

Nearshore fish communities of the mid-Hudson River estuary, 1985-2003

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A handwritten signature in black ink, which appears to read "David Conover". The signature is written in a cursive style with a long, sweeping tail.

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Dean and Director

Abstract

In 2003, 222 seine hauls were completed in the young-of-the-year (YOY) striped bass survey in the Hudson River. A total of 16,046 YOY striped bass were captured, resulting in a geometric mean catch per unit effort (CPUE) of 31.22 fish/haul. The Hudson River index of YOY striped bass abundance, based on the geometric mean CPUE of the 6-week survey, was 17.36 fish/haul. This catch rate was slightly higher than the average historical geometric mean CPUE of 14.32 fish/haul. YOY striped bass grew at an estimated 0.47 mm/day between mid-July and the beginning of October. Catch rates of American shad, alewife, and blueback herring continued to be below average, in comparison with the historical records. Atlantic silverside catch rates were one of the lowest ever recorded in the survey. Catch rates of YOY white perch were among the 6th highest recorded since data collection began in 1980. Composition of the catch was similar to previous years, with striped bass (16,046 fish), followed by white perch (7,513 fish) and silversides (4,590 fish), being the three most abundant species in the catch. Air and water temperatures through the summer and autumn were near average, while salinities in the time period between sample week 1 and 8 were more than 2 ppt below average. Only in week 4, was salinity recorded at average historic levels.

Introduction

The striped bass (*Morone saxatilis*) is an anadromous species that spawns in large river systems. Its native range extends from the St. Lawrence River, Nova Scotia, Canada to the St. Johns River, Florida (Scott and Scott 1988). Spawning occurs in the region above the salt wedge, in the spring, when river temperatures rise above 12 °C. The semi-buoyant eggs and larvae drift down into the low salinity regions of the estuary. During the first summer of life, Hudson River striped bass reside in nearshore regions throughout the estuary and in coastal marine embayments (Boreman et al. 1988; McKown and Gelardi 2000). In the autumn, striped bass migrate to higher salinities in the lower estuary, the only known concentration area for overwintering YOY fish (Dovel 1992). Striped bass were introduced to the Pacific coast in the late 1800's, where several sustaining populations have become established. Striped bass have also been introduced, as a sport fish, into reservoirs throughout the southern United States (Smith 1985).

Historically, this species has supported important commercial and recreational fisheries along the east coast of North America (Merriman 1941; Boreman and Austin 1985). Catches in the coastwide commercial fishery reached a peak in 1973 at 5.98 metric tons (mt), declining rapidly thereafter to below 2 mt/year by the late 1970's (NMFS 1999). The Atlantic States Marine Fisheries Commission implemented a management strategy aimed at protecting the last successful yearclass (1982) in the Chesapeake Bay from harvest. Moratoria on commercial harvest of striped bass were issued for Maryland and Delaware waters. Following a strong recruitment event into the

Chesapeake Bay population in 1989, a limited fishery was re-established. Continued improvement in recruitment to the Chesapeake Bay population has allowed increases in harvest levels in recent years (Richards and Rago 1999). The commercial fishery in the Hudson River was closed, and recreational harvest restricted, in 1976 due to concerns over high levels of poly-chlorinated biphenols (PCBs) in fish flesh. The commercial fishery, within the Hudson River, remains closed (NMFS 1999). Since the late 1970's, improvements in water quality in the Delaware River have allowed the increased production of striped bass in that system (Weisberg et al. 1996). Recent estimates indicate that Chesapeake Bay populations contribute 75% of the coastwide stock, with the Hudson River and Delaware Bay contributing 15 and 10% respectively (K. McKown, NYS DEC, personal communication).

Indices of the abundance of early life stages of striped bass, to monitor annual recruitment patterns, have been developed for several east coast populations, including the main tributaries to the Chesapeake Bay and the Hudson River (Goodyear 1985; McKown 1991; Heimbuch et al. 1992). The use of these indices as predictors of future population size, is based on the assumption that recruitment level is determined prior to the life-stage surveyed (Bradford 1992). Goodyear (1985) validated the Maryland Department of Natural Resources YOY index, based on its relationship to fishery harvests when those year-classes entered the fishery. Based on this result, a number of studies have been conducted to determine the factors regulating survival during the larval phase in the Chesapeake Bay population (Uphoff 1989; Secor and Houde 1995; McGovern and Olney 1996). The index of YOY abundance in the Hudson River population was

correlated with the abundance of age-1 fish, indicating its utility in predicting recruitment (McKown 1991). A more recent analysis, which incorporates a longer time series, found that the abundance of age-1 fish was more closely related to the severity of winter, than to the abundance of YOY fish in the previous summer (Hurst and Conover 1998). Mortality of overwintering YOY striped bass in the Hudson River and Miramichi populations, has been shown to be size-selective against smaller fish (Bradford and Chaput 1997; Hurst and Conover 1998). These analyses suggest that the first winter of life may play an important role in the recruitment dynamics of these northern populations.

Here we present the results of the 2003 young-of-the-year survey for the Hudson River population of striped bass and compare the results to previous years. We also include catch data on all species captured during the survey, and detailed catch data, including size-distributions, for a number of resource species.

Methods

The survey is conducted between mid-July and early November in the Haverstraw-Tappan Zee region of the Hudson River (river miles 23-42; Figure 1). Within this stretch of river, 25 sites are sampled bi-weekly, 9 times. The 25 sites sampled during each bi-weekly survey, are chosen from 36 potential fixed stations based on prevailing conditions (wind direction, speed and tide stage). Prior to 1985, stations were sampled 6 times between late August and early November. A subset of data from 1985 to 2002, covering the same period, is used to compare with data from 1980 to 1984.

Fish collections are made with a 200 foot x 10 foot (12 foot depth in the bag) beach seine with 1/4 inch square mesh in the wings, and 3/16 inch square mesh in the bag (61 m x 3 m with 6 mm wing mesh and 5 mm bag mesh), set by boat. The performance of the sampling gear, and representation of the catch, was rated for each set of the gear. Following each collection, measurements of air temperature, water temperature, dissolved oxygen, and salinity were made in the immediate vicinity of the gear set, using a YSI Model 85 probe. Environmental parameters, such as wind direction and speed, tidal stage, wave height, cloud cover, and precipitation, were recorded. The types of any aquatic vegetation in the vicinity of the sampling site were recorded and the spatial coverage of vegetation at the site was estimated. While some sites were generally sampled at a particular tidal stage or time of day, due to accessibility, others were sampled at all tidal stages and times of day.

All fish captured were sorted by species (where feasible young-of-the-year fish were counted separately from older fish) counted and returned to the water. In the case of extremely high catches, a volumetric subsampling procedure was used to estimate catches of individual species. Young-of-the-year and older blue crabs were the only invertebrates counted. The occurrence of shrimp and gelatinous zooplankton captured in each set of the net was noted, with a visual estimate of abundance. Up to 50 YOY striped bass, and all older striped bass were, measured from each haul. In addition, up to 30 individuals each of bluefish, crevalle jack, weakfish, summer flounder, winter flounder, Atlantic tomcod, American eel, American shad, alewife, blueback herring and Atlantic menhaden were measured (mm TL) from each collection. Atlantic silversides and YOY

white perch were measured periodically throughout sampling. All measurements were made in the field and fish were returned to the water at the site of capture.

Scales were removed from above the lateral line, between the first and second dorsal fins, from all striped bass larger than 110 mm TL. These scales were pressed into acetate at 180 °C and 2000 lbs./foot². The age of all fish larger than 110 mm was determined by visual analysis of the acetate impression of multiple scales, under magnification.

All captured striped bass larger than 170 mm TL were tagged as part of the United States Fish and Wildlife Service coastwide tagging program. Tags were individually numbered floy-type tags, with 6.5 x 19.25 mm oval anchor, and 91 mm streamer. A few scales were removed from the fish, half way between the pectoral and anal fin, an incision was made through the body wall, and the tag anchor was inserted into the body cavity.

Results and Discussion

During the 2003 sampling season, 9 sampling trips were conducted between July 15 and November 8. During this sampling, a total of 38,760 fish were collected. This was about 10,000 fish less than the previous year. Also, we only caught 173 blue crabs compared to 1034 blue crabs in 2002. Of the 38,760 fish caught, 16,046 were young-of-the-year striped bass, and only 67 were older striped bass. In total, 222 beach seine hauls were conducted in 2003.

Environmental conditions

Weekly average water temperatures generally decreased through the sampling season, from a high of 26.76 °C in July to a low of 9.5 °C on November 12 (Table 1). This was close to the historical average (figure 2). Air temperatures also generally decreased during the sampling season, ranging from 30.7 to 3.8 °C. River salinity fluctuated between 0 and 9.9 ppt through the sampling season. The highest average salinity of 5.86 ppt was recorded on September 9-10 while the lowest average salinity of 0.6 ppt was recorded on November 12. In general recorded salinity was lower than the average salinity recorded from 1985 to 2002 (figure 2). Weekly average of dissolved oxygen levels ranged between 5.88 and 8.97 mg/L throughout the sampling season, and did not show any distinct seasonal pattern.

Species composition

Forty-six species of fish were captured in the Hudson River during the 2003 sampling season. Fish catches varied from a peak of 9,574 in week 3 (August 21-22) to a minimum of 525 in week 9 (November 12). Striped bass was the most abundant species captured during the 2003 sampling season (16,113 fish), followed by white perch (7,513 fish), silversides (4,590 fish), bay anchovy (2,592 fish), and killifish (2,217 fish) (Table 3). In 2003, notably, close to half of the fish caught were striped bass. Catch composition during the 2003 sampling season is compared to historical catch composition in Tables 4 and 5. Detailed catch information on selected species is presented below.

Striped bass, *Morone saxatilis*

During the 2003 sampling season, 16,046 YOY striped bass were captured in 222 hauls, with a mean CPUE of 72.28 and a geometric mean CPUE of 31.22 (Table 6). Between 1980 and 1985, catch data was collected in a period corresponding to the last 6 weeks of the 2003 sampling season. In order to compare 2003 catch data with results obtained previous to 1985, the statistics on the final 6 weeks of catch data for 2003 is presented in Table 6, together with historical records. In the final six weeks, 5,150 YOY striped bass were captured in 147 hauls, resulting in a mean CPUE of 35.0 and a geometric mean CPUE of 17.36 (Figure 3). The 6-week geometric mean CPUE, used as the young of the year striped bass index of relative abundance, was slightly higher than the historical average of 14.32. However, in contrast to the 6-week geometric mean CPUE, the 9-week geometric mean CPUE (31.22) was much higher than the historical annual average of 20.86 (average since 1985).

Catch-per-unit-effort of YOY striped bass peaked during the second week of the survey at 170.64 fish/haul, where after the CPUE exponentially declined throughout the remaining sampling season. The lowest catch rate of 7.36 fish/haul was reached during the final week of the survey. This year's catch rate peaked early in the sampling season (week 2). This is different from 2002 and 2001, where catch rates peaked in week 5 and 4, respectively. Catch patterns, similar to that of 2001 and 2002, with peak catch rates in week 4 or 5 of the survey, were also observed in 1987, 1997, and 1999. The reason for the late peak in catch rate observed, during some years, is unknown. It has been hypothesized that YOY striped bass, recruiting to the western Long Island Sound early in

the summer, migrate back to the Hudson River nursery area later in the year. However, when comparing catch records in the western Long Island Sound and the Hudson River, this hypothesis is not supported by observations. YOY striped bass have only been consistently observed in the western Long Island survey, in sufficient number to potentially affect the abundance of striped bass in the Hudson River survey, since 2001. Furthermore, years of high abundance recorded in the western Long Island Sound does not correspond to the years in the Hudson River, with peak catch rates occurring late in the year (Brischler, 2004).

Catch-per-unit-effort of YOY striped bass varied considerably across sites in 2003 (Table 7). The sites with the highest CPUE (> 120 fish/haul) were 7W, 8E, and 9E, while the sites 4E, 4W, 11W, and 12W had the lowest catches (<40 fish/haul). The distribution of catch among sites observed in 2003, is generally consistent with previous years, as the sites 8E, 9E and 7W are commonly among those sites with the highest catch rates of YOY striped bass. Annual catch-per-unit-effort data for the full 9 week survey and the 6-week subset, are shown in Tables 8 and 9.

Total length measurements were made on 7,269 YOY striped bass during the 9 week survey, with fish ranging from 15 to 194 mm. The bi-weekly size-frequency distributions of YOY striped bass are shown in Table 10. Mean bi-weekly lengths of YOY striped bass, captured during the 2003 sampling season are compared to previous years in Table 11. Mean lengths of measured fish increased through the first six sampling weeks, and were relatively stable thereafter (Figure 4). The apparent cessation of growth in YOY striped bass, based on observed fish lengths, has been observed in most

years of the study, and may in part be due to a size-dependent emigration from the nursery area to the lower estuarine wintering grounds. Growth rate of YOY striped bass in the 2003 cohort, estimated from the regression of mean total length against date, was 0.47 mm/day through the first 6 weeks of the survey. This is in the lower range of the mean growth rates observed. Annual cohort growth rates ranged from 0.45 mm/day in 1990 to 0.72 mm/day in 1995. In an analysis of historical data, Hurst (2000) found that body sizes of YOY striped bass in August and October were negatively related to density in the nursery area suggesting density dependent growth.

The age composition of striped bass captured between 1985 and 2003 is shown in Table 12. During the 9 week survey, 67 striped bass aged 1 to 3 were captured and ranged in length from 115-450 mm TL (Table 13). Older striped bass were most abundant at site 11E and 19E, where CPUE was 1.4 (Table 14).

Thirty-nine older striped bass, ranging in length from 170 to 450 mm were tagged with internal anchor tags as part of the United States Fish and Wildlife Service coastwide tagging program. The majority of these (n=36) were age 1.

White perch, *Morone americana*

In 2003, 7,513 white perch were captured. White perch were identified as either young-of-the-year or older, based on observed size-distribution among the catch. Of the white perch captured, 5,640 were YOY and 1,873 were age-1 or older. Young-of-the-year white perch were most abundant at sites 8E and 10W (Table 15). Catch-per-unit-effort of YOY white perch was highest in week 3 (83.12 fish per haul), and lowest in

week 9, when only 56 fish were captured in 25 hauls. Older white perch were most abundant at site 11E and 7EE (Table 16). During the sampling season catch-per-unit-effort of older white perch declined from 18.12 fish per haul in week 3, to less than 2 fish per haul in the final three weeks of sampling.

