



**STATE OF CONNECTICUT  
DEPARTMENT OF ENERGY AND ENVIRONMENTAL  
PROTECTION**

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Bureau of Natural Resources  
Marine Fisheries Division  
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**A STUDY OF MARINE RECREATIONAL  
FISHERIES IN CONNECTICUT**



Federal Aid in Sport Fish Restoration  
F-54-R-32 Annual Performance Report  
March 1, 2012 – February 28, 2013





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Department of Energy and Environmental Protection  
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F-54-R-32  
Annual Performance Report

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Date: August 27, 2013

Cover: Angler holding his summer flounder caught at Fort Trumbull Enhanced Opportunity Fishing Site.

**JOB 2: MARINE FINFISH SURVEY**

**Part 1: Long Island Sound Trawl Survey**

**Part 2: Estuarine Seine Survey**

# PART 1: LONG ISLAND SOUND TRAWL SURVEY

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## **JOB 2 PART 1: LONG ISLAND SOUND TRAWL SURVEY (LISTS)**

### **CRUISE RESULTS FROM THE 2012 SPRING AND FALL SURVEYS**

#### **STUDY PERIOD AND AREA**

The Connecticut DEEP Marine Fisheries Division conducted a Trawl Survey in Long Island Sound Trawl Survey for the twenty-ninth year in 2012. The Long Island Sound Trawl Survey encompasses an area from New London to Greenwich, Connecticut and includes waters from 5 to 46 meters in depth in both Connecticut and New York state waters. Typically, Long Island Sound is surveyed in the spring, from April through June, and during the fall, from September through October. This report includes results from the 2012 spring and fall sampling periods and provides time series information since the commencement of the survey in 1984.

#### **GOAL**

To collect, manage, synthesize and interpret fishery independent data on the living resources of Long Island Sound for fishery management and information needs of Connecticut biologists, fishery managers, lawmakers and the public.

#### **OBJECTIVES**

- 1) *Provide an annual index of counts and biomass per standard tow for 40 common species.*
- 2) *Provide age specific indices of abundance for scup, summer flounder, tautog and winter flounder.*
- 3) *Provide a recruitment index for bluefish (age 0) and weakfish (age 0).*
- 4) *Provide length frequency distributions of bluefish, scup, striped bass, summer flounder, tautog, weakfish, winter flounder, and other ecologically important species suitable for conversion to age using modal analysis, age-length keys or other techniques.*
- 5) *Provide annual total counts and biomass for all finfish species taken.*
- 6) *Provide annual total biomass for all invertebrate species taken.*
- 7) *Provide a species list for Long Island Sound based on LIS Trawl Survey sampling, noting the presence of additional species from other sampling conducted by the Marine Fisheries Division.*

## **INTRODUCTION**

The Long Island Sound Trawl Survey (LISTS) was initiated in 1984 to provide fishery independent monitoring of important recreational species in Long Island Sound. A stratified-random design based on bottom type and depth interval was chosen and forty sites were sampled monthly from April through November to establish seasonal patterns of abundance and distribution. Seven finfish species were initially of primary interest: bluefish, scup, striped bass, summer flounder, tautog, weakfish, and winter flounder. Length data for these species were collected from every tow; scup, tautog, and winter flounder were sampled for aging. Lobster were also enumerated and measured from every tow. All fish species were identified and counted.

Since 1984, several changes have been incorporated into the Survey. In 1991, the sampling schedule was changed to a spring/fall format, although sampling is still conducted on a monthly basis (April - June, September, and October). Beginning in 1992, species were weighed in aggregate with an onboard scale to provide indices of biomass. Furthermore, more species have been sampled for lengths, such as windowpane and fourspot flounders, and important forage species such as butterfly, long-finned squid, and several herring species. By 2003, the list of species measured expanded to 20 finfish species and two invertebrate species (lobster and long-finned squid). In addition, rarely occurring species (totaling less than 30 fish/year each) are now measured and age structures are collected from weakfish and large summer flounder (>59 cm). All of these changes serve to improve the quality and quantity of information made available to fishery managers for local and regional assessment of stock condition, and to provide a more complete annual inventory of LIS (Long Island Sound) fishery resources.

## **METHODS**

### **Sampling Design**

LISTS is conducted from longitude 72° 03' (New London, Connecticut) to longitude 73° 39' (Greenwich, Connecticut). The sampling area includes Connecticut and New York waters from 5 to 46 m in depth and is conducted over mud, sand and transitional (mud/sand) sediment types. Sampling is divided into spring (April-June) and fall (Sept-Oct) periods, with 40 sites sampled monthly for a total of 200 sites annually. The sampling gear employed is a 14 m otter trawl with a 51 mm codend (Table 2.1). To reduce the bias associated with day-night changes in catchability of some species, sampling is conducted during daylight hours only (Sissenwine and Bowman 1978).

LISTS employs a stratified-random sampling design. The sampling area is divided into 1.85 x 3.7 km (1 x 2 nautical miles) sites (Figure 2.1), with each site assigned to one of 12 strata defined by depth interval (0 - 9.0 m, 9.1 - 18.2 m, 18.3 - 27.3 m or, 27.4+ m) and bottom type (mud, sand, or transitional as defined by Reid et al. 1979). For each monthly sampling cruise, sites are selected randomly from within each stratum. The number of sites sampled in each stratum was determined by dividing the total stratum area by 68 km<sup>2</sup> (20 square nautical miles), with a minimum of two sites sampled per stratum (Table 2.2). Discrete stratum areas smaller than a sample site are not sampled.

## Sampling Procedures

Prior to each tow, temperature (°C) and salinity (ppt) are measured at 1 m below the surface and 0.5 m above the bottom using a YSI model 30 S-C-T meter. Water is collected at depth with a five-liter Niskin bottle, and temperature and salinity are measured within the bottle immediately upon retrieval.

The survey's otter trawl is towed from the 15.2 m aluminum R/V John Dempsey for 30 minutes at approximately 3.5 knots, depending on the tide. At completion of the tow, the catch is placed onto a sorting table and sorted by species. Finfish, lobsters and squid are counted and weighed in aggregate (to the nearest 0.1 kg) by species with a precision marine-grade scale (30 kg, +/- 10 gm capacity). Catches weighing less than 0.1 kg are recorded as 0.1 kg. During the initial two years of the survey (1984 & 1985), lobsters were the only invertebrates recorded. Squid abundance has been recorded since 1986. Since 1992, additional invertebrate species have been weighed in aggregate, and some have been counted. The complete time series of species counted and weighed in the survey is documented in Appendix 2.4.

For selected finfish species, lengths are recorded to the centimeter as either total length or fork length (e.g. measurements from 100 mm to 109 mm are recorded as 10 cm) and entered in the database as 105 mm (Table 2.3). Lobsters are measured to 0.1 mm carapace length. Squid are measured using the mantle length (cm) and horseshoe crab measurements are taken using prosomal width (cm).

The number of individuals measured from each tow varies by species, and also depends on the size of the catch and range of lengths (Table 2.3). If a species is subsampled, the length frequency of the catch is determined by multiplying the proportion of measured individuals in each centimeter interval by the total number of individuals caught. Some species are sorted and subsampled by length group so that all large individuals are measured and a subsample of small (often young-of-year) specimens is measured. All individuals not measured in a length group are counted. The length frequency of each group is estimated as described above, i.e. the proportion of individuals in each centimeter interval of the subsample is expanded to determine the total number of individuals caught in the length group. The estimated length frequencies of each size group are then appended to complete the length frequency for that species. This procedure is often used with catches of bluefish, scup, and weakfish, which are usually dominated by young-of-year or discrete age/length classes.

Bluefish, scup, summer flounder, tautog, weakfish and winter flounder are sampled for age determination (Table 2.3). The target number of age samples for bluefish were 50 from the spring period (defined by ASMFC Bluefish Technical Committee as Jan-July) and 50 from the fall period (August-December). Subsamples of scup, stratified by length group, are measured to the nearest mm (fork length) and scales from each individual are taken for ageing. Scup scales are removed posterior to the pectoral fin and ventral to the lateral line. The scales are pressed onto plastic laminate with an Ann Arbor roller press to obtain an impression of the scale, which is then viewed with a microfiche reader at 21x. Scales are also taken from all summer flounder greater than 59 cm. At least 15 scales are removed from the caudal peduncal area. These scales

are pressed and aged to supplement the National Marine Fisheries Service age key and are also included in the formulation of LISTS summer flounder catch-at-age matrix (see below). Most tautog taken in LISTS are aged due to the low numbers caught in recent years (under 250 fish). Tautog are iced and taken to the lab, where their total length (mm), sex, and total weight (gm) are recorded and their age is determined from opercular bones (Cooper 1967). At the request of the ASMFC Tautog Technical Committee, LISTS began collecting tautog otoliths in addition to opercles in 2012. Results from a recent ASMFC Tautog Ageing Workshop (May 2012) indicated there was no clear benefit to switching from opercles to otoliths for CT, so tautog otoliths will be collected and archived for future use. Subsamples of winter flounder, stratified by length group and area (as listed in bottom of Table 2.3), are iced and taken to the lab where they are measured to the millimeter (total length), weighed (gm) and sexed. Their maturity stage is determined (NMFS 1989), and they are aged with whole and sectioned otoliths (Simpson et al. 1988). Weakfish scales are obtained and processed as described above for scup, and otoliths are sectioned and read using procedures described in Simpson et al. 1988.

In reports prior to 2001, three species were not included in annual and seasonal totals: American sand lance, bay anchovy, and striped anchovy. These species, with the possible exception of striped anchovy, can be very abundant in Long Island Sound, but are not retained well in the otter trawl. Additionally, many of these fish are young-of-year and often drop out of the net as it is retrieved and wound on the net reel. For this reason they were not included in the list of species to be counted when LISTS was started in 1984. However, to document the occurrence of these species in LISTS catches, American sand lance was added in 1994, striped anchovy was added in 1996, and bay anchovy was added in 1998. Since 2001, adults of these three species have been included in the annual and seasonal totals and the young-of-year are listed if present in the year's catch but are not quantified (Table 2.15, Appendix 2.4). Young-of-year for these three species are included in the database but are cataloged with a separate species identifier and quantities are considered estimates (Appendix 2.2).

For the purposes of tracking species richness, the species discussed in the preceding paragraph were omitted. All other finfish species captured in LISTS were divided into groups based on their temperature preferences and seasonal spawning habits as documented in the literature (Collette and Klein-MacPhee 2002, Murdy et al. 1997). Species in the cold temperate group prefer water temperatures below 15<sup>0</sup>C (60<sup>0</sup>F), tend to spawn at the lower end of their temperature tolerance range, and are more abundant north of Long Island Sound than south of New York. Species in the warm temperate group prefer warmer temperatures (11-22<sup>0</sup>C or 50-77<sup>0</sup>F), tend to spawn in the upper range of their temperature tolerance, and are more abundant south of the Sound than north of Cape Cod (Appendix 2.4). Species that are not tolerant of cold temperatures, are abundant only south of Chesapeake Bay but stray into northern waters mostly as juveniles, and spawn only in the mid-Atlantic Bight and south were placed into a separate group (subtropical) and were not included in the analysis because they are typically only present in the fall LISTS.

## **Data Analysis**

### ***Indices of Abundance: Annual Mean Count and Weight per Tow***

To evaluate the relative abundance of common species, an annual spring (April - June) and fall (September - October) geometric mean number per tow and weight per tow (biomass, kg) is calculated for the common finfish and invertebrate species. To calculate the geometric mean, the numbers and weight per tow are logged ( $\log_e$ ) to normalize the highly skewed catch frequencies typical of trawl surveys:

$$\text{Transformed variable} = \ln(\text{variable}+1).$$

Means are computed on the log scale and then retransformed to the geometric mean:

$$\text{geometric mean} = \exp(\text{mean})-1.$$

The geometric mean count per tow was calculated from 1984 - 2012 for 38 finfish species, lobster, and long-finned squid (1986 - 2012). The geometric mean weight per tow was calculated using weight data collected since 1992 for the same species, plus an additional 13 invertebrates.

For the seven finfish species that were measured on every tow (bluefish, scup, striped bass, summer flounder, tautog, weakfish, and winter flounder) biomass indices were calculated for the years 1984 - 1991 by using length/weight equations to convert length frequencies to weight per tow. Bluefish, scup, weakfish and winter flounder lengths were converted using equations from Wilk et al. 1978; striped bass conversions were accomplished using an equation from Young et al. 1994; summer flounder and tautog conversions were accomplished using equations developed from LISTS data from 1984 -1987 and 1984 -1996 respectively.

### ***Indices of Abundance: Indices-at-Age and Age Group***

Annual age specific indices (indices-at-age matrices) were calculated for scup, striped bass, summer flounder, winter flounder and tautog. The age data used to calculate the indices came from three sources: striped bass ages were derived using the von Bertalanffy (1938) equation; summer flounder age-length keys were obtained from the National Marine Fisheries Service (NMFS) Northeast Fisheries Science Center spring and fall trawl surveys combined with LISTS ages (>59 cm); scup, winter flounder and tautog age-length keys (in 1 cm intervals) were obtained directly from LISTS. Since fish growth can fluctuate annually as a function of population size or other environmental factors, a year and season specific age-length key was used wherever possible. Once lengths have been converted to age, the proportion at age is multiplied by the abundance index of the appropriate season to produce an index of abundance at age.

Recruitment (young-of-year) and age 1+ (all fish age one and older) indices were calculated for bluefish and weakfish. Observed modes in the length frequencies were used to separate the two groups.

The specific methods used to calculate indices-at-age for each species were as follows:

- ◆ **Bluefish.** Otoliths were taken from 124 bluefish, 61 from the spring period and 63 from the fall period. Of the 61 samples taken in the spring, only seven (7) were obtained from LISTS; the bulk of the samples came from recreational anglers. All of the fall samples were obtained from LISTS. Since 2012 was the initial year for collecting and ageing bluefish otoliths, there were very limited results available at reporting time. Therefore, the method of using modes observed in the fall length frequencies to separate bluefish into age 0 and age 1+ groups, and calculate a geometric mean catch per tow for each group (Table 2.22) was continued for 2012. Comparison of the mean length-at-ages reported for young-of-year and age 1 bluefish in the New York Bight (Chiarella and Conover 1990) and Long Island Sound (Richards 1976) with LISTS length frequencies suggests that bluefish can easily be identified as either age 0 (snapper bluefish) or adults (age 1+). Richards (1976) and Chiarella and Conover (1990) determined that most bluefish less than 30 cm are age 0. A discontinuity in the LISTS fall length frequencies occurs most years between 26 cm and 39 cm (Table 2.42). Therefore 30 cm was determined to be a suitable length for partitioning age 0 and age one fish.

Although North Carolina state biologists have aged bluefish, their age keys were not used to age Long Island Sound bluefish because North Carolina mean lengths-at-age are not consistent with modes observed in Long Island Sound bluefish length frequencies. This difference suggests that growth may vary by region, or that early and late spawned bluefish may be differentially distributed along the coast (Kendall and Walford 1979).

- ◆ **Scup.** An index-at-age matrix was developed for 1984-2012 using spring (May-June only) and fall (September-October) LISTS data (Table 2.23). April data was omitted since very few scup are taken at this time. A total of 11,448 scup aged between 1984 and 2012 were used to make year and season specific age-length keys (1 cm intervals). In the relatively few instances when the season/year specific key failed at a given 1 cm length interval, a three-year pooled key was used to determine the age. Three-year pooled keys were calculated using the years proceeding and following the “run” year. For the terminal year, only two years were used for the pooled key. The final index-at-age was computed for both spring and fall indices-at-age. Since very few scup older than age 9 are taken (less than 4% in any given year), an age 10+ group is calculated by summing indices for ages 10 and up. To represent the full adult portion of the population an age 2+ index is calculated by summing the indices for ages 2 through 10+.
- ◆ **Striped bass.** To approximate the ages of striped bass taken in the spring survey (Table 2.24), the average of the Chesapeake Bay and Hudson River striped bass von Bertalanffy parameters ( $L_{max} = 49.9$  in,  $K = 0.13$ ,  $t_0 = 0.16$ , Vic Crecco, pers. comm.) were used in the rearranged von Bertalanffy equation:

$$t = (1/K) * (-\log_e ((L_{max} - L_t) / L_{max})) + t_0$$

Since this equation estimates age  $t$  as a fraction of a year, the estimates were rounded to the nearest year (e.g. age 3 = ages 2.5 to 3.4). A spring catch-at-age

matrix was developed for 1984 through 2011 by apportioning the spring index by the percentage of fish at each age (Table 2.25).

- ◆ **Summer flounder.** The year and season specific age-length keys (1 cm intervals) used to age LISTS catches were provided by NMFS from their spring and fall trawl surveys. These keys were supplemented with fish caught and aged by LISTS (60 cm and over). In 2012, 19 summer flounder, 60 cm TL or greater, were aged; 18 from the spring and one (1) from the fall. Since 2001, whenever the season/year specific key failed at a given 1 cm length interval a pooled year key using only adjacent years was used (Gottschall and Pacileo 2002). Since it is thought that growth rates for summer flounder have changed over time, a pooled key using only adjacent years would more accurately represent fish that could not be aged by the season/year specific key. Using this methodology, the catch-at-age matrix (Table 2.26) will remain unchanged for all but the terminal year, which will be updated as the following years' data becomes available.
- ◆ **Tautog.** An index-at-age matrix was developed for 1984-2012 using all survey months (Gottschall and Pacileo 2007) (Table 2.27). During 2012, 131 tautog were captured and opercles were collected from all; 111 collected in the spring and 20 were collected in the fall. Ageing for 2006-2010 has been completed. Ageing for 2011 and 2012 samples has been completed by a first reader, however, final checks on samples that were cataloged with low confidence of age have not been performed. A second independent read is necessary on these samples. Age data for 1984-2010 and preliminary data for 2011 are presented in this report.
- ◆ **Weakfish.** Age 0 and age 1+ indices were calculated for both spring (1984 – 2012) and fall surveys (1984 – 2009, 2012) (Table 2.28). Since few weakfish are taken in April, the spring geometric mean was calculated using only May and June. All weakfish taken in spring are assumed to be age 1+. Similar to bluefish, the fall age 0 and 1+ index was calculated by using length frequencies to separate the catch. Since a break in the fall length frequencies generally occurs between 24 and 32 cm each year (Table 2.57), weakfish less than 30 cm are considered to be age 0 while those greater than or equal to 30 cm are ages 1+.
- ◆ **Winter flounder.** An index-at-age matrix was developed for 1984-2012 using April and May LISTS data (Table 2.29). June data was not used since length frequency data suggest that many adult winter flounder have left the Sound by this time (an exception was made for 1984, the first year of LISTS, because very few samples were taken in the spring months). A total of 21,986 winter flounder aged between 1984 and 2012 were used to make year and region (east of Stratford Shoal, west of Stratford Shoal) specific age-length keys in 1 cm intervals. Similar to scup and summer flounder, three year pooled keys using only the adjacent years (two years for the terminal year runs) were used to assign ages if year specific keys were not available.



## **RESULTS AND DISCUSSION**

### **Overview of LISTS 2012 Spring and Fall Surveys**

Each month of the survey, sampling aboard the R/V John Dempsey generally began in the east end of Long Island Sound and progressed westward. The April survey commenced on April 11, 2012, and continued until April 27 for a total of nine (9) days underway and 40 tows completed. May sampling started on May 8 and continued for an additional eight (8) days for a total of nine (9) days underway and 40 sites completed. June sampling began on June 11 and ended on June 22, taking eight (8) days underway to complete 40 sites. The Fall Survey needed 9 days underway in September and 11 days underway in October to complete the 40 sites in each of the months. October sampling continued into the beginning of November due to the arrival of Hurricane Sandy in the latter part of October which made sampling impossible for a few days. A total of 200 LISTS tows were completed in 46 days underway during the spring and fall 2012 surveys (Table 2.4); not including transit days or weather days.

Maps showing the sites selected versus the sites sampled during each month of sampling are provided in Figure 2.2 (April), Figure 2.3 (May), Figure 2.4 (June), Figure 2.5 (September) and Figure 2.6 (October). Within each figure the red bordered sites are the sites selected for the month and the solid blue dots indicate the actual sites sampled. If a site had to be relocated during sampling, an explanation of why it was moved is provided under the figure. Additional site/station information is provided in Table 2.5 (April), Table 2.6 (May), Table 2.7 (June), Table 2.8 (September) and Table 2.9 (October). These tables provide date of sample, time, tow duration, latitude/longitude, surface and bottom temperature and salinity, average tow speed, distance towed and approximate area swept for each tow.

Sometimes, a full 30-minute tow cannot be completed. Typical reasons for short tows include lack of room because of observed pot gear set in the immediate area, a drop in speed due to entanglement with some object on the bottom (frequently derelict pot gear), or a complete stop in forward motion (submerged wreck or rock pile). Survey crew will often attempt to finish an interrupted tow by clearing the net (if needed) and resetting beyond the obstruction or observed gear. If this is not possible, a site may have to be moved to another site nearby with the same stratum (bottom type and depth). If the site was moved, the data from the initial site will not be used. Typically, a minimum of 15-20 minutes is required for a LISTS tow to be recorded. However, there are occasions when a tow with less than 15 minutes will be accepted, usually because there is no alternate site in the designated strata in the vicinity. Short tow information for each month in the 2012 survey is summarized in Table 2.10.

### **Cooperative Sample and Data Collection**

Throughout the time series, LISTS staff have been participating in cooperative efforts for sample collections, data requests, and special projects using survey personnel, equipment, and other resources. Most of these cooperative efforts are with state researchers or agencies, the National Marine Fisheries Service, Atlantic States Marine Fisheries Commission, New England and Mid-Atlantic Councils, and researchers or graduate students associated with state or local universities. Table 2.11 illustrates many

of the organizations that requested data in 2012, while Table 2.12 shows sample request received and fulfilled. In recent years many requests for samples have come from high schools, aquariums, or other educational organizations needing finfish and invertebrates for teaching purposes. Additionally, our own staff often have sample or data requests for media or other public outreach events (see job six of this report).

### Number of Species Identified

Fifty-seven finfish species were observed in the 2012 Long Island Sound Trawl Survey (Table 2.13). This includes one new species for the survey, pinfish (*Lagodon rhomboids*, shown at right), caught on two tows during the fall survey. From 1984 to 2012, LIS Trawl Survey has identified one hundred three (103) finfish species (Appendix 2.1), averaging 58 species per year with a range of 43 to 70 species (Fig 2.7). In addition, a total of 40 types of invertebrates were collected in 2012 (Table 2.14). Most invertebrates are identified to species. However, in some cases, invertebrates were identified to genus or a higher level taxon.



### Total Catch

Appendix 2.4 presents a time series (1984-2012) of the finfish species collected each year and their respective rank by numbers. Annual total biomass of invertebrates is also included in this appendix (1992-2012), and are ranked by weight (kg).

A total of 159,770 finfish weighing 17,570 kg were sampled in 2012 (Table 2.15). In twenty out of the last twenty-nine years butterfish has been the highest-ranking finfish (numbers) in LISTS. In 2012, over sixty thousand (60,539) butterfish accounted for 37.9% of the catch by number and 10.8% of the biomass. Scup was the second most abundant by number (53,119) and the most abundant by weight, accounting for 35.1% of the biomass in 2012. Typically, scup and butterfish account for 60% of the Trawl Survey annual catch (27.1%-86%, 1984-2012, Appendix 2.4) and have been among the five most abundant species caught (by number) each year of the 29-year LISTS time-series. Scup was more abundant than butterfish in the spring survey, however, butterfish was the more abundant species in the fall (Table 2.16). The top five species (by number) in 2012, in order of decreasing abundance, were butterfish, scup (porgy), silver hake (whiting), weakfish and bluefish. These five species accounted for 82.5% of the total annual catch and 52.2% of the total biomass.

A total of 64,749 finfish weighing 10,405 kg were sampled in spring of 2012 (Table 2.16). Scup topped the spring catch both by number and biomass, with 21,280 fish (4,114.5 kg) accounting for 32.9% of the catch numerically and 39.5% by weight. The scup index of abundance for spring 2012 (50.24 scup per tow) was the third highest in the time-series, making 2012 the seventh time in the past 13 years that the springtime index has been above the time-series mean of 11.66 scup per tow (Table 2.18). Scup from 10 to 30 centimeters fork length were most prominent in the length frequency distribution. Three modes were present at 11, 19, and 26 centimeters. The smaller size group often seen in the spring (10-12 cm) was not abundant in 2011; however, during the spring 2012 cruise it once again dominated the catch. The number of scup greater than 30 cm in springtime catches has been increasing for the past decade (Table 2.44). Silver hake was the third most abundant fish by number (7,461, or 11.5% of the total). Northern searobin and windowpane flounder were the third and fourth most abundant, respectively, for the spring. Winter flounder, historically one the top five most abundant species, was only the six most abundant species this season by number with 2,819 fish accounting for 531.9 kg. Summer flounder (fluke) springtime catches have been increasing since the mid 1990's, except for a dip in 2005-2006 (Table 2.18). The springtime fluke index was 3.06 fish/tow, roughly three times more than the time-series average of 1.4 fish per tow.

A total of 95,024 finfish weighing 7,165 kg were sampled in fall of 2012 (Table 2.16). Catches in the fall survey have consistently been dominated by four species: butterfish, scup, weakfish and bluefish (Table 2.16). In fact, three of the four (butterfish, scup and bluefish) have been the five most abundant fish in each fall survey in the LIST time-series. In 2012, the four named species comprised 92.3% of the total catch of finfish and 56.8% of the total fall biomass. Butterfish comprised 47.9% of the fall catch by number and 17.1% by weight. The fall catch of 45,550 butterfish was only about 24% below average in 2012, a significant increase from fall 2011 when it fell to its lowest level since the survey began in 1984 (geometric mean catch per tow = 39.62, Table 2.19, Figure 2.8). Scup abundance was about 20% above average this past fall with 31,839 fish (2,056 kg) taken or 33.5% of the fall total count and 28.7% of the fall biomass. The corresponding fall indices for all sizes of scup (223.52, Table 2.19) and for young-of-year scup (153.23, Table 2.23) were near their time-series means of 178.56 and 131.45, respectively (Figure 2.11). Weakfish and bluefish comprised 3.9% and 4.0% of the fall catch with 6,597 fish and 3,832 fish respectively. Bluefish abundance was low again this past fall, with an index of 15.06 fish/tow that was below the time-series average (23.23 fish/tow). The weakfish index of abundance (22.27 fish/tow) was about average for the time-series (Table 2.19), driven by the average young-of year index (21.96 fish/tow, Table 2.28). Over the time-series, 97% of the fall weakfish catch is young-of-year weakfish (less than 30 cm TL). The fall age 1+ index for weakfish (0.73 fish/tow), however, was the second highest in the time-series. The past two fall surveys (2011 and 2012) have had the most age 1+ weakfish since the peak catch in 1997 (Figure 2.13). Smooth dogfish again ranked high in biomass (3rd) with 1,071.2 kg from 384 individuals. Overall, the number of finfish caught in fall 2012 was fairly typical, with an average of 1,188 fish/tow (the time-series average is 1,418 fish/tow).

A total of 1,258 kg of invertebrates were taken in 2012 (Table 2.15). Over 75% of the invertebrate biomass was comprised of four species, namely, horseshoe crab (385.8

kg, 30.6% of total), long-finned squid (333.9 kg, 26.5%), spider crab (162.4 kg, 12.9%) and American lobster (70.0 kg, 5.6%). The total biomass of invertebrate catch taken in the spring of 2012 was 703 kg (Table 2.17). Horseshoe crab had the highest biomass 249.2 kg comprising 35.4% of the total spring weight followed by spider crab with 144.1 kg (20.5%) and long-finned squid with 85.8 kg (12.2%). For American lobsters, the 2012 spring index of 0.97 lobsters/tow was only slightly better than the record low of 0.79 lobsters/tow in spring 2011 (Table 2.18). The spring 2012 index of long-finned squid (3.34 per tow) was slightly below for the time series, roughly one-third of the peak abundance recorded in 2006 (11.55 per tow) (Table 2.18, Figure 2.14). A total of 555 kg of invertebrates were taken in fall of 2012 (Table 2.17). Long-finned squid was the most abundant invertebrate in the fall, with 8,326 squid weighing 248.1 kg or 44.7% of the total invertebrate biomass for fall. Horseshoe crab was the second most abundant invertebrate with 136.6 kg, followed by 34.5 kg of lady crab. There were only 54 American lobster (11.5 kg), yielding an index of 0.29 lobsters per tow, another record low for fall abundance (Table 2.19, Figure 2.14).

A new invasive alga species, *Heterosiphonia japonica* (HJ), was documented in more than 35% of the Spring 2012 tows. May survey had the highest monthly catch of HJ (514.9 kg) and highest single haul (172.8 kg). However, June survey had the most frequent occurrence, with HJ present in 23 of 40 tows (57.5%). HJ was a significant nuisance for the trawl survey. This particular alga does not shake out of the net very easily, in fact, it sometimes took more than an hour to beat the alga out of the net meshes using boat brushes (see photo at right).



### Length Frequencies

Length frequency tables are provided primarily to give the reader an understanding of the size range of various species taken in LISTS. Lengths are converted to age frequencies for analysis of principal species such as scup, bluefish, striped bass, summer flounder, tautog, winter flounder, and weakfish. Changes such as an expansion in the size (age) range for some important recreational species are apparent in recent years including more large scup (Table 2.49-2.50), striped bass (Table 2.51-2.52), and summer flounder (Table 2.53-2.54).

Length frequencies were prepared for 21 species:

alewife	spring and fall	1989 - 2012	Table 2.30;
American shad	spring and fall	1989 - 2012	Table 2.31;
American lobster	spring and fall (M&F)	1984 - 2012	Table 2.32-Table 2.35;
Atlantic herring	spring and fall	1989 - 2012	Table 2.36;
Atlantic menhaden	spring and fall	1996 - 2012	Table 2.37;
black sea bass	spring and fall	1987 - 2012	Table 2.38, Table 2.39
blueback herring	spring and fall	1989 - 2012	Table 2.40;
bluefish	spring and fall	1984 - 2012	Table 2.41, Table 2.42;
butterfish	spring and fall	1986 - 1990, 1992 - 2012	Table 2.43;
fourspot flounder	spring and fall	1989 - 1990, 1996 - 2012	Table 2.44;
hickory shad	spring and fall	1991 - 2012	Table 2.45;
horseshoe crab	spring and fall (M&F)	1998 - 2012	Table 2.46, Table 2.47
long-finned squid	spring and fall	1986 - 1990, 1992 - 2012	Table 2.48;
scup	spring and fall	1984 - 2012	Table 2.49, Table 2.50;
striped bass	spring and fall	1984 - 2012	Table 2.51, Table 2.52;
summer flounder	spring and fall	1984 - 2012	Table 2.53, Table 2.54;
tautog	spring	1984 - 2012	Table 2.55;
weakfish	spring and fall	1984 - 2012	Table 2.56, Table 2.57;
windowpane flounder	spring and fall	1989, 1990, 1994 - 2012	Table 2.58, Table 2.59;
winter flounder	April-May and fall	1984 - 2012	Table 2.60, Table 2.61;
winter skate	spring and fall	1995 - 2012	Table 2.62.

For the years where length data are available, length frequencies were prepared for the seasons or months for which the preferred indices of abundance and catch-at-age matrices are calculated; for some species length frequencies are provided for both seasons.

### Seasonal Indices of Abundance

The geometric mean count per tow was calculated from 1984-2012 for 38 finfish species plus lobster and long-finned squid (squid since 1986). All spring (April-June) and fall (September-October) data are used to compute the abundance indices presented in Tables 2.18 (spring) and 2.19 (fall), with the preferred seasonal index (for counts) denoted by an asterisk. Geometric mean biomass-per-tow indices have been calculated for 38 finfish and 15 invertebrate species (or species groups) since 1992, for both spring and fall (Table 2.20 and 2.21, respectively). Age specific indices of abundance were calculated for selected important recreational species, including scup, striped bass, summer flounder, and winter flounder (see below). For two other species, bluefish and weakfish recruitment indices were calculated using modal analysis of the length frequencies. For each of the thirty-eight finfish species, plots including catch per tow in numbers and biomass in kilograms are illustrated in Figures 2.8 through 2.13. These figures also include plots of each of the age specific indices and recruitment indices mentioned above. Figure 2.14 provides plots of abundance (biomass) indices for crabs (lady, rock, spider; 1992-2012), American lobster (1984-2012), horseshoe crab (1992-2012), and long-finned squid (1986-2012).

During the spring survey seven finfish species were at record high levels of abundance (black sea bass, clearnose skate, menhaden, northern kingfish, striped searobin, weakfish and whiting). Of the species where the spring index is the preferred index of abundance for the trawl survey (Table 2.18), an additional three species had indices of abundance (geometric mean count per tow) above the time-series mean; fourspot flounder, northern searobin and winter skate (Figures 2.8 – 2.13). Although the fall trawl index is usually the preferred index of scup abundance, even the springtime scup indices have mostly been above average since 2000 (Table 2.18) due to high abundances of age 2+ scup in recent years (Figure 2.11).

During the fall survey, six finfish species had record high indices of abundance (black sea bass, clearnose skate, hogchoker, northern kingfish, northern searobin and striped searobin). Of the species where the fall index is the preferred index of abundance for the trawl survey (Table 2.19), an additional nine (9) species had indices of abundance (geometric mean count per tow) above the time-series mean; butterfish, hickory shad, scup, smooth dogfish, spot, summer flounder, spotted hake, rough scad and weakfish (Figures 2.8 – 2.13). Conversely, two species had record low indices of abundance (Atlantic herring and blueback herring). Abundance of both of these species in fall LISTS has been below average for the past decade (Table 2.19).

Relative indices of abundance (geometric mean number per tow) of American lobster were at record or near-record low levels for both spring and fall surveys in 2012. This continues the decreasing trend begun in the late 1990's. American lobster abundance in spring 2012 remains low at 0.97 lobsters per tow, the second lowest in the time-series (Table 2.18). Current springtime abundance is only about one-twentieth the peak abundance of 18.52 lobsters per tow seen in 1998 (Figure 2.14). American lobster fall index of abundance was another record low for the time-series (0.29 lobster per tow) and is currently only 1.5% of peak abundance in the 1997 fall trawl survey index (19.60 lobsters per tow, Table 2.19). Catch of long-finned squid has been a bit below average for the past two years. The 2012 spring index of 3.34 squid per tow was close to the seasonal time-series mean (4.84 squid per tow) and the fall index (62.53 squid per tow) was about half the time-series mean (119.09 squid per tow) (Tables 2.18 – 2.19, Figure 2.14). Lady crab and rock crab indices have been low for the past decade, (Tables 2.20-2.21, Figure 2.14).

### **Indices of Abundance: Important Recreational Species**

Spring and fall abundance indices are presented in Tables 2.18-2.19. Indices of abundance at age were also calculated for seven important recreational species: bluefish (Table 2.22), scup (Table 2.23), striped bass (Table 2.24 age frequency, Table 2.25 indices at age), summer flounder (Table 2.26), tautog (Table 2.27), weakfish (Table 2.28) and winter flounder (Table 2.29). Bluefish and striped bass indices-at-age are based on the fall and spring surveys, respectively, whereas winter flounder indices-at-age are based on only the April and May cruises of the spring survey. In 2012, LISTS collected otoliths from 808 winter flounder, 806 of which were used in the development of age keys and the final catch-at-age matrix. Both scup and weakfish indices-at-age are calculated and presented separately for each season. Scales from 612 scup were collected and aged in

2012, 610 of which were used in the keys and calculations of the age matrix. Weakfish and bluefish use modal distributions for calculating their respective recruitment index although a small number of weakfish are taken each year for ageing purposes (see methods).

Although the striped bass abundance in spring 2012 fell below the mean for the third time in the past 18 years, the current index of 0.43 fish per tow remains well above the average for the first eight years of the time series (0.08 fish per tow, 1984-1992). Springtime adult scup abundance remains high relative to 1984-1999 levels; the 2012 spring index of age 2+ fish (65.37 fish/tow) was the fifth highest in the time-series (Table 2.23, Figure 2.11). The index of age 2+ was also relatively high in the fall (15.98 fish/tow) compared to the first half of the time-series average of 2.58 fish/tow. Summer flounder (fluke) abundance, in both spring and fall, has generally been increasing for the past 15 years (Tables 2.13-2.14). The fall index of abundance has historically been viewed as the preferred index of abundance from the trawl survey, however, fluke are now just as abundant in the spring survey. The fluke index for spring 2012 (3.06 fish per tow) is more than double the time-series average (1.4 fish per tow) and the fall index (3.74 fish per tow) is the third highest in the time-series. The spring survey index for tautog has remained low and below the time-series average for 19 of the past 20 years, although there was a small, short-lived increase in abundance in 2002 (Table 2.18, Figure 2.13). Abundance indices from 1993-2012 averaged 0.48 fish/tow, only about half the 1984-1992 average of 1.2 fish/tow. Winter flounder springtime abundance has been low and declining for the past fourteen years, with 2006 being the lowest index for the time-series and the average for 2007-2012 being approximately one-third the time series average (Figure 2.9).

Other species of recreational importance were at relatively high abundances in 2012. In fact, black sea bass indices for both spring and fall were record highs for the LISTS time-series (0.83 fish per tow in the spring and 1.49 fish per tow in the fall, Tables 2.18-2.19). Spot, a popular recreational species further south along the East Coast, was at very high abundance in the fall 2012 survey; the fall index of 1.60 fish/tow was second only to the peak index of 2.67 fish/tow in 2008 (Table 2.19, Figure 2.12). Hickory shad abundance was also relatively high in the fall 2012 survey, with the third highest index of the time-series (0.19 fish/tow) being much higher than the rest of the time-series except for 2005 & 2006 (Table 2.19, Figure 2.12). Finally, adult weakfish was also relatively abundant in the 2012 surveys; the 1+ spring index was the highest of the time-series while the 1+ fall index was the second highest of the time-series (Table 2.8, Figure 2.13).

### **Species Richness by Group**

The number of cold temperate and warm temperate species captured in each tow was averaged by seasonal cruise (April-June and September-October) for each year from 1984-2012 as an indicator of annual biological diversity or species richness. Trends in these indicators were tested for statistical significance by regression analysis. Results (Figure 2.15) show that the average number of warm temperate species captured/tow in spring and fall cruises has increased ( $F=18.3$  and  $52.8$  respectively,  $p<0.001$ ); while the

average number of cold temperate species has decreased, especially in spring ( $F=23.9$ ,  $p<0.0001$ ) but also in fall cruises ( $F=5.5$ ,  $p=0.028$ ).

Interestingly, of the nine (9) species that were at record high abundances in either the spring or fall LISTS cruises, only one (whiting) is classified as cold temperate. The other species are all warm temperate; black sea bass, clearnose skate, hogchoker, menhaden northern kingfish, northern searobin, striped searobin and weakfish. This is an indication that, in addition to an increase in the number of warm temperate species in the Sound, there was also an increase in abundance for some of the warm temperate species.

## **MODIFICATIONS**

Ecosystem health relates to the diversity of species and the abundance of numerous species (not just recreationally important species or forage species), yet the LIS Trawl Survey collects only minimal data for some of these other species (e.g. only count and weight are recorded). Therefore, in 2013, lengths will be collected from some additional species that are commonly collected during the trawl survey; red hake, spotted hake and whiting (silver hake) will be measured from third tow on each day.



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**TABLES 2.1 - 2.29**  
**LISTS**

**Table 2.1. Specifications for the Wilcox 14 m high-rise trawl net and associated gear.**

<b>Component</b>	<b>Description</b>
<b>Headrope</b>	9.1 m long, 13 mm combination wire rope
<b>Footrope</b>	14.0 m long, 13 mm combination wire rope
<b>Sweep</b>	Combination type, 9.5 mm chain in belly, 7.9 mm chain in wing
<b>Floats</b>	7 floats, plastic, 203 mm diameter
<b>Wings</b>	102 mm mesh, #21 twisted nylon
<b>Belly</b>	102 mm mesh, #21 twisted nylon
<b>Tail Piece</b>	76 mm mesh, #21 twisted nylon
<b>Codend</b>	51 mm mesh, #54 braided nylon
<b>Ground Wires</b>	18.2 m long, 6x7 wire, 9.5 mm diameter
<b>Bridle Wires:</b>	top legs 27.4 m long, 6x7 wire, 6.4 mm diameter
<b>Bottom Legs</b>	27.4 m long, 6x7 wire, 11.1 mm, rubber disc type, 40 mm diameter
<b>Doors</b>	Steel "V" type, 1.2 m long x 0.8 m high, 91 kg
<b>Tow Warp</b>	6x7 wire, 9.5 mm diameter

**Table 2.2. The number of sites scheduled for sampling each month within the 12 depth-bottom type strata.**

<b>Bottom type</b>	<b>Depth Interval (m)</b>				<b>Totals</b>
	<b>0 - 9.0</b>	<b>9.1 - 18.2</b>	<b>18.3 - 27.3</b>	<b>27.4+</b>	
<b>Mud</b>	2	3	5	5	15
<b>Sand</b>	2	2	2	2	8
<b>Transitional</b>	3	5	5	4	17
<b>Totals</b>	<b>7</b>	<b>10</b>	<b>12</b>	<b>11</b>	<b>40</b>

**Table 2.3. Length and age data collected in 2012.**

*In addition to the species listed below, other rarely occurring species (totaling less than 30 fish/year each) were measured. During 2012, twenty-nine other species were measured during LISTS sampling as either rarely occurring species or for other research related projects*

<b>Species measured</b>	<b>Measurement</b>	<b># tows/day</b>	<b># fish measured</b>
Alewife	FL (cm)	All	min of 15 / tow
American lobster	CL (0.1 mm)	All	min of 50 / tow
American shad	FL (cm)	All	min of 15 / tow
Atlantic herring	FL (cm)	All	min of 15 YOY and min of 30 adults / tow
Atlantic menhaden	FL (cm)	All	min of 15 / tow
Atlantic sturgeon	FL (cm)	All	All
Blueback herring	FL (cm)	All	min of 15 / tow
Bluefish	FL (cm)	All	min of 30 YOY / tow, all adults
black sea bass	TL (cm)	All	All
butterfish	FL (cm)	1st -3rd	min of 15 YOY and 15 adults / tow
cunner	TL (cm)	All	All
dogfish, smooth	FL (cm)	1st -3rd	All
dogfish, spiny	FL (cm)	All	All
fourspot flounder	TL (cm)	3rd on	min of 30/tow
hickory shad	FL (cm)	All	All
horseshoe crab	PW (cm)	All	All
northern searobin	FL (cm)	3rd on	min of 30/tow
moonfish	FL (cm)	Occasional	min of 10/tow
smallmouth flounder	TL (cm)	Occasional	min of 10/tow
striped bass	FL (cm)	All	All
striped searobin	FL (cm)	3rd on	min of 30/tow
scup	FL (cm)	All	min of 15 YOY and 30 / mode for age 1+
long-finned squid	ML (cm)	1st -3rd	min of 30 / tow
summer flounder	FL (cm)	All	All
tautog	TL (cm)	All	All
weakfish	FL (cm)	All	min of 15 YOY / tow, all adults
windowpane flounder	TL (cm)	1st -3rd	min of 50 / tow
winter flounder	TL (cm)	All	min of 100 / tow
winter skate	TL (cm)	All	All

<b>Species aged</b>	<b>Structure</b>	<b>Subsample</b>
scup	scales	Collected every month. For each month scales are taken from the following: 3 fish/cm <20 cm; 5/cm from 20-29 cm; and all fish > 30 cm.
summer flounder	scales	all fish > = 60 cm
bluefish	scales / otoliths	minimum 50 from each season
tautog	opercular bones otoliths	Collected paired structures (opercles and otos) from a minimum of 200 fish/year; opercles to be aged and otoliths to be archived for future work
weakfish	scales / otoliths	Collected each season. For each season, 1 scale and one otolith sample / cm up to 19 cm and all scales and otoliths >= 20 cm.
winter flounder	otoliths	Collected during April and May from two areas in the Sound: eastern-central and western. For each month and area, subsamples are taken as follows: in the eastern-central area 7 fish / cm < 30 cm, 14 / cm from 30-36 cm, all fish > 36 cm. In the western area 5 fish / cm < 30 cm, 10/cm from 30-36 cm, all fish > than 36 cm.

*Notes: min = minimum; YOY = young-of-year; FL = fork length; TL = total length; CL = carapace length; ML = mantle length; PW = prosomal width.*

**Table 2.4. Number of Long Island Sound Trawl Survey (LISTS) samples taken by year and cruise.**

*In 1984, thirty-five sites per monthly cruise from April through November were scheduled for sampling. Starting in 1985, forty sites per cruise were scheduled. In 1991, the Trawl Survey was modified to a spring (April - June) and fall (September - October) format--July, August and November sampling was suspended. In 1993 and 1994, an additional cruise of 40 sites was added to the fall period. The additional fall cruise was suspended in 1995. One hundred twenty tows were conducted in 2006 due to delays in rebuilding the main engine on the R/V John Dempsey (spring) and mechanical failure/overhaul of the hydraulic power take-off (fall). Delays in overhauling the transmission in the fall of 2008 resulted in missing September sampling. The June cruise and all of fall sampling in 2010 were canceled for an engine replacement in the R/V John Dempsey. Due to delays in engine replacement, begun in 2010 but not completed until late April 2011, April sampling in 2011 was abbreviated.*

Cruise	Year																													
	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
April	-	-	35	40	40	40	40	40	-	40	40	40	40	40	40	40	40	40	40	40	40	40	-	40	40	40	40	12	40	
May	13	41	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	38	40	40	
June	19	5	41	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	39	40	40	40	40	-	40	40		
July	35	40	40	40	40	40	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
August	34	40	40	40	40	40	40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
September	35	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	-	40	-	40	40	
Sept/Oct	-	-	-	-	-	-	-	-	-	40	40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
October	35	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	-	40	40	-	40	40	40	-	40	40	
November	29	40	40	40	40	40	40	-	-	-	-	-	-	-	-	-	-	-	-	40	-	-	-	-	-	-	-	-	-	
<b>Total</b>	<b>200</b>	<b>246</b>	<b>316</b>	<b>320</b>	<b>320</b>	<b>320</b>	<b>297</b>	<b>200</b>	<b>160</b>	<b>240</b>	<b>240</b>	<b>200</b>	<b>200</b>	<b>200</b>	<b>200</b>	<b>200</b>	<b>200</b>	<b>200</b>	<b>200</b>	<b>200</b>	<b>199</b>	<b>200</b>	<b>120</b>	<b>200</b>	<b>160</b>	<b>200</b>	<b>78</b>	<b>172</b>	<b>200</b>	<b>6,188</b>

**Table 2.5. Station information for LISTS April 2012.**

Standard LISTS tows in the spring begin with SP and fall begins with FA. Latitude (N) and Longitude (W) are displayed in decimal degrees. Surface and bottom temperature and salinity are labeled as S\_ and B\_, respectively. Area swept is estimated by assuming the effective sweep is 2/3rds of the footrope length.

Sample Number	Date	Site Number	Bottom Type	Depth Interval	Time Start	Duration (min)	Latitude	Longitude	S_Temp (sfc, C)	S_Salinity (sfc, ppt)	B_Temp (btm, C)	B_Salinity (btm, ppt)	Ave Speed (knots)	Distance (nm)	Area Swept (sqnm)
SP2012001	4/11/2012	1737	T	1	7:45	30	41.2892	-72.1985	9.1	30.5	9.2	30.6	3.0	1.50220	0.00759
SP2012002	4/11/2012	1437	T	4	9:36	30	41.2430	-72.2131	8.8	29.5	8.6	30.2	2.9	1.47111	0.00743
SP2012003	4/13/2012	1336	T	4	8:06	30	41.2132	-72.2840	8.7	29.6	8.7	30.5	1.7	0.83462	0.00421
SP2012004	4/13/2012	0629	S	4	10:49	30	41.1125	-72.5043	8.8	27.6	8.7	28.8	2.3	1.17111	0.00591
SP2012005	4/13/2012	0427	T	3	12:11	30	41.0866	-72.6045	9.2	27.4	8.8	27.7	3.1	1.53791	0.00777
SP2012006	4/13/2012	0828	S	3	13:40	30	41.1368	-72.6130	9.2	27.7	8.8	28.2	2.0	1.00111	0.00506
SP2012007	4/16/2012	0128	T	2	8:53	30	41.0315	-72.5798	10.1	27.4	9.3	28.4	2.7	1.34293	0.00678
SP2012008	4/16/2012	5823	S	1	10:53	30	40.9813	-72.8224	10.8	27.1	10.7	27.1	3.7	1.85985	0.00939
SP2012009	4/16/2012	0522	M	4	12:44	30	41.0913	-72.8890	10.6	27.4	8.7	28.0	3.2	1.62389	0.00820
SP2012010	4/16/2012	1025	T	3	14:20	30	41.1631	-72.7633	12.2	27.4	9.0	28.2	3.1	1.56739	0.00791
SP2012011	4/16/2012	1328	T	2	16:00	30	41.2271	-72.6330	10.0	28.2	9.8	28.5	2.2	1.12033	0.00566
SP2012012	4/17/2012	1534	T	1	7:00	30	41.2593	-72.3613	10.5	28.4	10.2	29.9	2.6	1.31389	0.00663
SP2012013	4/17/2012	0931	S	4	8:54	30	41.1600	-72.4465	10.0	28.7	9.3	29.7	3.1	1.54176	0.00779
SP2012014	4/17/2012	0426	T	3	10:35	30	41.0771	-72.6415	11.2	27.3	9.2	28.4	2.6	1.29111	0.00652
SP2012015	4/17/2012	0027	T	2	11:56	30	41.0185	-72.5898	11.1	27.3	10.4	27.3	2.3	1.17308	0.00592
SP2012016	4/17/2012	0327	T	3	13:21	30	41.0520	-72.6786	12.6	27.5	9.2	28.1	3.5	1.77033	0.00894
SP2012017	4/18/2012	1533	S	1	7:17	30	41.2570	-72.3381	10.3	30.4	10.3	30.4	2.3	1.13901	0.00575
SP2012018	4/18/2012	0729	S	3	9:09	30	41.1256	-72.5258	10.1	28.7	9.6	29.3	3.6	1.80526	0.00912
SP2012019	4/18/2012	0927	T	4	10:33	30	41.1683	-72.6216	9.7	29.0	9.7	29.0	2.8	1.40824	0.00711
SP2012020	4/18/2012	1227	T	3	11:53	30	41.2135	-72.5880	10.5	29.2	9.9	29.2	2.4	1.17692	0.00594
SP2012021	4/18/2012	1225	T	2	13:16	30	41.2070	-72.7186	10.2	28.1	9.6	28.6	2.3	1.16044	0.00586
SP2012022	4/18/2012	0921	M	2	14:43	30	41.1755	-72.8721	9.9	27.6	9.0	27.6	2.7	1.33846	0.00676
SP2012023	4/18/2012	0821	M	3	15:42	30	41.1556	-72.9230	10.6	27.4	8.9	27.5	3.0	1.47802	0.00746
SP2012024	4/19/2012	0817	M	2	7:56	30	41.1377	-73.0503	10.1	27.0	8.7	27.4	3.7	1.84231	0.00930
SP2012025	4/19/2012	0007	M	3	10:25	30	41.0148	-73.4625	10.5	27.1	9.2	27.1	3.2	1.62033	0.00818
SP2012026	4/19/2012	5709	S	2	11:51	30	40.9478	-73.4096	12.6	26.5	10.5	26.8	3.1	1.57364	0.00795
SP2012027	4/19/2012	0211	T	2	13:26	30	41.0408	-73.3611	10.2	27.1	8.9	27.3	3.3	1.65393	0.00835
SP2012028	4/19/2012	0612	M	1	14:32	30	41.1008	-73.3151	12.2	27.1	10.3	27.1	3.3	1.66703	0.00842
SP2012029	4/19/2012	0615	M	2	15:11	20	41.0941	-73.2035	10.5	27.0	9.1	27.2	3.3	1.09781	0.00554
SP2012030	4/20/2012	0012	M	4	10:14	30	41.0197	-73.2248	11.1	27.1	8.9	27.6	3.2	1.59560	0.00806
SP2012031	4/20/2012	5513	S	2	11:38	30	40.9242	-73.2485	11.8	26.6	10.7	26.8	3.3	1.63022	0.00823
SP2012032	4/26/2012	0415	M	3	9:14	30	41.0717	-73.1417	10.3	26.7	9.3	27.5	2.8	1.42198	0.00718
SP2012033	4/26/2012	0213	M	3	10:26	21	41.0495	-73.2126	10.4	27.0	9.4	27.6	3.2	1.13039	0.00571
SP2012034	4/26/2012	0015	T	4	11:47	13	40.9998	-73.1757	10.4	27.0	9.4	28.1	2.3	0.49358	0.00249
SP2012035	4/26/2012	0017	M	4	13:44	30	41.0073	-73.0806	10.6	27.0	9.6	28.4	2.4	1.17692	0.00594
SP2012036	4/26/2012	0119	M	4	14:53	14	41.0215	-73.0195	10.6	27.2	9.6	28.4	2.5	0.59364	0.00300
SP2012037	4/26/2012	0419	M	4	16:18	12	41.0757	-72.9700	10.6	27.3	10.2	28.5	2.4	0.48865	0.00247
SP2012038	4/26/2012	0518	M	3	17:09	30	41.0901	-73.0540	10.5	27.3	9.5	28.0	3.2	1.59505	0.00805
SP2012039	4/27/2012	1319	M	1	7:51	30	41.2061	-72.9950	10.5	26.4	10.0	27.3	3.1	1.56758	0.00792
SP2012040	4/27/2012	1427	T	1	10:13	30	41.2360	-72.6590	11.2	28.1	11.2	28.1	3.2	1.62473	0.00820

**Table 2.6. Station information for LISTS May 2012.**

Standard LISTS tows in the spring begin with SP and fall begins with FA. Latitude (N) and Longitude (W) are displayed in decimal degrees. Surface and bottom temperature and salinity are labeled as S\_ and B\_, respectively. Area swept is estimated by assuming the effective sweep is 2/3rds of the footrope length.

Sample Number	Date	Site Number	Bottom Type	Depth Interval	Time Start	Duration (min)	Latitude	Longitude	S_Temp (sfc, C)	S_Salinity (sfc, ppt)	B_Temp (btm, C)	B_Salinity (btm, ppt)	Ave Speed (knots)	Distance (nm)	Area Swept (sq.nm)
SP2012041	5/8/2012	0730	S	4	8:05	30	41.1283	-72.4706	11.3	28.2	11.3	28.4	3.0	1.49615	0.00756
SP2012042	5/8/2012	0531	T	3	9:38	30	41.0923	-72.4734	11.6	28.1	11.6	28.1	3.5	1.73681	0.00877
SP2012043	5/8/2012	0229	T	2	11:23	30	41.0442	-72.5593	11.6	27.9	11.6	27.9	3.4	1.69121	0.00854
SP2012044	5/8/2012	5824	S	1	13:19	30	40.9808	-72.7998	11.5	27.7	11.5	27.7	3.0	1.49835	0.00757
SP2012045	5/8/2012	0526	T	3	15:01	30	41.0870	-72.6924	12.2	27.5	11.3	28.0	3.2	1.60385	0.00810
SP2012046	5/9/2012	1533	S	1	6:52	30	41.2546	-72.3408	11.8	23.5	11.4	27.7	2.5	1.26044	0.00636
SP2012047	5/9/2012	1336	T	4	8:29	30	41.2245	-72.2388	11.3	28.2	10.9	30.1	2.7	1.34286	0.00678
SP2012048	5/9/2012	0731	S	4	10:26	30	41.1321	-72.4665	11.5	28.2	11.5	28.3	3.4	1.68736	0.00852
SP2012049	5/9/2012	0525	T	4	12:19	30	41.0998	-72.6985	12.3	27.5	11.3	27.9	3.3	1.62857	0.00822
SP2012050	5/9/2012	0824	T	4	13:38	30	41.1277	-72.8038	12.3	27.3	11.1	28.0	2.6	1.28034	0.00647
SP2012051	5/9/2012	1228	T	3	15:24	30	41.2021	-72.6013	11.5	28.2	11.3	28.5	3.2	1.61868	0.00817
SP2012052	5/10/2012	0828	S	3	8:15	30	41.1500	-72.5565	11.6	28.0	11.6	28.0	1.7	0.84056	0.00424
SP2012053	5/10/2012	0727	S	3	9:42	30	41.1240	-72.6169	12.2	27.4	11.5	27.9	2.7	1.36264	0.00688
SP2012054	5/10/2012	0825	T	4	11:14	30	41.1472	-72.7125	12.6	27.5	11.6	28.0	3.3	1.62527	0.00821
SP2012055	5/10/2012	0623	M	4	12:42	30	41.1010	-72.8502	12.7	27.3	10.9	28.1	2.4	1.18111	0.00596
SP2012056	5/10/2012	1126	T	3	14:23	30	41.1900	-72.7017	12.3	27.9	11.8	28.0	2.3	1.16556	0.00589
SP2012057	5/11/2012	1428	T	1	8:16	30	41.2453	-72.5715	11.9	27.8	11.8	27.8	2.2	1.12363	0.00567
SP2012058	5/11/2012	1427	T	1	9:49	30	41.2151	-72.5968	12.3	27.7	12.3	27.7	3.4	1.72222	0.00870
SP2012059	5/14/2012	0427	T	3	8:42	30	41.0868	-72.6048	13.3	27.6	12.2	28.0	2.3	1.13571	0.00574
SP2012060	5/14/2012	0424	M	4	10:39	30	41.0775	-72.7595	13.3	27.5	12.0	27.8	2.3	1.15275	0.00582
SP2012061	5/14/2012	0121	M	4	13:01	30	41.0253	-72.8765	13.7	27.1	10.9	28.0	2.4	1.21429	0.00613
SP2012062	5/15/2012	1118	M	1	7:44	30	41.1805	-73.0548	13.1	27.3	12.7	27.3	3.1	1.54890	0.00782
SP2012063	5/15/2012	0722	M	3	9:20	30	41.1220	-72.8883	14.4	27.1	11.8	27.9	3.2	1.61889	0.00817
SP2012064	5/15/2012	0422	M	4	10:44	30	41.0792	-72.8447	14.1	27.2	11.9	27.9	2.5	1.24835	0.00630
SP2012065	5/15/2012	0518	M	3	14:01	30	41.1002	-72.9996	13.1	27.1	11.3	27.8	3.2	1.59560	0.00806
SP2012066	5/15/2012	0921	M	2	15:24	30	41.1627	-72.9321	14.3	26.8	11.3	27.7	2.8	1.38791	0.00701
SP2012067	5/16/2012	1119	M	2	7:51	30	41.1881	-73.0083	14.3	27.1	11.9	27.5	3.0	1.50989	0.00762
SP2012068	5/16/2012	0617	T	2	9:22	30	41.1135	-73.0410	13.3	27.0	11.4	27.8	3.2	1.58409	0.00800
SP2012069	5/16/2012	0213	M	3	10:55	16	41.0501	-73.2108	13.8	26.9	11.2	27.5	2.7	0.72587	0.00367
SP2012070	5/16/2012	5812	M	3	12:23	30	40.9835	-73.2540	14.5	26.7	11.3	27.6	2.8	1.42473	0.00719
SP2012071	5/16/2012	5709	S	2	13:58	30	40.9492	-73.4095	15.1	26.2	12.6	27.0	3.2	1.60110	0.00809
SP2012072	5/16/2012	0011	M	4	15:33	30	41.0083	-73.3409	14.0	26.6	11.3	27.8	3.1	1.53278	0.00774
SP2012073	5/17/2012	5513	S	2	9:14	30	40.9276	-73.2495	13.5	26.9	13.4	26.9	3.1	1.53626	0.00776
SP2012074	5/17/2012	0211	T	2	10:58	30	41.0392	-73.3611	14.1	26.7	11.5	27.6	3.0	1.51374	0.00764
SP2012075	5/17/2012	5912	M	3	12:17	30	40.9857	-73.2993	14.2	27.0	11.6	27.4	3.3	1.66209	0.00839
SP2012076	5/17/2012	0611	M	1	13:47	30	41.0996	-73.3210	14.7	26.0	12.4	27.2	3.4	1.71154	0.00864
SP2012077	5/17/2012	0917	T	2	15:32	30	41.1515	-73.0860	14.8	25.2	13.3	27.1	3.1	1.52556	0.00770
SP2012078	5/18/2012	1020	T	2	9:10	30	41.1693	-72.9706	14.4	27.3	11.9	27.8	2.7	1.36833	0.00691
SP2012079	5/18/2012	1021	M	2	10:16	30	41.1617	-72.9341	14.8	27.6	11.9	27.8	3.2	1.58077	0.00798
SP2012080	5/18/2012	1423	T	1	11:34	30	41.2292	-72.8564	14.6	27.7	13.9	27.7	3.6	1.81099	0.00914



**Table 2.7. Station information for LISTS June 2012.**

Standard LISTS tows in the spring begin with SP and fall begins with FA. Latitude (N) and Longitude (W) are displayed in decimal degrees. Surface and bottom temperature and salinity are labeled as S\_ and B\_, respectively. Area swept is estimated by assuming the effective sweep is 2/3rds of the footrope length.

Sample Number	Date	Site Number	Bottom Type	Depth Interval	Time Start	Duration (min)	Latitude	Longitude	S_Temp (sfc, C)	S_Salinity (sfc, ppt)	B_Temp (btm, C)	B_Salinity (btm, ppt)	Ave Speed (knots)	Distance (nm)	Area Swept (sq.nm)
SP2012081	6/11/2012	1436	T	4	9:19	30	41.2343	-72.2856	16.0	28.2	15.6	29.8	3.7	1.84333	0.00931
SP2012082	6/11/2012	1837	T	1	10:17	30	41.2942	-72.1998	17.1	29.8	16.6	29.9	3.0	1.52253	0.00769
SP2012083	6/11/2012	1740	T	2	12:36	30	41.2918	-72.0745	16.2	30.2	15.6	30.7	2.2	1.10659	0.00559
SP2012084	6/11/2012	1534	T	1	14:50	30	41.2588	-72.3585	17.1	26.3	16.8	28.7	2.2	1.09000	0.00550
SP2012085	6/12/2012	1332	S	1	7:17	30	41.2310	-72.3958	16.3	26.7	16.1	28.7	2.3	1.12637	0.00569
SP2012086	6/12/2012	0831	S	4	8:56	30	41.1423	-72.4474	17.1	28.0	15.8	28.9	1.8	0.87692	0.00443
SP2012087	6/12/2012	0430	T	3	10:24	30	41.0897	-72.4900	17.6	27.6	16.3	28.3	2.1	1.06099	0.00536
SP2012088	6/12/2012	0128	T	2	12:07	30	41.0302	-72.5801	17.4	27.4	16.6	27.9	3.0	1.51000	0.00763
SP2012089	6/12/2012	0330	S	1	13:30	30	41.0475	-72.5226	17.8	27.5	17.4	27.6	2.8	1.42033	0.00717
SP2012090	6/13/2012	1432	S	2	7:20	30	41.2338	-72.4022	16.3	28.2	16.1	28.9	2.8	1.37753	0.00696
SP2012091	6/13/2012	0730	S	4	8:52	30	41.1320	-72.4653	17.3	27.8	15.9	29.0	2.4	1.20889	0.00610
SP2012092	6/13/2012	0429	T	3	10:14	30	41.0823	-72.5378	18.2	27.3	16.3	28.3	2.3	1.14667	0.00579
SP2012093	6/13/2012	0527	T	3	11:31	30	41.1030	-72.6093	18.5	26.8	16.4	28.1	2.5	1.27333	0.00643
SP2012094	6/13/2012	0624	T	4	13:14	30	41.1105	-72.7973	18.5	27.1	15.1	27.7	2.9	1.44111	0.00728
SP2012095	6/13/2012	1028	T	4	14:49	30	41.1630	-72.6343	18.3	27.0	16.1	27.9	2.1	1.07308	0.00542
SP2012096	6/14/2012	0929	S	3	7:53	30	41.1638	-72.5313	16.8	26.7	16.4	28.5	2.9	1.47198	0.00743
SP2012097	6/14/2012	0627	S	3	9:15	30	41.1082	-72.6173	17.7	27.3	16.4	28.2	2.9	1.45934	0.00737
SP2012098	6/14/2012	1027	T	4	10:45	30	41.1820	-72.6423	17.5	27.6	16.3	27.9	2.5	1.25333	0.00633
SP2012099	6/14/2012	1025	T	3	12:22	20	41.1655	-72.7620	18.1	27.1	15.6	27.7	3.0	1.00383	0.00507
SP2012100	6/14/2012	1327	T	2	13:58	30	41.2258	-72.6638	18.3	27.2	17.0	27.7	3.0	1.48132	0.00748
SP2012101	6/14/2012	1529	T	1	15:19	30	41.2395	-72.6136	17.8	27.0	17.3	27.2	2.7	1.35165	0.00683
SP2012102	6/19/2012	1328	T	2	7:53	30	41.2398	-72.5778	18.1	27.2	17.5	27.8	3.8	1.88407	0.00951
SP2012103	6/19/2012	0022	M	4	10:17	30	41.0121	-72.8343	18.1	27.0	14.4	27.6	3.3	1.66264	0.00840
SP2012104	6/19/2012	0121	M	4	11:30	30	41.0248	-72.8768	18.7	27.1	13.9	27.6	3.0	1.48833	0.00752
SP2012105	6/19/2012	0118	M	4	12:53	22	41.0333	-72.9918	19.2	27.2	14.2	27.7	2.3	0.85067	0.00430
SP2012106	6/19/2012	0618	M	3	14:47	30	41.0988	-73.0498	19.7	27.1	15.6	27.7	3.6	1.79780	0.00908
SP2012107	6/20/2012	0511	M	2	8:43	30	41.1002	-73.2645	20.4	26.3	17.9	27.1	3.3	1.64222	0.00829
SP2012108	6/20/2012	5709	S	2	10:53	30	40.9488	-73.4075	20.6	26.3	19.0	26.4	3.2	1.61222	0.00814
SP2012109	6/20/2012	5812	M	3	12:42	30	40.9863	-73.2991	20.2	26.7	16.7	26.9	2.9	1.45461	0.00735
SP2012110	6/20/2012	0210	T	2	14:17	30	41.0400	-73.3655	21.3	26.5	17.1	27.1	3.4	1.70556	0.00861
SP2012111	6/20/2012	0412	M	2	15:24	28	41.0650	-73.3005	22.1	26.4	16.6	27.0	3.2	1.51475	0.00765
SP2012112	6/21/2012	0415	M	3	8:32	27	41.0723	-73.1401	21.0	26.6	16.1	27.4	3.3	1.47667	0.00746
SP2012113	6/21/2012	0218	M	4	10:07	12	41.0396	-73.0633	20.8	26.9	14.8	27.7	2.5	0.50514	0.00255
SP2012114	6/21/2012	0321	M	4	11:49	30	41.0538	-72.9300	21.5	27.2	15.0	27.7	2.9	1.43846	0.00726
SP2012115	6/21/2012	0519	M	3	13:25	22	41.0873	-73.0178	22.6	27.0	15.7	27.7	3.1	1.13556	0.00573
SP2012116	6/21/2012	0621	M	3	14:49	30	41.0998	-72.9077	22.2	27.1	15.2	27.6	3.0	1.48681	0.00751
SP2012117	6/22/2012	1118	M	1	8:07	30	41.1813	-73.0532	21.7	27.1	19.5	27.2	3.1	1.53056	0.00773
SP2012118	6/22/2012	1219	M	2	9:31	28	41.1978	-73.0106	20.8	27.2	19.4	27.3	2.9	1.33252	0.00673
SP2012119	6/22/2012	1320	M	1	10:54	30	41.2353	-72.9591	22.2	26.6	20.0	27.2	3.5	1.72895	0.00873
SP2012120	6/22/2012	1125	T	3	13:15	30	41.1938	-72.7343	20.8	27.5	16.8	27.7	3.2	1.57722	0.00796

**Table 2.8. Station information for LISTS September 2012.**

Standard LISTS tows in the spring begin with SP and fall begins with FA. Latitude (N) and Longitude (W) are displayed in decimal degrees. Surface and bottom temperature and salinity are labeled as S\_ and B\_, respectively. Area swept is estimated by assuming the effective sweep is 2/3rds of the footrope length.

