histories and environmental requirements of coastal fishes and invertebrates (North Atlantic) - rainbow smelt. *U.S. Fish Wildl. Serv. Biol. Rep.* 82 (11.106). U.S. Army Corps of Engineers, TR EL-82-4.
- Buckley, J. and B. Kynard. 1981. Spawning and rearing of shortnose sturgeon from the Connecticut River. *Progr. Fish-Cult.* 43(2):74-76.
- Carlson, D.M. 1986. Fish and their habitats in the Upper Hudson Estuary. Unpublished report, NYSDEC, Region 4 fisheries.
- Carlson, F.T. and J.A. McCann. 1969. Hudson River Fisheries Investigations, 1965-1968: Evaluations of a Proposed Pumped Storage Project at Cornwall, New York in relation to fish in the Hudson River. Prepared for Consolidated Edison Company of New York, Inc.

- Chiarella, L.A. and D.O. Conover. 1990. Spawning season and first-year growth of adult bluefish from the New York Bight. *Trans. Am. Fish. Soc.* 119:455-462.
- Chittenden, M.E., Jr. 1969. Life history and ecology of the American shad, *Alosa sapidissima*, in the Delaware River. Ph.D. thesis, Rutgers - The State University, New Brunswick, New Jersey.
- Consolidated Edison Company of New York, Inc. (Con Edison). 1996. 1992 Year Class Report for the Hudson River estuary monitoring program. New York, New York.
- Consolidated Edison Company of New York, Inc. 1997a. 1993 Year Class Report for the Hudson River estuary monitoring program. New York, New York.
- Consolidated Edison Company of New York, Inc. 1997b. 1994 Year Class Report for the Hudson River estuary monitoring program. New York, New York.
- Dadswell, M.J. 1979. Biology and population characteristics of the shortnose sturgeon, *Acipenser brevirostrum* LeSueur 1818 (Osteichthyes: Acipenseridae), in the Saint John Estuary, New Brunswick, Canada. *Can. J. Zool.* 57:2186-2210.
- Dadswell, M.J., B.D. Taubert, T.S. Squires, D. Marchette, and J. Buckley. 1984. Synopsis of biological data in shortnose sturgeon, *Acipenser brevirostrum* LeSueur 1818. NOAA Technical Report NMFS 14, National Marine Fisheries Service, Washington, D.C.
- Dadswell, M.J., G.D. Moluin, P.J. Williams, and D.E. Themelis. 1987. Influences of origin, life history, and chance on the Atlantic coast migration of American shad. *Am. Fish. Soc. Monograph* 1: 313-330.
- Daniels, R.A. Undated. Long-term change in the near-shore fish assemblage of the lower Hudson River. Biological Survey Laboratory, Troy, New York.
- Daniels, R.A. and T. Lawrence. 1991. Stability of fish assemblages in the lower Hudson River. Final Report to the Hudson River Foundation. New York, New York.
- Dean, B. 1895. The early development of gar-pike and sturgeon. *J. Morphol.* 11:1-62.
- Dew, C.B. and J.H. Hecht. 1976. Ecology and population dynamics of Atlantic tomcod (*Microgadus tomcod*) in the Hudson River Estuary, in *Hudson River Ecology*, Fourth Symposium on Hudson River Ecology, The Hudson River Environmental Society, Inc. New Paltz, New York.
- Doroshev, S.I. 1970. Biological features of the eggs, larvae, and young of the striped bass (*Roccus saxatilis* [Walbaum]) in connection with the problem of its acclimatization in the USSR. *J. Ichthyol.* 10(2):235-247.
- Dovel, W.L. 1979. The biology and management of shortnose and Atlantic sturgeon of the Hudson River, Final report to the New York State Department of Environmental Conservation, Albany, New York.
- Dovel, W.L. and T.J. Berggren. 1983. Atlantic sturgeon of the Hudson estuary, New York, NY. *Fish Game J.* 30(2):140-72.

- Dovel, W.L., J.A. Nihursky, and A.J. McErlean. 1969. Life history aspects of the hogchoker in the Patuxent River Estuary, Maryland. *Ches. Sci.* 10(2):104-119.
- Dovel, W.L., A.W. Pekovitch, and T.J. Berggren. 1992. Biology of the shortnose sturgeon (*Acipenser brevirostrum*, LeSueur, 1818) in the Hudson River estuary, New York, in *Estuarine Research in the 1980s* (C.L. Smith, ed.), pp. 187-216. State Univ. New York Press, Albany, New York.
- EA Engineering, Science, and Technology (EA). 1990. 1988 Year Class Report for the Hudson River estuary monitoring program. Prepared for Consolidated Edison Company of New York, Inc.
- EA Engineering, Science, and Technology. 1991. 1989 Year Class Report for the Hudson River estuary monitoring program. Prepared for Consolidated Edison Company of New York, Inc.
- EA Engineering, Science, and Technology. 1996. 1995 Year Class Report for the Hudson River estuary monitoring program. Prepared for Consolidated Edison Company of New York, Inc.
- Fay, C.W., R.J. Neves, and G.B. Pardue. 1983. Species profiles: life histories and environmental requirements of coastal fishes and invertebrates (Mid-Atlantic) - Striped bass. U.S. Fish and Wildlife Service, Division of Biological Services, FWS/OBS-82/11.8. U.S. Army Corps of Engineers, TR EL-82-4.
- Field, J. 1996. Atlantic sturgeon management workshop. Sturgeon Notes 4:14. Department of Natural Resources, Cornell University, Ithaca, New York.
- Gardinier, M.N. and T.B. Hoff. 1982. Diet of striped bass in the Hudson River estuary. *NY Fish Game J.* 19:152-165.
- Geoghegan, P., M.T. Mattson, and R.G. Keppel. 1992. Distribution of the shortnose sturgeon in the Hudson River estuary, 1984-1988, in *Estuarine Research in the 1980s* (C.L. Smith, ed.), pp. 217-277. State Univ. New York Press, Albany, New York.
- Gilbert, C.R. 1989. Species profiles: life histories and environmental requirements of coastal fishes and invertebrates (Mid-Atlantic Bight) - Atlantic and shortnose sturgeons. U.S. Fish Wildl. Serv. Biol. Rep. 82(11.122). U.S. Army Corps of Engineers TR EL-82-4.
- Gorham, S.W. and D.E. McAllister. 1974. The shortnose sturgeon (*Acipenser brevirostrum*), in the Saint John River, New Brunswick, Canada, a rare and possibly endangered species. *Syllogeus* No. 5, National Museum of Canada, Ottawa.
- Grabe, S.A. 1978. Food and feeding habits of juvenile Atlantic tomcod, *Microgadus tomcod*, from Haverstraw Bay, Hudson River, New York. *U.S. Nat. Mar. Fish. Serv. Fish. Bull.* 76: 89-94.
- Greeley, J.R. 1937. Fishes of the area with annotated list, in *A Biological Survey of the Lower Hudson Watershed*, Supplement to 26th Annual Report, pp. 45-104. New York State Conserv. Dept., Albany, New York.

- Grossman, G.D., P.B. Moyle, and J.O. Whitaker, Jr. 1982. Stochasticity in structural and functional characteristics of an Indian stream fish assemblage: a test of community theory. *American Naturalist* 120:423-454.
- Gruchy, C.G. and B. Parker. 1980a. *Acipenser oxyrhynchus* Mitchill, Atlantic sturgeon, in *Atlas of North American Freshwater Fishes* (D.S. Lee et al., eds.), p. 41. North Carolina State Mus. Nat. Hist., Raleigh.
- Gruchy, C.G. and B. Parker. 1980b. *Acipenser brevirostrum* LeSueur, shortnose sturgeon, in *Atlas of North American Freshwater Fishes* (D.S. Lee, et al., eds.), p. 38. North Carolina State Mus. Nat. Hist., Raleigh.
- Haley, N., J. Boreman, and M.B. Bain. 1996. Juvenile sturgeon habitat use in the Hudson River, in *Final Reports of the Tibor T. Polgar Fellowship Program, 1995* (J.R. Waldman, W.C. Nieder, and E.A. Blair, eds.), Section VIII: 36pp. Hudson River Foundation, New York, New York.
- Harris, P.J. and R.A. Rulifson. 1989. Investigations of ocean landings for American shad and river herring from United States East Coast rivers. Special Report No. 18 of the Atlantic States Marine Fisheries Commission, Washington, D.C.
- Heller, R.F., A. Perlmutter, S.L. Sininsky, F.C. Ford, Jr., and H. Hermo, Jr. 1969. Distribution and Abundance of Fishes along the Western Shore of the lower Hudson River during the Summer of 1968. Unpublished report.
- Hergenrader, G.L. and Q.P. Bliss. 1971. The white perch in Nebraska. *Trans. Am. Fish. Soc.* 100 (4):734-738.
- Hildebrand, S.F. 1963. Family Clupeidae, in *Fishes of the western North Atlantic* (H.B. Bigelow, ed.), pp. 257-454. Memoir 1, Sears Foundation for Marine Research, New Haven, Connecticut.
- Hoff, T.B. and R.J. Klauda. 1979. Data on shortnose sturgeon (*Acipenser brevirostrum*) collected incidentally from 1969 through June 1979 in sampling programs conducted for the Hudson River Ecological Study. Prepared for the Shortnose Sturgeon Recovery Team Meeting, 30 November 1979, Danvers, Massachusetts. Texas Instruments, Buchanan, New York.
- Hoff, T.B., R.J. Klauda, and J.R. Young. 1988. Contribution to the biology of shortnose sturgeon in the Hudson River estuary, in *Fisheries Research in the Hudson River* (C.L. Smith, ed.), pp. 171-189. State University of New York Press, Albany, New York.
- Houde, E.D. and C.E. Zastrow. 1991. Bay anchovy, *Anchoa mitchilli*, in *Habitat Requirements for Chesapeake Bay Living Resources, Second Edition*, (S.L. Funderburk, J.A. Mihursky, S.J. Jordan, and D. Riley, eds.), pp. 8-1 - 8-14. Chesapeake Research Consortium, Inc. Solomons, Maryland.
- Hubbs, C.L. and K.F. Lagler. 1958. Fishes of the Great Lakes region. Univ. Mich. Press, Ann Arbor.

- Ichthyological Associates (IA). 1977. Impingement and entrainment at the Werner Generating Station and a study of the fishes of the Raritan River and Bay near the station. Report submitted to Jersey Central Power and Light Company.
- Kahnle, A.W. and K.A. Hattala. 1998. Stock status of Atlantic sturgeon of Atlantic coast estuaries. Draft report for the Atlantic States Marine Fisheries Commission.
- Kendall, A.W., Jr. and L.A. Walford. 1979. Sources and distribution of bluefish, *Pomatomus saltatrix*, larvae and juveniles off the east coast of the United States. Fishery Bulletin 77.
- Klauda, R.J., J.B. McLaren, R.E. Schmidt, and W.P. Dey. 1988a. Life history of white perch in the Hudson River estuary, in *Science, Law, and Hudson River Power Plants: A Case Study in Environmental Impact Assessment* (L.W. Barnhouse, R.J. Klauda, D.S. Vaughan, and R.L. Kendall, eds.), pp. 69-88. Am. Fish. Soc. Monograph 4, Bethesda, Maryland.
- Klauda R.J., R.E. Moos, and R.E. Schmidt. 1988b. Life history of Atlantic tomcod, *Microgadus tomcod*, in the Hudson River estuary, with emphasis on spatial temporal distribution and movement, in *Fisheries Research in the Hudson River* (C.L. Smith, ed.), pp. 193-215. State University of New York Press, Albany, New York.
- Koski, R.T. 1973. Life history and ecology of the hogchoker, *Trinectes maculatus*, in its northern range. Ph.D. thesis. University of Connecticut.
- Lawler, Matusky & Skelly Engineers (LMS). 1989. 1986 and 1987 Year Class Report for the Hudson River estuary monitoring program. Prepared for Consolidated Edison Company of New York, Inc.
- Lawler, Matusky & Skelly Engineers. 1992. 1990 Year Class Report for the Hudson River estuary monitoring program. Prepared for Consolidated Edison Company of New York, Inc.
- Lawler, Matusky & Skelly Engineers. 1996. 1991 Year Class Report for the Hudson River estuary monitoring program. Prepared for Consolidated Edison Company of New York, Inc.
- Leggett, W.C. 1976. The American shad (*Alosa sapidissima*), with special reference to its migration and population dynamics on the Connecticut River, in *The Connecticut River Ecological Study: The Impact of a Nuclear Power Plant* (D. Merriman and L.M. Thorpe, eds.), pp. 169-225. Am. Fish. Soc. Monograph 1.
- Loesch, J.F. and W.A. Lund, Jr. 1977. A contribution to the life history of the blueback herring, *Alosa aestivalis*. Trans. Amer. Fish. Soc. 106:583-589.
- Mansueti, R.J. 1957. Movements, reproduction, and mortality of the white perch in the Patuxent River estuary, Maryland. Ph.D. thesis, Johns Hopkins University, Maryland.
- Mansueti, R.J. 1964. Eggs, larvae, and young of the white perch, *Roccus americanus*, with comments on its ecology in the estuary. Ches. Sci. 5:3-45.
- Marcy, B.C. 1976. Early life history studies of American shad in the lower Connecticut River and the effects of the Connecticut Yankee Plant, in *The Connecticut River Ecological Study: The Impact of a Nuclear Power Plant* (D. Merriman and L.M. Thorpe, eds.), pp. 141-168. Am. Fish. Soc. Monograph 1.

- Marine Research Laboratory (MRL). 1970. Ecology of Thermal Additions, Lower Hudson River Cooperative Fishery Study, Vicinity of Indian Point, Buchanan, New York: Data Report for June-December 1969 (Revised Edition). Prepared for Consolidated Edison Company of New York, Inc.
- Markle, D.F. 1976. The seasonality of availability and movements of fishes in the channel of the York River, Virginia. Ches. Sci. 17:50-55.
- Martin Marietta Environmental Systems (MMES). 1986. 1984 Year Class Report for the Hudson River estuary monitoring program. Prepared for Consolidated Edison Company of New York, Inc.
- McHugh, J.L. 1967. Estuarine nekton, in *Estuaries* (G.H. Lauff, ed.), pp. 581-620. AAAS, Washington.
- McKown, K.A. 1992. An investigation of the movements and growth of the 1990 Hudson River year class, in *A study of the striped bass in the Marine District of New York VI*.
- McKown, K.A. 1996. New York Atlantic sturgeon landings. Sturgeon Notes 4:8. Department of Natural Resources, Cornell University, Ithaca, New York.
- Miller, R.R. 1960. Systematics and biology of the gizzard shad (*Dorosoma cepedianum*) and related fishes. Fish Bulletin 60(173): 371-392.
- Nack, S. and M.B. Bain. 1996. Sturgeon of the Hudson River. Sturgeon Notes 4:11-12. Department of Natural Resources, Cornell University, Ithaca, New York.
- National Marine Fisheries Service (NMFS). 1987. Status Review of Shortnose Sturgeon (*Acipenser brevirostrum* Lesueur 1818). Listed under the Endangered Species Act of 1973. National Oceanographic and Atmospheric Administration.
- National Marine Fisheries Service. 1998. Final recovery plan for the shortnose sturgeon (*Acipenser brevirostrum*). Prepared by the shortnose sturgeon recovery team for the National Marine Fisheries Service, Silver Spring, MD. February. Draft.
- Nelson, J.S., E.J. Crossman, H. Espinosa-Pérez, L.T. Findley, C.R. Gilbert, R.N. Lea, and J.D. Williams. 2004. Common and scientific names of fishes from the United States, Canada, and Mexico. American Fisheries Society, Special Publication 29, Bethesda, Maryland.
- Neves, R.J. and L. Depres. 1979. The oceanic migration of American shad, *Alosa sapidissima*, along the Atlantic Coast. Fishery Bulletin 77:199-212.
- Normandeau Associates, Inc. (NAI). 1985a. 1982 Year Class Report for the Hudson River estuary monitoring program. Prepared for Consolidated Edison Company of New York, Inc.
- Normandeau Associates, Inc. 1985b. 1983 Year Class Report for the Hudson River estuary monitoring program. Prepared for Consolidated Edison Company of New York, Inc.



- Normandeau Associates, Inc. 1992. Abundance and stock characteristics of the Atlantic tomcod spawning population in the Hudson River, Winter 1990-1991. Prepared for New York Power Authority.
- Pace, M.L., J.A. Downing, H. Cyr, S. Baines, and S. Lalond. 1993. Analysis of Hudson River Fish Populations from the Utilities Monitoring Program. Final Report to the Hudson River Foundation. New York, New York.
- Polgar, T.T., J.A. Mihursky, R.E. Ulanowicz, R.P. Morgan, and J.S. Wilson. 1976. An analysis of 1974 striped bass spawning success in the Potomac estuary, in *Estuarine Processes, Volume I: Uses, Stresses, and Adaption to the Estuary* (M.L. Wilery, ed.), pp. 151-165. Academic Press, New York.
- Pottern, G.B., M.T. Huish, and J.H. Kerby. 1989. Species profiles: life histories and environmental requirements of coastal fishes and invertebrates (mid-Atlantic) - bluefish. U.S. Fish Wildl. Serv. Biol. Rep. 82(11.94). U.S. Army Corps of Engineers, TR EL-82-4.
- Richards, S.W. 1959. Pelagic fish eggs and larvae of Long Island Sound. Bulletin of the Bingham Oceanographic Collection 17(1): 95-124.
- Richmond, A.M. and B. Kynard. 1995. Ontogenetic behavior of shortnose sturgeon, *Acipenser brevirostrum*. *Copeia* 1:172-182.
- Rounsefell, G.A. 1975. *Ecology, Utilization, and Management of Marine Fisheries*. The C.V. Mosby Co. St. Louis, Missouri.
- Sandler, R. and D. Schoenhard (eds.). 1981. *The Hudson River Power Plant Settlement*. New York University School of Law, New York.
- Schmidt, R.E. 1992. Temporal and spatial distribution of bay anchovy eggs through adults in the Hudson River estuary, in *Estuarine Research in the 1980s* (C.L. Smith, ed.), pp. 228-241. State University of New York Press, Albany, New York.
- Schmidt, R.E., R.J. Klauda, and J.M. Bartels. 1988. Distributions and movements of the early life stages of three species of *Alosa* in the Hudson River, with comments on mechanisms to reduce interspecific competition, in *Fisheries Research in the Hudson River* (C.L. Smith, ed.), pp. 193-215. State University of New York Press, Albany, New York.
- Scott, W.B. and E.J. Crossman. 1973. *Freshwater Fishes of Canada*. Fish. Res. Bd. Can. Bull. 184:966.
- Setzler, E.M., W.R. Boynton, K.V. Wood, H.H. Zion, L. Lubbers, N.K. Mountford, P. Frer, L. Tucker, and J.A. Mihursky. 1980. Synopsis of biological data on striped bass, *Morone saxatilis* (Walbaum). NOAA Technical Report NMFS circular 433. U.S. Department of Commerce.
- Smith, C.L. 1985. *The Inland Fishes of New York State*. New York State Department of Environmental Conservation, Albany, New York.
- Smith, C.L. and T.R. Lake. 1990. Documentation of the Hudson River fish fauna. American Museum of Natural History, New York, New York.

- Talbot, G.B. 1954. Factors associated with fluctuations in abundance of Hudson River shad. U.S. Fish and Wildlife Service, Fishery Bulletin 56: 373-413.
- Texas Instruments, Inc. (TI). 1975. First annual report for the multiplant impact study of the Hudson River estuary. Prepared for Consolidated Edison Company of New York, Inc.
- Texas Instruments, Inc. 1977. 1974 Year Class Report for the multiplant impact study of the Hudson River estuary. Prepared for Consolidated Edison Company of New York, Inc.
- Texas Instruments, Inc. 1978. 1975 Year Class Report for the multiplant impact study of the Hudson River Estuary. Prepared for Consolidated Edison Company of New York, Inc.
- Texas Instruments, Inc. 1979. 1976 Year Class Report for the multiplant impact study of the Hudson River estuary. Prepared for Consolidated Edison Company of New York, Inc.
- Texas Instruments, Inc. 1980a. 1977 Year Class Report for the multiplant impact study of the Hudson River estuary. Prepared for Consolidated Edison Company of New York, Inc.
- Texas Instruments, Inc. 1980b. 1978 Year Class Report for the multiplant impact study of the Hudson River estuary. Prepared for Consolidated Edison Company of New York, Inc.
- Texas Instruments, Inc. 1981. 1979 Year Class Report for the multiplant impact study of the Hudson River estuary. Prepared for Consolidated Edison Company of New York, Inc.
- Van Den Avyle, M.J. 1984. Species profiles: life histories and environmental requirements of coastal fishes and invertebrates (South Atlantic) -- Atlantic sturgeon. U.S. Fish and Wildlife Service FWS/OBS-82/11.25, Washington, D.C.
- Van Eenennaam, J.P., S.I. Doroshov, G.P. Moberg, J.G. Watson, D.S. Moore, and J. Linares. 1996. Reproductive conditions of the Atlantic sturgeon (*Acipenser oxyrinchus*) in the Hudson River. *Estuaries* 19: 769-777.
- Versar, Inc. 1987. 1985 Year Class Report for the Hudson River estuary monitoring program. Prepared for Consolidated Edison Company of New York, Inc.
- Vladykov, V.D. and J.R. Greeley. 1963. Order Acipenseroidei, in *Fishes of the Western North Atlantic* (Y.H. Olsen, ed.), pp. 24-59. Sears Found., Mar. Res., Yale University, New Haven, Connecticut.
- Vouglitois, J.J., K.W. Able, R.J. Kurtz, and K.A. Tighe. 1987. Life history and population dynamics of the bay anchovy in New Jersey. *Trans. Am. Fish. Soc.* 116(2):141-53.
- Wang, J.C.S. and R.J. Kernehan. 1979. *Fishes of the Delaware Estuaries: A Guide to Early Life Histories*. EA Communications, Towson, Maryland.
- Washburn and Gillis Assoc. Ltd. 1980. Studies on the Early Life History of the Shortnose Sturgeon (*Acipsenser brevirostrum*). Fredericton, N.B., Canada.

## **Appendix A**

### **Quality Control Report for the 2008 Hudson River Ichthyoplankton Laboratory Program and 2008 Fall Juvenile Survey**

**Quality Control Report for the  
2008 Hudson River  
Ichthyoplankton Laboratory Program  
and 2008 Fall Juvenile Survey**

**Prepared for  
ENTERGY SERVICES, INC.  
1340 Echelon Parkway, M/S: M-ECH-595  
Jackson, Mississippi 39213**

**Prepared by  
NORMANDEAU ASSOCIATES, INC.  
25 Nashua Road  
Bedford, NH 03110**

**QA 21370.026–21350.000**

**July 2009**

## **TABLE OF CONTENTS**

	<b>Page</b>
1.0 INTRODUCTION .....	1
2.0 METHODS .....	2
2.1 Laboratory Quality Control Procedures .....	2
2.1.1 Ichthyoplankton Survey .....	2
2.1.2 Fall Juvenile Survey .....	3
2.2 Reporting Procedures .....	4
2.2.1 Fraction Inspected .....	4
2.2.2 Percent Nonconforming .....	6
2.2.3 Percent Measurement Error .....	6
2.2.4 Average Outgoing Quality .....	8
2.2.5 Cumulative Error Rates .....	8
3.0 RESULTS .....	10
3.1 Ichthyoplankton Laboratory Program .....	10
3.2 Fall Juvenile Survey .....	21
4.0 LITERATURE CITED .....	21

## **LIST OF FIGURES**

	<b>Page</b>
Figure 1. Quality control inspection plan for ichthyoplankton sorting and identification tasks. ....	3
Figure 2. Quality control inspection plan for identification and length measurement of young-of-the-year fishes. ....	5
Figure 3. Example of percent measurement error calculations for individual taxa during the identification task. ....	7

## LIST OF TABLES

	<b>Page</b>
Table 1. Task Specific Applications of Continuous Sampling Plans for the 2008 Hudson River Ichthyoplankton Laboratory Program .....	2
Table 2. Task Specific Applications of Continuous Sampling Plans for the 2008 Fall Juvenile Survey. ....	4
Table 3. Fraction Inspected, Percent Nonconforming, Mean Percent Measurement Error, and Average Outgoing Quality of Tasks Performed By NAI for the 2008 Hudson River Ichthyoplankton Laboratory Program. ....	10
Table 4. Sample Sorting Fraction Inspected Results, 2008 Hudson River Ichthyoplankton Laboratory Program. ....	11
Table 5. Sample Sorting Percent Nonconformance Results, 2008 Hudson River Ichthyoplankton Laboratory Program. ....	12
Table 6. Sample Sorting Mean Percent Measurement Error Results, 2008 Hudson River Ichthyoplankton Laboratory Program. ....	13
Table 7. Sample Identification Fraction Inspected Results, 2008 Hudson River Ichthyoplankton Laboratory Program. ....	14
Table 8. Sample Identification Percent Nonconformance Results, 2008 Hudson River Ichthyoplankton Laboratory Program. ....	15
Table 9. Sample Identification Mean Percent Measurement Error Results, 2008 Hudson River Ichthyoplankton Laboratory Program. ....	16
Table 10. Ranking of Taxa Missed During Initial Sort and Found During Sort QC.....	18
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. ....	19
Table 12. Cumulative Net and Absolute Error Rates for Commonly Encountered Taxa in Samples Selected for QC Inspection of Identification and Counting Process. ....	20
Table 13. Fraction Inspected, Percent Nonconforming, and Average Outgoing Quality of Laboratory Tasks Performed by Normandeau for the 2008 Fall Juvenile Survey.....	21

## **QUALITY CONTROL REPORT FOR THE 2008 HUDSON RIVER ICHTHYOPLANKTON LABORATORY PROGRAM AND 2008 FALL JUVENILE SURVEY**

### **1.0 INTRODUCTION**

This quality control report for the laboratory tasks of the 2008 Hudson River Ichthyoplankton Survey and the 2008 Fall Juvenile Survey was prepared for Entergy Services, Inc. by Normandeau Associates Inc. (NAI).

To comply with Entergy'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 Entergy'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 2008 Hudson River Ichthyoplankton Laboratory Program and 2008 Fall Juvenile Survey activities. Determinations of the fraction inspected, percent nonconforming, and average outgoing quality are presented for both programs. In addition, for the 2008 Hudson River Ichthyoplankton Laboratory Program the results include percent measurement error, a summary of the number of each taxon-life stage found during sorting QC, and cumulative error rates for each taxon-life stage.



## **2.0 METHODS**

### **2.1 LABORATORY QUALITY CONTROL PROCEDURES**

#### **2.1.1 Ichthyoplankton Survey**

For sorting and identification of samples from the 2008 Hudson River Ichthyoplankton Laboratory Program, NAI used a continuous sampling plan designed to provide a 10% Average Outgoing Quality Limit (U.S. Department of Defense 1981). A flow diagram of how the sampling plan was applied is presented in Figure 1. A summary of the sampling plan, tolerances and QC sample definitions used for each measurement parameter is presented in Table 1. Quality control inspection was applied on a laboratory-wide basis for the sorting task and to each individual processor for the identification task. Quality control samples were selected in a random manner utilizing random number tables. As determined from the sampling plan outlined in Table 1, a given number of quality control samples were reprocessed by QC inspectors with expertise in the task being inspected. In cases where a sample was subdivided and counted, counts for all subdivisions were combined before calculating percent error for that sample. If the difference between the quality control value and the original value exceeded acceptable tolerances (Table 1), a third measurement could be obtained to verify one of the measurements. If a sample was found to have exceeded acceptable tolerances, all subsequent samples processed by the same technician were subjected to 100% quality control until an appropriate number of consecutive samples (i) were found within tolerance as determined by the continuous sampling plan (Table 1 and Figure 1). The standard operating procedures manual (NAI 2003) documents specific QA/QC methods utilized for this program.

**Table 1. Task Specific Applications of Continuous Sampling Plans for the 2008 Hudson River Ichthyoplankton Laboratory Program**

<b>Laboratory Task</b>	<b>CSP-1 AOQL 10%</b>		<b>Sample Tolerance</b>	<b>QC Sample Definition</b>
	<b>i</b>	<b>f</b>		
Sorting	8	1/7	± 2 if ≤20 organisms ± 10% if >20 organisms	one sample
Identification	8	1/7	± 2 if ≤20 ± 10% if >20 for every taxon in the sample (in identifying, assigning a life stage, or counting any species, errors are cumulative by life stage within each taxon)	one sample

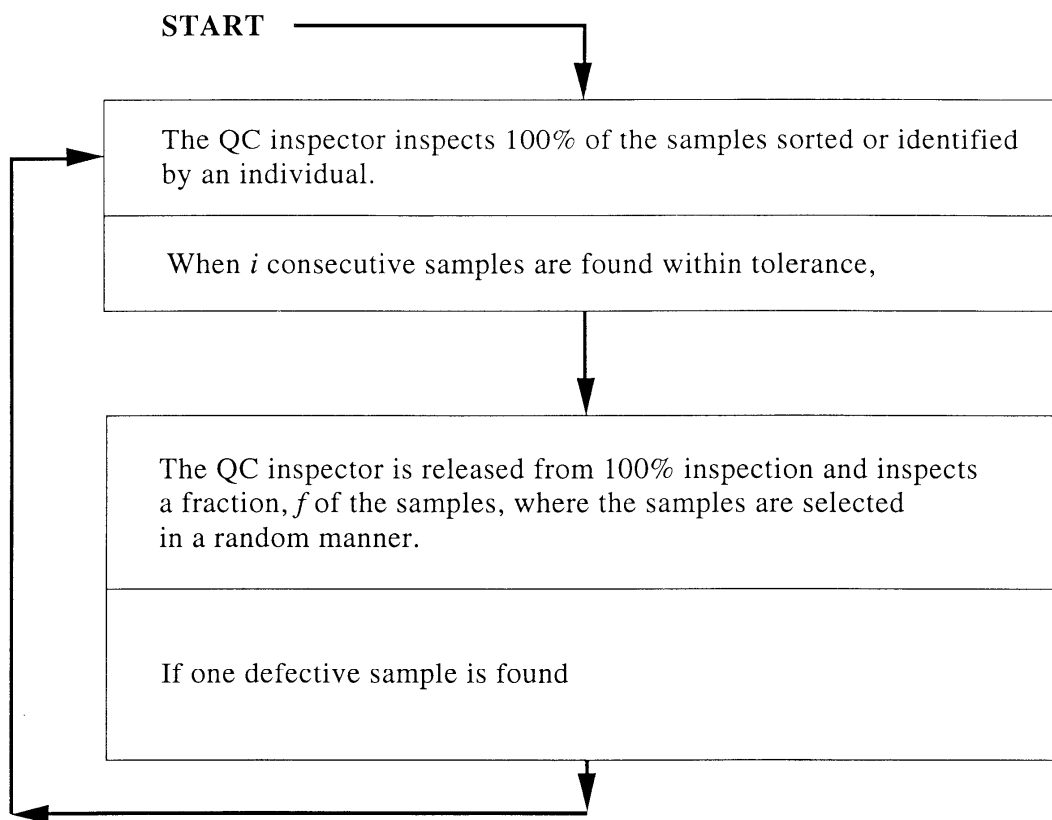


Figure 1. Quality control inspection plan for ichthyoplankton sorting and identification tasks.

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

### 2.1.2 Fall Juvenile Survey

The Fall Juvenile Survey consisted of two types of collections, referred to as the Fall Shoals Survey (which used Tucker trawls) and the Beach Seine Survey. For laboratory identification and length measurements of young-of-the-year fishes in the 2008 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 standard operating procedures manual (NAI 2008) documents specific QA/QC methods used for the 2008 Fall Juvenile Survey. Young-of-the-year fishes were identified in the laboratory for the first two Fall Shoals Survey “river runs” (sampling weeks) and the first three Beach Seine Survey river runs. Young-of-the-year fishes were identified in the field starting with Fall Shoals Survey 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 2008 Fall Juvenile Survey.**

Task	QC Plan	AOQL	i	f	x	Tolerance	QC Sample Definition
Identification	CSP-V	7%	21	1/15	7	±10% of total count or ±2 individuals when <25 fish	One taxon
Length	CSP-V	7%	30	1/50	10	±1 mm when <34 mm TL ±3% when ≥34 mm TL	One fish

## **2.2 REPORTING PROCEDURES**

The 2008 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, percent nonconforming, and percent measurement error (precision) were determined for each river run and for the entire study. For the 2008 Fall Juvenile Survey, QC data were used to determine fraction inspected and percent nonconforming for the entire study (combining all river runs processed in the laboratory for both the Fall Shoals Survey and the Beach Seine Survey).

### **2.2.1 Fraction Inspected**

Fraction Inspected

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

*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.

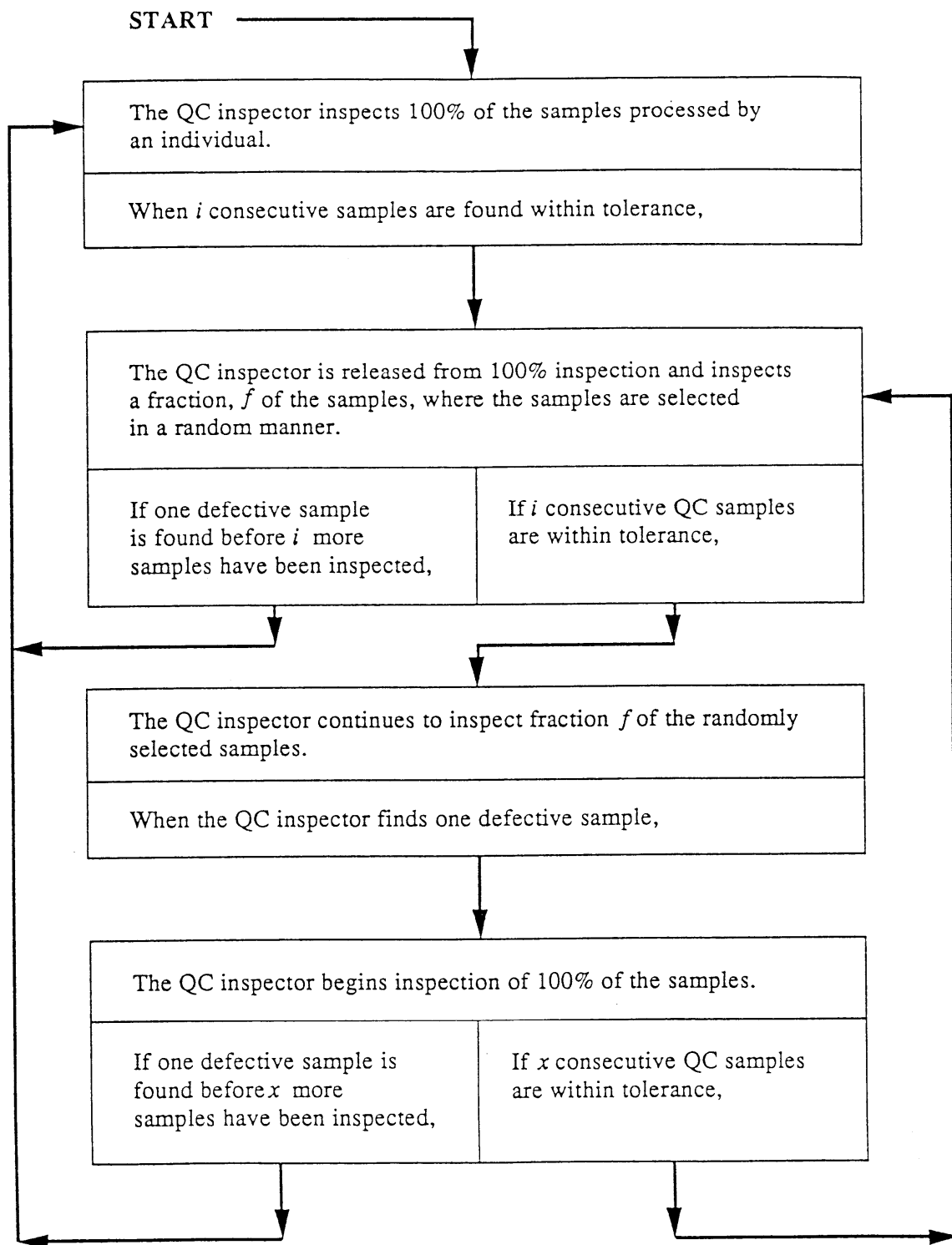


Figure 2. Quality control inspection plan for identification and length measurement of young-of-the-year fishes.

**2.2.2 Percent Nonconforming**

Percent Nonconforming

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

*River Run:* Percent nonconforming 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:* Percent nonconforming 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 was better than that indicated by the percent nonconforming.)

**2.2.3 Percent Measurement Error*****Sorting Task***

Sorting Percent Measurement Error

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

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

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

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

***Identification Task***

Life Stage Percent Measurement Error

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

*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. 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.

		Eggs	Post Yolk-Sac Larvae	Young-of- the-Year	Total
<b>Taxon 1</b>	Original Value	103	176	25	
	Quality Control Value	100	194	26	
	% Measurement Error Life Stage	3.0	-9.3	-3.8	16.1
<b>Taxon 2</b>	Original Value		2		
	Quality Control Value		1		
	% Measurement Error Life Stage		0		0
<b>Taxon 3</b>	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.

*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 percent nonconforming and the fraction of total units inspected (Stephens 1979). This calculation applies to continuous sampling plans when nonconforming units found are rectified:

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

where

$p'$  = Percent nonconforming as a decimal fraction  
 $f$  = Fraction of units inspected. This is a parameter of the sampling plan.  
 $q = 1 - p'$  = Percent conforming as a decimal fraction  
 $i$  = 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 reinspections 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 =

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

Net Error Rate =

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

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 ICHTHYOPLANKTON LABORATORY PROGRAM**

The Average Outgoing Quality (AOQ) of the 2008 Hudson River Ichthyoplankton Laboratory Program was 0.00% for the sorting task 0.52% 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 the study. The Average Fraction Inspected (AFI) was 12.87% for sorting and 15.29% for identification (Table 3).

**Table 3. Fraction Inspected, Percent Nonconforming, Mean Percent Measurement Error, and Average Outgoing Quality of Tasks Performed By NAI for the 2008 Hudson River Ichthyoplankton Laboratory Program.**

<b>Task</b>	<b>Fraction Inspected (%)</b>	<b>Percent Nonconforming (%)</b>	<b>Mean Percent Measurement Error (%)</b>	<b>AOQ (%)</b>
Sorting	12.87	0.00	1.12	0.00
Identification	15.29	0.62	21.20	0.52

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 the basis of river runs (sampling weeks). Sorted samples were inspected at a rate of 5.41% to 18.75% for individual river runs (Table 4). Nonconformance for the sorting task among the inspected samples was 0% in each of the 23 river runs, and thus 0% overall (Table 5). Sorting measurement error was between 0% and 2.56% and averaged 1.12% for the study (Table 6). For the task of sample identification, 12.20% to 21.78% of samples were inspected from individual river runs (Table 7). Percent nonconforming for the identification task ranged from 0% to 4.55% and averaged 0.62% (Table 8). Measurement error ranged from 0% to 132% and overall measurement error was 21.20% for the identification task of this study (Table 9).

Measurement error results for the identification task 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. In all cases of failed QC samples, the data were corrected and the QC sample inspection frequency was maintained at 100% for that individual until acceptable results were demonstrated as determined by the QC sampling plan.

This being said, there were two unusually high values for the 2008 program that deserve further explanation to put them in perspective. The mean percent measurement errors for the sampling

**Table 4. Sample Sorting Fraction Inspected Results, 2008 Hudson River Ichthyoplankton Laboratory Program.**

<b>Sampling Week (Beginning Monday)</b>	<b>Total # of Samples Inspected</b>	<b>Total # of Samples Sorted</b>	<b>Fraction Inspected</b>
03Mar08	4	74	5.41
17Mar08	7	74	9.46
31Mar08	10	74	13.51
07Apr08	12	126	9.52
14Apr08	18	126	14.29
21Apr08	20	126	15.87
28Apr08	18	135	13.33
05May08	19	135	14.07
12May08	20	133	15.04
19May08	16	126	12.70
26May08	19	126	15.08
02Jun08	7	126	5.56
09Jun08	15	123	12.20
16Jun08	10	123	8.13
23Jun08	20	123	16.26
30Jun08	16	123	13.01
14Jul08	15	80	18.75
28Jul08	11	81	13.58
11Aug08	12	81	14.81
25Aug08	11	81	13.58
08Sep08	12	81	14.81
22Sep08	11	81	13.58
06Oct08	11	81	13.58
<b>Study</b>	<b>314</b>	<b>2439</b>	<b>12.87</b>

**Table 5. Sample Sorting Percent Nonconformance Results, 2008 Hudson River Ichthyoplankton Laboratory Program.**

<b>Sampling Week (Beginning Monday)</b>	<b># of Noncon- formities</b>	<b>Total # of Samples Inspected</b>	<b>% Non- conformance (Week)</b>	<b>% Non- conformance (Study)</b>
03Mar08	0	4	0.00	0.00
17Mar08	0	7	0.00	0.00
31Mar08	0	10	0.00	0.00
07Apr08	0	12	0.00	0.00
14Apr08	0	18	0.00	0.00
21Apr08	0	20	0.00	0.00
28Apr08	0	18	0.00	0.00
05May08	0	19	0.00	0.00
12May08	0	20	0.00	0.00
19May08	0	16	0.00	0.00
26May08	0	19	0.00	0.00
02Jun08	0	7	0.00	0.00
09Jun08	0	15	0.00	0.00
16Jun08	0	10	0.00	0.00
23Jun08	0	20	0.00	0.00
30Jun08	0	16	0.00	0.00
14Jul08	0	15	0.00	0.00
28Jul08	0	11	0.00	0.00
11Aug08	0	12	0.00	0.00
25Aug08	0	11	0.00	0.00
08Sep08	0	12	0.00	0.00
22Sep08	0	11	0.00	0.00
06Oct08	0	11	0.00	0.00
<b>Study</b>	<b>0</b>	<b>314</b>		

**Table 6. Sample Sorting Mean Percent Measurement Error Results, 2008 Hudson River Ichthyoplankton Laboratory Program.**

<b>Sampling Week (Beginning Monday)</b>	<b>Total # of Samples Inspected</b>	<b>Mean Percent Measurement Error</b>
03Mar08	4	1.28
17Mar08	7	1.27
31Mar08	10	0.59
07Apr08	12	0.53
14Apr08	18	0.12
21Apr08	20	0.52
28Apr08	18	0.56
05May08	19	1.28
12May08	20	1.90
19May08	16	1.74
26May08	19	2.56
02Jun08	7	2.11
09Jun08	15	1.88
16Jun08	10	2.25
23Jun08	20	1.36
30Jun08	16	1.60
14Jul08	15	1.51
28Jul08	11	0.93
11Aug08	12	0.59
25Aug08	11	0.25
08Sep08	12	0.22
22Sep08	11	0.00
06Oct08	11	0.00
<b>Study</b>	<b>314</b>	<b>1.12</b>

**Table 7. Sample Identification Fraction Inspected Results, 2008 Hudson River Ichthyoplankton Laboratory Program.**

<b>Sampling Week (Beginning Monday)</b>	<b>Total # of Samples Inspected</b>	<b>Total # of Samples Identified</b>	<b>Fraction Inspected</b>
03Mar08	11	72	15.28
17Mar08	10	72	13.89
31Mar08	8	62	12.90
07Apr08	7	53	13.21
14Apr08	6	37	16.22
21Apr08	9	60	15.00
28Apr08	22	101	21.78
05May08	20	130	15.38
12May08	15	123	12.20
19May08	19	121	15.70
26May08	17	119	14.29
02Jun08	19	126	15.08
09Jun08	20	123	16.26
16Jun08	26	123	21.14
23Jun08	17	123	13.82
30Jun08	17	123	13.82
14Jul08	11	80	13.75
28Jul08	13	80	16.25
11Aug08	12	81	14.81
25Aug08	11	81	13.58
08Sep08	12	81	14.81
22Sep08	10	77	12.99
06Oct08	13	77	16.88
<b>Study</b>	<b>325</b>	<b>2125</b>	<b>15.29</b>

**Table 8. Sample Identification Percent Nonconformance Results, 2008 Hudson River Ichthyoplankton Laboratory Program.**

<b>Sampling Week (Beginning Monday)</b>	<b># of Noncon- formities</b>	<b>Total # of Samples Inspected</b>	<b>% Non- conformance (Week)</b>	<b>% Non- conformance (Study)</b>
03Mar08	0	11	0.00	0.00
17Mar08	0	10	0.00	0.00
31Mar08	0	8	0.00	0.00
07Apr08	0	7	0.00	0.00
14Apr08	0	6	0.00	0.00
21Apr08	0	9	0.00	0.00
28Apr08	1	22	4.55	1.37
05May08	0	20	0.00	1.08
12May08	0	15	0.00	0.93
19May08	0	19	0.00	0.79
26May08	0	17	0.00	0.69
02Jun08	0	19	0.00	0.61
09Jun08	0	20	0.00	0.55
16Jun08	1	26	3.85	0.96
23Jun08	0	17	0.00	0.88
30Jun08	0	17	0.00	0.82
14Jul08	0	11	0.00	0.79
28Jul08	0	13	0.00	0.75
11Aug08	0	12	0.00	0.72
25Aug08	0	11	0.00	0.69
08Sep08	0	12	0.00	0.66
22Sep08	0	10	0.00	0.64
06Oct08	0	13	0.00	0.62
<b>Study</b>	<b>2</b>	<b>325</b>		

**Table 9. Sample Identification Mean Percent Measurement Error Results, 2008 Hudson River Ichthyoplankton Laboratory Program.**

<b>Sampling Week (Beginning Monday)</b>	<b>Total # of Samples Inspected</b>	<b>Mean Percent Measurement Error</b>	<b>Number of Taxa Inspected</b>
03Mar08	11	0.58	22
17Mar08	10	0.82	19
31Mar08	8	0.30	16
07Apr08	7	0.10	24
14Apr08	6	0.00	12
21Apr08	9	0.17	18
28Apr08	22	63.12	67
05May08	20	0.43	65
12May08	15	0.27	50
19May08	19	0.34	66
26May08	17	1.15	73
02Jun08	19	0.74	90
09Jun08	20	1.04	106
16Jun08	26	132.10	145
23Jun08	17	1.37	73
30Jun08	17	0.81	76
14Jul08	11	0.51	41
28Jul08	13	0.51	36
11Aug08	12	1.09	33
25Aug08	11	0.87	26
08Sep08	12	0.78	28
22Sep08	10	0.14	23
06Oct08	13	0.05	25
<b>Study</b>	<b>325</b>	<b>21.20</b>	<b>1134</b>

weeks beginning 28 April 2008 and 16 June 2008 were 63.1% and 132.1% (Table 9). Obviously, it is not possible for the identifications to be wrong for more than 100% of the specimens in a sample. In the one sample that failed the QC inspection for identifications for the week beginning 16 June, the dominant larvae were bay anchovy, but they were misidentified as clupeid larvae. The original count for clupeid larvae was 189 and the QC count for clupeid larvae was zero. By the convention for calculating measurement error for a taxon where the QC count is zero, the measurement error for clupeid larvae was 18,900%. When this value was averaged with the 100% error for bay anchovy larvae and the percent measurement error values for the other 163 taxa in the samples inspected in that river run, the result was 132.1%. The actual proportion of specimens that were incorrectly identified, staged, or counted in the 26 samples inspected was 2.5%. If the percent measurement error were to be recalculated after correcting the counts for bay anchovy and clupeid larvae in the final data file, it would be 1.1% for that river run. Similarly, the 63.1% measurement error for the week beginning 28 April was also due to a high value for a single taxon (4,100% measurement error for striped bass eggs in one sample), when the actual proportion of specimens incorrectly identified, staged, or counted in samples inspected for that river run was 2.1%. The values of 18,900% and 4,100% explain why the overall percent measurement error for the identification task was 20.20% (Table 3 and Table 9) despite about 98% of the eggs and larvae having been correctly identified.

Additional organisms found during the sort QC were identified independently to determine the frequency of species and life stages missed during the initial sort. Six taxa accounted for 93% of the additional organisms found during sort QC: white perch, bay anchovy, striped bass, clupeids, gobiids, and *Morone* sp. (Table 10). For these six taxa, the additional number found in the sort QC was less than 1% of the total found during sample processing.

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

The life stage most commonly missed by sorters was eggs for bay anchovy, unidentified life stage for *Morone* sp., yolk-sac larvae for striped bass, and it was post yolk-sac larvae for white perch, clupeids, and goby family (Table 11). Except for striped bass, the life stage most frequently missed by sorters was the most abundant one.

Absolute error rates of the identification process for individual life stages of commonly encountered taxa ranged from 0 to 1.00, but most taxa-life stages had rates less than 0.05. Generally, only those taxa-life stages with low total counts had absolute error rates above 0.05 (Table 12).

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



**Table 10. Ranking of Taxa Missed During Initial Sort and Found During Sort QC.**

<b>Taxon</b>	<b>Number of Organisms found in Sort QC</b>	<b>Percent</b>
White perch	384	34.91
Bay anchovy	213	19.36
Striped bass	212	19.27
Herring family	157	14.27
Goby family	32	2.91
Morone species	28	2.55
Windowpane	15	1.36
Unidentified	12	1.09
Winter flounder	9	0.82
Atlantic tomcod	8	0.73
Fourbeard rockling	7	0.64
Common carp	4	0.36
Cunner	3	0.27
Sunfish family	3	0.27
Tessellated darter	3	0.27
Hogchoker	2	0.18
Atlantic menhaden	1	0.09
Freshwater drum	1	0.09
Gizzard shad	1	0.09
Grubby	1	0.09
Northern puffer	1	0.09
Tautog	1	0.09
Weakfish	1	0.09
Yellow perch	1	0.09
<b>Total</b>	<b>1100</b>	<b>100.00</b>

**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.**

<b>Taxon</b>	<b>Life Stage</b>	<b>Number</b>	<b>Percent in Each Stage</b>	<b>Percent of Total Found</b>	<b>Total Organisms Found *</b>
<b>Bay anchovy</b>	Eggs	123	57.75	0.16	79264
	Yolk-sac larvae	2	0.94	0.91	220
	Post yolk-sac larvae	88	41.31	0.25	35331
	Young-of-the-year	0	0.00	0.00	14782
	Unidentified	0	0.00	0.00	12
<b>Goby family</b>	Yolk-sac larvae	1	3.13	50.00	2
	Post yolk-sac larvae	31	96.88	0.72	4331
<b>Herring family</b>	Eggs	12	7.64	0.18	6501
	Yolk-sac larvae	15	9.55	1.05	1427
	Post yolk-sac larvae	130	82.80	0.55	23487
	Unidentified	0	0.00	0.00	4
<b>Morone species</b>	Post yolk-sac larvae	0	0.00	0.00	1595
	Young-of-the-year	0	0.00	0.00	18
	Unidentified	28	100.00	0.51	5502
<b>Striped bass</b>	Eggs	55	25.94	0.37	15036
	Yolk-sac larvae	84	39.62	0.45	18727
	Post yolk-sac larvae	73	34.43	0.11	68943
	Young-of-the-year	0	0.00	0.00	119
	Unidentified	0	0.00	0.00	24
<b>White perch</b>	Eggs	93	24.22	0.55	17011
	Yolk-sac larvae	110	28.65	1.08	10173
	Post yolk-sac larvae	179	46.61	0.40	45123
	Young-of-the-year	0	0.00	0.00	77
	Unidentified	2	0.52	14.29	14

<sup>a</sup> 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.**

<b>Taxon</b>	<b>Stage</b>	<b>Total Count</b>	<b>Net Error</b>	<b>Absolute Error</b>	<b>N</b>
<b>Atlantic menhaden</b>	Eggs	111	-0.02703	0.02703	10
	Post yolk-sac larvae	109	0.00917	0.02752	32
	Young-of-the-year	29	-0.03448	0.03448	12
<b>Atlantic tomcod</b>	Unidentified	98	0.12245	0.12245	8
	Yolk-sac larvae	499	0.01603	0.02405	22
	Post yolk-sac larvae	1433	-0.01256	0.01814	38
	Young-of-the-year	1041	-0.00288	0.00288	46
<b>Bay anchovy</b>	Eggs	12091	0.00314	0.01208	62
	Yolk-sac larvae	18	0.00000	0.00000	3
	Post yolk-sac larvae	6243	-0.03300	0.04517	113
	Young-of-the-year	2162	0.01064	0.02081	67
<b>Cunner</b>	Eggs	220	-0.00455	0.04091	10
<b>Goby family</b>	Post yolk-sac larvae	503	-0.00199	0.02187	68
<b>Herring family</b>	Eggs	1173	-0.00171	0.01705	24
	Yolk-sac larvae	198	-0.01010	0.07071	43
	Post yolk-sac larvae	3512	0.05524	0.07688	109
<b>Hogchoker</b>	Eggs	1053	-0.00285	0.01235	22
	Yolk-sac larvae	3	0.00000	0.00000	2
	Post yolk-sac larvae	2	0.00000	0.00000	2
	Young-of-the-year	1	1.00000	1.00000	2
<b>Morone species</b>	Unidentified	1171	0.02050	0.03587	30
	Post yolk-sac larvae	71	0.14085	0.14085	11
<b>Striped bass</b>	Eggs	2023	0.02274	0.02669	55
	Yolk-sac larvae	2667	0.00150	0.02925	53
	Post yolk-sac larvae	14367	-0.00390	0.01824	82
	Young-of-the-year	15	-0.13333	0.26667	7
<b>Weakfish</b>	Eggs	191	0.00000	0.02094	10
	Yolk-sac larvae	1	0.00000	0.00000	1
	Post yolk-sac larvae	19	-0.10526	0.10526	11
	Young-of-the-year	12	0.08333	0.08333	8
<b>White perch</b>	Eggs	3894	-0.00873	0.01284	40
	Yolk-sac larvae	1181	0.00339	0.03726	62
	Post yolk-sac larvae	7477	0.00187	0.02407	97
	Young-of-the-year	12	0.08333	0.08333	4
<b>Windowpane</b>	Eggs	229	-0.01747	0.01747	5
	Post yolk-sac larvae	9	0.00000	0.00000	4
	Young-of-the-year	1	0.00000	0.00000	1

**Table 13. Fraction Inspected, Percent Nonconforming, and Average Outgoing Quality of Laboratory Tasks Performed by Normandeau for the 2008 Fall Juvenile Survey.**

<b>Task</b>	<b>Average Fraction Inspected (%)</b>	<b>Percent Nonconforming (%)</b>	<b>Average Outgoing Quality (%)</b>
Identification	6.35	0.00	0.00
Measurement	1.99	0.00	0.00

### **3.2 FALL JUVENILE SURVEY**

Results of the laboratory quality control program for the 2008 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 2008 Hudson River Ichthyoplankton Laboratory Program and are presented in Table 13.

A total of 821 and 738 young-of-the-year fish identification records were made in the laboratory for the Fall Shoals and Beach Seine surveys respectively and 5,490 and 5,021 young-of-the-year fish length measurement records were made for the Fall Shoals and Beach Seine surveys respectively.

### **4.0 LITERATURE CITED**

Normandeau Associates Inc. 2003. Quality assurance plan for the Hudson River ichthyoplankton laboratory program. Rev. 0, April 2003. Prepared for Entergy Nuclear Operations, Inc.

\_\_\_\_\_. 2008. 2008 Hudson River fall juvenile and beach seine surveys standard operating procedures. June 2008. Prepared for Entergy Nuclear Operations, Inc.

Stephens, K.S. 1979. Volume 2: How to perform continuous sampling (CSP). American Society for Quality Control. 70 pp.

U.S. Department of Defense. 1981. Military standard. Single- and multi-level continuous sampling procedures and table for inspection by attributes. MIL-STD-1235B.

## **Appendix B**

### **Physical/Chemical Parameters**

**APPENDIX B**  
**LIST OF TABLES**

<b><u>Number</u></b>	<b><u>Title</u></b>
B-1	Daily freshwater flow (m <sup>3</sup> /sec/day) estimated for Green Island, New York, 2008
B-2	Long-term (1947-2007) and 2008 monthly mean freshwater flow (m <sup>3</sup> /sec/day) estimated for Green Island, New York
B-3	Monthly mean freshwater flow (m <sup>3</sup> /sec/day) estimated for Green Island, New York, 1974 to 2008
B-4	Average annual freshwater flow (m <sup>3</sup> /sec/day) estimated for Green Island, New York, 1947 to 2008
B-5	Mean, Minimum, And Maximum Temperature (°C) for Each Day of the Year, Hudson River near Poughkeepsie, 1951 to 2008
B-6	Average Annual Water Temperature (°C), Hudson River near Poughkeepsie, 1951 to 2008
B-7	Weighted mean temperature (°C) by region and week from 2008 Long River/Fall Juvenile surveys
B-8	Average annual temperature (°C) from Long River/Fall Juvenile surveys, 1974 to 2008
B-9	Mean temperature (°C) by region and week from 2008 Beach Seine Survey
B-10	Average annual temperature (°C) from Beach Seine Survey, 1974 to 2008
B-11	Weighted mean salinity (ppt) by region and week from 2008 Long River/Fall Juvenile surveys
B-12	Mean salinity (ppt) by region and week from 2008 Beach Seine Survey
B-13	Weighted mean dissolved oxygen (mg/L) by region and week from 2008 Long River/Fall Juvenile surveys
B-14	Average annual dissolved oxygen (mg/L) from Long River/Fall Juvenile surveys, 1974 to 2008
B-15	Mean dissolved oxygen (mg/L) by region and week from 2008 Beach Seine Survey

- B-16 Average annual dissolved oxygen (mg/L) from Beach Seine Survey, 1974 to 2008
- B-17 Weighted mean percent oxygen saturation by region and week from 2008 Long River/Fall Juvenile surveys
- B-18 Mean percent oxygen saturation by region and week from 2008 Beach Seine Survey
- B-19 Weighted mean conductivity (mS/cm @ 25°C) by region and week from 2008 Long River/Fall Juvenile surveys
- B-20 Mean conductivity (mS/cm @ 25°C) by region and week from 2008 Beach Seine Survey

Table B-1 Daily Freshwater Flow (m<sup>3</sup>/sec/day) Estimated for Green Island, New York, 2008

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT <sup>1</sup>	NOV <sup>1</sup>	DEC <sup>1</sup>
DAY OF MONTH												
1	578	387	394	1036	1078	162	229	310	138	186	538	569
2	545	448	411	1808	921	156	168	291	149	192	505	708
3	405	477	400	1390	862	142	186	348	141	179	466	628
4	377	450	434	1175	834	148	167	303	145	183	449	536
5	428	538	1101	1282	747	142	154	286	135	169	497	469
6	442	1092	1950	1251	584	414	142	281	167	160	458	397
7	462	1760	1319	1180	531	535	152	304	210	184	472	361
8	713	1316	1639	1183	450	299	132	398	181	164	479	306
9	1228	1016	2706	1175	472	225	133	378	197	183	506	309
10	1347	866	1874	1313	454	207	154	361	210	185	515	350
11	1228	671	1367	1395	438	200	140	490	160	176	437	781
12	1565	569	1112	1429	406	184	138	790	166	171	378	1129
13	1271	561	937	1670	370	160	129	582	174	159	351	1200
14	1016	662	812	1574	315	163	311	506	190	156	385	846
15	852	710	903	1336	330	199	256	445	224	149	429	773
16	727	604	1044	1163	286	177	221	433	204	171	606	1208
17	620	544	945	1129	232	166	155	319	196	263	746	1146
18	593	722	841	1143	230	179	139	287	178	237	616	971
19	581	1186	824	1140	257	162	147	299	167	148	470	784
20	538	988	1511	1202	184	159	153	327	168	190	433	629
21	474	781	1378	1210	197	152	170	336	163	176	443	589
22	438	692	1084	1168	200	181	250	347	163	172	159	538
23	446	612	951	1018	219	191	501	298	164	169	65	543
24	433	550	849	902	195	219	1372	255	149	183	338	522
25	405	530	781	865	189	209	971	223	155	204	436	770
26	391	509	733	882	159	185	606	164	152	650	549	985
27	384	499	764	871	168	175	853	195	173	510	477	906
28	366	425	770	894	154	166	779	194	191	522	458	1206
29	371	413	778	1142	159	203	579	191	202	862	489	1438
30	365	--	691	1158	156	247	466	170	188	534	471	1141
31	397	--	685	--	148	--	366	154	--	407	--	931

<sup>1</sup> October through December data are provisional.



Table B-2 Long-Term (1947-2007) and 2008 Monthly Mean Freshwater Flow (m<sup>3</sup>/sec/day)  
Estimated for Green Island, New York

<u>MONTH</u>	<u>2007 AVERAGE</u>	<u>LONG-TERM AVERAGE</u>	<u>LONG-TERM MINIMUM</u>	<u>LONG-TERM MAXIMUM</u>
JAN	645	405	118	961
FEB	710	398	128	885
MAR	1,032	617	258	1,077
APR	1,203	871	257	1,749
MAY	385	527	156	1,147
JUN	204	301	101	909
JUL	333	196	87	670
AUG	331	168	48	414
SEP	173	183	58	482
OCT	258 <sup>1</sup>	261	71	853
NOV	454 <sup>1</sup>	378	93	758
DEC	764 <sup>1</sup>	429	173	989
ANNUAL AVERAGE <sup>2</sup>	541	394		

<sup>1</sup> October through December data for 2008 are provisional.

<sup>2</sup> Weighted by number of days in each month. 2008 average is provisional.

Table B-3 Monthly Mean Freshwater Flow (m<sup>3</sup>/sec/day) Estimated for Green Island, New York, 1974 to 2008

	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
JAN	623	540	417	225	744	571	256	148	321	259	133	439	310	262	268	196	383	512
FEB	527	548	885	227	400	335	128	851	356	352	552	319	362	201	349	256	703	496
MAR	587	670	897	987	619	1,077	633	349	613	580	281	581	1,018	605	461	332	994	696
APR	854	724	1,040	1,092	950	1,009	748	384	897	1,062	761	456	689	981	476	548	894	655
MAY	650	566	900	421	530	508	274	328	354	1,036	651	232	363	156	357	620	990	346
JUN	249	367	431	207	282	216	192	169	431	358	275	157	428	175	123	389	250	144
JUL	333	211	432	162	131	131	144	140	182	127	127	133	250	162	131	92	157	112
AUG	180	254	414	154	169	149	130	133	124	155	48	104	350	118	139	61	248	123
SEP	294	482	271	408	175	221	118	233	122	133	58	171	218	341	164	120	159	136
OCT	256	662	658	853	244	313	158	456	124	71	178	206	336	504	211	254	477	216
NOV	486	637	507	663	227	465	242	393	196	224	277	423	544	453	565	407	653	301
DEC	548	532	398	749	303	430	273	319	233	624	447	338	524	437	330	180	687	364
ANNUAL AVERAGE	466	516	604	512	398	452	275	325	329	415	316	296	449	366	298	288	549	342
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
JAN	304	550	239	490	736	465	922	426	417	291	168	331	488	624	814	849	645	
FEB	236	276	337	263	503	516	437	473	473	346	423	279	297	391	634	331	710	
MAR	408	453	562	514	461	683	873	584	861	413	540	914	651	456	491	825	1,032	
APR	648	1,749	1,375	257	939	873	652	593	1,069	1,375	693	833	676	1,059	566	1,240	1,203	
MAY	501	375	534	158	1,081	643	349	214	898	341	652	621	526	385	553	496	385	
JUN	342	203	233	130	353	180	550	115	573	451	483	413	298	301	909	195	204	
JUL	254	136	248	94	384	153	243	142	314	195	152	188	259	214	670	151	333	
AUG	203	140	265	97	191	126	153	84	393	105	112	332	399	126	257	114	331	
SEP	217	158	190	102	185	127	133	257	228	116	138	257	452	161	187	110	173	
OCT	286	192	177	361	288	133	169	266	264	115	248	533	222	683	569	211	258 <sup>1</sup>	
NOV	531	347	251	693	613	293	190	280	309	163	525	736	350	758	752	427	454 <sup>1</sup>	
DEC	438	403	396	328	989	268	187	298	469	220	406	846	759	639	584	472	763 <sup>1</sup>	
ANNUAL AVERAGE	364	415	401	291	560	372	405	311	522	344	378	524	448	483	582	452	541 <sup>1</sup>	

<sup>1</sup> October through December data for 2008 are provisional.

Table B-3 (Continued)

	Minimum	Maximum	Average
JAN	133	922	439
FEB	128	885	422
MAR	281	1,077	649
APR	257	1,749	858
MAY	156	1,081	514
JUN	115	909	308
JUL	92	670	208
AUG	48	414	185
SEP	58	482	200
OCT	71	853	319
NOV	163	758	438
DEC	180	989	462
ANNUAL AVERAGE	275	604	417

Table B-4 Average Annual Freshwater Flow (m<sup>3</sup>/sec/day) Estimated for Green Island, New York, 1947 to 2008

---

YEAR	FLOW	YEAR	FLOW
1947	457	1978	398
1948	366	1979	452
1949	350	1980	275
1950	398	1981	325
1951	479	1982	329
1952	432	1983	415
1953	395	1984	316
1954	408	1985	296
1955	414	1986	449
1956	393	1987	366
1957	273	1988	298
1958	363	1989	288
1959	401	1990	549
1960	397	1991	342
1961	304	1992	364
1962	299	1993	415
1963	266	1994	401
1964	247	1995	291
1965	219	1996	560
1966	285	1997	372
1967	316	1998	405
1968	353	1999	311
1969	377	2000	522
1970	337	2001	344
1971	420	2002	378
1972	595	2003	524
1973	493	2004	448
1974	466	2005	483
1975	516	2006	582
1976	604	2007	452
1977	512	2008 <sup>1</sup>	541

<sup>1</sup> Data for 2008 are provisional.

Table B-5 Mean, Minimum, And Maximum Temperature (°C) for Each Day of the Year,  
Hudson River near Poughkeepsie, 1951 to 2008<sup>1</sup>

MONTH	DAY	LONG-TERM	TEMPERATURE (1951-2007)		2008 ACTUAL TEMPERATURES
		MEAN	MINIMUM	MAXIMUM	
1	1	1.4	0.0	4.4	0.6
1	2	1.4	0.0	4.4	0.7
1	3	1.5	0.0	4.4	0.6
1	4	1.4	0.0	3.5	0.3
1	5	1.3	0.0	3.5	0.5
1	6	1.2	0.0	4.0	0.6
1	7	1.2	0.0	3.5	0.7
1	8	1.1	0.0	4.0	0.7
1	9	1.1	0.0	3.5	0.8
1	10	1.1	0.0	3.5	0.8
1	11	1.1	0.0	3.5	1.0
1	12	1.0	0.0	4.0	1.1
1	13	1.0	0.0	4.0	1.5
1	14	1.0	0.0	4.0	1.7
1	15	1.0	0.0	4.0	1.9
1	16	1.0	0.0	3.5	2.0
1	17	1.0	0.0	2.8	2.0
1	18	0.9	0.0	3.3	2.2
1	19	0.9	0.0	2.8	2.2
1	20	0.8	0.0	2.2	2.0
1	21	0.8	0.0	2.4	1.6
1	22	0.9	0.0	2.2	1.5
1	23	0.9	0.0	3.0	1.5
1	24	0.8	0.0	3.0	1.4
1	25	0.8	0.0	3.5	1.1
1	26	0.8	0.0	3.5	0.9
1	27	0.8	0.0	3.0	0.9
1	28	0.8	0.0	3.0	0.7
1	29	0.8	0.0	2.5	0.5
1	30	0.8	0.0	2.5	0.3
1	31	0.8	0.0	2.5	0.1
2	1	0.9	0.0	2.5	0.0
2	2	0.8	0.0	2.2	0.1
2	3	0.8	0.0	2.2	0.2
2	4	0.8	0.0	2.0	0.1
2	5	0.8	0.0	2.0	0.2
2	6	0.8	0.0	2.5	0.3
2	7	0.8	0.0	2.5	0.4
2	8	0.8	0.0	3.0	0.6
2	9	0.8	0.0	3.0	0.8
2	10	0.9	0.0	3.3	0.9
2	11	0.8	0.0	3.0	0.5
2	12	0.8	0.0	2.5	0.5
2	13	0.9	0.0	2.5	0.5
2	14	1.0	0.0	2.8	0.4
2	15	0.9	0.0	2.8	0.2
2	16	0.9	0.0	2.8	0.2
2	17	1.0	0.0	2.8	0.2
2	18	0.9	0.0	2.8	0.7
2	19	1.0	0.0	2.8	0.4
2	20	1.0	0.0	2.8	0.3
2	21	1.0	0.0	2.8	0.4
2	22	1.1	0.0	3.9	0.4
2	23	1.0	0.0	2.8	0.4
2	24	1.1	0.0	3.9	0.5
2	25	1.0	0.0	2.8	0.6
2	26	1.2	0.0	3.3	0.6
2	27	1.3	0.0	4.4	0.6
2	28	1.3	0.0	5.0	0.3
2	29	1.5	0.0	4.4	0.3
3	1	1.3	0.0	4.4	0.4
3	2	1.3	0.0	4.4	0.5
3	3	1.3	0.0	3.9	0.6
3	4	1.4	0.0	3.5	0.7
3	5	1.4	0.0	3.5	0.9
3	6	1.5	0.0	4.0	1.3
3	7	1.5	0.0	4.7	1.5
3	8	1.6	0.0	4.9	1.8
3	9	1.6	0.0	4.5	2.1
3	10	1.7	0.0	4.8	2.1
3	11	1.8	0.0	4.4	2.3
3	12	1.9	0.0	4.4	2.4

<sup>1</sup> Data from 1951 through 1992 from Poughkeepsie's Water Treatment Facility. Data from 1993 through 2008 from USGS gaging site 01372058 Hudson River below Poughkeepsie, NY.

Table B-5 (Continued)

MONTH	DAY	LONG-TERM	TEMPERATURE (1951-2007)		2008 ACTUAL TEMPERATURES
		MEAN	MINIMUM	MAXIMUM	
3	13	2.0	0.0	4.5	2.2
3	14	2.1	0.0	4.5	2.4
3	15	2.2	0.0	5.0	2.7
3	16	2.3	0.0	5.6	2.7
3	17	2.4	0.0	5.7	3.0
3	18	2.5	0.0	5.9	3.0
3	19	2.5	0.0	7.7	3.2
3	20	2.7	0.0	7.5	3.4
3	21	2.8	0.0	7.3	3.5
3	22	2.9	0.0	7.2	3.6
3	23	3.1	0.0	7.1	3.7
3	24	3.3	0.5	7.1	3.8
3	25	3.5	0.5	6.0	3.9
3	26	3.7	0.5	6.5	4.1
3	27	4.0	0.5	6.7	3.9
3	28	4.2	1.0	7.0	3.9
3	29	4.4	1.1	7.0	3.9
3	30	4.7	1.1	7.8	3.8
3	31	5.0	1.1	8.3	3.9
4	1	5.2	1.7	9.4	4.3
4	2	5.4	2.0	8.5	4.5
4	3	5.6	2.5	10.0	5.0
4	4	5.8	2.5	10.0	5.0
4	5	5.8	2.8	9.5	5.5
4	6	6.0	3.0	9.0	5.5
4	7	6.1	2.8	9.4	6.0
4	8	6.3	2.8	9.4	6.5
4	9	6.3	2.8	9.2	6.5
4	10	6.5	2.8	10.2	7.0
4	11	6.8	2.8	11.2	7.5
4	12	6.9	2.8	11.4	8.0
4	13	7.1	2.8	11.4	8.5
4	14	7.3	2.8	11.4	9.0
4	15	7.5	2.8	11.5	9.5
4	16	7.7	3.3	11.8	9.5
4	17	7.9	3.9	11.7	9.5
4	18	8.1	4.5	11.8	9.5
4	19	8.4	5.0	12.5	9.5
4	20	8.7	5.0	13.5	9.5
4	21	9.0	5.5	13.5	10.0
4	22	9.2	6.5	13.5	10.0
4	23	9.4	6.7	13.5	10.5
4	24	9.7	6.7	14.0	11.0
4	25	9.8	6.7	13.5	11.5
4	26	10.1	6.7	13.5	12.0
4	27	10.3	7.2	13.5	12.5
4	28	10.5	7.8	13.5	13.0
4	29	10.8	8.3	13.9	13.0
4	30	11.1	8.9	13.9	13.5
5	1	11.3	8.9	14.4	13.5
5	2	11.5	8.9	14.4	13.2
5	3	11.6	8.9	14.4	13.0
5	4	11.9	8.9	15.0	13.0
5	5	12.1	8.9	15.0	12.8
5	6	12.3	8.9	15.0	12.8
5	7	12.5	8.9	15.0	12.9
5	8	12.6	8.9	15.1	13.1
5	9	12.8	8.9	15.6	12.9
5	10	13.0	8.9	16.1	12.9
5	11	13.1	9.4	16.1	13.1
5	12	13.3	9.4	16.1	13.1
5	13	13.5	10.0	16.2	13.2
5	14	13.7	10.6	16.7	13.5
5	15	14.0	11.1	17.5	13.7
5	16	14.2	11.1	18.0	13.5
5	17	14.4	11.7	18.0	13.8
5	18	14.6	11.5	17.5	13.9
5	19	14.8	12.0	17.5	13.9
5	20	15.1	12.2	18.0	13.9
5	21	15.3	12.5	18.0	14.0
5	22	15.5	12.8	18.5	14.1
5	23	15.7	12.8	19.0	14.4
5	24	15.9	12.8	19.0	14.5
5	25	16.0	12.8	20.0	14.8
5	26	16.3	12.2	20.5	15.3
5	27	16.5	12.2	20.6	15.7
5	28	16.8	12.2	21.0	15.7

Table B-5 (Continued)

MONTH	DAY	LONG-TERM	TEMPERATURE (1951-2007)		2008 ACTUAL TEMPERATURES
		MEAN	MINIMUM	MAXIMUM	
5	29	17.0	12.8	20.7	16.0
5	30	17.2	12.8	21.5	16.4
5	31	17.3	13.3	21.3	16.6
6	1	17.6	13.3	22.0	16.9
6	2	17.9	13.3	22.2	17.1
6	3	18.1	14.4	22.1	17.4
6	4	18.3	13.9	22.5	17.5
6	5	18.5	15.0	22.2	17.7
6	6	18.6	15.6	22.4	17.9
6	7	18.7	15.0	22.4	18.3
6	8	19.0	16.1	22.5	18.8
6	9	19.3	16.5	23.0	19.4
6	10	19.5	16.5	23.2	19.9
6	11	19.7	17.0	23.4	20.4
6	12	19.8	17.0	23.3	20.7
6	13	20.0	17.0	23.4	21.2
6	14	20.0	17.0	23.3	21.5
6	15	20.2	17.0	23.5	21.8
6	16	20.4	17.5	23.8	21.9
6	17	20.5	17.8	23.8	22.1
6	18	20.7	17.5	24.2	22.0
6	19	20.9	17.8	24.1	22.3
6	20	21.1	17.8	24.0	22.4
6	21	21.2	17.8	24.3	22.7
6	22	21.4	17.2	24.3	22.8
6	23	21.5	17.2	24.1	23.0
6	24	21.7	17.8	24.1	23.1
6	25	21.8	17.8	24.5	23.4
6	26	22.0	17.8	24.5	23.5
6	27	22.2	17.8	25.0	23.5
6	28	22.4	17.8	25.0	23.8
6	29	22.6	17.8	25.0	24.0
6	30	22.7	17.8	25.5	24.3
7	1	22.8	18.9	25.5	24.3
7	2	22.9	18.9	25.5	24.5
7	3	23.0	19.4	25.5	24.5
7	4	23.2	19.4	26.0	24.5
7	5	23.3	20.0	26.0	24.7
7	6	23.4	20.0	26.0	24.8
7	7	23.5	20.0	26.0	25.0
7	8	23.6	20.0	26.0	25.3
7	9	23.7	20.0	26.0	25.5
7	10	23.7	20.6	26.0	25.6
7	11	23.8	20.6	26.0	25.7
7	12	24.0	21.1	26.1	25.9
7	13	24.2	21.7	26.7	25.9
7	14	24.2	21.7	26.7	25.9
7	15	24.4	21.7	26.7	26.0
7	16	24.4	22.2	26.7	26.2
7	17	24.5	22.2	26.5	26.4
7	18	24.6	22.2	26.5	26.5
7	19	24.8	22.2	27.0	26.7
7	20	24.8	22.2	27.0	26.9
7	21	24.9	22.8	27.0	27.0
7	22	25.0	22.2	27.0	26.9
7	23	25.0	22.2	27.0	26.9
7	24	25.0	22.8	27.0	26.7
7	25	25.1	22.8	27.0	26.8
7	26	25.1	22.8	27.5	26.9
7	27	25.3	22.8	27.5	26.7
7	28	25.3	22.8	27.5	26.6
7	29	25.3	22.8	27.5	26.6
7	30	25.3	23.0	27.5	26.5
7	31	25.4	23.0	28.0	26.5
8	1	25.4	23.0	28.0	26.5
8	2	25.4	22.8	28.0	26.4
8	3	25.5	23.3	28.0	26.2
8	4	25.5	23.3	28.0	26.0
8	5	25.5	23.3	28.0	26.0
8	6	25.5	23.3	28.0	26.0
8	7	25.5	23.3	28.0	25.9
8	8	25.5	23.3	28.0	25.7
8	9	25.5	23.3	28.0	25.5
8	10	25.5	23.3	28.0	25.4
8	11	25.5	22.8	28.0	24.9
8	12	25.4	22.8	28.1	24.8
8	13	25.4	22.2	28.5	24.8

Table B-5 (Continued)

MONTH	DAY	LONG-TERM	TEMPERATURE (1951-2007)		2008 ACTUAL TEMPERATURES
		MEAN	MINIMUM	MAXIMUM	
8	14	25.3	22.2	28.5	24.7
8	15	25.2	22.2	28.4	24.6
8	16	25.2	22.2	28.4	24.5
8	17	25.2	22.2	28.1	24.5
8	18	25.1	22.8	28.0	24.5
8	19	25.1	22.2	27.7	24.5
8	20	25.1	22.8	27.6	24.3
8	21	25.0	22.2	27.5	
8	22	24.9	22.2	27.5	
8	23	24.8	22.8	27.0	24.4
8	24	24.8	22.2	27.0	24.5
8	25	24.7	21.7	27.0	24.5
8	26	24.6	21.7	27.0	24.2
8	27	24.6	22.2	26.5	
8	28	24.6	22.2	26.5	
8	29	24.5	22.2	26.7	24.2
8	30	24.5	22.2	26.5	24.2
8	31	24.4	22.2	26.5	24.2
9	1	24.3	22.2	26.5	24.2
9	2	24.2	22.2	26.7	24.3
9	3	24.1	22.2	26.1	24.5
9	4	24.1	22.2	26.0	24.6
9	5	24.0	21.7	26.0	24.7
9	6	24.0	22.0	26.0	24.6
9	7	23.8	21.7	26.0	24.5
9	8	23.7	21.7	26.0	24.5
9	9	23.6	21.7	25.6	24.3
9	10	23.5	21.1	25.6	24.1
9	11	23.4	21.1	25.6	24.0
9	12	23.3	21.1	25.6	23.7
9	13	23.1	20.0	25.6	23.7
9	14	23.0	18.9	25.5	23.8
9	15	22.8	17.8	25.5	23.9
9	16	22.6	17.2	25.5	23.7
9	17	22.4	17.2	25.5	23.6
9	18	22.2	16.7	25.5	23.4
9	19	22.1	16.7	25.5	23.1
9	20	22.0	17.2	25.5	23.0
9	21	21.7	16.7	25.0	23.0
9	22	21.5	16.1	25.0	22.7
9	23	21.2	16.1	25.0	22.5
9	24	21.0	15.6	24.5	22.4
9	25	20.9	15.6	24.5	22.3
9	26	20.8	15.6	24.0	21.7
9	27	20.6	16.1	24.0	21.7
9	28	20.4	15.6	23.5	21.7
9	29	20.1	15.6	23.5	21.6
9	30	20.0	15.6	23.0	21.5
10	1	19.8	16.1	22.7	21.4
10	2	19.6	15.6	22.5	21.1
10	3	19.5	15.6	22.6	20.6
10	4	19.2	15.6	22.7	20.3
10	5	18.9	15.0	22.7	20.1
10	6	18.8	15.0	22.7	19.9
10	7	18.6	15.0	22.6	19.6
10	8	18.3	14.4	22.6	19.4
10	9	18.1	14.4	22.4	19.5
10	10	18.0	14.4	22.2	19.3
10	11	17.8	13.9	22.0	19.2
10	12	17.5	13.3	21.5	19.2
10	13	17.3	13.3	21.1	19.0
10	14	17.1	12.8	21.1	19.0
10	15	16.9	12.2	20.5	19.0
10	16	16.6	12.2	20.3	18.9
10	17	16.5	12.8	20.2	18.5
10	18	16.3	12.2	20.2	18.0
10	19	16.0	11.7	20.2	17.5
10	20	15.7	10.6	20.0	17.3
10	21	15.4	10.6	19.7	17.0
10	22	15.1	10.0	19.6	16.4
10	23	14.9	10.0	19.6	16.1
10	24	14.7	10.0	19.3	15.9
10	25	14.6	10.0	19.0	15.7
10	26	14.3	10.0	18.6	15.6
10	27	14.0	9.4	18.2	14.7
10	28	13.9	8.9	17.8	13.3
10	29	13.5	8.3	17.8	12.2



Table B-5 (Continued)

MONTH	DAY	LONG-TERM TEMPERATURE (1951-2007)			2008 ACTUAL TEMPERATURES
		MEAN	MINIMUM	MAXIMUM	
10	30	13.3	7.8	16.7	11.5
10	31	13.1	7.2	16.7	11.2
11	1	12.9	7.2	16.7	11.0
11	2	12.6	7.2	16.1	10.5
11	3	12.5	7.2	16.1	10.1
11	4	12.3	7.2	15.6	9.8
11	5	12.0	7.2	15.6	9.7
11	6	11.7	6.7	15.6	9.8
11	7	11.6	6.1	15.0	9.7
11	8	11.3	6.1	15.0	9.6
11	9	11.1	5.6	15.0	9.4
11	10	10.8	5.0	14.4	9.1
11	11	10.5	5.0	13.9	8.8
11	12	10.3	5.0	13.3	8.7
11	13	10.1	5.0	13.3	8.7
11	14	9.9	5.0	13.3	8.8
11	15	9.8	5.0	12.8	9.0
11	16	9.5	5.0	12.8	8.9
11	17	9.2	5.0	12.8	8.6
11	18	9.1	5.0	12.8	8.3
11	19	8.9	5.0	12.2	7.9
11	20	8.6	5.0	11.1	7.8
11	21	8.4	3.9	11.1	7.7
11	22	8.2	3.9	11.1	7.2
11	23	8.0	3.9	11.1	6.8
11	24	7.7	3.9	10.6	6.8
11	25	7.4	3.9	10.6	6.8
11	26	7.2	3.3	10.5	6.6
11	27	7.0	3.3	10.5	6.3
11	28	6.9	3.3	10.5	6.1
11	29	6.7	3.3	10.5	5.7
11	30	6.5	2.8	10.5	5.3
12	1	6.2	2.2	10.5	5.3
12	2	6.0	3.0	10.0	4.7
12	3	5.7	2.2	9.5	4.2
12	4	5.5	1.3	9.5	3.9
12	5	5.3	2.8	9.5	3.6
12	6	5.2	2.6	9.5	3.4
12	7	5.1	2.0	9.5	3.1
12	8	4.8	2.0	9.0	2.5
12	9	4.5	1.7	9.0	2.7
12	10	4.3	1.1	9.0	3.2
12	11	4.1	1.1	8.5	2.8
12	12	3.9	0.6	8.5	2.6
12	13	3.7	0.6	8.5	2.1
12	14	3.5	0.5	8.5	1.9
12	15	3.3	0.5	8.5	2.2
12	16	3.2	0.5	8.0	2.1
12	17	3.0	0.0	8.0	1.6
12	18	2.8	0.0	7.5	1.6
12	19	2.6	0.0	7.5	1.3
12	20	2.6	0.0	7.5	0.9
12	21	2.4	0.0	7.0	0.7
12	22	2.2	0.0	6.5	0.4
12	23	2.1	0.0	6.5	0.4
12	24	2.1	0.0	6.5	0.3
12	25	2.0	0.0	6.0	0.6
12	26	1.8	0.0	6.1	0.3
12	27	1.8	0.0	6.1	0.3
12	28	1.7	0.0	6.1	0.4
12	29	1.7	0.0	6.1	0.3
12	30	1.6	0.0	6.1	0.3
12	31	1.6	0.0	5.0	0.1

Table B-6 Average Annual Water Temperature (°C), Hudson River near Poughkeepsie, 1951 to 2008<sup>1</sup>

---

YEAR	TEMPERATURE	YEAR	TEMPERATURE
1951	11.66	1980	12.72
1952	12.25	1981	12.63
1953	12.87	1982	12.48
1954	11.92	1983	13.01
1955	12.40	1984	13.04
1956	11.92	1985	13.05
1957	13.03	1986	12.69
1958	12.18	1987	12.66
1959	12.90	1988	12.57
1960	11.29	1989	12.09
1961	12.17	1990	12.77
1962	11.63	1991	13.67
1963	11.82	1992	12.10
1964	12.99	1993	12.09
1965	12.51	1994	12.24
1966	12.75	1995	12.47
1967	12.05	1996	11.83
1968	13.10	1997	12.07
1969	12.59	1998	13.66
1970	12.79	1999	13.08
1971	12.31	2000	12.00
1972	11.35	2001	13.24
1973	12.73	2002	12.85
1974	11.61	2003	11.80
1975	12.37	2004	12.37
1976	11.43	2005	12.68
1977	11.97	2006	12.77
1978	12.27	2007	12.97
1979	12.49	2008	12.54

<sup>1</sup> Data from 1951 through 1992 from Poughkeepsie's Water Treatment Facility. Data from 1993 through 2008 from USGS gaging site 01372058 Hudson River below Poughkeepsie, NY.

Table B-7 Weighted Mean Temperature (°C) by Region and Week from 2008 Long River/Fall Juvenile Survey

WEEK BEGINNING	REGIONS												
MONDAY	BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
03MAR08	4.4	3.8	3.1	2.9	2.7	2.1	1.8	.	.	.	.	.	.
17MAR08	5.2	4.7	4.3	4.1	4.4	3.5	3.5	.	.	.	.	.	.
31MAR08	6.1	6.1	5.8	5.5	5.2	4.8	4.7	.	.	.	.	.	.
07APR08	6.8	6.8	6.6	5.8	5.7	5.9	6.2	6.4	6.7	6.9	6.9	7.2	7.9
14APR08	8.8	9.6	9.7	9.2	8.9	8.8	9.2	9.2	8.9	8.6	7.5	6.8	6.6
21APR08	10.4	11.1	11.6	11.5	11.1	10.8	10.6	10.6	10.9	11.4	11.8	11.9	11.9
28APR08	12.5	12.6	12.6	12.2	12.5	12.2	12.2	12.9	13.5	13.4	12.9	12.5	12.2
05MAY08	12.5	12.8	13.2	14.0	14.2	13.7	13.5	13.0	12.6	12.6	11.9	11.7	12.6
12MAY08	13.8	15.0	15.8	15.7	14.9	13.9	13.6	13.2	13.2	13.0	13.7	14.2	14.4
19MAY08	14.0	14.7	15.0	15.4	15.1	14.2	14.1	14.3	14.7	14.8	14.7	15.0	15.1
26MAY08	14.8	16.1	17.0	17.0	16.7	15.5	15.9	16.0	16.3	16.6	17.2	17.7	17.3
02JUN08	17.0	18.0	18.9	19.3	19.2	17.9	17.8	17.8	18.6	18.5	19.1	19.5	19.8
09JUN08	19.4	21.2	22.2	22.8	21.6	20.8	21.1	21.1	21.7	22.8	23.4	23.5	23.3
16JUN08	20.3	21.3	22.0	22.4	22.5	22.0	21.9	22.3	23.6	23.8	24.3	24.5	24.8
23JUN08	21.6	22.8	23.3	23.7	23.7	22.6	23.1	23.5	23.9	23.7	23.6	23.6	23.3
30JUN08	21.8	22.8	24.7	25.4	25.1	24.0	24.0	24.5	24.8	24.5	24.5	24.5	24.5
07JUL08	22.6	24.8	26.1	27.0	27.2	25.1	25.4	25.6	25.6	25.3	25.3	25.5	25.8
14JUL08	23.3	24.7	26.0	26.5	26.9	26.2	26.2	26.5	.	.	.	.	.
21JUL08	24.1	26.3	27.1	28.0	28.1	27.0	27.1	26.9	27.0	27.1	27.1	27.0	27.0
28JUL08	23.9	26.2	27.2	27.6	27.4	26.8	26.9	26.8	.	.	.	.	.
04AUG08	24.3	26.2	27.0	27.9	28.0	26.8	26.6	26.1	25.4	24.5	24.1	24.2	24.0
11AUG08	22.6	24.2	25.2	26.3	26.2	25.8	25.5	25.0	.	.	.	.	.
18AUG08	23.4	24.5	25.2	25.8	26.0	25.1	24.6	24.2	24.1	23.8	23.0	22.6	22.4
25AUG08	22.8	24.4	25.3	26.4	26.1	24.8	24.6	24.5	.	.	.	.	.
01SEP08	24.0	24.9	25.4	26.2	26.1	24.8	24.7	24.6	24.3	23.9	23.6	23.8	23.7
08SEP08	23.1	24.2	24.7	25.5	25.0	24.6	24.3	24.2	.	.	.	.	.
15SEP08	22.4	23.0	23.5	24.0	24.8	23.9	23.6	23.5	23.3	23.1	22.6	22.5	21.5
22SEP08	20.7	21.2	21.8	23.1	23.2	22.4	22.1	22.4	.	.	.	.	.
29SEP08	20.5	20.9	21.4	22.1	22.6	21.8	21.5	21.3	20.6	20.0	19.7	19.5	19.0
06OCT08	18.1	18.5	19.3	20.4	20.2	20.1	19.6	19.6	.	.	.	.	.
13OCT08	18.7	18.8	19.1	19.8	20.4	19.7	19.4	18.9	18.1	17.7	17.1	16.6	16.1
27OCT08	15.0	15.1	15.7	15.9	15.9	14.7	13.6	12.8	11.6	9.8	9.2	8.6	7.9
10NOV08	13.0	12.7	12.0	12.3	12.3	11.0	9.5	9.2	8.7	8.6	9.0	9.3	9.8
01DEC08	8.5	7.9	7.3	7.2	7.0	5.9	5.1	4.4	3.6	2.9	3.2	3.2	3.5

Note: Dots (.) indicate no sampling.

Table B-8 Average Annual Temperature (°C) from Long River/Fall Juvenile Surveys,  
1974 to 2008

---

YEAR	TEMPERATURE
1974	21.54
1975	22.10
1976	20.04
1977	20.79
1978	20.16
1979	21.53
1980	21.23
1981	20.96
1982	19.16
1983	19.14
1984	19.22
1985	21.69
1986	21.28
1987	21.41
1988	21.80
1989	20.65
1990	20.97
1991	23.59
1992	21.06
1993	21.01
1994	21.93
1995	21.78
1996	20.18
1997	20.96
1998	22.26
1999	23.17
2000	20.43
2001	21.43
2002	22.07
2003	21.09
2004	21.94
2005	22.14
2006	21.08
2007	21.69
2008	22.22

Table B-9 Mean Temperature (°C) by Region and Week from 2008 Beach Seine Survey

WEEK BEGINNING MONDAY	REGIONS											
	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
16JUN08	23.9	24.0	24.4	24.1	22.7	23.3	23.4	23.9	23.9	23.7	24.1	23.7
30JUN08	24.5	25.0	25.5	26.4	24.3	25.2	25.0	24.6	24.6	25.8	25.6	25.5
14JUL08	25.1	25.8	27.5	28.7	26.2	27.8	27.7	27.4	26.7	26.2	27.1	26.5
28JUL08	27.9	27.7	27.7	28.7	27.3	28.1	27.3	26.4	24.6	24.0	23.9	23.2
11AUG08	25.3	26.0	26.0	27.3	26.0	26.1	25.3	23.9	23.5	24.9	23.5	22.2
25AUG08	25.1	25.9	27.0	27.5	25.5	24.2	24.5	23.8	24.4	24.0	22.7	22.8
08SEP08	25.2	25.7	26.0	24.9	24.7	25.8	25.6	24.3	23.8	24.0	24.1	23.3
22SEP08	21.5	21.8	23.1	24.4	22.7	22.3	21.6	20.3	20.7	21.3	20.5	19.6
06OCT08	19.1	19.8	20.1	20.0	19.7	19.9	19.7	18.3	16.9	18.3	17.3	16.4
20OCT08	15.9	14.8	16.0	17.5	16.8	15.3	15.7	14.0	13.7	13.5	13.2	12.8

Note: Dots (.) indicate missing values.