Through the entire study period, the highest mean catch rates of YOY white perch were 75.75 fish per haul in 1988, and 36.97 fish per haul in 1986 (Figure 5). Catch rates of less than 2 fish per haul occurred in 1995 and 1997. In 2003, mean catch rates of white perch were 33.84 fish per haul and is within the same range observed in the previous 5 years. Catch rates of older white perch went down in 2003 to 8.44, from 20.04 fish per haul in 2002, when catch rates of older perch were the highest observed since 1989.

Atlantic tomcod, *Microgadus tomcod*

During the 2003 sampling season, 6 Atlantic tomcod were captured except at station 14E during week 8 where 300 tomcods were captured in one haul. The bi-weekly size-frequency distribution of captured Atlantic tomcod is presented in Table 18.

The size ranged between 92 and 125 mm. The CPUE of Atlantic tomcod in 2003 was 0.04 to 0.08 fish per haul, excluding the very large catch of tomcods at station 14E.

Equivalent to last year, the catch rate was very low compared to previous years, where catch rates were 65 fish per haul. However, the CPUE was also low in 1991, 1993, 1994, 1995, and 1999. In those years, catch rates were as low as 0.03 fish per haul. High catches of 2.64 and 2.30 fish per haul were observed in 1988 and 1998 respectively (Figure 5).

American eel, *Anguilla rostrata*

In 2003, 55 American eel were captured during sampling. The highest catch rates (0.8-1.0 fish per haul) were observed at sites 8W and 12W (Table 19). The catch rate of 0.25 eels per haul was low compared to historical records, but was similar to catch rates from the past 3 years (Figure 6). The highest catches (0.78 fish per haul) occurred in 1988. American eel ranged in length from 65 to 760 mm TL, with an overall mean length of 395.6 mm. The bi-weekly size-frequency distributions of American eel are shown in Table 20.

Bluefish, *Pomatomus saltatrix*

In 2003, 222 YOY bluefish were captured. They were captured during the first 7 weeks of the survey (Table 21). The bluefish spring-spawned cohort was present in the catches from week 1 to week 7, while the summer-spawned cohort was first observed in week 3 and was present in the catches until week 7 (Table 22). Bluefish CPUE was highest at site 8E. The mean CPUE was 1 fish per haul in 2003 (Table 21). Catch rates of YOY bluefish in 2003 were not as high as in 2002 (2.83 fish per haul) and 2001 (4.4 fish per haul). The highest bluefish abundances ever observed was in 1999 (Figure 6). Bluefish captured in 2003 ranged in length from 65 to 265 mm TL (Table 22). Based on the size-frequency distributions (Table 22), bluefish appeared to be relatively evenly split between the spring and summer cohorts, which are spawned in the South Atlantic Bight in March-April, and in the Mid-Atlantic Bight in June-July (Munch and Conover 2000).

Winter flounder, *Pleuronectes americanus*

Mean catch rate of winter flounder in 2003 was 0.49 fish/haul. These tended to be captured in the southern half of the sampling region, with peak catch rates occurring in the first weeks of the sampling season (Table 23). Historical extreme low and high catch rates in this survey were 0.17 and 2.51 fish/haul, observed in 1987 and 1985 respectively (Figure 6). Winter flounder ranged in length from 30 to 100 mm, with a mean length of 59.72 mm. The bi-weekly size-frequencies are shown in Table 24.

American shad, *Alosa sapidissima*

In 2003, 975 American shad were captured. American shad were most abundant at sites 19E, 8E, and 4E (Table 25). Weekly CPUE of American shad was highest in week 3 of sampling. Historically, peak CPUE of American shad occurred most commonly in weeks 1-2 or 8-9. Although higher than observed in 2000, the CPUE of American shad in 2003 (4.39 fish per haul) was amongst the lowest since 1985 (catch rate in 1998 were 0.43 fish per haul). The highest catch rates (22.18 fish per haul) was observed in 1986 (Figure 7). American shad ranged from 25 to 175 mm TL, with a mean length of 69.30 mm (Table 26).

Alewife, *Alosa pseudoharengus*, and Blueback herring, *Alosa aestivalis*

During sampling in 2003, 444 alewife and 1,782 blueback herring were captured (Table 27 and 29). Alewife ranged in length from 30 to 100 mm TL, with a mean of 64.65 mm (Table 28). Blueback herring measured 30 to 100 mm TL with a mean length

of 56.27 mm TL (Table 30). The mean CPUE of alewife and blueback herring were 2.0 and 8.2 fish per haul respectively (Table 27 and 29). Catches of blueback herring were higher than observed in 2000, but still below the 18 year average CPUEs, with catch of blueback herring being the sixth lowest since 1985.

Atlantic menhaden, *Brevoortia tyrannus*

During sampling in 2003, 813 Atlantic menhaden were captured (Table 31). Measured Atlantic menhaden ranged from 25 to 165 TL mm with a mean of 82.4 mm TL (Table 32). The average 2003 catch rate of 3.7 fish per haul, was much lower than in 1999, where the catch rate was 92.93 fish per haul (Figure 8 and Table 32).

Atlantic silversides, *Menidia menidia*

Atlantic silversides were not as abundant, as compared to 2002 (figure 8). In 2003, only 4,590 silversides were caught. Atlantic silversides were most abundant at site 11E, with catch rates of 118.5 fish per haul (Table 33). In 2003, 1,034 silversides were measured and they ranged in length from 25 to 110 mm TL, with a mean of 72.52 mm (Table 35). Annual catch rates of Atlantic silversides in the survey have been extremely variable, ranging from 7.9 fish per haul in 1989, to 191.9 fish per haul in 1994. In 2003, the overall catch rate of silversides was 20.68 fish per haul, (Figure 8).

Blue crab, *Callinectes sapidus*

During sampling in 2003, 173 blue crabs were captured. About half of these

were young-of-the-year. YOY blue crabs were most abundant at sites 13E and 18E, while older blue crabs were most abundant at 21E and 13E (Tables 35 and 36). Catch rates peaked in week 1 for YOY blue crabs, and in weeks 2-3 for older blue crabs. Prior to 1998, no distinction was made between YOY and older crabs, so the time trend in catch rates are presented for the total numbers of blue crabs. Catch rates in 2003 were 0.78 crabs/haul, an intermediate level in the 18 year time series, and slightly less than the catch rate of 3.78 and 2.32 crab/haul observed 2002 and 2001 (Figure 8).

Conclusions

Catch composition during the 2003 Hudson River beach seine sampling season was generally consistent with previous years. The most abundant species were striped bass, white perch, and Atlantic silversides. Salinities in the sampling region were below average, except in week 4.

The abundance of striped bass was above those in recent years, with peak catches occurring in the second week of sampling. The 6-week YOY striped bass index of relative abundance was 17.36, which was higher than the historical average of 14.32. Growth rates of YOY striped bass, based on length frequency progression, was 0.47 mm/day.

Catch rates of American Shad, alewife, and blueback herring, were below average in comparison with previous years. Atlantic silverside catch rate was the third lowest since 1985. Catch rates of both YOY and older white perch were among the 6 highest observed since recording began in 1980.

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Literature Cited

- Boreman, J. and H.M. Austin. 1985. Production and harvest of anadromous striped bass stocks along the Atlantic coast. *Transactions of the American Fisheries Society* 114:3-7.
- Boreman, J., R.J. Klauda, D.S. Vaughan and R.L. Kendall. 1988. Distributions of early life stages of striped bass in the Hudson River Estuary, 1974-1979. In *Science, law, and Hudson River power plants*. Edited by Barnhouse, L.W. American Fisheries Society, Monograph 4. Bethesda, Maryland.
- Bradford, M.J. 1992. Precision of recruitment predictions from early life stages of marine fishes. *Fishery Bulletin* 90:439-453.
- Brischler, J. 2004. An Investigation of the movement and growth of the Hudson River year class. A study of the striped bass in the marine district of the New York State. Annual report for P.L. 89-304, Project AFC-27. Mimeo pp 69.
- Buckel, J.A., D.O. Conover, N.D. Steinberg and K.A. McKown. 1999. Impact of age-0 bluefish (*Pomatomus saltatrix*) predation on age-0 fishes in the Hudson River estuary: evidence for density-dependent loss of juvenile striped bass (*Morone saxatilis*). *Canadian Journal of Fisheries and Aquatic Sciences* 56:275-287.
- National Marine Fisheries Service (NMFS) with the U.S. Fish and Wildlife Service and the Atlantic States Marine Fisheries Commission. 1999. Striped bass studies. 1999 Biennial report to Congress.
- Dey, W.P. 1981. Mortality and growth of young-of-the-year striped bass in the Hudson River estuary. *Transactions of the American Fisheries Society* 110:151-157.
- Dovel, W.L. 1992. Movements of immature striped bass in the Hudson estuary. In *Estuarine research in the 1980's*. Edited by Smith, C.L. State University of New York Press. Albany. pp 276-300.
- Goodyear, C.P. 1985. Relationship between reported commercial landings and abundance of young striped bass in Chesapeake Bay, Maryland. *Transactions of the American Fisheries Society* 114:92-96.
- Heimbuch, D.G., D.J. Dunning, and J.R. Young. 1992. Post-yolk-sac larvae abundance as an index of year class strength of striped bass in the Hudson River. In *Estuarine Research in the 1980's*. Edited by Smith, C.L. State Univ. New York Press. Albany, NY.
- Hurst, T.P. 2000. Overwintering ecology of young-of-the-year striped bass (*Morone saxatilis*) in the Hudson River estuary. Marine Sciences Research Center. Stony Brook, State University of New York:181.

- Hurst, T.P., and D.O. Conover. 1998. Winter mortality of young-of-the-year Hudson River striped bass (*Morone saxatilis*): size-dependent patterns and effects on recruitment. *Canadian Journal of Fisheries and Aquatic Sciences* 55:1122-1130.
- Hurst, T.P. and D.O. Conover. 2001. Nearshore fish communities of the mid-Hudson River estuary, 1985-2000. Special Report #127 of the Marine Sciences Research Center, State University of New York at Stony Brook.
- McGovern, J.C., and J.E. Olney. 1996. Factors affecting survival of early life stages and subsequent recruitment of striped bass on the Pamunkey River, Virginia. *Canadian Journal of Fisheries and Aquatic Sciences* 53:1713-1726.
- Mckown, K.A., and R. Gelardi. 2000. An investigation of the 1998 Hudson River striped bass spawning success. New York State Department of Environmental Conservation.
- McKown, K.A. 1991. Validation of the Hudson River young-of-the-year striped bass indices. Report to the Atlantic States Marine Fishery Commission.
- Merriman, D. 1941. Studies on the striped bass (*Roccus saxatilis*) of the Atlantic Coast. *U.S. Fish and Wildlife Service Fishery Bulletin* 50:1-77.
- Munch, S.B., and D.O. Conover. 2000. Recruitment dynamics of bluefish (*Pomatomus saltatrix*) from Cape Hatteras to Cape Cod, 1973-1995. *ICES Journal of Marine Science* 209:393-402.
- Richards, R.A., and P.J. Rago. 1999. A case history of effective fishery management: Chesapeake Bay striped bass. *North American Journal of Fisheries Management* 19:356-375.
- Scott, W.B., and M.G. Scott. 1988. Atlantic fishes of Canada. *Canadian Bulletin of Fisheries and Aquatic Sciences* 219.
- Secor, D.H., E.D. Houde, and D.M. Monteleone. 1995. A mark-release experiment on larval striped bass *Morone saxatilis* in a Chesapeake Bay tributary. *ICES Journal of Marine Sciences* 52:87-101.
- Smith, C.L. 1985. *The Inland Fishes of New York State*. New York State Department of Environmental Conservation. Albany.
- Uphoff, J.H. 1989. Environmental effects on survival of eggs, larvae, and juvenile striped bass in the Choptank River, Maryland. *Transactions of the American Fisheries Society* 118:251-263.

Table 1. Biweekly environmental conditions, Hudson River 2003

Dates	Week	Air Temperature				H2O Temperature			
		Avg	Std	Min	Max	Avg	Std	Min	Max
Jul. 21, 25	1	27.91	3.42	20	35	26.76	2.83	24.4	39.1
Aug. 5-6	2	25.04	2.67	21	29	26.99	1.24	22	28.5
Aug. 21-22	3	30.68	4.27	23	41	28.49	1.43	23.4	31.4
Sept. 2-3	4	14.96	1.29	12	17	23.61	1.36	20.5	26.6
Sept. 16-17	5	22.57	3.45	18	31	23.68	4.53	2.5	26.4
Oct. 1	6	13.80	1.90	10	17	20.60	0.73	18.4	21.7
Oct. 14	7	15.07	4.41	8	22	18.13	0.75	16.4	18.9
Oct. 30	8	11.19	4.47	2	20	14.12	0.41	12.9	14.5
Nov. 12	9	3.80	3.84	0	20	9.46	0.89	7.7	11.1

Dates	Week	Salinity				Dissolved Oxygen			
		Avg	Std	Min	Max	Avg	Std	Min	Max
Jul. 21, 25	1	3.86	1.74	0	7.1	6.79	1.22	4.8	10.2
Aug. 5-6	2	3.67	1.52	1.4	5.9	5.88	1.07	4.7	10.3
Aug. 21-22	3	1.09	0.62	0.3	2.6	8.71	1.72	6.3	12.0
Sept. 2-3	4	5.86	1.99	3.2	9.9	5.45	0.72	4.2	6.9
Sept. 16-17	5	3.20	1.41	0.6	5.9	7.26	1.28	6.0	12.7
Oct. 1	6	1.60	1.18	0.3	3.5	6.96	1.03	3.9	9.5
Oct. 14	7	1.66	1.73	0.4	5.4	7.01	0.47	6.2	7.8
Oct. 30	8	0.70	0.54	0.1	2.2	7.89	0.26	7.4	8.6
Nov. 12	9	0.63	0.97	0.1	3.3	8.97	0.68	8.0	11.1