Sample Number	Date	Site Number	Bottom Type	Depth Interval	Time Start	Duration (min)	Latitude	Longitude	S_Temp (sfc, C)	S_Salinity (sfc, ppt)	B_Temp (btm, C)	B_Salinity (btm, ppt)	Ave Speed (knots)	Distance (nm)	Area Swept (sqnm)
FA2012001	9/6/2012	1534	T	1	7:39	30	41.2630	-72.3288	22.2	29.6	22.1	29.7	2.3	1.16447	0.00588
FA2012002	9/6/2012	1432	S	2	8:58	30	41.2317	-72.4031	22.6	29.5	22.3	30.0	2.9	1.46000	0.00737
FA2012003	9/6/2012	0927	T	4	10:46	30	41.1671	-72.6185	23.7	28.9	23.1	29.5	3.2	1.61703	0.00817
FA2012004	9/6/2012	5824	S	1	12:46	30	40.9793	-72.7368	23.8	28.4	23.7	28.4	3.3	1.67088	0.00844
FA2012005	9/6/2012	0128	T	2	14:35	30	41.0200	-72.6358	24.0	28.5	23.7	28.6	2.7	1.33846	0.00676
FA2012006	9/6/2012	0729	S	3	16:10	30	41.1161	-72.5698	23.5	29.3	22.9	29.8	2.8	1.41319	0.00714
FA2012007	9/7/2012	1433	S	2	7:04	30	41.2466	-72.3510	22.2	29.3	22.1	29.8	1.9	0.94121	0.00475
FA2012008	9/7/2012	0827	T	3	9:24	30	41.1407	-72.6219	23.8	28.9	23.3	29.5	2.8	1.39333	0.00704
FA2012009	9/7/2012	0124	M	4	11:45	30	41.0176	-72.8066	24.0	28.6	23.1	29.2	2.7	1.33077	0.00672
FA2012010	9/7/2012	0628	S	3	13:31	30	41.1040	-72.6188	24.7	28.8	23.3	29.6	2.3	1.16813	0.00590
FA2012011	9/7/2012	0629	S	4	14:33	30	41.1027	-72.5540	24.2	29.0	22.6	30.1	2.0	0.98791	0.00499
FA2012012	9/10/2012	1333	S	1	7:07	30	41.2343	-72.3593	21.3	29.8	21.2	30.6	2.4	1.19560	0.00604
FA2012013	9/10/2012	1427	T	1	9:07	30	41.2483	-72.6010	22.4	29.7	22.4	29.8	2.7	1.33901	0.00676
FA2012014	9/10/2012	1224	T	2	10:33	30	41.2123	-72.7468	23.4	29.1	23.2	29.4	2.6	1.31461	0.00664
FA2012015	9/10/2012	0923	T	3	12:31	30	41.1466	-72.8340	23.5	28.8	23.2	29.4	2.9	1.46209	0.00738
FA2012016	9/11/2012	1335	T	4	7:20	30	41.2256	-72.3050	21.5	29.8	20.5	31.3	2.4	1.22143	0.00617
FA2012017	9/11/2012	0931	S	4	9:30	30	41.1596	-72.4476	22.2	29.6	21.5	30.4	2.0	1.00275	0.00506
FA2012018	9/11/2012	0527	T	3	11:14	30	41.1021	-72.6107	23.2	29.0	22.6	30.0	2.3	1.14670	0.00579
FA2012019	9/11/2012	0325	T	3	12:51	30	41.0628	-72.7156	23.3	29.0	23.0	29.4	2.7	1.37473	0.00694
FA2012020	9/12/2012	0715	T	1	8:08	30	41.1278	-73.1268	23.0	28.4	22.9	28.4	3.1	1.54945	0.00782
FA2012021	9/12/2012	0210	T	2	9:49	30	41.0495	-73.3153	23.0	28.5	23.0	28.6	2.4	1.22143	0.00617
FA2012022	9/12/2012	5804	M	2	12:00	17	40.9813	-73.5742	23.4	28.1	23.3	28.5	2.6	0.73340	0.00370
FA2012023	9/12/2012	0413	M	3	14:17	30	41.0623	-73.2645	23.7	28.5	23.2	28.6	3.2	1.59670	0.00806
FA2012024	9/13/2012	0920	T	2	8:12	30	41.1613	-72.9355	22.8	28.7	22.8	28.7	3.3	1.64505	0.00831
FA2012025	9/13/2012	0721	M	3	9:40	30	41.1255	-72.9269	23.1	28.9	23.0	28.9	3.1	1.53516	0.00775
FA2012026	9/13/2012	0223	M	4	11:12	16	41.0418	-72.8431	23.1	28.9	22.7	29.5	2.5	0.65362	0.00330
FA2012027	9/13/2012	0224	M	4	12:25	30	41.0493	-72.7558	23.3	29.0	22.8	29.5	2.5	1.25824	0.00635
FA2012028	9/13/2012	0823	M	3	14:04	30	41.1537	-72.7975	23.9	28.9	22.9	29.7	2.3	1.15220	0.00582
FA2012029	9/17/2012	0517	T	3	8:24	30	41.0981	-73.0588	22.6	28.6	22.1	28.9	2.5	1.26813	0.00640
FA2012030	9/17/2012	0415	M	3	9:47	30	41.0727	-73.1400	22.5	28.5	22.8	28.7	3.7	1.82833	0.00923
FA2012031	9/17/2012	0217	M	4	11:25	21	41.0356	-73.0723	22.9	28.8	22.7	29.3	2.3	0.80336	0.00406
FA2012032	9/17/2012	0120	M	4	12:52	30	41.0211	-72.9606	23.0	28.9	22.5	29.5	3.0	1.48462	0.00750
FA2012033	9/17/2012	0621	M	3	14:38	30	41.0981	-72.9041	23.4	28.9	22.6	29.6	2.8	1.38043	0.00697
FA2012034	9/17/2012	1022	M	2	15:55	30	41.1826	-72.8340	23.4	28.8	22.6	29.3	2.4	1.21758	0.00615
FA2012035	9/17/2012	0524	T	4	17:25	30	41.0993	-72.7586	22.9	28.9	22.4	29.5	2.6	1.30549	0.00659
FA2012036	9/20/2012	1319	M	1	7:51	30	41.2105	-72.9963	21.6	28.4	21.6	28.3	3.2	1.57527	0.00795
FA2012037	9/20/2012	1320	M	1	9:14	30	41.2363	-72.9563	21.5	28.4	21.4	28.4	3.2	1.62033	0.00818
FA2012038	9/21/2012	1223	M	2	8:40	30	41.2015	-72.8413	21.7	28.7	21.7	28.7	3.1	1.57120	0.00793
FA2012039	9/21/2012	1124	T	2	10:12	30	41.1888	-72.8068	21.9	28.9	21.8	28.9	2.7	1.35549	0.00684
FA2012040	9/21/2012	0824	T	4	11:49	30	41.1287	-72.8040	21.9	29.3	21.8	29.3	2.2	1.10110	0.00556

**Table 2.9. Station information for LISTS October 2012.**

Standard LISTS tows in the spring begin with SP and fall begins with FA. Latitude (N) and Longitude (W) are displayed in decimal degrees. Surface and bottom temperature and salinity are labeled as S\_ and B\_, respectively. Area swept is estimated by assuming the effective sweep is 2/3rds of the footrope length

Sample Number	Date	Site Number	Bottom Type	Depth Interval	Time Start	Duration (min)	Latitude	Longitude	S_Temp (sfc, C)	S_Salinity (sfc, ppt)	B_Temp (btm, C)	B_Salinity (btm, ppt)	Ave Speed (knots)	Distance (nm)	Area Swept (sqnm)
FA2012041	10/17/2012	1433	S	2	6:59	27	41.2458	-72.3583	16.5	25.8	17.1	29.7	3.5	1.57880	0.00797
FA2012042	10/17/2012	1837	T	1	10:16	30	41.2895	-72.1988	17.2	31.1	17.2	31.1	3.2	1.57833	0.00797
FA2012043	10/17/2012	1235	T	4	11:54	16	41.2122	-72.2761	17.3	31.1	17.2	31.2	3.7	0.97633	0.00493
FA2012044	10/17/2012	1335	T	4	13:04	30	41.2262	-72.3021	17.1	29.8	17.5	30.5	3.0	1.52418	0.00770
FA2012045	10/17/2012	0830	S	4	15:39	30	41.1487	-72.4830	17.9	30.1	17.7	30.1	1.3	0.65549	0.00331
FA2012046	10/18/2012	1333	S	1	7:10	30	41.2357	-72.3628	17.2	29.8	17.1	29.8	3.0	1.52418	0.00770
FA2012047	10/18/2012	0430	T	3	9:01	30	41.0870	-72.4911	17.6	29.3	17.6	29.5	3.6	1.81484	0.00916
FA2012048	10/18/2012	0426	T	3	10:35	30	41.0763	-72.6429	18.0	29.3	17.9	29.4	3.7	1.85761	0.00938
FA2012049	10/18/2012	0725	T	4	12:24	30	41.1158	-72.7513	18.0	29.3	17.9	29.4	2.3	1.17308	0.00592
FA2012050	10/18/2012	1028	T	4	13:47	30	41.1630	-72.6368	17.9	29.7	17.7	29.6	2.8	1.41868	0.00716
FA2012051	10/22/2012	1427	T	1	8:59	30	41.2483	-72.6043	16.4	28.9	16.4	29.0	2.4	1.21648	0.00614
FA2012052	10/22/2012	1221	T	2	11:44	30	41.2095	-72.9188	16.6	28.2	16.6	28.2	3.0	1.50824	0.00762
FA2012053	10/22/2012	0827	T	3	13:51	30	41.1313	-72.6685	17.6	29.3	17.7	29.3	2.4	1.19185	0.00602
FA2012054	10/22/2012	0931	S	4	16:03	30	41.1508	-72.4883	17.4	30.0	17.4	29.9	1.8	0.89890	0.00454
FA2012055	10/23/2012	0729	S	3	8:27	30	41.1247	-72.5250	17.4	29.8	17.4	29.8	1.6	0.80659	0.00407
FA2012056	10/23/2012	0527	T	3	9:44	30	41.1010	-72.6157	17.6	29.2	17.6	29.3	2.3	1.13500	0.00573
FA2012057	10/23/2012	0027	T	2	11:24	30	41.0080	-72.6435	17.7	29.0	17.6	28.9	3.3	1.63132	0.00824
FA2012058	10/23/2012	0227	T	3	12:47	30	41.0373	-72.6506	17.9	29.0	17.7	29.0	3.2	1.58132	0.00799
FA2012059	10/24/2012	0727	S	3	8:46	30	41.1256	-72.6212	17.5	29.4	17.4	29.5	2.4	1.21167	0.00612
FA2012060	10/24/2012	5825	S	1	10:38	30	40.9851	-72.7268	17.5	28.9	17.5	28.9	3.0	1.49286	0.00754
FA2012061	10/24/2012	0023	M	4	12:04	30	41.0310	-72.7878	17.5	28.8	17.2	29.2	2.5	1.22889	0.00621
FA2012062	10/24/2012	0223	M	4	13:27	30	41.0421	-72.8403	17.3	29.1	17.2	29.2	2.7	1.36209	0.00688
FA2012063	10/24/2012	0423	M	4	14:53	30	41.0746	-72.8276	17.2	29.0	17.2	29.2	2.5	1.22527	0.00619
FA2012064	10/24/2012	0522	M	4	16:05	30	41.1000	-72.8390	17.2	29.1	17.2	29.1	3.4	1.72088	0.00869
FA2012065	10/25/2012	0612	M	1	9:38	30	41.1065	-73.2481	16.8	28.1	16.8	28.2	3.2	1.57747	0.00797
FA2012066	10/25/2012	5709	S	2	11:45	30	40.9502	-73.4077	16.8	28.1	17.3	28.4	3.0	1.47527	0.00745
FA2012067	10/25/2012	5912	M	3	14:39	25	40.9868	-73.2973	17.5	28.6	17.5	28.7	3.0	1.24890	0.00631
FA2012068	10/26/2012	0515	M	2	8:41	30	41.0883	-73.1608	17.1	27.9	17.4	28.7	3.5	1.76456	0.00891
FA2012069	10/26/2012	0420	M	4	10:55	30	41.0693	-72.9205	17.4	29.0	17.4	29.1	3.3	1.66957	0.00843
FA2012070	11/1/2012	0823	M	3	8:25	30	41.1497	-72.7961	16.4	29.1	16.3	29.1	3.1	1.55275	0.00784
FA2012071	11/1/2012	0820	M	3	9:53	30	41.1435	-72.9233	16.0	28.9	16.0	29.0	2.8	1.42253	0.00718
FA2012072	11/1/2012	0819	T	2	11:03	30	41.1475	-72.9695	16.0	28.7	16.0	28.8	2.7	1.37418	0.00694
FA2012073	11/1/2012	0715	T	1	12:43	30	41.1275	-73.1287	15.3	27.6	15.3	28.2	2.1	1.05000	0.00530
FA2012074	11/1/2012	0413	M	3	14:19	30	41.0637	-73.2620	16.1	28.6	16.1	28.5	3.5	1.75549	0.00886
FA2012075	11/2/2012	5612	T	2	9:40	30	40.9458	-73.2576	15.7	28.5	15.7	28.6	2.9	1.44945	0.00732
FA2012076	11/2/2012	0511	M	2	11:51	28	41.0925	-73.3090	15.4	28.3	15.5	28.2	2.7	1.24201	0.00627
FA2012077	11/2/2012	0611	M	1	13:07	30	41.1021	-73.3185	15.1	28.2	15.0	28.1	3.2	1.58000	0.00798
FA2012078	11/5/2012	0514	M	2	8:34	19	41.0958	-73.1556	14.3	28.0	15.1	28.7	2.7	0.86235	0.00435
FA2012079	11/5/2012	0719	M	3	10:47	30	41.1165	-73.0168	15.2	28.7	15.3	28.8	2.3	1.17088	0.00591
FA2012080	11/5/2012	0920	T	2	12:09	30	41.1518	-72.9845	15.0	28.6	14.9	28.6	2.5	1.23956	0.00626

**Table 2.10. Samples with non-standard tow durations and reasons for incomplete tows, spring and fall 2012.***Standard LISTS tows begin with SP(spring) or FA (fall).*

Sample	Date	Site	Bottom Type	Depth Interval	Time	Duration	Reason	Comments
<b>APRIL</b>								
SP2012029	4/19/2012	0615	M	2	15:11	20	pots	pot gear with expired tags; string on door & 8 pots in net; damage to net (two large holes in belly & one in wing)
SP2012033	4/26/2012	0213	M	3	10:26	21	pots	pot gear with expired tags; string on door & 1 pot in net
SP2012034	4/26/2012	0015	T	4	11:47	13	pots	2 attempts; pot gear both times; multiple strings of gear
SP2012036	4/26/2012	0119	M	4	14:53	14		2 attempts; pot gear both times; pot gear with expired tags
SP2012037	4/26/2012	0419	M	4	16:18	12	hang	tree branches in net
<b>MAY</b>								
SP2012069	5/16/2012	0213	M	3	10:55	16	pots	2 attempts; pot gear both times; pot gear with expired tags
<b>JUNE</b>								
SP2012099	6/14/2012	1025	T	3	12:22	20	pots	2 attempts; pot gear both times; string on each door; lot of weight/tension;
SP2012105	6/19/2012	0118	M	4	12:53	22	pots	2 attempts; lots of weight/tension; some active gear; some pots with expired tags
SP2012111	6/20/2012	0412	M	2	15:24	28	pots	couple pots with expired tags
SP2012112	6/21/2012	0415	M	3	8:32	27	pots	string of pots with expired tags; buoy had been submerged; lots of weight/tension
SP2012113	6/21/2012	0218	M	4	10:07	12	pots	2 attempts; pot gear both times; pots with expired tags; lots of tension
SP2012115	6/21/2012	0519	M	3	13:25	22	pots	pot gear with expired tags
SP2012118	6/22/2012	1219	M	2	9:31	28	speed drop	speed dropped just before boost but no gear or debris in net
<b>SEPT</b>								
FA2012022	9/12/2012	5804	M	2	12:00	17	speed drop	speed dropped but no gear or debris; approached by commercial fisher who thought we were getting too close to his pot gear so did not reset trawl net
FA2012026	9/13/2012	0223	M	4	11:12	16	pots	multiple strings of pot gear with expired tags
FA2012031	9/17/2012	0217	M	4	11:25	21	speed drop	2 attempts; speed dropped but no gear or debris on net either time
<b>OCT</b>								
FA2012041	10/17/2012	1433	S	2	6:59	27	hang	hung up abruptly but net came free during haul back
FA2012043	10/17/2012	1235	T	4	11:54	16	hang	hung up abruptly; net needed mending in port wing and along ground line
FA2012067	10/25/2012	5912	M	3	14:39	25	pots	dilapidated pot gear; pot buoy with mussels on it (buoy was submerged)
FA2012076	11/2/2012	0511	M	2	11:51	28	pots	old pot gear with no trap tags
FA2012078	11/5/2012	0514	M	2	8:34	19	pots	multiple strings of pot gear; significant damage to net; had to put on different net for next tow

**Table 2.11. Data requests by month, 2012.**

<b>MONTH</b>	<b>REQUEST</b>	<b>ORGANIZATION OR PURPOSE</b>
January	LISTS eel count and weight, 1984-2011	Acadia University
	LISTS scup indices & length frequency, 1984-2011	CT DEEP & ASMFC
	LISTS spring & fall count & biomass indices, 1984-2011	Dominion
	LISTS summer flounder indices & length frequency, 1984-2011	CT DEEP
	LISTS river herring indices & length frequency, 1984-2011	CT DEEP
February	LISTS & LISS BADD indices, 1991-2010	EPA
	LISTS catch & species ranks, 2011	EPA
	LISTS & ESS time-series indices	CT CEQ
	LISTS tautog indices & recreational catch & harvest, 1984-2011	CT DEEP
March	LISTS butterfish indices (1984-2011)	MAFMC
April	LISTS winter flounder age matrix, 1984-2011	Dominion
	ESS winter flounder indices, 1988-2011	Dominion
	LISTS catch data for spot, 1984-2011	USC Branch Marine Lab
	LISTS indices for spot, 1984-2011	CT DEEP & Rutgers Marine Institute
	LISTS count & biomass indices, 1984-2011	Normandeau Assoc.
	LISTS scup & fluke indices, lengths & age keys, 1984-2011	NMFS
June	LISTS whelk count, weight and indices, 2012	CT DEEP staff
	LISTS butterfish indices (1984-2011)	NMFS
July	LISTS bottom temps., 1984-2011	Uconn
August	data for indicator species (HOR, LOB, ESS, forage, diversity)	EPA
	LISTS counts, weights, lengths for Atlantic sturgeon, 1984-2011	NYDEC
	tow information for LISTS samples with spot	Maritime Aquarium at Norwalk
September	LISTS weakfish indices, 1984-2011	ASMFC
October	LISTS whelk count, weight and widths, 2012	CT DEEP staff
November	LISTS butterfish & squid indices & length frequency, 1984-2011	NMFS
December	LISTS black sea bass indices & length frequency, 1984-2011	CT DEEP staff
	LISTS winter flounder age key, 1984-2011	NMFS

**Table 2.12. Sample requests by month, 2012.**

<b>MONTH</b>	<b>REQUEST</b>	<b>ORGANIZATION OR PURPOSE</b>
April	summer flounder (otoliths)	Old Dominion graduate student
September	specimens for biology of fishes class	UConn
	river herring (otoliths)	University of California-Santa Cruz
	summer flounder (otoliths)	Old Dominion graduate student
October	hermit crabs	UConn
	river herring (otoliths)	University of California-Santa Cruz
November	horseshoe crabs	Aquaculture School
	river herring (otoliths)	University of California-Santa Cruz

**Table 2.13. List of finfish species observed in 2012.**

*Fifty - seven finfish species were observed in 2012. (Bold type indicates new species). Since 1984, one hundred three species of finfish have been identified in LISTS (see Appendix 2.1 for the full list of species).*

<b>Common Name</b>	<b>Scientific Name</b>	<b>Common Name</b>	<b>Scientific Name</b>
anchovy, bay	Anchoa mitchilli	mullet, white	Mugil curema
anchovy, striped	Anchoa hepsetus	ocean pout	Macrozoarces americanus
black sea bass	Centropristes striata	perch, white	Morone americana
blue runner	Caranx crysos	<b>Pinfish</b>	<b>Lagodon rhomboides</b>
bluefish	Pomatomus saltatrix	pipefish, northern	Syngnathus fuscus
butterfish	Peprilus triacanthus	pompano, African	Alectis ciliaris
cunner	Tautoglabrus adspersus	puffer, northern	Sphoeroides maculatus
dogfish, smooth	Mustelus canis	rockling, fourbeard	Enchelyopus cimbrius
dogfish, spiny	Squalus acanthius	sand lance, American	Ammodytes americanus
eel, conger	Conger oceanicus	scad, rough	Trachurus lathami
flounder, fourspot	Paralichthys oblongus	sculpin, longhorn	Myoxocephalus octodecemspin
flounder, smallmouth	Etropus microstomus	scup	Stenotomus chrysops
flounder, summer	Paralichthys dentatus	sea raven	Hemitripterus americanus
flounder, windowpane	Scophthalmus aquosus	searobin, northern	Prionotus carolinus
flounder, winter	Pseudopleuronectes american	searobin, striped	Prionotus evolans
goosefish	Lophius americanus	sennet, northern	Sphyræna borealis
gunnel, rock	Pholis gunnellus	shad, American	Alosa sapidissima
hake, red	Urophycis chuss	shad, gizzard	Dorosoma cepedianum
hake, silver	Merluccius bilinearis	shad, hickory	Alosa mediocris
hake, spotted	Urophycis regia	skate, clearnose	Raja eglanteria
herring, Atlantic	Clupea harengus	skate, little	Leucoraja erinacea
herring, alewife	Alosa pseudoharengus	skate, winter	Leucoraja ocellata
herring, blueback	Alosa aestivalis	spot	Leiostomus xanthurus
herring, round	Etrumeus teres	stingray, roughtail	Dasyatis centroura
hogchoker	Trinectes maculatus	striped bass	Morone saxatilis
jack, crevalle	Caranx hippos	sturgeon, Atlantic	Acipenser oxyrinchus
kingfish, northern	Menticirrhus saxatilis	tautog	Tautoga onitis
menhaden, Atlantic	Brevoortia tyrannus	weakfish	Cynoscion regalis
moonfish	Selene setapinnis		

Names taken from: Common and Scientific Names of Fishes from the United States, Canada and Mexico, American Fisheries Society, Sixth ed., 2004.

**Table 2.14. List of invertebrates observed in 2012.**

*In 2012, forty invertebrate "species" were identified. In most cases, invertebrates are identified to species; however, species that are very similar are identified to genus, and in difficult cases, to a higher taxon.*

<b>Common Name</b>	<b>Scientific Name</b>	<b>Common Name</b>	<b>Scientific Name</b>
Tubularia hydroids	Tubularia, spp.	mussel, blue	Mytilus edulis
arks	Noetia-Anadara spp.	northern moon snail	Lunatia heros
bryozoan, bushy	Phylum Bryozoa	oyster, common	Crassostrea virginica
bryozoan, rubbery	Alcyonidium verrilli	sea cucumber	Class Holothuroidea
clam, hard clams	Artica-Mercinaria-Pitar sp.	sea grape	Molgula spp.
clam, surf	Spisula solidissima	sea urchin, purple	Arbacia punctulata
coral, star	Astrangia poculata	shrimp, coastal mud	Upogebia affinis
crab, mud	Family Xanthidae	shrimp, mantis	Squilla empusa
crab, blue	Callinectes sapidus	shrimp, northern red	Pandalus montagui
crab, flat claw hermit	Pagurus pollicaris	shrimp, sand	Crangon septemspinosa
crab, horseshoe	Limulus polyphemus	slipper shell, common	Crepidula fornicata
crab, lady	Ovalipes ocellatus	sponge spp.	sponge spp.
crab, rock	Cancer irroratus	sponge, boring	Cliona celata
crab, spider	Libinia emarginata	sponge, deadman's fingers	Haliclona spp.
hydroid spp.	hydroid spp.	sponge, red bearded	Microciona prolifera
jelly, moon	Aurelia aurita	squid, long-finned	Loligo pealeii
jelly, northern comb	Bolinopsis infundibulum	starfish spp.	Asteriid spp.
jelly, water	Rhacostoma atlanticum	tunicates, misc	misc. class ascidiacea
jellyfish, lion's mane	Cyanea capillata	whelk, channeled	Busycotypus canaliculatus
lobster, American	Homarus americanus	whelk, knobbed	Busycon carica

Names taken from: A Field Guide to the Atlantic Seashore, Peterson Field Guide Series, 1978 (Gosner, 1978).



**Table 2.15. Total number and weight (kg) of finfish and invertebrates caught in 2012.**

*Finfish species are in order of descending count. Invertebrate species are in order of descending weight (nc = not counted). Young-of-year bay and striped anchovy are neither separated by species or quantified; young-of-year Atlantic herring and American sand lance are not quantified. Number of tows (sample size)=200.*

species	count	%	weight	%	species	count	%	weight	%
butterfish	60,539	37.9	1,891.3	10.8	longhorn sculpin	1	0	0.2	0
scup	53,119	33.2	6,170.2	35.1	white perch	1	0	0.2	0
silver hake	7,519	4.7	171.0	1.0	white mullet	1	0	0.1	0
weakfish	6,785	4.2	409.2	2.3	<b>Total</b>	<b>159,770</b>		<b>17,570.3</b>	
bluefish	3,851	2.4	532.7	3.0	<b><u>Finfish not ranked</u></b>				
northern searobin	3,642	2.3	405.2	2.3	anchovy spp. yoy				
windowpane flounder	3,536	2.2	501.1	2.9	Atlantic herring, yoy				
winter flounder	3,365	2.1	604.9	3.4	American sand lance (yoy)				
striped searobin	2,973	1.9	1,086.4	6.2	<b><u>Invertebrates</u></b>				
fourspot flounder	2,597	1.6	454.5	2.6	horseshoe crab	199	1.7	385.8	30.6
red hake	1,720	1.1	148.6	0.8	long-finned squid	9,767	84.5	333.9	26.5
little skate	1,406	0.9	657.9	3.7	spider crab	.	.	162.4	12.9
bay anchovy	1,296	0.8	8.6	0.0	American lobster	349	3.0	70.0	5.6
summer flounder	980	0.6	718.5	4.1	boring sponge	.	.	47.9	3.8
spot	858	0.5	107.5	0.6	lady crab	.	.	45.3	3.6
alewife	708	0.4	47.0	0.3	rock crab	.	.	40.7	3.2
spotted hake	626	0.4	64.2	0	mantis shrimp	846	7.3	26.6	2.1
smooth dogfish	610	0.4	1,833.3	10.4	bushy bryozoan	.	.	20.4	1.6
Atlantic herring	571	0.4	61.5	0.4	flat claw hermit crab	.	.	18.3	1.5
Atlantic menhaden	426	0.3	144.6	0.8	blue crab	72	0.6	14.5	1.2
black sea bass	410	0.3	141.0	0.8	knobbed whelk	36	0.3	13.8	1.1
hogchoker	340	0.2	30.7	0.2	channeled whelk	76	0.7	13.7	1.1
American shad	321	0.2	25.3	0.1	blue mussel	1	0.0	9.4	0.7
clearnose skate	280	0.2	491.7	3	common slipper shell	.	.	9.4	0.7
moonfish	262	0.2	3.6	0.0	mixed sponge species	.	.	7.4	0.6
smallmouth flounder	258	0.2	7.5	0.0	Tubularia, spp.	.	.	5.0	0.4
striped bass	170	0.1	278.0	1.6	hydroid spp.	.	.	4.8	0.4
tautog	135	0.1	128.9	0.7	lion's mane jellyfish	50	0.4	4.4	0.3
winter skate	97	0.1	179.8	1	mud crabs	.	.	3.9	0.3
northern kingfish	59	0.0	8.4	0	starfish spp.	.	.	3.3	0.3
northern puffer	47	0.0	3.1	0.0	northern red shrimp	118	1.0	3.0	0.2
blueback herring	46	0	1.6	0.0	northern moon snail	.	.	1.8	0.1
fourbeard rockling	43	0	3.5	0	sand shrimp	.	.	1.7	0.1
hickory shad	42	0	14.1	0	arks	.	.	1.4	0.1
blue runner	27	0	2.7	0.0	hard clams	3	0	1.3	0.1
cunner	20	0	2.8	0	red bearded sponge	.	.	1.2	0.1
rough scad	19	0	1.1	0	sea grape	.	.	1.1	0.1
spiny dogfish	16	0	62.8	0	deadman's fingers sponge	.	.	0.8	0.1
ocean pout	14	0	2.0	0	purple sea urchin	7	0	0.8	0
Atlantic sturgeon	7	0	154.2	1	common oyster	.	.	0.8	0
sea raven	5	0	1.1	0	surf clam	10	0.1	0.8	0
northern sennet	3	0	0.3	0	star coral	.	.	0.4	0
striped anchovy	3	0	0.2	0.0	rubbery bryozoan	.	.	0.4	0
crevalle jack	2	0	0.2	0	sea cucumber	3	0	0.4	0
goosefish	2	0	0.8	0	tunicates, misc	16	0	0.4	0
pinfish	2	0	0.2	0	water jelly	4	0	0.3	0
round herring	2	0	0.1	0	coastal mud shrimp	1	0	0.2	0
American sand lance	2	0	0.2	0	northern comb jelly	.	.	0.1	0
African pompano	1	0	0.1	0	moon jelly	.	.	0.1	0
conger eel	1	0	0.3	0	<b>Total</b>	<b>11,558</b>		<b>1,257.9</b>	
gizzard shad	1	0	0.1	0	Note: nc= not counted				
northern pipefish	1	0	0.1	0					
rock gunnel	1	0	0.1	0					
rougtail stingray	1	0	5.0	0					

**Table 2.16. Total counts and weight (kg) of finfish taken in the spring and fall sampling periods, 2012.**  
*Species are listed in order of descending count.. Young-of-year bay anchovy, striped anchovy, Atlantic herring and American sand lance are not included. Number of tows (sample sizes): Spring = 120 and Fall=80.*

Spring					Fall				
species	count	%	weight	%	species	count	%	weight	%
scup	21,280	32.9	4,114.5	39.5	butterfish	45,550	47.9	1,222.3	17.1
butterfish	14,989	23.2	669.0	6.4	scup	31,839	33.5	2,055.7	28.7
silver hake	7,461	11.5	166.4	1.6	weakfish	6,597	6.9	290.0	4.0
northern searobin	3,306	5.1	383.5	3.7	bluefish	3,832	4.0	504.4	7.0
windowpane flounder	2,834	4.4	416.1	4.0	striped searobin	1,208	1.3	490.9	6.9
winter flounder	2,819	4.4	531.9	5.1	spot	858	0.9	107.5	1.5
fourspot flounder	2,474	3.8	441.0	4.2	windowpane flounder	702	0.7	85.0	1.2
striped searobin	1,765	2.7	595.5	5.7	winter flounder	546	0.6	73.0	1.0
red hake	1,668	2.6	143.2	1.4	summer flounder	409	0.4	309.2	4.3
little skate	1,112	1.7	513.7	4.9	smooth dogfish	384	0.4	1,071.2	14.9
bay anchovy	949	1.5	4.9	0.0	bay anchovy	347	0.4	3.7	0.1
alewife	698	1.1	46.3	0.4	northern searobin	337	0.4	21.7	0.3
Atlantic herring	571	0.9	61.5	0.6	little skate	294	0.3	144.2	2.0
summer flounder	571	0.9	409.3	3.9	moonfish	262	0.3	3.6	0.1
spotted hake	442	0.7	34.0	0.3	hogchoker	249	0.3	20.2	0.3
American shad	232	0.4	17.1	0.2	Atlantic menhaden	230	0.2	80.3	1.1
smooth dogfish	226	0.3	762.1	7.3	black sea bass	225	0.2	51.8	0.7
Atlantic menhaden	196	0.3	64.3	0.6	clearnose skate	185	0.2	334.1	4.7
weakfish	188	0.3	119.2	1.1	spotted hake	184	0.2	30.2	0.4
black sea bass	186	0.3	89.2	0.9	smallmouth flounder	180	0.2	4.3	0.1
striped bass	124	0.2	198.5	1.9	fourspot flounder	122	0.1	13.5	0.2
tautog	114	0.2	119.8	1.2	American shad	90	0.1	8.2	0.1
clearnose skate	95	0.1	157.6	1.5	silver hake	58	0.1	4.6	0.1
hogchoker	91	0.1	10.5	0.1	red hake	52	0.1	5.4	0.1
smallmouth flounder	78	0.1	3.2	0	northern puffer	46	0.0	2.9	0.0
winter skate	77	0.1	150.3	1.4	striped bass	46	0.0	79.5	1.1
blueback herring	45	0.1	1.5	0	northern kingfish	40	0.0	4.3	0
fourbeard rockling	42	0.1	3.4	0.0	hickory shad	28	0	10.0	0.1
bluefish	19	0.0	28.3	0.3	blue runner	27	0	2.7	0
northern kingfish	19	0.0	4.1	0	tautog	21	0	9.1	0
cunner	16	0.0	1.9	0	winter skate	20	0	29.5	0.4
spiny dogfish	15	0	61.2	0.6	rough scad	19	0	1.1	0
hickory shad	14	0	4.1	0.0	alewife	10	0	0.7	0
ocean pout	14	0	2.0	0	cunner	5	0	0.9	0.0
sea raven	5	0	1.1	0	Atlantic sturgeon	3	0	81.6	1
Atlantic sturgeon	4	0	72.6	1	northern sennet	3	0	0.3	0
goosefish	2	0	0.8	0	striped anchovy	3	0	0.2	0
American sand lance	2	0	0.2	0	crevalle jack	2	0	0.2	0
conger eel	1	0	0.3	0.0	pinfish	2	0	0.2	0
northern pipefish	1	0	0.1	0	round herring	2	0	0.1	0.0
northern puffer	1	0	0.2	0	African pompano	1	0	0.1	0
rock gunnel	1	0	0.1	0	blueback herring	1	0	0.1	0
longhorn sculpin	1	0	0.2	0	gizzard shad	1	0	0.1	0
white perch	1	0	0.2	0	fourbeard rockling	1	0	0.1	0
<b>Total</b>	<b>64,749</b>		<b>10,404.9</b>		rougtail stingray	1	0	5.0	0.1
					spiny dogfish	1	0	1.6	0
					white mullet	1	0	0.1	0
					<b>Total</b>	<b>95,024</b>		<b>7,165.4</b>	

**Table 2.17. Total catch of invertebrates taken in the spring and fall sampling periods, 2012.**  
*Species are ranked by total weight (kg). Number of tows (sample sizes): Spring = 120 and Fall=80.*

species	Spring				species	Fall			
	count	%	weight	%		count	%	weight	%
horseshoe crab	138	6.1	249.2	35.4	long-finned squid	8,326	89.6	248.1	44.7
spider crab	.	.	144.1	20.5	horseshoe crab	61	0.7	136.6	24.6
long-finned squid	1,441	63.5	85.8	12.2	lady crab	.	.	34.5	6.2
American lobster	295	13.0	58.5	8.3	mantis shrimp	715	7.7	20.4	3.7
rock crab	.	.	34.6	4.9	spider crab	.	.	18.3	3.3
boring sponge	.	.	32.9	4.7	boring sponge	.	.	15.0	2.7
bushy bryozoan	.	.	13.2	1.9	flat claw hermit crab	.	.	11.6	2.1
lady crab	.	.	10.8	1.5	American lobster	54	0.6	11.5	2.1
blue mussel	.	.	7.9	1.1	knobbed whelk	27	0.3	9.7	1.7
blue crab	40	1.8	7.6	1.1	channeled whelk	41	0.4	8.3	1.5
flat claw hermit crab	.	.	6.7	1.0	bushy bryozoan	.	.	7.2	1.3
mantis shrimp	132	5.8	6.2	0.9	blue crab	32	0.3	6.9	1.2
channeled whelk	35	1.5	5.4	0.8	rock crab	.	.	6.1	1.1
Tubularia, spp.	.	.	4.8	0.7	common slipper shell	.	.	5.5	1.0
knobbed whelk	9	0.4	4.1	0.6	mixed sponge species	.	.	4.2	0.8
common slipper shell	.	.	3.9	0.6	lion's mane jellyfish	11	0.1	3.0	0.5
hydroid spp.	.	.	3.8	0.5	blue mussel	1	0.0	1.5	0.3
mixed sponge species	.	.	3.2	0.5	mud crabs	.	.	1.0	0.2
northern red shrimp	118	5.2	3.0	0.4	hydroid spp.	.	.	1.0	0.2
mud crabs	.	.	2.9	0.4	common oyster	.	.	0.7	0.1
starfish spp.	.	.	2.9	0.4	surf clam	6	0.1	0.5	0.1
sand shrimp	.	.	1.6	0.2	hard clams	.	.	0.4	0.1
lion's mane jellyfish	39	1.7	1.4	0.2	northern moon snail	.	.	0.4	0.1
northern moon snail	.	.	1.4	0.2	starfish spp.	.	.	0.4	0
red bearded sponge	.	.	1.2	0.2	arks	.	.	0.3	0
arks	.	.	1.1	0.2	water jelly	4	0.0	0.3	0
sea grape	.	.	1.0	0.1	sea cucumber	2	0	0.3	0
hard clams	3	0.1	0.9	0.1	Tubularia, spp.	.	.	0.2	0
deadman's fingers sponge	.	.	0.8	0.1	purple sea urchin	2	0.0	0.2	0
purple sea urchin	5	0.2	0.6	0	northern comb jelly	.	.	0.1	0
star coral	.	.	0.4	0	sand shrimp	.	.	0.1	0
rubbery bryozoan	.	.	0.4	0	sea grape	.	.	0.1	0
surf clam	4	0.2	0.3	0	tunicates, misc	6	0.1	0.1	0
tunicates, misc	10	0.4	0.3	0	<b>Total</b>	<b>9,288</b>		<b>554.5</b>	
coastal mud shrimp	1	0.0	0.2	0					
moon jelly	.	.	0.1	0					
common oyster	.	.	0.1	0					
sea cucumber	1	0.0	0.1	0					
<b>Total</b>	<b>2,271</b>		<b>703.4</b>						

Note: nc= not counted

**Table 2.18. Spring indices of abundance for selected species, 1984-2012.**

*The geometric mean count per tow was calculated for 38 finfish and 2 invertebrates using April-June data. An asterisk next to the species name and time series mean, indicates that the spring index is a better estimate than the fall index (Simpson et al. 1991). Two asterisks indicate that both the spring and the fall indices provide good estimates.*

Species	Spring																								84-11 Mean					
	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007		2008	2009	2010	2011	2012
alewife *	0.43	0.10	0.66	1.00	0.47	0.72	0.54	0.39	0.39	0.84	1.83	0.96	2.18	1.44	1.11	1.89	1.53	0.75	0.95	1.14	1.86	1.30	0.78	1.62	1.32	1.04	1.29	0.94	0.77	1.05
black sea bass *	0.16	0.27	0.12	0.05	0.04	0.08	0.10	0.07	0.03	0.07	0.12	0.07	0.11	0.10	0.04	0.08	0.22	0.25	0.67	0.21	0.22	0.07	0.05	0.26	0.22	0.32	0.28	0.27	0.83	0.16
bluefish	0.00	0.02	0.19	0.07	0.11	0.07	0.09	0.52	0.31	0.05	0.07	0.03	0.07	0.18	0.12	0.24	0.08	0.07	0.30	0.16	0.11	0.11	0.22	0.16	0.08	0.24	0.01	0.17	0.07	
butterfish	8.92	0.62	2.38	0.25	0.46	0.80	1.60	2.17	2.60	0.48	1.71	1.06	3.22	6.16	6.51	1.90	3.35	2.94	7.09	3.17	2.10	2.27	18.67	3.48	4.64	9.44	1.99	15.64	13.44	
cunner *	1.28	0.29	0.28	0.22	0.16	0.29	0.55	0.25	0.11	0.20	0.07	0.16	0.07	0.15	0.18	0.18	0.17	0.20	0.25	0.11	0.07	0.08	0.06	0.05	0.10	0.05	0.08	0.08	0.06	0.21
dogfish, smooth	0.39	0.46	0.45	0.21	0.49	0.48	0.34	0.46	0.56	0.26	0.60	0.33	0.44	0.24	0.47	0.54	0.53	0.55	1.19	0.63	0.53	0.44	1.33	0.64	0.87	1.05	0.09	1.51	0.82	
dogfish, spiny *	0.00	0.15	0.14	0.07	0.12	0.18	0.19	0.06	0.04	0.01	0.06	0.00	0.00	0.01	0.01	0.01	0.00	0.04	0.02	0.03	0.03	0.03	0.09	0.12	0.07	0.43	0.03	0.19	0.06	0.08
flounder, fourspot *	18.18	10.55	3.15	2.38	4.62	4.14	6.53	8.46	9.33	2.37	2.59	5.00	4.82	7.54	4.34	3.53	4.57	3.83	4.82	2.78	2.56	1.14	1.86	3.37	2.94	1.71	1.52	4.09	5.45	4.74
flounder, summer	0.63	0.44	0.95	1.06	0.50	0.10	0.35	0.64	0.55	0.51	0.86	0.28	0.96	1.00	1.30	1.44	1.79	1.75	3.19	3.42	1.84	0.80	0.61	2.51	1.61	1.93	2.69	3.85	3.06	
flounder, windowpane *	172.27	119.82	67.82	40.33	66.02	101.71	39.74	30.87	13.17	24.71	23.54	10.69	37.47	30.43	24.27	14.19	8.11	9.04	5.44	4.90	5.96	2.29	2.98	15.65	10.11	7.08	11.40	9.39	9.85	32.48
flounder, winter *	111.96	66.81	61.50	67.92	100.96	135.23	170.12	118.95	54.31	53.34	74.35	48.11	93.05	57.41	59.36	32.80	33.67	46.40	25.49	21.22	16.45	17.47	7.50	20.58	22.34	18.98	20.88	16.68	12.02	56.21
hake, red *	15.04	3.02	4.67	3.84	3.64	13.12	4.75	4.35	4.83	6.00	0.89	4.12	1.49	1.41	6.28	7.21	4.01	2.64	5.11	1.18	1.37	1.06	1.30	3.85	3.37	1.48	3.27	0.60	3.35	4.07
hake, silver *	7.53	1.83	1.19	2.48	2.25	4.86	5.53	3.87	2.67	1.56	1.73	4.88	1.15	4.32	4.64	12.57	2.28	7.64	5.92	0.76	2.63	0.57	4.75	0.98	19.08	2.30	5.24	2.10	19.45	4.19
hake, spotted	0.00	0.00	0.02	0.01	0.22	0.01	0.02	0.22	0.08	0.07	0.02	0.21	0.31	0.25	0.26	1.11	2.68	1.52	2.05	1.18	0.65	0.37	1.47	1.04	3.15	0.65	1.89	1.84	1.6	
herring, Atlantic *	0.00	0.58	1.12	2.77	2.16	2.27	5.73	4.91	2.73	7.24	2.95	4.23	1.70	2.53	1.06	0.99	1.21	0.85	0.41	0.49	0.53	1.33	0.31	1.66	0.77	1.82	2.56	1.57	0.73	2.02
herring, blueback	5.42	0.30	0.34	0.14	0.03	0.05	0.08	0.11	0.20	0.08	0.55	0.29	0.28	0.25	0.15	0.02	0.37	0.19	0.15	0.27	0.46	0.33	0.13	0.29	0.21	0.43	0.37	0.14	0.13	
hogchoker	0.63	0.45	0.14	0.15	0.18	0.21	0.17	0.14	0.24	0.08	0.11	0.03	0.10	0.05	0.03	0.06	0.11	0.10	0.15	0.15	0.19	0.11	0.08	0.17	0.13	0.11	0.15	0.24	0.29	
kingfish, northern	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
lobster, American**	7.09	3.10	2.76	3.30	2.24	3.76	5.33	7.74	7.88	6.72	4.10	8.36	6.77	7.67	18.52	12.49	11.01	7.56	6.31	3.89	2.50	2.43	1.94	3.22	2.72	1.40	1.30	0.79	0.97	5.46
menhaden, Atlantic	0.09	0.11	0.18	0.39	0.17	0.14	0.10	0.03	0.14	0.07	0.05	0.11	0.02	0.02	0.00	0.01	0.03	0.00	0.13	0.01	0.02	0.01	0.04	0.13	0.05	0.07	0.05	0.11	0.63	
moonfish	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
ocean pout *	0.21	0.04	0.06	0.06	0.07	0.12	0.14	0.14	0.14	0.23	0.10	0.09	0.11	0.08	0.06	0.06	0.08	0.03	0.06	0.06	0.06	0.02	0.04	0.05	0.04	0.08	0.04	0.10	0.05	0.08
rockling, fourbeard*	2.87	0.37	0.43	0.56	0.61	0.88	0.82	0.58	0.80	0.59	0.27	0.58	0.33	0.60	0.47	0.66	0.55	0.57	0.37	0.36	0.48	0.35	0.09	0.35	0.26	0.18	0.17	0.19	0.16	0.55
scad, rough	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0	
sculpin, longhorn *	0.20	0.33	0.18	0.15	0.15	0.24	0.65	0.39	0.12	0.06	0.04	0.03	0.04	0.02	0.01	0.01	0.06	0.02	0.02	0.01	0.03	0.00	0.00	0.02	0.01	0.01	0.01	0.04	0.01	0.10
scup	2.80	5.65	3.40	1.17	1.11	2.77	2.25	3.09	1.75	1.32	1.88	5.24	3.25	3.23	4.25	2.22	28.46	7.20	50.42	4.84	8.12	3.48	59.05	10.00	19.87	21.92	6.88	22.34	50.24	
sea raven*	0.36	0.37	0.29	0.37	0.17	0.11	0.19	0.09	0.03	0.01	0.01	0.01	0.01	0.01	0.10	0.04	0.08	0.04	0.06	0.01	0.04	0.02	0.00	0.03	0.00	0.02	0.05	0.02	0.02	0.09
searobin, northern *	6.48	14.38	0.82	0.71	1.13	0.85	0.62	1.36	1.18	1.26	1.21	1.07	1.26	1.73	0.72	1.03	2.66	1.55	2.67	1.16	0.80	0.32	1.19	0.82	1.32	1.73	1.52	1.16	5.05	1.88
searobin, striped	1.30	1.78	1.33	0.60	0.57	0.66	0.71	1.55	1.52	0.46	0.93	1.28	0.82	0.71	1.48	1.82	3.69	2.36	3.83	1.85	1.40	0.31	0.89	0.95	1.07	2.14	0.77	2.96	5.01	
shad, American	0.10	1.36	0.57	0.92	0.44	0.90	0.34	0.54	0.75	0.29	0.68	0.49	0.48	1.08	0.86	0.80	0.38	0.08	0.61	0.20	0.34	0.28	0.25	0.44	0.57	0.57	0.53	0.49	0.46	
shad, hickory	0.52	0.00	0.01	0.00	0.01	0.00	0.00	0.01	0.02	0.01	0.02	0.01	0.02	0.01	0.07	0.05	0.09	0.12	0.09	0.04	0.15	0.09	0.10	0.25	0.27	0.12	0.02	0.03	0.02	0.01
skate, clearnose	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.03	0.02	0.03	0.10	0.04	0.03	0.01	0.07	0.09	0.06	0.08	0.01	0.08	0.39
skate, little *	5.71	7.22	7.19	5.34	15.51	21.24	11.50	25.19	12.41	12.03	16.96	6.58	18.78	11.23	11.65	7.56	6.21	8.03	7.63	7.03	6.54	1.65	1.40	2.82	1.56	1.03	1.02	1.15	2.15	8.65
skate, winter*	0.00	0.12	0.15	0.07	0.37	0.34	0.22	0.23	0.18	0.23	0.14	0.12	0.24	0.16	0.24	0.17	0.16	0.10	0.13	0.16	0.21	0.09	0.13	0.15	0.12	0.15	0.10	0.14	0.32	0.17
spot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
squid, long-finned**	nc	nc	3.24	2.56	9.37	4.98	7.87	7.18	6.44	4.23	3.82	6.21	3.24	5.14	3.33	3.49	2.70	2.73	3.22	2.50	9.43	4.76	11.55	2.14	3.45	6.57	3.20	4.10	3.34	4.90
striped bass *	0.02	0.00	0.00	0.05	0.04	0.06	0.16	0.15	0.22	0.27	0.30	0.59	0.63	0.85	0.97	1.10	0.84	0.61	1.30	0.87	0.56	1.17	0.61	1.02	0.57	0.60	0.40	0.48	0.43	0.52
sturgeon, Atlantic	0.06	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.03	0.02	0.03	0.01	0.01	0.01	0.05	0.04	0.02	0.01	0.05	0.00	0.00	0.02	0.05	0.02	0.01	0.01	0.01	0.02	0.02	0.02
tautog *	2.75	1.47	1.50	0.71	0.65	1.09	1.00	0.92	0.82	0.42	0.44	0.15	0.49	0.40	0.42	0.40	0.57	0.70	0.91	0.52	0.54	0.57	0.64	0.48	0.50	0.40	0.25	0.38	0.44	0.72
weakfish	0.02	0.00	0.07	0.01	0.04	0.03	0.05	0.18	0.12	0.06	0.03	0.11	0.12	0.27	0.24	0.28	0.11	0.17	0.12	0.02	0.10	0.17	0.14	0.07	0.03	0.05	0.01	0.08	0.5	

**Table 2.19. Fall indices of abundance for selected species, 1984-2012.**

*The geometric mean count per tow was calculated for 38 finfish and 2 invertebrates using September-October data. An asterisk next to the species name and a time series mean, indicates that the fall index provides a better estimate than the spring index (Simpson et al. 1991). Two asterisks indicate that both the spring and the fall indices provide good estimates. There was no fall sampling in 2010.*

Species	Fall																							84-11 Mean						
	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006		2007	2008	2009	2010	2011	2012
alewife	0.42	0.01	0.05	0.04	0.19	0.16	0.11	0.07	0.19	0.40	0.66	0.16	0.24	1.23	0.11	0.42	0.25	0.55	0.22	0.58	0.26	0.43	0.05	0.95	0.42	0.18	-	0.43	0.07	
black sea bass	0.03	0.11	0.01	0.03	0.05	0.01	0.06	0.14	0.01	0.04	0.06	0.01	0.05	0.03	0.07	0.23	0.18	0.43	1.01	0.15	0.35	0.17	0.24	0.36	0.93	0.26	-	0.29	1.49	
bluefish *	23.41	19.01	13.66	14.32	15.49	26.25	23.88	33.43	25.22	18.92	32.06	24.46	20.80	37.90	31.41	45.31	20.57	24.24	18.75	28.53	29.13	18.89	15.66	30.66	14.28	18.11	-	11.10	15.06	23.54
butterfish *	51.93	89.72	63.41	60.09	146.67	174.87	154.65	170.59	301.72	87.73	93.05	320.06	173.74	186.62	355.49	477.91	125.97	142.89	165.07	112.86	175.37	197.24	140.23	154.53	181.71	409.75	-	39.62	132.47	176.06
cunner	0.09	0.05	0.05	0.06	0.05	0.06	0.05	0.08	0.09	0.05	0.05	0.03	0.01	0.05	0.08	0.06	0.07	0.04	0.03	0.06	0.04	0.05	0.02	0.01	0.05	0.05	-	0.01	0.03	
dogfish, smooth *	2.47	1.92	1.43	0.81	0.91	0.41	0.55	0.46	0.78	0.95	0.49	0.46	0.80	0.59	0.72	0.93	1.88	1.69	3.58	3.10	1.44	1.41	0.94	2.27	0.63	1.13	-	1.43	2.41	1.27
dogfish, spiny	0.04	0.00	0.00	0.03	0.01	0.00	0.12	0.00	0.02	0.05	0.10	0.00	0.01	0.04	0.07	0.03	0.04	0.16	0.05	0.00	0.18	0.22	0.00	0.00	0.11	0.08	-	0.01	0.01	
flounder, fourspot	1.18	1.03	0.50	0.37	1.73	0.80	1.47	0.74	1.44	1.55	1.33	0.44	2.05	3.29	1.63	1.19	1.15	1.17	1.09	0.96	1.14	1.11	0.65	0.73	1.50	1.82	-	1.35	0.81	
flounder, summer *	0.99	1.19	1.73	1.40	1.42	0.14	0.87	1.26	1.02	1.11	0.55	0.54	2.19	2.50	1.72	2.68	1.91	4.42	6.12	3.39	1.95	2.41	1.35	1.89	3.09	3.12	-	2.56	3.74	1.98
flounder, windowpane	22.11	11.56	7.32	6.85	12.10	8.68	7.19	4.71	6.79	9.48	3.89	2.43	28.13	13.36	4.64	2.53	2.81	1.81	1.86	3.39	2.27	6.14	1.54	3.65	7.95	5.59	-	5.32	3.38	
flounder, winter	7.31	2.75	3.86	5.42	10.07	11.03	15.42	6.10	6.41	9.32	6.13	3.77	12.29	7.75	6.69	8.66	7.08	3.07	1.74	1.25	2.19	2.15	0.94	0.82	2.26	1.55	-	1.27	1.37	
hake, red	0.74	0.33	1.00	0.37	0.75	1.14	0.44	0.33	0.39	1.81	0.59	0.20	1.62	0.89	0.53	0.29	1.20	0.41	0.15	0.73	0.76	0.45	0.33	0.54	0.41	0.90	-	0.60	0.21	
hake, silver	0.55	0.23	1.65	0.01	0.30	0.60	0.96	0.32	0.48	0.20	3.34	0.22	0.06	0.80	0.07	0.16	0.09	0.07	0.07	0.18	0.18	0.09	0.64	0.04	0.28	0.18	-	0.41	0.40	
hake, spotted *	0.28	0.17	0.21	0.14	0.10	0.05	0.11	0.03	0.39	1.48	0.50	0.16	1.68	0.12	0.41	0.61	1.18	0.35	0.86	1.95	0.14	0.32	0.56	0.39	0.69	1.11	-	2.62	1.15	0.62
herring, Atlantic	0.00	0.00	0.01	0.02	0.40	0.08	0.04	0.03	1.47	0.14	0.14	0.00	0.19	0.06	0.25	0.00	0.02	0.00	0.00	0.38	0.02	0.02	0.03	0.02	0.02	0.06	-	0.04	0.00	
herring, blueback *	0.38	0.16	0.07	0.13	0.53	0.34	0.10	0.04	0.08	0.11	0.93	0.27	0.05	0.75	0.16	0.06	0.06	0.20	0.06	0.10	0.09	0.06	0.15	0.24	0.05	0.09	-	0.08	0.01	0.20
hogchoker *	0.90	0.56	0.21	0.17	0.30	0.17	0.22	0.38	0.15	0.18	0.05	0.07	0.18	0.05	0.05	0.19	0.10	0.15	0.21	0.26	0.15	0.13	0.11	0.20	0.12	0.09	-	0.59	0.94	0.22
kingfish, northern *	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.02	0.06	0.03	0.19	0.04	0.04	0.12	0.05	0.01	0.02	0.01	0.00	0.04	0.03	0.00	0.04	0.05	0.05	-	0.21	0.24	0.04
lobster, American **	7.41	3.33	4.75	5.95	3.54	3.75	7.29	9.90	9.52	11.50	10.13	8.05	10.07	19.60	10.47	11.18	6.83	4.28	2.68	3.03	3.68	2.10	1.48	1.21	2.07	1.82	-	0.38	0.29	6.15
menhaden, Atlantic *	0.23	0.15	0.79	0.14	0.13	0.45	0.66	0.59	2.00	0.40	1.02	0.56	0.43	0.57	0.73	1.08	0.97	0.32	0.76	0.95	1.63	0.94	0.23	0.80	0.47	0.28	-	0.74	0.94	0.67
moonfish *	0.05	0.33	0.11	0.04	0.41	0.10	0.04	0.17	0.22	0.04	0.34	0.25	1.99	0.91	2.08	1.15	2.11	0.82	1.36	0.69	0.74	1.55	1.51	1.66	5.08	10.03	-	1.50	0.79	1.31
ocean pout	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00
rockling, fourbeard	0.08	0.01	0.04	0.05	0.21	0.15	0.07	0.04	0.06	0.03	0.06	0.01	0.11	0.07	0.03	0.04	0.12	0.03	0.01	0.04	0.04	0.01	0.00	0.02	0.06	0.04	-	0.03	0.01	
scad, rough *	0.13	0.08	0.03	0.27	0.42	0.08	0.08	0.01	0.00	0.21	0.03	0.00	0.18	0.05	0.00	0.00	0.00	0.07	0.07	0.14	0.09	0.19	0.15	0.08	0.00	0.38	-	0.32	0.12	0.11
sculpin, longhorn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00
scup *	10.72	30.97	25.76	18.54	39.70	65.09	69.48	311.57	83.73	77.06	92.52	59.14	61.46	41.28	103.27	537.68	521.10	177.64	348.70	152.23	291.46	424.06	116.75	475.29	303.26	139.38	-	198.23	223.52	176.89
sea raven	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00
searobin, northern	0.20	0.22	0.31	0.03	0.38	0.18	0.43	0.43	0.15	0.25	0.80	0.12	0.27	0.14	0.93	0.62	0.47	1.15	1.25	0.51	1.03	0.68	0.21	1.05	1.11	0.88	-	1.19	2.07	
searobin, striped *	2.75	3.44	1.64	0.90	3.44	3.83	2.39	1.97	2.75	4.44	2.00	0.74	4.03	2.62	3.68	4.48	5.68	3.34	4.85	6.44	4.67	3.26	0.81	2.25	3.66	3.54	-	4.10	7.06	3.25
shad, American *	3.13	0.19	0.27	0.29	2.66	3.10	0.65	0.72	0.54	1.11	1.84	1.90	0.27	0.91	1.22	1.73	0.55	0.41	0.76	0.75	0.95	0.54	0.12	0.38	0.41	0.46	-	0.42	0.44	0.97
shad, hickory *	0.02	0.01	0.03	0.01	0.00	0.00	0.01	0.00	0.05	0.04	0.10	0.04	0.09	0.10	0.05	0.12	0.09	0.03	0.04	0.09	0.13	0.25	0.24	0.08	0.03	0.06	-	0.05	0.19	0.07
skate, clearnose *	0.00	0.00	0.02	0.02	0.00	0.00	0.02	0.02	0.05	0.04	0.01	0.02	0.01	0.03	0.12	0.10	0.10	0.34	0.18	0.33	0.10	0.48	0.23	0.44	0.38	0.24	-	0.27	0.73	0.13
skate, little	4.41	3.62	4.01	2.72	8.13	4.31	7.50	5.24	5.52	10.00	6.41	3.37	11.55	6.90	7.73	5.23	5.25	5.07	5.39	2.99	3.12	3.90	1.03	1.09	1.28	0.99	-	0.84	1.14	
skate, winter	0.00	0.01	0.00	0.00	0.03	0.03	0.05	0.02	0.07	0.09	0.12	0.07	0.17	0.08	0.05	0.06	0.01	0.13	0.13	0.00	0.07	0.10	0.00	0.06	0.21	0.10	-	0.05	0.17	
spot *	0.00	0.18	0.20	0.02	0.09	0.00	0.04	0.02	0.00	0.38	0.18	0.03	0.99	0.08	0.00	0.28	0.63	0.08	0.35	0.00	0.07	0.00	0.19	0.00	2.67	0.01	-	0.04	1.60	0.24
squid, long-finned **	nc	nc	27.40	28.60	159.16	85.60	69.12	62.97	172.95	272.11	127.96	155.28	180.99	68.57	202.29	132.50	109.87	60.18	35.48	269.32	94.47	81.12	70.58	179.39	114.99	187.15	-	85.68	62.53	121.35
striped bass	0.01	0.00	0.01	0.01	0.03	0.00	0.00	0.05	0.05	0.09	0.06	0.08	0.13	0.40	0.18	0.23	0.27	0.23	0.37	0.12	0.77	0.25	0.47	0.38	0.44	0.30	-	0.24	0.17	
sturgeon, Atlantic *	0.03	0.01	0.03	0.03	0.00	0.02	0.02	0.01	0.08	0.08	0.06	0.02	0.01	0.02	0.02	0.07	0.03	0.08	0.05	0.10	0.04	0.03	0.10	0.05	0.06	0.10	-	0.02	0.02	0.04
tautog	0.72	0.32	0.22	0.50	0.25	0.17	0.16	0.23	0.20	0.15	0.14	0.11	0.07	0.11	0.23	0.36	0.23	0.20	0.26	0.37	0.16	0.19	0.20	0.13	0.23	0.08	-	0.07	0.14	
weakfish *	1.55	6.35	13.57	0.73	3.54	8.69	5.71	12.11	3.22	4.18	11.21	5.64	15.49	12.93	5.28	31.36	63.42	40.51	41.45	49.46	59.07	26.00	1.50	63.96	9.11	6.65	-	12.27	22.27	19.07

**Table 2.20. Finfish and invertebrate biomass indices for the spring sampling period, 1992-2012.**

*The geometric mean weight (kg) per tow was calculated for 38 finfish and 15 invertebrate species for the spring (April-June) sampling period.*

	Spring																				
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
alewife	0.06	0.17	0.32	0.15	0.50	0.25	0.20	0.37	0.34	0.15	0.25	0.19	0.25	0.22	0.21	0.31	0.22	0.24	0.16	0.17	0.17
black sea bass	0.01	0.03	0.06	0.03	0.06	0.06	0.02	0.05	0.07	0.17	0.40	0.17	0.15	0.07	0.04	0.14	0.10	0.21	0.18	0.18	0.34
bluefish	0.45	0.08	0.13	0.04	0.10	0.23	0.17	0.35	0.09	0.08	0.36	0.20	0.12	0.14	0.23	0.21	0.11	0.30	0.03	0.24	0.11
butterfish	0.43	0.10	0.31	0.19	0.73	1.27	1.06	0.52	0.69	0.79	1.48	0.64	0.41	0.55	2.30	0.66	1.06	1.37	0.49	2.69	1.87
cunner	0.02	0.04	0.01	0.03	0.02	0.03	0.04	0.04	0.03	0.04	0.05	0.03	0.02	0.02	0.01	0.02	0.02	0.01	0.02	0.02	0.01
dogfish, smooth	1.04	0.44	1.14	0.63	0.83	0.42	0.90	1.05	0.85	0.82	2.31	1.10	0.87	0.77	2.83	1.14	1.88	2.07	0.18	2.90	1.68
dogfish, spiny	0.10	0.02	0.12	0.00	0.00	0.01	0.03	0.02	0.00	0.08	0.06	0.07	0.07	0.05	0.21	0.25	0.15	0.84	0.07	0.37	0.11
flounder, fourspot	2.19	0.75	0.75	1.48	1.37	2.08	1.28	0.96	1.31	1.28	1.35	1.01	1.03	0.44	0.60	1.05	0.93	0.64	0.62	1.23	1.60
flounder, summer	0.35	0.27	0.48	0.16	0.53	0.60	1.15	1.09	1.35	1.21	2.38	2.45	1.69	0.67	0.61	1.72	1.44	1.40	1.28	2.73	2.22
flounder, windowpane	1.96	2.53	2.96	1.60	4.76	4.16	3.21	2.38	1.69	1.97	1.31	1.21	1.32	0.54	0.63	2.51	2.04	1.29	2.20	1.86	1.74
flounder, winter	8.72	7.54	9.44	6.51	14.61	10.63	9.65	6.67	7.46	9.77	6.31	6.64	3.87	2.94	1.65	4.99	3.84	2.94	4.26	3.60	2.72
hake, red	0.78	0.85	0.14	0.66	0.21	0.33	0.94	1.05	0.59	0.45	0.96	0.13	0.20	0.22	0.25	0.67	0.61	0.23	0.47	0.09	0.65
hake, silver	0.20	0.14	0.40	0.36	0.12	0.39	0.48	0.56	0.19	0.54	0.52	0.06	0.16	0.05	0.33	0.10	1.02	0.27	0.33	0.26	0.87
hake, spotted	0.01	0.01	0.00	0.02	0.03	0.09	0.03	0.13	0.27	0.17	0.20	0.13	0.18	0.05	0.14	0.11	0.31	0.07	0.14	0.21	0.22
herring, Atlantic	1.06	2.03	1.09	1.77	0.55	0.88	0.25	0.22	0.42	0.26	0.14	0.19	0.12	0.32	0.09	0.55	0.19	0.37	0.65	0.30	0.17
herring, blueback	0.05	0.02	0.06	0.03	0.04	0.04	0.02	0.00	0.04	0.02	0.01	0.02	0.04	0.04	0.02	0.04	0.02	0.06	0.04	0.02	0.01
hogchoker	0.04	0.02	0.02	0.01	0.02	0.01	0.01	0.01	0.03	0.04	0.04	0.04	0.04	0.03	0.02	0.05	0.03	0.02	0.04	0.06	0.07
kingfish, northern	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
menhaden, Atlantic	0.07	0.03	0.03	0.04	0.01	0.01	0.00	0.00	0.02	0.00	0.03	0.01	0.01	0.00	0.02	0.07	0.03	0.04	0.03	0.07	0.29
moonfish	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ocean pout	0.07	0.09	0.04	0.04	0.04	0.03	0.02	0.02	0.03	0.01	0.03	0.02	0.03	0.00	0.01	0.02	0.01	0.03	0.01	0.03	0.01
rockling, fourbeard	0.13	0.10	0.05	0.10	0.05	0.11	0.08	0.13	0.09	0.12	0.06	0.06	0.08	0.05	0.02	0.05	0.05	0.03	0.03	0.03	0.03
scad, rough	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
sculpin, longhorn	0.06	0.02	0.01	0.01	0.01	0.01	0.01	0.00	0.03	0.01	0.01	0.01	0.02	0.00	0.00	0.01	0.00	0.00	0.01	0.01	0.00
scup	0.48	0.49	0.58	0.65	0.73	0.75	0.75	0.56	4.56	2.85	13.16	2.28	3.93	1.65	10.41	3.35	5.88	6.40	3.14	9.55	9.99
sea raven	0.03	0.00	0.00	0.00	0.01	0.00	0.05	0.03	0.05	0.02	0.03	0.01	0.01	0.00	0.00	0.02	0.00	0.01	0.02	0.01	0.01
searobin, northern	0.26	0.35	0.28	0.27	0.28	0.33	0.17	0.22	0.70	0.51	0.51	0.40	0.29	0.08	0.35	0.26	0.23	0.44	0.52	0.30	0.81
searobin, striped	0.86	0.30	0.51	0.77	0.46	0.40	0.87	1.14	1.99	1.40	2.21	1.21	0.97	0.22	0.49	0.56	0.65	1.34	0.47	1.81	2.25
shad, American	0.29	0.09	0.21	0.10	0.11	0.23	0.13	0.20	0.05	0.01	0.11	0.03	0.04	0.05	0.05	0.07	0.08	0.07	0.07	0.07	0.10
shad, hickory	0.01	0.01	0.01	0.01	0.03	0.02	0.05	0.06	0.05	0.03	0.09	0.05	0.04	0.10	0.11	0.05	0.00	0.01	0.00	0.00	0.02
skate, clearnose	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.03	0.04	0.06	0.13	0.07	0.04	0.02	0.08	0.12	0.08	0.11	0.02	0.11	0.54
skate, little	5.89	5.99	8.87	3.38	9.35	6.00	6.27	4.25	3.43	4.47	4.56	4.35	4.01	1.05	0.91	1.82	0.97	0.71	0.66	0.79	1.34
skate, winter	0.37	0.52	0.28	0.21	0.46	0.29	0.46	0.27	0.25	0.21	0.25	0.24	0.28	0.12	0.22	0.23	0.19	0.23	0.15	0.25	0.46
spot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
striped bass	0.31	0.43	0.45	0.49	0.77	1.13	1.15	1.86	1.13	0.93	2.10	1.38	0.87	1.52	1.27	1.37	0.86	0.93	0.66	0.96	0.58
sturgeon, Atlantic	0.05	0.05	0.08	0.03	0.02	0.04	0.13	0.08	0.05	0.03	0.16	0.00	0.00	0.05	0.15	0.06	0.02	0.02	0.02	0.08	0.10
tautog	1.00	0.51	0.51	0.19	0.63	0.42	0.49	0.51	0.59	0.78	1.09	0.61	0.62	0.65	0.84	0.61	0.60	0.51	0.30	0.44	0.38
weakfish	0.11	0.03	0.01	0.05	0.06	0.15	0.20	0.31	0.12	0.11	0.12	0.03	0.04	0.09	0.12	0.08	0.02	0.04	0.01	0.04	0.39
<b>Invertebrates</b>																					
crab, blue	0.03	0.02	0.00	0.02	0.00	0.02	0.02	0.03	0.04	0.01	0.04	0.01	0.01	0.00	0.01	0.04	0.02	0.00	0.02	0.03	0.04
crab, flat claw hermit	0.15	0.08	0.18	0.02	0.09	0.04	0.10	0.10	0.07	0.12	0.14	0.32	0.17	0.05	0.04	0.11	0.09	0.12	0.08	0.09	0.05
crab, horseshoe	0.35	0.45	0.60	0.13	0.61	0.33	0.55	0.80	0.74	0.94	0.76	1.33	0.96	0.39	0.25	0.86	0.62	0.65	0.52	0.81	0.55
crab, lady	0.25	0.23	0.16	0.18	0.50	0.50	0.39	0.16	0.13	0.04	0.07	0.01	0.01	0.01	0.04	0.02	0.02	0.01	0.06	0.11	0.06
crab, rock	1.17	0.61	0.64	0.14	0.45	0.32	1.04	0.55	0.25	0.35	0.31	0.36	0.14	0.05	0.16	0.16	0.20	0.18	0.13	0.25	0.16
crab, spider	0.98	1.08	1.22	0.32	0.96	0.52	0.69	0.39	0.35	1.02	1.30	1.85	1.42	0.36	0.27	0.55	0.57	0.46	0.70	0.78	0.74
jellyfish, lion's mane	0.01	0.11	0.01	0.15	0.10	0.08	0.19	0.06	0.06	0.03	0.02	0.23	0.14	0.38	0.11	0.00	0.10	0.03	0.08	0.08	0.01
lobster, American	2.80	2.32	1.53	3.24	2.72	3.02	6.56	4.95	3.90	3.04	2.55	1.48	1.03	1.00	0.84	1.24	1.18	0.62	0.55	0.30	0.33
mussel, blue	0.31	0.01	0.07	0.03	0.03	0.01	0.05	0.03	0.04	0.01	0.17	0.08	0.11	0.09	0.04	0.04	0.02	0.00	0.02	0.02	0.04
northern moon shell	0.05	0.04	0.12	0.03	0.02	0.02	0.04	0.05	0.05	0.08	0.10	0.10	0.06	0.02	0.00	0.03	0.03	0.04	0.04	0.04	0.01
oyster, common	0.04	0.00	0.06	0.00	0.00	0.01	0.02	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.03	0.01	0.00
shrimp, mantis	0.06	0.13	0.05	0.05	0.04	0.03	0.03	0.07	0.18	0.08	0.04	0.03	0.03	0.01	0.02	0.05	0.04	0.04	0.01	0.07	0.05
squid, long-finned	1.01	0.91	0.67	0.89	0.55	0.99	0.41	0.62	0.51	0.41	0.42	0.42	1.69	1.08	1.41	0.33	0.40	0.92	0.77	0.61	0.43
starfish sp.	0.22	0.13	0.06	0.02	0.03	0.03	0.05	0.04	0.06	0.28	0.24	0.29	0.12	0.06	0.03	0.09	0.13	0.11	0.12	0.09	0.02
whelks	0.16	0.04	0.07	0.01	0.07	0.03	0.06	0.08	0.09	0.13	0.12	0.31	0.15	0.05	0.05	0.12	0.11	0.08	0.05	0.13	0.06

**Table 2.21. Finfish and invertebrate biomass indices for the fall sampling period, 1992-2012.**

The geometric mean weight (kg) per tow was calculated for 38 finfish and 15 invertebrate species for the fall (Sept-Oct) sampling period. There was no fall sampling in 2010.

	Fall																				
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
alewife	0.03	0.08	0.10	0.02	0.04	0.22	0.02	0.07	0.02	0.09	0.03	0.09	0.04	0.05	0.01	0.14	0.04	0.02	-	0.06	0.01
black sea bass	0.01	0.01	0.01	0.00	0.01	0.01	0.05	0.07	0.07	0.23	0.31	0.08	0.08	0.08	0.07	0.14	0.23	0.07	-	0.15	0.33
bluefish	16.39	9.91	9.45	8.09	7.62	6.53	5.06	8.51	8.34	6.11	7.87	8.99	16.39	8.75	3.92	9.74	9.19	6.40	-	3.84	3.72
butterfish	6.31	4.12	3.40	10.26	9.30	6.97	13.27	15.43	4.45	7.80	6.56	3.47	6.24	7.85	7.73	5.82	8.97	14.39	-	2.81	6.14
cunner	0.02	0.01	0.01	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.00	0.00	0.00	0.01	-	0.00	0.01
dogfish, smooth	1.20	1.75	0.76	0.85	1.16	1.09	1.32	1.27	2.85	3.02	6.09	6.18	2.95	2.70	2.46	6.23	1.25	2.80	-	3.66	4.69
dogfish, spiny	0.03	0.08	0.18	0.00	0.01	0.05	0.10	0.05	0.06	0.24	0.07	0.00	0.27	0.34	0.00	0.00	0.18	0.18	-	0.01	0.01
flounder, fourspot	0.14	0.16	0.14	0.08	0.48	0.24	0.19	0.14	0.35	0.17	0.25	0.30	0.29	0.19	0.06	0.19	0.16	0.21	-	0.11	0.14
flounder, summer	0.87	0.85	0.47	0.43	1.61	1.84	1.77	2.27	1.77	3.19	4.41	3.27	1.74	1.93	1.36	1.65	1.97	2.41	-	1.82	2.74
flounder, windowpane	0.51	0.73	0.42	0.32	2.11	1.30	0.61	0.38	0.45	0.30	0.38	0.43	0.26	0.57	0.29	0.42	0.98	0.64	-	0.68	0.61
flounder, winter	0.84	0.99	0.78	0.45	1.56	1.04	0.87	1.37	1.28	0.62	0.55	0.34	0.32	0.41	0.16	0.22	0.49	0.26	-	0.28	0.40
hake, red	0.11	0.34	0.19	0.04	0.48	0.18	0.10	0.06	0.32	0.07	0.02	0.19	0.14	0.10	0.06	0.12	0.09	0.13	-	0.14	0.04
hake, silver	0.04	0.02	0.28	0.02	0.01	0.06	0.01	0.03	0.01	0.01	0.01	0.02	0.02	0.01	0.08	0.01	0.03	0.02	-	0.04	0.05
hake, spotted	0.09	0.30	0.15	0.04	0.37	0.03	0.08	0.17	0.34	0.09	0.19	0.41	0.03	0.08	0.17	0.10	0.16	0.23	-	0.53	0.27
herring, Atlantic	0.07	0.01	0.01	0.00	0.02	0.01	0.02	0.00	0.00	0.00	0.00	0.03	0.00	0.01	0.00	0.00	0.00	0.01	-	0.00	0.00
herring, blueback	0.01	0.01	0.12	0.03	0.01	0.09	0.02	0.01	0.01	0.05	0.01	0.01	0.01	0.01	0.01	0.03	0.00	0.01	-	0.01	0.00
hogchoker	0.02	0.03	0.01	0.01	0.04	0.01	0.01	0.04	0.02	0.03	0.05	0.04	0.03	0.03	0.02	0.04	0.02	0.02	-	0.11	0.17
kingfish, northern	0.00	0.01	0.00	0.03	0.01	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.00	-	0.04	0.04
menhaden, Atlantic	0.36	0.22	0.36	0.25	0.25	0.24	0.09	0.39	0.22	0.05	0.35	0.25	0.49	0.43	0.06	0.29	0.12	0.10	-	0.39	0.47
moonfish	0.02	0.00	0.03	0.03	0.12	0.05	0.13	0.09	0.13	0.04	0.08	0.03	0.04	0.07	0.07	0.11	0.27	0.21	-	0.07	0.04
ocean pout	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00	0.00
rockling, fourbeard	0.01	0.00	0.01	0.00	0.02	0.01	0.00	0.00	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.01	-	0.00	0.00
scad, rough	0.00	0.03	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.00	0.03	-	0.05	0.01
sculpin, longhorn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00	0.00
scup	4.96	3.72	3.33	4.63	3.68	2.49	4.50	22.72	30.76	11.28	23.69	28.95	16.31	13.79	10.49	24.42	16.53	13.73	-	20.28	13.54
sea raven	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00	0.00
searobin, northern	0.02	0.05	0.06	0.02	0.04	0.02	0.08	0.06	0.08	0.13	0.18	0.11	0.11	0.09	0.05	0.08	0.09	0.08	-	0.11	0.22
searobin, striped	0.82	0.54	0.32	0.34	0.81	0.60	1.04	1.37	1.59	1.27	2.12	2.43	0.96	0.82	0.38	0.37	0.94	0.61	-	1.12	2.81
shad, American	0.14	0.35	0.39	0.43	0.06	0.16	0.26	0.42	0.14	0.07	0.16	0.17	0.15	0.10	0.02	0.05	0.08	0.11	-	0.09	0.08
shad, hickory	0.03	0.02	0.04	0.02	0.05	0.05	0.02	0.07	0.05	0.02	0.02	0.05	0.07	0.14	0.11	0.03	0.01	0.02	-	0.01	0.09
skate, clearnose	0.06	0.05	0.01	0.04	0.01	0.05	0.17	0.15	0.15	0.53	0.30	0.46	0.17	0.71	0.30	0.69	0.64	0.40	-	0.41	1.01
skate, little	2.47	4.61	3.47	1.78	5.66	3.81	4.06	2.85	2.92	2.88	3.00	1.96	2.02	2.32	0.67	0.65	0.82	0.64	-	0.58	0.66
skate, winter	0.11	0.15	0.21	0.09	0.25	0.10	0.09	0.08	0.01	0.21	0.21	0.00	0.11	0.16	0.00	0.12	0.31	0.18	-	0.07	0.20
spot	0.00	0.07	0.03	0.00	0.14	0.01	0.00	0.06	0.13	0.01	0.08	0.00	0.01	0.00	0.03	0.00	0.34	0.00	-	0.01	0.41
striped bass	0.09	0.16	0.11	0.15	0.21	0.68	0.38	0.39	0.51	0.48	0.70	0.26	1.25	0.48	0.88	0.64	0.79	0.61	-	0.43	0.26
sturgeon, Atlantic	0.21	0.19	0.13	0.10	0.02	0.06	0.04	0.21	0.08	0.23	0.18	0.27	0.09	0.12	0.23	0.13	0.21	0.29	-	0.10	0.10
tautog	0.22	0.22	0.15	0.09	0.07	0.14	0.27	0.31	0.30	0.20	0.27	0.43	0.21	0.23	0.23	0.16	0.20	0.07	-	0.05	0.08
weakfish	0.47	0.56	1.26	1.27	1.88	1.70	0.94	3.39	3.17	2.41	2.86	1.72	2.85	2.52	0.42	3.51	1.17	0.66	-	1.37	1.88
<b>Invertebrates</b>																					
crab, blue	0.15	0.17	0.05	0.04	0.04	0.11	0.10	0.17	0.11	0.05	0.10	0.06	0.02	0.00	0.01	0.07	0.02	0.04	-	0.09	0.07
crab, flat claw hermit	0.17	0.40	0.15	0.11	0.26	0.16	0.35	0.16	0.17	0.33	0.30	0.13	0.18	0.16	0.05	0.12	0.24	0.16	-	0.12	0.13
crab, horseshoe	1.01	1.16	0.55	0.32	1.27	1.32	0.93	1.09	1.31	1.39	1.76	1.67	1.93	0.93	1.00	1.40	1.92	1.21	-	1.25	0.65
crab, lady	1.52	1.58	1.52	1.56	3.54	1.84	0.82	0.48	0.60	0.17	0.14	0.10	0.08	0.14	0.07	0.07	0.25	0.18	-	0.30	0.20
crab, rock	0.58	0.55	0.18	0.09	0.45	0.32	0.37	0.22	0.19	0.13	0.12	0.04	0.08	0.02	0.10	0.04	0.28	0.09	-	0.09	0.05
crab, spider	0.53	1.89	0.46	0.25	0.71	0.42	0.25	0.24	0.21	0.30	0.27	0.47	0.32	0.13	0.10	0.15	0.25	0.29	-	0.21	0.18
jellyfish, lion's mane	0.02	0.01	0.03	0.17	0.18	0.50	0.17	0.03	0.22	0.17	0.10	0.01	0.13	0.12	0.46	0.45	0.02	0.58	-	0.01	0.03
lobster, American	3.17	4.11	3.58	3.03	3.48	7.22	4.24	4.16	2.65	1.91	1.10	1.28	1.46	0.84	0.61	0.51	0.80	0.77	-	0.12	0.10
mussel, blue	0.07	0.06	0.12	0.02	0.00	0.01	0.09	0.00	0.04	0.12	0.11	0.02	0.10	0.10	0.02	0.07	0.04	0.03	-	0.03	0.02
northern moon shell	0.03	0.02	0.03	0.01	0.01	0.00	0.02	0.01	0.00	0.04	0.10	0.00	0.00	0.01	0.00	0.00	0.03	0.01	-	0.00	0.00
oyster, common	0.01	0.02	0.00	0.00	0.00	0.01	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.01	-	0.00	0.01
shrimp, mantis	0.05	0.08	0.02	0.02	0.13	0.06	0.02	0.09	0.18	0.05	0.06	0.02	0.04	0.03	0.04	0.06	0.08	0.06	-	0.22	0.20
squid, long-finned	5.00	7.92	4.71	4.68	5.53	2.20	6.40	6.06	4.05	2.39	1.81	5.88	3.38	3.47	2.15	6.51	4.29	4.25	-	2.52	2.28
starfish sp.	0.11	0.08	0.07	0.00	0.01	0.02	0.05	0.02	0.12	0.22	0.09	0.01	0.10	0.11	0.02	0.05	0.09	0.06	-	0.03	0.00
whelks	0.28	0.28	0.06	0.08	0.22	0.10	0.27	0.23	0.38	0.52	0.38	0.24	0.24	0.20	0.08	0.20	0.30	0.20	-	0.21	0.15

**Table 2.22. Bluefish indices of abundance, 1984-2012.**

Using September and October length data, the geometric mean catch per tow was calculated for two age groups of bluefish: age-0 and all fish age 1 and older. Age-0 was defined as bluefish less than 30 cm fork length.

Fall				
Year	age 0 count / tow	age 0 kg / tow	ages 1+ count / tow	ages 1+ kg / tow
1984	20.34	2.51	1.61	2.03
1985	11.27	1.64	4.16	6.25
1986	8.05	1.13	3.77	5.96
1987	9.01	0.88	3.11	4.85
1988	10.73	1.59	2.20	4.43
1989	21.07	3.17	1.92	3.80
1990	12.82	2.09	6.14	8.92
1991	22.57	2.75	5.59	8.49
1992	9.23	1.27	8.44	14.88
1993	11.61	1.96	3.34	7.11
1994	24.85	2.54	3.07	6.09
1995	16.85	2.48	4.07	5.32
1996	13.85	2.27	2.34	4.09
1997	31.26	2.56	2.35	3.68
1998	25.89	2.08	1.65	2.70
1999	39.19	5.43	0.86	1.61
2000	14.67	2.97	2.18	3.75
2001	19.04	2.11	2.62	3.87
2002	12.35	2.25	3.63	4.81
2003	16.85	3.16	2.16	3.31
2004	13.30	2.39	10.38	13.96
2005	12.10	2.39	2.65	5.04
2006	12.43	1.49	2.14	2.74
2007	23.98	4.14	2.44	4.22
2008	6.14	0.82	4.52	8.18
2009	11.65	1.16	3.18	5.09
2010	-	-	-	-
2011	8.21	1.34	1.40	2.36
2012	13.11	1.86	0.97	1.67
<b>84-11</b>				
<b>mean</b>	<b>16.27</b>	<b>2.24</b>	<b>3.40</b>	<b>5.46</b>



**Table 2.23. Scup indices-at-age, 1984-2012.**

Spring (May and June) and fall (September and October) catch and age data were used to determine the geometric mean indices-at-age<sup>1</sup>. The spring and fall age keys were used to expand length frequencies to age frequencies and then the spring and fall overall indices were proportioned by the percentage of fish in each age. The 0-10+ index represents the overall index (sum of ages 0-10+), and the adult 2+ index is provided as the sum of ages 2-10+ index. All fish older than age 9 were included in the age 10+ index<sup>2</sup>.