Table B-10 Average Annual Temperature (°C) from Beach Seine Surveys, 1974 to 2008

---

YEAR	TEMPERATURE
1974	21.34
1975	21.59
1976	22.21
1977	22.85
1978	23.71
1979	23.05
1980	24.29
1981	21.91
1982	22.73
1983	24.53
1984	23.17
1985	23.38
1986	22.02
1987	23.03
1988	23.16
1989	24.15
1990	24.34
1991	23.63
1992	22.07
1993	23.48
1994	22.39
1995	23.85
1996	24.42
1997	22.41
1998	24.20
1999	23.42
2000	22.32
2001	24.89
2002	24.52
2003	23.69
2004	22.60
2005	25.69
2006	23.27
2007	23.74
2008	23.85

Table B-11 Weighted Mean Salinity (ppt) by Region and Week from 2008 Long River/Fall Juvenile Survey

WEEK BEGINNING MONDAY	REGIONS												
	BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
03MAR08	15.1	6.5	2.8	3.3	2.9	1.8	0.4	.	.	.	.	.	.
17MAR08	15.2	7.6	1.7	0.2	0.1	0.1	0.1	.	.	.	.	.	.
31MAR08	12.7	5.2	4.9	4.8	2.3	0.2	0.1	.	.	.	.	.	.
07APR08	11.5	6.6	1.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
14APR08	13.9	6.8	1.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
21APR08	11.7	5.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
28APR08	12.4	7.8	4.8	4.0	1.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
05MAY08	12.2	6.7	3.2	1.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
12MAY08	15.2	7.1	4.4	3.1	0.9	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
19MAY08	15.0	8.1	4.8	2.6	0.9	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
26MAY08	19.7	13.4	8.1	5.8	3.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
02JUN08	17.1	12.5	8.6	6.0	4.1	0.9	0.7	0.1	0.1	0.1	0.1	0.1	0.1
09JUN08	20.3	13.6	8.4	4.5	2.1	0.6	0.1	0.1	0.1	0.1	0.1	0.2	0.2
16JUN08	18.7	13.7	9.7	7.4	4.9	2.0	0.9	0.1	0.1	0.1	0.2	0.2	0.2
23JUN08	15.8	9.3	6.2	4.6	3.8	1.1	0.3	0.1	0.1	0.2	0.2	0.2	0.2
30JUN08	20.5	16.1	9.2	5.9	4.0	2.1	0.6	0.1	0.2	0.2	0.2	0.2	0.2
07JUL08	20.1	11.6	6.2	3.8	3.2	0.9	0.3	0.2	0.2	0.1	0.1	0.1	0.1
14JUL08	21.2	15.4	9.2	6.5	4.0	2.6	0.8	0.2	.	.	.	.	.
21JUL08	18.9	11.6	7.3	5.3	4.8	2.2	0.6	0.2	0.2	0.2	0.2	0.2	0.1
28JUL08	17.8	8.7	3.4	1.1	0.5	0.2	0.2	0.2	.	.	.	.	.
04AUG08	17.5	7.6	2.9	0.7	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1
11AUG08	18.9	12.1	7.7	3.9	4.0	1.6	0.4	0.1	.	.	.	.	.
18AUG08	16.4	9.3	5.7	4.1	3.4	0.9	0.1	0.1	0.1	0.1	0.1	0.1	0.1
25AUG08	19.0	10.5	5.0	2.6	1.5	0.4	0.2	0.1	.	.	.	.	.
01SEP08	16.6	10.1	6.1	3.8	2.7	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1
08SEP08	18.8	10.8	6.1	3.5	3.5	1.6	0.5	0.1	.	.	.	.	.
15SEP08	17.6	10.8	7.2	5.4	4.0	1.6	0.4	0.1	0.1	0.1	0.1	0.1	0.1
22SEP08	21.8	14.5	8.4	5.3	3.9	2.0	0.7	0.1	.	.	.	.	.
29SEP08	18.2	11.6	7.8	5.9	4.7	2.0	0.5	0.1	0.1	0.1	0.2	0.2	0.1
06OCT08	20.3	12.8	9.4	5.3	5.7	2.9	1.0	0.1	.	.	.	.	.
13OCT08	17.7	12.4	9.2	7.5	6.3	4.1	1.8	0.2	0.1	0.2	0.1	0.2	0.1
27OCT08	21.2	12.8	7.5	4.1	3.3	0.6	0.2	0.2	0.2	0.1	0.1	0.1	0.1
10NOV08	20.5	12.0	6.8	4.2	3.9	1.6	0.1	0.1	0.1	0.1	0.1	0.1	0.1
01DEC08	16.8	11.7	5.1	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

Note: Dots (.) indicate no sampling.

Table B-12 Mean Salinity (ppt) by Region and Week from 2008 Beach Seine Survey

WEEK BEGINNING MONDAY	REGIONS											
	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
16JUN08	6.7	5.0	4.1	3.7	1.2	0.3	0.1	0.1	0.1	0.1	0.1	0.1
30JUN08	9.0	6.3	4.4	3.0	1.1	0.4	0.1	0.2	0.2	0.2	0.2	0.2
14JUL08	6.4	5.5	3.8	3.6	0.7	0.2	0.1	0.2	0.2	0.1	0.1	0.2
28JUL08	5.0	3.3	2.0	0.9	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
11AUG08	3.3	2.8	1.8	1.9	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
25AUG08	6.4	4.3	2.8	1.8	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1
08SEP08	5.5	4.0	2.8	2.5	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
22SEP08	7.4	5.9	3.9	3.3	0.6	0.3	0.1	0.1	0.1	0.1	0.2	0.1
06OCT08	6.6	5.5	3.8	3.4	0.6	0.2	0.2	0.1	0.2	0.2	0.2	0.2
20OCT08	10.9	8.2	6.2	4.5	2.1	0.7	0.1	0.1	0.1	0.2	0.1	0.1

Note: Dots (.) indicate missing values.



Table B-13 Weighted Mean Dissolved Oxygen (mg/L) by Region and Week from 2008 Long River/Fall Juvenile Survey

WEEK BEGINNING MONDAY	REGIONS												
	BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
03MAR08	10.5	12.5	13.1	13.0	13.0	13.4	13.9	.	.	.	.	.	.
17MAR08	9.8	11.3	12.3	12.5	12.3	12.9	13.0	.	.	.	.	.	.
31MAR08	9.8	11.2	11.0	10.1	12.5	13.3	13.4	.	.	.	.	.	.
07APR08	9.6	11.1	12.3	12.0	11.7	11.1	10.9	10.6	11.6	12.1	11.9	12.1	12.2
14APR08	8.3	9.7	10.7	10.9	10.9	11.1	10.9	10.8	10.9	10.6	10.9	11.2	11.6
21APR08	9.2	9.8	10.3	10.6	10.9	11.0	10.9	11.0	11.4	11.6	11.7	11.7	11.8
28APR08	7.7	8.2	8.7	9.0	9.8	10.8	10.8	10.4	10.2	9.5	9.6	9.7	10.3
05MAY08	7.6	8.3	8.8	9.0	9.2	8.9	9.2	9.6	9.7	9.5	9.6	10.0	9.8
12MAY08	8.1	8.8	8.3	8.0	8.2	8.7	8.9	9.0	9.1	9.9	9.9	9.9	9.9
19MAY08	6.6	7.3	7.9	7.9	8.3	8.9	9.3	9.2	9.2	9.5	9.5	8.4	8.3
26MAY08	7.1	7.1	7.4	7.3	7.6	8.8	8.9	8.6	8.5	9.6	9.7	9.8	9.9
02JUN08	6.6	6.8	7.7	7.9	7.6	9.1	9.2	9.1	9.2	9.3	9.3	9.2	9.0
09JUN08	6.4	6.4	6.6	6.8	7.3	8.3	8.6	7.4	7.7	7.4	7.6	7.9	7.8
16JUN08	5.8	5.9	6.0	6.8	6.6	7.3	8.1	7.8	7.0	7.3	7.2	7.5	7.3
23JUN08	5.4	5.7	6.2	6.0	6.0	6.3	6.7	6.8	6.2	6.9	6.8	6.8	6.9
30JUN08	4.6	4.5	5.6	5.9	5.9	6.0	4.1	5.4	6.6	6.7	7.1	7.2	6.9
07JUL08	4.8	5.1	5.8	5.7	5.8	5.7	6.1	5.9	5.9	6.3	6.8	7.9	6.7
14JUL08	5.0	5.5	5.9	5.3	5.4	5.9	6.7	6.9	.	.	.	.	.
21JUL08	4.9	5.9	6.4	6.0	5.4	5.5	6.0	6.2	6.8	6.8	6.6	7.0	6.4
28JUL08	4.7	5.5	5.7	5.6	6.0	6.2	6.5	6.4	.	.	.	.	.
04AUG08	4.5	5.6	6.4	5.9	5.8	5.8	6.1	5.9	5.6	5.5	6.0	6.6	6.8
11AUG08	5.7	6.0	5.9	5.5	5.0	5.7	6.3	6.2	.	.	.	.	.
18AUG08	4.2	4.8	5.6	5.2	5.2	5.2	5.7	5.9	7.2	7.7	7.6	7.9	8.2
25AUG08	4.2	4.4	5.3	5.1	6.7	7.0	7.6	8.1	.	.	.	.	.
01SEP08	5.0	5.3	5.7	6.0	6.3	6.5	6.6	6.4	6.5	7.3	6.7	7.6	7.6
08SEP08	4.4	5.1	5.5	5.3	5.4	5.8	6.7	6.7	.	.	.	.	.
15SEP08	5.1	6.0	7.0	7.2	6.6	7.2	7.8	7.7	7.4	6.9	7.1	7.5	7.6
22SEP08	4.9	5.1	5.9	5.8	6.3	6.8	7.4	7.5	.	.	.	.	.
29SEP08	4.6	5.4	5.9	5.9	5.7	6.3	7.0	7.1	7.4	8.0	8.2	8.7	8.7
06OCT08	5.2	5.8	6.0	6.0	5.9	6.4	6.9	7.1	.	.	.	.	.
13OCT08	5.4	5.9	6.4	6.4	6.4	6.5	7.3	7.8	8.0	8.5	9.3	9.7	9.2
27OCT08	6.4	7.3	8.1	8.3	8.4	8.9	9.6	9.9	10.1	9.1	9.9	10.7	11.4
10NOV08	6.2	7.2	8.3	9.0	9.4	9.9	10.0	9.7	10.1	10.2	10.8	10.8	10.8
01DEC08	9.0	9.6	10.8	11.5	11.7	12.1	12.3	12.7	13.0	13.0	13.0	13.2	13.2

Note: Dots (.) indicate no sampling.

Table B-14 Average Annual Dissolved Oxygen (mg/l) from Long River/Fall Juvenile Surveys, 1974 to 2008

---

YEAR	DISSOLVED OXYGEN
1974	7.26
1975	7.69
1976	8.37
1977	7.66
1978	7.86
1979	8.02
1980	7.77
1981	7.82
1982	7.99
1983	8.29
1984	8.64
1985	8.14
1986	8.19
1987	7.79
1988	7.58
1989	7.58
1990	7.77
1991	7.10
1992	7.67
1993	7.59
1994	7.95
1995	7.90
1996	7.95
1997	7.91
1998	7.61
1999	7.56
2000	7.97
2001	7.54
2002	7.51
2003	7.51
2004	7.12
2005	7.04
2006	7.13
2007	7.21
2008	6.81

Table B-15 Mean Dissolved Oxygen (mg/L) by Region and Week from 2008 Beach Seine Survey

WEEK BEGINNING MONDAY	REGIONS											
	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
16JUN08	7.5	6.9	7.3	6.8	6.5	7.6	6.8	6.3	6.9	6.2	7.2	6.5
30JUN08	6.0	6.4	7.0	5.9	6.1	6.6	6.2	6.2	6.6	7.3	7.1	7.1
14JUL08	6.3	6.0	7.2	6.8	6.2	7.4	7.2	7.1	6.8	6.8	7.0	6.7
28JUL08	6.2	6.4	6.4	6.1	5.7	6.7	6.7	6.7	5.9	5.8	6.1	6.6
11AUG08	7.1	6.9	6.7	5.9	5.4	6.6	5.9	5.6	6.2	6.8	6.9	7.0
25AUG08	6.6	6.8	7.4	7.1	7.1	6.6	6.7	7.3	8.0	7.9	7.6	7.1
08SEP08	6.0	6.3	6.7	5.4	6.3	6.7	7.1	6.6	5.7	6.3	6.0	6.6
22SEP08	6.4	6.7	6.7	6.6	6.7	6.7	7.2	6.8	7.1	8.0	8.3	8.0
06OCT08	6.2	6.9	6.6	6.3	6.4	7.0	6.9	6.3	7.0	7.7	8.6	7.7
20OCT08	6.9	7.2	7.6	6.9	8.1	8.2	8.2	8.8	9.1	9.2	9.7	9.7

Note: Dots (.) indicate missing values.

Table B-16 Average Annual Dissolved Oxygen (mg/l) from Beach Seine Surveys, 1974 to 2008

---

YEAR	DISSOLVED OXYGEN
1974	8.71
1975	7.82
1976	7.89
1977	7.35
1978	7.29
1979	8.61
1980	8.08
1981	8.34
1982	7.85
1983	7.14
1984	8.42
1985	7.98
1986	8.28
1987	8.63
1988	7.95
1989	7.60
1990	7.90
1991	8.82
1992	8.56
1993	7.39
1994	8.33
1995	7.67
1996	6.93
1997	8.44
1998	7.42
1999	7.62
2000	7.38
2001	7.37
2002	6.76
2003	7.09
2004	7.20
2005	6.44
2006	7.26
2007	6.46
2008	6.86

Table B-17 Weighted Mean Percent Oxygen Saturation by Region and Week from 2008 Long River/Fall Juvenile Survey

WEEK BEGINNING MONDAY	REGIONS												
	BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
03MAR08	90.5	99.5	99.7	98.8	97.8	98.7	100.1	.	.	.	.	.	.
17MAR08	85.9	92.2	96.1	96.1	95.2	97.0	98.0	.	.	.	.	.	.
31MAR08	86.0	93.4	91.5	82.8	100.3	104.1	104.7	.	.	.	.	.	.
07APR08	85.7	95.2	101.4	96.2	93.5	89.2	87.8	86.2	95.3	99.3	97.7	99.9	102.5
14APR08	78.9	89.2	94.7	94.5	94.4	95.2	94.7	94.3	93.9	91.1	91.3	91.6	94.8
21APR08	89.2	92.4	94.8	97.7	98.7	99.5	98.1	98.4	103.5	106.4	108.2	108.6	109.4
28APR08	78.3	81.2	84.5	86.3	92.6	100.4	100.5	98.3	98.3	90.6	91.1	91.2	95.8
05MAY08	77.1	81.9	85.7	88.1	89.3	85.7	88.6	90.9	91.4	89.2	89.2	92.0	92.3
12MAY08	86.5	91.3	86.6	81.8	81.7	84.6	85.3	85.7	87.1	93.9	95.9	96.2	96.7
19MAY08	70.6	75.8	80.4	80.2	83.0	87.2	90.7	89.5	90.8	94.0	93.9	83.2	82.1
26MAY08	80.1	79.0	81.0	78.8	80.2	87.9	90.0	87.3	86.7	99.0	101.3	103.0	102.9
02JUN08	77.1	77.7	88.1	89.4	84.0	96.8	97.0	95.9	98.5	99.4	100.0	100.6	98.6
09JUN08	79.4	78.6	79.7	80.7	83.5	92.7	96.8	82.7	87.2	85.6	89.5	92.6	91.9
16JUN08	72.7	72.8	73.4	82.6	79.0	84.0	92.6	89.3	82.3	86.3	86.2	90.2	88.3
23JUN08	68.5	70.7	75.7	73.3	72.5	73.6	78.6	79.6	73.7	81.9	80.1	80.7	81.6
30JUN08	60.1	58.5	71.7	75.1	73.1	72.2	49.4	64.9	80.1	80.5	85.0	86.2	83.1
07JUL08	63.0	66.0	74.9	72.8	75.0	69.7	74.4	72.3	72.0	77.1	83.2	95.8	82.4
14JUL08	67.6	72.8	77.4	68.6	69.3	74.1	83.1	85.5	.	.	.	.	.
21JUL08	66.5	78.0	83.7	79.5	70.7	69.6	75.5	78.1	84.8	85.0	83.5	87.8	80.2
28JUL08	62.4	71.2	72.7	71.6	76.4	78.0	81.2	79.6	.	.	.	.	.
04AUG08	60.0	72.5	81.1	76.0	74.1	72.6	76.1	72.3	68.8	66.4	71.3	79.1	80.6
11AUG08	74.7	76.7	75.2	69.4	62.8	70.3	76.8	74.5	.	.	.	.	.
18AUG08	55.1	60.8	70.2	65.6	65.5	62.9	67.8	70.2	85.4	91.3	88.1	91.8	94.4
25AUG08	55.3	56.5	67.0	63.8	83.5	84.4	91.8	97.2	.	.	.	.	.
01SEP08	65.4	68.4	72.8	76.4	78.7	78.5	79.1	76.4	78.1	86.6	79.0	90.1	89.9
08SEP08	58.4	64.8	69.1	66.6	66.4	69.7	79.9	79.8	.	.	.	.	.
15SEP08	66.2	75.0	86.2	88.6	81.8	85.9	91.9	90.9	86.5	80.0	82.6	86.5	86.1
22SEP08	63.1	62.8	70.7	70.1	75.3	79.5	85.5	86.8	.	.	.	.	.
29SEP08	58.0	65.8	70.4	69.8	67.5	72.4	79.9	79.8	82.8	88.2	89.5	95.3	94.0
06OCT08	62.4	66.9	68.5	69.4	67.1	71.4	75.8	77.3	.	.	.	.	.
13OCT08	65.2	68.4	73.7	73.1	73.4	72.9	80.5	84.0	85.0	89.5	96.6	99.1	93.3
27OCT08	73.7	78.8	86.1	86.6	86.6	88.0	92.8	93.6	93.0	80.4	86.5	91.4	96.2
10NOV08	67.4	73.9	81.3	86.6	89.8	90.6	88.2	84.2	87.3	87.3	93.5	94.1	95.6
01DEC08	85.7	88.0	92.9	95.2	96.9	97.2	97.0	97.9	98.4	96.7	96.9	98.8	99.4

Note: Dots (.) indicate no sampling.

Table B-18 Mean Percent Oxygen Saturation by Region and Week from 2008 Beach Seine Survey

WEEK BEGINNING MONDAY	REGIONS											
	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
16JUN08	92.4	83.9	89.6	83.0	76.4	89.5	79.9	74.9	81.4	72.9	85.7	76.9
30JUN08	76.7	80.9	87.6	74.8	73.1	79.6	75.0	74.4	79.5	89.3	86.4	86.8
14JUL08	79.9	76.8	92.9	90.0	76.9	93.9	91.8	89.9	85.2	84.2	88.5	82.8
28JUL08	81.9	83.5	82.6	78.7	71.9	85.8	84.7	83.0	71.2	69.2	72.0	77.5
11AUG08	88.5	86.6	83.9	75.6	66.4	81.2	71.9	66.0	72.9	82.5	81.2	80.9
25AUG08	83.8	85.6	94.3	91.2	86.7	79.1	79.8	86.8	95.2	93.6	87.8	82.0
08SEP08	75.7	79.8	84.8	66.2	75.4	82.5	87.5	78.8	67.8	75.4	71.8	77.0
22SEP08	76.6	78.9	80.7	81.1	77.9	77.8	81.3	75.8	79.6	90.4	92.0	86.9
06OCT08	69.5	78.4	74.7	70.9	70.2	76.4	75.3	67.1	72.0	81.9	89.6	78.5
20OCT08	74.9	75.1	80.5	74.5	84.2	81.8	82.2	85.6	87.8	88.7	92.6	91.5

Note: Dots (.) indicate missing values.

Table B-19 Weighted Mean Conductivity (mS/cm @ 25°C) by Region and Week from 2008 Long River/Fall Juvenile Survey

WEEK BEGINNING	REGIONS												
MONDAY	BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
03MAR08	24.9	11.2	4.9	5.8	5.2	3.1	0.8	.	.	.	.	.	.
17MAR08	24.9	12.8	3.0	0.4	0.2	0.2	0.2	.	.	.	.	.	.
31MAR08	20.8	8.8	8.4	8.2	4.0	0.4	0.2	.	.	.	.	.	.
07APR08	19.2	11.3	2.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
14APR08	23.0	11.6	1.7	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1
21APR08	19.6	8.7	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
28APR08	20.3	13.1	8.2	6.9	2.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
05MAY08	20.4	11.5	5.6	1.9	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
12MAY08	24.8	12.0	7.5	5.3	1.5	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2
19MAY08	24.7	13.8	8.3	4.6	1.6	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
26MAY08	31.9	22.2	13.7	10.0	5.6	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.3
02JUN08	28.0	20.9	14.7	10.4	7.2	1.7	1.3	0.2	0.2	0.2	0.2	0.3	0.3
09JUN08	32.6	22.4	14.3	7.8	3.7	1.0	0.2	0.2	0.2	0.2	0.3	0.3	0.3
16JUN08	30.3	22.8	16.5	12.6	8.5	3.5	1.5	0.2	0.2	0.2	0.3	0.3	0.3
23JUN08	26.0	15.9	10.7	8.1	6.6	1.9	0.5	0.2	0.3	0.3	0.3	0.3	0.3
30JUN08	33.1	26.5	15.6	10.3	7.0	3.6	1.1	0.2	0.3	0.3	0.3	0.3	0.3
07JUL08	32.4	19.4	10.7	6.6	5.7	1.6	0.5	0.3	0.3	0.3	0.3	0.3	0.2
14JUL08	34.0	25.2	15.6	11.1	7.0	4.5	1.5	0.3	.	.	.	.	.
21JUL08	30.7	19.5	12.6	9.2	8.4	3.8	1.1	0.3	0.3	0.3	0.3	0.3	0.3
28JUL08	28.9	14.8	6.0	1.9	0.9	0.3	0.3	0.3	.	.	.	.	.
04AUG08	28.4	13.0	5.0	1.2	0.5	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2
11AUG08	30.4	20.0	12.9	6.8	7.0	2.8	0.7	0.2	.	.	.	.	.
18AUG08	26.9	15.8	9.9	7.2	5.9	1.6	0.2	0.2	0.2	0.2	0.2	0.2	0.2
25AUG08	30.8	17.6	8.7	4.5	2.6	0.7	0.3	0.2	.	.	.	.	.
01SEP08	27.3	17.1	10.5	6.6	4.8	0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.2
08SEP08	30.5	18.1	10.6	6.1	6.1	2.8	0.9	0.2	.	.	.	.	.
15SEP08	28.7	18.2	12.3	9.3	7.1	2.9	0.7	0.2	0.2	0.2	0.2	0.2	0.2
22SEP08	34.9	24.0	14.4	9.3	6.9	3.6	1.3	0.3	.	.	.	.	.
29SEP08	29.6	19.5	13.5	10.3	8.2	3.6	0.9	0.2	0.2	0.3	0.3	0.3	0.3
06OCT08	32.5	21.2	15.8	9.2	9.7	5.0	1.8	0.2	.	.	.	.	.
13OCT08	28.9	20.8	15.7	12.9	11.0	7.2	3.2	0.4	0.3	0.3	0.3	0.3	0.3
27OCT08	34.0	21.4	12.8	7.1	5.9	1.1	0.3	0.3	0.3	0.3	0.2	0.2	0.2
10NOV08	33.0	20.2	11.7	7.4	6.8	2.9	0.3	0.2	0.2	0.2	0.2	0.2	0.2
01DEC08	27.2	19.4	8.7	0.9	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2

Note: Dots (.) indicate no sampling.

Table B-20 Mean Conductivity (mS/cm @ 25°C) by Region and Week from 2008 Beach Seine Survey

WEEK BEGINNING MONDAY	REGIONS											
	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
16JUN08	11.6	8.7	7.1	6.5	2.2	0.5	0.2	0.2	0.2	0.3	0.3	0.3
30JUN08	15.3	10.8	7.7	5.3	1.9	0.7	0.3	0.3	0.3	0.3	0.3	0.3
14JUL08	11.1	9.6	6.7	6.3	1.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3
28JUL08	8.7	5.8	3.4	1.7	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2
11AUG08	5.8	5.0	3.1	3.3	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2
25AUG08	11.1	7.4	5.0	3.1	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.2
08SEP08	9.6	7.1	4.9	4.3	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2
22SEP08	12.6	10.3	6.9	5.7	1.0	0.5	0.3	0.3	0.3	0.3	0.3	0.3
06OCT08	11.4	9.5	6.6	6.0	1.0	0.3	0.3	0.3	0.3	0.3	0.3	0.3
20OCT08	18.5	14.0	10.7	7.8	3.6	1.3	0.3	0.3	0.3	0.3	0.2	0.3

Note: Dots (.) indicate missing values.



## **Appendix C**

**Numbers of Fish Collected in the  
Long River (1988-2008),  
Fall Juvenile (1985-2008), and  
Beach Seine (1985-2008) Surveys**

**APPENDIX C**  
**LIST OF TABLES**

<b><u>Number</u></b>	<b><u>Title</u></b>
C-1	Total number of fish collected in the Long River Survey, 1988-2008
C-2	Total number of fish collected in the Fall Juvenile Survey, 1985-2008
C-3	Total number of fish collected in the Beach Seine Survey, 1985-2008

Table C-1 Total Number of Fish Collected in the Long River Survey, 1988-2008

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
<b>Anadromous</b>																		
Alewife	8,200	624	60	2,727	555	1,275	1,679	293	1,787	171	235	10,231	320	5,284	183	537	641	5,479
Alosa spp.	258,802	423,742	714,369	250,755	465,613	191,558	206,819	122,644	460,957	58,794	128,111	124,710	391,708	180,190	145,643	141,877	126,035	103,618
American shad	51,162	62,755	49,242	25,128	30,345	15,867	31,213	12,120	23,378	6,744	8,887	12,185	11,567	14,048	6,732	15,676	4,711	7,126
Atlantic sturgeon	11	2	5	26	4	.	7	1	1	3	2	.	.	1	10	3	4	.
Atlantic tomcod	25,414	37,397	38,431	40,804	10,558	21,343	20,724	64,680	17,375	71,070	91,679	13,625	10,337	57,412	7,556	20,724	92,099	55,146
Blueback herring	4,992	2,568	1,230	28,397	30,496	3,290	9,315	1,412	18,354	2,358	246	4,367	1,907	1,100	578	8,760	801	1,977
Hickory shad	.	.	.	.	.	.	.	1	4	5	.	.	.	.	.	.	.	.
Rainbow smelt	24,693	767	6,838	2,494	23,035	12,002	59,829	2,354	.	.	4	.	1	1	.	.	.	.
Sea lamprey	.	.	.	.	.	.	.	.	.	1	4	.	.	.	.	.	.	.
Striped bass	61,072	225,498	264,907	359,994	462,382	459,384	674,881	383,781	962,335	272,329	443,766	790,358	1,376,173	1,192,084	151,199	732,410	416,917	387,265
<b>Catadromous</b>																		
American eel	789	917	848	1,372	827	1,505	921	1,388	1,230	527	519	294	468	708	262	476	365	513
<b>Estuarine</b>																		
Atlantic silverside	152	11	67	49	27	19	144	323	52	4	12	29	98	35	35	54	188	50
Banded killifish	5	2,274	1	.	5	3	4	24	2	.	2	2	.	1	.	.	.	13
Fat sleeper	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.
Fourspine stickleback	6	1	1	2	1	7	5	.	7	1	.	1	.	.	.	.	1	1
Hogchoker	301,192	589,469	13,591	908,378	44,337	87,673	159,013	130,281	51,986	22,814	36,279	23,050	24,894	13,417	28,225	17,313	36,061	24,267
Inland silverside	98	101	.	58	42	209	857	149	166	40	9	69	12	57	97	51	338	169
Lined sea horse	11	.	1	9	.	.	.	2	.	1	3	1	1	.	.	.	.	.
Mummichog	1	.	.	.	.	.	2	6	.	.	.	1	2	.	20	4	2	1
Northern pipefish	1,135	153	102	2,059	137	416	186	277	291	170	120	427	82	186	226	64	130	238
Shortnose sturgeon	3	.	2	3	3	14	8	7	38	2	5	1	4	13	1	4	4	1
Threespine stickleback	2	.	1	.	.	2	.	2	3	.	.	1	.	.	.	.	.	.
White catfish	77	100	87	76	52	25	214	196	205	96	70	172	70	80	56	78	38	79
White perch	138,753	198,953	157,348	147,232	265,656	221,021	172,995	115,842	287,690	69,844	130,785	136,518	267,801	134,744	142,260	140,645	138,513	107,406
<b>Freshwater</b>																		
Black bullhead	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	.	.
Black crappie	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.
Bluegill	.	.	5	.	.	.	1	1	.	.	.	.	3	.	.	1	1	.
Brown bullhead	1	12	33	30	4	7	18	25	31	11	8	3	8	22	1	48	36	10
Brown trout	.	.	1	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.
Carp	730	651	.	340	731	136	121	147	1,199	867	161	211	533	22	130	597	455	647
Catostomidae	.	.	1	1	1	.	.	.	.	.	.	.	4	.	.	.	.	.
Centrarchidae	30	66	46	40	132	40	125	11	152	26	100	16	137	552	155	50	136	67
Chain pickerel	.	.	.	.	.	.	.	2	1	1	.	1	.	.	1	.	.	.
Channel catfish	.	.	.	1	1	.	.	5	5	4	.	11	8	23	24	118	91	101
Common shiner	.	.	12	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Creek chub	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.
Cyprinidae	470	1,736	6,839	1,764	2,576	2,276	2,044	910	2,709	696	1,358	2,705	3,482	3,101	2,623	1,150	1,073	786
Emerald shiner	.	.	.	.	.	.	.	.	.	.	19	2	.	1	.	.	.	.
Fathead minnow	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Freshwater drum	.	.	.	1	1	1	.	8	124	1	10	27	8	15	90	55	255	640
Gizzard shad	.	85	5	3	535	123	440	1,065	688	708	885	1,281	2,383	161	9,060	1,292	360	80
Golden shiner	.	1	7	.	.	1	2	11	1	.	1	.	2	1	.	.	.	2
Goldfish	113	217	.	97	22	7	18	.	5	2	2	.	.	.	.	.	.	.
Largemouth bass	.	1	.	2	.	1	1	.	.	.	1	.	.	.	.	.	2	.
Logperch	48	20	.	.	179	.	.	.	.	.	3	.	.	.	.	3	4	.

Table C-1 (Continued)

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
<b>Freshwater (cont.)</b>																		
Northern hog sucker	19	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Percidae	2	15	.	18	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Pumpkinseed	132	1	.	2	.	4	1	.	.	1	.	1	.	.	.	2	.	.
Rock bass	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.
Satinfin shiner	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.
Silvery minnow	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.
Slimy sculpin	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.
Smallmouth bass	.	3	1	.	23	.	1	.	.	.	2	.	1	3	.	.	.	2
Spotfin shiner	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Spottail shiner	60	98	55	83	45	33	62	94	156	89	53	45	62	87	9	42	23	29
Tesselated darter	2,898	2,805	2,290	1,566	2,836	1,936	1,714	2,205	1,550	1,493	2,834	2,726	2,822	1,884	1,455	1,990	2,642	718
Walleye	.	26	.	1	2	12	32	.	23	22	29	.	80	5	5	132	31	279
White crappie	.	.	.	.	.	.	4	.	.	.	.	.	.	.	.	.	.	.
White sucker	.	10	44	.	1	.	.	1	13	5	24	6	11	3	3	2	3	2
Yellow bullhead	.	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.
Yellow perch	152	325	610	157	369	225	333	69	764	141	307	127	1,062	228	476	1,096	1,145	801
<b>Marine</b>																		
American sand lance	48	8	2	4	4	.	1	42	6	.	7	2	11	119	2	49	47	20
Atlantic cod	68	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	.	3
Atlantic croaker	.	.	.	.	157	1	5	409	3	.	3,405	3,781	6,512	1,371	2,574	1,260	11,094	544
Atlantic herring	522	178	76	1,177	842	1,151	37	3,986	5,485	2,614	3,809	4,585	27	1,984	18	887	325	279
Atlantic mackerel	4	.	.	1	2	.	.	.	1,968	1,076	9	141	6	1	603	32	4	.
Atlantic menhaden	6	12	671	1,301	404	268	13,009	2,678	3,036	35,979	18,041	68,998	4,887	29,431	9,644	10,873	7,420	78,741
Atlantic needlefish	.	.	3	.	.	1	.	1	.	.	.	.	.	.	.	.	.	20
Atlantic seasnail	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.
Bay anchovy	2,852,331	444,854	900,354	3,831,982	1,341,076	1,849,143	3,051,491	1,271,339	1,337,747	795,707	698,247	339,031	215,316	146,897	671,428	363,737	1,749,221	790,847
Black sea bass	.	.	.	.	.	.	4	.	.	1	3	6	.	.	.	.	.	.
Blackcheek tonguefish	.	.	.	.	10	.	.	.	.	.	.	.	.	.	.	.	.	.
Blenniidae	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.
Bluefish	85	54	165	151	147	78	73	61	43	35	21	71	46	62	15	26	28	34
Bothidae	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Butterfish	143	18	18	27	46	38	108	11	12	29	22	273	6	120	7	13	240	24
Conger eel	132	72	54	29	124	195	175	45	117	14	10	1	71	22	29	42	3	13
Cottidae	128	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Crevalle jack	1	4	.	1	.	.	.	.	1	.	2	1	.	.	.	.	.	.
Cunner	11,129	1,429	.	1,955	4,221	996	2,176	3,790	4,932	3,106	1,884	4,733	1,739	6,210	3,658	3,325	5,293	6,416
Cusk	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.
Feather blenny	.	.	.	.	.	.	.	.	.	.	1	23	3	.	5	.	.	.
Fourbeard rockling	108	209	2	404	691	4	4,157	6,487	571	7,586	3,116	391	184	2,319	2,205	389	1,360	5,072
Fourspot flounder	.	1	.	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.
Gadidae	6	.	.	.	.	10	.	.	1	.	.	.	.	.	.	.	.	2
Gobiidae	9,007	5,593	22,569	78,349	26,599	3,794	3,411	2,683	1,108	936	3,411	28,420	16,276	15,046	22,722	7,756	20,143	23,597
Goosefish	.	.	.	8	12	.	.	.	1	.	.	.	.	.	.	.	.	.
Grubby	605	387	167	521	248	66	99	2,516	317	1,768	1,525	575	161	898	702	122	1,207	904
Gulf stream flounder	.	.	.	.	.	.	.	.	.	3	1	1	.	.	2	.	1	.
Harvestfish	.	.	.	.	.	.	.	.	.	.	.	2	.	.	1	.	.	.
Inshore lizardfish	8	8	.	3	14	1	2	1	.	4	36	4	2	8	.	.	.	.
King mackerel	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Labridae	.	.	.	48	.	.	.	.	1	.	.	.	.	.	.	1	.	.
Longhorn sculpin	.	2	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.
Lookdown	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.
Moonfish	.	.	.	.	.	.	1	.	.	.	.	.	.	2	.	.	.	.
Myoxocephalus spp.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.
Naked goby	279	44	1,619	8	73	9	1	3	6	.	5	369	107	6	169	72	8	19

Table C-1 (Continued)

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
<b>Marine (cont.)</b>																		
Northern kingfish	.	118	.	10	10	1	39	1	.	.	2	16	.	.	1	.	.	.
Northern puffer	1	5	32	279	.	2	.	4	14	2	.	11	1	3	.	.	4	2
Northern searobin	40	2	17	19	1	4	27	5	48	1	14	37	.	23	1	4	.	1
Northern stargazer	129	.	.	.	.	.	53	.	.	.	1	4	.	2	1	.	.	.
Oyster toadfish	.	1	.	.	.	.	.	.	.	.	1	1	1	.	.	1	.	7
Phycidae	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	35
Pinfish	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.
Pleuronectidae	.	.	.	144	.	.	.	.	.	16	2	3	.	.	.	.	.	.
Pleuronectiformes	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.
Pollack	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.
Radiated shanny	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.
Red hake	3	1	1	.	1	1	.	.	9	13	19	15	2	1	.	.	.	1
Rock gunnel	9	2	1	5	6	.	.	35	32	54	28	17	13	49	7	44	72	71
Rough silverside	110	19	.	41	44	30	447	218	37	33	4	26	66	12	22	7	4	50
Sciaenidae	.	3	.	.	.	2	65	.	.	.	.	.	.	.	.	.	.	1
Scup	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	1	.	.
Seaboard goby	1	.	.	4	19	1	.	1	.	19	4	14	77	10	234	116	2	19
Searobin	8	.	312	26	.	16	.	.	.	8	1	399	.	4	65	70	33	697
Sharptail goby	.	.	1	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.
Silver hake	1	3	.	.	.	.	.	.	2	.	.	1	.	2	.	.	1	.
Silver perch	.	.	.	.	.	.	2	1	.	.	.	.	.	.	.	.	.	.
Smallmouth flounder	38	.	1	91	71	32	175	22	7	18	40	37	47	6	6	20	61	4
Spanish mackerel	.	.	.	20	.	2	1	.	.	.	.	.	.	.	.	.	.	.
Speckled worm eel	1	.	.	.	.	.	.	.	1	.	.	.	1	.	2	.	.	.
Spot	.	.	2	.	.	20	9	.	8	.	.	.	11	.	3	.	.	.
Spotted hake	62	1	1	19	40	13	6	146	186	76	49	52	38	90	35	193	111	40
Striped anchovy	.	.	.	.	.	.	.	5	35	6	3	5	.	.	.	.	65	.
Striped burrfish	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Striped cuskeel	2	1	.	4	3	1	.	1	3	18	8	9	19	8	.	3	3	4
Striped killifish	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.
Striped searobin	43	4	.	234	5	41	671	3	4	112	45	85	15	1	39	21	27	5
Summer flounder	.	24	1	39	18	.	7	23	11	5	8	8	26	26	10	8	22	4
Tautog	1,205	3,432	.	969	488	241	439	3,171	3,396	3,009	490	2,908	2,028	6,129	4,192	4,483	8,668	9,966
Tetraodontidae	.	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Weakfish	1,586	2,602	122,082	6,821	1,206	1,621	2,804	623	59,707	13,345	145,785	224,618	50,800	83,380	51,266	57,429	94,647	108,943
Windowpane	8,866	5,162	49	1,500	14,953	166,221	6,917	17,602	7,074	13,902	1,635	3,210	1,816	13,095	1,563	4,134	2,192	2,557
Winter flounder	900	178	64	340	794	188	362	4,754	774	4,109	2,325	3,996	9,831	1,905	4,353	10,306	9,580	1,921
Witch flounder	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.
Yellowtail flounder	.	.	.	.	2	.	1	162	2	6	13	7	1	5	2	.	.	6
<b>Unidentified</b>																		
Acipenseridae	4	6	18	9	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Atherinidae	.	1	.	259	.	16	45	19	26	44	1	4	1	.	.	1	.	.
Cyprinodontidae	.	8	.	.	.	5	.	.	.	5	.	.	.	.	1	.	.	.
Fundulus spp.	.	2	4	3	1	111	4	3	2	.	1	62	.	1	.	1	1	1
Gasterosteidae	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.
Menidia spp.	12	7	193	.	2	.	1	1	.	52	11	1	.	.	1	.	.	.
Morone unidentified	2,180	13,473	955	17,620	7,246	12,406	8,350	5,416	29,225	3,094	31,732	54,420	58,042	37,644	5,768	16,709	9,721	2,233
Petromyzontidae	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Unidentifiable	49,244	7,031	36,103	113,576	18,496	9,938	32,546	1,131	7,378	480	1,125	1,240	1,146	2,979	448	1,914	4,528	1,320

Table C-1 (Continued)

	2006	2007	2008
<b>Anadromous</b>			
Alewife	153	2,474	5,054
Alosa spp.	75,365	155,009	73,937
American shad	800	995	1,115
Atlantic sturgeon	1	4	3
Atlantic tomcod	9,049	9,176	27,107
Blueback herring	177	2,366	2,881
Hickory shad	.	.	.
Rainbow smelt	1	3	.
Sea lamprey	1	1	2
Striped bass	109,061	532,870	176,428
<b>Catadromous</b>			
American eel	276	449	301
<b>Estuarine</b>			
Atlantic silverside	157	454	239
Banded killifish	.	.	2
Fat sleeper	.	.	.
Fourspine stickleback	.	.	.
Hogchoker	44,711	96,691	86,813
Inland silverside	162	195	168
Lined sea horse	.	.	2
Mummichog	1	.	3
Northern pipefish	36	246	135
Shortnose sturgeon	5	11	2
Threespine stickleback	.	.	.
White catfish	147	72	43
White perch	95,979	92,203	95,325
<b>Freshwater</b>			
Black bullhead	.	.	.
Black crappie	.	.	.
Bluegill	.	.	3
Brown bullhead	32	4	28
Brown trout	.	.	.
Carp	1,219	735	629
Catostomidae	.	.	.
Centrarchidae	151	40	183
Chain pickerel	.	.	.
Channel catfish	137	.	148
Common shiner	.	.	.
Creek chub	.	.	.
Cyprinidae	1,622	979	1,644
Emerald shiner	.	.	.
Fathead minnow	.	.	.
Freshwater drum	590	675	760
Gizzard shad	1,230	417	138
Golden shiner	7	.	1
Goldfish	.	.	.
Largemouth bass	.	16	1
Logperch	1	1	.
Northern hog sucker	.	.	.
Percidae	.	.	.

Table C-1 (Continued)

	2006	2007	2008
<b>Freshwater (cont.)</b>			
Pumpkinseed	1	1	.
Rock bass	.	.	.
Satinfin shiner	.	.	.
Silvery minnow	.	.	.
Slimy sculpin	.	.	.
Smallmouth bass	3	.	.
Spotfin shiner	7	.	.
Spottail shiner	33	89	58
Tesselated darter	1,484	1,109	1,730
Walleye	105	54	12
White crappie	.	.	.
White sucker	12	2	3
Yellow bullhead	.	.	.
Yellow perch	538	243	487
<b>Marine</b>			
American sand lance	8	12	8
Atlantic cod	.	.	1
Atlantic croaker	2,000	378	273
Atlantic herring	48	2	148
Atlantic mackerel	.	21	.
Atlantic menhaden	10,562	22,125	13,606
Atlantic needlefish	.	.	2
Atlantic seasnail	.	.	.
Bay anchovy	374,336	1,036,876	1,955,290
Black sea bass	.	.	.
Blackcheek tonguefish	.	.	.
Blenniidae	.	.	.
Bluefish	18	28	23
Bothidae	.	.	.
Butterfish	37	20	165
Conger eel	13	55	36
Cottidae	.	.	.
Crevalle jack	.	1	1
Cunner	1,363	8,882	14,716
Cusk	.	1	.
Feather blenny	.	.	17
Fourbeard rockling	2,189	2,222	2,191
Fourspot flounder	.	.	2
Gadidae	.	.	.
Gobiidae	14,995	32,595	10,882
Goosefish	.	.	.
Grubby	620	638	788
Gulf stream flounder	.	.	.
Harvestfish	.	.	.
Inshore lizardfish	.	.	1
King mackerel	.	.	.
Labridae	.	192	2
Longhorn sculpin	.	.	.
Lookdown	.	.	.
Moonfish	.	.	1
Myoxocephalus spp.	.	.	.
Naked goby	94	41	5
Northern kingfish	.	.	.
Northern puffer	.	4	16

Table C-1 (Continued)

	2006	2007	2008
<b>Marine (cont.)</b>			
Northern searobin	1	33	5
Northern stargazer	1	.	.
Oyster toadfish	.	.	3
Phycidae	2	.	16
Pinfish	.	.	.
Pleuronectidae	.	.	.
Pleuronectiformes	.	.	.
Pollack	.	.	.
Radiated shanny	.	.	.
Red hake	1	.	.
Rock gunnel	19	40	37
Rough silverside	55	144	14
Sciaenidae	.	.	.
Scup	.	.	.
Seaboard goby	235	68	35
Searobin	20	1,028	971
Sharptail goby	.	.	.
Silver hake	.	.	.
Silver perch	.	.	.
Smallmouth flounder	29	3	13
Spanish mackerel	.	.	.
Speckled worm eel	.	.	.
Spot	5	.	3
Spotted hake	144	18	63
Striped anchovy	.	4	12
Striped burrfish	1	.	.
Striped cuskeel	.	3	1
Striped killifish	.	.	.
Striped searobin	16	9	24
Summer flounder	18	12	30
Tautog	1,177	5,281	10,313
Tetraodontidae	.	.	.
Weakfish	17,960	52,305	59,310
Windowpane	978	2,825	2,389
Winter flounder	1,312	4,015	1,155
Witch flounder	.	.	.
Yellowtail flounder	.	.	2
<b>Unidentified</b>			
Acipenseridae	.	.	.
Atherinidae	.	.	9
Cyprinodontidae	.	1	.
Fundulus spp.	.	.	6
Gasterosteidae	.	.	.
Menidia spp.	3	2	2
Morone unidentified	3,677	3,299	1,671
Petromyzontidae	1	.	1
Unidentifiable	101	550	381





Table C-2 Total Number of Fish Collected in the Fall Juvenile Survey, 1985-2008

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
<b>Anadromous</b>																					
Alewife	1,142	554	702	379	327	459	994	790	730	719	519	830	868	97	3,925	746	2,118	379	1,077	307	1,980
Alosa spp.	3,341	282	2,591	4,193	4,331	3,543	1,276	10,650	1,905	1,725	2,895	18,007	6,547	82	7,681	2,688	2,562	2,356	4,262	1,688	3,500
American shad	1,717	2,166	776	1,483	3,646	1,323	1,291	3,406	961	2,095	831	2,964	1,105	310	1,407	808	1,369	598	433	400	294
Atlantic sturgeon	96	184	149	117	63	6	10	11	7	15	15	8	40	30	18	5	23	37	39	22	12
Atlantic tomcod	5,083	10,046	7,908	8,210	14,060	1,105	4,914	7,299	3,664	1,679	3,649	4,632	10,645	1,928	1,798	6,528	5,910	581	1,456	4,802	2,536
Blueback herring	41,919	6,525	18,596	37,957	22,112	15,982	55,299	38,090	22,442	18,790	14,006	20,863	13,999	566	20,315	6,412	13,731	6,205	10,727	3,223	15,677
Hickory shad	.	3	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	1
Rainbow smelt	126	389	429	576	34	216	256	2,549	757	363	136	.	.	1	.	.	.	.	.	.	.
Sea lamprey	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Striped bass	888	2,348	11,633	18,679	8,472	3,624	4,672	3,773	8,333	8,719	10,327	6,293	4,461	1,367	8,989	3,683	3,654	2,516	8,553	1,893	5,107
<b>Catadromous</b>																					
American eel	1,872	2,906	2,254	2,076	1,444	342	984	1,392	1,406	1,647	1,627	1,434	722	763	738	792	566	244	310	360	376
<b>Estuarine</b>																					
Atlantic silverside	.	2	.	3	1	2	18	2	29	25	33	42	19	20	19	82	13	33	10	62	22
Banded killifish	78	12	3	3	3	.	2	.	6	21	24	.	.	1	1	.	1	2	.	.	3
Fat sleeper	.	.	.	.	.	.	.	.	.	.	.	.	.	.	50	.	.	.	.	.	.
Fourspine stickleback	1	9	.	1	1	.	.	.	2	.	1	1	.	1	.	.	.	.	2	1	.
Hogchoker	89,948	108,036	89,042	74,672	73,613	22,760	42,916	62,358	43,064	15,581	23,823	18,422	4,861	3,964	5,696	7,452	7,243	11,320	19,446	20,370	16,413
Inland silverside	.	.	.	1	.	2	.	.	2	.	4	.	.	.	1	.	.	.	.	.	.
Lined sea horse	.	.	.	.	.	.	.	.	.	.	1	.	1	.	.	.	1	.	.	.	.
Mummichog	.	.	.	.	.	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Northern pipefish	40	13	22	25	12	4	16	14	65	15	24	3	27	10	9	9	12	15	3	17	17
Shortnose sturgeon	16	8	11	20	12	2	18	76	82	50	36	48	26	30	52	50	47	27	29	29	30
White catfish	721	677	775	806	740	352	547	172	939	1,363	1,077	967	235	840	494	337	371	155	228	147	522
White mullet	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
White perch	19,721	31,771	27,008	25,760	20,106	5,381	11,019	13,832	8,341	9,007	10,272	8,569	3,655	3,474	8,955	6,225	5,775	4,715	11,131	5,426	8,631
<b>Freshwater</b>																					
Black bullhead	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Black crappie	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.
Bluegill	.	.	1	.	1	.	.	3	2	.	1	1	2	.	.	.	.	1	1	.	.
Brook trout	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Brown bullhead	37	127	109	171	172	17	125	177	92	278	211	251	97	167	524	549	460	501	600	476	611
Carp	4	13	5	4	10	1	6	7	7	3	6	2	5	.	11	2	6	5	2	1	6
Central mudminnow	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Centrarchidae	1	4	1	5	3	.	.	.	.	4	.	.	4	2	1	1	.	8	7	2	2
Channel catfish	.	5	10	9	12	1	4	7	38	187	95	127	66	149	331	378	507	674	1,497	995	2,974
Cyprinidae	48	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.
Emerald shiner	.	.	.	.	1	.	.	.	.	.	.	.	.	11	2	1	.	.	.	.	.
Fall fish	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.
Fathead minnow	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Freshwater drum	.	.	.	.	3	.	.	1	2	1	3	1	.	2	1	5	3	4	25	.	37

Table C-2 (Continued)

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
<b>Freshwater</b>																					
<b>(cont.)</b>																					
Gizzard shad	4	6	8	2	8	1	.	.	3	1	5	.	15	3	25	4	35	33	4	26	11
Golden shiner	.	1	.	.	.	.	.	29	.	.	.	2	3	.	.	4	.	5	1	1	.
Goldfish	.	.	.	.	1	.	.	1	.	1	.	.	.	.	1	1	3	2	.	1	11
Largemouth bass	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	1	.	1
Logperch	.	.	.	.	.	.	.	.	4	.	.	.	.	.	.	.	.	.	18	.	.
Margined madtom	.	.	1	.	.	.	1	.	.	1	.	.	.	.	.	.	.	.	.	.	.
Pumpkinseed	57	2	13	5	1	6	12	2	16	12	49	20	9	1	10	2	1	5	4	7	6
Redbreast sunfish	1	.	.	1	2	.	.	.	.	1	3	.	.	.	.	43	.	.	.	.	.
Rock bass	.	1	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.
Satinfin shiner	.	.	.	.	.	1	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.
Silvery minnow	.	1	.	.	.	.	.	.	.	.	.	56	.	.	.	.	.	.	.	.	.
Smallmouth bass	.	.	.	.	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Spottail shiner	244	685	333	369	102	43	404	259	351	248	204	382	83	105	175	110	114	48	85	382	156
Tessellated darter	89	747	197	370	120	10	187	225	306	684	228	148	100	96	131	25	26	20	153	81	41
Walleye	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.
White sucker	1	8	4	2	1	.	.	.	.	1	.	1	2	1	6	1	.	4	1	9	2
Yellow bullhead	.	.	.	.	30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Yellow perch	.	.	1	1	.	.	.	.	.	1	.	.	.	.	.	.	.	8	2	.	6
<b>Marine</b>																					
Atlantic croaker	1	4	7	.	1	4	.	4	18	97	336	10	183	5,028	4,015	2,280	3,894	1,479	20	8,838	8,697
Atlantic cutlassfish	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.
Atlantic herring	.	.	.	.	.	.	.	.	3	.	.	.	.	.	.	.	.	.	.	.	.
Atlantic menhaden	51	139	67	9	38	129	478	122	13	78	26	260	19	101	12,685	2,535	337	746	445	566	139
Atlantic needlefish	.	.	.	1	.	1	1	.	.	.	3	.	1	3	2	.	.	.	1	.	3
Bay anchovy	27,902	20,988	39,348	59,244	41,475	16,465	44,815	37,264	53,437	54,615	93,826	26,168	71,630	51,368	58,298	15,533	27,794	47,096	37,511	43,166	38,534
Black sea bass	1	.	.	1	.	.	.	.	.	2	.	.	9	.	.	.	.	.	.	.	.
Bluefish	60	51	107	116	62	82	58	82	53	37	42	39	55	27	165	53	60	56	30	31	18
Butterfish	61	106	48	110	81	43	35	141	121	109	21	18	90	177	74	9	25	26	16	106	66
Cobia	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2
Conger eel	.	.	.	14	.	.	.	.	.	.	2	2	.	1	1	1	.	.	.	.	.
Crevalle jack	2	1	1	10	8	7	3	1	10	1	4	1	.	9	.	.	2	.	1	1	1
Cunner	.	.	.	.	.	1	.	1	.	.	.	.	.	1	.	.	.	.	.	.	1
Feather blenny	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.
Fourspot flounder	2	2	.	1	.	1	.	.	.	25	.	.	4	.	.	.	1	.	.	.	.
Gobiidae	.	.	.	4	.	.	.	38	.	2	.	.	3	4	12	2	2	8	4	3	1
Goosefish	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.
Gray snapper	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.
Grubby	.	.	.	2	.	.	.	.	1	.	.	.	.	.	.	.	1	.	.	.	.
Inshore lizardfish	1	.	.	1	4	.	1	4	8	1	.	.	.	.	.	71	1	.	.	.	.
Longhorn sculpin	.	.	.	.	.	.	.	.	3	.	.	.	.	.	.	.	.	.	.	.	.
Lookdown	1	.	1	1	1	.	.	.	.	1	.	.	1	1	3	2	.	.	1	.	1
Moonfish	.	1	2	.	5	.	.	1	.	.	.	.	.	4	1	3	9	5	3	9	.
Naked goby	3	6	47	9	21	1	7	30	3	1	26	.	8	4	7	7	33	5	46	8	26
Northern kingfish	9	6	.	20	3	3	10	2	4	16	7	.	2	.	3	.	.	.	.	1	1
Northern puffer	9	1	5	3	2	.	36	3	1	.	3	.	.	1	.	.	.	3	.	2	2
Northern searobin	.	2	7	21	3	16	7	12	53	305	6	5	16	.	.	.	6	.	.	1	24
Northern stargazer	1	.	.	20	.	4	3	10	2	7	.	.	6	.	2	1	3	5	1	1	2

Table C-2 (Continued)

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
<b>Marine (cont.)</b>																					
Oyster toadfish	.	.	.	.	.	.	.	1	.	.	.	4	.	2	3	2	1	1	1	11	13
Red hake	1	.	.	.	.	1	.	.	.	.	.	.	2	.	.	1	.	.	.	.	38
Rock gunnel	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3
Rough silverside	1	.	3	1	.	.	.	3	2	.	4	.	4	1	1	2	.	.	.	.	1
Scup	1	.	.	.	.	.	3	.	.	.	8	.	.	.	.	2	5	1	8	2	2
Seaboard goby	.	.	.	12	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Searobin	.	.	.	.	.	.	.	.	.	.	.	.	339	.	69	8	2	.	12	7	.
Silver hake	.	3	.	.	.	1	1	.	.	.	.	.	5	.	1	3	.	1	.	1	1
Silver perch	.	.	.	13	.	.	1	.	7	11	36	1	1	.	.	.	.	.	.	.	1
Smallmouth flounder	.	.	.	8	.	.	.	1	1	9	3	.	.	1	1	.	.	2	.	.	.
Spanish mackerel	.	.	.	.	.	1	17	.	7	.	.	.	.	.	.	.	.	.	.	1	.
Spot	5	14	1	1,257	.	.	2	1.	4	.	.	30	.	.	.	1	1	.	.	.	.
Spotfin butterflyfish	1	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.
Spotted hake	2	1	.	.	.	.	3	32	7	3	3	224	54	9	7	15	106	12	34	20	9
Striped anchovy	.	.	.	.	.	.	.	1	.	.	2	.	.	.	.	.	.	1	1	.	.
Striped burrfish	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Striped cuskeel	3	.	.	1	.	.	1	1	.	.	.	.	.	1	.	1	.	.	.	.	12
Striped searobin	321	148	10	101	25	26	310	54	96	648	15	.	416	294	1,498	8	123	189	236	121	37
Summer flounder	232	447	58	7	42	35	102	56	39	32	108	41	4	2	23	4	6	2	3	9	8
Tautog	.	.	.	2	.	3	.	1	.	.	.	.	1	.	.	.	.	.	.	.	.
Tetraodontidae	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Weakfish	2,214	1,482	749	3,777	2,842	770	5,878	756	2,332	2,416	3,773	2,202	2,713	2,039	7,412	7,147	3,567	3,806	1,952	686	4,083
Windowpane	1	1	5	17	.	5	9	32	1	5	19	2	12	5	46	4	7	3	4	1	2
Winter flounder	226	196	92	39	23	13	28	36	51	21	62	32	56	12	10	8	3	2	4	3	20
<b>Unidentified</b>																					
Morone unidentified	1	.	.	.	3	2	.	.	.	.	.	.	2	3	.	1	.	.	35	.	.
Unidentifiable	.	.	.	.	.	.	.	.	6	.	18	1	68	.	1	.	.	.	.	.	.

Table C-2 (Continued)

	2006	2007	2008
<b>Anadromous</b>			
Alewife	236	587	1,031
Alosa spp.	755	3,030	1,529
American shad	77	44	69
Atlantic sturgeon	14	35	24
Atlantic tomcod	1,007	1,121	1,290
Blueback herring	943	5,682	11,803
Hickory shad	.	.	1
Rainbow smelt	.	.	.
Sea lamprey	.	.	.
Striped bass	1,795	2,001	1,456
<b>Catadromous</b>			
American eel	448	163	241
<b>Estuarine</b>			
Atlantic silverside	29	50	14
Banded killifish	12	1	1
Fat sleeper	.	.	.
Fourspine stickleback	.	.	.
Hogchoker	15,079	12,945	36,104
Inland silverside	.	.	.
Lined sea horse	.	.	.
Mummichog	.	.	.
Northern pipefish	16	19	17
Shortnose sturgeon	28	20	17
White catfish	412	198	170
White mullet	5	.	.
White perch	7,151	3,904	8,551
<b>Freshwater</b>			
Black bullhead	.	.	.
Black crappie	.	.	.
Bluegill	1	.	2
Brook trout	.	.	.
Brown bullhead	505	191	278
Carp	2	2	3
Central mudminnow	.	.	.
Centrarchidae	.	.	2
Channel catfish	2,279	979	1,868
Cyprinidae	.	.	.
Emerald shiner	.	.	1
Fall fish	.	.	1
Fathead minnow	18	.	.
Freshwater drum	37	2	.
Gizzard shad	3	5	24
Golden shiner	2	.	.

Table C-2 (Continued)

	2006	2007	2008
<b>Freshwater</b>			
<b>(cont.)</b>			
Goldfish	.	1	.
Largemouth bass	1	.	1
Logperch	.	187	.
Longear sunfish	.	1	.
Margined madtom	.	.	.
Northern hog sucker	.	.	1
Pumpkinseed	5	.	21
Redbreast sunfish	.	1	.
Rock bass	.	.	6
Satinfin shiner	.	.	.
Silvery minnow	.	.	.
Smallmouth bass	.	.	.
Spottail shiner	212	14	157
Tesselated darter	41	18	137
Walleye	.	.	.
White sucker	2	1	4
Yellow bullhead	.	.	.
Yellow perch	.	.	1
<b>Marine</b>			
Atlantic croaker	5,127	256	372
Atlantic cutlassfish	2	.	.
Atlantic herring	.	.	.
Atlantic menhaden	1,288	363	39
Atlantic needlefish	.	5	.
Bay anchovy	28,864	61,499	42,665
Black sea bass	.	.	.
Bluefish	30	13	32
Butterfish	58	12	157
Cobia	.	.	.
Conger eel	.	.	.
Creville jack	3	4	8
Cunner	.	.	.
Feather blenny	.	.	.
Fourspot flounder	.	.	2
Gobiidae	10	56	.
Goosefish	.	.	.
Gray snapper	.	.	.
Grubby	.	.	.
Inshore lizardfish	.	.	.
Longhorn sculpin	.	.	.
Lookdown	1	.	1
Moonfish	6	21	71
Naked goby	13	.	10
Northern kingfish	2	7	11
Northern puffer	.	1	.
Northern searobin	.	.	.
Northern stargazer	.	.	.

Table C-2 (Continued)

	2006	2007	2008									
<b>Marine (cont.)</b>												
Oyster toadfish	4	.	4									
Red hake	1	.	3									
Rock gunnel	.	.	.									
Rough silverside	.	1	20									
Scup	.	2	.									
Seaboard goby	1	.	.									
Searobin	.	12	1									
Sciaenidae	.	4	.									
Silver hake	3	1	20									
Silver perch	.	.	.									
Smallmouth flounder	.	.	.									
Spanish mackerel	.	.	.									
Spot	.	.	1									
Spotfin butterflyfish	.	.	.									
Spotted hake	71	15	228									
Striped anchovy	.	2	.									
Striped burrfish	.	.	.									
Striped cuskeel	1	.	1									
Striped searobin	78	225	111									
Summer flounder	13	9	20									
Tautog	.	.	.									
Tetraodontidae	.	.	.									
Weakfish	452	1,410	1,126									
Windowpane	2	4	1									
Winter flounder	4	4	25									
<b>Unidentified</b>												
Morone unidentified	37	1	.									
Unidentifiable	.	.	.									
<b>Sampling Statistics for Fall Juvenile Survey, 1985-2008</b>												
	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Start Date	22-Jul	21-Jul	13-Jul	18-Jul	17-Jul	9-Jul	15-Jul	13-Jul	19-Jul	18-Jul	10-Jul	10-Jul
End Date	14-Nov	2-Dec	5-Nov	28-Oct	26-Oct	17-Oct	25-Oct	23-Oct	29-Oct	27-Oct	20-Oct	17-Oct
Volume Sampled (m3)	1,886,745	2,298,278	2,035,357	1,826,628	1,590,047	1,252,910	1,707,237	1,865,365	2,010,162	2,018,414	1,782,105	1,824,729
Sample Size	1,802	2,098	1,958	1,680	1,679	1,680	1,678	1,680	1,680	1,681	1,680	1,669
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Start Date	7-Jul	6-Jul	6-Jul	5-Jul	10-Jul	8-Jul	7-Jul	6-Jul	5-Jul	5-Jul	1-Jul	7-Jul
End Date	23-Nov	4-Dec	3-Dec	30-Nov	30-Nov	6-Dec	5-Dec	3-Dec	2-Dec	1-Dec	30-Nov	5-Dec
Volume Sampled (m3)	1,995,403	2,214,609	2,159,879	2,174,794	2,097,800	2,105,181	1,891,049	2,106,764	2,063,565	2,014,940	1,968,928	2,073,021
Sample Size	2,015	2,130	2,085	2,113	2,084	2,128	2,131	2,128	2,128	2,129	2,130	2,130

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
<b>Anadromous</b>																					
Alewife	1,272	818	515	675	439	925	2,323	870	638	1,738	1,051	437	1,664	423	3,636	574	1,868	379	2,129	1,087	4,143
Alosa spp.	8,272	2,529	5,685	21,022	8,346	10,853	38,966	3,490	5,237	14,468	10,653	47,511	7,889	1,773	35,377	3,993	14,296	2,141	13,250	4,151	13,707
American shad	9,171	14,716	7,641	10,780	13,026	12,261	15,771	15,366	5,122	13,007	4,049	21,339	8,618	5,931	13,755	5,968	18,402	4,252	6,231	3,028	4,287
Atlantic sturgeon	1	.	.	.	3	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.
Atlantic tomcod	243	148	209	230	81	115	46	328	13	9	22	51	27	163	15	54	12	7	65	78	5
Blueback herring	25,362	12,522	31,373	36,245	19,037	43,555	40,731	29,105	29,722	46,040	21,506	28,591	59,867	1,337	28,384	9,272	21,907	6,018	48,011	23,285	34,233
Hickory shad	.	.	.	.	.	.	.	.	.	.	.	1	3	.	.	.	.	.	.	.	.
Rainbow smelt	.	1	.	.	.	2	5	.	5	.	.	.	.	.	.	.	.	.	.	.	.
Striped bass	1,413	1,854	11,987	6,151	5,585	6,906	10,813	6,156	10,765	7,273	6,463	2,847	10,438	8,225	16,897	3,693	11,709	5,783	16,077	4,987	16,012
<b>Catadromous</b>																					
American eel	315	163	125	151	107	81	208	127	97	86	121	90	136	137	131	84	114	130	257	205	167
<b>Estuarine</b>																					
Atlantic silverside	1,197	4,406	1,459	6,760	686	8,383	17,291	6,668	14,493	21,101	28,061	9,014	11,757	17,160	25,690	9,587	8,064	11,994	4,382	17,936	17,217
Banded killifish	5,959	3,514	4,369	4,917	1,948	1,513	3,232	1,243	2,708	6,402	8,659	1,544	4,080	1,541	3,269	1,223	902	4,503	7,374	2,354	2,717
Fat sleeper	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Fourspine stickleback	359	525	296	194	12	11	24	15	32	29	20	13	7	16	13	4	16	10	288	77	153
Hogchoker	1,033	276	312	305	261	150	652	329	143	230	392	54	53	29	20	20	115	391	322	183	62
Inland silverside	464	653	146	406	234	190	160	1,129	9	4	12	1	6	4	3	4	.	22	59	20	9
Mummichog	455	38	496	414	68	109	183	128	208	448	613	86	294	85	235	80	31	379	589	124	335
Northern pipefish	844	166	348	297	156	86	689	51	124	16	248	9	335	79	123	12	244	243	86	126	508
Shortnose sturgeon	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	1	.	.	.	.	.
Threespine stickleback	2	17	10	3	4	2	4	1	.	.	.	1	.	.	1	.	.	1	.	.	1
White catfish	52	83	86	101	66	23	25	18	16	7	10	28	10	15	4	8	3	19	31	8	21
White mullet	4	3	.	.	3																



Table C-3 (Continued)

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
<b>Freshwater</b>																					
<b>(cont.)</b>																					
Common shiner	.	.	.	1	.	.	.	1	1	.	.	.	.	.	.	.	2	.	.	.	.
Creek chub	1	.	.	.	.	.	4	.	1	.	2	.	1	.	2	.	.	.	1	.	.
Cyprinidae	1	6	6	.	.	.	134	.	5	2	18	.	1	1	5	.	1	.	4	.	.
Emerald shiner	4	4	5	22	.	11	8	4	2	1	.	76	18	1,271	209	296	73	32	6	9	6
Fall fish	.	2	.	.	.	.	9	3	2	11	2	3	1	6	1	.	.	.	18	1	1
Fathead minnow	1	10	.	.	1	.	.	.	.	2	.	7	.	.	3	3	.	.	.	1	.
Freshwater drum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	.	.	5	5	5
Gizzard shad	3	13	100	10	7	28	22	158	38	49	61	50	139	67	140	75	45	99	51	231	108
Golden shiner	460	1,223	647	676	640	817	672	787	659	760	404	460	193	472	278	296	425	489	1,031	428	349
Goldfish	14	25	16	97	1	3	33	1	29	3	16	3	1	1	4	.	3	4	9	4	2
Grass carp	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Grass pickerel	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Green sunfish	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.
Largemouth bass	44	71	44	57	51	34	85	55	55	74	169	29	53	120	221	46	39	67	270	78	162
Logperch	.	.	.	.	.	.	.	1	1	.	.	1	.	1	4	.	4	4	11	1	9
Longear sunfish	.	.	.	.	.	10	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Longnose dace	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Mimic shiner	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.
Northern hog sucker	.	.	1	3	.	1	4	2	.	.	.	1	.	.	.	1	.	.	2	3	9
Northern pike	.	2	4	2	4	2	2	.	3	2	.	2	.	.	1	2	.	.	28	12	.
Pugnose shiner	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Pumpkinseed	740	496	609	1,070	633	724	1,195	602	774	1,535	1,648	284	619	555	771	281	647	1,084	2,039	1,271	1,576
Rainbow trout	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.
Redbreast sunfish	115	158	185	160	111	76	200	259	251	382	454	116	141	188	323	137	64	189	408	336	292
Redfin pickerel	.	.	.	2	.	.	1	.	.	.	.	3	.	2	1	1	.	.	4	2	.
Rock bass	6	8	1	12	3	.	22	1	1	.	10	2	2	7	8	8	1	7	18	15	6
Rudd	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	.
Satinfin shiner	1	2	.	1	.	2	.	.	1	.	6	5	12	10	10	.	1	40	36	4	1
Silvery minnow	3	13	23	119	2	9	387	68	568	1,027	8	2,131	31	40	428	18	48	6	145	64	31
Smallmouth bass	7	25	8	28	25	21	25	28	30	73	81	50	26	86	176	80	45	78	157	107	121
Spotfin shiner	5	8	17	5	.	.	.	.	12	8	8	49	4	27	127	15	34	4	49	40	46
Spottail shiner	5,316	5,177	4,452	5,407	5,129	5,500	12,385	7,727	7,169	12,452	7,529	3,887	7,189	4,996	16,512	3,927	11,969	9,313	19,830	9,296	10,147
Swallowtail shiner	.	.	.	.	.	.	.	3	.	.	.	.	.	2	1	.	2	.	10	.	.
Tesselated darter	1,198	1,372	820	1,697	415	479	2,385	929	1,251	1,669	700	663	1,767	1,359	3,858	760	2,140	948	4,657	2,969	1,087
Tiger muskellunge	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.
Trout perch	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	.	.
Walleye	.	.	.	.	.	.	.	.	.	.	.	2	.	.	.	2	.	.	.	3	.
White crappie	.	4	1	3	.	1	2	1	.	.	.	.	.	1	.	.	.	.	.	.	.
White sucker	7	16	17	32	9	15	12	21	11	12	14	24	11	48	16	18	47	19	32	43	45
Yellow perch	22	67	44	49	34	12	27	23	22	29	16	53	20	49	65	60	78	40	160	194	115
<b>Marine</b>																					
Atlantic croaker	.	1	.	.	.	26	.	1	.	.	7	.	.	35	5	19	3	21	.	7	1
Atlantic herring	.	.	.	.	.	.	.	.	.	.	.	.	1	.	4	.	.	.	.	.	.
Atlantic menhaden	118	834	30	99	159	1,063	678	415	16	1,637	56	1,526	117	331	50,419	16,025	130	2,481	3,586	8,465	1,128
Atlantic needlefish	92	77	54	48	41	96	476	9	11	12	22	28	50	21	181	12	6	8	28	33	28
Bay anchovy	4,081	4,155	3,746	3,989	9,507	4,134	4,669	8,729	8,106	10,447	17,615	3,544	16,980	11,333	6,662	2,617	3,275	13,862	6,431	2,330	4,830
Bluefish	567	400	533	280	224	348	314	375	223	80	252	98	320	141	2,180	218	474	815	336	246	308

Table C-3 (Continued)

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
<b>Marine (cont.)</b>																					
Butterfish	.	.	.	4	.	1	.	1	9	.	.	.	.	2	.	.	.	.	.	.	.
Crevalle jack	71	10	3	22	40	32	58	53	30	2	2	1	.	45	3	24	4	9	10	.	3
Cunner	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.
Fourbeard rockling	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.
Goosefish	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Gray snapper	7	1	3	.	.	.	2	.	.	.	.	.	.	.	.	.	1	.	.	.	1
Grubby	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.
Inshore lizardfish	.	.	.	1	1	.	14	8	11	5	1	.	3	4	7	.	.	3	.	.	.
Lookdown	18	1	.	.	10	1	.	.	.	.	.	.	2	.	.	2	.	.	.	.	.
Moonfish	.	.	.	.	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Naked goby	20	9	11	4	4	7	14	22	2	.	9	.	8	5	15	2	12	20	13	24	12
Northern kingfish	20	8	.	9	1	4	42	2	17	13	8	1	15	31	21	1	13	35	.	45	6
Northern puffer	2	1	.	1	.	.	10	.	4	.	2	.	2	.	6	.	.	4	.	.	4
Northern searobin	.	2	.	.	.	.	8	.	.	1	.	.	.	.	.	.	2	.	.	.	3
Northern stargazer	1	.	.	.	.	.	1	.	1	1	1	1	8	.	1	.	1	9	.	1	2
Orangespotted filefish	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Permit	.	.	.	.	.	.	.	1	2	.	.	.	.	2	.	7	5	.	.	.	.
Red hake	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	26	.	.
Rough silverside	35	4	23	258	9	4	.	2	.	1	1	.	36	.	.	.	.	.	.	.	.
Seaboard goby	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	.
Searobin	.	.	.	.	.	.	5	.	.	.	.	.	1	.	.	.	3	.	3	.	.
Silver hake	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Silver perch	13	1	.	19	.	.	29	8	61	25	5	5	25	4	1	1	.	.	.	60	.
Smallmouth flounder	1	.	.	.	.	.	.	.	.	.	1	.	12	.	.	.	.	.	.	.	.
Spanish mackerel	.	.	.	.	.	.	12	.	4	1	.	.	.	.	.	.	.	.	.	.	.
Spot	35	106	4	32	.	1	8	2	39	24	.	59	.	3	6	15	.	11	1	.	2
Spotfin mojarra	.	.	.	.	.	.	.	.	.	2	.	.	.	1	.	.	.	.	.	.	.
Spotted goatfish	.	.	.	.	.	.	.	.	17	.	.	.	.	.	.	.	.	.	.	.	.
Spotted hake	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Striped anchovy	1	.	.	.	.	.	.	.	1	15	25	6	4	.	.	1	.	57	8	2	.
Striped mullet	2	6	1	1	.	.	5	.	.	.	2	.	.	.	.	1	.	1	.	.	.
Striped searobin	5	16	.	3	.	.	34	1	11	.	.	.	35	21	8	1	4	7	1	14	1
Summer flounder	48	45	4	1	2	2	46	26	20	18	10	2	.	7	4	5	5	11	5	10	5
Tautog	2	5	2	20	.	6	31	1	.	1	.	.	22	1	.	.	5	2	.	1	2
Weakfish	72	5	.	2	.	27	111	1	4	4	1	25	27	4	30	18	2	33	8	5	3
Windowpane	.	.	3	.	.	.	1	.	.	.	.	1	.	.	.	.	.	.	.	.	1
Winter flounder	282	80	29	41	9	23	154	35	74	45	110	6	124	28	46	68	44	55	52	105	41
<b>Unidentified</b>																					
Morone unidentified	.	.	1	.	.	.	.	.	.	.	1	.	.	.	1	.	.	.	.	1	.
Unidentifiable	.	.	.	.	.	.	.	.	.	.	150	.	.	.	.	.	.	.	.	.	.

Table C-3 (Continued)

	2006	2007	2008
<b>Anadromous</b>			
Alewife	601	3,579	4,127
Alosa spp.	1,297	24,989	33,233
American shad	697	2,681	781
Atlantic sturgeon	.	.	.
Atlantic tomcod	27	2	3
Blueback herring	3,911	55,828	29,603
Hickory shad	.	.	.
Rainbow smelt	.	.	.
Striped bass	4,348	12,882	5,459
<b>Catadromous</b>			
American eel	154	75	349
<b>Estuarine</b>			
Atlantic silverside	2,116	16,989	6,545
Banded killifish	1,283	2,252	5,021
Fat sleeper	.	.	.
Fourspine stickleback	27	3	9
Hogchoker	130	464	240
Inland silverside	5	3	26
Mummichog	25	93	278
Northern pipefish	56	452	426
Shortnose sturgeon	.	.	.
Threespine stickleback	.	1	.
White catfish	16	6	6
White mullet	.	2	2
White perch	7,707	4,596	7,400
<b>Freshwater</b>			
Black crappie	21	3	25
Blacknose dace	.	.	.
Bluegill	224	39	384
Bluntnose minnow	.	2	.
Bridle shiner	.	.	.
Brook silverside	4	1	16
Brook stickleback	.	.	.
Brown bullhead	141	35	276
Brown trout	.	.	.
Carp	69	34	56
Catostomidae	.	.	.
Centrarchidae	213	31	1,163
Chain pickerel	.	.	1
Channel catfish	100	15	32
Comely shiner	.	.	.
Common shiner	.	.	.

Table C-3 (Continued)

	2006	2007	2008
<b>Freshwater</b>			
<b>(cont.)</b>			
Creek chub	.	.	.
Cutlips minnow	.	.	1
Cyprinidae	.	.	4
Emerald shiner	52	9	8
Fall fish	2	.	9
Fathead minnow	1	.	.
Freshwater drum	14	7	9
Gizzard shad	58	116	230
Golden shiner	231	91	488
Goldfish	2	7	3
Grass carp	.	.	.
Grass pickerel	.	.	.
Green sunfish	.	.	.
Largemouth bass	48	75	168
Logperch	3	7	3
Longear sunfish	.	.	.
Longnose dace	.	.	.
Mimic shiner	.	.	.
Northern hog sucker	.	1	1
Northern pike	9	1	7
Pugnose shiner	.	.	.
Pumpkinseed	569	439	3,113
Rainbow trout	.	.	.
Redbreast sunfish	87	55	337
Redfin pickerel	.	.	5
Rock bass	1	.	11
Rudd	.	.	7
Satinfin shiner	3	164	46
Shield darter	.	.	1
Silvery minnow	13	66	66
Smallmouth bass	81	97	57
Spotfin shiner	2	96	33
Spottail shiner	4,417	13,284	15,442
Swallowtail shiner	.	.	.
Tesselated darter	1,229	1,045	2,614
Tiger muskellunge	.	.	.
Trout perch	.	.	23
Walleye	.	.	.
White crappie	.	.	.
White sucker	36	81	43
Yellow perch	107	142	131
<b>Marine</b>			
Atlantic croaker	292	.	.
Atlantic herring	.	.	.
Atlantic menhaden	4,885	6,105	1,418
Atlantic needlefish	58	96	67
Bay anchovy	5,376	1,314	24,902

Table C-3 (Continued)

	2006	2007	2008
<b>Marine (cont.)</b>			
Bluefish	169	719	414
Butterfish	.	.	.
Crevale jack	21	.	6
Cunner	.	.	.
Fourbeard rockling	.	.	.
Fourspot flounder	.	.	2
Goosefish	.	.	.
Gray snapper	.	1	.
Grubby	.	.	.
Inshore lizardfish	1	.	6
Lookdown	.	.	.
Moonfish	.	.	1
Naked goby	5	19	34
Northern kingfish	6	59	32
Northern puffer	.	1	1
Northern searobin	.	.	.
Northern stargazer	.	2	1
Orangespotted filefish	.	.	.
Permit	.	1	.
Red hake	.	.	.
Rough silverside	9	.	19
Seaboard goby	.	.	.
Searobin	.	.	2
Silver hake	.	.	.
Silver perch	.	2	.
Smallmouth flounder	.	.	.
Spanish mackerel	.	.	.
Spot	22	.	.
Spotfin mojarra	.	.	.
Spotted goatfish	.	.	.
Spotted hake	2	.	.
Striped anchovy	4	1	3
Striped mullet	24	.	7
Striped searobin	1	12	11
Summer flounder	12	3	11
Tautog	.	11	.
Weakfish	.	9	2
Windowpane	.	.	.
Winter flounder	28	85	51
<b>Unidentified</b>			
Morone unidentified	.	2	.
Unidentifiable	.	.	.

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
--	------	------	------	------	------	------	------	------	------	------	------	------

[illegible][illegible]

## **Appendix D**

### **Annual Abundance Indices**

## APPENDIX D

### CONTENTS

- D.1 INTRODUCTION
- D.2 METHODS
- D.3 LITERATURE CITED

### LIST OF FIGURES

<b><u>Number</u></b>	<b><u>Title</u></b>
D-1	Striped bass indices of annual abundance based on Long River Survey and Beach Seine Survey, 1974-2008
D-2	White perch indices of annual abundance based on Long River Survey and Beach Seine Survey, 1974-2008
D-3	Atlantic tomcod indices of annual abundance based on Long River Survey, 1974-2008
D-4	Bay anchovy indices of annual abundance based on Fall Juvenile Survey, 1979-2008
D-5	American shad indices of annual abundance based on Long River Survey and Beach Seine Survey, 1974-2008
D-6	Alewife indices of annual abundance based on Fall Juvenile Survey, 1979-2008, and Beach Seine Survey, 1974-2008
D-7	Blueback herring indices of annual abundance based on Fall Juvenile Survey, 1979-2008, and Beach Seine Survey, 1974-2008
D-8	Rainbow smelt indices of annual abundance based on Fall Juvenile Survey, 1979-2008, and Long River Survey, 1974-2008
D-9	Hogchoker indices of annual abundance based on Fall Juvenile Survey, 1974-2008
D-10	Spottail shiner indices of annual abundance based on Beach Seine Survey, 1974-2008
D-11	White catfish indices of annual abundance based on Beach Seine Survey, 1974-2008
D-12	Weakfish indices of annual abundance based on Fall Juvenile Survey, 1979-2008



D-13 Bluefish indices of annual abundance based on Beach Seine Survey, 1974-2008

## LIST OF TABLES

<b><u>Number</u></b>	<b><u>Title</u></b>
D-1	Parameters for indices of annual abundance based on data from the Beach Seine Survey (BSS), Fall Juvenile Survey (FJS), and Longitudinal River Survey (LRS)
D-2	Striped bass indices of annual abundance based on Long River Survey and Beach Seine Survey, 1974-2008
D-3	White perch indices of annual abundance based on Long River Survey and Beach Seine Survey, 1974-2008
D-4	Atlantic tomcod indices of annual abundance based on Long River Survey, 1974-2008
D-5	Bay anchovy indices of annual abundance based on Fall Juvenile Survey, 1979-2008
D-6	American shad indices of annual abundance based on Long River Survey and Beach Seine Survey, 1974-2008
D-7	Alewife indices of annual abundance based on Fall Juvenile Survey, 1979-2008
D-8	Blueback herring indices of annual abundance based on Fall Juvenile Survey, 1979-2008
D-9	Rainbow smelt indices of annual abundance based on Fall Juvenile Survey, 1979-2008, and Long River Survey, 1974-2008
D-10	Hogchoker indices of annual abundance based on Fall Juvenile Survey, 1974-2008
D-11	Spottail shiner indices of annual abundance based on Beach Seine Survey, 1974-2008
D-12	White catfish indices of annual abundance based on Beach Seine Survey, 1974-2008
D-13	Weakfish indices of annual abundance based on Fall Juvenile Survey, 1979-2008
D-14	Bluefish indices of annual abundance based on Beach Seine Survey, 1974-2008

## D.1 INTRODUCTION

Annual indices of abundance for 13 species of finfish are based on data from the Longitudinal River Survey (LRS), Fall Juvenile Survey (FJS) and Beach Seine Survey (BSS). This appendix documents the methods used to calculate these indices of abundance and presents the indices from 1974 through 2008.

For each of the 13 species, one or more sampling programs were selected to be the basis for the index of abundance. The selections considered when and where each species was expected to be present in the Hudson River based on life-history characteristics of each species in relation to the times and places that sampling gear is deployed by each program. The selections were also based on observed catch rates from each of the three sampling programs. The sampling programs on which the indices of abundance are based as well as the life stages and weeks selected for analysis are summarized in [Table D-1](#).

The statistical methods used to estimate the annual indices of abundance are described in the following section. Summaries of the indices of annual abundance for the 13 species are presented in [Figures D-1 through D-13](#) and [Tables D-2 through D-14](#).

## D.2 METHODS

### D.2.1 Beach Seine Survey

Indices of abundance using data from the BSS were calculated for juvenile striped bass, white perch, American shad, alewife, blueback herring, bluefish, and spottail shiner; for yearling white perch; and for yearling and older white catfish. Weeks 33 to 40 were selected as the only period consistently sampled in the BSS. The Beach Seine Survey Index of abundance ( $B$ ) for each year and species is a measure of catch per haul and is calculated according to the following formula:

$$B = \frac{1}{n} \sum_{w=33}^{40} \left[ \frac{\sum_{i=1}^{12} W_i \left( \frac{\sum_j C_{jiw}}{h_{iw}} \right)}{\sum_{i=1}^{12} W_i} \right] X_w ,$$

where

- $B$  = the BSS index for a species in a year;
- $C_{jiw}$  = the count of a species in sample  $j$ , region  $i$ , and week  $w$ ;
- $X_w$  = 1 if week  $w$  was sampled during the year, 0 otherwise;
- $n$  = the number of weeks sampled in the year,  
=  $\sum_{w=33}^{40} X_w$ ;
- $h_{iw}$  = the number of seine hauls in region  $i$  and week  $w$ ; and
- $W_i$  = the number of beaches in the sampling design in river region  $i$ .

The above equation can be expressed in terms of a weighted average catch per haul (CPH) as follows:

$$B = \frac{1}{n} \sum_{w=33}^{40} \bar{Y}_w X_w = \frac{1}{n} \sum_{w=33}^{40} \left[ \frac{\sum_{i=1}^{12} W_i \bar{Y}_{wi}}{\sum_{i=1}^{12} W_i} \right] X_w ,$$

where

$$\begin{aligned} \bar{Y}_{wi} &= \text{the average CPH in week } w \text{ and region } i \text{ and} \\ \bar{Y}_w &= \text{the weighted average CPH in week } w. \end{aligned}$$

Because not all weeks within the period of week 33 to 40 were sampled by the BSS in each year, the variance of the BSS index in any year is calculated as a two-stage variance. The primary sampling unit in the first stage is weeks, and the design is assumed to be simple random sampling (i.e., weeks of sampling are construed to be a random sample of weeks within the period from week 33 through week 40). The sampling units in the second stage are regions, and the design is stratified random where regions are the statistical strata. The variance is calculated using a two-stage estimator based on equation 11.24 in Cochran (1977, p. 303 ):

$$\text{var}(B) = \frac{\left(1 - \frac{n}{N}\right)}{n} S_1^2 + \frac{1}{Nn} \sum_w S_{2,w}^2 ,$$

where

$$\begin{aligned} S_1^2 &= \text{the first stage variance (temporal, among weeks),} \\ S_{2,w}^2 &= \text{the second stage variance (spatial) in week } w, \text{ and} \\ N &= \text{the number of weeks (8) within the selected period, i.e., weeks 33 through 40.} \end{aligned}$$

The first stage variance component is estimated as:

$$S_1^2 = \frac{1}{n-1} \sum_{w=33}^{40} (\bar{Y}_w - B)^2 .$$

The second stage variance component is estimated as:

$$S_{2,w}^2 = \frac{\sum_{i=1}^{12} W_i^2 \left[ \frac{\sum_j \left( C_{t_{jiw}} - \frac{1}{h_{iw}} \sum_j C_{t_{jiw}} \right)^2}{(h_{iw})(h_{iw} - 1)} \right]}{\left( \sum_{i=1}^{12} W_i \right)^2}.$$

Then:

$$\text{std. err.}(B) = (\text{var}(B))^{1/2}.$$

### D.2.2 Fall Juvenile Survey

Indices of abundance using data from channel sampling by the FJS were calculated for juvenile blueback herring, alewife, bay anchovy, weakfish, and rainbow smelt for the years 1979 through 2008, the years that the channel was sampled. In addition, indices of abundance based on bottom sampling by the FJS were calculated for juvenile hogchoker. Weeks 33 to 40 were selected as the only period consistently sampled in the FJS for channel sampling and weeks 40 to 43 for bottom sampling. The Fall Juvenile Survey Index of abundance ( $F$ ) for each year and species sampled in gear specific for either the channel or the bottom is a measure of average density and is calculated according to the following formula:

$$F_g = \frac{1}{n} \sum_{w=33}^{40} \left[ \frac{\sum_{i=1}^{12} \sum_{s=1}^3 V_{is} \left( \frac{\sum_j C_{t_{jiswg}}}{\sum_j v_{jiswg}} \right)}{\sum_{i=1}^{12} \sum_{s=1}^3 V_{is}} \right] X_w,$$

where

- $F_g$  = the FJS index (for gear  $g$ ) for a species in a year;
- $C_{t_{jiswg}}$  = the count of a species in sample  $j$  from gear  $g$ , region  $i$ , stratum  $s$ , and week  $w$ ;
- $X_w$  = 1 if week  $w$  was sampled during the year, 0 otherwise;
- $n$  = the number of weeks sampled in the year,  
 $= \sum_{w=33}^{40} X_w$ ;
- $v_{jiswg}$  = the volume of sample  $j$  from gear  $g$  in region  $i$ , stratum  $s$ , and week  $w$ ; and
- $V_{isg}$  = the volume of stratum  $s$ , sampled by gear  $g$ , in river region  $i$ .

The above equation can be expressed in terms of weighted average sample densities as follows:

$$F_g = \frac{1}{n} \sum_{w=33}^{40} \bar{Y}_{wg} X_w = \frac{1}{n} \sum_{w=33}^{40} \left[ \frac{\sum_{i=1}^{12} \sum_{s=1}^3 V_{si} \bar{Y}_{iswg}}{\sum_{i=1}^{12} \sum_{s=1}^3 V_{si}} \right] X_w,$$

where

$$\begin{aligned} \bar{Y}_{iswg} &= \text{the average density of a species in samples from region } i, \text{ stratum } s, \\ &\quad \text{week } w, \text{ and gear } g \text{ and} \\ \bar{Y}_{wg} &= \text{the weighted average density of a species in samples from week } w, \\ &\quad \text{and gear } g. \end{aligned}$$

Because not all weeks within the period of week 33 to 40 (or 40 to 43 for bottom sampling) were sampled by the FSS in each year, the variance of the FSS index of abundance in any year is calculated as the sum of two components. The primary unit in the first stage is weeks, and the design is assumed to be simple random sampling (i.e., weeks of sampling are construed to be a random sample of weeks within the period from week 33 through week 40 or from week 40 through week 43). The sampling units in the second stage are region-(habitat) strata, and the design is stratified random where region-(habitat) strata are the statistical strata. The variance is calculated using a two-stage estimator based on equation 11.24 in Cochran (1977, p. 303):

$$\text{var}(F_g) = \frac{\left(1 - \frac{n}{N}\right)}{n} S_{1,g}^2 + \frac{1}{Nn} \sum_w S_{2,gw}^2,$$

where

$$\begin{aligned} S_{1,g}^2 &= \text{the first stage variance (temporal, among weeks),} \\ S_{2,gw}^2 &= \text{the second stage variance (spatial) in week } w, \text{ and} \\ N &= \text{the number of weeks (8 or 4) within the selected period, i.e., weeks} \\ &\quad \text{33 through 40 or weeks 40 through 43.} \end{aligned}$$

The first stage variance component is calculated as:

$$S_{1,g}^2 = \frac{1}{n-1} \sum_{w=33}^{40} (\bar{Y}_{wg} - F_g)^2.$$

The second stage variance is calculated as:

$$S_{2, gw}^2 = \frac{\sum_{i=1}^{12} \sum_{s=1}^3 V_{isg}^2 \left[ \frac{\left( h_{iswg} \sum_j (Ct_{jiswg} - \bar{C}t_{iswg})^2 \right)}{h_{iswg} - 1} \right]}{\left( \sum_{i=1}^{12} \sum_{s=1}^3 V_{isg} \right)^2},$$

where

$V_{isg}$  = the total volume of (habitat) stratum,  $s$ , and region,  $i$ , sampled by gear  $g$ .

Then:

$$\text{std. err. } (F_g) = (\text{var}(F_g))^{1/2}.$$

### D.2.3 Long River Survey

Indices of abundance using data from the LRS were calculated for striped bass, white perch, American shad, Atlantic tomcod and rainbow smelt. For striped bass, white perch and American shad, the indices are based on the egg, yolk-sac larvae (YSL), and post yolk-sac larvae (PYSL) life stages and the weeks selected depend on the period of abundance. For Atlantic tomcod the index was based on PYSL and juveniles combined over weeks 19 through 22 and for rainbow smelt the index was based on the juvenile life stage in weeks 20 through 27. The Long River Survey Index of abundance ( $L$ ) for each year and species is a measure of average density and is calculated according to the following formula:

$$L = \sum_{w=firstwk}^{lastwk} \left[ \frac{\sum_{i=1}^{12} \sum_{s=1}^5 V_{is} \left( \frac{\sum_j Ct_{jisw}}{\sum_j v_{jisw}} \right)}{\sum_{i=1}^{12} \sum_{s=1}^5 V_{is}} \right],$$

where

- $L$  = the LRS index for any species in any year;
- $Ct_{jisw}$  = the count of a species in sample  $j$ , region  $i$ , stratum  $s$ , and week  $w$ ;
- $v_{jisw}$  = the volume of sample  $j$  from in region  $i$ , stratum  $s$ , and week  $w$ ;
- $V_{is}$  = the volume of stratum  $s$  in river region  $i$ ;
- $firstwk$  = the first week included in the annual index of abundance:  
           striped bass, American shad, and white perch egg, YSL, and  
           PYSL -- the first week of the year in which the sum of weekly  
           density estimates (from the initial week of sampling in the

year through the current week) exceeds 5% of the sum of densities over all weeks of sampling,  
Atlantic tomcod PYSL and juveniles combined -- week 19, and rainbow smelt juveniles -- week 20; and  
 $lastwk$  = the last week included in the annual index of abundance:  
striped bass, American shad, and white perch egg, YSL, and PYSL --  $firstwk + 7$ ;  
Atlantic tomcod PYSL and juveniles combined -- week 22; and rainbow smelt juveniles -- week 27.

The above equation can be expressed in terms of average sample density as follows:

$$L = \sum_{w=firstwk}^{lastwk} \bar{Y}_w = \sum_{w=firstwk}^{lastwk} \left[ \frac{\sum_{i=1}^{12} \sum_{s=1}^5 V_{si} \bar{Y}_{isw}}{\sum_{i=1}^{12} \sum_{s=1}^5 V_{si}} \right],$$

where

$\bar{Y}_{isw}$  = the average density of a species in samples from region  $i$ , stratum  $s$ , and week  $w$  [Note: for strata and regions that were not sampled, predicted densities (based on regression predictors and densities in adjacent strata) were used] and  
 $\bar{Y}_w$  = the weighted average density of a species in samples collected during week  $w$ .

Variance of the index was estimated using the following equation:

$$var(L) = \sum_{w=firstwk}^{lastwk} \left[ \frac{\sum_s \sum_i V_{is}^2 \left( \frac{n_{si} \left( \sum_j \frac{(Ct_{jisw} - \bar{Ct}_{isw})^2}{n_{si} - 1} \right)}{\left( \sum_j v_{jisw} \right)^2} \right)}{\left( \sum_s \sum_i V_{is} \right)^2} \right],$$

where

$V_{is}$  = the total volume in region  $i$  and stratum  $s$ .