Table 2. Comparison of physical data, 1985-2002

Mean Air Temperature																			
Week	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
1	28.7	27.9	30.4	28.7	23.6	27.4	27.4	22.2	28.4	24.6	27.9	24.1	24.0	30.1	28.2	28.2		31.3	27.9
2	29.3	26.8	31.4	28.0	33.0	25.3	22.8	23.1	27.6	27.7	30.3	27.0	28.2	27.6	26.1	31.7	26.9	33.9	25.0
3		24.2	28.2	31.1	24.5	22.5	22.6	23.2	24.0	23.6	26.8	26.2	29.3	26.4	27.0	26.5	28.4	31.2	30.7
4	25.0	24.1	22.1	20.5	24.7	23.4	20.6	19.0	25.4	20.0	24.4	27.1	24.7	27.1	25.1	25.1	25.2	27.9	15.0
5	21.4	23.0	24.8	21.7	19.7	27.4	16.4	21.0	20.8	20.2	20.2	16.2	20.8	23.4	22.2	20.3	24.5	28.2	22.6
6	17.6	23.0	22.1	24.1	22.0	20.8	16.9	10.8	13.2	16.5	16.8	17.9	18.5	25.8	20.2	20.6	18.0	21.7	13.8
7	18.9	20.0	15.7	15.2	18.3	19.9	9.2	10.2	13.9	12.6	15.6	18.9	23.2	14.7	15.5	13.7	12.2	15.6	15.1
8	13.3	16.7	13.4	13.5	14.1	15.8	4.6	9.9	13.0	12.9	11.8	13.1	14.3	14.4	12.9	13.0	20.0	8.2	11.2
9	13.1	4.4	11.0	11.5	13.8	12.5	8.2	5.6	7.1	16.2	3.6	9.1	14.4	9.2	12.2	6.1	9.9	7.5	3.8

Mean H2O Temperature																			
Week	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
1	26.5	25.2	28.0	26.5	24.3	27.2	28.0	25.5	26.9	27.9	26.9	24.0	24.5	25.1	28.5	24.6	26.0	26.0	26.8
2	27.0	26.1	28.4	26.9	27.2	26.3	26.4	24.5	26.7	29.7	29.4	26.4	25.8	26.5	27.6	27.0	27.2	27.5	27.0
3	27.9	25.4	28.4	27.4	25.5	25.8	25.0	24.0	26.1	28.0	28.0	25.8	25.8	26.5	27.5	23.8	27.9	27.4	28.5
4	25.6	23.9	23.6	22.2	25.2	25.4	24.7	23.4	26.0	25.3	25.4	26.3	24.0	26.8	24.8	23.3	27.0	26.8	23.6
5	22.3	22.6	24.0	21.5	23.6	24.5	21.1	23.0	25.3	21.1	23.0	20.8	23.0	20.4	24.7	19.6	25.1	25.0	23.7
6	19.8	21.5	21.1	22.0	22.1	19.6	19.5	16.5	18.5	21.7	20.3	20.6	20.9	25.1	20.4	19.5	20.5	23.1	20.6
7	19.0	19.1	14.4	17.7	17.4	18.8	15.1	13.9	17.2	18.1	19.8	15.9	20.1	19.0	15.5	16.1	14.4	20.1	18.1
8	15.6	15.9	13.2	14.0	16.4	18.2	12.3	12.6	14.9	16.5	17.2	11.5	13.2	16.0	13.8	12.1	17.6	15.6	14.1
9	13.7	11.5	9.6	11.0	13.4	13.7	10.0	10.0	11.3	16.2	12.7	8.1	13.8	11.6	11.8	8.8	12.3	11.0	9.5

Mean Salinity																			
Week	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
1	5.8	4.5	6.0	7.4	4.4	11.9	7.5	3.0	6.2	6.0	5.6	0.6	6.1	4.0	5.1	1.6	4.2	8.3	3.9
2	4.5	4.8	6.8	6.5	7.4	5.8	8.4	3.9	9.3	3.9	5.5	2.2	6.7	3.3	8.6	1.2	7.1	8.0	3.7
3	3.7	2.6	7.2	6.1	5.9	4.9	7.7	0.8	6.1	7.0	6.2	4.2	5.3	6.8	8.1	2.0	7.5	9.7	1.1
4	3.9	2.5	6.9	6.3	8.6	3.4	7.8	4.7	6.9	3.9	8.8	3.7	7.2	4.8	9.6	1.7	8.5	9.5	5.9
5	7.1		4.5	5.8	7.1	6.7	8.1	5.8	5.1	6.2	9.1	4.7	6.9	7.9	8.6	3.5	9.0	10.9	3.2
6	6.0	4.3	3.8	5.0	7.4	5.1	6.4	6.3	4.4	5.5	9.6	2.6	6.2	6.3	1.5	2.9	8.3	9.2	1.6
7	2.6	5.0	3.5	5.0	3.2	6.0	6.8	5.1	4.5	4.0	8.0	5.3	6.6	5.6	3.3	6.7	9.6	8.7	1.7
8	3.8	4.6	5.8	5.4	5.4	2.4	7.0	3.1	4.7	5.4	2.3	1.5	8.2	4.8	3.9	7.1	8.0	7.3	0.7
9	5.7	5.4	2.2	6.4	3.7	3.7	6.4	4.4		6.8	0.6	0.3	6.1	5.6	1.9	6.5	9.1	5.0	0.6

Table 3. Species composition of catch in the Hudson River, 2003. (0=Young-of-the-year; 1=Older; 999=age unknown)

Species	Age	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Weeks	Weeks
		July 21, 25	Aug 5, 6	Aug 21, 22	Sep 2, 3	Sep 16, 17	Oct 1	Oct 14	Oct 30	Nov 12	4 - 9	1 - 9
Diadromous												
Alewife	999	156	71	53	72	19	15	24	31	3	164	444
American eel	999	8	15	9	8	7	4	3	1		23	55
American shad	999	212	67	260	128	25	101	89	71	21	435	974
Atlantic sturgeon	1	1									0	1
Atlantic tomcod	999	1	1			2	2		300		304	306
Blueback herring	999	58	32	730	12	4	22	174	507	243	962	1782
Striped bass	0	3446	4266	3184	1968	949	848	742	459	184	5150	16046
Striped bass	1	4	15	8	6	4	18	7	5		40	67
Estuarine												
Fourspine stickleback	999	4			4				44		48	52
Hogchoker	999	153	112	44	13	6	2				21	330
Killifish spp.	999	70	49	1782	94	41	101	17	62	1	316	2217
Striped anchovy	999				1	1					2	2
Threespine stickleback	999						2			1	3	3
White perch	0	168	559	2078	1139	429	652	384	175	56	2835	5640
White perch	1	136	434	453	344	315	144	39	7	1	850	1873
Freshwater												
Bluegill	999	1	3	17		1	4	1	1		7	28
Brown bullhead catfish	999	8	12	15	3	1	1	1			6	41
Carp	999	7	1	5	2	1	4	5			12	25
Gizzard shad	999		9	4	1	4	4				9	22
Golden shiner	999			3							0	3
Green sunfish	999			8							0	8
Largemouth bass	999	2	4	2	1				1		2	10
Pumpkinseed	999			3	11	2			4		17	20
Redbreast sunfish	999		1		5			1	1		7	8
Smallmouth bass	999				1						1	1
Spottail shiner	999	49	36	19	12	2	2	3	5	1	25	129
Tesselated darter	999	19	47	6	18	2	3	3	11	1	38	110
White catfish	999	1									0	1
Yellow perch	999	6	8	4	2	2				1	5	23
Marine												
Atlantic croaker	999			3		2					2	5
Atlantic menhaden	0	280	159	21	200	121	16	15		1	353	813
Atlantic needlefish	999	5	2	4	1						1	12
Bay anchovy	999	43	248	31	2199	7	42	13	7	2	2270	2592
Bluefish	0	63	59	18	43	21	14	4			82	222
Crevalle jack	999	5	1	1	1	2					3	10
Lookdown	999					1					1	1
Naked Goby	999			1	4		3				7	8
Northern kingfish	999						1				1	1
Northern pipefish	999	22	58	1	19	14	19	1			53	134
Northern puffer	999		1								0	1
Silverside spp.	999	205	206	806	835	1066	1051	274	143	4	3373	4590
Spot	999	1	1					1	1	3	5	7
Striped mullet	999			1	2			3			5	6
Striped searobin	999		10								0	10
Summer flounder	999	2	1		2			3	1		6	9
Weakfish	999				2	3	1	1			7	7
White mullet	999		1								0	1
Winter flounder	0	55	29		6	2	9	1	5	2	25	109
Winter flounder	1							1			1	1
Total Fish Catch		5191	6518	9574	7159	3056	3081	1809	1847	525	17477	38760
Invertebrates												
Bluecrab	0	33	6	2	17	6	18	1	2		44	85
Bluecrab	1	10	32	32	3	10	1				14	88
Total Invertebrate Catch		43	38	34	20	16	19	1	2	0	58	173
Number of Samples (n)		25	25	25	25	25	25	23	24	25	147	222

Table 4. Catch per unit effort of all species in the Hudson River survey, 1985-2003 weeks 4-9. (0=Young-of-the-year; 1=Older; 999=age unknown)

Species	Age	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	
Diadromous																										
Alewife	0		0.1																							
Alewife	1		0.0	0.0	0.0																					
Alewife	999	1.0	54.9	1.0	1.1	0.3	0.8	1.7	0.4	2.8	0.4	0.4	0.1	0.0		0.4	0.0	0.0	0.5	0.1	4.4	0.4	0.1	0.1	1.1	
American eel	999	0.2	0.6	0.9	0.8	0.8	0.4	0.2	0.5	0.6	0.4	0.4	0.4	0.2	0.1	0.2	0.2	0.2	0.5	0.1	0.3	0.1	0.1	0.2	0.2	
American shad	999	4.0	22.0	8.9	11.0	9.0	10.5	27.0	8.0	8.8	11.5	7.7	1.1	10.5	1.6	11.9	3.1	2.8	2.3	0.2	5.4	1.0	2.2	4.4	3.0	
Atlantic tomcod	999	0.2	1.8	5.6	1.0	1.3	1.8	2.2	1.8	3.8	2.3	1.3	0.1	0.8	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0	2.1	
Blueback herring	999	27.2	0.2	20.0	37.8	12.6	41.0	7.7	44.7	33.6	46.8	196.5	53.6	155.6	16.1	9.0	156.7	3.0	26.4	0.1	98.4	2.1	1.9	12.1	6.5	
Striped bass	0	24.0	21.5	30.5	48.1	37.1	3.9	6.1	60.7	52.3	41.9	38.0	6.9	17.3	26.5	28.5	27.4	14.7	50.3	22.9	53.0	7.8	91.4	21.5	35.0	
Striped bass	1	0.5	0.3	0.8	0.2	0.5	0.5	0.3	0.1	0.8	0.6	0.4	0.7	0.8	0.6	0.2	1.0	0.4	0.5	0.9	0.5	0.7	0.6	1.1	0.3	
Striped bass (hatchery)	0				0.1	0.3	1.1	1.7	0.5	0.4	0.6			0.3	0.5	0.1	1.4									
Striped bass (hatchery)	1					0.0		0.0	0.0	0.0					0.0											
Striped bass (hatchery)	2																	0.0								
Estuarine																										
Fourspine stickleback	999	0.2	0.5	0.6	0.7	0.4	1.8	1.2	2.6	1.2	0.1	0.2	0.1	0.0		0.0		0.0	0.3	0.2					0.3	
Hogchoker	999	0.3	0.4	2.2	4.6	1.4	2.5	2.3	0.9	1.8	1.9	1.2	0.6	0.8	0.7	1.5	0.7	0.3	0.6	0.4	0.0	0.1	0.0	0.6	0.1	
Killifish spp.	999	4.3	9.7	16.0	11.1	5.6	18.4	8.8	18.9	19.8	2.8	4.9	0.7	0.7	0.1	2.2	1.4	0.1	5.1	1.9	0.3	0.9	3.4	6.9	2.1	
Striped anchovy	999			0.5			0.5	0.0		0.0			0.0	0.2	0.0	0.0	0.0	0.0							0.0	
Threespine stickleback	999	0.1	0.0		0.0				0.3																0.0	
White perch	0	0.8	49.9	71.4	40.4	28.0	11.0	39.1	11.4	80.3	33.2	7.0	2.0	3.8	2.3	6.3	2.3	2.4	2.0	4.0	20.6	3.1	26.1	7.9	19.3	
White perch	1	0.1	12.8	71.8	45.3	41.3	11.3	12.9	8.0	12.3	9.8	7.8	6.4	4.6	6.7	4.2	3.7	4.4	6.9	10.2	2.5	4.9	2.8	11.2	5.8	
White perch	999	55.7	0.2	30.6	0.2	0.0																				
Freshwater																										
Black crappie	999										0.0										0.0					
Bluegill	999	0.0	0.0	0.0	0.1	0.4	0.1	0.6	0.4	0.2	0.2	0.1	0.0		0.0	0.2	0.1	0.0	0.1		0.0	0.3	0.0	0.7	0.0	
Brown bullhead catfish	999		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			0.1	0.0	0.0	0.0	0.0	
Carp	999	0.1	0.1	0.2	0.0	0.1	0.1	0.1	0.2	0.1	0.2	0.2		0.1	0.1	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.1	
Chain pickerel	999	0.0									0.0	0.0			0.0							0.0				
Fallfish	999										0.0	0.0														
Gizzard shad	999	0.0	0.1		0.1	0.1	0.0		0.3	0.0	0.0	0.0	0.1			0.0	0.1		0.2		0.1	0.2	0.1	0.1	0.1	
Golden shiner	999	0.2	0.1	0.1	0.1	0.2				0.0	0.0	0.0	0.0			0.0					0.0		0.1			
Goldfish	999	0.0			0.0			0.0		0.0				0.0												
Green sunfish	999										0.0														0.0	
Hickory shad	999							0.0			0.0													0.0		
Largemouth bass	999	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0						0.0	
Pumpkinseed	999	3.1	1.3	3.7	1.7	1.5	0.3	0.2	0.1	0.1	0.2	0.2	0.0		0.0	0.1	0.0	0.0	0.4	0.0	0.1	0.1	0.3	0.0	0.1	
Redbreast sunfish	999	0.7	0.2	0.4	0.3	0.2	0.0	0.0	0.0	0.0	0.1	0.0				0.0	0.6					0.0		0.0	0.0	
Smallmouth bass	999										0.0													0.0	0.0	
Spottail shiner	999	0.3	0.2	0.9	1.8	1.9	0.0	0.0	0.0	0.3	0.5	0.3	0.0	0.0		0.2	0.0	0.1	2.0	0.5		0.1	0.0	0.0	0.2	
Tessellated darter	999	0.0	0.0	0.1	0.5	0.5	0.0	0.0	0.4	0.0	0.1	0.2	0.0	0.0		0.1	0.1	0.0	0.1	0.9	0.4	0.0	0.1	0.3	0.0	0.3
White catfish	999	0.0	0.1	0.1	0.8	0.1	0.0	0.1	0.1	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	
White sucker	999	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	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Yellow perch	999	0.2	0.1	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	
Invertebrates																										
Bluecrab	0	0.0	0.0	0.2																	30.1	17.3	0.2	2.5	1.5	0.3
Bluecrab	1		0.0	0.2																	1.8	1.0	0.3	0.3	1.2	0.1
Bluecrab	999	0.0	0.5	0.2	0.1	0.5	1.1	0.2	1.9	5.2	2.6	2.2	8.3	2.9	1.4	1.3	1.7	0.5	13.8							
Mudcrab	999																									
Terripan	999							0.0		0.0								0.0			0.1					
Marine																										
Atlantic menhaden	1	0.2		0.1																					8.1	
Atlantic menhaden	999	0.5	7.1	0.3	4.0	0.1	1.3	8.6	6.3	0.1	0.2		0.2	4.2	0.1	4.2	0.1	0.5	0.1	21.7	128.6				2.4	
Atlantic needlefish	999	0.2	0.3	0.7	0.1	0.0	1.1	0.1	0.3	0.3	0.7	0.6	0.1	0.1		0.1	0.1	0.0	1.8	0.1	0.0	0.0	0.0	0.0	0.0	
Bay anchovy	0																									
Bay anchovy	999	5.2	2.0	7.2	51.3	111.6	26.1	0.9	53.6	33.5	94.7	6.5	11.2	35.1	6.7	40.8	76.1	30.9	34.9	32.5	6.4	15.5	2.3	16.5	15.4	
Bluefish	0	2.0	2.7	3.0	2.5	1.2	2.4	2.1	1.0	3.6	1.3	1.5	0.6	0.7	0.7	0.8	1.6	0.4	1.4	1.2	15.0	0.2	4.8	2.2	0.6	
Butterfish	999	0.0	0.0		0.0						0.1							0.0							0.0	0.0
Butterflyfish	999																									
Cornetfish, bluespotted	999	0.0																				0.0				
Crevalle jack	999	0.0	0.1	0.1	0.1	0.2	0.1	0.1	0.0	0.2	0.1	0.2	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	
Cunner	999									0.0																
Grey snapper	999	0.0						0.0									0.0									
Inshore lizardfish	999		0.0	0.0	0.0	0.0	0.1						0.1	0.1	0.0				0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Table 4. Catch per unit effort of all species in the Hudson River survey, 1985-2003 weeks 4-9 (cont)