Year	Spring (May-June)													
	0-10+	2+	Age 0	Age 1	Age 2	Age 3	Age 4	Age 5	Age 6	Age 7	Age 8	Age 9	Age 10+	
1984	2.797	2.308	0	0.489	1.311	0.577	0.307	0.074	0.004	0.002	0	0	0.034	
1985	5.648	2.707	0	2.941	2.002	0.327	0.244	0.047	0.025	0.050	0	0.004	0.008	
1986	7.230	2.785	0	4.444	1.651	0.988	0.137	0.003	0.003	0.003	0	0	0.003	
1987	2.186	1.758	0	0.428	1.646	0.071	0.034	0.007	0	0	0	0	0	
1988	2.061	0.893	0	1.168	0.309	0.502	0.054	0.026	0	0	0	0	0.003	
1989	6.249	0.615	0	5.634	0.563	0.034	0.016	0.000	0.001	0.001	0	0	0	
1990	4.867	2.345	0	2.521	2.098	0.206	0.037	0.005	0	0	0	0	0	
1991	7.046	2.795	0	4.251	1.436	1.258	0.086	0.012	0.002	0	0	0	0	
1992	1.749	1.360	0	0.389	1.212	0.093	0.052	0.002	0	0.002	0	0	0	
1993	2.530	2.492	0	0.038	2.286	0.189	0.006	0.006	0.002	0.002	0	0	0	
1994	3.892	3.093	0	0.799	2.038	0.931	0.100	0.015	0.003	0.007	0	0	0	
1995	13.587	0.645	0	12.943	0.387	0.199	0.052	0.003	0.003	0	0	0	0	
1996	7.766	2.562	0	5.204	2.477	0.074	0.004	0.006	0.002	0	0	0	0	
1997	7.558	4.394	0	3.164	2.610	1.679	0.063	0.009	0.023	0.005	0.005	0	0	
1998	10.826	0.761	0	10.065	0.578	0.115	0.063	0.005	0	0	0	0	0	
1999	4.732	2.021	0	2.711	1.755	0.162	0.074	0.030	0	0	0	0	0	
2000	146.224	21.711	0	124.513	17.184	4.237	0.195	0.064	0.030	0	0	0	0	
2001	22.486	20.837	0	1.649	18.988	1.575	0.252	0.018	0.003	0.001	0	0	0	
2002	257.914	208.764	0	49.150	66.611	123.248	17.437	1.294	0.099	0.035	0.040	0	0	
2003	13.116	12.980	0	0.136	4.047	3.284	4.964	0.608	0.069	0.005	0.005	0	0	
2004	26.915	26.902	0	0.014	3.965	8.956	4.904	8.207	0.764	0.079	0.018	0.009	0	
2005	8.483	7.325	0	1.157	1.278	1.055	1.511	1.269	1.944	0.223	0.045	0	0	
2006	59.052	40.570	0	18.482	23.719	5.629	2.072	2.557	3.160	2.897	0.529	0.007	0	
2007	32.802	25.288	0	7.514	15.865	5.845	1.489	0.548	0.536	0.541	0.385	0.073	0.007	
2008	92.100	75.143	0	16.957	40.620	27.815	4.936	0.911	0.158	0.303	0.236	0.148	0.016	
2009	104.454	72.840	0	31.614	28.228	28.413	12.491	2.498	0.613	0.215	0.134	0.250	0.000	
2010	68.138	67.717	0	0.421	24.265	21.998	14.002	6.019	1.187	0.118	0.058	0.041	0.029	
2011	36.112	33.985	0	2.127	3.285	11.378	9.812	4.116	3.391	1.421	0.248	0.071	0.263	
2012	114.542	65.371	0	49.039	25.925	11.982	9.231	9.567	4.671	2.755	0.871	0.144	0.226	
84-11	Mean	34.233	23.128	0.000	11.104	9.729	8.959	2.693	1.013	0.429	0.211	0.061	0.021	0.013

Year	Fall (Sept-Oct)													
	0-10+	2+	Age 0	Age 1	Age 2	Age 3	Age 4	Age 5	Age 6	Age 7	Age 8	Age 9	Age 10+	
1984	10.721	1.692	7.986	1.043	0.783	0.519	0.280	0.092	0.018	0	0	0	0	
1985	30.972	1.277	24.914	4.781	0.425	0.587	0.190	0.044	0.030	0.002	0	0	0	
1986	25.761	2.519	12.863	10.379	2.277	0.219	0.013	0.005	0.005	0	0	0	0	
1987	18.544	2.063	12.468	4.013	1.405	0.579	0.058	0.009	0.009	0.004	0	0	0	
1988	39.699	2.092	31.687	5.920	1.818	0.242	0.032	0	0	0	0	0	0	
1989	65.087	1.596	40.920	22.571	1.501	0.083	0.012	0	0	0	0	0	0	
1990	69.477	7.396	54.350	7.731	6.946	0.398	0.034	0.005	0.008	0	0	0.005	0	
1991	311.570	2.953	291.568	17.050	1.759	1.040	0.147	0.008	0	0	0	0	0	
1992	83.731	6.244	50.971	26.516	5.540	0.398	0.287	0.013	0.007	0	0	0	0	
1993	77.057	1.165	74.061	1.831	1.019	0.121	0.012	0.010	0	0	0.003	0	0	
1994	92.523	0.657	90.778	1.088	0.457	0.185	0.012	0.003	0	0	0	0	0	
1995	59.136	0.150	32.465	26.521	0.144	0.006	0	0	0	0	0	0	0	
1996	61.459	1.400	51.497	8.562	1.365	0.029	0	0.005	0	0	0	0	0	
1997	41.276	0.809	31.791	8.677	0.630	0.172	0.008	0	0	0	0	0	0	
1998	103.272	0.628	90.404	12.240	0.537	0.069	0.022	0	0	0	0	0	0	
1999	537.683	8.574	498.180	30.930	8.349	0.195	0.019	0.011	0	0	0	0	0	
2000	521.103	9.265	250.391	261.446	8.323	0.794	0.140	0.008	0	0	0	0	0	
2001	177.641	20.239	140.506	16.897	18.421	1.607	0.186	0.025	0	0	0	0	0	
2002	348.703	41.179	259.902	47.623	23.321	16.812	0.665	0.325	0.048	0	0.007	0	0	
2003	152.227	83.963	52.910	15.354	32.065	22.394	26.440	2.493	0.539	0.016	0.016	0	0	
2004	291.458	36.277	251.052	4.129	8.338	15.082	5.978	6.245	0.534	0.072	0.008	0.021	0	
2005	424.063	18.183	373.318	32.562	8.144	2.437	4.015	1.505	1.689	0.332	0.060	0	0	
2006	116.755	13.575	52.164	51.016	9.525	2.341	0.257	0.351	0.377	0.681	0.044	0	0	
2007	475.295	37.346	319.893	118.056	29.335	5.929	0.896	0.226	0.302	0.313	0.313	0.033	0	
2008	303.256	24.478	243.679	35.099	11.921	7.044	3.556	1.055	0.502	0.137	0.124	0.140	0	
2009	139.380	31.506	67.486	40.388	20.786	6.934	2.615	0.735	0.214	0.131	0.068	0.022	0	
2010	-	-	-	-	-	-	-	-	-	-	-	-	-	
2011	198.226	40.786	119.032	38.409	8.157	14.894	9.669	3.922	3.225	0.586	0.167	0.025	0.140	
2012	223.522	15.983	153.235	54.305	9.963	2.846	2.063	0.567	0.137	0.323	0.076	0.007	0	
84-11	Mean	176.892	14.741	130.638	31.512	7.900	3.745	2.057	0.633	0.278	0.084	0.030	0.009	0.005

- (1) In 1984, 1985, 2003, 2004, 2006, 2008, 2010 and 2011 less than the number of scheduled tows were conducted in some months( Table 2.4).
- (2) Fish in the age 10+ group include: 6 fish taken 1984-1988, 8 fish taken 2002-2010, 81 taken in 2011, and 28 taken in 2012. The oldest fish aged was a 14-year-old taken in 1985.

**Table 2.24. Age frequency of striped bass taken in spring, 1984-2012.**

Ages were derived from trawl survey length data using the average of Hudson River and Chesapeake Bay von Bertalanffy parameters (Vic Crecco, pers. comm.).

Age	Year																														
	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012		
1	0	0	0	0	0	0	0	0	0	2	0	0	3	0	0	1	0	2	1	1	0	0	2	11	5	0	1	11			
2	0	0	0	2	1	5	28	11	4	3	6	98	12	36	119	41	113	47	150	30	15	220	3	46	20	84	3	2	46		
3	0	0	0	0	1	3	8	7	8	7	10	26	97	116	122	87	20	41	76	38	38	54	25	109	15	54	7	2	13		
4	0	0	0	2	4	1	2	3	13	16	20	8	37	40	68	42	22	15	48	23	18	59	15	44	48	130	17	29	13		
5	0	0	0	2	0	1	1	5	5	14	18	7	14	17	28	95	22	28	45	39	21	33	22	44	41	64	24	50	19		
6	0	0	0	2	1	1	3	0	1	8	8	6	7	14	20	46	32	36	52	41	22	28	11	28	11	34	11	44	12		
7	0	0	0	0	0	0	0	0	2	0	7	1	1	8	9	3	17	12	13	25	23	14	16	10	9	7	10	6	29	5	
8	0	0	0	0	0	0	0	0	1	2	1	1	3	2	4	1	4	4	2	12	5	3	9	4	3	3	1	2	7	3	
9	0	0	0	0	0	0	0	0	2	1	1	1	0	3	2	1	0	1	2	3	7	2	1	3	1	1	0	0	1	2	
10	0	0	0	0	0	0	1	1	0	0	0	1	0	0	0	1	2	0	1	0	0	0	3	3	2	0	0	0	0	0	
11	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1	1	1	0	0	0	0	0	0	1	
12	0	0	0	0	0	0	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
Total	0	0	0	8	7	11	43	32	34	59	65	150	184	238	362	334	229	184	414	207	135	421	97	289	159	382	70	166	125		

Note: number of fish taken but not measured = one in 1984, one in 1988, two in 1990.

**Table 2.25. Striped bass indices-at-age, 1984-2012.**

Spring length data was converted to ages using the average of Hudson River and Chesapeake Bay von Bertalanffy parameters (Vic Crecco, pers comm). Indices-at-age were then determined by apportioning the spring indices (from Table 2.10) by the percentage of fish in each age.

Year	Index	Spring											
		Age 1	Age 2	Age 3	Age 4	Age 5	Age 6	Age 7	Age 8	Age 9	Age 10	Age 11	Age 12
1984	0.02	0	0	0	0	0	0	0	0	0	0	0	0
1985	0.00	0	0	0	0	0	0	0	0	0	0	0	0
1986	0.00	0	0	0	0	0	0	0	0	0	0	0	0
1987	0.05	0	0.0125	0	0.0125	0.0125	0.0125	0	0	0	0	0	0
1988	0.04	0	0.0057	0.0057	0.0229	0	0.0057	0	0	0	0	0	0
1989	0.06	0	0.0273	0.0164	0.0055	0.0055	0.0055	0	0	0	0	0	0
1990	0.16	0	0.1042	0.0298	0.0074	0.0037	0.0112	0	0	0	0.0037	0	0
1991	0.15	0	0.0516	0.0328	0.0141	0.0234	0	0.0094	0.0047	0.0094	0.0047	0	0
1992	0.22	0	0.0259	0.0518	0.0841	0.0324	0.0065	0	0.0129	0.0065	0	0	0
1993	0.27	0.0093	0.014	0.0326	0.0745	0.0652	0.0372	0.0326	0.0047	0.0047	0	0	0
1994	0.30	0	0.0277	0.0462	0.0923	0.0831	0.0369	0.0046	0.0046	0.0046	0	0	0
1995	0.59	0	0.3855	0.1023	0.0315	0.0275	0.0236	0.0039	0.0118	0	0.0039	0	0
1996	0.63	0.0103	0.0411	0.3321	0.1267	0.0479	0.024	0.0274	0.0068	0.0103	0	0.0034	0
1997	0.85	0	0.1286	0.4143	0.1429	0.0607	0.05	0.0321	0.0143	0.0071	0	0	0
1998	0.97	0	0.3189	0.3269	0.1822	0.075	0.0536	0.008	0.0027	0.0027	0	0	0
1999	1.10	0	0.1346	0.2857	0.1379	0.3119	0.151	0.0558	0.0131	0	0.0033	0.0033	0
2000	0.84	0.0037	0.4163	0.0737	0.0811	0.0811	0.1179	0.0442	0.0147	0.0037	0.0074	0	0
2001	0.61	0	0.1558	0.1359	0.0497	0.0928	0.1193	0.0431	0.0066	0.0066	0	0	0
2002	1.30	0.0063	0.4722	0.2392	0.1511	0.1416	0.1637	0.0787	0.0378	0.0094	0.0031	0	0
2003	0.87	0.0042	0.1267	0.1605	0.0971	0.1647	0.1732	0.0971	0.0211	0.0296	0	0	0
2004	0.56	0.0042	0.0627	0.1588	0.0752	0.0878	0.0919	0.0585	0.0125	0.0084	0	0.0042	0
2005	1.17	0	0.61	0.1497	0.1636	0.0915	0.0776	0.0444	0.025	0.0028	0	0.0028	0
2006	0.61	0	0.0189	0.1572	0.0943	0.1384	0.0692	0.0629	0.0252	0.0189	0.0189	0.0063	0
2007	1.02	0.0071	0.1629	0.386	0.1558	0.1558	0.0992	0.0319	0.0106	0.0035	0.0106	0	0
2008	0.57	0.0394	0.0717	0.0538	0.1721	0.147	0.0394	0.0251	0.0108	0.0036	0.0072	0	0
2009	0.60	0.0078	0.1316	0.0846	0.2037	0.1003	0.0533	0.0157	0.0016	0	0	0	0
2010	0.40	0	0.0169	0.0394	0.0958	0.1352	0.062	0.0338	0.0113	0	0	0	0
2011	0.48	0.0029	0.0058	0.0058	0.0839	0.1446	0.1272	0.0839	0.0202	0.0029	0	0	0.0029
2012	0.381	0.1595	0.0451	0.0451	0.0659	0.0416	0.0173	0.0104	0.0069	0	0.0035	0	0
84-11 mean		0.0034	0.1260	0.1186	0.0842	0.0796	0.0576	0.0283	0.0098	0.0048	0.0022	0.0007	0.0001

**Table 2.26. Summer flounder indices-at-age, 1984-2012.**

Year and season specific age keys obtained from the NMFS spring and fall surveys were used to convert LISTs length frequencies to ages. Starting in 2000 LISTs ageing data (60 cm and over) were added to the age key to supplement the older age groups. Indices-at-age were determined for each season by apportioning the spring and fall overall indices (from Table 2.19 and Table 2.20) by the percentage of fish in each age.

Year	Spring												
	0-11	Age 0	Age 1	Age 2	Age 3	Age 4	Age 5	Age 6	Age 7	Age 8	Age 9	Age 10	Age 11
1984	0.6291	0	0.3236	0.2610	0.0445	0	0	0	0	0	0	0	0
1985	0.4410	0	0.0166	0.3168	0.0489	0.0587	0	0	0	0	0	0	0
1986	0.9510	0	0.7700	0.0892	0.0742	0.0126	0.0050	0	0	0	0	0	0
1987	1.0572	0	0.9515	0.0793	0.0202	0.0036	0.0026	0	0	0	0	0	0
1988	0.4986	0	0.2317	0.2232	0.0352	0.0085	0	0	0	0	0	0	0
1989	0.1016	0	0.0111	0.0550	0.0191	0.0164	0	0	0	0	0	0	0
1990	0.3475	0	0.3053	0.0201	0.0156	0.0065	0	0	0	0	0	0	0
1991	0.6391	0	0.3892	0.2059	0.0205	0.0235	0	0	0	0	0	0	0
1992	0.5546	0	0.3182	0.1906	0.0229	0	0.0229	0	0	0	0	0	0
1993	0.5074	0	0.3216	0.1504	0.0101	0.0152	0.0101	0	0	0	0	0	0
1994	0.8601	0	0.4959	0.3136	0.0324	0	0	0	0.0182	0	0	0	0
1995	0.2796	0	0.2023	0.0608	0.0110	0	0	0	0.0055	0	0	0	0
1996	0.9609	0	0.6216	0.2370	0.0868	0	0.0052	0	0.0103	0	0	0	0
1997	0.9991	0	0.4481	0.4461	0.0740	0.0121	0.0134	0.0054	0	0	0	0	0
1998	1.3067	0	0.0734	0.5952	0.4693	0.1167	0.0324	0.0197	0	0	0	0	0
1999	1.4401	0	0.3263	0.5563	0.3521	0.1110	0.0696	0.0248	0	0	0	0	0
2000	1.7898	0	0.3805	0.7853	0.4240	0.0538	0.1316	0.0092	0	0.0054	0	0	0
2001	1.7468	0	0.8408	0.3395	0.3653	0.1073	0.0488	0.0333	0.0067	0.0051	0	0	0
2002	3.1851	0	1.0571	1.2637	0.4646	0.2233	0.0930	0.0362	0.0236	0.0145	0.0091	0	0
2003	3.4211	0	1.6080	1.0159	0.3949	0.2316	0.0851	0.0462	0.0327	0.0025	0.0042	0	0
2004	1.8381	0	0.2592	0.8180	0.4100	0.1878	0.0338	0.0817	0.0302	0.0145	0.0029	0	0
2005	0.8038	0	0.2523	0.2641	0.1495	0.0334	0.0364	0.0393	0.0196	0.0046	0.0046	0	0
2006	0.6129	0	0.0383	0.3597	0.0676	0.0654	0.0337	0.0263	0.0168	0.0051	0	0	0
2007	2.5073	0	1.1569	0.2053	0.5595	0.3163	0.1150	0.0888	0.0428	0.0152	0.0065	0.0010	0
2008	1.6145	0	0.6008	0.2912	0.2374	0.2633	0.1165	0.0622	0.0236	0.0033	0.0054	0.0054	0.0054
2009	1.9295	0	0.7772	0.3770	0.2905	0.1804	0.1949	0.0700	0.0258	0.0101	0.0036	0	0
2010	2.6878	0	1.8671	0.2805	0.2113	0.1439	0.0944	0.0416	0.0244	0.0142	0.0052	0.0052	0
2011	3.8479	0	1.0024	1.0839	0.8014	0.3820	0.3159	0.1098	0.0628	0.0580	0.0171	0.0146	0
2012	3.0620	0	0.4684	0.6283	0.9746	0.6346	0.2044	0.0754	0.0333	0.0224	0.0050	0.0113	0.0043
<b>84-11</b>													
<b>Mean</b>	<b>1.3414</b>	<b>0.0000</b>	<b>0.5588</b>	<b>0.3887</b>	<b>0.2040</b>	<b>0.0919</b>	<b>0.0522</b>	<b>0.0248</b>	<b>0.0123</b>	<b>0.0054</b>	<b>0.0021</b>	<b>0.0009</b>	<b>0.0002</b>

Year	Fall												
	0-11	Age 0	Age 1	Age 2	Age 3	Age 4	Age 5	Age 6	Age 7	Age 8	Age 9	Age 10	Age 11
1984	0.9888	0	0.5648	0.3269	0.0713	0.0140	0.0042	0.0042	0.0034	0	0	0	0
1985	1.1931	0.2453	0.3605	0.4984	0.0804	0	0.0085	0	0	0	0	0	0
1986	1.7157	0.1738	1.1902	0.2681	0.0817	0.0019	0	0	0	0	0	0	0
1987	1.3963	0.0749	1.0573	0.2309	0.0305	0.0027	0	0	0	0	0	0	0
1988	1.4159	0.0150	0.8739	0.4782	0.0366	0.0122	0	0	0	0	0	0	0
1989	0.1363	0	0.0227	0.1051	0.0085	0	0	0	0	0	0	0	0
1990	0.8678	0.0321	0.6720	0.1214	0.0339	0.0042	0.0042	0	0	0	0	0	0
1991	1.2557	0.0363	0.8141	0.3457	0.0432	0.0082	0.0041	0.0041	0	0	0	0	0
1992	1.0178	0.0131	0.5685	0.3578	0.0561	0.0134	0.0089	0	0	0	0	0	0
1993	1.1113	0.0842	0.8371	0.1490	0.0362	0.0029	0	0.0019	0	0	0	0	0
1994	0.5517	0.1325	0.3008	0.0957	0.0138	0.0089	0	0	0	0	0	0	0
1995	0.5408	0.0424	0.3812	0.1043	0.0090	0.0039	0	0	0	0	0	0	0
1996	2.1914	0.0840	1.0394	1.0276	0.0375	0.0029	0	0	0	0	0	0	0
1997	2.4980	0.0693	0.8494	1.2261	0.3016	0.0321	0.0099	0.0084	0.0012	0	0	0	0
1998	1.7153	0	0.3251	1.0456	0.2867	0.0392	0.0187	0	0	0	0	0	0
1999	2.6787	0.0482	0.8000	1.4412	0.2963	0.0823	0.0084	0.0023	0	0	0	0	0
2000	1.9134	0.1151	0.5117	0.8244	0.2971	0.1122	0.0433	0.0067	0	0.0029	0	0	0
2001	4.4181	0.0208	2.6891	1.1372	0.4342	0.1095	0.0153	0.0078	0	0.0042	0	0	0
2002	6.1211	0.4415	3.0870	1.9304	0.4769	0.1216	0.0429	0.0168	0.0040	0	0	0	0
2003	3.3879	0	1.4584	1.3192	0.4069	0.0873	0.0908	0.0164	0.0089	0	0	0	0
2004	1.9537	0.2545	0.3848	0.7551	0.4398	0.0804	0.0241	0.0150	0	0	0	0	0
2005	2.4099	0.0671	1.0930	0.7441	0.3554	0.0866	0.0316	0.0123	0.0166	0.0032	0	0	0
2006	1.3148	0.0976	0.2170	0.5915	0.2299	0.0957	0.0435	0.0214	0.0182	0	0	0	0
2007	1.8880	0.1295	0.5669	0.3869	0.4676	0.2012	0.0778	0.0408	0.0087	0.0043	0	0	0.0043
2008	3.0853	0.7816	0.4848	0.9581	0.4458	0.3256	0.0804	0.0090	0	0	0	0	0
2009	3.1169	0.4054	0.6606	0.8883	0.6241	0.3182	0.1330	0.0437	0.0244	0.0070	0.0122	0.0000	0.0000
2010	-	-	-	-	-	-	-	-	-	-	-	-	-
2011	2.5578	0.1173	0.6933	0.9333	0.5641	0.1232	0.0543	0.0275	0.0130	0.0130	0.0061	0.0052	0.0075
2012	3.7358	0.1633	0.4592	0.8283	1.4239	0.5848	0.1836	0.0631	0.0296	0	0	0	0
<b>84-11</b>													
<b>Mean</b>	<b>1.9793</b>	<b>0.1289</b>	<b>0.8335</b>	<b>0.6774</b>	<b>0.2283</b>	<b>0.0700</b>	<b>0.0261</b>	<b>0.0088</b>	<b>0.0036</b>	<b>0.0013</b>	<b>0.0007</b>	<b>0.0002</b>	<b>0.0004</b>

**Table 2.27. Tautog indices-at-age, 1984-2011.**

Year and season specific age keys obtained from the LISTs spring and fall surveys were used to convert LISTs length frequencies to ages. Indices-at-age were then determined for each season by apportioning the spring and fall overall indices (from Table 2.10 and Table 2.11) by the percentage of fish in each age, and then summing the spring and fall indices-at-age. The age 1-20+ index is the sum of indices ages 1 – 20+. The age 20+ category includes 36 fish ranging from 20 to 30 years of age.

Year	Age										
	1 - 20+	1	2	3	4	5	6	7	8	9	10
1984	3.4693	0.0109	0.0816	0.1898	0.3030	0.4591	0.4949	0.2890	0.2857	0.3104	0.3533
1985	1.7966	0	0.0170	0.0943	0.1931	0.1677	0.1273	0.1837	0.3003	0.2021	0.0902
1986	1.7199	0.0015	0.0273	0.0924	0.0500	0.1049	0.2011	0.2409	0.2452	0.2864	0.1017
1987	1.2129	0.0237	0.0810	0.0585	0.0602	0.1003	0.1342	0.1908	0.1349	0.0957	0.0523
1988	0.9008	0.0038	0.0318	0.0463	0.0726	0.0449	0.0401	0.0756	0.1007	0.1641	0.0790
1989	1.2588	0	0.0421	0.0686	0.1369	0.0894	0.1154	0.1495	0.1600	0.1046	0.0817
1990	1.1611	0.0060	0.0895	0.1548	0.1117	0.1139	0.0493	0.0501	0.1247	0.0874	0.0622
1991	1.1468	0.0054	0.0225	0.0593	0.1190	0.1241	0.1487	0.0931	0.1254	0.1071	0.1067
1992	1.0253	0.0186	0.0505	0.0697	0.0417	0.0492	0.1229	0.1324	0.0849	0.0632	0.0636
1993	0.5693	0.0041	0.0206	0.0493	0.0321	0.0167	0.0605	0.0595	0.0423	0.0489	0.0522
1994	0.5838	0.0075	0.0379	0.0321	0.0685	0.0558	0.0551	0.0555	0.0799	0.0516	0.0312
1995	0.2529	0.0031	0.0091	0.0095	0.0297	0.0602	0.0269	0.0212	0.0346	0.0150	0.0219
1996	0.5627	0.0073	0.0518	0.0305	0.0086	0.0762	0.0452	0.0654	0.0712	0.0667	0.0608
1997	0.5079	0	0.0390	0.0675	0.0568	0.0574	0.0639	0.0491	0.0556	0.0486	0.0101
1998	0.6442	0	0.0425	0.0281	0.0701	0.0821	0.0876	0.0875	0.0848	0.0465	0.0575
1999	0.7614	0.0498	0.0792	0.0583	0.0666	0.1015	0.1379	0.0748	0.0843	0.0431	0.0203
2000	0.8004	0.0012	0.0466	0.0578	0.0830	0.0739	0.1402	0.1376	0.0897	0.0392	0.0467
2001	0.8946	0.0062	0.0299	0.0868	0.0830	0.1294	0.1197	0.1193	0.1058	0.0715	0.0454
2002	1.1665	0.0087	0.0261	0.0586	0.1011	0.1747	0.1972	0.1895	0.2091	0.0739	0.0419
2003	0.8978	0.0021	0.0142	0.0078	0.0597	0.1485	0.2385	0.1596	0.0893	0.0778	0.0185
2004	0.6933	0.0075	0.0206	0.0148	0.0361	0.0710	0.1930	0.1096	0.0494	0.0812	0.0440
2005	0.7596	0.0100	0.0367	0.0618	0.0261	0.0922	0.1437	0.1576	0.1064	0.0303	0.0268
2006	0.8405	0	0.0334	0.0345	0.1039	0.1274	0.1140	0.1196	0.1521	0.0620	0.0479
2007	0.6136	0.0024	0.0140	0.0167	0.0460	0.0478	0.0608	0.0919	0.0936	0.0966	0.0532
2008	0.7269	0.0035	0.0310	0.0428	0.0620	0.0848	0.1164	0.0708	0.0649	0.0831	0.0640
2009	0.4822	0.0150	0.0355	0.0074	0.0026	0.0394	0.0681	0.1013	0.0658	0.0319	0.0324
2010	0.2471	0	0.0105	0.0402	0.0093	0.0053	0.0315	0.0503	0.0294	0.0096	0.0093
2011*	0.4457	0.0050	0.0395	0.0442	0.0516	0.0404	0.0459	0.0486	0.0472	0.0320	0.0273
2012*	0.0000										
<b>84-11</b>											
Mean	0.8397	0.0071	0.0363	0.0516	0.0660	0.0844	0.1069	0.1068	0.1049	0.0785	0.0500

Year	Age										
	11	12	13	14	15	16	17	18	19	20+	
1984	0.1262	0.2281	0.0933	0.0513	0.0449	0.0322	0.0463	0.0156	0.0006	0.0531	
1985	0.1595	0.0982	0.0226	0.0994	0	0.0249	0.0039	0.0124	0	0	
1986	0.1423	0.0863	0.0374	0.0523	0.0232	0.0071	0.0112	0.0003	0.0023	0.0061	
1987	0.0607	0.0543	0.0479	0.0313	0.0246	0.0265	0.0105	0.0004	0.0048	0.0203	
1988	0.0469	0.0395	0.0295	0.0225	0.0493	0.0086	0.0063	0.0055	0.0052	0.0286	
1989	0.0569	0.0932	0.0430	0.0404	0.0348	0.0172	0.0067	0.0048	0	0.0136	
1990	0.0978	0.0375	0.0567	0.0397	0.0221	0.0250	0.0088	0.0170	0.0035	0.0034	
1991	0.0610	0.0258	0.0399	0.0361	0.0217	0.0005	0.0160	0.0117	0.0080	0.0148	
1992	0.0599	0.0512	0.0440	0.0581	0.0236	0.0208	0.0167	0.0298	0.0167	0.0078	
1993	0.0368	0.0351	0.0351	0.0129	0.0157	0.0152	0.0129	0.0097	0.0097	0	
1994	0.0234	0.0238	0.0071	0.0118	0.0118	0.0096	0.0024	0.0047	0.0070	0.0071	
1995	0.0036	0.0036	0.0073	0	0	0	0.0036	0	0	0.0036	
1996	0.0230	0.0127	0.0103	0.0048	0.0100	0.0090	0.0086	0.0003	0.0001	0.0002	
1997	0.0072	0.0119	0.0144	0.0048	0.0121	0.0071	0	0.0024	0	0	
1998	0.0192	0.0164	0.0055	0.0055	0	0.0027	0.0055	0	0	0.0027	
1999	0.0191	0.0090	0.0087	0.0029	0	0	0.0030	0.0029	0	0	
2000	0.0213	0.0130	0.0123	0.0101	0.0084	0.0104	0.0023	0	0.0027	0.0040	
2001	0.0407	0.0161	0.0152	0.0004	0.0053	0.0105	0.0036	0.0001	0.0026	0.0031	
2002	0.0257	0.0185	0.0107	0.0070	0.0147	0.0039	0	0	0	0.0052	
2003	0.0274	0.0088	0.0059	0.0184	0.0029	0.0124	0	0.0029	0	0.0031	
2004	0.0204	0.0221	0.0119	0.0003	0.0028	0.0031	0.0026	0.0002	0	0.0027	
2005	0.0347	0.0257	0.0039	0.0037	0	0	0	0	0	0	
2006	0.0183	0.0200	0.0037	0	0.0037	0	0	0	0	0	
2007	0.0294	0.0156	0.0194	0.0108	0.0019	0.0116	0	0.0019	0	0	
2008	0.0322	0.0225	0.0228	0.0163	0.0098	0	0	0	0	0	
2009	0.0343	0.0064	0.0091	0.0217	0.0070	0.0032	0.0011	0	0	0	
2010	0.0192	0.0139	0.0048	0.0046	0.0046	0	0	0	0.0046	0	
2011*	0.0185	0.0136	0.0101	0.0075	0.0050	0.0026	0.0015	0.0023	0.0009	0.0020	
2012*											
<b>84-11</b>											
Mean	0.0452	0.0365	0.0226	0.0205	0.0129	0.0094	0.0062	0.0045	0.0025	0.0065	

\* 2011 Preliminary, 2012 not yet complete

**Table 2.28. Weakfish age 0 and age 1+ indices of abundance, 1984-2012.**

Using spring (May, June) and fall (September, October) length data, the geometric mean catch per tow was calculated for three groups of weakfish: fall age-0, spring - all fish age 1 and older (1+), and fall - all fish age 1 and older (1+). Weakfish less than 30 cm fork length in the fall were defined as age-0.

Year	Fall		Fall		Spring	
	age 0 count / tow	age 0 kg / tow	ages 1+ count / tow	age 1+ kg / tow	ages 1+ count / tow	ages 1+ kg / tow
1984	1.00	0.14	0.53	0.84	0.02	0.15
1985	6.19	0.74	0.24	0.46	0.00	0.10
1986	13.16	0.91	0.24	0.51	0.10	0.33
1987	0.63	0.13	0.11	0.16	0.02	0.11
1988	3.49	0.30	0.06	0.13	0.05	0.17
1989	8.69	0.94	0.02	0.10	0.04	0.16
1990	5.56	0.56	0.08	0.13	0.07	0.13
1991	11.95	1.44	0.31	0.41	0.28	0.26
1992	3.05	0.31	0.18	0.24	0.12	0.22
1993	4.08	0.46	0.12	0.18	0.10	0.15
1994	11.19	1.23	0.06	0.13	0.04	0.12
1995	5.22	0.84	0.70	0.64	0.18	0.16
1996	15.23	1.49	0.56	0.52	0.19	0.19
1997	12.38	1.03	0.89	0.81	0.42	0.34
1998	5.02	0.76	0.28	0.36	0.37	0.41
1999	30.93	3.21	0.39	0.51	0.45	0.59
2000	63.31	3.34	0.30	0.32	0.18	0.28
2001	40.09	2.20	0.52	0.54	0.27	0.26
2002	41.35	2.85	0.16	0.26	0.16	0.26
2003	49.41	1.77	0.07	0.17	0.04	0.14
2004	58.98	2.99	0.21	0.25	0.15	0.16
2005	25.86	2.50	0.12	0.18	0.27	0.23
2006	1.05	0.20	0.29	0.30	0.14	0.22
2007	63.93	3.86	0.06	0.14	0.11	0.22
2008	9.03	1.17	0.08	0.14	0.05	0.12
2009	6.48	0.57	0.30	0.22	0.08	0.16
2010	-	-	-	-	0.02	0.12
2011	11.64	0.87	0.68	0.55	0.10	0.15
2012	21.96	1.47	0.73	0.69	0.62	0.56
<b>84-11</b>						
<b>mean</b>	<b>18.96</b>	<b>1.37</b>	<b>0.30</b>	<b>0.35</b>	<b>0.16</b>	<b>0.22</b>

**Table 2.29. Winter flounder indices-at-age, 1984-2012.**

The Long Island Sound Trawl Survey April and May catch and age data was used to calculate the geometric mean indices-at-age. An April-May age key was used to convert lengths to ages, and an overall April-May index (the ages 1-13 index in the table) was apportioned by the percentage of fish at age. The 4+ index is the sum of indices ages 4-13 and represents the abundance of winter flounder that are recruited to the fishery. The age-0 indices were obtained from the Estuarine Seine Survey (Job 2 Part 2).

Catch-at-age: numbers			April-May													
Year	1 - 13	4+	Age 0	Age 1	Age 2	Age 3	Age 4	Age 5	Age 6	Age 7	Age 8	Age 9	Age 10	Age 11	Age 12	Age 13
1984	111.96	27.91	-	8.21	44.01	31.83	20.96	4.23	1.23	0.67	0.74	0.04	0.01	0.03	0	0
1985	83.58	18.13	-	4.11	28.46	32.88	14.17	2.33	0.82	0.45	0.19	0.11	0.04	0.02	0	0
1986	63.65	15.43	-	6.69	26.00	15.53	12.26	2.05	0.50	0.24	0.24	0.10	0.01	0.03	0	0
1987	79.92	13.35	-	7.32	44.69	14.56	5.05	6.55	1.28	0.11	0.24	0.13	0	0	0	0
1988	137.59	12.13	15.40	14.49	71.87	39.10	8.59	1.83	1.46	0.16	0.04	0.02	0.02	0	0	0
1989	148.19	14.97	1.66	13.56	78.43	41.23	10.85	2.84	0.98	0.14	0.09	0.06	0.01	0	0	0
1990	223.09	15.29	2.85	11.31	131.52	64.97	8.97	4.09	1.96	0.19	0.05	0	0.02	0	0	0
1991	150.20	14.31	5.23	8.52	66.99	60.39	9.31	4.05	0.80	0.14	0	0	0	0.01	0	0
1992	61.39	10.49	11.90	6.80	31.32	12.78	8.97	1.10	0.36	0.05	0	0	0	0	0	0
1993	63.60	9.16	5.68	19.11	19.87	15.46	4.81	3.24	0.80	0.15	0.11	0.04	0.01	0	0	0
1994	84.44	4.87	14.23	9.57	64.14	5.86	3.01	1.14	0.49	0.17	0.05	0.01	0.01	0	0	0
1995	50.12	2.31	10.10	14.35	23.69	9.77	1.36	0.63	0.20	0.08	0.02	0.02	0.00	0	0	0
1996	110.62	15.92	19.22	11.46	59.07	24.17	14.41	0.97	0.28	0.14	0.06	0.04	0.01	0	0	0
1997	71.31	13.84	7.47	12.53	25.53	19.41	9.45	3.76	0.51	0.07	0.03	0.01	0.01	0.01	0	0
1998	72.91	17.06	9.16	11.22	32.40	12.23	12.67	3.15	0.99	0.14	0.02	0.07	0	0	0	0
1999	41.35	11.10	8.70	6.56	12.42	11.27	6.09	3.20	1.14	0.61	0.04	0.01	0.02	0	0	0
2000	45.41	13.26	4.33	7.11	16.66	8.40	7.70	3.42	1.53	0.31	0.26	0.01	0.01	0	0.01	0
2001	54.50	15.61	1.34	8.45	19.60	10.85	8.06	5.46	1.28	0.68	0.05	0.08	0	0	0	0
2002	43.71	7.99	3.06	6.27	19.90	9.56	4.43	1.95	1.02	0.35	0.11	0.03	0.10	0	0	0
2003	27.84	8.83	8.07	2.47	7.83	8.71	4.79	1.95	0.77	0.82	0.29	0.07	0.14	0	0	0
2004	20.46	6.81	10.96	6.32	3.88	3.45	3.88	1.92	0.64	0.21	0.11	0.03	0.01	0	0	0.01
2005	16.10	2.03	5.63	7.06	6.18	0.84	0.81	0.67	0.21	0.16	0.10	0.05	0.01	0.01	0	0
2006	5.59	0.74	0.93	1.14	2.60	1.10	0.19	0.14	0.17	0.09	0.01	0.09	0.03	0.02	0	0
2007	28.68	4.16	4.73	2.98	10.83	10.70	3.10	0.61	0.15	0.11	0.12	0.04	0.01	0.01	0.01	0
2008	24.11	4.97	1.97	11.46	3.49	4.18	4.12	0.65	0.12	0.04	0.03	0.01	0	0	0.01	0
2009	22.65	2.86	0.77	7.56	11.21	1.02	1.31	1.21	0.22	0.06	0.04	0	0.01	0	0.01	0
2010	20.88	1.84	0.96	6.64	8.45	3.94	0.71	0.57	0.44	0.11	0.01	0	0	0	0	0
2011	27.95	5.55	1.12	6.54	9.34	6.53	3.66	1.15	0.30	0.39	0.04	0	0	0	0	0
2012	15.80	2.83	0.29	4.84	5.61	2.51	1.97	0.62	0.09	0.06	0.05	0.03	0	0	0	0
<b>84-11</b>																
<b>Mean</b>	67.56	10.39	6.23	8.57	31.44	17.17	6.92	2.32	0.74	0.25	0.11	0.04	0.02	0.00	0.00	0.00

Catch-at-age: biomass (kg)			April-May													
Year	1-13	4+	Age 0	Age 1	Age 2	Age 3	Age 4	Age 5	Age 6	Age 7	Age 8	Age 9	Age 10	Age 11	Age 12	Age 13
1984	15.68	7.81	NA	0.31	3.06	4.50	5.18	1.51	0.49	0.30	0.28	0.03	0.01	0.01	0	0
1985	13.91	5.96	NA	0.15	2.54	5.26	3.97	0.97	0.46	0.33	0.11	0.08	0.03	0.02	0	0
1986	10.33	5.39	NA	0.24	2.16	2.55	3.68	0.88	0.32	0.21	0.16	0.09	0.01	0.03	0	0
1987	11.76	4.94	NA	0.30	4.03	2.50	1.39	2.59	0.64	0.08	0.14	0.09	0	0	0	0
1988	18.28	4.51	NA	0.54	6.06	7.17	2.64	0.93	0.74	0.12	0.03	0.02	0.03	0	0	0
1989	22.62	5.64	NA	0.43	7.99	8.56	3.62	1.32	0.47	0.10	0.07	0.05	0.01	0	0	0
1990	29.01	7.09	NA	0.33	10.37	11.21	3.79	2.19	0.89	0.14	0.04	0	0.04	0	0	0
1991	24.59	5.54	NA	0.32	6.82	11.92	3.53	1.47	0.43	0.10	0	0	0	0.01	0	0
1992	12.29	4.79	NA	0.27	3.82	3.41	3.81	0.71	0.25	0.02	0	0	0	0	0	0
1993	10.26	4.43	NA	0.54	1.93	3.36	1.96	1.73	0.51	0.11	0.08	0.04	0.01	0	0	0
1994	12.20	2.95	NA	0.34	7.13	1.79	1.51	0.77	0.43	0.16	0.06	0.01	0.01	0	0	0
1995	7.72	1.39	NA	0.51	2.70	3.12	0.71	0.39	0.18	0.08	0.02	0.01	0.01	0	0	0
1996	20.41	7.36	NA	0.41	6.11	6.53	6.32	0.61	0.22	0.12	0.06	0.03	0.01	0	0	0
1997	15.53	6.96	NA	0.48	2.61	5.48	4.26	2.23	0.36	0.07	0.03	0.01	0.01	0.01	0	0
1998	14.66	7.28	NA	0.36	3.59	3.43	4.88	1.64	0.60	0.09	0.02	0.05	0	0	0	0
1999	10.29	5.32	NA	0.23	1.41	3.33	2.60	1.59	0.69	0.39	0.02	0.00	0.03	0	0	0
2000	12.63	7.22	NA	0.32	2.31	2.78	3.68	2.05	0.96	0.29	0.21	0.01	0.01	0	0.01	0
2001	14.02	7.94	NA	0.27	2.33	3.48	3.39	3.05	0.87	0.51	0.05	0.07	0	0	0	0
2002	10.83	4.41	NA	0.31	3.05	3.06	2.13	1.12	0.70	0.28	0.09	0.02	0.07	0	0	0
2003	8.87	5.03	NA	0.09	0.96	2.79	2.35	1.21	0.50	0.59	0.23	0.06	0.08	0	0	0
2004	6.11	4.19	NA	0.19	0.53	1.20	2.13	1.24	0.50	0.18	0.10	0.02	0.01	0	0	0.01
2005	3.37	1.75	NA	0.28	0.96	0.38	0.57	0.61	0.22	0.17	0.09	0.06	0.02	0.01	0	0
2006	1.82	0.71	NA	0.06	0.48	0.58	0.16	0.13	0.17	0.08	0.02	0.09	0.05	0.02	0	0
2007	7.02	2.34	NA	0.12	1.18	3.38	1.55	0.37	0.14	0.10	0.11	0.03	0.01	0.01	0.01	0
2008	5.08	3.00	NA	0.39	0.39	1.30	2.31	0.47	0.11	0.05	0.04	0.01	0	0	0.01	0
2009	3.96	1.89	NA	0.28	1.48	0.32	0.68	0.88	0.20	0.05	0.04	0	0.01	0	0.02	0
2010	4.26	1.38	NA	0.24	1.16	1.49	0.40	0.45	0.42	0.10	0.01	0	0	0	0	0
2011	6.72	3.19	NA	0.23	1.34	1.96	1.81	0.78	0.22	0.35	0.04	0	0	0	0	0
2012	3.88	1.85	NA	0.20	0.93	0.90	1.13	0.47	0.09	0.06	0.06	0.04	0	0	0	0
<b>84-11</b>																
<b>Mean</b>	11.94	4.66	NA	0.30	3.16	3.81	2.68	1.21	0.45	0.18	0.08	0.03	0.02	0.00	0.00	0.00

Note: 1984: April = 0 tows, May = 13 tows, and 19 tows in June used to increase sample size; 1985: April = 0 tows, May = 41 tows; 1986-1991, 1993-1995, 1997-2004, 2009, and 2012: April = 40 tows, May = 40 tows; 1992 and 2006: April = 0 tows, May = 40; 1996: April = 17 tows, May = 63 tows; 2005: April = 35 tows, May = 45 tows; 2007: April = 35 tows, May = 45 tows; 2008: April = 36, and May = 44 tows; 2010: May = 38 tows, 2011: April = 12 tows.

**TABLES 2.30 - 2.62  
LENGTH FREQUENCIES  
LISTS**

**Table 2.30. Alewife length frequencies, spring and fall, 1 cm intervals, 1989–2012.**

*From 1989 - 1990, lengths were recorded from the first three tows of each day; since 1991, lengths have been recorded from every tow.*

length	Spring																							
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
6	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	2	0	0	0	0	0	0	4	0	0	1	0	1	0	0	4	0	2	1
8	0	0	0	0	18	3	3	0	0	0	2	9	16	0	3	1	2	0	0	4	1	10	0	
9	0	0	2	0	15	9	6	1	6	0	6	21	32	1	18	6	16	0	0	4	6	10	0	
10	0	0	0	1	11	19	18	2	22	7	6	28	23	5	32	55	32	0	8	5	11	23	5	
11	0	0	5	4	10	44	11	2	64	11	20	52	14	6	27	87	26	29	13	32	10	9	22	
12	6	0	4	7	6	83	17	8	127	12	32	43	5	29	25	100	55	44	34	131	17	6	54	
13	1	0	4	4	47	122	48	16	63	44	42	99	4	70	11	83	61	15	38	193	24	12	48	
14	0	0	9	7	77	172	35	26	69	61	56	234	7	139	28	63	37	9	37	178	51	6	50	
15	3	0	8	5	68	140	54	32	56	51	120	334	6	157	25	33	50	49	85	86	101	8	59	
16	2	0	8	5	84	159	38	86	44	50	144	320	4	86	26	31	74	25	128	46	106	7	37	
17	5	4	4	16	63	108	32	203	28	34	330	85	5	82	21	33	73	78	161	47	142	5	7	
18	4	4	9	8	59	81	7	254	32	22	136	15	4	15	19	18	71	93	182	25	196	2	11	
19	6	7	7	2	37	33	7	180	9	11	99	20	3	6	26	42	59	86	122	49	215	7	11	
20	3	1	7	2	27	24	10	161	17	17	82	22	9	17	13	30	26	76	105	38	137	7	9	
21	1	0	3	1	13	17	14	107	34	22	72	27	12	28	22	50	21	40	71	21	53	18	9	
22	4	2	8	2	10	26	12	103	48	18	47	41	18	46	25	48	18	18	41	14	29	22	10	
23	5	1	8	6	3	12	12	76	44	16	47	90	36	63	40	36	7	5	28	36	13	12	16	
24	7	0	3	2	1	12	7	34	28	14	21	58	45	49	42	13	6	1	10	7	14	4	7	
25	3	2	1	0	3	5	2	9	9	2	11	11	23	12	29	11	3	1	3	0	11	2	4	
26	1	0	1	2	1	5	1	3	1	2	2	1	5	7	17	5	2	0	2	0	1	0	2	
27	2	0	1	0	0	1	0	0	0	0	0	1	2	1	2	2	1	0	0	0	0	0	0	
28	1	0	0	0	1	1	0	0	0	1	0	0	0	1	0	2	1	0	0	1	0	0	2	
29	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
32	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<b>Total</b>	<b>56</b>	<b>21</b>	<b>93</b>	<b>74</b>	<b>556</b>	<b>1,076</b>	<b>334</b>	<b>1,304</b>	<b>701</b>	<b>395</b>	<b>1,275</b>	<b>1,515</b>	<b>274</b>	<b>820</b>	<b>452</b>	<b>749</b>	<b>642</b>	<b>569</b>	<b>1,068</b>	<b>901</b>	<b>1,138</b>	<b>172</b>	<b>364</b>	

length	Fall																							
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
6	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	-	0	
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	
8	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0	0	1	0	-	0	
9	0	0	0	0	3	1	0	0	1	0	0	1	6	1	1	0	1	0	3	2	0	-	1	
10	0	0	0	0	5	1	4	1	1	0	1	4	23	0	7	1	7	0	8	2	1	-	1	
11	0	0	0	0	27	30	5	5	6	1	3	5	59	0	33	6	14	0	22	1	2	-	9	
12	0	0	0	1	120	82	9	25	12	9	6	9	86	4	64	7	8	0	44	0	2	-	22	
13	0	0	3	0	88	84	14	21	21	7	9	17	72	0	4	12	17	0	87	5	10	-	14	
14	0	0	2	4	16	36	11	30	31	0	11	10	23	3	3	16	15	0	134	14	10	-	22	
15	0	0	1	8	21	31	0	9	53	0	5	8	24	3	5	28	15	2	118	4	8	-	28	
16	3	0	3	10	53	14	4	1	110	1	25	2	36	17	20	30	12	4	31	0	1	-	14	
17	2	0	0	12	25	33	1	2	194	4	34	0	27	8	19	12	3	0	8	3	1	-	19	
18	3	0	0	9	13	24	1	1	62	3	11	1	5	0	0	1	5	0	6	0	1	-	17	
19	0	0	0	2	1	11	0	0	0	1	4	1	0	1	0	0	0	0	7	1	0	-	1	
20	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1	-	0	
21	0	0	0	0	3	1	1	0	0	1	2	0	0	0	0	0	0	0	0	0	0	-	0	
22	0	1	0	0	2	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	-	0	
23	0	0	0	0	0	1	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	-	0	
24	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	
25	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	
27	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	-	0	
<b>Total</b>	<b>8</b>	<b>1</b>	<b>9</b>	<b>46</b>	<b>377</b>	<b>354</b>	<b>50</b>	<b>95</b>	<b>492</b>	<b>27</b>	<b>117</b>	<b>58</b>	<b>364</b>	<b>38</b>	<b>156</b>	<b>113</b>	<b>98</b>	<b>6</b>	<b>468</b>	<b>33</b>	<b>37</b>	<b>0</b>	<b>148</b>	



**Table 2.31. American shad length frequencies, spring and fall, 2 cm intervals (midpoint given), 1989-2012.**

*From 1989 - 1990, lengths were recorded from the first three tows of each day; since 1991, lengths have been recorded from every tow.*

length	Spring																								
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
7	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	
9	0	0	0	0	8	2	17	0	6	9	5	5	2	13	6	1	6	0	0	0	1	0	0	0	
11	0	0	1	3	7	2	16	5	24	27	20	46	1	101	12	8	11	0	5	26	12	12	5	3	
13	4	0	10	8	4	4	11	9	59	85	31	29	2	87	11	14	10	0	20	78	36	21	28	34	
15	49	1	82	17	6	22	22	191	177	108	65	21	2	41	0	45	25	38	54	180	66	77	100	106	
17	29	8	49	23	10	72	68	154	319	97	52	32	4	49	3	6	4	14	44	51	40	47	25	45	
19	5	5	4	33	6	374	40	47	62	32	20	13	0	17	0	2	0	5	8	11	15	5	3	5	
21	1	3	10	25	6	158	6	9	2	1	35	1	0	4	4	2	6	0	3	3	3	2	1	0	
23	0	3	31	20	5	18	2	16	5	8	50	4	0	7	7	4	7	0	4	3	4	0	0	10	
25	0	2	10	7	1	6	0	15	1	7	14	2	3	4	0	0	3	0	2	7	0	0	1	0	22
27	0	1	1	0	0	2	0	5	0	1	1	1	0	0	0	0	2	0	4	0	0	0	0	4	
29	0	0	0	0	0	1	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	
31	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	1	0	0	0	0	0	0	0	
33	0	0	0	0	0	0	0	1	3	0	3	3	0	1	0	0	1	0	2	0	0	0	0	0	
35	0	1	1	1	0	1	0	0	0	0	0	0	1	0	1	0	0	0	0	1	1	0	0	0	
37	0	0	0	2	0	1	0	0	4	0	1	0	0	1	0	0	1	1	0	0	0	0	0	0	
39	1	0	0	3	2	2	1	0	2	0	4	0	0	2	0	0	0	1	1	0	0	0	0	0	
41	1	0	1	5	2	3	2	0	3	0	3	0	0	0	0	0	0	1	0	0	0	0	0	0	
43	0	0	1	4	2	1	0	0	1	1	6	0	0	2	0	0	0	0	0	0	0	0	0	1	
45	1	0	1	7	2	3	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
47	0	0	0	2	0	1	2	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	
49	0	0	0	2	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	
51	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<b>Total</b>	<b>91</b>	<b>24</b>	<b>202</b>	<b>163</b>	<b>61</b>	<b>675</b>	<b>189</b>	<b>452</b>	<b>669</b>	<b>378</b>	<b>313</b>	<b>157</b>	<b>14</b>	<b>337</b>	<b>43</b>	<b>83</b>	<b>79</b>	<b>60</b>	<b>152</b>	<b>353</b>	<b>178</b>	<b>165</b>	<b>162</b>	<b>231</b>	

length	Fall																							
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
7	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	0	0	0	0	0	-	0	0
9	0	0	7	1	2	6	7	0	6	1	5	0	1	1	4	5	4	0	2	4	0	-	4	4
11	0	1	4	5	23	26	16	1	20	14	27	0	4	1	14	6	3	0	19	4	27	-	4	4
13	0	0	7	21	54	208	24	7	28	13	44	0	1	0	22	4	5	0	26	3	22	-	2	2
15	0	0	4	2	33	245	14	2	5	4	6	0	0	0	0	2	0	0	13	0	36	-	2	0
17	0	0	22	7	10	20	2	0	12	64	13	2	5	11	15	77	3	1	2	0	3	-	6	2
19	32	34	93	41	53	57	84	0	67	290	130	16	47	199	121	155	23	6	5	6	42	-	35	5
21	129	143	22	102	466	229	335	15	99	123	251	104	34	44	80	21	46	0	8	28	88	-	42	52
23	30	27	0	30	394	197	83	19	12	0	179	39	3	0	6	0	14	1	8	7	25	-	14	21
25	0	0	0	1	24	50	3	4	0	0	17	0	1	0	0	1	0	0	0	0	0	-	0	0
27	0	0	0	3	2	7	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	-	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
37	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	-	0	0
39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
41	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
49	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
51	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
<b>Total</b>	<b>192</b>	<b>205</b>	<b>159</b>	<b>214</b>	<b>1,061</b>	<b>1,047</b>	<b>568</b>	<b>48</b>	<b>251</b>	<b>509</b>	<b>674</b>	<b>161</b>	<b>96</b>	<b>256</b>	<b>262</b>	<b>273</b>	<b>98</b>	<b>8</b>	<b>83</b>	<b>52</b>	<b>243</b>	<b>-</b>	<b>109</b>	<b>90</b>

**Table 2.32. American lobster length frequencies-spring, female, 1 mm intervals, 1984–2012.**

*Lobsters were measured from each tow.*

Female Length	Spring																												
	1984 (32)	1985 (46)	1986 (76)	1987 (20)	1988 (20)	1989 (20)	1990 (20)	1991 (20)	1992 (20)	1993 (20)	1994 (20)	1995 (20)	1996 (20)	1997 (20)	1998 (20)	1999 (20)	2000 (20)	2001 (20)	2002 (20)	2003 (20)	2004 (20)	2005 (20)	2006 (20)	2007 (20)	2008 (20)	2009 (20)	2010 (78)	2011 (92)	2012 (20)
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
17	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	2	0	2	0	4	0	0	1	0	0	0	0	0	1	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	1	0	0	3	1	0	2	4	0	0	0	1	0	0	0	0	0	1	0
23	0	0	0	0	0	0	0	0	0	0	4	0	1	3	1	1	2	6	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	2	1	8	0	2	0	1	0	0	0	0	2	0	0	1	0	0
25	1	0	0	0	0	0	1	0	0	1	0	1	1	0	3	2	0	0	0	0	0	0	0	0	0	0	1	0	0
26	0	0	0	0	0	0	0	3	5	0	0	0	6	9	3	9	2	0	0	1	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	1	0	0	1	0	5	7	12	4	6	9	0	0	1	0	0	0	0	0	0	0	0	0	0
28	0	2	0	0	1	0	0	3	0	1	1	0	5	8	6	10	11	1	0	0	0	0	0	1	0	0	0	0	0
29	0	0	1	2	0	0	0	4	0	2	0	0	13	14	7	8	13	3	2	1	1	0	0	0	0	0	0	2	1
30	0	0	0	1	1	0	0	11	6	0	5	3	0	13	12	95	2	19	2	0	1	0	0	1	0	0	0	1	5
31	0	0	0	0	1	1	6	3	6	1	1	4	8	22	19	16	20	1	4	1	0	0	0	0	0	0	0	0	0
32	0	0	0	1	0	0	13	7	2	20	0	2	15	13	18	21	23	2	2	1	1	0	0	0	0	0	1	0	0
33	0	1	0	2	2	6	8	0	5	1	6	21	14	13	35	18	8	3	0	2	1	1	0	5	1	0	0	2	0
34	0	3	0	1	0	0	5	8	15	4	0	18	7	22	64	8	37	4	8	2	3	0	0	4	0	0	1	0	0
35	4	4	3	2	0	0	9	1	4	6	4	22	15	22	59	22	48	3	5	2	1	2	0	4	0	1	0	0	1
36	5	3	2	11	0	0	9	8	6	14	0	8	14	21	41	26	48	3	5	2	0	0	0	0	0	0	0	0	4
37	0	4	1	2	0	0	10	9	6	7	11	27	21	42	58	29	36	2	3	4	0	2	0	3	3	0	0	1	4
38	2	0	0	7	2	4	6	11	13	17	1	49	10	31	72	42	35	7	10	2	3	0	1	5	0	0	1	1	2
39	1	3	0	3	5	1	0	8	12	9	4	22	16	39	73	34	53	7	3	2	3	2	0	10	3	1	2	4	1
40	1	4	2	10	4	4	7	6	17	28	8	41	18	30	98	23	68	8	10	6	5	2	3	11	1	0	3	1	1
41	2	3	1	18	2	3	22	9	10	23	8	18	18	17	71	36	58	11	8	4	2	2	13	1	3	2	0	1	1
42	1	6	3	8	1	3	17	22	9	41	11	46	18	33	143	54	65	11	18	5	6	0	0	5	2	0	1	1	1
43	1	1	1	22	0	11	19	16	11	13	11	53	27	44	59	50	84	9	6	8	6	4	1	7	1	2	1	0	3
44	1	1	2	16	6	2	13	12	14	25	9	61	22	32	43	38	117	19	15	15	4	5	4	9	3	3	0	1	4
45	0	2	1	9	1	12	11	12	5	24	8	38	22	36	135	35	138	9	14	3	3	2	2	9	0	1	0	1	1
46	4	3	1	12	3	8	4	18	26	30	2	34	22	42	88	64	102	15	22	4	0	1	4	3	3	1	1	2	3
47	2	1	4	31	2	14	4	21	8	40	8	59	35	53	70	77	91	18	20	25	7	2	5	11	3	1	0	1	5
48	2	2	2	15	6	20	22	17	28	35	12	54	31	56	104	59	72	11	17	9	7	6	2	7	3	5	3	2	1
49	4	4	4	10	4	7	13	28	19	67	15	37	32	55	198	90	89	8	15	15	5	1	3	7	2	2	0	5	6
50	6	1	6	7	4	7	16	18	5	40	21	51	43	67	139	63	104	13	21	13	6	2	0	10	6	1	0	3	2
51	4	5	6	8	3	15	33	24	22	59	16	58	48	88	133	95	109	31	17	13	5	2	4	16	6	3	1	0	3
52	9	8	3	15	3	14	29	45	32	35	33	58	57	73	165	89	125	40	25	11	6	4	3	13	3	3	1	0	4
53	10	4	4	20	5	19	14	38	31	54	24	53	47	82	167	89	83	32	26	9	6	6	5	14	3	3	0	0	2
54	2	4	6	15	2	22	38	35	18	38	29	44	45	87	140	84	152	30	41	15	6	7	2	9	3	3	1	1	3
55	9	2	8	14	3	9	26	19	26	47	17	59	64	82	191	91	132	34	38	21	8	9	11	20	6	7	2	2	4
56	6	9	11	12	14	15	31	47	16	60	17	64	56	98	152	99	85	44	24	14	10	14	2	20	7	0	3	0	4
57	10	3	6	10	11	23	24	57	61	79	24	46	60	95	159	156	102	44	28	11	7	10	7	17	12	6	1	2	0
58	1	8	7	15	6	25	38	35	27	53	17	56	62	111	144	118	118	38	35	11	12	12	7	15	9	5	5	1	3
59	10	18	7	14	7	29	13	51	28	52	37	70	66	97	144	147	105	45	32	12	12	11	9	15	4	3	5	0	12
60	6	12	11	19	9	25	34	45	43	57	30	91	76	97	114	102	97	60	48	15	16	10	3	24	6	4	1	3	2
61	5	14	11	8	12	15	33	49	31	56	44	62	62	92	181	160	79	46	40	21	6	20	13	28	7	3	2	2	3
62	12	9	5	11	4	12	57	33	34	75	46	61	67	94	118	116	75	59	46	13	11	14	9	22	10	7	2	2	4
63	4	9	10	27	9	27	56	41	25	60	44	60	70	96	133	136	66	43	41	28	14	13	6	23	11	5	4	1	5
64	10	16	9	16	8	13	38	33	41	75	24	64	91	86	176	148	110	75	46	23	11	16	8	25	10	6	1	1	0
65	9	7	9	29	15	25	46	45	26	68	28	72	78	110	169	160	84	63	48	10	16	19	12	16	13	10	0	0	0
66	11	15	18	25	10	21	43	59	48	86	26	84	87	116	147	121	99	55	39	15	19	9	3	21	23	8	1	0	4
67	6	20	22	21	14	31	33	51	41	52	28	67	62	98	148	171	90	72	42	16	23	23	9	17	8	4	4	1	7
68	21	10	12	43	11	14	41	65	37	45	29	76	73	94	142	158	107	49	48	19	20	13	14	21	15	7	4	2	1
69	10	8	18	33	16	16	36	78	56	58	30	71	57	107	148	188	76	79	52	28	16	13	1	13	19	10	2	2	1
70	15	5	14	30	13	29	51	59	37	67	27	79	74	119	157	177	86	67	57	25	21	12	6	23	20	6	6	0	1
71	10	11	12	21	12	13	29	48	49	67	44	92	88	125	117	166	91	74	45	24	15	18	10	23	14	6	3	4	2
72	11	6	20	18	8	24	40	50	48	61	30	77	91	107	157	177	98	75	80	20	13	22	10	30	15	8	0	1	2
73	13	9	18	13	14	20	47	39	54	54	37	97	69	107	171	164	99	59	61	30	17	17	8	23	18	8	6	1	3
74	10	6	17	20	8	24	24	43	52	45	39	60	74	130	153	215	104	66	70	25	11	12	9	17	13	6	5	0	2
75	15	12	17	28	7	20	67	87	56	54	25	83	68	103	181	196	124	80	47	27	16	19	9	17					

**Table 2.33. American lobster length frequencies—fall, female, 1 mm intervals, 1984–2012.**

*Lobsters were measured from each tow.*

Length	Female										Fall																			
	1984 (70)	1985 (80)	1986 (80)	1987 (80)	1988 (80)	1989 (80)	1990 (80)	1991 (80)	1992 (80)	1993 (80)	1994 (80)	1995 (80)	1996 (80)	1997 (80)	1998 (80)	1999 (80)	2000 (80)	2001 (80)	2002 (80)	2003 (40)	2004 (80)	2005 (80)	2006 (40)	2007 (80)	2008 (40)	2009 (80)	2010 (0)	2011 (80)	2012 (80)	
16	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
20	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
21	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
22	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0		
23	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0		
24	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
25	0	0	0	0	0	1	0	0	0	0	0	1	2	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0		
26	0	0	0	0	0	0	0	0	0	1	4	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0		
27	0	0	0	0	0	1	0	0	0	3	0	0	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0	0		
28	0	0	0	0	0	1	0	4	1	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
29	0	0	0	0	0	1	1	0	0	3	3	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2		
30	0	0	0	0	1	0	4	0	2	5	3	0	5	7	2	0	0	0	0	0	0	0	0	0	0	1	0	0		
31	0	0	1	0	0	0	3	0	7	11	8	1	5	4	0	0	1	1	0	0	1	0	0	0	0	0	0	0		
32	1	0	0	0	0	0	3	1	15	4	13	1	4	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
33	0	0	0	2	1	1	3	12	9	2	2	0	0	1	1	5	0	0	0	0	0	0	0	0	1	0	0	1		
34	1	0	0	0	2	1	0	6	16	3	17	2	6	8	1	8	0	0	0	0	1	0	0	0	0	0	0	1	0	
35	0	0	6	1	0	2	3	0	23	5	16	3	8	6	0	2	1	0	0	0	1	0	0	0	0	0	0	1	0	
36	4	0	1	1	1	3	1	1	31	7	26	0	8	14	0	5	0	0	0	0	0	0	0	0	1	0	0	0	0	
37	4	0	2	0	3	2	10	22	19	2	19	5	5	7	1	8	1	0	1	0	1	1	0	0	0	0	0	0	0	
38	3	2	2	3	3	2	8	1	24	9	23	1	18	17	2	13	1	2	0	0	0	1	0	0	0	0	0	0	0	
39	6	0	10	1	1	0	9	15	32	6	22	0	7	22	2	4	1	2	1	0	0	0	2	0	0	1	0	0	0	
40	0	0	3	1	12	14	14	20	35	16	24	12	23	15	3	8	1	1	0	0	0	0	0	0	0	0	0	0	0	
41	3	0	0	5	2	6	19	21	32	22	52	8	39	15	7	13	2	0	0	1	2	1	0	0	0	0	0	1	0	
42	7	0	5	0	4	2	3	36	52	21	43	7	24	49	9	17	2	3	0	0	2	0	1	0	0	0	0	0	0	
43	5	0	2	4	4	2	16	23	30	39	52	16	20	25	5	15	3	0	1	1	1	4	0	0	0	0	0	0	1	
44	29	7	1	8	1	6	11	32	32	29	63	14	46	47	9	17	5	0	2	1	2	1	0	0	0	2	1	1	1	
45	18	0	7	3	2	0	12	25	50	17	57	22	38	32	7	27	4	2	2	1	0	1	1	0	0	1	0	0	1	
46	10	0	1	11	6	6	26	34	42	43	63	20	33	50	12	18	9	3	2	1	5	2	2	1	0	0	0	1	0	
47	21	7	3	12	2	12	18	52	47	44	41	27	32	42	5	16	2	1	0	1	2	0	0	0	0	0	1	1	0	
48	10	5	4	14	8	18	19	35	58	52	69	28	33	58	14	15	7	2	6	0	2	2	1	0	0	1	0	0	0	
49	29	6	7	14	15	11	15	27	77	58	47	47	19	71	11	27	10	2	4	2	4	1	1	0	0	0	1	0	0	
50	27	9	6	21	12	4	31	41	52	38	69	54	28	61	13	31	10	6	2	2	2	4	3	2	3	0	0	0	0	
51	35	8	2	12	3	11	10	44	73	72	94	45	41	49	15	30	13	6	3	1	2	2	0	0	1	0	0	1	0	
52	26	11	3	15	3	11	21	40	66	54	59	51	42	120	18	34	13	3	6	3	5	2	1	0	0	0	0	1	0	
53	33	8	3	22	10	7	22	55	82	94	55	43	43	106	29	18	16	9	3	1	6	10	2	3	1	3	0	0	0	
54	16	8	18	11	12	14	20	41	61	83	76	38	58	82	17	45	28	8	1	3	2	2	3	1	2	3	0	1	1	
55	23	10	27	21	2	6	22	59	58	59	54	39	45	102	48	32	18	9	1	3	7	8	1	1	3	1	0	3	2	
56	45	10	11	36	10	24	22	29	82	87	74	45	41	90	23	32	33	12	1	3	6	0	3	2	1	6	0	3	2	
57	16	15	16	18	7	7	15	52	71	71	78	50	44	121	24	39	22	13	5	2	13	5	2	1	10	6	0	2	0	
58	23	16	11	19	13	17	36	55	63	119	79	69	47	114	29	31	23	14	6	5	5	8	1	2	2	5	0	1	0	
59	21	11	13	26	13	23	30	79	66	110	84	48	46	110	35	36	28	18	5	6	10	4	4	0	2	5	0	0	2	
60	30	18	20	18	7	17	16	74	53	115	70	53	51	140	29	35	34	8	6	9	7	6	1	4	5	2	0	1	2	
61	10	4	17	24	12	14	37	46	52	91	79	51	56	119	34	37	27	9	5	2	12	7	2	1	2	6	0	1	1	
62	27	16	23	21	14	32	41	64	53	107	117	44	53	133	39	44	32	19	3	5	10	3	5	1	2	8	0	1	1	
63	31	14	13	22	8	20	22	53	66	130	93	58	41	126	51	45	29	19	6	6	16	12	4	4	4	5	0	0	1	
64	25	10	15	29	23	31	26	71	38	100	86	79	38	139	34	44	29	21	9	12	19	5	4	4	4	7	0	0	0	
65	17	9	39	24	15	28	26	77	44	93	89	49	43	146	49	42	37	18	9	6	15	9	1	2	3	9	0	0	0	
66	24	26	25	23	15	16	42	70	56	90	87	82	53	126	51	43	26	19	5	5	10	7	1	4	1	6	0	0	0	
67	17	24	33	11	19	16	29	38	43	78	106	51	38	117	26	53	31	17	8	11	14	6	2	3	3	8	0	0	1	
68	15	8	27	18	22	30	36	41	42	94	77	48	55	124	54	44	37	19	7	6	4	8	1	6	4	4	0	0	0	
69	13	18	15	27	26	32	21	34	61	104	85	38	50	136	54	47	30	22	4	8	16	12	5	1	4	3	0	1	0	
70	63	18	42	27	34	23	20	36	51	122	63	60	55	128	47	35	34	23	17	4	13	5	0	4	3	3	0	0	0	
71	26	21	28	34	33	40	30	50	50	94	87	62	87	127	50	40	20	20	3	6	14	2	0	2	3	6	0	2	0	
72	27	16	27	32	13	12	39	58	31	81	85	38	49	150	41	53	32	25	11	12	10	3	2	3	6	4	0	0	0	
73	21	29	42	24	18	15	58	46	33	74	69	60	40	106	41	47	36	24	9	6	10	5	2	6	4	5	0	1	0	
74	31	17	23	29	14	21	36	30	39	85	73	44	38	111	37	49	39	19	12	7	16	9	3	2	3	1	0	1	0	
75	39	14	25	24	14	12	31	25	66	84	31	58	122	67	50	29	28	7	7	16	5	3	7	3	1	0	1	0	1	0
76	31	14	22	36	14	13	35	27	35	112	50	38	57	113	47	43	26	21	10	8	15	5	3	4	2	3	0	0	0	
77	17	16	10	26	13	14	17	37	40	74	72	36	23	64	41	31	22	18	2	1	18	5	3	4	0	1	0	0	0	
78</																														

**Table 2.34. American lobster length frequencies—spring, male, 1 mm intervals, 1984–2012.**

*Lobsters were measured from each tow.*

Length	Male																													
	Spring																													
	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
	(32)	(46)	(76)	(20)	(20)	(20)	(20)	(20)	(20)	(20)	(20)	(20)	(20)	(20)	(20)	(20)	(20)	(20)	(20)	(20)	(20)	(20)	(20)	(20)	(20)	(20)	(20)	(20)	(20)	
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
19	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	
21	0	0	0	0	0	0	0	0	3	0	0	0	0	1	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	
22	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	
23	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	
24	0	0	0	0	0	0	0	0	2	0	2	0	1	0	6	0	1	3	0	0	3	0	0	0	0	0	0	0	0	
25	0	0	0	0	0	0	0	0	0	0	0	1	1	0	4	6	4	0	0	0	0	0	0	0	1	0	0	0	0	
26	0	0	0	0	0	0	0	0	0	4	0	0	4	3	2	2	2	1	0	0	2	0	0	0	0	0	0	2	1	
27	0	0	0	0	0	9	0	0	1	9	2	0	2	1	2	1	1	2	0	1	0	0	0	0	1	0	0	0	0	
28	0	0	0	0	0	0	0	0	1	3	1	0	2	1	5	2	12	2	2	0	0	0	0	1	1	0	0	0	0	
29	0	0	0	0	0	0	0	0	0	9	0	0	0	2	3	5	0	9	3	1	0	0	0	0	0	0	0	3	0	
30	0	0	0	1	0	1	5	0	5	1	0	3	10	5	2	4	15	3	1	2	1	0	0	0	0	0	0	0	0	
31	0	1	0	1	1	0	0	8	4	3	2	0	8	13	14	7	18	3	4	0	0	1	1	1	0	0	0	0	1	
32	0	0	0	0	3	6	0	6	6	8	1	8	9	12	11	16	17	2	2	5	0	0	0	2	0	0	1	1	3	
33	0	2	1	2	0	0	1	9	0	6	4	15	6	9	4	15	16	3	9	3	0	1	0	1	1	0	0	1	0	
34	0	0	3	2	0	1	1	5	1	6	0	27	19	16	52	12	25	2	4	1	0	0	0	5	0	0	1	0	0	
35	2	0	2	0	0	0	4	5	9	5	1	20	12	22	26	23	33	2	5	2	4	0	1	2	1	0	0	1	2	
36	2	4	0	1	1	7	14	4	5	7	3	17	13	24	34	19	26	6	1	3	1	2	0	6	0	0	1	3	3	
37	1	1	2	5	0	3	2	23	9	12	4	15	20	32	58	35	32	5	3	2	4	2	0	7	1	0	0	1		
38	0	1	1	5	2	7	14	9	1	26	3	18	18	21	93	12	28	3	8	4	2	1	2	7	0	0	2	1	4	
39	0	0	0	10	0	6	12	5	7	15	4	31	15	20	33	20	35	11	9	4	3	2	3	8	0	1	0	0	1	
40	0	2	0	7	2	8	3	5	12	17	7	25	21	41	32	20	52	8	10	2	0	1	2	4	2	0	1	3	3	
41	0	2	2	9	1	0	11	8	7	4	10	28	19	41	75	46	55	3	13	7	3	0	1	6	3	0	2	2	2	
42	4	2	0	3	1	9	13	10	13	42	7	39	18	46	125	36	63	14	9	10	3	5	0	16	3	2	0	3	4	
43	1	2	1	16	0	9	14	9	12	23	5	52	26	24	70	51	32	5	9	10	5	2	2	8	1	1	1	0	2	
44	3	0	1	15	1	3	10	11	6	42	9	17	21	50	170	44	110	10	15	9	1	0	4	12	2	1	3	3	2	
45	1	5	4	22	3	7	7	20	13	45	6	39	28	46	76	50	65	17	16	20	5	3	2	9	3	1	2	2	4	
46	0	2	2	24	2	24	7	12	25	37	9	32	22	66	155	71	74	19	18	18	4	3	2	11	0	4	1	3	2	
47	0	1	2	31	7	3	2	17	47	32	9	54	32	66	146	87	65	17	9	4	4	4	1	16	0	2	2	1	0	
48	6	6	5	9	1	8	20	17	7	23	6	45	32	78	93	60	57	22	29	6	3	6	5	8	4	2	2	0	2	
49	9	3	4	24	4	22	20	45	21	40	19	46	18	82	120	87	69	16	18	8	15	3	4	16	3	2	1	0	3	
50	7	3	1	19	4	23	10	21	25	30	21	29	35	61	66	83	110	34	22	16	7	6	4	9	4	2	0	2	2	
51	3	4	4	12	2	20	26	42	16	75	16	62	45	57	158	90	65	24	31	19	8	8	9	10	3	5	0	0	1	
52	9	5	2	12	2	15	23	21	25	37	31	49	52	75	81	80	100	27	27	14	10	6	2	12	3	2	2	0	7	
53	5	9	7	17	4	10	12	33	16	41	26	60	50	56	138	69	66	25	20	11	5	7	5	19	6	4	1	0	2	
54	10	3	16	14	7	14	30	45	36	43	29	74	49	74	210	79	110	33	38	26	15	6	5	21	5	4	1	4	4	
55	5	3	6	18	7	23	16	42	27	50	27	46	51	82	101	101	114	38	23	18	2	9	6	12	5	3	2	1	3	
56	3	12	11	17	10	6	34	38	37	44	14	70	54	83	130	82	95	37	29	19	13	11	9	7	7	6	6	2	4	
57	1	7	10	26	11	17	36	30	12	51	27	54	60	68	145	93	95	43	35	22	7	6	5	21	4	3	3	2	1	
58	12	7	5	10	4	19	44	71	31	47	35	41	83	96	111	111	99	43	46	11	12	8	5	13	8	1	2	1	2	
59	3	13	7	12	14	25	29	57	27	88	34	71	56	67	63	144	89	43	43	13	6	11	10	24	9	7	4	2	3	
60	1	9	14	29	8	23	49	50	37	42	34	94	84	156	121	105	105	56	35	24	8	9	6	16	9	6	1	0	4	
61	9	14	16	12	10	22	39	56	46	62	34	77	59	102	176	123	83	51	36	28	14	10	14	11	11	6	3	3	5	
62	11	10	13	15	6	30	44	78	36	65	54	57	58	127	152	117	84	69	44	20	11	12	7	12	16	12	2	0	5	
63	18	15	16	28	8	24	52	65	54	44	36	59	60	101	167	132	73	54	44	24	16	13	13	19	19	5	6	2	5	
64	8	16	12	26	8	21	45	72	43	63	27	73	90	95	153	133	98	69	46	26	10	14	8	22	16	4	8	3	5	
65	13	8	11	20	15	20	47	55	36	73	33	77	73	97	165	111	96	75	50	30	21	17	8	16	16	8	2	1	5	
66	5	10	11	26	16	32	49	71	31	71	23	39	73	107	223	129	64	56	39	23	31	15	6	22	23	2	6	2	0	
67	1	5	11	26	11	32	29	57	44	39	21	69	60	118	182	149	66	77	53	24	16	14	6	33	19	1	3	1	10	
68	5	10	13	12	7	21	33	80	48	26	34	67	64	100	147	116	81	82	32	36	22	23	11	20	19	10	5	0	0	
69	8	9	10	19	24	25	39	71	46	43	32	57	79	101	156	140	77	73	51	25	11	20	8	16	11	4	3	4	3	
70	8	11	14	23	7	34	38	50	51	27	24	60	77	99	158	152	85	73	44	27	21	16	9	15	21	11	5	2	5	
71	9	5	13	22	13	29	55	66	23	48	42	85	58	91	112	152	62	71	56	20	29	20	7	4	18	5	11	3	1	
72	6	17	13	14	17	33	40	93	42	37	41	59	85	111	145	105	72	62	42	23	13	11	8	25	15	7	4	3	5	
73	14	5	10	21	11	28	37	94	42	34	27	93	64	82	122	109	61	63	46	15	22	16	6	13	14	3	6	1	2	
74	6	9	27	21	11	45	40	74	36	32	33	67	71	92	146	123	74	85	40	35	15	10	2	15	8	9	5	3	4	
75	6	3	13	15	10	35	29	63	40	48	21	84	62	73	81	120	52	72	39	21	16	14	6	19	11	5	2	3	3	
76	12	3	20	16	18	18	33	79	23	32	23	47	48	67	14															