Then:

$$std. \text{ err.}(L) = (var(L))^{1/2}.$$

As indicated in Heimbuch et al. (1992), for indices based on LRS sampling, the volume of water between the beach and 10 ft deep was divided into two substrata: beach and shore. The beach stratum, defined from the beach to water five ft deep, corresponds with the shallow waters sampled in the BSS. The shore stratum, defined as water greater than five ft deep and less than 10 ft deep, is an unsampleable region. Densities in these substrata were estimated based on fixed ratios to the densities in adjacent strata.



### **D.3 LITERATURE CITED**

Cochran, W.G. 1977. Sampling techniques, 3rd edition. Wiley, New York.

Heimbuch, D.G., D.J. Dunning, and J.R. Young. 1992. Post-Yolk-Sac Larvae Abundance as an Index of Year Class Strength of Striped Bass in the Hudson River, pages 376-391 *in* C. L. Smith (ed.) Estuarine Research in the 1980s. State University of New York Press. Albany.

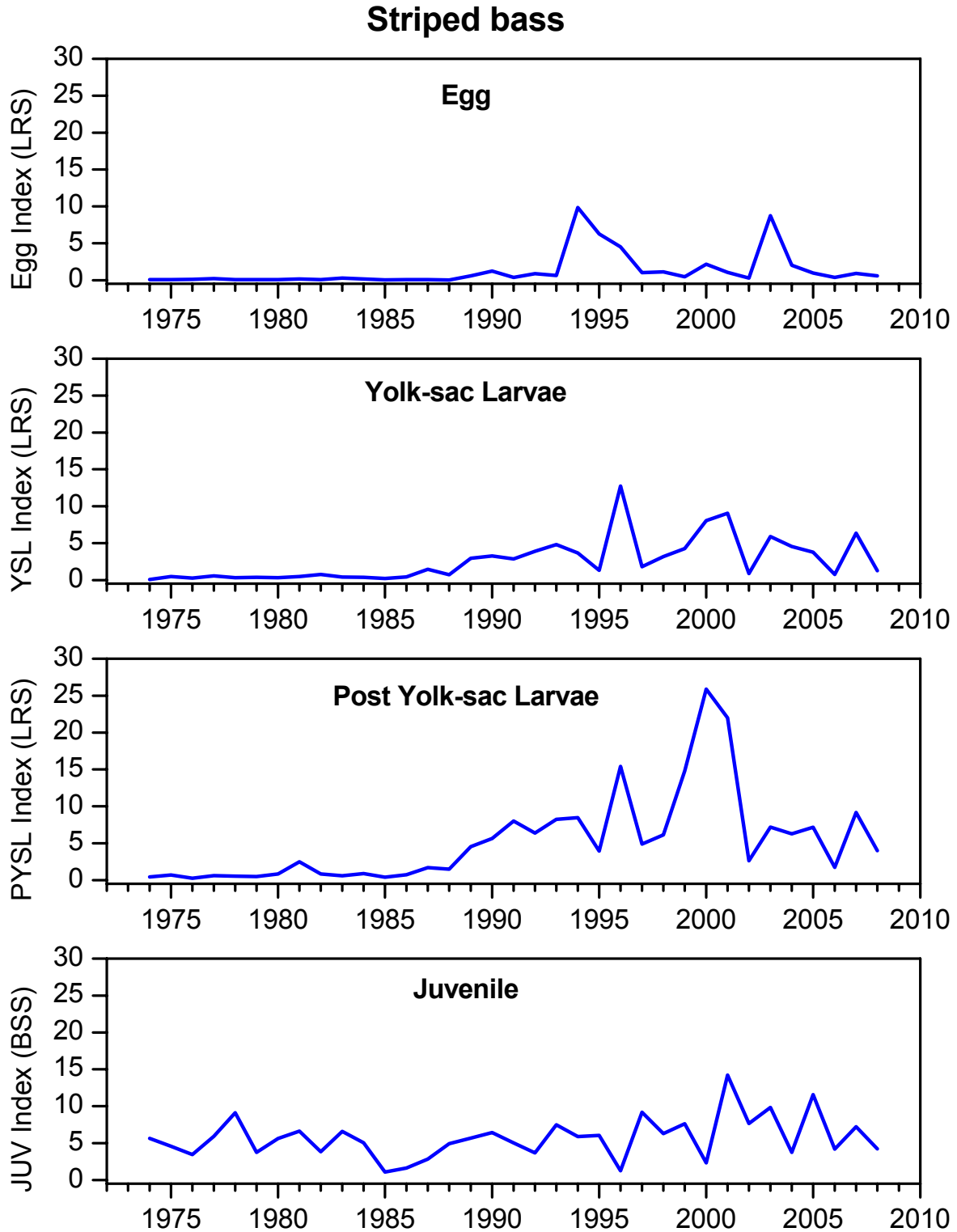


Figure D-1. Striped bass indices of annual abundance based on Long River Survey and Beach Seine Survey, 1974-2008

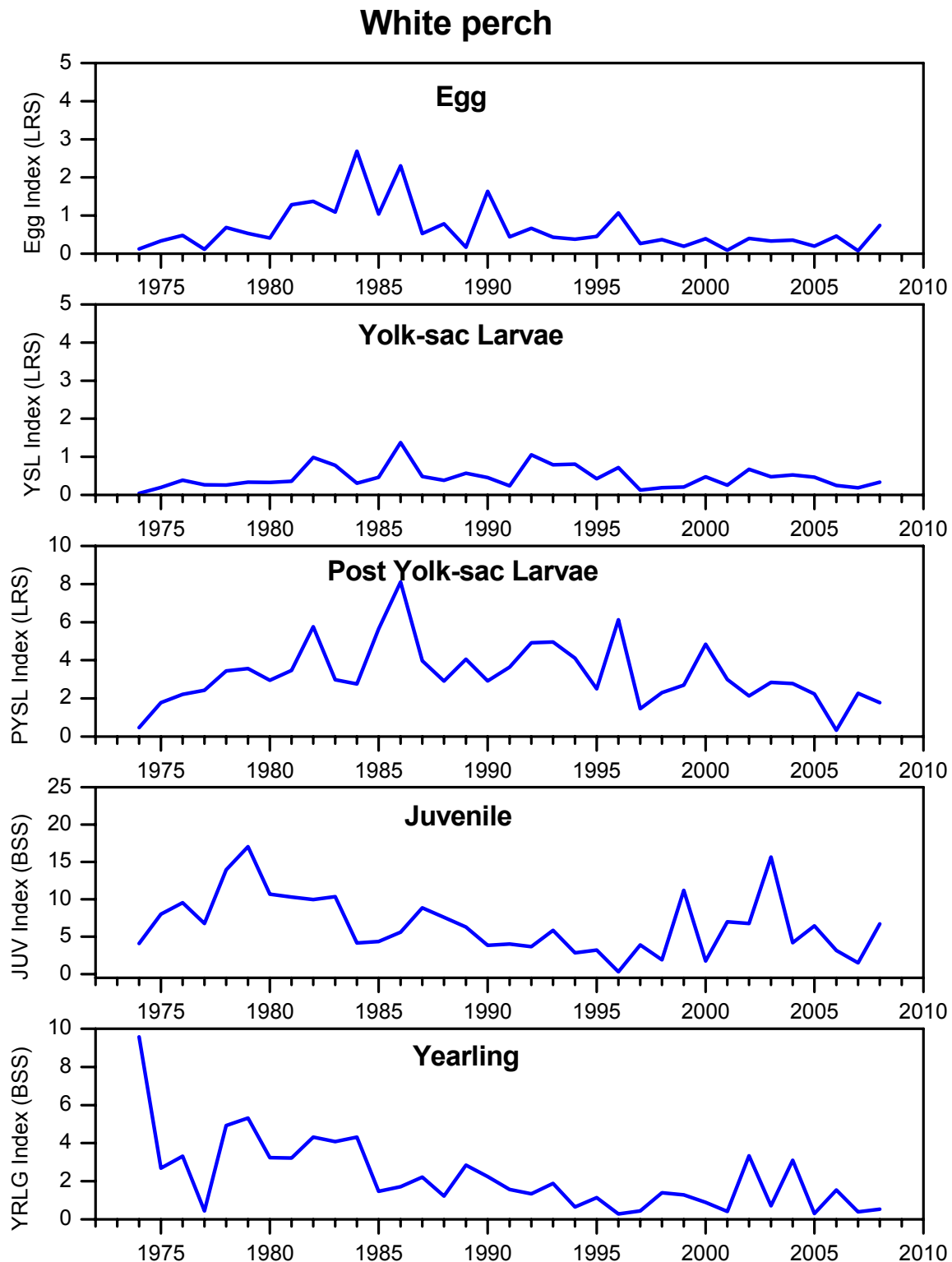


Figure D-2. White perch indices of annual abundance based on Long River Survey and Beach Seine Survey, 1974-2008

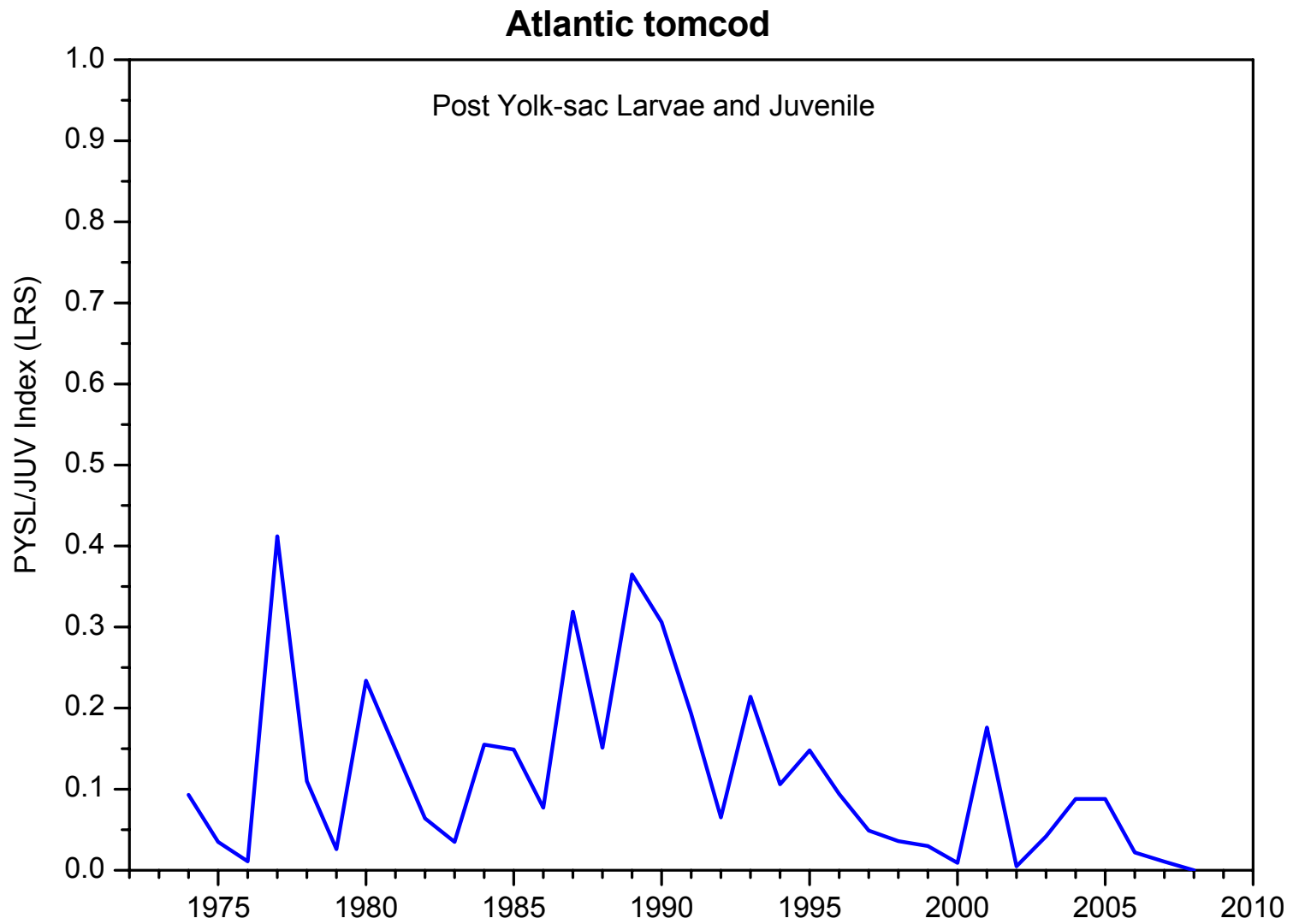


Figure D-3. Atlantic tomcod indices of annual abundance based on Long River Survey, 1974-2008

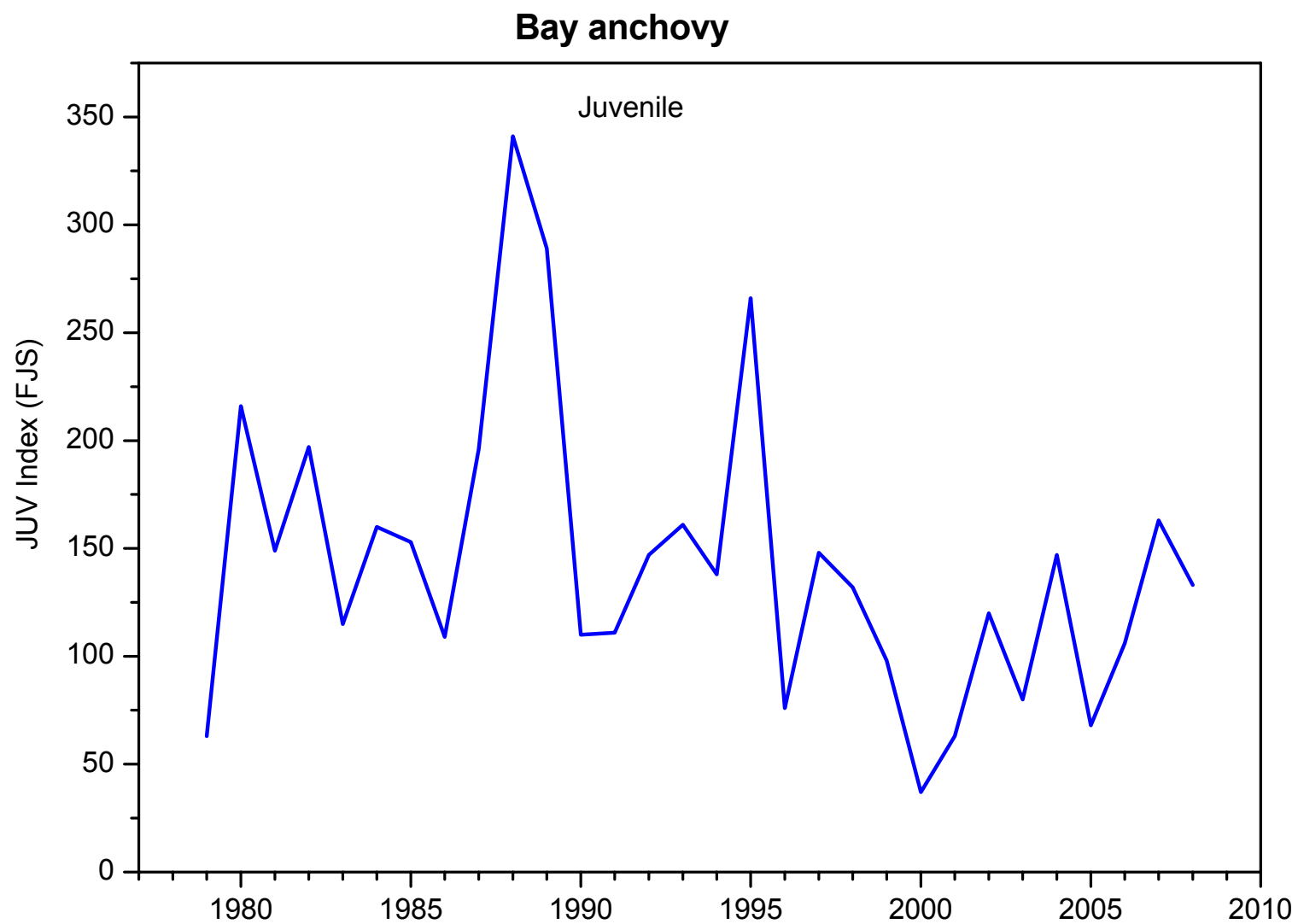


Figure D-4. Bay anchovy indices of annual abundance based on Fall Juvenile Survey, 1979-2008

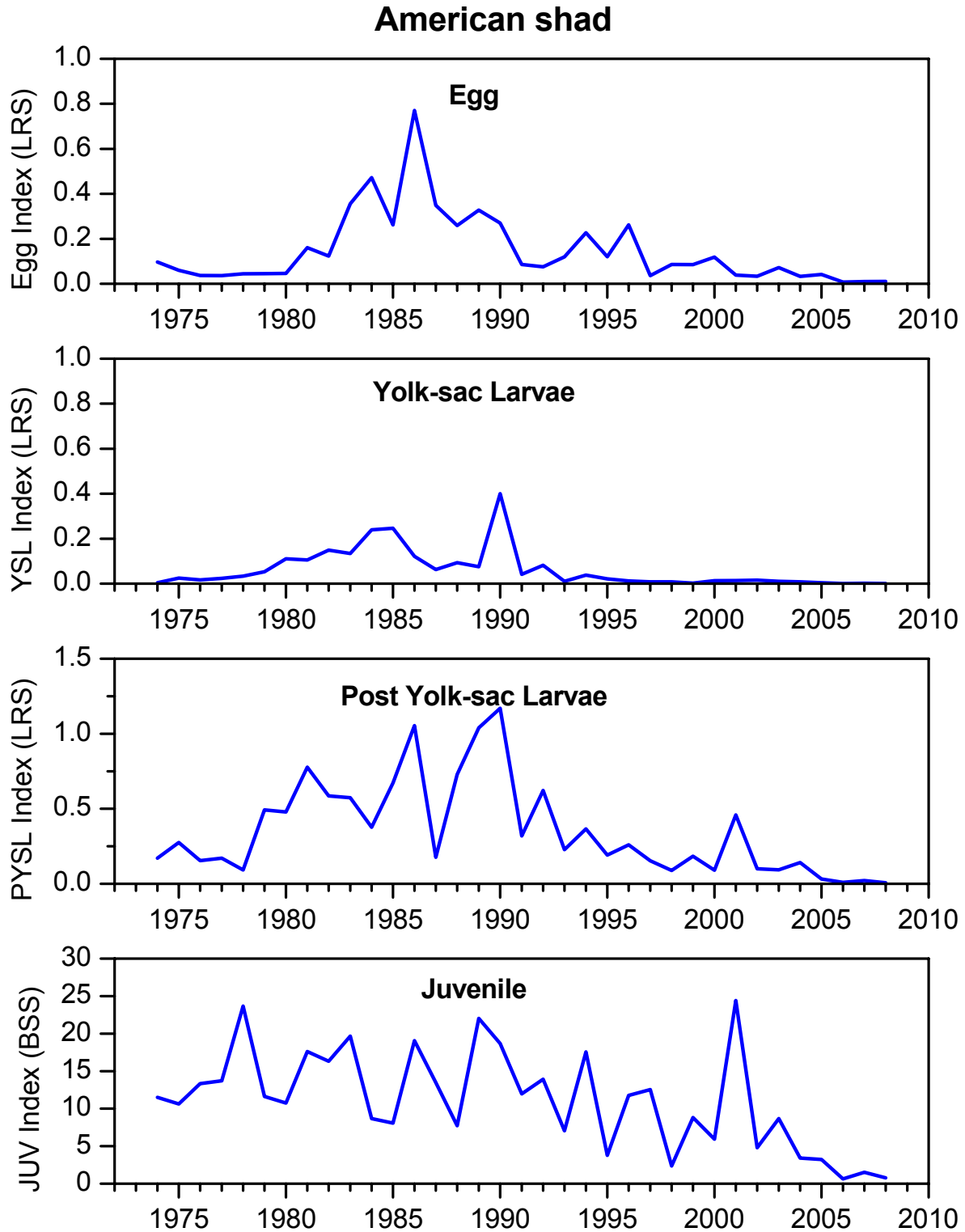


Figure D-5. American shad indices of annual abundance based on Long River Survey and Beach Seine Survey, 1974-2008

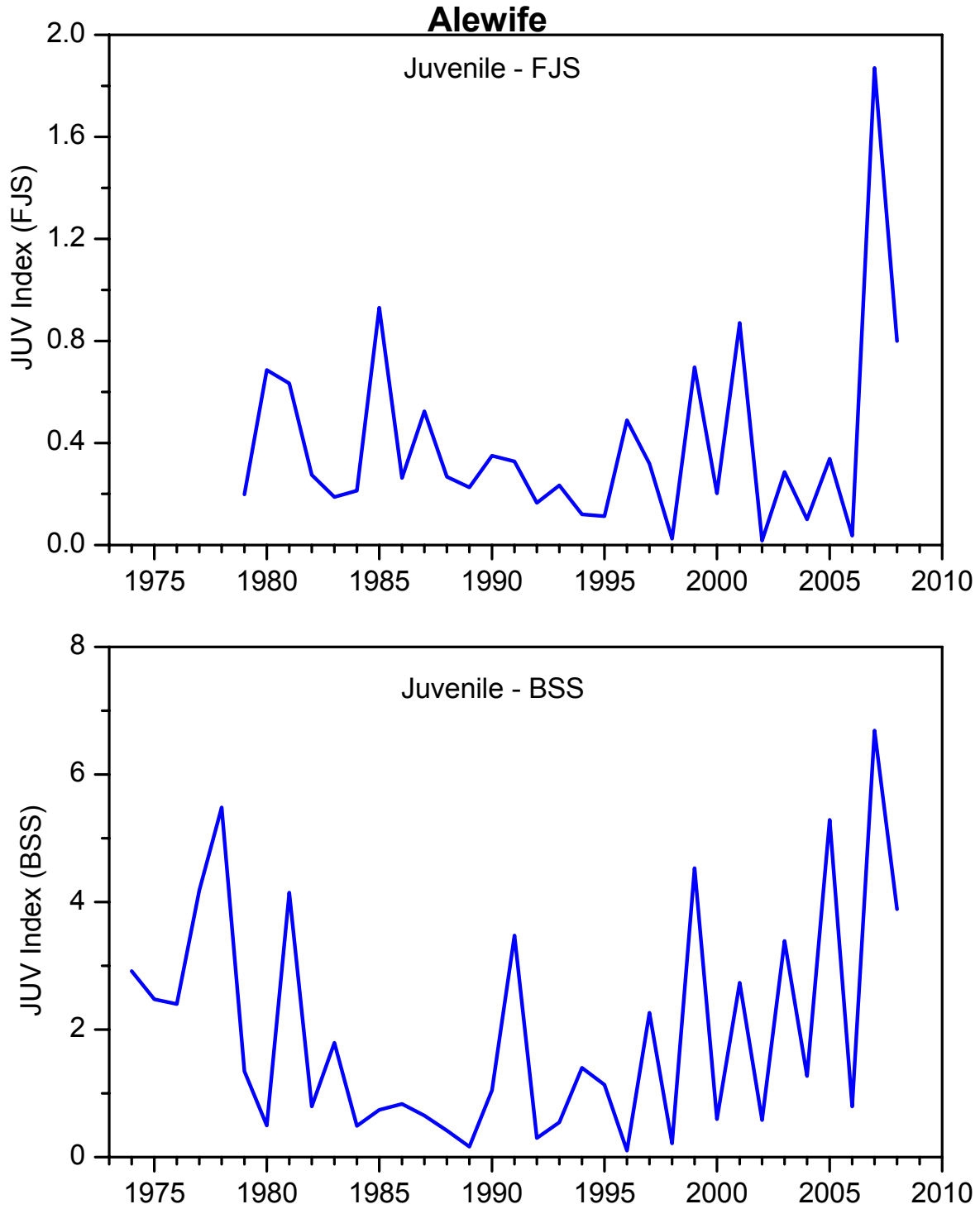


Figure D-6. Alewife indices of annual abundance based on Fall Juvenile Survey, 1979-2008, and Beach Seine Survey, 1974-2008

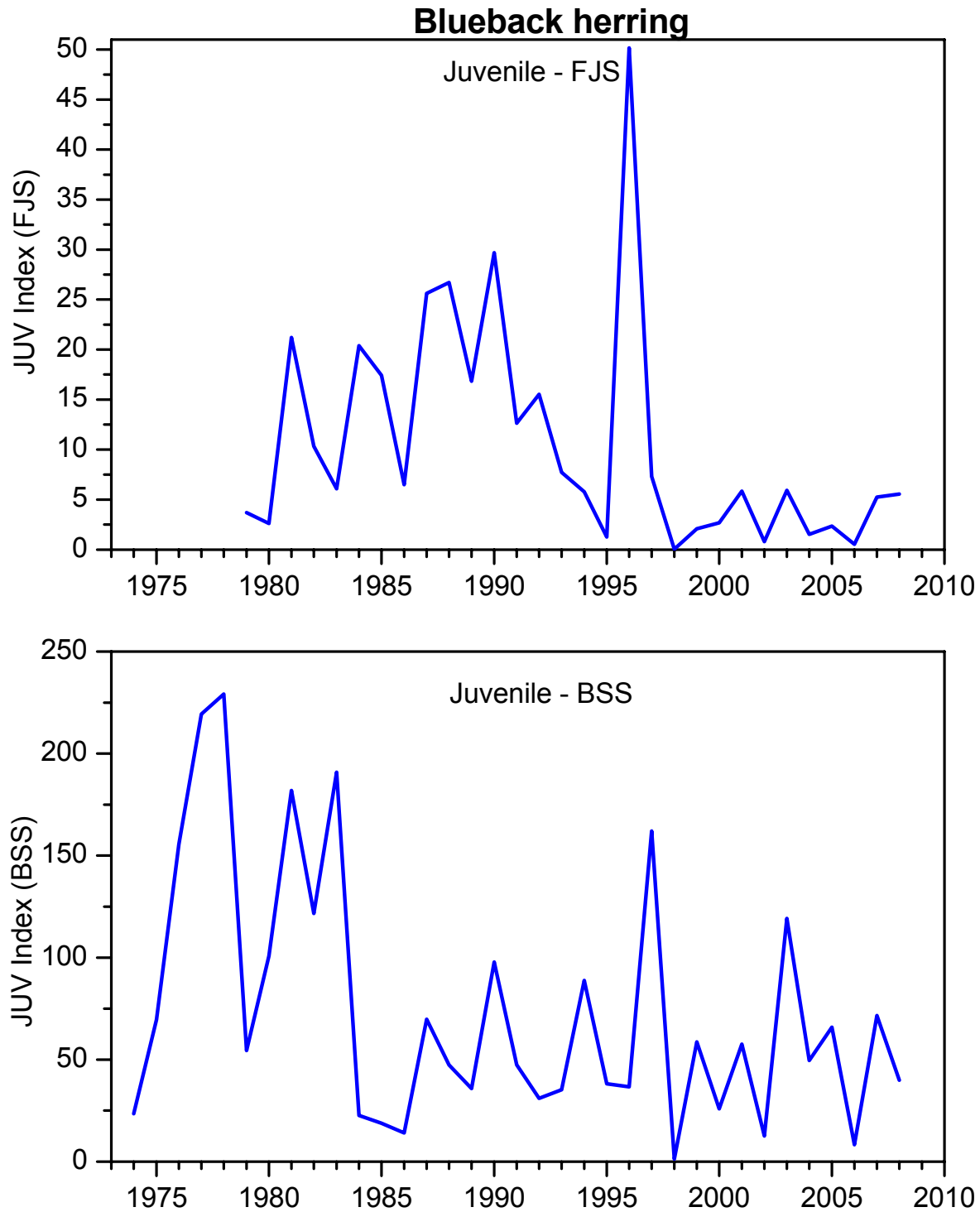


Figure D-7. Blueback herring indices of annual abundance based on Fall Juvenile Survey, 1979-2008, and Beach Seine Survey, 1974-2008



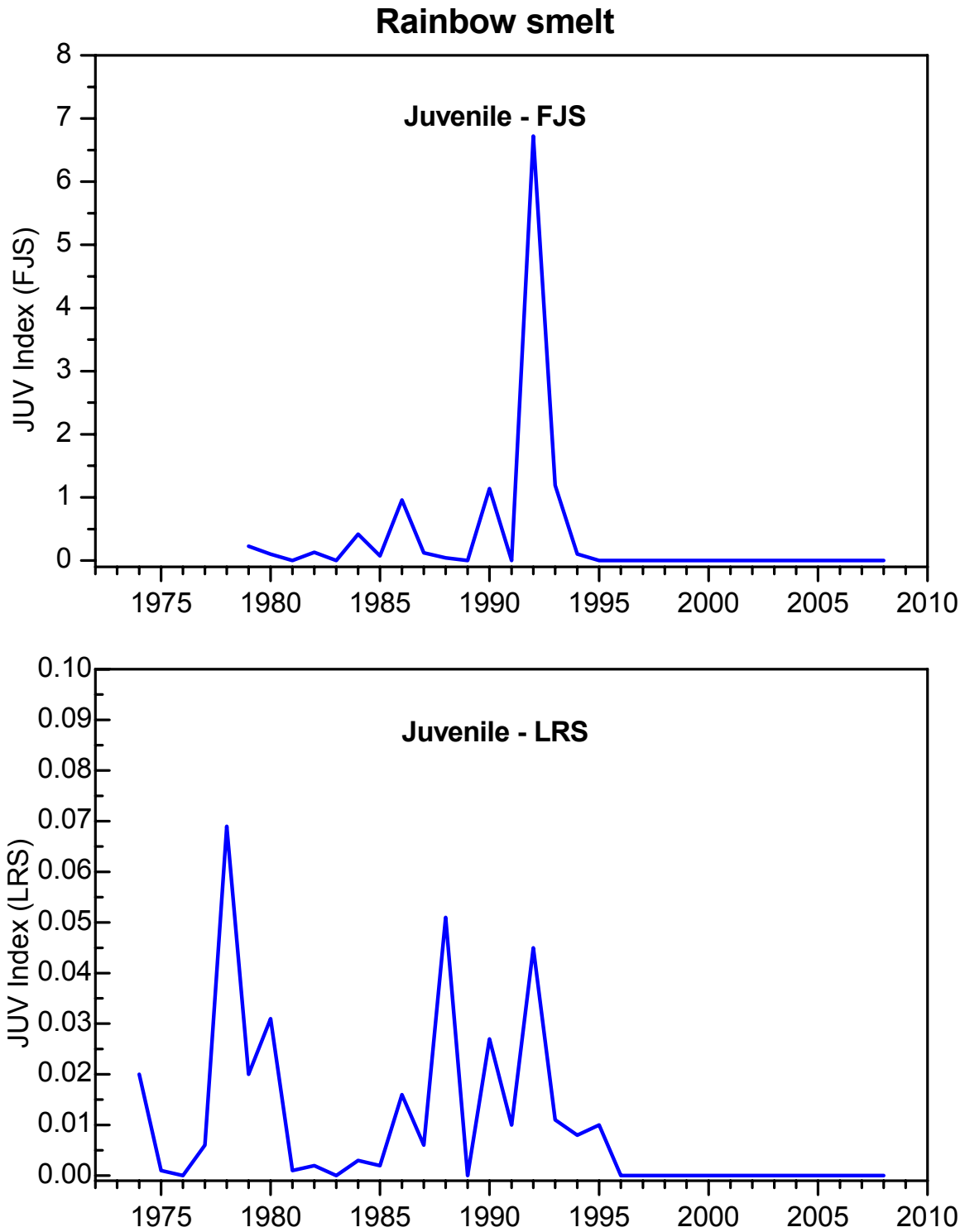


Figure D-8. Rainbow smelt indices of annual abundance based on Fall Juvenile Survey, 1979-2008, and Long River Survey, 1974-2008

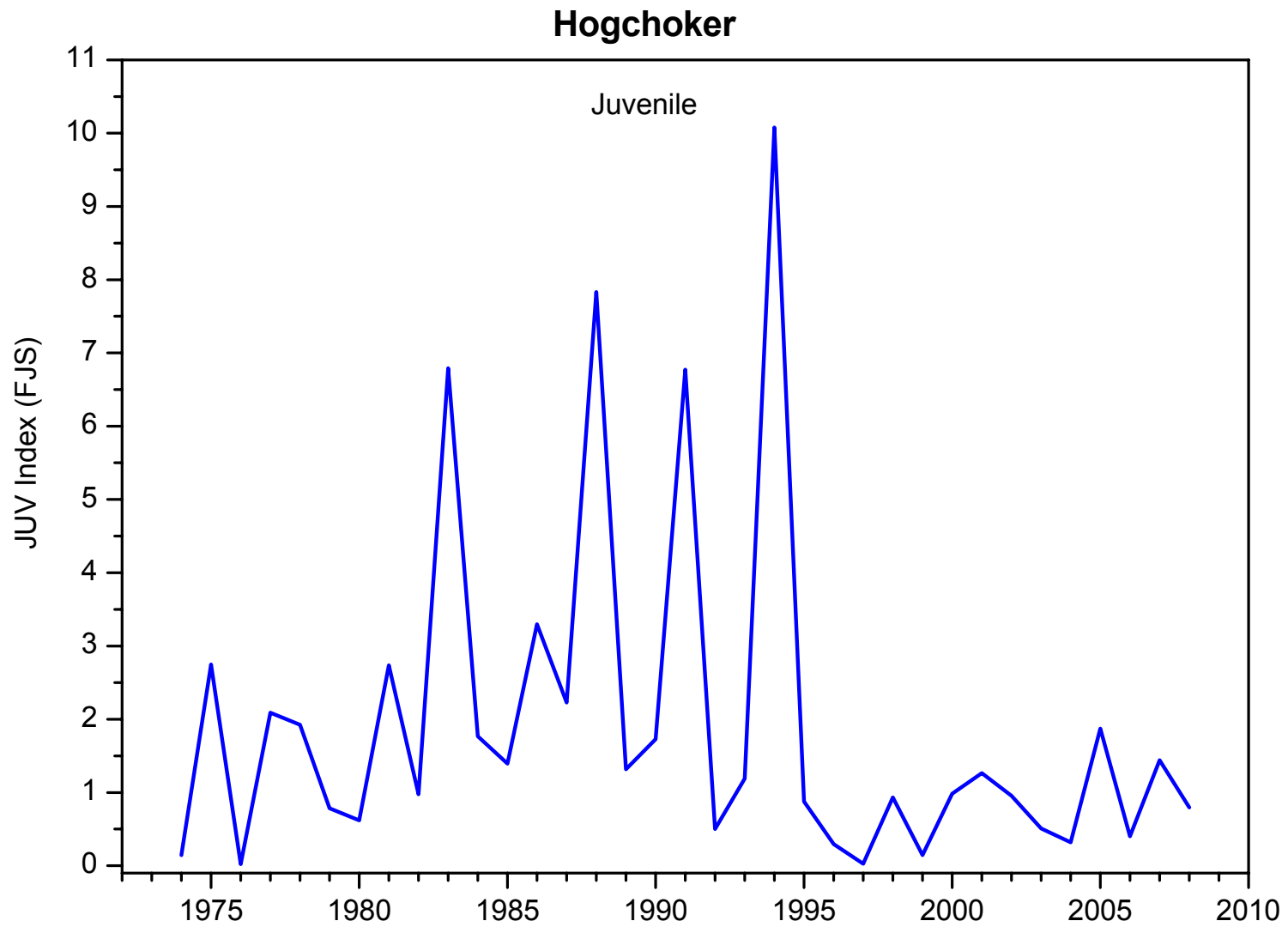


Figure D-9. Hogchoker indices of annual abundance based on Fall Juvenile Survey, 1974-2008

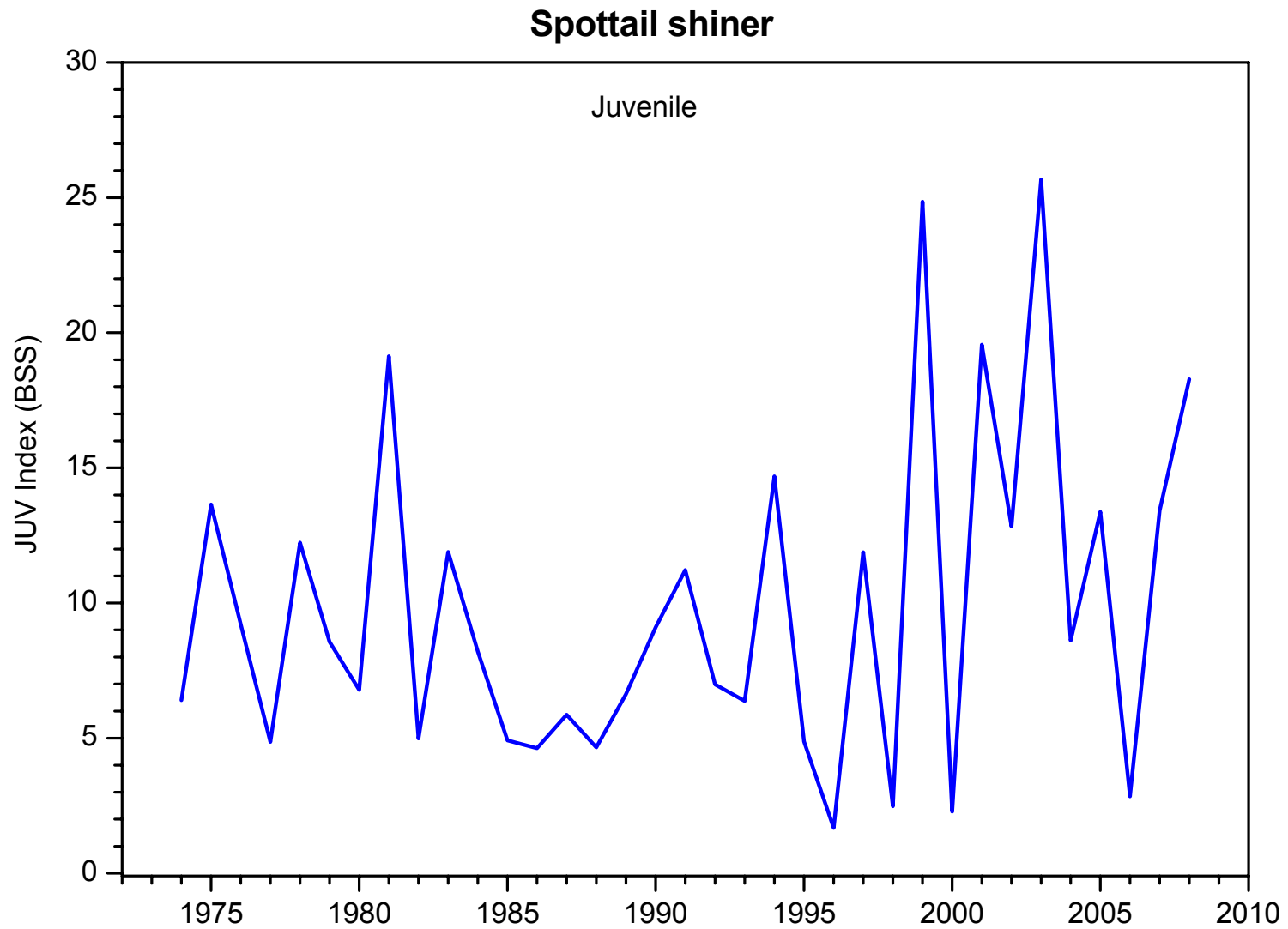


Figure D-10. Spottail shiner indices of annual abundance based on Beach Seine Survey, 1974-2008

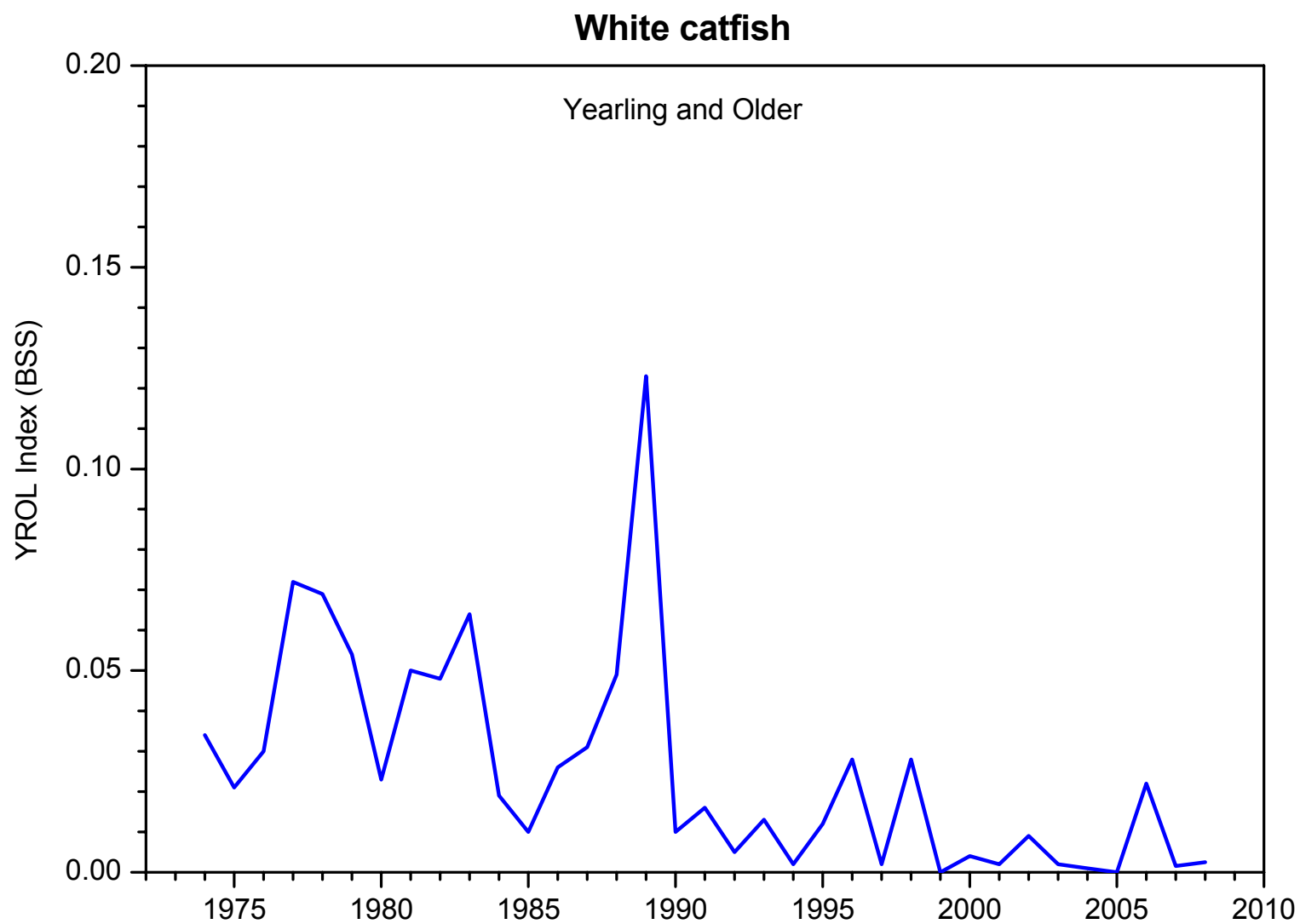


Figure D-11. White catfish indices of annual abundance based on Beach Seine Survey, 1974-2008

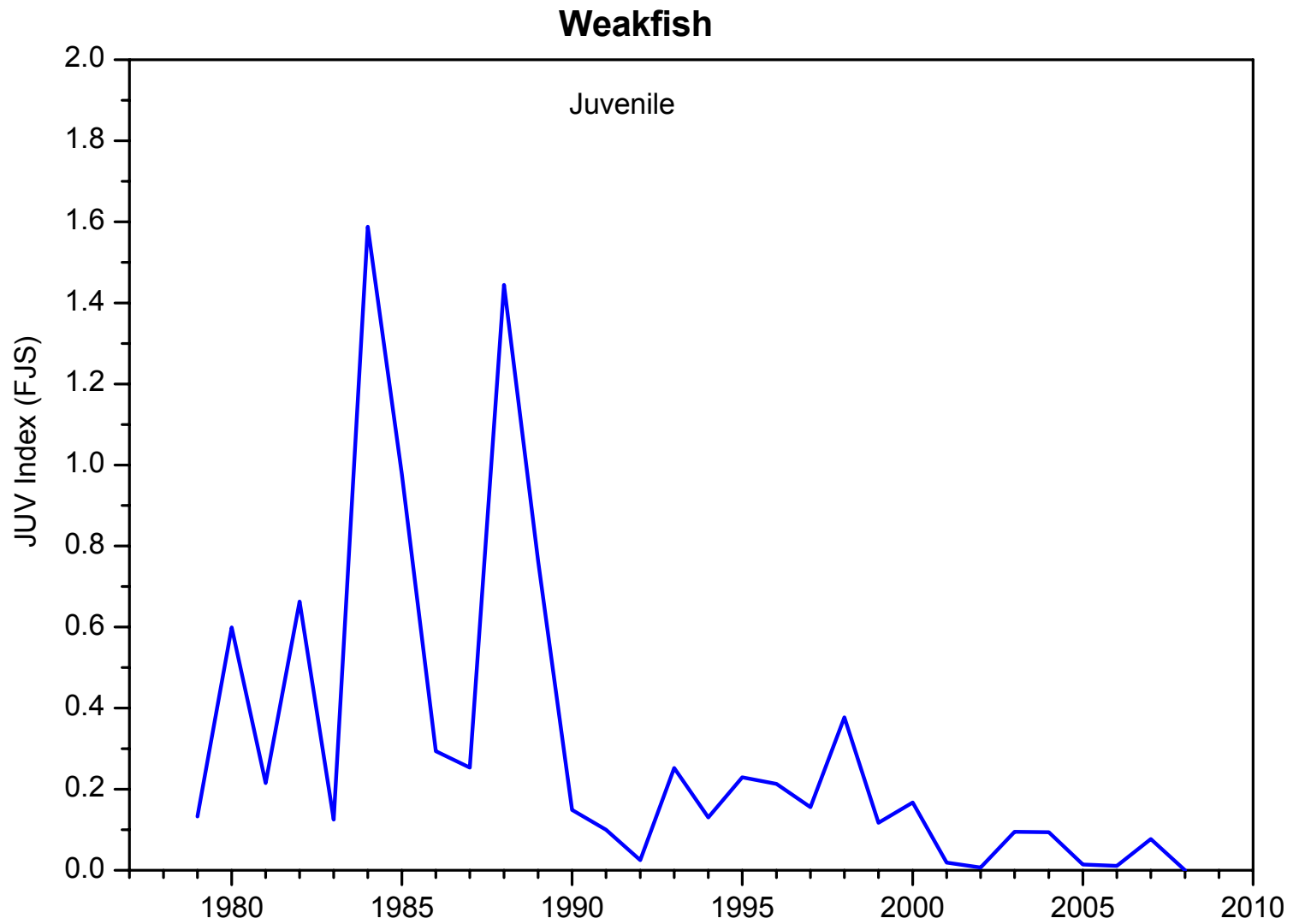


Figure D-12. Weakfish indices of annual abundance based on Fall Juvenile Survey, 1979-2008

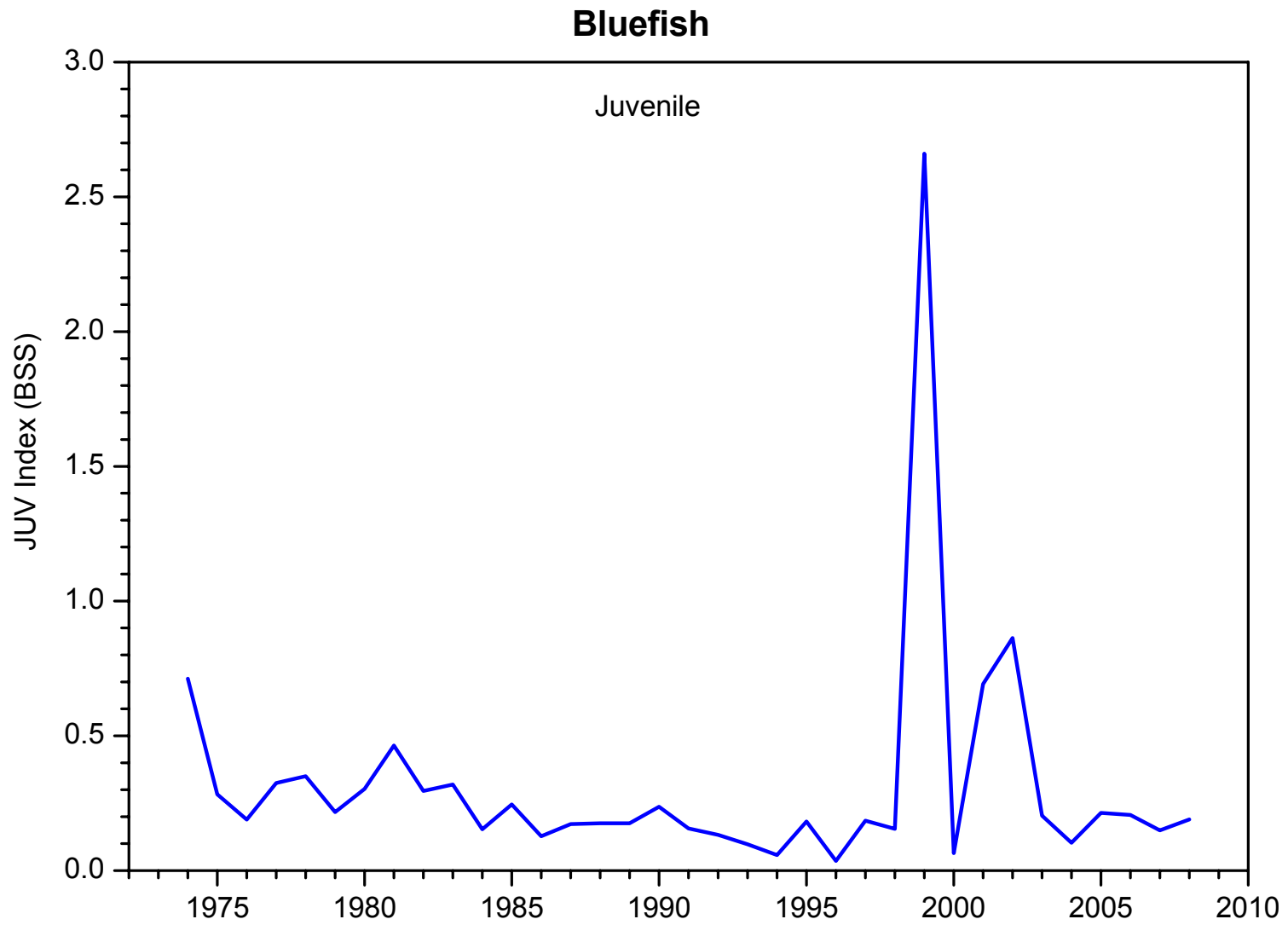


Figure D-13. Bluefish indices of annual abundance based on Beach Seine Survey, 1974-2008

Table D-1 Parameters for Indices of Annual Abundance Based on Data from the Beach Seine Survey (BSS), Fall Juvenile Survey (FJS), and Longitudinal River Survey (LRS)

Species	Life Stage	Weeks Used in Sampling Program		
		BSS	FJS	LRS
Striped bass	Egg, YSL, and PYSL			Variable <sup>1</sup>
Striped bass	Juvenile	33-40		
White perch	Egg, YSL, and PYSL			Variable <sup>1</sup>
White perch	Juvenile and Yearling	33-40		
Atlantic tomcod	PYSL and Juvenile combined			19-22
Bay anchovy	Juvenile		33-40 (Channel)	
American shad	Egg, YSL, and PYSL			Variable <sup>1</sup>
American shad	Juvenile	33-40		
Alewife	Juvenile	33-40	33-40 (Channel)	
Blueback herring	Juvenile	33-40	33-40 (Channel)	
Rainbow smelt	Juvenile		33-40 (Channel)	20-27
Hogchoker	Juvenile		40-43 (Bottom)	
Spottail shiner	Juvenile	33-40		
White catfish	Yearling and older	33-40		
Weakfish	Juvenile		33-40 (Channel)	
Bluefish	Juvenile	33-40		

<sup>1</sup> 7 weeks beginning with the first week in which 5% of annual total is achieved

Table D-2 Striped Bass Indices of Annual Abundance Based on Long River Survey and Beach Seine Survey, 1974-2008

	Long River Survey						Beach Seine Survey	
	Egg		Yolk-Sac Larvae		Post Yolk-Sac Larvae		Juvenile	
	Index	Std. Err.	Index	Std. Err.	Index	Std. Err.	Index	Std. Err.
1974	0.062	0.044	0.080	0.018	0.424	0.033	5.652	0.869
1975	0.076	0.012	0.487	0.031	0.694	0.044	4.557	0.301
1976	0.097	0.011	0.253	0.014	0.265	0.017	3.445	0.392
1977	0.195	0.022	0.566	0.029	0.605	0.036	5.919	0.411
1978	0.077	0.010	0.306	0.019	0.538	0.038	9.115	1.884
1979	0.075	0.008	0.359	0.022	0.468	0.032	3.760	0.756
1980	0.072	0.009	0.319	0.024	0.833	0.062	5.605	0.829
1981	0.137	0.015	0.486	0.055	2.482	0.116	6.611	0.912
1982	0.073	0.007	0.745	0.078	0.825	0.061	3.826	0.539
1983	0.276	0.189	0.391	0.026	0.589	0.033	6.580	1.249
1984	0.152	0.019	0.358	0.030	0.867	0.096	5.059	1.008
1985	0.050	0.005	0.202	0.017	0.405	0.033	1.069	0.237
1986	0.060	0.008	0.421	0.032	0.721	0.036	1.618	0.388
1987	0.059	0.007	1.449	0.085	1.697	0.066	12.823	2.245
1988	0.024	0.008	0.706	0.068	1.481	0.139	4.912	0.607
1989	0.588	0.269	2.941	0.277	4.540	0.344	5.665	0.897
1990	1.219	0.182	3.271	0.295	5.642	0.535	6.415	0.703
1991	0.363	0.064	2.855	0.257	8.005	0.770	5.032	1.070
1992	0.874	0.154	3.884	0.219	6.380	0.426	3.678	0.581
1993	0.633	0.122	4.812	0.969	8.247	0.727	7.496	1.626
1994	9.825	1.869	3.678	0.526	8.454	0.795	5.880	1.056
1995	6.266	1.010	1.305	0.199	3.942	0.389	6.043	0.903
1996	4.497	0.649	12.743	1.796	15.404	1.465	1.252	0.330
1997	1.029	0.185	1.795	0.296	4.887	0.745	9.185	0.829
1998	1.131	0.343	3.173	0.548	6.133	0.490	6.287	0.709
1999	0.460	0.087	4.265	0.393	14.788	1.343	7.621	1.486
2000	2.144	0.194	8.061	0.817	25.886	2.823	2.320	0.691
2001	1.030	0.235	9.057	0.748	21.999	1.364	14.215	1.551
2002	0.291	0.042	0.879	0.054	2.625	0.151	7.649	0.860
2003	8.721	4.871	5.889	0.634	7.185	0.718	9.834	1.554
2004	2.018	0.402	4.534	0.372	6.254	0.352	3.752	0.822
2005	0.960	0.158	3.786	0.874	7.169	0.621	11.582	1.469
2006	0.361	0.051	0.752	0.080	1.727	0.102	4.171	0.722
2007	0.920	0.196	6.353	1.267	9.157	0.600	7.201	0.961
2008	0.58001	0.10553	1.26844	0.16915	3.99482	0.47563	4.2032	0.548



Table D-3 White Perch Indices of Annual Abundance Based on Long River Survey and Beach Seine Survey, 1974-2008

	Long River Survey						Beach Seine Survey			
	Egg		Yolk-Sac Larvae		Post Yolk-Sac Larvae		Juvenile		Yearling	
	Index	Std. Err.	Index	Std. Err.	Index	Std. Err.	Index	Std. Err.	Index	Std. Err.
1974	0.122	0.049	0.040	0.010	0.464	0.037	4.091	0.556	9.57	2.24
1975	0.335	0.095	0.198	0.016	1.783	0.147	8.040	1.954	2.68	1.41
1976	0.480	0.092	0.388	0.015	2.214	0.239	9.537	1.341	3.31	0.43
1977	0.112	0.019	0.264	0.014	2.431	0.128	6.782	1.114	0.45	0.07
1978	0.687	0.083	0.261	0.021	3.438	0.195	13.934	2.838	4.92	2.37
1979	0.533	0.070	0.336	0.017	3.571	0.103	17.033	2.747	5.31	1.63
1980	0.411	0.038	0.328	0.015	2.954	0.110	10.682	2.306	3.24	0.94
1981	1.282	0.080	0.360	0.032	3.467	0.174	10.297	1.291	3.22	0.62
1982	1.374	0.158	0.986	0.050	5.757	0.221	9.995	1.139	4.31	0.80
1983	1.089	0.084	0.776	0.040	2.977	0.101	10.363	2.016	4.08	1.60
1984	2.691	0.659	0.310	0.015	2.754	0.119	4.175	0.684	4.31	1.11
1985	1.036	0.117	0.463	0.040	5.640	0.214	4.353	1.076	1.47	0.53
1986	2.306	0.338	1.375	0.080	8.106	0.378	5.597	1.129	1.71	0.43
1987	0.528	0.063	0.483	0.022	3.974	0.119	8.880	1.678	2.21	0.26
1988	0.781	0.104	0.381	0.037	2.905	0.147	7.606	1.296	1.23	0.25
1989	0.171	0.014	0.568	0.051	4.057	0.374	6.281	1.715	2.84	0.51
1990	1.633	0.350	0.460	0.034	2.919	0.261	3.844	0.416	2.25	0.59
1991	0.443	0.059	0.241	0.017	3.637	0.236	4.033	0.754	1.57	0.43
1992	0.665	0.062	1.052	0.062	4.921	0.202	3.677	0.645	1.34	0.18
1993	0.431	0.060	0.792	0.044	4.958	0.185	5.842	0.949	1.89	0.55
1994	0.378	0.035	0.812	0.043	4.106	0.173	2.837	0.581	0.65	0.19
1995	0.454	0.070	0.427	0.020	2.506	0.108	3.209	0.484	1.14	0.34
1996	1.071	0.134	0.721	0.051	6.123	0.269	0.309	0.125	0.29	0.10
1997	0.265	0.047	0.127	0.005	1.461	0.075	3.912	0.558	0.45	0.07
1998	0.370	0.056	0.192	0.014	2.300	0.142	1.930	0.486	1.39	0.29
1999	0.192	0.026	0.210	0.017	2.696	0.152	11.218	2.992	1.29	0.43
2000	0.396	0.030	0.480	0.027	4.841	0.504	1.766	0.391	0.89	0.29
2001	0.091	0.010	0.253	0.017	2.997	0.237	6.997	0.817	0.42	0.13
2002	0.397	0.037	0.677	0.027	2.125	0.147	6.766	1.038	3.33	0.87
2003	0.329	0.034	0.478	0.023	2.845	0.171	15.671	3.697	0.71	0.13
2004	0.355	0.036	0.526	0.036	2.782	0.127	4.203	0.985	3.10	1.03
2005	0.198	0.013	0.470	0.029	2.233	0.133	6.441	0.998	0.313	0.085
2006	0.465	0.040	0.249	0.014	0.335	0.074	3.162	0.521	1.545	0.201
2007	0.075	0.012	0.186	0.018	2.264	0.180	1.519	0.260	0.391	0.127
2008	0.7388	0.06963	0.33806	0.03039	1.77676	0.11367	6.72904	1.36213	0.53257	0.53257

Table D-4 Atlantic Tomcod Indices of Annual Abundance Based on Long River Survey, 1974-2008

	Long River Survey	
	Post Yolk-Sac Larvae and Juvenile	
	Index	Std. Err.
1974	0.093	0.016
1975	0.035	0.009
1976	0.011	0.003
1977	0.412	0.267
1978	0.110	0.031
1979	0.026	0.006
1980	0.234	0.078
1981	0.149	0.037
1982	0.064	0.024
1983	0.035	0.012
1984	0.155	0.070
1985	0.149	0.027
1986	0.077	0.010
1987	0.319	0.049
1988	0.151	0.034
1989	0.365	0.089
1990	0.306	0.135
1991	0.193	0.029
1992	0.065	0.021
1993	0.214	0.061
1994	0.106	0.022
1995	0.148	0.024
1996	0.094	0.014
1997	0.049	0.011
1998	0.036	0.008
1999	0.030	0.007
2000	0.009	0.002
2001	0.176	0.029
2002	0.005	0.001
2003	0.042	0.006
2004	0.088	0.012
2005	0.088	0.014
2006	0.022	0.005
2007	0.011	0.001
2008	<0.001	0.010

Table D-5 Bay Anchovy Indices of Annual Abundance Based on Fall Juvenile Survey, 1979-2008

	Fall Juvenile Survey	
	Juvenile	
	Index	Std. Err.
1979	63	10
1980	216	53
1981	149	24
1982	197	25
1983	115	32
1984	160	33
1985	153	16
1986	109	16
1987	196	42
1988	341	51
1989	289	40
1990	110	12
1991	111	8
1992	147	35
1993	161	20
1994	138	33
1995	266	44
1996	76	20
1997	148	27
1998	132	20
1999	98	25
2000	37	4
2001	63	10
2002	120	16
2003	80	7
2004	147	48
2005	68	7
2006	106	32
2007	163	19
2008	133	14

Table D-6 American Shad Indices of Annual Abundance Based on Long River Survey and Beach Seine Survey, 1974-2008

	Long River Survey						Beach Seine Survey	
	Egg		Yolk-Sac Larvae		Post Yolk-Sac Larvae		Juvenile	
	Index	Std. Err.	Index	Std. Err.	Index	Std. Err.	Index	Std. Err.
1974	0.097	0.031	0.004	0.001	0.171	0.065	11.499	0.825
1975	0.060	0.016	0.025	0.004	0.276	0.176	10.630	1.431
1976	0.037	0.009	0.017	0.002	0.155	0.049	13.325	0.869
1977	0.036	0.004	0.024	0.002	0.170	0.033	13.702	1.388
1978	0.044	0.008	0.034	0.003	0.092	0.031	23.671	2.658
1979	0.045	0.007	0.053	0.006	0.492	0.069	11.645	1.741
1980	0.046	0.009	0.111	0.012	0.479	0.216	10.747	2.464
1981	0.161	0.075	0.106	0.012	0.777	0.309	17.615	2.167
1982	0.123	0.041	0.149	0.016	0.586	0.120	16.312	1.919
1983	0.356	0.114	0.134	0.015	0.573	0.092	19.679	3.887
1984	0.472	0.112	0.240	0.019	0.376	0.168	8.686	1.839
1985	0.262	0.039	0.247	0.041	0.672	0.165	8.078	1.297
1986	0.770	0.325	0.122	0.015	1.054	0.150	19.060	3.735
1987	0.349	0.077	0.063	0.007	0.177	0.077	13.473	2.275
1988	0.259	0.051	0.093	0.030	0.729	0.344	7.717	1.010
1989	0.327	0.063	0.075	0.010	1.040	0.794	22.052	2.414
1990	0.270	0.062	0.400	0.053	1.170	0.733	18.674	1.742
1991	0.086	0.016	0.042	0.008	0.319	0.115	11.966	3.155
1992	0.075	0.021	0.082	0.011	0.622	0.213	13.923	1.051
1993	0.120	0.031	0.011	0.002	0.228	0.116	7.065	0.869
1994	0.227	0.036	0.038	0.005	0.366	0.126	17.557	3.276
1995	0.121	0.030	0.021	0.003	0.191	0.060	3.786	0.433
1996	0.262	0.042	0.012	0.003	0.260	0.061	11.773	1.928
1997	0.036	0.005	0.008	0.001	0.153	0.033	12.537	2.036
1998	0.086	0.012	0.008	0.001	0.089	0.028	2.361	0.415
1999	0.085	0.018	0.003	0.001	0.184	0.066	8.813	2.441
2000	0.119	0.015	0.013	0.002	0.090	0.026	5.925	0.930
2001	0.039	0.012	0.014	0.004	0.459	0.182	24.402	1.827
2002	0.034	0.004	0.016	0.003	0.100	0.037	4.792	0.468
2003	0.072	0.019	0.011	0.001	0.093	0.025	8.686	1.204
2004	0.033	0.008	0.008	0.001	0.141	0.062	3.397	0.613
2005	0.042	0.005	0.004	0.001	0.032	0.015	3.208	0.601
2006	0.008	0.001	0.001	0.000	0.009	0.004	0.631	0.116
2007	0.010	0.007	0.002	0.001	0.021	0.022	1.522	0.370
2008	0.011	0.003	0.001	0.000	0.006	0.003	0.774	0.143

Table D-7 Alewife Indices of Annual Abundance Based on Fall Juvenile Survey, 1979-2008,  
and Beach Seine Survey, 1974-2008

	Fall Juvenile Survey		Beach Seine Survey	
	Juvenile		Juvenile	
	Index	Std. Err.	Index	Std. Err.
1974			2.917	0.439
1975			2.473	0.404
1976			2.400	0.632
1977			4.182	0.605
1978			5.485	0.971
1979	0.199	0.077	1.347	0.232
1980	0.686	0.353	0.498	0.161
1981	0.634	0.214	4.148	0.936
1982	0.275	0.084	0.794	0.237
1983	0.188	0.067	1.791	0.273
1984	0.213	0.125	0.490	0.136
1985	0.930	0.407	0.741	0.173
1986	0.263	0.079	0.834	0.505
1987	0.524	0.268	0.651	0.121
1988	0.268	0.129	0.417	0.089
1989	0.226	0.068	0.163	0.040
1990	0.350	0.137	1.047	0.167
1991	0.328	0.115	3.473	0.569
1992	0.165	0.084	0.299	0.118
1993	0.234	0.083	0.544	0.159
1994	0.120	0.062	1.402	0.343
1995	0.113	0.034	1.136	0.346
1996	0.489	0.146	0.103	0.040
1997	0.319	0.101	2.262	0.439
1998	0.025	0.015	0.214	0.154
1999	0.697	0.173	4.533	1.073
2000	0.203	0.077	0.597	0.315
2001	0.871	0.720	2.733	0.783
2002	0.017	0.014	0.580	0.102
2003	0.286	0.117	3.392	0.895
2004	0.100	0.039	1.274	0.355
2005	0.338	0.092	5.289	1.232
2006	0.037	0.017	0.795	0.435
2007	1.870	1.144	6.688	2.003
2008	0.800	0.542	3.888	0.999

Table D-8 Blueback Herring Indices of Annual Abundance Based on Fall Juvenile Survey, 1979-2008, and Beach Seine Survey, 1974-2008

	Fall Juvenile Survey		Beach Seine Survey	
	Juvenile		Juvenile	
	Index	Std. Err.	Index	Std. Err.
1974			23.509	3.394
1975			69.660	9.490
1976			155.551	23.842
1977			219.365	26.383
1978			229.189	44.491
1979	3.695	0.746	54.451	8.318
1980	2.606	0.753	100.836	53.797
1981	21.197	5.861	181.931	72.898
1982	10.331	2.061	121.724	31.431
1983	6.082	1.073	190.860	41.849
1984	20.385	3.673	22.662	5.412
1985	17.424	4.584	18.816	3.904
1986	6.482	1.383	14.102	4.410
1987	25.608	12.357	69.798	15.687
1988	26.693	4.297	47.408	14.021
1989	16.825	5.408	35.877	8.094
1990	29.688	10.639	97.854	13.970
1991	12.648	4.469	47.440	11.057
1992	15.523	3.874	31.096	6.530
1993	7.717	1.594	35.277	5.517
1994	5.765	1.899	88.839	13.782
1995	1.266	0.417	38.176	23.296
1996	50.160	15.888	36.708	17.548
1997	7.301	1.428	162.109	35.436
1998	0.032	0.029	1.282	0.314
1999	2.073	0.783	58.668	17.791
2000	2.677	1.163	25.980	14.975
2001	5.845	4.998	57.605	11.398
2002	0.797	0.546	12.630	5.767
2003	5.920	1.891	119.197	27.386
2004	1.523	0.347	49.563	11.708
2005	2.332	1.049	65.857	20.089
2006	0.525	0.146	8.278	3.437
2007	5.236	0.907	71.601	9.047
2008	5.557	1.353	39.985	8.850

Table D-9 Rainbow Smelt Indices of Annual Abundance Based on Fall Juvenile Survey, 1979-2008, and Long River Survey, 1974-2008

	Fall Juvenile Survey		Long River Survey	
	Juvenile		Juvenile	
	Index	Std. Err.	Index	Std. Err.
1974			0.020	0.004
1975			0.001	0.000
1976			0.000	0.000
1977			0.006	0.002
1978			0.069	0.006
1979	0.226	0.092	0.020	0.003
1980	0.099	0.088	0.031	0.002
1981	0.000	0.000	0.001	0.000
1982	0.129	0.055	0.002	0.000
1983	0.000	0.000	0.000	0.000
1984	0.419	0.165	0.003	0.000
1985	0.074	0.057	0.002	0.000
1986	0.959	0.165	0.016	0.001
1987	0.122	0.065	0.006	0.001
1988	0.041	0.027	0.051	0.008
1989	0.000	0.000	0.000	0.000
1990	1.140	0.340	0.027	0.002
1991	0.000	0.000	0.010	0.003
1992	6.721	2.340	0.045	0.005
1993	1.190	0.563	0.011	0.003
1994	0.104	0.104	0.008	0.002
1995	0.000	0.000	0.010	0.002
1996	0.000	0.000	0.000	0.000
1997	0.000	0.000	0.000	0.000
1998	0.000	0.000	0.000	0.000
1999	0.000	0.000	0.000	0.000
2000	0.000	0.000	0.000	0.000
2001	0.000	0.000	0.000	0.000
2002	0.000	0.000	0.000	0.000
2003	0.000	0.000	0.000	0.000
2004	0.000	0.000	0.000	0.000
2005	0.000	0.000	0.000	0.000
2006	0.000	0.000	0.000	0.000
2007	0.000	0.000	0.000	0.000
2008	0.000	0.000	0.000	0.000

Table D-10 Hogchoker Indices of Annual Abundance Based on Fall Juvenile Survey, 1974-2008

	Fall Juvenile Survey	
	Juvenile	
	Index	Std. Err.
1974	0.147	0.033
1975	2.748	1.910
1976	0.021	0.017
1977	2.089	1.393
1978	1.925	0.806
1979	0.786	0.172
1980	0.620	0.183
1981	2.735	0.775
1982	0.975	--
1983	6.789	4.522
1984	1.767	0.428
1985	1.396	0.257
1986	3.298	1.587
1987	2.227	0.568
1988	7.832	0.914
1989	1.318	0.406
1990	1.728	1.024
1991	6.772	4.728
1992	0.502	0.234
1993	1.189	0.308
1994	10.079	1.418
1995	0.878	0.333
1996	0.295	0.066
1997	0.026	0.026
1998	0.932	0.129
1999	0.145	0.136
2000	0.983	0.363
2001	1.264	0.426
2002	0.956	0.346
2003	0.511	0.508
2004	0.319	0.079
2005	1.873	0.785
2006	0.402	0.168
2007	1.442	0.774
2008	0.796	0.206



Table D-11 Spottail Shiner Indices of Annual Abundance Based on Beach Seine Survey, 1974-2008

	Beach Seine Survey	
	Juvenile	
	Index	Std. Err.
1974	6.406	1.419
1975	13.648	3.194
1976	9.211	1.452
1977	4.860	1.112
1978	12.232	1.725
1979	8.562	1.357
1980	6.785	1.281
1981	19.134	3.977
1982	4.991	0.815
1983	11.890	3.007
1984	8.202	1.942
1985	4.916	0.780
1986	4.629	1.165
1987	5.868	1.403
1988	4.663	0.722
1989	6.626	1.472
1990	9.098	1.505
1991	11.223	1.880
1992	6.987	1.066
1993	6.379	0.797
1994	14.684	2.022
1995	4.875	0.696
1996	1.681	0.632
1997	11.880	1.742
1998	2.478	0.568
1999	24.848	5.432
2000	2.287	0.634
2001	19.556	4.314
2002	12.833	1.847
2003	25.669	4.877
2004	8.613	1.323
2005	13.370	4.976
2006	2.849	0.461
2007	13.419	3.931
2008	18.279	2.781

Table D-12 White Catfish Indices of Annual Abundance Based on Beach Seine Survey, 1974-2008

	Beach Seine Survey	
	Yearling and Older	
	Index	Std. Err.
1974	0.034	0.020
1975	0.021	0.011
1976	0.030	0.010
1977	0.072	0.022
1978	0.069	0.030
1979	0.054	0.028
1980	0.023	0.008
1981	0.050	0.029
1982	0.048	0.026
1983	0.064	0.044
1984	0.019	0.006
1985	0.010	0.005
1986	0.026	0.012
1987	0.031	0.015
1988	0.049	0.018
1989	0.123	0.056
1990	0.010	0.005
1991	0.016	0.008
1992	0.005	0.003
1993	0.013	0.009
1994	0.002	0.002
1995	0.012	0.008
1996	0.028	0.016
1997	0.002	0.001
1998	0.028	0.022
1999	0.000	0.000
2000	0.004	0.003
2001	0.002	0.002
2002	0.009	0.008
2003	0.002	0.001
2004	0.001	0.001
2005	0.000	0.000
2006	0.022	0.013
2007	0.002	0.002
2008	0.002	0.002

Table D-13 Weakfish Indices of Annual Abundance Based on Fall Juvenile Survey, 1979-2008

	Fall Juvenile Survey	
	Juvenile	
	Index	Std. Err.
1979	0.133	0.070
1980	0.599	0.284
1981	0.215	0.125
1982	0.663	0.306
1983	0.125	0.088
1984	1.588	0.633
1985	0.977	0.481
1986	0.294	0.105
1987	0.253	0.180
1988	1.444	0.599
1989	0.763	0.248
1990	0.149	0.090
1991	0.100	0.061
1992	0.025	0.017
1993	0.252	0.149
1994	0.130	0.058
1995	0.229	0.128
1996	0.213	0.160
1997	0.156	0.053
1998	0.377	0.277
1999	0.117	0.047
2000	0.167	0.115
2001	0.019	0.009
2002	0.007	0.007
2003	0.095	0.049
2004	0.094	0.062
2005	0.014	0.014
2006	0.011	0.011
2007	0.077	0.054
2008	0.000	0.000

Table D-14 Bluefish Indices of Annual Abundance Based on Beach Seine Survey, 1974-2008

	Beach Seine Survey	
	Juvenile	
	Index	Std. Err.
1974	0.712	0.210
1975	0.283	0.074
1976	0.189	0.028
1977	0.325	0.097
1978	0.350	0.075
1979	0.217	0.054
1980	0.303	0.053
1981	0.464	0.119
1982	0.295	0.059
1983	0.320	0.101
1984	0.153	0.034
1985	0.245	0.068
1986	0.127	0.054
1987	0.173	0.049
1988	0.176	0.027
1989	0.176	0.043
1990	0.237	0.053
1991	0.156	0.043
1992	0.133	0.050
1993	0.098	0.033
1994	0.058	0.017
1995	0.182	0.043
1996	0.036	0.012
1997	0.185	0.028
1998	0.155	0.026
1999	2.660	1.116
2000	0.065	0.027
2001	0.692	0.242
2002	0.863	0.300
2003	0.204	0.073
2004	0.103	0.037
2005	0.214	0.071
2006	0.206	0.069
2007	0.149	0.026
2008	0.190	0.046

## **Appendix E**

### **Density and Standing Crop Estimates**

## APPENDIX E

### LIST OF TABLES

<b><u>Number</u></b>	<b><u>Title</u></b>
E-1	Regional density (no./1,000 m <sup>3</sup> ) of striped bass eggs in Hudson River estuary determined from Long River Survey, 2008
E-2	Regional standing crop (in thousands) of striped bass eggs in Hudson River estuary determined from Long River Survey, 2008
E-3	Regional density (no./1,000 m <sup>3</sup> ) of striped bass yolk-sac larvae in Hudson River estuary determined from Long River Survey, 2008
E-4	Regional standing crop (in thousands) of striped bass yolk-sac larvae in Hudson River estuary determined from Long River Survey, 2008
E-5	Regional density (no./1,000 m <sup>3</sup> ) of striped bass post yolk-sac larvae in Hudson River estuary determined from Long River Survey, 2008
E-6	Regional standing crop (in thousands) of striped bass post yolk-sac larvae in Hudson River estuary determined from Long River Survey, 2008
E-7	Regional density (no./1,000 m <sup>3</sup> ) of striped bass young-of-year in Hudson River estuary determined from Long River Survey, 2008
E-8	Regional standing crop (in thousands) of striped bass young-of-year in Hudson River estuary determined from Long River Survey, 2008
E-9	Regional density (no./1,000 m <sup>3</sup> ) of striped bass young-of-year in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-10	Regional standing crop (in thousands) of striped bass young-of-year in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-11	Regional catch-per-unit-effort of striped bass young-of-year in Hudson River estuary determined from Beach Seine Survey, 2008
E-12	Regional standing crop (in thousands) of striped bass young-of-year in Hudson River estuary determined from Beach Seine Survey, 2008
E-13	Regional density (no./1,000 m <sup>3</sup> ) of striped bass yearling in Hudson River estuary determined from Long River Survey, 2008
E-14	Regional standing crop (in thousands) of striped bass yearling in Hudson River estuary determined from Long River Survey, 2008

## APPENDIX E

### LIST OF TABLES (CONTINUED)

<b><u>Number</u></b>	<b><u>Title</u></b>
E-15	Regional density (no./1,000 m <sup>3</sup> ) of striped bass yearling in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-16	Regional standing crop (in thousands) of striped bass yearling in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-17	Regional catch-per-unit-effort of striped bass yearling in Hudson River estuary determined from Beach Seine Survey, 2008
E-18	Regional standing crop (in thousands) of striped bass yearling in Hudson River estuary determined from Beach Seine Survey, 2008
E-19	Regional density (no./1,000 m <sup>3</sup> ) of striped bass older-than-yearling in Hudson River estuary determined from Long River Survey, 2008
E-20	Regional standing crop (in thousands) of striped bass older-than-yearling in Hudson River estuary determined from Long River Survey, 2008
E-21	Regional density (no./1,000 m <sup>3</sup> ) of striped bass older-than-yearling in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-22	Regional standing crop (in thousands) of striped bass older-than-yearling in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-23	Regional catch-per-unit-effort of striped bass older-than-yearling in Hudson River estuary determined from Beach Seine Survey, 2008
E-24	Regional standing crop (in thousands) of striped bass older-than-yearling in Hudson River estuary determined from Beach Seine Survey, 2008
E-25	Regional density (no./1,000 m <sup>3</sup> ) of white perch eggs in Hudson River estuary determined from Long River Survey, 2008
E-26	Regional standing crop (in thousands) of white perch eggs in Hudson River estuary determined from Long River Survey, 2008
E-27	Regional density (no./1,000 m <sup>3</sup> ) of white perch yolk-sac larvae in Hudson River estuary determined from Long River Survey, 2008
E-28	Regional standing crop (in thousands) of white perch yolk-sac larvae in Hudson River estuary determined from Long River Survey, 2008
E-29	Regional density (no./1,000 m <sup>3</sup> ) of white perch post yolk-sac larvae in Hudson River estuary determined from Long River Survey, 2008
E-30	Regional standing crop (in thousands) of white perch post yolk-sac larvae in Hudson River estuary determined from Long River Survey, 2008

## APPENDIX E

### LIST OF TABLES (CONTINUED)

<b><u>Number</u></b>	<b><u>Title</u></b>
E-31	Regional density (no./1,000 m <sup>3</sup> ) of white perch young-of-year in Hudson River estuary determined from Long River Survey, 2008
E-32	Regional standing crop (in thousands) of white perch young-of-year in Hudson River estuary determined from Long River Survey, 2008
E-33	Regional density (no./1,000 m <sup>3</sup> ) of white perch young-of-year in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-34	Regional standing crop (in thousands) of white perch young-of-year in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-35	Regional catch-per-unit-effort of white perch young-of-year in Hudson River estuary determined from Beach Seine Survey, 2008
E-36	Regional standing crop (in thousands) of white perch young-of-year in Hudson River estuary determined from Beach Seine Survey, 2008
E-37	Regional density (no./1,000 m <sup>3</sup> ) of white perch yearling in Hudson River estuary determined from Long River Survey, 2008
E-38	Regional standing crop (in thousands) of white perch yearling in Hudson River estuary determined from Long River Survey, 2008
E-39	Regional density (no./1,000 m <sup>3</sup> ) of white perch yearling in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-40	Regional standing crop (in thousands) of white perch yearling in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-41	Regional catch-per-unit-effort of white perch yearling in Hudson River estuary determined from Beach Seine Survey, 2008
E-42	Regional standing crop (in thousands) of white perch yearling in Hudson River estuary determined from Beach Seine Survey, 2008
E-43	Regional density (no./1,000 m <sup>3</sup> ) of white perch older-than-yearling in Hudson River estuary determined from Long River Survey, 2008
E-44	Regional standing crop (in thousands) of white perch older-than-yearling in Hudson River estuary determined from Long River Survey, 2008
E-45	Regional density (no./1,000 m <sup>3</sup> ) of white perch older-than-yearling in Hudson River estuary determined from Fall Juvenile Survey, 2008



## APPENDIX E

### LIST OF TABLES (CONTINUED)

<b><u>Number</u></b>	<b><u>Title</u></b>
E-46	Regional standing crop (in thousands) of white perch older-than-yearling in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-47	Regional catch-per-unit-effort of white perch older-than-yearling in Hudson River estuary determined from Beach Seine Survey, 2008
E-48	Regional standing crop (in thousands) of white perch older-than-yearling in Hudson River estuary determined from Beach Seine Survey, 2008
E-49	Regional density (no./1,000 m <sup>3</sup> ) of Atlantic tomcod eggs in Hudson River estuary determined from Long River Survey, 2008
E-50	Regional standing crop (in thousands) of Atlantic tomcod eggs in Hudson River estuary determined from Long River Survey, 2008
E-51	Regional density (no./1,000 m <sup>3</sup> ) of Atlantic tomcod yolk-sac larvae in Hudson River estuary determined from Long River Survey, 2008
E-52	Regional standing crop (in thousands) of Atlantic tomcod yolk-sac larvae in Hudson River estuary determined from Long River Survey, 2008
E-53	Regional density (no./1,000 m <sup>3</sup> ) of Atlantic tomcod post yolk-sac larvae in Hudson River estuary determined from Long River Survey, 2008
E-54	Regional standing crop (in thousands) of Atlantic tomcod post yolk-sac larvae in Hudson River estuary determined from Long River Survey, 2008
E-55	Regional density (no./1,000 m <sup>3</sup> ) of Atlantic tomcod young-of-year in Hudson River estuary determined from Long River Survey, 2008
E-56	Regional standing crop (in thousands) of Atlantic tomcod young-of-year in Hudson River estuary determined from Long River Survey, 2008
E-57	Regional density (no./1,000 m <sup>3</sup> ) of Atlantic tomcod young-of-year in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-58	Regional standing crop (in thousands) of Atlantic tomcod young-of-year in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-59	Regional catch-per-unit-effort of Atlantic tomcod young-of-year in Hudson River estuary determined from Beach Seine Survey, 2008
E-60	Regional standing crop (in thousands) of Atlantic tomcod young-of-year in Hudson River estuary determined from Beach Seine Survey, 2008
E-61	Regional density (no./1,000 m <sup>3</sup> ) of Atlantic tomcod yearling and older in Hudson River estuary determined from Long River Survey, 2008

## APPENDIX E

### LIST OF TABLES (CONTINUED)

<b><u>Number</u></b>	<b><u>Title</u></b>
E-62	Regional standing crop (in thousands) of Atlantic tomcod yearling and older in Hudson River estuary determined from Long River Survey, 2008
E-63	Regional density (no./1,000 m <sup>3</sup> ) of Atlantic tomcod yearling and older in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-64	Regional standing crop (in thousands) of Atlantic tomcod yearling and older in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-65	Regional catch-per-unit-effort of Atlantic tomcod yearling and older in Hudson River estuary determined from Beach Seine Survey, 2008
E-66	Regional standing crop (in thousands) of Atlantic tomcod yearling and older in Hudson River estuary determined from Beach Seine Survey, 2008
E-67	Regional density (no./1,000 m <sup>3</sup> ) of bay anchovy eggs in Hudson River estuary determined from Long River Survey, 2008
E-68	Regional standing crop (in thousands) of bay anchovy eggs in Hudson River estuary determined from Long River Survey, 2008
E-69	Regional density (no./1,000 m <sup>3</sup> ) of bay anchovy yolk-sac larvae in Hudson River estuary determined from Long River Survey, 2008
E-70	Regional standing crop (in thousands) of bay anchovy yolk-sac larvae in Hudson River estuary determined from Long River Survey, 2008
E-71	Regional density (no./1,000 m <sup>3</sup> ) of bay anchovy post yolk-sac larvae in Hudson River estuary determined from Long River Survey, 2008
E-72	Regional standing crop (in thousands) of bay anchovy post yolk-sac larvae in Hudson River estuary determined from Long River Survey, 2008
E-73	Regional density (no./1,000 m <sup>3</sup> ) of bay anchovy young-of-year in Hudson River estuary determined from Long River Survey, 2008
E-74	Regional standing crop (in thousands) of bay anchovy young-of-year in Hudson River estuary determined from Long River Survey, 2008
E-75	Regional density (no./1,000 m <sup>3</sup> ) of bay anchovy young-of-year in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-76	Regional standing crop (in thousands) of bay anchovy young-of-year in Hudson River estuary determined from Fall Juvenile Survey, 2008

## APPENDIX E

### LIST OF TABLES (CONTINUED)

<b><u>Number</u></b>	<b><u>Title</u></b>
E-77	Regional catch-per-unit-effort of bay anchovy young-of-year in Hudson River estuary determined from Beach Seine Survey, 2008
E-78	Regional standing crop (in thousands) of bay anchovy young-of-year in Hudson River estuary determined from Beach Seine Survey, 2008
E-79	Regional density (no./1,000 m <sup>3</sup> ) of bay anchovy yearling and older in Hudson River estuary determined from Long River Survey, 2008
E-80	Regional standing crop (in thousands) of bay anchovy yearling and older in Hudson River estuary determined from Long River Survey, 2008
E-81	Regional density (no./1,000 m <sup>3</sup> ) of bay anchovy yearling and older in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-82	Regional standing crop (in thousands) of bay anchovy yearling and older in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-83	Regional catch-per-unit-effort of bay anchovy yearling and older in Hudson River estuary determined from Beach Seine Survey, 2008
E-84	Regional standing crop (in thousands) of bay anchovy yearling and older in Hudson River estuary determined from Beach Seine Survey, 2008
E-85	Regional density (no./1,000 m <sup>3</sup> ) of American shad eggs in Hudson River estuary determined from Long River Survey, 2008
E-86	Regional standing crop (in thousands) of American shad eggs in Hudson River estuary determined from Long River Survey, 2008
E-87	Regional density (no./1,000 m <sup>3</sup> ) of American shad yolk-sac larvae in Hudson River estuary determined from Long River Survey, 2008
E-88	Regional standing crop (in thousands) of American shad yolk-sac larvae in Hudson River estuary determined from Long River Survey, 2008
E-89	Regional density (no./1,000 m <sup>3</sup> ) of American shad post yolk-sac larvae in Hudson River estuary determined from Long River Survey, 2008
E-90	Regional standing crop (in thousands) of American shad post yolk-sac larvae in Hudson River estuary determined from Long River Survey, 2008
E-91	Regional density (no./1,000 m <sup>3</sup> ) of American shad young-of-year in Hudson River estuary determined from Long River Survey, 2008
E-92	Regional standing crop (in thousands) of American shad young-of-year in Hudson River estuary determined from Long River Survey, 2008

## APPENDIX E

### LIST OF TABLES (CONTINUED)

<b><u>Number</u></b>	<b><u>Title</u></b>
E-93	Regional density (no./1,000 m <sup>3</sup> ) of American shad young-of-year in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-94	Regional standing crop (in thousands) of American shad young-of-year in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-95	Regional catch-per-unit-effort of American shad young-of-year in Hudson River estuary determined from Beach Seine Survey, 2008
E-96	Regional standing crop (in thousands) of American shad young-of-year in Hudson River estuary determined from Beach Seine Survey, 2008
E-97	Regional density (no./1,000 m <sup>3</sup> ) of American shad yearling and older in Hudson River estuary determined from Long River Survey, 2008
E-98	Regional standing crop (in thousands) of American shad yearling and older in Hudson River estuary determined from Long River Survey, 2008
E-99	Regional density (no./1,000 m <sup>3</sup> ) of American shad yearling and older in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-100	Regional standing crop (in thousands) of American shad yearling and older in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-101	Regional catch-per-unit-effort of American shad yearling and older in Hudson River estuary determined from Beach Seine Survey, 2008
E-102	Regional standing crop (in thousands) of American shad yearling and older in Hudson River estuary determined from Beach Seine Survey, 2008
E-103	Regional density (no./1,000 m <sup>3</sup> ) of <i>Alosa</i> spp. eggs in Hudson River estuary determined from Long River Survey, 2008
E-104	Regional standing crop (in thousands) of <i>Alosa</i> spp. eggs in Hudson River estuary determined from Long River Survey, 2008
E-105	Regional density (no./1,000 m <sup>3</sup> ) of <i>Alosa</i> spp. yolk-sac larvae in Hudson River estuary determined from Long River Survey, 2008
E-106	Regional standing crop (in thousands) of <i>Alosa</i> spp. yolk-sac larvae in Hudson River estuary determined from Long River Survey, 2008
E-107	Regional density (no./1,000 m <sup>3</sup> ) of <i>Alosa</i> spp. post yolk-sac larvae in Hudson River estuary determined from Long River Survey, 2008

## APPENDIX E

### LIST OF TABLES (CONTINUED)

<b><u>Number</u></b>	<b><u>Title</u></b>
E-108	Regional standing crop (in thousands) of <i>Alosa</i> spp. post yolk-sac larvae in Hudson River estuary determined from Long River Survey, 2008
E-109	Regional density (no./1,000 m <sup>3</sup> ) of <i>Alosa</i> spp. young-of-year in Hudson River estuary determined from Long River Survey, 2008
E-110	Regional standing crop (in thousands) of <i>Alosa</i> spp. young-of-year in Hudson River estuary determined from Long River Survey, 2008
E-111	Regional density (no./1,000 m <sup>3</sup> ) of <i>Alosa</i> spp. young-of-year in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-112	Regional standing crop (in thousands) of <i>Alosa</i> spp. young-of-year in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-113	Regional catch-per-unit-effort of <i>Alosa</i> spp. young-of-year in Hudson River estuary determined from Beach Seine Survey, 2008
E-114	Regional standing crop (in thousands) of <i>Alosa</i> spp. young-of-year in Hudson River estuary determined from Beach Seine Survey, 2008
E-115	Regional density (no./1,000 m <sup>3</sup> ) of alewife young-of-year in Hudson River estuary determined from Long River Survey, 2008
E-116	Regional standing crop (in thousands) of alewife young-of-year in Hudson River estuary determined from Long River Survey, 2008
E-117	Regional density (no./1,000 m <sup>3</sup> ) of alewife young-of-year in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-118	Regional standing crop (in thousands) of alewife young-of-year in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-119	Regional catch-per-unit-effort of alewife young-of-year in Hudson River estuary determined from Beach Seine Survey, 2008
E-120	Regional standing crop (in thousands) of alewife young-of-year in Hudson River estuary determined from Beach Seine Survey, 2008
E-121	Regional density (no./1,000 m <sup>3</sup> ) of alewife yearling and older in Hudson River estuary determined from Long River Survey, 2008
E-122	Regional standing crop (in thousands) of alewife yearling and older in Hudson River estuary determined from Long River Survey, 2008
E-123	Regional density (no./1,000 m <sup>3</sup> ) of alewife yearling and older in Hudson River estuary determined from Fall Juvenile Survey, 2008

## APPENDIX E

### LIST OF TABLES (CONTINUED)

<b><u>Number</u></b>	<b><u>Title</u></b>
E-124	Regional standing crop (in thousands) of alewife yearling and older in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-125	Regional catch-per-unit-effort of alewife yearling and older in Hudson River estuary determined from Beach Seine Survey, 2008
E-126	Regional standing crop (in thousands) of alewife yearling and older in Hudson River estuary determined from Beach Seine Survey, 2008
E-127	Regional density (no./1,000 m <sup>3</sup> ) of blueback herring young-of-year in Hudson River estuary determined from Long River Survey, 2008
E-128	Regional standing crop (in thousands) of blueback herring young-of-year in Hudson River estuary determined from Long River Survey, 2008
E-129	Regional density (no./1,000 m <sup>3</sup> ) of blueback herring young-of-year in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-130	Regional standing crop (in thousands) of blueback herring young-of-year in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-131	Regional catch-per-unit-effort of blueback herring young-of-year in Hudson River estuary determined from Beach Seine Survey, 2008
E-132	Regional standing crop (in thousands) of blueback herring young-of-year in Hudson River estuary determined from Beach Seine Survey, 2008
E-133	Regional density (no./1,000 m <sup>3</sup> ) of blueback herring yearling and older in Hudson River estuary determined from Long River Survey, 2008
E-134	Regional standing crop (in thousands) of blueback herring yearling and older in Hudson River estuary determined from Long River Survey, 2008
E-135	Regional density (no./1,000 m <sup>3</sup> ) of blueback herring yearling and older in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-136	Regional standing crop (in thousands) of blueback herring yearling and older in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-137	Regional catch-per-unit-effort of blueback herring yearling and older in Hudson River estuary determined from Beach Seine Survey, 2008
E-138	Regional standing crop (in thousands) of blueback herring yearling and older in Hudson River estuary determined from Beach Seine Survey, 2008