Species	Age	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Marine																									
Lookdown	999	0.0		0.0			0.0				0.0				0.0					0.0					0.0
Naked Goby	999						0.0	0.1	0.3	0.1	0.1	0.2	0.2	0.1	0.0	0.0	0.1		0.1	0.1	0.2	0.0	0.2	0.1	0.0
Northern kingfish	999	0.0	0.0	0.1	0.1	0.0	0.3	0.0	0.0	0.2	0.1	0.0	0.2	0.2	0.2	0.1	0.1	0.0	0.4	0.3	0.0	0.0	0.1	0.3	0.0
Northern pipefish	999	0.4	1.0	1.5	1.0	1.1	2.3	0.9	1.7	4.4	1.9	2.0	1.2	0.6	0.8	0.4	1.5	0.2	4.0	1.5	0.7	0.1	2.4	1.2	0.4
Northern puffer	999		0.0	0.0	0.0		0.0		0.0		0.0				0.0		0.0		0.0		0.0		0.1		
Northern sennet	999						0.0												0.0		0.0				
Northern stargazer	999									0.0			0.0		0.0				0.1		0.0				0.0
Northern tonguefish	999												0.0		0.0										
Permit	999																			0.0					
Pigfish	999															0.0			0.0						
Silver perch	999			0.0			0.0			0.0			0.1	0.1	0.4	0.5	16.9	0.1	0.1	0.0		0.0			
Silverside spp.	999	5.7	14.5	10.0	9.1	2.2	23.9	98.2	16.9	157.7	8.1	73.0	40.8	54.7	69.7	146.0	197.8	63.1	147.7	126.6	71.4	60.1	91.7	85.5	22.9
Smallmouth flounder	999												0.1		0.0				0.0						0.0
Spanish mackerel	999										0.0	0.0	0.0		0.0										
Spot	999			0.3	0.0		0.0	0.0		1.1	0.0	0.0	0.0	0.0	0.1	0.0		0.0			0.0	0.0			0.0
Spotfin butterflyfish	999																							0.0	
Spotfin mojarra	999													0.0		0.0				0.0					
Spotted hake	999												0.0						0.0		0.0				
Striped mullet	999	0.1	0.0	0.3	0.4	0.2	0.0	0.0	0.0				0.0								0.0		0.0	0.1	0.0
Striped searobin	999	0.0	0.0	0.1	0.0	0.0	0.1				0.0		0.1	0.0	0.1		0.0		0.4	0.2	0.0		0.0	0.0	0.0
Summer flounder	999	0.0	0.0	0.1	0.0	0.0	0.1	0.4	0.0		0.0	0.0	0.2	0.1	0.2	0.1	0.1	0.1		0.0	0.0	0.0		0.1	0.0
Tautog	999	0.0	0.3	0.1		0.0	0.0	0.1	0.0	0.6		0.0	0.1	0.0					0.2	0.0			0.3		
Weakfish	999	0.0	0.0	0.0	0.1	0.0	0.4	0.0		0.0	0.0	0.1	0.1	0.0		0.0			0.1	0.0				0.0	0.0
White mullet	999	0.0	0.0	0.1	0.1	0.0	0.1	0.1		0.1	0.1	0.1	0.0		0.1	0.0			0.0	0.0	0.0				0.0
Winduppane flounder	999									0.0	0.0	0.0				0.0		0.0							
Winter flounder	999	0.1	0.3	0.9	0.3	0.2	2.8	0.7	0.2	1.0	0.4	0.7	0.5	0.9	0.9	0.6	0.3	0.2	1.6	0.6	0.2	0.2	0.4	0.3	0.2
Number of samples (n)		150	131	143	148	146	216	222	225	220	225	217	215	221	225	221	221	204	194	198	173	211	208	210	222

Table 5. Catch per unit effort of all species in the Hudson survey, 1985-2003 weeks 1-9

Species	Age	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Diadromous																				
Alewife	999	1.3	1.4	0.8	2.5	0.5	0.7	0.1	0.0	0.0	0.4	0.4	0.2	3.3	0.1	2.7	0.3	0.3	0.7	2.0
American eel	999	0.6	0.3	0.5	0.8	0.5	0.6	0.5	0.4	0.3	0.3	0.3	0.2	0.4	0.2	0.3	0.2	0.2	0.2	0.2
American shad	999	10.1	22.2	6.8	11.5	11.9	11.2	1.0	12.0	2.1	10.3	2.2	8.3	11.0	0.4	3.9	0.8	1.9	3.3	4.4
Atlantic tomcod	999	1.9	1.6	1.2	2.6	1.6	1.3	0.1	1.4	0.0	0.1	0.0	0.5	0.2	2.3	0.0	0.6	0.7	0.0	1.4
Blueback herring	999	28.4	6.2	32.2	27.8	38.0	139.8	35.1	104.6	10.7	6.2	104.2	29.7	19.1	0.1	59.9	1.4	1.5	7.9	8.0
Striped bass	0	4.6	8.7	82.9	70.4	59.5	58.0	15.2	26.6	55.9	43.5	33.8	21.3	59.0	33.7	58.0	22.9	77.5	22.2	72.3
Striped bass	1	0.8	0.2	0.1	0.7	0.7	0.4	0.8	0.8	0.6	0.3	1.2	0.5	0.5	0.7	0.7	0.8	0.8	0.9	0.3
Estuarine																				
Fourspine stickleback	999	1.2	0.9	2.0	1.1	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.1	0.3	0.1		0.0			0.2
Hogchoker	999	5.8	3.7	2.5	4.0	7.0	2.4	1.6	3.1	1.3	2.4	2.4	0.5	0.7	0.3	0.4	0.1	0.3	1.7	1.5
Killifish spp.	999	14.1	6.8	15.3	18.8	3.8	5.0	2.3	0.7	0.8	1.6	3.7	0.3	5.0	2.4	1.8	0.6	2.4	5.5	10.0
Rainbow smelt	999				0.0															
Striped anchovy	999	0.3	0.0		0.0			0.0	0.1	0.0	0.0	0.0	0.0						0.1	0.0
Threespine stickleback	999			0.2										0.0						0.0
White perch	0	8.8	37.0	11.5	75.8	33.8	7.5	2.3	5.5	3.7	6.1	1.9	3.0	1.5	4.1	22.3	6.2	22.0	11.4	25.4
White perch	1	20.5	28.9	15.7	20.2	26.6	10.7	9.8	6.4	7.7	7.8	11.1	7.0	5.6	9.7	6.9	16.1	20.1	20.0	8.4
Freshwater																				
Black crappie	999					0.0				0.0						0.0				
Bluegill	999	0.0	0.4	0.3	0.3	0.2	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.0	0.3	0.0	1.4	0.1
Brown bullhead catfish	999	0.0	0.0	0.0	0.0	0.6	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	0.2
Carp	999	0.2	0.2	0.2	0.2	0.3	0.3		0.1	0.1	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.1
Chain pickerel	999					0.0	0.0	0.0		0.0							0.0			
Fallfish	999					0.0														
Gizzard shad	999	0.0		0.2	0.0	0.0	0.0	0.1			0.0	0.1	0.0	0.1		0.1	0.3		0.1	0.1
Golden shiner	999		0.0			0.0	0.0	0.0			0.0		0.0			0.0		0.1		0.0
Goldfish	999	0.0	0.0	0.0	0.0	0.0			0.0			0.0			0.0					
Green sunfish	999																			0.0
Hickory shad	999		0.0			0.0														0.0
Largemouth bass	999		0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Pumpkinseed	999	0.3	0.2	0.1	0.1	0.1	0.1	0.0		0.0	0.1	0.2	0.0	0.3	0.0	0.0	0.1	0.2	0.0	0.1
Red Finned Pickerel	999																			0.0
Redbreast sunfish	999	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0		0.0	0.0		0.4			0.0	0.0	0.0	0.0
Smallmouth bass	999													0.0					0.0	0.0
Spottail shiner	999	0.0	0.0	0.0	0.3	1.3	0.4	0.1	0.0	0.0	0.2	0.1	0.2	1.9	0.6	0.1	0.2	0.1	0.0	0.6
Tessellated darter	999	0.0	0.0	0.3	0.1	0.2	0.2	0.1	0.1	0.2	0.2	0.0	0.2	3.5	0.8	0.0	0.2	0.4	0.1	0.5
White catfish	999	0.1	2.3	0.2	0.2	0.2	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
White sucker	999		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow perch	999	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	0.1
Bluecrab	0														24.6	14.0	0.3	1.8	2.0	0.4
Bluecrab	1														2.9	2.1	0.9	0.5	1.8	0.4
Bluecrab	999	1.7	0.3	1.4	4.7	3.0	2.7	6.2	5.5	1.2	1.2	2.1	0.6	13.6						
Mudcrab	999											0.0			0.0	0.1			0.0	
Painted turtle	999															0.0				
Terripan	999		0.0		0.0	0.0							0.0							
Marine																				
Atlantic croaker	999																			0.0
Atlantic menhaden	0																47.5	0.5	0.7	
Atlantic menhaden	1																		9.6	
Atlantic menhaden	999	20.9	23.5	4.8	0.9	0.8		2.8	5.7	0.1	3.5	0.3	1.9	0.3	14.7	93.0				3.7
Atlantic needlefish	999	1.0	0.2	0.8	0.4	0.7	0.7	0.5	0.2	0.1	0.3	0.2	0.1	1.5	0.1	0.1	0.1	0.1	0.1	0.1

Table 5. Catch per unit effort of all species in the Hudson survey, 1985-2003 weeks 1-9 (cont.)