**Table 2.35. American lobster length frequencies—fall, male, 1 mm intervals, 1984–2012.**

*Lobsters were measured from each tow.*

Length	Male										Fall																		
	1984 (80)	1985 (80)	1986 (80)	1987 (80)	1988 (80)	1989 (80)	1990 (80)	1991 (80)	1992 (80)	1993 (80)	1994 (80)	1995 (80)	1996 (80)	1997 (80)	1998 (80)	1999 (80)	2000 (80)	2001 (80)	2002 (80)	2003 (40)	2004 (80)	2005 (80)	2006 (40)	2007 (80)	2008 (40)	2009 (80)	2010 (0)	2011 (80)	2012 (80)
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	
25	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
26	0	0	2	0	0	0	0	0	0	1	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	
27	0	0	0	0	0	2	0	0	0	1	9	0	0	1	0	1	0	0	0	0	0	0	1	0	0	0	0	0	
28	1	2	0	0	0	0	3	0	0	3	4	0	1	1	0	1	0	0	0	0	0	0	1	0	0	0	0	1	
29	0	0	0	0	0	1	3	0	0	0	6	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
30	0	0	0	0	0	0	3	0	0	3	0	4	0	3	2	0	0	0	0	0	0	0	1	0	0	0	0	0	
31	0	0	2	0	1	0	2	0	4	2	3	0	6	2	2	0	0	0	0	0	0	0	1	0	1	0	0	0	
32	4	0	0	4	0	0	0	5	13	2	3	0	4	5	2	2	0	0	0	0	1	0	0	0	0	0	0	0	
33	1	0	0	2	0	1	0	3	4	0	9	1	11	3	1	5	3	0	0	0	0	0	0	0	0	0	0	0	
34	1	0	0	2	1	0	2	1	13	4	11	0	4	1	1	1	0	0	0	0	0	0	0	0	1	1	0	0	
35	3	0	0	1	0	0	3	7	13	15	12	1	8	3	0	4	0	0	0	0	0	0	0	0	0	0	0	0	
36	3	0	0	1	0	1	5	8	25	8	21	1	7	14	2	1	0	0	0	1	1	0	0	0	0	0	0	0	
37	3	0	6	0	1	1	7	4	38	4	21	1	11	7	0	2	0	0	0	0	0	1	0	0	0	0	0	0	
38	2	2	2	3	2	0	0	6	40	6	34	1	17	14	3	5	0	0	0	0	1	4	3	0	0	0	0	0	
39	0	0	2	1	2	1	5	8	34	5	25	4	16	28	7	17	3	0	1	0	0	1	0	0	1	0	0	0	
40	3	0	6	2	1	5	10	8	35	21	35	6	15	14	5	7	1	0	2	0	0	0	0	0	0	1	0	1	
41	6	1	1	3	4	1	12	13	43	14	54	5	11	24	1	6	1	0	1	0	0	1	2	0	1	0	0	0	
42	4	6	2	0	11	3	12	13	43	34	55	5	29	25	9	8	5	0	1	1	2	1	0	0	1	0	0	1	
43	1	0	3	3	2	1	7	7	49	17	56	12	23	41	5	21	2	2	0	0	0	1	1	1	1	1	0	0	
44	4	1	1	5	11	1	6	13	35	13	63	26	16	40	5	19	3	2	1	1	3	0	0	0	0	2	2	0	
45	7	3	3	3	8	10	11	42	44	34	43	20	44	53	9	18	5	3	2	1	2	2	2	0	0	1	1	0	
46	2	2	1	7	4	14	10	31	44	19	58	33	18	35	7	16	5	2	3	0	0	2	0	0	2	1	2	0	
47	13	4	3	10	10	5	16	14	66	60	26	26	33	41	13	20	7	2	2	1	2	3	0	1	1	0	0	0	
48	15	3	5	7	14	4	16	10	67	49	72	19	49	72	8	20	9	9	1	0	3	2	0	0	0	0	0	2	
49	4	2	10	8	2	12	18	45	48	100	56	33	30	48	10	37	9	1	0	1	6	3	2	0	1	2	0	0	
50	13	5	8	21	9	11	16	37	63	56	55	33	28	56	15	44	9	3	2	0	5	4	3	1	0	0	0	1	2
51	51	6	5	17	10	11	24	46	74	30	88	27	22	88	21	37	18	6	3	3	3	0	1	0	0	1	0	1	
52	15	5	11	17	3	16	31	43	65	78	82	56	30	80	36	42	9	4	2	0	3	4	1	1	1	3	0	0	
53	13	9	3	30	5	15	22	57	55	83	83	61	37	103	29	29	15	8	3	1	7	1	0	1	0	1	1	0	
54	24	12	19	26	21	17	25	76	47	59	97	59	30	116	23	43	21	7	2	3	8	5	2	1	3	3	1	1	
55	23	4	17	23	13	26	25	47	83	84	70	80	32	96	26	46	38	9	2	2	12	3	3	1	0	7	1	1	
56	18	12	25	18	13	13	13	37	65	104	90	52	43	89	39	39	21	10	3	4	10	3	3	0	2	6	0	0	
57	9	0	10	30	26	18	36	43	64	101	79	92	27	111	44	42	27	10	5	4	8	8	1	7	2	4	0	0	
58	29	15	24	23	13	30	34	51	68	68	107	58	48	80	42	57	21	10	8	5	6	7	3	1	1	5	0	1	
59	47	8	26	31	16	14	23	43	86	109	78	76	40	143	33	54	29	24	10	8	10	13	6	5	1	6	0	2	
60	16	6	11	26	7	26	39	56	77	103	109	69	30	134	56	61	37	9	9	7	13	7	2	2	0	1	0	0	
61	23	5	10	25	30	12	24	57	68	138	120	78	59	128	53	64	44	15	8	5	17	8	5	4	1	3	0	0	
62	50	17	26	23	10	13	36	37	57	125	92	80	42	145	57	49	28	19	10	7	10	6	3	1	4	7	0	2	
63	14	18	37	20	15	19	28	63	68	144	107	74	41	149	60	63	39	29	15	7	4	9	5	4	1	10	0	2	
64	28	17	22	24	35	19	25	86	74	87	106	73	77	138	57	68	42	35	9	8	19	12	2	2	2	8	0	3	
65	36	10	39	31	20	16	39	87	49	107	83	75	73	161	75	48	37	34	17	10	14	14	3	4	6	11	1	1	
66	22	13	21	41	31	27	22	60	59	81	87	93	40	130	63	61	41	24	12	7	21	6	4	2	6	11	0	3	
67	14	16	39	28	21	24	30	78	82	108	119	63	46	136	51	38	43	38	13	7	17	12	2	7	7	14	0	1	
68	16	18	30	31	17	19	42	71	69	107	79	55	34	113	67	61	57	33	21	7	15	12	5	5	4	16	0	4	
69	46	13	22	32	31	30	24	51	81	131	101	75	28	121	52	54	41	21	20	11	23	10	2	5	5	8	0	2	
70	32	11	28	31	14	24	26	63	56	117	112	79	36	122	60	78	42	22	12	8	30	7	1	4	3	6	0	3	
71	8	14	25	23	21	25	24	58	63	115	83	52	63	126	69	75	48	47	21	13	20	6	6	0	4	12	0	1	
72	23	20	31	36	29	19	33	89	61	86	76	65	66	86	77	64	47	52	13	9	19	10	6	9	2	8	0	1	
73	40	18	42	29	13	42	40	53	44	85	83	51	44	98	54	70	47	32	6	5	20	9	0	3	4	9	0	1	
74	36	18	22	25	22	19	39	28	69	130	108	56	42	99	64	65	37	39	21	14	10	4	1	8	6	12	0	1	
75	9	8	23	18	16	28	33	38	53	101	97	58	35	99	62	63	39	33	14	6	23	12	0	3	1	11	0	1	
76	21	15	24	25	12	36	20	37	33	75	66	37	32	88	55	66	33	28	14	5	16	4	5	7	0	6	0	1	
77	13	6	23	19	33	18	32	28	53	79	52	55	37	94	55	60	31	33	17	3	7	9	5	6	2	7	0	0	
78	28	12	9	32	13	29	24	36	46	70	55	59	33	76	46	54	28	38	11	5	8	3	1	5	4	2	0	1	
79	5	13	11	33	8	19	19	56	48	61	66	43	47	81	52	59	35	35	17	6	9	4	2	5	4	6	0	2	
80	15	18	13	20	22	15	38	40	49	102	53	39	29	78	44	51	34	26	7	5	5	7	3	4	0	3	0	0	
81	23	11	18	10	8	17	16	45	39	47	66	46	32	83	37	52	25	18	14	2	12	5	0	4	0	2	0	0	
82	7	7	20	10	6	6	21	19	21	46	26	41	15	57	34	29	23	21	10	3	8	5	3	5	4	5	0	0	
83	6	6	12	5	6	11	14	23	29	26	25	23	10	23	20	12	4	3	1	3	2	1	0	4	2	0	0	0	
84	4	2	13	5	8	10	6	10	23	12	15	31	8	19	6	15	7	6	1	2	3	2	0						

**Table 2.36. Atlantic herring length frequencies, spring and fall, 1 cm intervals, 1989-2012.**

*Atlantic herring lengths were recorded from the first three tows of each day.*

length	Spring																							
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
3	0	0	0	5	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	4	0	0	0	0	18	504	61	0	0	1	2	0	0	0	1	213	2	12	0
5	0	2	0	11	3	1	0	0	1	149	1,547	104	0	0	8	30	76	3	20	36	3,416	28	35	15
6	1	3	3	16	1	0	1	3	0	92	237	1	3	0	9	10	140	2	2	13	449	12	59	2
7	0	1	4	15	2	0	2	15	69	84	18	7	11	1	0	8	118	1	0	12	44	1	103	2
8	0	0	7	0	1	0	0	5	165	28	5	1	6	1	0	9	73	11	0	23	48	1	132	0
9	0	0	3	0	1	0	1	1	27	11	4	0	8	0	0	3	8	10	0	16	59	0	43	1
10	0	0	0	0	3	1	0	0	0	2	0	0	1	0	0	0	0	0	0	2	6	0	3	1
11	0	0	0	0	3	1	0	1	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
12	0	0	0	0	38	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
13	0	8	0	0	215	8	0	0	5	0	0	0	0	0	0	1	3	0	0	0	0	5	1	1
14	0	1	0	0	203	11	0	1	29	0	0	0	1	0	0	9	7	0	0	0	1	29	26	6
15	2	0	8	0	122	9	6	0	59	5	0	0	2	0	0	49	14	0	9	1	9	39	55	16
16	3	1	38	0	174	17	7	3	12	8	0	3	0	0	0	65	20	0	14	0	91	49	19	12
17	2	31	33	0	100	42	8	2	4	5	0	6	2	0	0	140	63	0	27	2	149	25	3	3
18	2	4	29	2	28	32	12	0	10	2	0	0	1	0	3	275	98	0	166	6	28	31	7	0
19	0	16	19	29	21	39	12	6	21	0	1	0	11	2	1	117	57	0	467	1	203	86	14	20
20	0	161	67	15	41	43	78	10	40	5	1	6	65	3	2	67	67	0	228	7	521	222	14	107
21	0	333	72	24	35	29	283	26	14	4	2	11	29	17	0	12	19	0	99	11	279	106	8	196
22	0	424	70	111	96	14	399	15	19	11	10	38	77	32	0	16	11	3	105	9	162	71	24	91
23	0	201	160	61	387	111	245	20	7	4	15	36	14	87	4	0	15	4	106	13	144	97	59	23
24	0	195	297	311	436	224	290	22	18	1	19	47	33	71	17	0	25	3	150	27	71	105	173	21
25	0	315	337	751	645	485	416	46	117	2	9	99	31	18	36	3	21	5	122	38	87	108	214	16
26	1	447	360	503	921	560	1,028	85	202	31	10	70	46	30	63	3	78	3	125	39	108	110	210	18
27	0	347	514	382	807	947	723	93	236	33	35	80	24	27	65	14	106	9	122	38	69	95	147	11
28	0	338	513	391	825	604	706	64	234	44	37	104	34	19	72	9	87	6	116	36	85	62	65	4
29	2	247	319	492	550	387	337	37	82	21	25	69	29	52	52	1	40	3	47	15	44	26	48	4
30	0	156	383	142	287	204	231	29	31	1	11	24	8	3	27	3	19	1	6	6	27	7	2	0
31	2	127	139	77	129	29	14	4	15	2	0	0	4	0	8	1	0	0	0	2	6	0	2	0
32	0	50	22	1	33	6	14	1	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
33	0	11	13	2	0	2	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
34	0	8	1	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>15</b>	<b>3,427</b>	<b>3,411</b>	<b>3,341</b>	<b>6,119</b>	<b>3,808</b>	<b>4,814</b>	<b>489</b>	<b>1,421</b>	<b>566</b>	<b>2,491</b>	<b>767</b>	<b>497</b>	<b>363</b>	<b>368</b>	<b>847</b>	<b>1,165</b>	<b>64</b>	<b>1,931</b>	<b>355</b>	<b>6,319</b>	<b>1,317</b>	<b>1,479</b>	<b>570</b>

length	Fall																							
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
7	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
8	0	0	0	99	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-	0	0
9	0	0	0	328	16	4	0	0	2	3	0	0	0	0	1	0	0	0	0	0	4	-	1	0
10	0	0	0	176	3	6	0	14	6	59	0	0	0	0	12	1	0	0	0	0	2	-	0	0
11	0	3	0	34	5	9	0	11	3	49	0	1	0	0	47	0	0	2	0	0	1	-	0	0
12	0	0	0	3	9	11	0	1	0	0	0	0	0	0	20	1	0	0	1	0	0	-	0	0
13	0	0	0	0	13	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	-	0	0
14	0	0	0	0	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
15	0	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
16	0	0	0	1	7	2	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	-	0	0
17	0	0	1	0	7	5	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	-	1	0
18	0	0	6	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	-	1	0
19	0	0	5	0	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-	0	0
20	0	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
21	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
22	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	1	0
23	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	-	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	-	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	-	0	0
<b>Total</b>	<b>0</b>	<b>3</b>	<b>12</b>	<b>642</b>	<b>110</b>	<b>40</b>	<b>0</b>	<b>27</b>	<b>12</b>	<b>112</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>80</b>	<b>3</b>	<b>3</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>9</b>	<b>-</b>	<b>4</b>	<b>0</b>

**Table 2.37. Atlantic menhaden length frequency, spring and fall, 1 cm intervals, 1996-2012.**

*Menhaden are scheduled to be measured from every tow. However, the following numbers of menhaden were not measured: 5 juveniles and 4 adults in 1996, and 7 adults in 1997.*

length	Spring																
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	7
11	0	0	0	1	0	0	13	0	0	0	0	0	0	0	0	0	3
12	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	15
13	0	0	0	0	0	0	6	0	0	0	2	0	0	0	0	0	8
14	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	5
15	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	8
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
20	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	1
26	0	0	0	0	0	0	1	0	0	0	0	4	0	0	0	0	2
27	0	0	0	0	0	0	1	0	0	0	0	6	2	3	1	4	14
28	0	1	0	0	1	0	1	0	0	0	0	5	4	9	5	10	33
29	0	1	0	0	1	0	0	1	3	0	1	5	2	2	1	18	53
30	0	1	0	0	0	0	1	1	0	0	0	4	1	5	0	10	28
31	0	3	0	0	0	0	0	0	1	0	2	4	1	0	0	1	12
32	0	0	0	0	1	0	3	0	0	0	0	0	0	0	0	0	1
33	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
34	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>1</b>	<b>9</b>	<b>0</b>	<b>47</b>	<b>2</b>	<b>5</b>	<b>1</b>	<b>5</b>	<b>33</b>	<b>10</b>	<b>19</b>	<b>7</b>	<b>43</b>	<b>195</b>

length	Fall																
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
4	0	0	0	0	0	0	0	1	0	0	0	0	0	0	-	0	0
5	0	0	0	0	0	0	0	2	0	0	0	1	0	0	-	0	0
6	0	0	0	0	0	0	0	17	1	0	0	24	0	0	-	0	1
7	1	0	0	20	12	0	2	32	26	0	1	39	2	0	-	0	0
8	0	1	18	51	73	0	6	22	178	11	0	32	2	2	-	0	0
9	0	11	53	152	128	0	8	9	135	22	0	12	6	0	-	0	0
10	1	5	120	471	125	1	9	1	143	19	0	34	3	3	-	0	1
11	0	6	49	337	51	25	14	1	47	13	2	51	2	4	-	0	0
12	0	11	44	25	35	30	10	1	18	9	8	24	1	5	-	6	0
13	0	0	20	2	15	16	14	4	1	1	1	49	0	4	-	7	1
14	0	2	0	0	6	7	20	2	0	3	2	7	0	3	-	9	0
15	0	0	0	0	2	4	24	0	0	1	0	1	1	5	-	6	1
16	0	0	0	0	2	0	8	0	0	2	1	1	4	4	-	3	0
17	0	0	0	0	3	0	12	0	0	0	0	0	3	0	-	0	1
18	0	0	0	0	0	0	17	0	0	0	0	0	0	1	-	0	2
19	0	0	0	0	0	0	16	0	0	0	0	0	0	1	-	0	2
20	0	0	0	1	0	0	2	0	0	0	0	0	0	0	-	0	2
21	0	0	0	1	0	0	1	0	0	1	0	0	0	0	-	0	1
22	0	0	0	0	0	0	1	0	0	0	0	0	0	0	-	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
24	0	0	0	1	0	0	0	0	0	0	0	0	0	0	-	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
26	0	0	0	0	0	0	1	0	0	0	0	3	0	0	-	0	7
27	2	0	0	0	0	0	1	0	0	1	0	21	9	4	-	4	27
28	3	1	0	3	0	0	2	0	3	4	0	35	2	7	-	18	68
29	23	17	0	6	1	0	18	5	10	21	2	31	1	1	-	48	66
30	30	25	0	28	3	0	29	8	44	54	2	18	0	5	-	30	35
31	11	17	1	42	7	1	39	8	65	43	2	7	0	2	-	4	11
32	2	6	1	27	12	0	27	3	51	21	1	2	0	0	-	2	0
33	0	1	0	19	4	2	25	2	10	5	0	0	0	0	-	0	0
34	0	0	0	1	4	0	9	1	7	2	1	0	0	0	-	0	0
35	0	0	0	0	1	0	5	0	1	1	0	0	0	0	-	0	0
<b>Total</b>	<b>73</b>	<b>103</b>	<b>306</b>	<b>1,187</b>	<b>484</b>	<b>86</b>	<b>320</b>	<b>119</b>	<b>740</b>	<b>234</b>	<b>23</b>	<b>392</b>	<b>36</b>	<b>51</b>	<b>-</b>	<b>137</b>	<b>226</b>

**Table 2.38. Black sea bass length frequencies, spring, 1 cm intervals, 1987-2012.**  
*Since 1987, black sea bass have been measured from every tow.*

length	Spring																										
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
5	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	1
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	8	0	0	0	0	0	1	1	2	0	3
9	0	0	0	0	0	2	0	0	0	0	0	0	0	1	2	0	9	0	0	0	0	1	1	1	0	0	9
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	5	0	0	0	0	7	7	2	0	0	8
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	5	0	0	0	0	1	2	1	0	0	11
12	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0	5	0	0	0	0	1	2	2	0	1	14
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	9	0	0	0	0	2	1	1	0	1	12
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	1	0	0	0	0	0	2
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0	1	1	0	0
19	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
20	0	1	0	1	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0
21	0	0	0	1	0	0	0	0	1	0	1	0	0	1	1	0	1	1	1	1	0	0	1	1	0	0	1
22	0	2	0	1	0	0	0	1	1	0	1	0	0	0	1	2	0	1	0	0	1	4	2	2	1	2	2
23	0	1	0	0	2	0	0	1	1	0	3	0	1	0	1	0	1	2	1	0	0	4	3	3	1	2	4
24	0	3	0	0	0	0	1	1	3	3	2	1	2	1	8	1	5	4	0	0	0	0	0	3	1	2	1
25	2	0	0	2	0	0	1	2	2	1	0	2	1	0	0	0	2	0	1	0	0	4	1	2	0	2	1
26	0	0	1	0	1	0	1	0	1	3	0	1	1	0	1	5	2	0	1	0	0	1	2	1	1	0	3
27	0	0	0	0	0	0	0	0	1	1	0	1	1	2	4	1	0	1	0	0	1	0	0	2	0	6	3
28	1	0	0	0	4	0	0	1	0	0	0	0	0	0	3	0	2	0	1	0	1	1	0	2	0	0	6
29	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	2	0	6	0	0	0	1	1	2	4	0	3
30	0	0	0	1	2	0	0	1	2	0	0	1	0	1	1	3	1	0	4	0	0	0	0	2	4	1	2
31	0	0	0	0	1	0	0	0	0	0	0	1	1	1	0	3	10	0	7	0	0	0	3	2	2	2	3
32	0	0	2	0	1	0	0	2	1	0	1	4	0	1	1	3	15	1	5	0	0	4	5	2	3	3	6
33	0	0	1	0	1	0	0	0	2	0	2	1	0	0	1	11	12	1	3	0	0	1	2	2	0	1	7
34	2	0	0	1	1	0	0	0	1	0	1	1	1	1	3	6	11	1	2	0	0	3	3	4	6	1	10
35	0	0	0	0	0	0	0	1	0	0	1	3	0	0	1	7	11	2	1	1	0	5	0	4	1	3	6
36	1	0	1	0	1	0	0	1	1	2	1	0	0	1	0	3	13	0	3	4	0	5	0	7	0	2	7
37	0	0	0	0	1	0	0	0	0	0	1	1	0	2	0	5	6	2	0	1	0	1	1	3	2	5	3
38	1	0	1	0	0	1	0	0	0	0	0	0	0	1	3	2	11	3	0	1	0	1	0	4	2	4	8
39	1	0	0	0	0	2	0	0	2	0	1	0	0	0	0	3	13	1	0	1	0	0	1	7	0	5	12
40	0	0	0	1	0	1	0	0	0	0	3	0	0	0	1	2	15	2	1	0	0	2	0	4	0	3	4
41	0	0	0	0	0	3	0	0	0	0	0	0	0	1	0	3	11	4	4	4	0	1	1	5	2	2	11
42	0	1	0	1	0	0	0	0	1	1	0	0	0	1	1	1	11	3	0	4	1	0	0	7	1	2	1
43	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1	0	5	3	2	2	0	1	1	3	0	2	6
44	2	0	0	1	0	2	0	0	0	0	0	0	0	0	0	5	2	1	1	1	1	0	0	0	1	2	2
45	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	7	0	1	0	0	1	1	0	1	0	3	3
46	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0	6	2	1	0	0	0	1	0	0	1	2	2
47	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	5	0	2	0	0	1	0	2	0	0	2	2
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	1
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	0	0	1	0	0	0	0	0	1
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
51	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0
52	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
53	0	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	0
54	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
56	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
57	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	12	8	8	12	19	16	3	12	22	11	20	18	8	16	47	67	239	46	49	19	7	58	43	84	36	48	186



**Table 2.39. Black sea bass length frequencies, fall, 1 cm intervals, 1987-2012.**  
 Since 1987, black sea bass have been measured from every tow.

length	Fall																										
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	2	0	0	1	-	0	1
5	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	2	0	3	1	0	0	0	1	-	4	0
6	0	0	0	0	1	0	0	3	0	0	0	0	0	0	3	1	0	7	0	0	1	1	0	-	4	1	
7	0	0	0	0	0	4	0	3	1	0	1	0	0	3	0	6	4	0	23	2	0	3	2	0	-	2	1
8	0	2	0	1	0	4	0	1	2	0	1	0	0	1	5	8	0	15	2	0	4	0	2	-	1	2	
9	0	0	0	0	1	3	0	0	4	0	0	0	1	0	3	6	0	10	2	0	1	2	0	-	1	2	
10	0	0	0	0	0	2	0	0	1	0	0	0	0	0	1	3	0	5	2	0	2	0	0	-	0	2	
11	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	5	0	2	2	0	1	0	-	0	5	
12	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	-	0	3	
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	-	0	4
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	2	0	-	0	14
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	1	0	-	0	21
16	0	0	0	0	0	2	0	0	0	0	0	0	0	2	1	0	1	0	0	0	0	1	5	0	-	0	37
17	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	0	7	0	0	0	1	4	8	2	-	0	20
18	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	16	1	0	0	1	1	14	6	-	0	20
19	0	0	0	0	0	0	0	0	0	0	2	0	3	1	0	23	0	0	0	2	2	10	4	-	0	23	
20	0	0	0	0	0	3	0	0	0	0	2	0	1	6	3	0	19	0	0	0	1	4	10	6	-	0	14
21	0	0	0	0	0	1	0	0	0	1	0	1	0	4	1	0	17	0	0	1	3	4	9	4	-	0	9
22	0	0	0	0	0	1	0	0	1	0	0	0	1	1	0	5	0	0	0	0	1	4	3	-	0	3	
23	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	4	0	1	0	0	2	0	-	0	6	
24	0	0	2	0	0	0	0	0	0	0	1	0	0	3	0	0	2	0	0	0	0	0	0	-	0	0	
25	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	-	0	0	
26	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	-	1	0	
27	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1	0	0	0	1	0	-	1	1	
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	4	2	0	-	1	2
29	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	3	0	1	1	2	0	1	0	-	2	1	
30	0	1	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	5	0	0	0	1	0	-	5	1	
31	0	0	0	0	1	0	2	0	0	0	0	0	0	1	0	1	1	0	0	0	2	1	0	-	4	1	
32	0	0	2	0	0	0	0	0	0	0	0	1	0	2	3	2	0	0	0	0	0	2	0	-	1	0	
33	0	0	0	0	2	0	0	0	0	0	0	0	0	0	3	2	0	0	0	2	0	0	0	-	1	1	
34	0	0	1	0	2	0	0	0	0	0	0	0	0	0	2	2	0	0	1	0	1	1	0	-	1	1	
35	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	3	2	1	1	0	0	0	1	-	2	1	
36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	2	0	0	-	0	1	
37	0	0	1	0	0	0	0	0	0	0	0	0	0	1	9	2	0	0	0	0	1	1	0	-	3	1	
38	0	0	0	0	0	0	0	0	0	0	0	0	1	0	7	3	0	0	1	0	1	0	1	-	1	1	
39	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	2	0	1	-	2	2	
40	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	3	2	0	1	0	0	0	1	-	1	3	
41	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	3	0	0	1	0	2	0	-	3	2	
42	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	2	0	0	0	-	3	4	
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3	0	0	0	0	1	0	-	0	3	
44	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	3	1	0	0	0	0	0	0	-	1	3	
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	-	0	0	
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	-	0	1	
47	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	-	0	1	
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	-	0	2	
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	1	0	0	-	0	0	
51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	1	
52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	1	
53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	
54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	-	0	1	
<b>Total</b>	<b>0</b>	<b>3</b>	<b>9</b>	<b>1</b>	<b>8</b>	<b>22</b>	<b>2</b>	<b>8</b>	<b>12</b>	<b>1</b>	<b>6</b>	<b>4</b>	<b>10</b>	<b>33</b>	<b>22</b>	<b>66</b>	<b>155</b>	<b>11</b>	<b>75</b>	<b>23</b>	<b>12</b>	<b>53</b>	<b>77</b>	<b>38</b>	<b>-</b>	<b>45</b>	<b>224</b>

**Table 2.40. Blueback herring length frequencies, spring and fall, 1 cm intervals, 1989-2012.**

*From 1989 - 1990, lengths were recorded from the first three tows of each day; since 1991, lengths have been recorded from every tow.*

length	Spring																							
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
6	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	2	0	2	7	2	0	0	2	0	4	1	0	3	2	1	0	0	1	0	4	0	0
8	0	0	3	0	2	76	20	4	0	5	0	10	7	12	7	9	8	1	0	8	0	1	0	0
9	0	0	2	0	3	114	11	5	21	15	0	14	5	9	23	23	14	8	1	11	7	4	3	3
10	0	0	5	10	7	74	9	19	45	45	0	18	2	9	26	47	6	23	9	14	19	19	5	18
11	0	0	3	4	9	41	9	10	258	48	0	28	1	6	11	39	10	2	3	12	25	38	9	12
12	3	0	5	0	2	9	5	3	4	16	0	18	2	3	4	20	12	0	5	2	27	8	3	5
13	0	0	0	4	0	13	5	2	0	2	0	12	1	1	1	12	3	1	3	4	17	10	6	1
14	0	0	0	15	0	5	3	1	1	1	0	3	0	0	0	0	7	0	1	1	5	4	2	0
15	0	0	1	27	1	3	4	7	0	0	1	2	0	4	0	0	8	1	2	2	9	1	0	0
16	0	0	0	65	0	8	3	7	0	3	5	1	1	1	4	4	13	2	23	1	30	4	2	2
17	0	0	1	11	3	9	1	10	4	0	5	3	10	7	4	4	11	2	37	7	64	2	12	2
18	0	1	0	2	0	3	0	4	2	0	0	5	15	2	3	3	1	2	7	3	49	1	3	2
19	0	0	0	0	1	2	4	3	2	0	0	0	3	0	0	3	2	1	3	2	17	2	1	0
20	0	0	0	4	0	1	1	0	0	0	0	2	1	1	0	0	5	2	0	1	2	0	1	0
21	2	1	2	0	0	1	1	3	0	0	0	1	3	0	0	3	2	3	2	0	1	1	0	0
22	1	0	0	1	0	3	0	4	0	1	0	3	0	0	1	0	1	0	1	1	0	1	0	0
23	0	0	3	2	0	3	2	3	1	0	0	5	0	1	0	1	0	0	1	1	0	1	0	0
24	0	1	2	0	0	0	0	2	0	0	0	3	0	0	0	0	0	0	2	0	0	1	0	0
25	0	0	0	1	0	1	1	1	0	0	0	1	0	0	2	0	0	1	1	0	0	0	0	0
26	0	0	0	1	0	0	1	0	0	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>6</b>	<b>3</b>	<b>29</b>	<b>147</b>	<b>30</b>	<b>373</b>	<b>83</b>	<b>90</b>	<b>338</b>	<b>140</b>	<b>11</b>	<b>136</b>	<b>52</b>	<b>56</b>	<b>89</b>	<b>173</b>	<b>104</b>	<b>49</b>	<b>101</b>	<b>71</b>	<b>272</b>	<b>102</b>	<b>47</b>	<b>45</b>

length	Fall																							
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
5	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
6	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
7	0	0	0	0	0	0	5	0	2	0	0	0	0	0	0	1	0	0	0	0	0	-	0	0
8	0	0	0	0	0	0	33	0	2	0	0	0	0	0	0	0	0	0	1	0	0	-	0	0
9	0	0	0	0	0	0	21	3	2	2	1	0	0	0	0	0	0	0	1	0	2	-	0	0
10	0	0	0	0	0	1	3	0	8	1	0	1	0	0	0	0	0	0	0	0	0	-	0	0
11	0	0	0	0	3	13	4	0	3	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
12	0	0	3	9	8	227	14	0	12	1	1	0	7	0	0	2	0	0	0	0	0	-	0	0
13	38	1	4	11	24	225	48	0	117	18	0	36	2	0	15	2	2	0	0	0	-	0	1	
14	77	0	1	6	18	247	40	1	111	28	1	0	117	7	0	17	3	8	1	1	3	-	4	0
15	24	0	0	1	20	94	3	3	34	16	0	3	52	3	4	6	2	4	14	2	5	-	9	0
16	0	0	0	0	2	14	0	0	0	5	2	1	10	0	4	0	0	0	31	0	2	-	9	0
17	0	0	0	0	0	2	0	0	0	1	1	2	2	0	1	0	0	0	7	0	1	-	3	0
18	1	0	0	0	0	1	0	0	0	0	0	1	3	0	0	0	0	0	0	0	5	-	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
20	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	-	0	0
21	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	-	0	0
22	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
24	0	1	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	-	0	0
25	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
<b>Total</b>	<b>140</b>	<b>2</b>	<b>9</b>	<b>27</b>	<b>76</b>	<b>827</b>	<b>172</b>	<b>7</b>	<b>292</b>	<b>72</b>	<b>8</b>	<b>8</b>	<b>227</b>	<b>12</b>	<b>9</b>	<b>42</b>	<b>8</b>	<b>14</b>	<b>55</b>	<b>3</b>	<b>18</b>	<b>0</b>	<b>25</b>	<b>1</b>

**Table 2.41. Bluefish length frequencies, spring, 2 cm intervals (midpoint given), 1984-2012.**  
*Bluefish lengths were recorded from every tow.*

length	Spring																													
	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
25	0	0	0	0	0	0	3	0	0	0	0	0	0	1	0	2	1	0	0	0	1	0	1	0	3	0	2	0	0	
27	0	0	0	0	0	0	1	2	1	0	0	0	0	2	2	0	6	0	1	0	2	0	2	10	1	5	0	1	0	
29	0	0	2	1	0	0	1	2	0	0	0	1	1	1	0	1	6	0	1	0	1	0	5	0	0	10	0	0	0	
31	0	0	0	0	0	0	0	11	0	0	0	0	0	1	0	0	1	0	0	1	0	2	2	1	0	2	0	0	1	
33	0	0	1	0	0	0	0	16	0	0	0	0	0	2	1	1	0	0	1	0	0	0	3	1	0	3	0	0	2	
35	0	0	0	1	0	0	0	16	0	0	0	0	1	0	0	1	0	1	0	0	0	0	1	1	0	1	0	1	4	
37	0	0	0	0	0	0	0	10	0	0	0	0	0	1	0	0	0	0	0	1	0	0	1	0	0	1	0	0	2	
39	0	0	0	0	0	0	0	3	0	0	0	0	0	2	0	0	0	1	0	0	0	1	1	1	1	1	0	1	1	
41	0	0	2	0	0	0	2	10	0	0	0	1	0	0	0	4	0	4	6	5	0	7	0	0	0	0	0	0	0	
43	0	0	2	1	1	0	0	26	1	0	0	0	1	3	2	3	1	9	13	7	1	2	0	1	7	0	0	4	2	
45	0	0	1	0	0	0	1	17	4	0	0	1	2	0	3	2	0	5	6	3	0	1	2	3	10	0	0	4	0	
47	0	0	0	0	0	0	0	3	3	0	0	0	0	0	0	1	2	2	3	0	1	1	6	1	2	0	0	4	0	
49	0	0	3	2	3	0	0	4	5	3	0	0	0	1	6	1	2	3	1	1	1	3	0	1	1	0	0	0	0	
51	0	0	2	1	5	2	1	7	12	2	0	0	4	10	3	6	1	1	9	4	6	1	3	1	1	1	0	2	0	
53	0	0	4	3	6	1	0	6	7	1	2	0	2	6	2	6	2	2	6	3	3	2	6	2	0	7	0	3	2	
55	0	0	4	1	11	0	1	4	0	1	1	0	3	2	1	3	1	1	6	1	1	2	0	3	1	4	0	3	0	
57	0	0	3	2	8	0	0	2	1	2	0	1	0	1	3	2	0	1	0	1	0	1	2	2	1	1	0	0	0	
59	0	1	0	0	6	1	1	0	0	1	1	0	0	1	0	3	1	0	0	4	1	2	1	2	0	0	0	1	1	
61	0	0	3	0	2	2	0	0	2	1	4	0	0	3	0	2	0	0	0	1	0	0	0	2	1	4	1	1	0	
63	0	0	1	0	1	0	0	1	1	1	4	0	0	0	3	2	1	0	0	2	0	1	0	1	1	1	0	0	0	
65	0	0	1	1	0	3	0	1	2	0	0	1	0	0	0	2	0	0	1	0	0	0	0	0	1	2	0	3	0	
67	0	0	0	0	0	3	1	1	0	0	0	0	1	0	1	1	0	0	0	2	0	1	0	1	1	4	1	0	2	
69	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	1	
71	0	0	1	0	0	0	1	2	1	1	0	0	0	1	0	1	1	0	0	0	0	0	0	1	0	0	0	0	1	
73	0	0	1	0	0	1	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	
75	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
77	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
79	0	0	3	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>1</b>	<b>35</b>	<b>13</b>	<b>43</b>	<b>13</b>	<b>17</b>	<b>146</b>	<b>42</b>	<b>13</b>	<b>12</b>	<b>6</b>	<b>16</b>	<b>38</b>	<b>23</b>	<b>51</b>	<b>26</b>	<b>29</b>	<b>56</b>	<b>36</b>	<b>18</b>	<b>25</b>	<b>39</b>	<b>39</b>	<b>29</b>	<b>52</b>	<b>2</b>	<b>28</b>	<b>19</b>	

**Table 2.42. Bluefish length frequencies, fall, 2 cm intervals (midpoint given), 1984-2012.**  
*Bluefish lengths were recorded from every tow.*

length	Fall																													
	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	-	0	0	
7	1	2	0	0	0	0	0	2	33	0	1	0	0	3	13	4	0	1	1	0	0	0	2	0	0	0	-	0	0	
9	2	11	0	5	3	0	3	51	325	5	82	1	0	148	429	293	2	40	9	8	18	77	11	31	0	29	-	0	1	
11	38	18	20	95	116	78	75	315	474	82	1,450	162	7	2,946	1,774	1,205	64	302	153	103	1,072	729	315	126	21	410	-	6	10	
13	1,308	148	65	430	603	743	107	540	392	603	5,722	825	65	4,163	3,566	654	210	259	399	110	1,168	950	413	535	421	766	-	55	126	
15	2,559	1,789	514	982	334	1,500	508	443	497	432	3,786	216	602	870	1,267	637	410	458	342	44	428	390	241	365	708	256	-	329	658	
17	1,797	2,067	932	546	779	2,342	1,183	1,086	1,060	698	1,862	641	3,323	1,005	287	863	370	1,247	106	661	274	619	401	1,148	67	1,104	-	1,079	1,632	
19	426	554	386	118	780	2,436	1,222	1,164	838	2,445	1,041	1,897	1,845	769	211	435	1,200	670	149	1,487	556	1,527	286	3,397	89	466	-	769	795	
21	246	96	169	19	532	903	507	627	263	1,174	803	934	487	332	199	913	2,246	391	617	1,011	677	1,188	108	2,152	69	83	-	240	311	
23	68	21	86	9	193	198	150	398	28	214	469	202	32	154	216	1,096	840	161	723	104	550	429	64	853	8	11	-	52	112	
25	19	24	15	5	18	18	62	212	1	66	265	14	7	25	370	1,032	337	76	355	2	339	178	28	221	2	2	-	21	49	
27	2	5	0	0	1	5	9	32	0	10	62	3	0	3	167	476	9	18	50	0	53	32	14	18	1	0	-	1	7	
29	0	2	0	0	0	0	0	1	0	0	1	0	0	0	7	53	0	5	1	0	10	0	2	4	2	0	-	2	3	
31	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	1	0	0	1	0	2	0	0	1	0	1	-	0	0	
33	0	0	0	2	0	0	6	0	0	0	0	2	0	0	1	0	0	0	3	0	14	0	4	1	0	1	-	0	4	
35	0	0	0	4	1	0	17	0	3	0	0	22	0	1	1	0	0	0	13	1	79	0	4	3	0	1	-	1	4	
37	4	8	1	16	2	1	41	1	21	0	10	92	0	2	2	1	2	15	27	6	188	0	27	5	5	35	-	5	5	
39	25	66	35	56	6	10	145	19	118	4	30	192	2	52	28	7	31	52	67	20	428	0	50	45	42	111	-	18	18	
41	64	133	118	84	23	72	245	130	169	19	116	125	18	110	46	15	129	90	152	15	212	15	25	79	35	83	-	23	20	
43	32	63	101	41	31	101	156	229	77	42	125	37	22	52	28	11	73	31	86	13	33	43	11	69	13	35	-	35	10	
45	6	14	20	21	32	34	25	137	35	79	32	10	23	20	30	1	16	15	10	6	15	57	2	40	10	10	-	14	7	
47	13	11	63	9	25	19	25	69	72	74	7	19	61	6	29	7	9	15	8	14	27	38	1	25	11	3	-	8	7	
49	21	55	52	11	19	21	17	88	179	81	9	20	74	27	33	9	14	25	14	19	47	35	6	32	20	10	-	14	3	
51	25	58	43	14	16	19	36	73	210	50	13	21	38	16	23	7	32	26	13	18	59	57	4	26	29	21	-	12	7	
53	31	44	21	14	18	32	16	21	162	26	42	25	17	10	9	10	40	12	18	7	22	22	12	23	28	9	-	6	8	
55	20	25	9	25	8	21	5	5	90	11	56	6	10	5	9	4	16	5	12	6	31	8	7	11	12	4	-	5	5	
57	13	9	4	30	1	12	1	3	54	33	32	3	10	8	2	10	3	4	12	8	48	14	7	5	3	8	-	1	3	
59	4	5	15	11	12	7	3	6	29	69	11	1	8	10	6	12	6	8	9	4	40	15	5	13	5	8	-	3	3	
61	6	20	5	9	8	4	5	6	10	108	20	4	8	10	5	3	11	10	3	5	17	12	6	31	11	14	-	3	1	
63	2	13	11	5	15	4	9	6	11	54	20	5	2	5	10	3	6	3	6	3	21	27	2	25	10	8	-	3	5	
65	0	12	11	6	12	2	13	1	12	30	39	7	1	2	7	3	11	2	5	1	22	14	3	23	5	8	-	0	0	
67	0	11	11	3	14	4	12	1	3	16	49	5	3	4	5	3	7	5	6	1	9	11	1	14	14	18	-	2	2	
69	1	7	8	10	17	10	12	9	4	2	35	4	2	1	2	6	3	5	7	1	12	10	0	11	10	22	-	3	3	
71	1	1	13	4	7	19	15	5	11	1	17	5	3	1	1	7	8	1	7	2	6	1	0	1	11	26	-	6	0	
73	1	2	3	8	7	7	16	5	15	11	7	4	1	5	1	0	2	2	4	1	6	3	0	5	3	20	-	8	5	
75	2	1	5	3	9	5	13	8	17	8	5	4	7	3	4	5	1	1	1	1	1	4	0	1	1	12	-	5	3	
77	0	3	1	1	3	4	10	6	6	4	8	3	8	6	1	1	0	0	3	0	3	1	0	0	1	4	-	3	2	
79	0	2	2	1	1	3	1	2	4	6	2	1	0	1	0	1	1	2	1	0	0	0	0	1	0	2	-	3	0	
81	0	1	0	0	0	1	2	0	1	0	4	1	2	0	0	1	1	0	0	0	1	0	0	0	1	0	1	-	1	1
83	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
Total	6,737	5,301	2,739	2,598	3,646	8,635	4,673	5,701	5,224	6,457	16,234	5,514	6,688	10,776	8,789	7,789	6,110	3,957	3,393	3,682	6,488	6,506	2,063	9,340	1,667	3,602	-	2,736	3,830	

**Table 2.43. Butterfish length frequencies, 1 cm intervals, spring and fall, 1986-1990, 1992-2012.**

*Length frequencies of butterfish taken from the first three tows of each day.*

length	Spring																										
	1986	1987	1988	1989	1990	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
3	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	1	2	4	0	0	0	0	0	
4	0	0	0	0	0	0	0	2	0	0	0	0	3	0	9	0	15	0	1	1	8	1	5	0	3	3	
5	0	0	0	0	0	2	0	6	0	2	0	0	4	0	51	1	29	1	0	1	5	3	53	0	9	2	
6	0	0	0	0	0	0	0	35	0	21	3	0	0	0	207	0	7	20	0	2	0	1	276	1	35	6	
7	0	0	0	2	0	0	0	57	1	7	0	3	0	0	202	0	3	95	1	0	0	3	233	0	50	0	
8	0	0	0	2	0	0	0	18	0	0	0	0	0	1	107	0	0	101	2	4	0	0	228	0	34	3	
9	0	0	0	0	0	0	0	0	4	0	57	5	4	0	15	0	4	47	0	61	12	1	197	198	7	279	
10	4	0	0	40	0	2	0	4	7	0	165	183	10	0	5	4	10	146	10	201	73	53	225	530	2	768	
11	29	0	0	269	5	16	3	28	20	19	618	622	16	84	51	44	130	427	27	540	292	74	461	291	28	1,523	
12	39	0	3	208	7	32	17	45	80	190	1,005	656	55	961	272	202	616	433	216	1,632	794	409	1,426	47	217	1,489	
13	26	0	6	34	16	88	25	75	62	485	1,598	466	152	1,265	317	656	546	201	442	3,108	531	976	1,196	110	1,347	1,214	
14	61	0	7	2	28	111	10	76	30	327	1,296	190	145	317	145	990	129	71	425	1,690	130	739	439	237	1,819	735	
15	66	0	27	3	26	50	9	117	24	255	1,033	173	122	122	236	851	137	64	234	493	234	646	237	376	1,443	396	
16	57	0	20	10	26	49	25	156	44	275	951	267	148	31	381	669	155	126	124	173	190	654	201	301	1,228	330	
17	25	0	14	7	38	41	23	92	25	178	654	175	137	47	332	490	64	107	81	104	146	396	154	61	982	237	
18	20	0	0	0	18	38	10	44	14	83	307	88	106	28	284	335	36	50	71	72	85	405	113	41	599	83	
19	7	0	0	4	16	27	4	9	3	48	110	70	24	23	128	249	26	21	59	84	22	179	49	5	286	35	
20	0	0	1	2	7	10	0	4	1	13	72	29	27	21	53	142	16	9	12	27	18	56	9	13	67	40	
21	4	0	0	1	5	1	0	0	0	2	22	3	8	7	7	26	4	1	4	1	0	1	7	0	33	0	
22	4	0	0	0	7	0	1	0	0	0	0	5	3	0	1	4	4	1	0	0	0	0	0	0	0	0	
23	0	0	0	0	1	2	0	0	0	0	0	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	
25	0	0	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
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
27	0	0	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
<b>Total</b>	<b>342</b>	<b>0</b>	<b>78</b>	<b>584</b>	<b>200</b>	<b>469</b>	<b>127</b>	<b>768</b>	<b>315</b>	<b>1,905</b>	<b>7,906</b>	<b>2,935</b>	<b>965</b>	<b>2,907</b>	<b>2,804</b>	<b>4,666</b>	<b>1,933</b>	<b>1,921</b>	<b>1,710</b>	<b>8,196</b>	<b>2,544</b>	<b>4,598</b>	<b>5,509</b>	<b>2,211</b>	<b>8,191</b>	<b>7,143</b>	

length	Fall																									
	1986	1987	1988	1989	1990	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
3	0	0	0	0	0	0	0	0	3	0	0	0	2	0	0	0	0	2	0	0	0	0	0	-	24	0
4	0	2	87	0	0	0	20	1	8	2	2	1	3	0	16	15	0	7	0	1	15	0	6	-	0	10
5	0	3	1,141	23	3	475	436	16	268	180	33	20	13	72	69	53	52	29	260	2	152	29	324	-	78	64
6	0	10	5,778	144	62	2,429	3,144	197	426	601	461	317	250	334	409	616	685	710	658	34	1,270	230	1,997	-	345	280
7	12	146	5,728	678	173	13,780	4,344	1,701	5,055	1,540	1,614	920	3,755	2,709	1,405	1,842	4,972	9,342	2,991	162	1,951	771	9,132	-	1,075	1,559
8	117	1,093	4,844	1,425	471	22,246	5,983	7,653	11,919	3,292	5,449	4,070	24,915	8,904	3,196	7,453	5,630	18,524	14,062	1,060	4,508	4,744	18,840	-	3,621	5,148
9	277	2,236	5,489	3,196	2,515	22,133	7,781	17,663	12,110	5,856	11,122	14,691	53,739	16,392	4,444	14,401	3,067	13,237	18,276	4,647	5,086	8,864	16,054	-	5,715	7,742
10	1,143	2,017	1,068	4,927	5,886	6,614	4,001	8,178	3,765	6,674	10,645	29,516	31,244	13,110	6,002	14,408	832	13,284	16,897	9,830	7,584	6,576	5,377	-	3,197	7,792
11	919	1,204	477	1,661	2,781	634	871	2,414	832	5,493	6,050	23,892	8,496	3,528	2,997	5,682	294	4,193	8,203	5,929	6,404	4,103	1,678	-	648	3,451
12	623	1,041	51	216	827	65	360	1,951	346	2,344	2,849	7,162	2,009	915	2,004	430	639	982	2,391	3,266	2,614	1,812	5,041	-	2,451	1,426
13	409	2,477	204	45	212	94	2,400	2,610	131	976	818	675	1,156	306	1,714	264	570	218	1,265	1,173	1,122	457	9,925	-	2,295	647
14	259	1,946	172	144	52	50	1,721	1,238	273	2,072	289	498	481	93	2,307	247	231	350	212	281	278	4	6,842	-	729	429
15	95	1,334	196	139	234	101	797	679	597	2,104	197	272	212	30	2,026	190	95	420	188	184	405	131	2,211	-	240	670
16	106	387	197	210	415	177	390	41	951	1,196	238	388	92	151	1,521	85	156	320	203	688	420	368	1,167	-	103	1,296
17	184	124	228	117	133	130	124	144	853	392	335	574	158	392	391	152	66	208	137	398	228	539	836	-	120	1,318
18	48	59	115	102	83	347	54	110	429	59	407	168	80	198	310	266	8	89	177	77	145	243	117	-	84	749
19	30	10	19	27	91	16	19	2	68	34	211	263	62	106	199	206	0	29	44	39	110	11	63	-	24	105
20	4	8	2	26	8	8	3	0	0	11	20	14	7	4	155	94	13	16	11	3	1	68	15	-	1	66
21	18	2	0	0	0	1	8	1	0	0	10	62	6	1	31	15	1	1	4	0	0	1	0	-	1	0
22	0	0	0	2	0	0	8	0	0	0	0	0	0	0	0	14	1	1	1	0	0	0	0	-	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-	0	0
25	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	-	0	0
<b>Total</b>	<b>4,244</b>	<b>14,108</b>	<b>25,796</b>	<b>13,082</b>	<b>13,946</b>	<b>69,300</b>	<b>32,464</b>	<b>44,599</b>	<b>38,034</b>	<b>32,826</b>	<b>40,750</b>	<b>83,503</b>	<b>126,680</b>	<b>47,245</b>	<b>29,196</b>	<b>46,433</b>	<b>17,312</b>	<b>61,962</b>	<b>65,980</b>	<b>27,775</b>	<b>32,293</b>	<b>28,951</b>	<b>79,627</b>	<b>-</b>	<b>20,751</b>	<b>32,752</b>

**Table 2.44. Fourspot flounder length frequencies, spring and fall, 2 cm intervals (midpoint given), 1989, 1990, 1996-2012.**

*Fourspot lengths were recorded from the first three tows of each day.*

length	Spring																		
	1989	1990	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
13	2	0	0	0	0	1	0	1	0	0	0	0	1	0	0	0	1	0	1
15	5	2	0	0	5	5	0	0	3	0	3	0	0	0	0	0	0	0	0
17	21	8	1	3	8	12	1	2	17	2	13	0	0	6	0	0	6	2	5
19	19	19	8	16	14	61	22	5	89	8	8	0	6	7	7	4	2	1	24
21	17	42	31	60	13	28	26	4	99	6	4	1	18	11	9	10	3	10	42
23	11	341	198	161	16	32	239	42	33	8	4	14	24	9	17	6	5	45	56
25	56	528	279	353	105	72	422	181	84	124	26	71	29	44	39	37	33	157	258
27	103	225	208	456	209	97	256	300	199	228	82	75	33	105	81	91	55	150	441
29	120	139	193	392	233	81	201	245	191	187	129	64	44	170	108	127	55	107	461
31	89	60	117	192	137	66	139	153	175	163	178	68	61	121	94	90	69	93	303
33	51	27	54	76	60	60	81	45	89	88	113	52	36	52	70	51	36	49	92
35	8	33	15	22	16	25	39	11	26	47	35	31	13	43	34	31	24	27	31
37	2	12	6	3	4	7	12	8	7	12	5	11	4	9	11	7	9	9	4
39	0	4	3	0	2	1	1	2	3	6	2	3	1	7	2	0	4	5	0
41	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	1	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
45	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
<b>Total</b>	<b>504</b>	<b>1,440</b>	<b>1,113</b>	<b>1,734</b>	<b>822</b>	<b>548</b>	<b>1,439</b>	<b>999</b>	<b>1,015</b>	<b>879</b>	<b>602</b>	<b>394</b>	<b>271</b>	<b>585</b>	<b>472</b>	<b>455</b>	<b>302</b>	<b>655</b>	<b>1,719</b>

length	Fall																		
	1989	1990	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
5	0	0	0	0	0	0	0	1	0	0	0	0	2	0	0	1	-	0	0
7	0	1	0	1	4	0	0	1	0	0	1	0	2	0	0	1	-	1	0
9	5	0	0	23	19	0	2	2	0	4	1	0	2	1	1	7	-	4	0
11	9	4	2	46	27	5	4	17	5	2	12	4	5	0	7	16	-	17	3
13	10	15	5	68	22	24	6	25	3	3	9	9	13	2	8	59	-	28	4
15	6	17	35	55	21	42	5	15	9	0	13	17	4	5	11	45	-	22	13
17	0	0	42	16	3	16	1	0	3	0	1	26	3	2	16	20	-	4	12
19	0	0	22	0	0	4	1	0	1	0	0	2	0	0	7	6	-	0	0
21	0	0	0	2	2	3	2	0	2	0	1	0	0	1	0	0	-	0	0
23	1	2	9	2	5	0	17	1	5	0	0	0	1	1	0	1	-	0	0
25	0	3	42	7	16	5	58	3	7	3	4	1	0	6	1	2	-	2	3
27	0	7	41	10	22	4	77	5	13	7	6	5	0	7	1	6	-	1	9
29	0	3	24	5	22	5	54	10	18	11	13	5	0	20	6	8	-	1	11
31	0	1	20	3	6	3	25	1	18	4	30	6	0	12	5	6	-	1	6
33	0	0	6	1	1	1	7	1	13	7	19	2	1	3	1	11	-	3	6
35	0	0	4	0	1	0	5	0	6	5	6	7	0	4	4	1	-	2	2
37	0	0	0	0	0	0	2	1	3	0	2	0	0	0	0	1	-	1	0
39	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	-	0	0
<b>Total</b>	<b>31</b>	<b>53</b>	<b>252</b>	<b>239</b>	<b>171</b>	<b>112</b>	<b>266</b>	<b>83</b>	<b>106</b>	<b>46</b>	<b>118</b>	<b>85</b>	<b>33</b>	<b>64</b>	<b>68</b>	<b>192</b>	<b>-</b>	<b>87</b>	<b>69</b>

**Table 2.45. Hickory shad length frequencies, spring and fall, 1 cm intervals, 1991-2012.**

*Hickory shad were measured from every tow, with the exception of one fish in each of fall 1996, fall 1997, and fall 1998.*

length	Spring																					
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	3	0	0	0	0	0	1
18	0	0	0	1	0	1	0	0	2	0	0	0	0	0	1	7	1	2	1	0	0	0
19	0	0	0	1	0	0	1	0	0	0	0	0	0	3	5	6	0	1	1	0	0	0
20	0	0	0	0	0	2	0	2	0	0	0	0	0	2	4	2	0	0	0	0	1	2
21	0	0	0	0	0	1	0	0	0	0	0	0	0	2	3	1	1	0	0	1	0	1
22	0	0	0	0	0	0	0	0	1	0	2	0	0	1	1	0	0	0	0	0	0	0
23	0	0	1	0	0	0	0	0	1	0	0	0	1	2	0	2	1	0	0	0	0	0
24	1	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	0	0	0	0	0
25	0	0	0	0	0	0	0	2	0	0	0	0	0	1	1	6	5	0	0	0	0	0
26	0	0	0	0	0	0	0	1	0	0	0	2	0	0	6	5	2	0	0	0	0	2
27	0	0	0	0	0	0	1	0	1	0	0	1	0	0	18	3	5	0	1	0	0	3
28	0	0	0	1	0	1	1	1	2	2	0	4	1	0	14	3	3	0	1	1	0	1
29	0	0	0	0	0	0	2	4	1	7	0	5	0	2	5	2	1	0	1	0	0	1
30	0	0	1	1	1	0	1	5	1	5	0	5	3	1	6	5	2	0	0	0	0	1
31	0	0	0	0	1	1	1	2	1	4	0	2	0	0	1	0	2	0	1	0	0	0
32	0	2	0	0	0	3	0	6	6	2	1	2	1	1	0	5	1	0	0	0	0	0
33	0	0	0	0	0	2	1	2	3	1	0	3	2	0	0	0	1	0	0	0	0	0
34	0	0	0	0	0	0	1	3	1	2	2	1	3	1	2	1	1	0	0	0	0	0
35	0	0	1	0	0	1	0	2	2	2	0	4	2	2	2	0	0	0	0	0	0	0
36	0	0	0	0	0	0	0	2	1	1	0	4	1	0	1	0	0	0	0	0	0	0
37	0	0	0	0	0	0	0	1	0	0	1	2	0	0	0	0	0	0	0	0	0	1
38	0	0	0	0	0	0	0	1	0	0	1	2	2	1	1	0	0	0	0	0	0	0
39	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
41	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Total	1	2	3	4	2	12	9	34	24	26	10	40	16	20	75	53	27	3	6	2	1	14

length	Fall																					
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
19	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
22	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	-	0	0
23	0	0	0	3	0	0	0	0	1	0	0	0	0	0	0	2	0	0	0	-	2	1
24	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	-	2	1
25	0	0	0	6	0	1	1	0	2	0	0	0	0	0	2	1	2	0	0	-	0	2
26	0	1	2	8	0	3	1	0	5	0	0	0	0	4	3	0	0	0	0	-	3	1
27	0	0	0	3	0	2	0	0	5	2	0	1	0	3	0	1	0	0	0	-	0	0
28	0	1	0	1	0	3	0	0	2	0	0	1	0	1	1	1	0	0	2	-	0	1
29	0	0	0	2	0	0	0	0	0	2	0	0	0	1	2	3	0	0	0	-	0	4
30	0	1	0	1	1	0	1	0	0	0	0	0	0	0	8	7	2	0	3	-	0	3
31	0	0	1	0	1	0	2	1	2	0	0	0	1	0	15	1	2	0	2	-	0	7
32	0	1	0	0	1	2	2	1	7	3	1	0	2	0	12	1	1	0	0	-	0	3
33	0	2	1	2	0	1	3	2	2	2	3	1	2	1	5	0	1	2	0	-	0	1
34	0	2	0	0	1	4	2	0	3	4	0	1	1	0	5	1	0	0	0	-	0	4
35	0	0	2	0	0	0	0	0	0	2	0	0	0	2	1	1	0	0	0	-	0	0
36	0	1	0	0	0	0	0	0	0	0	0	1	0	1	2	1	0	0	0	-	0	1
37	0	1	1	0	0	0	1	0	2	1	0	0	0	1	2	0	0	0	0	-	0	0
38	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	1	0	0	0	-	0	0
39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
40	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	1	0	0	-	0	0
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	-	0	0
Total	0	10	7	27	4	16	15	5	32	16	4	5	6	18	60	22	10	2	7	0	7	29

**Table 2.46. Horseshoe crab length frequencies by sex, spring, 1 cm intervals, 1998-2012.**

*Horseshoe crabs were measured (prosomal width) from every tow.*

Sex	length	1998*	Spring															
			1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012		
F	13		1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
F	14		1	3	0	1	2	0	1	0	0	0	0	0	0	0	0	0
F	15		0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	
F	16		1	0	0	3	2	1	1	0	0	1	0	0	0	0	1	
F	17		1	0	2	2	1	4	1	0	1	1	0	0	0	0	1	
F	18		2	1	0	3	2	4	0	0	2	1	1	0	0	0	0	
F	19		4	1	2	2	5	5	0	0	3	4	1	0	0	0	2	
F	20		5	2	0	7	1	2	3	0	3	2	0	0	1	2	2	
F	21		8	2	1	8	6	2	1	0	3	8	1	0	3	5	5	
F	22		8	6	4	13	10	7	2	0	10	4	6	0	3	3	3	
F	23		14	15	18	19	22	17	3	2	9	14	4	3	4	9	9	
F	24		15	7	15	32	29	25	5	4	15	11	12	6	3	15	15	
F	25		15	10	23	25	22	20	8	5	11	16	10	9	9	14	14	
F	26		23	13	28	26	22	23	3	2	16	12	10	4	16	14	14	
F	27		15	9	18	18	18	18	8	4	10	9	9	5	18	11	11	
F	28		8	6	9	6	7	4	2	2	5	4	10	3	8	10	10	
F	29		3	0	3	4	4	4	0	3	5	1	3	4	1	3	3	
F	30		1	0	3	2	0	0	3	2	0	2	1	1	4	0	0	
F	31		0	0	0	0	4	0	0	0	0	1	1	0	0	0	0	
F	32		0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	
M	14		0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	
M	15		0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	
M	16		0	0	0	2	5	2	0	1	2	0	2	0	0	0		
M	17		5	2	4	7	9	9	0	0	3	2	3	0	1	5	5	
M	18		11	8	12	19	24	21	2	0	17	10	3	2	5	7	7	
M	19		22	13	32	42	25	33	3	0	19	12	10	7	7	8	8	
M	20		15	16	30	20	33	31	7	0	21	10	11	7	15	13	13	
M	21		18	5	13	14	16	10	1	0	6	12	5	3	3	9	9	
M	22		4	5	7	6	7	6	2	0	4	2	1	1	4	5	5	
M	23		1	0	3	1	4	2	1	0	0	1	1	0	0	0	0	
M	24		2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	
M	25		0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	
M	26		0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	
M	27		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
M	28		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
M	29		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
M	30		0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	
U	22		1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<b>Total</b>		<b>51</b>	<b>204</b>	<b>125</b>	<b>228</b>	<b>285</b>	<b>285</b>	<b>251</b>	<b>60</b>	<b>25</b>	<b>166</b>	<b>141</b>	<b>104</b>	<b>57</b>	<b>105</b>	<b>138</b>		



**Table 2.47. Horseshoe crab length frequencies by sex, fall, 1 cm intervals, 1998-2012.**  
*Horseshoe crabs were measured (prosomal width) from every tow.*

Sex	length	Fall														
		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
F	13	0	0	2	0	0	0	3	0	1	0	0	0	-	0	0
F	14	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
F	15	0	0	0	0	2	0	0	0	0	0	0	0	-	0	0
F	16	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
F	17	1	1	0	0	2	1	0	1	1	0	1	0	-	0	0
F	18	0	2	0	1	0	1	1	1	0	0	0	0	-	0	0
F	19	3	2	2	2	0	1	0	0	1	0	1	1	-	0	0
F	20	5	1	1	4	4	2	3	0	2	0	0	2	-	0	0
F	21	3	2	2	3	1	4	6	3	1	1	1	0	-	0	0
F	22	3	8	13	13	10	3	9	4	1	2	6	6	-	6	0
F	23	8	15	15	12	8	8	13	10	7	7	6	14	-	6	2
F	24	7	19	30	27	21	9	24	10	6	17	14	22	-	18	10
F	25	17	12	20	31	33	13	19	6	12	26	17	17	-	19	9
F	26	19	23	33	31	18	9	29	12	10	22	15	24	-	25	16
F	27	14	7	21	22	18	7	22	8	3	17	11	28	-	16	5
F	28	2	4	10	8	13	6	15	5	4	8	11	22	-	11	3
F	29	2	3	2	5	2	3	8	2	0	4	1	5	-	2	4
F	30	0	1	1	2	0	2	1	2	0	2	0	2	-	0	1
F	31	0	1	0	0	1	0	0	2	0	0	0	1	-	0	0
F	32	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
F	33	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
F	34	0	0	0	0	0	1	0	0	0	0	0	0	-	0	0
M	11	0	0	0	1	0	0	0	0	0	0	0	0	-	0	0
M	12	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
M	13	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
M	14	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
M	15	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
M	16	0	0	2	1	5	3	0	0	0	1	1	0	-	1	0
M	17	6	5	7	6	3	5	11	0	1	3	1	2	-	3	0
M	18	12	14	28	18	14	15	21	3	9	3	9	18	-	13	4
M	19	10	20	39	27	31	11	39	13	4	12	21	14	-	9	4
M	20	20	23	35	32	22	8	30	12	9	19	23	31	-	10	1
M	21	6	11	18	15	9	4	15	4	2	10	6	13	-	7	1
M	22	5	3	8	4	6	0	10	2	5	6	2	5	-	6	0
M	23	0	0	3	2	6	1	1	0	2	3	1	3	-	0	1
M	24	0	0	1	3	0	0	1	0	1	2	0	2	-	0	0
M	25	0	0	2	0	0	0	0	0	0	0	0	1	-	0	0
M	26	2	0	0	3	0	0	0	0	1	0	0	1	-	0	0
M	27	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
M	28	0	0	0	0	0	0	0	1	0	0	0	0	-	0	0
M	29	0	0	0	1	0	0	0	0	0	0	0	0	-	0	0
Total		145	177	295	274	229	117	281	101	83	165	148	234	-	152	61

**Table 2.48. Long-finned squid length frequencies, spring and fall, 2 cm intervals (midpoint given), 1986-1990, 1992-2012.**  
*Length frequencies of squid taken from the first three tows of each day.*

length	Spring																									
	1986	1987	1988	1989	1990	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
3	0	0	0	0	0	0	0	0	1	5	1	18	4	11	0	7	0	6	0	1	2	125	17	1	0	5
5	0	1	38	0	1	10	73	168	135	62	46	426	42	68	17	92	27	121	12	30	44	440	194	6	23	73
7	2	8	113	0	0	25	196	225	354	57	90	769	38	50	39	64	15	153	24	21	57	214	215	11	87	105
9	5	13	71	2	3	40	90	146	311	74	86	449	61	36	68	55	37	75	13	20	49	109	94	12	38	89
11	3	32	129	5	13	45	107	211	615	130	121	201	129	57	126	89	57	143	39	91	103	278	231	112	76	285
13	43	335	354	18	35	129	296	257	624	172	223	84	194	203	177	147	141	519	197	285	124	332	684	302	152	168
15	45	611	594	84	126	178	372	188	278	158	393	31	193	196	91	148	137	862	442	256	95	181	385	300	130	80
17	21	822	522	191	289	120	507	147	178	85	340	19	110	135	65	93	83	827	407	239	49	136	240	151	91	87
19	59	569	445	187	272	89	345	52	119	68	188	15	61	90	42	34	38	343	198	117	40	68	153	109	69	37
21	52	542	245	91	157	97	170	31	95	34	117	10	38	59	38	33	29	260	135	90	16	59	63	56	65	55
23	26	398	145	82	107	68	72	23	26	16	106	11	21	37	20	15	26	164	89	58	12	21	31	42	38	37
25	19	369	98	63	111	20	44	16	17	9	94	3	26	24	19	8	21	104	64	43	10	14	25	23	29	9
27	13	439	78	85	85	35	48	9	40	4	43	5	7	19	9	7	7	45	37	17	5	7	17	7	9	6
29	4	219	29	40	81	27	34	5	7	4	11	3	7	1	7	5	2	20	12	10	2	2	6	1	0	7
31	8	199	38	23	36	7	9	3	12	1	14	1	1	1	2	8	2	14	2	8	2	0	4	0	3	2
33	0	86	14	13	15	10	7	1	5	1	5	0	1	1	1	4	0	1	1	1	0	0	3	0	2	0
35	1	38	0	0	11	2	2	2	8	0	4	0	0	1	2	1	0	0	0	0	0	0	0	0	0	1
37	2	38	4	5	6	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
39	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>303</b>	<b>4,720</b>	<b>2,917</b>	<b>894</b>	<b>1,348</b>	<b>903</b>	<b>2,372</b>	<b>1,484</b>	<b>2,825</b>	<b>880</b>	<b>1,882</b>	<b>2,045</b>	<b>933</b>	<b>990</b>	<b>723</b>	<b>811</b>	<b>622</b>	<b>3,657</b>	<b>1,672</b>	<b>1,287</b>	<b>610</b>	<b>1,986</b>	<b>2,362</b>	<b>1,133</b>	<b>812</b>	<b>1,046</b>

length	Fall																									
	1986	1987	1988	1989	1990	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
3	0	157	59	113	74	316	914	89	181	82	130	135	133	55	36	90	90	171	101	181	29	119	433	-	92	111
5	0	1,212	1,039	1,211	1,108	4,413	5,838	1,809	1,682	1,968	1,582	2,530	1,577	1,598	893	956	3,111	2,450	2,302	836	1,787	711	3,271	-	2,036	1,174
7	16	1,835	1,886	1,124	1,305	10,225	8,690	3,954	4,150	4,620	2,446	6,150	4,172	4,046	1,919	2,260	5,752	5,464	4,889	1,830	6,602	1,385	5,640	-	2,720	1,429
9	151	1,346	479	391	349	4,704	6,725	4,711	4,205	4,078	1,504	4,932	3,637	2,878	1,455	1,417	3,670	2,694	3,289	996	5,668	1,685	2,922	-	1,511	1,222
11	13	813	126	128	82	1,630	2,950	3,662	2,445	1,962	736	1,891	2,112	1,251	792	569	1,076	1,018	1,511	387	3,353	812	1,134	-	980	757
13	0	247	45	72	41	526	1,145	1,259	546	876	279	696	700	627	285	232	60	240	501	116	1,175	296	330	-	350	379
15	0	108	20	34	9	58	463	510	187	243	75	302	369	332	134	65	3	151	108	35	403	65	68	-	127	161
17	0	19	11	22	6	0	127	174	48	62	28	113	231	174	40	16	0	44	55	25	262	12	16	-	25	43
19	0	2	23	6	1	0	22	43	2	7	10	17	117	42	5	4	0	9	3	23	76	0	1	-	25	19
21	0	28	0	8	1	0	2	10	0	0	1	1	45	12	3	1	0	4	2	1	4	0	0	-	0	6
23	0	2	0	6	1	0	2	12	0	6	0	1	21	0	0	0	0	0	2	0	0	0	0	-	1	2
25	0	1	0	3	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	5	0	0	-	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	1
<b>Total</b>	<b>180</b>	<b>5,770</b>	<b>3,688</b>	<b>3,118</b>	<b>2,977</b>	<b>21,872</b>	<b>26,879</b>	<b>16,233</b>	<b>13,446</b>	<b>13,904</b>	<b>6,791</b>	<b>16,768</b>	<b>13,115</b>	<b>11,016</b>	<b>5,562</b>	<b>5,610</b>	<b>13,762</b>	<b>12,245</b>	<b>12,763</b>	<b>4,430</b>	<b>19,364</b>	<b>5,085</b>	<b>13,815</b>	<b>-</b>	<b>7,867</b>	<b>5,304</b>

**Table 2.49. Scup spring length frequencies, 1 cm intervals, 1984-2012.**  
*Lengths were recorded from every tow.*

length	Spring																													
	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	13	0	0	0	0	
8	0	0	0	6	3	84	0	12	0	0	0	11	0	10	24	61	0	16	0	0	4	56	4	145	3	0	0	35		
9	4	30	50	33	46	1,049	11	80	9	0	11	408	152	10	163	128	976	98	400	0	0	77	322	145	606	148	0	19	435	
10	8	138	377	46	160	2,523	270	514	49	3	48	1,202	537	145	1,381	355	5,293	405	2,303	4	1	169	1,151	926	1,700	1,966	14	115	3,169	
11	10	362	724	38	144	2,075	493	1,365	67	4	92	1,437	1,055	311	1,617	313	10,571	645	3,389	19	1	136	1,259	1,033	2,055	3,476	22	203	3,888	
12	5	194	427	9	31	312	280	576	57	3	67	809	826	151	712	131	8,815	586	1,706	33	1	62	1,263	486	950	3,418	7	178	2,589	
13	2	51	122	4	9	87	56	122	18	4	23	108	397	36	359	51	4,041	265	722	25	2	19	888	78	586	1,141	1	77	1,241	
14	0	7	64	2	0	72	22	0	11	5	2	20	29	25	154	16	1,043	104	498	7	1	8	626	76	357	561	3	16	262	
15	2	4	4	11	4	137	40	3	3	77	7	3	3	11	66	1	201	220	247	7	42	56	251	298	426	593	40	19	62	
16	9	47	26	65	19	121	202	8	4	217	48	6	61	49	24	13	48	1,349	1,035	121	327	129	722	1,177	1,971	1,430	222	100	52	
17	37	91	91	119	40	105	310	63	49	339	142	11	264	123	57	75	229	4,517	2,943	415	485	129	1,670	1,607	3,916	2,151	614	215	206	
18	22	204	208	174	34	95	231	182	135	286	194	28	545	216	89	161	1,034	8,611	4,097	733	403	140	2,254	1,444	3,722	1,953	780	312	642	
19	28	130	182	100	16	50	121	347	258	159	203	30	390	136	66	172	1,451	6,452	3,619	720	261	114	1,607	918	1,978	1,078	527	270	1,123	
20	11	71	131	33	25	33	30	256	136	35	99	22	153	81	21	130	1,106	1,840	3,679	390	381	29	934	390	1,315	798	424	257	909	
21	3	15	36	15	44	13	26	223	65	27	95	19	34	62	11	78	513	518	6,253	427	584	42	559	266	2,149	1,320	599	655	377	
22	7	7	6	4	49	7	18	292	11	17	56	17	10	96	8	29	173	292	8,129	660	1,077	111	416	458	2,835	1,941	723	1,260	200	
23	6	22	103	3	33	12	12	225	10	25	44	19	1	86	17	25	240	755	5,618	931	982	174	427	603	2,340	1,522	641	1,387	313	
24	4	38	124	5	14	9	6	103	21	14	23	24	8	46	18	26	282	833	2,385	977	745	161	361	558	1,351	1,149	580	1,123	568	
25	3	28	77	2	4	5	7	33	15	8	10	15	2	20	12	13	199	278	1,292	1,025	844	216	234	272	854	909	573	930	816	
26	0	11	73	2	3	3	3	15	10	1	8	5	1	5	10	10	154	132	1,266	741	1,215	332	262	128	642	793	523	658	1,000	
27	2	3	35	3	1	4	1	5	4	4	6	8	2	3	7	7	50	93	491	363	1,200	353	283	91	382	504	350	651	931	
28	0	12	4	5	4	3	3	1	6	2	2	0	1	3	3	2	13	88	282	201	730	379	427	109	230	267	243	637	721	
29	1	14	6	3	2	0	0	2	2	0	0	0	1	0	1	6	19	36	147	81	331	332	622	115	198	234	153	468	565	
30	0	11	3	1	0	1	0	2	1	1	1	1	1	3	0	0	8	8	71	33	116	171	618	156	64	90	41	321	467	
31	0	1	0	1	2	0	0	1	0	0	1	0	1	4	0	1	6	3	35	23	37	101	441	167	54	42	34	235	307	
32	0	2	1	0	1	1	1	0	1	0	0	1	0	0	0	3	3	2	10	11	28	41	317	126	68	32	15	123	174	
33	0	2	1	0	0	0	0	0	0	0	1	0	0	0	0	0	4	2	11	4	11	16	266	65	57	57	14	78	105	
34	1	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	3	1	4	2	8	1	30	37	47	16	4	44	63	
35	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	1	0	3	0	1	2	17	18	26	10	4	32	31	
36	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	1	1	4	9	11	11	2	28	17	
37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	3	4	8	1	15	6	
38	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	1	0	0	0	5	4	
39	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3	2
40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	3
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	0	0	0	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	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>166</b>	<b>1,497</b>	<b>2,877</b>	<b>684</b>	<b>689</b>	<b>6,801</b>	<b>2,143</b>	<b>4,430</b>	<b>942</b>	<b>1,232</b>	<b>1,183</b>	<b>4,204</b>	<b>4,474</b>	<b>1,624</b>	<b>4,806</b>	<b>1,771</b>	<b>36,537</b>	<b>28,134</b>	<b>50,654</b>	<b>7,955</b>	<b>9,817</b>	<b>3,506</b>	<b>18,292</b>	<b>11,764</b>	<b>31,052</b>	<b>27,623</b>	<b>7,155</b>	<b>10,435</b>	<b>21,283</b>	