## APPENDIX E

### LIST OF TABLES (CONTINUED)

<b><u>Number</u></b>	<b><u>Title</u></b>
E-139	Regional density (no./1,000 m <sup>3</sup> ) of gizzard shad young-of-year in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-140	Regional standing crop (in thousands) of gizzard shad young-of-year in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-141	Regional catch-per-unit-effort of gizzard shad young-of-year in Hudson River estuary determined from Beach Seine Survey, 2008
E-142	Regional standing crop (in thousands) of gizzard shad young-of-year in Hudson River estuary determined from Beach Seine Survey, 2008
E-143	Regional density (no./1,000 m <sup>3</sup> ) of gizzard shad yearling and older in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-144	Regional standing crop (in thousands) of gizzard shad yearling and older in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-145	Regional catch-per-unit-effort of gizzard shad yearling and older in Hudson River estuary determined from Beach Seine Survey, 2008
E-146	Regional standing crop (in thousands) of gizzard shad yearling and older in Hudson River estuary determined from Beach Seine Survey, 2008
E-147	Regional density (no./1,000 m <sup>3</sup> ) of rainbow smelt yearling and older in Hudson River estuary determined from Long River Survey, 2008
E-148	Regional standing crop (in thousands) of rainbow smelt yearling and older in Hudson River estuary determined from Long River Survey, 2008
E-149	Regional density (no./1,000 m <sup>3</sup> ) of rainbow smelt yearling and older in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-150	Regional standing crop (in thousands) of rainbow smelt yearling and older in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-151	Regional catch-per-unit-effort of rainbow smelt yearling and older in Hudson River estuary determined from Beach Seine Survey, 2008
E-152	Regional standing crop (in thousands) of rainbow smelt yearling and older in Hudson River estuary determined from Beach Seine Survey, 2008
E-153	Regional density (no./1,000 m <sup>3</sup> ) of hogchoker eggs in Hudson River estuary determined from Long River Survey, 2008
E-154	Regional standing crop (in thousands) of hogchoker eggs in Hudson River estuary determined from Long River Survey, 2008



## APPENDIX E

### LIST OF TABLES (CONTINUED)

<b><u>Number</u></b>	<b><u>Title</u></b>
E-155	Regional density (no./1,000 m <sup>3</sup> ) of hogchoker yolk-sac larvae in Hudson River estuary determined from Long River Survey, 2008
E-156	Regional standing crop (in thousands) of hogchoker yolk-sac larvae in Hudson River estuary determined from Long River Survey, 2008
E-157	Regional density (no./1,000 m <sup>3</sup> ) of hogchoker post yolk-sac larvae in Hudson River estuary determined from Long River Survey, 2008
E-158	Regional standing crop (in thousands) of hogchoker post yolk-sac larvae in Hudson River estuary determined from Long River Survey, 2008
E-159	Regional density (no./1,000 m <sup>3</sup> ) of hogchoker young-of-year in Hudson River estuary determined from Long River Survey, 2008
E-160	Regional standing crop (in thousands) of hogchoker young-of-year in Hudson River estuary determined from Long River Survey, 2008
E-161	Regional density (no./1,000 m <sup>3</sup> ) of hogchoker young-of-year in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-162	Regional standing crop (in thousands) of hogchoker young-of-year in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-163	Regional catch-per-unit-effort of hogchoker young-of-year in Hudson River estuary determined from Beach Seine Survey, 2008
E-164	Regional standing crop (in thousands) of hogchoker young-of-year in Hudson River estuary determined from Beach Seine Survey, 2008
E-165	Regional density (no./1,000 m <sup>3</sup> ) of hogchoker yearling and older in Hudson River estuary determined from Long River Survey, 2008
E-166	Regional standing crop (in thousands) of hogchoker yearling and older in Hudson River estuary determined from Long River Survey, 2008
E-167	Regional density (no./1,000 m <sup>3</sup> ) of hogchoker yearling and older in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-168	Regional standing crop (in thousands) of hogchoker yearling and older in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-169	Regional catch-per-unit-effort of hogchoker yearling and older in Hudson River estuary determined from Beach Seine Survey, 2008



## APPENDIX E

### LIST OF TABLES (CONTINUED)

<b><u>Number</u></b>	<b><u>Title</u></b>
E-170	Regional standing crop (in thousands) of hogchoker yearling and older in Hudson River estuary determined from Beach Seine Survey, 2008
E-171	Regional density (no./1,000 m <sup>3</sup> ) of spottail shiner young-of-year in Hudson River estuary determined from Long River Survey, 2008
E-172	Regional standing crop (in thousands) of spottail shiner young-of-year in Hudson River estuary determined from Long River Survey, 2008
E-173	Regional density (no./1,000 m <sup>3</sup> ) of spottail shiner young-of-year in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-174	Regional standing crop (in thousands) of spottail shiner young-of-year in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-175	Regional catch-per-unit-effort of spottail shiner young-of-year in Hudson River estuary determined from Beach Seine Survey, 2008
E-176	Regional standing crop (in thousands) of spottail shiner young-of-year in Hudson River estuary determined from Beach Seine Survey, 2008
E-177	Regional density (no./1,000 m <sup>3</sup> ) of spottail shiner yearling and older in Hudson River estuary determined from Long River Survey, 2008
E-178	Regional standing crop (in thousands) of spottail shiner yearling and older in Hudson River estuary determined from Long River Survey, 2008
E-179	Regional density (no./1,000 m <sup>3</sup> ) of spottail shiner yearling and older in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-180	Regional standing crop (in thousands) of spottail shiner yearling and older in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-181	Regional catch-per-unit-effort of spottail shiner yearling and older in Hudson River estuary determined from Beach Seine Survey, 2008
E-182	Regional standing crop (in thousands) of spottail shiner yearling and older in Hudson River estuary determined from Beach Seine Survey, 2008
E-183	Regional density (no./1,000 m <sup>3</sup> ) of Atlantic sturgeon yolk-sac larvae in Hudson River estuary determined from Long River Survey, 2008
E-184	Regional standing crop (in thousands) of Atlantic sturgeon yolk-sac larvae in Hudson River estuary determined from Long River Survey, 2008
E-185	Regional density (no./1,000 m <sup>3</sup> ) of Atlantic sturgeon post yolk-sac larvae in Hudson River estuary determined from Long River Survey, 2008

## APPENDIX E

### LIST OF TABLES (CONTINUED)

<b><u>Number</u></b>	<b><u>Title</u></b>
E-186	Regional standing crop (in thousands) of Atlantic sturgeon post yolk-sac larvae in Hudson River estuary determined from Long River Survey, 2008
E-187	Regional density (no./1,000 m <sup>3</sup> ) of Atlantic sturgeon yearling and older in Hudson River estuary determined from Long River Survey, 2008
E-188	Regional standing crop (in thousands) of Atlantic sturgeon yearling and older in Hudson River estuary determined from Long River Survey, 2008
E-189	Regional density (no./1,000 m <sup>3</sup> ) of Atlantic sturgeon yearling and older in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-190	Regional standing crop (in thousands) of Atlantic sturgeon yearling and older in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-191	Regional catch-per-unit-effort of Atlantic sturgeon yearling and older in Hudson River estuary determined from Beach Seine Survey, 2008
E-192	Regional standing crop (in thousands) of Atlantic sturgeon yearling and older in Hudson River estuary determined from Beach Seine Survey, 2008
E-193	Regional density (no./1,000 m <sup>3</sup> ) of shortnose sturgeon yearling and older in Hudson River estuary determined from Long River Survey, 2008
E-194	Regional standing crop (in thousands) of shortnose sturgeon yearling and older in Hudson River estuary determined from Long River Survey, 2008
E-195	Regional density (no./1,000 m <sup>3</sup> ) of shortnose sturgeon yearling and older in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-196	Regional standing crop (in thousands) of shortnose sturgeon yearling and older in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-197	Regional catch-per-unit-effort of shortnose sturgeon yearling and older in Hudson River estuary determined from Beach Seine Survey, 2008
E-198	Regional standing crop (in thousands) of shortnose sturgeon yearling and older in Hudson River estuary determined from Beach Seine Survey, 2008
E-199	Regional density (no./1,000 m <sup>3</sup> ) of white catfish young-of-year in Hudson River estuary determined from Long River Survey, 2008
E-200	Regional standing crop (in thousands) of white catfish young-of-year in Hudson River estuary determined from Long River Survey, 2008

## APPENDIX E

### LIST OF TABLES (CONTINUED)

<b><u>Number</u></b>	<b><u>Title</u></b>
E-201	Regional density (no./1,000 m <sup>3</sup> ) of white catfish young-of-year in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-202	Regional standing crop (in thousands) of white catfish young-of-year in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-203	Regional catch-per-unit-effort of white catfish young-of-year in Hudson River estuary determined from Beach Seine Survey, 2008
E-204	Regional standing crop (in thousands) of white catfish young-of-year in Hudson River estuary determined from Beach Seine Survey, 2008
E-205	Regional density (no./1,000 m <sup>3</sup> ) of white catfish yearling and older in Hudson River estuary determined from Long River Survey, 2008
E-206	Regional standing crop (in thousands) of white catfish yearling and older in Hudson River estuary determined from Long River Survey, 2008
E-207	Regional density (no./1,000 m <sup>3</sup> ) of white catfish yearling and older in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-208	Regional standing crop (in thousands) of white catfish yearling and older in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-209	Regional catch-per-unit-effort of white catfish yearling and older in Hudson River estuary determined from Beach Seine Survey, 2008
E-210	Regional standing crop (in thousands) of white catfish yearling and older in Hudson River estuary determined from Beach Seine Survey, 2008
E-211	Regional density (no./1,000 m <sup>3</sup> ) of weakfish young-of-year in Hudson River estuary determined from Long River Survey, 2008
E-212	Regional standing crop (in thousands) of weakfish young-of-year in Hudson River estuary determined from Long River Survey, 2008
E-213	Regional density (no./1,000 m <sup>3</sup> ) of weakfish young-of-year in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-214	Regional standing crop (in thousands) of weakfish young-of-year in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-215	Regional catch-per-unit-effort of weakfish young-of-year in Hudson River estuary determined from Beach Seine Survey, 2008
E-216	Regional standing crop (in thousands) of weakfish young-of-year in Hudson River estuary determined from Beach Seine Survey, 2008

## APPENDIX E

### LIST OF TABLES (CONTINUED)

<b><u>Number</u></b>	<b><u>Title</u></b>
E-217	Regional density (no./1,000 m <sup>3</sup> ) of weakfish yearling and older in Hudson River estuary determined from Long River Survey, 2008
E-218	Regional standing crop (in thousands) of weakfish yearling and older in Hudson River estuary determined from Long River Survey, 2008
E-219	Regional density (no./1,000 m <sup>3</sup> ) of weakfish yearling and older in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-220	Regional standing crop (in thousands) of weakfish yearling and older in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-221	Regional catch-per-unit-effort of weakfish yearling and older in Hudson River estuary determined from Beach Seine Survey, 2008
E-222	Regional standing crop (in thousands) of weakfish yearling and older in Hudson River estuary determined from Beach Seine Survey, 2008
E-223	Regional density (no./1,000 m <sup>3</sup> ) of bluefish young-of-year in Hudson River estuary determined from Long River Survey, 2008
E-224	Regional standing crop (in thousands) of bluefish young-of-year in Hudson River estuary determined from Long River Survey, 2008
E-225	Regional density (no./1,000 m <sup>3</sup> ) of bluefish young-of-year in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-226	Regional standing crop (in thousands) of bluefish young-of-year in Hudson River estuary determined from Fall Juvenile Survey, 2008
E-227	Regional catch-per-unit-effort of bluefish young-of-year in Hudson River estuary determined from Beach Seine Survey, 2008
E-228	Regional standing crop (in thousands) of bluefish young-of-year in Hudson River estuary determined from Beach Seine Survey, 2008

TABLE E-1 REGIONAL DENSITY (NO./1,000m3) OF STRIPED BASS EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-06MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-20MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-03APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-10APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.00	0.52	0.06
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.00	0.32	0.43
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-17APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.55	4.27	0.53
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.09	1.71	2.70
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-24APR	DENSITY	0.00	0.00	0.00	0.18	0.00	0.00	0.00	0.00	0.00	0.00	1.84	164.90	1.32	12.94
	SE	0.00	0.00	0.00	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.81	164.52	0.97	164.52
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-01MAY	DENSITY	0.00	0.43	0.00	0.00	0.00	0.00	5.14	1.30	5.52	0.00	0.00	7.95	23.72	3.39
	SE	0.00	0.43	0.00	0.00	0.00	0.00	3.27	0.71	2.92	0.00	0.00	7.95	20.46	22.40
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-07MAY	DENSITY	0.00	0.00	0.00	0.00	5.92	582.02	4.10	51.18	41.71	11.00	0.41	0.31	0.52	53.63
	SE	0.00	0.00	0.00	0.00	5.19	479.07	1.85	23.62	16.84	7.34	0.41	0.31	0.52	480.03
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-15MAY	DENSITY	0.00	0.00	0.00	0.82	40.08	325.52	497.83	104.69	75.99	0.77	1.82	0.00	0.00	80.58
	SE	0.00	0.00	0.00	0.82	36.48	285.95	148.58	68.40	64.15	0.77	0.91	0.00	0.00	337.60
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-22MAY	DENSITY	0.00	1.60	0.26	0.00	12.44	203.63	1272.36	72.52	476.66	8.63	9.69	1.25	0.00	158.39
	SE	0.00	1.60	0.26	0.00	10.60	54.51	1209.85	43.87	233.37	3.18	5.55	0.89	0.00	1234.20
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-30MAY	DENSITY	0.00	0.00	0.00	51.16	2.99	372.37	304.94	93.39	539.99	6.78	89.96	190.12	0.00	127.05
	SE	0.00	0.00	0.00	50.91	2.90	244.84	132.41	47.49	278.38	2.72	75.76	103.87	0.00	419.96
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-05JUN	DENSITY	0.00	2.22	0.00	0.34	11.83	148.87	107.04	513.16	109.64	23.26	3.27	33.71	51.20	77.27
	SE	0.00	2.22	0.00	0.34	3.40	114.18	67.92	245.38	106.92	10.67	1.79	7.15	25.35	300.20
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-1 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF STRIPED BASS EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

ALL REGIONS COMBINED															
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
10JUN-	DENSITY	0.00	0.00	0.00	0.26	3.95	36.19	30.73	1.02	0.85	2.03	0.00	51.74	0.00	9.75
13JUN	SE	0.00	0.00	0.00	0.26	2.33	23.76	15.74	0.61	0.35	1.22	0.00	28.85	0.00	40.65
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	DENSITY	0.00	0.00	0.00	0.00	1.63	0.00	0.00	3.59	0.00	0.00	0.00	0.00	0.61	0.45
19JUN	SE	0.00	0.00	0.00	0.00	1.37	0.00	0.00	2.37	0.00	0.00	0.00	0.00	0.61	2.81
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.15	2.86	0.14	0.29	0.00	0.00	9.41	0.99
27JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.15	2.59	0.14	0.29	0.00	0.00	6.50	7.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.03
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.38
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
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
17JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	5						80
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
30JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
27AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
11SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-2 REGIONAL STANDING CROP (IN THOUSANDS) OF STRIPED BASS EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
04MAR-	ST.CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS
06MAR	SE	0	0	0	0	0	0	0						
	NO. TOWS	10	10	11	11	10	10	12						
18MAR-	ST.CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS
20MAR	SE	0	0	0	0	0	0	0						
	NO. TOWS	10	10	11	11	10	10	12						
01APR-	ST.CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS
03APR	SE	0	0	0	0	0	0	0						
	NO. TOWS	10	10	11	11	10	10	12						
07APR-	ST.CROP	0	0	0	0	0	0	0	0	0	0	51	0	37
10APR	SE	0	0	0	0	0	0	0	0	0	0	51	0	23
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
14APR-	ST.CROP	0	0	0	0	0	0	0	0	0	0	0	410	304
17APR	SE	0	0	0	0	0	0	0	0	0	0	0	337	122
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
21APR-	ST.CROP	0	0	0	27	0	0	0	0	0	0	325	26505	94
24APR	SE	0	0	0	27	0	0	0	0	0	0	143	26443	69
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
28APR-	ST.CROP	0	99	0	0	0	0	718	388	914	0	0	1278	1687
01MAY	SE	0	99	0	0	0	0	457	212	483	0	0	1278	1456
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
05MAY-	ST.CROP	0	0	0	0	1233	120743	573	15257	6902	1556	73	50	37
07MAY	SE	0	0	0	0	1080	99386	259	7043	2787	1038	73	50	37
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
12MAY-	ST.CROP	0	0	0	122	8350	67530	69593	31212	12576	109	322	0	0
15MAY	SE	0	0	0	122	7600	59323	20770	20392	10616	109	161	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10
19MAY-	ST.CROP	0	368	82	0	2591	42244	177865	21620	78880	1221	1708	201	0
22MAY	SE	0	368	82	0	2207	11309	169126	13078	38619	450	979	143	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
27MAY-	ST.CROP	0	0	0	7558	624	77251	42628	27844	89360	960	15859	30558	0
30MAY	SE	0	0	0	7522	603	50793	18509	14158	46068	385	13355	16696	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
02JUN-	ST.CROP	0	509	0	51	2465	30884	14963	152991	18143	3290	577	5419	3643
05JUN	SE	0	509	0	51	708	23687	9494	73156	17693	1510	315	1150	1803
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6

TABLE E-2 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF STRIPED BASS EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
														AL	
10JUN-	ST.CROP	0	0	0	39	824	7507	4295	304	140	287	0	8316	0	21712
13JUN	SE	0	0	0	39	486	4929	2200	182	57	173	0	4637	0	7138
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	ST.CROP	0	0	0	0	339	0	0	1071	0	0	0	0	43	1453
19JUN	SE	0	0	0	0	286	0	0	707	0	0	0	0	43	764
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	ST.CROP	0	0	0	0	0	0	21	854	24	41	0	0	669	1609
27JUN	SE	0	0	0	0	0	0	21	773	24	41	0	0	462	902
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	ST.CROP	0	0	0	0	0	0	53	0	0	0	0	0	0	53
03JUL	SE	0	0	0	0	0	0	53	0	0	0	0	0	0	53
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	ST.CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
17JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	ST.CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
30JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	ST.CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	ST.CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
27AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	ST.CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
11SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	ST.CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
25SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	ST.CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
09OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81



TABLE E-3 REGIONAL DENSITY (NO./1,000m3) OF STRIPED BASS YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
04MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
06MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
18MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
20MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
01APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
03APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
07APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
14APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
21APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
28APR-	DENSITY	0.00	0.00	0.00	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01MAY	SE	0.00	0.00	0.00	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
05MAY-	DENSITY	0.00	0.00	0.00	0.89	9.93	10.60	2.17	0.00	0.00	0.00	0.00	0.00	0.00
07MAY	SE	0.00	0.00	0.00	0.68	5.26	6.39	0.79	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
12MAY-	DENSITY	0.00	0.28	0.00	3.05	36.47	2.35	15.00	9.34	0.41	0.00	0.00	0.00	0.00
15MAY	SE	0.00	0.28	0.00	1.20	17.97	1.12	5.53	4.05	0.26	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10
19MAY-	DENSITY	0.00	0.00	0.00	0.69	10.46	12.34	2.86	98.23	248.48	34.48	7.37	0.00	0.00
22MAY	SE	0.00	0.00	0.00	0.44	5.47	9.10	1.84	63.22	65.44	13.84	5.15	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
27MAY-	DENSITY	0.00	0.00	0.00	70.59	20.00	943.89	231.98	410.17	2809.01	6.78	2.73	0.54	0.00
30MAY	SE	0.00	0.00	0.00	69.52	8.97	845.34	47.08	126.20	1562.81	3.04	1.28	0.54	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
02JUN-	DENSITY	0.00	0.00	0.00	0.26	9.54	254.18	683.32	1448.00	439.51	506.61	88.20	5.43	0.00
05JUN	SE	0.00	0.00	0.00	0.26	3.62	153.92	193.37	418.02	64.04	146.47	54.50	2.16	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6

TABLE E-3 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF STRIPED BASS YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

ALL REGIONS COMBINED															
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
10JUN-	DENSITY	0.00	0.00	0.00	0.00	8.48	382.25	2170.31	642.39	285.21	7.84	0.66	14.81	35.13	272.85
13JUN	SE	0.00	0.00	0.00	0.00	4.79	204.99	1780.75	396.58	118.44	3.92	0.38	3.02	33.73	1840.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	75.16	102.74	104.18	0.82	0.66	1.98	1.17	1.83	22.20
19JUN	SE	0.00	0.00	0.00	0.00	0.00	72.75	38.30	66.42	0.61	0.66	1.98	0.83	1.83	105.73
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.12	7.39	4.06	0.00	0.00	0.00	0.00	0.00	0.89
27JUN	SE	0.00	0.00	0.00	0.00	0.00	0.12	3.96	3.86	0.00	0.00	0.00	0.00	0.00	5.53
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.38	0.37	0.00	0.00	0.00	0.00	0.00	0.06
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.38	0.21	0.00	0.00	0.00	0.00	0.00	0.44
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
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
17JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	5						80
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
30JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
27AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
11SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-4 REGIONAL STANDING CROP (IN THOUSANDS) OF STRIPED BASS YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
06MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
20MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
03APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	ST. CROP	0	0	0	46	0	0	0	0	0	0	0	0	0	46
01MAY	SE	0	0	0	46	0	0	0	0	0	0	0	0	0	46
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	ST. CROP	0	0	0	131	2069	2199	304	0	0	0	0	0	0	4703
07MAY	SE	0	0	0	100	1096	1327	110	0	0	0	0	0	0	1727
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	ST. CROP	0	64	0	451	7599	488	2097	2783	67	0	0	0	0	13549
15MAY	SE	0	64	0	177	3744	233	774	1207	44	0	0	0	0	4021
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	ST. CROP	0	0	0	102	2178	2560	399	29285	41120	4878	1299	0	0	81821
22MAY	SE	0	0	0	66	1139	1888	257	18847	10830	1958	908	0	0	21956
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	ST. CROP	0	0	0	10428	4167	195816	32428	122286	464848	959	481	87	0	831501
30MAY	SE	0	0	0	10270	1869	175370	6582	37624	258621	430	225	87	0	314972
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	ST. CROP	0	0	0	39	1989	52731	95521	431697	72732	71671	15549	872	0	742802
05JUN	SE	0	0	0	39	755	31931	27032	124626	10598	20721	9607	348	0	133853
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-4 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF STRIPED BASS YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

ALL REGIONS COMBINED															
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
10JUN-	ST. CROP	0	0	0	0	1768	79300	303390	191517	47198	1108	117	2381	2500	629279
13JUN	SE	0	0	0	0	999	42527	248933	118234	19601	555	67	486	2400	279548
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	ST. CROP	0	0	0	0	0	15592	14362	31060	136	94	349	188	130	61911
19JUN	SE	0	0	0	0	0	15093	5353	19801	101	94	349	133	130	25470
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	ST. CROP	0	0	0	0	0	24	1032	1211	0	0	0	0	0	2267
27JUN	SE	0	0	0	0	0	24	553	1150	0	0	0	0	0	1276
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	ST. CROP	0	0	0	0	0	0	53	110	0	0	0	0	0	163
03JUL	SE	0	0	0	0	0	0	53	64	0	0	0	0	0	83
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
17JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
30JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
27AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
11SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
25SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
09OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-5 REGIONAL DENSITY (NO./1,000m3) OF STRIPED BASS POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

ALL REGIONS COMBINED															
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-06MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-20MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-03APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-10APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-17APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-24APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-01MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-07MAY	DENSITY	0.00	0.00	0.00	0.00	0.61	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06
	SE	0.00	0.00	0.00	0.00	0.61	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.63
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-15MAY	DENSITY	0.00	0.00	0.35	1.29	5.87	2.13	0.55	1.95	0.13	0.00	0.00	0.00	0.68	1.00
	SE	0.00	0.00	0.25	0.53	2.58	1.06	0.50	1.52	0.13	0.00	0.00	0.00	0.68	3.34
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-22MAY	DENSITY	0.00	0.00	0.29	8.65	21.35	4.18	0.79	7.33	2.07	2.03	0.00	0.00	0.00	3.59
	SE	0.00	0.00	0.29	6.36	7.67	3.26	0.25	3.25	1.01	1.18	0.00	0.00	0.00	11.10
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-30MAY	DENSITY	0.00	0.00	0.00	21.71	37.35	38.06	82.94	411.16	102.51	10.94	0.71	0.00	0.00	54.26
	SE	0.00	0.00	0.00	17.13	11.85	15.61	40.38	132.90	69.28	10.66	0.71	0.00	0.00	157.74
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-05JUN	DENSITY	0.00	0.00	0.58	15.21	856.51	6269.00	3467.22	3123.57	1067.62	204.48	65.04	11.34	0.00	1160.04
	SE	0.00	0.00	0.40	4.63	252.06	3356.05	634.77	615.51	402.46	84.27	37.31	11.34	0.00	3504.14
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-5 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF STRIPED BASS POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

															ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
10JUN-	DENSITY	0.00	0.23	12.67	208.66	1578.32	6470.62	2068.47	2665.60	1690.19	712.97	994.26	262.44	19.03	1283.34
13JUN	SE	0.00	0.13	3.05	66.71	546.31	3587.96	563.32	912.78	467.93	212.18	896.91	231.08	6.72	3930.49
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	DENSITY	0.99	0.00	0.00	0.93	125.90	2979.38	1487.84	928.57	390.32	145.39	1140.27	625.88	10.41	602.76
19JUN	SE	0.99	0.00	0.00	0.57	74.85	324.03	295.69	317.48	70.41	25.96	977.31	172.66	9.09	1135.56
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	DENSITY	0.00	0.00	9.38	21.70	212.00	279.92	435.56	65.76	262.11	44.98	103.10	204.25	1.26	126.16
27JUN	SE	0.00	0.00	6.85	7.10	189.71	96.32	127.28	22.81	136.38	7.98	47.39	116.29	1.26	310.67
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	DENSITY	0.00	0.00	0.00	0.73	30.72	151.43	147.65	94.11	25.68	69.65	34.02	4.29	8.12	43.57
03JUL	SE	0.00	0.00	0.00	0.73	13.22	41.23	26.77	37.62	9.86	30.72	12.75	2.36	7.60	72.62
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	DENSITY	0.00	0.00	0.00	0.00	0.08	0.80	10.76	1.96	NS	NS	NS	NS	NS	1.70
17JUL	SE	0.00	0.00	0.00	0.00	0.05	0.69	3.72	1.27						3.99
	NO. TOWS	6	11	13	14	13	8	10	5						80
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
30JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
27AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
11SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-6 REGIONAL STANDING CROP (IN THOUSANDS) OF STRIPED BASS POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

SURVEY, 2008														ALL REGIONS COMBINED	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
06MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
20MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
03APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	ST. CROP	0	0	0	0	128	32	0	0	0	0	0	0	0	160
07MAY	SE	0	0	0	0	128	32	0	0	0	0	0	0	0	132
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	ST. CROP	0	0	114	191	1223	441	76	582	22	0	0	0	48	2698
15MAY	SE	0	0	81	78	538	221	71	452	22	0	0	0	48	751
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	ST. CROP	0	0	93	1277	4449	867	110	2186	343	287	0	0	0	9613
22MAY	SE	0	0	93	940	1598	676	36	970	167	167	0	0	0	2214
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	ST. CROP	0	0	0	3208	7782	7895	11594	122580	16964	1548	125	0	0	171695
30MAY	SE	0	0	0	2530	2468	3239	5644	39621	11465	1508	125	0	0	41933
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	ST. CROP	0	0	187	2247	178443	1300540	484686	931241	176674	28928	11467	1823	0	3116235
05JUN	SE	0	0	129	684	52514	696232	88735	183505	66601	11921	6578	1823	0	730527
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-6 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF STRIPED BASS POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

SURVEY, 2008														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
10JUN-	ST. CROP	0	53	4077	30827	328822	1342367	289154	794703	279700	100864	175285	42183	1354
13JUN	SE	0	30	981	9855	113817	744344	78747	272129	77436	30016	158122	37142	478
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
16JUN-	ST. CROP	207	0	0	138	26230	618089	207987	276836	64591	20568	201024	100599	741
19JUN	SE	207	0	0	85	15594	67221	41335	94650	11651	3673	172296	27752	647
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
24JUN-	ST. CROP	0	0	3020	3206	44167	58071	60887	19606	43375	6364	18176	32830	90
27JUN	SE	0	0	2206	1049	39523	19982	17793	6800	22568	1129	8355	18691	90
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
29JUN-	ST. CROP	0	0	0	108	6401	31414	20640	28056	4250	9854	5997	690	577
03JUL	SE	0	0	0	108	2755	8552	3742	11216	1632	4345	2248	379	541
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
14JUL-	ST. CROP	0	0	0	0	16	167	1504	584	NS	NS	NS	NS	NS
17JUL	SE	0	0	0	0	10	143	520	379					
	NO. TOWS	6	11	13	14	13	8	10	5					
28JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS
30JUL	SE	0	0	0	0	0	0	0	0					
	NO. TOWS	6	11	13	14	13	8	10	6					
12AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS
14AUG	SE	0	0	0	0	0	0	0	0					
	NO. TOWS	6	11	13	14	13	8	10	6					
25AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS
27AUG	SE	0	0	0	0	0	0	0	0					
	NO. TOWS	6	11	13	14	13	8	10	6					
09SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS
11SEP	SE	0	0	0	0	0	0	0	0					
	NO. TOWS	6	11	13	14	13	8	10	6					
23SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS
25SEP	SE	0	0	0	0	0	0	0	0					
	NO. TOWS	6	11	13	14	13	8	10	6					
07OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS
09OCT	SE	0	0	0	0	0	0	0	0					
	NO. TOWS	6	11	13	14	13	8	10	6					



TABLE E-7 REGIONAL DENSITY (NO./1,000m3) OF STRIPED BASS YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
04MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
06MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
18MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
20MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
01APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
03APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
07APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
14APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
21APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
28APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
05MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
12MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10
19MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
27MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
02JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6

TABLE E-7 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF STRIPED BASS YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
10JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
16JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
24JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.00	0.57	0.00	5.37	0.00
27JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.00	0.33	0.00	4.39	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
29JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.10	0.69	0.00	0.16	1.38	3.00	0.52	0.00
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.10	0.69	0.00	0.16	0.69	3.00	0.52	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
14JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	3.32	0.52	NS	NS	NS	NS	NS
17JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	1.47	0.52					
	NO. TOWS	6	11	13	14	13	8	10	5					
28JUL-	DENSITY	0.00	0.41	0.53	1.97	3.32	2.48	4.06	0.00	NS	NS	NS	NS	NS
30JUL	SE	0.00	0.41	0.53	1.80	2.34	1.43	2.16	0.00					
	NO. TOWS	6	11	13	14	13	8	10	6					
12AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.12	0.64	0.26	NS	NS	NS	NS	NS
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.12	0.64	0.26					
	NO. TOWS	6	11	13	14	13	8	10	6					
25AUG-	DENSITY	0.00	0.00	0.00	0.82	0.00	0.00	0.66	0.00	NS	NS	NS	NS	NS
27AUG	SE	0.00	0.00	0.00	0.58	0.00	0.00	0.30	0.00					
	NO. TOWS	6	11	13	14	13	8	10	6					
09SEP-	DENSITY	0.00	0.00	0.00	0.88	0.00	0.00	0.27	0.23	NS	NS	NS	NS	NS
11SEP	SE	0.00	0.00	0.00	0.88	0.00	0.00	0.27	0.23					
	NO. TOWS	6	11	13	14	13	8	10	6					
23SEP-	DENSITY	0.00	0.00	0.52	0.00	0.26	0.10	0.88	0.00	NS	NS	NS	NS	NS
25SEP	SE	0.00	0.00	0.52	0.00	0.26	0.10	0.83	0.00					
	NO. TOWS	6	11	13	14	13	8	10	6					
07OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
	NO. TOWS	6	11	13	14	13	8	10	6					

TABLE E-8 REGIONAL STANDING CROP (IN THOUSANDS) OF STRIPED BASS YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
06MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
20MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
03APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-8 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF STRIPED BASS YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
														AL	
10JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	ST. CROP	0	0	0	0	0	0	46	0	0	81	0	863	0	990
27JUN	SE	0	0	0	0	0	0	46	0	0	47	0	706	0	709
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	ST. CROP	0	0	0	0	0	20	96	0	27	195	529	84	0	951
03JUL	SE	0	0	0	0	0	20	96	0	27	97	529	84	0	554
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	ST. CROP	0	0	0	0	0	0	464	156	NS	NS	NS	NS	NS	620
17JUL	SE	0	0	0	0	0	0	206	156						258
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	ST. CROP	0	94	170	290	692	514	567	0	NS	NS	NS	NS	NS	2328
30JUL	SE	0	94	170	265	487	297	302	0						724
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	ST. CROP	0	0	0	0	0	25	89	78	NS	NS	NS	NS	NS	193
14AUG	SE	0	0	0	0	0	25	89	78						121
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	ST. CROP	0	0	0	121	0	0	92	0	NS	NS	NS	NS	NS	213
27AUG	SE	0	0	0	86	0	0	42	0						95
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	ST. CROP	0	0	0	130	0	0	38	69	NS	NS	NS	NS	NS	237
11SEP	SE	0	0	0	130	0	0	38	69						152
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	ST. CROP	0	0	169	0	55	21	123	0	NS	NS	NS	NS	NS	367
25SEP	SE	0	0	169	0	55	21	117	0						213
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
09OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-9 REGIONAL DENSITY (NO./1,000m3) OF STRIPED BASS YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

ALL REGIONS COMBINED															
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
07JUL-11JUL	DENSITY	0.00	0.00	1.88	1.30	1.73	1.07	1.25	6.90	0.40	1.15	0.71	0.90	0.00	1.33
	SE	0.00	0.00	1.21	0.44	1.02	0.78	0.60	3.88	0.37	0.65	0.26	0.64	0.00	4.45
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8	210
21JUL-25JUL	DENSITY	0.99	0.00	0.33	0.07	0.06	0.38	0.84	0.84	0.10	0.88	3.26	0.84	0.60	0.71
	SE	0.99	0.00	0.31	0.07	0.02	0.24	0.30	0.43	0.06	0.42	1.86	0.32	0.35	2.29
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
04AUG-08AUG	DENSITY	0.00	0.05	0.49	0.15	0.11	0.24	1.29	0.31	0.06	1.08	0.19	0.59	0.00	0.35
	SE	0.00	0.05	0.25	0.12	0.05	0.21	0.46	0.28	0.04	0.45	0.06	0.48	0.00	0.93
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8	210
18AUG-21AUG	DENSITY	0.00	0.15	0.41	0.42	0.09	0.27	0.65	0.21	0.02	0.17	0.25	0.45	0.33	0.26
	SE	0.00	0.06	0.24	0.19	0.04	0.21	0.36	0.17	0.02	0.11	0.10	0.45	0.33	0.80
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
02SEP-05SEP	DENSITY	0.00	0.00	1.42	1.10	0.29	0.19	0.61	0.06	0.03	1.16	0.91	0.00	0.00	0.44
	SE	0.00	0.00	0.61	0.72	0.10	0.09	0.14	0.03	0.02	0.76	0.66	0.00	0.00	1.39
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
15SEP-18SEP	DENSITY	0.00	0.00	0.20	1.45	0.43	0.01	0.49	0.12	0.00	0.06	0.12	0.50	0.00	0.26
	SE	0.00	0.00	0.10	0.38	0.12	0.01	0.16	0.04	0.00	0.06	0.07	0.50	0.00	0.67
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8	210
29SEP-02OCT	DENSITY	0.00	0.05	0.18	2.35	0.13	0.12	0.73	0.31	0.04	0.08	0.21	0.00	0.00	0.32
	SE	0.00	0.05	0.09	0.97	0.08	0.06	0.30	0.27	0.02	0.08	0.14	0.00	0.00	1.07
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8	210
13OCT-16OCT	DENSITY	0.00	0.00	0.09	0.24	0.98	0.03	0.81	0.05	0.00	0.12	0.00	0.00	0.00	0.18
	SE	0.00	0.00	0.05	0.12	0.79	0.02	0.32	0.04	0.00	0.07	0.00	0.00	0.00	0.87
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
27OCT-30OCT	DENSITY	0.00	0.04	0.22	0.13	0.52	0.07	0.11	0.03	0.19	0.13	0.02	0.00	0.00	0.11
	SE	0.00	0.04	0.10	0.08	0.26	0.02	0.05	0.02	0.05	0.07	0.02	0.00	0.00	0.31
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8	150
10NOV-14NOV	DENSITY	0.16	0.46	0.71	1.03	0.15	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.20
	SE	0.07	0.15	0.38	0.41	0.06	0.02	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.59
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150
01DEC-05DEC	DENSITY	0.88	0.40	0.17	0.05	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.12
	SE	0.38	0.16	0.12	0.03	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.43
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150

TABLE E-10 REGIONAL STANDING CROP (IN THOUSANDS) OF STRIPED BASS YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

															ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
07JUL-	ST. CROP	0	0	606	192	360	221	175	2058	67	163	125	145	0	4112
11JUL	SE	0	0	391	65	212	162	85	1158	62	92	46	103	0	1265
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8	210
21JUL-	ST. CROP	206	0	107	10	12	78	118	250	16	125	575	136	43	1675
25JUL	SE	206	0	100	10	5	51	42	129	10	60	328	51	25	433
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
04AUG-	ST. CROP	0	11	158	22	23	49	180	92	10	153	33	95	0	825
08AUG	SE	0	11	80	18	11	44	65	83	7	63	11	77	0	174
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8	210
18AUG-	ST. CROP	0	33	132	62	19	56	90	63	3	25	43	73	23	622
21AUG	SE	0	15	77	28	8	44	50	52	3	15	18	73	23	144
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
02SEP-	ST. CROP	0	0	456	163	60	40	85	18	6	164	160	0	0	1151
05SEP	SE	0	0	196	106	20	18	20	10	4	108	116	0	0	276
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
15SEP-	ST. CROP	0	0	64	214	90	2	69	34	0	8	21	80	0	581
18SEP	SE	0	0	34	56	24	2	23	13	0	8	12	80	0	110
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8	210
29SEP-	ST. CROP	0	12	59	347	28	25	102	94	6	11	37	0	0	720
02OCT	SE	0	12	29	143	16	12	43	79	4	11	24	0	0	175
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8	210
13OCT-	ST. CROP	0	0	30	36	203	7	113	16	0	17	0	0	0	422
16OCT	SE	0	0	15	18	165	5	45	12	0	10	0	0	0	174
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
27OCT-	ST. CROP	0	10	69	20	108	15	15	9	32	19	4	0	0	301
30OCT	SE	0	10	31	12	55	4	7	6	8	10	4	0	0	67
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8	150
10NOV-	ST. CROP	33	105	230	152	31	8	5	0	0	0	0	0	0	564
14NOV	SE	15	34	122	61	12	4	4	0	0	0	0	0	0	142
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150
01DEC-	ST. CROP	184	92	56	7	0	2	0	4	0	0	0	0	0	344
05DEC	SE	80	36	39	5	0	2	0	4	0	0	0	0	0	96
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150

TABLE E-11 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF STRIPED BASS YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM  
BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
30JUN-	CPUE	0.00	1.27	3.86	1.00	4.33	0.00	0.25	2.25	3.25	7.67	13.68	2.58	3.35
03JUL	SE	0.00	0.83	2.91	1.00	1.45	0.00	0.16	0.88	2.55	3.86	5.22	1.08	7.93
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	CPUE	3.00	2.09	10.14	1.33	19.33	0.33	0.75	4.63	10.38	3.47	4.00	0.67	5.01
16JUL	SE	1.53	0.91	3.58	0.33	16.34	0.33	0.41	2.83	9.95	1.19	1.23	0.38	19.84
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
28JUL-	CPUE	7.00	2.29	5.43	16.20	20.60	15.83	0.00	2.80	26.60	6.78	7.50	1.29	9.36
31JUL	SE	2.30	0.49	1.39	11.84	13.13	6.61	0.00	1.88	16.54	4.26	2.15	0.68	25.77
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11AUG-	CPUE	37.00	13.42	20.64	18.60	6.20	6.67	3.40	1.20	2.40	11.89	0.90	1.71	10.34
14AUG	SE	4.56	3.64	5.16	6.31	1.50	1.71	1.89	0.37	1.44	8.34	0.35	0.89	13.48
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	CPUE	2.20	9.54	10.86	4.80	5.00	3.33	2.40	2.80	1.00	4.00	0.70	1.43	4.01
27AUG	SE	1.02	1.96	2.79	3.60	2.41	1.26	1.17	1.50	0.63	3.28	0.33	0.87	6.98
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
08SEP-	CPUE	14.40	9.88	22.86	21.80	4.20	5.83	2.40	0.80	2.00	0.33	0.00	0.00	7.04
11SEP	SE	9.11	1.99	6.01	13.52	2.13	1.38	1.50	0.49	1.14	0.24	0.00	0.00	17.78
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22SEP-	CPUE	13.20	3.88	7.00	6.20	12.40	5.33	2.60	1.00	0.40	2.00	0.00	0.00	4.50
25SEP	SE	3.48	1.40	2.36	2.31	6.56	1.41	1.29	0.63	0.40	0.67	0.00	0.00	8.53
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	CPUE	5.20	5.13	13.00	11.40	12.20	2.83	1.80	0.20	0.60	0.11	0.20	0.29	4.41
09OCT	SE	2.63	1.27	5.72	3.68	5.07	1.11	0.97	0.20	0.60	0.11	0.13	0.29	9.13
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	CPUE	2.20	1.00	7.50	2.60	5.40	1.33	0.20	0.00	0.20	0.00	0.00	0.00	1.70
24OCT	SE	0.66	0.34	4.18	2.36	2.36	0.56	0.20	0.00	0.20	0.00	0.00	0.00	5.44
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE E-12 REGIONAL STANDING CROP (IN THOUSANDS) OF STRIPED BASS YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM  
BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
30JUN-	ST. CROP	0	58	104	9	11	0	2	3	28	135	269	35	654
03JUL	SE	0	38	78	9	4	0	1	1	22	68	103	15	153
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	ST. CROP	23	95	273	12	51	4	5	6	89	61	79	9	706
16JUL	SE	12	41	96	3	43	4	3	4	86	21	24	5	146
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
28JUL-	ST. CROP	53	104	146	149	54	169	0	3	229	119	148	17	1192
31JUL	SE	17	22	37	109	35	70	0	2	142	75	42	9	219
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11AUG-	ST. CROP	279	610	555	171	16	71	24	1	21	209	18	23	1998
14AUG	SE	34	165	139	58	4	18	13	< 0.5	12	146	7	12	271
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	ST. CROP	17	434	292	44	13	36	17	3	9	70	14	19	967
27AUG	SE	8	89	75	33	6	13	8	2	5	58	7	12	136
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
08SEP-	ST. CROP	108	449	615	201	11	62	17	1	17	6	0	0	1487
11SEP	SE	69	91	162	125	6	15	11	1	10	4	0	0	235
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22SEP-	ST. CROP	99	176	188	57	33	57	18	1	3	35	0	0	669
25SEP	SE	26	64	63	21	17	15	9	1	3	12	0	0	100
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	ST. CROP	39	233	350	105	32	30	13	< 0.5	5	2	4	4	817
09OCT	SE	20	58	154	34	13	12	7	< 0.5	5	2	3	4	170
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	ST. CROP	17	45	202	24	14	14	1	0	2	0	0	0	319
24OCT	SE	5	15	112	22	6	6	1	0	2	0	0	0	116
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100



TABLE E-13 REGIONAL DENSITY (NO./1,000m<sup>3</sup>) OF STRIPED BASS YEARLING IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

[illegible]

TABLE E-13 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF STRIPED BASS YEARLING IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

															ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
10JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	DENSITY	0.00	0.00	0.00	0.62	0.04	0.00	0.00	0.00	0.00	0.28	0.00	0.00	0.00	0.07
27JUN	SE	0.00	0.00	0.00	0.62	0.04	0.00	0.00	0.00	0.00	0.28	0.00	0.00	0.00	0.68
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.54	0.05
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.54	0.56
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
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
17JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.69	0.00	NS	NS	NS	NS	NS	0.09
30JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.69	0.00						0.69
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	NS	NS	NS	NS	NS	0.03
27AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24						0.24
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
11SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.00	NS	NS	NS	NS	NS	0.03
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.00						0.28
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-14 REGIONAL STANDING CROP (IN THOUSANDS) OF STRIPED BASS YEARLING IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

															ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
06MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	ST. CROP	0	0	633	73	0	0	0	NS	NS	NS	NS	NS	NS	706
20MAR	SE	0	0	499	73	0	0	0							505
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	ST. CROP	0	199	136	128	0	0	0	NS	NS	NS	NS	NS	NS	463
03APR	SE	0	118	136	128	0	0	0							221
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	ST. CROP	0	301	105	0	0	0	0	0	0	0	0	0	0	406
10APR	SE	0	108	105	0	0	0	0	0	0	0	0	0	0	151
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	ST. CROP	0	22	0	0	0	0	0	0	0	0	0	0	0	22
01MAY	SE	0	22	0	0	0	0	0	0	0	0	0	0	0	22
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	69	0	0	69
07MAY	SE	0	0	0	0	0	0	0	0	0	0	69	0	0	69
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	ST. CROP	0	0	0	0	10	0	0	0	0	0	0	0	0	10
05JUN	SE	0	0	0	0	10	0	0	0	0	0	0	0	0	10
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-14 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF STRIPED BASS YEARLING IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
														AL	
10JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	ST. CROP	0	0	0	91	9	0	0	0	0	40	0	0	0	140
27JUN	SE	0	0	0	91	9	0	0	0	0	40	0	0	0	100
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	ST. CROP	0	0	0	0	0	0	0	0	24	0	0	0	38	62
03JUL	SE	0	0	0	0	0	0	0	0	24	0	0	0	38	45
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
17JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	ST. CROP	0	0	0	0	0	0	96	0	NS	NS	NS	NS	NS	96
30JUL	SE	0	0	0	0	0	0	96	0						96
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	ST. CROP	0	0	0	0	0	0	0	71	NS	NS	NS	NS	NS	71
27AUG	SE	0	0	0	0	0	0	0	71						71
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
11SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	ST. CROP	0	0	0	0	0	0	39	0	NS	NS	NS	NS	NS	39
25SEP	SE	0	0	0	0	0	0	39	0						39
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
09OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-15 REGIONAL DENSITY (NO./1,000m3) OF STRIPED BASS YEARLING IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
07JUL-	DENSITY	0.00	0.00	0.03	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00
11JUL	SE	0.00	0.00	0.03	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8
21JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.00
25JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
04AUG-	DENSITY	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.87	0.00	0.00
08AUG	SE	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.87	0.00	0.00
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8
18AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.01	0.07	0.01	0.00	0.00	0.00	0.00	0.00
21AUG	SE	0.00	0.00	0.00	0.00	0.00	0.01	0.07	0.01	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
02SEP-	DENSITY	0.00	0.00	0.02	0.03	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
05SEP	SE	0.00	0.00	0.02	0.03	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
15SEP-	DENSITY	0.00	0.00	0.00	0.00	0.02	0.00	0.03	0.50	0.00	0.00	0.00	0.00	0.00
18SEP	SE	0.00	0.00	0.00	0.00	0.02	0.00	0.02	0.33	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8
29SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.10
02OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.10
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8
13OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
27OCT-	DENSITY	0.00	0.00	0.06	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30OCT	SE	0.00	0.00	0.04	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8
10NOV-	DENSITY	0.00	0.04	0.05	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14NOV	SE	0.00	0.03	0.04	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8
01DEC-	DENSITY	0.07	0.09	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05DEC	SE	0.05	0.04	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8

TABLE E-16 REGIONAL STANDING CROP (IN THOUSANDS) OF STRIPED BASS YEARLING IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
														AL	
07JUL-	ST. CROP	0	0	9	4	3	0	0	0	0	0	0	35	0	52
11JUL	SE	0	0	9	4	3	0	0	0	0	0	0	18	0	21
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8	210
21JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	45	0	0	0	45
25JUL	SE	0	0	0	0	0	0	0	0	0	45	0	0	0	45
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
04AUG-	ST. CROP	0	0	5	0	0	0	0	4	0	0	154	0	0	163
08AUG	SE	0	0	5	0	0	0	0	4	0	0	154	0	0	154
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8	210
18AUG-	ST. CROP	0	0	0	0	0	2	9	4	0	0	0	0	0	15
21AUG	SE	0	0	0	0	0	2	9	4	0	0	0	0	0	10
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
02SEP-	ST. CROP	0	0	8	5	0	0	1	0	0	0	0	0	0	13
05SEP	SE	0	0	8	5	0	0	1	0	0	0	0	0	0	9
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
15SEP-	ST. CROP	0	0	0	0	3	0	5	150	0	0	0	0	0	158
18SEP	SE	0	0	0	0	3	0	2	99	0	0	0	0	0	99
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8	210
29SEP-	ST. CROP	0	0	0	0	0	0	0	0	3	0	0	0	7	10
02OCT	SE	0	0	0	0	0	0	0	0	3	0	0	0	7	8
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8	210
13OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
27OCT-	ST. CROP	0	0	21	4	0	0	0	0	0	0	0	0	0	24
30OCT	SE	0	0	14	4	0	0	0	0	0	0	0	0	0	15
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8	150
10NOV-	ST. CROP	0	9	17	18	0	0	0	0	0	0	0	0	0	44
14NOV	SE	0	6	12	12	0	0	0	0	0	0	0	0	0	18
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150
01DEC-	ST. CROP	14	20	6	0	0	0	0	0	0	0	0	0	0	40
05DEC	SE	10	9	6	0	0	0	0	0	0	0	0	0	0	14
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150

TABLE E-17 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF STRIPED BASS YEARLING IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	CPUE	0.00	0.00	0.43	0.00	0.33	0.67	0.00	0.00	0.00	0.07	0.68	1.75	0.33
19JUN	SE	0.00	0.00	0.30	0.00	0.33	0.67	0.00	0.00	0.00	0.07	0.27	0.82	1.18
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
30JUN-	CPUE	0.00	0.09	0.29	0.00	0.00	0.00	0.13	0.00	0.00	0.53	0.21	1.00	0.19
03JUL	SE	0.00	0.09	0.18	0.00	0.00	0.00	0.13	0.00	0.00	0.35	0.16	0.67	0.81
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	CPUE	0.00	0.09	0.14	0.00	0.00	0.33	0.00	0.00	0.00	0.27	0.00	0.42	0.10
16JUL	SE	0.00	0.09	0.14	0.00	0.00	0.33	0.00	0.00	0.00	0.18	0.00	0.23	0.47
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
28JUL-	CPUE	0.00	0.17	0.00	0.00	0.00	0.00	0.00	0.40	0.20	0.00	0.30	1.43	0.21
31JUL	SE	0.00	0.17	0.00	0.00	0.00	0.00	0.00	0.24	0.20	0.00	0.15	0.43	0.58
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11AUG-	CPUE	0.20	0.08	0.00	0.20	0.00	0.00	0.40	0.00	0.00	0.00	0.00	0.43	0.11
14AUG	SE	0.20	0.06	0.00	0.20	0.00	0.00	0.40	0.00	0.00	0.00	0.00	0.30	0.58
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	CPUE	0.00	0.29	0.71	0.20	0.20	0.00	0.00	0.00	0.40	0.00	0.10	0.00	0.16
27AUG	SE	0.00	0.13	0.64	0.20	0.20	0.00	0.00	0.00	0.24	0.00	0.10	0.00	0.76
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
08SEP-	CPUE	0.20	0.08	0.14	0.40	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09
11SEP	SE	0.20	0.06	0.10	0.40	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22SEP-	CPUE	0.20	0.04	0.07	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.07
25SEP	SE	0.20	0.04	0.07	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.54
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	CPUE	0.00	0.08	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
09OCT	SE	0.00	0.06	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	CPUE	0.00	0.08	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
24OCT	SE	0.00	0.06	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE E-18 REGIONAL STANDING CROP (IN THOUSANDS) OF STRIPED BASS YEARLING IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
													AL	
17JUN-	ST. CROP	0	0	12	0	1	7	0	0	0	1	13	24	58
19JUN	SE	0	0	8	0	1	7	0	0	0	1	5	11	16
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
30JUN-	ST. CROP	0	4	8	0	0	0	1	0	0	9	4	14	40
03JUL	SE	0	4	5	0	0	0	1	0	0	6	3	9	13
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	ST. CROP	0	4	4	0	0	4	0	0	0	5	0	6	22
16JUL	SE	0	4	4	0	0	4	0	0	0	3	0	3	8
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
28JUL-	ST. CROP	0	8	0	0	0	0	0	< 0.5	2	0	6	19	35
31JUL	SE	0	8	0	0	0	0	0	< 0.5	2	0	3	6	10
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11AUG-	ST. CROP	2	4	0	2	0	0	3	0	0	0	0	6	16
14AUG	SE	2	3	0	2	0	0	3	0	0	0	0	4	6
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	ST. CROP	0	13	19	2	1	0	0	0	3	0	2	0	40
27AUG	SE	0	6	17	2	1	0	0	0	2	0	2	0	19
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
08SEP-	ST. CROP	2	4	4	4	1	0	0	0	0	0	0	0	13
11SEP	SE	2	3	3	4	1	0	0	0	0	0	0	0	5
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22SEP-	ST. CROP	2	2	2	0	0	5	0	0	0	0	0	0	11
25SEP	SE	2	2	2	0	0	5	0	0	0	0	0	0	6
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	ST. CROP	0	4	4	0	0	0	0	0	0	0	0	0	8
09OCT	SE	0	3	3	0	0	0	0	0	0	0	0	0	4
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	ST. CROP	0	4	4	0	0	0	0	0	0	0	0	0	8
24OCT	SE	0	3	4	0	0	0	0	0	0	0	0	0	5
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100



TABLE E-19 REGIONAL DENSITY (NO./1,000m3) OF STRIPED BASS OLDER-THAN-YEARLING IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-06MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-20MAR	DENSITY	0.00	0.31	0.25	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.08
	SE	0.00	0.31	0.25	0.00	0.00	0.00	0.00							0.40
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-03APR	DENSITY	0.00	0.45	0.00	0.00	0.00	0.35	0.00	NS	NS	NS	NS	NS	NS	0.12
	SE	0.00	0.45	0.00	0.00	0.00	0.35	0.00							0.58
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-10APR	DENSITY	0.00	0.00	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
	SE	0.00	0.00	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-17APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-24APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-01MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.02
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.24
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-07MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-15MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-22MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-30MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.12	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.03
	SE	0.00	0.00	0.00	0.00	0.00	0.12	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.25
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-05JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-19 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF STRIPED BASS OLDER-THAN-YEARLING IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

															ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
10JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
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
17JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	5						80
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
30JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
27AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
11SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-20 REGIONAL STANDING CROP (IN THOUSANDS) OF STRIPED BASS OLDER-THAN-YEARLING IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

SURVEY, 2008														ALL REGIONS COMBINED	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
06MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	ST. CROP	0	71	79	0	0	0	0	NS	NS	NS	NS	NS	NS	150
20MAR	SE	0	71	79	0	0	0	0							106
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	ST. CROP	0	104	0	0	0	73	0	NS	NS	NS	NS	NS	NS	178
03APR	SE	0	104	0	0	0	73	0							127
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	ST. CROP	0	0	52	0	0	0	0	0	0	0	0	0	0	52
10APR	SE	0	0	52	0	0	0	0	0	0	0	0	0	0	52
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	ST. CROP	0	0	0	0	0	0	34	0	0	0	0	0	0	34
01MAY	SE	0	0	0	0	0	0	34	0	0	0	0	0	0	34
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	ST. CROP	0	0	0	0	0	24	31	0	0	0	0	0	0	56
30MAY	SE	0	0	0	0	0	24	31	0	0	0	0	0	0	40
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-20 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF STRIPED BASS OLDER-THAN-YEARLING IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
10JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
13JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
16JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
24JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
27JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
29JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
03JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
14JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS
17JUL	SE	0	0	0	0	0	0	0	0					
	NO. TOWS	6	11	13	14	13	8	10	5					
28JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS
30JUL	SE	0	0	0	0	0	0	0	0					
	NO. TOWS	6	11	13	14	13	8	10	6					
12AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS
14AUG	SE	0	0	0	0	0	0	0	0					
	NO. TOWS	6	11	13	14	13	8	10	6					
25AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS
27AUG	SE	0	0	0	0	0	0	0	0					
	NO. TOWS	6	11	13	14	13	8	10	6					
09SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS
11SEP	SE	0	0	0	0	0	0	0	0					
	NO. TOWS	6	11	13	14	13	8	10	6					
23SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS
25SEP	SE	0	0	0	0	0	0	0	0					
	NO. TOWS	6	11	13	14	13	8	10	6					
07OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS
09OCT	SE	0	0	0	0	0	0	0	0					
	NO. TOWS	6	11	13	14	13	8	10	6					

TABLE E-21 REGIONAL DENSITY (NO./1,000m3) OF STRIPED BASS OLDER-THAN-YEARLING IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
07JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8	210
21JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
04AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8	210
18AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
02SEP-	DENSITY	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.01
05SEP	SE	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.12
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
15SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8	210
29SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8	210
13OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
27OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8	150
10NOV-	DENSITY	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	< 0.005
14NOV	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	0.00	0.03
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150
01DEC-	DENSITY	0.04	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
05DEC	SE	0.03	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150

TABLE E-22 REGIONAL STANDING CROP (IN THOUSANDS) OF STRIPED BASS OLDER-THAN-YEARLING IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
07JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
11JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8
21JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
25JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
04AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
08AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8
18AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
21AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
02SEP-	ST. CROP	0	0	8	0	0	0	0	0	0	0	0	19	0
05SEP	SE	0	0	8	0	0	0	0	0	0	0	0	19	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
15SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
18SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8
29SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
02OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8
13OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
16OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
27OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
30OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8
10NOV-	ST. CROP	0	4	6	0	0	0	0	0	0	0	0	0	0
14NOV	SE	0	4	6	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8
01DEC-	ST. CROP	9	18	0	0	0	0	0	0	0	0	0	0	0
05DEC	SE	6	14	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8

TABLE E-23 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF STRIPED BASS OLDER-THAN-YEARLING IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	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
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.08
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
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
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
16JUL	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
28JUL-	CPUE	0.00	0.04	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.29	0.05
31JUL	SE	0.00	0.04	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.29	0.36
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11AUG-	CPUE	0.60	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06
14AUG	SE	0.60	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.61
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	CPUE	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
27AUG	SE	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
08SEP-	CPUE	0.00	0.33	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
11SEP	SE	0.00	0.21	0.00	0.00	0.20	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
22SEP-	CPUE	0.00	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
25SEP	SE	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	CPUE	0.40	0.17	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10
09OCT	SE	0.24	0.13	0.00	0.00	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	CPUE	0.40	0.04	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
24OCT	SE	0.40	0.04	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE E-24 REGIONAL STANDING CROP (IN THOUSANDS) OF STRIPED BASS OLDER-THAN-YEARLING IN HUDSON RIVER ESTUARY DETERMINED FROM  
BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	1	1
19JUN	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
30JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
03JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	1	1
16JUL	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
28JUL-	ST. CROP	0	2	2	0	0	0	0	0	0	0	4	4	12
31JUL	SE	0	2	2	0	0	0	0	0	0	0	4	4	6
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11AUG-	ST. CROP	5	8	0	0	0	0	0	0	0	0	0	0	12
14AUG	SE	5	6	0	0	0	0	0	0	0	0	0	0	7
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	ST. CROP	0	9	0	0	0	0	0	0	0	0	0	0	9
27AUG	SE	0	4	0	0	0	0	0	0	0	0	0	0	4
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
08SEP-	ST. CROP	0	15	0	0	1	0	0	0	0	0	0	0	16
11SEP	SE	0	10	0	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
22SEP-	ST. CROP	0	8	0	0	0	0	0	0	0	0	0	0	8
25SEP	SE	0	4	0	0	0	0	0	0	0	0	0	0	4
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	ST. CROP	3	8	0	0	2	0	0	0	0	0	0	0	12
09OCT	SE	2	6	0	0	1	0	0	0	0	0	0	0	6
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	ST. CROP	3	2	2	0	0	0	0	0	0	0	0	0	7
24OCT	SE	3	2	2	0	0	0	0	0	0	0	0	0	4
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100



TABLE E-25 REGIONAL DENSITY (NO./1,000m<sup>3</sup>) OF WHITE PERCH EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

ALL REGIONS COMBINED															
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-06MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-20MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-03APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-10APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-17APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-24APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.57	72.83	43.42	39.29	12.01
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.57	15.67	34.57	34.62	51.38
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-01MAY	DENSITY	0.00	0.00	0.00	0.00	91.14	1.47	6.92	70.13	0.00	0.00	10.93	921.30	1292.37	184.17
	SE	0.00	0.00	0.00	0.00	91.14	1.14	5.51	58.96	0.00	0.00	7.95	291.56	392.13	500.65
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-07MAY	DENSITY	0.00	0.00	0.00	0.00	1.63	1.42	0.07	1.25	0.55	0.36	70.73	388.19	245.08	54.56
	SE	0.00	0.00	0.00	0.00	1.57	1.12	0.07	0.72	0.26	0.36	35.94	73.19	114.25	140.38
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-15MAY	DENSITY	0.00	0.00	0.00	0.18	0.17	0.00	2.29	4.18	0.82	48.82	39.00	2272.41	244.43	200.95
	SE	0.00	0.00	0.00	0.18	0.17	0.00	1.66	0.93	0.60	23.65	21.23	346.75	69.38	355.05
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-22MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.03	2.01	13.42	145.54	1972.13	362.86	192.69
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.44	2.01	10.18	45.85	784.90	44.22	787.57
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-30MAY	DENSITY	0.00	0.00	0.00	0.00	0.20	1.09	2.14	3.29	1.51	66.52	1955.02	1106.84	10.06	242.05
	SE	0.00	0.00	0.00	0.00	0.20	0.99	1.31	1.75	1.51	50.26	934.39	224.49	4.49	962.30
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-05JUN	DENSITY	0.00	0.00	0.00	0.00	0.24	0.12	3.85	12.61	5.20	532.02	336.06	342.61	262.57	115.02
	SE	0.00	0.00	0.00	0.00	0.19	0.12	3.85	6.96	3.88	250.06	177.48	83.58	96.57	332.29
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-25 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF WHITE PERCH EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

															ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
10JUN-	DENSITY	0.00	0.00	0.00	0.00	0.09	4.60	11.66	0.00	0.00	2.87	9.17	24.46	20.69	5.66
13JUN	SE	0.00	0.00	0.00	0.00	0.09	3.96	11.66	0.00	0.00	1.60	4.36	19.65	20.22	31.12
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.22	24.22	15.54	3.15
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.86	7.26	9.14	11.70
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.02
27JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.21
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
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
17JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	5						80
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
30JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
27AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
11SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-26 REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE PERCH EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-	ST.CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
06MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	ST.CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
20MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	ST.CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
03APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	ST.CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	ST.CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	ST.CROP	0	0	0	0	0	0	0	0	0	81	12839	6979	2796	22695
24APR	SE	0	0	0	0	0	0	0	0	0	81	2763	5557	2463	6677
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	ST.CROP	0	0	0	0	18987	304	968	20909	0	0	1927	148083	91951	283127
01MAY	SE	0	0	0	0	18987	237	770	17579	0	0	1402	46863	27899	60388
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	ST.CROP	0	0	0	0	340	294	10	373	91	51	12470	62394	17437	93460
07MAY	SE	0	0	0	0	327	232	10	214	43	51	6337	11764	8129	15647
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	ST.CROP	0	0	0	26	36	0	320	1247	136	6907	6875	365248	17391	398186
15MAY	SE	0	0	0	26	36	0	232	277	100	3346	3743	55733	4936	56177
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	ST.CROP	0	0	0	0	0	0	0	2692	333	1898	25658	316984	25817	373382
22MAY	SE	0	0	0	0	0	0	0	1921	333	1440	8082	126158	3146	126479
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	ST.CROP	0	0	0	0	42	226	299	980	249	9410	344662	177905	716	534489
30MAY	SE	0	0	0	0	42	205	183	523	249	7110	164728	36083	319	168785
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	ST.CROP	0	0	0	0	50	25	538	3760	861	75265	59246	55069	18681	213494
05JUN	SE	0	0	0	0	40	25	538	2076	643	35376	31289	13435	6871	49631
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-26 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE PERCH EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
10JUN-	ST.CROP	0	0	0	0	19	955	1630	0	0	406	1616	3932	1472	10030
13JUN	SE	0	0	0	0	19	822	1630	0	0	226	769	3158	1439	4003
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	ST.CROP	0	0	0	0	0	0	0	0	0	0	215	3894	1106	5214
19JUN	SE	0	0	0	0	0	0	0	0	0	0	152	1166	650	1344
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	ST.CROP	0	0	0	0	0	0	0	62	0	0	0	0	0	62
27JUN	SE	0	0	0	0	0	0	0	62	0	0	0	0	0	62
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	ST.CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	ST.CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
17JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	ST.CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
30JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	ST.CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	ST.CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
27AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	ST.CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
11SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	ST.CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
25SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	ST.CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
09OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-27 REGIONAL DENSITY (NO./1,000m3) OF WHITE PERCH YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
04MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
06MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
18MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
20MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
01APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
03APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
07APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
14APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
21APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
28APR-	DENSITY	0.00	0.00	0.17	0.32	0.00	1.09	0.00	0.00	2.00	9.37	36.57	17.86	2.66
01MAY	SE	0.00	0.00	0.17	0.20	0.00	1.09	0.00	0.00	1.44	3.18	18.09	10.52	1.46
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
05MAY-	DENSITY	0.00	0.00	0.16	0.74	5.73	65.62	66.64	356.13	682.23	300.43	78.16	72.83	88.55
07MAY	SE	0.00	0.00	0.16	0.47	4.80	58.13	18.95	174.71	178.63	104.17	47.15	17.89	35.58
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
12MAY-	DENSITY	0.00	0.00	0.00	3.41	5.10	5.33	37.51	23.98	119.82	62.61	272.51	113.23	409.67
15MAY	SE	0.00	0.00	0.00	1.90	4.52	2.84	14.91	9.67	53.61	19.18	85.44	29.71	119.08
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10
19MAY-	DENSITY	0.00	0.00	0.00	0.00	2.43	9.52	11.72	59.61	112.65	127.75	63.66	87.18	282.14
22MAY	SE	0.00	0.00	0.00	0.00	1.55	9.24	3.06	24.55	83.14	6.68	17.04	51.70	68.75
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
27MAY-	DENSITY	0.00	0.00	0.00	1.07	0.00	14.68	13.67	70.29	27.64	61.38	99.38	138.39	66.60
30MAY	SE	0.00	0.00	0.00	1.07	0.00	10.47	2.54	26.94	14.14	14.68	44.56	64.56	18.86
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
02JUN-	DENSITY	0.00	0.00	0.00	0.00	0.06	5.43	3.66	39.48	68.11	48.50	27.96	88.02	121.86
05JUN	SE	0.00	0.00	0.00	0.00	0.06	3.20	2.08	14.21	30.72	9.01	4.19	29.33	21.89
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6

TABLE E-27 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF WHITE PERCH YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

ALL REGIONS COMBINED															
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
10JUN-	DENSITY	0.00	0.00	0.00	0.00	0.88	3.88	3.22	0.00	0.73	21.01	45.54	57.29	18.81	11.64
13JUN	SE	0.00	0.00	0.00	0.00	0.88	3.27	2.33	0.00	0.60	15.25	36.37	25.74	6.41	47.72
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.28	1.93	1.63	3.49	0.00	28.19	25.67	4.71
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.18	1.75	1.23	1.71	0.00	18.19	12.46	22.22
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.65	3.02	0.28
27JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.65	1.87	1.98
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.66	0.36
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.33	2.33
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
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
17JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	5						80
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
30JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
27AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
11SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-28 REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE PERCH YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
06MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
20MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
03APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	ST. CROP	0	0	55	47	0	226	0	0	331	1326	6448	2871	189	11493
01MAY	SE	0	0	55	30	0	226	0	0	238	449	3188	1690	104	3653
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	ST. CROP	0	0	53	110	1194	13614	9316	106174	112899	42501	13780	11707	6301	317649
07MAY	SE	0	0	53	70	1001	12060	2649	52087	29561	14737	8312	2876	2532	63571
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	ST. CROP	0	0	0	503	1062	1106	5244	7151	19829	8858	48042	18199	29148	139142
15MAY	SE	0	0	0	281	942	590	2084	2882	8871	2713	15062	4775	8472	20530
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	ST. CROP	0	0	0	0	506	1975	1639	17773	18642	18073	11223	14013	20074	103919
22MAY	SE	0	0	0	0	324	1918	428	7318	13758	945	3004	8310	4891	18700
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	ST. CROP	0	0	0	158	0	3044	1910	20955	4574	8684	17520	22244	4739	83828
30MAY	SE	0	0	0	158	0	2172	355	8033	2340	2077	7856	10377	1342	15823
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	ST. CROP	0	0	0	0	12	1127	511	11772	11271	6862	4930	14147	8670	59301
05JUN	SE	0	0	0	0	12	663	291	4236	5083	1274	739	4714	1557	8433
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-28 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE PERCH YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

ALL REGIONS COMBINED															
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
10JUN-	ST. CROP	0	0	0	0	182	805	450	0	121	2972	8029	9209	1338	23107
13JUN	SE	0	0	0	0	182	679	326	0	99	2158	6413	4137	456	7982
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	ST. CROP	0	0	0	0	0	0	40	574	270	493	0	4531	1826	7735
19JUN	SE	0	0	0	0	0	0	25	521	204	242	0	2924	886	3116
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	104	215	319
27JUN	SE	0	0	0	0	0	0	0	0	0	0	0	104	133	169
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	332	332
03JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	166	166
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
17JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
30JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
27AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
11SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
25SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
09OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81



TABLE E-29 REGIONAL DENSITY (NO./1,000m<sup>3</sup>) OF WHITE PERCH POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

ALL REGIONS COMBINED															
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-06MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-20MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-03APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-10APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-17APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-24APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-01MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	0.00	0.00	0.00	0.03
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	0.00	0.00	0.00	0.40
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-07MAY	DENSITY	0.00	0.00	0.00	0.17	0.00	10.20	8.02	3.99	9.37	0.00	0.00	0.00	0.00	2.44
	SE	0.00	0.00	0.00	0.17	0.00	5.10	2.10	2.13	8.89	0.00	0.00	0.00	0.00	10.68
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-15MAY	DENSITY	0.00	0.38	2.71	12.62	55.28	213.10	311.91	192.20	391.55	135.29	89.33	1.27	0.00	108.13
	SE	0.00	0.38	1.18	4.36	7.96	22.53	34.81	50.23	142.97	35.99	79.34	1.27	0.00	179.88
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-22MAY	DENSITY	0.58	1.29	0.68	5.85	76.41	86.82	291.14	396.83	531.91	999.71	249.30	70.67	21.99	210.25
	SE	0.58	0.68	0.49	4.30	31.08	32.34	45.61	230.45	297.54	392.30	81.32	28.96	13.62	554.33
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-30MAY	DENSITY	0.00	0.00	0.00	8.45	3.49	48.92	103.76	619.50	526.19	313.46	94.48	314.39	16.08	157.59
	SE	0.00	0.00	0.00	5.73	1.15	32.63	18.40	423.26	214.41	73.64	30.58	91.01	11.65	491.26
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-05JUN	DENSITY	0.00	0.00	0.00	0.73	5.45	76.96	105.78	615.38	403.14	438.85	715.91	877.85	52.59	253.28
	SE	0.00	0.00	0.00	0.42	2.20	36.62	21.09	103.22	61.40	120.16	129.68	189.78	35.35	291.09
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-29 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF WHITE PERCH POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

															ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
10JUN-	DENSITY	0.00	0.00	0.00	1.30	33.51	328.27	446.41	764.90	744.78	865.80	822.64	1780.18	122.65	454.65
13JUN	SE	0.00	0.00	0.00	0.94	13.16	173.18	55.46	308.16	264.85	126.21	343.64	610.26	54.65	841.29
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	DENSITY	0.00	0.60	0.27	0.24	6.92	95.46	217.04	357.49	365.18	327.17	647.07	1697.22	146.92	297.04
19JUN	SE	0.00	0.60	0.27	0.24	6.70	25.01	31.46	156.36	68.09	87.49	132.66	267.73	65.22	363.22
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	DENSITY	0.00	0.00	0.00	0.00	0.14	45.01	182.36	122.90	452.88	121.52	684.52	730.87	11.55	180.90
27JUN	SE	0.00	0.00	0.00	0.00	0.11	16.31	54.00	23.80	209.16	50.42	348.47	341.45	10.09	536.81
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	DENSITY	0.00	0.00	0.00	0.00	1.68	19.40	36.57	81.94	51.67	57.09	104.64	124.31	8.61	37.38
03JUL	SE	0.00	0.00	0.00	0.00	1.56	14.27	13.80	18.63	11.51	9.94	59.12	33.09	1.50	74.61
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	2.84	0.52	NS	NS	NS	NS	NS	0.42
17JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	1.67	0.52						1.75
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	1.54	0.00	NS	NS	NS	NS	NS	0.19
30JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	1.54	0.00						1.54
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
27AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
11SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-30 REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE PERCH POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

SURVEY, 2008														ALL REGIONS COMBINED	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
06MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
20MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
03APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	ST. CROP	0	0	0	0	0	0	0	0	0	56	0	0	0	56
01MAY	SE	0	0	0	0	0	0	0	0	0	56	0	0	0	56
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	ST. CROP	0	0	0	25	0	2115	1122	1189	1551	0	0	0	0	6001
07MAY	SE	0	0	0	25	0	1057	294	635	1471	0	0	0	0	1943
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	ST. CROP	0	88	871	1865	11517	44209	43602	57302	64795	19140	15749	204	0	259340
15MAY	SE	0	88	379	644	1659	4674	4865	14975	23659	5091	13987	204	0	32472
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	ST. CROP	122	297	219	864	15918	18012	40699	118308	88023	141429	43950	11359	1564	480764
22MAY	SE	122	156	156	635	6476	6709	6375	68703	49238	55499	14336	4656	969	102864
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	ST. CROP	0	0	0	1248	726	10148	14505	184695	87076	44344	16656	50532	1144	411075
30MAY	SE	0	0	0	847	239	6769	2572	126189	35481	10418	5390	14628	829	132620
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	ST. CROP	0	0	0	108	1135	15966	14787	183464	66714	62084	126212	141099	3742	615311
05JUN	SE	0	0	0	63	458	7596	2949	30772	10161	16999	22861	30504	2515	53527
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-30 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE PERCH POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

SURVEY, 2008														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
10JUN-	ST. CROP	0	0	0	192	6981	68101	62405	228044	123249	122485	145028	286131	8726
13JUN	SE	0	0	0	139	2742	35927	7753	91873	43829	17855	60582	98088	3888
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
16JUN-	ST. CROP	0	138	87	35	1441	19804	30340	106579	60431	46285	114076	272797	10453
19JUN	SE	0	138	87	35	1396	5188	4398	46617	11268	12378	23387	43033	4640
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
24JUN-	ST. CROP	0	0	0	0	30	9337	25492	36642	74944	17191	120678	117473	822
27JUN	SE	0	0	0	0	23	3384	7549	7095	34613	7134	61435	54882	718
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
29JUN-	ST. CROP	0	0	0	0	349	4025	5113	24430	8551	8077	18447	19981	613
03JUL	SE	0	0	0	0	325	2960	1929	5556	1905	1406	10422	5318	107
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
14JUL-	ST. CROP	0	0	0	0	0	0	396	156	NS	NS	NS	NS	NS
17JUL	SE	0	0	0	0	0	0	233	156					
	NO. TOWS	6	11	13	14	13	8	10	5					
28JUL-	ST. CROP	0	0	0	0	0	0	215	0	NS	NS	NS	NS	NS
30JUL	SE	0	0	0	0	0	0	215	0					
	NO. TOWS	6	11	13	14	13	8	10	6					
12AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS
14AUG	SE	0	0	0	0	0	0	0	0					
	NO. TOWS	6	11	13	14	13	8	10	6					
25AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS
27AUG	SE	0	0	0	0	0	0	0	0					
	NO. TOWS	6	11	13	14	13	8	10	6					
09SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS
11SEP	SE	0	0	0	0	0	0	0	0					
	NO. TOWS	6	11	13	14	13	8	10	6					
23SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS
25SEP	SE	0	0	0	0	0	0	0	0					
	NO. TOWS	6	11	13	14	13	8	10	6					
07OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS
09OCT	SE	0	0	0	0	0	0	0	0					
	NO. TOWS	6	11	13	14	13	8	10	6					

TABLE E-31 REGIONAL DENSITY (NO./1,000m3) OF WHITE PERCH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
04MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
06MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
18MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
20MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
01APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
03APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
07APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
14APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
21APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
28APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
05MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
12MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10
19MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
27MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
02JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6

TABLE E-31 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF WHITE PERCH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
10JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
16JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
24JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
29JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.16	0.69	0.30	0.00	0.00
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.16	0.69	0.30	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
14JUL-	DENSITY	0.00	0.00	0.00	0.00	1.42	0.00	0.70	0.00	NS	NS	NS	NS	NS
17JUL	SE	0.00	0.00	0.00	0.00	1.42	0.00	0.33	0.00					
	NO. TOWS	6	11	13	14	13	8	10	5					
28JUL-	DENSITY	0.00	0.00	0.00	0.36	0.61	1.46	0.75	0.00	NS	NS	NS	NS	NS
30JUL	SE	0.00	0.00	0.00	0.36	0.61	1.26	0.34	0.00					
	NO. TOWS	6	11	13	14	13	8	10	6					
12AUG-	DENSITY	0.00	0.00	0.00	0.00	0.63	0.84	6.02	0.00	NS	NS	NS	NS	NS
14AUG	SE	0.00	0.00	0.00	0.00	0.63	0.84	3.14	0.00					
	NO. TOWS	6	11	13	14	13	8	10	6					
25AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.00	NS	NS	NS	NS	NS
27AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.00					
	NO. TOWS	6	11	13	14	13	8	10	6					
09SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	3.15	0.67	NS	NS	NS	NS	NS
11SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	3.15	0.02					
	NO. TOWS	6	11	13	14	13	8	10	6					
23SEP-	DENSITY	0.00	0.00	0.00	0.00	0.12	0.00	0.60	1.17	NS	NS	NS	NS	NS
25SEP	SE	0.00	0.00	0.00	0.00	0.12	0.00	0.56	0.84					
	NO. TOWS	6	11	13	14	13	8	10	6					
07OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.65	NS	NS	NS	NS	NS
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.46					
	NO. TOWS	6	11	13	14	13	8	10	6					

TABLE E-32 REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE PERCH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
06MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
20MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
03APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-32 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE PERCH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
														AL	
10JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	ST. CROP	0	0	0	0	0	0	0	116	27	98	53	0	0	294
03JUL	SE	0	0	0	0	0	0	0	116	27	98	53	0	0	163
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	ST. CROP	0	0	0	0	296	0	98	0	NS	NS	NS	NS	NS	394
17JUL	SE	0	0	0	0	296	0	46	0						299
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	ST. CROP	0	0	0	53	127	303	104	0	NS	NS	NS	NS	NS	588
30JUL	SE	0	0	0	53	127	262	47	0						300
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	ST. CROP	0	0	0	0	132	174	841	0	NS	NS	NS	NS	NS	1147
14AUG	SE	0	0	0	0	132	174	439	0						491
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	ST. CROP	0	0	0	0	0	0	38	0	NS	NS	NS	NS	NS	38
27AUG	SE	0	0	0	0	0	0	38	0						38
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	ST. CROP	0	0	0	0	0	0	441	200	NS	NS	NS	NS	NS	641
11SEP	SE	0	0	0	0	0	0	441	5						441
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	ST. CROP	0	0	0	0	26	0	84	348	NS	NS	NS	NS	NS	458
25SEP	SE	0	0	0	0	26	0	78	250						263
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	ST. CROP	0	0	0	0	0	0	0	1087	NS	NS	NS	NS	NS	1087
09OCT	SE	0	0	0	0	0	0	0	734						734
	NO. TOWS	6	11	13	14	13	8	10	6						81



TABLE E-33 REGIONAL DENSITY (NO./1,000m3) OF WHITE PERCH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
07JUL- 11JUL	DENSITY	0.00	0.00	0.21	0.11	0.00	0.00	0.00	0.01	0.06	0.72	0.00	0.00	0.30
	SE	0.00	0.00	0.14	0.11	0.00	0.00	0.00	0.01	0.04	0.66	0.00	0.00	0.30
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8
21JUL- 25JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.02	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.02	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
04AUG- 08AUG	DENSITY	0.00	0.00	0.08	0.07	0.13	0.50	0.76	0.70	0.10	0.40	0.51	0.00	0.00
	SE	0.00	0.00	0.04	0.05	0.04	0.32	0.14	0.36	0.06	0.31	0.27	0.00	0.00
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8
18AUG- 21AUG	DENSITY	0.00	0.00	0.00	0.00	0.02	0.29	1.42	0.38	2.39	4.03	0.06	0.11	0.00
	SE	0.00	0.00	0.00	0.00	0.02	0.18	0.32	0.10	0.83	2.29	0.06	0.11	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
02SEP- 05SEP	DENSITY	0.00	0.00	0.00	0.00	0.03	0.18	2.55	0.35	0.88	0.50	0.54	0.12	0.00
	SE	0.00	0.00	0.00	0.00	0.03	0.06	0.63	0.13	0.46	0.14	0.46	0.12	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
15SEP- 18SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	2.27	1.40	0.96	0.11	0.41	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.70	0.49	0.23	0.11	0.24	0.00	0.00
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8
29SEP- 02OCT	DENSITY	0.00	0.00	0.00	0.00	0.02	0.02	1.99	0.62	2.13	1.46	0.86	0.12	0.10
	SE	0.00	0.00	0.00	0.00	0.02	0.02	0.53	0.23	0.71	0.72	0.51	0.12	0.10
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8
13OCT- 16OCT	DENSITY	0.00	0.00	0.00	0.03	0.00	0.02	1.52	0.51	1.12	1.73	0.14	0.00	0.09
	SE	0.00	0.00	0.00	0.03	0.00	0.02	0.23	0.22	0.34	0.53	0.14	0.00	0.09
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
27OCT- 30OCT	DENSITY	0.00	0.00	0.02	0.00	0.14	0.60	2.30	1.54	2.53	2.94	0.39	0.46	0.00
	SE	0.00	0.00	0.02	0.00	0.09	0.11	0.88	0.56	0.56	0.50	0.11	0.21	0.00
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8
10NOV- 14NOV	DENSITY	0.00	0.00	0.02	0.62	0.86	0.94	6.35	1.14	0.85	1.03	0.20	0.00	0.00
	SE	0.00	0.00	0.02	0.20	0.42	0.30	1.34	0.39	0.19	0.26	0.13	0.00	0.00
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8
01DEC- 05DEC	DENSITY	0.00	0.02	0.81	1.32	1.07	3.67	2.60	3.74	1.67	0.26	0.03	0.00	0.00
	SE	0.00	0.02	0.55	0.55	0.45	1.39	1.20	1.33	0.99	0.05	0.03	0.00	0.00
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8

TABLE E-34 REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE PERCH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
07JUL-	ST. CROP	0	0	67	16	0	0	0	4	10	102	0	0	21
11JUL	SE	0	0	46	16	0	0	0	4	7	93	0	0	21
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8
21JUL-	ST. CROP	0	0	0	0	0	0	0	65	3	0	0	0	0
25JUL	SE	0	0	0	0	0	0	0	52	3	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
04AUG-	ST. CROP	0	0	24	11	27	104	107	207	17	57	89	0	0
08AUG	SE	0	0	13	7	8	67	19	107	10	44	48	0	0
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8
18AUG-	ST. CROP	0	0	0	0	3	61	198	113	396	570	11	18	0
21AUG	SE	0	0	0	0	3	38	44	29	137	323	11	18	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
02SEP-	ST. CROP	0	0	0	0	6	38	357	104	146	71	96	19	0
05SEP	SE	0	0	0	0	6	12	88	39	77	20	81	19	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
15SEP-	ST. CROP	0	0	0	0	0	0	318	416	159	15	73	0	0
18SEP	SE	0	0	0	0	0	0	98	145	38	15	43	0	0
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8
29SEP-	ST. CROP	0	0	0	0	3	4	278	185	352	207	151	19	7
02OCT	SE	0	0	0	0	3	4	74	68	117	101	90	19	7
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8
13OCT-	ST. CROP	0	0	0	5	0	3	212	154	185	244	25	0	7
16OCT	SE	0	0	0	5	0	3	32	66	56	75	25	0	7
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
27OCT-	ST. CROP	0	0	6	0	29	125	322	460	418	416	69	74	0
30OCT	SE	0	0	6	0	19	22	123	168	93	71	19	34	0
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8
10NOV-	ST. CROP	0	0	6	92	180	196	887	339	140	146	35	0	0
14NOV	SE	0	0	6	29	87	62	188	115	32	37	23	0	0
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8
01DEC-	ST. CROP	0	5	261	195	222	762	363	1114	276	36	4	0	0
05DEC	SE	0	5	177	82	95	289	168	397	164	7	4	0	0
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8

TABLE E-35 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF WHITE PERCH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.01
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.13
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
30JUN-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.13	3.00	0.38	4.73	6.68	1.33	1.35
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.13	1.52	0.26	2.35	2.95	1.07	4.22
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	CPUE	0.00	0.00	0.00	0.00	1.33	8.00	39.63	22.00	0.75	7.60	8.21	0.00	7.29
16JUL	SE	0.00	0.00	0.00	0.00	0.88	7.51	20.92	8.81	0.49	3.75	5.45	0.00	24.83
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
28JUL-	CPUE	0.00	0.00	0.36	7.00	9.20	14.00	17.60	37.20	30.40	13.11	4.10	0.57	11.13
31JUL	SE	0.00	0.00	0.23	4.63	5.96	7.67	12.09	25.55	19.02	4.25	1.95	0.57	36.04
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11AUG-	CPUE	1.20	4.04	15.79	11.20	25.20	18.17	13.40	21.20	1.40	9.11	2.70	2.29	10.47
14AUG	SE	0.73	1.60	6.30	4.65	12.41	14.09	3.19	4.67	0.87	3.31	2.38	1.17	21.62
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	CPUE	0.00	3.08	23.14	8.20	6.20	6.33	7.60	6.20	8.40	11.78	4.10	15.86	8.41
27AUG	SE	0.00	1.85	21.00	4.61	3.38	5.23	6.65	3.81	6.04	8.82	2.52	10.73	28.26
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
08SEP-	CPUE	0.00	5.54	28.07	35.60	3.40	14.50	11.40	2.40	1.20	7.78	2.20	0.00	9.34
11SEP	SE	0.00	3.88	15.53	21.60	1.36	4.00	6.78	1.17	0.73	2.89	1.69	0.00	28.28
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22SEP-	CPUE	0.00	0.75	2.14	3.00	5.00	9.67	5.00	2.40	4.80	4.67	0.20	0.00	3.14
25SEP	SE	0.00	0.42	1.48	2.76	2.02	6.82	2.10	1.50	2.85	1.91	0.20	0.00	8.89
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	CPUE	0.00	2.25	15.21	7.20	25.40	0.83	18.40	0.80	14.80	3.22	3.80	0.00	7.66
09OCT	SE	0.00	1.01	7.47	2.87	15.44	0.54	14.73	0.58	13.35	0.85	2.21	0.00	26.55
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	CPUE	0.00	0.21	6.00	1.00	11.40	2.17	0.80	0.00	0.40	0.67	0.10	0.00	1.90
24OCT	SE	0.00	0.15	3.35	0.63	7.37	1.05	0.49	0.00	0.40	0.44	0.10	0.00	8.23
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE E-36 REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE PERCH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	ST. CROP	0	0	0	0	0	0	0	0	1	0	0	0	1
19JUN	SE	0	0	0	0	0	0	0	0	1	0	0	0	1
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
30JUN-	ST. CROP	0	0	0	0	0	0	1	4	3	83	132	18	241
03JUL	SE	0	0	0	0	0	0	1	2	2	41	58	15	73
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	ST. CROP	0	0	0	0	4	85	281	27	6	133	162	0	699
16JUL	SE	0	0	0	0	2	80	148	11	4	66	107	0	211
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
28JUL-	ST. CROP	0	0	10	65	24	149	125	46	262	230	81	8	999
31JUL	SE	0	0	6	43	16	82	86	32	164	75	38	8	226
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11AUG-	ST. CROP	9	184	424	103	66	193	95	26	12	160	53	31	1358
14AUG	SE	6	73	169	43	33	150	23	6	8	58	47	16	257
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	ST. CROP	0	140	622	76	16	67	54	8	72	207	81	215	1559
27AUG	SE	0	84	565	42	9	56	47	5	52	155	50	146	619
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
08SEP-	ST. CROP	0	252	755	328	9	154	81	3	10	137	43	0	1772
11SEP	SE	0	176	418	199	4	43	48	1	6	51	33	0	503
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22SEP-	ST. CROP	0	34	58	28	13	103	35	3	41	82	4	0	401
25SEP	SE	0	19	40	25	5	73	15	2	25	34	4	0	99
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	ST. CROP	0	102	409	66	67	9	131	1	127	57	75	0	1044
09OCT	SE	0	46	201	26	41	6	105	1	115	15	43	0	267
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	ST. CROP	0	9	161	9	30	23	6	0	3	12	2	0	256
24OCT	SE	0	7	90	6	19	11	3	0	3	8	2	0	94
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE E-37 REGIONAL DENSITY (NO./1,000m<sup>3</sup>) OF WHITE PERCH YEARLING IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-06MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-20MAR	DENSITY	0.00	0.00	10.68	2.45	3.12	0.33	0.57	NS	NS	NS	NS	NS	NS	2.45
	SE	0.00	0.00	6.63	1.12	2.90	0.33	0.57							7.35
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-03APR	DENSITY	0.00	0.10	1.61	3.93	7.06	1.40	4.05	NS	NS	NS	NS	NS	NS	2.59
	SE	0.00	0.10	0.56	3.04	2.60	0.47	1.66							4.40
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-10APR	DENSITY	0.48	0.33	1.54	2.67	3.77	2.54	4.30	0.52	0.46	1.04	0.00	0.00	0.47	1.39
	SE	0.48	0.33	1.16	0.74	1.60	0.72	0.63	0.26	0.46	0.73	0.00	0.00	0.47	2.59
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-17APR	DENSITY	0.00	0.00	0.92	0.00	1.97	2.29	0.04	2.38	0.00	0.00	0.00	0.00	0.00	0.59
	SE	0.00	0.00	0.73	0.00	0.82	0.54	0.04	1.36	0.00	0.00	0.00	0.00	0.00	1.84
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-24APR	DENSITY	0.00	0.00	0.45	0.19	0.40	0.18	0.00	3.10	0.23	0.00	0.00	0.00	0.00	0.35
	SE	0.00	0.00	0.28	0.19	0.26	0.18	0.00	3.10	0.23	0.00	0.00	0.00	0.00	3.14
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-01MAY	DENSITY	0.00	0.00	0.00	0.00	0.16	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
	SE	0.00	0.00	0.00	0.00	0.16	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-07MAY	DENSITY	0.32	0.00	0.00	0.00	0.52	0.16	0.00	1.78	0.14	0.00	1.97	0.00	0.00	0.38
	SE	0.32	0.00	0.00	0.00	0.52	0.16	0.00	1.59	0.14	0.00	1.97	0.00	0.00	2.61
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-15MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-22MAY	DENSITY	0.00	0.00	0.00	0.00	0.64	0.00	0.00	0.16	0.00	0.00	0.00	0.00	0.00	0.06
	SE	0.00	0.00	0.00	0.00	0.64	0.00	0.00	0.16	0.00	0.00	0.00	0.00	0.00	0.66
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-30MAY	DENSITY	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.56	0.91	0.00	1.16	0.22
	SE	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.32	0.60	0.00	1.16	1.37
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-05JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.40	0.00	0.47	0.00	0.00	0.08
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.23	0.00	0.29	0.00	0.00	0.43
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	128

TABLE E-37 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF WHITE PERCH YEARLING IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
10JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31	0.00	0.00	0.00
13JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
16JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
24JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.84	0.00	0.00	0.00
27JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.84	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
29JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.10	0.05	0.00	0.00	0.00	0.00	0.52	1.67
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.10	0.05	0.00	0.00	0.00	0.00	0.52	0.93
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
14JUL-	DENSITY	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.26	NS	NS	NS	NS	NS
17JUL	SE	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.26					
	NO. TOWS	6	11	13	14	13	8	10	5					
28JUL-	DENSITY	0.00	0.00	0.00	0.00	0.12	0.00	0.00	0.00	NS	NS	NS	NS	NS
30JUL	SE	0.00	0.00	0.00	0.00	0.12	0.00	0.00	0.00					
	NO. TOWS	6	11	13	14	13	8	10	6					
12AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.61	0.50	NS	NS	NS	NS	NS
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.31	0.50					
	NO. TOWS	6	11	13	14	13	8	10	6					
25AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS
27AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
	NO. TOWS	6	11	13	14	13	8	10	6					
09SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.00	NS	NS	NS	NS	NS
11SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.00					
	NO. TOWS	6	11	13	14	13	8	10	6					
23SEP-	DENSITY	0.00	0.00	0.00	0.00	0.13	0.00	0.28	0.70	NS	NS	NS	NS	NS
25SEP	SE	0.00	0.00	0.00	0.00	0.13	0.00	0.28	0.41					
	NO. TOWS	6	11	13	14	13	8	10	6					
07OCT-	DENSITY	0.00	0.00	0.40	0.00	0.00	0.00	0.00	1.13	NS	NS	NS	NS	NS
09OCT	SE	0.00	0.00	0.40	0.00	0.00	0.00	0.00	0.61					
	NO. TOWS	6	11	13	14	13	8	10	6					