Species	Age	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Bay anchovy	999	52.3	5.3	60.4	37.3	244.4	11.0	34.0	40.4	7.6	183.7	88.6	33.5	47.2	34.5	9.2	13.7	1.8	13.4	11.7
Bluefish	0	6.2	3.2	3.5	5.0	2.0	3.1	1.3	1.3	2.6	1.1	1.5	0.8	1.7	1.1	13.8	0.9	4.1	2.9	1.0
Bonefish	999										0.0									
Butterfish	999									0.0	0.0								0.0	
Butterflyfish	999														0.0		0.0			
Crevalle jack	999	0.3	0.1	0.0	0.2	0.3	0.2	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.2	0.1	0.1	0.0
Cunner	999				0.0															
Grey snapper	999	0.0		0.0							0.0	0.0								
Inshore lizardfish	999	0.0				0.0	0.1	0.1	0.1	0.1	0.0			0.1	0.1	0.0	0.0	0.0	0.1	
Lookdown	999	0.0				0.0	0.0			0.0						0.0			0.0	0.0
Naked Goby	999	0.0	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.0	0.0	0.2		0.1	0.1	0.4	0.0	0.2	0.1	0.0
Northern kingfish	999	0.2	0.0	0.0	0.2	0.1	0.1	0.3	0.2	0.2	0.1	0.1	0.0	0.4	0.4	0.1	0.0	0.1	0.4	
Northern pipefish	999	2.4	0.9	1.7	3.7	1.5	2.1	2.6	0.8	0.7	0.4	2.1	0.2	3.6	1.3	1.2	0.2	1.8	1.1	0.6
Northern puffer	999	0.0	0.0	0.0	0.0	0.0	0.0	0.1		0.0	0.0	0.0		0.0	0.0	0.1		0.1	0.0	0.0
Northern searobin	999																		0.0	
Northern sennet	999	0.0				0.0														
Northern stargazer	999			0.0	0.0		0.0	0.0	0.0	0.0				0.1		0.0		0.0	0.1	
Northern tonguefish	999							0.0												
Permit	999														0.0		0.0			
Pigfish	999										0.0			0.0						
Scup	999															0.0				
Silver perch	999	0.0			0.0			0.1	0.1	0.3	0.3	11.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	
Silverside spp.	999	21.1	69.9	20.0	120.2	7.9	55.5	147.2	50.3	90.7	191.9	165.7	65.9	126.0	120.0	90.3	67.1	94.0	104.5	20.7
Smallmouth flounder	999	0.0						0.0		0.0				0.0	0.0					0.0
Spanish mackerel	999					0.0	0.0	0.0		0.0	0.0									
Spot	999	0.5	3.1	0.3	0.8	0.0	1.7	0.0	0.0	1.0	0.3	0.0	0.4	0.0	0.1	0.2	0.1	0.0	0.3	0.0
Spotfin butterflyfish	999																		0.0	
Spotfin mojarra	999								0.0		0.0					0.0				
Spotted hake	999							0.0						0.0	0.0					
Striped mullet	999	0.0	0.3	0.0				0.0								0.0	0.0	0.0	0.1	0.0
Striped searobin	999	0.1	0.1			0.0	0.1	0.4	0.0	0.1	0.0	0.0		0.7	0.5	0.1			0.1	0.0
Summer flounder	999	0.2	0.4	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1		0.0	0.1	0.1	0.0	0.1	0.0
Tautog	999	0.0	0.1	0.0	0.5		0.1	0.1	0.0					0.2	0.0	0.0			0.2	
Triggerfish	999	0.0																		
Weakfish	999	0.3	0.0		0.0	0.0	0.0	0.4	0.0	0.0	0.0		0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0
White mullet	999	0.0	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	0.0	0.0	0.0	
Windowpane flounder	999				0.0	0.0	0.0			0.0	0.0		0.0							
Winter flounder	999	2.5	0.9	0.2	0.8	0.3	0.8	0.7	1.3	1.1	0.4	0.6	0.2	1.8	0.6	0.2	0.4	0.4	0.2	0.5

Table 6. Hudson River YOY Striped bass index of abundance, 1980-2003

6 week survey

Year	Hauls	Catch	Cpue	Stdev	Range	Zeros	Index	Confidence intervals
1980	150	3597	23.98	57.63	0-547	34	6.08	4.51-8.1
1981	131	2823	21.55	42.53	0-346	9	8.86	6.95-11.24
1982	143	4363	30.51	47.98	0-285	8	14.17	11.37-17.62
1983	148	7112	48.05	110.71	0-1178	8	16.27	12.58-20.96
1984	146	5418	37.11	89.84	0-906	6	15	12.03-18.65
1985	146	574	3.93	5.76	0-31	51	1.91	1.47-2.43
1986	147	904	6.15	8.97	0-55	34	2.92	2.29-3.67
1987	150	9100	60.67	157.77	0-1333	13	15.9	11.98-21.01
1988	145	7584	52.3	45.1	0-205	2	33.46	27.89-40.1
1989	150	6291	41.94	57.84	0-537	4	21.35	17.23-26.41
1990	142	5393	37.98	43.51	0-240	2	19.08	15.31-23.72
1991	140	959	6.85	7.95	0-41	30	3.6	2.84-4.52
1992	146	2526	17.3	15.51	0-83	5	11.44	9.63-13.56
1993	150	3975	26.5	34.31	0-230	7	12.59	10.08-15.67
1994	146	4159	28.49	31.73	0-246	4	17.64	14.74-21.09
1995	148	4035	27.26	45.03	0-389	2	16.15	13.67-19.06
1996	134	1964	14.66	18.4	0-143	6	8.93	7.41-10.72
1997	139	6989	50.28	63.53	0-328	6	22.3	17.41-28.48
1998	127	2909	22.91	24.09	0-135	6	13.39	10.85-16.47
1999	104	5514	53.02	79.63	1-524		26.64	21.12-33.54
2000	136	1064	7.82	16.57	0-120	32	3.16	2.43-4.05
2001	135	12345	91.44	220.55	0-1711	11	22.98	16.95-31.04
2002	137	2950	21.53	26.78	0-203	5	12.26	10.07-14.88
2003	147	5150	35.0	38.25	0-209	10	17.36	14.28-21.06

9 week survey

Year	Hauls	Catch	CPUE	Stdev	Range	Zeros	Index	Confidence Intervals
1985	216	993	4.6	6.57	0-32	71	2.19	1.77-2.67
1986	222	1942	8.75	11.3	0-57	38	4.29	3.55-5.15
1987	225	18649	82.88	184.57	0-1432	13	25.12	20.09-31.34
1988	220	15488	70.4	85.38	0-869	2	42.16	36.33-48.89
1989	225	13398	59.55	86.16	0-642	4	28.42	23.79-33.92
1990	217	12592	58.03	64.66	0-473	2	29.8	24.9-35.63
1991	215	3275	15.23	22.57	0-160	32	6.56	5.35-7.99
1992	221	5875	26.58	25.5	0-142	5	16.94	14.67-19.53
1993	225	12588	55.95	74.17	0-402	7	23.32	19.13-28.39
1994	221	9624	43.55	50.38	0-367	4	25.71	22.1-29.89
1995	222	7465	33.63	44.57	0-389	2	20.15	17.53-23.15
1996	204	4346	21.3	25.83	0-188	6	12.76	10.94-14.85
1997	194	11444	58.99	71.05	0-412	7	27.92	22.8-34.15
1998	198	6673	33.7	34.47	0-183	6	19.18	16.16-22.73
1999	173	10031	57.98	69.34	1-524		33.82	28.64-39.91
2000	211	4830	22.89	51.89	0-416	32	7.17	5.73-8.92
2001	208	16130	77.55	180.11	0-1711	12	26.37	21.23-32.71
2002	210	4657	22.18	25.62	0-203	6	13.3	11.43-15.44
2003	222	16046	72.28	97.21	0-624	11	31.22	26.25-37.09

Table 7. YOY striped bass catch by station, 2003

Station	River Mile	Week 1 July 21, 25	Week 2 Aug 5, 6	Week 3 Aug 21, 22	Week 4 Sep 2, 3	Week 5 Sep 16, 17	Week 6 Oct 1	Week 7 Oct 14	Week 8 Oct 30	Week 9 Nov 12	C/F
East											
18E	23	119	286	148	28	173	36	83		51	115.5
21E	23	135	443	32	55	95	54	103	31	30	108.7
17E	24	154	0	216	67	52	31	107	95	14	81.8
16E	25	37	116	55	53	8	15	16	97		49.6
15E	27	171			72					7	83.3
12E	29	205	51	58	79	14	22	3	10	13	50.6
13E	29	181	50	26	40	16			38		58.5
14E	29	273	440	50	43	30	17	27	19		112.4
19E	33	346	82	51	49	49	33	2	19	2	70.3
11E	34	61	262	423	147	7	8		6	12	115.8
9E	34	11	192	538	209	65	46	41	16	0	124.2
7EE	35	23	30	112	76	23	35	65	11	1	41.8
7EW	35				158	61	7	1	10	0	39.5
8E	35	624	189	339	141	27	16		6	0	167.8
4E	39	21	72	38	48	36	3	3	2	0	24.8
5E	39	49	44	49	135	75	33	8	5	0	44.2
West											
15WS	27	192	98	204			107	61	5	20	98.1
16WN	27	111	186	54	58	24	32	27	29	20	60.1
14W	29	68	442	89	29	10	13	23	20	3	77.4
12W	30	34	48	94	89	17	18	15	11	1	36.3
11W	32	109	58	38	33	16	18	25	20	2	35.4
10W	35	52	171	67	81	44	34	42		3	61.8
9W	35		156	45	58	11	47	34	6	0	44.6
8W	36	115	268	102		8	102	17	1	3	77.0
7W	37	167	369	268	162	26	77	20	0	1	121.1
4W	39	65	123	49	19	34	2	3	1	1	33.0
5W	39	123	90	39	39	28	42	16	1	0	42.0
Effort		25	25	25	25	25	25	23	24	25	
Catch		3446	4266	3184	1968	949	848	742	459	184	
C/E		137.84	170.64	127.36	78.72	37.96	33.92	32.26	19.13	7.36	

Table 8. CPUE of YOY striped bass by station. Weeks 1-9 1985-2003

STATION	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
East										
18E	0.1	3.4	64.2	56.0	30.5	35.8	7.3	21.5	66.6	39.5
21E	0.0	1.0	70.3	23.5	111.8	70.2	1.0	24.6	89.8	42.3
17E	0.1	8.3	45.7	96.4	157.7	97.6	13.8	21.7	61.8	61.6
16E		3.0	135.0	50.1	34.5	42.6	4.7	17.0	50.7	26.6
15E		8.0	29.0	38.0	51.3	45.6	6.3		73.6	
12E	2.0	1.9	35.4	49.7	36.5	39.8	0.9	18.4	57.3	29.9
13E	3.7	4.5	93.3	14.5	12.5	31.0	24.2	19.7	55.6	14.3
14E	0.2	9.1	37.0	78.4	96.6	67.6	2.7	37.7	35.1	44.0
19E	1.7	6.0	259.5	88.8	67.6	33.1	7.0	19.8	33.1	59.7
10E	1.0									
11E	6.0	9.8	319.9	128.3	45.3	28.0	36.0	37.3	73.3	51.0
9E	1.0	6.0	47.4	37.0	42.9	57.3	17.0	35.5	73.0	55.8
7E1		10.0	54.0		1.0	17.5	1.0			
7EC	15.5									
7EE	5.0	12.9	222.0	54.3	58.0	30.1	10.1	13.9	65.1	26.4
7EW	5.9	10.8	358.7	66.3	99.8	52.5	7.9	26.5	57.3	28.1
8E	1.2	5.0	0.0	29.0		15.3	7.0		85.3	90.0
6E	1.3	1.9	38.9	51.8	31.0					
3E	4.1	4.9	46.9	29.9	24.4	21.9	6.7	13.1	17.4	46.8
4E	7.7	6.4	38.0	42.3	30.4	40.3	15.0	27.8	33.2	21.6
5E	5.0	18.3	9.0	25.8	26.0	34.0	16.0	13.5	186.0	11.0
20E	8.0									
West										
15WN	0.7		63.3	32.3	53.3	53.5	3.0	32.5	11.0	105.0
15WS	4.0	7.1	145.8	109.8	63.0	159.6	45.8	32.4	80.6	57.9
16WN	4.0	15.3	53.1	89.6	62.2	162.4		22.3	48.4	11.0
16WS	3.1	16.3	20.0	149.5	25.3	82.4		6.0		
13W		16.0	25.3	21.0		3.5	20.7	13.7		5.0
14W	4.6	10.0	93.0	65.1	55.6	64.9	40.6	20.0	76.9	24.4
12W	3.0	3.4	46.4	36.7	36.6	83.1	15.8	22.4	53.3	41.8
11W	2.8	4.9	18.7	42.8	11.2	7.0	11.6	11.9	28.7	39.9
10W	4.1	2.8	24.3	37.1	41.5	47.9	14.0	25.6	55.1	29.0
9W	5.1	6.4	25.4	96.5	37.4	39.5	6.6	21.1	20.9	32.3
8W	8.4	15.8	35.6	127.8	137.9	95.3	26.1	69.0	87.3	83.2
7W	10.6	15.7	65.7	114.1	56.6	71.0	20.9	59.5	43.2	74.2
3W		5.7								
4W	15.9	20.1	71.4	93.9	143.8	80.6	23.4	28.6	38.8	27.8
4WN										
5W	10.3	18.1	43.1	64.8	63.8	54.1	27.1	26.2	46.8	33.2
20W	11.0									
Annual C/F	4.6	8.75	82.88	70.4	59.55	58.03	15.23	26.58	55.95	43.55

Table 8. (cont.)

STATION	1995	1996	1997	1998	1999	2000	2001	2002	2003
East									
18E	34.7	18.3	41.4	26.8	22.2	13.3	45.9	21.3	115.5
21E	59.4	46.1	26.1	44.4	38.6	12.2	27.3	9.6	108.7
17E	34.2	18.0	27.5	48.6	48.2	12.3	30.1	18.0	81.8
16E	38.7	14.3	23.2	38.8	37.8	4.6	30.1	6.2	49.6
15E			48.0	80.0	126.0	7.0	40.5		83.3
12E	31.1	11.3	10.9	20.9	51.9	11.0	9.6	8.0	50.6
13E	82.3	13.0	44.4	22.3	47.5	4.6	24.5	26.4	58.5
14E	33.4	20.0	41.1	58.5	48.8	22.6	36.5	27.6	112.4
19E	31.8	16.5	109.8	30.4	15.2	16.0	57.8	12.8	70.3
10E			26.0						
11E	129.4	27.4	124.9	69.7	79.5	73.2	159.2	26.1	115.8
9E	14.8	23.2	54.1	40.7	92.5	18.2	50.3	15.9	124.2
7E1	52.0								
7EC									
7EE	17.1	19.0	54.1	11.8	35.1	34.8	193.3	50.5	41.8
7EW	42.7	12.3	31.6	27.7	35.6	51.7	231.0	21.3	39.5
8E	13.3	34.7	122.4	54.0	85.3	131.1	266.3	51.9	167.8
6E									
3E	17.8	8.9	96.6	22.1	60.0	12.9	118.1	18.5	
4E	13.3	16.7	78.6	18.3	47.3	7.8	217.7	25.4	24.9
5E	10.5	22.3	28.0	24.0		11.0			44.2
20E									
West									
15WN	27.6		16.0						
15WS	22.8	8.1	153.8	56.6	149.0	13.9	48.3	17.0	98.1
16WN	20.2	5.1	79.5		81.6	5.2	69.8	12.8	60.1
16WS	51.0			15.0		24.0	16.0		
13W									
14W	26.6	12.2	36.9	29.2	54.2	19.8	70.8	19.3	77.4
12W	21.7	14.6	26.3	24.9	106.8	7.8	37.0	17.9	36.3
11W	31.1	38.2	4.0	22.0	78.6	32.3	39.2	16.9	35.4
10W	17.3	18.2	53.4	16.3	33.6	18.3	34.4	21.6	61.8
9W	20.3	12.3	41.3	30.1	26.6	11.2	20.0	12.8	44.6
8W	34.5	34.1	41.4	28.6	26.4	6.0	34.2	29.7	77.0
7W	35.6	54.3	68.3	14.3	45.8	17.5	52.0	37.6	121.1
3W									
4W	35.1	31.3	97.7	37.3	51.8	33.7	86.9	30.8	33.0
4WN	17.0								
5W	34.6	25.3	78.0	42.7	49.5	22.6	46.9	18.2	42.0
20W									
Annual C/F	33.63	21.3	58.99	33.7	57.98	22.89	77.55	22.18	72.28