**Table 2.50. Scup fall length frequencies, 1 cm intervals, 1984-2012.**

*Lengths were recorded from every tow.*

length	Fall																												
	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
2	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	0	-	0	0
3	0	8	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	13	4	9	0	0	-	4	0
4	1	61	0	0	17	1	3	14	196	0	6	0	18	4	1	1	28	117	19	143	363	11	74	0	34	-	21	29	
5	16	90	313	213	103	128	57	120	483	28	312	1	13	70	224	21	168	317	603	214	1,302	850	129	381	0	234	-	131	119
6	295	249	626	1,193	625	612	340	1,805	1,516	554	931	41	185	338	1,246	1,041	991	1,891	2,132	573	4,723	4,122	389	1,303	4	1,106	-	705	567
7	627	588	753	491	1,782	1,367	640	4,923	1,554	4,383	5,217	219	788	1,020	2,354	4,570	4,228	5,003	5,571	1,589	8,721	9,683	942	4,516	871	2,923	-	1,769	1,849
8	345	1,827	507	499	2,264	1,765	2,152	11,168	2,595	9,063	11,585	602	2,048	1,318	4,330	9,886	7,464	7,327	9,315	701	10,637	11,328	1,442	10,576	3,092	3,078	-	3,977	4,036
9	719	2,637	210	434	2,050	1,500	3,806	13,883	936	9,169	13,327	1,867	3,502	1,479	4,515	18,224	9,302	5,369	10,102	205	10,751	8,808	1,517	13,782	6,383	1,316	-	4,882	5,961
10	262	2,025	84	77	656	798	2,728	5,539	250	5,754	4,712	1,916	2,667	1,184	3,126	29,863	6,831	2,837	6,754	33	5,987	5,295	459	10,376	7,196	610	-	2,365	5,770
11	8	1,064	19	12	81	95	601	1,191	78	814	432	606	525	499	728	20,073	1,806	888	2,020	3	1,896	1,973	126	2,547	1,733	75	-	632	2,695
12	0	9	4	22	17	124	28	88	40	12	46	103	31	191	94	6,931	467	312	488	6	344	734	256	1,316	84	10	-	112	726
13	14	59	41	144	53	670	51	2	304	13	4	46	39	44	56	1,190	428	229	197	87	77	680	606	1,645	27	81	-	42	154
14	30	265	322	288	274	1,449	13	46	860	70	22	403	161	130	180	198	2,744	309	276	249	159	1,158	1,101	3,269	193	598	-	248	482
15	86	339	603	277	649	1,102	171	305	1,393	176	68	1,283	459	517	504	459	6,889	690	854	325	268	784	1,210	4,216	367	1,890	-	883	1,483
16	91	473	452	149	313	487	373	910	942	251	117	1,478	491	588	738	742	10,695	762	1,403	201	130	555	801	3,003	493	2,445	-	1,425	2,233
17	46	299	361	61	111	213	362	683	465	168	103	869	299	289	446	1,583	7,208	593	1,642	92	75	359	338	1,468	330	1,777	-	1,138	2,015
18	27	170	188	29	81	87	415	242	110	70	87	262	111	101	193	1,548	3,508	225	1,370	43	37	261	179	555	110	830	-	613	1,332
19	8	44	55	20	85	42	309	39	28	56	57	47	51	21	72	1,196	771	294	733	175	78	234	113	676	88	320	-	293	455
20	21	15	36	52	93	43	266	13	145	95	34	18	75	32	33	436	396	769	621	586	189	308	147	1,121	185	343	-	110	199
21	47	8	44	87	87	34	424	56	254	111	41	9	70	34	33	289	337	967	797	693	339	194	158	1,179	228	336	-	186	212
22	59	38	116	88	96	34	333	64	265	88	56	4	58	39	27	460	216	655	1,214	500	447	147	128	655	238	226	-	288	388
23	75	77	133	61	18	14	101	86	181	44	38	4	23	17	16	329	189	328	1,185	315	544	88	134	365	150	190	-	408	319
24	93	64	84	33	17	9	34	98	27	16	33	3	7	10	7	173	124	195	1,071	506	744	104	90	189	94	170	-	649	184
25	46	49	38	27	4	6	21	47	23	12	17	1	12	5	66	49	96	769	726	1,072	146	59	181	123	170	-	822	112	
26	38	53	13	28	10	3	10	19	17	10	11	0	4	2	13	35	55	271	720	878	173	42	170	147	167	-	643	106	
27	38	64	9	36	7	1	2	13	22	10	7	0	2	1	2	19	42	27	184	558	790	212	23	91	99	128	-	502	122
28	31	18	12	11	3	1	3	6	13	7	6	0	2	1	1	4	20	11	67	261	731	214	15	78	85	107	-	383	116
29	9	21	4	7	0	0	1	1	6	4	2	0	0	0	3	2	13	14	32	101	433	174	23	32	59	86	-	341	59
30	8	16	2	1	0	0	0	0	0	3	0	0	0	0	0	0	3	4	22	75	122	101	36	27	51	35	-	196	63
31	7	7	1	1	0	0	1	2	1	0	0	0	1	0	0	1	2	3	14	23	45	46	26	43	22	28	-	111	26
32	2	1	0	0	0	0	3	0	0	0	1	0	0	0	0	1	0	0	1	14	25	18	20	37	20	21	-	76	17
33	1	2	0	3	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2	5	10	3	6	27	14	13	-	31	11
34	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	2	5	2	10	11	13	-	16	1
35	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	1	1	0	1	1	6	7	-	10	0
36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	4	0	0	1	4	2	-	7	1
37	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	2	-	2	0
Total	3,050	10,641	5,030	4,344	9,496	10,592	13,249	41,363	12,705	30,983	37,272	9,782	11,609	7,957	18,939	99,319	64,927	30,198	49,829	9,602	51,706	49,133	10,533	63,921	22,507	19,371	-	24,021	31,842

**Table 2.51. Striped bass spring length frequencies, 2 cm intervals (midpoint given), 1984–2012.**

*All striped bass taken in the Survey were measured, with the exception of one fish taken in 1984, one in 1988, and two in 1990.*

length	Spring																													
	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
11	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0	1	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	8	0	0	0	1	0
17	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0	3	0
19	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	5	0	0	5	0
21	0	0	0	0	0	2	3	0	0	0	0	4	1	0	2	1	3	0	8	0	0	1	0	0	0	21	0	0	5	0
23	0	0	0	0	1	1	1	0	1	0	0	9	0	0	11	1	8	1	22	0	0	23	0	7	1	24	1	0	10	0
25	0	0	0	1	0	1	4	2	0	0	0	18	0	2	28	1	18	7	32	4	2	57	0	9	4	24	1	2	8	0
27	0	0	0	0	0	0	5	1	2	0	2	28	2	5	30	2	24	15	38	4	1	67	1	12	4	7	1	0	8	0
29	0	0	0	0	1	0	9	2	0	1	1	24	4	12	21	14	28	16	27	11	4	50	1	10	6	5	0	0	8	0
31	0	0	0	0	0	1	6	2	1	2	2	12	4	14	20	10	29	5	17	7	5	19	1	4	4	1	0	0	5	0
33	0	0	0	1	0	0	6	1	0	3	7	8	5	20	24	7	6	12	10	10	6	2	5	4	6	0	0	2	2	0
35	0	0	0	0	1	0	3	2	1	1	0	8	20	2	19	16	3	4	7	7	13	7	6	6	1	2	1	1	2	0
37	0	0	0	0	0	0	3	1	0	0	1	8	26	25	25	15	2	11	12	11	11	4	5	16	2	5	2	1	3	0
39	0	0	0	0	0	1	0	0	0	0	3	3	19	42	23	13	2	14	14	7	4	7	6	35	2	10	3	0	3	0
41	0	0	0	0	0	2	2	1	3	1	3	4	17	30	25	19	6	7	20	3	2	20	2	26	2	19	1	0	1	0
43	0	0	0	0	0	0	1	3	5	1	0	7	16	17	11	3	2	17	5	1	13	4	25	6	14	0	0	4	0	0
45	0	0	0	1	0	0	0	0	5	2	2	3	12	6	19	9	4	1	17	2	3	12	2	11	7	21	0	0	5	0
47	0	0	0	0	2	0	0	0	3	6	0	7	10	15	10	5	6	9	3	2	17	0	7	10	30	2	6	1	1	0
49	0	0	0	0	2	0	2	1	2	3	4	1	5	13	14	6	4	3	8	5	6	17	1	12	9	28	7	4	1	0
51	0	0	0	0	0	1	0	1	4	3	4	2	7	7	12	6	4	3	9	7	1	4	6	5	10	32	2	8	5	0
53	0	0	0	1	0	0	0	1	2	5	4	2	7	4	8	11	5	2	5	6	6	9	6	8	12	19	5	11	1	0
55	0	0	0	0	0	0	1	1	1	4	2	2	5	3	13	13	7	3	8	9	3	7	6	4	12	9	7	11	5	0
57	0	0	0	0	0	0	0	2	2	2	8	1	2	3	6	21	4	5	9	9	6	13	3	15	12	13	8	13	6	0
59	0	0	0	2	0	1	0	0	0	4	2	2	2	7	7	22	4	5	10	11	4	5	5	5	8	17	6	5	6	0
61	0	0	0	0	0	0	0	2	1	2	5	2	3	3	2	26	4	10	17	7	6	6	4	12	5	17	3	13	1	0
63	0	0	0	1	1	0	0	0	1	5	1	0	2	3	2	21	8	13	6	9	7	7	4	15	5	15	2	12	1	0
65	0	0	0	0	0	0	0	0	0	1	4	0	3	5	10	15	10	4	13	9	4	8	6	4	1	12	4	8	2	0
67	0	0	0	0	0	1	0	0	1	1	0	1	3	4	6	10	9	6	19	14	6	4	3	8	4	8	1	15	4	0
69	0	0	0	0	0	0	2	0	0	3	3	1	3	1	10	3	13	15	10	5	7	2	5	3	3	2	9	4	4	0
71	0	0	0	1	0	0	1	0	0	0	1	2	1	3	1	10	5	6	6	5	3	9	1	4	5	7	2	12	3	0
73	0	0	0	0	0	0	0	2	0	3	0	0	7	6	2	5	8	5	12	10	2	6	3	3	3	3	2	7	1	0
75	0	0	0	0	0	0	0	0	0	3	1	0	0	0	6	1	2	4	10	5	5	1	3	0	3	4	8	3	0	0
77	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1	3	5	2	0	6	1	5	2	1	1	0	9	0	0	0
79	0	0	0	0	0	0	0	1	1	0	0	3	2	3	0	1	2	1	7	1	1	4	2	0	1	1	1	5	1	0
81	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	2	2	0	4	0	2	4	1	2	2	0	1	1	2	0
83	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	4	0	1	1	1	0	0	0	0	1	0	0
85	0	0	0	0	0	0	0	2	0	0	0	0	2	1	0	0	0	1	3	2	0	1	0	0	0	0	0	1	1	0
87	0	0	0	0	0	0	0	1	1	1	1	0	1	1	1	0	0	1	0	4	2	0	2	1	1	0	0	0	0	0
89	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0	3	0	0	0	0	0	1	0
91	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	1	0	0	0	1	0	1	0	0	0	0	0
93	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3	1	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1	0	0	0	0	0	1	0
97	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
99	0	0	0	0	0	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
Total	0	0	0	8	7	11	43	32	34	59	65	151	184	239	361	335	229	184	413	208	135	422	97	287	160	382	69	165	125	0

**Table 2.52. Striped bass fall length frequencies, 2 cm intervals (midpoint given), 1984–2012.**  
*All striped bass taken in the Survey were measured on each tow.*

length	Fall																												
	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
21	0	0	0	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
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	1	1
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	7	2
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	13	1
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	9	1
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	4	2
33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	-	3	0
37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	1	4
39	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	4	0	0	0	0	-	1	0
41	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	7	0	2	0	0	0	-	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	1	0	1	0	19	0	0	0	1	0	-	0	4
45	0	0	1	0	0	0	0	0	0	0	0	0	4	3	2	2	0	0	1	0	18	1	1	2	0	0	-	0	1
47	0	0	0	0	0	0	0	0	0	0	0	0	4	3	0	11	0	0	1	1	18	1	1	10	0	2	-	0	5
49	0	0	0	0	0	0	0	0	0	1	0	0	9	9	2	9	1	0	0	0	14	2	4	22	1	1	-	0	6
51	0	0	0	0	0	0	0	0	0	4	2	0	8	4	1	9	0	0	3	0	29	2	5	18	2	4	-	2	2
53	1	0	0	0	0	0	0	0	0	2	2	1	5	14	7	5	5	0	3	0	27	7	7	16	7	7	-	2	2
55	0	0	0	0	0	0	0	0	1	0	1	0	2	10	5	5	2	0	4	1	26	1	2	10	4	10	-	3	3
57	0	0	0	1	1	0	0	1	1	5	0	2	3	11	5	5	5	2	7	1	11	6	3	6	3	8	-	0	0
59	0	0	0	0	0	0	0	0	1	0	0	0	7	3	0	8	0	2	0	13	6	3	5	3	8	-	0	6	
61	0	0	0	0	3	0	0	1	0	1	0	2	2	3	1	2	4	2	2	0	12	1	6	4	3	4	-	2	1
63	0	0	0	0	2	0	0	1	1	1	1	0	3	2	3	6	7	3	1	9	5	2	5	1	6	-	3	0	
65	0	0	0	0	1	0	0	0	2	1	1	0	2	0	4	6	5	3	0	7	2	2	7	1	6	-	6	0	
67	0	0	0	0	1	0	0	1	0	1	2	2	1	1	0	1	6	1	6	0	8	4	3	4	0	5	-	3	0
69	0	0	0	0	1	0	0	0	0	1	1	0	2	2	0	4	3	4	0	6	0	3	6	2	6	-	2	0	
71	0	0	0	0	1	0	0	0	1	0	0	1	1	1	2	0	3	3	5	0	3	3	0	0	1	-	1	2	
73	0	0	0	0	0	0	0	0	0	2	1	4	0	2	3	1	2	2	0	1	3	0	0	0	4	1	-	5	1
75	0	0	0	0	0	0	0	1	0	0	1	2	1	1	0	1	3	2	1	1	1	2	0	1	0	0	-	1	1
77	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	4	0	4	0	1	0	0	2	3	0	-	5	1	
79	0	0	0	0	0	0	0	0	0	2	1	0	0	1	1	0	1	1	2	1	1	0	1	0	3	1	-	0	0
81	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	-	0	0
83	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	-	0	0
85	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	2	1	0	1	0	3	-	1	0	
87	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	1	0	0	-	0	0
89	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	-	1	0
91	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	-	0	0
93	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	-	0	0	
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	2	-	0	0	
97	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	5	-	0	0	
99	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	-	0	0	
101	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	-	0	0	
103	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	-	0	0	
105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	-	0	0	
107	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	
109	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	-	0	0	
111	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	
113	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	-	0	0	
Total	1	0	1	1	10	0	0	6	8	22	16	15	48	80	37	62	64	28	56	8	243	47	47	131	39	83	-	77	46

**Table 2.53. Summer flounder length frequencies, spring, 2 cm intervals (midpoint given), 1984–2012.**

*All summer flounder taken in the Survey were measured, with the exception of one fish in 1990.*

length	Spring																														
	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012		
11	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	0	0	0	0		
13	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0		
15	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	15	0	0	1	0	0		
17	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	28	1	1	7	0	0		
19	0	0	0	36	0	0	1	0	0	0	0	1	1	0	0	2	0	0	2	1	0	0	37	1	3	10	0	0			
21	0	0	11	39	0	0	0	0	0	0	3	2	2	1	0	0	2	1	1	3	0	0	46	5	16	21	1	0			
23	0	0	10	31	1	0	1	3	2	0	9	1	2	2	0	0	6	1	13	1	2	1	37	3	21	38	4	2			
25	1	0	22	33	2	0	2	6	1	9	20	1	2	10	1	2	6	5	2	27	3	3	0	21	7	43	86	21	4		
27	8	0	43	25	20	0	7	12	6	22	32	3	11	10	2	14	7	26	13	79	8	14	0	11	13	55	94	50	22		
29	7	0	39	6	18	0	15	17	14	15	10	9	45	22	5	32	21	60	50	135	25	10	2	19	34	53	78	90	56		
31	9	1	17	3	18	0	19	23	12	12	19	12	44	27	4	42	23	53	89	104	14	19	5	19	28	24	37	92	51		
33	0	7	13	5	12	1	12	9	8	7	22	2	14	25	7	22	28	16	57	54	18	15	21	6	25	26	10	70	44		
35	2	8	4	2	13	3	1	5	6	7	16	2	12	11	11	22	22	10	41	49	13	12	17	9	14	20	7	81	58		
37	1	3	4	5	8	2	1	6	2	6	20	1	10	20	28	26	34	20	57	75	34	8	14	12	10	28	16	69	60		
39	3	3	3	4	5	1	2	5	2	7	7	0	12	16	38	18	36	12	61	71	51	9	10	22	14	36	20	55	66		
41	1	3	7	1	8	2	1	6	5	4	6	3	5	10	35	14	33	19	51	77	49	13	5	26	17	35	12	38	34		
43	0	1	3	0	2	2	0	4	0	2	4	6	7	6	22	16	22	24	28	58	48	10	5	30	13	28	13	25	43		
45	0	0	1	1	3	0	0	8	4	0	4	0	5	4	15	11	29	16	21	33	18	5	4	26	6	30	7	19	23		
47	0	0	3	3	3	1	1	4	2	1	3	0	1	6	9	10	18	14	20	43	28	12	3	25	14	14	16	26	24		
49	1	0	1	1	1	2	0	2	1	0	2	1	3	2	12	17	7	10	14	32	26	6	3	35	9	13	10	20	23		
51	0	0	5	0	1	0	0	1	1	0	1	0	1	3	15	9	8	12	19	19	13	8	7	26	15	16	9	15	15		
53	0	0	1	0	1	0	2	1	0	1	1	2	3	5	5	9	5	8	10	21	16	6	4	10	15	8	2	18	8		
55	0	2	1	0	1	1	0	0	1	2	1	0	3	2	6	8	8	8	14	10	13	5	2	11	18	14	2	15	8		
57	0	0	0	0	0	1	1	0	0	2	0	0	1	5	4	5	8	12	9	3	2	1	13	14	16	2	14	3			
59	0	0	0	0	1	1	0	0	0	2	0	0	2	3	3	8	8	2	6	12	8	4	1	5	5	17	3	7	8		
61	0	2	0	0	0	0	0	0	0	0	1	2	1	1	0	1	3	4	4	6	5	3	0	2	4	7	3	7	1		
63	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2	0	2	1	7	10	9	0	4	6	5	8	2	8	6	
65	0	1	0	0	0	0	0	1	1	0	1	0	0	0	1	1	2	4	2	8	2	1	0	7	3	4	6	4	5		
67	0	1	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	2	3	5	4	0	1	1	1	1	1	1	6	0	
69	0	0	0	1	0	1	0	0	0	0	0	0	1	1	1	1	0	0	4	2	0	0	3	0	1	1	0	1	0	1	
71	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1	1	2	0	3	4	0	0	0	0	0	0	0	1	
73	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	1	0	0	0	1	0	1	0	1	2	2
75	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0	1	2	0	1	1	1	0	
77	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	
79	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	0	0	0	0	0	
<b>Total</b>	<b>33</b>	<b>32</b>	<b>189</b>	<b>203</b>	<b>118</b>	<b>18</b>	<b>67</b>	<b>109</b>	<b>72</b>	<b>101</b>	<b>188</b>	<b>51</b>	<b>186</b>	<b>188</b>	<b>230</b>	<b>289</b>	<b>334</b>	<b>342</b>	<b>588</b>	<b>962</b>	<b>416</b>	<b>172</b>	<b>110</b>	<b>512</b>	<b>297</b>	<b>538</b>	<b>516</b>	<b>758</b>	<b>569</b>		

**Table 2.54. Summer flounder length frequencies, fall, 2 cm intervals (midpoint given), 1984–2012.**

*All summer flounder taken in the Survey were measured, with the exception of two fish in 1985.*

length	Fall																													
	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	-	0	0	
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	-	0	0
15	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	3	2	0	1	-	0	0	
17	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2	0	0	0	2	-	0	0	
19	0	3	3	0	0	0	0	0	0	2	0	0	1	0	0	0	1	0	0	0	0	0	2	1	1	5	-	0	0	
21	0	7	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	2	0	0	1	4	8	-	0	0	
23	0	4	3	0	0	0	0	0	1	2	0	1	3	0	0	0	0	1	7	0	3	2	0	0	11	6	-	0	2	
25	0	6	0	0	0	0	2	0	4	0	0	2	0	0	1	1	0	5	0	5	0	0	3	5	7	-	3	1		
27	0	6	3	1	0	0	1	1	0	1	0	0	0	0	3	11	1	17	0	5	2	0	4	17	14	-	4	3		
29	0	2	2	7	0	0	0	1	0	1	1	0	1	0	1	2	1	19	0	10	1	0	6	8	6	-	5	5		
31	0	3	6	9	3	0	0	1	1	0	1	0	4	3	0	4	2	14	13	0	5	5	0	18	5	5	-	11	7	
33	10	0	10	30	10	0	3	3	3	8	8	8	12	17	1	16	3	28	14	3	6	33	5	14	3	8	-	29	34	
35	22	4	33	35	20	0	10	11	14	29	7	13	33	37	11	18	8	104	70	15	3	55	2	19	1	34	-	35	42	
37	21	17	44	28	41	0	14	21	19	31	10	6	33	44	10	39	23	109	106	29	6	37	6	15	8	34	-	38	58	
39	20	10	35	21	37	0	11	28	15	29	25	6	38	72	17	50	33	81	158	28	18	32	9	9	29	40	-	54	73	
41	16	11	26	16	36	1	18	30	12	37	10	16	49	54	21	52	31	61	119	16	21	57	10	20	36	34	-	41	55	
43	11	24	26	5	21	1	18	13	13	16	4	9	23	27	34	43	31	28	61	22	25	30	16	17	27	29	-	27	37	
45	3	16	9	3	18	1	15	13	9	6	5	2	15	10	32	22	13	16	77	21	32	25	13	14	9	20	-	17	23	
47	2	11	6	6	8	3	3	5	6	11	7	2	13	11	36	8	8	15	35	18	29	15	4	8	5	27	-	6	15	
49	3	12	1	2	3	3	3	3	8	3	7	1	8	7	15	4	18	23	24	10	26	15	8	13	5	20	-	9	11	
51	3	1	4	1	1	2	0	8	4	6	0	3	8	4	9	7	11	20	14	8	9	7	1	15	2	7	-	2	15	
53	1	1	2	2	1	4	1	7	4	3	1	0	3	5	7	12	7	8	5	5	7	8	4	16	1	10	-	1	11	
55	1	2	1	2	1	0	2	4	2	1	0	2	0	3	4	3	5	9	1	2	4	3	2	7	0	8	-	4	14	
57	2	0	1	2	1	0	1	0	1	2	1	1	1	2	2	2	5	10	2	4	1	2	3	1	2	-	1	0		
59	0	0	1	0	1	0	1	0	0	1	3	0	0	2	1	6	3	4	7	4	3	1	0	8	0	4	-	1	2	
61	0	0	0	1	0	0	1	0	0	1	0	0	0	1	2	1	2	0	1	2	0	1	0	2	0	4	-	4	1	
63	1	1	0	0	1	0	0	1	1	0	0	0	0	0	2	0	2	1	2	2	1	0	1	1	0	3	-	1	0	
65	0	0	0	0	0	1	0	1	0	0	0	0	0	0	2	0	1	1	1	1	0	1	1	1	0	0	-	0	0	
67	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	1	0	1	-	1	0	
69	0	0	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	-	0	0	
71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	1	-	0	0	
73	0	0	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	0	
75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	-	0	0	
<b>Total</b>	<b>117</b>	<b>141</b>	<b>225</b>	<b>171</b>	<b>203</b>	<b>16</b>	<b>102</b>	<b>153</b>	<b>114</b>	<b>194</b>	<b>93</b>	<b>70</b>	<b>248</b>	<b>299</b>	<b>206</b>	<b>293</b>	<b>220</b>	<b>531</b>	<b>770</b>	<b>189</b>	<b>228</b>	<b>331</b>	<b>95</b>	<b>219</b>	<b>178</b>	<b>343</b>	<b>-</b>	<b>294</b>	<b>409</b>	



**Table 2.55. Tautog length frequencies, spring, 2 cm intervals (midpoint given), 1984-2012.**

*All tautog taken in the Survey were measured.*

length	Spring																												
	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0
13	0	0	1	1	1	0	4	2	1	1	0	0	2	1	0	1	1	3	0	0	2	4	0	1	0	1	0	1	4
15	0	0	2	3	1	8	10	1	3	3	4	0	1	3	0	0	6	4	1	0	1	1	0	1	1	3	2	2	2
17	2	1	2	6	3	6	14	4	3	1	4	0	3	5	0	0	5	3	3	1	1	3	3	1	2	1	0	0	6
19	4	2	2	6	8	14	25	13	6	5	2	1	2	5	1	3	4	8	4	2	0	0	0	2	2	1	1	1	5
21	8	3	7	2	8	14	27	11	3	6	4	1	0	7	1	3	4	5	5	1	2	3	0	0	2	0	2	4	6
23	9	5	6	5	12	23	28	20	4	4	6	2	0	7	4	1	6	13	5	1	1	5	5	3	3	0	1	5	9
25	11	9	5	5	8	15	15	8	4	4	7	2	2	7	3	3	5	11	12	3	3	4	4	6	3	1	4	3	4
27	11	7	15	3	4	13	20	12	1	4	4	1	1	5	8	3	8	8	11	3	4	1	2	4	3	0	0	6	8
29	10	16	8	5	7	18	16	8	6	6	16	2	2	5	2	2	7	4	9	4	5	8	2	6	8	0	1	1	5
31	15	7	15	5	10	20	22	7	2	6	5	1	2	9	3	1	3	9	21	6	10	3	9	3	2	2	1	3	5
33	14	7	13	14	8	12	13	13	5	1	6	1	5	11	9	9	8	9	31	18	12	8	7	8	4	6	2	1	9
35	14	11	18	7	15	16	15	16	9	0	5	0	6	13	6	6	9	10	28	9	7	2	9	9	8	4	1	5	3
37	15	10	39	26	25	19	13	18	4	3	9	2	5	8	5	9	20	20	40	19	21	14	12	7	9	9	5	3	2
39	17	15	35	18	20	19	21	25	13	5	12	3	11	6	8	10	19	17	47	14	26	13	14	5	21	12	8	5	11
41	19	14	65	20	25	38	19	27	14	4	12	4	13	5	16	7	28	27	55	15	21	18	16	16	8	21	2	10	6
43	23	23	50	19	38	45	18	25	16	10	12	2	11	15	13	19	27	29	48	24	21	11	11	27	9	21	3	8	7
45	36	27	53	23	34	52	49	31	21	11	15	2	7	12	17	17	28	23	71	16	29	10	15	25	15	16	4	7	3
47	31	18	59	21	40	53	34	40	25	8	18	4	8	11	10	12	17	20	47	18	9	14	17	32	14	11	4	5	6
49	31	24	37	17	41	60	38	38	15	11	13	1	5	10	10	11	10	15	29	7	9	15	18	27	3	11	2	6	6
51	22	17	31	10	35	39	38	29	20	9	13	3	8	3	14	9	7	17	18	8	11	8	9	27	10	13	3	7	4
53	18	12	16	10	25	27	37	16	16	8	9	1	6	7	37	3	6	9	16	4	2	2	10	10	8	7	2	5	3
55	12	3	11	11	23	21	24	16	13	8	6	3	8	7	7	4	8	5	10	2	5	2	7	14	8	6	3	2	1
57	4	0	18	10	8	14	16	13	10	4	2	3	4	3	4	4	7	2	4	4	1	1	0	4	5	3	0	1	0
59	7	3	3	5	6	11	8	7	7	4	4	0	1	1	0	2	2	3	5	1	1	0	0	4	3	0	0	1	0
61	3	2	1	2	5	4	2	3	3	2	1	0	0	2	1	0	0	1	1	0	2	0	0	3	2	0	1	1	0
63	0	0	1	3	2	2	2	1	1	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	1	0	0	0
65	0	0	0	0	0	3	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
67	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
69	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	0	0	0	0
<b>Total</b>	<b>336</b>	<b>236</b>	<b>513</b>	<b>257</b>	<b>412</b>	<b>566</b>	<b>528</b>	<b>407</b>	<b>227</b>	<b>129</b>	<b>189</b>	<b>40</b>	<b>113</b>	<b>168</b>	<b>151</b>	<b>139</b>	<b>245</b>	<b>277</b>	<b>523</b>	<b>181</b>	<b>208</b>	<b>150</b>	<b>170</b>	<b>247</b>	<b>153</b>	<b>151</b>	<b>52</b>	<b>93</b>	<b>115</b>

**Table 2.56. Weakfish length frequencies, spring, 2 cm intervals (midpoint given), 1984-2012.**  
*Weakfish were measured from every tow.*

length	Spring																													
	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
5	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	1
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	1	0	1	3	0	3	10	
23	0	0	0	0	0	0	0	0	1	0	0	3	0	0	1	0	0	1	2	1	9	3	6	1	0	1	0	2	5	
25	0	0	0	1	0	1	0	0	0	2	3	1	0	1	2	3	4	1	2	9	10	3	0	2	0	0	0	0	0	
27	0	0	0	0	0	0	2	4	0	0	3	5	3	5	4	1	2	13	3	0	3	27	4	4	0	0	0	2	4	
29	0	0	0	0	0	0	2	4	1	3	3	7	12	12	16	5	1	20	0	0	2	22	2	4	1	1	0	0	5	
31	0	0	0	0	1	0	1	6	3	3	3	7	15	21	21	8	5	9	1	0	2	20	1	0	0	0	0	0	11	
33	0	0	0	0	0	0	0	12	0	3	2	1	5	19	10	10	1	5	0	0	0	11	0	3	0	0	0	0	17	
35	0	0	0	0	0	1	1	13	0	0	0	0	4	11	4	3	1	2	1	0	0	0	0	1	0	0	0	1	28	
37	0	0	0	1	0	0	2	5	0	0	0	1	2	2	3	1	0	0	1	0	0	1	0	2	1	0	0	2	31	
39	0	0	0	0	1	0	0	4	0	0	0	0	1	1	0	2	0	0	2	0	0	0	0	1	0	0	0	3	26	
41	0	0	0	0	0	0	0	0	0	0	0	0	0	4	7	3	0	2	1	0	0	0	1	6	0	0	0	1	15	
43	0	0	0	1	0	0	0	1	1	0	0	0	0	2	3	6	0	0	1	0	0	0	0	1	0	0	0	0	8	
45	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	4	1	0	0	0	0	0	0	0	0	0	0	0	3	
47	0	0	0	0	0	0	0	1	1	0	0	0	0	1	2	2	1	0	1	0	0	0	0	2	0	0	1	0	2	
49	0	0	1	0	0	0	0	0	0	0	0	1	0	1	5	3	1	0	1	0	0	0	4	1	0	0	0	0	1	
51	0	0	0	0	0	1	0	1	2	0	0	0	0	0	6	3	2	0	1	0	0	0	2	0	0	0	0	0	1	
53	0	0	0	0	0	0	0	0	3	0	0	0	0	0	2	3	0	0	0	0	0	0	0	0	1	0	0	0	7	
55	0	0	0	0	0	0	0	0	4	0	0	0	0	1	1	3	1	0	2	0	0	0	0	0	0	0	0	0	6	
57	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	9	0	0	0	0	0	0	0	0	0	0	0	0	3	
59	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	5	0	0	0	0	0	0	0	1	0	0	0	0	1	
61	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0	1	
63	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6	2	0	0	1	0	0	0	0	0	0	0	0	1	
65	0	0	0	0	0	3	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
67	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	
69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	3	0	0	1	0	0	0	0	0	0	0	
71	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	
73	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2	1	4	0	0	0	0	0	0	0	0	0	0	
75	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	
77	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	
79	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	
81	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	
83	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	1	0	9	2	6	5	9	51	18	11	13	28	43	81	92	85	29	59	28	5	28	96	26	31	6	10	1	16	187	

**Table 2.57. Weakfish length frequencies, fall, 2 cm intervals (midpoint given), 1984-2012.**

*Weakfish were measured from every tow, with the exceptions of 968 juveniles in 1988 and 863 juveniles in 1989 that were not measured.*

length	Fall																													
	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
3	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	2	1	0	0	0	1	0	2	0	3	0	0	24	13	0	6	0	0	1	0	0	0	0	0	0	0
7	0	3	51	0	13	46	2	0	48	22	16	34	34	92	0	0	1,065	89	2	357	30	8	3	101	9	9	-	9	81	
9	15	70	448	15	37	247	39	11	218	76	127	74	110	431	27	53	5,951	1,054	253	1,026	1,263	11	6	904	18	117	-	83	519	
11	24	168	1,625	84	63	566	130	423	233	222	413	33	366	749	110	976	7,488	3,672	1,009	1,186	4,329	197	26	2,578	70	528	-	302	1,475	
13	69	187	2,191	98	60	1,152	207	522	289	340	1,586	137	713	598	589	1,748	3,650	4,135	2,455	1,108	5,940	1,246	41	4,876	492	938	-	455	1,246	
15	54	474	894	22	31	1,699	519	831	292	550	2,561	566	1,529	214	788	2,802	1,641	2,124	3,740	1,153	3,909	2,538	37	4,570	931	692	-	620	1,606	
17	17	1,196	107	3	17	750	629	949	120	503	2,538	957	2,084	356	1,160	2,889	1,821	764	1,875	590	1,168	2,739	36	2,084	594	212	-	665	1,017	
19	5	379	50	2	3	162	312	741	35	235	665	748	1,165	651	497	2,007	1,169	366	851	132	471	1,798	27	991	253	43	-	225	332	
21	2	92	4	4	0	1	57	347	22	63	146	141	187	417	104	1,147	565	250	345	29	235	413	9	645	129	2	-	82	140	
23	1	14	10	1	0	1	6	267	9	6	71	11	8	106	50	357	100	84	94	0	74	89	1	352	15	1	-	8	50	
25	1	13	1	0	0	1	0	65	2	0	0	3	0	5	0	234	22	5	13	0	31	26	0	173	6	0	-	1	8	
27	0	14	0	0	0	0	0	0	2	0	0	0	0	0	0	38	0	2	13	0	0	1	0	70	0	1	-	0	1	
29	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	4	0	0	11	0	0	0	0	1	0	0	-	9	0	
31	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	0	0	1	0	0	1	0	0	3	0	0	7	-	10	6
33	0	0	0	0	0	0	0	0	2	0	0	3	3	0	1	0	3	0	0	1	2	0	2	0	0	0	12	-	16	7
35	2	1	0	0	0	0	0	1	1	1	1	0	6	12	8	3	1	12	0	1	0	4	0	4	0	0	14	-	21	18
37	5	0	2	1	0	0	1	0	2	0	0	13	19	18	10	0	9	3	1	0	1	2	6	0	0	0	9	-	9	18
39	3	0	2	0	0	0	1	2	8	2	2	16	21	31	10	3	13	7	3	1	4	4	1	2	2	6	-	8	7	
41	4	2	4	1	0	0	2	1	1	3	5	23	41	37	13	5	9	18	3	0	6	6	2	3	1	1	-	2	7	
43	5	1	4	4	0	0	0	9	0	8	4	38	18	43	11	14	6	24	3	0	1	6	4	3	1	0	-	1	5	
45	7	4	0	3	1	0	1	9	0	8	1	27	11	28	10	15	1	22	1	0	6	2	1	1	1	1	0	-	4	12
47	3	6	0	5	1	0	0	20	0	3	2	9	6	15	8	8	0	34	1	1	3	3	1	0	1	0	-	6	6	
49	0	1	1	0	0	0	1	22	0	1	4	5	1	10	2	9	1	8	0	0	0	3	0	1	0	1	-	10	10	
51	4	1	1	1	0	0	0	26	1	0	0	4	3	2	1	5	0	5	4	0	0	0	1	0	0	0	-	11	8	
53	1	0	0	0	1	0	0	19	2	2	0	0	0	2	1	0	0	2	0	0	0	0	0	0	0	0	1	-	6	7
55	0	1	1	0	0	0	1	4	1	0	0	0	0	4	2	3	0	2	1	0	0	0	2	0	0	0	-	2	4	
57	1	2	0	0	2	0	0	0	3	0	0	0	0	2	2	4	2	0	1	0	0	0	1	0	0	0	-	2	1	
59	1	1	0	0	0	0	0	0	2	0	0	0	0	0	2	0	0	0	3	0	0	0	0	0	0	0	-	0	2	
61	0	1	0	0	0	0	0	1	3	0	0	0	0	0	0	0	2	0	3	0	0	0	1	0	0	0	-	0	0	
63	0	0	0	0	0	0	0	0	3	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	-	0	0	
65	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	5	0	0	0	0	0	0	0	1	0	-	0	0	
67	0	2	1	0	0	0	1	0	0	0	0	0	0	0	0	5	1	0	0	0	0	0	0	0	0	0	-	0	0	
69	1	1	1	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	-	0	0	
71	4	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	-	0	0	
73	7	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	
75	10	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	-	0	0	
77	5	5	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	
79	2	2	4	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	
81	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	
83	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	-	0	0	
85	1	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	
87	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	
89	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	
91	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	
<b>Total</b>	<b>259</b>	<b>2,650</b>	<b>5,415</b>	<b>246</b>	<b>234</b>	<b>4,628</b>	<b>1,911</b>	<b>4,270</b>	<b>1,299</b>	<b>2,047</b>	<b>8,141</b>	<b>2,850</b>	<b>6,332</b>	<b>3,823</b>	<b>3,404</b>	<b>12,331</b>	<b>23,561</b>	<b>12,683</b>	<b>10,686</b>	<b>5,592</b>	<b>17,478</b>	<b>9,092</b>	<b>216</b>	<b>17,355</b>	<b>2,524</b>	<b>2,594</b>	<b>-</b>	<b>2,567</b>	<b>6,599</b>	

**Table 2.58. Windowpane flounder length frequencies, spring, 1 cm intervals, 1989, 1990, 1994-2012.**  
*Lengths were recorded from the first three tows of each day.*

length	Spring																				
	1989	1990	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
4	0	0	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0
5	4	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	2	0
6	0	0	0	0	0	2	0	2	5	1	1	10	2	0	0	1	0	4	4	9	0
7	0	0	0	0	1	4	2	4	17	2	7	22	3	0	0	7	3	8	9	9	5
8	0	2	4	1	3	5	4	3	27	7	6	23	6	0	0	31	5	17	10	20	19
9	0	40	16	3	2	9	5	2	11	10	21	20	11	0	18	6	10	13	24	16	
10	25	66	67	12	34	15	7	8	17	13	12	11	19	7	2	4	11	23	8	10	10
11	69	96	169	86	79	37	19	20	5	29	8	3	24	12	1	4	11	8	7	11	10
12	89	74	305	148	162	76	60	40	3	23	10	7	25	16	7	8	17	4	20	2	0
13	337	53	362	259	288	136	131	37	10	29	5	9	58	25	12	22	13	6	72	9	3
14	430	66	232	189	381	309	200	45	11	26	8	13	100	22	34	28	44	17	93	7	7
15	414	124	152	180	487	362	211	96	24	43	15	13	101	23	42	60	51	37	107	15	32
16	305	180	126	89	310	606	177	123	27	55	12	15	72	37	36	107	119	62	117	19	64
17	174	212	209	70	331	754	130	165	23	73	9	15	65	22	48	129	137	97	166	23	81
18	78	178	372	99	339	588	165	160	32	94	24	23	56	4	45	132	116	90	104	58	133
19	65	132	357	139	548	440	260	194	26	78	19	26	45	16	20	110	101	75	124	58	155
20	174	144	289	143	604	366	362	386	75	89	15	31	60	13	24	130	76	51	76	47	135
21	216	116	217	85	567	429	461	357	136	95	22	45	32	22	24	186	122	50	88	66	97
22	299	143	139	82	401	438	311	301	166	232	45	50	42	29	27	246	155	63	172	75	97
23	319	108	163	57	409	368	229	217	138	290	110	92	39	42	28	181	216	92	198	107	117
24	270	103	147	54	280	323	227	217	125	245	141	123	66	36	41	158	132	84	199	122	128
25	177	87	183	54	236	231	188	206	121	208	133	111	109	47	31	162	118	82	155	134	121
26	189	103	184	70	235	191	178	136	106	126	114	76	100	52	52	186	103	67	161	120	118
27	138	79	138	56	187	222	162	161	91	88	69	88	86	49	37	104	100	60	148	103	102
28	148	38	70	44	117	145	138	97	56	83	62	68	71	29	38	100	111	45	103	69	100
29	78	26	68	24	97	98	67	53	47	59	41	37	48	24	24	65	52	30	146	42	70
30	99	35	42	27	66	75	58	42	37	39	42	35	51	20	14	33	46	24	51	24	45
31	50	20	25	12	31	23	34	39	12	25	19	22	32	13	8	14	22	11	67	25	33
32	8	15	13	4	25	12	13	26	16	21	17	9	16	5	2	23	19	6	21	7	7
33	16	3	2	9	5	8	6	3	8	15	7	2	10	1	3	2	5	1	33	14	13
34	0	5	5	0	4	1	1	1	2	5	4	4	9	3	0	4	5	2	20	11	11
35	0	4	5	1	3	0	3	4	5	10	2	4	5	0	0	3	3	3	11	1	4
36	0	4	2	2	1	1	0	0	1	2	0	5	0	2	0	0	1	0	0	0	1
37	0	0	0	1	0	0	3	1	1	2	2	1	1	0	0	0	0	0	8	0	0
38	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
39	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>4,171</b>	<b>2,256</b>	<b>4,064</b>	<b>2,001</b>	<b>6,234</b>	<b>6,274</b>	<b>3,812</b>	<b>3,147</b>	<b>1,381</b>	<b>2,118</b>	<b>1,002</b>	<b>1,015</b>	<b>1,365</b>	<b>571</b>	<b>600</b>	<b>2,258</b>	<b>1,920</b>	<b>1,129</b>	<b>2,511</b>	<b>1,244</b>	<b>1,734</b>

**Table 2.59. Windowpane flounder length frequencies, fall, 1 cm intervals, 1989, 1990, 1994-2012.**  
*Lengths were recorded from the first three tows of each day.*

length	Fall																				
	1989	1990	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
6	1	0	1	0	0	0	0	0	3	1	0	0	3	0	0	0	0	1	-	0	0
7	5	0	5	0	6	0	1	0	0	0	0	2	0	0	0	0	0	4	-	1	0
8	8	3	18	5	24	15	1	0	6	9	0	5	11	14	5	4	0	15	-	4	2
9	25	2	28	6	70	17	2	2	2	2	0	21	15	49	2	6	2	15	-	2	3
10	18	11	78	10	165	50	2	4	3	9	1	20	22	67	1	14	5	17	-	9	6
11	15	9	60	22	227	75	31	11	7	14	0	13	27	111	5	18	3	24	-	19	1
12	16	12	50	15	270	107	33	6	9	9	1	6	16	155	2	26	15	29	-	31	5
13	23	6	30	10	285	173	47	3	11	9	6	0	14	145	8	44	43	19	-	19	10
14	33	14	11	13	306	154	48	5	23	6	0	4	8	109	3	36	58	27	-	36	14
15	58	23	23	9	250	110	39	6	18	3	5	8	3	62	2	37	38	25	-	43	18
16	140	38	15	16	181	60	34	3	11	3	5	9	3	33	0	30	28	31	-	41	19
17	188	44	35	26	112	78	33	11	30	7	14	4	9	12	7	21	20	35	-	72	37
18	91	53	47	48	101	119	54	11	15	12	8	11	2	8	19	19	16	47	-	70	19
19	46	46	49	47	145	179	95	44	29	6	10	7	11	20	32	26	10	45	-	52	44
20	49	28	39	48	131	213	96	67	30	13	9	6	18	30	39	39	31	24	-	41	50
21	21	11	23	24	125	165	69	38	52	18	9	11	35	50	25	36	40	28	-	35	87
22	14	14	16	19	65	123	37	18	28	22	21	2	25	48	25	42	25	26	-	51	58
23	3	10	20	6	67	63	32	12	37	30	39	6	10	14	12	32	27	20	-	47	79
24	9	4	7	9	25	49	13	11	33	19	39	11	15	13	9	19	32	23	-	40	45
25	4	3	6	3	22	28	9	6	18	19	25	14	8	10	10	6	9	9	-	16	24
26	2	0	8	3	19	29	9	4	16	9	10	18	4	3	4	8	16	6	-	18	22
27	6	2	3	1	11	17	8	3	5	11	12	17	4	5	3	4	5	4	-	7	14
28	2	1	4	1	3	12	1	1	4	5	6	9	2	3	3	3	2	7	-	9	1
29	2	2	0	1	2	17	0	1	6	3	1	4	2	3	1	3	2	1	-	2	0
30	2	1	2	1	0	5	0	0	1	2	2	2	0	1	1	0	0	0	-	3	1
31	0	0	0	0	0	0	0	0	0	1	0	3	1	2	0	0	2	1	-	0	0
32	1	0	0	1	0	0	0	0	0	0	0	2	0	1	0	0	0	1	-	0	1
33	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
<b>Total</b>	<b>782</b>	<b>337</b>	<b>578</b>	<b>344</b>	<b>2,613</b>	<b>1,858</b>	<b>694</b>	<b>267</b>	<b>397</b>	<b>242</b>	<b>223</b>	<b>215</b>	<b>268</b>	<b>968</b>	<b>218</b>	<b>473</b>	<b>429</b>	<b>484</b>	<b>-</b>	<b>668</b>	<b>560</b>

**Table 2.60. Winter flounder length frequencies, April-May, 1 cm intervals, 1984-2012.**  
*Winter flounder were measured from every tow.*

length	April-May																												
	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
5	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	7	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	36	4	2	3	0	0	1	0	2	0	0	1	3	0	0	0	0	0	0	0
8	0	0	5	8	3	1	10	3	1	72	26	28	4	2	5	7	2	5	0	1	5	5	0	1	6	2	1	1	
9	1	7	6	52	16	17	38	29	7	208	41	97	21	15	41	18	3	20	4	2	22	32	0	2	19	13	7	6	
10	3	9	35	49	29	70	139	54	18	433	137	307	61	75	128	50	23	55	5	11	36	73	5	10	85	42	35	21	
11	26	28	188	114	135	312	375	121	75	698	442	618	246	260	283	135	84	161	34	28	129	164	6	37	238	147	117	67	
12	35	127	455	239	359	628	1,117	228	136	921	835	877	461	528	492	252	145	256	88	57	174	278	55	73	367	229	179	113	
13	149	284	617	483	869	954	2,563	342	170	713	1,006	772	582	497	554	252	169	239	148	50	188	337	48	91	322	220	174	110	
14	196	219	733	820	1,378	1,260	3,243	729	180	528	1,149	854	788	517	488	225	185	223	132	54	132	209	39	80	233	169	152	107	
15	255	308	808	1,060	1,882	1,424	3,847	1,127	254	526	1,487	792	956	484	481	204	177	162	148	50	81	163	19	80	142	119	146	68	
16	177	467	771	1,033	1,819	1,579	3,627	1,169	323	485	1,680	766	992	553	574	214	210	159	174	66	53	128	16	163	136	155	109	53	
17	182	473	763	1,028	1,953	1,651	3,544	1,568	373	501	1,540	698	1,099	599	713	290	254	245	160	76	41	122	40	180	74	147	112	53	
18	153	574	730	1,006	1,507	1,724	3,145	1,648	398	580	1,467	692	1,149	666	658	313	248	251	206	86	65	108	52	203	85	237	138	73	
19	117	794	780	855	1,596	1,532	3,054	1,690	397	542	1,217	632	1,032	574	622	283	327	313	317	142	72	117	41	242	94	214	130	73	
20	169	607	665	666	1,136	1,462	2,434	1,676	344	624	896	515	1,012	529	685	296	311	362	364	174	59	148	65	246	51	232	160	101	
21	108	591	600	592	1,045	1,358	1,904	1,493	277	626	742	469	821	429	592	320	314	308	353	127	79	125	54	194	59	166	109	122	
22	104	486	534	552	963	1,407	1,481	1,332	302	549	556	367	795	444	524	218	289	306	353	87	53	69	45	156	56	129	108	118	
23	63	479	521	442	897	1,160	1,416	1,099	212	426	359	346	676	402	486	290	266	233	337	84	48	71	28	135	67	100	72	84	
24	81	346	427	377	748	971	1,092	1,113	278	418	310	311	701	401	544	260	218	205	395	79	47	51	22	128	55	48	89	109	
25	74	318	341	374	520	1,015	1,018	939	202	349	296	318	692	377	529	344	228	244	311	97	46	49	28	137	60	44	92	105	
26	90	187	375	333	541	982	846	858	242	383	219	231	719	461	527	304	223	249	285	129	61	36	13	144	62	42	58	95	
27	62	232	240	281	420	736	639	788	181	320	216	318	568	496	505	360	251	259	259	150	84	36	23	168	81	39	67	102	
28	43	129	244	230	366	648	586	598	181	197	173	260	549	416	518	418	252	311	187	170	92	25	29	168	84	35	75	72	
29	29	86	189	220	253	502	525	511	160	221	122	244	460	401	466	389	285	326	248	200	103	32	17	200	73	28	77	81	
30	42	70	178	154	266	339	305	397	133	178	103	180	540	365	448	362	279	299	215	206	96	35	20	186	86	28	52	72	
31	24	71	124	151	120	247	307	241	96	200	117	130	367	313	323	321	300	286	201	166	112	33	27	136	93	32	55	58	
32	20	85	77	113	169	163	171	157	98	142	91	76	375	260	277	249	227	228	171	167	95	38	28	133	87	42	45	65	
33	7	69	86	61	111	73	218	108	60	139	72	63	267	193	195	228	262	172	155	138	122	45	20	87	90	36	34	79	
34	7	45	56	85	69	47	113	107	38	159	65	42	190	166	140	191	220	189	109	116	94	48	20	74	99	43	37	51	
35	12	19	42	47	54	68	70	65	35	112	52	30	119	136	136	159	195	189	107	115	88	31	20	50	80	45	28	50	
36	4	11	39	53	33	65	44	30	26	79	49	33	84	89	79	103	150	143	94	73	91	34	18	53	61	44	28	26	
37	4	8	15	20	25	20	24	25	26	36	25	12	50	68	32	90	120	133	60	53	93	27	15	24	36	20	25	27	
38	0	15	17	19	15	18	48	7	4	10	21	16	28	37	37	35	80	77	59	79	46	25	4	17	18	17	16	23	
39	0	4	18	11	22	3	18	13	0	17	15	14	12	18	13	18	54	70	24	44	56	25	6	9	6	9	14	16	
40	0	0	18	8	9	8	12	9	3	3	16	7	13	10	5	20	16	35	32	38	34	11	3	2	7	5	19	16	
41	0	0	1	2	6	7	3	1	0	5	6	3	1	6	3	14	20	26	11	17	18	7	5	9	5	4	9	7	
42	0	1	3	0	8	3	8	5	0	2	6	3	6	2	2	4	7	10	9	7	9	9	1	9	2	2	4	6	
43	0	0	2	3	3	0	1	1	0	2	1	0	2	1	0	3	11	3	4	13	1	3	0	3	2	1	2	3	
44	0	1	4	0	2	1	1	1	1	0	0	1	3	0	1	3	4	1	1	3	7	2	0	1	1	0	0	1	
45	0	1	0	1	1	0	8	1	0	0	0	0	0	0	0	1	2	0	3	4	2	2	1	2	2	0	2	1	
46	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	0	2	0	0	0	3	2	0	2	1	0	0	0	
47	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	1	1	0	0	0	
49	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
50	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	
51	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
53	0	0	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	0	
Total	2,237	7,152	10,707	11,543	19,350	22,455	37,996	20,283	5,231	11,449	15,565	11,124	16,445	10,790	12,106	7,246	6,413	6,755	5,763	3,160	2,640	2,758	833	3,636	3,127	2,887	2,576	2,235	2,234

**Table 2.61. Winter flounder length frequencies, fall, 1 cm intervals, 1984-2012.**  
*Winter flounder were measured from every tow.*

length	Fall																													
	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
5	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
6	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	-	0	0
7	0	0	0	0	1	0	1	1	3	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0
8	0	0	0	1	7	0	0	1	5	43	0	1	2	0	0	0	0	0	0	0	2	2	0	0	0	0	-	0	0	
9	0	0	0	0	3	4	0	1	8	83	3	0	3	4	2	0	0	0	0	0	0	1	0	0	0	3	-	0	0	
10	0	2	0	0	10	3	2	1	9	39	6	3	11	5	3	0	0	2	0	0	2	1	2	0	0	0	-	1	0	
11	1	3	2	2	8	6	4	9	6	42	10	16	16	6	3	0	0	6	0	0	9	0	0	0	1	1	-	0	2	
12	9	16	16	8	34	38	6	34	18	159	63	28	54	23	20	3	5	13	0	1	21	4	1	3	2	11	-	2	4	
13	18	37	43	47	97	127	34	72	72	331	149	67	157	77	68	44	20	62	6	1	41	28	6	9	10	21	-	5	14	
14	25	57	82	54	243	343	130	139	85	409	230	87	218	113	137	128	53	123	24	5	65	77	8	10	23	36	-	7	38	
15	31	63	116	67	295	367	260	144	149	435	219	96	255	165	190	194	111	122	37	10	61	98	17	9	45	51	-	19	59	
16	60	55	104	72	302	293	345	91	182	377	187	77	225	176	192	243	156	116	40	9	48	99	23	9	60	48	-	28	62	
17	65	49	118	53	207	315	327	110	140	247	146	61	173	175	160	268	170	80	43	11	37	66	11	6	43	50	-	22	61	
18	89	53	86	72	167	213	319	99	111	151	142	64	132	116	87	225	169	66	33	10	19	52	5	10	49	35	-	25	50	
19	111	41	50	79	212	199	326	108	99	85	141	41	119	126	60	158	148	32	31	8	21	33	5	7	25	31	-	18	26	
20	97	36	45	83	184	146	310	95	97	68	124	32	136	78	46	108	107	28	35	9	7	24	7	16	17	14	-	11	25	
21	100	37	27	53	184	121	245	96	84	51	111	23	96	65	25	86	89	25	23	10	8	14	4	19	6	10	-	11	16	
22	67	33	22	54	138	105	176	79	68	39	56	19	97	38	28	52	62	20	38	10	4	9	7	15	6	4	-	5	15	
23	63	22	17	44	104	107	146	73	42	39	38	13	65	55	24	29	41	16	28	17	2	6	3	17	4	5	-	7	22	
24	38	17	13	25	77	68	91	40	37	38	24	10	58	32	15	27	47	33	31	15	1	1	3	18	4	2	-	4	20	
25	34	14	9	21	40	85	53	48	28	29	26	5	47	23	14	29	35	24	28	10	0	7	2	9	9	6	-	4	30	
26	36	10	7	14	32	39	49	20	17	30	28	2	25	26	11	19	30	31	27	18	5	6	2	12	10	0	-	2	20	
27	16	10	1	5	32	43	38	13	8	22	13	3	27	20	13	17	21	15	20	21	3	5	0	8	9	3	-	7	20	
28	34	6	2	11	12	33	16	17	13	10	8	3	14	14	8	13	25	20	9	11	4	5	0	4	6	0	-	6	16	
29	13	3	1	5	9	30	12	7	7	12	10	1	17	7	7	17	15	22	10	10	6	1	0	4	7	3	-	5	7	
30	14	6	2	3	13	10	14	5	7	7	7	0	10	7	3	8	13	17	8	10	2	1	1	9	13	1	-	3	5	
31	8	1	2	2	4	12	1	8	3	8	8	2	13	5	11	7	8	4	4	16	2	1	0	7	8	1	-	2	7	
32	6	0	1	2	6	4	3	2	1	4	3	1	4	2	4	5	6	4	6	11	3	1	0	6	3	4	-	2	7	
33	5	1	2	0	1	1	4	6	0	3	2	1	3	4	5	9	9	6	10	12	2	1	1	0	4	1	-	2	4	
34	1	2	0	0	0	1	0	1	1	2	2	0	3	3	5	1	10	2	7	10	3	0	0	0	5	2	-	3	4	
35	4	0	0	4	0	3	1	0	0	0	1	1	1	1	3	4	6	3	4	4	3	1	0	2	3	0	-	1	5	
36	1	0	1	0	0	0	1	0	0	0	1	0	2	0	0	2	4	3	4	4	2	1	0	2	3	2	-	4	0	
37	0	0	0	0	0	0	0	0	0	0	3	0	0	1	0	1	1	3	1	2	2	2	0	1	3	2	-	2	2	
38	1	0	0	0	0	0	0	0	0	1	0	0	0	1	1	2	1	5	4	2	2	0	0	4	2	-	1	4		
39	2	0	0	0	0	0	0	0	0	3	0	0	0	1	0	1	1	3	5	0	2	2	0	0	2	0	-	0	1	
40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	3	2	2	0	1	3	2	-	0	0	
41	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	3	3	0	0	2	0	0	0	0	-	1	1	
42	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	0	1	0	0	0	0	0	0	-	0	0	
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	-	0	0	
44	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	
45	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0	0	-	0	0	
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	-	1	0	
Total	949	575	769	781	2,422	2,717	2,914	1,321	1,300	2,771	1,765	657	1,984	1,370	1,146	1,699	1,364	907	527	262	392	557	108	213	387	351	-	211	547	

**Table 2.62. Winter skate length frequencies, spring and fall, 2 cm intervals (midpoint given), 1995-2012.**

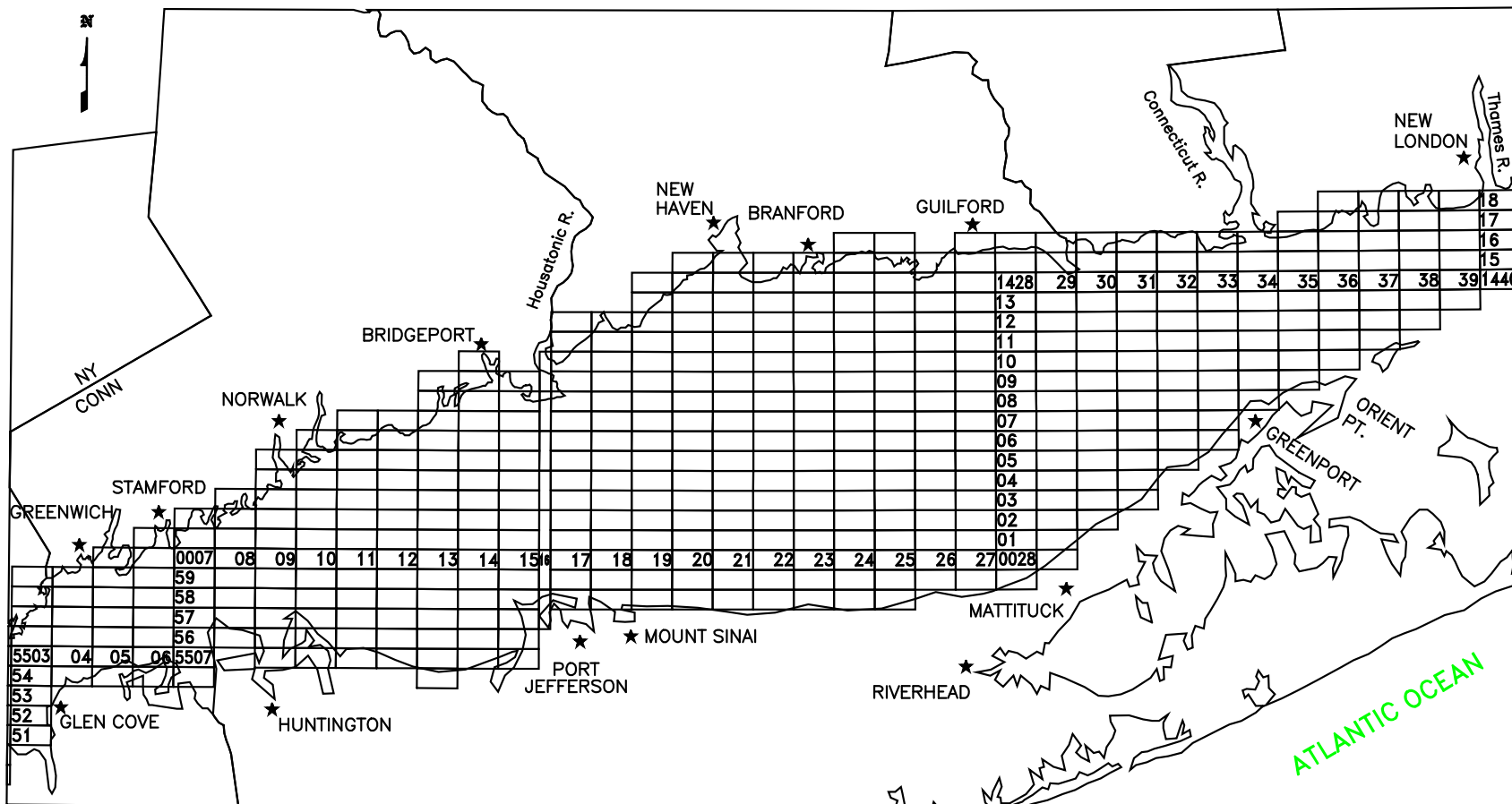
Winter skate were scheduled to be measured from every tow. However, the following numbers of skate were not measured: 4 in 1995, 10 in 1996, and 2 in 1997.

length	Spring																	
	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
27	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
37	0	0	0	0	0	0	1	0	0	3	0	0	1	1	1	1	1	7
39	0	0	0	0	0	0	0	1	2	2	0	0	1	0	1	0	1	5
41	0	0	0	0	0	0	0	1	1	2	0	0	1	1	1	2	0	4
43	0	0	0	0	0	3	0	1	2	4	1	0	0	1	2	1	0	0
45	0	0	0	0	1	3	0	0	0	6	0	0	2	1	1	2	0	7
47	0	0	0	0	0	2	0	0	0	4	3	0	3	0	0	0	1	1
49	0	0	0	0	0	2	0	0	1	2	1	1	1	2	2	0	0	3
51	0	1	0	1	0	0	0	1	1	0	1	0	0	0	1	0	0	3
53	0	0	0	0	1	3	1	0	1	0	0	1	1	0	1	0	0	1
55	0	0	2	3	1	1	0	0	1	1	1	4	3	0	1	0	0	2
57	1	2	4	3	2	0	0	0	6	0	0	1	2	1	3	0	2	2
59	5	4	1	5	3	2	0	1	1	2	0	1	0	0	2	1	0	2
61	1	5	2	1	0	0	3	1	1	1	3	1	1	3	2	0	1	2
63	2	2	2	4	1	0	0	1	2	3	2	2	0	1	1	0	2	1
65	4	2	4	7	0	0	0	0	0	0	1	1	1	2	0	0	2	3
67	1	1	2	2	1	1	0	1	1	1	3	3	0	1	1	1	2	3
69	2	0	1	4	2	0	0	1	4	1	0	1	2	3	2	0	3	1
71	1	3	2	3	1	2	2	1	2	2	0	1	2	3	0	0	0	4
73	0	3	0	0	0	1	2	4	0	2	1	4	3	1	1	1	3	5
75	4	4	1	5	3	1	2	1	3	1	0	1	4	3	3	4	3	5
77	0	2	3	6	7	2	1	1	1	1	0	0	2	4	0	1	2	0
79	1	2	1	4	1	1	2	3	1	1	1	0	4	3	2	1	4	2
81	0	4	0	3	2	1	1	2	3	3	0	1	1	1	1	0	2	3
83	0	3	0	2	0	0	1	0	1	1	0	0	1	0	3	1	1	4
85	0	2	1	1	0	3	1	2	1	0	0	0	0	0	0	0	0	3
87	0	0	0	0	0	0	1	1	1	0	0	0	0	1	0	0	0	1
89	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0
91	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
93	0	0	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
<b>Total</b>	<b>22</b>	<b>40</b>	<b>27</b>	<b>55</b>	<b>26</b>	<b>29</b>	<b>18</b>	<b>26</b>	<b>37</b>	<b>45</b>	<b>18</b>	<b>23</b>	<b>37</b>	<b>35</b>	<b>32</b>	<b>16</b>	<b>30</b>	<b>77</b>

length	Fall																	
	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-	0	0
39	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	-	0	2
41	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	-	0	1
43	0	0	2	0	0	0	0	2	0	0	0	0	0	1	0	-	2	1
45	2	0	1	0	0	0	0	1	0	0	0	0	0	0	0	-	0	4
47	0	0	0	0	1	0	0	0	0	1	0	0	0	1	0	-	0	1
49	1	5	1	0	0	0	0	0	0	0	1	0	0	0	0	-	0	1
51	0	0	1	0	2	0	2	0	0	0	0	0	0	1	0	-	0	2
53	2	0	2	1	0	0	1	1	0	0	1	0	0	0	0	-	0	2
55	1	2	1	0	1	0	4	0	0	0	0	0	0	1	0	-	0	0
57	2	6	2	0	0	0	0	3	0	0	2	0	0	1	1	-	3	0
59	2	2	2	1	0	0	1	1	0	0	0	0	0	0	1	-	0	1
61	0	5	0	0	0	0	3	0	0	0	0	0	1	0	0	-	0	0
63	1	4	1	0	0	0	1	0	0	0	2	0	0	0	0	-	0	0
65	2	3	0	1	1	0	0	1	0	3	0	0	0	1	1	-	1	0
67	1	2	2	1	0	0	2	0	0	0	3	0	1	1	1	-	0	0
69	0	2	1	1	0	0	0	1	0	0	0	0	1	1	1	-	0	1
71	0	0	0	0	0	0	0	1	0	2	0	0	2	1	1	-	0	0
73	0	2	1	1	1	0	0	2	0	1	1	0	0	0	0	-	1	1
75	1	3	1	0	1	0	1	1	0	1	1	0	1	1	1	-	0	1
77	0	1	0	0	0	0	1	2	0	1	0	0	0	2	0	-	0	0
79	0	0	0	0	0	0	1	1	0	0	0	0	0	1	1	-	0	0
81	0	0	0	1	0	0	1	1	0	0	1	0	1	1	1	-	0	1
83	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	-	0	1
85	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	-	0	0
87	0	0	0	0	0	0	2	0	0	0	0	0	0	1	0	-	0	0
<b>Total</b>	<b>15</b>	<b>37</b>	<b>19</b>	<b>7</b>	<b>7</b>	<b>1</b>	<b>20</b>	<b>19</b>	<b>0</b>	<b>9</b>	<b>13</b>	<b>0</b>	<b>7</b>	<b>16</b>	<b>11</b>	<b>-</b>	<b>7</b>	<b>20</b>

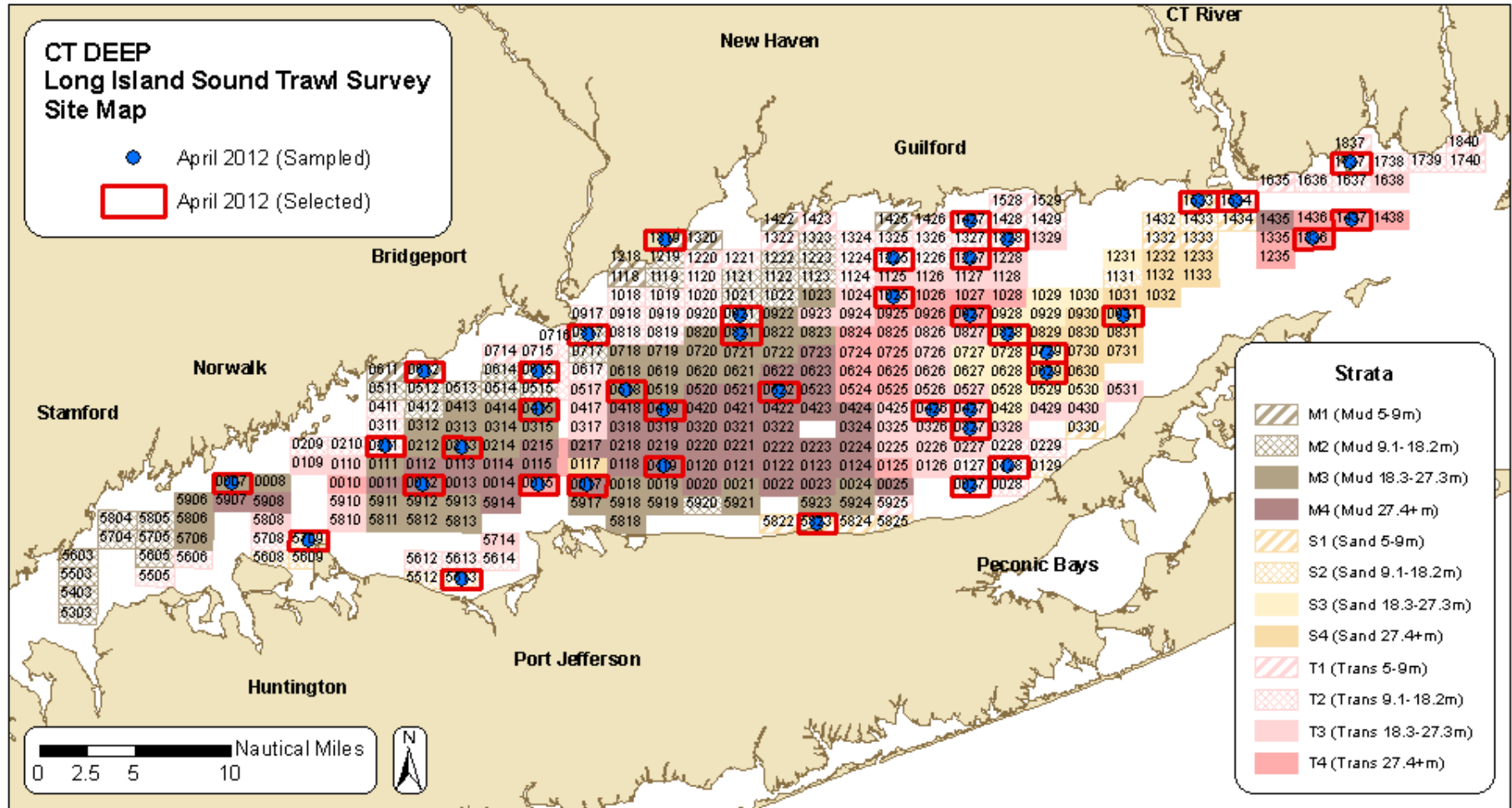


**FIGURES 2.1 - 2.15  
LISTS**



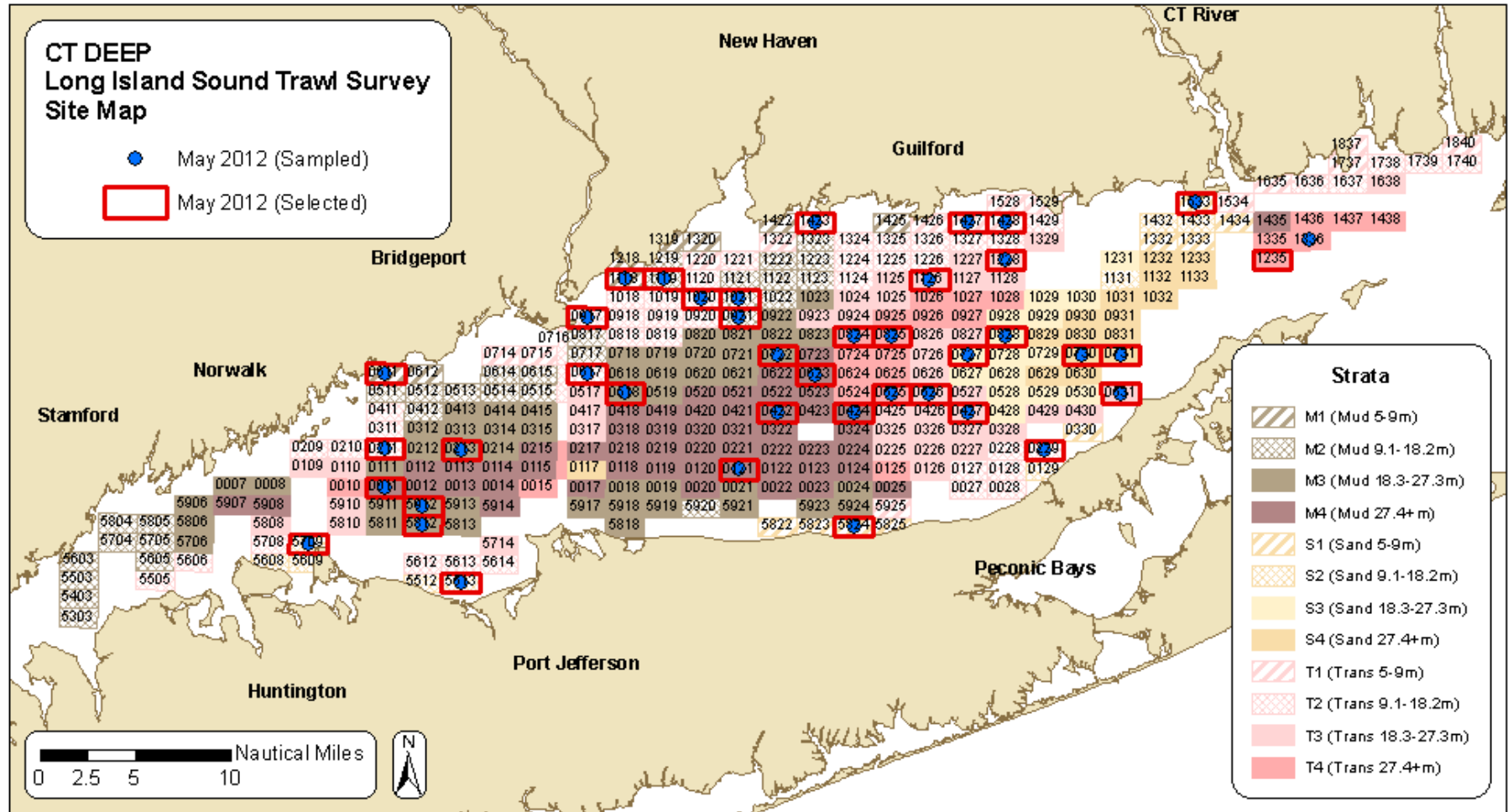
**Figure 2.1. Trawl Survey site grid.** Each sampling site is 1x2 nmi (nautical miles). A four-digit number identifies the site: the first two digits are the row numbers (corresponding to minutes of latitude) and the last two digits are the column numbers (corresponding to two nautical miles in length on the longitudinal axis). Examples: site 1428 near Guilford and 0028 near Mattituck. (Note: The sites in column 16 are approximately 2x1 nmi. The grid was drawn on the Eastern and Western Long Island Sound 80,000:1 nautical charts, which overlap by the area in column 16.)