TABLE E-38 REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE PERCH YEARLING IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

															ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
06MAR-	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	ST. CROP	0	0	3436	362	649	68	80	NS	NS	NS	NS	NS	NS	4595
20MAR-	SE	0	0	2133	166	605	68	80							2225
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	ST. CROP	0	23	520	581	1470	290	566	NS	NS	NS	NS	NS	NS	3450
03APR-	SE	0	23	181	450	543	97	232							770
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	ST. CROP	101	75	494	394	784	528	601	155	76	146	0	0	33	3388
10APR-	SE	101	75	374	109	332	150	88	78	76	103	0	0	33	576
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	ST. CROP	0	0	296	0	411	475	5	710	0	0	0	0	0	1898
17APR-	SE	0	0	234	0	172	113	5	407	0	0	0	0	0	513
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	ST. CROP	0	0	144	29	84	37	0	923	38	0	0	0	0	1255
24APR-	SE	0	0	89	29	53	37	0	923	38	0	0	0	0	931
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	ST. CROP	0	0	0	0	33	75	0	0	0	0	0	0	0	107
01MAY-	SE	0	0	0	0	33	38	0	0	0	0	0	0	0	50
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	ST. CROP	67	0	0	0	109	33	0	532	23	0	347	0	0	1110
07MAY-	SE	67	0	0	0	109	33	0	473	23	0	347	0	0	602
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY-	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	ST. CROP	0	0	0	0	133	0	0	49	0	0	0	0	0	182
22MAY-	SE	0	0	0	0	133	0	0	49	0	0	0	0	0	142
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	ST. CROP	0	0	0	32	0	0	0	0	0	79	161	0	83	355
30MAY-	SE	0	0	0	32	0	0	0	0	0	46	106	0	83	145
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	ST. CROP	0	0	0	0	0	0	31	0	66	0	83	0	0	180
05JUN-	SE	0	0	0	0	0	0	31	0	38	0	51	0	0	71
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-38 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE PERCH YEARLING IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

ALL REGIONS COMBINED															
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
10JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	43	0	0	0	43
13JUN	SE	0	0	0	0	0	0	0	0	0	43	0	0	0	43
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	119	0	0	0	119
27JUN	SE	0	0	0	0	0	0	0	0	0	119	0	0	0	119
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	ST. CROP	0	0	0	0	0	20	7	0	0	0	0	83	119	229
03JUL	SE	0	0	0	0	0	20	7	0	0	0	0	83	66	109
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	ST. CROP	0	0	0	0	68	0	0	78	NS	NS	NS	NS	NS	145
17JUL	SE	0	0	0	0	68	0	0	78						103
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	ST. CROP	0	0	0	0	25	0	0	0	NS	NS	NS	NS	NS	25
30JUL	SE	0	0	0	0	25	0	0	0						25
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	ST. CROP	0	0	0	0	0	0	86	148	NS	NS	NS	NS	NS	234
14AUG	SE	0	0	0	0	0	0	43	148						154
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
27AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	ST. CROP	0	0	0	0	0	0	38	0	NS	NS	NS	NS	NS	38
11SEP	SE	0	0	0	0	0	0	38	0						38
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	ST. CROP	0	0	0	0	27	0	38	210	NS	NS	NS	NS	NS	276
25SEP	SE	0	0	0	0	27	0	38	122						130
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	ST. CROP	0	0	127	0	0	0	0	337	NS	NS	NS	NS	NS	464
09OCT	SE	0	0	127	0	0	0	0	181						221
	NO. TOWS	6	11	13	14	13	8	10	6						81



TABLE E-39 REGIONAL DENSITY (NO./1,000m3) OF WHITE PERCH YEARLING IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

ALL REGIONS COMBINED															
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
07JUL-11JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.12	0.22	0.00	0.03
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.07	0.11	0.00	0.14
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8	210
21JUL-25JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	< 0.005	0.01	0.02	0.12	0.00	0.12	0.11	0.03
	SE	0.00	0.00	0.00	0.00	0.00	0.00	< 0.005	0.01	0.02	0.12	0.00	0.12	0.11	0.20
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
04AUG-08AUG	DENSITY	0.00	0.00	0.00	0.00	0.03	0.00	0.04	0.07	0.11	0.13	0.13	0.00	0.20	0.05
	SE	0.00	0.00	0.00	0.00	0.02	0.00	0.04	0.04	0.05	0.13	0.13	0.00	0.20	0.28
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8	210
18AUG-21AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.04	0.47	0.11	0.06	0.00	0.09	0.07
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.02	0.37	0.11	0.06	0.00	0.09	0.40
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
02SEP-05SEP	DENSITY	0.00	0.00	0.00	0.00	0.04	0.04	0.46	0.32	0.64	0.81	0.25	0.12	1.08	0.29
	SE	0.00	0.00	0.00	0.00	0.03	0.03	0.17	0.11	0.38	0.55	0.18	0.12	0.52	0.90
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
15SEP-18SEP	DENSITY	0.00	0.00	0.00	0.08	0.02	0.01	0.67	0.60	0.60	0.05	0.18	0.00	0.00	0.17
	SE	0.00	0.00	0.00	0.08	0.02	0.01	0.22	0.25	0.12	0.05	0.06	0.00	0.00	0.37
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8	210
29SEP-02OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.14	0.61	0.23	0.00	0.00	0.11	0.08
	SE	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.04	0.23	0.23	0.00	0.00	0.11	0.34
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8	210
13OCT-16OCT	DENSITY	0.00	0.00	0.00	0.00	0.02	0.00	0.05	0.13	0.12	0.61	0.07	0.11	0.00	0.09
	SE	0.00	0.00	0.00	0.00	0.02	0.00	0.04	0.04	0.04	0.32	0.07	0.11	0.00	0.35
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
27OCT-30OCT	DENSITY	0.02	0.00	0.04	0.00	0.02	0.05	0.86	1.27	0.84	1.30	0.35	0.19	0.00	0.38
	SE	0.02	0.00	0.03	0.00	0.01	0.02	0.53	0.58	0.20	0.36	0.11	0.08	0.00	0.90
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8	150
10NOV-14NOV	DENSITY	0.00	0.11	0.40	0.59	0.28	0.20	1.16	0.10	0.40	2.12	0.50	0.10	0.00	0.46
	SE	0.00	0.05	0.14	0.18	0.11	0.12	0.34	0.05	0.17	0.68	0.29	0.10	0.00	0.88
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150
01DEC-05DEC	DENSITY	0.05	0.47	1.05	0.05	0.23	0.62	0.96	2.06	0.96	0.32	0.00	0.00	0.00	0.52
	SE	0.05	0.18	0.58	0.03	0.11	0.19	0.39	0.73	0.46	0.11	0.00	0.00	0.00	1.15
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150

TABLE E-40 REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE PERCH YEARLING IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
														AL	
07JUL-	ST. CROP	0	0	0	0	0	0	0	0	10	0	21	35	0	66
11JUL	SE	0	0	0	0	0	0	0	0	6	0	12	18	0	22
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8	210
21JUL-	ST. CROP	0	0	0	0	0	0	1	4	3	16	0	19	7	50
25JUL	SE	0	0	0	0	0	0	1	4	3	16	0	19	7	27
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
04AUG-	ST. CROP	0	0	0	0	5	0	5	21	19	19	22	0	14	106
08AUG	SE	0	0	0	0	3	0	5	13	9	19	22	0	14	37
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8	210
18AUG-	ST. CROP	0	0	0	0	0	0	11	13	78	16	11	0	6	134
21AUG	SE	0	0	0	0	0	0	10	7	61	16	11	0	6	65
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
02SEP-	ST. CROP	0	0	0	0	9	9	64	94	106	115	45	19	77	537
05SEP	SE	0	0	0	0	6	6	24	34	63	77	31	19	37	120
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
15SEP-	ST. CROP	0	0	0	12	4	1	94	179	100	8	31	0	0	428
18SEP	SE	0	0	0	12	4	1	31	75	19	8	10	0	0	86
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8	210
29SEP-	ST. CROP	0	0	0	0	0	2	0	41	101	32	0	0	8	183
02OCT	SE	0	0	0	0	0	2	0	11	38	32	0	0	8	52
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8	210
13OCT-	ST. CROP	0	0	0	0	3	0	7	40	20	87	12	18	0	188
16OCT	SE	0	0	0	0	3	0	5	13	7	45	12	18	0	53
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
27OCT-	ST. CROP	4	0	13	0	4	10	121	377	139	185	62	30	0	943
30OCT	SE	4	0	9	0	3	5	74	174	33	52	19	13	0	200
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8	150
10NOV-	ST. CROP	0	24	129	87	59	41	162	31	66	300	88	16	0	1003
14NOV	SE	0	12	45	26	22	26	47	14	28	96	51	16	0	139
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150
01DEC-	ST. CROP	10	107	339	7	49	128	134	615	159	45	0	0	0	1593
05DEC	SE	10	41	188	5	23	40	54	218	76	15	0	0	0	309
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150

TABLE E-41 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF WHITE PERCH YEARLING IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	CPUE	0.00	0.00	0.29	0.00	2.67	0.67	0.00	0.00	0.00	1.73	0.32	0.75	0.53
19JUN	SE	0.00	0.00	0.29	0.00	1.45	0.67	0.00	0.00	0.00	0.83	0.23	0.59	1.93
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
30JUN-	CPUE	0.00	0.00	0.00	0.33	3.00	0.67	2.00	2.00	1.00	2.87	4.74	2.25	1.57
03JUL	SE	0.00	0.00	0.00	0.33	1.73	0.33	0.73	1.21	0.57	1.29	2.68	1.15	3.97
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	CPUE	0.00	0.00	0.00	0.67	1.67	3.00	2.25	0.25	0.13	0.67	0.84	3.67	1.09
16JUL	SE	0.00	0.00	0.00	0.67	1.67	3.00	2.25	0.25	0.13	0.40	0.79	3.58	5.56
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
28JUL-	CPUE	0.00	0.04	0.79	2.00	3.20	1.17	0.00	0.00	0.20	1.56	1.20	0.71	0.91
31JUL	SE	0.00	0.04	0.71	1.14	1.28	0.54	0.00	0.00	0.20	0.63	0.36	0.47	2.13
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11AUG-	CPUE	0.00	0.00	0.00	0.20	0.80	0.00	0.00	0.00	0.00	0.11	0.50	3.71	0.44
14AUG	SE	0.00	0.00	0.00	0.20	0.58	0.00	0.00	0.00	0.00	0.11	0.34	1.04	1.26
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	CPUE	0.40	0.83	0.00	3.40	0.60	0.00	0.00	0.00	0.20	4.44	3.50	1.43	1.23
27AUG	SE	0.40	0.39	0.00	3.40	0.60	0.00	0.00	0.00	0.20	2.79	1.54	0.92	4.82
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
08SEP-	CPUE	0.00	0.17	0.64	1.00	1.00	0.33	0.20	0.00	0.60	0.67	0.30	0.00	0.41
11SEP	SE	0.00	0.12	0.46	1.00	0.45	0.33	0.20	0.00	0.60	0.29	0.30	0.00	1.45
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22SEP-	CPUE	0.00	0.08	0.07	0.20	0.60	0.00	0.00	0.60	0.00	1.11	0.30	0.00	0.25
25SEP	SE	0.00	0.06	0.07	0.20	0.60	0.00	0.00	0.60	0.00	0.59	0.30	0.00	1.10
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	CPUE	0.00	0.17	0.43	0.00	0.40	0.00	0.20	0.00	0.00	0.44	0.00	0.00	0.14
09OCT	SE	0.00	0.08	0.43	0.00	0.40	0.00	0.20	0.00	0.00	0.24	0.00	0.00	0.67
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	CPUE	0.00	0.04	0.36	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
24OCT	SE	0.00	0.04	0.29	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.35
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE E-42 REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE PERCH YEARLING IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	ST. CROP	0	0	8	0	7	7	0	0	0	30	6	10	69
19JUN	SE	0	0	8	0	4	7	0	0	0	15	5	8	21
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
30JUN-	ST. CROP	0	0	0	3	8	7	14	2	9	50	93	31	217
03JUL	SE	0	0	0	3	5	4	5	2	5	23	53	16	60
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	ST. CROP	0	0	0	6	4	32	16	< 0.5	1	12	17	50	138
16JUL	SE	0	0	0	6	4	32	16	< 0.5	1	7	16	49	63
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
28JUL-	ST. CROP	0	2	21	18	8	12	0	0	2	27	24	10	125
31JUL	SE	0	2	19	11	3	6	0	0	2	11	7	6	27
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11AUG-	ST. CROP	0	0	0	2	2	0	0	0	0	2	10	50	66
14AUG	SE	0	0	0	2	2	0	0	0	0	2	7	14	16
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	ST. CROP	3	38	0	31	2	0	0	0	2	78	69	19	242
27AUG	SE	3	18	0	31	2	0	0	0	2	49	30	13	69
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
08SEP-	ST. CROP	0	8	17	9	3	4	1	0	5	12	6	0	64
11SEP	SE	0	5	12	9	1	4	1	0	5	5	6	0	19
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22SEP-	ST. CROP	0	4	2	2	2	0	0	1	0	20	6	0	35
25SEP	SE	0	3	2	2	2	0	0	1	0	10	6	0	13
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	ST. CROP	0	8	12	0	1	0	1	0	0	8	0	0	29
09OCT	SE	0	4	12	0	1	0	1	0	0	4	0	0	13
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	ST. CROP	0	2	10	0	1	0	0	0	0	0	0	0	12
24OCT	SE	0	2	8	0	1	0	0	0	0	0	0	0	8
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE E-43 REGIONAL DENSITY (NO./1,000m3) OF WHITE PERCH OLDER-THAN-YEARLING IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
04MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
06MAR-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
	NO. TOWS	10	10	11	11	10	10	12						
18MAR-	DENSITY	0.00	0.00	22.85	0.89	0.91	0.48	0.39	NS	NS	NS	NS	NS	NS
20MAR-	SE	0.00	0.00	16.40	0.63	0.86	0.48	0.22						
	NO. TOWS	10	10	11	11	10	10	12						
01APR-	DENSITY	0.87	3.58	1.45	13.93	6.58	1.57	1.38	NS	NS	NS	NS	NS	NS
03APR-	SE	0.35	3.20	0.41	12.66	3.50	0.64	0.64						
	NO. TOWS	10	10	11	11	10	10	12						
07APR-	DENSITY	2.43	3.95	4.55	1.89	1.29	0.27	2.56	0.28	0.00	5.30	0.00	0.00	2.47
10APR-	SE	0.88	1.12	1.90	0.62	0.80	0.11	0.08	0.28	0.00	0.71	0.00	0.00	1.28
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
14APR-	DENSITY	0.27	1.61	1.07	0.00	0.00	0.18	0.00	0.79	0.00	0.00	0.00	0.00	0.00
17APR-	SE	0.27	0.62	1.07	0.00	0.00	0.11	0.00	0.79	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
21APR-	DENSITY	0.00	2.16	1.04	0.39	0.40	0.98	0.96	2.08	0.46	0.00	0.00	0.00	0.00
24APR-	SE	0.00	0.29	0.55	0.39	0.25	0.51	0.96	1.13	0.46	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
28APR-	DENSITY	0.00	0.00	0.00	0.00	0.31	0.59	0.04	2.27	0.28	0.00	0.00	0.00	0.00
01MAY-	SE	0.00	0.00	0.00	0.00	0.31	0.34	0.04	2.27	0.17	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
05MAY-	DENSITY	0.00	0.00	0.00	0.00	0.39	0.00	0.00	0.65	0.97	0.00	0.39	0.00	0.00
07MAY-	SE	0.00	0.00	0.00	0.00	0.39	0.00	0.00	0.48	0.35	0.00	0.39	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
12MAY-	DENSITY	0.00	0.28	0.00	0.17	0.35	0.00	1.05	0.36	0.40	0.00	0.00	0.00	0.00
15MAY-	SE	0.00	0.28	0.00	0.17	0.35	0.00	0.75	0.22	0.40	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10
19MAY-	DENSITY	0.00	0.00	0.00	0.45	0.70	0.12	0.00	1.20	0.96	0.00	0.00	0.00	0.00
22MAY-	SE	0.00	0.00	0.00	0.26	0.70	0.12	0.00	0.47	0.59	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
27MAY-	DENSITY	0.00	0.00	0.00	0.00	0.47	0.12	1.06	0.92	0.35	4.83	0.94	2.30	7.94
30MAY-	SE	0.00	0.00	0.00	0.00	0.47	0.12	0.53	0.63	0.21	1.78	0.63	2.30	5.11
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
02JUN-	DENSITY	0.00	0.00	0.21	0.20	0.00	0.00	0.60	0.00	0.38	1.79	0.98	2.21	0.00
05JUN-	SE	0.00	0.00	0.21	0.20	0.00	0.00	0.28	0.00	0.22	0.78	0.45	1.11	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6

TABLE E-43 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF WHITE PERCH OLDER-THAN-YEARLING IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

															ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
10JUN-	DENSITY	0.00	0.00	0.00	1.61	0.00	0.12	1.15	0.40	0.14	1.46	1.35	0.55	2.50	0.71
13JUN	SE	0.00	0.00	0.00	1.22	0.00	0.12	0.84	0.23	0.14	0.30	0.97	0.55	1.25	2.27
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	2.36	0.58	0.42	1.20	0.30	0.55	0.60	0.46
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	1.01	0.36	0.28	0.73	0.30	0.55	0.60	1.59
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.20	0.31	0.87	0.61	1.15	0.00	0.25
27JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.20	0.19	0.56	0.35	1.15	0.00	1.36
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.53	0.00	0.00	0.00	3.40	0.30	1.06	1.70	0.54
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.53	0.00	0.00	0.00	1.96	0.30	0.75	1.01	2.41
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.31	0.00	NS	NS	NS	NS	NS	0.04
17JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.31	0.00						0.31
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	DENSITY	0.00	0.00	0.00	0.00	0.27	0.00	0.29	0.00	NS	NS	NS	NS	NS	0.07
30JUL	SE	0.00	0.00	0.00	0.00	0.16	0.00	0.29	0.00						0.33
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	DENSITY	0.00	0.00	0.00	0.00	1.02	0.12	0.63	0.50	NS	NS	NS	NS	NS	0.28
14AUG	SE	0.00	0.00	0.00	0.00	1.02	0.12	0.32	0.50						1.18
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	DENSITY	0.00	0.00	0.49	0.00	0.14	0.00	0.05	0.48	NS	NS	NS	NS	NS	0.14
27AUG	SE	0.00	0.00	0.49	0.00	0.14	0.00	0.05	0.48						0.70
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.04	1.19	NS	NS	NS	NS	NS	0.15
11SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.87						0.87
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	DENSITY	0.00	0.00	0.00	0.00	0.26	0.10	0.00	0.00	NS	NS	NS	NS	NS	0.05
25SEP	SE	0.00	0.00	0.00	0.00	0.26	0.10	0.00	0.00						0.28
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.23	NS	NS	NS	NS	NS	0.04
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.23						0.24
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-44 REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE PERCH OLDER-THAN-YEARLING IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
04MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS
06MAR	SE	0	0	0	0	0	0	0						0
	NO. TOWS	10	10	11	11	10	10	12						74
18MAR-	ST. CROP	0	0	7354	132	189	100	54	NS	NS	NS	NS	NS	NS
20MAR	SE	0	0	5277	93	180	100	31						5282
	NO. TOWS	10	10	11	11	10	10	12						74
01APR-	ST. CROP	181	822	465	2057	1371	327	193	NS	NS	NS	NS	NS	NS
03APR	SE	74	735	133	1870	729	133	89						2148
	NO. TOWS	10	10	11	11	10	10	12						74
07APR-	ST. CROP	509	906	1463	279	269	56	358	82	0	750	0	0	175
10APR	SE	185	258	611	92	166	23	12	82	0	100	0	0	91
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
14APR-	ST. CROP	57	369	345	0	0	37	0	235	0	0	0	0	0
17APR	SE	57	143	345	0	0	22	0	235	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
21APR-	ST. CROP	0	495	336	58	83	204	135	620	76	0	0	0	0
24APR	SE	0	66	178	58	53	106	135	336	76	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
28APR-	ST. CROP	0	0	0	0	66	123	6	676	46	0	0	0	0
01MAY	SE	0	0	0	0	66	71	6	676	29	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
05MAY-	ST. CROP	0	0	0	0	80	0	0	194	160	0	69	0	0
07MAY	SE	0	0	0	0	80	0	0	143	58	0	69	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
12MAY-	ST. CROP	0	64	0	26	72	0	147	107	66	0	0	0	0
15MAY	SE	0	64	0	26	72	0	105	66	66	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10
19MAY-	ST. CROP	0	0	0	67	147	24	0	357	159	0	0	0	0
22MAY	SE	0	0	0	39	147	24	0	139	98	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
27MAY-	ST. CROP	0	0	0	0	98	25	148	273	59	683	165	369	565
30MAY	SE	0	0	0	0	98	25	74	188	35	252	112	369	363
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
02JUN-	ST. CROP	0	0	66	30	0	0	84	0	63	253	173	355	0
05JUN	SE	0	0	66	30	0	0	38	0	37	110	80	178	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6

TABLE E-44 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE PERCH OLDER-THAN-YEARLING IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
10JUN-	ST. CROP	0	0	0	238	0	25	161	120	23	207	238	89	178
13JUN	SE	0	0	0	180	0	25	117	69	23	42	170	89	89
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
16JUN-	ST. CROP	0	0	0	0	0	0	330	174	69	170	52	89	43
19JUN	SE	0	0	0	0	0	0	142	108	46	103	52	89	43
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
24JUN-	ST. CROP	0	0	0	0	0	0	21	58	51	122	108	185	0
27JUN	SE	0	0	0	0	0	0	21	58	31	79	62	185	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
29JUN-	ST. CROP	0	0	0	0	0	109	0	0	0	481	53	170	121
03JUL	SE	0	0	0	0	0	109	0	0	0	278	53	120	72
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
14JUL-	ST. CROP	0	0	0	0	0	0	43	0	NS	NS	NS	NS	NS
17JUL	SE	0	0	0	0	0	0	43	0					
	NO. TOWS	6	11	13	14	13	8	10	5					
28JUL-	ST. CROP	0	0	0	0	57	0	40	0	NS	NS	NS	NS	NS
30JUL	SE	0	0	0	0	33	0	40	0					
	NO. TOWS	6	11	13	14	13	8	10	6					
12AUG-	ST. CROP	0	0	0	0	212	25	88	148	NS	NS	NS	NS	NS
14AUG	SE	0	0	0	0	212	25	44	148					
	NO. TOWS	6	11	13	14	13	8	10	6					
25AUG-	ST. CROP	0	0	156	0	29	0	7	142	NS	NS	NS	NS	NS
27AUG	SE	0	0	156	0	29	0	7	142					
	NO. TOWS	6	11	13	14	13	8	10	6					
09SEP-	ST. CROP	0	0	0	0	0	0	6	355	NS	NS	NS	NS	NS
11SEP	SE	0	0	0	0	0	0	6	259					
	NO. TOWS	6	11	13	14	13	8	10	6					
23SEP-	ST. CROP	0	0	0	0	55	21	0	0	NS	NS	NS	NS	NS
25SEP	SE	0	0	0	0	55	21	0	0					
	NO. TOWS	6	11	13	14	13	8	10	6					
07OCT-	ST. CROP	0	0	0	0	0	0	7	69	NS	NS	NS	NS	NS
09OCT	SE	0	0	0	0	0	0	7	69					
	NO. TOWS	6	11	13	14	13	8	10	6					



TABLE E-45 REGIONAL DENSITY (NO./1,000m3) OF WHITE PERCH OLDER-THAN-YEARLING IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
07JUL-	DENSITY	0.00	0.17	2.03	0.20	0.19	0.02	0.22	0.07	0.18	1.09	1.15	0.74	2.24
11JUL	SE	0.00	0.14	0.68	0.10	0.08	0.01	0.11	0.03	0.10	0.35	0.22	0.59	0.73
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8
21JUL-	DENSITY	0.00	0.00	0.30	0.03	0.24	0.07	0.63	0.41	0.58	0.53	1.10	0.95	3.15
25JUL	SE	0.00	0.00	0.30	0.03	0.21	0.04	0.23	0.16	0.35	0.26	0.41	0.78	1.26
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
04AUG-	DENSITY	0.00	0.00	0.04	0.05	0.04	0.00	0.49	0.64	0.68	1.17	2.09	0.54	5.89
08AUG	SE	0.00	0.00	0.04	0.03	0.04	0.00	0.15	0.15	0.32	0.60	1.27	0.36	3.74
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8
18AUG-	DENSITY	0.00	0.00	0.00	0.13	0.04	0.40	0.88	0.44	0.48	4.24	0.86	0.56	0.52
21AUG	SE	0.00	0.00	0.00	0.13	0.04	0.20	0.18	0.17	0.14	0.50	0.54	0.11	0.30
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
02SEP-	DENSITY	0.00	0.00	0.10	0.11	0.03	0.22	0.48	0.53	0.88	2.80	0.72	1.15	1.45
05SEP	SE	0.00	0.00	0.05	0.08	0.02	0.06	0.11	0.13	0.51	0.89	0.33	0.30	0.95
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
15SEP-	DENSITY	0.00	0.00	0.12	0.63	0.17	0.02	0.72	1.41	1.25	0.51	0.41	0.22	0.36
18SEP	SE	0.00	0.00	0.06	0.29	0.07	0.01	0.19	0.57	0.47	0.19	0.15	0.22	0.36
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8
29SEP-	DENSITY	0.00	0.05	0.65	0.08	0.08	0.05	0.72	0.81	1.43	1.59	1.08	1.73	0.71
02OCT	SE	0.00	0.04	0.29	0.04	0.05	0.03	0.37	0.34	0.47	0.60	0.24	0.70	0.35
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8
13OCT-	DENSITY	0.00	0.07	0.19	0.09	0.07	0.04	0.69	0.38	0.76	4.09	0.88	1.63	0.19
16OCT	SE	0.00	0.04	0.15	0.07	0.04	0.03	0.24	0.10	0.18	2.55	0.35	0.98	0.11
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
27OCT-	DENSITY	0.04	0.64	0.50	0.05	0.05	0.11	2.59	2.24	0.85	1.02	0.26	0.54	0.10
30OCT	SE	0.04	0.15	0.18	0.05	0.03	0.05	1.59	1.07	0.29	0.28	0.05	0.32	0.07
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8
10NOV-	DENSITY	0.17	2.58	1.98	1.46	0.66	0.16	0.83	0.17	0.28	1.16	0.56	0.11	0.14
14NOV	SE	0.05	1.22	0.42	0.43	0.30	0.05	0.20	0.03	0.08	0.27	0.20	0.06	0.14
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8
01DEC-	DENSITY	0.93	3.60	2.92	0.15	0.22	0.17	0.66	1.34	0.74	1.43	0.03	0.03	0.00
05DEC	SE	0.33	1.52	1.93	0.10	0.09	0.07	0.17	0.33	0.19	0.69	0.03	0.03	0.00
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8

TABLE E-46 REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE PERCH OLDER-THAN-YEARLING IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
07JUL-	ST. CROP	0	38	652	29	40	5	31	22	30	154	203	120	159
11JUL	SE	0	32	217	15	16	3	16	10	16	50	38	96	52
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8
21JUL-	ST. CROP	0	0	96	4	50	15	88	122	96	75	194	153	224
25JUL	SE	0	0	96	4	44	8	32	48	59	36	73	126	90
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
04AUG-	ST. CROP	0	0	12	7	8	0	69	191	112	166	368	86	419
08AUG	SE	0	0	12	4	8	0	21	43	53	85	224	57	266
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8
18AUG-	ST. CROP	0	0	0	20	8	83	123	131	79	601	151	90	37
21AUG	SE	0	0	0	20	8	42	25	51	23	71	96	18	21
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
02SEP-	ST. CROP	0	0	31	17	6	45	67	158	145	396	127	185	103
05SEP	SE	0	0	17	12	4	13	16	40	84	126	58	48	68
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
15SEP-	ST. CROP	0	0	40	94	35	3	100	421	207	72	73	36	25
18SEP	SE	0	0	18	42	15	2	27	170	79	27	27	36	25
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8
29SEP-	ST. CROP	0	13	210	12	16	11	100	243	236	225	191	278	51
02OCT	SE	0	8	92	5	10	6	51	102	77	85	42	112	25
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8
13OCT-	ST. CROP	0	17	62	13	14	7	96	112	125	579	155	262	14
16OCT	SE	0	9	47	10	8	6	33	29	30	360	61	158	8
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
27OCT-	ST. CROP	8	148	160	7	11	22	362	669	141	144	46	87	7
30OCT	SE	8	35	57	7	6	11	223	320	49	39	9	51	5
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8
10NOV-	ST. CROP	36	592	636	216	137	32	117	50	46	164	99	18	10
14NOV	SE	11	281	134	64	62	11	28	10	12	39	35	9	10
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8
01DEC-	ST. CROP	195	826	941	23	46	35	92	400	122	203	5	5	0
05DEC	SE	69	348	620	15	18	14	23	100	31	98	5	5	0
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8

TABLE E-47 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF WHITE PERCH OLDER-THAN-YEARLING IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	CPUE	0.00	0.00	4.00	1.67	0.00	0.67	0.00	0.13	1.63	1.67	2.95	4.58	1.44
19JUN	SE	0.00	0.00	2.24	1.67	0.00	0.67	0.00	0.13	1.22	0.77	1.17	1.52	3.75
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
30JUN-	CPUE	0.00	0.09	0.00	1.00	0.00	0.33	0.38	0.50	0.88	0.00	0.63	0.42	0.35
03JUL	SE	0.00	0.09	0.00	0.58	0.00	0.33	0.38	0.33	0.88	0.00	0.43	0.34	1.33
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	CPUE	0.00	0.00	0.00	0.67	1.67	1.00	0.25	0.00	0.25	1.33	0.84	3.92	0.83
16JUL	SE	0.00	0.00	0.00	0.67	1.20	0.58	0.25	0.00	0.16	0.56	0.27	3.92	4.25
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
28JUL-	CPUE	0.00	0.46	0.71	2.20	4.20	7.50	0.00	0.00	0.40	2.44	1.00	0.71	1.64
31JUL	SE	0.00	0.19	0.45	1.20	1.88	4.05	0.00	0.00	0.40	1.06	0.39	0.47	4.82
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11AUG-	CPUE	1.00	0.88	1.36	0.40	1.80	2.33	0.40	0.20	1.00	0.00	0.40	3.43	1.10
14AUG	SE	0.45	0.40	0.64	0.24	1.20	1.80	0.40	0.20	0.77	0.00	0.31	0.53	2.59
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	CPUE	1.00	2.13	0.36	1.60	0.00	0.17	0.20	0.00	0.00	0.56	3.30	2.29	0.97
27AUG	SE	0.63	0.59	0.23	1.60	0.00	0.17	0.20	0.00	0.00	0.34	2.88	2.12	4.04
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
08SEP-	CPUE	8.20	1.00	3.50	11.20	0.20	0.50	0.00	0.00	0.80	1.44	0.10	0.00	2.25
11SEP	SE	8.20	0.40	1.73	9.77	0.20	0.34	0.00	0.00	0.58	0.65	0.10	0.00	12.91
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22SEP-	CPUE	2.20	1.71	1.71	2.20	0.00	0.00	0.00	0.00	0.20	0.44	0.40	0.57	0.79
25SEP	SE	0.80	0.61	1.08	1.96	0.00	0.00	0.00	0.00	0.20	0.44	0.40	0.43	2.57
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	CPUE	0.00	0.50	0.14	0.20	0.00	0.00	3.40	0.00	0.00	0.44	0.40	0.00	0.42
09OCT	SE	0.00	0.31	0.14	0.20	0.00	0.00	3.16	0.00	0.00	0.34	0.40	0.00	3.22
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	CPUE	1.20	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.10	0.00	0.13
24OCT	SE	0.97	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.10	0.00	0.99
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE E-48 REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE PERCH OLDER-THAN-YEARLING IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	ST. CROP	0	0	108	15	0	7	0	< 0.5	14	29	58	62	294
19JUN	SE	0	0	60	15	0	7	0	< 0.5	11	14	23	21	72
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
30JUN-	ST. CROP	0	4	0	9	0	4	3	1	8	0	12	6	46
03JUL	SE	0	4	0	5	0	4	3	< 0.5	8	0	8	5	15
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	ST. CROP	0	0	0	6	4	11	2	0	2	23	17	53	118
16JUL	SE	0	0	0	6	3	6	2	0	1	10	5	53	55
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
28JUL-	ST. CROP	0	21	19	20	11	80	0	0	3	43	20	10	227
31JUL	SE	0	9	12	11	5	43	0	0	3	19	8	6	52
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11AUG-	ST. CROP	8	40	36	4	5	25	3	< 0.5	9	0	8	47	183
14AUG	SE	3	18	17	2	3	19	3	< 0.5	7	0	6	7	34
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	ST. CROP	8	97	10	15	0	2	1	0	0	10	65	31	237
27AUG	SE	5	27	6	15	0	2	1	0	0	6	57	29	71
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
08SEP-	ST. CROP	62	45	94	103	1	5	0	0	7	25	2	0	345
11SEP	SE	62	18	47	90	1	4	0	0	5	11	2	0	121
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22SEP-	ST. CROP	17	78	46	20	0	0	0	0	2	8	8	8	186
25SEP	SE	6	28	29	18	0	0	0	0	2	8	8	6	46
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	ST. CROP	0	23	4	2	0	0	24	0	0	8	8	0	68
09OCT	SE	0	14	4	2	0	0	22	0	0	6	8	0	29
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	ST. CROP	9	8	0	0	0	0	0	0	0	2	2	0	21
24OCT	SE	7	6	0	0	0	0	0	0	0	2	2	0	10
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE E-49 REGIONAL DENSITY (NO./1,000m3) OF ATLANTIC TOMCOD EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
04MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
06MAR-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
18MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
20MAR-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
01APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
03APR-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
07APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10APR-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
14APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17APR-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
21APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24APR-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
28APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01MAY-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
05MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07MAY-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
12MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15MAY-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10
19MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22MAY-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
27MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30MAY-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
02JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05JUN-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6

TABLE E-49 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF ATLANTIC TOMCOD EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
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
17JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	5						80
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
30JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
27AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
11SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-50 REGIONAL STANDING CROP (IN THOUSANDS) OF ATLANTIC TOMCOD EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
														AL	
04MAR-	ST.CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
06MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	ST.CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
20MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	ST.CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
03APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	ST.CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	ST.CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	ST.CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	ST.CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	ST.CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	ST.CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	ST.CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	ST.CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	ST.CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-50 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF ATLANTIC TOMCOD EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
														AL	
10JUN-	ST.CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	ST.CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	ST.CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	ST.CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	ST.CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
17JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	ST.CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
30JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	ST.CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	ST.CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
27AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	ST.CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
11SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	ST.CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
25SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	ST.CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
09OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81



TABLE E-51 REGIONAL DENSITY (NO./1,000m3) OF ATLANTIC TOMCOD YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
04MAR-	DENSITY	10.41	47.22	203.20	169.25	163.57	128.41	32.33	NS	NS	NS	NS	NS	NS	107.77
06MAR	SE	6.26	36.17	62.77	63.01	101.59	18.99	12.05							141.72
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	DENSITY	0.62	88.27	78.16	19.56	25.01	36.43	10.65	NS	NS	NS	NS	NS	NS	36.96
20MAR	SE	0.43	64.60	15.57	6.07	5.16	9.22	3.16							67.63
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	DENSITY	2.91	1.02	1.05	1.07	8.57	3.14	0.89	NS	NS	NS	NS	NS	NS	2.66
03APR	SE	1.96	0.75	0.78	0.66	5.16	1.25	0.65							5.84
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-51 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF ATLANTIC TOMCOD YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
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
17JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	5						80
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
30JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
27AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
11SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-52 REGIONAL STANDING CROP (IN THOUSANDS) OF ATLANTIC TOMCOD YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

															ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-	ST. CROP	2176	10832	65392	25004	34078	26639	4519	NS	NS	NS	NS	NS	NS	168641
06MAR	SE	1309	8299	20201	9308	21165	3940	1684							32119
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	ST. CROP	130	20251	25153	2890	5210	7558	1489	NS	NS	NS	NS	NS	NS	62682
20MAR	SE	90	14821	5009	896	1076	1912	442							15829
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	ST. CROP	608	235	337	158	1786	651	125	NS	NS	NS	NS	NS	NS	3900
03APR	SE	410	171	250	98	1075	260	90							1225
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-52 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF ATLANTIC TOMCOD YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
														AL	
10JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
17JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
30JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
27AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
11SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
25SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
09OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81



TABLE E-53 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF ATLANTIC TOMCOD POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
														AL	
10JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
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
17JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	5						80
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
30JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
27AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
11SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-54 REGIONAL STANDING CROP (IN THOUSANDS) OF ATLANTIC TOMCOD POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

SURVEY, 2008														
														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
04MAR - ST.	CROP	1998	3274	17085	11997	23354	6063	255	NS	NS	NS	NS	NS	NS
06MAR - SE		1828	1047	4300	4359	18715	3034	199						
	NO. TOWS	10	10	11	11	10	10	12						
18MAR - ST.	CROP	1632	30764	72464	2756	794	1958	392	NS	NS	NS	NS	NS	NS
20MAR - SE		574	22220	20197	923	198	794	79						
	NO. TOWS	10	10	11	11	10	10	12						
01APR - ST.	CROP	18237	5555	113794	40921	96470	524	0	NS	NS	NS	NS	NS	NS
03APR - SE		6182	2866	37830	7132	22856	407	0						
	NO. TOWS	10	10	11	11	10	10	12						
07APR - ST.	CROP	10803	33169	36224	602	19	0	0	0	0	0	0	0	0
10APR - SE		9554	18956	11576	208	11	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
14APR - ST.	CROP	23133	50263	1817	0	29	0	0	0	0	0	0	0	0
17APR - SE		10354	15394	1282	0	29	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
21APR - ST.	CROP	15896	46129	126710	0	0	0	0	0	0	0	0	0	0
24APR - SE		2377	25500	85319	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
28APR - ST.	CROP	5536	24175	117	525	38	0	0	0	0	0	0	0	0
01MAY - SE		3286	17256	70	525	38	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
05MAY - ST.	CROP	44670	25085	3861	467	51025	516	0	0	0	0	0	0	0
07MAY - SE		14170	8789	2034	253	28994	178	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
12MAY - ST.	CROP	81	0	0	0	0	0	0	0	21	0	0	0	0
15MAY - SE		81	0	0	0	0	0	0	0	21	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10
19MAY - ST.	CROP	68	0	65	0	0	0	0	0	0	0	0	0	0
22MAY - SE		68	0	65	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
27MAY - ST.	CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
30MAY - SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
02JUN - ST.	CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
05JUN - SE		0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6

TABLE E-54 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF ATLANTIC TOMCOD POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
														AL	
10JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
17JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
30JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
27AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
11SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
25SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
09OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81



TABLE E-55 REGIONAL DENSITY (NO./1,000m<sup>3</sup>) OF ATLANTIC TOMCOD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

ALL REGIONS COMBINED															
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-06MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-20MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-03APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-10APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-17APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-24APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-01MAY	DENSITY	0.00	4.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38
	SE	0.00	4.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.96
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-07MAY	DENSITY	268.96	22.98	5.84	0.56	101.90	2.18	0.00	3.85	0.00	0.00	0.00	0.00	0.00	31.25
	SE	132.03	5.77	1.22	0.36	57.99	1.35	0.00	2.38	0.00	0.00	0.00	0.00	0.00	144.35
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-15MAY	DENSITY	67.46	67.95	6.48	0.55	51.76	15.40	3.12	1.64	2.09	3.35	0.00	0.00	0.00	16.91
	SE	49.45	20.98	4.67	0.18	25.95	5.76	1.57	0.67	1.93	2.78	0.00	0.00	0.00	60.23
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-22MAY	DENSITY	143.99	135.93	7.39	5.31	284.21	55.44	9.30	5.66	2.97	0.00	0.00	0.00	0.00	50.02
	SE	46.36	36.83	3.57	1.80	280.58	49.23	9.30	2.51	2.52	0.00	0.00	0.00	0.00	291.15
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-30MAY	DENSITY	4.13	44.17	40.85	39.55	72.67	76.14	2.57	3.66	2.50	4.57	2.26	1.04	0.00	22.62
	SE	3.46	13.39	4.26	16.18	29.08	22.72	1.29	1.03	1.62	2.11	0.30	1.04	0.00	42.94
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-05JUN	DENSITY	7.09	14.51	6.14	4.54	24.02	18.36	25.62	8.40	2.98	3.06	0.72	0.00	0.00	8.88
	SE	2.31	6.84	3.34	0.52	15.12	9.84	7.70	3.71	2.98	1.92	0.72	0.00	0.00	21.80
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-55 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF ATLANTIC TOMCOD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

															ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
10JUN-	DENSITY	39.21	16.11	11.65	3.99	53.48	17.69	2.62	4.27	0.71	0.54	0.00	0.00	0.00	11.56
13JUN	SE	39.21	14.08	6.50	2.08	10.18	9.19	1.05	2.88	0.45	0.54	0.00	0.00	0.00	44.50
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	DENSITY	28.36	1.14	0.00	0.00	1.29	115.54	14.29	1.42	0.13	0.00	0.00	0.00	0.60	12.52
19JUN	SE	6.38	0.57	0.00	0.00	0.75	67.92	5.05	0.98	0.13	0.00	0.00	0.00	0.60	68.42
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	DENSITY	10.44	2.05	3.77	8.92	5.03	9.94	2.69	1.59	0.28	0.00	0.00	0.00	0.63	3.49
27JUN	SE	8.73	1.79	2.49	4.98	2.47	5.60	0.46	0.84	0.28	0.00	0.00	0.00	0.63	12.22
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	DENSITY	1.93	0.89	0.00	1.17	2.16	4.43	2.25	2.46	2.11	0.00	0.00	0.00	0.00	1.34
03JUL	SE	1.93	0.72	0.00	1.17	0.82	2.07	0.76	1.90	1.93	0.00	0.00	0.00	0.00	4.30
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	3.25	5.27	0.00	NS	NS	NS	NS	NS	1.06
17JUL	SE	0.00	0.00	0.00	0.00	0.00	1.46	3.46	0.00						3.76
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	DENSITY	3.15	0.00	0.00	0.99	0.62	0.10	0.00	0.00	NS	NS	NS	NS	NS	0.61
30JUL	SE	1.58	0.00	0.00	0.83	0.58	0.10	0.00	0.00						1.87
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75	NS	NS	NS	NS	NS	0.09
27AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75						0.75
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
11SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	NS	NS	NS	NS	NS	0.01
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00						0.10
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-56 REGIONAL STANDING CROP (IN THOUSANDS) OF ATLANTIC TOMCOD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
06MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
20MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
03APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	ST. CROP	0	1137	0	0	0	0	0	0	0	0	0	0	0	1137
01MAY	SE	0	1137	0	0	0	0	0	0	0	0	0	0	0	1137
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	ST. CROP	56216	5273	1879	82	21229	452	0	1148	0	0	0	0	0	86278
07MAY	SE	27596	1324	393	54	12081	280	0	710	0	0	0	0	0	30166
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	ST. CROP	14100	15590	2086	81	10784	3195	437	490	346	474	0	0	0	47583
15MAY	SE	10336	4813	1502	27	5406	1195	220	199	319	393	0	0	0	12777
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	ST. CROP	30095	31186	2379	785	59211	11501	1300	1686	492	0	0	0	0	138636
22MAY	SE	9690	8449	1149	267	58454	10213	1300	747	416	0	0	0	0	60748
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	ST. CROP	863	10132	13147	5843	15140	15796	359	1090	414	646	398	167	0	63995
30MAY	SE	723	3072	1372	2391	6058	4713	180	308	268	298	53	167	0	8763
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	ST. CROP	1483	3329	1977	670	5004	3808	3581	2503	494	433	127	0	0	23408
05JUN	SE	483	1570	1076	77	3150	2041	1077	1105	494	272	127	0	0	4546
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-56 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF ATLANTIC TOMCOD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

ALL REGIONS COMBINED															
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
10JUN-	ST. CROP	8195	3696	3748	589	11143	3670	366	1274	117	76	0	0	0	32873
13JUN	SE	8195	3231	2091	307	2121	1906	147	858	74	76	0	0	0	9537
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	ST. CROP	5928	262	0	0	269	23969	1997	422	22	0	0	0	43	32913
19JUN	SE	1334	132	0	0	156	14090	705	293	22	0	0	0	43	14175
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	ST. CROP	2181	470	1214	1318	1049	2062	376	473	47	0	0	0	45	9234
27JUN	SE	1824	410	802	735	514	1163	64	250	47	0	0	0	45	2523
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	ST. CROP	404	204	0	173	450	918	314	732	349	0	0	0	0	3545
03JUL	SE	404	165	0	173	170	430	107	566	320	0	0	0	0	932
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	ST. CROP	0	0	0	0	0	674	736	0	NS	NS	NS	NS	NS	1410
17JUL	SE	0	0	0	0	0	303	484	0						571
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	ST. CROP	658	0	0	146	129	22	0	0	NS	NS	NS	NS	NS	955
30JUL	SE	329	0	0	122	121	22	0	0						372
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	ST. CROP	0	0	0	0	0	0	0	223	NS	NS	NS	NS	NS	223
27AUG	SE	0	0	0	0	0	0	0	223						223
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
11SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	ST. CROP	0	0	0	0	0	21	0	0	NS	NS	NS	NS	NS	21
25SEP	SE	0	0	0	0	0	21	0	0						21
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
09OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-57 REGIONAL DENSITY (NO./1,000m3) OF ATLANTIC TOMCOD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

															ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
07JUL - 11JUL	DENSITY	3.07	0.84	2.41	0.90	4.33	2.12	0.38	0.19	0.06	0.00	0.06	0.10	0.00	1.11
	SE	0.79	0.25	0.76	0.71	2.55	0.56	0.17	0.06	0.05	0.00	0.06	0.10	0.00	2.94
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8	210
21JUL - 25JUL	DENSITY	2.25	0.00	0.00	0.07	1.75	5.04	1.09	0.04	0.00	0.00	0.00	0.00	0.00	0.79
	SE	0.82	0.00	0.00	0.07	0.53	1.01	0.35	0.02	0.00	0.00	0.00	0.00	0.00	1.45
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
04AUG - 08AUG	DENSITY	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
	SE	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8	210
18AUG - 21AUG	DENSITY	0.03	0.02	0.10	0.00	0.02	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.02
	SE	0.03	0.02	0.10	0.00	0.02	0.02	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.12
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
02SEP - 05SEP	DENSITY	0.29	0.03	0.00	0.00	0.02	0.03	0.24	0.00	0.02	0.00	0.00	0.00	0.00	0.05
	SE	0.10	0.03	0.00	0.00	0.02	0.01	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.16
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
15SEP - 18SEP	DENSITY	0.00	0.00	0.07	0.13	0.09	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
	SE	0.00	0.00	0.05	0.06	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8	210
29SEP - 02OCT	DENSITY	0.00	0.00	0.00	0.02	0.05	0.07	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.02
	SE	0.00	0.00	0.00	0.02	0.05	0.02	0.04	0.02	0.00	0.00	0.00	0.00	0.00	0.08
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8	210
13OCT - 16OCT	DENSITY	0.00	0.00	0.00	0.00	0.04	0.01	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.01
	SE	0.00	0.00	0.00	0.00	0.02	0.01	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.04
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
27OCT - 30OCT	DENSITY	0.00	0.00	0.09	0.00	0.03	0.01	0.04	0.16	0.00	0.00	0.00	0.00	0.00	0.02
	SE	0.00	0.00	0.04	0.00	0.03	0.01	0.02	0.14	0.00	0.00	0.00	0.00	0.00	0.15
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8	150
10NOV - 14NOV	DENSITY	0.00	0.00	0.00	0.06	0.03	0.01	0.02	0.07	0.00	0.00	0.00	0.00	0.00	0.01
	SE	0.00	0.00	0.00	0.04	0.03	0.01	0.02	0.05	0.00	0.00	0.00	0.00	0.00	0.07
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150
01DEC - 05DEC	DENSITY	0.00	0.04	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	< 0.005
	SE	0.00	0.03	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150

TABLE E-58 REGIONAL STANDING CROP (IN THOUSANDS) OF ATLANTIC TOMCOD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

ALL REGIONS COMBINED															
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
07JUL-	ST. CROP	642	193	775	133	903	439	53	57	10	0	10	17	0	3232
11JUL	SE	166	58	243	105	531	115	24	18	8	0	10	17	0	630
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8	210
21JUL-	ST. CROP	471	0	0	10	364	1045	152	11	0	0	0	0	0	2054
25JUL	SE	170	0	0	10	110	210	48	6	0	0	0	0	0	296
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
04AUG-	ST. CROP	70	0	0	0	0	0	0	0	0	0	0	0	0	70
08AUG	SE	45	0	0	0	0	0	0	0	0	0	0	0	0	45
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8	210
18AUG-	ST. CROP	7	5	33	0	5	7	4	0	0	0	0	0	0	61
21AUG	SE	7	5	33	0	3	4	4	0	0	0	0	0	0	35
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
02SEP-	ST. CROP	61	6	0	0	3	6	33	0	3	0	0	0	0	113
05SEP	SE	21	6	0	0	3	3	17	0	3	0	0	0	0	28
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
15SEP-	ST. CROP	0	0	21	19	20	2	0	0	0	0	0	0	0	61
18SEP	SE	0	0	15	9	15	2	0	0	0	0	0	0	0	23
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8	210
29SEP-	ST. CROP	0	0	0	4	10	15	10	5	0	0	0	0	0	43
02OCT	SE	0	0	0	4	10	5	6	5	0	0	0	0	0	14
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8	210
13OCT-	ST. CROP	0	0	0	0	8	2	5	0	0	0	0	0	0	14
16OCT	SE	0	0	0	0	5	2	5	0	0	0	0	0	0	7
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
27OCT-	ST. CROP	0	0	28	0	6	3	5	47	0	0	0	0	0	89
30OCT	SE	0	0	14	0	6	2	3	42	0	0	0	0	0	45
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8	150
10NOV-	ST. CROP	0	0	0	9	6	1	3	22	0	0	0	0	0	41
14NOV	SE	0	0	0	6	6	1	3	14	0	0	0	0	0	17
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150
01DEC-	ST. CROP	0	9	0	0	0	3	0	0	0	0	0	0	0	12
05DEC	SE	0	6	0	0	0	2	0	0	0	0	0	0	0	7
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150

TABLE E-59 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF ATLANTIC TOMCOD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
30JUN-	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
03JUL	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
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
16JUL	SE	0.00	0.00	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
28JUL-	CPUE	0.00	0.00	0.00	0.20	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
31JUL	SE	0.00	0.00	0.00	0.20	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
11AUG-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
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
27AUG	SE	0.00	0.00	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
08SEP-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11SEP	SE	0.00	0.00	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
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
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24OCT	SE	0.00	0.00	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 E-60 REGIONAL STANDING CROP (IN THOUSANDS) OF ATLANTIC TOMCOD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM  
BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
30JUN-	ST. CROP	0	4	0	0	0	0	0	0	0	0	0	0	4
03JUL	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
14JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
16JUL	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
28JUL-	ST. CROP	0	0	0	2	1	0	0	0	0	0	0	0	2
31JUL	SE	0	0	0	2	1	0	0	0	0	0	0	0	2
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
14AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
27AUG	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
08SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
11SEP	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
22SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
25SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
09OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
24OCT	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 E-61 REGIONAL DENSITY (NO./1,000m3) OF ATLANTIC TOMCOD YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
04MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
06MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
18MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
20MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
01APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
03APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
07APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
14APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
21APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
28APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
05MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
12MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10
19MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
27MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
02JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6

TABLE E-61 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF ATLANTIC TOMCOD YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

															ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
10JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
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
17JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	5						80
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
30JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
27AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
11SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-62 REGIONAL STANDING CROP (IN THOUSANDS) OF ATLANTIC TOMCOD YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

SURVEY, 2008														ALL REGIONS COMBINED	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
06MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
20MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
03APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-62 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF ATLANTIC TOMCOD YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
														AL	
10JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
17JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
30JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
27AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
11SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
25SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
09OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-63 REGIONAL DENSITY (NO./1,000m3) OF ATLANTIC TOMCOD YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
07JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8	210
21JUL-	DENSITY	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
25JUL	SE	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
04AUG-	DENSITY	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
08AUG	SE	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8	210
18AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
02SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
15SEP-	DENSITY	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	< 0.005
18SEP	SE	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8	210
29SEP-	DENSITY	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	< 0.005
02OCT	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	0.00	0.02
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8	210
13OCT-	DENSITY	0.00	0.00	0.00	0.00	0.02	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	< 0.005
16OCT	SE	0.00	0.00	0.00	0.00	0.02	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.04
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
27OCT-	DENSITY	0.00	0.02	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	< 0.005
30OCT	SE	0.00	0.02	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8	150
10NOV-	DENSITY	0.00	0.02	0.24	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
14NOV	SE	0.00	0.02	0.20	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150
01DEC-	DENSITY	0.02	0.04	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
05DEC	SE	0.02	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150

TABLE E-64 REGIONAL STANDING CROP (IN THOUSANDS) OF ATLANTIC TOMCOD YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
07JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
11JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8
21JUL-	ST. CROP	16	0	0	0	0	0	0	0	0	0	0	0	0
25JUL	SE	11	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
04AUG-	ST. CROP	31	0	0	0	0	0	0	0	0	0	0	0	0
08AUG	SE	20	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8
18AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
21AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
02SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
05SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
15SEP-	ST. CROP	0	0	7	0	0	0	0	0	0	0	0	0	0
18SEP	SE	0	0	7	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8
29SEP-	ST. CROP	0	0	0	0	3	0	0	0	0	0	0	0	0
02OCT	SE	0	0	0	0	3	0	0	0	0	0	0	0	0
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8
13OCT-	ST. CROP	0	0	0	0	4	0	5	0	0	0	0	0	0
16OCT	SE	0	0	0	0	4	0	5	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
27OCT-	ST. CROP	0	5	0	0	1	1	0	0	0	0	0	0	0
30OCT	SE	0	5	0	0	1	1	0	0	0	0	0	0	0
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8
10NOV-	ST. CROP	0	4	77	4	5	0	0	0	0	0	0	0	0
14NOV	SE	0	4	65	4	3	0	0	0	0	0	0	0	0
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8
01DEC-	ST. CROP	4	9	6	0	0	0	0	0	0	0	0	0	0
05DEC	SE	4	6	6	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8

TABLE E-65 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF ATLANTIC TOMCOD YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM  
BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
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
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
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
16JUL	SE	0.00	0.00	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
28JUL-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
31JUL	SE	0.00	0.00	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
11AUG-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
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
27AUG	SE	0.00	0.00	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
08SEP-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11SEP	SE	0.00	0.00	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
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
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24OCT	SE	0.00	0.00	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 E-66 REGIONAL STANDING CROP (IN THOUSANDS) OF ATLANTIC TOMCOD YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
													AL	
17JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
30JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
03JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
16JUL	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
28JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
31JUL	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
11AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
14AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
27AUG	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
08SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
11SEP	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
22SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
25SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
09OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
24OCT	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 E-67 REGIONAL DENSITY (NO./1,000m3) OF BAY ANCHOVY EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
04MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
06MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
20MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
03APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.01
01MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.09
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	DENSITY	25.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.79	2.76
15MAY	SE	16.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.23	18.50
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	DENSITY	2134.75	362.84	0.40	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	192.18
22MAY	SE	858.21	168.20	0.40	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	874.54
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	DENSITY	609.62	1827.08	513.06	2.61	2.63	0.00	0.51	0.00	0.20	0.00	0.00	0.00	0.00	227.36
30MAY	SE	214.01	591.40	201.71	2.26	2.63	0.00	0.51	0.00	0.20	0.00	0.00	0.00	0.00	660.49
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	DENSITY	18529.45	41179.48	17617.57	980.97	7.47	0.00	0.24	0.00	0.54	0.00	1.32	0.52	0.00	6024.43
05JUN	SE	1458.62	12750.13	3355.28	246.38	3.73	0.00	0.24	0.00	0.54	0.00	0.93	0.52	0.00	13266.95
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-67 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF BAY ANCHOVY EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

															ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
10JUN-	DENSITY	23799.25	94887.61	76169.52	1933.47	17.18	0.00	0.46	0.00	0.14	0.00	1.04	0.00	0.00	15139.13
13JUN	SE	5148.36	26242.97	35075.47	1535.51	9.68	0.00	0.41	0.00	0.14	0.00	1.04	0.00	0.00	44134.40
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	DENSITY	19244.93	100008.8	51406.86	26060.55	8795.72	0.57	0.14	1.00	0.00	0.00	0.00	0.00	0.00	15809.12
19JUN	SE	6491.49	56482.16	24029.22	4314.83	4464.60	0.57	0.14	0.61	0.00	0.00	0.00	0.00	0.00	62034.89
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	DENSITY	19597.65	8415.17	7163.70	2540.84	119.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2910.54
27JUN	SE	6406.62	3605.73	2747.34	1378.15	83.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7968.70
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	DENSITY	34554.51	71897.04	49885.65	31001.62	7744.31	0.00	0.23	0.00	0.13	0.00	0.00	0.00	0.00	15006.42
03JUL	SE	7955.37	17783.25	21545.70	17348.82	7567.99	0.00	0.23	0.00	0.13	0.00	0.00	0.00	0.00	34669.95
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	DENSITY	48595.90	8524.02	16026.29	683.93	2012.43	377.73	0.73	0.52	NS	NS	NS	NS	NS	9527.69
17JUL	SE	12479.43	2716.76	4898.71	228.93	1393.63	366.43	0.73	0.52						13756.57
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	DENSITY	3269.02	122.83	15.38	0.00	0.00	0.10	0.00	0.00	NS	NS	NS	NS	NS	425.92
30JUL	SE	1610.12	46.93	12.00	0.00	0.00	0.10	0.00	0.00						1610.85
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	DENSITY	602.15	1843.75	7.18	3.13	2.20	0.00	0.00	0.00	NS	NS	NS	NS	NS	307.30
14AUG	SE	159.60	882.10	2.68	3.13	2.20	0.00	0.00	0.00						896.43
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	DENSITY	10.39	1.27	66.37	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	9.75
27AUG	SE	10.39	1.27	43.39	0.00	0.00	0.00	0.00	0.00						44.63
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
11SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-68 REGIONAL STANDING CROP (IN THOUSANDS) OF BAY ANCHOVY EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-	ST.CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
06MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	ST.CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
20MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	ST.CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
03APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	ST.CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	ST.CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	ST.CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	ST.CROP	0	0	0	0	0	0	12	0	0	0	0	0	0	12
01MAY	SE	0	0	0	0	0	0	12	0	0	0	0	0	0	12
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	ST.CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	ST.CROP	5231	0	0	0	0	0	0	0	0	0	0	0	767	5999
15MAY	SE	3464	0	0	0	0	0	0	0	0	0	0	0	586	3513
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	ST.CROP	446190	83243	127	56	0	0	0	0	0	0	0	0	0	529617
22MAY	SE	179377	38589	127	56	0	0	0	0	0	0	0	0	0	183481
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	ST.CROP	127419	419169	165108	386	548	0	72	0	34	0	0	0	0	712736
30MAY	SE	44731	135678	64914	335	548	0	72	0	34	0	0	0	0	156920
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	ST.CROP	3872891	9447408	5669536	144925	1556	0	33	0	89	0	232	83	0	19136753
05JUN	SE	304870	2925139	1079767	36400	776	0	33	0	89	0	164	83	0	3133146
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-68 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF BAY ANCHOVY EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
														AL	
10JUN-	ST.CROP	4974347	21769142	24512224	285644	3580	0	64	0	23	0	184	0	0	51545207
13JUN	SE	1076071	6020670	11287687	226851	2016	0	57	0	23	0	184	0	0	12840162
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	ST.CROP	4022437	22944045	16543318	3850102	1832467	118	19	298	0	0	0	0	0	49192803
19JUN	SE	1356804	12958155	7732878	637459	930137	118	19	182	0	0	0	0	0	15192880
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	ST.CROP	4096160	1930612	2305361	375375	24920	0	0	0	0	0	0	0	0	8732428
27JUN	SE	1339066	827229	884124	203603	17422	0	0	0	0	0	0	0	0	1816821
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	ST.CROP	7222333	16494640	16053775	4580079	1613420	0	32	0	22	0	0	0	0	45964302
03JUL	SE	1662776	4079839	6933652	2563059	1576687	0	32	0	22	0	0	0	0	8748751
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	ST.CROP	10157164	1955584	5157443	101041	419262	78362	102	156	NS	NS	NS	NS	NS	17869114
17JUL	SE	2608361	623279	1576462	33821	290344	76017	102	156						3125457
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	ST.CROP	683266	28180	4949	0	0	20	0	0	NS	NS	NS	NS	NS	716414
30JUL	SE	336535	10766	3863	0	0	20	0	0						336730
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	ST.CROP	125858	422994	2312	462	459	0	0	0	NS	NS	NS	NS	NS	552084
14AUG	SE	33359	202372	862	462	459	0	0	0						205106
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	ST.CROP	2172	291	21357	0	0	0	0	0	NS	NS	NS	NS	NS	23820
27AUG	SE	2172	291	13963	0	0	0	0	0						14134
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	ST.CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
11SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	ST.CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
25SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	ST.CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
09OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-69 REGIONAL DENSITY (NO./1,000m3) OF BAY ANCHOVY YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
04MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
06MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
20MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
03APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-69 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF BAY ANCHOVY YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

															ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
10JUN-	DENSITY	93.33	0.00	5.69	0.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.65
13JUN	SE	76.41	0.00	4.77	0.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	76.56
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	DENSITY	2.81	9.23	2.09	0.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.14
19JUN	SE	2.81	2.84	0.93	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.13
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	DENSITY	0.00	5.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45
27JUN	SE	0.00	5.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.79
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	DENSITY	16.06	6.72	12.16	59.25	0.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.32
03JUL	SE	16.06	6.72	12.16	46.53	0.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	51.16
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
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
17JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	5						80
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
30JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
27AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
11SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-70 REGIONAL STANDING CROP (IN THOUSANDS) OF BAY ANCHOVY YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
06MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
20MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
03APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-70 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF BAY ANCHOVY YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

															ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
10JUN-	ST. CROP	19506	0	1830	70	0	0	0	0	0	0	0	0	0	21406
13JUN	SE	15971	0	1535	70	0	0	0	0	0	0	0	0	0	16045
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	ST. CROP	588	2119	672	105	0	0	0	0	0	0	0	0	0	3483
19JUN	SE	588	651	300	64	0	0	0	0	0	0	0	0	0	930
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	ST. CROP	0	1328	0	0	0	0	0	0	0	0	0	0	0	1328
27JUN	SE	0	1328	0	0	0	0	0	0	0	0	0	0	0	1328
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	ST. CROP	3356	1542	3913	8753	202	0	0	0	0	0	0	0	0	17766
03JUL	SE	3356	1542	3913	6874	202	0	0	0	0	0	0	0	0	8732
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
17JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
30JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
27AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
11SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
25SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
09OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81



TABLE E-71 REGIONAL DENSITY (NO./1,000m3) OF BAY ANCHOVY POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

ALL REGIONS COMBINED															
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-06MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-20MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-03APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-10APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-17APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-24APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-01MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-07MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-15MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-22MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-30MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-05JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-71 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF BAY ANCHOVY POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUN-	DENSITY	42.80	7.60	27.41	18.72	7.19	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	7.99
13JUN	SE	19.44	7.37	12.28	4.83	3.56	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	24.88
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	DENSITY	450.88	374.50	367.30	407.30	312.01	2.83	0.35	0.00	0.00	0.00	0.00	0.00	0.00	147.32
19JUN	SE	179.91	63.45	106.82	105.76	83.49	1.28	0.35	0.00	0.00	0.00	0.00	0.00	0.00	256.83
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	DENSITY	5599.66	3563.10	3251.93	5285.86	3617.69	13.04	4.51	0.00	0.00	0.00	0.00	0.00	0.00	1641.21
27JUN	SE	1106.72	819.54	618.10	1261.58	1193.90	4.48	2.24	0.00	0.00	0.00	0.00	0.00	0.00	2301.20
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	DENSITY	6175.64	4732.11	3751.59	8171.46	5391.45	619.16	177.93	27.61	0.15	0.00	0.00	0.00	0.00	2234.39
03JUL	SE	1184.95	1341.91	579.27	1290.82	1488.74	135.38	49.12	13.11	0.15	0.00	0.00	0.00	0.00	2728.34
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	DENSITY	4662.81	1978.41	3443.16	2374.03	3026.39	1700.51	810.56	134.77	NS	NS	NS	NS	NS	2266.33
17JUL	SE	2056.99	352.63	782.19	499.45	439.67	592.55	243.02	19.18						2412.61
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	DENSITY	3985.09	2603.50	1995.95	1563.05	946.57	364.25	393.47	237.77	NS	NS	NS	NS	NS	1511.21
30JUL	SE	1240.60	701.55	301.28	253.71	262.54	106.50	142.13	146.04						1519.27
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	DENSITY	1635.51	1661.02	886.28	1112.19	368.67	85.89	272.42	67.95	NS	NS	NS	NS	NS	761.24
14AUG	SE	468.23	310.00	131.11	356.01	102.90	25.63	150.23	43.18						703.52
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	DENSITY	102.67	142.33	335.21	656.47	119.46	12.87	38.29	10.29	NS	NS	NS	NS	NS	177.20
27AUG	SE	37.63	51.84	84.13	179.31	29.40	5.20	29.17	7.61						212.45
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	DENSITY	317.21	60.57	13.33	64.87	61.46	1.07	0.67	2.90	NS	NS	NS	NS	NS	65.26
11SEP	SE	103.43	10.36	4.40	22.48	12.36	0.45	0.31	2.23						107.18
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	DENSITY	170.80	136.46	42.75	44.20	47.91	8.26	0.32	3.16	NS	NS	NS	NS	NS	56.73
25SEP	SE	64.17	51.60	9.37	15.15	8.34	4.17	0.28	1.90						84.78
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	DENSITY	50.09	54.24	16.70	38.40	19.95	11.67	2.43	1.64	NS	NS	NS	NS	NS	24.39
09OCT	SE	14.12	23.51	3.85	14.13	4.54	3.68	2.19	0.82						31.72
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-72 REGIONAL STANDING CROP (IN THOUSANDS) OF BAY ANCHOVY POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

SURVEY, 2008														ALL REGIONS COMBINED	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
06MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
20MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
03APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-72 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF BAY ANCHOVY POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

SURVEY, 2008															ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
10JUN-	ST. CROP	8946	1743	8821	2766	1498	0	0	0	23	0	0	0	0	23797
13JUN	SE	4064	1690	3953	714	742	0	0	0	23	0	0	0	0	6005
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	ST. CROP	94239	85917	118200	60173	65002	588	49	0	0	0	0	0	0	424169
19JUN	SE	37604	14556	34376	15624	17395	265	49	0	0	0	0	0	0	57918
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	ST. CROP	1170399	817447	1046510	780915	753695	2706	631	0	0	0	0	0	0	4572304
27JUN	SE	231318	188019	198912	186382	248733	930	314	0	0	0	0	0	0	474376
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	ST. CROP	1290787	1085641	1207305	1207224	1123234	128449	24872	8230	24	0	0	0	0	6075768
03JUL	SE	247669	307861	186416	190701	310158	28085	6866	3908	24	0	0	0	0	569460
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	ST. CROP	974587	453887	1108048	350732	630507	352780	113308	40181	NS	NS	NS	NS	NS	4024030
17JUL	SE	429937	80901	251718	73786	91600	122928	33973	5717						533747
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	ST. CROP	832935	597296	642320	230920	197205	75567	55004	70886	NS	NS	NS	NS	NS	2702132
30JUL	SE	259301	160950	96956	37483	54697	22095	19868	43539						331236
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	ST. CROP	341842	381072	285214	164311	76806	17819	38082	20260	NS	NS	NS	NS	NS	1325407
14AUG	SE	97865	71120	42191	52596	21438	5316	21001	12874						142396
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	ST. CROP	21459	32653	107875	96984	24887	2670	5352	3067	NS	NS	NS	NS	NS	294948
27AUG	SE	7866	11892	27075	26491	6124	1080	4077	2268						41214
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	ST. CROP	66301	13897	4290	9584	12803	223	94	864	NS	NS	NS	NS	NS	108056
11SEP	SE	21618	2378	1415	3321	2574	93	43	664						22206
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	ST. CROP	35699	31307	13759	6530	9982	1713	45	942	NS	NS	NS	NS	NS	99977
25SEP	SE	13412	11838	3015	2239	1737	866	39	567						18390
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	ST. CROP	10469	12443	5375	5672	4157	2420	340	488	NS	NS	NS	NS	NS	41364
09OCT	SE	2952	5393	1238	2087	945	764	306	244						6732
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-73 REGIONAL DENSITY (NO./1,000m3) OF BAY ANCHOVY YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
04MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
06MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
18MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
20MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
01APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
03APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
07APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
14APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
21APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
28APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
05MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
12MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10
19MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
27MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
02JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6

TABLE E-73 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF BAY ANCHOVY YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
10JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
16JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
24JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
29JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
14JUL-	DENSITY	0.00	0.00	0.00	0.00	3.55	0.25	5.39	0.00	NS	NS	NS	NS	NS
17JUL	SE	0.00	0.00	0.00	0.00	2.45	0.25	5.39	0.00					
	NO. TOWS	6	11	13	14	13	8	10	5					
28JUL-	DENSITY	170.61	62.60	100.25	107.31	80.33	28.10	82.85	43.25	NS	NS	NS	NS	NS
30JUL	SE	77.23	22.20	38.81	32.62	16.52	9.04	34.65	31.71					
	NO. TOWS	6	11	13	14	13	8	10	6					
12AUG-	DENSITY	43.35	408.93	189.16	152.71	24.75	184.15	266.08	11.39	NS	NS	NS	NS	NS
14AUG	SE	23.63	128.00	40.02	57.94	6.36	91.06	114.94	7.98					
	NO. TOWS	6	11	13	14	13	8	10	6					
25AUG-	DENSITY	26.37	334.61	1628.05	717.11	180.51	94.08	247.18	60.61	NS	NS	NS	NS	NS
27AUG	SE	12.27	133.06	251.00	192.99	45.22	20.71	140.76	36.55					
	NO. TOWS	6	11	13	14	13	8	10	6					
09SEP-	DENSITY	29.74	142.62	210.62	223.41	154.47	100.78	153.23	73.53	NS	NS	NS	NS	NS
11SEP	SE	15.99	56.97	40.99	44.73	27.68	15.07	54.16	62.34					
	NO. TOWS	6	11	13	14	13	8	10	6					
23SEP-	DENSITY	12.55	284.30	367.76	695.94	178.60	74.50	142.53	83.80	NS	NS	NS	NS	NS
25SEP	SE	3.17	97.75	103.25	179.07	102.17	26.33	59.65	60.66					
	NO. TOWS	6	11	13	14	13	8	10	6					
07OCT-	DENSITY	16.01	136.69	191.57	225.93	83.82	46.26	139.02	121.12	NS	NS	NS	NS	NS
09OCT	SE	6.74	28.44	26.14	32.02	22.04	11.57	46.82	99.42					
	NO. TOWS	6	11	13	14	13	8	10	6					

TABLE E-74 REGIONAL STANDING CROP (IN THOUSANDS) OF BAY ANCHOVY YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
06MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
20MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
03APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-74 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF BAY ANCHOVY YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

ALL REGIONS COMBINED													
DATE	BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
10JUN- ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
13JUN- SE	0	0	0	0	0	0	0	0	0	0	0	0	0
NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
16JUN- ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN- SE	0	0	0	0	0	0	0	0	0	0	0	0	0
NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
24JUN- ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
27JUN- SE	0	0	0	0	0	0	0	0	0	0	0	0	0
NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
29JUN- ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
03JUL- SE	0	0	0	0	0	0	0	0	0	0	0	0	0
NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
14JUL- ST. CROP	0	0	0	0	740	51	754	0	NS	NS	NS	NS	NS
17JUL- SE	0	0	0	0	510	51	754	0					
NO. TOWS	6	11	13	14	13	8	10	5					
28JUL- ST. CROP	35660	14362	32263	15854	16735	5830	11582	12895	NS	NS	NS	NS	NS
30JUL- SE	16142	5092	12490	4819	3442	1875	4843	9454					
NO. TOWS	6	11	13	14	13	8	10	6					
12AUG- ST. CROP	9061	93817	60872	22561	5156	38204	37195	3397	NS	NS	NS	NS	NS
14AUG- SE	4938	29365	12880	8560	1326	18891	16067	2380					
NO. TOWS	6	11	13	14	13	8	10	6					
25AUG- ST. CROP	5512	76765	523927	105944	37607	19517	34554	18069	NS	NS	NS	NS	NS
27AUG- SE	2564	30527	80776	28511	9421	4296	19677	10896					
NO. TOWS	6	11	13	14	13	8	10	6					
09SEP- ST. CROP	6217	32719	67781	33006	32181	20907	21420	21923	NS	NS	NS	NS	NS
11SEP- SE	3342	13069	13190	6608	5766	3126	7571	18586					
NO. TOWS	6	11	13	14	13	8	10	6					
23SEP- ST. CROP	2623	65224	118350	102816	37208	15456	19924	24984	NS	NS	NS	NS	NS
25SEP- SE	662	22427	33227	26456	21285	5463	8338	18085					
NO. TOWS	6	11	13	14	13	8	10	6					
07OCT- ST. CROP	3346	31360	61648	33378	17463	9596	19434	36108	NS	NS	NS	NS	NS
09OCT- SE	1409	6525	8413	4730	4592	2400	6545	29640					
NO. TOWS	6	11	13	14	13	8	10	6					



TABLE E-75 REGIONAL DENSITY (NO./1,000m3) OF BAY ANCHOVY YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
07JUL-	DENSITY	0.00	0.00	98.56	256.67	182.78	15.14	35.67	49.08	0.00	0.00	0.00	0.00	0.00
11JUL	SE	0.00	0.00	40.81	68.42	56.80	10.43	30.56	28.99	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8
21JUL-	DENSITY	0.09	29.76	55.62	77.80	22.45	297.56	102.02	20.88	6.03	34.73	0.00	0.56	0.00
25JUL	SE	0.07	20.75	15.23	20.95	5.22	128.57	72.59	9.90	5.54	27.47	0.00	0.46	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
04AUG-	DENSITY	14.11	74.23	62.28	86.91	189.79	393.60	259.08	21.35	0.00	87.83	23.47	0.00	0.00
08AUG	SE	5.54	22.84	17.12	31.09	76.86	93.95	126.52	6.17	0.00	32.10	21.73	0.00	0.00
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8
18AUG-	DENSITY	30.22	176.98	268.98	196.28	186.02	105.28	44.53	85.56	57.25	42.86	42.20	0.00	0.00
21AUG	SE	9.26	55.28	33.07	51.26	42.54	22.88	14.39	55.34	22.34	30.94	42.20	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
02SEP-	DENSITY	43.38	95.90	256.00	198.02	88.17	75.59	186.91	76.32	14.25	18.32	19.26	2.16	0.00
05SEP	SE	17.88	25.19	42.70	38.86	20.57	27.96	60.54	21.24	5.13	6.20	17.07	1.03	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
15SEP-	DENSITY	49.21	257.74	266.37	108.64	147.66	66.86	236.66	27.86	14.59	12.57	26.88	3.98	0.00
18SEP	SE	17.10	160.56	106.56	33.66	39.31	15.30	128.18	6.26	4.46	5.50	3.83	3.98	0.00
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8
29SEP-	DENSITY	52.02	41.44	89.04	78.65	131.19	70.62	101.54	90.70	39.98	12.28	4.50	13.98	2.59
02OCT	SE	15.11	29.90	39.60	26.85	41.68	30.16	49.84	29.06	18.74	7.37	2.56	8.33	2.59
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8
13OCT-	DENSITY	33.87	120.61	90.51	48.24	57.65	26.86	31.75	4.75	0.07	0.51	0.00	0.00	0.00
16OCT	SE	21.32	54.59	25.68	18.45	24.94	7.49	21.38	0.94	0.04	0.35	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
27OCT-	DENSITY	0.60	1.17	1.15	1.83	0.37	0.07	0.03	0.00	0.00	0.00	0.00	0.00	0.00
30OCT	SE	0.22	0.31	0.44	0.80	0.08	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8
10NOV-	DENSITY	0.23	0.68	0.27	0.26	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14NOV	SE	0.14	0.18	0.15	0.15	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8
01DEC-	DENSITY	0.29	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05DEC	SE	0.08	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8

TABLE E-76 REGIONAL STANDING CROP (IN THOUSANDS) OF BAY ANCHOVY YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

															ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
07JUL-	ST. CROP	0	0	31716	37920	38080	3141	4986	14634	0	0	0	0	0	130477
11JUL	SE	0	0	13134	10108	11833	2165	4272	8642	0	0	0	0	0	22634
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8	210
21JUL-	ST. CROP	19	6827	17900	11494	4677	61730	14261	6226	998	4913	0	90	0	129135
25JUL	SE	14	4761	4903	3095	1087	26673	10147	2952	916	3886	0	74	0	29942
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
04AUG-	ST. CROP	2950	17030	20044	12840	39541	81655	36217	6365	0	12426	4138	0	0	233206
08AUG	SE	1158	5240	5510	4593	16014	19490	17687	1840	0	4541	3830	0	0	32681
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8	210
18AUG-	ST. CROP	6316	40602	86560	28998	38755	21840	6225	25507	9475	6063	7439	0	0	277780
21AUG	SE	1935	12683	10641	7573	8863	4746	2012	16500	3697	4377	7439	0	0	28297
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
02SEP-	ST. CROP	9067	22000	82385	29255	18368	15681	26129	22754	2358	2592	3395	347	0	234331
05SEP	SE	3737	5780	13741	5741	4285	5800	8462	6332	849	878	3009	165	0	21057
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
15SEP-	ST. CROP	10285	59131	85722	16050	30763	13870	33083	8307	2415	1778	4739	639	0	266784
18SEP	SE	3574	36835	34293	4972	8189	3174	17919	1866	739	779	675	639	0	54535
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8	210
29SEP-	ST. CROP	10873	9506	28653	11619	27332	14650	14195	27040	6615	1738	793	2247	185	155444
02OCT	SE	3158	6860	12744	3967	8684	6256	6967	8665	3101	1042	452	1339	185	22047
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8	210
13OCT-	ST. CROP	7078	27671	29126	7127	12011	5572	4438	1418	11	72	0	0	0	94524
16OCT	SE	4457	12524	8264	2726	5195	1554	2989	281	6	50	0	0	0	17055
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
27OCT-	ST. CROP	124	269	371	270	78	14	4	0	0	0	0	0	0	1129
30OCT	SE	47	72	143	118	17	6	3	0	0	0	0	0	0	205
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8	150
10NOV-	ST. CROP	48	156	85	39	18	0	0	0	0	0	0	0	0	346
14NOV	SE	28	40	47	22	6	0	0	0	0	0	0	0	0	72
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150
01DEC-	ST. CROP	62	75	0	0	0	0	0	0	0	0	0	0	0	136
05DEC	SE	18	35	0	0	0	0	0	0	0	0	0	0	0	39
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150

TABLE E-77 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF BAY ANCHOVY YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM  
BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	CPUE	0.00	0.00	0.00	0.00	150.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.56
19JUN	SE	0.00	0.00	0.00	0.00	150.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	150.67
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
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
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	CPUE	0.33	1.91	0.29	0.00	2.67	0.00	0.75	0.00	0.00	0.13	0.00	0.00	0.51
16JUL	SE	0.33	1.24	0.18	0.00	2.67	0.00	0.75	0.00	0.00	0.13	0.00	0.00	3.06
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
28JUL-	CPUE	1.20	86.63	0.00	280.60	433.80	0.00	0.00	0.00	0.00	0.00	0.10	0.14	66.87
31JUL	SE	1.20	45.17	0.00	146.56	433.80	0.00	0.00	0.00	0.00	0.00	0.10	0.14	460.11
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11AUG-	CPUE	0.00	0.00	0.00	0.00	783.20	0.00	0.00	0.00	0.00	0.00	0.10	0.00	65.28
14AUG	SE	0.00	0.00	0.00	0.00	783.20	0.00	0.00	0.00	0.00	0.00	0.10	0.00	783.20
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	CPUE	410.60	354.25	0.00	0.00	0.60	0.00	0.00	0.20	6.20	0.00	0.20	0.00	64.34
27AUG	SE	209.48	229.56	0.00	0.00	0.60	0.00	0.00	0.20	5.95	0.00	0.13	0.00	310.83
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
08SEP-	CPUE	0.00	13.88	1.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.31
11SEP	SE	0.00	6.21	1.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.46
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22SEP-	CPUE	0.20	5.79	4.14	0.00	0.00	0.17	0.00	0.00	0.00	0.00	1.00	0.00	0.94
25SEP	SE	0.20	5.24	3.28	0.00	0.00	0.17	0.00	0.00	0.00	0.00	1.00	0.00	6.27
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	CPUE	0.00	5.88	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.53
09OCT	SE	0.00	2.74	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.78
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	CPUE	10.40	93.63	0.00	192.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24.74
24OCT	SE	9.91	76.65	0.00	143.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	163.32
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE E-78 REGIONAL STANDING CROP (IN THOUSANDS) OF BAY ANCHOVY YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM  
BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	ST. CROP	0	0	0	0	397	0	0	0	0	0	0	0	397
19JUN	SE	0	0	0	0	397	0	0	0	0	0	0	0	397
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
30JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
03JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	ST. CROP	3	87	8	0	7	0	5	0	0	2	0	0	112
16JUL	SE	3	56	5	0	7	0	5	0	0	2	0	0	57
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
28JUL-	ST. CROP	9	3936	0	2586	1143	0	0	0	0	0	2	2	7678
31JUL	SE	9	2052	0	1351	1143	0	0	0	0	0	2	2	2710
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11AUG-	ST. CROP	0	0	0	0	2064	0	0	0	0	0	2	0	2066
14AUG	SE	0	0	0	0	2064	0	0	0	0	0	2	0	2064
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	ST. CROP	3092	16096	0	0	2	0	0	< 0.5	53	0	4	0	19247
27AUG	SE	1578	10430	0	0	2	0	0	< 0.5	51	0	3	0	10549
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
08SEP-	ST. CROP	0	630	48	0	0	0	0	0	0	0	0	0	678
11SEP	SE	0	282	48	0	0	0	0	0	0	0	0	0	286
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22SEP-	ST. CROP	2	263	111	0	0	2	0	0	0	0	20	0	398
25SEP	SE	2	238	88	0	0	2	0	0	0	0	20	0	255
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	ST. CROP	0	267	13	0	0	0	0	0	0	0	0	0	280
09OCT	SE	0	124	13	0	0	0	0	0	0	0	0	0	125
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	ST. CROP	78	4254	0	1777	0	0	0	0	0	0	0	0	6109
24OCT	SE	75	3483	0	1326	0	0	0	0	0	0	0	0	3727
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE E-79 REGIONAL DENSITY (NO./1,000m3) OF BAY ANCHOVY YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

ALL REGIONS COMBINED															
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-06MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-20MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-03APR	DENSITY	0.87	0.00	0.00	0.46	0.18	0.00	0.00	NS	NS	NS	NS	NS	NS	0.22
	SE	0.63	0.00	0.00	0.23	0.18	0.00	0.00							0.69
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-10APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-17APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-24APR	DENSITY	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
	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	0.00	0.09
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-01MAY	DENSITY	0.45	0.29	0.59	1.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20
	SE	0.45	0.29	0.34	0.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.86
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-07MAY	DENSITY	4.17	11.72	1.75	6.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.86
	SE	3.82	6.80	0.92	4.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.82
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-15MAY	DENSITY	12.91	14.98	9.18	11.38	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.76
	SE	5.43	3.64	3.17	3.39	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.02
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-22MAY	DENSITY	3.12	6.71	13.56	13.99	3.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.14
	SE	1.42	3.04	4.38	4.43	2.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.44
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-30MAY	DENSITY	3.61	28.49	34.43	72.90	19.00	0.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.25
	SE	1.22	6.52	10.11	32.25	4.70	0.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	34.77
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-05JUN	DENSITY	6.20	120.55	415.38	57.70	9.71	0.11	1.89	0.00	0.00	0.00	0.00	0.00	0.00	47.04
	SE	2.32	50.67	208.91	9.11	6.33	0.11	1.11	0.00	0.00	0.00	0.00	0.00	0.00	215.27
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-79 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF BAY ANCHOVY YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

															ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
10JUN-	DENSITY	36.23	279.26	147.32	24.43	7.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.03
13JUN	SE	4.94	56.51	33.12	4.02	1.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	65.83
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	DENSITY	75.87	165.37	131.90	46.56	18.36	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	33.80
19JUN	SE	39.99	69.06	55.75	17.70	4.86	0.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.06
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	DENSITY	36.04	55.28	53.50	43.12	8.95	1.63	0.06	0.00	0.00	0.00	0.00	0.00	0.00	15.27
27JUN	SE	14.93	22.87	18.26	17.52	7.94	1.05	0.06	0.00	0.00	0.00	0.00	0.00	0.00	38.09
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	DENSITY	44.32	61.75	162.97	209.90	10.43	1.06	1.08	0.00	0.00	0.00	0.00	0.00	0.00	37.81
03JUL	SE	16.56	8.21	30.96	67.87	10.03	0.97	0.71	0.00	0.00	0.00	0.00	0.00	0.00	77.51
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	DENSITY	52.63	37.58	70.79	3.00	98.79	2.22	32.58	0.00	NS	NS	NS	NS	NS	37.20
17JUL	SE	10.31	15.90	27.30	1.14	37.04	0.86	19.63	0.00						53.51
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	DENSITY	24.21	2.04	18.78	9.21	22.03	2.59	12.59	5.78	NS	NS	NS	NS	NS	12.15
30JUL	SE	11.43	1.54	3.54	2.65	19.63	1.00	6.51	5.78						24.79
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	DENSITY	21.22	28.49	0.88	1.78	1.27	2.31	3.64	0.81	NS	NS	NS	NS	NS	7.55
14AUG	SE	5.67	11.24	0.88	1.26	1.27	1.19	2.04	0.81						12.99
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	DENSITY	4.52	12.13	20.24	11.06	4.68	3.23	7.90	2.48	NS	NS	NS	NS	NS	8.28
27AUG	SE	2.30	5.47	4.81	3.24	1.99	0.30	4.30	2.26						9.82
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	DENSITY	26.63	13.77	1.71	1.25	1.30	6.07	15.18	12.21	NS	NS	NS	NS	NS	9.77
11SEP	SE	7.65	2.72	1.06	1.25	0.81	1.42	3.21	7.88						11.99
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	DENSITY	12.16	17.98	4.54	4.38	1.35	0.78	24.70	5.18	NS	NS	NS	NS	NS	8.88
25SEP	SE	6.18	2.28	2.15	1.53	0.57	0.68	4.63	3.68						9.28
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	DENSITY	4.61	8.47	1.00	1.67	0.60	0.85	7.77	0.23	NS	NS	NS	NS	NS	3.15
09OCT	SE	4.61	1.92	1.00	1.17	0.32	0.18	2.07	0.23						5.63
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-80 REGIONAL STANDING CROP (IN THOUSANDS) OF BAY ANCHOVY YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
06MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
20MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	ST. CROP	183	0	0	68	38	0	0	NS	NS	NS	NS	NS	NS	288
03APR	SE	131	0	0	34	38	0	0							140
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	ST. CROP	0	21	0	0	0	0	0	0	0	0	0	0	0	21
24APR	SE	0	21	0	0	0	0	0	0	0	0	0	0	0	21
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	ST. CROP	94	66	188	196	0	0	0	0	0	0	0	0	0	545
01MAY	SE	94	66	109	86	0	0	0	0	0	0	0	0	0	180
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	ST. CROP	872	2688	562	968	0	0	0	0	0	0	0	0	0	5090
07MAY	SE	799	1561	295	593	0	0	0	0	0	0	0	0	0	1874
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	ST. CROP	2698	3436	2954	1682	89	0	0	0	0	0	0	0	0	10858
15MAY	SE	1134	835	1021	500	40	0	0	0	0	0	0	0	0	1810
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	ST. CROP	652	1539	4365	2067	704	0	0	0	0	0	0	0	0	9328
22MAY	SE	296	698	1411	654	476	0	0	0	0	0	0	0	0	1794
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	ST. CROP	754	6537	11081	10771	3959	181	0	0	0	0	0	0	0	33282
30MAY	SE	256	1496	3254	4764	979	181	0	0	0	0	0	0	0	6048
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	ST. CROP	1295	27656	133673	8524	2023	23	264	0	0	0	0	0	0	173459
05JUN	SE	486	11625	67229	1346	1320	23	155	0	0	0	0	0	0	68254
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-80 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF BAY ANCHOVY YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
10JUN-	ST. CROP	7573	64067	47411	3609	1482	0	0	0	0	0	0	0	0
13JUN	SE	1033	12964	10659	594	353	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
16JUN-	ST. CROP	15857	37938	42448	6879	3825	291	0	0	0	0	0	0	0
19JUN	SE	8358	15843	17941	2614	1013	145	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
24JUN-	ST. CROP	7533	12681	17218	6371	1864	338	8	0	0	0	0	0	0
27JUN	SE	3121	5247	5877	2588	1653	218	8	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
29JUN-	ST. CROP	9262	14168	52444	31010	2173	221	151	0	0	0	0	0	0
03JUL	SE	3461	1883	9963	10026	2089	202	99	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
14JUL-	ST. CROP	11000	8621	22780	443	20581	461	4554	0	NS	NS	NS	NS	NS
17JUL	SE	2156	3648	8784	169	7718	178	2744	0					
	NO. TOWS	6	11	13	14	13	8	10	5					
28JUL-	ST. CROP	5060	467	6045	1360	4589	537	1760	1725	NS	NS	NS	NS	NS
30JUL	SE	2388	354	1140	392	4090	208	909	1725					
	NO. TOWS	6	11	13	14	13	8	10	6					
12AUG-	ST. CROP	4434	6536	284	263	264	479	510	242	NS	NS	NS	NS	NS
14AUG	SE	1186	2578	284	186	264	247	285	242					
	NO. TOWS	6	11	13	14	13	8	10	6					
25AUG-	ST. CROP	945	2783	6512	1635	975	671	1104	741	NS	NS	NS	NS	NS
27AUG	SE	481	1255	1549	479	414	61	601	673					
	NO. TOWS	6	11	13	14	13	8	10	6					
09SEP-	ST. CROP	5567	3159	551	185	270	1259	2122	3641	NS	NS	NS	NS	NS
11SEP	SE	1599	625	342	185	169	295	449	2350					
	NO. TOWS	6	11	13	14	13	8	10	6					
23SEP-	ST. CROP	2542	4124	1460	647	281	161	3453	1546	NS	NS	NS	NS	NS
25SEP	SE	1292	522	692	226	119	142	648	1097					
	NO. TOWS	6	11	13	14	13	8	10	6					
07OCT-	ST. CROP	963	1942	322	246	124	177	1086	69	NS	NS	NS	NS	NS
09OCT	SE	963	441	322	172	66	36	289	69					
	NO. TOWS	6	11	13	14	13	8	10	6					



TABLE E-81 REGIONAL DENSITY (NO./1,000m3) OF BAY ANCHOVY YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
07JUL-	DENSITY	10.67	14.46	30.69	19.79	0.97	0.88	< 0.005	0.00	0.00	0.00	0.00	0.00	0.00
11JUL	SE	7.67	11.42	17.79	13.72	0.65	0.38	< 0.005	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8
21JUL-	DENSITY	0.10	5.93	1.07	0.00	0.31	3.94	0.03	0.00	0.02	0.00	0.00	0.00	0.00
25JUL	SE	0.05	5.46	1.07	0.00	0.31	2.18	0.03	0.00	0.02	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
04AUG-	DENSITY	0.00	1.93	1.28	0.03	0.36	1.41	6.36	0.00	0.00	0.28	0.00	0.00	0.00
08AUG	SE	0.00	1.06	0.62	0.03	0.36	0.83	5.33	0.00	0.00	0.28	0.00	0.00	0.00
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8
18AUG-	DENSITY	7.87	6.47	3.71	0.85	0.72	6.81	0.24	0.00	0.80	0.00	0.00	0.00	0.00
21AUG	SE	3.93	2.88	1.66	0.31	0.38	2.96	0.09	0.00	0.80	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
02SEP-	DENSITY	15.31	4.76	1.19	1.49	0.82	2.50	0.14	0.53	0.04	0.31	0.00	0.00	0.00
05SEP	SE	8.37	1.70	0.30	0.54	0.41	1.03	0.07	0.51	0.02	0.31	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
15SEP-	DENSITY	5.72	6.10	4.84	1.66	1.93	6.84	13.11	0.80	1.69	0.00	0.00	0.00	0.00
18SEP	SE	2.56	2.43	2.50	0.47	0.88	1.86	4.60	0.56	0.82	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8
29SEP-	DENSITY	2.43	1.25	2.37	0.93	0.86	4.92	3.92	2.58	2.79	0.00	0.07	0.52	0.00
02OCT	SE	1.34	1.06	1.36	0.72	0.50	2.00	2.91	1.11	2.26	0.00	0.07	0.52	0.00
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8
13OCT-	DENSITY	4.65	2.40	2.13	0.22	0.01	1.19	0.96	0.00	0.00	0.00	0.00	0.00	0.00
16OCT	SE	3.89	1.12	0.75	0.06	0.01	0.53	0.47	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
27OCT-	DENSITY	0.27	0.56	0.14	0.05	0.10	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30OCT	SE	0.07	0.26	0.12	0.03	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8
10NOV-	DENSITY	0.04	0.07	0.15	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14NOV	SE	0.03	0.04	0.08	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8
01DEC-	DENSITY	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05DEC	SE	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8