Table 9. CPUE of YOY striped bass by station, weeks 4-9 1980-2003

STATION	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
East														
18E	13.7	30.8	24.2	36.7	23.1	0.2	2.8	27.8	68.3	36.0	15.0	2.6	17.3	39.2
21E						0.0	1.0	65.5		60.5	50.8	0.8	15.7	18.5
17E	9.3	17.6	35.7	91.7	36.8	0.2	7.0	46.5	96.3	73.3	57.6	5.8	13.0	31.7
16E	6.3	4.0	20.0	21.4	11.0		3.0		48.7	15.2	22.3	1.3	12.8	30.8
15E	24.0			302.6	52.8		8.0	29.0	38.0	10.0	10.0	6.3		12.5
12E	2.7	3.5	8.4	24.3	10.4	2.8	1.8	17.5	29.0	20.0	21.8	1.0	17.6	13.7
13E	6.3	4.0			11.0	4.5	4.5	46.3	17.0	12.5	31.0	8.5	12.0	12.2
14E	35.5	10.6	15.0	42.2	11.8	0.2	4.3	30.2	51.0	42.3	28.0	2.0	15.7	26.8
19E					20.7	2.2	2.8	121.8	21.3	34.2	22.8	4.8	11.5	14.8
10E														
11E		22.5	9.6	26.4	7.3	2.8	2.5	163.8	62.4	59.0	22.4	22.2	33.8	19.8
9E	3.1	6.7	8.8	5.2	6.2	0.3	0.8	33.4	33.8	22.3	50.6	7.6	17.8	21.8
7E1							10.0			1.0	17.5	1.0		
7EC			94.0			0.0								
7EE	0.0	22.0	88.3	48.2	146.0	0.7	6.6	274.7	41.5	50.3	28.8	8.3	6.8	90.0
7EW	19.7	10.0	66.0	35.7	215.3	2.5	5.0	406.6	37.5	106.3	54.6	8.0	23.2	57.3
8E	38.5	11.0	103.3	45.0	48.2	1.5	5.0	0.0	16.3		15.3	3.5		70.7
6E	12.7	5.5	41.3	147.0	34.3	0.5	2.5	39.7	18.5	34.8				
3E		12.0			109.5	3.6	2.0	37.2	36.3	28.0	17.7	4.0	9.7	9.6
4E	29.0	14.0	27.8	22.2	41.8	6.3	6.3	32.7	36.6	31.5	30.7	5.5	16.2	9.3
5E	28.5	29.8	20.7	14.5	53.0	5.0		9.0	26.0	21.0	17.0	9.2	13.5	
1E				5.0										
West														
15WN	39.0	9.4	16.7	36.3	42.7	0.0		21.0	28.5	53.4	47.6	3.0	16.2	11.0
15WS	20.6	10.2	8.4	81.3	26.0	2.6	5.5	9.8	67.7	22.0	77.5	15.6	17.4	56.4
16WN	68.3	32.0	11.3	17.5	15.2	3.7	12.3	27.8	64.8	82.7	93.0		16.0	21.7
16WS	60.3	29.6	8.5	49.7	11.0	2.8	15.2	3.7	50.7	32.8	44.0		6.0	
13W	10.2	14.7	17.3					25.3	21.0		3.5	2.3	6.0	
14W	45.3	55.5	17.8	33.3	4.2	5.7		71.5	58.2	36.7	39.6	9.5	8.3	30.7
12W	8.3	9.7	12.0	10.8	7.0	2.7	1.4	35.8	40.7	36.8	65.2	9.5	10.2	8.0
11W	137.0	9.4	12.2	8.0	5.0	2.7	2.2	12.5	45.6	13.2	6.6	7.5	13.2	17.2
10W	21.6	22.2		15.4	7.5	3.3	2.0	20.7	37.2	24.2	29.5	9.0	16.4	24.3
9W	27.7	61.3	13.3	16.3	12.0	5.2	5.0	24.4	86.8	30.3	36.0	4.7	18.6	15.3
8W	19.0	26.8	15.0	29.8	18.3	10.5	15.5	23.5	99.2	47.8	29.8	8.2	42.8	35.8
7W	4.3	47.0	51.0	46.7	34.3	11.3	10.0	13.2	97.2	61.5	74.6	8.5	42.8	13.8
3W	12.2	10.3	23.4	8.0			2.0							
4W	15.3	26.2	41.8	37.5	38.0	18.0	15.8	52.0	95.0	69.0	73.0	12.5	20.0	15.5
4WN														
5W	7.8	20.6	38.4	44.0	39.8	8.3	15.0	27.3	39.4	33.0	40.6	9.5	19.0	14.2
Annual C/F	23.98	21.55	30.51	48.05	37.11	3.93	6.15	60.67	52.3	41.94	37.98	6.85	17.3	26.5

Table 9. (cont.)

STATION	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
East										
18E	23.4	31.2	12.0	31.7	7.8	23.7	3.3	41.0	7.4	74.2
21E	30.0	30.8	16.3	10.5	17.3	36.3	2.0	10.2	5.0	61.3
17E	60.3	14.0	12.3	19.2	35.5	18.3	1.0	22.2	14.5	61.0
16E	16.8	13.0	7.2	12.2	15.2	31.7	1.7	20.2	6.2	37.8
15E							5.0	44.0		39.5
12E	8.2	14.0	10.5	9.5	12.5	60.3	3.5	10.7	9.8	23.5
13E	9.4	18.0	8.0	20.8	11.0	33.7	0.6	26.5	29.4	31.3
14E	20.0	16.0	12.0	29.3	27.4	42.0	2.0	34.0	15.6	27.2
19E	30.5	25.4	11.3	54.8	24.2	21.7	5.8	54.3	11.2	25.7
10E				26.0						
11E	44.8	146.0	31.4	115.0	50.7	61.6	14.0	205.0	24.5	36.0
9E	16.6	14.3	20.3	52.8	44.2	76.6	18.0	62.5	22.0	62.8
7E1		52.0								
7EC										
7EE	16.8	16.0	12.5	61.7	10.0	30.2	8.2	286.8	63.2	35.2
7EW	25.6	47.0	10.5	36.7	33.2	27.0	17.3	327.8	12.5	39.7
8E	70.8	11.3	34.3	130.0	56.6	48.4	36.2	345.7	34.2	38.0
6E										
3E	55.6	20.2	8.0	87.0	22.3	76.0	9.4	153.8	23.4	
4E	16.0	14.8	13.3	94.2	14.8	93.0	4.6	346.5	36.0	15.3
5E	11.0	18.0	19.0		24.0					42.7
1E										
West										
15WN		26.7		16.0						
15WS	55.0	16.3	6.5	78.3	22.5	176.8	3.2	56.6	27.0	48.3
16WN	11.0	21.0	4.2	100.5		99.3	2.0	83.0	15.8	31.7
16WS					12.8					
13W										
14W	16.8	18.2	8.8	25.5	23.3	48.5	6.7	48.8	18.7	16.3
12W	37.2	12.0	8.3	14.8	13.8	134.8	3.8	28.0	21.6	25.2
11W	32.3	23.3	10.5		37.0	101.8	27.2	37.5	18.4	19.0
10W	17.0	13.3	11.7	47.7	17.2	13.0	5.4	47.0	14.4	40.8
9W	13.8	21.4	6.8	45.6	5.5	15.2	3.2	20.2	11.3	26.0
8W	38.5	24.4	17.7	36.7	13.5	16.2	5.5	53.7	20.2	26.2
7W	36.8	31.5	36.5	60.2	13.7	23.0	13.0	37.3	35.8	47.7
3W										
4W	17.8	40.8	24.3	71.8	19.0	103.0	8.0	90.8	38.8	10.0
4WN		17.0								
5W	14.8	35.2	17.5	69.8	39.0	72.0	4.3	35.8	20.5	21.0
	28.49	27.26	14.66	50.28	22.91	53.02	7.82	91.44	21.53	35.0

Table 10. Size frequency distribution of YOY striped bass, Hudson River 2003

TL	Week 1 July 21,25	Week 2 Aug 5-6	Week 3 Aug. 21-22	Week 4 Sept. 2-3	Week 5 Sept. 16-17	Week 6 Oct. 1	Week 7 Oct. 14	Week 8 Oct. 30	Week 9 Nov. 12	Weeks 4-9	Weeks 1-9
5-10	0	0	0	0	0	0	0	0	0	0	0
10-15	10	0	0	0	0	0	0	0	0	0	10
15-20	48	5	0	0	0	0	0	0	0	0	53
20-25	123	19	3	0	0	0	0	0	0	0	145
25-30	250	113	15	0	0	0	0	0	0	0	378
30-35	210	175	61	2	0	0	2	0	0	4	450
35-40	206	206	111	22	6	0	1	0	0	29	552
40-45	125	160	178	69	14	3	1	2	1	90	553
45-50	84	175	180	144	54	28	19	6	5	256	695
50-55	79	103	177	206	108	60	53	32	20	479	838
55-60	41	95	146	227	148	109	94	50	38	666	948
60-65	19	58	125	162	124	120	122	59	36	623	825
65-70	5	42	65	123	98	129	85	57	26	518	630
70-75	1	16	56	73	80	96	66	50	17	382	455
75-80	0	14	25	46	47	61	56	39	11	260	299
80-85	0	2	15	34	17	36	34	20	8	149	166
85-90	0	1	8	13	15	28	19	11	4	90	99
90-95	0	0	0	4	8	18	16	15	6	67	67
95-100	2	1	1	3	6	11	10	7	2	39	43
100-105	1	0	0	1	0	4	9	7	3	24	25
105-110	0	0	0	1	3	2	3	3	5	17	17
110-115	0	0	0	0	0	1	0	3	0	4	4
115-120	0	0	0	0	0	0	3	1	1	5	5
120-125	0	0	0	0	0	0	2	1	0	3	3
125-130	0	0	0	0	0	0	1	0	0	1	1
130-135	0	0	0	0	0	1	1	2	0	4	4
135-140	0	0	0	0	0	0	0	1	0	1	1
140-145	0	0	0	0	0	2	0	0	0	2	2
>145	0	0	0	0	0	0	0	0	1	1	1
#measured	1204	1185	1166	1130	728	709	597	366	184	3714	7269
Mean	40.33	49.53	57.07	63.85	68.11	75.47	73.59	77.08	72.34	70.22	59.81
StdDev	13.01	17.16	15.52	14.31	16.39	26.03	17.08	29.11	16.69	20.36	21.52

Table 11. Bi-weekly size distribution of YOY striped bass, 1985-2003

YEAR		Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9
1985	Mean	73.05	75.98	94.08	87.94	117.95	112.21	115.15	104.87	121.26
	StdDev	31.78	31.79	62.19	25.46	50.03	57.38	32.71	23.18	74.08
1986	Mean	58.19	68.96	77.55	88.27	91.94	109.58	98.87	110.36	102.67
	StdDev	7.97	17.23	17.79	18.13	20.65	58.95	23.44	54.99	23.91
1987	Mean	48.02	60.23	67.61	73.09	80.78	86.13	86.71	88.20	89.87
	StdDev	10.52	11.46	10.99	16.16	11.06	15.01	26.13	16.12	27.17
1988	Mean	43.54	52.40	60.28	75.16	82.13	85.55	90.35	88.93	89.28
	StdDev	16.31	18.06	15.70	18.73	19.03	19.20	26.28	25.76	28.81
1989	Mean	38.86	47.14	57.99	66.00	74.36	82.69	84.59	88.35	91.81
	StdDev	18.41	11.15	13.53	13.40	18.06	18.11	22.59	45.37	31.44
1990	Mean	49.52	46.87	57.84	66.30	72.86	76.82	81.24	81.30	79.33
	StdDev	24.94	19.84	16.95	18.49	25.24	15.84	47.77	21.81	27.41
1991	Mean	65.30	73.72	85.74	97.08	114.16	110.80	107.11	101.95	100.02
	StdDev	23.28	24.07	25.25	31.54	44.89	36.20	34.47	38.57	30.65
1992	Mean	49.43	58.50	67.40	75.05	85.06	94.27	99.97	95.94	97.85
	StdDev	19.57	15.20	19.65	21.34	22.08	47.69	39.21	28.98	31.50
1993	Mean	39.16	54.21	62.89	70.20	83.31	88.21	86.68	91.23	94.54
	StdDev	13.20	17.57	15.18	17.20	37.10	32.32	21.82	25.86	36.43
1994	Mean	42.72	55.19	63.08	71.28	76.64	87.60	84.08	88.24	90.53
	StdDev	14.60	13.16	16.18	13.84	17.23	39.66	13.21	15.86	19.78
1995	Mean	54.19	63.46	71.09	82.68	95.76	100.17	105.88	106.16	92.91
	StdDev	35.65	15.13	16.62	39.09	38.32	33.98	33.87	33.64	27.17
1996	Mean	47.99	55.99	59.69	67.97	91.36	94.62	91.81	84.31	84.84
	StdDev	22.53	24.88	16.88	19.51	54.22	61.47	36.30	17.03	20.41
1997	Mean	42.45	53.01	74.65	74.84	82.25	85.89	90.10	88.47	88.48
	StdDev	12.89	15.19	14.25	18.35	24.84	23.19	25.56	15.62	19.23
1998	Mean	40.84	48.41	62.58	73.07	82.50	90.49	90.69	102.59	91.93
	StdDev	17.30	13.98	19.97	20.83	20.63	36.99	27.57	32.20	15.21
1999	Mean	56.42	64.40	77.77	93.44	105.75	98.93	89.74	91.12	96.05
	StdDev	22.39	16.87	23.54	20.11	31.72	30.92	21.80	24.39	72.87
2000	Mean	44.63	49.39	58.58	70.73	82.35	83.73	84.94	75.90	105.89
	StdDev	19.10	16.38	27.43	30.59	34.56	36.76	26.14	23.62	89.59
2001	Mean	47.83	57.54	71.21	77.32	90.29	95.47	94.37	96.25	104.57
	StdDev	20.33	23.11	22.31	19.76	24.80	22.11	22.34	27.55	10.80
2002	Mean	45.15	56.01	69.83	79.41	93.02	98.74	120.69	106.61	113.25
	StdDev	15.81	19.45	24.66	25.43	29.54	31.56	35.07	31.36	39.50
2003	Mean	40.33	49.53	57.07	63.85	68.11	75.47	73.59	77.08	72.34
	StdDev	13.01	17.16	15.52	14.31	16.39	26.03	17.08	29.11	16.69