**Figure 2.2. April 2012 sites selected and sampled.** The red outlined rectangles are the sites selected for the cruise and the blue dots are the sites sampled. Samples collected from a different site than published in the "Notice to Fishermen" are noted in table below map.



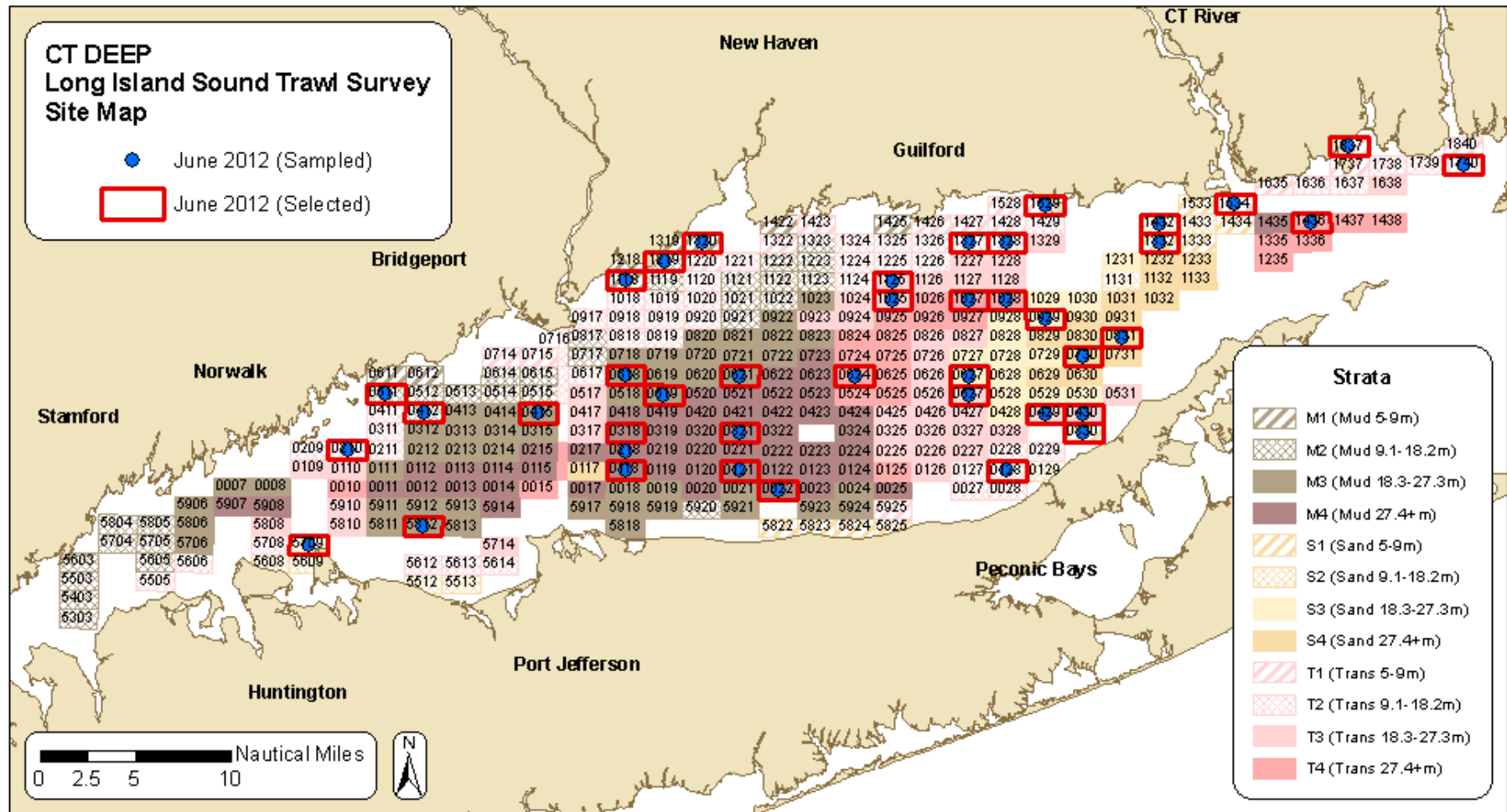
Sample	Site Sampled	Sampled Strata	Site Selected	Selected Strata	Reason Moved
No sites were moved during this cruise.					

**Figure 2.3. May 2012 sites selected and sampled.** *The red outlined rectangles are the sites selected for the cruise and the blue dots are the sites sampled. Samples collected from a different site than published in the “Notice to Fishermen” are noted in table below map.*



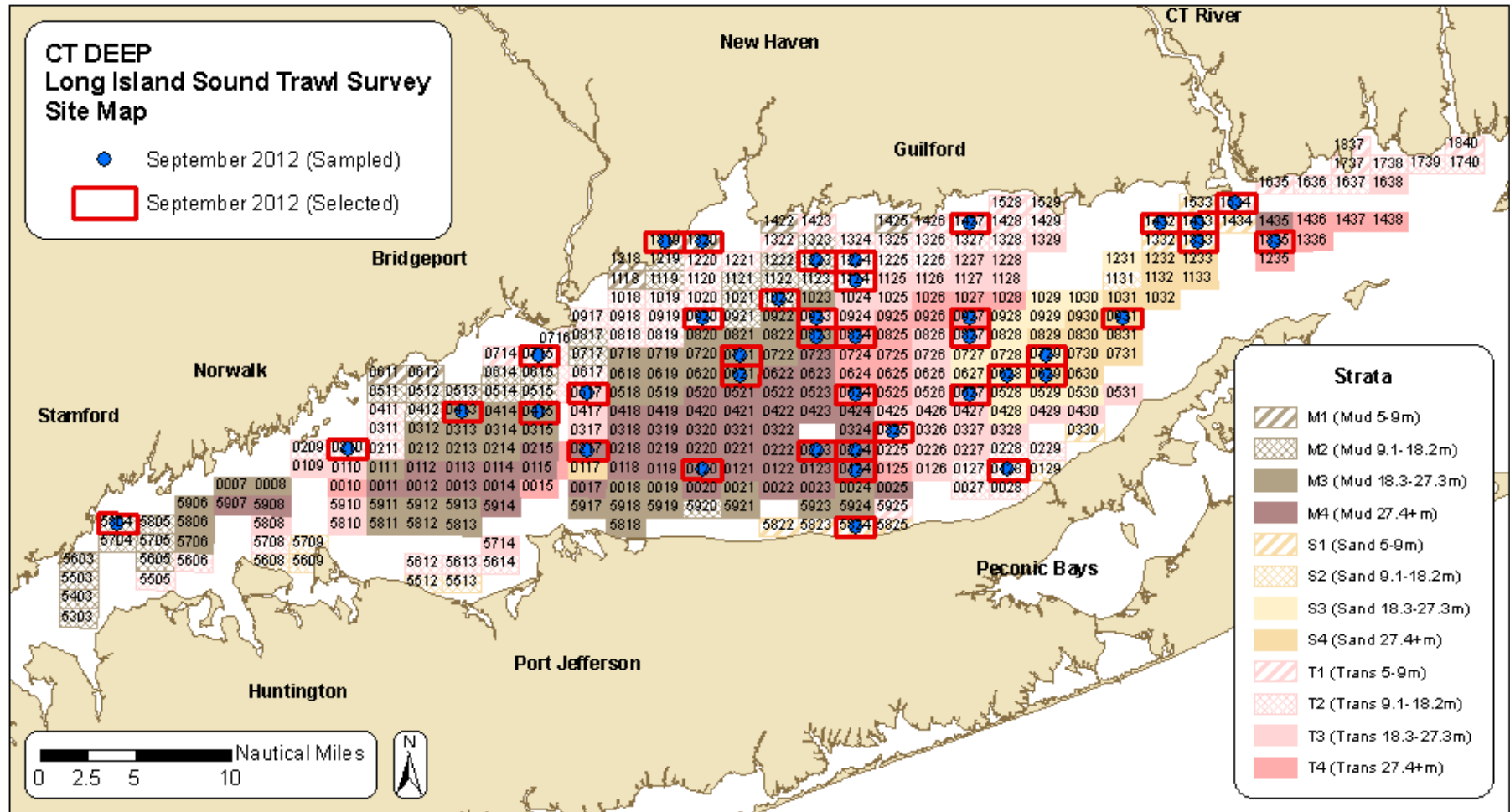
Sample	Site Sampled	Sampled Strata	Site Selected	Selected Strata	Reason Moved
SP2012047	1336	T4	1235	T4	problem with tow coordinates

**Figure 2.4. June 2012 sites selected and sampled.** The red outlined rectangles are the sites selected for the cruise and the blue dots are the sites sampled. Samples collected from a different site than published in the "Notice to Fishermen" are noted in table below map.



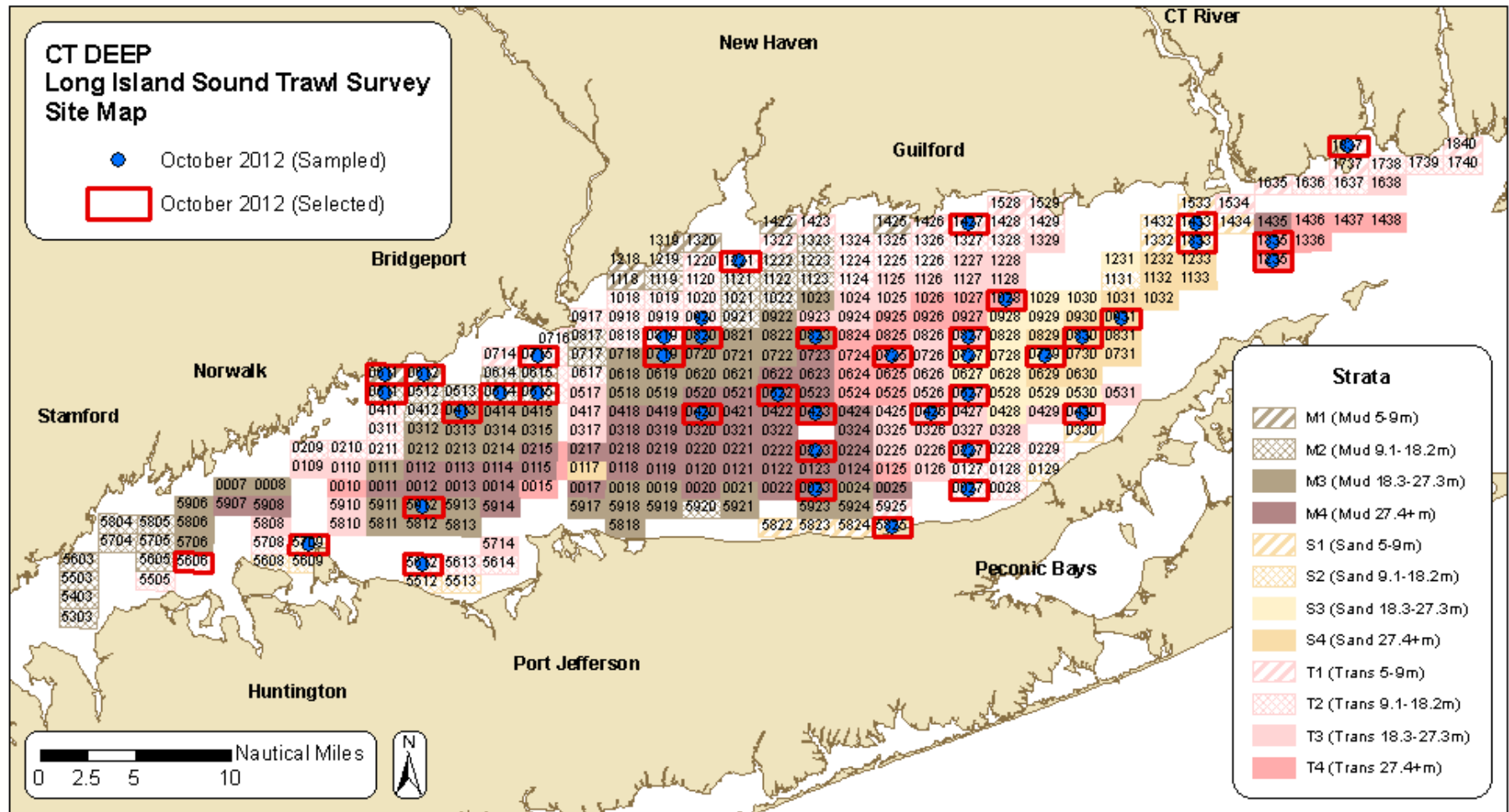
Sample	Site Sampled	Sampled Strata	Site Selected	Selected Strata	Reason Moved
SP2012113	0218	M4	0318	M4	problem with tow coordinates

**Figure 2.5. September 2012 sites selected and sampled.** The red outlined rectangles are the sites selected for the cruise and the blue dots are the sites sampled. Samples collected from a different site than published in the "Notice to Fishermen" are noted in table below map.



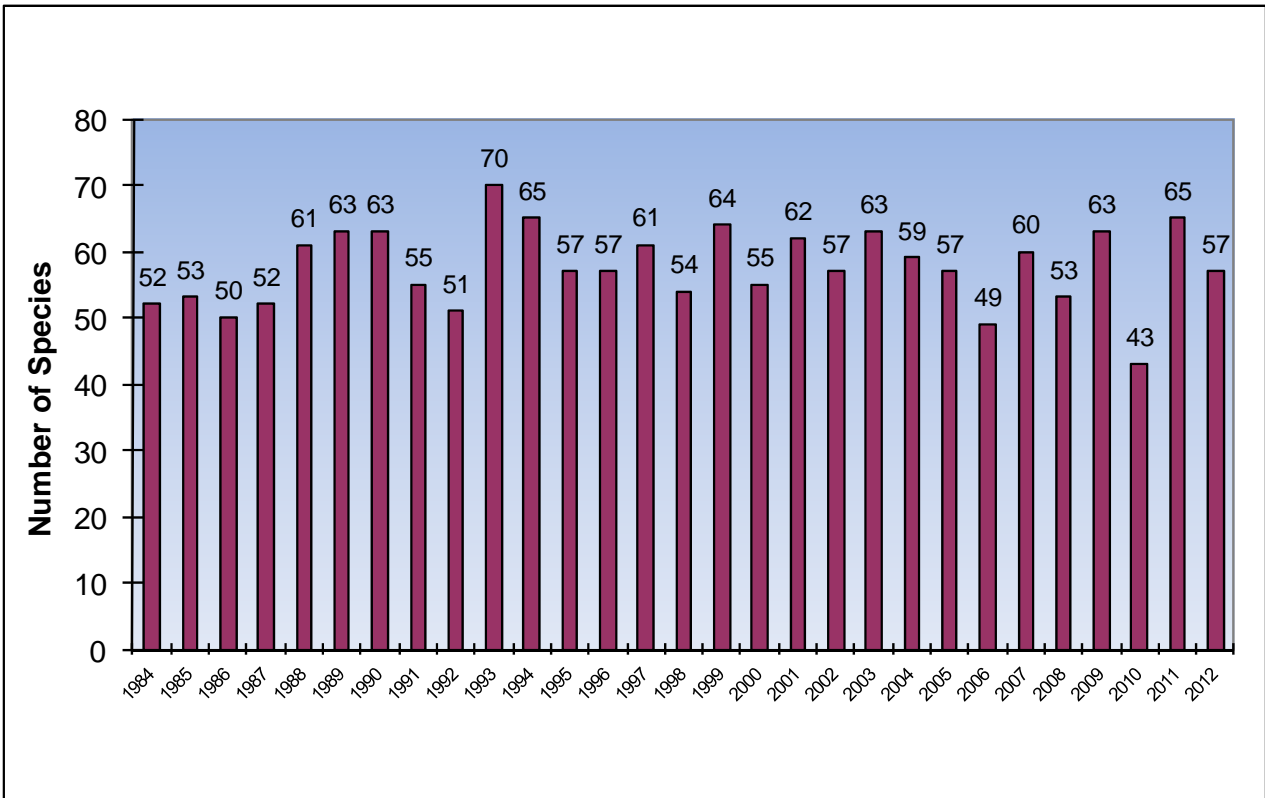
Sample	Site Sampled	Sampled Strata	Site Selected	Selected Strata	Reason Moved
No sites were moved during this cruise.					

**Figure 2.6. October 2012 sites selected and sampled.** The red outlined rectangles are the sites selected for the cruise and the blue dots are the sites sampled. Samples collected from a different site than published in the "Notice to Fishermen" are noted in table below map.



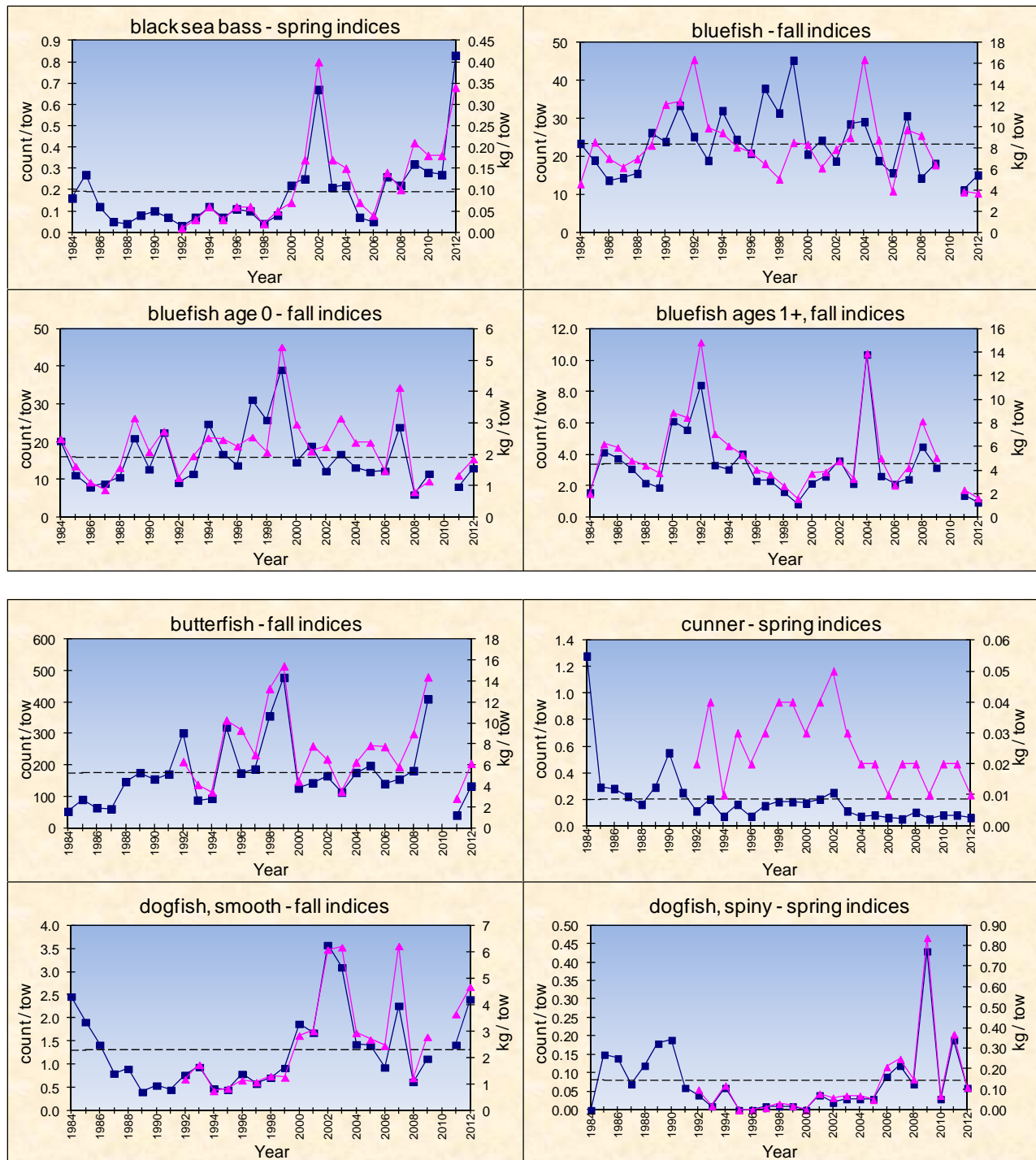
Sample	Site Sampled	Sampled Strata	Site Selected	Selected Strata	Reason Moved
FA2012080	0920	T2	5606	T2	ran out of time to complete October cruise so could not continue to go further west

**Figure 2.7. Number of finfish species observed annually, 1984-2012.** *Note: there was no October sampling in 2006 and there was no June, September or October sampling in 2010. Average number of finfish species caught per year is 57.6 for the time-series. See Table 2.4 for details on number of tows completed each year.*



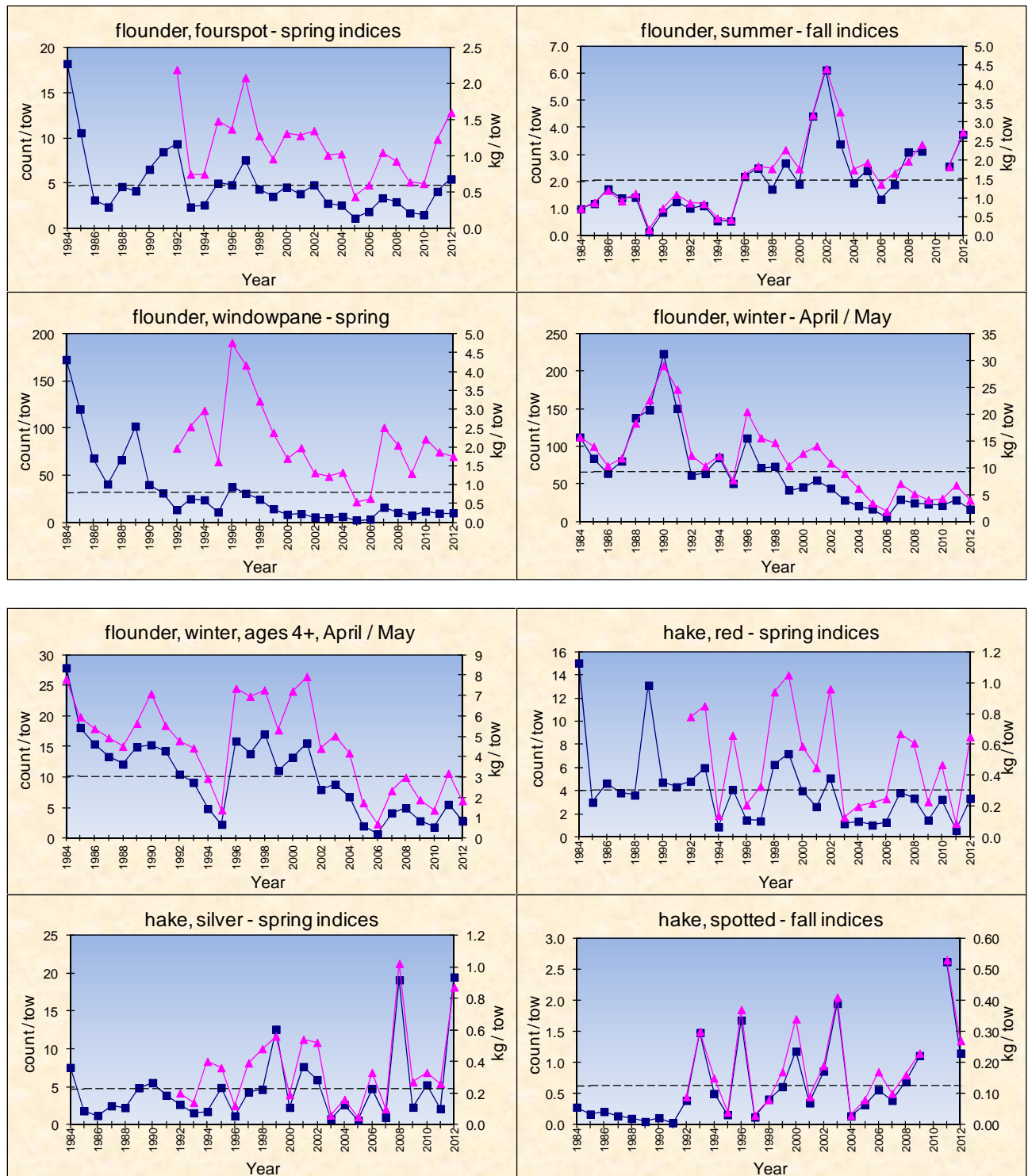


**Figure 2.8. Plots of abundance indices for: black sea bass, bluefish (total, age 0, and ages 1+), butterfish, cunner, and dogfish (smooth and spiny).**



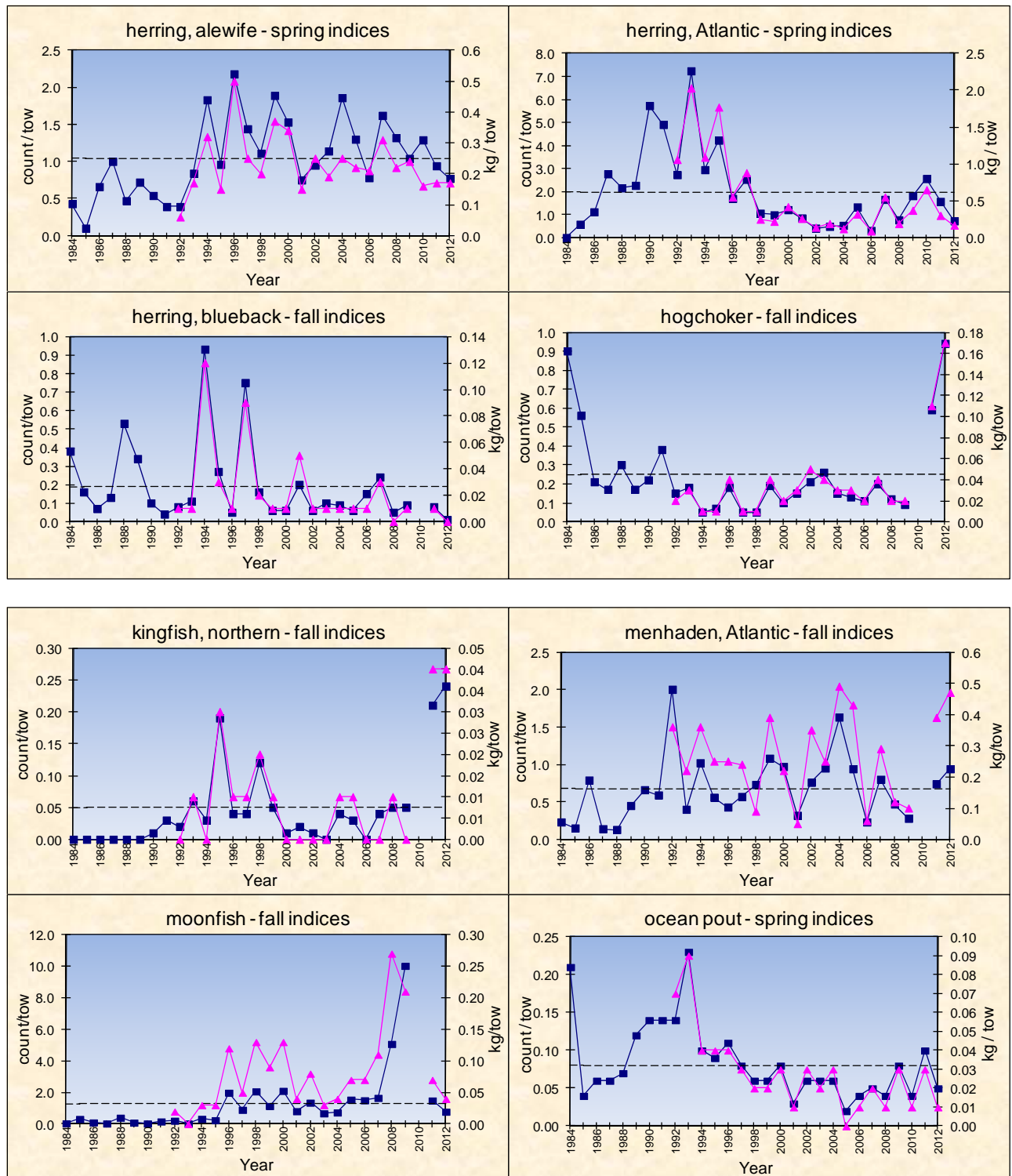
Legend:  
■ = count / tow  
▲ = kg / tow  
 ---- = mean count / tow

**Figure 2.9. Plots of abundance indices for: flounders (fourspot, summer, windowpane, winter, and winter ages 4+) and hakes (red, silver, and spotted).**



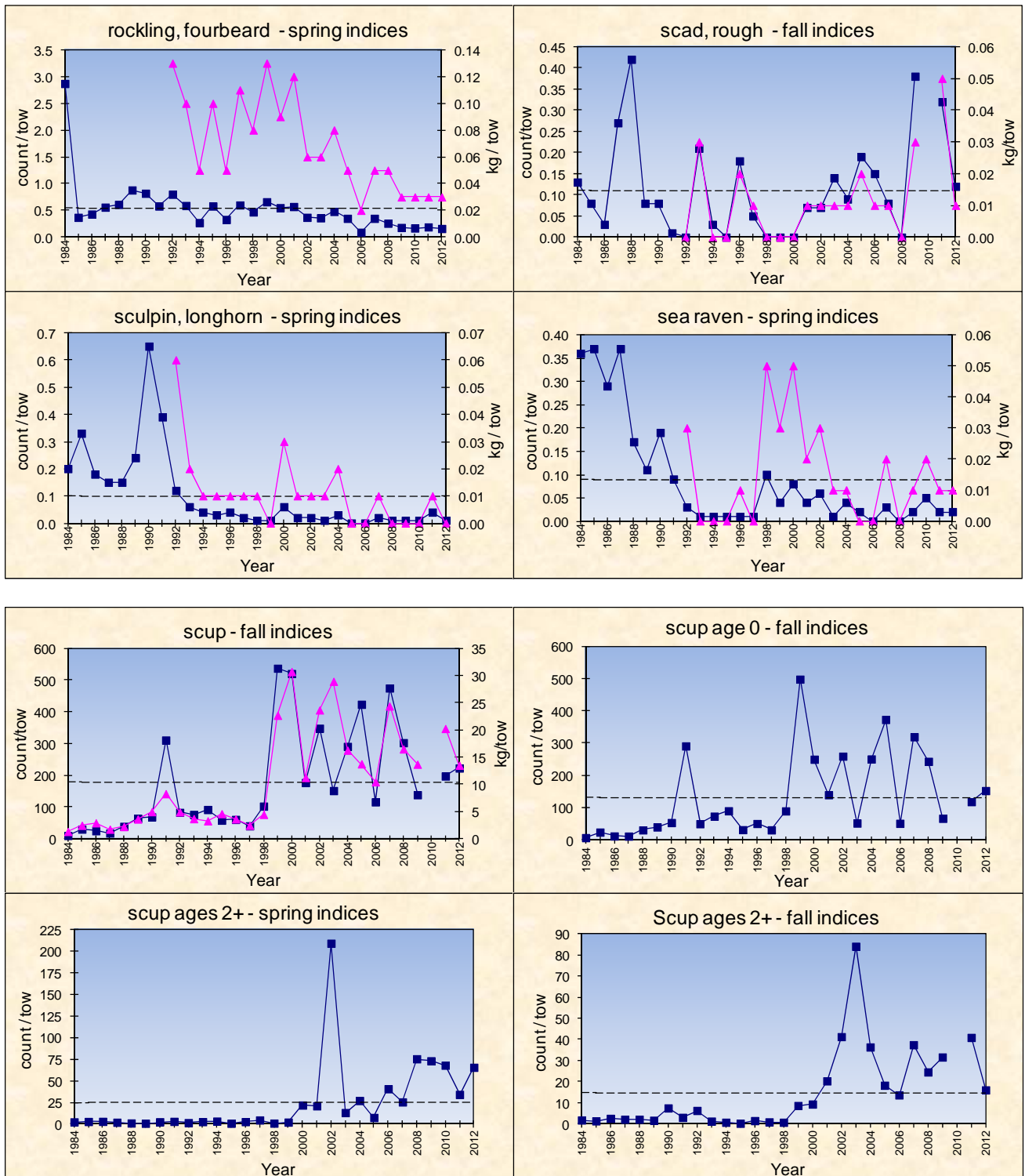
Legend:  
■ = count / tow  
▲ = kg / tow  
 ---- = mean count / tow

**Figure 2.10. Plots of abundance indices for: herrings (alewife, Atlantic, and blueback), hogchoker, Northern kingfish, Atlantic menhaden, moonfish, and ocean pout.**



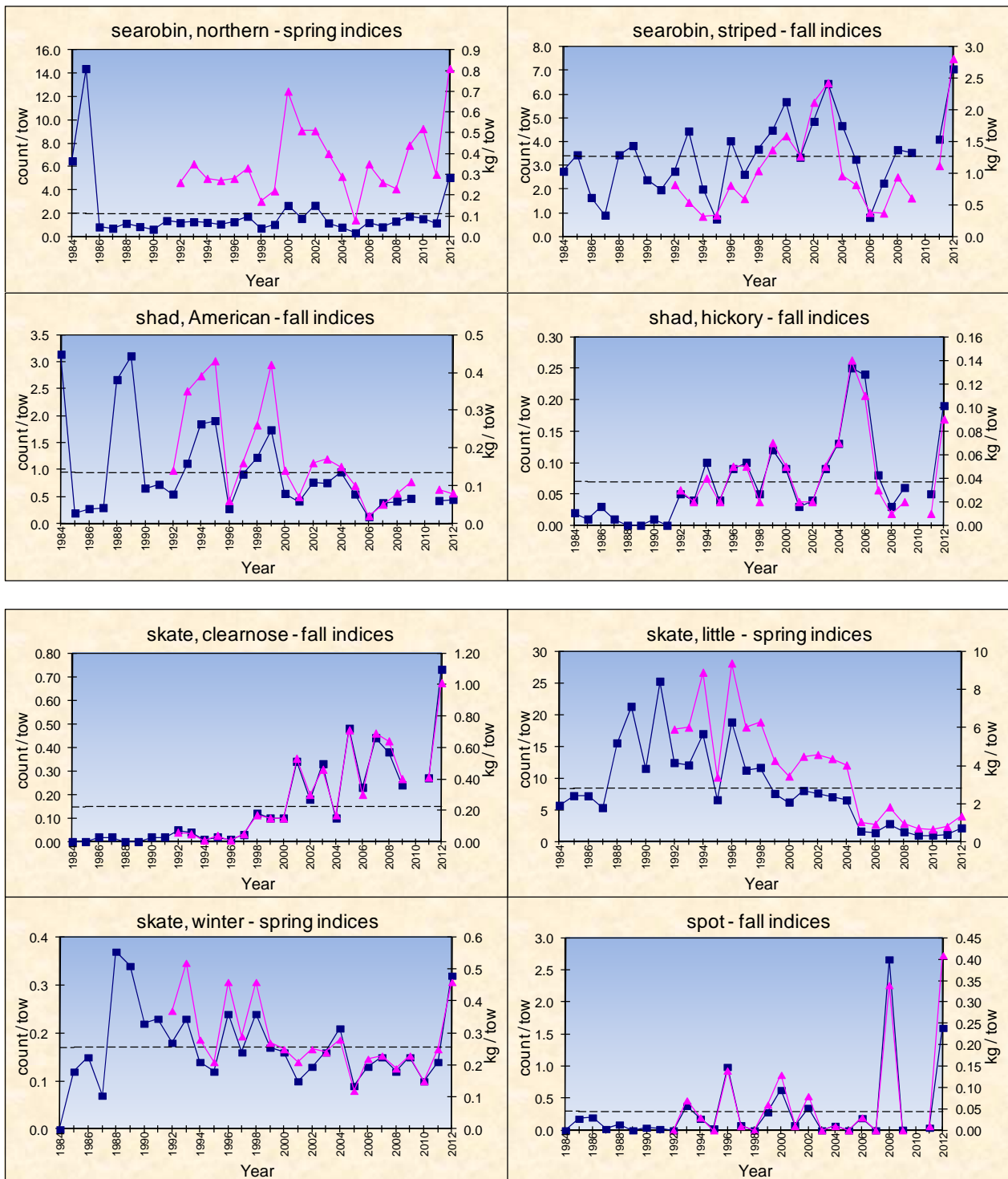
Legend:  
■ = count / tow  
▲ = kg / tow  
 ---- = mean count / tow

**Figure 2.11. Plots of abundance indices for: fourbeard rockling, rough scad, longhorn sculpin, sea raven, and scup (all ages, age 0, and ages 2+).**



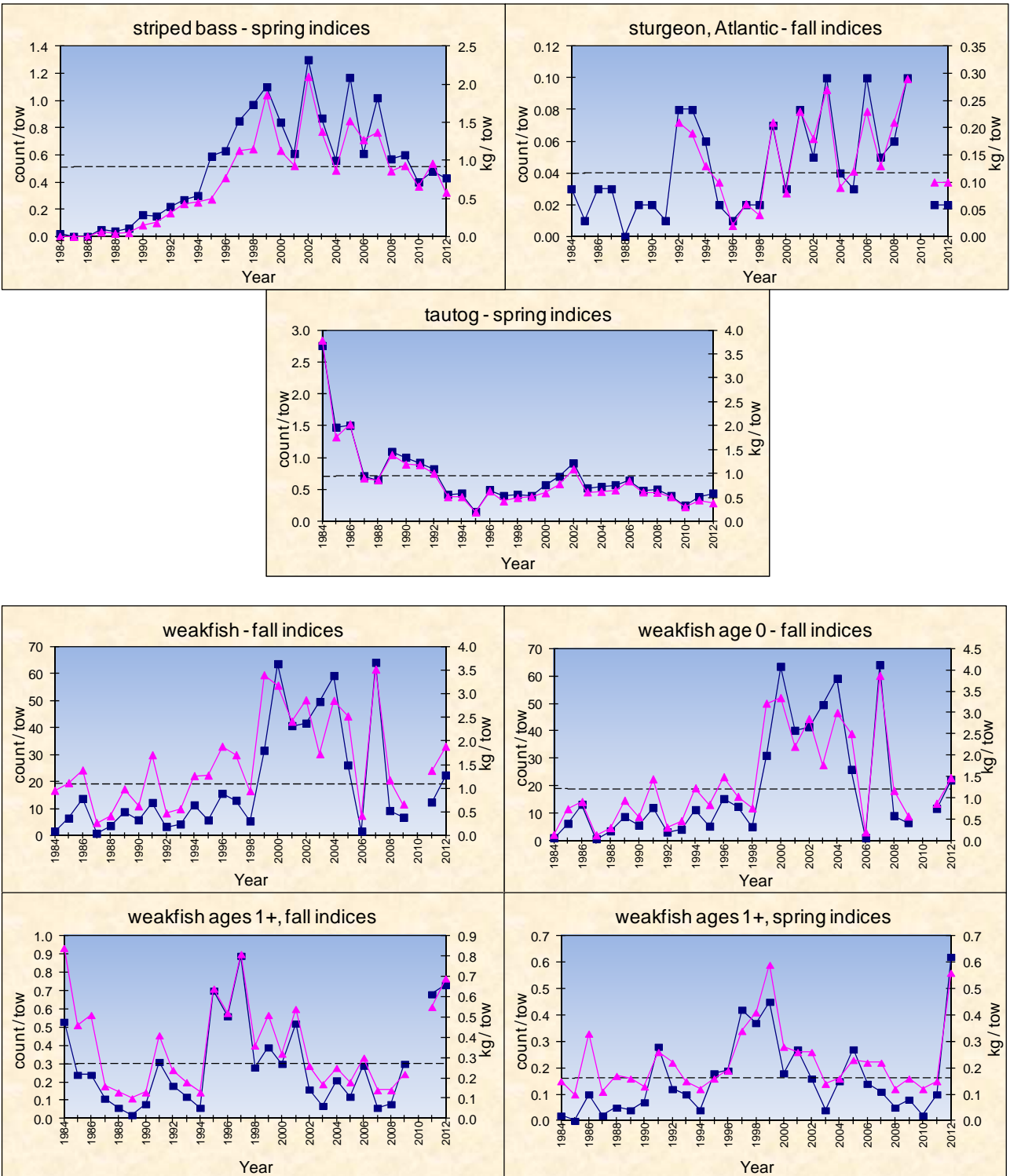
Legend:  
■ = count / tow  
▲ = kg / tow  
 --- = mean count / tow

**Figure 2.12. Plots of abundance indices for: searobins (striped and northern), shad (American and hickory), skates (clearnose, little, and winter), and spot.**



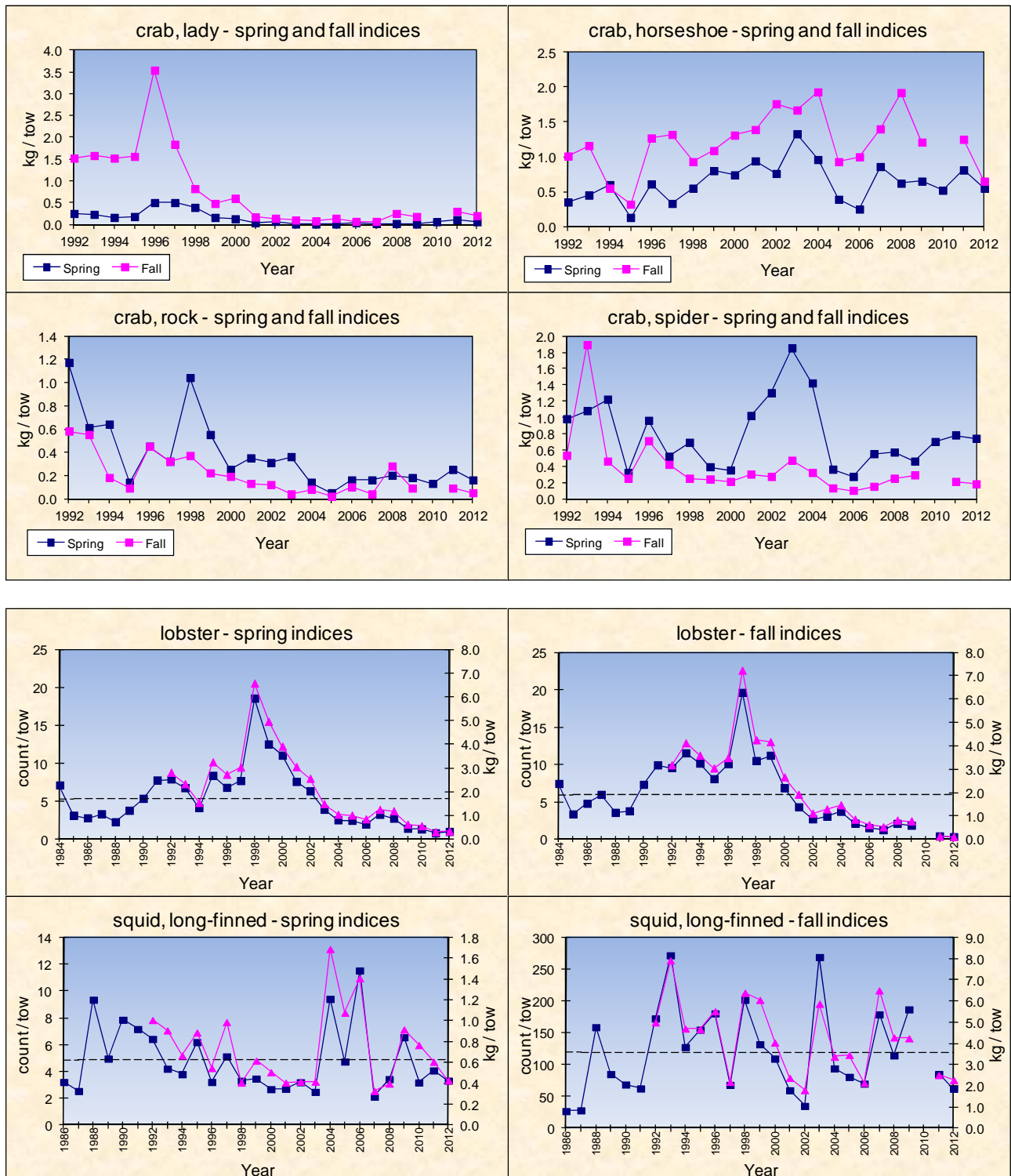
Legend:  
■ = count / tow  
▲ = kg / tow  
 ---- = mean count / tow

**Figure 2.13** Plots of abundance indices for: striped bass, Atlantic sturgeon, tautog, and weakfish (all ages, age 0, and ages 1+).



Legend:  
■ = count / tow  
▲ = kg / tow  
 ---- = mean count / tow

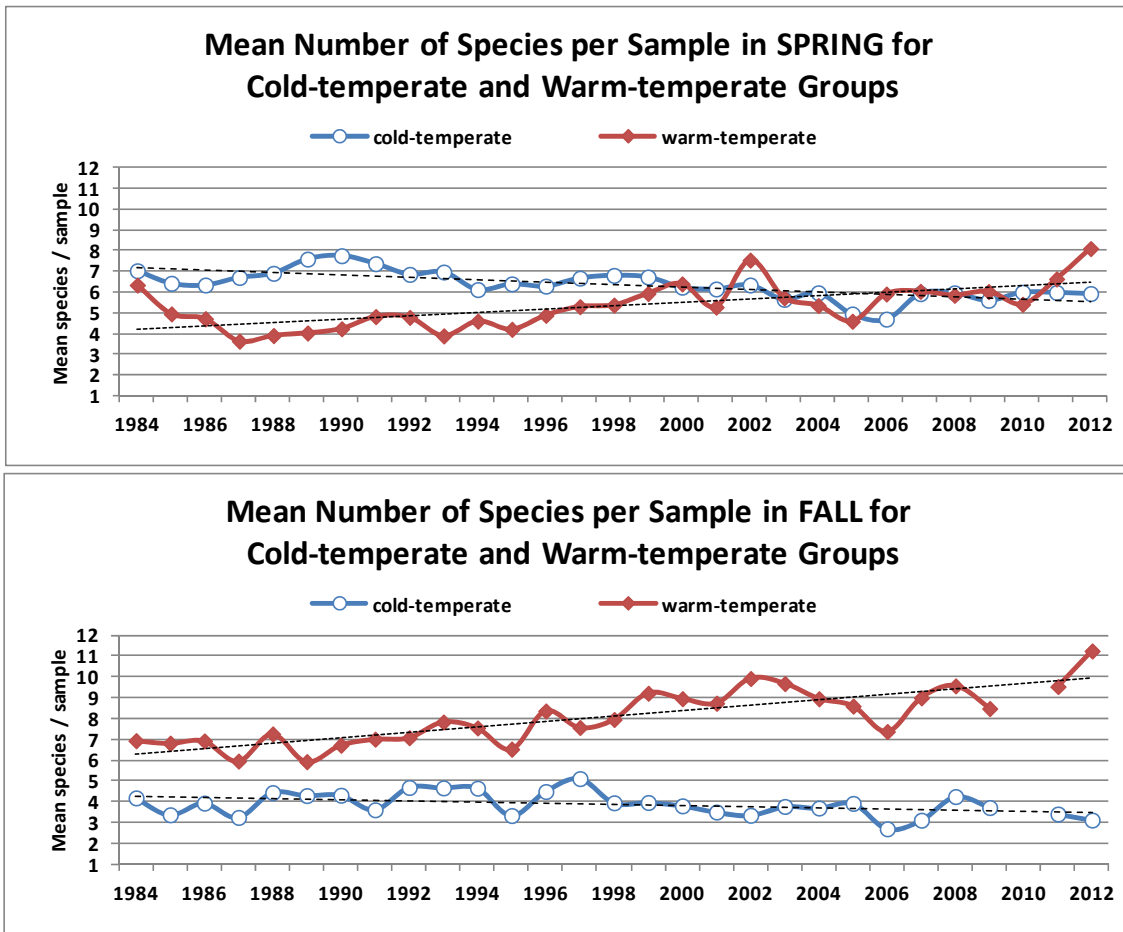
**Figure 2.14. Plots of abundance and biomass indices for: crabs (lady, rock, and spider), horseshoe crab, American lobster, and long-finned squid.**



Legend for bottom four graphs:

- = count / tow
- ▲ = kg / tow
- = mean count / tow

Figure 2.15. Trends in the number of species in cold temperate and warm temperate species groups in the spring and fall LIS Trawl Survey. See Appendix 2.5 for list of species included in analysis.





**APPENDICES  
LISTS**

**Appendix 2.1. List of finfish species identified by A Study of Marine Recreational Fisheries in Connecticut (F54R) and other CT DEP Marine Fisheries Division programs.** LISTS has collected one hundred-three finfish species from 1984-2012.

*This appendix contains a list of 143 species identified (Bold type indicates new species) from all sampling programs conducted since 1984. Species are listed alphabetically by common name (AFS 2004). Sampling program abbreviations, survey time periods and gear type are as follows:*

<b>Survey Abbreviation</b>	<b>Survey Description</b>	<b>Time Period</b>	<b>Gear Type</b>
CTR	CT River Creel Survey	1997-1998	bus stop creel survey mainstem of CT River
EPA	cooperative sampling in western LIS with EPA	1986-1990	used LISTS net
ESS (F54R)	Estuarine Seine Survey	1988 to present	7.6m (25 ft) beach seine
IS (F54R)	Inshore Survey of Juvenile Winter Flounder	1990-1994	beam trawls (also a little data from 1995-1996)
ISS (F54R-starting 2008)	Inshore Seine Surveys in CT & TH rivers	1979 to present	15.2m (50 ft) bag seine set by boat
LISTS (F54R)	Long Island Sound Trawl Survey	1984 to present	14m (50 ft) trawls with 2" codend mesh
MISC	misc sampling conducted on R/V Dempsey	various	various
NCA	"inshore" EPA NCA C2K sampling	2000	skiff trawls
NRRWS	sampling in western end of LIS, the "Narrows"	2000-2007	14m (50 ft) trawls with 2" codend mesh
SNFH (F54R)	Study of Nearshore Finfish Habitat	1995-1996	plankton net
SS (F54R)	Summer Survey	1991-1993, 1996	14m (50 ft) trawls with codend liner in LIS
TN	Trap Net Survey	1997-1998	trap nets in rivers

<b>Common Name</b>	<b>Scientific Name</b>	<b>Survey</b>
anchovy, bay	<i>Anchoa mitchilli</i>	LISTS;NRRWS;ESS;ISS;IS; SS;NCA;MISC
anchovy, striped	<i>Anchoa hepsetus</i>	LISTS; ESS; IS; SS
banded rudderfish	<i>Seriola zonata</i>	LISTS; ESS
bass, largemouth	<i>Micropterus salmoides</i>	ISS; TN;CTR
bass, rock	<i>Ambloplites rupestris</i>	ISS; TN;CTR
bass, smallmouth	<i>Micropterus dolomieu</i>	ISS; TN;CTR
bass, striped	<i>Morone saxatilis</i>	LISTS;NRRWS;ESS;ISS; SS;NCA;MISC;EPA;TN;CTR
bigeye	<i>Priacanthus arenatus</i>	LISTS; IS
bigeye, short	<i>Pristigenys alta</i>	LISTS
black sea bass	<i>Centropristes striata</i>	LISTS;NRRWS;ESS; IS; SS;NCA;MISC;EPA
blenny, feather	<i>Hypsoblennius hentz</i>	LISTS
bluefish	<i>Pomatomus saltatrix</i>	LISTS;NRRWS;ESS;ISS; SS; MISC;EPA; CTR
bluegill	<i>Lepomis macrochirus</i>	TN;CTR
bonefish	<i>Albula vulpes</i>	ISS
bonito, Atlantic	<i>Sarda sarda</i>	LISTS; EPA
bullhead, brown	<i>Ameiurus nebulosus</i>	ISS; NCA; TN;CTR
burrfish, striped	<i>Chilomycterus schoepfi</i>	LISTS; ESS
burrfish, web	<i>Chilomycterus antillarum</i>	ESS
butterfish	<i>Peprilus triacanthus</i>	LISTS;NRRWS;ESS;ISS;IS; SS;NCA;MISC;EPA
carp	<i>Cyprinus carpio</i>	ISS; NCA; TN;CTR
catfish, channel	<i>Ictalurus punctatus</i>	ISS; NCA; TN;CTR
catfish, white	<i>Ameiurus catus</i>	NCA; TN;CTR
cod, Atlantic	<i>Gadus morhua</i>	LISTS; SS
cornetfish, bluespotted	<i>Fistularia tabacaria</i>	ESS; IS
cornetfish, red	<i>Fistularia petimba</i>	LISTS; IS
crappie, black	<i>Pomoxis nigromaculatus</i>	ISS; NCA; TN;CTR
crappie, white	<i>Pomoxis annularis</i>	TN;CTR
croaker, Atlantic	<i>Micropogonias undulatus</i>	LISTS; IS
cunner	<i>Tautoglabrus adspersus</i>	LISTS;NRRWS;ESS;ISS;IS; SS; MISC;EPA
cusck-eel, fawn	<i>Lepophidium profundorum</i>	LISTS
cusck-eel, striped	<i>Ophidion marginatum</i>	LISTS; SS
darter, tessellated	<i>Etheostoma olmstedi</i>	ISS
dogfish, smooth	<i>Mustelus canis</i>	LISTS;NRRWS;ESS; IS; SS; MISC;EPA
dogfish, spiny	<i>Squalus acanthius</i>	LISTS;NRRWS; MISC
eel, American	<i>Anguilla rostrata</i>	LISTS;NRRWS;ESS;ISS;IS;SNFH;SS;NCA; EPA;TN;CTR
eel, conger	<i>Conger oceanicus</i>	LISTS; IS; SS
fallfish	<i>Semotilus corporalis</i>	ISS
filefish, orange	<i>Aluterus schoepfi</i>	LISTS; IS; SS
filefish, planehead	<i>Monacanthus hispidus</i>	LISTS; EPA
filefish, scrawled	<i>Aluterus scriptus</i>	IS
flounder, American plaice	<i>Hippoglossoides platessoide</i>	LISTS
flounder, fourspot	<i>Paralichthys oblongus</i>	LISTS;NRRWS; IS; SS; MISC;EPA
flounder, smallmouth	<i>Etropus microstomus</i>	LISTS;NRRWS;ESS; IS; SS;NCA;MISC

Appendix 2.1 cont.

Common Name	Scientific Name	Survey
flounder, summer	<i>Paralichthys dentatus</i>	LISTS;NRRWS;ESS;ISS;IS; SS;NCA;MISC;EPA;TN;CTR
flounder, windowpane	<i>Scophthalmus aquosus</i>	LISTS;NRRWS;ESS;ISS;IS; SS;NCA;MISC;EPA;TN;CTR
flounder, winter	<i>Pseudopleuronectes americanus</i>	LISTS;NRRWS;ESS;ISS;IS;SNFH;SS;NCA;MISC;EPA;TN;CT
flounder, yellowtail	<i>Pleuronectes ferrugineus</i>	LISTS; IS
glasseye snapper	<i>Priacanthus cruentatus</i>	LISTS
goatfish, dwarf	<i>Upeneus parvus</i>	LISTS
goatfish, red	<i>Mullus auratus</i>	LISTS
goby, code	<i>Gobiosoma robustum</i>	IS
goby, naked	<i>Gobiosoma bosci</i>	LISTS; ESS;ISS;IS
goldfish	<i>Carassius auratus</i>	CTR
goosefish	<i>Lophius americanus</i>	LISTS; IS; SS; MISC
grubby	<i>Myoxocephalus aeneus</i>	LISTS; ESS;ISS;IS;SNFH;SS; EPA
gunnel, banded	<i>Pholis fasciata</i>	ESS; IS
gunnel, rock	<i>Pholis gunnellus</i>	LISTS; ESS;ISS;IS;SNFH;SS
gurnard, flying	<i>Dactylopterus volitans</i>	ESS
haddock	<i>Melanogrammus aeglefinus</i>	LISTS; SS
hake, red	<i>Urophycis chuss</i>	LISTS;NRRWS; IS; SS; MISC;EPA
hake, silver	<i>Merluccius bilinearis</i>	LISTS;NRRWS; SS; MISC;EPA
hake, spotted	<i>Urophycis regia</i>	LISTS;NRRWS; ESS; IS; SS; MISC;EPA
herring, Atlantic	<i>Clupea harengus</i>	LISTS;NRRWS; IS;SNFH;SS; MISC;EPA
herring, alewife	<i>Alosa pseudoharengus</i>	LISTS;NRRWS;ESS;ISS; SNFH;SS; MISC;EPA;TN;CTR
herring, blueback	<i>Alosa aestivalis</i>	LISTS;NRRWS;ESS;ISS;IS;SNFH;SS; EPA;TN;CTR
herring, round	<i>Etrumeus teres</i>	LISTS; EPA
hogchoker	<i>Trinectes maculatus</i>	LISTS;NRRWS;ESS;ISS;IS; SS; MISC;EPA;TN
jack, blue runner	<i>Caranx crysos</i>	LISTS; EPA
jack, crevalle	<i>Caranx hippos</i>	LISTS;NRRWS; ESS; ISS; EPA
jack, yellow	<i>Caranx bartholomaei</i>	LISTS;NRRWS; ESS; IS; MISC;EPA
killifish, rainwater	<i>Lucania parva</i>	ESS
killifish, striped	<i>Fundulus majalis</i>	ESS; IS
kingfish, northern	<i>Menticirrhus saxatilis</i>	LISTS;NRRWS;ESS;ISS;IS; SS; EPA
lamprey, sea	<i>Petromyzon marinus</i>	LISTS; IS; TN
lizardfish, inshore	<i>Synodus foetens</i>	LISTS;NRRWS;ESS;ISS;IS; SS; MISC
lookdown	<i>Selene vomer</i>	LISTS; ISS
lumpfish	<i>Cyclopterus lumpus</i>	LISTS; IS;SNFH
mackerel, Atlantic	<i>Scomber scombrus</i>	LISTS; ISS; SS; EPA
mackerel, Spanish	<i>Scomberomorus maculatus</i>	LISTS; SS; EPA
menhaden, Atlantic	<i>Brevoortia tyrannus</i>	LISTS;NRRWS;ESS;ISS;IS;SNFH;SS;NCA;MISC;EPA
minnow, sheepshead	<i>Cyrinodon variegatus</i>	ESS;ISS
moonfish	<i>Selene setapinnis</i>	LISTS;NRRWS; SS; MISC;EPA
mullet, white	<i>Mugil curema</i>	LISTS;ESS;ISS
mummichog	<i>Fundulus heteroclitus</i>	ESS; IS
needlefish, Atlantic	<i>Strongylura marina</i>	ESS;ISS
ocean pout	<i>Macrozoarces americanus</i>	LISTS;NRRWS; MISC;EPA
oyster toadfish	<i>Opsanus tau</i>	LISTS;NRRWS;ESS;ISS;IS;SNFH;SS; EPA
perch, white	<i>Morone americana</i>	LISTS;NRRWS;ESS;ISS;IS;SNFH; NCA; TN;CTR
perch, yellow	<i>Perca flavescens</i>	ISS; SNFH; TN;CTR
perch, silver	<i>Bairdiella chrysoura</i>	LISTS
pickerel, chain	<i>Esox niger</i>	ISS; TN
pike, northern	<i>Esox lucius</i>	ISS; TN;CTR
<b>pinfish</b>	<b><i>Lagodon rhomboides</i></b>	LISTS
pipefish, northern	<i>Syngnathus fuscus</i>	LISTS;NRRWS;ESS;ISS;IS;SNFH;SS;NCA; EPA
pollock	<i>Pollachius virens</i>	LISTS;NRRWS; SNFH;SS; EPA
pompano, African	<i>Alectis ciliaris</i>	LISTS; ISS
puffer, northern	<i>Sphoeroides maculatus</i>	LISTS;NRRWS;ESS;ISS;IS; SS
pumpkinseed	<i>Lepomis gibbosus</i>	ESS;ISS; NCA; TN;CTR
radiated shanny	<i>Ulvaria subbifurcata</i>	SNFH
rockling, fourbeard	<i>Enchelyopus cimbrius</i>	LISTS;NRRWS; IS;SNFH;SS; MISC;EPA
salmon, Atlantic	<i>Salmo salar</i>	LISTS; TN
sand lance, American	<i>Ammodytes americanus</i>	LISTS; ESS; IS;SNFH;SS

**Appendix 2.1 cont.**

<b>Common Name</b>	<b>Scientific Name</b>	<b>Survey</b>
sandbar (brown) shark	<i>Carcharhinus plumbeus</i>	LISTS
scad, bigeye	<i>Selar crumenophthalmus</i>	LISTS; SS; MISC
scad, mackerel	<i>Decapterus macarellus</i>	LISTS; SS
scad, rough	<i>Trachurus lathami</i>	LISTS;NRRWS; SS; MISC;EPA
scad, round	<i>Decapterus punctatus</i>	LISTS;NRRWS
sculpin, longhorn	<i>Myoxocephalus octodecemspinosus</i>	LISTS;NRRWS; ISS; SNFH; MISC
scup	<i>Stenotomus chrysops</i>	LISTS;NRRWS;ESS;ISS;IS; SS;NCA;MISC;EPA
sea raven	<i>Hemitripterus americanus</i>	LISTS; SNFH; MISC;EPA
seahorse, lined	<i>Hippocampus erectus</i>	LISTS; ESS; IS
searobin, northern	<i>Prionotus carolinus</i>	LISTS;NRRWS;ESS; IS;SNFH;SS; MISC;EPA
searobin, striped	<i>Prionotus evolans</i>	LISTS;NRRWS;ESS;ISS;IS; SS;NCA;MISC;EPA
seasnail	<i>Liparis atlanticus</i>	LISTS; SNFH
sennet, northern	<i>Sphyraena borealis</i>	LISTS; ESS
shad, American	<i>Alosa sapidissima</i>	LISTS;NRRWS;ESS;ISS; SS; MISC;EPA;TN;CTR
shad, gizzard	<i>Dorosoma cepedianum</i>	LISTS;NRRWS; ISS; TN
shad, hickory	<i>Alosa mediocris</i>	LISTS;NRRWS; ISS; SS; MISC;EPA; CTR
sharksucker	<i>Echeneis naucrates</i>	LISTS
shiner, golden	<i>Notemigonus crysoleucas</i>	ISS; TN
shiner, spottail	<i>Notropis hudsonius</i>	ISS; NCA; TN;CTR
silverside, Atlantic	<i>Menidia menidia</i>	LISTS;NRRWS;ESS;ISS;IS;SNFH;SS; MISC;EPA
silverside, inland	<i>Menidia beryllina</i>	SNFH
skate, barndoor	<i>Dipturus laevis</i>	LISTS
skate, clearnose	<i>Raja eglanteria</i>	LISTS;NRRWS; IS
skate, little	<i>Leucoraja erinacea</i>	LISTS;NRRWS;ESS; IS; SS;NCA;MISC;EPA; CTR
skate, winter	<i>Leucoraja ocellata</i>	LISTS;NRRWS; SS; MISC
smelt, rainbow	<i>Osmerus mordax</i>	LISTS; ESS; IS;SNFH;SS; TN;CTR
snapper, grey	<i>Lutjanus griseus</i>	ESS; IS
spot	<i>Leiostomus xanthurus</i>	LISTS;NRRWS; ISS;IS; SS; MISC;EPA
stargazer, northern	<i>Astroscopus guttatus</i>	LISTS; ESS
stickleback, four-spine	<i>Apeltes quadracus</i>	ESS; IS
stickleback, nine-spine	<i>Pungitius pungitius</i>	ESS; IS
stickleback, three-spine	<i>Gasterosteus aculeatus</i>	ESS; IS; TN
stingray, roughtail	<i>Dasyatis centroura</i>	LISTS
sturgeon, Atlantic	<i>Acipenser oxyrinchus</i>	LISTS
sucker, white	<i>Catostomus commersoni</i>	ISS; NCA; TN;CTR
tautog	<i>Tautoga onitis</i>	LISTS;NRRWS;ESS;ISS;IS; SS;NCA;MISC;EPA
tomcod, Atlantic	<i>Microgadus tomcod</i>	LISTS;NRRWS;ESS;ISS;IS;SNFH;SS; EPA; CTR
triggerfish, gray	<i>Balistes capriscus</i>	LISTS
trout, brook	<i>Salvelinus fontinalis</i>	TN;CTR
trout, brown	<i>Salmo trutta</i>	CTR
walleye	<i>Sander vitreus</i>	TN
weakfish	<i>Cynoscion regalis</i>	LISTS;NRRWS;ESS;ISS;IS; SS;NCA;MISC;EPA

## Appendix 2.2. Annual total count of finfish, lobster and squid taken in the LISTS, 1984-2012.

Counts include all tows- number of tows conducted shown in second row. Refer to Appendix 2.4 for details on number of tows conducted per month. Note: nc = not counted. Anchovy spp., (yoy) and sand lance, (yoy) are estimated.