< 0.005  
0.03  
150

TABLE E-82 REGIONAL STANDING CROP (IN THOUSANDS) OF BAY ANCHOVY YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

														ALL REGIONS COMBINED	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
07JUL-	ST. CROP	2231	3317	9875	2924	201	184	1	0	0	0	0	0	0	18732
11JUL	SE	1603	2620	5726	2027	135	79	1	0	0	0	0	0	0	6809
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8	210
21JUL-	ST. CROP	21	1360	345	0	65	817	4	0	3	0	0	0	0	2616
25JUL	SE	10	1252	345	0	64	451	4	0	3	0	0	0	0	1376
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
04AUG-	ST. CROP	0	442	411	4	75	292	889	0	0	40	0	0	0	2154
08AUG	SE	0	243	198	4	75	172	746	0	0	40	0	0	0	831
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8	210
18AUG-	ST. CROP	1644	1484	1195	126	150	1412	34	0	133	0	0	0	0	6178
21AUG	SE	821	661	535	46	79	614	13	0	133	0	0	0	0	1342
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
02SEP-	ST. CROP	3201	1093	383	219	171	519	19	157	6	44	0	0	0	5812
05SEP	SE	1750	391	96	80	85	214	9	153	4	44	0	0	0	1819
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
15SEP-	ST. CROP	1195	1399	1558	245	402	1418	1832	238	280	0	0	0	0	8569
18SEP	SE	535	558	805	70	183	386	643	166	135	0	0	0	0	1376
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8	210
29SEP-	ST. CROP	508	288	763	138	180	1020	549	769	462	0	12	83	0	4772
02OCT	SE	281	243	438	107	105	415	407	332	374	0	12	83	0	973
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8	210
13OCT-	ST. CROP	972	551	685	32	3	247	134	0	0	0	0	0	0	2624
16OCT	SE	814	256	241	8	3	110	66	0	0	0	0	0	0	896
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
27OCT-	ST. CROP	55	130	46	7	20	4	0	0	0	0	0	0	0	263
30OCT	SE	15	60	40	5	8	2	0	0	0	0	0	0	0	74
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8	150
10NOV-	ST. CROP	8	15	49	4	2	0	0	0	0	0	0	0	0	79
14NOV	SE	6	9	27	4	2	0	0	0	0	0	0	0	0	29
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150
01DEC-	ST. CROP	13	0	0	0	0	0	0	0	0	0	0	0	0	13
05DEC	SE	7	0	0	0	0	0	0	0	0	0	0	0	0	7
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150

TABLE E-83 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF BAY ANCHOVY YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	CPUE	8.67	3.82	0.43	0.00	8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.74
19JUN	SE	8.17	2.67	0.43	0.00	4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.49
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
30JUN-	CPUE	16.33	6.00	0.29	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.97
03JUL	SE	10.17	2.73	0.29	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.58
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	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
16JUL	SE	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
28JUL-	CPUE	0.00	0.00	0.07	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
31JUL	SE	0.00	0.00	0.07	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11AUG-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
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
27AUG	SE	0.00	0.00	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
08SEP-	CPUE	0.00	0.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06
11SEP	SE	0.00	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
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
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	CPUE	1.40	0.13	0.00	3.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44
24OCT	SE	1.40	0.13	0.00	3.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.05
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE E-84 REGIONAL STANDING CROP (IN THOUSANDS) OF BAY ANCHOVY YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	ST. CROP	65	173	12	0	21	0	0	0	0	0	0	0	271
19JUN	SE	62	121	12	0	11	0	0	0	0	0	0	0	137
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
30JUN-	ST. CROP	123	273	8	9	0	0	0	0	0	0	0	0	413
03JUL	SE	77	124	8	9	0	0	0	0	0	0	0	0	146
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	ST. CROP	0	8	0	0	0	0	0	0	0	0	0	0	8
16JUL	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
28JUL-	ST. CROP	0	0	2	0	1	0	0	0	0	0	0	0	2
31JUL	SE	0	0	2	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
11AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
14AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
27AUG	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
08SEP-	ST. CROP	0	30	0	0	0	0	0	0	0	0	0	0	30
11SEP	SE	0	21	0	0	0	0	0	0	0	0	0	0	21
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
25SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
09OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	ST. CROP	11	6	0	35	0	0	0	0	0	0	0	0	51
24OCT	SE	11	6	0	35	0	0	0	0	0	0	0	0	37
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE E-85 REGIONAL DENSITY (NO./1,000m3) OF AMERICAN SHAD EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
04MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
06MAR-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
18MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
20MAR-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
01APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
03APR-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
07APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10APR-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
14APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17APR-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
21APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.88	7.63	11.14	42.09
24APR-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.88	5.89	11.14	28.39
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
28APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	38.45
01MAY-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	14.21
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
05MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.95	9.38	74.83
07MAY-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.49	5.54	22.46
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
12MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.55	0.47	1.20	5.85
15MAY-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.02	0.47	1.20	3.24
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10
19MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	2.40	27.44	18.51
22MAY-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	1.54	13.17	5.61
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
27MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64.84	9.77	0.00
30MAY-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.17	9.77	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
02JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.23	1.64	0.00
05JUN-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.23	1.22	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6

TABLE E-85 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF AMERICAN SHAD EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.22	0.00	0.00	0.09
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.22	0.00	0.00	1.22
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
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
17JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	5						80
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
30JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
27AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
11SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-86 REGIONAL STANDING CROP (IN THOUSANDS) OF AMERICAN SHAD EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

ALL REGIONS COMBINED															
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-	ST.CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
06MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	ST.CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
20MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	ST.CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
03APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	ST.CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	ST.CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	ST.CROP	0	0	0	0	0	0	0	0	0	1681	1346	1791	2994	7812
24APR	SE	0	0	0	0	0	0	0	0	0	1681	1038	1791	2020	3345
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	ST.CROP	0	0	0	0	0	0	0	0	0	0	0	53	2735	2788
01MAY	SE	0	0	0	0	0	0	0	0	0	0	0	53	1011	1013
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	ST.CROP	0	0	0	0	0	0	0	0	0	0	345	1508	5324	7177
07MAY	SE	0	0	0	0	0	0	0	0	0	0	263	890	1598	1848
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	ST.CROP	0	0	0	0	0	0	0	0	0	219	83	192	416	911
15MAY	SE	0	0	0	0	0	0	0	0	0	144	83	192	230	343
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	ST.CROP	0	0	0	0	0	0	0	0	0	38	422	4410	1317	6188
22MAY	SE	0	0	0	0	0	0	0	0	0	38	272	2117	399	2172
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	ST.CROP	0	0	0	0	0	0	0	0	0	0	11431	1571	0	13002
30MAY	SE	0	0	0	0	0	0	0	0	0	0	7787	1571	0	7944
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	ST.CROP	0	0	0	0	0	0	0	0	0	40	40	264	0	344
05JUN	SE	0	0	0	0	0	0	0	0	0	40	40	196	0	204
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-86 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF AMERICAN SHAD EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
10JUN-	ST.CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	ST.CROP	0	0	0	0	0	0	0	0	0	0	215	0	0	215
19JUN	SE	0	0	0	0	0	0	0	0	0	0	215	0	0	215
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	ST.CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	ST.CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	ST.CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
17JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	ST.CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
30JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	ST.CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	ST.CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
27AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	ST.CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
11SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	ST.CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
25SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	ST.CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
09OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81



TABLE E-87 REGIONAL DENSITY (NO./1,000m3) OF AMERICAN SHAD YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
04MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
06MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
18MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
20MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
01APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
03APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
07APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
14APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
21APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
28APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
05MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
12MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	4.25	1.08
15MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	4.25	0.85
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10
19MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.00	4.51	11.71
22MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.00	4.51	4.60
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
27MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.55	3.92
30MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.55	3.26
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
02JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6

TABLE E-87 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF AMERICAN SHAD YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
														AL	
10JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.04
13JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.47
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
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
17JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	5						80
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
30JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
27AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
11SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-88 REGIONAL STANDING CROP (IN THOUSANDS) OF AMERICAN SHAD YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

ALL REGIONS COMBINED															
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
06MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
20MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
03APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	83	682	77	842
15MAY	SE	0	0	0	0	0	0	0	0	0	0	83	682	61	690
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	38	0	726	833	1596
22MAY	SE	0	0	0	0	0	0	0	0	0	38	0	726	327	797
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	88	279	366
30MAY	SE	0	0	0	0	0	0	0	0	0	0	0	88	232	248
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-88 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF AMERICAN SHAD YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
														AL	
10JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	33	33
13JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	33	33
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
17JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
30JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
27AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
11SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
25SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
09OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-89 REGIONAL DENSITY (NO./1,000m3) OF AMERICAN SHAD POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
04MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
06MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
18MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
20MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
01APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
03APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
07APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
14APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
21APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
28APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
05MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
12MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64	0.00
15MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10
19MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.53	1.61	5.20	10.10
22MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.53	1.39	4.57	3.66
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
27MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.58	2.17	2.88	10.74
30MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.58	2.17	0.41	4.25
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
02JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.02	0.00	0.00	0.00	13.33
05JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.27	0.00	0.00	0.00	7.22
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6

TABLE E-89 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF AMERICAN SHAD POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
														AL	
10JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.02	1.04	4.47	24.78	2.49
13JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.02	1.04	4.47	11.94	12.95
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.40	0.00	0.34
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.40	0.00	4.40
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.58	0.63	0.09
27JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.58	0.63	0.85
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
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
17JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	5						80
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
30JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
27AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
11SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-90 REGIONAL STANDING CROP (IN THOUSANDS) OF AMERICAN SHAD POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

SURVEY, 2008															ALL
															REGIONS
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	COMBINED
04MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
06MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
20MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
03APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	102	0	102
15MAY	SE	0	0	0	0	0	0	0	0	0	0	0	102	0	102
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	75	284	836	719	1914
22MAY	SE	0	0	0	0	0	0	0	0	0	75	246	734	261	820
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	82	383	463	764	1692
30MAY	SE	0	0	0	0	0	0	0	0	0	82	383	66	302	499
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	ST. CROP	0	0	0	0	0	0	0	0	500	0	0	0	948	1448
05JUN	SE	0	0	0	0	0	0	0	0	376	0	0	0	514	637
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-90 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF AMERICAN SHAD POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
														AL	
10JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	286	183	719	1763	2951
13JUN	SE	0	0	0	0	0	0	0	0	0	286	183	719	849	1163
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	708	0	708
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	708	0	708
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	93	45	137
27JUN	SE	0	0	0	0	0	0	0	0	0	0	0	93	45	103
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
17JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
30JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
27AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
11SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
25SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
09OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81



TABLE E-91 REGIONAL DENSITY (NO./1,000m3) OF AMERICAN SHAD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
04MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
06MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
18MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
20MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
01APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
03APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
07APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
14APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
21APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
28APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
05MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
12MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10
19MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
27MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
02JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6

TABLE E-91 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF AMERICAN SHAD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
10JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
16JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
24JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	1.01	0.00	8.90	0.00
27JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	0.78	0.00	4.42	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
29JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	2.53	0.00	0.00	2.15
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	2.53	0.00	0.00	2.15
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
14JUL-	DENSITY	0.00	0.00	0.00	0.00	0.12	0.00	0.00	0.50	NS	NS	NS	NS	NS
17JUL	SE	0.00	0.00	0.00	0.00	0.12	0.00	0.00	0.50					
	NO. TOWS	6	11	13	14	13	8	10	5					
28JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	NS	NS	NS	NS	NS
30JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26					
	NO. TOWS	6	11	13	14	13	8	10	6					
12AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
	NO. TOWS	6	11	13	14	13	8	10	6					
25AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS
27AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
	NO. TOWS	6	11	13	14	13	8	10	6					
09SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS
11SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
	NO. TOWS	6	11	13	14	13	8	10	6					
23SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
	NO. TOWS	6	11	13	14	13	8	10	6					
07OCT-	DENSITY	0.00	0.00	0.40	0.00	0.00	0.00	0.00	0.23	NS	NS	NS	NS	NS
09OCT	SE	0.00	0.00	0.40	0.00	0.00	0.00	0.00	0.23					
	NO. TOWS	6	11	13	14	13	8	10	6					

TABLE E-92 REGIONAL STANDING CROP (IN THOUSANDS) OF AMERICAN SHAD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
06MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
20MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
03APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-92 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF AMERICAN SHAD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
														AL	
10JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	ST. CROP	0	0	0	0	0	0	0	0	63	143	0	1430	0	1636
27JUN	SE	0	0	0	0	0	0	0	0	63	110	0	710	0	721
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	ST. CROP	0	0	0	0	0	0	0	0	24	358	0	0	153	536
03JUL	SE	0	0	0	0	0	0	0	0	24	358	0	0	153	391
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	ST. CROP	0	0	0	0	26	0	0	149	NS	NS	NS	NS	NS	175
17JUL	SE	0	0	0	0	26	0	0	149						152
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	ST. CROP	0	0	0	0	0	0	0	76	NS	NS	NS	NS	NS	76
30JUL	SE	0	0	0	0	0	0	0	76						76
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
27AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
11SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
25SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	ST. CROP	0	0	127	0	0	0	0	69	NS	NS	NS	NS	NS	196
09OCT	SE	0	0	127	0	0	0	0	69						145
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-93 REGIONAL DENSITY (NO./1,000m3) OF AMERICAN SHAD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
07JUL-	DENSITY	0.00	0.00	0.00	0.03	0.00	0.00	0.34	0.03	0.00	0.00	0.92	0.23	0.09
11JUL	SE	0.00	0.00	0.00	0.03	0.00	0.00	0.32	0.02	0.00	0.00	0.92	0.23	0.09
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8
21JUL-	DENSITY	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.02	0.00	0.18	0.12	0.30
25JUL	SE	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.02	0.00	0.12	0.12	0.30
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
04AUG-	DENSITY	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00
08AUG	SE	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8
18AUG-	DENSITY	0.00	0.02	0.00	0.00	0.00	0.00	0.09	0.03	0.00	0.06	0.00	0.11	0.18
21AUG	SE	0.00	0.02	0.00	0.00	0.00	0.00	0.04	0.02	0.00	0.06	0.00	0.11	0.10
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
02SEP-	DENSITY	0.00	0.02	0.00	0.00	0.02	0.00	0.00	0.03	0.02	0.44	0.07	0.24	0.10
05SEP	SE	0.00	0.02	0.00	0.00	0.02	0.00	0.00	0.02	0.02	0.44	0.07	0.24	0.10
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
15SEP-	DENSITY	0.00	0.03	0.00	0.03	0.00	0.00	0.06	0.05	0.00	0.37	0.00	0.11	0.00
18SEP	SE	0.00	0.03	0.00	0.03	0.00	0.00	0.04	0.03	0.00	0.32	0.00	0.11	0.00
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8
29SEP-	DENSITY	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.01	0.04	0.00	0.07	0.12	0.30
02OCT	SE	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.01	0.02	0.00	0.07	0.12	0.10
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8
13OCT-	DENSITY	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.06	0.00	0.00	0.00
16OCT	SE	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.06	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
27OCT-	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	0.00
30OCT	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	0.00
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8
10NOV-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14NOV	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8
01DEC-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05DEC	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8

TABLE E-94 REGIONAL STANDING CROP (IN THOUSANDS) OF AMERICAN SHAD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
														AL	
07JUL-	ST. CROP	0	0	0	4	0	0	48	8	0	0	162	36	6	263
11JUL	SE	0	0	0	4	0	0	44	5	0	0	162	36	6	172
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8	210
21JUL-	ST. CROP	0	0	0	0	1	2	0	0	3	0	32	19	21	78
25JUL	SE	0	0	0	0	1	2	0	0	3	0	20	19	21	35
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
04AUG-	ST. CROP	0	0	0	4	3	0	0	0	0	0	11	0	0	17
08AUG	SE	0	0	0	4	3	0	0	0	0	0	11	0	0	12
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8	210
18AUG-	ST. CROP	0	5	0	0	0	0	13	8	0	9	0	17	13	66
21AUG	SE	0	5	0	0	0	0	6	5	0	9	0	17	7	23
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
02SEP-	ST. CROP	0	5	0	0	4	0	0	9	3	63	12	39	7	142
05SEP	SE	0	5	0	0	3	0	0	6	3	63	12	39	7	76
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
15SEP-	ST. CROP	0	6	0	4	0	0	8	15	0	53	0	18	0	104
18SEP	SE	0	6	0	4	0	0	5	8	0	46	0	18	0	50
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8	210
29SEP-	ST. CROP	0	0	0	4	1	0	0	4	6	0	12	19	21	68
02OCT	SE	0	0	0	4	1	0	0	4	4	0	12	19	7	25
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8	210
13OCT-	ST. CROP	0	6	0	0	0	0	0	8	0	9	0	0	0	23
16OCT	SE	0	6	0	0	0	0	0	5	0	9	0	0	0	12
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
27OCT-	ST. CROP	0	0	0	0	0	0	0	5	0	0	0	0	0	5
30OCT	SE	0	0	0	0	0	0	0	5	0	0	0	0	0	5
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8	150
10NOV-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14NOV	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150
01DEC-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05DEC	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150

TABLE E-95 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF AMERICAN SHAD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM  
BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.50	0.38	0.40	0.37	0.17	0.19
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.50	0.38	0.19	0.22	0.17	0.87
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
30JUN-	CPUE	0.00	0.00	0.00	0.00	0.00	4.33	2.00	0.63	0.25	0.00	2.63	2.50	1.03
03JUL	SE	0.00	0.00	0.00	0.00	0.00	2.33	1.16	0.38	0.16	0.00	0.85	1.62	3.21
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	CPUE	0.67	0.18	0.29	1.00	0.33	2.67	0.25	0.50	1.75	0.27	0.21	2.75	0.91
16JUL	SE	0.67	0.18	0.18	1.00	0.33	1.20	0.16	0.33	1.24	0.18	0.16	1.99	2.95
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
28JUL-	CPUE	0.00	0.17	0.50	0.60	3.00	3.83	0.20	1.00	2.60	0.56	3.10	1.14	1.39
31JUL	SE	0.00	0.12	0.36	0.60	1.52	1.51	0.20	0.55	0.75	0.34	1.66	0.26	2.99
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11AUG-	CPUE	0.00	0.33	0.07	2.60	7.40	2.33	5.00	0.80	1.20	0.33	1.00	1.86	1.91
14AUG	SE	0.00	0.22	0.07	1.78	3.98	1.02	2.55	0.49	0.37	0.24	0.39	0.86	5.29
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	CPUE	0.00	0.00	0.14	0.20	2.20	1.83	1.00	1.00	0.80	1.00	0.50	0.29	0.75
27AUG	SE	0.00	0.00	0.14	0.20	0.66	0.54	0.45	0.77	0.37	0.67	0.34	0.29	1.54
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
08SEP-	CPUE	0.00	0.00	0.14	0.40	1.60	3.17	3.60	0.40	0.00	0.22	1.00	0.43	0.91
11SEP	SE	0.00	0.00	0.14	0.40	0.60	1.33	3.36	0.24	0.00	0.22	0.56	0.30	3.75
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22SEP-	CPUE	0.00	0.00	0.14	0.00	2.00	3.33	0.20	0.20	0.40	0.44	0.00	0.86	0.63
25SEP	SE	0.00	0.00	0.10	0.00	1.10	0.88	0.20	0.20	0.40	0.44	0.00	0.46	1.62
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	CPUE	0.00	0.00	0.14	2.40	0.20	11.50	1.20	0.60	0.00	0.22	0.60	0.14	1.42
09OCT	SE	0.00	0.00	0.14	1.94	0.20	6.61	1.20	0.24	0.00	0.15	0.60	0.14	7.03
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	CPUE	0.00	0.04	0.21	0.40	0.60	1.17	0.20	0.00	0.00	0.00	0.50	0.00	0.26
24OCT	SE	0.00	0.04	0.15	0.40	0.60	0.31	0.20	0.00	0.00	0.00	0.40	0.00	0.92
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE E-96 REGIONAL STANDING CROP (IN THOUSANDS) OF AMERICAN SHAD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
													AL	
17JUN-	ST. CROP	0	0	0	0	0	0	4	1	3	7	7	2	24
19JUN	SE	0	0	0	0	0	0	4	1	3	3	4	2	8
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
30JUN-	ST. CROP	0	0	0	0	0	46	14	1	2	0	52	34	149
03JUL	SE	0	0	0	0	0	25	8	< 0.5	1	0	17	22	38
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	ST. CROP	5	8	8	9	1	28	2	1	15	5	4	37	123
16JUL	SE	5	8	5	9	1	13	1	< 0.5	11	3	3	27	35
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
28JUL-	ST. CROP	0	8	13	6	8	41	1	1	22	10	61	16	187
31JUL	SE	0	5	10	6	4	16	1	1	6	6	33	4	40
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11AUG-	ST. CROP	0	15	2	24	20	25	35	1	10	6	20	25	183
14AUG	SE	0	10	2	16	10	11	18	1	3	4	8	12	34
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	ST. CROP	0	0	4	2	6	20	7	1	7	18	10	4	78
27AUG	SE	0	0	4	2	2	6	3	1	3	12	7	4	17
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
08SEP-	ST. CROP	0	0	4	4	4	34	26	< 0.5	0	4	20	6	101
11SEP	SE	0	0	4	4	2	14	24	< 0.5	0	4	11	4	31
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22SEP-	ST. CROP	0	0	4	0	5	36	1	< 0.5	3	8	0	12	69
25SEP	SE	0	0	3	0	3	9	1	< 0.5	3	8	0	6	15
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	ST. CROP	0	0	4	22	1	122	9	1	0	4	12	2	176
09OCT	SE	0	0	4	18	1	70	9	< 0.5	0	3	12	2	74
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	ST. CROP	0	2	6	4	2	12	1	0	0	0	10	0	37
24OCT	SE	0	2	4	4	2	3	1	0	0	0	8	0	11
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100



TABLE E-97 REGIONAL DENSITY (NO./1,000m3) OF AMERICAN SHAD YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
04MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
06MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
18MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
20MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
01APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
03APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
07APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
14APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
21APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
28APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
05MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
12MAY-	DENSITY	0.00	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15MAY	SE	0.00	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10
19MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
27MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.57	0.00
30MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.57	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
02JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6

TABLE E-97 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF AMERICAN SHAD YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
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
17JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	5						80
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
30JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
27AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
11SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-98 REGIONAL STANDING CROP (IN THOUSANDS) OF AMERICAN SHAD YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
06MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
20MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
03APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	ST. CROP	0	64	0	0	0	0	0	0	0	0	0	0	0	64
15MAY	SE	0	64	0	0	0	0	0	0	0	0	0	0	0	64
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	92	0	92
30MAY	SE	0	0	0	0	0	0	0	0	0	0	0	92	0	92
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-98 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF AMERICAN SHAD YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
10JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
13JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
16JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
24JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
27JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
29JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
03JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
14JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS
17JUL	SE	0	0	0	0	0	0	0	0					
	NO. TOWS	6	11	13	14	13	8	10	5					
28JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS
30JUL	SE	0	0	0	0	0	0	0	0					
	NO. TOWS	6	11	13	14	13	8	10	6					
12AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS
14AUG	SE	0	0	0	0	0	0	0	0					
	NO. TOWS	6	11	13	14	13	8	10	6					
25AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS
27AUG	SE	0	0	0	0	0	0	0	0					
	NO. TOWS	6	11	13	14	13	8	10	6					
09SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS
11SEP	SE	0	0	0	0	0	0	0	0					
	NO. TOWS	6	11	13	14	13	8	10	6					
23SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS
25SEP	SE	0	0	0	0	0	0	0	0					
	NO. TOWS	6	11	13	14	13	8	10	6					
07OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS
09OCT	SE	0	0	0	0	0	0	0	0					
	NO. TOWS	6	11	13	14	13	8	10	6					

TABLE E-99 REGIONAL DENSITY (NO./1,000m3) OF AMERICAN SHAD YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
07JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8
21JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
04AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8
18AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
02SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
15SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8
29SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8
13OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
27OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8
10NOV-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14NOV	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8
01DEC-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05DEC	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8

TABLE E-100 REGIONAL STANDING CROP (IN THOUSANDS) OF AMERICAN SHAD YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
07JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
11JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8
21JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
25JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
04AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
08AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8
18AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
21AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
02SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
05SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
15SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
18SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8
29SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
02OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8
13OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
16OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
27OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
30OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8
10NOV-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
14NOV	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8
01DEC-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
05DEC	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8

TABLE E-101 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF AMERICAN SHAD YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
													AL	
17JUN-	CPUE	0.00	0.09	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.92	0.17
19JUN	SE	0.00	0.09	0.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.92	1.25
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
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
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
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
16JUL	SE	0.00	0.00	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
28JUL-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
31JUL	SE	0.00	0.00	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
11AUG-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
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
27AUG	SE	0.00	0.00	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
08SEP-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11SEP	SE	0.00	0.00	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
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
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	CPUE	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
24OCT	SE	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE E-102 REGIONAL STANDING CROP (IN THOUSANDS) OF AMERICAN SHAD YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM  
BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
													AL	
17JUN-	ST. CROP	0	4	27	0	0	0	0	0	0	0	0	12	43
19JUN	SE	0	4	23	0	0	0	0	0	0	0	0	12	26
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
30JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
03JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
16JUL	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
28JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
31JUL	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
11AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
14AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
27AUG	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
08SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
11SEP	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
22SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
25SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
09OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	ST. CROP	0	0	2	0	0	0	0	0	0	0	0	0	2
24OCT	SE	0	0	2	0	0	0	0	0	0	0	0	0	2
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100



TABLE E-103 REGIONAL DENSITY (NO./1,000m<sup>3</sup>) OF ALOSA SPP. EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

ALL REGIONS COMBINED															
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-06MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-20MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-03APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-10APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-17APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.53	0.00	0.06
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.53	0.00	0.60
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-24APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	243.68	77.35	241.03	43.23
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	61.56	41.93	203.52	216.72
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-01MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.65	0.00	0.00	1.23	257.70	612.37	67.07
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.65	0.00	0.00	0.74	66.48	180.58	192.43
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-07MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	10.82	59.94	72.35	11.01
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	7.41	14.88	41.34	44.56
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-15MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.58	0.00	1.85	1121.96	252.78	107.24
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.58	0.00	1.24	373.50	92.54	385.19
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-22MAY	DENSITY	0.00	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.98	967.84	485.60	112.52
	SE	0.00	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.78	326.89	117.68	347.43
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-30MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	89.15	179.05	47.44	24.28
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	57.60	46.24	30.08	79.75
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-05JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70	0.00	7.21	10.97	15.13	292.74	25.13
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70	0.00	5.87	5.47	5.39	243.65	243.84
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-103 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF ALOSA SPP. EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

ALL REGIONS COMBINED															
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
10JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
13JUN	SE	0.00	0.00	0.00	0.00	0.00	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.54
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.11	0.00	0.09
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.11	0.00	1.11
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
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
17JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	5						80
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
30JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
27AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
11SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-104 REGIONAL STANDING CROP (IN THOUSANDS) OF ALOSA SPP. EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

															ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-	ST.CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
06MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	ST.CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
20MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	ST.CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
03APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	ST.CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	ST.CROP	0	0	0	0	0	0	41	0	0	0	0	84	0	126
17APR	SE	0	0	0	0	0	0	41	0	0	0	0	84	0	94
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	ST.CROP	0	0	0	0	0	0	0	0	0	0	42959	12433	17149	72540
24APR	SE	0	0	0	0	0	0	0	0	0	0	10853	6739	14480	19310
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	ST.CROP	0	0	0	0	0	0	0	193	0	0	217	41421	43569	85400
01MAY	SE	0	0	0	0	0	0	0	193	0	0	131	10686	12848	16713
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	ST.CROP	0	0	0	0	0	0	5	0	0	0	1907	9634	5148	16694
07MAY	SE	0	0	0	0	0	0	5	0	0	0	1306	2392	2942	4010
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	ST.CROP	0	0	0	0	0	0	0	0	2910	0	326	180334	17985	201555
15MAY	SE	0	0	0	0	0	0	0	0	2910	0	219	60033	6584	60463
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	ST.CROP	0	87	0	0	0	0	0	0	0	0	1583	155562	34550	191782
22MAY	SE	0	87	0	0	0	0	0	0	0	0	491	52541	8373	53206
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	ST.CROP	0	0	0	0	0	0	0	0	0	0	15716	28778	3375	47870
30MAY	SE	0	0	0	0	0	0	0	0	0	0	10155	7431	2140	12764
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	ST.CROP	0	0	0	0	0	0	0	207	0	1020	1934	2432	20828	26421
05JUN	SE	0	0	0	0	0	0	0	207	0	831	964	867	17335	17405
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-104 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF ALOSA SPP. EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE	BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
													AL	
10JUN- ST.CROP	0	0	0	0	0	113	0	0	0	0	0	0	0	113
13JUN SE	0	0	0	0	0	113	0	0	0	0	0	0	0	113
NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN- ST.CROP	0	0	0	0	0	0	0	0	0	0	0	178	0	178
19JUN SE	0	0	0	0	0	0	0	0	0	0	0	178	0	178
NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN- ST.CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27JUN SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN- ST.CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03JUL SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL- ST.CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
17JUL SE	0	0	0	0	0	0	0	0						0
NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL- ST.CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
30JUL SE	0	0	0	0	0	0	0	0						0
NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG- ST.CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14AUG SE	0	0	0	0	0	0	0	0						0
NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG- ST.CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
27AUG SE	0	0	0	0	0	0	0	0						0
NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP- ST.CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
11SEP SE	0	0	0	0	0	0	0	0						0
NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP- ST.CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
25SEP SE	0	0	0	0	0	0	0	0						0
NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT- ST.CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
09OCT SE	0	0	0	0	0	0	0	0						0
NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-105 REGIONAL DENSITY (NO./1,000m<sup>3</sup>) OF ALOSA SPP. YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

ALL REGIONS COMBINED															
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-06MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-20MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-03APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-10APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-17APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-24APR	DENSITY	0.63	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.23	0.00	0.00	0.00	0.00	0.07
	SE	0.63	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.23	0.00	0.00	0.00	0.00	0.67
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-01MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	2.18	2.16	0.56	3.14	14.69	8.79	4.05	1.56	2.86
	SE	0.00	0.00	0.00	0.00	0.00	2.18	0.95	0.56	1.15	6.72	2.60	2.35	0.93	8.10
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-07MAY	DENSITY	0.00	0.00	0.00	0.22	0.35	1.22	0.72	15.19	65.30	37.23	8.56	34.69	18.19	13.97
	SE	0.00	0.00	0.00	0.22	0.35	1.07	0.55	9.53	12.65	16.15	4.28	11.51	8.09	27.01
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-15MAY	DENSITY	0.00	0.00	0.00	0.00	0.05	4.36	2.00	1.73	12.08	2.31	20.04	23.48	22.45	6.81
	SE	0.00	0.00	0.00	0.00	0.05	4.20	0.86	0.83	4.38	2.31	4.33	6.83	9.44	14.08
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-22MAY	DENSITY	0.00	0.00	0.42	0.00	0.00	2.30	2.07	3.72	2.38	3.07	31.02	41.65	113.16	15.37
	SE	0.00	0.00	0.42	0.00	0.00	1.19	0.95	1.87	1.91	2.82	21.55	20.71	38.93	49.26
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-30MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.98	0.25	6.23	5.72	30.10	72.00	79.42	14.98
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.16	4.62	0.89	19.33	21.61	24.07	37.98
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-05JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	7.11	0.08	1.39	0.85	2.07	5.85	12.91	76.62	8.22
	SE	0.00	0.00	0.00	0.00	0.00	7.11	0.08	1.39	0.70	1.07	4.70	7.08	26.19	28.50
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-105 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF ALOSA SPP. YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

ALL REGIONS COMBINED															
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
10JUN-	DENSITY	6.37	0.37	0.93	0.00	0.00	0.00	0.32	0.00	0.00	5.63	7.60	15.60	0.00	2.83
13JUN	SE	4.24	0.37	0.93	0.00	0.00	0.00	0.19	0.00	0.00	5.63	5.20	11.58	0.00	14.55
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	DENSITY	4.93	54.62	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.55	0.48	4.68
19JUN	SE	4.93	27.40	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.55	0.48	27.85
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.45	7.73
27JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	66.62	66.62
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.15	6.89	0.85
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.15	4.33	6.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
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
17JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	5						80
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
30JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
27AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
11SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-106 REGIONAL STANDING CROP (IN THOUSANDS) OF ALOSA SPP. YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
06MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
20MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
03APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	ST. CROP	131	0	0	0	0	0	10	0	38	0	0	0	0	178
24APR	SE	131	0	0	0	0	0	10	0	38	0	0	0	0	137
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	ST. CROP	0	0	0	0	0	453	302	168	520	2079	1549	652	111	5833
01MAY	SE	0	0	0	0	0	453	132	168	190	951	459	378	66	1245
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	ST. CROP	0	0	0	32	73	253	101	4528	10807	5267	1510	5576	1294	29440
07MAY	SE	0	0	0	32	73	223	77	2842	2094	2284	754	1851	575	4697
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	ST. CROP	0	0	0	0	10	904	280	515	2000	327	3533	3775	1597	12940
15MAY	SE	0	0	0	0	10	871	120	248	725	327	764	1097	672	1925
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	ST. CROP	0	0	135	0	0	477	289	1108	394	434	5468	6694	8051	23051
22MAY	SE	0	0	135	0	0	246	133	557	316	398	3798	3329	2770	5818
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	ST. CROP	0	0	0	0	0	0	137	75	1031	809	5306	11572	5651	24581
30MAY	SE	0	0	0	0	0	0	84	47	764	126	3408	3474	1713	5218
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	ST. CROP	0	0	0	0	0	1476	11	415	141	293	1032	2075	5451	10895
05JUN	SE	0	0	0	0	0	1476	11	415	116	152	829	1138	1863	2800
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-106 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF ALOSA SPP. YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
														AL	
10JUN-	ST. CROP	1332	84	300	0	0	0	45	0	0	797	1339	2507	0	6405
13JUN	SE	886	84	300	0	0	0	27	0	0	797	916	1861	0	2413
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	ST. CROP	1030	12532	72	0	0	0	0	0	0	0	0	89	34	13757
19JUN	SE	1030	6286	72	0	0	0	0	0	0	0	0	89	34	6371
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	7147	7147
27JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	4740	4740
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	668	490	1158
03JUL	SE	0	0	0	0	0	0	0	0	0	0	0	668	308	735
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
17JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
30JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
27AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
11SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
25SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
09OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81



TABLE E-107 REGIONAL DENSITY (NO./1,000m3) OF ALOSA SPP. POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

ALL REGIONS COMBINED															
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-06MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-20MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-03APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-10APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-17APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-24APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68	0.00	0.00	0.00	0.05
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68	0.00	0.00	0.00	0.68
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-01MAY	DENSITY	0.56	0.74	0.71	0.64	1.62	4.74	2.44	3.25	8.19	30.92	10.28	1.83	0.79	5.13
	SE	0.56	0.45	0.52	0.49	0.97	2.92	1.63	2.30	3.41	13.92	5.52	1.19	0.79	16.01
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-07MAY	DENSITY	0.00	2.40	0.71	5.17	3.02	17.29	52.74	105.81	82.99	39.85	0.43	2.20	0.87	24.11
	SE	0.00	2.30	0.46	1.76	2.31	8.04	24.73	41.84	33.40	9.87	0.43	1.21	0.63	60.46
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-15MAY	DENSITY	2.08	0.79	1.10	4.04	17.67	26.52	32.65	188.72	144.08	311.17	98.41	48.94	3.18	67.64
	SE	2.08	0.48	0.47	1.73	4.19	15.64	8.02	109.10	28.89	90.61	21.45	24.31	3.18	149.48
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-22MAY	DENSITY	7.08	3.89	2.09	0.99	27.15	15.52	57.90	115.64	170.36	474.84	433.03	1179.49	335.81	217.21
	SE	3.45	2.18	1.63	0.80	16.36	5.02	11.37	76.71	88.49	199.83	259.08	397.74	139.06	546.57
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-30MAY	DENSITY	0.88	0.00	0.21	0.53	0.44	2.41	29.39	6.23	194.00	174.59	252.08	459.62	483.30	123.36
	SE	0.88	0.00	0.21	0.38	0.44	1.04	9.55	1.72	119.75	29.03	73.04	105.98	41.71	183.27
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-05JUN	DENSITY	0.00	2.53	0.00	0.00	0.85	8.84	3.32	83.05	90.28	253.53	732.71	1772.53	1120.56	312.94
	SE	0.00	2.11	0.00	0.00	0.48	4.68	1.75	12.41	23.39	59.13	175.64	268.41	235.31	403.10
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-107 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF ALOSA SPP. POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

															ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
10JUN-	DENSITY	12.15	5.86	1.76	2.97	2.27	16.15	22.05	159.96	180.80	642.68	683.73	2666.82	1314.81	439.38
13JUN	SE	7.85	3.54	0.96	0.81	1.39	7.00	4.34	27.23	40.85	103.40	114.70	552.21	248.96	627.15
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	DENSITY	10.56	49.69	4.92	1.42	3.82	2.20	39.38	183.39	221.56	340.67	1130.78	4695.04	3395.28	775.29
19JUN	SE	10.56	27.50	3.11	0.66	1.22	1.70	15.32	72.21	41.06	62.55	437.08	590.40	616.56	965.24
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	DENSITY	0.00	1.43	0.00	0.00	6.55	4.95	25.01	145.70	149.01	244.28	783.30	1129.92	829.46	255.35
27JUN	SE	0.00	1.43	0.00	0.00	4.66	2.47	6.60	38.18	34.66	51.29	288.05	277.53	387.16	561.47
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	DENSITY	0.00	9.05	0.00	9.73	0.00	0.48	6.09	15.57	221.02	501.58	399.53	463.52	509.40	164.30
03JUL	SE	0.00	6.82	0.00	9.73	0.00	0.36	5.04	4.85	92.94	104.90	92.82	75.12	167.48	249.28
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	DENSITY	0.00	0.00	0.00	0.00	0.04	0.00	0.00	4.30	NS	NS	NS	NS	NS	0.54
17JUL	SE	0.00	0.00	0.00	0.00	0.04	0.00	0.00	4.30						4.30
	NO. TOWS	6	11	13	14	13	8	10	5						80
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
30JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
27AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
11SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	DENSITY	2.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.26
25SEP	SE	2.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00						2.05
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	DENSITY	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.01
09OCT	SE	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00						0.08
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-108 REGIONAL STANDING CROP (IN THOUSANDS) OF ALOSA SPP. POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

SURVEY, 2008														ALL REGIONS COMBINED	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
06MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
20MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
03APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	ST. CROP	0	0	0	0	0	0	0	0	0	96	0	0	0	96
24APR	SE	0	0	0	0	0	0	0	0	0	96	0	0	0	96
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	ST. CROP	117	169	227	95	337	983	340	970	1355	4374	1813	295	56	11131
01MAY	SE	117	104	167	72	203	605	228	685	564	1969	972	191	56	2483
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	ST. CROP	0	550	230	763	629	3586	7372	31546	13733	5637	76	354	62	64538
07MAY	SE	0	527	149	260	482	1667	3456	12474	5527	1396	76	195	45	14264
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	ST. CROP	434	181	354	597	3682	5503	4564	56263	23842	44022	17350	7867	226	164885
15MAY	SE	434	111	150	255	872	3244	1122	32526	4781	12819	3781	3908	226	35883
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	ST. CROP	1480	892	671	147	5657	3219	8094	34476	28192	67175	76341	189581	23893	439818
22MAY	SE	721	500	524	118	3409	1040	1589	22869	14644	28269	45674	63929	9894	88452
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	ST. CROP	184	0	67	78	93	501	4108	1858	32103	24700	44441	73876	34387	216396
30MAY	SE	184	0	67	56	93	216	1335	512	19817	4107	12876	17035	2968	29606
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	ST. CROP	0	581	0	0	176	1834	465	24760	14941	35867	129174	284901	79727	572427
05JUN	SE	0	483	0	0	100	971	245	3700	3871	8365	30964	43143	16742	56571
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-108 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF ALOSA SPP. POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

SURVEY, 2008															ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
10JUN-	ST. CROP	2540	1343	566	438	473	3350	3082	47690	29920	90919	120539	428643	93548	823051
13JUN	SE	1641	812	310	119	290	1452	606	8119	6761	14628	20222	88758	17713	94510
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	ST. CROP	2206	11401	1585	210	796	457	5506	54675	36664	48195	199352	754641	241571	1357260
19JUN	SE	2206	6309	999	98	255	352	2141	21529	6795	8848	77055	94895	43868	132308
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	ST. CROP	0	328	0	0	1364	1027	3496	43437	24658	34558	138093	181614	59015	487591
27JUN	SE	0	328	0	0	972	513	923	11382	5736	7256	50783	44607	27546	74463
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	ST. CROP	0	2075	0	1437	0	99	852	4641	36576	70958	70436	74503	36243	297820
03JUL	SE	0	1564	0	1437	0	75	705	1447	15381	14841	16364	12074	11916	31929
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	ST. CROP	0	0	0	0	8	0	0	1281	NS	NS	NS	NS	NS	1289
17JUL	SE	0	0	0	0	8	0	0	1281						1281
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
30JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
27AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
11SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	ST. CROP	429	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	429
25SEP	SE	429	0	0	0	0	0	0	0						429
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	ST. CROP	0	0	0	0	16	0	0	0	NS	NS	NS	NS	NS	16
09OCT	SE	0	0	0	0	16	0	0	0						16
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-109 REGIONAL DENSITY (NO./1,000m3) OF ALOSA SPP. YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
04MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
06MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
18MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
20MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
01APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
03APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
07APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
14APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
21APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
28APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
05MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
12MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10
19MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
27MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
02JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6

TABLE E-109 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF ALOSA SPP. YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

ALL REGIONS COMBINED															
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
10JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
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
17JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	5						80
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
30JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
27AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
11SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-110 REGIONAL STANDING CROP (IN THOUSANDS) OF ALOSA SPP. YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
06MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
20MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
03APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-110 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF ALOSA SPP. YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
														AL	
10JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
17JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
30JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
27AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
11SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
25SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
09OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81



TABLE E-111 REGIONAL DENSITY (NO./1,000m3) OF ALOSA SPP. YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
07JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.26	31.66	10.78	26.13	225.39	13.29	13.56	25.81
11JUL	SE	0.00	0.00	0.00	0.00	0.00	0.26	24.24	5.35	14.42	153.59	9.27	10.04	18.88
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8
21JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	1.48	5.74	0.36	2.40	25.38
25JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	1.40	2.92	0.36	1.27	15.10
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
04AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.40	0.09
08AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.88	0.23	0.09
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8
18AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45	0.00
21AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
02SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
15SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8
29SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8
13OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
27OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8
10NOV-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14NOV	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8
01DEC-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05DEC	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8

TABLE E-112 REGIONAL STANDING CROP (IN THOUSANDS) OF ALOSA SPP. YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

ALL REGIONS COMBINED															
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
07JUL-	ST. CROP	0	0	0	0	0	53	4425	3213	4324	31886	2343	2180	1837	50261
11JUL	SE	0	0	0	0	0	53	3388	1595	2387	21728	1634	1613	1343	22337
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8	210
21JUL-	ST. CROP	0	0	0	0	0	0	0	13	245	812	64	387	1806	3326
25JUL	SE	0	0	0	0	0	0	0	9	232	413	64	203	1075	1194
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
04AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	176	65	7	247
08AUG	SE	0	0	0	0	0	0	0	0	0	0	155	37	7	160
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8	210
18AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	73	0	73
21AUG	SE	0	0	0	0	0	0	0	0	0	0	0	73	0	73
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
02SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
15SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8	210
29SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8	210
13OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
27OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8	150
10NOV-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14NOV	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150
01DEC-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05DEC	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150

TABLE E-113 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF ALOSA SPP. YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM  
BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	23.38	51.50	53.25	60.47	6.84	1.33	16.40
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	16.56	21.45	32.33	22.63	3.85	0.91	48.03
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
30JUN-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	16.13	33.88	8.50	14.80	281.37	206.58	46.77
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	15.84	18.72	5.42	6.46	147.84	88.65	174.32
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	CPUE	0.00	0.00	0.00	0.00	0.33	0.00	2.88	1412.13	1299.88	23.40	8.26	2.92	229.15
16JUL	SE	0.00	0.00	0.00	0.00	0.33	0.00	2.06	849.44	1265.46	10.60	2.93	1.70	1524.16
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
28JUL-	CPUE	0.00	0.00	0.00	0.00	0.00	5.83	0.00	0.00	1.20	1.44	28.30	5.71	3.54
31JUL	SE	0.00	0.00	0.00	0.00	0.00	3.87	0.00	0.00	1.20	1.44	8.14	2.64	9.58
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11AUG-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
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
27AUG	SE	0.00	0.00	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
08SEP-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11SEP	SE	0.00	0.00	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
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
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24OCT	SE	0.00	0.00	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 E-114 REGIONAL STANDING CROP (IN THOUSANDS) OF ALOSA SPP. YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM  
BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	ST. CROP	0	0	0	0	0	0	166	64	458	1062	135	18	1902
19JUN	SE	0	0	0	0	0	0	117	27	278	397	76	12	506
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
30JUN-	ST. CROP	0	0	0	0	0	0	114	42	73	260	5536	2807	8832
03JUL	SE	0	0	0	0	0	0	112	23	47	113	2909	1205	3153
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	ST. CROP	0	0	0	0	1	0	20	1751	11190	411	163	40	13576
16JUL	SE	0	0	0	0	1	0	15	1053	10894	186	58	23	10947
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
28JUL-	ST. CROP	0	0	0	0	0	62	0	0	10	25	557	78	732
31JUL	SE	0	0	0	0	0	41	0	0	10	25	160	36	171
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
14AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
27AUG	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
08SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
11SEP	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
22SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
25SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
09OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
24OCT	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 E-115 REGIONAL DENSITY (NO./1,000m3) OF ALEWIFE YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
04MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
06MAR-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
18MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
20MAR-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
01APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
03APR-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
07APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10APR-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
14APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17APR-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
21APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24APR-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
28APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01MAY-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
05MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07MAY-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
12MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15MAY-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10
19MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22MAY-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
27MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30MAY-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
02JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05JUN-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6

TABLE E-115 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF ALEWIFE YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
10JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
16JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
24JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.16	1.44	7.58	41.41	355.27	236.28	13.45
27JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.93	3.84	25.62	177.59	193.66	9.82
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
29JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	3.25	17.16	73.76	221.70	122.68	361.48	933.59
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	1.55	3.93	34.54	52.93	27.24	163.43	872.90
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
14JUL-	DENSITY	0.00	0.00	0.00	0.37	0.51	0.00	6.23	7.12	NS	NS	NS	NS	NS
17JUL	SE	0.00	0.00	0.00	0.37	0.51	0.00	3.81	3.24					
	NO. TOWS	6	11	13	14	13	8	10	5					
28JUL-	DENSITY	0.00	0.00	0.37	1.08	0.00	0.93	0.48	4.94	NS	NS	NS	NS	NS
30JUL	SE	0.00	0.00	0.37	0.90	0.00	0.66	0.30	4.17					
	NO. TOWS	6	11	13	14	13	8	10	6					
12AUG-	DENSITY	0.00	0.00	0.00	0.00	0.63	0.71	3.90	2.16	NS	NS	NS	NS	NS
14AUG	SE	0.00	0.00	0.00	0.00	0.63	0.71	3.73	1.71					
	NO. TOWS	6	11	13	14	13	8	10	6					
25AUG-	DENSITY	0.00	0.00	0.00	0.39	0.00	0.11	0.42	0.99	NS	NS	NS	NS	NS
27AUG	SE	0.00	0.00	0.00	0.39	0.00	0.11	0.29	0.79					
	NO. TOWS	6	11	13	14	13	8	10	6					
09SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.36	1.80	NS	NS	NS	NS	NS
11SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.32	1.05					
	NO. TOWS	6	11	13	14	13	8	10	6					
23SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	NS	NS	NS	NS	NS
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00					
	NO. TOWS	6	11	13	14	13	8	10	6					
07OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45	NS	NS	NS	NS	NS
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22					
	NO. TOWS	6	11	13	14	13	8	10	6					

TABLE E-116 REGIONAL STANDING CROP (IN THOUSANDS) OF ALEWIFE YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

															ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
06MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
20MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
03APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-116 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF ALEWIFE YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
														AL	
10JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	43	43
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	43	43
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	ST. CROP	0	0	0	0	0	0	23	430	1254	5859	62633	37977	957	109132
27JUN	SE	0	0	0	0	0	0	23	278	635	3625	31308	31128	699	44308
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	ST. CROP	0	0	0	0	0	0	455	5117	12207	31364	21627	58102	66424	195296
03JUL	SE	0	0	0	0	0	0	216	1171	5715	7488	4802	26268	62106	68267
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	ST. CROP	0	0	0	55	106	0	872	2124	NS	NS	NS	NS	NS	3156
17JUL	SE	0	0	0	55	106	0	532	965						1109
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	ST. CROP	0	0	120	160	0	192	67	1473	NS	NS	NS	NS	NS	2012
30JUL	SE	0	0	120	132	0	136	41	1242						1263
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	ST. CROP	0	0	0	0	132	147	546	645	NS	NS	NS	NS	NS	1469
14AUG	SE	0	0	0	0	132	147	521	510						755
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	ST. CROP	0	0	0	58	0	23	59	294	NS	NS	NS	NS	NS	434
27AUG	SE	0	0	0	58	0	23	41	234						246
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	ST. CROP	0	0	0	0	0	0	50	536	NS	NS	NS	NS	NS	586
11SEP	SE	0	0	0	0	0	0	45	313						317
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	ST. CROP	0	0	0	0	0	0	6	0	NS	NS	NS	NS	NS	6
25SEP	SE	0	0	0	0	0	0	6	0						6
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	ST. CROP	0	0	0	0	0	0	0	134	NS	NS	NS	NS	NS	134
09OCT	SE	0	0	0	0	0	0	0	67						67
	NO. TOWS	6	11	13	14	13	8	10	6						81



TABLE E-117 REGIONAL DENSITY (NO./1,000m3) OF ALEWIFE YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

ALL REGIONS COMBINED															
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
07JUL-11JUL	DENSITY	0.00	0.00	0.00	0.23	0.94	1.92	1.64	3.39	1.30	2.05	2.51	0.77	1.67	1.26
	SE	0.00	0.00	0.00	0.21	0.91	1.03	1.26	1.68	0.92	0.74	0.28	0.46	1.50	3.21
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8	210
21JUL-25JUL	DENSITY	0.00	0.00	0.00	0.00	0.01	0.59	0.17	2.86	0.38	1.79	0.06	0.72	1.18	0.60
	SE	0.00	0.00	0.00	0.00	0.01	0.31	0.11	1.39	0.35	1.16	0.06	0.72	0.59	2.09
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
04AUG-08AUG	DENSITY	0.00	0.00	0.02	0.00	0.76	1.67	1.04	3.21	0.75	3.70	5.36	2.89	0.00	1.49
	SE	0.00	0.00	0.02	0.00	0.49	0.53	0.84	2.51	0.73	1.02	1.68	1.70	0.00	3.85
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8	210
18AUG-21AUG	DENSITY	0.00	0.02	0.02	0.03	0.00	0.43	0.36	1.37	18.38	0.44	0.06	0.56	0.00	1.67
	SE	0.00	0.02	0.02	0.03	0.00	0.42	0.13	0.39	16.88	0.34	0.06	0.29	0.00	16.89
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
02SEP-05SEP	DENSITY	0.06	0.02	0.05	0.12	0.01	0.49	0.63	0.22	0.11	3.70	3.19	2.48	0.91	0.92
	SE	0.04	0.02	0.03	0.07	0.01	0.33	0.43	0.06	0.05	2.62	0.66	1.24	0.59	3.08
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
15SEP-18SEP	DENSITY	0.00	0.00	0.00	0.03	0.04	0.01	0.13	1.06	0.16	0.00	0.06	0.00	0.09	0.12
	SE	0.00	0.00	0.00	0.03	0.02	0.01	0.07	0.76	0.06	0.00	0.06	0.00	0.09	0.77
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8	210
29SEP-02OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.31	0.52	0.80	2.63	2.44	0.94	0.63
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.49	0.13	0.22	0.72	1.02	0.67	0.47	1.59
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8	210
13OCT-16OCT	DENSITY	0.00	0.00	0.00	0.03	0.05	0.03	0.52	0.12	0.65	0.73	0.00	0.11	0.10	0.18
	SE	0.00	0.00	0.00	0.03	0.02	0.02	0.40	0.07	0.17	0.42	0.00	0.11	0.10	0.63
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
27OCT-30OCT	DENSITY	0.05	0.00	0.02	0.15	0.06	0.10	0.35	0.06	0.08	0.10	0.00	0.00	0.00	0.07
	SE	0.03	0.00	0.02	0.05	0.03	0.04	0.18	0.03	0.04	0.07	0.00	0.00	0.00	0.21
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8	150
10NOV-14NOV	DENSITY	0.06	0.11	0.09	0.00	0.26	0.01	0.02	0.00	0.00	0.03	0.00	0.00	0.00	0.05
	SE	0.03	0.06	0.07	0.00	0.21	0.01	0.01	0.00	0.00	0.03	0.00	0.00	0.00	0.23
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150
01DEC-05DEC	DENSITY	0.00	0.29	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
	SE	0.00	0.14	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150

TABLE E-118 REGIONAL STANDING CROP (IN THOUSANDS) OF ALEWIFE YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

														ALL REGIONS COMBINED	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
07JUL-	ST. CROP	0	0	0	34	197	399	229	1010	215	290	443	125	119	3061
11JUL	SE	0	0	0	30	190	214	176	502	152	104	50	74	107	648
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8	210
21JUL-	ST. CROP	0	0	0	0	3	123	24	854	63	253	11	115	84	1529
25JUL	SE	0	0	0	0	2	65	15	416	58	164	11	115	42	472
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
04AUG-	ST. CROP	0	0	8	0	158	346	146	956	124	523	945	464	0	3670
08AUG	SE	0	0	8	0	103	110	118	747	121	144	297	274	0	891
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8	210
18AUG-	ST. CROP	0	5	7	4	0	90	51	409	3041	62	10	89	0	3769
21AUG	SE	0	5	7	4	0	88	18	116	2793	48	10	47	0	2798
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
02SEP-	ST. CROP	13	5	15	18	1	101	88	66	19	524	563	399	64	1876
05SEP	SE	9	5	11	10	1	68	60	17	8	371	116	200	42	449
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
15SEP-	ST. CROP	0	0	0	4	8	2	18	317	27	0	10	0	6	392
18SEP	SE	0	0	0	4	5	2	9	226	9	0	10	0	6	227
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8	210
29SEP-	ST. CROP	0	0	0	0	0	0	84	91	85	113	464	392	67	1298
02OCT	SE	0	0	0	0	0	0	69	37	36	102	180	108	34	251
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8	210
13OCT-	ST. CROP	0	0	0	5	11	5	73	37	108	103	0	17	7	367
16OCT	SE	0	0	0	5	5	4	56	20	28	59	0	17	7	91
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
27OCT-	ST. CROP	11	0	7	22	11	20	48	19	14	14	0	0	0	166
30OCT	SE	6	0	7	8	6	8	25	10	7	10	0	0	0	33
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8	150
10NOV-	ST. CROP	12	25	29	0	55	3	3	0	0	4	0	0	0	132
14NOV	SE	6	13	23	0	44	2	2	0	0	4	0	0	0	52
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150
01DEC-	ST. CROP	0	67	6	0	0	0	0	0	0	0	0	0	0	73
05DEC	SE	0	31	6	0	0	0	0	0	0	0	0	0	0	32
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150

TABLE E-119 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF ALEWIFE YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM  
BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.25	0.03
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.25	0.26
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
30JUN-	CPUE	0.00	0.00	0.00	0.00	0.00	0.67	0.13	3.88	0.00	0.00	17.68	0.50	1.90
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.67	0.13	1.79	0.00	0.00	13.03	0.29	13.18
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	CPUE	0.00	4.09	11.71	0.00	25.33	0.67	0.88	1.75	0.13	2.60	4.42	0.17	4.31
16JUL	SE	0.00	3.53	10.74	0.00	21.93	0.67	0.48	1.21	0.13	0.85	3.45	0.17	24.97
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
28JUL-	CPUE	0.00	0.67	8.57	5.80	2.80	2.83	11.40	15.20	12.60	26.89	12.50	0.29	8.30
31JUL	SE	0.00	0.40	3.98	3.17	2.80	1.87	6.76	12.72	4.21	19.83	5.57	0.29	26.21
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11AUG-	CPUE	0.00	11.25	5.14	4.80	0.40	23.67	4.80	4.00	1.20	11.56	1.50	31.57	8.32
14AUG	SE	0.00	5.74	3.20	3.68	0.24	15.31	3.58	3.10	0.97	6.02	1.39	20.96	28.14
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	CPUE	0.00	1.50	3.93	3.00	1.40	15.33	2.00	1.20	0.00	7.22	0.00	0.00	2.97
27AUG	SE	0.00	1.06	3.63	2.00	1.40	14.55	2.00	0.97	0.00	5.99	0.00	0.00	16.51
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
08SEP-	CPUE	0.00	0.71	17.79	17.40	1.60	9.50	4.00	12.20	0.40	17.56	6.90	1.57	7.47
11SEP	SE	0.00	0.48	14.19	10.92	1.17	8.91	2.55	7.61	0.40	3.48	4.90	1.57	22.47
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22SEP-	CPUE	0.00	0.04	0.14	0.00	1.40	9.17	4.00	2.80	0.20	3.78	0.70	0.00	1.85
25SEP	SE	0.00	0.04	0.10	0.00	0.87	8.77	3.05	2.08	0.20	3.06	0.52	0.00	10.05
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	CPUE	0.00	0.21	10.21	3.60	1.00	5.17	6.00	5.60	0.00	9.67	8.50	0.43	4.20
09OCT	SE	0.00	0.17	6.75	2.06	0.63	5.17	3.79	2.46	0.00	3.71	4.65	0.43	11.53
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	CPUE	0.00	0.17	5.29	2.00	2.40	1.83	0.40	0.00	0.20	0.56	0.20	0.00	1.09
24OCT	SE	0.00	0.10	3.76	1.76	2.40	0.91	0.40	0.00	0.20	0.38	0.20	0.00	4.92
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE E-120 REGIONAL STANDING CROP (IN THOUSANDS) OF ALEWIFE YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM  
BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	1	0	3	5
19JUN	SE	0	0	0	0	0	0	0	0	0	1	0	3	4
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
30JUN-	ST. CROP	0	0	0	0	0	7	1	5	0	0	348	7	368
03JUL	SE	0	0	0	0	0	7	1	2	0	0	256	4	257
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	ST. CROP	0	186	315	0	67	7	6	2	1	46	87	2	719
16JUL	SE	0	161	289	0	58	7	3	1	1	15	68	2	343
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
28JUL-	ST. CROP	0	30	230	53	7	30	81	19	108	472	246	4	1282
31JUL	SE	0	18	107	29	7	20	48	16	36	348	110	4	388
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11AUG-	ST. CROP	0	511	138	44	1	252	34	5	10	203	30	429	1657
14AUG	SE	0	261	86	34	1	163	25	4	8	106	27	285	444
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	ST. CROP	0	68	106	28	4	163	14	1	0	127	0	0	511
27AUG	SE	0	48	98	18	4	155	14	1	0	105	0	0	218
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
08SEP-	ST. CROP	0	32	478	160	4	101	28	15	3	308	136	21	1288
11SEP	SE	0	22	382	101	3	95	18	9	3	61	96	21	423
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22SEP-	ST. CROP	0	2	4	0	4	98	28	3	2	66	14	0	221
25SEP	SE	0	2	3	0	2	93	22	3	2	54	10	0	111
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	ST. CROP	0	9	275	33	3	55	43	7	0	170	167	6	767
09OCT	SE	0	8	181	19	2	55	27	3	0	65	91	6	223
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	ST. CROP	0	8	142	18	6	20	3	0	2	10	4	0	212
24OCT	SE	0	4	101	16	6	10	3	0	2	7	4	0	103
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE E-121 REGIONAL DENSITY (NO./1,000m3) OF ALEWIFE YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
04MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
06MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
18MAR-	DENSITY	0.38	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
20MAR	SE	0.38	0.00	0.00	0.00	0.00	0.00	0.00						0.38
	NO. TOWS	10	10	11	11	10	10	12						74
01APR-	DENSITY	0.27	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
03APR	SE	0.27	0.00	0.00	0.00	0.00	0.00	0.00						0.27
	NO. TOWS	10	10	11	11	10	10	12						74
07APR-	DENSITY	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10APR	SE	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
14APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
21APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
28APR-	DENSITY	0.45	0.00	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01MAY	SE	0.45	0.00	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.53
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
05MAY-	DENSITY	0.00	0.00	0.00	0.17	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07MAY	SE	0.00	0.00	0.00	0.17	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
12MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10
19MAY-	DENSITY	0.33	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22MAY	SE	0.33	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
27MAY-	DENSITY	0.00	0.00	0.00	0.00	0.17	0.00	0.22	0.26	0.00	0.54	3.44	3.57	0.00
30MAY	SE	0.00	0.00	0.00	0.00	0.17	0.00	0.22	0.26	0.00	0.31	1.03	0.30	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
02JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.55	0.00
05JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.55	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6

TABLE E-121 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF ALEWIFE YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

															ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
10JUN-	DENSITY	0.00	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
13JUN	SE	0.00	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.00	0.27	0.00	0.00	0.00	0.04
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.00	0.27	0.00	0.00	0.00	0.33
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.54	0.00	0.04
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.54	0.00	0.54
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
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
17JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	DENSITY	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.02
30JUL	SE	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00						0.15
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	DENSITY	0.00	0.00	0.00	0.00	2.75	0.00	0.62	0.00	NS	NS	NS	NS	NS	0.42
14AUG	SE	0.00	0.00	0.00	0.00	2.75	0.00	0.62	0.00						2.82
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00	NS	NS	NS	NS	NS	0.01
27AUG	SE	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00						0.11
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
11SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-122 REGIONAL STANDING CROP (IN THOUSANDS) OF ALEWIFE YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
04MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS
06MAR	SE	0	0	0	0	0	0	0						
	NO. TOWS	10	10	11	11	10	10	12						
18MAR-	ST. CROP	80	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS
20MAR	SE	80	0	0	0	0	0	0						
	NO. TOWS	10	10	11	11	10	10	12						
01APR-	ST. CROP	57	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS
03APR	SE	57	0	0	0	0	0	0						
	NO. TOWS	10	10	11	11	10	10	12						
07APR-	ST. CROP	91	0	0	0	0	0	0	0	0	0	0	0	0
10APR	SE	91	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
14APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
21APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
28APR-	ST. CROP	94	0	92	0	0	0	0	0	0	0	0	0	0
01MAY	SE	94	0	92	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
05MAY-	ST. CROP	0	0	0	25	40	0	0	0	0	0	0	0	0
07MAY	SE	0	0	0	25	40	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
12MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10
19MAY-	ST. CROP	68	0	79	0	0	0	0	0	0	0	0	0	0
22MAY	SE	68	0	79	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
27MAY-	ST. CROP	0	0	0	0	36	0	31	77	0	76	607	574	0
30MAY	SE	0	0	0	0	36	0	31	77	0	44	182	49	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
02JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	82	88	0
05JUN	SE	0	0	0	0	0	0	0	0	0	0	51	88	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6

TABLE E-122 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF ALEWIFE YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
10JUN-	ST. CROP	0	0	0	0	26	0	0	0	0	0	0	0	0
13JUN	SE	0	0	0	0	26	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
16JUN-	ST. CROP	0	0	0	0	0	0	0	58	0	38	0	0	0
19JUN	SE	0	0	0	0	0	0	0	58	0	38	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
24JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
27JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
29JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	86	0
03JUL	SE	0	0	0	0	0	0	0	0	0	0	0	86	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
14JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS
17JUL	SE	0	0	0	0	0	0	0	0					
	NO. TOWS	6	11	13	14	13	8	10	5					
28JUL-	ST. CROP	0	0	0	0	32	0	0	0	NS	NS	NS	NS	NS
30JUL	SE	0	0	0	0	32	0	0	0					
	NO. TOWS	6	11	13	14	13	8	10	6					
12AUG-	ST. CROP	0	0	0	0	574	0	87	0	NS	NS	NS	NS	NS
14AUG	SE	0	0	0	0	574	0	87	0					
	NO. TOWS	6	11	13	14	13	8	10	6					
25AUG-	ST. CROP	0	0	0	0	0	22	0	0	NS	NS	NS	NS	NS
27AUG	SE	0	0	0	0	0	22	0	0					
	NO. TOWS	6	11	13	14	13	8	10	6					
09SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS
11SEP	SE	0	0	0	0	0	0	0	0					
	NO. TOWS	6	11	13	14	13	8	10	6					
23SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS
25SEP	SE	0	0	0	0	0	0	0	0					
	NO. TOWS	6	11	13	14	13	8	10	6					
07OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS
09OCT	SE	0	0	0	0	0	0	0	0					
	NO. TOWS	6	11	13	14	13	8	10	6					



TABLE E-123 REGIONAL DENSITY (NO./1,000m3) OF ALEWIFE YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
07JUL-	DENSITY	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.22	0.00
11JUL	SE	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.11	0.00
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8
21JUL-	DENSITY	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.02	0.00	0.00	0.00	0.20
25JUL	SE	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.02	0.00	0.00	0.00	0.20
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
04AUG-	DENSITY	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.00
08AUG	SE	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8
18AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.05	0.02	0.00	0.00	0.00	0.00
21AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.03	0.02	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
02SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.38	0.00	0.08	0.00	0.09
05SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.36	0.00	0.08	0.00	0.09
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
15SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	< 0.005	0.05	0.04	0.00	0.06	0.00	0.00
18SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	< 0.005	0.02	0.02	0.00	0.06	0.00	0.00
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8
29SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.02	0.06	0.00	0.12	0.41
02OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.06	0.00	0.12	0.33
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8
13OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.03	0.02	0.00	0.00	0.00	0.10
16OCT	SE	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.02	0.02	0.00	0.00	0.00	0.10
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
27OCT-	DENSITY	0.02	0.00	0.00	0.00	0.01	0.02	0.04	0.04	0.07	0.03	0.00	0.00	0.00
30OCT	SE	0.02	0.00	0.00	0.00	0.01	0.02	0.03	0.02	0.04	0.03	0.00	0.00	0.00
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8
10NOV-	DENSITY	0.00	0.00	0.02	0.06	0.00	0.00	0.02	0.00	0.01	0.00	0.00	0.00	0.00
14NOV	SE	0.00	0.00	0.02	0.06	0.00	0.00	0.02	0.00	0.01	0.00	0.00	0.00	0.00
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8
01DEC-	DENSITY	0.02	0.09	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05DEC	SE	0.02	0.06	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8

TABLE E-124 REGIONAL STANDING CROP (IN THOUSANDS) OF ALEWIFE YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
07JUL-	ST. CROP	0	0	8	0	0	0	0	0	0	18	0	35	0
11JUL	SE	0	0	8	0	0	0	0	0	0	11	0	18	0
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8
21JUL-	ST. CROP	0	0	0	0	1	0	0	4	3	0	0	0	14
25JUL	SE	0	0	0	0	1	0	0	4	3	0	0	0	14
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
04AUG-	ST. CROP	0	0	5	0	0	0	0	0	0	0	22	0	0
08AUG	SE	0	0	5	0	0	0	0	0	0	0	13	0	0
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8
18AUG-	ST. CROP	0	0	0	0	0	0	17	16	3	0	0	0	0
21AUG	SE	0	0	0	0	0	0	8	9	3	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
02SEP-	ST. CROP	0	0	0	0	0	0	9	0	62	0	14	0	7
05SEP	SE	0	0	0	0	0	0	6	0	60	0	14	0	7
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
15SEP-	ST. CROP	0	0	0	0	0	0	1	15	6	0	10	0	0
18SEP	SE	0	0	0	0	0	0	1	6	4	0	10	0	0
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8
29SEP-	ST. CROP	0	0	0	0	0	0	0	9	3	8	0	19	29
02OCT	SE	0	0	0	0	0	0	0	6	3	8	0	19	24
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8
13OCT-	ST. CROP	0	0	0	0	0	2	4	8	3	0	0	0	7
16OCT	SE	0	0	0	0	0	2	4	5	3	0	0	0	7
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
27OCT-	ST. CROP	4	0	0	0	2	5	5	13	11	5	0	0	0
30OCT	SE	4	0	0	0	2	3	4	7	7	5	0	0	0
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8
10NOV-	ST. CROP	0	0	6	10	0	0	3	0	2	0	0	0	0
14NOV	SE	0	0	6	10	0	0	3	0	2	0	0	0	0
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8
01DEC-	ST. CROP	5	22	6	0	0	0	0	0	0	0	0	0	0
05DEC	SE	5	14	6	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8

TABLE E-125 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF ALEWIFE YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM  
BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	CPUE	0.00	0.00	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32	0.17	0.06
19JUN	SE	0.00	0.00	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.17	0.42
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
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
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
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
16JUL	SE	0.00	0.00	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
28JUL-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
31JUL	SE	0.00	0.00	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
11AUG-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
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
27AUG	SE	0.00	0.00	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
08SEP-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11SEP	SE	0.00	0.00	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
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
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	CPUE	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
09OCT	SE	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	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
24OCT	SE	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE E-126 REGIONAL STANDING CROP (IN THOUSANDS) OF ALEWIFE YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM  
BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	ST. CROP	0	0	8	0	0	0	0	0	0	0	6	2	16
19JUN	SE	0	0	8	0	0	0	0	0	0	0	5	2	10
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
30JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
03JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
16JUL	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
28JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
31JUL	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
11AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
14AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
27AUG	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
08SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
11SEP	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
22SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
25SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	ST. CROP	0	0	2	0	0	0	0	0	0	0	0	0	2
09OCT	SE	0	0	2	0	0	0	0	0	0	0	0	0	2
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	ST. CROP	0	2	0	0	0	0	0	0	0	0	0	0	2
24OCT	SE	0	2	0	0	0	0	0	0	0	0	0	0	2
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE E-127 REGIONAL DENSITY (NO./1,000m3) OF BLUEBACK HERRING YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
04MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
06MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
18MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
20MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
01APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
03APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
07APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
14APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
21APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
28APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
05MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
12MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10
19MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
27MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
02JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6

TABLE E-127 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF BLUEBACK HERRING YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.09	0.28	0.00	0.00	0.00	0.00	0.55	0.00	0.07
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.09	0.18	0.00	0.00	0.00	0.00	0.55	0.00	0.59
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.75	0.96	0.00	0.00	0.00	48.73	0.00	3.88
27JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.49	0.96	0.00	0.00	0.00	41.13	0.00	41.14
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.52	73.72	0.00	78.92	191.70	26.53
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.52	66.82	0.00	78.92	183.39	210.53
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	DENSITY	0.00	0.00	0.00	0.00	0.04	1.00	16.28	54.98	NS	NS	NS	NS	NS	9.04
17JUL	SE	0.00	0.00	0.00	0.00	0.04	1.00	9.08	27.87						29.33
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	DENSITY	0.00	0.00	0.00	0.40	0.00	0.30	6.17	18.22	NS	NS	NS	NS	NS	3.14
30JUL	SE	0.00	0.00	0.00	0.28	0.00	0.19	3.58	5.41						6.49
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	2.03	169.42	60.57	NS	NS	NS	NS	NS	29.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	1.36	76.13	16.29						77.86
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	DENSITY	0.00	0.00	0.49	0.47	0.86	0.66	5.10	109.03	NS	NS	NS	NS	NS	14.58
27AUG	SE	0.00	0.00	0.49	0.47	0.61	0.66	4.28	37.96						38.22
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	DENSITY	0.00	0.00	0.00	0.42	0.29	0.00	9.72	28.42	NS	NS	NS	NS	NS	4.86
11SEP	SE	0.00	0.00	0.00	0.42	0.29	0.00	9.32	10.69						14.19
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	1.16	17.53	NS	NS	NS	NS	NS	2.34
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	1.11	10.71						10.77
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.26	44.59	NS	NS	NS	NS	NS	5.61
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.26	14.98						14.98
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-128 REGIONAL STANDING CROP (IN THOUSANDS) OF BLUEBACK HERRING YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
06MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
20MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
03APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-128 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF BLUEBACK HERRING YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
														AL	
10JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	ST. CROP	0	0	0	0	0	19	40	0	0	0	0	89	0	148
19JUN	SE	0	0	0	0	0	19	25	0	0	0	0	89	0	95
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	ST. CROP	0	0	0	0	0	0	105	287	0	0	0	7832	0	8224
27JUN	SE	0	0	0	0	0	0	68	287	0	0	0	6610	0	6617
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	ST. CROP	0	0	0	0	0	0	0	0	87	10430	0	12684	13639	36840
03JUL	SE	0	0	0	0	0	0	0	0	87	9453	0	12684	13048	20506
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	ST. CROP	0	0	0	0	9	207	2276	16392	NS	NS	NS	NS	NS	18883
17JUL	SE	0	0	0	0	9	207	1269	8309						8408
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	ST. CROP	0	0	0	59	0	62	863	5431	NS	NS	NS	NS	NS	6415
30JUL	SE	0	0	0	42	0	39	500	1613						1690
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	ST. CROP	0	0	0	0	0	421	23683	18059	NS	NS	NS	NS	NS	42164
14AUG	SE	0	0	0	0	0	283	10642	4858						11701
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	ST. CROP	0	0	156	70	178	137	714	32505	NS	NS	NS	NS	NS	33760
27AUG	SE	0	0	156	70	127	137	599	11317						11335
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	ST. CROP	0	0	0	62	60	0	1359	8473	NS	NS	NS	NS	NS	9955
11SEP	SE	0	0	0	62	60	0	1303	3186						3443
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	ST. CROP	0	0	0	0	0	0	162	5226	NS	NS	NS	NS	NS	5388
25SEP	SE	0	0	0	0	0	0	155	3194						3198
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	ST. CROP	0	0	0	0	0	0	37	13295	NS	NS	NS	NS	NS	13332
09OCT	SE	0	0	0	0	0	0	37	4465						4465
	NO. TOWS	6	11	13	14	13	8	10	6						81



TABLE E-129 REGIONAL DENSITY (NO./1,000m3) OF BLUEBACK HERRING YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

															ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
07JUL- 11JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.71	0.29	0.22	1.32	2.93	5.01	1.73	0.94
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.63	0.24	0.10	0.62	0.33	2.62	1.27	3.07
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8	210
21JUL- 25JUL	DENSITY	0.00	0.00	0.00	0.00	0.01	1.31	0.06	0.63	3.93	5.48	7.10	23.96	68.97	8.57
	SE	0.00	0.00	0.00	0.00	0.01	1.12	0.04	0.35	3.45	3.20	1.06	3.74	28.96	29.62
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
04AUG- 08AUG	DENSITY	0.00	0.00	0.10	0.00	0.37	3.50	1.36	3.07	1.75	16.19	17.99	6.76	1.44	4.04
	SE	0.00	0.00	0.10	0.00	0.36	2.20	0.86	0.94	1.47	5.84	2.26	2.26	0.94	7.34
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8	210
18AUG- 21AUG	DENSITY	0.00	0.00	0.04	0.02	0.33	1.74	18.88	6.35	31.91	18.36	16.72	14.18	0.18	8.36
	SE	0.00	0.00	0.03	0.02	0.30	0.53	4.78	1.27	14.90	4.83	4.46	7.60	0.11	18.65
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
02SEP- 05SEP	DENSITY	0.00	0.00	0.18	0.36	0.12	0.03	5.49	6.82	8.59	97.71	15.25	53.64	15.61	15.68
	SE	0.00	0.00	0.11	0.18	0.04	0.01	1.94	1.81	3.77	55.58	3.58	22.65	5.93	60.59
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
15SEP- 18SEP	DENSITY	0.00	0.02	0.00	0.00	0.03	0.22	15.52	12.53	8.74	5.31	21.15	19.38	7.42	6.95
	SE	0.00	0.02	0.00	0.00	0.02	0.22	6.07	4.53	3.22	1.45	20.02	10.45	4.54	24.51
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8	210
29SEP- 02OCT	DENSITY	0.08	0.00	0.02	0.02	0.00	0.33	2.60	22.42	12.36	4.86	20.42	41.00	28.52	10.20
	SE	0.05	0.00	0.02	0.02	0.00	0.33	1.04	9.10	3.25	2.08	2.73	13.41	13.52	21.65
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8	210
13OCT- 16OCT	DENSITY	0.00	0.00	0.00	0.00	0.01	0.54	0.82	8.36	8.80	5.86	1.37	11.63	7.93	3.49
	SE	0.00	0.00	0.00	0.00	0.01	0.30	0.34	2.48	2.60	3.38	0.74	3.50	5.59	8.28
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
27OCT- 30OCT	DENSITY	0.04	0.06	0.09	0.00	0.03	0.00	0.01	0.00	0.00	0.00	0.03	0.00	0.00	0.02
	SE	0.04	0.04	0.07	0.00	0.02	0.00	0.01	0.00	0.00	0.00	0.03	0.00	0.00	0.09
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8	150
10NOV- 14NOV	DENSITY	0.00	0.02	0.02	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.01
	SE	0.00	0.02	0.02	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.05
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150
01DEC- 05DEC	DENSITY	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	< 0.005
	SE	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150

TABLE E-130 REGIONAL STANDING CROP (IN THOUSANDS) OF BLUEBACK HERRING YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

ALL REGIONS COMBINED													
DATE	BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
07JUL- ST. CROP	0	0	0	0	0	0	100	86	37	186	516	806	123
11JUL SE	0	0	0	0	0	0	88	72	16	87	59	422	90
NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8
21JUL- ST. CROP	0	0	0	0	3	273	8	189	651	776	1252	3851	4907
25JUL SE	0	0	0	0	2	233	5	105	571	453	186	602	2061
NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
04AUG- ST. CROP	0	0	33	0	76	726	191	914	289	2290	3172	1087	102
08AUG SE	0	0	33	0	75	456	120	281	243	826	398	363	67
NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8
18AUG- ST. CROP	0	0	14	3	68	360	2640	1894	5281	2597	2948	2280	13
21AUG SE	0	0	9	3	63	110	668	379	2466	683	787	1221	8
NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
02SEP- ST. CROP	0	0	59	53	26	5	767	2033	1421	13823	2688	8621	1111
05SEP SE	0	0	34	27	9	3	271	540	624	7863	632	3641	422
NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
15SEP- ST. CROP	0	6	0	0	5	45	2169	3734	1447	751	3728	3114	528
18SEP SE	0	6	0	0	4	45	849	1351	532	205	3530	1680	323
NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8
29SEP- ST. CROP	17	0	7	4	0	68	363	6683	2045	688	3600	6590	2029
02OCT SE	11	0	7	4	0	68	146	2712	539	294	482	2155	962
NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8
13OCT- ST. CROP	0	0	0	0	1	112	115	2492	1457	829	241	1870	564
16OCT SE	0	0	0	0	1	63	48	740	431	478	130	563	397
NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
27OCT- ST. CROP	8	15	28	0	5	0	1	0	0	0	5	0	0
30OCT SE	8	10	22	0	4	0	1	0	0	0	5	0	0
NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8
10NOV- ST. CROP	0	5	6	0	0	0	5	0	0	0	0	0	0
14NOV SE	0	5	6	0	0	0	5	0	0	0	0	0	0
NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8
01DEC- ST. CROP	4	5	0	0	0	0	0	0	0	0	0	0	0
05DEC SE	4	5	0	0	0	0	0	0	0	0	0	0	0
NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8

TABLE E-131 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF BLUEBACK HERRING YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
30JUN-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.13	0.13	1.00	0.08	0.13
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.13	0.13	0.60	0.08	0.68
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	CPUE	0.00	0.73	0.86	0.00	4.33	1.00	0.00	1.13	0.38	0.27	8.11	0.58	1.45
16JUL	SE	0.00	0.73	0.59	0.00	3.38	1.00	0.00	0.52	0.26	0.15	3.34	0.42	5.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
28JUL-	CPUE	0.00	0.04	2.86	0.60	0.80	18.00	2.20	278.60	505.00	80.78	426.80	16.86	111.04
31JUL	SE	0.00	0.04	1.96	0.24	0.80	9.06	1.02	93.47	323.67	35.97	265.71	6.25	430.72
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11AUG-	CPUE	0.00	0.25	0.43	8.20	228.60	179.17	151.80	68.80	18.00	205.89	125.50	11.57	83.18
14AUG	SE	0.00	0.17	0.43	3.89	129.40	78.71	38.08	36.04	11.63	98.59	85.11	4.12	206.93
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	CPUE	0.00	0.00	0.64	5.80	165.00	70.67	36.40	127.60	67.80	55.56	18.80	2.29	45.88
27AUG	SE	0.00	0.00	0.51	3.83	157.78	32.63	32.23	115.15	38.93	27.24	4.21	1.36	206.28
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
08SEP-	CPUE	0.00	0.13	0.43	9.00	11.60	111.83	21.80	20.60	17.60	49.44	138.60	0.71	31.81
11SEP	SE	0.00	0.13	0.36	5.39	6.12	30.12	11.46	8.93	13.56	13.25	70.14	0.71	80.40
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22SEP-	CPUE	0.00	0.00	0.43	0.20	58.20	243.17	18.20	50.00	32.40	13.00	109.20	3.14	43.99
25SEP	SE	0.00	0.00	0.43	0.20	39.64	138.92	8.28	36.93	28.57	11.27	58.55	2.04	163.34
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	CPUE	0.00	0.00	0.50	1.00	7.80	4.50	387.00	94.60	27.40	69.89	15.00	5.00	51.06
09OCT	SE	0.00	0.00	0.31	1.00	4.21	2.40	382.26	63.24	14.65	56.12	5.59	2.46	391.86
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	CPUE	0.00	0.08	0.14	0.20	38.00	32.67	9.60	5.40	0.00	0.22	1.40	0.86	7.38
24OCT	SE	0.00	0.06	0.10	0.20	24.01	24.32	6.85	4.47	0.00	0.22	1.40	0.86	35.18
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE E-132 REGIONAL STANDING CROP (IN THOUSANDS) OF BLUEBACK HERRING YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
30JUN-	ST. CROP	0	0	0	0	0	0	0	< 0.5	1	2	20	1	25
03JUL	SE	0	0	0	0	0	0	0	< 0.5	1	2	12	1	12
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	ST. CROP	0	33	23	0	11	11	0	1	3	5	159	8	255
16JUL	SE	0	33	16	0	9	11	0	1	2	3	66	6	77
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
28JUL-	ST. CROP	0	2	77	6	2	192	16	345	4347	1418	8398	229	15031
31JUL	SE	0	2	53	2	2	97	7	116	2786	632	5228	85	5961
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11AUG-	ST. CROP	0	11	12	76	602	1908	1077	85	155	3614	2469	157	10168
14AUG	SE	0	8	12	36	341	838	270	45	100	1731	1675	56	2590
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	ST. CROP	0	0	17	53	435	753	258	158	584	975	370	31	3635
27AUG	SE	0	0	14	35	416	348	229	143	335	478	83	18	846
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
08SEP-	ST. CROP	0	6	12	83	31	1191	155	26	152	868	2727	10	5258
11SEP	SE	0	6	10	50	16	321	81	11	117	233	1380	10	1444
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22SEP-	ST. CROP	0	0	12	2	153	2590	129	62	279	228	2149	43	5646
25SEP	SE	0	0	12	2	104	1480	59	46	246	198	1152	28	1906
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	ST. CROP	0	0	13	9	21	48	2746	117	236	1227	295	68	4780
09OCT	SE	0	0	8	9	11	26	2712	78	126	985	110	33	2892
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	ST. CROP	0	4	4	2	100	348	68	7	0	4	28	12	575
24OCT	SE	0	3	3	2	63	259	49	6	0	4	28	12	273
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE E-133 REGIONAL DENSITY (NO./1,000m3) OF BLUEBACK HERRING YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
04MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
06MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
20MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
03APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	DENSITY	0.00	0.00	0.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
10APR	SE	0.00	0.00	0.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.94
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	DENSITY	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
01MAY	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	0.00	0.09
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.13	2.28	0.68	0.00	0.54	7.59	11.65	1.67	1.89
30MAY	SE	0.00	0.00	0.00	0.00	0.00	0.13	1.20	0.33	0.00	0.31	1.86	5.43	0.99	5.96
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.36	0.00	4.60	3.32	0.00	0.64
05JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.36	0.00	1.16	1.66	0.00	2.06
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-133 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF BLUEBACK HERRING YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008														
														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
10JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.57	0.34	0.00	0.67
13JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.34	0.00	0.67
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
16JUN-	DENSITY	0.00	0.00	0.00	0.00	0.28	0.00	0.00	0.98	0.00	0.27	0.31	1.51	0.00
19JUN	SE	0.00	0.00	0.00	0.00	0.28	0.00	0.00	0.49	0.00	0.27	0.31	1.51	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
24JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	1.71	0.00
27JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	1.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
29JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.06	0.00
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.53	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
14JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS
17JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
	NO. TOWS	6	11	13	14	13	8	10	5					
28JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS
30JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
	NO. TOWS	6	11	13	14	13	8	10	6					
12AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	NS	NS	NS	NS	NS
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27					
	NO. TOWS	6	11	13	14	13	8	10	6					
25AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS
27AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
	NO. TOWS	6	11	13	14	13	8	10	6					
09SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS
11SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
	NO. TOWS	6	11	13	14	13	8	10	6					
23SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
	NO. TOWS	6	11	13	14	13	8	10	6					
07OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
	NO. TOWS	6	11	13	14	13	8	10	6					

TABLE E-134 REGIONAL STANDING CROP (IN THOUSANDS) OF BLUEBACK HERRING YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

SURVEY, 2008														ALL REGIONS COMBINED	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
06MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
20MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
03APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	ST. CROP	0	0		0	0	0	0	0	0	0	0	0	0	0
10APR	SE	0	0		0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	ST. CROP	0			0	0	0	0	0	0	0	0	0	0	
01MAY	SE	0			0	0	0	0	0	0	0	0	0	0	
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	ST. CROP	0	0	0	0	0	26	318	202	0	76	1338	1873	119	3953
30MAY	SE	0	0	0	0	0	26	167	98	0	44	328	873	70	956
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	ST. CROP	0	0	0	0	0	0	0	0	59	0	812	533	0	1404
05JUN	SE	0	0	0	0	0	0	0	0	59	0	205	267	0	341
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-134 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF BLUEBACK HERRING YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
														AL	
10JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	80	60	0	48	188
13JUN	SE	0	0	0	0	0	0	0	0	0	46	60	0	48	90
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	ST. CROP	0	0	0	0	59	0	0	291	0	39	54	243	0	686
19JUN	SE	0	0	0	0	59	0	0	145	0	39	54	243	0	297
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	58	276	0	333
27JUN	SE	0	0	0	0	0	0	0	0	0	0	58	160	0	170
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	170	0	170
03JUL	SE	0	0	0	0	0	0	0	0	0	0	0	85	0	85
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
17JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
30JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	ST. CROP	0	0	0	0	0	0	0	80	NS	NS	NS	NS	NS	80
14AUG	SE	0	0	0	0	0	0	0	80						80
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
27AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
11SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
25SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
09OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81



TABLE E-135 REGIONAL DENSITY (NO./1,000m3) OF BLUEBACK HERRING YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
07JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8
21JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
04AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00
08AUG	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	0.00
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8
18AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.06	0.00	0.00
21AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.06	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
02SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00
05SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
15SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8
29SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.06	0.07	0.00	0.00
02OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.06	0.07	0.00	0.00
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8
13OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
27OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8
10NOV-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14NOV	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8
01DEC-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05DEC	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8

TABLE E-136 REGIONAL STANDING CROP (IN THOUSANDS) OF BLUEBACK HERRING YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
07JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
11JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8
21JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
25JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
04AUG-	ST. CROP	0	0	0	0	0	0	0	8	0	0	0	0	0
08AUG	SE	0	0	0	0	0	0	0	6	0	0	0	0	0
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8
18AUG-	ST. CROP	0	0	0	0	0	0	0	5	0	0	11	0	0
21AUG	SE	0	0	0	0	0	0	0	5	0	0	11	0	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
02SEP-	ST. CROP	0	0	0	0	0	0	0	4	0	0	0	0	0
05SEP	SE	0	0	0	0	0	0	0	4	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
15SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
18SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8
29SEP-	ST. CROP	0	0	0	0	0	0	0	4	0	8	12	0	0
02OCT	SE	0	0	0	0	0	0	0	4	0	8	12	0	0
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8
13OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
16OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
27OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
30OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8
10NOV-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
14NOV	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8
01DEC-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
05DEC	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8

TABLE E-137 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF BLUEBACK HERRING YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM  
BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	CPUE	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.00	1.58	0.08	0.17
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.65	0.08	0.73
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
30JUN-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	< 0.005
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.05
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
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
16JUL	SE	0.00	0.00	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
28JUL-	CPUE	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.03
31JUL	SE	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.28
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11AUG-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
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
27AUG	SE	0.00	0.00	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
08SEP-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11SEP	SE	0.00	0.00	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
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
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24OCT	SE	0.00	0.00	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 E-138 REGIONAL STANDING CROP (IN THOUSANDS) OF BLUEBACK HERRING YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM  
BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	ST. CROP	0	0	0	0	0	4	0	0	0	0	31	1	36
19JUN	SE	0	0	0	0	0	4	0	0	0	0	13	1	13
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
30JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	1	0	1
03JUL	SE	0	0	0	0	0	0	0	0	0	0	1	0	1
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
16JUL	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
28JUL-	ST. CROP	0	0	0	0	1	0	0	0	2	0	0	0	2
31JUL	SE	0	0	0	0	1	0	0	0	2	0	0	0	2
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
14AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
27AUG	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
08SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
11SEP	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
22SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
25SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
09OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
24OCT	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 E-139 REGIONAL DENSITY (NO./1,000m3) OF GIZZARD SHAD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
07JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8	210
21JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
04AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8	210
18AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
02SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
15SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8	210
29SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8	210
13OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
27OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8	150
10NOV-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14NOV	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150
01DEC-	DENSITY	0.00	0.00	0.00	0.00	0.02	0.05	0.04	0.00	0.01	0.00	0.00	0.00	0.05	0.01
05DEC	SE	0.00	0.00	0.00	0.00	0.01	0.02	0.04	0.00	0.01	0.00	0.00	0.00	0.05	0.07
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150

TABLE E-140 REGIONAL STANDING CROP (IN THOUSANDS) OF GIZZARD SHAD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
														AL	
07JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8	210
21JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
04AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8	210
18AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
02SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
15SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8	210
29SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8	210
13OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
27OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8	150
10NOV-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14NOV	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150
01DEC-	ST. CROP	0	0	0	0	4	11	5	0	2	0	0	0	3	26
05DEC	SE	0	0	0	0	3	5	5	0	2	0	0	0	3	9
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150

TABLE E-141 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF GIZZARD SHAD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM  
BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
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
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
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
16JUL	SE	0.00	0.00	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
28JUL-	CPUE	0.00	0.17	0.50	0.00	1.60	0.00	0.00	0.00	7.20	0.56	0.00	6.43	1.37
31JUL	SE	0.00	0.13	0.50	0.00	1.60	0.00	0.00	0.00	5.82	0.38	0.00	5.94	8.49
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11AUG-	CPUE	0.00	0.00	0.14	0.40	0.60	2.00	0.20	0.00	0.00	0.00	0.10	0.14	0.30
14AUG	SE	0.00	0.00	0.10	0.40	0.60	2.00	0.20	0.00	0.00	0.00	0.10	0.14	2.14
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	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
27AUG	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
08SEP-	CPUE	0.00	0.04	0.00	0.00	1.00	1.17	1.00	0.00	0.00	0.00	0.00	0.00	0.27
11SEP	SE	0.00	0.04	0.00	0.00	1.00	0.75	0.63	0.00	0.00	0.00	0.00	0.00	1.40
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22SEP-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.02
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.20
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24OCT	SE	0.00	0.00	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 E-142 REGIONAL STANDING CROP (IN THOUSANDS) OF GIZZARD SHAD YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM  
BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
30JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
03JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
16JUL	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
28JUL-	ST. CROP	0	8	13	0	4	0	0	0	62	10	0	87	184
31JUL	SE	0	6	13	0	4	0	0	0	50	7	0	81	96
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11AUG-	ST. CROP	0	0	4	4	2	21	1	0	0	0	2	2	36
14AUG	SE	0	0	3	4	2	21	1	0	0	0	2	2	22
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	ST. CROP	0	0	0	0	1	0	0	0	0	0	0	0	1
27AUG	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
08SEP-	ST. CROP	0	2	0	0	3	12	7	0	0	0	0	0	24
11SEP	SE	0	2	0	0	3	8	4	0	0	0	0	0	10
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22SEP-	ST. CROP	0	0	0	0	0	0	1	0	0	0	0	0	1
25SEP	SE	0	0	0	0	0	0	1	0	0	0	0	0	1
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
09OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
24OCT	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 E-143 REGIONAL DENSITY (NO./1,000m3) OF GIZZARD SHAD YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
07JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8
21JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
04AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8
18AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
02SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
05SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
15SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8
29SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8
13OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
16OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
27OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00
30OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8
10NOV-	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	0.00
14NOV	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	0.00
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8
01DEC-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.02	0.07	0.00	0.00	0.00	0.00	0.00	0.00
05DEC	SE	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8