Table 14. Older Striped bass catch per station, 2003

Station	River Mile	Week 1 July 21, 25	Week 2 Aug 5, 6	Week 3 Aug 21, 22	Week 4 Sep 2, 3	Week 5 Sep 16, 17	Week 6 Oct 1	Week 7 Oct 14	Week 8 Oct 30	Week 9 Nov 12	C/F
East											
18E	23	0	0	0	0	1	0	1		0	0.3
21E	23	0	0	0	1	0	1	0	0	0	0.2
17E	24	0	0	0	1	0	0	0	0	0	0.1
16E	25	0	0	0	0	1	1	0	0	0	0.2
15E	27	0			0					0	0.0
12E	29	0	2	1	0	0	0	0	0	0	0.3
13E	29	0	0	0	0	0			1		0.2
14E	29	0	0	0	0	0	1	0	0		0.1
19E	33	0	2	3	0	1	7	0	0	0	1.4
11E	34	0	6	2	0	0	2		1	0	1.4
9E	34	2	0	1	2	0	2	0	0	0	0.8
7EE	35	0	2	1	0	0	2	1	0	0	0.7
7EW	35				1	1	0	0	0	0	0.3
8E	35	0	0	0	0	0	0		0	0	0.0
4E	39	1	1	0	0	0	0	0	0	0	0.2
5E	39	0	2	0	0	0	0	0	1	0	0.3
West											
15WS	27	0	0	0			0	4	0	0	0.6
16WN	27	0	0	0	0	0	0	0	0	0	0.0
14W	29	0	0	0	0	0	1	0	0	0	0.1
12W	30	0	0	0	0	0	0	0	0	0	0.0
11W	32	0	0	0	0	0	0	0	1	0	0.1
10W	35	0	0	0	0	0	0	0		0	0.0
9W	35		0	0	0	0	0	0	1	0	0.1
8W	36	0	0	0		0	0	0	0	0	0.0
7W	37	0	0	0	0	0	0	1	0	0	0.1
4W	39	0	0	0	0	0	0	0	0	0	0.0
5W	39	1	0	0	1	0	1	0	0	0	0.3
Effort		25	25	25	25	25	25	23	24	25	
Catch		4	15	8	6	4	18	7	5	0	
C/E		0.16	0.60	0.32	0.24	0.16	0.72	0.30	0.21	0.00	

Table 15. YOY White perch catch by station, 2003

Station	River Mile	Week 1 July 21, 25	Week 2 Aug 5, 6	Week 3 Aug 21, 22	Week 4 Sep 2, 3	Week 5 Sep 16, 17	Week 6 Oct 1	Week 7 Oct 14	Week 8 Oct 30	Week 9 Nov 12	C/F
East											
18E	23	1	20	44	2	2	0	0		11	10.0
21E	23	1	3	5	0	0	0	0	0	3	1.3
17E	24	0	0	7	0	0	0	7	5	0	2.1
16E	25	0	0	0	13	0	1	4	0	0	2.0
15E	27	0			28					1	9.7
12E	29	0	12	0	0	0	0	0	0	1	1.4
13E	29	119	115	69	53	54			96		84.3
14E	29	6	0	0	0	2	0	0	1		1.1
19E	33	1	1	19	0	15	2	1	0	0	4.3
11E	34	1	68	494	0	0	0	0	0	0	70.4
9E	34	1	0	2	22	0	1	3	0	0	3.2
7EE	35	0	0	0	1	0	28	58	21	0	12.0
7EW	35				0	10	2	0	1	3	2.7
8E	35	27	71	423	211	13	11		1	0	94.6
4E	39	1	1	68	86	55	3	0	0	0	23.8
5E	39	0	1	2	46	51	9	0	8	0	13.0
West											
15WS	27	0	1	18			55	38	0	7	17.0
16WN	27	0	16	42	9	4	14	10	3	9	11.9
14W	29	1	55	204	27	35	58	35	28	7	50.0
12W	30	6	50	205	243	29	128	45	5	3	79.3
11W	32	1	0	18	15	0	12	30	4	1	9.0
10W	35	0	81	113	163	80	98	75		8	77.3
9W	35		1	5	1	0	7	14	0	0	3.5
8W	36	0	17	80		0	121	47	0	0	33.1
7W	37	0	24	209	134	10	60	13	2	2	50.4
4W	39	0	17	11	18	22	0	0	0	0	7.6
5W	39	2	5	40	67	47	42	4	0	0	23.0
Effort		25	25	25	25	25	25	23	24	25	
Catch		168	559	2078	1139	429	652	384	175	56	
C/E		6.72	22.36	83.12	45.56	17.16	26.08	16.70	7.29	2.24	

Table 16. Older white perch by station, 2003

Station	River Mile	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	C/F
		July 21, 25	Aug 5, 6	Aug 21, 22	Sep 2, 3	Sep 16, 17	Oct 1	Oct 14	Oct 30	Nov 12	
East											
18E	23	0	0	1	2	3	3	0		0	1.1
21E	23	1	0	0	0	2	5	0	0	0	0.9
17E	24	0	0	3	0	18	0	10	2	0	3.7
16E	25	2	2	5	5	7	4	13	0	0	4.2
15E	27	0			23					0	7.7
12E	29	1	0	28	8	12	1	0	0	0	5.6
13E	29	3	6	13	11	10			0		7.2
14E	29	0	0	0	0	0	3	0	0		0.4
19E	33	0	46	45	1	0	0	0	0	0	10.2
11E	34	25	174	5	0	0	0		0	0	25.5
9E	34	0	4	19	9	0	5	0	0	0	4.1
7EE	35	12	20	73	99	138	30	6	0	0	42.0
7EW	35				62	79	8	0	0	0	24.8
8E	35	0	8	12	0	8	0		1	0	3.6
4E	39	9	18	9	13	8	1	0	0	0	6.4
5E	39	14	17	1	15	0	13	0	0	0	6.7
West											
15WS	27	28	9	0			1	0	0	1	5.6
16WN	27	7	25	73	39	15	2	3	1	0	18.3
14W	29	3	9	29	4	1	2	1	0	0	5.4
12W	30	8	7	0	2	8	5	0	3	0	3.7
11W	32	1	0	10	14	2	3	3	0	0	3.7
10W	35	2	10	22	3	3	7	0	0	0	5.9
9W	35		3	11	4	0	5	0	0	0	2.9
8W	36	1	23	5		0	7	0	0	0	4.5
7W	37	12	16	20	19	0	19	3	0	0	9.9
4W	39	3	14	22	4	0	0	0	0	0	4.8
5W	39	4	23	47	7	1	20	0	0	0	11.3
Effort		25	25	25	25	25	25	23	24	25	
Catch		136	434	453	344	315	144	39	7	1	
C/E		5.44	17.36	18.12	13.76	12.60	5.76	1.70	0.29	0.04	

Table 17. Atlantic tomcod catch by station, 2003

Station	River Mile	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	C/F
		July 21, 25	Aug 5, 6	Aug 21, 22	Sep 2, 3	Sep 16, 17	Oct 1	Oct 14	Oct 30	Nov 12	
East											
18E	23	0	0	0	0	0	0	0		0	0.0
21E	23	0	0	0	0	0	0	0	0	0	0.0
17E	24	0	0	0	0	0	0	0	0	0	0.0
16E	25	0	0	0	0	0	0	0	0	0	0.0
15E	27	0			0					0	0.0
12E	29	0	0	0	0	0	0	0	0	0	0.0
13E	29	0	0	0	0	0			0		0.0
14E	29	0	0	0	0	0	0	0	300		37.5
19E	33	0	0	0	0	0	0	0		0	0.0
11E	34	0	0	0	0	0	0		0	0	0.0
9E	34	0	0	0	0	0	0	0	0	0	0.0
7EE	35	0	0	0	0	0	0	0	0	0	0.0
7EW	35				0	0	0	0	0	0	0.0
8E	35	0	0	0	0	0	0		0	0	0.0
4E	39	0	0	0	0	1	0	0	0	0	0.1
5E	39	0	0	0	0	0	0	0	0	0	0.0
West											
15WS	27	0	0	0			0	0	0	0	0.0
16WN	27	0	0	0	0	0	0	0	0	0	0.0
14W	29	1	0	0	0	1	0	0	0	0	0.2
12W	30	0	0	0	0	0	2	0	0	0	0.2
11W	32	0	0	0	0	0	0	0	0	0	0.0
10W	35	0	1	0	0	0	0	0	0	0	0.1
9W	35		0	0	0	0	0	0	0	0	0.0
8W	36	0	0	0		0	0	0	0	0	0.0
7W	37	0	0	0	0	0	0	0	0	0	0.0
4W	39	0	0	0	0	0	0	0	0	0	0.0
5W	39	0	0	0	0	0	0	0	0	0	0.0
Effort		25	25	25	25	25	25	23	24	25	
Catch		1	1	0	0	2	2	0	300	0	
C/E		0.04	0.04	0.00	0.00	0.08	0.08	0.00	12.50	0.00	

Table 18. Size frequency distribution of atlantic tomcod, Hudson River 2003

TL	Week 1 July 21,25	Week 2 Aug 5-6	Week 3 Aug. 21-22	Week 4 Sept. 2-3	Week 5 Sept. 16-17	Week 6 Oct. 1	Week 7 Oct. 14	Week 8 Oct. 30	Week 9 Nov. 12	Weeks 4-9	Weeks 1-9
5-10	0	0	0	0	0	0	0	0	0	0	0
10-15	0	0	0	0	0	0	0	0	0	0	0
15-20	0	0	0	0	0	0	0	0	0	0	0
20-25	0	0	0	0	0	0	0	0	0	0	0
25-30	0	0	0	0	0	0	0	0	0	0	0
30-35	0	0	0	0	0	0	0	0	0	0	0
35-40	0	0	0	0	0	0	0	0	0	0	0
40-45	0	0	0	0	0	0	0	0	0	0	0
45-50	0	0	0	0	0	0	0	0	0	0	0
50-55	0	0	0	0	0	0	0	0	0	0	0
55-60	0	0	0	0	0	0	0	0	0	0	0
60-65	0	0	0	0	0	0	0	0	0	0	0
65-70	0	0	0	0	0	0	0	0	0	0	0
70-75	0	0	0	0	0	0	0	0	0	0	0
75-80	0	0	0	0	0	0	0	0	0	0	0
80-85	0	0	0	0	0	0	0	0	0	0	0
85-90	0	0	0	0	0	0	0	0	0	0	0
90-95	1	1	0	0	0	0	0	0	0	0	2
95-100	0	0	0	0	1	0	0	0	0	0	1
100-105	0	0	0	0	0	0	0	0	0	0	0
105-110	0	0	0	0	0	0	0	0	0	0	0
110-115	0	0	0	0	1	0	0	0	0	1	1
115-120	0	0	0	0	0	0	0	0	0	0	0
120-125	0	0	0	0	0	1	0	0	0	1	1
125-130	0	0	0	0	0	1	0	0	0	1	1
130-135	0	0	0	0	0	0	0	0	0	0	0
135-140	0	0	0	0	0	0	0	0	0	0	0
140-145	0	0	0	0	0	0	0	0	0	0	0
>145	0	0	0	0	0	0	0	0	0	0	0
#measured	1	1	0	0	2	2	0	0	0	3	6
Mean	92.00	94.00			106.50	123.50				70.22	59.81
StdDev					10.61	2.12				20.36	21.52

Table 19. American eel catch per station, 2003

Station	River Mile	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	C/F
		July 21, 25	Aug 5, 6	Aug 21, 22	Sep 2, 3	Sep 16, 17	Oct 1	Oct 14	Oct 30	Nov 12	
East											
18E	23	0	0	0	1	0	0	0		0	0.1
21E	23	0	0	0	0	0	0	0	0	0	0.0
17E	24	2	0	0	1	1	0	0	0	0	0.4
16E	25	0	0	0	0	0	0	0	0	0	0.0
15E	27	0			0					0	0.0
12E	29	0	0	0	1	0	0	0	0	0	0.1
13E	29	0	1	0	0	0			1		0.3
14E	29	0	0	0	0	0	0	0	0		0.0
19E	33	0	0	0	0	0	0	0	0	0	0.0
11E	34	2	0	1	0	0	0		0	0	0.4
9E	34	0	0	0	0	0	0	0	0	0	0.0
7EE	35	0	1	0	0	0	0	0	0	0	0.1
7EW	35				0	0	0	0	0	0	0.0
8E	35	0	1	0	0	1	0		0	0	0.3
4E	39	0	0	0	0	0	0	0	0	0	0.0
5E	39	4	0	0	0	1	1	0	0	0	0.7
West											
15WS	27	0	0	0			0	0	0	0	0.0
16WN	27	0	3	1	2	0	0	0	0	0	0.7
14W	29	0	0	0	1	2	0	0	0	0	0.3
12W	30	0	1	2	2	0	2	2	0	0	1.0
11W	32	0	1	1	0	0	0	0	0	0	0.2
10W	35	0	0	0	0	2	0	0		0	0.3
9W	35		0	0	0	0	1	0	0	0	0.1
8W	36	0	5	0		0	0	1	0	0	0.8
7W	37	0	0	2	0	0	0	0	0	0	0.2
4W	39	0	0	0	0	0	0	0	0	0	0.0
5W	39	0	2	2	0	0	0	0	0	0	0.4
Effort		25	25	25	25	25	25	23	24	25	
Catch		8	15	9	8	7	4	3	1	0	
C/E		0.32	0.60	0.36	0.32	0.28	0.16	0.13	0.04	0.00	