Common name (number of tows)	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
	200	246	316	320	320	320	297	200	160	240	240	200	200	200	200	200	200	200	200	200	199	200	120	200	120	200	78	172	200	<b>6,148</b>
anchovy, bay	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	548	2,303	443	992	2,434	1,523	814	1,492	2,440	1,128	11,128	475	4,693	1,296	<b>31,709</b>
anchovy, striped	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	11	0	0	216	0	47	0	2	0	0	0	6	1	5	0	1	3	<b>292</b>
anchovy, spp (yoy-est)	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	2,667	15,700	935	1,515	3,410	13,110	3,254	2,179	1,267	8,537	1,135	0	2,382	93	<b>56,183</b>
bigeye	0	0	0	1	2	2	1	0	0	0	1	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	<b>10</b>
bigeye, short	1	2	0	0	1	2	0	0	0	1	1	0	3	2	0	0	0	1	5	0	0	0	0	0	0	0	0	0	0	<b>19</b>
black sea bass	34	53	44	24	22	21	39	39	5	20	34	12	27	22	18	50	69	134	394	64	124	42	19	116	122	121	37	91	410	<b>2,208</b>
blenny, feather	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	<b>4</b>
blue runner	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	0	34	0	24	27	<b>90</b>
bluefish	9,927	8,946	5,712	3,517	3,857	12,568	8,195	5,845	5,269	6,469	16,245	5,524	6,705	10,815	8,814	7,843	6,135	3,986	3,450	3,766	6,504	6,532	2,100	9,378	1,699	3,657	2	2,765	3,851	<b>180,075</b>
bonito, Atlantic	0	2	0	1	1	1	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	<b>9</b>
burrfish, striped	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	0	0	1	0	<b>2</b>
butterfish	37,137	67,944	44,624	42,519	60,746	94,928	80,778	40,537	95,961	67,087	54,378	64,930	49,360	70,985	136,926	191,100	60,490	45,264	66,550	36,133	94,735	92,996	50,022	49,137	48,766	108,087	2,894	42,141	60,539	<b>1,957,694</b>
cod, Atlantic	0	0	0	0	0	0	1	0	0	0	0	2	0	1	0	0	1	0	0	58	33	10	0	0	0	15	21	109	0	<b>251</b>
Gadus spp. (yoy/larvae)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36	0	0	0	34	8	17	0	<b>95</b>
cornetfish, red	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<b>2</b>
croaker, Atlantic	0	0	0	0	0	0	0	0	0	41	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	<b>46</b>
cunner	359	98	97	129	72	268	196	75	30	65	25	41	17	43	65	51	50	51	55	42	21	24	8	16	26	18	11	14	20	<b>1,985</b>
cusk-eel, fawn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	<b>4</b>
cusk-eel, striped	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	2	0	<b>5</b>
dogfish, smooth	846	919	850	526	564	374	284	193	304	420	361	168	275	167	310	305	467	598	1,019	570	503	467	332	580	328	588	10	613	610	<b>13,551</b>
dogfish, spiny	89	252	173	76	434	99	417	14	6	14	58	0	1	7	18	10	4	48	17	85	38	41	11	32	35	148	3	58	16	<b>2,205</b>
eel, American	2	0	1	0	0	2	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	<b>9</b>
eel, american (yoy/larvae)	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	0	0	0	1	0	0	0	0	<b>1</b>
eel, conger	0	0	0	0	0	0	0	0	1	3	0	2	1	0	0	2	0	2	0	3	0	0	0	0	0	0	0	3	1	<b>18</b>
eel, conger (yoy/larvae)	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	1	0	0	0	0	0	0	0	<b>2</b>
filefish, orange	0	1	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<b>4</b>
filefish, planehead	4	20	1	0	25	13	23	1	0	10	1	0	3	0	0	3	0	1	0	1	0	0	1	0	1	1	0	0	0	<b>109</b>
flounder, American plaice	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	0	<b>3</b>
flounder, fourspot	2,691	2,759	2,126	2,112	4,653	2,924	4,698	3,553	2,774	1,447	1,674	2,584	2,815	4,122	1,908	1,393	2,590	2,167	1,859	1,877	1,406	688	466	1,094	902	1,036	402	1,400	2,597	<b>62,716</b>
flounder, smallmouth	2	0	2	15	39	13	4	20	12	30	17	19	41	58	97	96	61	98	139	49	50	44	7	48	89	96	31	67	258	<b>1,500</b>
flounder, summer	208	249	716	531	414	47	242	263	186	293	282	121	434	486	436	582	555	875	1,356	1,181	644	506	203	733	477	881	517	1,051	980	<b>15,447</b>
flounder, windowpane	26,200	18,936	22,514	15,588	26,919	31,082	14,738	8,482	2,980	8,526	6,678	3,815	14,116	10,324	6,483	4,643	2,488	3,065	1,991	2,177	2,275	1,982	1,077	4,051	3,511	2,496	2,850	2,831	3,536	<b>256,352</b>
flounder, winter	13,921	13,851	19,033	22,696	36,706	45,563	59,981	26,623	9,548	16,843	21,481	15,558	22,722	14,701	15,697	10,288	8,867	9,826	6,884	4,676	4,021	4,692	1,699	4,550	4,973	4,068	2,579	3,092	3,365	<b>428,502</b>
flounder, yellowtail	0	0	0	0	7	0	1	0	0	0	0	1	0	1	0	0	1	1	0	0	0	0	1	1	2	1	0	1	0	<b>18</b>
glasseye snapper	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	1	4	8	1	6	0	0	0	<b>23</b>
goatfish, dwarf	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<b>1</b>
goatfish, red	1	0	0	0	0	0	2	1	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	<b>7</b>
goby, naked	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	<b>1</b>
goosefish	1	8	1	1	1	15	3	8	10	4	8	4	1	2	3	2	1	1	3	0	1	2	1	0	0	0	0	0	2	<b>83</b>
grubby	0	1	1	1	5	9	6	0	0	0	5	1	2	11	5	2	0	0	1	2	0	2	0	1	0	0	0	4	0	<b>59</b>

**Appendix 2.2 cont.**

<b>Common name</b>	<b>1984</b>	<b>1985</b>	<b>1986</b>	<b>1987</b>	<b>1988</b>	<b>1989</b>	<b>1990</b>	<b>1991</b>	<b>1992</b>	<b>1993</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>Total</b>
<b>(number of tows)</b>	200	246	316	320	320	320	297	200	160	240	240	200	200	200	200	200	200	200	200	200	199	200	120	200	120	200	78	172	200	<b>6,148</b>
gunnel, rock	0	6	0	6	5	10	9	0	0	0	1	0	3	0	0	0	3	1	1	6	2	9	2	1	2	2	29	4	1	<b>104</b>
haddock	0	0	0	0	0	0	0	0	0	0	0	2	0	1	7	1	0	0	0	26	7	2	0	0	0	0	0	0	0	<b>46</b>
hake, red	3,696	1,161	3,061	2,258	3,808	7,365	3,300	2,085	1,606	4,183	546	1,977	872	748	3,015	2,973	2,393	1,382	2,103	873	829	585	625	2,788	1,723	897	990	278	1,720	<b>59,838</b>
hake, silver	1,525	724	1,464	1,848	3,427	3,551	4,243	1,537	544	508	2,136	1,941	489	1,973	1,870	5,126	679	3,945	2,013	496	1,417	165	1,267	290	6,587	947	1,747	948	7,519	<b>60,925</b>
hake, spotted	78	69	96	55	255	12	42	73	68	497	184	72	384	77	142	381	1,425	606	798	656	230	234	321	340	1,267	327	665	725	626	<b>10,703</b>
herring, alewife	284	37	242	819	415	473	287	103	122	934	1,431	386	1,402	1,194	456	1,393	1,572	638	855	746	859	742	573	1,537	931	1,175	172	512	708	<b>20,998</b>
herring, Atlantic	112	510	2,536	2,549	2,721	2,560	25,029	4,003	4,565	6,271	3,850	9,135	972	3,455	893	2,511	770	497	365	459	851	1,168	66	1,932	356	6,330	1,318	1,482	571	<b>87,835</b>
herring, blueback	1,722	117	267	104	247	367	124	38	175	106	1,199	255	97	630	211	19	143	279	68	110	218	111	63	156	74	291	101	72	46	<b>7,410</b>
herring, round	22	15	0	1	0	0	0	0	2	6	2	0	0	0	31	0	0	5	0	0	0	0	0	0	0	0	0	0	0	<b>86</b>
hogchoker	293	282	140	87	113	118	259	104	61	73	37	17	45	15	12	39	40	85	100	92	83	61	22	78	38	39	34	147	340	<b>2,853</b>
jack, crevalle	0	1	0	1	4	0	0	0	0	6	8	1	0	3	0	8	0	0	1	2	2	2	0	2	0	1	0	4	2	<b>48</b>
jack, yellow	0	0	0	0	0	41	8	11	2	2	6	32	6	2	6	20	3	3	13	1	1	28	0	0	0	1	0	0	0	<b>186</b>
kingfish, northern	0	0	0	0	0	1	1	4	2	10	7	25	6	7	15	6	2	2	1	1	5	4	0	4	3	7	0	34	59	<b>206</b>
lamprey, sea	0	0	0	1	1	0	1	1	0	2	0	0	1	1	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	<b>11</b>
lizardfish, inshore	0	0	0	0	0	2	0	0	0	0	1	0	0	2	1	7	1	21	1	0	0	1	4	2	10	2	0	43	0	<b>98</b>
lobster, American	5,995	3,549	4,924	6,923	6,032	7,645	9,696	8,524	8,160	12,583	9,123	9,944	9,490	16,467	16,211	13,922	10,481	5,626	3,880	2,923	1,843	1,389	748	1,648	1,096	853	293	230	349	<b>180,546</b>
lookdown	0	0	0	0	0	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	<b>6</b>
lumpfish	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<b>2</b>
mackerel, Atlantic	68	17	20	29	45	376	46	2	4	17	11	1	5	8	13	21	2	0	5	8	0	37	0	9	0	5	0	0	0	<b>749</b>
mackerel, Spanish	0	0	0	0	0	11	0	2	1	233	106	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	<b>355</b>
menhaden, Atlantic	161	304	718	600	335	623	407	348	1,115	298	411	318	88	116	306	1,187	492	86	366	799	746	235	28	426	47	69	7	181	426	<b>11,242</b>
moonfish	7	226	23	7	142	60	10	24	62	6	149	33	921	287	1,188	645	1,817	225	424	133	182	356	361	979	689	2,575	0	640	262	<b>12,433</b>
mullet, white	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	<b>2</b>
ocean pout	26	3	14	14	30	58	39	42	18	66	42	30	26	15	13	17	18	6	13	14	18	3	5	12	9	22	6	27	14	<b>619</b>
perch, silver	0	0	0	0	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	<b>1</b>
perch, white	0	0	0	0	0	2	0	0	0	4	1	0	1	4	0	1	1	0	0	8	2	0	0	0	4	1	0	1	1	<b>31</b>
pinfish	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	<b>2</b>
pipefish, northern	1	0	1	0	3	0	0	0	5	21	2	2	0	1	0	2	4	4	2	6	2	4	3	2	0	2	4	4	1	<b>76</b>
pollock	5	0	3	8	6	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	18	2	5	0	<b>55</b>
pompano, African	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	<b>2</b>
puffer, northern	1	2	6	0	3	2	2	5	1	28	4	1	3	1	28	14	4	8	6	3	5	5	0	8	0	5	0	9	47	<b>201</b>
rockling, fourbeard	376	89	184	312	563	686	393	163	150	242	93	169	109	199	133	233	185	251	106	113	173	106	14	87	81	47	35	43	43	<b>5,378</b>
rudderfish, banded	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<b>1</b>
salmon, Atlantic	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<b>1</b>
sand lance, American	nc	nc	nc	nc	nc	nc	nc	nc	nc	3	25	95	0	2	4	178	4	4	3	19	70	6	0	30	7,495	1,227	13,061	9,535	2	<b>31,763</b>
sand lance, (yoy-est)	nc	nc	nc	nc	nc	nc	nc	nc	nc	0	1,000	5	0	0	100	1,075	0	430	0	0	0	0	5,444	2	3,750	7,932	0	15,600	0	<b>35,338</b>
scad, bigeye	0	0	0	0	15	63	1	1	0	0	3	0	2	1	1	21	0	0	0	0	0	0	0	0	0	0	0	0	0	<b>108</b>
scad, mackerel	0	0	0	0	0	0	1	2	6	0	4	1	3	0	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	<b>20</b>
scad, rough	34	32	19	89	180	81	41	1	0	100	13	0	35	65	0	0	0	10	10	12	14	62	14	13	0	59	0	150	19	<b>1,054</b>
scad, round	0	0	0	0	0	0	0	0	0	0	0	0	2	4	1	2	0	0	4	11	12	0	3	0	1	0	1	0	<b>41</b>	
sculpin, longhorn	14	82	51	32	107	107	263	139	31	11	7	5	7	4	2	2	14	5	3	5	5	0	0	3	2	2	1	9	1	<b>914</b>
scup	8,806	18,054	16,449	9,761	12,566	37,642	21,193	45,790	13,646	32,218	38,456	13,985	16,087	9,582	23,742	101,095	101,464	58,325	100,481	26,926	61,521	52,642	28,829	75,681	53,560	46,991	7,157	34,457	53,119	<b>1,120,225</b>
sea raven	57	59	70	88	52	34	44	19	4	1	1	2	2	3	30	9	19	7	11	3	7	3	0	5	0	5	6	3	5	<b>549</b>

**Appendix 2.2 cont.**

<b>Common name</b> (number of tows)	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
seahorse, lined	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
searobin, northern	585	2,267	546	280	605	381	357	609	313	951	878	1,317	672	579	360	547	2,014	1,594	2,123	1,632	784	265	630	691	809	2,012	1,128	803	3,642	29,376
searobin, striped	1,434	2,295	2,035	1,482	2,086	2,211	2,353	865	857	1,491	1,298	682	1,008	819	1,321	1,690	3,129	2,061	2,394	2,235	1,308	757	366	755	612	1,507	141	1,630	2,973	43,795
seasnail	0	0	0	0	1	0	8	0	0	0	0	0	0	0	0	0	4	0	0	4	2	0	0	0	0	0	0	0	0	19
sennet, northern	1	0	0	0	0	1	0	0	0	2	0	0	0	0	0	6	0	1	2	0	0	8	0	2	0	5	0	1	3	32
shad, American	1,852	425	642	1,036	3,208	4,007	550	361	380	1,142	1,723	755	501	922	901	987	316	109	593	689	356	177	68	236	405	422	165	271	321	23,519
shad, gizzard	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	2	0	1	0	0	0	0	1	9
shad, hickory	71	4	7	6	4	40	2	1	12	10	31	6	29	25	40	56	42	14	45	41	39	136	75	37	5	13	2	8	42	843
shark, sandbar	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
sharksucker	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
silverside, Atlantic	0	0	0	0	0	0	0	0	1	54	3	39	0	2	0	1	2	1	0	1	0	0	0	1	2	3	1	0	0	111
skate, barndoor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
skate, clearnose	0	0	3	2	1	1	3	2	8	8	1	4	1	4	20	22	18	65	59	68	22	102	36	97	37	69	1	56	280	989
skate, little	2,751	4,614	4,303	3,847	9,471	9,349	11,902	6,479	3,495	6,051	6,714	2,372	6,203	4,068	4,305	3,686	3,340	4,311	4,242	4,071	3,044	1,317	593	1,277	682	709	281	674	1,406	115,555
skate, winter	1	20	34	17	114	120	85	50	31	62	51	41	88	48	62	41	31	38	45	82	53	31	23	44	51	44	16	37	97	1,456
smelt, rainbow	0	0	0	0	5	4	2	2	0	9	9	4	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	37
spot	0	34	38	10	29	0	8	2	0	124	53	3	195	10	0	45	204	13	52	1	8	0	14	0	308	1	0	5	858	2,013
squid, long-finned	0	0	11,018	15,135	33,400	21,304	23,789	12,322	32,780	58,312	25,396	23,974	22,720	13,048	27,443	21,580	16,585	9,080	8,034	21,350	23,022	17,542	7,802	24,212	10,490	24,130	1,906	13,020	9,767	529,161
stargazer, northern	0	0	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	0	0	1
stingray, roughtail	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	1	0	1	0	0	0	1	0	0	1	1	8
striped bass	10	13	12	30	31	59	117	38	42	81	81	165	232	319	400	397	293	214	469	383	378	469	144	422	199	466	71	243	170	5,946
sturgeon, Atlantic	11	3	6	6	7	13	9	3	30	60	60	6	3	5	17	39	7	18	18	29	8	9	21	18	7	18	1	5	7	444
tautog	734	773	796	624	629	791	693	501	265	164	224	61	136	190	194	217	287	319	565	225	232	179	186	280	179	163	53	106	135	9,901
toadfish, oyster	3	4	9	0	0	3	4	1	0	2	0	1	0	0	3	2	6	2	8	9	1	0	1	5	3	3	0	1	0	71
tomcod, Atlantic	2	1	0	8	2	3	3	4	8	5	2	4	2	1	0	1	0	0	0	0	2	0	0	0	0	1	0	2	0	51
triggerfish, gray	0	1	0	0	0	0	0	0	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
weakfish	366	2,740	7,751	327	1,341	5,914	2,246	4,320	1,317	2,060	8,156	2,881	6,375	3,904	3,495	12,416	23,595	12,739	10,713	8,183	17,505	9,191	241	17,386	2,531	2,604	1	2,583	6,785	179,665
<b>Total</b>	<b>122,527</b>	<b>152,574</b>	<b>153,383</b>	<b>136,139</b>	<b>216,479</b>	<b>294,026</b>	<b>277,183</b>	<b>174,235</b>	<b>186,975</b>	<b>230,301</b>	<b>204,795</b>	<b>163,532</b>	<b>165,756</b>	<b>170,557</b>	<b>257,779</b>	<b>392,447</b>	<b>271,189</b>	<b>170,580</b>	<b>227,225</b>	<b>129,982</b>	<b>240,860</b>	<b>200,290</b>	<b>108,214</b>	<b>204,971</b>	<b>164,647</b>	<b>235,560</b>	<b>39,235</b>	<b>145,949</b>	<b>169,976</b>	<b>5,607,364</b>

**Appendix 2.3. Annual total weight (kg) of finfish, lobster and squid taken in LISTS, 1992-2010.**

*Weights include all tows – number of tows shown in second row. Refer to Appendix 2.4 for details on number of tows conducted per month. Note: nw = not weighed.*

Common name	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
(number of tows)	160	240	240	200	200	200	200	200	200	200	200	200	199	200	120	200	160	200	78	172	200	3,969
anchovy, bay	nw	nw	nw	nw	nw	nw	nw	5.6	12.2	3.6	6.6	13.3	10.3	5.8	8.3	14.5	7.7	35.3	2.8	10.5	8.6	<b>145.1</b>
anchovy, striped	nw	nw	nw	nw	0.2	0.0	0.0	6.1	0.0	1.2	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.4	0.0	0.1	0.2	<b>8.5</b>
Anchovy, spp (yoy-est)	nw	nw	nw	nw	nw	nw	nw	0.5	4.5	0.8	1.5	2.0	3.0	1.5	0.6	0.8	5.1	0.7	0.0	1.0	0.4	<b>22.4</b>
bigeye	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<b>0.4</b>
bigeye, short	0.0	0.1	0.1	0.0	0.3	0.2	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<b>1.0</b>
black sea bass	1.8	6.4	11.0	4.7	12.1	10.5	10.6	17.2	22.6	74.8	188.3	49.6	40.5	26.4	9.3	46.8	29.8	59.5	20.1	54.2	141.0	<b>837.2</b>
blenny, feather	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	<b>0.2</b>
blue runner	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.0	2.3	0.0	1.7	2.7	<b>7.1</b>
bluefish	2,462.9	2,226.1	2,341.7	1,156.1	1,118.2	977.6	899.0	1,218.0	1,408.0	751.2	1,099.7	791.6	2,140.6	1,333.8	358.6	1,801.3	641.4	1,157.4	6.1	584.7	532.7	<b>25,006.7</b>
bonito, Atlantic	0.0	6.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	0.0	0.0	0.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0	<b>12.0</b>
burrfish, striped	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.5	0.0	<b>1.0</b>
butterfish	1,357.3	1,450.1	1,202.2	1,664.5	1,844.7	2,017.2	3,661.1	4,171.6	1,458.3	1,834.0	1,924.2	682.8	1,842.7	2,097.3	1,631.4	1,446.2	1,442.0	3,186.9	166.9	1,600.8	1,891.3	<b>38,573.5</b>
cod, Atlantic	0.0	0.0	0.0	0.1	0.0	0.3	0.0	0.0	0.1	0.0	0.0	2.8	4.7	0.9	0.0	0.0	0.0	1.0	2.1	9.2	0.0	<b>21.2</b>
Gadus spp. (yoy/larvae)	nw	nw	nw	nw	nw	nw	nw	nw	nw	nw	nw	nw	nw	1.5	0	0	0	1.8	0.3	0.4	0	<b>4.0</b>
cornetfish, red	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<b>0.1</b>
croaker, Atlantic	0.0	2.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.0	<b>3.1</b>
cunner	3.7	6.2	2.1	4.4	2.6	4.1	8.1	5.9	5.3	5.9	7.2	6.7	3.7	4.1	1.3	3.0	3.6	1.8	1.3	1.9	2.8	<b>85.7</b>
cusk-eel, fawn	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<b>0.2</b>
cusk-eel, striped	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.0	<b>0.4</b>
dogfish, smooth	863.2	1,339.1	934.6	566.8	862.8	527.3	989.8	923.0	1,038.5	1,407.6	2,814.3	1,527.4	1,435.3	1,421.7	1,176.6	2,110.2	1,134.2	2,213.3	34.4	2,031.7	1,833.3	<b>27,185.1</b>
dogfish, spiny	30.7	58.4	199.6	0.0	2.1	13.7	44.5	51.1	9.9	128.6	48.0	239.5	104.7	102.0	47.0	122.3	127.7	545.7	16.2	203.5	62.8	<b>2,158.0</b>
eel, American	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	<b>3.1</b>
eel, American (yoy)	nw	nw	nw	nw	nw	nw	nw	nw	nw	nw	nw	nw	nw	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	<b>0.1</b>
eel, conger	0.1	0.2	0.0	1.2	0.1	0.0	0.0	0.5	0.0	0.3	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.3	<b>4.9</b>
eel, conger (yoy)	nw	nw	nw	nw	nw	nw	nw	nw	nw	nw	nw	nw	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	<b>0.2</b>
filefish, orange	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<b>0.2</b>
filefish, planehead	0.0	0.8	0.1	0.0	0.3	0.0	0.0	0.3	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	<b>2.0</b>
flounder, American plaice	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	<b>0.3</b>
flounder, fourspot	382.4	193.6	202.4	402.9	407.2	615.3	306.0	203.9	398.6	362.7	326.9	350.1	309.3	125.9	88.1	224.9	186.3	169.8	92.0	224.2	454.5	<b>6,027.0</b>
flounder, smallmouth	0.6	2.6	1.5	1.2	2.3	2.4	6.4	5.2	2.7	3.8	4.9	3.0	2.8	2.4	0.6	2.6	3.2	4.7	1.4	3.5	7.5	<b>65.3</b>
flounder, summer	142.1	193.1	173.0	79.6	266.4	326.0	431.3	459.8	471.3	628.1	989.3	845.7	627.2	406.1	180.5	590.9	398.0	694.4	229.6	713.0	718.5	<b>9,563.9</b>
flounder, windowpane	286.1	578.9	597.2	356.2	1,223.6	986.1	741.1	594.2	368.8	475.5	343.3	378.8	333.7	177.5	128.9	510.8	524.0	342.8	449.3	395.9	501.1	<b>10,293.8</b>
flounder, winter	1,344.8	1,898.0	2,060.9	1,614.7	3,335.0	2,439.4	2,450.3	2,011.7	1,921.4	1,993.6	1,584.1	1,421.9	839.9	566.1	271.2	951.3	751.9	524.0	450.5	613.8	604.9	<b>29,649.4</b>
flounder, yellowtail	0.0	0.0	0.0	0.1	0.0	0.3	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.4	1.0	0.4	0.2	0.0	0.3	0.0	<b>3.0</b>
glasseye snapper	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.7	0.1	0.6	0.0	0.0	0.0	<b>1.7</b>
goatfish, red	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<b>0.3</b>
goby, naked	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<b>0.1</b>
goosefish	2.5	0.5	2.0	3.3	0.1	1.6	3.2	0.3	0.2	0.4	0.6	0.0	0.1	0.7	1.2	0.0	0.0	0.0	0.0	0.0	0.8	<b>17.5</b>
grubby	0.0	0.0	0.3	0.1	0.2	0.7	0.3	0.2	0.0	0.0	0.1	0.1	0.0	0.2	0.0	0.1	0.0	0.0	0.0	0.1	0.0	<b>2.4</b>
gunnel, rock	0.0	0.0	0.1	0.0	0.2	0.0	0.0	0.0	0.2	0.1	0.1	0.4	0.2	0.6	0.1	0.1	0.2	0.2	0.5	0.2	0.1	<b>3.3</b>



## Appendix 2.3 cont.

Common name	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total	
(number of tows)	160	240	240	200	200	200	200	200	200	200	200	200	199	200	120	200	160	200	78	172	200	3,969	
haddock	0.0	0.0	0.0	0.2	0.0	0.1	0.5	0.1	0.0	0.0	0.0	1.3	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0
hake, red	127.7	254.4	63.9	145.6	95.5	80.5	217.5	226.5	162.6	109.7	206.6	73.4	51.6	56.0	37.4	200.4	141.3	59.5	64.3	25.1	148.6	2,548.1	
hake, silver	22.0	21.9	127.6	61.6	20.0	70.8	88.3	99.6	28.8	152.2	89.6	13.9	27.3	7.1	37.7	14.6	208.5	50.0	35.4	40.3	171.0	1,388.2	
hake, spotted	10.3	55.9	32.4	6.5	42.6	19.0	12.2	38.8	92.3	34.9	48.2	70.4	37.8	17.4	24.3	23.9	65.8	32.1	15.8	76.8	64.2	821.6	
herring, Atlantic	797.5	1,120.0	769.3	1,631.7	189.8	515.1	74.6	45.4	124.1	72.6	63.9	89.1	58.3	131.1	10.3	234.2	52.1	239.2	179.0	199.4	61.5	6,658.2	
herring, Atlantic (yoy-est)	nw	nw	nw	nw	nw	nw	nw	nw	nw	1.5	1.9	2.8	2.4	1.2	0.2	4.2	0.4	1.9	0.3	0.5	1.2	18.5	
herring, alewife	9.2	54.5	83.2	24.6	134.6	81.3	35.1	107.6	96.0	41.7	70.2	55.3	56.1	47.6	49.5	101.3	51.1	96.0	14.3	29.8	47.0	1,286.0	
herring, blueback	8.5	4.7	31.2	7.5	6.2	16.5	5.1	1.1	6.8	11.1	2.4	4.0	6.5	5.4	2.5	9.1	3.2	14.6	3.4	3.2	1.6	154.6	
herring, round	0.2	0.3	0.2	0.0	0.0	0.0	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.5	
hogchoker	5.6	7.3	3.9	1.7	5.4	1.8	1.9	5.0	5.9	10.5	13.3	8.6	9.5	8.7	3.2	11.4	5.6	4.5	4.4	16.8	30.7	165.7	
jack, crevalle	0.0	0.5	0.5	0.1	0.0	0.6	0.0	0.7	0.0	0.0	0.1	0.2	0.2	0.2	0.0	0.1	0.0	0.1	0.0	0.4	0.2	3.9	
jack, yellow	0.2	0.2	0.4	2.1	0.5	0.2	0.7	1.9	0.2	0.3	1.4	0.1	0.1	3.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	11.4	
kingfish, northern	0.2	1.0	0.5	2.5	0.6	0.9	1.3	0.6	0.3	0.2	0.2	0.6	0.5	0.6	0.0	0.4	0.4	0.4	0.0	3.7	8.4	23.3	
lamprey, sea	0.0	1.0	0.0	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.1	0.8	0.0	0.0	0.0	0.0	4.0	
lizardfish, inshore	0.0	0.0	0.1	0.0	0.0	0.2	0.1	0.5	0.1	2.2	0.1	0.0	0.0	0.1	0.4	0.2	0.5	0.2	0.0	4.6	0.0	9.3	
lobster, American	1,537.9	2,700.3	1,956.1	2,141.9	2,113.5	3,800.9	3,873.9	3,397.9	2,184.5	1,531.2	1,005.7	690.9	481.5	364.3	197.9	396.5	314.1	244.0	83.6	52.0	70.0	29,138.6	
lookdown	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	
lumpfish	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	
mackerel, Atlantic	1.0	1.3	0.9	0.1	0.5	1.7	1.1	3.1	0.8	0.0	2.5	1.9	0.0	5.7	0.0	0.8	0.0	0.4	0.0	0.0	0.0	21.8	
mackerel, Spanish	1.5	5.3	6.4	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.5	
menhaden, Atlantic	60.6	103.9	87.8	41.9	40.5	38.5	9.2	90.9	31.8	4.7	96.3	344.9	110.7	77.9	5.5	63.9	10.4	18.0	2.7	69.8	144.6	1,454.5	
moonfish	1.5	0.6	4.1	2.1	11.6	4.6	13.4	9.6	15.0	3.8	7.4	2.3	3.4	6.0	3.5	12.0	13.4	19.5	0.0	6.3	3.6	143.7	
mullet, white	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	
ocean pout	7.7	16.4	9.1	6.5	7.2	4.8	2.7	3.9	4.9	2.3	4.3	2.9	5.4	0.7	0.9	3.2	2.1	4.8	1.4	4.5	2.0	97.7	
perch, silver	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	
perch, white	0.0	0.3	0.3	0.0	0.1	0.9	0.0	0.4	0.2	0.0	0.0	1.4	0.5	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.2	4.6	
pinfish	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	
pipefish, northern	0.4	0.6	0.2	0.1	0.0	0.1	0.0	0.1	0.2	0.3	0.2	0.4	0.2	0.3	0.2	0.2	0.0	0.2	0.3	0.3	0.1	4.4	
pollock	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.8	0.1	0.5	0.0	1.9	
pompano, African	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	
puffer, northern	0.1	0.9	0.4	0.1	0.3	0.1	0.5	1.1	0.4	0.7	0.3	0.3	0.4	0.3	0.0	0.5	0.0	0.4	0.0	0.9	3.1	10.8	
rockling, fourbeard	12.8	15.7	8.5	14.7	8.6	17.3	11.6	28.8	14.7	21.5	9.7	9.2	13.0	6.8	1.5	7.6	7.1	3.9	2.9	4.0	3.5	223.4	
salmon, Atlantic	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
sand lance, American	nw	0.3	0.6	0.4	0.0	0.1	0.3	0.3	0.3	0.3	0.1	0.2	0.2	0.2	0.0	0.3	7.2	2.0	5.2	7.5	0.2	25.7	
sand lance, (yoy - est)	nw	0.0	0.8	0.1	0.0	0.0	0.1	0.4	0.0	0.6	0.0	0.0	0.0	0.0	2.9	0.1	0.2	2.3	0.0	3.8	0.0	11.3	
scad, bigeye	0.0	0.0	0.3	0.0	0.1	0.1	0.1	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	
scad, mackerel	0.2	0.0	0.4	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	1.0	
scad, rough	0.0	4.4	0.2	0.0	1.5	2.0	0.0	0.0	0.0	0.7	0.7	0.5	0.7	1.9	0.5	0.7	0.0	2.8	0.0	6.8	1.1	24.5	
scad, round	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.1	0.2	0.0	0.0	0.3	0.3	0.3	0.0	0.3	0.0	0.1	0.0	0.1	0.0	2.2	
sculpin, longhorn	9.0	3.2	1.6	1.3	2.1	0.8	1.0	0.3	5.0	1.5	0.9	2.0	3.4	0.0	0.0	0.8	0.3	0.3	0.4	2.0	0.2	36.1	
scup	837.7	867.9	878.1	770.5	739.4	530.5	740.5	3,641.3	6,679.0	5,828.4	13,814.0	5,221.9	6,801.1	3,080.7	4,636.1	5,333.5	6,509.9	6,332.1	1,971.6	6,759.5	6,170.2	88,143.9	
sea raven	3.9	0.6	0.2	0.7	1.5	0.4	11.3	4.9	9.2	4.1	4.1	1.6	2.4	0.5	0.0	3.6	0.0	1.7	1.6	0.9	1.1	54.3	
seahorse, lined	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	

## Appendix 2.3 cont.

<b>Common name</b> (number of tows)	<b>1992</b>	<b>1993</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>Total</b>
searobin, northern	35.6	97.9	66.7	166.9	57.4	60.4	39.4	52.0	251.2	222.7	267.3	252.2	112.0	21.3	74.5	74.2	58.8	194.3	149.5	85.5	405.2	<b>2,745.0</b>
searobin, striped	305.1	260.0	208.6	277.5	278.7	230.5	509.7	497.0	1,036.1	861.0	1,065.0	805.1	465.4	183.7	113.5	217.0	263.0	471.8	66.4	558.7	1,086.4	<b>9,760.2</b>
seasnail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<b>0.7</b>
sennet, northern	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.1	0.2	0.0	0.0	0.7	0.0	0.2	0.0	0.4	0.0	0.1	0.3	<b>2.7</b>
shad, American	63.3	138.9	165.8	81.4	36.2	66.8	60.2	117.3	25.8	9.6	40.3	40.8	24.2	18.2	6.1	15.8	20.2	28.9	8.6	17.5	25.3	<b>1,011.2</b>
shad, gizzard	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.1	<b>0.9</b>
shad, hickory	4.9	4.4	7.6	2.5	10.2	9.1	15.9	19.4	17.1	6.7	19.6	20.1	14.2	43.1	19.1	10.4	1.1	3.6	0.4	1.5	14.1	<b>245.0</b>
sharksucker	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<b>0.3</b>
silverside, Atlantic	0.1	1.0	0.3	0.9	0.0	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.2	0.3	0.1	0.0	0.0	<b>3.5</b>
skate, barndoor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<b>0.4</b>
skate, clearnose	10.3	11.3	1.8	11.0	1.7	7.4	36.8	39.4	37.9	132.4	107.3	130.8	48.2	187.1	52.4	193.3	78.1	148.5	4.5	109.8	491.7	<b>1,841.7</b>
skate, little	1,389.0	2,534.8	3,091.5	1,055.3	2,801.8	1,945.8	2,085.5	1,829.6	1,604.7	2,022.6	2,121.9	2,187.3	1,689.8	682.5	310.6	697.0	327.4	390.0	148.3	359.4	657.9	<b>29,932.7</b>
skate, winter	105.3	220.9	139.2	89.2	212.7	109.7	180.7	89.8	66.5	112.2	133.5	162.1	100.3	59.9	60.0	117.8	140.8	108.5	37.7	101.2	179.8	<b>2,527.8</b>
smelt, rainbow	0.0	0.6	0.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<b>1.7</b>
spot	0.0	10.6	4.3	0.3	14.1	1.1	0.0	5.7	17.8	1.3	7.2	0.1	0.9	0.0	1.2	0.0	21.3	0.2	0.0	0.7	107.5	<b>194.3</b>
squid, long-finned	844.9	1,629.1	965.4	796.4	720.4	515.2	767.0	826.4	582.3	346.2	279.9	573.2	953.4	683.5	326.0	773.6	330.1	648.4	161.4	370.7	333.9	<b>13,427.4</b>
stargazer, northern	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	<b>0.1</b>
stingray, roughtail	0.0	0.0	0.0	0.0	0.0	50.6	3.4	0.0	0.0	2.5	24.4	0.0	4.1	0.0	0.0	0.0	3.0	0.0	0.0	13.0	5.0	<b>106.0</b>
striped bass	89.4	210.3	198.6	185.3	373.5	509.9	484.2	815.4	602.6	472.5	855.2	770.3	811.8	675.1	418.7	888.0	456.3	897.4	173.2	721.9	278.0	<b>10,887.6</b>
sturgeon, Atlantic	244.8	633.6	848.6	145.5	19.9	37.8	189.7	498.6	79.0	270.6	275.3	550.2	117.6	152.7	368.7	336.4	111.3	286.6	5.6	181.9	154.2	<b>5,508.6</b>
tautog	508.3	320.0	373.9	95.1	225.9	271.8	347.1	326.6	463.5	491.2	921.1	346.0	353.7	269.2	301.4	551.4	309.4	285.4	83.1	151.7	128.9	<b>7,124.7</b>
toadfish, oyster	0.0	1.2	0.0	0.5	0.0	0.0	0.9	1.8	2.5	0.4	4.7	5.0	0.8	0.0	1.2	2.0	1.9	0.8	0.0	0.2	0.0	<b>23.9</b>
tomcod, Atlantic	1.3	0.8	0.3	0.8	0.3	0.1	0.0	0.7	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.0	<b>4.8</b>
triggerfish, gray	0.0	0.9	0.0	0.0	0.0	0.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<b>3.2</b>
weakfish	94.8	121.2	344.5	275.7	414.9	362.0	268.2	771.3	554.5	415.0	442.0	194.8	426.9	449.9	52.2	584.8	116.1	108.7	1.0	192.6	409.2	<b>6,600.3</b>
<b>Total</b>	<b>14,031.0</b>	<b>19,406.4</b>	<b>18,216.5</b>	<b>13,905.2</b>	<b>17,669.1</b>	<b>17,291.1</b>	<b>19,646.7</b>	<b>23,279.9</b>	<b>21,927.8</b>	<b>20,878.1</b>	<b>31,350.9</b>	<b>18,959.6</b>	<b>20,496.9</b>	<b>13,526.3</b>	<b>11,027.8</b>	<b>18,715.6</b>	<b>14,889.7</b>	<b>19,649.0</b>	<b>4,700.1</b>	<b>16,639.2</b>	<b>17,975.9</b>	<b>374,182.8</b>

**Appendix 2.4. Total number and weight (kg) of finfish and invertebrates caught in LISTS in 1984.**

*Finfish species are in order of descending count. Number of tows (sample size)=102.*

<b>species</b>	<b>count</b>	<b>%</b>	<b>weight</b>	<b>%</b>	<b>species</b>	<b>count</b>	<b>%</b>	<b>weight</b>	<b>%</b>
butterfish	18,700	31.0	.	.	Atlantic mackerel	48	0.1	.	.
windowpane flounder	13,746	22.8	.	.	spotted hake	46	0.1	.	.
winter flounder	6,847	11.4	.	.	sea raven	32	0.1	.	.
bluefish	6,738	11.2	.	.	ocean pout	25	0	.	.
scup	3,225	5.4	.	.	rough scad	22	0	.	.
fourspot flounder	1,868	3.1	.	.	longhorn sculpin	12	0	.	.
little skate	1,491	2.5	.	.	black sea bass	11	0	.	.
red hake	1,323	2.2	.	.	moonfish	7	0	.	.
American shad	982	1.6	.	.	Atlantic sturgeon	6	0	.	.
blueback herring	925	1.5	.	.	round herring	5	0	.	.
striped searobin	697	1.2	.	.	spiny dogfish	4	0	.	.
silver hake	575	1.0	.	.	American eel	2	0	.	.
smooth dogfish	534	0.9	.	.	striped bass	2	0	.	.
tautog	472	0.8	.	.	oyster toadfish	2	0	.	.
northern searobin	448	0.7	.	.	goosefish	1	0	.	.
fourbeard rockling	303	0.5	.	.	northern sennet	1	0	.	.
weakfish	260	0.4	.	.	northern puffer	1	0	.	.
hogchoker	252	0.4	.	.	red goatfish	1	0	.	.
cunner	220	0.4	.	.	<b>Total</b>	<b>60,230</b>			
summer flounder	150	0.2	.	.					
alewife	108	0.2	.	.	<b>Invertebrates</b>				
hickory shad	71	0.1	.	.	American lobster	2865	100	.	.
Atlantic menhaden	67	0.1	.	.	<b>Total</b>	<b>2,865</b>			

**Appendix 2.4. cont. Total number and weight (kg) of finfish and invertebrates caught in LISTS in 1985.**  
*Finfish species are in order of descending count. Number of tows (sample size)=126.*

<b>species</b>	<b>count</b>	<b>%</b>	<b>weight</b>	<b>%</b>	<b>species</b>	<b>count</b>	<b>%</b>	<b>weight</b>	<b>%</b>
butterfish	34,512	41.4	.	.	spot	26	0	.	.
scup	12,155	14.6	.	.	round herring	15	0	.	.
windowpane flounder	11,194	13.4	.	.	rough scad	14	0	.	.
winter flounder	7,980	9.6	.	.	Atlantic mackerel	13	0	.	.
bluefish	5,302	6.4	.	.	spiny dogfish	13	0	.	.
weakfish	2,650	3.2	.	.	winter skate	13	0	.	.
northern searobin	2,098	2.5	.	.	alewife	9	0	.	.
little skate	1,705	2.0	.	.	planehead filefish	7	0	.	.
fourspot flounder	1,289	1.5	.	.	rock gunnel	4	0	.	.
striped searobin	1,078	1.3	.	.	oyster toadfish	4	0	.	.
red hake	573	0.7	.	.	goosefish	3	0	.	.
Atlantic herring	504	0.6	.	.	ocean pout	3	0	.	.
smooth dogfish	405	0.5	.	.	Atlantic bonito	2	0	.	.
tautog	323	0.4	.	.	crevalle jack	1	0	.	.
American shad	280	0.3	.	.	grubby	1	0	.	.
silver hake	250	0.3	.	.	gray triggerfish	1	0	.	.
summer flounder	175	0.2	.	.	hickory shad	1	0	.	.
hogchoker	163	0.2	.	.	orange filefish	1	0	.	.
moonfish	142	0.2	.	.	northern puffer	1	0	.	.
blueback herring	100	0.1	.	.	Atlantic sturgeon	1	0	.	.
longhorn sculpin	80	0.1	.	.	Atlantic tomcod	1	0	.	.
cunner	51	0.1	.	.	<b>Total</b>	<b>83,395</b>		-	
sea raven	50	0.1	.	.					
fourbeard rockling	44	0.1	.	.					
Atlantic menhaden	38	0	.	.	<b><u>Invertebrates</u></b>				
black sea bass	35	0	.	.	American lobster	1589	100	.	.
spotted hake	27	0	.	.	<b>Total</b>	<b>1,589</b>		-	

**Appendix 2.4. cont. Total number and weight (kg) of finfish and invertebrates caught in LISTS in 1986.**

*Finfish species are in order of descending count. Invertebrate species are in order of descending weight. Number of tows (sample size)=196.*

<b>species</b>	<b>count</b>	<b>%</b>	<b>weight</b>	<b>%</b>	<b>species</b>	<b>count</b>	<b>%</b>	<b>weight</b>	<b>%</b>
butterfish	25,192	28.0	.	.	winter skate	32	0	.	.
windowpane flounder	18,848	20.9	.	.	spotted hake	30	0	.	.
winter flounder	15,341	17.0	.	.	black sea bass	28	0	.	.
scup	7,910	8.8	.	.	spot	25	0	.	.
weakfish	5,427	6.0	.	.	Atlantic mackerel	19	0	.	.
little skate	3,210	3.6	.	.	moonfish	14	0	.	.
bluefish	2,789	3.1	.	.	ocean pout	14	0	.	.
red hake	2,657	3.0	.	.	oyster toadfish	9	0	.	.
Atlantic herring	1,999	2.2	.	.	hickory shad	6	0	.	.
fourspot flounder	1,487	1.7	.	.	rough scad	5	0	.	.
striped searobin	886	1.0	.	.	Atlantic sturgeon	4	0	.	.
silver hake	723	0.8	.	.	clearnose skate	2	0	.	.
tautog	566	0.6	.	.	American eel	1	0	.	.
smooth dogfish	430	0.5	.	.	goosefish	1	0	.	.
summer flounder	414	0.5	.	.	grubby	1	0	.	.
northern searobin	396	0.4	.	.	northern pipefish	1	0	.	.
American shad	344	0.4	.	.	northern puffer	1	0	.	.
Atlantic menhaden	318	0.4	.	.	smallmouth flounder	1	0	.	.
blueback herring	256	0.3	.	.	striped bass	1	0	.	.
alewife	216	0.2	.	.	<b>Total</b>	<b>90,031</b>		-	
fourbeard rockling	123	0.1	.	.					
cunner	76	0.1	.	.					
sea raven	70	0.1	.	.	<b><u>Invertebrates</u></b>				
hogchoker	60	0.1	.	.	American lobster	2,553	28.1	.	.
longhorn sculpin	51	0.1	.	.	long-finned squid	6,537	71.9	.	.
spiny dogfish	47	0.1	.	.	<b>Total</b>	<b>9,090</b>		-	

**Appendix 2.4. cont. Total number and weight (kg) of finfish and invertebrates caught in LISTS in 1987.**

*Finfish species are in order of descending count. Invertebrate species are in order of descending weight. Number of tows (sample size)=200.*

<b>species</b>	<b>count</b>	<b>%</b>	<b>weight</b>	<b>%</b>	<b>species</b>	<b>count</b>	<b>%</b>	<b>weight</b>	<b>%</b>
winter flounder	15,600	25.6	.	.	longhorn sculpin	32	0.1	.	.
butterfish	14,674	24.1	.	.	spotted hake	22	0	.	.
windowpane flounder	11,031	18.1	.	.	spiny dogfish	19	0	.	.
scup	5,029	8.3	.	.	ocean pout	14	0	.	.
bluefish	2,611	4.3	.	.	black sea bass	13	0	.	.
little skate	2,140	3.5	.	.	winter skate	13	0	.	.
red hake	1,729	2.8	.	.	striped bass	10	0	.	.
Atlantic herring	1,628	2.7	.	.	Atlantic tomcod	8	0	.	.
fourspot flounder	1,298	2.1	.	.	smallmouth flounder	7	0	.	.
silver hake	906	1.5	.	.	moonfish	6	0	.	.
alewife	754	1.2	.	.	rock gunnel	4	0	.	.
striped searobin	543	0.9	.	.	Atlantic sturgeon	4	0	.	.
summer flounder	374	0.6	.	.	spot	3	0	.	.
American shad	371	0.6	.	.	clearnose skate	2	0	.	.
tautog	363	0.6	.	.	hickory shad	2	0	.	.
Atlantic menhaden	329	0.5	.	.	Atlantic bonito	1	0	.	.
smooth dogfish	257	0.4	.	.	Atlantic mackerel	1	0	.	.
weakfish	248	0.4	.	.	round herring	1	0	.	.
fourbeard rockling	241	0.4	.	.	sea lamprey	1	0	.	.
northern searobin	220	0.4	.	.	<b>Total</b>	<b>60,862</b>		-	
sea raven	86	0.1	.	.					
blueback herring	79	0.1	.	.	<b>Invertebrates</b>				
cunner	79	0.1	.	.	American lobster	3,544	25.1	.	.
hogchoker	61	0.1	.	.	long-finned squid	10,552	74.9	.	.
rough scad	48	0.1	.	.	<b>Total</b>	<b>14,096</b>		-	

**Appendix 2.4. cont. Total number and weight (kg) of finfish and invertebrates caught in LISTS in 1988.**

*Finfish species are in order of descending count. Invertebrate species are in order of descending weight. Number of tows (sample size)=200.*

<b>species</b>	<b>count</b>	<b>%</b>	<b>weight</b>	<b>%</b>	<b>species</b>	<b>count</b>	<b>%</b>	<b>weight</b>	<b>%</b>
butterfish	45,983	36.7	.	.	ocean pout	30	0	.	.
winter flounder	25,695	20.5	.	.	Atlantic mackerel	24	0	.	.
windowpane flounder	19,497	15.6	.	.	spot	18	0	.	.
scup	10,184	8.1	.	.	black sea bass	17	0	.	.
little skate	6,539	5.2	.	.	striped bass	17	0	.	.
bluefish	3,688	2.9	.	.	yellowtail flounder	6	0	.	.
fourspot flounder	2,478	2.0	.	.	grubby	5	0	.	.
red hake	1,933	1.5	.	.	rock gunnel	5	0	.	.
weakfish	1,287	1.0	.	.	rainbow smelt	5	0	.	.
silver hake	1,210	1.0	.	.	crevalle jack	4	0	.	.
striped searobin	1,194	1.0	.	.	bigeye scad	2	0	.	.
Atlantic herring	1,193	1.0	.	.	bigeye	2	0	.	.
American shad	1,187	0.9	.	.	planehead filefish	2	0	.	.
northern searobin	474	0.4	.	.	hickory shad	2	0	.	.
tautog	455	0.4	.	.	northern puffer	2	0	.	.
smooth dogfish	385	0.3	.	.	Atlantic sturgeon	2	0	.	.
summer flounder	320	0.3	.	.	Atlantic tomcod	2	0	.	.
fourbeard rockling	302	0.2	.	.	Atlantic bonito	1	0	.	.
blueback herring	164	0.1	.	.	dwarf goatfish	1	0	.	.
alewife	153	0.1	.	.	goosefish	1	0	.	.
moonfish	137	0.1	.	.	northern pipefish	1	0	.	.
rough scad	128	0.1	.	.	short bigeye	1	0	.	.
longhorn sculpin	103	0.1	.	.	striped cusk-eel	1	0	.	.
winter skate	101	0.1	.	.	sea lamprey	1	0	.	.
spotted hake	87	0.1	.	.	<b>Total</b>	<b>125,344</b>			<b>-</b>
hogchoker	75	0.1	.	.					
Atlantic menhaden	69	0.1	.	.					
sea raven	50	0	.	.	<b>Invertebrates</b>				
cunner	48	0	.	.	American lobster	2,114	8.5	.	.
spiny dogfish	39	0	.	.	long-finned squid	22,769	91.5	.	.
smallmouth flounder	34	0	.	.	<b>Total</b>	<b>24,883</b>			<b>-</b>

**Appendix 2.4. cont. Total number and weight (kg) of finfish and invertebrates caught in LISTS in 1989.**

*Finfish species are in order of descending count. Invertebrate species are in order of descending weight. Number of tows (sample size)=200.*

<b>species</b>	<b>count</b>	<b>%</b>	<b>weight</b>	<b>%</b>	<b>species</b>	<b>count</b>	<b>%</b>	<b>weight</b>	<b>%</b>
butterfish	47,089	29.3	.	.	sea raven	34	0	.	.
winter flounder	32,361	20.2	.	.	black sea bass	15	0	.	.
windowpane flounder	25,109	15.6	.	.	rough scad	11	0	.	.
scup	17,391	10.8	.	.	striped bass	11	0	.	.
bluefish	8,649	5.4	.	.	yellow jack	11	0	.	.
little skate	7,079	4.4	.	.	goosefish	9	0	.	.
red hake	5,689	3.5	.	.	smallmouth flounder	9	0	.	.
weakfish	5,496	3.4	.	.	rock gunnel	8	0	.	.
American shad	1,977	1.2	.	.	grubby	7	0	.	.
fourspot flounder	1,877	1.2	.	.	spotted hake	7	0	.	.
striped searobin	1,763	1.1	.	.	rainbow smelt	4	0	.	.
silver hake	1,697	1.1	.	.	planehead filefish	3	0	.	.
Atlantic herring	1,154	0.7	.	.	Atlantic sturgeon	3	0	.	.
tautog	600	0.4	.	.	Atlantic tomcod	3	0	.	.
fourbeard rockling	397	0.2	.	.	bigeye	2	0	.	.
blueback herring	307	0.2	.	.	American eel	2	0	.	.
northern searobin	297	0.2	.	.	short bigeye	2	0	.	.
Atlantic mackerel	237	0.1	.	.	oyster toadfish	2	0	.	.
Atlantic menhaden	230	0.1	.	.	white perch	2	0	.	.
smooth dogfish	202	0.1	.	.	northern sennet	1	0	.	.
alewife	190	0.1	.	.	northern puffer	1	0	.	.
longhorn sculpin	107	0.1	.	.	banded rudderfish	1	0	.	.
cunner	106	0.1	.	.	Spanish mackerel	1	0	.	.
hogchoker	91	0.1	.	.	<b>Total</b>	<b>160,581</b>			-
winter skate	91	0.1	.	.					
spiny dogfish	66	0	.	.					
ocean pout	58	0	.	.	<b>Invertebrates</b>				
bigeye scad	45	0	.	.	American lobster	3,447	19.9	.	.
moonfish	42	0	.	.	long-finned squid	13,883	80.1	.	.
summer flounder	35	0	.	.	<b>Total</b>	<b>17,330</b>			-



**Appendix 2.4. cont. Total number and weight (kg) of finfish and invertebrates caught in LISTS in 1990.**

*Finfish species are in order of descending count. Invertebrate species are in order of descending weight. Number of tows (sample size)=200.*

<b>species</b>	<b>count</b>	<b>%</b>	<b>weight</b>	<b>%</b>	<b>species</b>	<b>count</b>	<b>%</b>	<b>weight</b>	<b>%</b>
winter flounder	47,184	31.1	.	.	seasnail	8	0	.	.
butterfish	45,373	29.9	.	.	planehead filefish	7	0	.	.
scup	15,393	10.2	.	.	moonfish	7	0	.	.
windowpane flounder	9,825	6.5	.	.	rock gunnel	7	0	.	.
Atlantic herring	8,779	5.8	.	.	yellow jack	7	0	.	.
little skate	6,456	4.3	.	.	grubby	4	0	.	.
bluefish	4,688	3.1	.	.	spot	4	0	.	.
fourspot flounder	3,270	2.2	.	.	Atlantic sturgeon	4	0	.	.
silver hake	2,334	1.5	.	.	oyster toadfish	4	0	.	.
red hake	2,237	1.5	.	.	goosefish	3	0	.	.
weakfish	1,921	1.3	.	.	smallmouth flounder	3	0	.	.
striped searobin	866	0.6	.	.	Atlantic tomcod	3	0	.	.
tautog	554	0.4	.	.	clearnose skate	2	0	.	.
American shad	406	0.3	.	.	lookdown	2	0	.	.
fourbeard rockling	299	0.2	.	.	red goatfish	2	0	.	.
longhorn sculpin	243	0.2	.	.	rainbow smelt	2	0	.	.
northern searobin	232	0.2	.	.	bigeye scad	1	0	.	.
Atlantic menhaden	219	0.1	.	.	bigeye	1	0	.	.
smooth dogfish	209	0.1	.	.	hickory shad	1	0	.	.
summer flounder	170	0.1	.	.	mackerel scad	1	0	.	.
cunner	168	0.1	.	.	northern kingfish	1	0	.	.
alewife	160	0.1	.	.	northern puffer	1	0	.	.
spiny dogfish	150	0.1	.	.	red cornetfish	1	0	.	.
hogchoker	84	0.1	.	.	sandbar shark	1	0	.	.
winter skate	61	0	.	.	sea lamprey	1	0	.	.
blueback herring	46	0	.	.	yellowtail flounder	1	0	.	.
striped bass	45	0	.	.	<b>Total</b>	<b>151,600</b>			<b>-</b>
sea raven	42	0	.	.					
ocean pout	39	0	.	.					
black sea bass	27	0	.	.	<b><u>Invertebrates</u></b>				
spotted hake	21	0	.	.	American lobster	5,369	27.0.	.	.
Atlantic mackerel	10	0	.	.	long-finned squid	14,538	73.0.	.	.
rough scad	10	0	.	.	<b>Total</b>	<b>19,907</b>			<b>-</b>

**Appendix 2.4. cont. Total number and weight (kg) of finfish and invertebrates caught in LISTS in 1991.**

*Finfish species are in order of descending count. Invertebrate species are in order of descending weight. Number of tows (sample size)=200.*

species	count	%	weight	%	species	count	%	weight	%
scup	45,790	29.9	.	.	moonfish	24	0	.	.
butterfish	40,537	26.4	.	.	smallmouth flounder	20	0	.	.
winter flounder	26,623	17.4	.	.	sea raven	19	0	.	.
windowpane flounder	8,482	5.5	.	.	spiny dogfish	14	0	.	.
little skate	6,479	4.2	.	.	yellow jack	11	0	.	.
bluefish	5,845	3.8	.	.	goosefish	8	0	.	.
weakfish	4,320	2.8	.	.	northern puffer	5	0	.	.
Atlantic herring	4,003	2.6	.	.	northern kingfish	4	0	.	.
fourspot flounder	3,553	2.3	.	.	Atlantic tomcod	4	0	.	.
red hake	2,085	1.4	.	.	Atlantic sturgeon	3	0	.	.
silver hake	1,537	1.0	.	.	clearnose skate	2	0	.	.
striped searobin	865	0.6	.	.	Atlantic mackerel	2	0	.	.
northern searobin	609	0.4	.	.	mackerel scad	2	0	.	.
tautog	501	0.3	.	.	rainbow smelt	2	0	.	.
American shad	361	0.2	.	.	Spanish mackerel	2	0	.	.
Atlantic menhaden	348	0.2	.	.	spot	2	0	.	.
summer flounder	263	0.2	.	.	bigeye scad	1	0	.	.
smooth dogfish	193	0.1	.	.	planehead filefish	1	0	.	.
fourbeard rockling	163	0.1	.	.	hickory shad	1	0	.	.
longhorn sculpin	139	0.1	.	.	red goatfish	1	0	.	.
hogchoker	104	0.1	.	.	rough scad	1	0	.	.
alewife	103	0.1	.	.	sea lamprey	1	0	.	.
cunner	75	0	.	.	oyster toadfish	1	0	.	.
spotted hake	73	0	.	.	<b>Total</b>	<b>153,389</b>			-
winter skate	50	0	.	.					
ocean pout	42	0	.	.	<b>Invertebrates</b>				
black sea bass	39	0	.	.	American lobster	8,524	40.9	.	.
blueback herring	38	0	.	.	long-finned squid	12,322	59.1	.	.
striped bass	38	0	.	.	<b>Total</b>	<b>20,846</b>			-

**Appendix 2.4. cont. Total number and weight (kg) of finfish and invertebrates caught in LISTS in 1992.**

*Finfish species are in order of descending count. Invertebrate species are in order of descending weight (nc = not counted). Number of tows (sample size)=160.*

species	count	%	weight	%	species	count	%	weight	%
butterfish	95,961	65.7	1,357.3	11.7	black sea bass	5	0	1.8	0
scup	13,646	9.3	837.7	7.2	northern pipefish	5	0	0.4	0
winter flounder	9,548	6.5	1,344.8	11.5	Atlantic mackerel	4	0	1.0	0
bluefish	5,269	3.6	2,462.9	21.1	sea raven	4	0	3.9	0
Atlantic herring	4,565	3.1	797.5	6.8	northern kingfish	2	0	0.2	0
little skate	3,495	2.4	1,389.0	11.9	round herring	2	0	0.2	0
windowpane flounder	2,980	2.0	286.1	2.5	yellow jack	2	0	0.2	0
fourspot flounder	2,774	1.9	382.4	3.3	Atlantic silverside	1	0	0.1	0
red hake	1,606	1.1	127.7	1.1	conger eel	1	0	0.1	0
weakfish	1,317	0.9	94.8	0.8	northern puffer	1	0	0.1	0
Atlantic menhaden	1,115	0.8	60.6	0.5	Spanish mackerel	1	0	1.5	0
striped searobin	857	0.6	305.1	2.6	<b>Total</b>	<b>146,035</b>		<b>11,648.2</b>	
silver hake	544	0.4	22.0	0.2					
American shad	380	0.3	63.3	0.5	<b>Invertebrates</b>				
northern searobin	313	0.2	35.6	0.3	American lobster	8,160	19.9	1,537.9	28.6
smooth dogfish	304	0.2	863.2	7.4	blue mussel	nc	nc	1,157.1	21.5
tautog	265	0.2	508.3	4.4	long-finned squid	32,780	80.1	844.9	15.7
summer flounder	186	0.1	142.1	1.2	horseshoe crab	nc	nc	514.1	9.6
blueback herring	175	0.1	8.5	0.1	lady crab	nc	nc	375.4	7.0
fourbeard rockling	150	0.1	12.8	0.1	rock crab	nc	nc	239.1	4.5
alewife	122	0.1	9.2	0.1	boring sponge	nc	nc	225.5	4.2
spotted hake	68	0	10.3	0.1	spider crab	nc	nc	186.0	3.5
moonfish	62	0	1.5	0	starfish spp.	nc	nc	148.6	2.8
hogchoker	61	0	5.6	0	whelks	nc	nc	57.5	1.1
striped bass	42	0	89.4	0.8	flat claw hermit crab	nc	nc	34.7	0.6
longhorn sculpin	31	0	9.0	0.1	bluecrab	nc	nc	18.1	0.3
winter skate	31	0	105.3	0.9	mantis shrimp	nc	nc	10.3	0.2
cunner	30	0	3.7	0	northern moon snail	nc	nc	8.6	0.2
Atlantic sturgeon	30	0	244.8	2.1	common oyster	nc	nc	7.3	0.1
ocean pout	18	0	7.7	0.1	lion's mane jellyfish	nc	nc	2.4	0
hickory shad	12	0	4.9	0	surf clam	nc	nc	1.7	0
smallmouth flounder	12	0	0.6	0	hard clams	nc	nc	1.2	0
goosefish	10	0	2.5	0	bushy bryozoan	nc	nc	1.0	0
clearnose skate	8	0	10.3	0.1	purple sea urchin	nc	nc	0.4	0
Atlantic tomcod	8	0	1.3	0	mud crabs	nc	nc	0.3	0
mackerel scad	6	0	0.2	0	star coral	nc	nc	0.1	0
spiny dogfish	6	0	30.7	0.3	<b>Total</b>	<b>40,940</b>		<b>5,372</b>	

**Appendix 2.4. cont. Total number and weight (kg) of finfish and invertebrates caught in LISTS in 1993.**

*Finfish species are in order of descending count. Invertebrate species are in order of descending weight (nc = not counted). Number of tows (sample size)=200.*

species	count	%	weight	%	species	count	%	weight	%
butterfish	35,361	33.0	847.8	7.1	goosefish	3	0	0.3	0
scup	18,785	17.6	581.4	4.8	American sand lance	3	0	0.3	0
winter flounder	16,090	15.0	1,855.7	15.4	Atlantic bonito	2	0	6.4	0.1
windowpane flounder	7,953	7.4	547.6	4.6	lumpfish	2	0	0.2	0
Atlantic herring	6,269	5.9	1,119.8	9.3	moonfish	2	0	0.2	0
little skate	5,186	4.8	2,172.3	18.1	sea lamprey	2	0	1.0	0
bluefish	4,402	4.1	1,343.2	11.2	Atlantic salmon	1	0	0.1	0
red hake	3,963	3.7	232.0	1.9	American eel	1	0	1.6	0
fourspot flounder	1,262	1.2	182.3	1.5	northern sennet	1	0	0.1	0
weakfish	1,142	1.1	60.3	0.5	orange filefish	1	0	0.1	0
striped searobin	1,079	1.0	165.4	1.4	round herring	1	0	0.1	0
northern searobin	935	0.9	96.8	0.8	red cornetfish	1	0	0.1	0
American shad	791	0.7	101.1	0.8	red goatfish	1	0	0.1	0
alewife	788	0.7	48.2	0.4	short bigeye	1	0	0.1	0
silver hake	500	0.5	21.1	0.2	sea raven	1	0	0.6	0
spotted hake	331	0.3	36.7	0.3	yellow jack	1	0	0.1	0
smooth dogfish	283	0.3	857.6	7.1	<b>Total</b>	<b>107,035</b>		<b>12,012.4</b>	
Atlantic menhaden	271	0.3	94.1	0.8					
fourbeard rockling	241	0.2	15.6	0.1					
summer flounder	224	0.2	137.9	1.1	<b>Invertebrates</b>				
tautog	157	0.1	308.2	2.6	American lobster	10,306	20.6	2,173.5	34.4
Spanish mackerel	136	0.1	2.2	0	long-finned squid	39,723	79.4	1,176.5	18.6
blueback herring	96	0.1	4.3	0	blue mussel	nc	nc	945.1	15.0
rough scad	92	0.1	3.8	0	horseshoe crab	nc	nc	673.8	10.7
striped bass	78	0.1	198.7	1.7	spider crab	nc	nc	511.2	8.1
ocean pout	66	0.1	16.4	0.1	lady crab	nc	nc	428.0	6.8
cunner	64	0.1	6.1	0.1	rock crab	nc	nc	155.9	2.5
Atlantic sturgeon	60	0.1	633.6	5.3	flat claw hermit crab	nc	nc	45.7	0.7
winter skate	59	0.1	213.2	1.8	starfish spp.	nc	nc	37.4	0.6
spot	57	0.1	4.5	0	boring sponge	nc	nc	36.6	0.6
hogchoker	56	0.1	5.2	0	whelks	nc	nc	34.0	0.5
Atlantic silverside	54	0.1	1.0	0	mantis shrimp	nc	nc	31.6	0.5
northern puffer	23	0	0.4	0	lion's mane jellyfish	nc	nc	27.6	0.4
smallmouth flounder	23	0	2.1	0	bluecrab	nc	nc	20.0	0.3
Atlantic croaker	20	0	1.1	0	northern moon snail	nc	nc	8.9	0.1
black sea bass	16	0	5.0	0	common oyster	nc	nc	2.0	0
spiny dogfish	14	0	58.4	0.5	surf clam	nc	nc	1.0	0
Atlantic mackerel	11	0	0.9	0	hard clams	nc	nc	0.9	0
longhorn sculpin	11	0	3.2	0	purple sea urchin	nc	nc	0.7	0
planehead filefish	9	0	0.7	0	arks	nc	nc	0.7	0
hickory shad	9	0	4.1	0	mud crabs	nc	nc	0.4	0
northern pipefish	9	0	0.4	0	star coral	nc	nc	0.3	0
rainbow smelt	9	0	0.6	0	blood star	nc	nc	0.2	0
crevalle jack	5	0	0.4	0	common slipper shell	nc	nc	0.2	0
northern kingfish	5	0	0.6	0	sand shrimp	nc	nc	0.1	0
Atlantic tomcod	5	0	0.8	0	sand dollar	nc	nc	0.1	0
clearnose skate	4	0	7.7	0.1	northern red shrimp	nc	nc	0.1	0
white perch	4	0	0.3	0	polychaetes	nc	nc	0.1	0
conger eel	3	0	0.2	0	<b>Total</b>	<b>50,029</b>		<b>6,313</b>	

**Appendix 2.4. cont. Total number and weight (kg) of finfish and invertebrates caught in LISTS in 1994.**

*Finfish species are in order of descending count. Invertebrate species are in order of descending weight (nc = not counted). Number of tows (sample size)=200.*

species	count	%	weight	%	species	count	%	weight	%
butterfish	33,538	28.7	776.8	6.3	longhorn sculpin	7	0	1.6	0
scup	25,451	21.8	660.8	5.4	grubby	5	0	0.3	0
winter flounder	20,615	17.6	1,992.2	16.2	mackerel scad	4	0	0.4	0
bluefish	7,703	6.6	1,159.8	9.4	Atlantic silverside	3	0	0.3	0
windowpane flounder	6,062	5.2	574.5	4.7	bigeye scad	2	0	0.2	0
little skate	5,604	4.8	2,565.3	20.9	lookdown	2	0	0.2	0
Atlantic herring	3,836	3.3	768.6	6.3	northern puffer	2	0	0.2	0
weakfish	3,320	2.8	160.0	1.3	Atlantic tomcod	2	0	0.3	0
silver hake	1,703	1.5	112.9	0.9	bigeye	1	0	0.1	0
fourspot flounder	1,494	1.3	195.6	1.6	clearnose skate	1	0	1.8	0
American shad	1,289	1.1	133.2	1.1	inshore lizardfish	1	0	0.1	0
alewife	1,211	1.0	75.0	0.6	northern pipefish	1	0	0.1	0
blueback herring	1,052	0.9	26.6	0.2	rock gunnel	1	0	0.1	0
striped searobin	927	0.8	183.6	1.5	sea raven	1	0	0.2	0
northern searobin	800	0.7	63.7	0.5	white perch	1	0	0.3	0
red hake	490	0.4	54.0	0.4	yellow jack	1	0	0.1	0
smooth dogfish	310	0.3	816.3	6.6	<b>Total</b>	<b>117,002</b>		<b>12,284.5</b>	
Atlantic menhaden	276	0.2	61.4	0.5	<b>Invertebrates</b>				
summer flounder	242	0.2	141.6	1.2	American lobster	7,057	31.6	1,533.9	38.6
tautog	207	0.2	346.5	2.8	long-finned squid	15,299	68.4	594.8	15.0
spotted hake	148	0.1	25.7	0.2	horseshoe crab	nc	nc	386.7	9.7
moonfish	93	0.1	2.6	0	blue mussel	nc	nc	377.5	9.5
fourbeard rockling	92	0.1	8.4	0.1	lady crab	nc	nc	338.5	8.5
striped bass	81	0.1	198.6	1.6	spider crab	nc	nc	335.0	8.4
Atlantic sturgeon	60	0.1	848.6	6.9	rock crab	nc	nc	136.8	3.4
spiny dogfish	55	0	186.2	1.5	starfish spp.	nc	nc	124.6	3.1
ocean pout	42	0	9.1	0.1	flat claw hermit crab	nc	nc	51.4	1.3
hogchoker	36	0	3.8	0	northern moon snail	nc	nc	34.6	0.9
black sea bass	33	0	10.9	0.1	common oyster	nc	nc	18.4	0.5
winter skate	33	0	101.5	0.8	whelks	nc	nc	14.1	0.4
American sand lance	25	0	0.6	0	mantis shrimp	nc	nc	9.8	0.2
Spanish mackerel	25	0	1.7	0	lion's mane jellyfish	nc	nc	4.2	0.1
cunner	18	0	1.3	0	bluecrab	nc	nc	3.7	0.1
smallmouth flounder	15	0	1.3	0	arks	nc	nc	3.0	0.1
hickory shad	14	0	3.7	0	boring sponge	nc	nc	1.9	0
rough scad	13	0	0.2	0	hard clams	nc	nc	1.3	0
Atlantic mackerel	11	0	0.9	0	bushy bryozoan	nc	nc	0.6	0
spot	11	0	1.1	0	mud crabs	nc	nc	0.3	0
rainbow smelt	9	0	0.6	0	surf clam	nc	nc	0.3	0
crevalle jack	8	0	0.5	0	purple sea urchin	nc	nc	0.1	0
goosefish	8	0	2.0	0	<b>Total</b>	<b>22,356</b>		<b>3,972</b>	
northern kingfish	7	0	0.5	0					

**Appendix 2.4. cont. Total number and weight (kg) of finfish and invertebrates caught in LISTS in 1995.**

*Finfish species are in order of descending count. Invertebrate species are in order of descending weight (nc = not counted). Number of tows (sample size)=200.*

species	count	%	weight	%	species	count	%	weight	%
butterfish	64,930	50.1	1,664.5	15.2	spot	3	0	0.3	0
winter flounder	15,558	12.0	1,614.7	14.7	Atlantic cod	2	0	0.1	0
scup	13,985	10.8	770.5	7.0	conger eel	2	0	1.2	0
Atlantic herring	9,135	7.0	1,631.7	14.9	haddock	2	0	0.2	0
bluefish	5,524	4.3	1,156.1	10.5	northern pipefish	2	0	0.1	0
windowpane flounder	3,815	2.9	356.2	3.2	sea raven	2	0	0.7	0
weakfish	2,881	2.2	275.7	2.5	African pompano	1	0	0.1	0
fourspot flounder	2,584	2.0	402.9	3.7	crevalle jack	1	0	0.1	0
little skate	2,372	1.8	1,055.3	9.6	grubby	1	0	0.1	0
red hake	1,977	1.5	145.6	1.3	Atlantic mackerel	1	0	0.1	0
silver hake	1,941	1.5	61.6	0.6	mackerel scad	1	0	0.1	0
northern searobin	1,317	1.0	166.9	1.5	northern puffer	1	0	0.1	0
American shad	755	0.6	81.4	0.7	oyster toadfish	1	0	0.5	0
striped searobin	682	0.5	277.5	2.5	yellowtail flounder	1	0	0.1	0
alewife	386	0.3	24.6	0.2	<b>Total</b>	<b>129,609</b>		<b>10,966.8</b>	
Atlantic menhaden	318	0.2	41.9	0.4	<b>Invertebrates</b>				
blueback herring	255	0.2	7.5	0.1	American lobster	9,944	29.3	2,141.9	55.1
fourbeard rockling	169	0.1	14.7	0.1	long-finned squid	23,974	70.7	796.4	20.5
smooth dogfish	168	0.1	566.8	5.2	lady crab	nc	nc	535.0	13.8
striped bass	165	0.1	185.3	1.7	horseshoe crab	nc	nc	116.8	3
summer flounder	121	0.1	79.6	0.7	spider crab	nc	nc	95.4	2.5
American sand lance	95	0.1	0.4	0	lion's mane jellyfish	nc	nc	78.3	2
spotted hake	72	0.1	6.5	0.1	rock crab	nc	nc	47.0	1.2
tautog	61	0	95.1	0.9	blue mussel	nc	nc	14.0	0.4
cunner	41	0	4.4	0	flat claw hermit crab	nc	nc	12.8	0.3
winter skate	41	0	89.2	0.8	boring sponge	nc	nc	11.2	0.3
Atlantic silverside	39	0	0.9	0	whelks	nc	nc	10.8	0.3
moonfish	33	0	2.1	0	mantis shrimp	nc	nc	8.1	0.2
yellow jack	32	0	2.1	0	bluecrab	nc	nc	6.0	0.2
ocean pout	30	0	6.5	0.1	northern moon snail	nc	nc	5.8	0.1
northern kingfish	25	0	2.5	0	starfish spp.	nc	nc	4.7	0.1
smallmouth flounder	19	0	1.2	0	arks	nc	nc	1.4	0
hogchoker	17	0	1.7	0	hard clams	nc	nc	0.7	0
black sea bass	12	0	4.7	0	purple sea urchin	nc	nc	0.7	0
hickory shad	6	0	2.5	0	sand shrimp	nc	nc	0.4	0
Atlantic sturgeon	6	0	145.5	1.3	ghost shrimp	nc	nc	0.3	0
longhorn sculpin	5	0	1.3	0	mud crabs	nc	nc	0.2	0
clearnose skate	4	0	11.0	0.1	common razor clam	nc	nc	0.1	0
goosefish	4	0	3.3	0	shore shrimp	nc	nc	0.1	0
rainbow smelt	4	0	0.3	0	<b>Total</b>	<b>33,918</b>		<b>3,888</b>	
Atlantic tomcod	4	0	0.8	0					

**Appendix 2.4. cont. Total number and weight (kg) of finfish and invertebrates caught in LISTS in 1996.**

*Finfish species are in order of descending count. Invertebrate species are in order of descending weight (nc = not counted). Number of tows (sample size)=200.*

species	count	%	weight	%	species	count	%	weight	%
butterfish	49,360	37.0	1,844.7	12.4	northern puffer	3	0	0.3	0
winter flounder	22,722	17.0	3,335.0	22.5	rock gunnel	3	0	0.2	0
scup	16,087	12.0	739.4	5.0	short bigeye	3	0	0.3	0
windowpane flounder	14,116	10.6	1,223.6	8.2	Atlantic sturgeon	3	0	19.9	0.1
bluefish	6,705	5.0	1,118.2	7.5	bigeye scad	2	0	0.1	0
weakfish	6,375	4.8	414.9	2.8	grubby	2	0	0.2	0
little skate	6,203	4.6	2,801.8	18.9	sea raven	2	0	1.5	0
fourspot flounder	2,815	2.1	407.2	2.7	Atlantic tomcod	2	0	0.3	0
alewife	1,402	1.0	134.6	0.9	clearnose skate	1	0	1.7	0
striped searobin	1,008	0.8	278.7	1.9	conger eel	1	0	0.1	0
Atlantic herring	972	0.7	189.8	1.3	gizzard shad	1	0	0.1	0
moonfish	921	0.7	11.6	0.1	goosefish	1	0	0.1	0
red hake	872	0.7	95.5	0.6	sea lamprey	1	0	0.7	0
northern searobin	672	0.5	57.4	0.4	spiny dogfish	1	0	2.1	0
American shad	501	0.4	36.2	0.2	white perch	1	0	0.1	0
silver hake	489	0.4	20.0	0.1	<b>Total</b>	<b>133,546</b>		<b>14,835.2</b>	
summer flounder	434	0.3	266.4	1.8					
spotted hake	384	0.3	42.6	0.3	<b>Invertebrates</b>				
smooth dogfish	275	0.2	862.8	5.8	American lobster	9,490	29.5	2,113.5	39.1
striped bass	232	0.2	373.5	2.5	lady crab	nc	nc	1,160.4	21.5
spot	195	0.1	14.1	0.1	long-finned squid	22,720	70.5	720.4	13.3
tautog	136	0.1	225.9	1.5	horseshoe crab	nc	nc	717.0	13.3
fourbeard rockling	109	0.1	8.6	0.1	spider crab	nc	nc	293.9	5.4
blueback herring	97	0.1	6.2	0	rock crab	nc	nc	162.7	3.0
Atlantic menhaden	88	0.1	40.5	0.3	lion's mane jellyfish	nc	nc	42.7	0.8
winter skate	88	0.1	212.7	1.4	blue mussel	nc	nc	42.5	0.8
hogchoker	45	0	5.4	0	flat claw hermit crab	nc	nc	39.4	0.7
smallmouth flounder	41	0	2.3	0	whelks	nc	nc	33.0	0.6
rough scad	35	0	1.5	0	mantis shrimp	nc	nc	20.9	0.4
hickory shad	29	0	10.2	0.1	boring sponge	nc	nc	19.2	0.4
black sea bass	27	0	12.1	0.1	bushy bryozoan	nc	nc	15.2	0.3
ocean pout	26	0	7.2	0	starfish spp.	nc	nc	6.2	0.1
cunner	17	0	2.6	0	arks	nc	nc	4.3	0.1
striped anchovy	11	0	0.2	0	northern moon snail	nc	nc	4.3	0.1
longhorn sculpin	7	0	2.1	0	bluecrab	nc	nc	4.0	0.1
northern kingfish	6	0	0.6	0	hard clams	nc	nc	3.2	0.1
yellow jack	6	0	0.5	0	surf clam	nc	nc	1.4	0
Atlantic mackerel	5	0	0.5	0	mud crabs	nc	nc	0.3	0
planehead filefish	3	0	0.3	0	purple sea urchin	nc	nc	0.1	0
mackerel scad	3	0	0.1	0	<b>Total</b>	<b>32,210</b>		<b>5,405</b>	

**Appendix 2.4. cont. Total number and weight (kg) of finfish and invertebrates caught in LISTS in 1997.**

*Finfish species are in order of descending count. Invertebrate species are in order of descending weight (nc = not counted). Number of tows (sample size)=200.*

species	count	%	weight	%	species	count	%	weight	%
butterfish	70,985	50.3	2,017.2	15.5	American sand lance	2	0	0.1	0
winter flounder	14,701	10.4	2,439.4	18.8	short bigeye	2	0	0.2	0
bluefish	10,815	7.7	977.6	7.5	yellow jack	2	0	0.2	0
windowpane flounder	10,324	7.3	986.1	7.6	bigeye scad	1	0	0.1	0
scup	9,582	6.8	530.5	4.1	Atlantic cod	1	0	0.3	0
fourspot flounder	4,122	2.9	615.3	4.7	haddock	1	0	0.1	0
little skate	4,068	2.9	1,945.8	15.0	northern pipefish	1	0	0.1	0
weakfish	3,904	2.8	362.0	2.8	northern puffer	1	0	0.1	0
Atlantic herring	3,455	2.4	515.1	4.0	rougthead stingray	1	0	50.6	0.4
silver hake	1,973	1.4	70.8	0.5	sea lamprey	1	0	0.1	0
alewife	1,194	0.8	81.3	0.6	Atlantic tomcod	1	0	0.1	0
American shad	922	0.7	66.8	0.5	yellowtail flounder	1	0	0.3	0
striped searobin	819	0.6	230.5	1.8	<b>Total</b>	<b>141,040</b>		<b>12,974.6</b>	
red hake	748	0.5	80.5	0.6					
blueback herring	630	0.4	16.5	0.1	<b><u>Invertebrates</u></b>				
northern searobin	579	0.4	60.4	0.5	American lobster	16,467	55.3	3,800.9	64.6
summer flounder	486	0.3	326.0	2.5	lady crab	nc	nc	592.5	10.1
striped bass	319	0.2	509.9	3.9	long-finned squid	13,048	43.8	515.2	8.8
moonfish	287	0.2	4.6	0	horseshoe crab	204	0.7	472.4	8.0
fourbeard rockling	199	0.1	17.3	0.1	spider crab	nc	nc	188.3	3.2
tautog	190	0.1	271.8	2.1	rock crab	nc	nc	94.1	1.6
smooth dogfish	167	0.1	527.3	4.1	lion's mane jellyfish	nc	nc	88.0	1.5
Atlantic menhaden	116	0.1	38.5	0.3	bushy bryozoan	nc	nc	28.0	0.5
spotted hake	77	0.1	19.0	0.1	flat claw hermit crab	nc	nc	21.7	0.4
rough scad	65	0	2.0	0	boring sponge	nc	nc	16.5	0.3
smallmouth flounder	58	0	2.4	0	whelks	22	0.1	14.8	0.3
winter skate	48	0	109.7	0.8	bluecrab	33	0.1	13.6	0.2
cunner	43	0	4.1	0	mantis shrimp	nc	nc	9.3	0.2
hickory shad	25	0	9.1	0.1	starfish spp.	nc	nc	7.3	0.1
black sea bass	22	0	10.5	0.1	hard clams	nc	nc	3.8	0.1
hogchoker	15	0	1.8	0	blue mussel	nc	nc	3.5	0.1
ocean pout	15	0	4.8	0	northern moon snail	nc	nc	3.3	0.1
grubby	11	0	0.7	0	northern comb jelly	nc	nc	2.0	0
spot	10	0	1.1	0	arks	nc	nc	1.8	0
Atlantic mackerel	8	0	1.7	0	common oyster	nc	nc	1.8	0
northern kingfish	7	0	0.9	0	surf clam	nc	nc	0.9	0
spiny dogfish	7	0	13.7	0.1	common slipper shell	nc	nc	0.7	0
Atlantic sturgeon	5	0	37.8	0.3	mud crabs	nc	nc	0.6	0
clearnose skate	4	0	7.4	0.1	sand shrimp	nc	nc	0.2	0
longhorn sculpin	4	0	0.8	0	common razor clam	nc	nc	0.2	0
white perch	4	0	0.9	0	blood star	nc	nc	0.1	0
crevalle jack	3	0	0.6	0	star coral	nc	nc	0.1	0
sea raven	3	0	0.4	0	northern red shrimp	nc	nc	0.1	0
Atlantic silverside	2	0	0.1	0	shore shrimp	nc	nc	0.1	0
goosefish	2	0	1.6	0	purple sea urchin	nc	nc	0.1	0
inshore lizardfish	2	0	0.2	0	<b>Total</b>	<b>29,774</b>		<b>5,882</b>	
round scad	2	0	0.2	0					



**Appendix 2.4. cont. Total number and weight (kg) of finfish and invertebrates caught in LISTS in 1998.**

*Finfish species are in order of descending count. Invertebrate species are in order of descending weight (nc = not counted). Number of tows (sample size)=200.*

species	count	%	weight	%	species	count	%	weight	%
butterfish	136,926	64.0	3,661.1	24.4	goosefish	3	0	3.2	0
scup	23,742	11.1	740.5	4.9	oyster toadfish	3	0	0.9	0
winter flounder	15,697	7.3	2,450.3	16.3	gray triggerfish	2	0	2.3	0
bluefish	8,814	4.1	899.0	6.0	longhorn sculpin	2	0	1.0	0
windowpane flounder	6,483	3.0	741.1	4.9	bigeye scad	1	0	0.1	0
little skate	4,305	2.0	2,085.5	13.9	inshore lizardfish	1	0	0.1	0
weakfish	3,495	1.6	268.2	1.8	mackerel scad	1	0	0.1	0
red hake	3,015	1.4	217.5	1.4	rougtail stingray	1	0	3.4	0
fourspot flounder	1,908	0.9	306.0	2.0	<b>Total</b>	<b>214,025</b>		<b>15,005.7</b>	
silver hake	1,870	0.9	88.3	0.6					
striped searobin	1,321	0.6	509.7	3.4	<b>Invertebrates</b>				
moonfish	1,188	0.6	13.4	0.1	American lobster	16,211	36.7	3,873.9	60.2
American shad	901	0.4	60.2	0.4	long-finned squid	27,443	62.1	767.0	11.9
Atlantic herring	893	0.4	74.6	0.5	horseshoe crab	303	0.7	489.4	7.6
alewife	456	0.2	35.1	0.2	blue mussel	nc	nc	309.0	4.8
summer flounder	436	0.2	431.3	2.9	lady crab	nc	nc	291.2	4.5
striped bass	400	0.2	484.2	3.2	rock crab	nc	nc	241.4	3.8
northern searobin	360	0.2	39.4	0.3	spider crab	nc	nc	157.2	2.4
smooth dogfish	310	0.1	989.8	6.6	lion's mane jellyfish	nc	nc	63.1	1.0
Atlantic menhaden	306	0.1	9.2	0.1	flat claw hermit crab	nc	nc	56.0	0.9
blueback herring	211	0.1	5.1	0	bushy bryozoan	nc	nc	55.6	0.9
tautog	194	0.1	347.1	2.3	boring sponge	nc	nc	24.9	0.4
spotted hake	142	0.1	12.2	0.1	knobbed whelk	51	0.1	22.5	0.3
fourbeard rockling	133	0.1	11.6	0.1	starfish spp.	nc	nc	18.2	0.3
smallmouth flounder	97	0	6.4	0	bluecrab	49	0.1	12.8	0.2
cunner	65	0	8.1	0.1	channeled whelk	40	0.1	10.1	0.2
winter skate	62	0	180.7	1.2	whelks	52	0.1	9.8	0.2
hickory shad	40	0	15.9	0.1	northern moon snail	nc	nc	8.6	0.1
round herring	31	0	0.6	0	mantis shrimp	nc	nc	5.6	0.1
sea raven	30	0	11.3	0.1	common oyster	nc	nc	5.4	0.1
northern puffer	28	0	0.5	0	hard clams	nc	nc	3.7	0.1
clearnose skate	20	0	36.8	0.2	arks	nc	nc	2.0	0
black sea bass	18	0	10.6	0.1	red bearded sponge	nc	nc	1.4	0
spiny dogfish	18	0	44.5	0.3	surf clam	nc	nc	1.1	0
Atlantic sturgeon	17	0	189.7	1.3	sea grape	nc	nc	0.8	0
northern kingfish	15	0	1.3	0	mud crabs	nc	nc	0.7	0
Atlantic mackerel	13	0	1.1	0	boreal squid	18	0	0.7	0
ocean pout	13	0	2.7	0	purple sea urchin	nc	nc	0.6	0
hogchoker	12	0	1.9	0	common slipper shell	nc	nc	0.5	0
haddock	7	0	0.5	0	star coral	nc	nc	0.4	0
yellow jack	6	0	0.7	0	moon jelly	nc	nc	0.2	0
grubby	5	0	0.3	0	ghost shrimp	nc	nc	0.1	0
round scad	4	0	0.3	0	<b>Total</b>	<b>44,167</b>		<b>6,434</b>	
American sand lance	4	0	0.3	0					