TABLE E-144 REGIONAL STANDING CROP (IN THOUSANDS) OF GIZZARD SHAD YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
07JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
11JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8
21JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
25JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
04AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
08AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8
18AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
21AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
02SEP-	ST. CROP	0	0	0	0	0	0	1	0	0	0	0	0	0
05SEP	SE	0	0	0	0	0	0	1	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
15SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
18SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8
29SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
02OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8
13OCT-	ST. CROP	0	0	0	0	0	0	1	0	0	0	0	0	0
16OCT	SE	0	0	0	0	0	0	1	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
27OCT-	ST. CROP	0	0	0	0	0	0	2	0	0	0	0	0	0
30OCT	SE	0	0	0	0	0	0	2	0	0	0	0	0	0
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8
10NOV-	ST. CROP	0	0	0	0	2	0	0	0	0	0	0	0	0
14NOV	SE	0	0	0	0	2	0	0	0	0	0	0	0	0
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8
01DEC-	ST. CROP	0	0	0	0	0	5	10	0	0	0	0	0	0
05DEC	SE	0	0	0	0	0	3	6	0	0	0	0	0	0
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8

TABLE E-145 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF GIZZARD SHAD YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM  
BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	< 0.005
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.05
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
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
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.01
16JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.13
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
28JUL-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.01
31JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.10
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11AUG-	CPUE	0.00	0.17	0.14	0.00	0.00	0.00	1.60	2.40	0.00	0.22	0.00	0.29	0.40
14AUG	SE	0.00	0.13	0.14	0.00	0.00	0.00	1.60	1.47	0.00	0.22	0.00	0.29	2.21
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	CPUE	0.00	0.08	0.00	0.60	0.00	0.50	0.00	0.00	0.00	1.22	0.10	0.00	0.21
27AUG	SE	0.00	0.08	0.00	0.60	0.00	0.50	0.00	0.00	0.00	0.76	0.10	0.00	1.10
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
08SEP-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.00	0.00	0.04
11SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.34	0.00	0.00	0.34
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22SEP-	CPUE	0.00	0.00	0.00	0.00	0.00	0.83	0.80	0.00	0.00	0.11	0.00	0.00	0.15
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.83	0.80	0.00	0.00	0.11	0.00	0.00	1.16
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	CPUE	0.00	0.08	0.00	0.00	0.00	0.17	2.40	0.20	0.00	0.00	0.00	0.00	0.24
09OCT	SE	0.00	0.08	0.00	0.00	0.00	0.17	1.94	0.20	0.00	0.00	0.00	0.00	1.96
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24OCT	SE	0.00	0.00	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 E-146 REGIONAL STANDING CROP (IN THOUSANDS) OF GIZZARD SHAD YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM  
BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	1	0	1
19JUN	SE	0	0	0	0	0	0	0	0	0	0	1	0	1
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
30JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
03JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	ST. CROP	0	0	0	0	0	0	0	0	1	0	0	0	1
16JUL	SE	0	0	0	0	0	0	0	0	1	0	0	0	1
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
28JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	2	0	2
31JUL	SE	0	0	0	0	0	0	0	0	0	0	2	0	2
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11AUG-	ST. CROP	0	8	4	0	0	0	11	3	0	4	0	4	34
14AUG	SE	0	6	4	0	0	0	11	2	0	4	0	4	15
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	ST. CROP	0	4	0	6	0	5	0	0	0	21	2	0	38
27AUG	SE	0	4	0	6	0	5	0	0	0	13	2	0	16
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
08SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	8	0	0	8
11SEP	SE	0	0	0	0	0	0	0	0	0	6	0	0	6
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22SEP-	ST. CROP	0	0	0	0	0	9	6	0	0	2	0	0	17
25SEP	SE	0	0	0	0	0	9	6	0	0	2	0	0	11
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	ST. CROP	0	4	0	0	0	2	17	< 0.5	0	0	0	0	23
09OCT	SE	0	4	0	0	0	2	14	< 0.5	0	0	0	0	14
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
24OCT	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 E-147 REGIONAL DENSITY (NO./1,000m3) OF RAINBOW SMELT YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

ALL REGIONS COMBINED															
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-06MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-20MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-03APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-10APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-17APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-24APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-01MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-07MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-15MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-22MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-30MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-05JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-147 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF RAINBOW SMELT YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
														AL	
10JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
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
17JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	5						80
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
30JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
27AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
11SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-148 REGIONAL STANDING CROP (IN THOUSANDS) OF RAINBOW SMELT YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

SURVEY, 2008														ALL REGIONS COMBINED	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
06MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
20MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
03APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-148 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF RAINBOW SMELT YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
														AL	
10JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
17JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
30JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
27AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
11SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
25SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
09OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81



TABLE E-149 REGIONAL DENSITY (NO./1,000m3) OF RAINBOW SMELT YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
07JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8	210
21JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
04AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8	210
18AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
02SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
15SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8	210
29SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8	210
13OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
27OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8	150
10NOV-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14NOV	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150
01DEC-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05DEC	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150

TABLE E-150 REGIONAL STANDING CROP (IN THOUSANDS) OF RAINBOW SMELT YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
07JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
11JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8
21JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
25JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
04AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
08AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8
18AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
21AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
02SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
05SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
15SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
18SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8
29SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
02OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8
13OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
16OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
27OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
30OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8
10NOV-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
14NOV	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8
01DEC-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
05DEC	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8

TABLE E-151 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF RAINBOW SMELT YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM  
BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
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
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
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
16JUL	SE	0.00	0.00	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
28JUL-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
31JUL	SE	0.00	0.00	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
11AUG-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
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
27AUG	SE	0.00	0.00	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
08SEP-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11SEP	SE	0.00	0.00	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
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
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24OCT	SE	0.00	0.00	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 E-152 REGIONAL STANDING CROP (IN THOUSANDS) OF RAINBOW SMELT YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM  
BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
													AL	
17JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
30JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
03JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
16JUL	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
28JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
31JUL	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
11AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
14AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
27AUG	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
08SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
11SEP	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
22SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
25SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
09OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
24OCT	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 E-153 REGIONAL DENSITY (NO./1,000m3) OF HOGCHOKER EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
04MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
06MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
18MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
20MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
01APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
03APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
07APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
14APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
21APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
28APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
05MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
12MAY-	DENSITY	2.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15MAY	SE	2.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10
19MAY-	DENSITY	0.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22MAY	SE	0.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
27MAY-	DENSITY	15.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30MAY	SE	10.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
02JUN-	DENSITY	133.79	6.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05JUN	SE	133.79	6.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6

TABLE E-153 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF HOGCHOKER EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
10JUN-	DENSITY	914.56	990.48	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13JUN	SE	914.56	637.75	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
16JUN-	DENSITY	5533.79	9099.10	845.66	0.00	0.00	0.00	0.14	0.00	0.26	0.00	0.00	0.00	0.00
19JUN	SE	3157.94	2335.97	435.44	0.00	0.00	0.00	0.14	0.00	0.26	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
24JUN-	DENSITY	2481.57	3661.65	1.08	0.00	0.00	0.00	1.05	0.00	0.00	0.00	0.00	0.00	0.00
27JUN	SE	997.79	325.99	1.08	0.00	0.00	0.00	1.05	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
29JUN-	DENSITY	3155.04	84016.41	623.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03JUL	SE	1162.42	43071.33	291.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
14JUL-	DENSITY	2241.73	1096.26	329.72	0.69	0.86	0.00	0.00	0.00	NS	NS	NS	NS	NS
17JUL	SE	831.91	215.29	181.14	0.69	0.86	0.00	0.00	0.00					
	NO. TOWS	6	11	13	14	13	8	10	5					
28JUL-	DENSITY	218.48	37.22	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS
30JUL	SE	145.12	31.13	0.00	0.00	0.00	0.00	0.00	0.00					
	NO. TOWS	6	11	13	14	13	8	10	6					
12AUG-	DENSITY	1.61	596.23	290.52	3.36	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS
14AUG	SE	1.61	401.06	171.32	3.36	0.00	0.00	0.00	0.00					
	NO. TOWS	6	11	13	14	13	8	10	6					
25AUG-	DENSITY	3.46	4.68	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS
27AUG	SE	3.46	4.68	0.00	0.00	0.00	0.00	0.00	0.00					
	NO. TOWS	6	11	13	14	13	8	10	6					
09SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS
11SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
	NO. TOWS	6	11	13	14	13	8	10	6					
23SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
	NO. TOWS	6	11	13	14	13	8	10	6					
07OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
	NO. TOWS	6	11	13	14	13	8	10	6					

TABLE E-154 REGIONAL STANDING CROP (IN THOUSANDS) OF HOGCHOKER EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-	ST.CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
06MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	ST.CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
20MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	ST.CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
03APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	ST.CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	ST.CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	ST.CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	ST.CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	ST.CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	ST.CROP	579	0	0	0	0	0	0	0	0	0	0	0	0	579
15MAY	SE	579	0	0	0	0	0	0	0	0	0	0	0	0	579
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	ST.CROP	137	0	0	0	0	0	0	0	0	0	0	0	0	137
22MAY	SE	137	0	0	0	0	0	0	0	0	0	0	0	0	137
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	ST.CROP	3145	0	0	0	0	0	0	0	0	0	0	0	0	3145
30MAY	SE	2228	0	0	0	0	0	0	0	0	0	0	0	0	2228
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	ST.CROP	27965	1461	0	0	0	0	0	0	0	0	0	0	0	29426
05JUN	SE	27965	1461	0	0	0	0	0	0	0	0	0	0	0	28003
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-154 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF HOGCHOKER EGGS IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

															ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
10JUN-	ST.CROP	191155	227237	0	0	26	0	0	0	0	0	0	0	0	418418
13JUN	SE	191155	146312	0	0	26	0	0	0	0	0	0	0	0	240723
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	ST.CROP	1156632	2087518	272145	0	0	0	19	0	44	0	0	0	0	3516357
19JUN	SE	660050	535920	140128	0	0	0	19	0	44	0	0	0	0	861691
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	ST.CROP	518680	840058	347	0	0	0	147	0	0	0	0	0	0	1359232
27JUN	SE	208551	74788	347	0	0	0	147	0	0	0	0	0	0	221556
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	ST.CROP	659445	19275070	200685	0	0	0	0	0	0	0	0	0	0	20135200
03JUL	SE	242960	9881436	93796	0	0	0	0	0	0	0	0	0	0	9884867
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	ST.CROP	468551	251503	106108	101	180	0	0	0	NS	NS	NS	NS	NS	826443
17JUL	SE	173880	49393	58293	101	180	0	0	0						189926
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	ST.CROP	45665	8539	0	0	0	0	0	0	NS	NS	NS	NS	NS	54204
30JUL	SE	30331	7141	0	0	0	0	0	0						31161
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	ST.CROP	336	136788	93492	496	0	0	0	0	NS	NS	NS	NS	NS	231113
14AUG	SE	336	92012	55132	496	0	0	0	0						107267
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	ST.CROP	724	1074	0	0	0	0	0	0	NS	NS	NS	NS	NS	1798
27AUG	SE	724	1074	0	0	0	0	0	0						1295
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	ST.CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
11SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	ST.CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
25SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	ST.CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
09OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81



TABLE E-155 REGIONAL DENSITY (NO./1,000m3) OF HOGCHOKER YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
04MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
06MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
18MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
20MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
01APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
03APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
07APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
14APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
21APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
28APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
05MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
12MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10
19MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
27MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
02JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6

TABLE E-155 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF HOGCHOKER YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

															ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
10JUN-	DENSITY	0.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
13JUN	SE	0.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	DENSITY	0.70	0.00	0.45	1.59	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21
19JUN	SE	0.70	0.00	0.45	1.59	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.80
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	DENSITY	0.00	0.00	0.00	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
03JUL	SE	0.00	0.00	0.00	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.55
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		NS	NS	NS	NS	0.00
17JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		NS	NS	NS	NS	0.00
30JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		NS	NS	NS	NS	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		NS	NS	NS	NS	0.00
27AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		NS	NS	NS	NS	0.00
11SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		NS	NS	NS	NS	0.00
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		NS	NS	NS	NS	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-156 REGIONAL STANDING CROP (IN THOUSANDS) OF HOGCHOKER YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

															ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
06MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
20MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
03APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-156 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF HOGCHOKER YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
														AL	COMBINED
10JUN-	ST. CROP	142	0	0	0	0	0	0	0	0	0	0	0	0	142
13JUN	SE	142	0	0	0	0	0	0	0	0	0	0	0	0	142
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	ST. CROP	147	0	144	236	9	0	0	0	0	0	0	0	0	535
19JUN	SE	147	0	144	236	9	0	0	0	0	0	0	0	0	313
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	ST. CROP	0	0	0	82	0	0	0	0	0	0	0	0	0	82
03JUL	SE	0	0	0	82	0	0	0	0	0	0	0	0	0	82
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
17JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
30JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
27AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
11SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
25SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
09OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-157 REGIONAL DENSITY (NO./1,000m3) OF HOGCHOKER POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
04MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
06MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
18MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
20MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
01APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
03APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
07APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
14APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
21APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
28APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
05MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
12MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10
19MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
27MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
02JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6

TABLE E-157 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF HOGCHOKER POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	DENSITY	0.00	0.00	2.79	1.45	0.00	0.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.37
27JUN	SE	0.00	0.00	2.79	1.45	0.00	0.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.19
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	DENSITY	0.00	0.00	0.00	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
03JUL	SE	0.00	0.00	0.00	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.55
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	DENSITY	0.00	0.00	0.00	0.00	1.02	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.13
17JUL	SE	0.00	0.00	0.00	0.00	1.02	0.00	0.00	0.00						1.02
	NO. TOWS	6	11	13	14	13	8	10	5						80
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
30JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
27AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
11SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-158 REGIONAL STANDING CROP (IN THOUSANDS) OF HOGCHOKER POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

SURVEY, 2008														ALL REGIONS COMBINED	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
06MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
20MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
03APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-158 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF HOGCHOKER POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
10JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
13JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
16JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
24JUN-	ST. CROP	0	0	897	214	0	117	0	0	0	0	0	0	0
27JUN	SE	0	0	897	214	0	117	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
29JUN-	ST. CROP	0	0	0	82	0	0	0	0	0	0	0	0	0
03JUL	SE	0	0	0	82	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
14JUL-	ST. CROP	0	0	0	0	212	0	0	0	NS	NS	NS	NS	NS
17JUL	SE	0	0	0	0	212	0	0	0					
	NO. TOWS	6	11	13	14	13	8	10	5					
28JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS
30JUL	SE	0	0	0	0	0	0	0	0					
	NO. TOWS	6	11	13	14	13	8	10	6					
12AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS
14AUG	SE	0	0	0	0	0	0	0	0					
	NO. TOWS	6	11	13	14	13	8	10	6					
25AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS
27AUG	SE	0	0	0	0	0	0	0	0					
	NO. TOWS	6	11	13	14	13	8	10	6					
09SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS
11SEP	SE	0	0	0	0	0	0	0	0					
	NO. TOWS	6	11	13	14	13	8	10	6					
23SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS
25SEP	SE	0	0	0	0	0	0	0	0					
	NO. TOWS	6	11	13	14	13	8	10	6					
07OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS
09OCT	SE	0	0	0	0	0	0	0	0					
	NO. TOWS	6	11	13	14	13	8	10	6					



TABLE E-159 REGIONAL DENSITY (NO./1,000m3) OF HOGCHOKER YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

[illegible]

TABLE E-159 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF HOGCHOKER YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
10JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
16JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
24JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
29JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
14JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.39	1.31	NS	NS	NS	NS	NS
17JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.69					
	NO. TOWS	6	11	13	14	13	8	10	5					
28JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	NS	NS	NS	NS	NS
30JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27					
	NO. TOWS	6	11	13	14	13	8	10	6					
12AUG-	DENSITY	0.00	0.00	0.00	0.00	0.63	0.50	0.00	0.00	NS	NS	NS	NS	NS
14AUG	SE	0.00	0.00	0.00	0.00	0.63	0.21	0.00	0.00					
	NO. TOWS	6	11	13	14	13	8	10	6					
25AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.00	NS	NS	NS	NS	NS
27AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.00					
	NO. TOWS	6	11	13	14	13	8	10	6					
09SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS
11SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
	NO. TOWS	6	11	13	14	13	8	10	6					
23SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
	NO. TOWS	6	11	13	14	13	8	10	6					
07OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
	NO. TOWS	6	11	13	14	13	8	10	6					

TABLE E-160 REGIONAL STANDING CROP (IN THOUSANDS) OF HOGCHOKER YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
06MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
20MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
03APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-160 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF HOGCHOKER YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
10JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	ST. CROP	0	0	0	0	0	0	0	0	24	0	0	0	0	24
03JUL	SE	0	0	0	0	0	0	0	0	24	0	0	0	0	24
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	ST. CROP	0	0	0	0	0	0	54	390	NS	NS	NS	NS	NS	444
17JUL	SE	0	0	0	0	0	0	54	206						213
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	ST. CROP	0	0	0	0	0	0	0	79	NS	NS	NS	NS	NS	79
30JUL	SE	0	0	0	0	0	0	0	79						79
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	ST. CROP	0	0	0	0	132	103	0	0	NS	NS	NS	NS	NS	235
14AUG	SE	0	0	0	0	132	43	0	0						139
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	ST. CROP	0	0	0	0	0	0	38	0	NS	NS	NS	NS	NS	38
27AUG	SE	0	0	0	0	0	0	38	0						38
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
11SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
25SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
09OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-161 REGIONAL DENSITY (NO./1,000m3) OF HOGCHOKER YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

ALL REGIONS COMBINED														
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
07JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8
21JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.11	0.00	0.00	0.00	0.00	0.00
25JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.06	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
04AUG-	DENSITY	0.00	0.00	0.00	0.00	0.01	0.07	0.33	0.02	0.00	0.00	0.06	0.00	0.00
08AUG	SE	0.00	0.00	0.00	0.00	0.01	0.03	0.12	0.02	0.00	0.00	0.06	0.00	0.00
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8
18AUG-	DENSITY	0.00	0.00	0.00	0.00	0.05	0.09	0.09	0.07	0.02	0.12	0.06	0.00	0.00
21AUG	SE	0.00	0.00	0.00	0.00	0.04	0.04	0.04	0.04	0.02	0.07	0.06	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
02SEP-	DENSITY	0.00	0.00	0.02	0.00	0.26	0.51	1.55	0.06	0.02	1.11	0.07	0.00	0.00
05SEP	SE	0.00	0.00	0.02	0.00	0.17	0.17	0.34	0.04	0.02	0.76	0.07	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
15SEP-	DENSITY	0.00	0.00	0.03	0.05	0.67	0.24	1.03	0.05	0.09	0.00	0.00	0.00	0.00
18SEP	SE	0.00	0.00	0.03	0.03	0.56	0.23	0.55	0.02	0.07	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8
29SEP-	DENSITY	0.00	0.00	0.00	0.11	0.62	0.67	1.95	0.12	0.33	0.08	0.00	0.00	0.00
02OCT	SE	0.00	0.00	0.00	0.08	0.23	0.26	0.60	0.07	0.18	0.08	0.00	0.00	0.00
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8
13OCT-	DENSITY	0.00	0.00	0.00	0.00	0.22	0.14	1.12	0.04	0.44	1.16	0.00	0.00	0.00
16OCT	SE	0.00	0.00	0.00	0.00	0.18	0.14	0.60	0.02	0.28	0.81	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
27OCT-	DENSITY	0.00	0.00	0.00	0.00	0.19	0.76	0.92	0.43	0.18	0.10	0.06	0.00	0.00
30OCT	SE	0.00	0.00	0.00	0.00	0.14	0.40	0.31	0.14	0.07	0.05	0.06	0.00	0.00
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8
10NOV-	DENSITY	0.00	0.00	0.00	0.91	2.54	1.10	1.80	0.05	0.12	0.22	0.07	0.00	0.00
14NOV	SE	0.00	0.00	0.00	0.33	0.93	0.26	0.32	0.03	0.07	0.13	0.05	0.00	0.00
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8
01DEC-	DENSITY	0.00	0.00	0.00	0.52	1.45	0.36	0.17	0.18	0.01	0.00	0.00	0.00	0.00
05DEC	SE	0.00	0.00	0.00	0.49	0.65	0.17	0.09	0.09	0.01	0.00	0.00	0.00	0.00
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8

TABLE E-162 REGIONAL STANDING CROP (IN THOUSANDS) OF HOGCHOKER YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
														AL	
07JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8	210
21JUL-	ST. CROP	0	0	0	0	0	0	5	31	0	0	0	0	0	36
25JUL	SE	0	0	0	0	0	0	4	19	0	0	0	0	0	20
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
04AUG-	ST. CROP	0	0	0	0	3	14	46	5	0	0	11	0	0	78
08AUG	SE	0	0	0	0	3	6	16	5	0	0	11	0	0	21
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8	210
18AUG-	ST. CROP	0	0	0	0	11	19	13	20	3	17	11	0	0	93
21AUG	SE	0	0	0	0	8	9	6	11	3	10	11	0	0	23
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
02SEP-	ST. CROP	0	0	7	0	54	106	216	18	3	156	12	0	0	572
05SEP	SE	0	0	7	0	36	35	47	12	3	107	12	0	0	129
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
15SEP-	ST. CROP	0	0	8	8	139	50	144	15	15	0	0	0	0	380
18SEP	SE	0	0	8	5	118	47	77	6	12	0	0	0	0	149
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8	210
29SEP-	ST. CROP	0	0	0	16	130	139	273	36	54	11	0	0	0	659
02OCT	SE	0	0	0	12	47	54	84	20	30	11	0	0	0	117
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8	210
13OCT-	ST. CROP	0	0	0	0	46	28	157	12	73	165	0	0	0	481
16OCT	SE	0	0	0	0	39	28	84	6	46	114	0	0	0	156
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
27OCT-	ST. CROP	0	0	0	0	39	157	129	128	29	14	10	0	0	507
30OCT	SE	0	0	0	0	29	83	43	41	12	7	10	0	0	108
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8	150
10NOV-	ST. CROP	0	0	0	135	529	229	251	14	20	31	13	0	0	1222
14NOV	SE	0	0	0	49	194	55	45	10	12	18	9	0	0	214
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150
01DEC-	ST. CROP	0	0	0	77	301	75	24	54	2	0	0	0	0	535
05DEC	SE	0	0	0	73	135	35	13	26	2	0	0	0	0	160
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150

TABLE E-163 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF HOGCHOKER YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM  
BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
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
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
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
16JUL	SE	0.00	0.00	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
28JUL-	CPUE	0.00	0.00	0.00	0.60	2.40	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.29
31JUL	SE	0.00	0.00	0.00	0.60	1.29	0.34	0.00	0.00	0.00	0.00	0.00	0.00	1.46
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11AUG-	CPUE	0.00	0.00	0.00	3.40	0.60	0.50	0.00	0.20	0.40	0.00	0.00	0.00	0.43
14AUG	SE	0.00	0.00	0.00	2.42	0.40	0.50	0.00	0.20	0.24	0.00	0.00	0.00	2.52
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	CPUE	0.00	0.00	0.07	0.00	1.20	0.33	0.00	0.00	0.40	0.00	0.10	0.00	0.18
27AUG	SE	0.00	0.00	0.07	0.00	0.97	0.33	0.00	0.00	0.24	0.00	0.10	0.00	1.06
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
08SEP-	CPUE	0.00	0.00	0.00	0.00	1.00	0.83	0.00	0.00	0.00	0.00	0.00	0.00	0.15
11SEP	SE	0.00	0.00	0.00	0.00	0.77	0.65	0.00	0.00	0.00	0.00	0.00	0.00	1.01
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22SEP-	CPUE	0.00	0.08	0.00	0.00	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
25SEP	SE	0.00	0.06	0.00	0.00	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.80
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	CPUE	0.00	0.08	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.00	0.06
09OCT	SE	0.00	0.08	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.00	0.61
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24OCT	SE	0.00	0.00	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 E-164 REGIONAL STANDING CROP (IN THOUSANDS) OF HOGCHOKER YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM  
BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
30JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
03JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
16JUL	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
28JUL-	ST. CROP	0	0	0	6	6	5	0	0	0	0	0	0	17
31JUL	SE	0	0	0	6	3	4	0	0	0	0	0	0	7
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11AUG-	ST. CROP	0	0	0	31	2	5	0	< 0.5	3	0	0	0	42
14AUG	SE	0	0	0	22	1	5	0	< 0.5	2	0	0	0	23
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	ST. CROP	0	0	2	0	3	4	0	0	3	0	2	0	14
27AUG	SE	0	0	2	0	3	4	0	0	2	0	2	0	6
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
08SEP-	ST. CROP	0	0	0	0	3	9	0	0	0	0	0	0	12
11SEP	SE	0	0	0	0	2	7	0	0	0	0	0	0	7
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22SEP-	ST. CROP	0	4	0	0	2	0	0	0	0	0	0	0	6
25SEP	SE	0	3	0	0	2	0	0	0	0	0	0	0	3
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	ST. CROP	0	4	0	0	0	0	4	0	0	0	0	0	8
09OCT	SE	0	4	0	0	0	0	4	0	0	0	0	0	6
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
24OCT	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 E-165 REGIONAL DENSITY (NO./1,000m<sup>3</sup>) OF HOGCHOKER YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-06MAR	DENSITY	0.00	0.00	0.00	0.34	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.05
	SE	0.00	0.00	0.00	0.34	0.00	0.00	0.00							0.34
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-20MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-03APR	DENSITY	0.00	0.00	0.19	0.24	0.00	0.00	1.66	NS	NS	NS	NS	NS	NS	0.30
	SE	0.00	0.00	0.19	0.24	0.00	0.00	1.03							1.08
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-10APR	DENSITY	0.00	0.00	0.00	1.21	0.66	0.00	0.00	0.00	0.23	0.28	0.00	0.00	0.00	0.18
	SE	0.00	0.00	0.00	1.21	0.25	0.00	0.00	0.00	0.23	0.28	0.00	0.00	0.00	1.29
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-17APR	DENSITY	0.00	0.00	0.31	0.18	1.31	2.91	0.29	0.80	0.00	0.00	0.00	0.00	0.00	0.45
	SE	0.00	0.00	0.31	0.18	0.62	1.81	0.29	0.47	0.00	0.00	0.00	0.00	0.00	2.02
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-24APR	DENSITY	0.00	0.00	0.46	6.03	4.28	1.87	0.00	2.58	0.00	0.29	0.00	0.00	0.00	1.19
	SE	0.00	0.00	0.33	1.89	2.14	0.91	0.00	0.93	0.00	0.29	0.00	0.00	0.00	3.16
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-01MAY	DENSITY	0.00	0.52	0.00	0.00	0.70	7.38	6.40	3.08	0.00	0.40	0.00	0.00	0.00	1.42
	SE	0.00	0.52	0.00	0.00	0.70	3.20	0.63	1.47	0.00	0.40	0.00	0.00	0.00	3.70
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-07MAY	DENSITY	0.00	0.21	0.00	0.00	13.40	0.62	0.00	2.07	1.93	0.35	0.00	0.00	0.00	1.43
	SE	0.00	0.21	0.00	0.00	5.92	0.31	0.00	0.53	0.79	0.35	0.00	0.00	0.00	6.01
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-15MAY	DENSITY	0.00	7.75	0.71	0.18	3.07	3.00	4.14	7.53	0.27	0.42	0.00	0.00	0.00	2.08
	SE	0.00	4.53	0.26	0.18	2.57	1.50	1.03	5.34	0.17	0.42	0.00	0.00	0.00	7.70
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-22MAY	DENSITY	1.88	0.66	2.15	2.12	9.67	6.40	0.49	1.04	0.20	0.00	0.00	0.69	0.00	1.94
	SE	0.71	0.40	0.97	2.12	6.99	3.48	0.49	0.36	0.20	0.00	0.00	0.69	0.00	8.24
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-30MAY	DENSITY	0.00	5.45	4.13	1.58	10.84	1.33	0.49	1.17	1.43	0.79	1.34	5.18	1.11	2.68
	SE	0.00	2.87	1.53	0.63	6.33	0.61	0.34	0.60	0.64	0.49	0.83	1.74	0.56	7.52
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-05JUN	DENSITY	0.00	0.00	1.62	0.26	0.17	1.50	1.17	0.00	0.00	0.00	0.71	2.20	0.00	0.59
	SE	0.00	0.00	0.84	0.26	0.17	0.92	0.59	0.00	0.00	0.00	0.46	1.44	0.00	2.07
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-165 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF HOGCHOKER YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

ALL REGIONS COMBINED															
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
10JUN-	DENSITY	0.00	0.00	0.45	1.93	4.33	0.25	0.50	0.58	0.14	1.59	2.99	4.46	7.03	1.87
13JUN	SE	0.00	0.00	0.30	1.55	1.82	0.25	0.46	0.37	0.14	0.90	1.15	1.97	1.27	3.72
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	DENSITY	0.00	0.00	0.00	0.00	0.27	0.55	0.90	0.21	0.00	0.00	0.30	0.00	1.21	0.26
19JUN	SE	0.00	0.00	0.00	0.00	0.27	0.20	0.90	0.21	0.00	0.00	0.30	0.00	1.21	1.59
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	DENSITY	0.00	3.48	0.36	0.00	0.12	0.12	0.00	0.20	0.00	0.00	0.65	1.68	0.00	0.51
27JUN	SE	0.00	1.59	0.36	0.00	0.12	0.12	0.00	0.20	0.00	0.00	0.65	1.68	0.00	2.44
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	DENSITY	0.00	0.00	0.00	0.00	0.19	0.00	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.05
03JUL	SE	0.00	0.00	0.00	0.00	0.19	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.38
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	DENSITY	0.00	0.00	0.00	0.69	0.32	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.13
17JUL	SE	0.00	0.00	0.00	0.69	0.32	0.00	0.00	0.00						0.76
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	DENSITY	0.00	0.00	0.00	0.81	0.15	0.00	0.27	0.00	NS	NS	NS	NS	NS	0.15
30JUL	SE	0.00	0.00	0.00	0.48	0.15	0.00	0.27	0.00						0.58
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.61	2.84	0.53	NS	NS	NS	NS	NS	0.50
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.24	1.49	0.27						1.53
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	DENSITY	0.00	0.00	7.56	0.42	0.14	0.00	0.00	0.00	NS	NS	NS	NS	NS	1.02
27AUG	SE	0.00	0.00	2.47	0.42	0.14	0.00	0.00	0.00						2.51
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	DENSITY	0.00	0.00	0.00	0.42	0.00	0.00	0.81	0.23	NS	NS	NS	NS	NS	0.18
11SEP	SE	0.00	0.00	0.00	0.42	0.00	0.00	0.81	0.23						0.94
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	DENSITY	0.00	2.18	2.36	0.41	0.28	0.62	0.00	0.22	NS	NS	NS	NS	NS	0.76
25SEP	SE	0.00	2.18	1.68	0.41	0.25	0.27	0.00	0.22						2.82
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.05	1.37	NS	NS	NS	NS	NS	0.18
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.41						0.42
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-166 REGIONAL STANDING CROP (IN THOUSANDS) OF HOGCHOKER YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
04MAR-	ST. CROP	0	0	0	51	0	0	0	NS	NS	NS	NS	NS	NS
06MAR	SE	0	0	0	51	0	0	0						51
	NO. TOWS	10	10	11	11	10	10	12						74
18MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS
20MAR	SE	0	0	0	0	0	0	0						0
	NO. TOWS	10	10	11	11	10	10	12						74
01APR-	ST. CROP	0	0	62	36	0	0	232	NS	NS	NS	NS	NS	NS
03APR	SE	0	0	62	36	0	0	145						161
	NO. TOWS	10	10	11	11	10	10	12						74
07APR-	ST. CROP	0	0	0	179	138	0	0	0	38	40	0	0	0
10APR	SE	0	0	0	179	52	0	0	0	38	40	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
14APR-	ST. CROP	0	0	99	26	273	605	41	239	0	0	0	0	0
17APR	SE	0	0	99	26	129	375	41	139	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
21APR-	ST. CROP	0	0	148	891	892	387	0	770	0	41	0	0	0
24APR	SE	0	0	107	279	445	189	0	276	0	41	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
28APR-	ST. CROP	0	120	0	0	146	1531	895	919	0	56	0	0	0
01MAY	SE	0	120	0	0	146	664	87	438	0	56	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
05MAY-	ST. CROP	0	48	0	0	2792	130	0	616	319	49	0	0	0
07MAY	SE	0	48	0	0	1232	65	0	159	132	49	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
12MAY-	ST. CROP	0	1778	229	26	640	621	578	2244	45	60	0	0	0
15MAY	SE	0	1039	84	26	535	311	144	1592	28	60	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10
19MAY-	ST. CROP	393	151	693	313	2014	1327	68	309	33	0	0	110	0
22MAY	SE	149	93	313	313	1456	722	68	108	33	0	0	110	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
27MAY-	ST. CROP	0	1251	1330	234	2259	277	68	348	237	112	237	833	79
30MAY	SE	0	657	492	92	1319	126	48	177	105	69	147	280	40
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
02JUN-	ST. CROP	0	0	520	39	36	310	164	0	0	0	126	353	0
05JUN	SE	0	0	269	39	36	190	82	0	0	0	82	231	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6

TABLE E-166 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF HOGCHOKER YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
10JUN-	ST. CROP	0	0	145	285	901	52	70	174	23	225	528	716	500
13JUN	SE	0	0	97	230	379	52	64	110	23	128	203	317	90
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
16JUN-	ST. CROP	0	0	0	0	57	113	126	62	0	0	53	0	86
19JUN	SE	0	0	0	0	57	42	126	62	0	0	53	0	86
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
24JUN-	ST. CROP	0	799	114	0	25	24	0	61	0	0	114	270	0
27JUN	SE	0	365	114	0	25	24	0	61	0	0	114	270	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
29JUN-	ST. CROP	0	0	0	0	40	0	69	0	0	0	0	0	0
03JUL	SE	0	0	0	0	40	0	47	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
14JUL-	ST. CROP	0	0	0	101	68	0	0	0	NS	NS	NS	NS	NS
17JUL	SE	0	0	0	101	68	0	0	0					
	NO. TOWS	6	11	13	14	13	8	10	5					
28JUL-	ST. CROP	0	0	0	120	32	0	38	0	NS	NS	NS	NS	NS
30JUL	SE	0	0	0	71	32	0	38	0					
	NO. TOWS	6	11	13	14	13	8	10	6					
12AUG-	ST. CROP	0	0	0	0	0	127	396	159	NS	NS	NS	NS	NS
14AUG	SE	0	0	0	0	0	49	208	79					
	NO. TOWS	6	11	13	14	13	8	10	6					
25AUG-	ST. CROP	0	0	2434	62	29	0	0	0	NS	NS	NS	NS	NS
27AUG	SE	0	0	794	62	29	0	0	0					
	NO. TOWS	6	11	13	14	13	8	10	6					
09SEP-	ST. CROP	0	0	0	62	0	0	113	69	NS	NS	NS	NS	NS
11SEP	SE	0	0	0	62	0	0	113	69					
	NO. TOWS	6	11	13	14	13	8	10	6					
23SEP-	ST. CROP	0	501	761	61	59	129	0	67	NS	NS	NS	NS	NS
25SEP	SE	0	501	541	61	52	57	0	67					
	NO. TOWS	6	11	13	14	13	8	10	6					
07OCT-	ST. CROP	0	0	0	0	0	0	7	410	NS	NS	NS	NS	NS
09OCT	SE	0	0	0	0	0	0	7	123					
	NO. TOWS	6	11	13	14	13	8	10	6					

TABLE E-167 REGIONAL DENSITY (NO./1,000m3) OF HOGCHOKER YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
07JUL-	DENSITY	2.79	26.12	2.58	1.69	0.99	0.16	0.61	0.15	0.12	0.97	1.94	0.22	0.54
11JUL	SE	0.71	4.57	0.55	1.44	0.82	0.06	0.56	0.10	0.07	0.29	0.79	0.11	0.31
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8
21JUL-	DENSITY	3.36	2.55	0.53	0.21	0.97	1.13	3.16	1.18	0.32	0.12	4.80	2.32	2.12
25JUL	SE	0.88	0.98	0.41	0.21	0.41	0.35	1.02	0.33	0.12	0.12	2.81	0.83	0.97
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
04AUG-	DENSITY	4.23	19.82	3.02	0.65	1.06	1.34	6.22	1.57	0.08	9.83	3.79	0.27	4.99
08AUG	SE	1.39	6.23	2.60	0.28	0.27	0.26	0.82	0.60	0.05	8.44	2.35	0.13	2.90
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8
18AUG-	DENSITY	0.20	2.16	11.03	4.19	5.33	1.95	2.99	0.79	0.30	0.39	2.50	0.11	1.81
21AUG	SE	0.14	0.67	4.45	1.48	1.83	0.70	1.16	0.42	0.15	0.23	1.12	0.11	1.69
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
02SEP-	DENSITY	1.39	1.73	9.72	1.92	7.00	6.46	16.33	2.08	0.25	7.39	4.68	0.00	0.85
05SEP	SE	0.74	1.47	4.80	1.27	3.16	1.76	2.61	1.30	0.23	3.95	2.86	0.00	0.72
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
15SEP-	DENSITY	0.03	0.09	1.72	38.28	1.18	0.48	8.73	0.59	0.79	0.11	0.24	0.23	0.18
18SEP	SE	0.03	0.06	0.75	12.65	0.41	0.33	3.28	0.23	0.64	0.06	0.24	0.23	0.18
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8
29SEP-	DENSITY	1.01	2.41	2.98	18.37	15.53	7.59	50.59	3.09	3.58	1.43	6.22	1.75	3.02
02OCT	SE	0.67	1.55	1.09	7.88	3.66	2.12	12.49	1.89	1.01	0.80	5.36	0.81	0.92
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8
13OCT-	DENSITY	0.05	0.96	0.73	2.15	5.67	5.48	42.70	2.12	2.59	12.20	0.55	0.91	0.48
16OCT	SE	0.03	0.54	0.38	1.52	1.75	3.70	11.42	0.73	1.28	4.41	0.46	0.41	0.18
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
27OCT-	DENSITY	0.00	2.81	7.48	0.42	7.91	10.37	15.74	12.50	4.43	4.98	0.20	0.04	0.05
30OCT	SE	0.00	1.38	2.76	0.31	3.62	5.28	7.22	4.30	2.68	2.45	0.09	0.04	0.05
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8
10NOV-	DENSITY	0.00	2.48	3.02	29.79	24.00	28.23	49.21	3.60	5.33	12.93	6.71	0.04	0.00
14NOV	SE	0.00	0.91	0.99	9.42	3.39	3.81	4.88	0.78	2.03	4.40	4.32	0.04	0.00
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8
01DEC-	DENSITY	0.00	0.06	1.80	1.82	5.15	1.62	1.43	2.35	0.12	0.00	0.03	0.00	0.00
05DEC	SE	0.00	0.06	1.11	1.38	1.97	0.33	0.90	0.90	0.08	0.00	0.03	0.00	0.00
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8

TABLE E-168 REGIONAL STANDING CROP (IN THOUSANDS) OF HOGCHOKER YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

SURVEY, 2008														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
07JUL - 11JUL	ST. CROP	582	5993	831	250	206	33	86	46	20	138	342	35	38
	SE	149	1048	178	213	170	13	78	29	11	41	139	18	22
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8
21JUL - 25JUL	ST. CROP	702	586	169	31	203	234	441	352	54	16	846	373	151
	SE	184	224	130	31	85	73	142	98	20	16	496	133	69
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
04AUG - 08AUG	ST. CROP	884	4547	972	95	220	277	869	468	13	1390	669	43	355
	SE	290	1429	838	41	56	55	115	180	8	1195	415	22	207
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8
18AUG - 21AUG	ST. CROP	42	496	3551	619	1111	405	418	237	50	55	440	18	129
	SE	30	154	1433	219	382	145	162	127	25	32	197	18	120
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
02SEP - 05SEP	ST. CROP	290	396	3127	284	1459	1341	2283	621	41	1045	826	0	61
	SE	155	338	1544	188	657	366	365	387	38	559	505	0	52
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
15SEP - 18SEP	ST. CROP	6	21	553	5655	246	99	1220	176	130	16	42	37	13
	SE	6	15	242	1869	85	69	459	69	107	9	42	37	13
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8
29SEP - 02OCT	ST. CROP	211	553	958	2715	3236	1574	7073	922	593	202	1097	281	215
	SE	140	355	352	1164	763	439	1746	562	167	113	946	129	65
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8
13OCT - 16OCT	ST. CROP	11	220	235	317	1182	1138	5969	632	429	1727	98	147	34
	SE	7	123	122	224	364	767	1596	218	213	623	82	65	13
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
27OCT - 30OCT	ST. CROP	0	644	2407	61	1647	2150	2201	3727	734	704	36	6	3
	SE	0	318	888	46	754	1094	1010	1281	443	346	16	6	3
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8
10NOV - 14NOV	ST. CROP	0	569	971	4401	5000	5856	6878	1075	883	1829	1183	7	0
	SE	0	210	319	1392	707	790	682	231	335	622	761	7	0
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8
01DEC - 05DEC	ST. CROP	0	14	578	269	1072	336	199	700	19	0	4	0	0
	SE	0	14	357	204	411	68	126	268	13	0	4	0	0
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8

TABLE E-169 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF HOGCHOKER YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM  
BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	CPUE	2.00	0.45	0.00	12.33	0.00	0.00	0.00	0.00	0.00	0.07	0.11	0.50	1.29
19JUN	SE	2.00	0.31	0.00	11.33	0.00	0.00	0.00	0.00	0.00	0.07	0.07	0.34	11.52
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
30JUN-	CPUE	0.33	0.27	0.14	3.33	3.00	0.00	0.00	0.00	0.38	0.00	0.00	0.17	0.64
03JUL	SE	0.33	0.14	0.14	2.85	3.00	0.00	0.00	0.00	0.26	0.00	0.00	0.11	4.16
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	CPUE	0.00	0.27	0.00	0.00	0.33	0.00	0.00	0.00	0.13	0.00	0.05	0.08	0.07
16JUL	SE	0.00	0.14	0.00	0.00	0.33	0.00	0.00	0.00	0.13	0.00	0.05	0.08	0.40
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
28JUL-	CPUE	0.60	0.08	0.07	0.60	1.60	1.33	0.20	0.00	0.40	0.44	0.00	0.00	0.44
31JUL	SE	0.40	0.06	0.07	0.60	1.03	0.49	0.20	0.00	0.40	0.34	0.00	0.00	1.47
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11AUG-	CPUE	0.00	0.04	0.29	0.60	0.20	0.17	0.20	0.00	0.60	0.11	0.00	0.00	0.18
14AUG	SE	0.00	0.04	0.29	0.40	0.20	0.17	0.20	0.00	0.40	0.11	0.00	0.00	0.72
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	CPUE	0.00	0.00	0.00	0.00	0.00	0.17	0.20	0.00	0.00	0.00	0.00	0.14	0.04
27AUG	SE	0.00	0.00	0.00	0.00	0.00	0.17	0.20	0.00	0.00	0.00	0.00	0.14	0.30
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
08SEP-	CPUE	0.20	0.04	0.29	0.00	0.00	0.33	0.40	0.00	0.00	0.00	0.00	0.00	0.11
11SEP	SE	0.20	0.04	0.19	0.00	0.00	0.33	0.40	0.00	0.00	0.00	0.00	0.00	0.59
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22SEP-	CPUE	0.00	0.13	0.07	0.00	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
25SEP	SE	0.00	0.07	0.07	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	CPUE	0.00	0.00	0.07	0.00	0.40	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.06
09OCT	SE	0.00	0.00	0.07	0.00	0.40	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.45
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24OCT	SE	0.00	0.00	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 E-170 REGIONAL STANDING CROP (IN THOUSANDS) OF HOGCHOKER YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM  
BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	ST. CROP	15	21	0	114	0	0	0	0	0	1	2	7	159
19JUN	SE	15	14	0	104	0	0	0	0	0	1	1	5	107
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
30JUN-	ST. CROP	3	12	4	31	8	0	0	0	3	0	0	2	63
03JUL	SE	3	6	4	26	8	0	0	0	2	0	0	2	29
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	ST. CROP	0	12	0	0	1	0	0	0	1	0	1	1	17
16JUL	SE	0	6	0	0	1	0	0	0	1	0	1	1	7
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
28JUL-	ST. CROP	5	4	2	6	4	14	1	0	3	8	0	0	47
31JUL	SE	3	3	2	6	3	5	1	0	3	6	0	0	12
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11AUG-	ST. CROP	0	2	8	6	1	2	1	0	5	2	0	0	26
14AUG	SE	0	2	8	4	1	2	1	0	3	2	0	0	10
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	ST. CROP	0	0	0	0	0	2	1	0	0	0	0	2	5
27AUG	SE	0	0	0	0	0	2	1	0	0	0	0	2	3
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
08SEP-	ST. CROP	2	2	8	0	0	4	3	0	0	0	0	0	17
11SEP	SE	2	2	5	0	0	4	3	0	0	0	0	0	7
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22SEP-	ST. CROP	0	6	2	0	1	0	0	0	0	0	0	0	9
25SEP	SE	0	3	2	0	1	0	0	0	0	0	0	0	4
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	ST. CROP	0	0	2	0	1	0	1	0	0	0	0	0	4
09OCT	SE	0	0	2	0	1	0	1	0	0	0	0	0	3
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
24OCT	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 E-171 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF SPOTTAIL SHINER YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

															ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
10JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.12	0.00	0.16
27JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.12	0.00	2.12
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
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
17JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	5						80
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
30JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
27AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
11SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-172 REGIONAL STANDING CROP (IN THOUSANDS) OF SPOTTAIL SHINER YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
06MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
20MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
03APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-172 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF SPOTTAIL SHINER YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
														AL	
10JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	341	0	341
27JUN	SE	0	0	0	0	0	0	0	0	0	0	0	341	0	341
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
17JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
30JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
27AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
11SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
25SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
09OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-173 REGIONAL DENSITY (NO./1,000m3) OF SPOTTAIL SHINER YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
07JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.54	0.00	0.04
11JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.12
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8	210
21JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.01
25JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.13
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
04AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.06	0.00	0.00	0.03
08AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.06	0.00	0.00	0.17
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8	210
18AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	< 0.005
21AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
02SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.01
05SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.14
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
15SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8	210
29SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8	210
13OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.08	0.01
16OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.08	0.08
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
27OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.06	0.27	0.00	0.11	0.00	0.04
30OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.12	0.00	0.11	0.00	0.17
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8	150
10NOV-	DENSITY	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.03	0.00	0.00	0.06	0.00	0.00	0.01
14NOV	SE	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.02	0.00	0.00	0.04	0.00	0.00	0.05
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150
01DEC-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.07	0.10	0.03	0.00	0.02
05DEC	SE	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.04	0.04	0.03	0.00	0.07
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150

TABLE E-174 REGIONAL STANDING CROP (IN THOUSANDS) OF SPOTTAIL SHINER YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
														AL	
07JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	87	0	87
11JUL	SE	0	0	0	0	0	0	0	0	0	0	0	19	0	19
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8	210
21JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	20	0	20
25JUL	SE	0	0	0	0	0	0	0	0	0	0	0	20	0	20
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
04AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	38	11	0	0	49
08AUG	SE	0	0	0	0	0	0	0	0	0	22	11	0	0	25
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8	210
18AUG-	ST. CROP	0	0	0	0	0	0	0	4	0	0	0	0	0	4
21AUG	SE	0	0	0	0	0	0	0	4	0	0	0	0	0	4
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
02SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	19	0	0	0	19
05SEP	SE	0	0	0	0	0	0	0	0	0	19	0	0	0	19
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
15SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8	210
29SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8	210
13OCT-	ST. CROP	0	0	0	0	0	0	1	0	0	0	0	0	6	7
16OCT	SE	0	0	0	0	0	0	1	0	0	0	0	0	6	6
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
27OCT-	ST. CROP	0	0	0	0	0	0	0	9	10	38	0	18	0	75
30OCT	SE	0	0	0	0	0	0	0	6	5	17	0	18	0	26
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8	150
10NOV-	ST. CROP	0	0	0	0	2	0	0	10	0	0	10	0	0	22
14NOV	SE	0	0	0	0	2	0	0	7	0	0	7	0	0	10
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150
01DEC-	ST. CROP	0	0	0	0	0	2	0	0	0	9	18	5	0	34
05DEC	SE	0	0	0	0	0	2	0	0	0	6	7	5	0	11
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150

TABLE E-175 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF SPOTTAIL SHINER YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.13	0.60	0.00	1.50	0.20
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.13	0.53	0.00	0.99	1.14
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
30JUN-	CPUE	0.00	0.00	0.00	0.00	0.33	0.00	0.50	2.38	6.63	9.67	36.26	17.75	6.13
03JUL	SE	0.00	0.00	0.00	0.00	0.33	0.00	0.27	1.43	2.41	3.08	12.84	8.29	15.85
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	CPUE	0.00	0.00	0.00	0.00	0.67	1.00	101.38	75.25	15.88	48.47	6.58	3.08	21.02
16JUL	SE	0.00	0.00	0.00	0.00	0.67	1.00	42.07	30.47	8.84	19.07	3.68	1.47	56.19
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
28JUL-	CPUE	0.00	0.00	0.29	3.80	5.20	6.17	84.40	139.40	28.60	74.89	13.60	71.57	35.66
31JUL	SE	0.00	0.00	0.29	3.56	3.88	5.06	36.14	36.69	22.29	15.43	3.61	39.23	70.66
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11AUG-	CPUE	0.00	0.04	0.00	0.00	5.60	13.33	74.80	73.00	8.20	32.89	4.50	30.86	20.27
14AUG	SE	0.00	0.04	0.00	0.00	3.66	8.29	49.24	28.58	5.07	12.13	3.41	9.49	59.98
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	CPUE	0.00	0.00	0.00	0.00	0.40	7.83	10.00	22.40	12.20	50.22	6.60	19.43	10.76
27AUG	SE	0.00	0.00	0.00	0.00	0.40	7.83	7.75	9.08	8.80	20.96	3.32	9.31	28.61
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
08SEP-	CPUE	0.00	0.00	0.00	2.20	0.40	5.50	39.60	18.40	8.80	79.11	46.70	2.14	16.90
11SEP	SE	0.00	0.00	0.00	2.20	0.24	5.50	25.96	10.61	5.38	21.75	24.48	0.94	43.87
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22SEP-	CPUE	0.00	0.00	0.00	0.00	0.60	13.00	23.60	81.80	12.20	35.67	2.60	36.57	17.17
25SEP	SE	0.00	0.00	0.00	0.00	0.24	11.66	6.22	43.32	7.49	16.03	1.63	35.75	60.37
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	CPUE	0.00	0.00	0.00	0.20	1.80	9.83	39.80	111.80	24.80	63.67	48.40	2.57	25.24
09OCT	SE	0.00	0.00	0.00	0.20	1.56	9.83	15.34	69.90	18.75	23.78	35.73	1.88	86.13
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	CPUE	0.00	0.00	0.00	0.00	0.00	0.50	3.20	0.60	3.60	6.78	7.20	2.43	2.03
24OCT	SE	0.00	0.00	0.00	0.00	0.00	0.50	2.96	0.40	1.60	3.04	2.48	1.95	5.56
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE E-176 REGIONAL STANDING CROP (IN THOUSANDS) OF SPOTTAIL SHINER YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
													AL	
17JUN-	ST. CROP	0	0	0	0	0	0	0	< 0.5	1	11	0	20	32
19JUN	SE	0	0	0	0	0	0	0	< 0.5	1	9	0	13	16
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
30JUN-	ST. CROP	0	0	0	0	1	0	4	3	57	170	713	241	1189
03JUL	SE	0	0	0	0	1	0	2	2	21	54	253	113	283
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	ST. CROP	0	0	0	0	2	11	719	93	137	851	129	42	1984
16JUL	SE	0	0	0	0	2	11	299	38	76	335	72	20	463
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
28JUL-	ST. CROP	0	0	8	35	14	66	599	173	246	1315	268	972	3695
31JUL	SE	0	0	8	33	10	54	256	45	192	271	71	533	687
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11AUG-	ST. CROP	0	2	0	0	15	142	531	91	71	577	89	419	1936
14AUG	SE	0	2	0	0	10	88	349	35	44	213	67	129	447
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	ST. CROP	0	0	0	0	1	83	71	28	105	882	130	264	1564
27AUG	SE	0	0	0	0	1	83	55	11	76	368	65	126	414
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
08SEP-	ST. CROP	0	0	0	20	1	59	281	23	76	1389	919	29	2796
11SEP	SE	0	0	0	20	1	59	184	13	46	382	482	13	647
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22SEP-	ST. CROP	0	0	0	0	2	138	167	101	105	626	51	497	1688
25SEP	SE	0	0	0	0	1	124	44	54	64	281	32	486	584
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	ST. CROP	0	0	0	2	5	105	282	139	214	1118	952	35	2851
09OCT	SE	0	0	0	2	4	105	109	87	161	417	703	25	852
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	ST. CROP	0	0	0	0	0	5	23	1	31	119	142	33	353
24OCT	SE	0	0	0	0	0	5	21	< 0.5	14	53	49	26	81
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100



TABLE E-177 REGIONAL DENSITY (NO./1,000m3) OF SPOTTAIL SHINER YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
04MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
06MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
18MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
20MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
01APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
03APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
07APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.00	0.00	0.00	0.00
10APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
14APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
21APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
28APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
05MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
12MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10
19MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00
22MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
27MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	3.09	2.39	3.81	2.30
30MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	1.76	2.02	2.84	1.15
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
02JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.59	0.47	0.55	3.55
05JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.14	0.29	0.55	2.66
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6

TABLE E-177 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF SPOTTAIL SHINER YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
														AL	
10JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00	3.09	0.28
13JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00	2.20	2.28
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.58	0.00	0.04
27JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.58	0.00	0.58
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.58	0.04
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.58	0.58
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
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
17JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	5						80
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
30JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
27AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.32	0.00	NS	NS	NS	NS	NS	0.04
11SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.32	0.00						0.32
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-178 REGIONAL STANDING CROP (IN THOUSANDS) OF SPOTTAIL SHINER YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

SURVEY, 2008														ALL REGIONS COMBINED	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
06MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
20MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
03APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	ST. CROP	0	0	0	0	0	0	0	0	78	0	0	0	0	78
10APR	SE	0	0	0	0	0	0	0	0	78	0	0	0	0	78
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	ST. CROP	0	0	0	0	0	0	6	0	0	0	0	0	0	6
22MAY	SE	0	0	0	0	0	0	6	0	0	0	0	0	0	6
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	ST. CROP	0	0	0	0	0	0	0	39	0	438	422	613	164	1676
30MAY	SE	0	0	0	0	0	0	0	39	0	249	356	457	82	637
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	224	82	88	252	647
05JUN	SE	0	0	0	0	0	0	0	0	0	161	51	88	189	268
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-178 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF SPOTTAIL SHINER YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
														AL	
10JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	85	0	0	220	304
13JUN	SE	0	0	0	0	0	0	0	0	0	85	0	0	157	178
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	93	0	93
27JUN	SE	0	0	0	0	0	0	0	0	0	0	0	93	0	93
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	41	41
03JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	41	41
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
17JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
30JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
27AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	ST. CROP	0	0	0	0	0	0	44	0	NS	NS	NS	NS	NS	44
11SEP	SE	0	0	0	0	0	0	44	0						44
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
25SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
09OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-179 REGIONAL DENSITY (NO./1,000m3) OF SPOTTAIL SHINER YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

SURVEY, 2008														ALL REGIONS	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	COMBINED
07JUL - 11JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.06	0.00	0.00	0.36	0.03
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.06	0.00	0.00	0.21	0.22
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8	210
21JUL - 25JUL	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.06	0.12	0.00	0.01
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.06	0.12	0.00	0.13
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
04AUG - 08AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.53	0.06	0.13	0.88	0.12
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.06	0.13	0.34	0.45
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8	210
18AUG - 21AUG	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.12	0.00	0.18	0.03
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.07	0.00	0.10	0.14
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
02SEP - 05SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	< 0.005	0.00	0.00	0.79	0.07	0.00	1.16	0.16
	SE	0.00	0.00	0.00	0.00	0.00	0.00	< 0.005	0.00	0.00	0.56	0.07	0.00	0.31	0.65
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
15SEP - 18SEP	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8	210
29SEP - 02OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.06	0.00	0.00	0.00	0.01
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.06	0.00	0.00	0.00	0.06
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8	210
13OCT - 16OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.02	0.09	0.07	0.00	0.00	0.02
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.02	0.09	0.07	0.00	0.00	0.12
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
27OCT - 30OCT	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.37	0.00	0.08	0.28	0.06
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.05	0.19	0.26
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8	150
10NOV - 14NOV	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.00	0.07	0.14	0.02
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.00	0.05	0.14	0.15
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150
01DEC - 05DEC	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.42	0.18	0.10	0.09	0.06
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.25	0.11	0.05	0.09	0.29
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150

TABLE E-180 REGIONAL STANDING CROP (IN THOUSANDS) OF SPOTTAIL SHINER YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
07JUL-	ST. CROP	0	0	0	0	0	0	0	0	3	9	0	0	26
11JUL	SE	0	0	0	0	0	0	0	0	3	9	0	0	15
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8
21JUL-	ST. CROP	0	0	0	0	0	0	0	4	0	0	11	19	0
25JUL	SE	0	0	0	0	0	0	0	4	0	0	11	19	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
04AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	75	11	21	63
08AUG	SE	0	0	0	0	0	0	0	0	0	35	11	21	24
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8
18AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	9	22	0	13
21AUG	SE	0	0	0	0	0	0	0	0	0	9	13	0	7
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
02SEP-	ST. CROP	0	0	0	0	0	0	1	0	0	112	12	0	82
05SEP	SE	0	0	0	0	0	0	1	0	0	79	12	0	22
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
15SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	6
18SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	6
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8
29SEP-	ST. CROP	0	0	0	0	0	0	1	0	0	9	0	0	0
02OCT	SE	0	0	0	0	0	0	1	0	0	9	0	0	0
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8
13OCT-	ST. CROP	0	0	0	0	0	0	5	0	3	13	12	0	0
16OCT	SE	0	0	0	0	0	0	5	0	3	13	12	0	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
27OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	53	0	12	20
30OCT	SE	0	0	0	0	0	0	0	0	0	23	0	8	13
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8
10NOV-	ST. CROP	0	0	0	0	0	0	0	0	2	5	0	11	10
14NOV	SE	0	0	0	0	0	0	0	0	2	5	0	7	10
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8
01DEC-	ST. CROP	0	0	0	0	0	0	0	5	0	60	32	15	6
05DEC	SE	0	0	0	0	0	0	0	5	0	36	19	8	6
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8

TABLE E-181 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF SPOTTAIL SHINER YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM  
BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
													AL	
17JUN-	CPUE	0.00	0.00	0.00	0.00	0.00	0.33	2.00	0.13	0.13	2.07	0.58	22.08	2.28
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.33	1.86	0.13	0.13	1.86	0.30	10.84	11.16
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
30JUN-	CPUE	0.00	0.00	0.00	0.00	3.33	0.00	4.50	0.50	0.00	0.27	1.32	12.83	1.90
03JUL	SE	0.00	0.00	0.00	0.00	2.40	0.00	2.44	0.33	0.00	0.18	0.68	12.29	12.78
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	CPUE	0.00	0.00	0.00	0.00	0.33	2.00	4.75	2.63	0.00	0.27	1.32	1.25	1.05
16JUL	SE	0.00	0.00	0.00	0.00	0.33	2.00	4.19	2.35	0.00	0.27	1.00	0.74	5.37
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
28JUL-	CPUE	0.00	0.00	0.57	0.00	0.00	0.83	5.40	2.40	0.80	0.22	3.50	18.71	2.70
31JUL	SE	0.00	0.00	0.44	0.00	0.00	0.83	4.69	2.16	0.49	0.15	0.97	14.10	15.09
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11AUG-	CPUE	0.00	0.00	0.29	0.20	0.00	0.17	1.20	0.80	0.00	0.22	1.40	40.43	3.73
14AUG	SE	0.00	0.00	0.29	0.20	0.00	0.17	1.20	0.80	0.00	0.15	0.78	22.16	22.22
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	CPUE	0.00	0.00	0.00	0.00	1.00	0.00	0.20	0.00	0.60	1.00	0.50	23.14	2.20
27AUG	SE	0.00	0.00	0.00	0.00	1.00	0.00	0.20	0.00	0.40	0.67	0.40	23.14	23.18
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
08SEP-	CPUE	0.00	0.00	0.14	1.60	0.60	1.17	0.00	0.00	0.00	0.67	2.50	1.29	0.66
11SEP	SE	0.00	0.00	0.14	1.60	0.60	1.17	0.00	0.00	0.00	0.37	1.71	1.29	3.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22SEP-	CPUE	0.00	0.00	0.00	0.00	1.60	1.33	0.00	5.60	0.00	0.22	0.50	0.29	0.80
25SEP	SE	0.00	0.00	0.00	0.00	0.51	1.15	0.00	3.49	0.00	0.22	0.34	0.18	3.73
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	CPUE	0.00	0.00	0.00	0.60	0.60	2.33	10.00	9.00	0.00	5.44	4.70	0.57	2.77
09OCT	SE	0.00	0.00	0.00	0.40	0.60	1.96	5.21	4.57	0.00	3.91	1.90	0.57	8.46
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	CPUE	0.00	0.00	0.00	0.20	0.00	1.17	0.20	0.00	0.40	0.44	2.50	0.14	0.42
24OCT	SE	0.00	0.00	0.00	0.20	0.00	0.83	0.20	0.00	0.24	0.29	2.18	0.14	2.38
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE E-182 REGIONAL STANDING CROP (IN THOUSANDS) OF SPOTTAIL SHINER YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM  
BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	ST. CROP	0	0	0	0	0	4	14	< 0.5	1	36	11	300	367
19JUN	SE	0	0	0	0	0	4	13	< 0.5	1	33	6	147	152
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
30JUN-	ST. CROP	0	0	0	0	9	0	32	1	0	5	26	174	246
03JUL	SE	0	0	0	0	6	0	17	< 0.5	0	3	13	167	169
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	ST. CROP	0	0	0	0	1	21	34	3	0	5	26	17	107
16JUL	SE	0	0	0	0	1	21	30	3	0	5	20	10	43
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
28JUL-	ST. CROP	0	0	15	0	0	9	38	3	7	4	69	254	399
31JUL	SE	0	0	12	0	0	9	33	3	4	3	19	192	196
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11AUG-	ST. CROP	0	0	8	2	0	2	9	1	0	4	28	549	602
14AUG	SE	0	0	8	2	0	2	9	1	0	3	15	301	302
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	ST. CROP	0	0	0	0	3	0	1	0	5	18	10	314	351
27AUG	SE	0	0	0	0	3	0	1	0	3	12	8	314	315
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
08SEP-	ST. CROP	0	0	4	15	2	12	0	0	0	12	49	17	111
11SEP	SE	0	0	4	15	2	12	0	0	0	7	34	17	43
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22SEP-	ST. CROP	0	0	0	0	4	14	0	7	0	4	10	4	43
25SEP	SE	0	0	0	0	1	12	0	4	0	4	7	3	15
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	ST. CROP	0	0	0	6	2	25	71	11	0	96	92	8	310
09OCT	SE	0	0	0	4	2	21	37	6	0	69	37	8	90
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	ST. CROP	0	0	0	2	0	12	1	0	3	8	49	2	78
24OCT	SE	0	0	0	2	0	9	1	0	2	5	43	2	44
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100



TABLE E-183 REGIONAL DENSITY (NO./1,000m3) OF ATLANTIC STURGEON YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
04MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
06MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
18MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
20MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
01APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
03APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
07APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
14APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
21APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
28APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
05MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
12MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10
19MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
27MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
02JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
05JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6

TABLE E-183 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF ATLANTIC STURGEON YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

															ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
10JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
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
17JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	5						80
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
30JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
27AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
11SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-184 REGIONAL STANDING CROP (IN THOUSANDS) OF ATLANTIC STURGEON YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

															ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
06MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
20MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
03APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	ST. CROP	0	0	0	0	0	0	0	0	41	0	0	0	0	41
05JUN	SE	0	0	0	0	0	0	0	0	41	0	0	0	0	41
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-184 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF ATLANTIC STURGEON YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
														AL	
10JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
17JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
30JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
27AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
11SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
25SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
09OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-185 REGIONAL DENSITY (NO./1,000m3) OF ATLANTIC STURGEON POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
04MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
06MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
20MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
03APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-185 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF ATLANTIC STURGEON POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

															ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
10JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.01
13JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.14
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
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
17JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	5						80
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
30JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
27AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
11SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-186 REGIONAL STANDING CROP (IN THOUSANDS) OF ATLANTIC STURGEON POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

SURVEY, 2008														ALL REGIONS COMBINED	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
06MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
20MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
03APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-186 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF ATLANTIC STURGEON POST YOLK-SAC LARVAE IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

SURVEY, 2008															ALL
															REGIONS
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	COMBINED
10JUN-	ST. CROP	0	0	0	0	0	0	0	0	23	0	0	0	0	23
13JUN	SE	0	0	0	0	0	0	0	0	23	0	0	0	0	23
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
17JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
30JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
27AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
11SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
25SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
09OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81



TABLE E-187 REGIONAL DENSITY (NO./1,000m3) OF ATLANTIC STURGEON YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

															ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-06MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-20MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-03APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-10APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-17APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-24APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-01MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-07MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-15MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-22MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-30MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-05JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-187 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF ATLANTIC STURGEON YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
														AL	
10JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.01
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.14
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
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
17JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	5						80
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
30JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
27AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
11SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-188 REGIONAL STANDING CROP (IN THOUSANDS) OF ATLANTIC STURGEON YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

SURVEY, 2008														ALL REGIONS COMBINED	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
06MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
20MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
03APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-188 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF ATLANTIC STURGEON YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
														AL	
10JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	ST. CROP	0	0	0	0	0	0	19	0	0	0	0	0	0	19
19JUN	SE	0	0	0	0	0	0	19	0	0	0	0	0	0	19
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
17JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
30JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
27AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
11SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
25SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
09OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-189 REGIONAL DENSITY (NO./1,000m3) OF ATLANTIC STURGEON YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
07JUL-	DENSITY	0.00	0.00	0.00	0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	< 0.005
11JUL	SE	0.00	0.00	0.00	0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8	210
21JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.02	0.00	0.00	0.00	0.00	< 0.005
25JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.02	0.00	0.00	0.00	0.00	0.03
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
04AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.01	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.01
08AUG	SE	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.04
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8	210
18AUG-	DENSITY	0.00	0.00	0.00	0.00	0.01	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	< 0.005
21AUG	SE	0.00	0.00	0.00	0.00	0.01	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.03
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
02SEP-	DENSITY	0.00	0.00	0.02	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	< 0.005
05SEP	SE	0.00	0.00	0.02	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.04
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
15SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	< 0.005
18SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8	210
29SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.00	0.00	0.00	0.00	0.00	0.00	< 0.005
02OCT	SE	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.03
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8	210
13OCT-	DENSITY	0.00	0.00	0.00	0.02	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	< 0.005
16OCT	SE	0.00	0.00	0.00	0.02	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.04
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
27OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8	150
10NOV-	DENSITY	0.00	0.00	0.04	0.03	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.01
14NOV	SE	0.00	0.00	0.04	0.03	0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.05
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150
01DEC-	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	0.00	< 0.005
05DEC	SE	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150

TABLE E-190 REGIONAL STANDING CROP (IN THOUSANDS) OF ATLANTIC STURGEON YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

SURVEY, 2008														ALL REGIONS COMBINED	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
07JUL -	ST. CROP	0	0	0	3	0	2	0	0	0	0	0	0	0	5
11JUL	SE	0	0	0	3	0	2	0	0	0	0	0	0	0	4
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8	210
21JUL -	ST. CROP	0	0	0	0	0	0	0	8	3	0	0	0	0	11
25JUL	SE	0	0	0	0	0	0	0	8	3	0	0	0	0	8
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
04AUG -	ST. CROP	0	0	0	0	0	2	9	0	0	0	0	0	0	11
08AUG	SE	0	0	0	0	0	2	6	0	0	0	0	0	0	6
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8	210
18AUG -	ST. CROP	0	0	0	0	3	0	4	0	0	0	0	0	0	7
21AUG	SE	0	0	0	0	3	0	4	0	0	0	0	0	0	5
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
02SEP -	ST. CROP	0	0	7	0	0	0	5	0	0	0	0	0	0	12
05SEP	SE	0	0	7	0	0	0	5	0	0	0	0	0	0	9
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
15SEP -	ST. CROP	0	0	0	0	0	0	0	4	0	0	0	0	0	4
18SEP	SE	0	0	0	0	0	0	0	4	0	0	0	0	0	4
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8	210
29SEP -	ST. CROP	0	0	0	0	0	2	5	0	0	0	0	0	0	7
02OCT	SE	0	0	0	0	0	2	5	0	0	0	0	0	0	5
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8	210
13OCT -	ST. CROP	0	0	0	4	0	0	5	0	0	0	0	0	0	9
16OCT	SE	0	0	0	4	0	0	5	0	0	0	0	0	0	6
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
27OCT -	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8	150
10NOV -	ST. CROP	0	0	11	4	0	3	3	0	0	0	0	0	0	21
14NOV	SE	0	0	11	4	0	2	3	0	0	0	0	0	0	13
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150
01DEC -	ST. CROP	0	4	0	0	0	0	0	0	0	0	0	0	0	4
05DEC	SE	0	4	0	0	0	0	0	0	0	0	0	0	0	4
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150

TABLE E-191 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF ATLANTIC STURGEON YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM  
BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
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
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
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
16JUL	SE	0.00	0.00	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
28JUL-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
31JUL	SE	0.00	0.00	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
11AUG-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
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
27AUG	SE	0.00	0.00	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
08SEP-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11SEP	SE	0.00	0.00	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
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
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24OCT	SE	0.00	0.00	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 E-192 REGIONAL STANDING CROP (IN THOUSANDS) OF ATLANTIC STURGEON YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM  
BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
													AL	
17JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
30JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
03JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
16JUL	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
28JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
31JUL	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
11AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
14AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
27AUG	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
08SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
11SEP	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
22SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
25SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
09OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
24OCT	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 E-193 REGIONAL DENSITY (NO./1,000m3) OF SHORTRNOSE STURGEON YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

															ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
06MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
20MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
03APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.53	0.04
30MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.53	0.53
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.02
05JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.25
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-193 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF SHORTRNOSE STURGEON YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
10JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
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
17JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	5						80
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
30JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
27AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
11SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-194 REGIONAL STANDING CROP (IN THOUSANDS) OF SHORINOSE STURGEON YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

SURVEY, 2008														ALL REGIONS COMBINED	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
06MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
20MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
03APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	38	38
30MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	38	38
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	ST. CROP	0	0	0	0	0	0	0	0	41	0	0	0	0	41
05JUN	SE	0	0	0	0	0	0	0	0	41	0	0	0	0	41
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-194 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF SHORTRIVER STURGEON YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
														AL	
10JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
17JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
30JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
27AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
11SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
25SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
09OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-195 REGIONAL DENSITY (NO./1,000m3) OF SHORTRNOSE STURGEON YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
07JUL-	DENSITY	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
11JUL	SE	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8
21JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
04AUG-	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	0.00
08AUG	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	0.00
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8
18AUG-	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	0.00
21AUG	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	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
02SEP-	DENSITY	0.00	0.03	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00
05SEP	SE	0.00	0.03	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
15SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00
18SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8
29SEP-	DENSITY	0.00	0.03	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02OCT	SE	0.00	0.03	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8
13OCT-	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	0.00
16OCT	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	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
27OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8
10NOV-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00
14NOV	SE	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8
01DEC-	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	0.00
05DEC	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	0.00
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8

TABLE E-196 REGIONAL STANDING CROP (IN THOUSANDS) OF SHORTRIVER STURGEON YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

SURVEY, 2008														ALL	
														REGIONS	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	COMBINED
07JUL - 11JUL	ST. CROP	0	0	25	0	0	0	0	0	2	0	0	0	0	27
	SE	0	0	13	0	0	0	0	0	2	0	0	0	0	13
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8	210
21JUL - 25JUL	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
04AUG - 08AUG	ST. CROP	0	0	0	0	0	0	5	0	0	0	0	0	0	5
	SE	0	0	0	0	0	0	5	0	0	0	0	0	0	5
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8	210
18AUG - 21AUG	ST. CROP	0	0	0	0	0	2	0	0	0	0	0	0	0	2
	SE	0	0	0	0	0	2	0	0	0	0	0	0	0	2
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
02SEP - 05SEP	ST. CROP	0	6	0	0	0	0	5	0	0	0	0	0	0	11
	SE	0	6	0	0	0	0	5	0	0	0	0	0	0	8
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
15SEP - 18SEP	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	18	0	18
	SE	0	0	0	0	0	0	0	0	0	0	0	18	0	18
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8	210
29SEP - 02OCT	ST. CROP	0	6	0	0	0	6	0	0	0	0	0	0	0	12
	SE	0	6	0	0	0	4	0	0	0	0	0	0	0	7
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8	210
13OCT - 16OCT	ST. CROP	0	0	0	0	0	0	5	0	0	0	0	0	0	5
	SE	0	0	0	0	0	0	5	0	0	0	0	0	0	5
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
27OCT - 30OCT	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8	150
10NOV - 14NOV	ST. CROP	0	0	0	0	0	1	3	0	0	0	0	0	0	5
	SE	0	0	0	0	0	1	3	0	0	0	0	0	0	4
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150
01DEC - 05DEC	ST. CROP	0	0	0	0	0	1	0	0	0	0	0	0	0	1
	SE	0	0	0	0	0	1	0	0	0	0	0	0	0	1
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150

TABLE E-197 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF SHORTRIVER STURGEON YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM  
BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
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
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
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
16JUL	SE	0.00	0.00	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
28JUL-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
31JUL	SE	0.00	0.00	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
11AUG-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
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
27AUG	SE	0.00	0.00	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
08SEP-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11SEP	SE	0.00	0.00	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
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
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24OCT	SE	0.00	0.00	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 E-198 REGIONAL STANDING CROP (IN THOUSANDS) OF SHORTNOSE STURGEON YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM  
BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
													AL	
17JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
30JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
03JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
16JUL	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
28JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
31JUL	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
11AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
14AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
27AUG	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
08SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
11SEP	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
22SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
25SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
09OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
24OCT	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 E-199 REGIONAL DENSITY (NO./1,000m3) OF WHITE CATFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

															ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-06MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-20MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-03APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-10APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-17APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-24APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-01MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-07MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-15MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-22MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-30MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-05JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-199 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF WHITE CATFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
														AL	
10JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
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
17JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	5						80
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
30JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
27AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
11SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	NS	NS	NS	NS	NS	0.03
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23						0.23
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-200 REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE CATFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
06MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
20MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
03APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-200 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE CATFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
														AL	
10JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
17JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
30JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
27AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
11SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
25SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	ST. CROP	0	0	0	0	0	0	0	69	NS	NS	NS	NS	NS	69
09OCT	SE	0	0	0	0	0	0	0	69						69
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-201 REGIONAL DENSITY (NO./1,000m3) OF WHITE CATFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
07JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.18
11JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8
21JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.06	0.13	0.40
25JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.06	0.13	0.23
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
04AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8
18AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.06	0.02	0.00	0.00	0.00	0.00
21AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.02	0.02	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
02SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.01	0.11	0.02	0.05	0.29	0.00	0.00	0.00
05SEP	SE	0.00	0.00	0.00	0.00	0.00	0.01	0.05	0.02	0.04	0.17	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
15SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.03	0.04	0.00	0.00	0.00	0.00
18SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.02	0.02	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8
29SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01	0.02	0.00	0.00	0.00	0.00
02OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01	0.02	0.00	0.00	0.00	0.00
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8
13OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02	0.28	0.00	0.00	0.00
16OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02	0.18	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
27OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.02	0.00	0.00	0.00	0.00	0.00
30OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.02	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8
10NOV-	DENSITY	0.00	0.00	0.00	0.00	0.05	0.01	0.14	0.02	0.00	0.00	0.03	0.00	0.00
14NOV	SE	0.00	0.00	0.00	0.00	0.02	0.01	0.06	0.02	0.00	0.00	0.03	0.00	0.00
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8
01DEC-	DENSITY	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.00	0.01	0.00	0.00	0.00	0.00
05DEC	SE	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.00	0.01	0.00	0.00	0.00	0.00
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8

&lt; 0.005

0.03

150

TABLE E-202 REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE CATFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
														AL	
07JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	17	13	29
11JUL	SE	0	0	0	0	0	0	0	0	0	0	0	17	7	18
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8	210
21JUL-	ST. CROP	0	0	0	0	0	0	0	8	0	0	11	20	29	68
25JUL	SE	0	0	0	0	0	0	0	8	0	0	11	20	17	29
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
04AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8	210
18AUG-	ST. CROP	0	0	0	0	0	0	11	18	3	0	0	0	0	31
21AUG	SE	0	0	0	0	0	0	6	7	3	0	0	0	0	10
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
02SEP-	ST. CROP	0	0	0	0	0	2	15	5	9	41	0	0	0	71
05SEP	SE	0	0	0	0	0	2	6	5	6	23	0	0	0	26
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
15SEP-	ST. CROP	0	0	0	0	0	0	7	8	6	0	0	0	0	21
18SEP	SE	0	0	0	0	0	0	5	5	4	0	0	0	0	8
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8	210
29SEP-	ST. CROP	0	0	0	0	0	0	17	4	3	0	0	0	0	24
02OCT	SE	0	0	0	0	0	0	7	4	3	0	0	0	0	9
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8	210
13OCT-	ST. CROP	0	0	0	0	0	0	3	0	3	40	0	0	0	45
16OCT	SE	0	0	0	0	0	0	2	0	3	26	0	0	0	26
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
27OCT-	ST. CROP	0	0	0	0	0	0	18	5	0	0	0	0	0	23
30OCT	SE	0	0	0	0	0	0	8	5	0	0	0	0	0	9
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8	150
10NOV-	ST. CROP	0	0	0	0	10	3	19	5	0	0	5	0	0	42
14NOV	SE	0	0	0	0	4	2	8	5	0	0	5	0	0	12
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150
01DEC-	ST. CROP	0	0	0	0	2	3	2	0	2	0	0	0	0	10
05DEC	SE	0	0	0	0	2	2	2	0	2	0	0	0	0	5
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150

TABLE E-203 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF WHITE CATFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM  
BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
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
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
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
16JUL	SE	0.00	0.00	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
28JUL-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
31JUL	SE	0.00	0.00	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
11AUG-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
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
27AUG	SE	0.00	0.00	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
08SEP-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11SEP	SE	0.00	0.00	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
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
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24OCT	SE	0.00	0.00	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 E-204 REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE CATFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM  
BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
													AL	
17JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
30JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
03JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
16JUL	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
28JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
31JUL	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
11AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
14AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
27AUG	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
08SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
11SEP	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
22SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
25SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
09OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
24OCT	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 E-205 REGIONAL DENSITY (NO./1,000m3) OF WHITE CATFISH YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

ALL REGIONS COMBINED															
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-06MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-20MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-03APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-10APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-17APR	DENSITY	0.00	0.09	0.00	0.00	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
	SE	0.00	0.09	0.00	0.00	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-24APR	DENSITY	0.00	0.00	0.18	0.19	0.13	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
	SE	0.00	0.00	0.18	0.19	0.13	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-01MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.02
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.23
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-07MAY	DENSITY	0.00	0.00	0.00	0.00	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
	SE	0.00	0.00	0.00	0.00	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-15MAY	DENSITY	0.00	0.00	0.19	0.35	0.00	0.00	0.00	0.00	0.00	0.40	0.00	0.00	0.00	0.07
	SE	0.00	0.00	0.19	0.21	0.00	0.00	0.00	0.00	0.00	0.40	0.00	0.00	0.00	0.48
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-22MAY	DENSITY	0.00	0.00	0.20	0.45	0.00	0.00	0.24	0.16	0.00	0.00	0.00	0.00	0.00	0.08
	SE	0.00	0.00	0.20	0.26	0.00	0.00	0.24	0.16	0.00	0.00	0.00	0.00	0.00	0.44
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-30MAY	DENSITY	0.00	0.00	0.00	0.20	0.00	0.12	0.22	0.12	0.00	0.00	0.00	0.57	0.00	0.10
	SE	0.00	0.00	0.00	0.20	0.00	0.12	0.22	0.12	0.00	0.00	0.00	0.57	0.00	0.67
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-05JUN	DENSITY	0.00	0.00	0.00	0.00	0.22	0.00	0.24	0.42	0.45	0.32	0.00	0.00	0.00	0.13
	SE	0.00	0.00	0.00	0.00	0.18	0.00	0.24	0.29	0.26	0.32	0.00	0.00	0.00	0.59
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-205 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF WHITE CATFISH YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

															ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
10JUN-	DENSITY	0.00	0.00	0.00	0.33	0.13	0.12	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.06
13JUN	SE	0.00	0.00	0.00	0.33	0.13	0.12	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.41
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.01
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.14
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.63	0.00	0.00	0.00	0.05
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.63	0.00	0.00	0.00	0.63
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
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
17JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	5						80
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
30JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
27AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
11SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-206 REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE CATFISH YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

SURVEY, 2008														ALL REGIONS COMBINED	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
06MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
20MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
03APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	ST. CROP	0	20	0	0	58	0	0	0	0	0	0	0	0	79
17APR	SE	0	20	0	0	34	0	0	0	0	0	0	0	0	39
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	ST. CROP	0	0	58	29	28	37	0	0	0	0	0	0	0	151
24APR	SE	0	0	58	29	28	23	0	0	0	0	0	0	0	74
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	ST. CROP	0	0	0	0	0	0	32	0	0	0	0	0	0	32
01MAY	SE	0	0	0	0	0	0	32	0	0	0	0	0	0	32
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	ST. CROP	0	0	0	0	77	0	0	0	0	0	0	0	0	77
07MAY	SE	0	0	0	0	39	0	0	0	0	0	0	0	0	39
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	ST. CROP	0	0	60	52	0	0	0	0	0	56	0	0	0	169
15MAY	SE	0	0	60	30	0	0	0	0	0	56	0	0	0	88
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	ST. CROP	0	0	65	67	0	0	34	49	0	0	0	0	0	215
22MAY	SE	0	0	65	39	0	0	34	49	0	0	0	0	0	96
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	ST. CROP	0	0	0	30	0	24	31	36	0	0	0	92	0	214
30MAY	SE	0	0	0	30	0	24	31	36	0	0	0	92	0	111
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	ST. CROP	0	0	0	0	46	0	33	126	74	45	0	0	0	325
05JUN	SE	0	0	0	0	38	0	33	87	43	45	0	0	0	118
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-206 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE CATFISH YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

SURVEY, 2008														ALL REGIONS COMBINED	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
10JUN-	ST. CROP	0	0	0	49	28	26	21	0	0	0	0	0	0	124
13JUN	SE	0	0	0	49	28	26	21	0	0	0	0	0	0	66
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	ST. CROP	0	0	0	0	0	0	25	0	0	0	0	0	0	25
19JUN	SE	0	0	0	0	0	0	20	0	0	0	0	0	0	20
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	90	0	0	0	90
03JUL	SE	0	0	0	0	0	0	0	0	0	90	0	0	0	90
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
17JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
30JUL	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
27AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
11SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
25SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
09OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-207 REGIONAL DENSITY (NO./1,000m3) OF WHITE CATFISH YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
07JUL-	DENSITY	0.00	0.00	0.13	0.00	0.02	0.01	0.03	0.00	0.00	0.00	0.00	0.11	0.27
11JUL	SE	0.00	0.00	0.08	0.00	0.02	0.01	0.03	0.00	0.00	0.00	0.00	0.11	0.27
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8
21JUL-	DENSITY	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00
25JUL	SE	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
04AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00
08AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8
18AUG-	DENSITY	0.00	0.00	0.00	0.03	0.04	0.01	0.00	0.00	0.02	0.00	0.00	0.00	0.00
21AUG	SE	0.00	0.00	0.00	0.03	0.02	0.01	0.00	0.00	0.02	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
02SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.00	0.00	0.07	0.00	0.00
05SEP	SE	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.00	0.00	0.07	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
15SEP-	DENSITY	0.00	0.00	0.02	0.00	0.02	0.00	0.07	0.03	0.00	0.00	0.00	0.00	0.00
18SEP	SE	0.00	0.00	0.02	0.00	0.02	0.00	0.04	0.03	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8
29SEP-	DENSITY	0.00	0.00	0.00	0.00	0.06	0.00	0.08	0.02	0.12	0.00	0.06	0.12	0.00
02OCT	SE	0.00	0.00	0.00	0.00	0.03	0.00	0.05	0.02	0.12	0.00	0.06	0.12	0.00
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8
13OCT-	DENSITY	0.00	0.00	0.00	0.00	0.02	0.00	0.06	0.01	0.00	0.00	0.00	0.00	0.00
16OCT	SE	0.00	0.00	0.00	0.00	0.02	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
27OCT-	DENSITY	0.02	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.00	0.00	0.00	0.00	0.00
30OCT	SE	0.02	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8
10NOV-	DENSITY	0.00	0.00	0.07	0.08	0.06	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00
14NOV	SE	0.00	0.00	0.07	0.08	0.05	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8
01DEC-	DENSITY	0.00	0.00	0.02	0.07	0.00	0.00	0.05	0.02	0.02	0.00	0.00	0.00	0.00
05DEC	SE	0.00	0.00	0.02	0.05	0.00	0.00	0.04	0.02	0.02	0.00	0.00	0.00	0.00
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8

<

TABLE E-208 REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE CATFISH YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

SURVEY, 2008														ALL	
														REGIONS	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	COMBINED
07JUL - 11JUL	ST. CROP	0	0	43	0	3	2	5	0	0	0	0	17	19	89
	SE	0	0	25	0	3	2	4	0	0	0	0	17	19	36
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8	210
21JUL - 25JUL	ST. CROP	0	0	0	4	3	0	0	0	0	0	0	19	0	26
	SE	0	0	0	4	3	0	0	0	0	0	0	19	0	20
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
04AUG - 08AUG	ST. CROP	0	0	0	0	0	0	5	4	0	0	0	0	0	9
	SE	0	0	0	0	0	0	5	4	0	0	0	0	0	6
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8	210
18AUG - 21AUG	ST. CROP	0	0	0	4	8	2	0	0	3	0	0	0	0	17
	SE	0	0	0	4	4	2	0	0	3	0	0	0	0	7
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
02SEP - 05SEP	ST. CROP	0	0	0	0	0	2	1	5	0	0	12	0	0	19
	SE	0	0	0	0	0	2	1	5	0	0	12	0	0	13
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
15SEP - 18SEP	ST. CROP	0	0	7	0	4	0	9	8	0	0	0	0	0	28
	SE	0	0	7	0	4	0	6	8	0	0	0	0	0	12
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8	210
29SEP - 02OCT	ST. CROP	0	0	0	0	13	0	11	5	20	0	11	19	0	79
	SE	0	0	0	0	5	0	7	5	20	0	11	19	0	32
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8	210
13OCT - 16OCT	ST. CROP	0	0	0	0	4	0	9	4	0	0	0	0	0	17
	SE	0	0	0	0	4	0	6	4	0	0	0	0	0	8
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
27OCT - 30OCT	ST. CROP	4	0	0	0	0	0	3	9	0	0	0	0	0	16
	SE	4	0	0	0	0	0	3	6	0	0	0	0	0	8
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8	150
10NOV - 14NOV	ST. CROP	0	0	21	12	13	0	0	0	6	0	0	0	0	51
	SE	0	0	21	12	10	0	0	0	4	0	0	0	0	26
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150
01DEC - 05DEC	ST. CROP	0	0	5	11	0	0	8	5	3	0	0	0	0	32
	SE	0	0	5	8	0	0	5	5	3	0	0	0	0	12
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150

TABLE E-209 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF WHITE CATFISH YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
													AL	
17JUN-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
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
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	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
16JUL	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
28JUL-	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
31JUL	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
11AUG-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.01
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.10
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
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
27AUG	SE	0.00	0.00	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
08SEP-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11SEP	SE	0.00	0.00	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
22SEP-	CPUE	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
25SEP	SE	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	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
09OCT	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
20OCT-	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
24OCT	SE	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE E-210 REGIONAL STANDING CROP (IN THOUSANDS) OF WHITE CATFISH YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM  
BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
													AL	
17JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
30JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
03JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	ST. CROP	0	4	0	0	0	0	0	0	0	0	0	0	4
16JUL	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
28JUL-	ST. CROP	0	2	0	0	0	0	0	0	0	0	0	0	2
31JUL	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
11AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	2	0	2
14AUG	SE	0	0	0	0	0	0	0	0	0	0	2	0	2
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
27AUG	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
08SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
11SEP	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
22SEP-	ST. CROP	0	0	2	0	0	0	0	0	0	0	0	0	2
25SEP	SE	0	0	2	0	0	0	0	0	0	0	0	0	2
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	ST. CROP	0	2	0	0	0	0	0	0	0	0	0	0	2
09OCT	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
20OCT-	ST. CROP	2	0	0	0	0	0	0	0	0	0	0	0	2
24OCT	SE	2	0	0	0	0	0	0	0	0	0	0	0	2
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100



TABLE E-211 REGIONAL DENSITY (NO./1,000m3) OF WEAKFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
04MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
06MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
18MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
20MAR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
01APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
03APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
07APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
14APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
21APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24APR	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
28APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
05MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
12MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10
19MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
27MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30MAY	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
02JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6

TABLE E-211 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF WEAKFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
10JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
16JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
24JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
29JUN-	DENSITY	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03JUL	SE	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
14JUL-	DENSITY	0.00	1.27	5.32	5.49	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS
17JUL	SE	0.00	1.27	3.17	5.49	0.00	0.00	0.00	0.00					
	NO. TOWS	6	11	13	14	13	8	10	5					
28JUL-	DENSITY	12.48	8.47	4.42	3.67	1.61	0.00	0.00	0.00	NS	NS	NS	NS	NS
30JUL	SE	8.16	4.40	2.49	1.81	1.14	0.00	0.00	0.00					
	NO. TOWS	6	11	13	14	13	8	10	6					
12AUG-	DENSITY	0.00	4.12	0.00	0.00	0.73	0.00	0.00	0.00	NS	NS	NS	NS	NS
14AUG	SE	0.00	0.75	0.00	0.00	0.73	0.00	0.00	0.00					
	NO. TOWS	6	11	13	14	13	8	10	6					
25AUG-	DENSITY	2.52	3.11	0.39	0.00	0.14	0.00	0.00	0.00	NS	NS	NS	NS	NS
27AUG	SE	2.52	2.22	0.39	0.00	0.14	0.00	0.00	0.00					
	NO. TOWS	6	11	13	14	13	8	10	6					
09SEP-	DENSITY	0.00	0.68	0.39	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS
11SEP	SE	0.00	0.68	0.39	0.00	0.00	0.00	0.00	0.00					
	NO. TOWS	6	11	13	14	13	8	10	6					
23SEP-	DENSITY	0.75	2.31	0.33	0.00	0.12	0.10	0.00	0.00	NS	NS	NS	NS	NS
25SEP	SE	0.75	0.95	0.33	0.00	0.12	0.10	0.00	0.00					
	NO. TOWS	6	11	13	14	13	8	10	6					
07OCT-	DENSITY	0.00	2.39	0.33	0.00	0.00	0.70	0.00	0.00	NS	NS	NS	NS	NS
09OCT	SE	0.00	1.44	0.33	0.00	0.00	0.70	0.00	0.00					
	NO. TOWS	6	11	13	14	13	8	10	6					

TABLE E-212 REGIONAL STANDING CROP (IN THOUSANDS) OF WEAKFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
04MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS
06MAR-	SE	0	0	0	0	0	0	0						
	NO. TOWS	10	10	11	11	10	10	12						
18MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS
20MAR-	SE	0	0	0	0	0	0	0						
	NO. TOWS	10	10	11	11	10	10	12						
01APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS
03APR-	SE	0	0	0	0	0	0	0						
	NO. TOWS	10	10	11	11	10	10	12						
07APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR-	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
14APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR-	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
21APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR-	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
28APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY-	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
05MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
07MAY-	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
12MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY-	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10
19MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
22MAY-	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
27MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
30MAY-	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
02JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
05JUN-	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6

TABLE E-212 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF WEAKFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
														AL	
10JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	ST. CROP	0	0	0	0	66	0	0	0	0	0	0	0	0	66
03JUL	SE	0	0	0	0	66	0	0	0	0	0	0	0	0	66
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	ST. CROP	0	291	1711	811	0	0	0	0	NS	NS	NS	NS	NS	2813
17JUL	SE	0	291	1020	811	0	0	0	0						1335
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	ST. CROP	2609	1943	1421	542	336	0	0	0	NS	NS	NS	NS	NS	6850
30JUL	SE	1706	1009	802	268	238	0	0	0						2168
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	ST. CROP	0	946	0	0	153	0	0	0	NS	NS	NS	NS	NS	1099
14AUG	SE	0	171	0	0	153	0	0	0						230
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	ST. CROP	526	713	126	0	29	0	0	0	NS	NS	NS	NS	NS	1394
27AUG	SE	526	508	126	0	29	0	0	0						743
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	ST. CROP	0	156	126	0	0	0	0	0	NS	NS	NS	NS	NS	282
11SEP	SE	0	156	126	0	0	0	0	0						200
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	ST. CROP	156	531	106	0	26	21	0	0	NS	NS	NS	NS	NS	839
25SEP	SE	156	219	106	0	26	21	0	0						291
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	ST. CROP	0	548	105	0	0	145	0	0	NS	NS	NS	NS	NS	797
09OCT	SE	0	330	105	0	0	145	0	0						375
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-213 REGIONAL DENSITY (NO./1,000m3) OF WEAKFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