**Appendix 2.4. cont. Total number and weight (kg) of finfish and invertebrates caught in LISTS in 1999.**

*Finfish species are in order of descending count. Invertebrate species are in order of descending weight (nc = not counted). Number of tows (sample size)=200.*

<b>species</b>	<b>count</b>	<b>%</b>	<b>weight</b>	<b>%</b>	<b>species</b>	<b>count</b>	<b>%</b>	<b>weight</b>	<b>%</b>
butterfish	191,100	54.1	4,171.6	21.9	goosefish	2	0	0.3	0
scup	101,095	28.6	3,641.3	19.1	grubby	2	0	0.2	0
weakfish	12,416	3.5	771.3	4.0	northern pipefish	2	0	0.1	0
winter flounder	10,288	2.9	2,011.7	10.6	longhorn sculpin	2	0	0.3	0
bluefish	7,843	2.2	1,218.0	6.4	oyster toadfish	2	0	1.8	0
silver hake	5,126	1.5	99.6	0.5	Atlantic silverside	1	0	0.1	0
windowpane flounder	4,643	1.3	594.2	3.1	gizzard shad	1	0	0.1	0
little skate	3,686	1.0	1,829.6	9.6	haddock	1	0	0.1	0
red hake	2,973	0.8	226.5	1.2	round scad	1	0	0.1	0
Atlantic herring	2,511	0.7	45.4	0.2	striped cusk-eel	1	0	0.1	0
striped searobin	1,690	0.5	497.0	2.6	sharksucker	1	0	0.3	0
alewife	1,393	0.4	107.6	0.6	Spanish mackerel	1	0	0.2	0
fourspot flounder	1,393	0.4	203.9	1.1	Atlantic tomcod	1	0	0.7	0
Atlantic menhaden	1,187	0.3	90.9	0.5	white perch	1	0	0.4	0
American shad	987	0.3	117.3	0.6	<b>Total</b>	<b>353,203</b>		<b>19,054.7</b>	
moonfish	645	0.2	9.6	0.1					
summer flounder	582	0.2	459.8	2.4					
bay anchovy	548	0.2	5.6	0	<b>Invertebrates</b>				
northern searobin	547	0.2	52.0	0.3	American lobster	13,922	38.1	3,397.9	61.6
striped bass	397	0.1	815.4	4.3	long-finned squid	21,580	59.0	826.4	15.0
spotted hake	381	0.1	38.8	0.2	horseshoe crab	384	1.1	634.1	11.5
smooth dogfish	305	0.1	923.0	4.8	lady crab	nc	nc	159.7	2.9
fourbeard rockling	233	0.1	28.8	0.2	rock crab	nc	nc	118.6	2.2
tautog	217	0.1	326.6	1.7	spider crab	nc	nc	95.4	1.7
striped anchovy	216	0.1	6.1	0	bushy bryozoan	nc	nc	78.0	1.4
American sand lance	178	0.1	0.3	0	flat claw hermit crab	nc	nc	32.5	0.6
smallmouth flounder	96	0	5.2	0	knobbed whelk	61	0.2	24.8	0.4
hickory shad	56	0	19.4	0.1	bluecrab	89	0.2	21.3	0.4
cunner	51	0	5.9	0	channeled whelk	81	0.2	21.1	0.4
black sea bass	50	0	17.2	0.1	mantis shrimp	376	1.0	19.3	0.4
spot	45	0	5.7	0	boring sponge	nc	nc	19.3	0.4
winter skate	41	0	89.8	0.5	lion's mane jellyfish	61	0.2	16.7	0.3
hogchoker	39	0	5.0	0	blue mussel	nc	nc	14.1	0.3
Atlantic sturgeon	39	0	498.6	2.6	northern moon snail	nc	nc	9.1	0.2
clearnose skate	22	0	39.4	0.2	starfish spp.	nc	nc	8.8	0.2
bigeye scad	21	0	1.4	0	common oyster	nc	nc	4.7	0.1
Atlantic mackerel	21	0	3.1	0	arks	nc	nc	2.8	0.1
yellow jack	20	0	1.9	0	common slipper shell	nc	nc	1.8	0
blueback herring	19	0	1.1	0	mud crabs	nc	nc	1.7	0
ocean pout	17	0	3.9	0	hard clams	nc	nc	1.5	0
northern puffer	14	0	1.1	0	sand shrimp	nc	nc	1.0	0
spiny dogfish	10	0	51.1	0.3	purple sea urchin	nc	nc	1.0	0
sea raven	9	0	4.9	0	northern red shrimp	nc	nc	0.9	0
crevalle jack	8	0	0.7	0	surf clam	nc	nc	0.4	0
inshore lizardfish	7	0	0.5	0	sea grape	nc	nc	0.2	0
northern kingfish	6	0	0.6	0	star coral	nc	nc	0.1	0
northern sennet	6	0	0.5	0	common razor clam	nc	nc	0.1	0
planehead filefish	3	0	0.3	0	moon jelly	nc	nc	0.1	0
bigeye	2	0	0.2	0	nemerteans	nc	nc	0.1	0
conger eel	2	0	0.5	0	<b>Total</b>	<b>36,554</b>		<b>5,514</b>	

**Appendix 2.4. cont. Total number and weight (kg) of finfish and invertebrates caught in LISTS in 2000.**

*Finfish species are in order of descending count. Invertebrate species are in order of descending weight (nc = not counted). Number of tows (sample size)=200.*

species	count	%	weight	%	species	count	%	weight	%
scup	101,464	44.4	6,679.0	34.9	northern kingfish	2	0	0.3	0
butterfish	60,490	26.5	1,458.3	7.6	round scad	2	0	0.2	0
weakfish	23,595	10.3	554.5	2.9	bigeye	1	0	0.1	0
winter flounder	8,867	3.9	1,921.4	10.0	Atlantic cod	1	0	0.1	0
bluefish	6,135	2.7	1,408.0	7.3	goosefish	1	0	0.2	0
little skate	3,340	1.5	1,604.7	8.4	inshore lizardfish	1	0	0.1	0
striped searobin	3,129	1.4	1,036.1	5.4	lined seahorse	1	0	0.1	0
fourspot flounder	2,590	1.1	398.6	2.1	white perch	1	0	0.2	0
windowpane flounder	2,488	1.1	368.8	1.9	yellowtail flounder	1	0	0.1	0
red hake	2,393	1.0	162.6	0.8	<b>Total</b>	<b>228,425</b>		<b>19,156.5</b>	
bay anchovy	2,303	1.0	12.2	0.1					
northern searobin	2,014	0.9	251.2	1.3	<b>Invertebrates</b>				
moonfish	1,817	0.8	15.0	0.1	American lobster	10,481	36.0	2,184.5	49.9
alewife	1,572	0.7	96.0	0.5	horseshoe crab	420	1.4	689.4	15.8
spotted hake	1,425	0.6	92.3	0.5	long-finned squid	16,585	57.0	582.3	13.3
Atlantic herring	770	0.3	124.1	0.6	lady crab	nc	nc	308.4	7.1
silver hake	679	0.3	28.8	0.2	spider crab	nc	nc	99.4	2.3
summer flounder	555	0.2	471.3	2.5	bushy bryozoan	nc	nc	95.2	2.2
Atlantic menhaden	492	0.2	31.8	0.2	rock crab	nc	nc	60.4	1.4
smooth dogfish	467	0.2	1,038.5	5.4	boring sponge	nc	nc	58.6	1.3
American shad	316	0.1	25.8	0.1	mantis shrimp	1,086	3.7	49.0	1.1
striped bass	293	0.1	602.6	3.1	blue mussel	nc	nc	36.8	0.8
tautog	287	0.1	463.5	2.4	lion's mane jellyfish	223	0.8	36.4	0.8
spot	204	0.1	17.8	0.1	channeled whelk	138	0.5	32.0	0.7
fourbeard rockling	185	0.1	14.7	0.1	knobbed whelk	76	0.3	29.9	0.7
blueback herring	143	0.1	6.8	0	starfish spp.	nc	nc	29.0	0.7
black sea bass	69	0	22.6	0.1	flat claw hermit crab	nc	nc	26.0	0.6
smallmouth flounder	61	0	2.7	0	bluecrab	104	0.4	19.3	0.4
cunner	50	0	5.3	0	northern moon snail	nc	nc	9.7	0.2
hickory shad	42	0	17.1	0.1	hydroid spp.	nc	nc	4.8	0.1
hogchoker	40	0	5.9	0	fan worm tubes	nc	nc	3.4	0.1
winter skate	31	0	66.5	0.3	hard clams	nc	nc	3.3	0.1
sea raven	19	0	9.2	0	arks	nc	nc	3.1	0.1
clearnose skate	18	0	37.9	0.2	mud crabs	nc	nc	2.8	0.1
ocean pout	18	0	4.9	0	sand shrimp	nc	nc	2.7	0.1
longhorn sculpin	14	0	5.0	0	common slipper shell	nc	nc	2.4	0.1
Atlantic sturgeon	7	0	79.0	0.4	purple sea urchin	nc	nc	2.3	0.1
oyster toadfish	6	0	2.5	0	common oyster	nc	nc	1.4	0
northern pipefish	4	0	0.2	0	sea grape	nc	nc	1.1	0
northern puffer	4	0	0.4	0	blood star	nc	nc	0.2	0
American sand lance	4	0	0.3	0	northern comb jelly	nc	nc	0.1	0
spiny dogfish	4	0	9.9	0.1	common razor clam	nc	nc	0.1	0
rock gunnel	3	0	0.2	0	northern cyclocardia	nc	nc	0.1	0
yellow jack	3	0	0.2	0	northern red shrimp	nc	nc	0.1	0
Atlantic silverside	2	0	0.1	0	surf clam	nc	nc	0.1	0
Atlantic mackerel	2	0	0.8	0	<b>Total</b>	<b>29,113</b>		<b>4,374</b>	

**Appendix 2.4. cont. Total number and weight (kg) of finfish and invertebrates caught in LISTS in 2001.**

*Finfish species are in order of descending count. Invertebrate species are in order of descending weight (nc = not counted). Young-of-year bay anchovy, striped anchovy, and American sand lance and Atlantic herring are not quantified. Number of tows (sample size)=200.*

species	count	%	weight	%	species	count	%	weight	%
scup	58,325	37.7	5,828.4	30.7	American eel	1	0	0.6	0
butterfish	45,264	29.3	1,834.0	9.7	planehead filefish	1	0	0.1	0
weakfish	12,739	8.2	415.0	2.2	goosefish	1	0	0.4	0
winter flounder	9,826	6.4	1,993.6	10.5	naked goby	1	0	0.1	0
little skate	4,311	2.8	2,022.6	10.6	northern sennet	1	0	0.1	0
bluefish	3,986	2.6	751.2	4.0	rock gunnel	1	0	0.1	0
silver hake	3,945	2.6	152.2	0.8	red goatfish	1	0	0.1	0
windowpane flounder	3,065	2.0	475.5	2.5	rougtail stingray	1	0	2.5	0
fourspot flounder	2,167	1.4	362.7	1.9	short bigeye	1	0	0.1	0
striped searobin	2,061	1.3	861.0	4.5	yellowtail flounder	1	0	0.2	0
northern searobin	1,594	1.0	222.7	1.2	<b>Total</b>	<b>154,514</b>		<b>18,997.8</b>	
red hake	1,382	0.9	109.7	0.6					
summer flounder	875	0.6	628.1	3.3	<b><u>Finfish not ranked</u></b>				
alewife	638	0.4	41.7	0.2	American sand lance, yoy				
spotted hake	606	0.4	34.9	0.2	anchovy spp, yoy				
smooth dogfish	598	0.4	1,407.6	7.4	Atlantic herring, yoy				
Atlantic herring	497	0.3	72.6	0.4					
bay anchovy	443	0.3	3.6	0	<b><u>Invertebrates</u></b>				
tautog	319	0.2	491.2	2.6	American lobster	5,626	35.1	1,531.2	39.2
blueback herring	279	0.2	11.1	0.1	horseshoe crab	503	3.1	870.7	22.3
fourbeard rockling	251	0.2	21.5	0.1	long-finned squid	9,080	56.6	346.2	8.9
moonfish	225	0.1	3.8	0	spider crab	nc	nc	302.5	7.7
striped bass	214	0.1	472.5	2.5	bushy bryozoan	nc	nc	162.9	4.2
black sea bass	134	0.1	74.8	0.4	starfish spp.	nc	nc	154.7	4.0
American shad	109	0.1	9.6	0.1	rock crab	nc	nc	86.3	2.2
smallmouth flounder	98	0.1	3.8	0	blue mussel	nc	nc	84.7	2.2
Atlantic menhaden	86	0.1	4.7	0	lady crab	nc	nc	79.0	2.0
hogchoker	85	0.1	10.5	0.1	flat claw hermit crab	nc	nc	57.6	1.5
clearnose skate	65	0	132.4	0.7	knobbed whelk	118	0.7	53.3	1.4
cunner	51	0	5.9	0	channeled whelk	190	1.2	48.0	1.2
spiny dogfish	48	0	128.6	0.7	boring sponge	nc	nc	30.0	0.8
striped anchovy	47	0	1.2	0	lion's mane jellyfish	182	1.1	25.9	0.7
winter skate	38	0	112.2	0.6	northern moon snail	nc	nc	17.5	0.4
inshore lizardfish	21	0	2.2	0	mantis shrimp	304	1.9	16.5	0.4
Atlantic sturgeon	18	0	270.6	1.4	bluecrab	38	0.2	6.2	0.2
hickory shad	14	0	6.7	0	sea grape	nc	nc	6.1	0.2
spot	13	0	1.3	0	common slipper shell	nc	nc	5.3	0.1
rough scad	10	0	0.7	0	hydroid spp.	nc	nc	5.0	0.1
northern puffer	8	0	0.7	0	arks	nc	nc	4.0	0.1
sea raven	7	0	4.1	0	mud crabs	nc	nc	3.6	0.1
ocean pout	6	0	2.3	0	hard clams	nc	nc	3.0	0.1
round herring	5	0	0.1	0	sand shrimp	nc	nc	2.8	0.1
longhorn sculpin	5	0	1.5	0	common oyster	1	0	1.2	0
fawn cusk-eel	4	0	0.2	0	fan worm tubes	nc	nc	1.0	0
northern pipefish	4	0	0.3	0	purple sea urchin	nc	nc	0.8	0
American sand lance	4	0	0.3	0	moon jelly	nc	nc	0.4	0
seasnail	4	0	0.3	0	ghost shrimp	nc	nc	0.3	0
yellow jack	3	0	0.3	0	bobtail squid	1	0	0.1	0
conger eel	2	0	0.3	0	common razor clam	nc	nc	0.1	0
northern kingfish	2	0	0.2	0	northern red shrimp	nc	nc	0.1	0
oyster toadfish	2	0	0.4	0	surf clam	nc	nc	0.1	0
Atlantic silverside	1	0	0.1	0	<b>Total</b>	<b>16,043</b>		<b>3,907</b>	

**Appendix 2.4. cont. Total number and weight (kg) of finfish and invertebrates caught in LISTS in 2002.**

*Finfish species are in order of descending count. Invertebrate species are in order of descending weight (nc = not counted). Young-of-year bay and striped anchovy are neither separated by species or quantified; young-of-year Atlantic herring are not quantified. Number of tows (sample size)=200.*

species	count	%	weight	%	species	count	%	weight	%
scup	100,481	47.0	13,814.1	46.0	inshore lizardfish	1	0	0.1	0
butterfish	66,550	31.1	1,924.2	6.4	northern kingfish	1	0	0.2	0
weakfish	10,713	5.0	442.0	1.5	rock gunnel	1	0	0.1	0
winter flounder	6,884	3.2	1,584.1	5.3	rainbow smelt	1	0	0.1	0
little skate	4,242	2.0	2,121.9	7.1	rougtail stingray	1	0	24.4	0.1
bluefish	3,450	1.6	1,099.7	3.7	<b>Total</b>	<b>213,796</b>		<b>30,062.0</b>	
striped searobin	2,394	1.1	1,065.0	3.5					
northern searobin	2,123	1.0	267.3	0.9	<b>Finfish not ranked</b>				
red hake	2,103	1.0	206.6	0.7	anchovy spp, yoy				
silver hake	2,013	0.9	89.6	0.3	Atlantic herring, yoy				
windowpane flounder	1,991	0.9	343.3	1.1					
fourspot flounder	1,859	0.9	326.9	1.1	<b>Invertebrates</b>				
summer flounder	1,356	0.6	989.3	3.3	blue mussel	nc	nc	2,497.8	43.9
smooth dogfish	1,019	0.5	2,814.3	9.4	American lobster	3,880	29.7	1,005.7	17.7
bay anchovy	992	0.5	6.6	0	horseshoe crab	517	4.0	862.9	15.2
alewife	855	0.4	70.2	0.2	spider crab	nc	nc	348.4	6.1
spotted hake	798	0.4	48.2	0.2	long-finned squid	8,034	61.5	279.9	4.9
American shad	593	0.3	40.3	0.1	lady crab	nc	nc	117.0	2.1
tautog	565	0.3	921.1	3.1	starfish spp.	nc	nc	91.8	1.6
striped bass	469	0.2	855.2	2.8	bushy bryozoan	nc	nc	85.0	1.5
moonfish	424	0.2	7.4	0	boring sponge	nc	nc	83.9	1.5
black sea bass	394	0.2	188.3	0.6	rock crab	nc	nc	74.6	1.3
Atlantic menhaden	366	0.2	96.3	0.3	flat claw hermit crab	36	0.3	55.8	1.0
Atlantic herring	365	0.2	63.9	0.2	channeled whelk	174	1.3	43.6	0.8
smallmouth flounder	139	0.1	4.9	0	northern moon snail	nc	nc	40.3	0.7
fourbeard rockling	106	0	9.7	0	knobbed whelk	40	0.3	19.1	0.3
hogchoker	100	0	13.3	0	bluecrab	84	0.6	16.1	0.3
blueback herring	68	0	2.4	0	lion's mane jellyfish	71	0.5	12.3	0.2
clearnose skate	59	0	107.3	0.4	mantis shrimp	226	1.7	11.2	0.2
cunner	55	0	7.2	0	arks	nc	nc	7.8	0.1
spot	52	0	7.2	0	common slipper shell	nc	nc	7.3	0.1
hickory shad	45	0	19.6	0.1	hydroid spp.	nc	nc	7.3	0.1
winter skate	45	0	133.5	0.4	sea grape	nc	nc	5.3	0.1
Atlantic sturgeon	18	0	275.3	0.9	hard clams	3	0	5.2	0.1
spiny dogfish	17	0	48.0	0.2	mud crabs	nc	nc	4.7	0.1
ocean pout	13	0	4.3	0	purple sea urchin	nc	nc	2.3	0
yellow jack	13	0	1.4	0	sand shrimp	nc	nc	1.6	0
sea raven	11	0	4.1	0	rubbery bryozoan	nc	nc	1.0	0
rough scad	10	0	0.7	0	surf clam	nc	nc	1.0	0
oyster toadfish	8	0	4.7	0	deadman's fingers sponge	nc	nc	0.5	0
northern puffer	6	0	0.3	0	blood star	nc	nc	0.4	0
Atlantic mackerel	5	0	2.5	0	common oyster	nc	nc	0.4	0
short bigeye	5	0	0.2	0	mixed sponge species	nc	nc	0.4	0
goosefish	3	0	0.6	0	northern red shrimp	nc	nc	0.3	0
American sand lance	3	0	0.1	0	anemones	nc	nc	0.1	0
longhorn sculpin	3	0	0.9	0	bobtail squid	1	0	0.1	0
northern sennet	2	0	0.2	0	ghost shrimp	nc	nc	0.1	0
northern pipefish	2	0	0.2	0	ribbed mussel	nc	nc	0.1	0
Atlantic bonito	1	0	2.4	0	sea cucumber	1	0	0.1	0
crevalle jack	1	0	0.1	0	<b>Total</b>	<b>13,067</b>		<b>5,691</b>	
gizzard shad	1	0	0.1	0					
grubby	1	0	0.1	0					

**Appendix 2.4. cont. Total number and weight (kg) of finfish and invertebrates caught in LISTS in 2003.**

*Finfish species are in order of descending count. Invertebrate species are in order of descending weight (nc = not counted). Young-of-year bay and striped anchovy are neither separated by species or quantified; young-of-year Atlantic herring are not quantified. Number of tows (sample size)=160.*

species	count	%	weight	%	Species	count	%	weight	%
butterfish	25,483	34.4	524.6	3.7	barndoor skate	1	0	0.4	0
scup	17,552	23.7	4,389.3	30.6	Planehead filefish	1	0	0.1	0
weakfish	5,596	7.6	131.9	0.9	rainbow smelt	1	0	0.1	0
winter flounder	4,245	5.7	1,276.5	8.9	sea lamprey	1	0	1.3	0
bluefish	3,717	5.0	655.0	4.6	Spanish mackerel	1	0	2.1	0
little skate	2,867	3.9	1,554.1	10.8	<b>Total</b>	<b>74,107</b>		<b>14,323.6</b>	
bay anchovy	2,254	3.0	12.5	0.1					
windowpane flounder	1,858	2.5	333.9	2.3	<b>Finfish not ranked</b>				
fourspot flounder	1,658	2.2	327.7	2.3	anchovy spp, yoy				
striped searobin	1,529	2.1	687.0	4.8	Atlantic herring, yoy				
northern searobin	1,468	2.0	240.7	1.7					
summer flounder	1,151	1.6	825.0	5.8	<b>Invertebrates</b>				
red hake	681	0.9	31.1	0.2	Horseshoe crab	399	1.7	670.5	23.2
alewife	608	0.8	49.4	0.3	spider crab	nc	nc	640.6	22.2
smooth dogfish	552	0.7	1,508.8	10.5	American lobster	1,958	8.3	479.7	16.6
spotted hake	527	0.7	41.6	0.3	long-finned squid	19,231	81.9	421.3	14.6
Atlantic herring	448	0.6	87.8	0.6	boring sponge	nc	nc	107.5	3.7
American shad	305	0.4	23.5	0.2	rock crab	nc	nc	80.9	2.8
silver hake	217	0.3	8.3	0.1	starfish spp.	nc	nc	73.7	2.6
striped bass	215	0.3	542.1	3.8	flat claw hermit crab	nc	nc	61.3	2.1
tautog	210	0.3	325.4	2.3	channeled whelk	334	1.4	58.8	2.0
Atlantic menhaden	121	0.2	16.1	0.1	bushy bryozoan	nc	nc	54.3	1.9
fourbeard rockling	111	0.1	9.0	0.1	lion's mane jellyfish	1,307	5.6	40.6	1.4
blueback herring	98	0.1	3.4	0	knobbed whelk	96	0.4	35.1	1.2
moonfish	97	0.1	1.3	0	sea grape	nc	nc	31.1	1.1
hogchoker	89	0.1	8.3	0.1	northern moon snail	nc	nc	20.9	0.7
black sea bass	57	0.1	45.7	0.3	blue mussel	nc	nc	19.7	0.7
Atlantic cod	57	0.1	2.7	0	common slipper shell	nc	nc	16.8	0.6
clearnose skate	55	0.1	105.9	0.7	lady crab	nc	nc	12.0	0.4
smallmouth flounder	38	0.1	2.4	0	hydroid spp.	nc	nc	9.6	0.3
winter skate	38	0.1	90.6	0.6	ribbed mussel	nc	nc	8.8	0.3
cunner	36	0	5.9	0	sand shrimp	nc	nc	6.8	0.2
haddock	26	0	1.3	0	arks	nc	nc	6.5	0.2
Atlantic sturgeon	23	0	391.9	2.7	mud crabs	nc	nc	6.5	0.2
hickory shad	22	0	10.3	0.1	rubbery bryozoan	nc	nc	6.0	0.2
American sand lance	19	0	0.2	0	mantis shrimp	110	0.5	4.9	0.2
ocean pout	14	0	2.9	0	bluecrab	24	0.1	4.3	0.1
rough scad	12	0	0.5	0	hard clams	nc	nc	3.9	0.1
oyster toadfish	9	0	5.0	0	star coral	nc	nc	1.9	0.1
spiny dogfish	7	0	34.8	0.2	coastal mud shrimp	4	0	0.7	0
rock gunnel	6	0	0.4	0	purple sea urchin	nc	nc	0.6	0
round scad	4	0	0.3	0	blood star	nc	nc	0.4	0
glasseye snapper	3	0	0.1	0	northern red shrimp	2	0	0.4	0
conger eel	3	0	1.1	0	Japanese shore crab	4	0	0.3	0
Atlantic mackerel	3	0	0.3	0	anemones	nc	nc	0.1	0
crevalle jack	2	0	0.2	0	sand dollar	1	0	0.1	0
northern pipefish	2	0	0.2	0	common razor clam	1	0	0.1	0
northern puffer	2	0	0.2	0	moon jelly	nc	nc	0.1	0
longhorn sculpin	2	0	0.9	0	northern cyclocardia	nc	nc	0.1	0
sea raven	2	0	1.3	0	mixed sponge species	nc	nc	0.1	0
striped anchovy	2	0	0.1	0	<b>Total</b>	<b>23,471</b>		<b>2,887</b>	
Atlantic silverside	1	0	0.1	0					

**Appendix 2.4. cont. Total number and weight (kg) of finfish and invertebrates caught in LISTS in 2004.**

*Finfish species are in order of descending count. Invertebrate species are in order of descending weight (nc = not counted). Young-of-year bay and striped anchovy are neither separated by species or quantified; young-of-year Atlantic herring are not quantified. Number of tows (sample size)=199.*

species	count	%	weight	%	species	count	%	weight	%
butterfish	94,735	46.7	1,842.7	9.7	American plaice	1	0	0.1	0
scup	61,521	30.3	6,801.1	35.7	conger eel	1	0	0.1	0
weakfish	17,505	8.6	426.9	2.2	gizzard shad	1	0	0.1	0
bluefish	6,504	3.2	2,140.6	11.2	goosefish	1	0	0.1	0
winter flounder	4,021	2.0	839.9	4.4	pollock	1	0	0.1	0
little skate	3,044	1.5	1,689.8	8.9	rougtail stingray	1	0	4.1	0
windowpane flounder	2,275	1.1	333.7	1.8	oyster toadfish	1	0	0.8	0
bay anchovy	1,523	0.8	10.3	0.1	yellow jack	1	0	0.1	0
silver hake	1,417	0.7	27.3	0.1	<b>Total</b>	<b>202,887</b>		<b>19,056.6</b>	
fourspot flounder	1,406	0.7	309.3	1.6					
striped searobin	1,308	0.6	465.4	2.4	<b><u>Finfish not ranked</u></b>				
alewife	859	0.4	56.1	0.3	anchovy spp, yoy				
Atlantic herring	851	0.4	58.3	0.3	Atlantic herring, yoy				
red hake	829	0.4	51.6	0.3					
northern searobin	784	0.4	112.0	0.6	<b><u>Invertebrates</u></b>				
Atlantic menhaden	746	0.4	110.7	0.6	long-finned squid	23,022	86.5	953.4	28.8
summer flounder	644	0.3	627.2	3.3	horseshoe crab	534	2.0	873.4	26.4
smooth dogfish	503	0.2	1,435.3	7.5	American lobster	1,843	6.9	481.5	14.5
striped bass	378	0.2	811.8	4.3	spider crab	nc	nc	355.5	10.7
American shad	356	0.2	24.2	0.1	blue mussel	nc	nc	250.2	7.6
tautog	232	0.1	353.7	1.9	bushy bryozoan	nc	nc	50.9	1.5
spotted hake	230	0.1	37.8	0.2	flat claw hermit crab	nc	nc	42.4	1.3
blueback herring	218	0.1	6.5	0	channeled whelk	199	0.7	42.3	1.3
moonfish	182	0.1	3.4	0	starfish spp.	nc	nc	41.7	1.3
fourbeard rockling	173	0.1	13.0	0.1	boring sponge	nc	nc	41.7	1.3
black sea bass	124	0.1	40.5	0.2	rock crab	1	0.0	35.2	1.1
hogchoker	83	0	9.5	0	lion's mane jellyfish	803	3.0	34.0	1.0
American sand lance	70	0	0.2	0	common slipper shell	nc	nc	22.9	0.7
winter skate	53	0	100.3	0.5	sea grape	nc	nc	16.4	0.5
smallmouth flounder	50	0	2.8	0	lady crab	nc	nc	14.5	0.4
hickory shad	39	0	14.2	0.1	northern moon snail	nc	nc	11.5	0.3
spiny dogfish	38	0	104.7	0.5	knobbed whelk	21	0.1	7.7	0.2
Atlantic cod	33	0	4.7	0	mantis shrimp	159	0.6	7.0	0.2
clearnose skate	22	0	48.2	0.3	arks	nc	nc	7.0	0.2
cunner	21	0	3.7	0	mud crabs	nc	nc	5.4	0.2
ocean pout	18	0	5.4	0	sand shrimp	nc	nc	4.7	0.1
rough scad	14	0	0.7	0	bluecrab	13	0	2.8	0.1
round scad	11	0	0.3	0	hard clams	nc	nc	2.3	0.1
spot	8	0	0.9	0	surf clam	5	0	1.0	0
Atlantic sturgeon	8	0	117.6	0.6	purple sea urchin	nc	nc	0.8	0
haddock	7	0	0.6	0	mixed sponge species	nc	nc	0.6	0
sea raven	7	0	2.4	0	hydroid spp.	nc	nc	0.6	0
northern kingfish	5	0	0.5	0	deadman's fingers sponge	nc	nc	0.5	0
northern puffer	5	0	0.4	0	rubbery bryozoan	nc	nc	0.4	0
longhorn sculpin	5	0	3.4	0	star coral	nc	nc	0.3	0
seasnail	4	0	0.2	0	northern red shrimp	nc	nc	0.3	0
crevalle jack	2	0	0.2	0	northern cyclocardia	nc	nc	0.2	0
northern pipefish	2	0	0.2	0	blood star	nc	nc	0.1	0
rock gunnel	2	0	0.2	0	coastal mud shrimp	1	0	0.1	0
Atlantic tomcod	2	0	0.2	0	sea cucumber	2	0	0.1	0
white perch	2	0	0.5	0	<b>Total</b>	<b>26,603</b>		<b>3,309.4</b>	

**Appendix 2.4. cont. Total number and weight (kg) of finfish and invertebrates caught in LISTS in 2005.**

*Finfish species are in order of descending count. Invertebrate species are in order of descending weight (nc = not counted). Young-of-year bay and striped anchovy are neither separated by species or quantified; young-of-year Atlantic herring are not quantified. Number of tows (sample size)=200.*

<b>species</b>	<b>count</b>	<b>%</b>	<b>weight</b>	<b>%</b>	<b>species</b>	<b>count</b>	<b>%</b>	<b>weight</b>	<b>%</b>
butterfish	92,996	52.2	2,097.3	16.8	haddock	2	0	0.2	0
scup	52,642	29.6	3,080.7	24.7	seasnail	2	0	0.2	0
weakfish	9,191	5.2	449.9	3.6	glasseye snapper	1	0	0.1	0
bluefish	6,532	3.7	1,333.8	10.7	inshore lizardfish	1	0	0.1	0
winter flounder	4,692	2.6	566.1	4.5	lookdown	1	0	0.1	0
windowpane flounder	1,982	1.1	177.5	1.4	pollock	1	0	0.1	0
little skate	1,317	0.7	682.5	5.5	<b>Total</b>	<b>178,073</b>		<b>12,474.3</b>	
Atlantic herring	1,168	0.7	131.1	1.1					
bay anchovy	814	0.5	5.8	0	<b>Finfish not ranked</b>				
striped searobin	757	0.4	183.7	1.5	anchovy spp, yoy				
alewife	742	0.4	47.6	0.4	Atlantic herring, yoy				
fourspot flounder	688	0.4	125.9	1					
red hake	585	0.3	56.0	0.4	<b>Invertebrates</b>				
summer flounder	506	0.3	406.1	3.3	blue mussel	nc	nc	971.0	32.6
striped bass	469	0.3	675.1	5.4	long-finned squid	17,542	83.2	683.5	22.9
smooth dogfish	467	0.3	1,421.7	11.4	American lobster	1,389	6.6	364.3	12.2
moonfish	356	0.2	6.0	0	horseshoe crab	161	0.8	304.2	10.2
northern searobin	265	0.1	21.3	0.2	starfish spp.	nc	nc	198.4	6.7
Atlantic menhaden	235	0.1	77.9	0.6	lion's mane jellyfish	1,806	8.6	97.3	3.3
spotted hake	234	0.1	17.4	0.1	spider crab	nc	nc	92.0	3.1
tautog	179	0.1	269.2	2.2	bushy bryozoan	nc	nc	64.6	2.2
American shad	177	0.1	18.2	0.1	lady crab	nc	nc	48.8	1.6
silver hake	165	0.1	7.1	0.1	boring sponge	nc	nc	26.1	0.9
hickory shad	136	0.1	43.1	0.3	flat claw hermit crab	nc	nc	23.1	0.8
blueback herring	111	0.1	5.4	0	channeled whelk	101	0.5	23.0	0.8
fourbeard rockling	106	0.1	6.8	0.1	common slipper shell	nc	nc	12.2	0.4
clearnose skate	102	0.1	187.1	1.5	rubbery bryozoan	nc	nc	11.0	0.4
rough scad	62	0	1.9	0	knobbed whelk	23	0.1	9.7	0.3
hogchoker	61	0	8.7	0.1	rock crab	nc	nc	9.3	0.3
smallmouth flounder	44	0	2.4	0	ribbed mussel	nc	nc	7.6	0.3
black sea bass	42	0	26.4	0.2	hard clams	nc	nc	7.2	0.2
spiny dogfish	41	0	102.0	0.8	northern moon snail	nc	nc	4.7	0.2
Atlantic mackerel	37	0	5.7	0	sea grape	nc	nc	4.5	0.2
winter skate	31	0	59.9	0.5	mantis shrimp	64	0.3	3.8	0.1
yellow jack	28	0	3.0	0	arks	nc	nc	3.5	0.1
cunner	24	0	4.1	0	hydroid spp.	nc	nc	3.4	0.1
round scad	12	0	0.3	0	mud crabs	nc	nc	2.5	0.1
Atlantic cod	10	0	0.9	0	sand shrimp	nc	nc	2.1	0.1
rock gunnel	9	0	0.6	0	deadman's fingers sponge	nc	nc	1.1	0
Atlantic sturgeon	9	0	152.7	1.2	purple sea urchin	nc	nc	0.7	0
northern sennet	8	0	0.7	0	bluecrab	3	0	0.6	0
American sand lance	6	0	0.2	0	mixed sponge species	nc	nc	0.4	0
northern puffer	5	0	0.3	0	surf clam	nc	nc	0.4	0
northern kingfish	4	0	0.6	0	star coral	nc	nc	0.3	0
northern pipefish	4	0	0.3	0	sand dollar	1	0	0.2	0
ocean pout	3	0	0.7	0	northern red shrimp	nc	nc	0.2	0
sea raven	3	0	0.5	0	boreal squid	1	0	0.1	0
crevalle jack	2	0	0.2	0	Japanese shore crab	5	0	0.1	0
gizzard shad	2	0	0.2	0	northern cyclocardia	nc	nc	0.1	0
goosefish	2	0	0.7	0	common oyster	nc	nc	0.1	0
grubby	2	0	0.2	0	<b>Total</b>	<b>21,096</b>		<b>2,982.1</b>	



**Appendix 2.4. cont. Total number and weight (kg) of finfish and invertebrates caught in LISTS in 2006.**

*Finfish species are in order of descending count. Invertebrate species are in order of descending weight (nc = not counted). Young-of-year bay and striped anchovy are neither separated by species or quantified; young-of-year Atlantic herring and American sand lance are not quantified. Number of tows (sample size)=120.*

<b>species</b>	<b>count</b>	<b>%</b>	<b>weight</b>	<b>%</b>	<b>species</b>	<b>count</b>	<b>%</b>	<b>weight</b>	<b>%</b>
butterfish	50,022	54.3	1,631.4	15.5					
scup	28,829	31.3	4,636.1	44.2					
bluefish	2,100	2.3	358.6	3.4	<b><u>Finfish not ranked</u></b>				
winter flounder	1,699	1.8	271.2	2.6	anchovy spp. yoy				
bay anchovy	1,492	1.6	8.3	0.1	Atlantic herring, yoy				
silver hake	1,267	1.4	37.7	0.4	American sand lance (yoy)				
windowpane flounder	1,077	1.2	128.9	1.2					
northern searobin	630	0.7	74.5	0.7					
red hake	625	0.7	37.4	0.4					
little skate	593	0.6	310.6	3	<b><u>Invertebrates</u></b>				
alewife	573	0.6	49.5	0.5	long-finned squid	7,802	83.4	326	32.5
fourspot flounder	466	0.5	88.1	0.8	horseshoe crab	109	1.2	205.8	20.5
striped searobin	366	0.4	113.5	1.1	American lobster	748	8	197.9	19.7
moonfish	361	0.4	3.5	0	boring sponge	nc	nc	51.3	5.1
smooth dogfish	332	0.4	1,176.6	11.2	spider crab	nc	nc	50.6	5
spotted hake	321	0.3	24.3	0.2	lion's mane jellyfish	558	6	45.4	4.5
weakfish	241	0.3	52.2	0.5	rock crab	nc	nc	40.4	4
summer flounder	203	0.2	180.5	1.7	bushy bryozoan	nc	nc	17.8	1.8
tautog	186	0.2	301.4	2.9	blue mussel	nc	nc	7.6	0.8
striped bass	144	0.2	418.7	4	channeled whelk	41	0.4	7.6	0.8
hickory shad	75	0.1	19.1	0.2	lady crab	nc	nc	7.5	0.7
American shad	68	0.1	6.1	0.1	deadman's fingers sponge	nc	nc	6.8	0.7
Atlantic herring	66	0.1	10.3	0.1	hydroid spp.	nc	nc	5.9	0.6
blueback herring	63	0.1	2.5	0	flat claw hermit crab	nc	nc	5.7	0.6
clearnose skate	36	0	52.4	0.5	starfish spp.	nc	nc	4.8	0.5
Atlantic menhaden	28	0	5.5	0.1	rubbery bryozoan	nc	nc	4	0.4
winter skate	23	0	60	0.6	common slipper shell	nc	nc	3.9	0.4
hogchoker	22	0	3.2	0	mantis shrimp	70	0.7	3.4	0.3
Atlantic sturgeon	21	0	368.7	3.5	mud crabs	nc	nc	2.1	0.2
black sea bass	19	0	9.3	0.1	blue crab	11	0.1	1.8	0.2
fourbeard rockling	14	0	1.5	0	knobbed whelk	5	0.1	1.2	0.1
rough scad	14	0	0.5	0	sand shrimp	nc	nc	0.6	0.1
spot	14	0	1.2	0	mixed sponge species	nc	nc	0.6	0.1
spiny dogfish	11	0	47	0.4	moon jelly	2	0	0.5	0
cunner	8	0	1.3	0	sea grape	nc	nc	0.5	0
smallmouth flounder	7	0	0.6	0	arks	nc	nc	0.4	0
ocean pout	5	0	0.9	0	purple sea urchin	2	0	0.4	0
glasseye snapper	4	0	0.1	0	star coral	nc	nc	0.3	0
inshore lizardfish	4	0	0.4	0	hard clams	1	0	0.3	0
northern pipefish	3	0	0.2	0	northern red shrimp	1	0	0.3	0
rock gunnel	2	0	0.1	0	red bearded sponge	nc	nc	0.2	0
yellow jack	2	0	0.1	0	fan worm tubes	nc	nc	0.2	0
Atlantic bonito	1	0	3.2	0	northern moon snail	nc	nc	0.2	0
planehead filefish	1	0	0.1	0	surf clam	1	0	0.2	0
goosefish	1	0	1.2	0	brown shrimp	1	0	0.1	0
pollock	1	0	0.1	0	ghost shrimp	nc	nc	0.1	0
oyster toadfish	1	0	1.2	0	Japanese shore crab	nc	nc	0.1	0
yellowtail flounder	1	0	0.4	0	northern cyclocardia	nc	nc	0.1	0
<b>Total</b>	<b>92,042</b>		<b>10,500.2</b>		<b>Total</b>	<b>9,352</b>		<b>1,002.6</b>	

**Appendix 2.4. cont. Total number and weight (kg) of finfish and invertebrates caught in 2007.**

*Finfish species are in order of descending count. Invertebrate species are in order of descending weight (nc = not counted). Young-of-year bay and striped anchovy are neither separated by species or quantified; young-of-year Atlantic herring and American sand lance are not quantified. Number of tows (sample size)=200.*

species	count	%	weight	%	species	count	%	weight	%
scup	75,681	42.6	5,333.5	30.4	grubby	1	0	0.1	0
butterfish	49,137	27.6	1,446.2	8.2	pollock	1	0	0.1	0
weakfish	17,386	9.8	584.8	3.3	rock gunnel	1	0	0.1	0
bluefish	9,378	5.3	1,801.3	10.3	striped burrfish	1	0	0.5	0
winter flounder	4,550	2.6	951.3	5.4	sea lamprey	1	0	0.1	0
windowpane flounder	4,051	2.3	510.8	2.9	yellowtail flounder	1	0	1.0	0
red hake	2,788	1.6	200.4	1.1					
bay anchovy	2,440	1.4	14.5	0.1	<b>Finfish not ranked</b>				
Atlantic herring	1,932	1.1	234.2	1.3	anchovy spp. yoy				
alewife	1,537	0.9	101.3	0.6	Atlantic herring, yoy				
little skate	1,277	0.7	697.0	4.0	American sand lance (yoy)				
fourspot flounder	1,094	0.6	224.9	1.3					
moonfish	979	0.6	12.0	0.1	<b>Invertebrates</b>				
striped searobin	755	0.4	217.0	1.2	long-finned squid	24,212	88.2	773.6	30.8
summer flounder	733	0.4	590.9	3.4	horseshoe crab	333	1.2	596.4	23.7
northern searobin	691	0.4	74.2	0.4	American lobster	1,648	6.0	396.5	15.8
smooth dogfish	580	0.3	2,110.2	12.0	spider crab	nc	nc	165.5	6.6
Atlantic menhaden	426	0.2	63.9	0.4	lion's mane jellyfish	660	2.4	129.8	5.2
striped bass	422	0.2	888.0	5.1	bushy bryozoan	nc	nc	107.4	4.3
spotted hake	340	0.2	23.9	0.1	mixed sponge species	nc	nc	84.5	3.4
silver hake	290	0.2	14.6	0.1	rock crab	nc	nc	41.4	1.6
tautog	280	0.2	551.4	3.1	channeled whelk	196	0.7	33.4	1.3
American shad	236	0.1	15.8	0.1	flat claw hermit crab	nc	nc	27.5	1.1
blueback herring	156	0.1	9.1	0.1	blue mussel	nc	nc	20.4	0.8
black sea bass	116	0.1	46.8	0.3	starfish spp.	nc	nc	20.3	0.8
clearnose skate	97	0.1	193.3	1.1	boring sponge	nc	nc	17.7	0.7
fourbeard rockling	87	0	7.6	0	blue crab	68	0.2	13.0	0.5
hogchoker	78	0	11.4	0.1	mantis shrimp	264	1.0	12.1	0.5
smallmouth flounder	48	0	2.6	0	deadman's fingers sponge	nc	nc	11.5	0.5
winter skate	44	0	117.8	0.7	lady crab	nc	nc	11.5	0.5
hickory shad	37	0	10.4	0.1	knobbed whelk	23	0.1	11.1	0.4
spiny dogfish	32	0	122.3	0.7	common slipper shell	nc	nc	9.3	0.4
American sand lance	30	0	0.3	0	mud crabs	nc	nc	4.3	0.2
Atlantic sturgeon	18	0	336.4	1.9	northern moon snail	nc	nc	4.3	0.2
cunner	16	0	3.0	0	sand shrimp	nc	nc	3.5	0.1
rough scad	13	0	0.7	0	sea grape	nc	nc	3.5	0.1
ocean pout	12	0	3.2	0	arks	2	0	2.7	0.1
Atlantic mackerel	9	0	0.8	0	hydroid spp.	nc	nc	2.5	0.1
glasseye snapper	8	0	0.7	0	hard clams	1	0	2.2	0.1
northern puffer	8	0	0.5	0	rubbery bryozoan	nc	nc	1.4	0.1
striped anchovy	6	0	0.1	0	common oyster	nc	nc	1.1	0
sea raven	5	0	3.6	0	surf clam	10	0	1.0	0
oyster toadfish	5	0	2.0	0	anemones	16	0.1	0.6	0
yellow jack	5	0	0.4	0	purple sea urchin	2	0	0.6	0
northern kingfish	4	0	0.4	0	red bearded sponge	nc	nc	0.5	0
round scad	3	0	0.3	0	star coral	nc	nc	0.4	0
longhorn sculpin	3	0	0.8	0	water jelly	1	0	0.3	0
American eel	2	0	0.9	0	jonah crab	1	0	0.2	0
inshore lizardfish	2	0	0.2	0	northern red shrimp	1	0	0.2	0
mackerel scad	2	0	0.1	0	blood star	nc	nc	0.1	0
northern sennet	2	0	0.2	0	coastal mud shrimp	1	0	0.1	0
northern pipefish	2	0	0.2	0	green sea urchin	1	0	0.1	0
Atlantic silverside	1	0	0.1	0	Japanese shore crab	nc	nc	0.1	0
gizzard shad	1	0	0.1	0	tunicates, misc	1	0	0.1	0
<b>Total</b>	<b>177,841</b>		<b>17,540.3</b>		<b>Total</b>	<b>27,441</b>		<b>2,512.7</b>	

Note: nc= not counted

**Appendix 2.4. cont. Total number and weight (kg) of finfish and invertebrates caught in 2008.**

*Finfish species are in order of descending count. Invertebrate species are in order of descending weight (nc = not counted). Young-of-year bay and striped anchovy are neither separated by species or quantified; young-of-year Atlantic herring and American sand lance are not quantified. Number of tows (sample size)=120.*

species	count	%	weight	%	species	count	%	weight	%
scup	53,560	38	6,509.9	45.7	sea lamprey	1	0	0.8	0
butterfish	48,766	34.6	1,442.0	10.1	striped anchovy	1	0	0.1	0
American sand lance	7,495	5.3	7.2	0.1	<b>Total</b>	<b>140,777</b>		<b>14,239.8</b>	
silver hake	6,587	4.7	208.5	1.5					
winter flounder	4,973	3.5	751.9	5.3	<b>Finfish not ranked</b>				
windowpane flounder	3,511	2.5	524.0	3.7	anchovy spp. yoy				
weakfish	2,531	1.8	116.1	0.8	Atlantic herring, yoy				
red hake	1,723	1.2	141.3	1.0	American sand lance (yoy)				
bluefish	1,699	1.2	641.4	4.5					
spotted hake	1,267	0.9	65.8	0.5	<b>Invertebrates</b>				
bay anchovy	1,128	0.8	7.7	0.1	horseshoe crab	289	2.2	496.8	29.2
alewife	931	0.7	51.1	0.4	long-finned squid	10,490	80.5	330.1	19.4
fourspot flounder	902	0.6	186.3	1.3	American lobster	1,096	8.4	314.1	18.5
northern searobin	809	0.6	58.8	0.4	spider crab	nc	nc	145.8	8.6
moonfish	689	0.5	13.4	0.1	rock crab	nc	nc	64.0	3.8
little skate	682	0.5	327.4	2.3	bushy bryozoan	nc	nc	54.2	3.2
striped searobin	612	0.4	263.0	1.8	lady crab	nc	nc	36.3	2.1
summer flounder	477	0.3	398.0	2.8	starfish spp.	nc	nc	32.1	1.9
American shad	405	0.3	20.2	0.1	boring sponge	nc	nc	30.1	1.8
Atlantic herring	356	0.3	52.1	0.4	channeled whelk	177	1.4	29.3	1.7
smooth dogfish	328	0.2	1,134.2	8.0	mixed sponge species	nc	nc	27.8	1.6
spot	308	0.2	21.3	0.1	hydroid spp.	nc	nc	24.6	1.4
striped bass	199	0.1	456.3	3.2	flat claw hermit crab	nc	nc	22.8	1.3
tautog	179	0.1	309.4	2.2	common slipper shell	nc	nc	15.7	0.9
black sea bass	122	0.1	29.8	0.2	lion's mane jellyfish	520	4	14.3	0.8
smallmouth flounder	89	0.1	3.2	0	mantis shrimp	244	1.9	9.1	0.5
fourbeard rockling	81	0.1	7.1	0	sea grape	nc	nc	6.6	0.4
blueback herring	74	0.1	3.2	0	arks	124	1	6.1	0.4
winter skate	51	0	140.8	1.0	knobbed whelk	17	0.1	5.9	0.3
Atlantic menhaden	47	0	10.4	0.1	blue mussel	nc	nc	5.8	0.3
hogchoker	38	0	5.6	0	northern moon snail	1	0	5.6	0.3
clearnose skate	37	0	78.1	0.5	sand shrimp	nc	nc	4.0	0.2
spiny dogfish	35	0	127.7	0.9	blue crab	16	0.1	3.8	0.2
cunner	26	0	3.6	0	mud crabs	nc	nc	3.5	0.2
inshore lizardfish	10	0	0.5	0	rubbery bryozoan	nc	nc	3.1	0.2
ocean pout	9	0	2.1	0	common oyster	1	0	2.1	0.1
Atlantic sturgeon	7	0	111.3	0.8	hard clams	8	0.1	1.4	0.1
hickory shad	5	0	1.1	0	purple sea urchin	15	0.1	0.9	0.1
feather blenny	4	0	0.2	0	northern red shrimp	21	0.2	0.7	0
white perch	4	0	0.1	0	deadman's fingers sponge	nc	nc	0.6	0
northern kingfish	3	0	0.4	0	surf clam	9	0.1	0.6	0
oyster toadfish	3	0	1.9	0	red bearded sponge	nc	nc	0.4	0
Atlantic silverside	2	0	0.2	0	Jonah crab	2	0	0.4	0
rock gunnel	2	0	0.2	0	star coral	nc	nc	0.3	0
longhorn sculpin	2	0	0.3	0	sea cucumber	2	0	0.3	0
yellowtail flounder	2	0	0.4	0	tunicates, misc	nc	nc	0.3	0
Atlantic croaker	1	0	0.1	0	anemones	nc	nc	0.2	0
planehead filefish	1	0	0.1	0	coastal mud shrimp	1	0	0.1	0
glasseye snapper	1	0	0.1	0	green crab	1	0	0.1	0
pollock	1	0	0.1	0	moon jelly	1	0	0.1	0
rougtail stingray	1	0	3.0	0	northern cyclocardia	1	0	0.1	0
					<b>Total</b>	<b>13,036</b>		<b>1,700.1</b>	

**Appendix 2.4. cont. Total number and weight (kg) of finfish and invertebrates caught in 2009.**

*Finfish species are in order of descending count. Invertebrate species are in order of descending weight (nc = not counted). Young-of-year bay and striped anchovy are neither separated by species or quantified; young-of-year Atlantic herring and American sand lance are not quantified. Number of tows (sample size)=200.*

species	count	%	weight	%	species	count	%	weight	%
butterfish	108,087	53.6	3,186.9	17	striped cusk-eel	1	0	0.1	0
scup	46,991	23.3	6,332.1	33.8	spot	1	0	0.2	0
bay anchovy	11,128	5.5	35.3	0.2	northern stargazer	1	0	0.1	0
Atlantic herring	6,330	3.1	239.2	1.3	Atlantic tomcod	1	0	0.1	0
winter flounder	4,068	2	524.0	2.8	white perch	1	0	0.1	0
bluefish	3,657	1.8	1,157.4	6.2	yellow jack	1	0	0.1	0
weakfish	2,604	1.3	108.7	0.6	yellowtail flounder	1	0	0.2	0
moonfish	2,575	1.3	19.5	0.1	<b>Total</b>	<b>201,476</b>		<b>18,750</b>	
windowpane flounder	2,496	1.2	342.8	1.8					
northern searobin	2,012	1	194.3	1	<b>Finfish not ranked</b>				
striped searobin	1,507	0.7	471.8	2.5	anchovy spp, yoy				
American sand lance	1,227	0.6	2.0	0	Atlantic herring, yoy				
alewife	1,175	0.6	96.0	0.5	American sand lance (yoy)				
fourspot flounder	1,036	0.5	169.8	0.9					
silver hake	947	0.5	50.0	0.3	<b>Invertebrates</b>				
red hake	897	0.4	59.5	0.3	long-finned squid	24,130	91.4	648.4	30.2
summer flounder	881	0.4	694.4	3.7	horseshoe crab	340	1.3	645.8	30
little skate	709	0.4	390.0	2.1	American lobster	853	3.2	244	11.3
smooth dogfish	588	0.3	2,213.3	11.8	spider crab	.	.	144.1	6.7
striped bass	466	0.2	897.4	4.8	lion's mane jellyfish	641	2.4	89.3	4.2
American shad	422	0.2	28.9	0.2	lady crab	.	.	63.6	3
spotted hake	327	0.2	32.1	0.2	rock crab	.	.	42.4	2
blueback herring	291	0.1	14.6	0.1	common slipper shell	.	.	37	1.7
tautog	163	0.1	285.4	1.5	flat claw hermit crab	.	.	33.8	1.6
spiny dogfish	148	0.1	545.7	2.9	bushy bryozoan	.	.	33.3	1.5
black sea bass	121	0.1	59.5	0.3	starfish spp.	.	.	26.6	1.2
smallmouth flounder	96	0	4.7	0	channeled whelk	127	0.5	26	1.2
clearnose skate	69	0	148.5	0.8	hydroid spp.	.	.	25.7	1.2
Atlantic menhaden	69	0	18.0	0.1	knobbed whelk	39	0.1	11.6	0.5
rough scad	59	0	2.8	0	mantis shrimp	215	0.8	10.7	0.5
fourbeard rockling	47	0	3.9	0	Tubularia, spp.	.	.	9	0.4
winter skate	44	0	108.5	0.6	northern moon snail	.	.	7.2	0.3
hogchoker	39	0	4.5	0	anemones	.	.	5.6	0.3
blue runner	34	0	2.3	0	mixed sponge species	.	.	5.4	0.3
ocean pout	22	0	4.8	0	sea grape	.	.	5.0	0.2
Atlantic sturgeon	18	0	286.6	1.5	boring sponge	.	.	4.2	0.2
cunner	18	0	1.8	0	blue crab	19	0.1	4.1	0.2
pollock	18	0	0.8	0	sand shrimp	.	.	3.8	0.2
Atlantic cod	15	0	1.0	0	deadman's fingers sponge	.	.	3.5	0.2
hickory shad	13	0	3.6	0	blue mussel	8	0	3.5	0.2
northern kingfish	7	0	0.4	0	mud crabs	.	.	3.1	0.1
glasseye snapper	6	0	0.6	0	common oyster	1	0	3.1	0.1
Atlantic mackerel	5	0	0.4	0	arks	2	0	2.5	0.1
northern sennet	5	0	0.4	0	surf clam	18	0.1	1.7	0.1
northern puffer	5	0	0.4	0	hard clams	4	0	1.1	0.1
sea raven	5	0	1.7	0	red bearded sponge	.	.	0.8	0
striped anchovy	5	0	0.4	0	purple sea urchin	4	0	0.8	0
Atlantic silverside	3	0	0.3	0	rubbery bryozoan	.	.	0.6	0
oyster toadfish	3	0	0.8	0	star coral	.	.	0.2	0
inshore lizardfish	2	0	0.2	0	ghost shrimp	2	0	0.2	0
northern pipefish	2	0	0.2	0	coastal mud shrimp	2	0	0.1	0
rock gunnel	2	0	0.2	0	northern cyclocardia	1	0	0.1	0
longhorn sculpin	2	0	0.3	0	northern red shrimp	1	0	0.1	0
crevalle jack	1	0	0.1	0	sea cucumber	1	0	0.1	0
planehead filefish	1	0	0.1	0	tunicates, misc	1	0	0.1	0
round scad	1	0	0.1	0	<b>Total</b>	<b>26,409</b>		<b>2,148.2</b>	

Note: nc= not counted

**Appendix 2.4. cont. Total number and weight (kg) of finfish and invertebrates caught in 2010.**

*Finfish species are in order of descending count. Invertebrate species are in order of descending weight (nc = not counted). Young-of-year bay and striped anchovy are neither separated by species or quantified; young-of-year Atlantic herring and American sand lance are not quantified. Number of tows (sample size)=78.*

species	count	%	weight	%	species	count	%	weight	%
American sand lance	13,061	35.3	5.2	0.1	<b><u>Invertebrates</u></b>				
scup	7,157	19.3	1,971.6	44.3	long-finned squid	1,906	62.9	161.4	28.4
butterfish	2,894	7.8	166.9	3.7	horseshoe crab	58	1.9	112.2	19.8
windowpane flounder	2,850	7.7	449.3	10.1	American lobster	293	9.7	83.6	14.7
winter flounder	2,579	7.0	450.5	10.1	spider crab	.	.	81.6	14.4
silver hake	1,747	4.7	35.4	0.8	bushy bryozoan	.	.	23.1	4.1
Atlantic herring	1,318	3.6	179.0	4	rock crab	.	.	16.7	2.9
northern searobin	1,128	3	149.5	3.4	starfish spp.	.	.	15.1	2.7
red hake	990	2.7	64.3	1.4	common slipper shell	.	.	11.2	2
spotted hake	665	1.8	15.8	0.4	lion's mane jellyfish	401	13.2	7.8	1.4
summer flounder	517	1.4	229.6	5.2	lady crab	.	.	7.7	1.4
bay anchovy	475	1.3	2.8	0.1	flat claw hermit crab	.	.	6.8	1.2
fourspot flounder	402	1.1	92.0	2.1	hydroid spp.	.	.	6.7	1.2
little skate	281	0.8	148.3	3.3	channeled whelk	33	1.1	4.5	0.8
alewife	172	0.5	14.3	0.3	northern moon snail	.	.	4.1	0.7
American shad	165	0.4	8.6	0.2	blue mussel	.	.	3.1	0.5
striped searobin	141	0.4	66.4	1.5	common oyster	.	.	2.9	0.5
blueback herring	101	0.3	3.4	0.1	sea grape	.	.	2.7	0.5
striped bass	71	0.2	173.2	3.9	sand shrimp	.	.	2.3	0.4
tautog	53	0.1	83.1	1.9	deadman's fingers sponge	.	.	2.3	0.4
black sea bass	37	0.1	20.1	0.5	blue crab	10	0.3	2.0	0.4
fourbeard rockling	35	0.1	2.9	0.1	arks	.	.	1.6	0.3
hogchoker	34	0.1	4.4	0.1	mud crabs	.	.	1.6	0.3
smallmouth flounder	31	0.1	1.4	0	rubbery bryozoan	.	.	1.2	0.2
rock gunnel	29	0.1	0.5	0	mantis shrimp	19	0.6	1.1	0.2
Atlantic cod	21	0.1	2.1	0	Unknown Jellyfish	300	9.9	0.8	0.1
winter skate	16	0	37.7	0.8	Tubularia, spp.	.	.	0.5	0.1
cunner	11	0	1.3	0	anemones	5	0.1	0.4	0.1
smooth dogfish	10	0	34.4	0.8	surf clam	2	0.1	0.4	0.1
Atlantic menhaden	7	0	2.7	0.1	knobbed whelk	1	0	0.3	0.1
ocean pout	6	0	1.4	0	mixed sponge species	.	.	0.3	0.1
sea raven	6	0	1.6	0	northern comb jelly	1	0	0.2	0
northern pipefish	4	0	0.3	0	purple sea urchin	4	0.1	0.2	0
spiny dogfish	3	0	16.2	0.4	boring sponge	.	.	0.1	0
bluefish	2	0	6.1	0.1	red bearded sponge	.	.	0.1	0
hickory shad	2	0	0.4	0	coastal mud shrimp	.	.	0.1	0
pollock	2	0	0.1	0	star coral	.	.	0.1	0
American plaice	1	0	0.1	0	hard clams	.	.	0.1	0
Atlantic silverside	1	0	0.1	0	sea cucumber	.	.	0.1	0
Atlantic sturgeon	1	0	5.6	0.1	<b>Total</b>	<b>3,033</b>		<b>567.0</b>	
clearnose skate	1	0	4.5	0.1	Note: nc= not counted				
longhorn sculpin	1	0	0.4	0					
weakfish	1	0	1.0	0					
<b>Total</b>	<b>37,029</b>		<b>4,455</b>						

**Finfish not ranked**

anchovy spp, yoy  
 Atlantic herring, yoy  
 American sand lance (yoy)

**Appendix 2.4. cont. Total number and weight (kg) of finfish and invertebrates caught in 2011.**

*Finfish species are in order of descending count. Invertebrate species are in order of descending weight (nc = not counted). Young-of-year bay and striped anchovy are neither separated by species or quantified; young-of-year Atlantic herring and American sand lance are not quantified. Number of tows (sample size)=172.*

species	count	%	weight	%	species	count	%	weight	%
butterfish	42,141	36.7	1,600.8	9.9	striped burrfish	1	0	0.5	0
scup	34,458	30.0	6,759.0	41.7	striped anchovy	1	0	0.1	0
American sand lance	9,535	8.3	7.5	0.0	silver perch	1	0	0.1	0
bay anchovy	4,693	4.1	10.5	0.1	oyster toadfish	1	0	0.2	0
winter flounder	3,092	2.7	613.8	3.8	white perch	1	0	0.1	0
windowpane flounder	2,831	2.5	395.9	2.4	white mullet	1	0	0.1	0
bluefish	2,765	2.4	584.7	3.6	yellowtail flounder	1	0	0.3	0
weakfish	2,583	2.3	192.6	1.2	<b>Total</b>	<b>114,706</b>		<b>16,210.3</b>	
striped searobin	1,630	1.4	558.7	3.4					
Atlantic herring	1,482	1.3	199.4	1.2	<b>Finfish not ranked</b>				
fourspot flounder	1,400	1.2	224.2	1.4	anchovy spp, yoy				
summer flounder	1,051	0.9	713.0	4.4	Atlantic herring, yoy				
silver hake	948	0.8	40.3	0.2	American sand lance (yoy)				
northern searobin	803	0.7	85.5	0.5					
spotted hake	725	0.6	76.8	0.5	<b>Invertebrates</b>				
little skate	674	0.6	359.4	2.2	horseshoe crab	257	1.7	505.2	33.5
moonfish	640	0.6	6.3	0	long-finned squid	13,020	86.4	370.7	24.6
smooth dogfish	613	0.5	2,031.7	12.5	spider crab	.	.	151.8	10.1
alewife	512	0.4	29.8	0.2	lady crab	.	.	132.4	8.8
red hake	278	0.2	25.1	0.2	American lobster	230	1.5	52.0	3.4
American shad	271	0.2	17.5	0.1	rock crab	.	.	45.5	3.0
striped bass	243	0.2	721.9	4.5	hydroid spp.	.	.	30.5	2.0
Atlantic menhaden	181	0.2	69.8	0.4	mantis shrimp	971	6.4	29.6	2.0
rough scad	150	0.1	6.8	0	bushy bryozoan	.	.	24.9	1.7
hogchoker	147	0.1	16.8	0.1	knobbed whelk	62	0.4	23.8	1.6
Atlantic cod	109	0.1	9.2	0.1	flat claw hermit crab	.	.	22.1	1.5
tautog	106	0.1	151.7	0.9	channeled whelk	99	0.7	19.0	1.3
black sea bass	91	0.1	54.2	0.3	starfish spp.	.	.	14.4	1.0
blueback herring	72	0.1	3.2	0	blue crab	69	0.5	12.4	0.8
smallmouth flounder	67	0.1	3.5	0	lion's mane jellyfish	345	2.3	11.3	0.7
spiny dogfish	58	0.1	203.5	1.3	mixed sponge species	.	.	11.0	0.7
clearnose skate	56	0	109.8	0.7	blue mussel	1	0	6.7	0.4
inshore lizardfish	43	0	4.6	0	northern moon snail	.	.	5.6	0.4
fourbeard rockling	43	0	4.0	0	boring sponge	.	.	5.5	0.4
winter skate	37	0	101.2	0.6	hard clams	.	.	5.3	0.4
northern kingfish	34	0	3.7	0	common slipper shell	.	.	5.2	0.3
ocean pout	27	0	4.5	0	sand shrimp	.	.	4.5	0.3
blue runner	24	0	1.7	0	Tubularia, spp.	.	.	3.5	0.2
cunner	14	0	1.9	0	mud crabs	.	.	2.6	0.2
northern puffer	9	0	0.9	0	rubbery bryozoan	.	.	1.7	0.1
longhorn sculpin	9	0	2.0	0	common oyster	1	0	1.6	0.1
hickory shad	8	0	1.5	0	sea grape	.	.	1.5	0.1
Atlantic sturgeon	5	0	181.9	1.1	arks	.	.	1.4	0.1
pollock	5	0	0.5	0	surf clam	7	0	1.0	0.1
spot	5	0	0.7	0	purple sea urchin	3	0	0.6	0
crevalle jack	4	0	0.4	0	red bearded sponge	.	.	0.3	0
grubby	4	0	0.1	0	northern comb jelly	.	.	0.3	0
northern pipefish	4	0	0.3	0	anemones	6	0	0.2	0
rock gunnel	4	0	0.2	0	star coral	.	.	0.2	0
conger eel	3	0	1.1	0	coastal mud shrimp	1	0	0.1	0
sea raven	3	0	0.9	0	common razor clam	1	0	0.1	0
striped cusk-eel	2	0	0.2	0	ghost shrimp	1	0	0.1	0
Atlantic tomcod	2	0	0.2	0	northern red shrimp	1	0	0.1	0
American plaice	1	0	0.1	0	polychaetes	.	.	0.1	0
Atlantic croaker	1	0	0.2	0	tunicates, misc	.	.	0.1	0
northern sennet	1	0	0.1	0	water jelly	1	0	0.1	0
round scad	1	0	0.1	0	<b>Total</b>	<b>15,076</b>		<b>1,505.0</b>	
rougtail stingray	1	0	13.0	0.1					

Note: nc= not counted

**Appendix 2.4. cont. Total number and weight (kg) of finfish and invertebrates caught in 2012.**

Finfish species are in order of descending count. Invertebrate species are in order of descending weight (nc = not counted). Young-of-year bay and striped anchovy are neither separated by species or quantified; young-of-year Atlantic herring and American sand lance are not quantified. Number of tows (sample size)=200.

<b>species</b>	<b>count</b>	<b>%</b>	<b>weight</b>	<b>%</b>	<b>species</b>	<b>count</b>	<b>%</b>	<b>weight</b>	<b>%</b>
butterfish	60,539	37.9	1,891.3	10.8	longhorn sculpin	1	0	0.2	0
scup	53,119	33.2	6,170.2	35.1	white perch	1	0	0.2	0
silver hake	7,519	4.7	171.0	1.0	white mullet	1	0	0.1	0
weakfish	6,785	4.2	409.2	2.3	<b>Total</b>	<b>159,770</b>		<b>17,570.3</b>	
bluefish	3,851	2.4	532.7	3.0					
northern searobin	3,642	2.3	405.2	2.3	<b>Finfish not ranked</b>				
windowpane flounder	3,536	2.2	501.1	2.9	anchovy spp, yoy				
winter flounder	3,365	2.1	604.9	3.4	Atlantic herring, yoy				
striped searobin	2,973	1.9	1,086.4	6.2	American sand lance (yoy)				
fourspot flounder	2,597	1.6	454.5	2.6					
red hake	1,720	1.1	148.6	0.8	<b>Invertebrates</b>				
little skate	1,406	0.9	657.9	3.7	horseshoe crab	199	1.7	385.8	30.6
bay anchovy	1,296	0.8	8.6	0.0	long-finned squid	9,767	84.5	333.9	26.5
summer flounder	980	0.6	718.5	4.1	spider crab	.	.	162.4	12.9
spot	858	0.5	107.5	0.6	American lobster	349	3.0	70.0	5.6
alewife	708	0.4	47.0	0.3	boring sponge	.	.	47.9	3.8
spotted hake	626	0.4	64.2	0	lady crab	.	.	45.3	3.6
smooth dogfish	610	0.4	1,833.3	10.4	rock crab	.	.	40.7	3.2
Atlantic herring	571	0.4	61.5	0.4	mantis shrimp	846	7.3	26.6	2.1
Atlantic menhaden	426	0.3	144.6	0.8	bushy bryozoan	.	.	20.4	1.6
black sea bass	410	0.3	141.0	0.8	flat claw hermit crab	.	.	18.3	1.5
hogchoker	340	0.2	30.7	0.2	blue crab	72	0.6	14.5	1.2
American shad	321	0.2	25.3	0.1	knobbed whelk	36	0.3	13.8	1.1
clearnose skate	280	0.2	491.7	3	channeled whelk	76	0.7	13.7	1.1
moonfish	262	0.2	3.6	0.0	blue mussel	1	0.0	9.4	0.7
smallmouth flounder	258	0.2	7.5	0.0	common slipper shell	.	.	9.4	0.7
striped bass	170	0.1	278.0	1.6	mixed sponge species	.	.	7.4	0.6
tautog	135	0.1	128.9	0.7	Tubularia, spp.	.	.	5.0	0.4
winter skate	97	0.1	179.8	1	hydroid spp.	.	.	4.8	0.4
northern kingfish	59	0.0	8.4	0	lion's mane jellyfish	50	0.4	4.4	0.3
northern puffer	47	0.0	3.1	0.0	mud crabs	.	.	3.9	0.3
blueback herring	46	0	1.6	0.0	starfish spp.	.	.	3.3	0.3
fourbeard rockling	43	0	3.5	0	northern red shrimp	118	1.0	3.0	0.2
hickory shad	42	0	14.1	0	northern moon snail	.	.	1.8	0.1
blue runner	27	0	2.7	0.0	sand shrimp	.	.	1.7	0.1
cunner	20	0	2.8	0	arks	.	.	1.4	0.1
rough scad	19	0	1.1	0	hard clams	3	0	1.3	0.1
spiny dogfish	16	0	62.8	0	red bearded sponge	.	.	1.2	0.1
ocean pout	14	0	2.0	0	sea grape	.	.	1.1	0.1
Atlantic sturgeon	7	0	154.2	1	deadman's fingers sponge	.	.	0.8	0.1
sea raven	5	0	1.1	0	purple sea urchin	7	0	0.8	0
northern sennet	3	0	0.3	0	common oyster	.	.	0.8	0
striped anchovy	3	0	0.2	0.0	surf clam	10	0.1	0.8	0
crevalle jack	2	0	0.2	0	star coral	.	.	0.4	0
goosefish	2	0	0.8	0	rubbery bryozoan	.	.	0.4	0
pinfish	2	0	0.2	0	sea cucumber	3	0	0.4	0
round herring	2	0	0.1	0	tunicates, misc	16	0	0.4	0
American sand lance	2	0	0.2	0	water jelly	4	0	0.3	0
African pompano	1	0	0.1	0	coastal mud shrimp	1	0	0.2	0
conger eel	1	0	0.3	0	northern comb jelly	.	.	0.1	0
gizzard shad	1	0	0.1	0	moon jelly	.	.	0.1	0
northern pipefish	1	0	0.1	0	<b>Total</b>	<b>11,558</b>		<b>1,257.9</b>	
rock gunnel	1	0	0.1	0					
rougtail stingray	1	0	5.0	0					

Note: nc= not counted

**Appendix 2.5: Cold and warm temperate species captured in LISTS.** Thirty-three (33) species are included in the cold temperate group, while thirty-four (34) species are included in the warm temperate group. Cold temperate species are defined as being more abundant north of Cape Cod, MA than south of New York, behaviorally adapted to cold temperatures including subfreezing but prefers ~3-15<sup>0</sup>C, and spawns at lower end of temperature tolerance. Warm temperate species are defined as being more abundant south of New York than north of Cape Cod, MA, behaviorally avoids temperatures < 7-10<sup>0</sup>C; prefers ~11-22<sup>0</sup>C, and spawns at higher end of temperature tolerance.

Cold Temperate Group		Warm Temperate Group	
Common Name	Scientific Name	Common Name	Scientific Name
alewife	<i>Alosa pseudoharengus</i>	American eel	<i>Anguilla rostrata</i>
American plaice	<i>Hippoglossoides platessoides</i>	American shad	<i>Alosa sapidissima</i>
Atlantic herring	<i>Clupea harengus</i>	Atlantic bonito	<i>Sarda sarda</i>
Atlantic cod	<i>Gadus morhua</i>	Atlantic croaker	<i>Micropogonias undulatus</i>
Atlantic mackerel	<i>Scomber scombrus</i>	Atlantic silversides	<i>Menidia menidia</i>
Atlantic salmon	<i>Salmo salar</i>	black seabass	<i>Centropristis striata</i>
Atlantic seasnail	<i>Liparis atlanticus</i>	blueback herring	<i>Alosa aestivalis</i>
Atlantic sturgeon	<i>Acipenser oxyrinchus</i>	bluefish	<i>Pomatomus saltatrix</i>
Atlantic tomcod	<i>Microgadus tomcod</i>	butterfish	<i>Pepilus triacanthus</i>
barndoor skate	<i>Dipturus laevis</i>	clearnose skate	<i>Raja eglanteria</i>
cunner	<i>Tautoglabrus adspersus</i>	conger eel	<i>Conger oceanicus</i>
fawn cusk-eel	<i>Lepophidium profundorum</i>	gizzard shad	<i>Dorosoma cepedianum</i>
fourspot flounder	<i>Hippoglossina oblonga</i>	hickory shad	<i>Alosa mediocris</i>
grubby	<i>Myoxocephalus aeneus</i>	hogchoker	<i>Trinectes maculatus</i>
haddock	<i>Melanogrammus aeglefinus</i>	lined seahorse	<i>Hippocampus erectus</i>
little skate	<i>Leucoraja erinacea</i>	menhaden	<i>Brevoortia tyrannus</i>
longhorn sculpin	<i>Myoxocephalus octodecemspinosus</i>	naked goby	<i>Gobiosoma boscii</i>
lumpfish	<i>Cyclopterus lumpus</i>	northern kingfish	<i>Menticirrhus saxatilis</i>
monkfish (goosefish)	<i>Lophius americanus</i>	northern puffer	<i>Sphoeroides maculatus</i>
northern pipefish	<i>Syngnathus fuscus</i>	northern searobin	<i>Prionotus carolinus</i>
ocean pout	<i>Zoarces americanus</i>	oyster toadfish	<i>Opsanus tau</i>
pollock	<i>Pollachius virens</i>	scup (porgy)	<i>Stenotomus chrysops</i>
rainbow smelt	<i>Osmerus mordax</i>	sea lamprey	<i>Petromyzon marinus</i>
red hake	<i>Urophycis chuss</i>	smallmouth flounder	<i>Etropus microstomus</i>
rock gunnel	<i>Pholis gunnellus</i>	smooth dogfish	<i>Mustelus canis</i>
rockling	<i>Enchelyopus cimbrius</i>	spot	<i>Leiostomus xanthurus</i>
searaven	<i>Hemitripterus americanus</i>	spotted hake	<i>Urophycis regia</i>
spiny dogfish	<i>Squalus acanthias</i>	striped bass	<i>Morone saxatilis</i>
whiting (silver hake)	<i>Merluccius bilinearis</i>	striped cusk-eel	<i>Ophidion marginatum</i>
windowpane	<i>Scophthalmus aquosus</i>	striped searobin	<i>Prionotus evolans</i>
winter flounder	<i>Pseudopleuronectes americanus</i>	summer flounder	<i>Paralichthys dentatus</i>
winter skate	<i>Leucoraja ocellata</i>	tautog (blackfish)	<i>Tautoga onitis</i>
yellowtail flounder	<i>Limanda ferruginea</i>	white perch	<i>Morone Americana</i>
		weakfish	<i>Cynoscion regalis</i>



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