ALL REGIONS COMBINED														
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
07JUL-	DENSITY	0.11	0.47	2.96	0.51	1.79	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11JUL	SE	0.07	0.28	1.85	0.28	0.50	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8
21JUL-	DENSITY	1.91	1.04	0.07	0.20	2.37	1.37	0.62	0.00	0.00	0.00	0.00	0.00	0.00
25JUL	SE	0.61	0.37	0.07	0.09	1.47	0.40	0.23	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
04AUG-	DENSITY	3.38	1.93	0.36	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08AUG	SE	1.33	0.57	0.34	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8
18AUG-	DENSITY	0.79	0.38	0.98	0.26	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21AUG	SE	0.30	0.10	0.25	0.08	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
02SEP-	DENSITY	1.82	0.62	0.66	0.60	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05SEP	SE	0.78	0.31	0.26	0.13	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
15SEP-	DENSITY	0.00	0.12	0.02	0.21	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18SEP	SE	0.00	0.05	0.02	0.11	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8
29SEP-	DENSITY	0.24	0.17	0.05	0.14	0.03	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00
02OCT	SE	0.13	0.09	0.03	0.09	0.02	0.01	0.03	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8
13OCT-	DENSITY	0.00	0.12	0.03	0.00	0.05	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00
16OCT	SE	0.00	0.05	0.03	0.00	0.04	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
27OCT-	DENSITY	0.24	0.06	0.08	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30OCT	SE	0.16	0.04	0.04	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8
10NOV-	DENSITY	0.14	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14NOV	SE	0.06	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8
01DEC-	DENSITY	0.56	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05DEC	SE	0.16	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8

TABLE E-214 REGIONAL STANDING CROP (IN THOUSANDS) OF WEAKFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
07JUL-	ST. CROP	22	107	952	75	373	39	0	0	0	0	0	0	0
11JUL	SE	16	64	594	41	104	39	0	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8
21JUL-	ST. CROP	399	239	24	30	493	284	87	0	0	0	0	0	0
25JUL	SE	127	85	24	14	306	83	33	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
04AUG-	ST. CROP	707	442	117	28	0	0	0	0	0	0	0	0	0
08AUG	SE	278	131	110	13	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8
18AUG-	ST. CROP	165	87	314	38	8	3	0	0	0	0	0	0	0
21AUG	SE	64	22	81	12	5	3	0	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
02SEP-	ST. CROP	380	143	213	88	66	0	0	0	0	0	0	0	0
05SEP	SE	163	70	84	20	60	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
15SEP-	ST. CROP	0	28	7	31	20	2	0	0	0	0	0	0	0
18SEP	SE	0	11	7	17	15	2	0	0	0	0	0	0	0
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8
29SEP-	ST. CROP	50	39	15	20	6	5	5	0	0	0	0	0	0
02OCT	SE	27	21	11	13	4	3	5	0	0	0	0	0	0
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8
13OCT-	ST. CROP	0	27	8	0	11	0	12	0	0	0	0	0	0
16OCT	SE	0	11	8	0	8	0	6	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
27OCT-	ST. CROP	51	13	26	4	2	0	0	0	0	0	0	0	0
30OCT	SE	33	10	14	4	2	0	0	0	0	0	0	0	0
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8
10NOV-	ST. CROP	30	16	7	0	0	0	0	0	0	0	0	0	0
14NOV	SE	12	12	7	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8
01DEC-	ST. CROP	116	16	0	0	0	0	0	0	0	0	0	0	0
05DEC	SE	33	9	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8

TABLE E-215 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF WEAKFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM  
BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
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
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	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
16JUL	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
28JUL-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
31JUL	SE	0.00	0.00	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
11AUG-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
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
27AUG	SE	0.00	0.00	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
08SEP-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11SEP	SE	0.00	0.00	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
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
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24OCT	SE	0.00	0.00	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 E-216 REGIONAL STANDING CROP (IN THOUSANDS) OF WEAKFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM  
BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
30JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
03JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	ST. CROP	0	8	0	0	0	0	0	0	0	0	0	0	8
16JUL	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
28JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
31JUL	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
11AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
14AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
27AUG	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
08SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
11SEP	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
22SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
25SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
09OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
24OCT	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 E-217 REGIONAL DENSITY (NO./1,000m3) OF WEAKFISH YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

ALL REGIONS COMBINED															
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-06MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-20MAR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-03APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-10APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-17APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-24APR	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-01MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-07MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-15MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-22MAY	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-30MAY	DENSITY	0.00	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
	SE	0.00	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-05JUN	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-217 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF WEAKFISH YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

															ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
10JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
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
17JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	5						80
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
30JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
27AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
11SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-218 REGIONAL STANDING CROP (IN THOUSANDS) OF WEAKFISH YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

SURVEY, 2008														ALL REGIONS COMBINED	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
06MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
20MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
03APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	ST. CROP	0	72	0	0	0	0	0	0	0	0	0	0	0	72
30MAY	SE	0	72	0	0	0	0	0	0	0	0	0	0	0	72
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-218 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF WEAKFISH YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
10JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
13JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
16JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
24JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
27JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
29JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
03JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
14JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS
17JUL	SE	0	0	0	0	0	0	0	0					
	NO. TOWS	6	11	13	14	13	8	10	5					
28JUL-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS
30JUL	SE	0	0	0	0	0	0	0	0					
	NO. TOWS	6	11	13	14	13	8	10	6					
12AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS
14AUG	SE	0	0	0	0	0	0	0	0					
	NO. TOWS	6	11	13	14	13	8	10	6					
25AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS
27AUG	SE	0	0	0	0	0	0	0	0					
	NO. TOWS	6	11	13	14	13	8	10	6					
09SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS
11SEP	SE	0	0	0	0	0	0	0	0					
	NO. TOWS	6	11	13	14	13	8	10	6					
23SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS
25SEP	SE	0	0	0	0	0	0	0	0					
	NO. TOWS	6	11	13	14	13	8	10	6					
07OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS
09OCT	SE	0	0	0	0	0	0	0	0					
	NO. TOWS	6	11	13	14	13	8	10	6					

TABLE E-219 REGIONAL DENSITY (NO./1,000m3) OF WEAKFISH YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
07JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8	210
21JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
04AUG-	DENSITY	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	< 0.005
08AUG	SE	0.00	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	14	18	25	22	22	22	22	22	13	10	6	6	8	210
18AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
02SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
15SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8	210
29SEP-	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	0.00	< 0.005
02OCT	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	0.00	0.01
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8	210
13OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
27OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8	150
10NOV-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14NOV	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150
01DEC-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05DEC	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150

TABLE E-220 REGIONAL STANDING CROP (IN THOUSANDS) OF WEAKFISH YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
07JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
11JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8
21JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
25JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
04AUG-	ST. CROP	0	0	7	3	0	0	0	0	0	0	0	0	0
08AUG	SE	0	0	7	3	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8
18AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
21AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
02SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
05SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
15SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
18SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8
29SEP-	ST. CROP	0	0	0	0	3	0	0	0	0	0	0	0	0
02OCT	SE	0	0	0	0	3	0	0	0	0	0	0	0	0
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8
13OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
16OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8
27OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
30OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8
10NOV-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
14NOV	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8
01DEC-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
05DEC	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8

TABLE E-221 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF WEAKFISH YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM  
BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19JUN	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
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
03JUL	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
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
16JUL	SE	0.00	0.00	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
28JUL-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
31JUL	SE	0.00	0.00	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
11AUG-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
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
27AUG	SE	0.00	0.00	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
08SEP-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11SEP	SE	0.00	0.00	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
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
25SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24OCT	SE	0.00	0.00	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 E-222 REGIONAL STANDING CROP (IN THOUSANDS) OF WEAKFISH YEARLING AND OLDER IN HUDSON RIVER ESTUARY DETERMINED FROM  
BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS COMBINED	
													AL	
17JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
19JUN	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
30JUN-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
03JUL	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
16JUL	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
28JUL-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
31JUL	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
11AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
14AUG	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
27AUG	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
08SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
11SEP	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
22SEP-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
25SEP	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
09OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0
24OCT	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 E-223 REGIONAL DENSITY (NO./1,000m3) OF BLUEFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
04MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
06MAR-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
18MAR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
20MAR-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
01APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS	NS
03APR-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00
	NO. TOWS	10	10	11	11	10	10	12						74
07APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10APR-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
14APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17APR-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
21APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24APR-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9
28APR-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01MAY-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
05MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07MAY-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10
12MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15MAY-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10
19MAY-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22MAY-	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
27MAY-	DENSITY	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30MAY-	SE	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6
02JUN-	DENSITY	0.00	0.00	0.00	0.22	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05JUN-	SE	0.00	0.00	0.00	0.22	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6

&lt; 0.005

0.05

0.02

0.24

TABLE E-223 (CONT.) REGIONAL DENSITY (NO./1,000m3) OF BLUEFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

														ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL
10JUN-	DENSITY	0.00	0.00	0.15	0.00	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13JUN	SE	0.00	0.00	0.15	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
16JUN-	DENSITY	0.00	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19JUN	SE	0.00	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
24JUN-	DENSITY	0.00	0.24	0.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27JUN	SE	0.00	0.24	0.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
29JUN-	DENSITY	0.00	0.00	0.00	1.20	0.00	0.09	0.05	0.00	0.00	0.00	0.00	0.00	0.00
03JUL	SE	0.00	0.00	0.00	0.60	0.00	0.09	0.05	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6
14JUL-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.00	NS	NS	NS	NS	NS
17JUL	SE	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.00					
	NO. TOWS	6	11	13	14	13	8	10	5					
28JUL-	DENSITY	0.00	0.40	0.55	0.41	0.13	0.00	0.00	0.00	NS	NS	NS	NS	NS
30JUL	SE	0.00	0.40	0.55	0.29	0.13	0.00	0.00	0.00					
	NO. TOWS	6	11	13	14	13	8	10	6					
12AUG-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS
14AUG	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
	NO. TOWS	6	11	13	14	13	8	10	6					
25AUG-	DENSITY	0.00	0.00	0.00	0.43	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS
27AUG	SE	0.00	0.00	0.00	0.43	0.00	0.00	0.00	0.00					
	NO. TOWS	6	11	13	14	13	8	10	6					
09SEP-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS
11SEP	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
	NO. TOWS	6	11	13	14	13	8	10	6					
23SEP-	DENSITY	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	NS	NS	NS	NS	NS
25SEP	SE	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00					
	NO. TOWS	6	11	13	14	13	8	10	6					
07OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NS	NS	NS	NS	NS
09OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
	NO. TOWS	6	11	13	14	13	8	10	6					

TABLE E-224 REGIONAL STANDING CROP (IN THOUSANDS) OF BLUEFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

															ALL REGIONS COMBINED
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
04MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
06MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
18MAR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
20MAR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
01APR-	ST. CROP	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	NS	0
03APR	SE	0	0	0	0	0	0	0							0
	NO. TOWS	10	10	11	11	10	10	12							74
07APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
14APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
21APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24APR	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	7	13	15	15	12	10	11	6	7	7	7	7	9	126
28APR-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
05MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	8	10	135
12MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	6	13	15	15	12	6	14	10	11	7	8	6	10	133
19MAY-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22MAY	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
27MAY-	ST. CROP	0	0	0	0	11	0	0	0	0	0	0	0	0	11
30MAY	SE	0	0	0	0	11	0	0	0	0	0	0	0	0	11
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126
02JUN-	ST. CROP	0	0	0	32	20	0	0	0	0	0	0	0	0	52
05JUN	SE	0	0	0	32	20	0	0	0	0	0	0	0	0	38
	NO. TOWS	8	10	14	14	13	7	14	10	9	7	8	6	6	126

TABLE E-224 (CONT.) REGIONAL STANDING CROP (IN THOUSANDS) OF BLUEFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM LONG RIVER SURVEY, 2008

ALL REGIONS COMBINED															
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
10JUN-	ST. CROP	0	0	48	0	37	0	0	0	0	0	0	0	0	85
13JUN	SE	0	0	48	0	29	0	0	0	0	0	0	0	0	57
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
16JUN-	ST. CROP	0	0	68	0	0	0	0	0	0	0	0	0	0	68
19JUN	SE	0	0	68	0	0	0	0	0	0	0	0	0	0	68
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
24JUN-	ST. CROP	0	55	231	0	0	0	0	0	0	0	0	0	0	286
27JUN	SE	0	55	231	0	0	0	0	0	0	0	0	0	0	238
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
29JUN-	ST. CROP	0	0	0	178	0	20	7	0	0	0	0	0	0	205
03JUL	SE	0	0	0	89	0	20	7	0	0	0	0	0	0	91
	NO. TOWS	7	11	14	11	13	9	16	7	10	7	6	6	6	123
14JUL-	ST. CROP	0	0	0	0	0	25	0	0	NS	NS	NS	NS	NS	25
17JUL	SE	0	0	0	0	0	25	0	0						25
	NO. TOWS	6	11	13	14	13	8	10	5						80
28JUL-	ST. CROP	0	93	178	61	27	0	0	0	NS	NS	NS	NS	NS	359
30JUL	SE	0	93	178	43	27	0	0	0						207
	NO. TOWS	6	11	13	14	13	8	10	6						81
12AUG-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
14AUG	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
25AUG-	ST. CROP	0	0	0	64	0	0	0	0	NS	NS	NS	NS	NS	64
27AUG	SE	0	0	0	64	0	0	0	0						64
	NO. TOWS	6	11	13	14	13	8	10	6						81
09SEP-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
11SEP	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81
23SEP-	ST. CROP	0	0	0	0	28	0	0	0	NS	NS	NS	NS	NS	28
25SEP	SE	0	0	0	0	28	0	0	0						28
	NO. TOWS	6	11	13	14	13	8	10	6						81
07OCT-	ST. CROP	0	0	0	0	0	0	0	0	NS	NS	NS	NS	NS	0
09OCT	SE	0	0	0	0	0	0	0	0						0
	NO. TOWS	6	11	13	14	13	8	10	6						81

TABLE E-225 REGIONAL DENSITY (NO./1,000m3) OF BLUEFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	ALL REGIONS COMBINED
07JUL-	DENSITY	0.00	0.00	0.15	0.03	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
11JUL	SE	0.00	0.00	0.10	0.03	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8	210
21JUL-	DENSITY	0.00	0.00	0.00	0.03	0.01	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
25JUL	SE	0.00	0.00	0.00	0.03	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
04AUG-	DENSITY	0.00	0.00	0.02	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	< 0.005
08AUG	SE	0.00	0.00	0.02	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8	210
18AUG-	DENSITY	0.00	0.04	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
21AUG	SE	0.00	0.03	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
02SEP-	DENSITY	0.00	0.02	0.00	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
05SEP	SE	0.00	0.02	0.00	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
15SEP-	DENSITY	0.14	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
18SEP	SE	0.11	0.02	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	14	18	25	22	21	22	22	22	14	10	6	6	8	210
29SEP-	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	0.00	< 0.005
02OCT	SE	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8	210
13OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
27OCT-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30OCT	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8	150
10NOV-	DENSITY	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	< 0.005
14NOV	SE	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150
01DEC-	DENSITY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05DEC	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150

TABLE E-226 REGIONAL STANDING CROP (IN THOUSANDS) OF BLUEFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM FALL JUVENILE SURVEY, 2008

														ALL REGIONS COMBINED	
DATE		BT	YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	AL	
07JUL-	ST. CROP	0	0	49	4	0	2	0	0	0	0	0	0	0	54
11JUL	SE	0	0	32	4	0	2	0	0	0	0	0	0	0	32
	NO. TOWS	14	18	24	22	22	22	23	21	14	10	6	6	8	210
21JUL-	ST. CROP	0	0	0	4	1	39	0	0	0	0	0	0	0	44
25JUL	SE	0	0	0	4	1	37	0	0	0	0	0	0	0	37
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
04AUG-	ST. CROP	0	0	8	4	0	0	0	0	0	0	0	0	0	12
08AUG	SE	0	0	8	4	0	0	0	0	0	0	0	0	0	9
	NO. TOWS	14	18	25	22	22	22	22	22	13	10	6	6	8	210
18AUG-	ST. CROP	0	10	34	0	0	0	0	0	0	0	0	0	0	44
21AUG	SE	0	7	19	0	0	0	0	0	0	0	0	0	0	20
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
02SEP-	ST. CROP	0	5	0	14	1	0	0	0	0	0	0	0	0	20
05SEP	SE	0	5	0	11	1	0	0	0	0	0	0	0	0	12
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
15SEP-	ST. CROP	30	6	0	0	0	0	0	0	0	0	0	0	0	35
18SEP	SE	24	6	0	0	0	0	0	0	0	0	0	0	0	24
	NO. TOWS	14	18	25	22	21	22	22	22	14	10	6	6	8	210
29SEP-	ST. CROP	0	5	0	0	0	0	0	0	0	0	0	0	0	5
02OCT	SE	0	5	0	0	0	0	0	0	0	0	0	0	0	5
	NO. TOWS	13	18	25	22	22	22	22	22	14	10	6	6	8	210
13OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	14	18	24	22	22	22	22	22	14	10	6	6	8	210
27OCT-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30OCT	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	13	16	13	11	15	12	15	10	10	8	10	9	8	150
10NOV-	ST. CROP	4	0	0	0	0	0	0	0	0	0	0	0	0	4
14NOV	SE	4	0	0	0	0	0	0	0	0	0	0	0	0	4
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150
01DEC-	ST. CROP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05DEC	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO. TOWS	12	16	13	11	15	12	15	10	10	8	10	10	8	150

TABLE E-227 REGIONAL CATCH-PER-UNIT-EFFORT (CPUE) OF BLUEFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM  
BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	CPUE	1.67	4.55	1.71	2.33	1.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.97
19JUN	SE	1.20	1.88	0.78	2.33	0.58	0.33	0.00	0.00	0.00	0.00	0.00	0.00	3.39
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
30JUN-	CPUE	2.67	2.64	12.86	0.67	1.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.68
03JUL	SE	1.67	1.62	8.12	0.33	0.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.50
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	CPUE	1.33	0.27	1.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25
16JUL	SE	0.88	0.19	0.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.25
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
28JUL-	CPUE	0.00	0.79	1.64	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22
31JUL	SE	0.00	0.26	0.60	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11AUG-	CPUE	0.20	0.33	1.57	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21
14AUG	SE	0.20	0.16	0.75	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.83
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	CPUE	0.00	0.58	2.00	1.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32
27AUG	SE	0.00	0.42	0.75	0.45	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.99
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
08SEP-	CPUE	0.00	0.46	0.57	0.40	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14
11SEP	SE	0.00	0.17	0.17	0.40	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.51
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22SEP-	CPUE	0.00	0.04	0.50	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
25SEP	SE	0.00	0.04	0.43	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	CPUE	0.00	0.17	0.14	2.60	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28
09OCT	SE	0.00	0.13	0.10	1.44	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	CPUE	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
24OCT	SE	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100

TABLE E-228 REGIONAL STANDING CROP (IN THOUSANDS) OF BLUEFISH YOUNG-OF-YEAR IN HUDSON RIVER ESTUARY DETERMINED FROM  
BEACH SEINE SURVEY, 2008

DATE		YK	TZ	CH	IP	WP	CW	PK	HP	KG	SG	CS	ALL REGIONS	
													AL	COMBINED
17JUN-	ST. CROP	13	207	46	22	3	4	0	0	0	0	0	0	293
19JUN	SE	9	85	21	22	2	4	0	0	0	0	0	0	91
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
30JUN-	ST. CROP	20	120	346	6	4	0	0	0	0	0	0	0	495
03JUL	SE	13	74	218	3	2	0	0	0	0	0	0	0	231
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
14JUL-	ST. CROP	10	12	38	0	0	0	0	0	0	0	0	0	61
16JUL	SE	7	9	23	0	0	0	0	0	0	0	0	0	26
	NO. TOWS	3	11	7	3	3	3	8	8	8	15	19	12	100
28JUL-	ST. CROP	0	36	44	2	0	0	0	0	0	0	0	0	82
31JUL	SE	0	12	16	2	0	0	0	0	0	0	0	0	20
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
11AUG-	ST. CROP	2	15	42	4	0	0	0	0	0	0	0	0	63
14AUG	SE	2	7	20	2	0	0	0	0	0	0	0	0	21
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
25AUG-	ST. CROP	0	27	54	9	1	0	0	0	0	0	0	0	90
27AUG	SE	0	19	20	4	1	0	0	0	0	0	0	0	28
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
08SEP-	ST. CROP	0	21	15	4	1	0	0	0	0	0	0	0	40
11SEP	SE	0	8	5	4	1	0	0	0	0	0	0	0	10
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
22SEP-	ST. CROP	0	2	13	4	0	0	0	0	0	0	0	0	19
25SEP	SE	0	2	12	2	0	0	0	0	0	0	0	0	12
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
06OCT-	ST. CROP	0	8	4	24	1	0	0	0	0	0	0	0	36
09OCT	SE	0	6	3	13	1	0	0	0	0	0	0	0	15
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100
20OCT-	ST. CROP	0	0	0	2	0	0	0	0	0	0	0	0	2
24OCT	SE	0	0	0	2	0	0	0	0	0	0	0	0	2
	NO. TOWS	5	24	14	5	5	6	5	5	5	9	10	7	100



## **Appendix F**

### **Length Frequency Distribution**

**APPENDIX F**  
**LIST OF TABLES**

<b><u>Number</u></b>	<b><u>Title</u></b>
F-1	Length frequency distribution of larval and young-of-year striped bass in Hudson River estuary determined from Long River Survey, 2008.
F-2	Length frequency distribution of young-of-year striped bass in Hudson River estuary determined from Fall Juvenile Survey, 2008.
F-3	Length frequency distribution of young-of-year striped bass in Hudson River estuary determined from Beach Seine Survey, 2008.
F-4	Length frequency distribution of larval and young-of-year white perch in Hudson River estuary determined from Long River Survey, 2008.
F-5	Length frequency distribution of young-of-year white perch in Hudson River estuary determined from Fall Juvenile Survey, 2008.
F-6	Length frequency distribution of young-of-year white perch in Hudson River estuary determined from Beach Seine Survey, 2008.
F-7	Length frequency distribution of larval and young-of-year Atlantic tomcod in Hudson River estuary determined from Long River Survey, 2008.
F-8	Length frequency distribution of young-of-year Atlantic tomcod in Hudson River estuary determined from Fall Juvenile Survey, 2008.
F-9	Length frequency distribution of young-of-year Atlantic tomcod in Hudson River estuary determined from Beach Seine Survey, 2008.
F-10	Length frequency distribution of larval and young-of-year bay anchovy in Hudson River estuary determined from Long River Survey, 2008.
F-11	Length frequency distribution of young-of-year bay anchovy in Hudson River estuary determined from Fall Juvenile Survey, 2008.
F-12	Length frequency distribution of young-of-year bay anchovy in Hudson River estuary determined from Beach Seine Survey, 2008.
F-13	Length frequency distribution of larval and young-of-year American shad in Hudson River estuary determined from Long River Survey, 2008.
F-14	Length frequency distribution of young-of-year American shad in Hudson River estuary determined from Fall Juvenile Survey, 2008.

## APPENDIX F

### LIST OF TABLES (CONTINUED)

<b><u>Number</u></b>	<b><u>Title</u></b>
F-15	Length frequency distribution of young-of-year American shad in Hudson River estuary determined from Beach Seine Survey, 2008.
F-16	Length frequency distribution of young-of-year alewife in Hudson River estuary determined from Fall Juvenile Survey, 2008.
F-17	Length frequency distribution of young-of-year alewife in Hudson River estuary determined from Beach Seine Survey, 2008.
F-18	Length frequency distribution of young-of-year blueback herring in Hudson River estuary determined from Fall Juvenile Survey, 2008.
F-19	Length frequency distribution of young-of-year blueback herring in Hudson River estuary determined from Beach Seine Survey, 2008.
F-20	Length frequency distribution of young-of-year spottail shiner in Hudson River estuary determined from Fall Juvenile Survey, 2008.
F-21	Length frequency distribution of young-of-year spottail shiner in Hudson River estuary determined from Beach Seine Survey, 2008.
F-22	Length frequency distribution of young-of-year white catfish in Hudson River estuary determined from Fall Juvenile Survey, 2008.
F-23	Length frequency distribution of young-of-year white catfish in Hudson River estuary determined from Beach Seine Survey, 2008.
F-24	Length frequency distribution of young-of-year weakfish in Hudson River estuary determined from Fall Juvenile Survey, 2008.
F-25	Length frequency distribution of young-of-year weakfish in Hudson River estuary determined from Beach Seine Survey, 2008.

Table F-1 Length Frequency Distribution of Larval and Young-of-Year Striped Bass in Hudson River Estuary Determined from Long River Survey, 2008

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- 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
04MAR -06MAR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18MAR -20MAR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01APR -03APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07APR -10APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14APR -17APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21APR -24APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28APR -01MAY	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05MAY -07MAY	0	3	53	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12MAY -15MAY	0	17	184	105	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19MAY -22MAY	0	44	433	201	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27MAY -30MAY	0	249	598	441	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02JUN -05JUN	0	32	760	1203	26	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10JUN -13JUN	0	44	535	1438	351	39	3	0	1	0	0	0	0	0	0	0	0	0	0	0
16JUN -19JUN	0	1	219	717	568	255	82	37	11	2	1	0	0	0	0	0	0	0	0	0
24JUN -27JUN	0	2	29	317	338	268	200	88	54	49	32	5	0	0	0	0	0	0	0	0
29JUN -03JUL	0	0	6	101	335	360	148	68	43	33	27	4	7	1	0	0	0	0	0	0
14JUL -17JUL	0	0	0	0	4	19	20	14	8	2	9	8	9	3	3	0	0	0	0	0
28JUL -30JUL	0	0	0	0	0	0	0	0	0	0	3	4	2	3	3	5	3	3	0	1
12AUG -14AUG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
25AUG -27AUG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
09SEP -11SEP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23SEP -25SEP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
07OCT -09OCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
	0	392	2818	4541	1634	946	453	207	117	86	72	21	18	7	6	5	4	5	1	1
DATES	70.0- 74.9	75.0- 79.9	80.0- 84.9	85.0- 89.9	90.0- 94.9	95.0- 99.9	100.0- 104.9	105.0- 109.9	110.0- 114.9	115.0- 119.9	120.0- 124.9	125.0- 129.9	130.0- 134.9	135.0- 139.9+	N	MEAN	MIN	MED	MAX	SD
04MAR -06MAR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
18MAR -20MAR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
01APR -03APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
07APR -10APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
14APR -17APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
21APR -24APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
28APR -01MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4.6	4.6	4.6	4.6	.
05MAY -07MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	74	5.3	3.5	5.5	6.3	0.7
12MAY -15MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	307	5.5	3.0	5.7	8.6	0.9
19MAY -22MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	679	5.3	3.0	5.1	8.0	1.1
27MAY -30MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1298	5.1	2.7	5.0	9.8	1.2
02JUN -05JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2026	6.0	2.8	6.1	10.8	0.9
10JUN -13JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2411	6.8	2.5	6.7	16.4	1.4
16JUN -19JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1893	8.4	3.9	8.0	20.2	2.3
24JUN -27JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1382	10.8	3.7	10.0	27.3	3.7
29JUN -03JUL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1133	11.4	4.2	10.5	35.0	3.8
14JUL -17JUL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	99	18.3	8.2	15.1	42.0	8.4
28JUL -30JUL	1	0	0	0	0	0	0	0	0	0	0	0	0	0	29	42.7	20.0	44.0	70.0	13.9
12AUG -14AUG	1	0	1	0	0	0	0	0	0	0	0	0	0	0	3	71.3	59.0	71.0	84.0	12.5
25AUG -27AUG	1	1	1	1	0	0	1	0	0	0	0	0	0	0	6	79.5	58.0	79.5	100.0	14.7
09SEP -11SEP	3	0	0	1	0	0	0	0	0	0	0	0	0	0	4	77.0	73.0	73.0	89.0	8.0
23SEP -25SEP	0	1	0	0	2	2	0	0	0	0	0	0	0	1	8	87.8	53.0	92.0	135.0	24.9
07OCT -09OCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====					
	6	2	2	2	2	2	1	0	0	0	0	0	0	1	11353					

NOTE: Lengths are total lengths in mm, N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

Table F-2 Length Frequency Distribution of Young-of-Year Striped Bass in Hudson River Estuary Determined from Fall Juvenile Survey, 2008

	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	85.0- 89.9	90.0- 94.9
DATES																	
07JUL - 11JUL	26	9	7	14	9	9	3	0	0	0	0	0	0	0	0	0	0
21JUL - 25JUL	0	5	7	5	10	6	15	17	11	3	3	2	0	0	0	0	0
04AUG - 08AUG	0	0	3	1	0	3	8	13	11	15	10	6	6	2	1	0	0
18AUG - 21AUG	0	0	0	0	0	0	2	7	11	12	8	9	12	12	5	2	0
02SEP - 05SEP	0	0	0	0	1	0	1	1	4	13	6	16	21	14	11	10	3
15SEP - 18SEP	0	0	0	0	1	0	3	1	1	6	2	11	13	8	16	8	6
29SEP - 02OCT	0	0	0	0	0	0	0	0	1	4	4	7	7	9	14	5	6
13OCT - 16OCT	0	0	0	0	0	0	0	0	1	2	4	6	7	8	5	3	7
27OCT - 30OCT	0	0	0	0	0	0	0	0	0	1	2	9	11	7	7	5	7
10NOV - 14NOV	0	0	0	0	0	0	0	0	1	2	2	7	3	4	8	7	3
01DEC - 05DEC	0	0	0	0	0	0	0	0	0	1	2	5	2	4	4	2	1
	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
	26	14	17	20	21	18	32	39	41	59	43	78	82	68	71	42	33
DATES	95.0- 99.9	100.0- 104.9	105.0- 109.9	110.0- 114.9	115.0- 119.9	120.0- 124.9	125.0- 129.9	130.0- 134.9	135.0- 139.9	140.0- 144.9+	N	MEAN	MIN	MED	MAX	SD	
07JUL - 11JUL	0	0	0	0	0	0	0	0	0	0	90	20.3	6.0	18.0	43.0	10.5	
21JUL - 25JUL	0	0	0	0	0	0	0	0	0	0	85	40.2	7.0	43.0	65.0	12.6	
04AUG - 08AUG	0	0	0	0	0	0	0	0	0	0	81	54.2	22.0	55.0	82.0	12.4	
18AUG - 21AUG	0	1	1	0	0	0	0	0	0	0	85	65.1	40.0	64.0	107.0	13.0	
02SEP - 05SEP	5	3	0	1	0	0	0	0	0	0	115	72.5	34.0	72.0	110.0	13.5	
15SEP - 18SEP	3	2	0	1	1	1	0	0	0	0	84	76.2	34.0	77.0	120.0	16.0	
29SEP - 02OCT	8	7	2	2	1	0	0	1	0	0	82	81.8	50.0	81.0	130.0	16.3	
13OCT - 16OCT	4	5	4	1	0	0	1	0	0	0	59	82.3	51.0	80.0	128.0	16.4	
27OCT - 30OCT	6	5	5	3	0	4	0	0	0	1	76	85.7	59.0	82.5	142.0	18.0	
10NOV - 14NOV	7	9	7	7	4	1	3	3	1	3	82	96.0	52.0	96.0	142.0	21.8	
01DEC - 05DEC	6	5	3	5	4	4	1	1	0	2	52	96.8	57.0	99.0	141.0	21.6	
	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====						
	39	37	22	20	10	10	5	5	1	6	891						

NOTE: Lengths are total lengths in mm, N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

Table F-3 Length Frequency Distribution of Young-of-Year Striped Bass in Hudson River Estuary Determined from Beach Seine Survey, 2008

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	85.0- 89.9	90.0- 94.9
17JUN-19JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30JUN-03JUL	0	3	14	21	10	3	4	0	0	0	0	0	0	0	0	0	0
14JUL-16JUL	0	1	7	17	12	22	16	7	6	3	1	1	0	0	0	0	0
28JUL-31JUL	0	0	1	2	3	11	23	24	23	22	17	8	8	3	0	0	0
11AUG-14AUG	0	0	0	0	1	3	11	15	31	43	13	16	11	7	3	0	1
25AUG-27AUG	0	0	0	0	0	0	2	13	18	19	17	16	19	14	10	8	3
08SEP-11SEP	0	0	0	0	0	0	0	1	4	18	15	27	30	32	12	9	12
22SEP-25SEP	0	0	0	0	0	0	0	0	1	4	12	34	32	26	19	15	9
06OCT-09OCT	0	0	0	0	0	0	0	0	0	4	6	22	24	19	19	10	10
20OCT-24OCT	0	0	0	0	0	0	0	0	1	4	11	11	13	15	13	5	4
	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
	0	4	22	40	26	39	56	60	84	117	92	135	137	116	76	47	39
DATES	95.0- 99.9	100.0- 104.9	105.0- 109.9	110.0- 114.9	115.0- 119.9	120.0- 124.9	125.0- 129.9	130.0- 134.9	135.0- 139.9	140.0- 144.9	145.0- 149.9+	N	MEAN	MIN	MED	MAX	SD
17JUN-19JUN	0	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
30JUN-03JUL	0	0	0	0	0	0	0	0	0	0	0	55	27.8	17.0	27.0	42.0	5.8
14JUL-16JUL	0	0	0	0	0	0	0	0	0	0	0	94	37.1	15.0	36.5	67.0	10.2
28JUL-31JUL	0	1	0	0	0	0	0	0	0	0	0	149	52.2	24.0	52.0	102.0	11.8
11AUG-14AUG	0	0	0	0	0	0	0	0	0	0	0	159	57.5	33.0	57.0	94.0	10.3
25AUG-27AUG	2	0	0	1	0	0	0	0	0	0	0	147	65.7	40.0	64.0	110.0	13.2
08SEP-11SEP	1	0	2	0	0	0	0	0	0	0	0	166	72.1	46.0	71.5	108.0	11.2
22SEP-25SEP	7	5	2	3	1	0	0	2	0	0	0	174	77.6	54.0	75.0	131.0	13.5
06OCT-09OCT	10	6	2	2	2	0	0	1	0	0	0	141	79.6	56.0	77.0	133.0	14.1
20OCT-24OCT	4	1	3	1	1	2	2	1	2	1	0	97	81.1	53.0	76.0	141.0	19.6
	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====					
	24	13	9	7	4	2	2	4	2	1	0	1182					

NOTE: Lengths are total lengths in mm, N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

Table F-4 Length Frequency Distribution of Larval and Young-of-Year White Perch in Hudson River Estuary Determined from Long River Survey, 2008

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- 24.9	25.0- 29.9	30.0- 34.9	35.0- 39.9	40.0- 44.9	45.0- 49.9
04MAR - 06MAR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18MAR - 20MAR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01APR - 03APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07APR - 10APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14APR - 17APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21APR - 24APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28APR - 01MAY	0	144	1	0	0	0	0	0	0	0	0	0	0	0	0	0
05MAY - 07MAY	0	794	475	0	0	0	0	0	0	0	0	0	0	0	0	0
12MAY - 15MAY	0	750	1356	1	0	0	0	0	0	0	0	0	0	0	0	0
19MAY - 22MAY	0	302	1480	12	0	0	0	0	0	0	0	0	0	0	0	0
27MAY - 30MAY	0	285	1073	118	2	0	0	0	0	0	0	0	0	0	0	0
02JUN - 05JUN	0	351	793	403	16	0	0	0	0	0	0	0	0	0	0	0
10JUN - 13JUN	0	184	874	577	257	34	0	0	0	0	0	0	0	0	0	0
16JUN - 19JUN	0	176	631	572	383	64	1	0	0	0	0	0	0	0	0	0
24JUN - 27JUN	0	26	268	567	344	60	10	8	2	1	0	0	0	0	0	0
29JUN - 03JUL	0	23	73	258	368	106	18	4	3	0	3	3	0	0	0	0
14JUL - 17JUL	0	0	0	0	0	3	4	2	0	1	1	2	2	0	0	0
28JUL - 30JUL	0	0	0	0	0	0	0	0	1	1	2	1	0	2	1	0
12AUG - 14AUG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25AUG - 27AUG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09SEP - 11SEP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3
23SEP - 25SEP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07OCT - 09OCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
	0	3035	7024	2508	1370	267	33	14	6	3	6	6	2	2	3	3
DATES	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+	N	MEAN	MIN	MED	MAX	SD
04MAR - 06MAR	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
18MAR - 20MAR	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
01APR - 03APR	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
07APR - 10APR	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
14APR - 17APR	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
21APR - 24APR	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
28APR - 01MAY	0	0	0	0	0	0	0	0	0	0	145	3.3	2.7	3.3	4.0	0.2
05MAY - 07MAY	0	0	0	0	0	0	0	0	0	0	1269	3.7	2.1	3.7	5.1	0.4
12MAY - 15MAY	0	0	0	0	0	0	0	0	0	0	2107	4.1	2.4	4.2	6.0	0.5
19MAY - 22MAY	0	0	0	0	0	0	0	0	0	0	1794	4.3	2.5	4.3	6.9	0.5
27MAY - 30MAY	0	0	0	0	0	0	0	0	0	0	1478	4.6	2.1	4.5	9.6	0.9
02JUN - 05JUN	0	0	0	0	0	0	0	0	0	0	1563	5.0	2.3	4.9	8.7	1.2
10JUN - 13JUN	0	0	0	0	0	0	0	0	0	0	1926	6.0	2.7	5.7	11.8	1.7
16JUN - 19JUN	0	0	0	0	0	0	0	0	0	0	1827	6.5	2.6	6.2	12.1	1.9
24JUN - 27JUN	0	0	0	0	0	0	0	0	0	0	1286	7.3	2.8	7.2	18.0	1.9
29JUN - 03JUL	0	0	0	0	0	0	0	0	0	0	859	8.3	3.2	8.3	28.2	2.4
14JUL - 17JUL	0	0	0	0	0	0	0	0	0	0	15	18.5	10.8	14.1	34.0	8.1
28JUL - 30JUL	4	1	1	1	0	0	0	0	0	0	15	40.8	17.6	40.0	67.0	16.8
12AUG - 14AUG	0	1	6	7	1	0	0	0	0	0	16	64.0	58.0	64.5	72.0	3.5
25AUG - 27AUG	0	0	0	1	0	0	0	0	0	0	1	67.0	67.0	67.0	67.0	.
09SEP - 11SEP	2	0	0	0	5	1	0	0	0	0	13	59.6	43.0	54.0	78.0	13.8
23SEP - 25SEP	1	0	0	0	3	0	2	3	0	0	9	76.4	50.0	80.0	88.0	11.5
07OCT - 09OCT	1	0	0	0	0	4	4	4	2	1	16	81.7	53.0	83.0	95.0	9.7
	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====					
	8	2	7	9	9	5	6	7	2	1	14339					

NOTE: Lengths are total lengths in mm, N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

Table F-5 Length Frequency Distribution of Young-of-Year White Perch in Hudson River Estuary Determined from Fall Juvenile Survey, 2008

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
07JUL-11JUL	4	1	2	2	0	0	0	0	0	0	0	0	0
21JUL-25JUL	1	0	0	1	2	0	1	0	0	0	0	0	0
04AUG-08AUG	0	0	2	6	1	4	3	2	10	18	18	7	1
18AUG-21AUG	0	0	0	0	3	2	1	0	2	6	14	22	18
02SEP-05SEP	0	0	0	0	0	1	8	2	3	1	3	19	22
15SEP-18SEP	0	0	0	0	0	0	1	0	3	2	1	3	21
29SEP-02OCT	0	0	0	0	0	0	0	1	2	5	4	6	17
13OCT-16OCT	0	0	0	0	0	0	0	0	1	0	4	1	6
27OCT-30OCT	0	0	0	0	0	0	0	0	0	3	3	7	17
10NOV-14NOV	0	0	0	0	0	0	0	0	2	2	3	6	8
01DEC-05DEC	0	0	0	0	0	0	0	0	0	5	3	5	21
	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
	5	1	4	9	6	7	14	5	23	42	53	76	131
DATES	75.0- 79.9	80.0- 84.9	85.0- 89.9	90.0- 94.9	95.0- 99.9	100.0- 104.9	105.0- 109.9+	N	MEAN	MIN	MED	MAX	SD
07JUL-11JUL	0	0	0	0	0	0	0	12	15.1	5.0	13.5	29.0	8.2
21JUL-25JUL	0	0	0	0	0	0	0	5	29.4	14.0	30.0	42.0	10.1
04AUG-08AUG	0	0	0	0	0	0	0	75	53.1	22.0	58.0	70.0	12.5
18AUG-21AUG	6	2	0	0	0	0	0	77	64.5	31.0	67.0	80.0	10.6
02SEP-05SEP	18	5	1	0	0	0	0	83	67.7	37.0	71.0	85.0	11.7
15SEP-18SEP	19	10	3	1	0	0	0	65	73.7	43.0	75.0	91.0	8.8
29SEP-02OCT	16	8	3	3	1	0	0	67	72.7	45.0	73.0	95.0	10.0
13OCT-16OCT	20	19	13	3	0	0	0	68	78.4	50.0	80.0	90.0	8.1
27OCT-30OCT	20	30	13	7	2	0	0	103	78.4	55.0	80.0	98.0	8.4
10NOV-14NOV	31	40	19	11	0	1	0	123	79.5	53.0	81.0	102.0	8.3
01DEC-05DEC	33	43	19	7	0	0	0	136	78.4	57.0	80.0	93.0	7.6
	=====	=====	=====	=====	=====	=====	=====	=====					
	163	157	71	32	3	1	0	814					

NOTE: Lengths are total lengths in mm, N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation



Table F-6 Length Frequency Distribution of Young-of-Year White Perch in Hudson River Estuary Determined from Beach Seine Survey, 2008

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
17JUN-19JUN	0	1	0	0	0	0	0	0	0	0	0	0
30JUN-03JUL	0	2	5	13	2	0	0	0	0	0	0	0
14JUL-16JUL	0	2	4	9	23	12	4	1	0	0	0	0
28JUL-31JUL	0	0	5	1	0	9	10	16	30	25	6	2
11AUG-14AUG	0	0	0	0	0	1	0	3	16	37	36	31
25AUG-27AUG	0	0	0	0	0	0	0	3	9	11	18	27
08SEP-11SEP	0	0	0	0	0	0	1	2	0	0	7	23
22SEP-25SEP	0	0	0	0	0	0	0	1	0	1	6	12
06OCT-09OCT	0	0	0	0	0	0	0	0	0	5	2	18
20OCT-24OCT	0	0	0	0	0	0	0	0	0	1	5	3
	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
	0	5	14	23	25	22	15	26	55	80	80	116
DATES	70.0- 74.9	75.0- 79.9	80.0- 84.9	85.0- 89.9	90.0- 94.9	95.0- 99.9+	N	MEAN	MIN	MED	MAX	SD
17JUN-19JUN	0	0	0	0	0	0	1	19.0	19.0	19.0	19.0	.
30JUN-03JUL	0	0	0	0	0	0	22	24.8	15.0	25.0	31.0	3.9
14JUL-16JUL	0	0	0	0	0	0	55	31.7	16.0	32.0	46.0	5.8
28JUL-31JUL	1	0	0	0	0	0	107	49.8	20.0	51.0	71.0	9.7
11AUG-14AUG	12	3	0	0	0	0	154	61.1	37.0	61.0	75.0	6.2
25AUG-27AUG	42	23	5	0	0	0	144	67.4	45.0	69.0	82.0	8.3
08SEP-11SEP	37	39	34	3	0	0	148	73.7	42.0	75.0	86.0	7.4
22SEP-25SEP	38	31	25	15	2	0	131	76.0	48.0	75.0	94.0	7.4
06OCT-09OCT	29	25	36	11	4	0	132	75.7	55.0	77.0	92.0	7.8
20OCT-24OCT	15	13	19	12	7	0	76	78.4	59.0	79.5	92.0	8.3
	=====	=====	=====	=====	=====	=====	=====					
	174	134	119	41	13	0	970					

NOTE: Lengths are total lengths in mm, N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

Table F-7 Length Frequency Distribution of Larval and Young-of-Year Atlantic Tomcod in Hudson River Estuary Determined from Long River Survey, 2008

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- 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
04MAR -06MAR	0	0	4	1097	146	0	0	0	0	0	0	0	0	0	0	0	0	0
18MAR -20MAR	0	0	0	521	369	9	0	0	0	0	0	0	0	0	0	0	0	0
01APR -03APR	0	0	1	55	284	346	195	18	0	0	0	0	0	0	0	0	0	0
07APR -10APR	0	0	0	9	96	172	124	27	2	0	0	0	0	0	0	0	0	0
14APR -17APR	0	0	0	0	1	3	27	75	94	54	36	0	0	0	0	0	0	0
21APR -24APR	0	0	0	1	0	3	15	35	96	72	76	2	0	0	0	0	0	0
28APR -01MAY	0	0	0	0	0	0	0	3	5	14	53	68	15	0	0	0	0	0
05MAY -07MAY	0	0	0	0	0	0	0	2	4	10	67	287	174	69	8	1	0	0
12MAY -15MAY	0	0	0	0	0	0	0	0	0	0	2	18	76	153	114	41	10	2
19MAY -22MAY	0	0	0	0	0	0	0	0	0	0	2	4	13	86	147	126	45	13
27MAY -30MAY	0	0	0	0	0	0	0	0	0	0	0	0	4	23	68	155	174	129
02JUN -05JUN	0	0	0	0	0	0	0	0	0	0	0	0	1	4	22	80	107	93
10JUN -13JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	2	5	16	37	88
16JUN -19JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	27	57
24JUN -27JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
29JUN -03JUL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	15
14JUL -17JUL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
28JUL -30JUL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12AUG -14AUG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25AUG -27AUG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09SEP -11SEP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23SEP -25SEP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07OCT -09OCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
	0	0	5	1683	896	533	361	160	201	150	236	379	283	337	366	423	404	405
DATES	60.0- 64.9	65.0- 69.9	70.0- 74.9	75.0- 79.9	80.0- 84.9	85.0- 89.9	90.0- 94.9	95.0- 99.9	100.0- 104.9	105.0- 109.9	110.0- 114.9+	N	MEAN	MIN	MED	MAX	SD	
04MAR -06MAR	0	0	0	0	0	0	0	0	0	0	0	1247	7.4	5.0	7.4	9.5	0.5	
18MAR -20MAR	0	0	0	0	0	0	0	0	0	0	0	899	7.9	6.0	7.7	10.6	0.7	
01APR -03APR	0	0	0	0	0	0	0	0	0	0	0	899	10.5	5.3	10.5	15.5	1.7	
07APR -10APR	0	0	0	0	0	0	0	0	0	0	0	430	11.3	7.1	11.3	17.8	1.7	
14APR -17APR	0	0	0	0	0	0	0	0	0	0	0	290	16.8	8.1	16.7	22.3	2.4	
21APR -24APR	0	0	0	0	0	0	0	0	0	0	0	300	18.0	7.0	18.0	26.3	2.7	
28APR -01MAY	0	0	0	0	0	0	0	0	0	0	0	158	24.8	14.4	25.2	33.0	4.1	
05MAY -07MAY	0	0	0	0	0	0	0	0	0	0	0	622	29.1	15.2	29.0	46.0	4.5	
12MAY -15MAY	0	0	0	0	0	0	0	0	0	0	0	416	38.3	21.3	38.0	58.0	5.5	
19MAY -22MAY	0	0	0	0	0	0	0	0	0	0	0	440	43.3	20.3	43.0	60.0	5.9	
27MAY -30MAY	50	71	21	2	2	0	0	1	0	0	0	716	53.4	32.0	52.0	96.0	8.7	
02JUN -05JUN	60	44	10	8	4	0	0	0	0	0	0	454	55.8	33.0	55.0	84.0	8.2	
10JUN -13JUN	68	75	60	39	14	9	4	2	0	0	0	442	64.3	36.0	64.0	99.0	9.8	
16JUN -19JUN	68	62	34	31	13	12	5	2	0	0	0	329	65.7	42.0	64.0	96.0	9.9	
24JUN -27JUN	19	26	29	19	22	8	4	2	1	0	0	143	72.5	55.0	70.0	103.0	9.5	
29JUN -03JUL	16	18	19	9	7	3	5	1	1	0	0	100	69.2	52.0	67.5	102.0	10.6	
14JUL -17JUL	4	10	5	6	4	2	1	0	0	0	1	36	72.7	57.0	72.0	110.0	10.7	
28JUL -30JUL	0	1	1	1	1	0	0	1	1	0	0	7	79.3	60.0	75.0	102.0	16.2	
12AUG -14AUG	0	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.	
25AUG -27AUG	0	0	0	0	0	0	0	1	0	0	0	1	95.0	95.0	95.0	95.0	.	
09SEP -11SEP	0	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.	
23SEP -25SEP	0	0	0	0	0	0	0	1	0	0	0	1	97.0	97.0	97.0	97.0	.	
07OCT -09OCT	0	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.	
	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====						
	285	307	179	115	67	34	19	11	3	0	1	7930						

NOTE: Lengths are total lengths in mm, N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

Table F-8 Length Frequency Distribution of Young-of-Year Atlantic Tomcod in Hudson River Estuary Determined from Fall Juvenile Survey, 2008

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
07JUL - 11JUL	0	0	0	0	0	0	0	0	3	9	17	16	25	22
21JUL - 25JUL	0	0	0	0	0	0	0	0	1	5	12	8	18	12
04AUG - 08AUG	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18AUG - 21AUG	0	0	0	0	0	0	0	0	0	0	0	0	0	3
02SEP - 05SEP	0	0	0	0	0	0	0	0	0	0	0	0	2	3
15SEP - 18SEP	0	0	0	0	0	0	0	0	0	0	0	1	0	0
29SEP - 02OCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13OCT - 16OCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27OCT - 30OCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10NOV - 14NOV	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01DEC - 05DEC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
	0	0	0	0	0	0	0	0	4	14	29	25	45	40
DATES	80.0- 84.9	85.0- 89.9	90.0- 94.9	95.0- 99.9	100.0- 104.9	105.0- 109.9	110.0- 114.9	115.0- 119.9	120.0- 124.9	125.0- 129.9	130.0- 134.9	135.0- 139.9	140.0- 144.9	145.0- 149.9
07JUL - 11JUL	20	23	9	6	1	0	0	0	0	0	0	0	0	0
21JUL - 25JUL	8	9	6	4	1	0	0	1	0	0	0	0	0	0
04AUG - 08AUG	1	0	0	3	3	1	0	0	0	0	0	0	0	0
18AUG - 21AUG	1	0	4	1	2	1	1	1	0	0	0	0	0	0
02SEP - 05SEP	0	3	2	4	2	3	0	0	1	0	0	0	0	0
15SEP - 18SEP	0	1	1	0	3	2	0	3	0	2	0	1	0	0
29SEP - 02OCT	1	1	2	2	3	1	1	2	0	1	1	0	0	0
13OCT - 16OCT	0	0	0	0	1	0	0	0	1	1	1	0	0	0
27OCT - 30OCT	0	0	0	0	0	0	1	0	0	2	5	6	2	0
10NOV - 14NOV	0	0	0	0	0	0	0	0	0	0	0	0	2	2
01DEC - 05DEC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
	31	37	24	20	16	8	3	7	2	6	7	7	4	2
DATES	150.0- 154.9	155.0- 159.9	160.0- 164.9	165.0- 169.9	170.0- 174.9	175.0- 179.9	180.0- 184.9	185.0- 189.9+	N	MEAN	MIN	MED	MAX	SD
07JUL - 11JUL	0	0	0	0	0	0	0	0	153	75.4	50.0	75.0	100.0	11.1
21JUL - 25JUL	0	0	0	0	0	0	0	0	89	75.1	54.0	73.0	116.0	12.2
04AUG - 08AUG	0	0	0	0	0	0	0	0	8	98.5	84.0	99.0	109.0	7.5
18AUG - 21AUG	0	0	0	0	0	0	0	0	14	94.4	75.0	93.0	115.0	12.7
02SEP - 05SEP	0	0	0	0	0	0	0	0	20	92.9	70.0	95.0	121.0	13.7
15SEP - 18SEP	0	0	0	0	0	0	0	0	14	107.3	69.0	106.0	135.0	17.6
29SEP - 02OCT	0	0	0	0	0	0	0	0	15	104.0	81.0	102.0	130.0	14.2
13OCT - 16OCT	0	0	0	0	0	0	0	0	4	120.5	104.0	123.0	132.0	11.9
27OCT - 30OCT	0	1	0	0	0	0	0	0	17	134.3	110.0	135.0	158.0	9.3
10NOV - 14NOV	4	2	0	0	0	0	0	0	10	149.4	140.0	150.5	157.0	5.8
01DEC - 05DEC	1	0	1	0	0	0	2	0	4	169.3	150.0	172.5	182.0	15.3
	=====	=====	=====	=====	=====	=====	=====	=====	=====					
	5	3	1	0	0	0	2	0	348					

NOTE: Lengths are total lengths in mm, N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

Table F-9 Length Frequency Distribution of Young-of-Year Atlantic Tomcod in Hudson River Estuary Determined from Beach Seine Survey, 2008

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
17JUN-19JUN	0	0	0	0	0	0	0	0	0	0	0
30JUN-03JUL	0	0	0	0	0	0	0	0	0	0	0
14JUL-16JUL	0	0	0	0	0	0	0	0	0	0	0
28JUL-31JUL	0	0	0	0	0	0	0	0	0	1	0
11AUG-14AUG	0	0	0	0	0	0	0	0	0	0	0
25AUG-27AUG	0	0	0	0	0	0	0	0	0	0	0
08SEP-11SEP	0	0	0	0	0	0	0	0	0	0	0
22SEP-25SEP	0	0	0	0	0	0	0	0	0	0	0
06OCT-09OCT	0	0	0	0	0	0	0	0	0	0	0
20OCT-24OCT	0	0	0	0	0	0	0	0	0	0	0
	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
	0	0	0	0	0	0	0	0	0	1	0
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
17JUN-19JUN	0	0	0	0	0	0	.	.	.	.	.
30JUN-03JUL	0	0	0	1	0	1	83.0	83.0	83.0	83.0	.
14JUL-16JUL	0	0	0	0	0	0	.	.	.	.	.
28JUL-31JUL	0	0	0	0	0	1	59.0	59.0	59.0	59.0	.
11AUG-14AUG	0	0	0	0	0	0	.	.	.	.	.
25AUG-27AUG	0	0	0	0	0	0	.	.	.	.	.
08SEP-11SEP	0	0	0	0	0	0	.	.	.	.	.
22SEP-25SEP	0	0	0	0	0	0	.	.	.	.	.
06OCT-09OCT	0	0	0	0	0	0	.	.	.	.	.
20OCT-24OCT	0	0	0	0	0	0	.	.	.	.	.
	=====	=====	=====	=====	=====	=====					
	0	0	0	1	0	2					

NOTE: Lengths are total lengths in mm, N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

Table F-10 Length Frequency Distribution of Larval and Young-of-Year Bay Anchovy in Hudson River Estuary Determined from Long River Survey, 2008

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- 24.9	25.0- 29.9	30.0- 34.9	35.0- 39.9
04MAR - 06MAR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18MAR - 20MAR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01APR - 03APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07APR - 10APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14APR - 17APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21APR - 24APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28APR - 01MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05MAY - 07MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12MAY - 15MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19MAY - 22MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27MAY - 30MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02JUN - 05JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10JUN - 13JUN	0	80	123	78	20	0	0	0	0	0	0	0	0	0
16JUN - 19JUN	0	76	491	518	260	65	9	2	0	0	0	0	0	0
24JUN - 27JUN	0	26	265	621	486	183	68	29	10	1	0	0	0	0
29JUN - 03JUL	0	27	159	418	642	532	273	114	38	21	10	0	0	0
14JUL - 17JUL	0	46	121	291	448	434	280	209	189	149	140	22	7	0
28JUL - 30JUL	0	0	19	73	82	113	179	277	325	317	508	209	102	64
12AUG - 14AUG	0	0	16	52	131	106	60	90	132	149	452	308	179	96
25AUG - 27AUG	0	0	0	0	4	18	28	76	90	71	208	265	270	288
09SEP - 11SEP	0	0	7	21	22	24	34	31	34	32	136	127	147	277
23SEP - 25SEP	0	1	0	2	16	36	52	55	29	39	105	117	196	225
07OCT - 09OCT	0	0	0	0	3	19	48	34	19	37	86	67	77	169
	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
	0	256	1201	2074	2114	1530	1031	917	866	816	1645	1115	978	1119
DATES	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+	N	MEAN	MIN	MED	MAX	SD	
04MAR - 06MAR	0	0	0	0	0	0	0	0	.	.	.	.	.	
18MAR - 20MAR	0	0	0	0	0	0	0	0	.	.	.	.	.	
01APR - 03APR	0	0	0	0	0	0	0	0	.	.	.	.	.	
07APR - 10APR	0	0	0	0	0	0	0	0	.	.	.	.	.	
14APR - 17APR	0	0	0	0	0	0	0	0	.	.	.	.	.	
21APR - 24APR	0	0	0	0	0	0	0	0	.	.	.	.	.	
28APR - 01MAY	0	0	0	0	0	0	0	0	.	.	.	.	.	
05MAY - 07MAY	0	0	0	0	0	0	0	0	.	.	.	.	.	
12MAY - 15MAY	0	0	0	0	0	0	0	0	.	.	.	.	.	
19MAY - 22MAY	0	0	0	0	0	0	0	0	.	.	.	.	.	
27MAY - 30MAY	0	0	0	0	0	0	0	0	.	.	.	.	.	
02JUN - 05JUN	0	0	0	0	0	0	0	0	.	.	.	.	.	
10JUN - 13JUN	0	0	0	0	0	0	0	301	5.3	2.0	5.1	9.9	1.7	
16JUN - 19JUN	0	0	0	0	0	0	0	1421	6.6	2.8	6.3	15.9	1.9	
24JUN - 27JUN	0	0	0	0	0	0	0	1689	8.1	2.8	7.7	18.1	2.4	
29JUN - 03JUL	0	0	0	0	0	0	0	2234	9.8	3.0	9.5	22.2	2.9	
14JUL - 17JUL	0	0	0	0	0	0	0	2336	12.0	2.7	11.1	33.4	4.9	
28JUL - 30JUL	22	1	0	0	0	0	0	2291	19.2	4.4	18.4	48.0	6.9	
12AUG - 14AUG	67	26	4	1	0	0	0	1869	22.4	4.0	21.9	55.0	9.2	
25AUG - 27AUG	268	197	46	13	0	2	0	1844	32.2	9.2	32.0	69.0	10.5	
09SEP - 11SEP	385	247	87	7	2	0	0	1621	35.1	4.2	38.0	61.0	11.5	
23SEP - 25SEP	328	249	116	65	8	5	0	1649	36.2	3.3	39.0	69.0	12.4	
07OCT - 09OCT	273	337	165	46	8	1	0	1400	38.9	9.7	42.0	67.0	12.2	
	=====	=====	=====	=====	=====	=====	=====	=====						
	1343	1057	418	132	18	8	0	18655						

NOTE: Lengths are total lengths in mm, N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

Table F-11 Length Frequency Distribution of Young-of-Year Bay Anchovy in Hudson River Estuary Determined from Fall Juvenile Survey, 2008

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+	N	MEAN	MIN	MED	MAX	SD
07JUL-11JUL	37	42	24	7	0	0	0	0	0	0	0	0	0	111	17.1	9.0	17.0	28.0	4.3
21JUL-25JUL	7	15	76	48	11	3	1	0	0	0	0	0	0	161	23.8	12.0	24.0	41.0	4.9
04AUG-08AUG	0	20	47	50	38	27	2	0	0	0	0	0	0	184	27.3	15.0	27.0	41.0	5.9
18AUG-21AUG	0	1	22	36	41	44	27	7	0	0	0	0	0	178	33.0	19.0	33.0	49.0	6.7
02SEP-05SEP	0	0	1	9	41	69	46	19	8	0	0	0	0	193	38.1	24.0	38.0	53.0	5.8
15SEP-18SEP	0	0	2	11	24	36	63	30	11	6	1	0	0	184	40.4	20.0	41.0	61.0	7.1
29SEP-02OCT	0	0	4	5	20	35	64	46	18	14	2	1	0	209	42.4	21.0	42.0	69.0	7.8
13OCT-16OCT	0	0	0	0	6	15	42	61	33	13	2	0	0	172	46.0	30.0	46.0	61.0	6.0
27OCT-30OCT	0	0	1	1	2	2	23	41	26	12	2	3	0	116	48.6	24.0	48.0	68.0	7.1
10NOV-14NOV	0	0	0	0	2	5	8	9	13	8	3	2	0	53	49.8	31.0	50.0	67.0	8.5
01DEC-05DEC	0	0	0	0	3	7	4	3	5	4	2	0	0	28	45.0	30.0	44.0	62.0	9.7
	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====					
	44	78	177	167	188	243	280	216	114	57	12	6	0	1589					

NOTE: Lengths are total lengths in mm, N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

Table F-12 Length Frequency Distribution of Young-of-Year Bay Anchovy in Hudson River Estuary Determined from Beach Seine Survey, 2008

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+	N	MEAN	MIN	MED	MAX	SD
17JUN-19JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
30JUN-03JUL	0	0	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
14JUL-16JUL	0	17	11	1	0	0	0	0	0	0	0	0	29	19.0	15.0	19.0	26.0	2.3
28JUL-31JUL	0	4	31	9	18	6	3	0	0	0	0	0	71	27.2	17.0	25.0	41.0	6.4
11AUG-14AUG	0	0	1	0	5	3	2	0	0	0	0	0	11	33.5	24.0	32.0	42.0	5.4
25AUG-27AUG	0	2	37	3	5	0	0	3	0	0	0	0	50	24.2	19.0	22.0	47.0	6.5
08SEP-11SEP	0	0	17	5	3	0	1	2	2	0	0	0	30	27.9	21.0	24.0	52.0	9.4
22SEP-25SEP	0	0	4	17	3	1	1	6	0	0	0	0	32	31.3	23.0	28.0	47.0	8.1
06OCT-09OCT	0	0	2	8	7	0	1	5	1	2	0	0	28	36.9	22.0	30.5	60.0	12.4
20OCT-24OCT	0	0	0	0	0	2	12	22	9	0	2	0	47	46.6	37.0	46.0	63.0	5.1
	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====					
	0	23	103	43	41	12	20	38	12	2	2	0	298					

NOTE: Lengths are total lengths in mm, N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

Table F-13 Length Frequency Distribution of Larval and Young-of-Year American Shad in Hudson River Estuary Determined from Long River Survey, 2008

	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- 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
DATES																		
04MAR - 06MAR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18MAR - 20MAR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01APR - 03APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07APR - 10APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14APR - 17APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21APR - 24APR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28APR - 01MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05MAY - 07MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12MAY - 15MAY	0	0	0	0	3	7	1	0	0	0	0	0	0	0	0	0	0	0
19MAY - 22MAY	0	0	0	0	3	14	13	2	0	0	0	0	0	0	0	0	0	0
27MAY - 30MAY	0	0	0	0	2	7	8	8	0	0	0	0	0	0	0	0	0	0
02JUN - 05JUN	0	0	0	0	0	2	6	10	10	6	0	0	0	0	0	0	0	0
10JUN - 13JUN	0	0	0	0	1	1	2	1	3	2	6	0	0	0	0	0	0	0
16JUN - 19JUN	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
24JUN - 27JUN	0	0	0	0	0	0	0	0	0	0	1	1	2	3	1	0	0	0
29JUN - 03JUL	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0
14JUL - 17JUL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28JUL - 30JUL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12AUG - 14AUG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25AUG - 27AUG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09SEP - 11SEP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23SEP - 25SEP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07OCT - 09OCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
	0	0	0	0	9	31	30	21	13	8	8	1	3	5	1	0	0	0
DATES	60.0- 64.9	65.0- 69.9	70.0- 74.9	75.0- 79.9	80.0- 84.9	85.0- 89.9	90.0- 94.9	95.0- 99.9	100.0- 104.9	105.0- 109.9	110.0- 114.9+	N	MEAN	MIN	MED	MAX	SD	
04MAR - 06MAR	0	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.	
18MAR - 20MAR	0	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.	
01APR - 03APR	0	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.	
07APR - 10APR	0	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.	
14APR - 17APR	0	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.	
21APR - 24APR	0	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.	
28APR - 01MAY	0	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.	
05MAY - 07MAY	0	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.	
12MAY - 15MAY	0	0	0	0	0	0	0	0	0	0	0	11	10.7	9.5	10.5	12.1	0.9	
19MAY - 22MAY	0	0	0	0	0	0	0	0	0	0	0	32	11.9	9.2	11.8	14.8	1.3	
27MAY - 30MAY	0	0	0	0	0	0	0	0	0	0	0	25	12.7	8.1	13.1	15.2	1.9	
02JUN - 05JUN	0	0	0	0	0	0	0	0	0	0	0	34	15.6	11.2	15.8	19.6	2.2	
10JUN - 13JUN	0	0	0	0	0	0	0	0	0	0	0	16	17.1	9.5	18.1	21.9	4.0	
16JUN - 19JUN	0	0	0	0	0	0	0	0	0	0	0	1	23.6	23.6	23.6	23.6	.	
24JUN - 27JUN	0	0	0	0	0	0	0	0	0	0	0	8	32.8	21.8	33.8	40.0	6.5	
29JUN - 03JUL	0	0	0	0	0	0	0	0	0	0	0	3	36.0	34.0	36.0	38.0	2.0	
14JUL - 17JUL	2	1	1	0	0	0	0	0	0	0	0	4	67.0	63.0	66.5	72.0	4.2	
28JUL - 30JUL	0	0	0	0	1	0	0	0	0	0	0	1	81.0	81.0	81.0	81.0	.	
12AUG - 14AUG	0	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.	
25AUG - 27AUG	0	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.	
09SEP - 11SEP	0	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.	
23SEP - 25SEP	0	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.	
07OCT - 09OCT	0	0	0	0	0	0	0	0	1	0	1	2	105.0	100.0	105.0	110.0	7.1	
	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====						
	2	1	1	0	1	0	0	0	1	0	1	137						

NOTE: Lengths are total lengths in mm, N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation



Table F-14 Length Frequency Distribution of Young-of-Year American Shad in Hudson River Estuary Determined from Fall Juvenile Survey, 2008

	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	85.0- 89.9
07JUL -11JUL	0	0	0	0	0	0	0	1	0	7	0	0	0	0	0	0
21JUL -25JUL	0	0	0	0	0	0	0	0	0	0	1	1	3	2	1	0
04AUG -08AUG	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
18AUG -21AUG	0	0	0	0	0	0	0	0	0	0	0	1	0	3	3	1
02SEP -05SEP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
15SEP -18SEP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
29SEP -02OCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13OCT -16OCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27OCT -30OCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10NOV -14NOV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01DEC -05DEC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
	0	0	0	0	0	0	0	1	0	7	1	2	4	5	7	5
DATES	90.0- 94.9	95.0- 99.9	100.0- 104.9	105.0- 109.9	110.0- 114.9	115.0- 119.9	120.0- 124.9	125.0- 129.9	130.0- 134.9+	N	MEAN	MIN	MED	MAX	SD	
07JUL -11JUL	0	0	0	0	0	0	0	0	0	9	56.3	47.0	57.0	60.0	3.8	
21JUL -25JUL	0	0	0	0	0	0	0	0	0	8	72.6	63.0	73.0	81.0	5.3	
04AUG -08AUG	0	0	0	0	0	0	0	0	0	3	79.3	73.0	80.0	85.0	6.0	
18AUG -21AUG	1	0	0	0	0	0	0	0	0	9	81.2	66.0	81.0	94.0	7.7	
02SEP -05SEP	3	2	0	0	0	0	0	0	0	9	89.8	82.0	90.0	97.0	5.4	
15SEP -18SEP	2	4	2	0	1	1	0	0	0	11	98.8	89.0	98.0	115.0	7.7	
29SEP -02OCT	1	2	2	3	2	0	0	0	0	10	102.8	92.0	103.5	110.0	6.4	
13OCT -16OCT	0	2	0	1	0	0	0	0	0	3	100.7	97.0	97.0	108.0	6.4	
27OCT -30OCT	0	0	0	0	0	0	0	0	1	1	131.0	131.0	131.0	131.0	.	
10NOV -14NOV	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.	
01DEC -05DEC	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.	
	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====						
	7	10	4	4	3	1	0	0	1	63						

NOTE: Lengths are total lengths in mm, N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

Table F-15 Length Frequency Distribution of Young-of-Year American Shad in Hudson River Estuary Determined from Beach Seine Survey, 2008

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
17JUN-19JUN	0	0	8	9	9	0	0	0	0	0	0	0	0	0
30JUN-03JUL	0	0	0	0	4	6	7	8	13	9	1	0	0	0
14JUL-16JUL	0	0	0	0	0	0	4	5	9	7	10	2	0	0
28JUL-31JUL	0	0	0	0	0	0	0	0	0	2	0	7	26	31
11AUG-14AUG	0	0	0	0	0	0	0	0	0	0	1	3	14	39
25AUG-27AUG	0	0	0	0	0	0	0	0	0	0	0	1	2	8
08SEP-11SEP	0	0	0	0	0	0	0	0	0	0	0	0	0	1
22SEP-25SEP	0	0	0	0	0	0	0	0	0	0	0	0	1	0
06OCT-09OCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20OCT-24OCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
	0	0	8	9	13	6	11	13	22	18	12	13	43	79
DATES	80.0- 84.9	85.0- 89.9	90.0- 94.9	95.0- 99.9	100.0- 104.9	105.0- 109.9	110.0- 114.9	115.0- 119.9+	N	MEAN	MIN	MED	MAX	SD
17JUN-19JUN	0	0	0	0	0	0	0	0	26	26.6	20.0	27.5	34.0	4.5
30JUN-03JUL	0	0	0	0	0	0	0	0	49	47.7	33.0	48.0	61.0	8.1
14JUL-16JUL	0	0	0	0	0	0	0	0	41	55.3	41.0	57.0	66.0	7.1
28JUL-31JUL	8	0	0	0	0	0	0	0	74	74.3	57.0	75.0	84.0	4.8
11AUG-14AUG	37	3	0	0	0	0	0	0	97	77.7	62.0	79.0	86.0	4.6
25AUG-27AUG	25	14	2	0	0	0	0	0	52	81.9	68.0	82.0	90.0	4.5
08SEP-11SEP	6	25	22	4	1	0	0	0	59	88.8	76.0	89.0	101.0	4.4
22SEP-25SEP	0	5	16	22	2	0	0	0	46	93.8	74.0	95.0	101.0	4.6
06OCT-09OCT	0	0	11	14	22	6	0	0	53	98.8	90.0	100.0	109.0	4.7
20OCT-24OCT	0	1	0	5	6	8	2	0	22	103.1	86.0	103.0	112.0	6.3
	=====	=====	=====	=====	=====	=====	=====	=====	=====					
	76	48	51	45	31	14	2	0	519					

NOTE: Lengths are total lengths in mm, N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

Table F-16 Length Frequency Distribution of Young-of-Year Alewife in Hudson River Estuary Determined from Fall Juvenile Survey, 2008

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	85.0- 89.9	90.0- 94.9
07JUL-11JUL	0	0	0	0	0	0	17	17	24	14	1	1	0	0	0	0	0
21JUL-25JUL	0	0	0	0	0	0	7	9	5	12	10	5	3	0	0	0	0
04AUG-08AUG	0	0	0	0	0	1	4	3	8	9	14	20	8	1	1	0	0
18AUG-21AUG	0	0	0	0	0	0	0	5	6	4	5	17	19	7	3	0	0
02SEP-05SEP	0	0	0	0	0	0	0	0	1	0	6	10	23	16	9	1	0
15SEP-18SEP	0	0	0	0	0	0	0	0	2	1	2	3	8	10	4	1	0
29SEP-02OCT	0	0	0	0	0	0	0	0	0	0	0	1	14	15	12	7	4
13OCT-16OCT	0	0	0	0	0	0	0	0	0	1	1	1	6	12	13	10	3
27OCT-30OCT	0	0	0	0	0	0	0	0	0	0	1	0	5	9	8	10	10
10NOV-14NOV	0	0	0	0	0	0	0	0	0	0	0	1	1	3	7	7	4
01DEC-05DEC	0	0	0	0	0	0	0	0	0	0	0	0	2	3	3	3	1
	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
	0	0	0	0	0	1	28	34	46	41	40	59	89	76	60	39	22
DATES	95.0- 99.9	100.0- 104.9	105.0- 109.9	110.0- 114.9	115.0- 119.9	120.0- 124.9	125.0- 129.9	130.0- 134.9	135.0- 139.9	140.0- 144.9	145.0- 149.9+	N	MEAN	MIN	MED	MAX	SD
07JUL-11JUL	0	0	0	0	0	0	0	0	0	0	0	74	49.8	41.0	51.0	65.0	5.7
21JUL-25JUL	0	0	0	0	0	0	0	0	0	0	0	58	56.2	40.0	58.0	74.0	8.6
04AUG-08AUG	0	0	0	0	0	0	0	0	0	0	0	69	61.2	36.0	64.0	80.0	9.0
18AUG-21AUG	0	0	0	0	0	0	0	0	0	0	0	68	66.1	46.0	68.0	82.0	9.2
02SEP-05SEP	0	0	0	0	0	0	0	0	0	0	0	68	72.5	52.0	72.5	85.0	6.7
15SEP-18SEP	0	0	0	0	0	0	0	0	0	0	0	31	72.7	52.0	74.0	86.0	8.2
29SEP-02OCT	0	0	0	0	0	0	0	0	0	0	0	53	79.1	68.0	78.0	93.0	6.4
13OCT-16OCT	3	0	0	0	0	0	0	0	0	0	0	52	80.0	56.0	80.5	96.0	8.6
27OCT-30OCT	11	2	0	0	1	0	0	0	0	1	0	58	87.4	64.0	87.0	143.0	12.2
10NOV-14NOV	1	0	0	0	0	0	0	0	0	0	0	24	83.2	65.0	83.5	97.0	6.9
01DEC-05DEC	1	0	1	0	0	0	0	0	0	0	0	14	84.6	70.0	84.0	109.0	10.0
	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====					
	16	2	1	0	1	0	0	0	0	1	0	569					

NOTE: Lengths are total lengths in mm, N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

Table F-17 Length Frequency Distribution of Young-of-Year Alewife in Hudson River Estuary Determined from Beach Seine Survey, 2008

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
17JUN-19JUN	0	0	0	0	0	0	1	2	1	0	0	0	0	0
30JUN-03JUL	0	0	0	0	0	0	12	7	3	0	0	0	0	0
14JUL-16JUL	0	0	0	0	0	0	13	10	23	15	1	1	1	0
28JUL-31JUL	0	0	0	0	0	0	1	5	12	15	25	37	12	5
11AUG-14AUG	0	0	0	0	0	0	0	0	0	9	25	39	28	5
25AUG-27AUG	0	0	0	0	0	0	0	0	4	3	16	22	31	6
08SEP-11SEP	0	0	0	0	0	0	0	0	0	1	7	14	29	44
22SEP-25SEP	0	0	0	0	0	0	0	0	0	0	2	8	24	14
06OCT-09OCT	0	0	0	0	0	0	0	0	0	1	5	17	11	17
20OCT-24OCT	0	0	0	0	0	0	0	0	0	0	4	6	12	14
	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
	0	0	0	0	0	0	27	24	43	44	85	144	148	105
DATES	80.0- 84.9	85.0- 89.9	90.0- 94.9	95.0- 99.9	100.0- 104.9	105.0- 109.9	110.0- 114.9	115.0- 119.9+	N	MEAN	MIN	MED	MAX	SD
17JUN-19JUN	0	0	0	0	0	0	0	0	4	46.8	42.0	46.5	52.0	4.1
30JUN-03JUL	0	0	0	0	0	0	0	0	22	44.8	41.0	44.0	53.0	3.3
14JUL-16JUL	0	0	0	0	0	0	0	0	67	51.3	41.0	52.0	70.0	6.5
28JUL-31JUL	0	0	0	0	0	0	0	0	121	62.6	41.0	63.0	78.0	7.3
11AUG-14AUG	0	0	0	0	0	0	0	0	108	66.9	55.0	67.5	79.0	5.2
25AUG-27AUG	1	0	0	0	0	0	0	0	90	67.1	50.0	68.0	82.0	6.2
08SEP-11SEP	14	2	0	0	0	0	0	0	112	74.0	57.0	75.0	89.0	6.1
22SEP-25SEP	9	1	2	0	0	0	0	0	60	74.3	62.0	73.0	91.0	5.9
06OCT-09OCT	30	13	2	0	0	0	0	0	96	76.6	57.0	78.5	91.0	8.0
20OCT-24OCT	9	6	8	2	0	0	1	0	62	78.7	62.0	76.5	112.0	10.2
	=====	=====	=====	=====	=====	=====	=====	=====	=====					
	63	22	12	2	0	0	1	0	742					

NOTE: Lengths are total lengths in mm, N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

Table F-18 Length Frequency Distribution of Young-of-Year Blueback Herring in Hudson River Estuary Determined from Fall Juvenile Survey, 2008

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
07JUL-11JUL	0	0	0	0	0	0	31	3	0	0	0	0
21JUL-25JUL	0	0	0	0	0	0	4	11	24	12	2	1
04AUG-08AUG	0	0	0	0	0	0	2	7	18	29	14	5
18AUG-21AUG	0	0	0	0	0	0	2	4	15	33	17	7
02SEP-05SEP	0	0	0	0	0	0	0	6	12	14	20	13
15SEP-18SEP	0	0	0	0	0	0	0	0	6	14	17	13
29SEP-02OCT	0	0	0	0	0	0	0	0	1	5	11	19
13OCT-16OCT	0	0	0	0	0	0	0	0	0	4	9	23
27OCT-30OCT	0	0	0	0	0	0	0	0	0	1	3	2
10NOV-14NOV	0	0	0	0	0	0	0	0	0	1	0	0
01DEC-05DEC	0	0	0	0	0	0	0	0	0	1	0	0
	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
	0	0	0	0	0	0	39	31	76	114	93	83
DATES	70.0- 74.9	75.0- 79.9	80.0- 84.9	85.0- 89.9	90.0- 94.9	95.0- 99.9+	N	MEAN	MIN	MED	MAX	SD
07JUL-11JUL	0	0	0	0	0	0	34	42.4	40.0	42.0	49.0	1.9
21JUL-25JUL	0	0	0	0	0	0	54	51.9	41.0	53.0	65.0	5.0
04AUG-08AUG	1	0	0	0	0	0	80	56.5	42.0	57.0	70.0	5.9
18AUG-21AUG	3	2	1	0	0	0	90	58.5	41.0	58.0	82.0	7.0
02SEP-05SEP	14	11	5	0	1	0	100	64.2	47.0	63.0	90.0	9.7
15SEP-18SEP	11	2	0	1	0	0	71	63.5	51.0	63.0	85.0	6.7
29SEP-02OCT	24	2	1	0	1	0	72	67.1	54.0	66.5	93.0	6.6
13OCT-16OCT	17	16	5	1	0	0	75	70.4	55.0	70.0	85.0	6.8
27OCT-30OCT	0	3	2	0	0	0	12	70.3	57.0	69.0	84.0	9.4
10NOV-14NOV	1	0	2	0	0	0	4	72.5	57.0	76.0	81.0	11.1
01DEC-05DEC	0	0	1	0	0	0	2	67.5	55.0	67.5	80.0	17.7
	=====	=====	=====	=====	=====	=====	=====					
	71	36	17	2	2	0	594					

NOTE: Lengths are total lengths in mm, N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

Table F-19 Length Frequency Distribution of Young-of-Year Blueback Herring in Hudson River Estuary Determined from Beach Seine Survey, 2008

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
17JUN-19JUN	0	0	0	0	0	0	0	0	0	0	0
30JUN-03JUL	0	0	0	0	0	0	11	4	1	1	0
14JUL-16JUL	0	0	0	0	0	0	11	25	10	2	0
28JUL-31JUL	0	0	0	1	0	0	20	8	7	21	7
11AUG-14AUG	0	0	0	0	0	0	10	16	27	18	6
25AUG-27AUG	0	0	0	0	0	0	9	19	24	18	13
08SEP-11SEP	0	0	0	0	0	0	2	1	17	33	24
22SEP-25SEP	0	0	0	0	0	0	0	0	7	16	23
06OCT-09OCT	0	0	0	0	0	0	0	0	5	17	22
20OCT-24OCT	0	0	0	0	0	0	0	0	5	18	27
	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
	0	0	0	1	0	0	63	73	103	144	122
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
17JUN-19JUN	0	0	0	0	0	0	.	.	.	.	.
30JUN-03JUL	0	0	0	0	0	17	44.6	41.0	43.0	55.0	4.3
14JUL-16JUL	0	0	0	0	0	48	47.0	40.0	47.0	57.0	3.9
28JUL-31JUL	8	1	0	0	0	80	53.1	26.0	56.0	70.0	9.4
11AUG-14AUG	15	16	1	0	0	112	56.8	41.0	55.0	75.0	9.5
25AUG-27AUG	14	9	2	1	0	114	56.6	40.0	55.5	80.0	9.1
08SEP-11SEP	24	11	1	1	0	121	60.8	41.0	61.0	82.0	6.8
22SEP-25SEP	25	9	7	3	0	92	64.4	51.0	64.0	82.0	7.0
06OCT-09OCT	23	20	8	3	0	101	65.2	52.0	65.0	83.0	7.2
20OCT-24OCT	17	6	6	2	1	91	63.4	52.0	62.0	85.0	6.8
	=====	=====	=====	=====	=====	=====					
	126	72	25	10	1	776					

NOTE: Lengths are total lengths in mm, N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

Table F-20 Length Frequency Distribution of Young-of-Year Spottail Shiner in Hudson River Estuary Determined from Fall Juvenile Survey, 2008

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
07JUL-11JUL	0	0	1	0	1	2	1	0	0	0	0
21JUL-25JUL	0	0	0	0	1	0	0	0	0	0	0
04AUG-08AUG	0	0	0	0	0	1	1	0	1	1	0
18AUG-21AUG	0	0	0	0	0	0	0	0	0	1	0
02SEP-05SEP	0	0	0	0	0	0	0	0	0	0	0
15SEP-18SEP	0	0	0	0	0	0	0	0	0	0	0
29SEP-02OCT	0	0	0	0	0	0	0	0	0	0	0
13OCT-16OCT	0	0	0	0	0	0	0	0	0	1	0
27OCT-30OCT	0	0	0	0	0	0	0	0	0	3	3
10NOV-14NOV	0	0	0	0	0	0	0	0	0	0	1
01DEC-05DEC	0	0	0	0	0	0	0	0	0	1	0
	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
	0	0	1	0	2	3	2	0	1	7	4
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
07JUL-11JUL	0	0	0	0	0	5	34.0	24.0	35.0	40.0	6.4
21JUL-25JUL	0	0	0	0	0	1	30.0	30.0	30.0	30.0	.
04AUG-08AUG	0	0	0	0	0	5	49.6	39.0	50.0	60.0	9.1
18AUG-21AUG	0	0	0	0	0	1	55.0	55.0	55.0	55.0	.
02SEP-05SEP	1	1	0	0	0	2	67.5	65.0	67.5	70.0	3.5
15SEP-18SEP	0	0	0	0	0	0	.	.	.	.	.
29SEP-02OCT	0	0	0	0	0	0	.	.	.	.	.
13OCT-16OCT	0	0	1	0	0	2	66.0	57.0	66.0	75.0	12.7
27OCT-30OCT	4	3	2	1	0	16	67.1	57.0	66.5	80.0	6.8
10NOV-14NOV	0	0	1	2	0	5	73.0	60.0	77.0	84.0	11.7
01DEC-05DEC	0	2	1	3	0	8	73.3	57.0	74.5	84.0	10.2
	=====	=====	=====	=====	=====	=====					
	5	6	5	6	0	45					

NOTE: Lengths are total lengths in mm, N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

Table F-21 Length Frequency Distribution of Young-of-Year Spottail Shiner in Hudson River Estuary Determined from Beach Seine Survey, 2008

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
17JUN-19JUN	0	14	5	0	0	0	0	0	0	0	0
30JUN-03JUL	0	1	7	15	3	0	0	0	0	0	0
14JUL-16JUL	0	1	3	10	15	13	3	0	0	0	0
28JUL-31JUL	0	0	0	0	4	6	25	27	20	4	1
11AUG-14AUG	0	0	0	0	1	2	8	18	26	14	2
25AUG-27AUG	0	0	0	0	0	0	1	3	9	15	11
08SEP-11SEP	0	0	0	0	0	0	2	6	10	16	9
22SEP-25SEP	0	0	0	0	1	1	1	1	8	10	11
06OCT-09OCT	0	0	0	0	0	0	0	0	3	9	5
20OCT-24OCT	0	0	0	0	0	0	0	0	0	3	9
	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
	0	16	15	25	24	22	40	55	76	71	48
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
17JUN-19JUN	0	0	0	0	0	19	18.2	15.0	18.0	23.0	2.0
30JUN-03JUL	0	0	0	0	0	26	25.6	17.0	26.0	34.0	3.6
14JUL-16JUL	0	0	0	0	0	45	32.0	18.0	32.0	44.0	5.5
28JUL-31JUL	0	0	0	0	0	87	45.6	32.0	46.0	62.0	5.7
11AUG-14AUG	0	0	0	0	0	71	50.0	32.0	51.0	61.0	5.4
25AUG-27AUG	8	4	0	0	0	52	59.0	43.0	58.5	74.0	6.9
08SEP-11SEP	8	9	5	0	0	67	60.3	41.0	59.0	78.0	9.3
22SEP-25SEP	8	8	4	2	0	62	61.7	32.0	61.0	80.0	9.7
06OCT-09OCT	14	18	11	0	0	64	67.2	51.0	69.0	78.0	7.2
20OCT-24OCT	9	7	4	3	0	37	67.6	55.0	66.0	81.0	7.1
	=====	=====	=====	=====	=====	=====					
	47	46	24	5	0	530					

NOTE: Lengths are total lengths in mm, N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation



Table F-22 Length Frequency Distribution of Young-of-Year White Catfish in Hudson River Estuary Determined from Fall Juvenile Survey, 2008

	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
07JUL -11JUL	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0
21JUL -25JUL	0	0	0	0	0	3	3	1	1	0	0	0	0	0	0
04AUG -08AUG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18AUG -21AUG	0	0	0	0	0	1	0	2	1	1	0	0	0	3	1
02SEP -05SEP	0	0	0	0	0	0	0	1	1	4	2	0	1	0	0
15SEP -18SEP	0	0	0	0	0	0	0	0	0	2	0	2	0	1	0
29SEP -02OCT	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
13OCT -16OCT	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
27OCT -30OCT	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1
10NOV -14NOV	0	0	0	0	0	0	0	0	0	0	0	0	1	3	2
01DEC -05DEC	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
	0	0	2	1	0	4	3	4	3	7	2	3	3	11	7
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+	N	MEAN	MIN	MED	MAX	SD	
07JUL -11JUL	0	0	0	0	0	0	0	0	3	23.3	21.0	23.0	26.0	2.5	
21JUL -25JUL	0	0	0	0	0	0	0	0	8	41.4	36.0	40.0	50.0	4.7	
04AUG -08AUG	0	0	0	0	0	0	0	0	0	.	.	.	.	.	
18AUG -21AUG	0	0	0	0	0	0	0	0	10	61.3	38.0	59.5	80.0	15.5	
02SEP -05SEP	0	1	0	0	0	0	0	0	13	61.7	48.0	60.0	93.0	10.9	
15SEP -18SEP	2	3	0	0	0	0	0	0	10	77.8	56.0	82.0	94.0	14.3	
29SEP -02OCT	1	0	0	2	1	1	0	0	8	93.6	74.0	94.5	110.0	13.6	
13OCT -16OCT	0	2	0	3	1	2	0	0	9	99.8	77.0	103.0	113.0	11.7	
27OCT -30OCT	0	1	0	0	1	1	1	1	8	98.0	77.0	99.0	120.0	18.7	
10NOV -14NOV	2	1	0	1	1	2	1	0	14	91.7	71.0	87.5	115.0	15.3	
01DEC -05DEC	0	0	0	0	1	0	1	0	5	90.2	66.0	82.0	118.0	21.2	
	=====	=====	=====	=====	=====	=====	=====	=====	=====						
	5	8	0	6	5	6	3	1	88						

NOTE: Lengths are total lengths in mm, N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

Table F-23 Length Frequency Distribution of Young-of-Year White Catfish in Hudson River Estuary Determined from Beach Seine Survey, 2008

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+	N	MEAN	MIN	MED	MAX	SD
17JUN-19JUN	0	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
30JUN-03JUL	0	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
14JUL-16JUL	0	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
28JUL-31JUL	0	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
11AUG-14AUG	0	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
25AUG-27AUG	0	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
08SEP-11SEP	0	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
22SEP-25SEP	0	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
06OCT-09OCT	0	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
20OCT-24OCT	0	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====					
	0	0	0	0	0	0	0	0	0	0	0	0					

NOTE: Lengths are total lengths in mm, N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

Table F-24 Length Frequency Distribution of Young-of-Year Weakfish in Hudson River Estuary Determined from Fall Juvenile Survey, 2008

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
07JUL-11JUL	3	7	8	10	13	15	5	4	0	1	0	0	0
21JUL-25JUL	0	0	1	5	4	13	27	16	12	5	2	2	2
04AUG-08AUG	0	0	0	0	0	0	2	0	2	8	6	6	11
18AUG-21AUG	0	0	0	0	0	2	0	4	1	2	0	0	4
02SEP-05SEP	0	0	0	0	0	0	0	0	0	1	2	1	1
15SEP-18SEP	0	0	0	0	0	0	0	0	0	0	0	0	0
29SEP-02OCT	0	0	1	1	2	2	1	1	1	3	0	0	0
13OCT-16OCT	0	0	0	0	0	0	0	1	1	0	1	0	3
27OCT-30OCT	0	0	0	0	0	0	0	2	2	3	5	1	0
10NOV-14NOV	0	0	0	0	0	0	0	0	0	1	1	0	4
01DEC-05DEC	0	0	0	0	0	0	0	1	0	2	4	4	9
	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
	3	7	10	16	19	32	35	29	19	26	21	14	34
DATES	75.0- 79.9	80.0- 84.9	85.0- 89.9	90.0- 94.9	95.0- 99.9	100.0- 104.9	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
07JUL-11JUL	0	0	0	0	0	0	0	0	0	0	0	0	0
21JUL-25JUL	2	0	0	0	0	0	0	0	0	0	0	0	0
04AUG-08AUG	6	4	2	1	1	0	0	1	1	0	0	0	0
18AUG-21AUG	5	5	7	18	6	6	5	4	1	1	1	0	0
02SEP-05SEP	6	3	5	8	6	7	9	8	11	7	2	2	2
15SEP-18SEP	0	1	1	1	2	2	2	1	3	1	0	4	0
29SEP-02OCT	0	0	0	2	0	0	3	0	0	1	2	1	0
13OCT-16OCT	0	0	0	0	0	1	0	0	0	0	0	0	0
27OCT-30OCT	0	1	1	0	0	0	0	0	1	0	0	1	1
10NOV-14NOV	1	2	0	1	0	0	0	0	0	0	0	0	0
01DEC-05DEC	0	3	1	0	0	0	0	0	0	0	0	0	0
	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
	20	19	17	31	15	16	19	14	17	10	5	8	3
DATES	140.0- 144.9	145.0- 149.9	150.0- 154.9	155.0- 159.9	160.0- 164.9	165.0- 169.9	170.0- 174.9+	N	MEAN	MIN	MED	MAX	SD
07JUL-11JUL	0	0	0	0	0	0	0	66	30.4	12.0	31.5	55.0	9.5
21JUL-25JUL	0	0	0	0	0	0	0	92	45.4	23.0	44.0	78.0	10.8
04AUG-08AUG	0	0	0	0	0	0	0	54	69.7	43.0	69.0	118.0	14.2
18AUG-21AUG	0	0	0	0	0	0	0	72	87.5	35.0	90.5	129.0	19.5
02SEP-05SEP	0	3	2	0	1	0	0	87	105.5	59.0	106.0	161.0	21.2
15SEP-18SEP	1	1	1	0	0	0	0	21	115.2	83.0	116.0	151.0	19.5
29SEP-02OCT	2	0	1	1	0	1	0	26	87.0	20.0	92.0	167.0	47.8
13OCT-16OCT	1	1	2	1	1	0	1	14	111.5	46.0	121.5	174.0	47.7
27OCT-30OCT	0	0	1	0	0	0	0	20	75.8	45.0	62.5	152.0	32.2
10NOV-14NOV	0	0	0	0	0	0	0	11	72.2	57.0	71.0	94.0	10.5
01DEC-05DEC	0	0	0	0	0	0	0	26	68.5	49.0	69.0	87.0	8.9
	=====	=====	=====	=====	=====	=====	=====	=====					
	4	5	7	2	2	1	1	489					

NOTE: Lengths are total lengths in mm, N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation

Table F-25 Length Frequency Distribution of Young-of-Year Weakfish in Hudson River Estuary Determined from Beach Seine Survey, 2008

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+	N	MEAN	MIN	MED	MAX	SD
17JUN-19JUN	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
30JUN-03JUL	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
14JUL-16JUL	0	0	0	0	0	0	1	1	0	2	46.0	43.0	46.0	49.0	4.2
28JUL-31JUL	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
11AUG-14AUG	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
25AUG-27AUG	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
08SEP-11SEP	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
22SEP-25SEP	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
06OCT-09OCT	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
20OCT-24OCT	0	0	0	0	0	0	0	0	0	0	.	.	.	.	.
	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====					
	0	0	0	0	0	0	1	1	0	2					

NOTE: Lengths are total lengths in mm, N = Number of lengths, MEAN = Mean length, MIN = Minimum length, MED = Median length, MAX = Maximum length, SD = Standard deviation