Table 20. Size-frequency distribution of American eel, Hudson River 2003

TL	Week 1 July 21, 25	Week 2 Aug 5, 6	Week 3 Aug 21, 22	Week 4 Sep 2, 3	Week 5 Sep 16, 17	Week 6 Oct 1	Week 7 Oct 14	Week 8 Oct 30	Week 9 Nov 12	Weeks 4 - 9	Weeks 1 - 9
< 20	0	0	0	0	0	0	0	0		0	0
21 - 40	0	0	0	0	0	0	0	0		0	0
41 - 60	0	0	0	0	0	0	0	0		0	0
61 - 80	0	1	0	0	0	0	1	0		1	2
81 - 100	0	0	0	0	0	0	0	1		1	1
101 - 120	0	0	0	0	0	0	0	0		0	0
121 - 140	1	1	0	0	0	0	1	0		1	3
141 - 160	0	0	1	0	0	0	0	0		0	1
161 - 180	0	2	0	0	0	0	0	0		0	2
181 - 200	0	0	1	0	1	0	0	0		1	2
201 - 220	0	1	1	1	1	0	0	0		2	4
221 - 240	0	1	0	0	0	0	1	0		1	2
241 - 260	0	1	0	0	0	0	0	0		0	1
261 - 280	1	0	0	0	0	0	0	0		0	1
281 - 300	2	1	2	0	0	0	0	0		0	5
301 - 320	0	0	0	0	0	0	0	0		0	0
321 - 340	0	1	1	0	0	0	0	0		0	2
341 - 360	0	0	0	0	0	0	0	0		0	0
361 - 380	0	0	0	1	1	0	0	0		2	2
381 - 400	1	0	0	0	0	0	0	0		0	1
401 - 420	0	1	0	0	0	0	0	0		0	1
421 - 440	1	0	0	0	0	0	0	0		0	1
441 - 460	0	0	0	0	0	0	0	0		0	0
461 - 480	0	0	0	0	1	0	0	0		1	1
481 - 500	1	0	1	0	0	0	0	0		0	2
501 - 520	0	1	0	1	0	0	0	0		1	2
521 - 540	0	0	1	0	0	1	0	0		1	2
541 - 560	0	1	1	0	0	0	0	0		0	2
561 - 580	0	1	0	0	1	0	0	0		1	2
581 - 600	1	1	0	0	0	0	0	0		0	2
601 - 620	0	0	0	1	2	0	0	0		3	3
621 - 640	0	0	0	0	0	1	0	0		1	1
641 - 660	0	1	0	1	0	1	0	0		2	3
661 - 680	0	0	0	1	0	0	0	0		1	1
681 - 700	0	0	0	0	0	0	0	0		0	0
701 - 720	0	0	0	1	0	1	0	0		2	2
721 - 740	0	0	0	0	0	0	0	0		0	0
741 - 760	0	0	0	1	0	0	0	0		1	1
761 - 780	0	0	0	0	0	0	0	0		0	0
781 - 800	0	0	0	0	0	0	0	0		0	0
> 800	0	0	0	0	0	0	0	0		0	0
# Measured	8	15	9	8	7	4	3	1	0	23	55
Mean	366.25	342.33	338.33	564.50	437.14	633	146.67	100		462.96	395.60
StDEV	142.40	190.75	151.35	185.97	183.82	80.78	76.38			224.70	198.54

Table 21. YOY bluefish catch by station, 2003

Station	River Mile	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	C/F
		July 21, 25	Aug 5, 6	Aug 21, 22	Sep 2, 3	Sep 16, 17	Oct 1	Oct 14	Oct 30	Nov 12	
East											
18E	23	3	3	0	0	0	1	0		0	0.9
21E	23	9	4	1	2	0	0	0	0	0	1.8
17E	24	3	0	0	7	0	0	0	0	0	1.1
16E	25	1	2	1	1	0	0	0	0	0	0.6
15E	27	0			0					0	0.0
12E	29	1	4	2	3	1	0	1	0	0	1.3
13E	29	3	4	1	1	0			0		1.5
14E	29	0	2	1	6	0	0	0	0		1.1
19E	33	3	6	1	0	0	2	0	0	0	1.3
11E	34	3	2	0	0	1	0		0	0	0.8
9E	34	1	7	2	0	0	0	0	0	0	1.1
7EE	35	4	2	1	1	0	2	0	0	0	1.1
7EW	35				1	2	0	0	0	0	0.5
8E	35	6	2	1	4	6	4		0	0	2.9
4E	39	2	4	0	3	0	0	0	0	0	1.0
5E	39	0	0	0	0	0	0	2	0	0	0.2
West											
15WS	27	0	2	3			2	0	0	0	1.0
16WN	27	1	0	1	0	0	0	0	0	0	0.2
14W	29	3	3	2	0	2	0	0	0	0	1.1
12W	30	3	0	0	1	0	0	0	0	0	0.4
11W	32	5	2	0	1	0	0	0	0	0	0.9
10W	35	1	5	0	3	1	3	1		0	1.8
9W	35		0	0	6	0	0	0	0	0	0.8
8W	36	3	1	0		1	0	0	0	0	0.6
7W	37	7	4	0	1	1	0	0	0	0	1.4
4W	39	1	0	0	2	3	0	0	0	0	0.7
5W	39	0	0	1	0	3	0	0	0	0	0.4
Effort		25	25	25	25	25	25	23	24	25	
Catch		63	59	18	43	21	14	4	0	0	
C/E		2.52	2.36	0.72	1.72	0.84	0.56	0.17	0.00	0.00	

Table 22. Size-frequency distribution of bluefish, Hudson River, 2003

TL	Week 1 July 21,25	Week 2 Aug 5-6	Week 3 Aug. 21-22	Week 4 Sept. 2-3	Week 5 Sept. 16-17	Week 6 Oct. 1	Week 7 Oct. 14	Week 8 Oct. 30	Week 9 Nov. 12	Weeks 4-9	Weeks 1-9
60 - 65	0	0	0	0	0	0	0	0	0	0	0
65 - 70	0	0	2	0	0	0	0	0	0	0	2
70 - 75	0	0	0	0	0	0	0	0	0	0	0
75 - 80	0	0	0	1	0	0	0	0	0	1	1
80 - 85	2	0	0	3	0	0	0	0	0	3	5
85 - 90	1	0	0	2	0	0	0	0	0	2	3
90 - 95	6	0	0	1	1	0	0	0	0	2	8
95 - 100	9	1	0	5	3	0	0	0	0	8	18
100 - 105	8	2	0	2	0	2	0	0	0	4	14
105 - 110	15	4	0	1	2	1	0	0	0	4	23
110 - 115	9	6	0	0	2	0	0	0	0	2	17
115 - 120	5	7	0	0	2	0	1	0	0	3	15
120 - 125	1	10	2	0	1	2	1	0	0	4	17
125 - 130	3	4	0	1	0	0	1	0	0	2	9
130 - 135	2	9	0	0	0	2	1	0	0	3	14
135 - 140	1	6	0	2	0	2	0	0	0	4	11
140 - 145	0	2	2	0	0	3	0	0	0	3	7
145 - 150	0	5	2	1	0	0	0	0	0	1	8
150 - 155	1	0	3	3	0	1	0	0	0	4	8
155 - 160	0	0	2	4	0	0	0	0	0	4	6
160 - 165	0	0	1	6	0	0	0	0	0	6	7
165 - 170	0	0	3	3	1	0	0	0	0	4	7
170 - 175	0	0	0	4	1	0	0	0	0	5	5
175 - 180	0	1	1	1	2	0	0	0	0	3	5
180 - 185	0	0	0	1	0	0	0	0	0	1	1
185 - 190	0	1	0	1	1	0	0	0	0	2	3
190 - 195	0	1	0	1	0	0	0	0	0	1	2
195 - 200	0	0	0	0	0	0	0	0	0	0	0
200 - 205	0	0	0	0	0	0	0	0	0	0	0
205 - 210	0	0	0	0	2	0	0	0	0	2	2
210 - 215	0	0	0	0	0	0	0	0	0	0	0
215 - 220	0	0	0	0	0	0	0	0	0	0	0
220 - 225	0	0	0	0	1	0	0	0	0	1	1
225 - 230	0	0	0	0	0	0	0	0	0	0	0
230 - 235	0	0	0	0	0	0	0	0	0	0	0
235 - 240	0	0	0	0	0	0	0	0	0	0	0
240 - 245	0	0	0	0	0	0	0	0	0	0	0
245 - 250	0	0	0	0	0	0	0	0	0	0	0
250 - 255	0	0	0	0	1	1	0	0	0	2	2
255 - 260	0	0	0	0	0	0	0	0	0	0	0
260 - 265	0	0	0	0	0	0	0	0	0	0	0
265 - 270	0	0	0	0	1	0	0	0	0	1	1
270 - 275	0	0	0	0	0	0	0	0	0	0	0
#measured	63	59	18	43	21	14	4	0	0	82	222
Mean	106.79	127.42	142.17	137.30	152.90	137.36	123.50			140.63	127.64
StDev	12.84	18.34	31.34	36.04	54.37	36.16	6.56			40.94	32.07

Table 23. Winter flounder catch by station, 2003

Station	River Mile	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	C/F
		July 21, 25	Aug 5, 6	Aug 21, 22	Sep 2, 3	Sep 16, 17	Oct 1	Oct 14	Oct 30	Nov 12	
East											
18E	23	14	10	0	1	1	0	1		1	3.5
21E	23	6	11	0	0	0	0	0	1	1	2.1
17E	24	8	0	0	1	0	2	0	0	0	1.2
16E	25	10	5	0	0	1	0	0	2	0	2.0
15E	27	2			0					0	0.7
12E	29	5	0	0	1	0	0	0	1	0	0.8
13E	29	2	1	2	0	0			0		0.8
14E	29	6	0	0	0	0	0	0	0		0.8
19E	33	0	0	0	0	0	0	0	0	0	0.0
11E	34	0	0	0	0	0	0		0	0	0.0
9E	34	0	0	0	0	0	0	0	0	0	0.0
7EE	35	0	0	0	0	0	0	0	0	0	0.0
7EW	35				0	0	0	0	0	0	0.0
8E	35	0	0	0	0	0	0		0	0	0.0
4E	39	0	0	0	0	0	0	0	0	0	0.0
5E	39	0	0	0	0	0	0	0	0	0	0.0
West											
15WS	27	0	0	0			0	1	0	0	0.1
16WN	27	0	1	0	0	0	6	0	0	0	0.8
14W	29	2	0	0	1	0	0	0	1	0	0.4
12W	30	0	0	0	0	0	0	0	0	0	0.0
11W	32	0	1	0	0	0	1	0	0	0	0.2
10W	35	0	0	0	0	0	0	0	0	0	0.0
9W	35		0	0	0	0	0	0	0	0	0.0
8W	36	0	0	0		0	0	0	0	0	0.0
7W	37	0	0	0	0	0	0	0	0	0	0.0
4W	39	0	0	0	0	0	0	0	0	0	0.0
5W	39	0	0	0	0	0	0	0	0	0	0.0
Effort		25	25	25	25	25	25	23	24	25	
Catch		55	29	2	4	2	9	2	5	2	
C/E		2.20	1.16	0.08	0.16	0.08	0.36	0.09	0.21	0.08	

Table 24. Size-frequency distribution of winter flounder, Hudson River, 2003

TL	Week 1 July 21, 25	Week 2 Aug 5, 6	Week 3 Aug 21, 22	Week 4 Sep 2, 3	Week 5 Sep 16, 17	Week 6 Oct 1	Week 7 Oct 14	Week 8 Oct 30	Week 9 Nov 12	Weeks 4 - 9	Weeks 1 - 9
< 20	0	0		0	0	0	0	0	0	0	0
20 - 25	0	0		0	0	0	0	0	0	0	0
26 - 30	0	0		0	0	0	0	0	0	0	0
31 - 35	3	0		0	0	0	0	0	0	0	3
36 - 40	4	1		0	0	0	0	0	0	0	5
41 - 45	10	2		0	0	0	0	0	0	0	12
46 - 50	7	8		1	0	0	0	0	0	1	16
51 - 55	7	4		1	1	1	0	0	0	3	14
56 - 60	14	4		1	0	1	0	0	0	2	20
61 - 65	3	4		0	0	0	0	1	0	1	8
66 - 70	4	4		1	0	1	0	0	0	2	10
71 - 75	2	1		0	0	1	0	0	0	1	4
76 - 80	1	0		1	0	4	0	0	0	5	6
81 - 85	0	0		0	0	1	0	2	1	4	4
86 - 90	0	0		0	0	0	1	1	1	3	3
91 - 95	0	0		0	0	0	0	0	0	0	0
96 - 100	0	0		0	0	0	0	1	0	1	1
101 - 105	0	0		0	0	0	0	0	0	0	0
106 - 110	0	0		0	0	0	0	0	0	0	0
111 - 115	0	0		0	0	0	0	0	0	0	0
116 - 120	0	0		0	0	0	0	0	0	0	0
121 - 125	0	0		0	0	0	0	0	0	0	0
126 - 130	0	0		0	0	0	0	0	0	0	0
131 - 135	0	0		0	0	0	0	0	0	0	0
136 - 140	0	0		0	0	0	0	0	0	0	0
141 - 145	0	0		0	0	0	0	0	0	0	0
146 - 150	0	0		0	0	0	0	0	0	0	0
151 - 155	0	0		0	0	0	0	0	0	0	0
156 - 160	0	0		0	0	0	0	0	0	0	0
161 - 165	0	0		0	0	0	0	0	0	0	0
166 - 170	0	0		0	0	0	0	0	0	0	0
171 - 175	0	0		0	0	0	0	0	0	0	0
176 - 180	0	0		0	0	0	0	0	0	0	0
181 - 185	0	0		0	0	0	0	0	0	0	0
186 - 190	0	0		0	0	0	0	0	0	0	0
191 - 195	0	0		0	0	0	0	0	0	0	0
196 - 200	0	0		0	0	0	0	0	0	0	0
201 - 205	0	0		0	0	0	0	0	0	0	0
206 - 210	0	0		0	0	0	0	0	0	0	0
211 - 215	0	0		0	0	0	0	0	0	0	0
216 - 220	0	0		0	0	0	0	0	0	0	0
221 - 225	0	0		0	0	0	0	0	0	0	0
226 - 230	0	0		0	0	0	0	0	0	0	0
231 - 235	0	0		0	0	0	0	0	0	0	0
236 - 240	0	0		0	0	0	0	0	0	0	0
241 - 245	0	0		0	0	0	0	0	0	0	0
246 - 250	0	0		0	0	0	0	0	0	0	0
251 - 255	0	0		0	0	0	0	0	0	0	0
256 - 260	0	0		0	0	0	0	0	0	0	0
261 - 265	0	0		0	0	0	0	0	0	0	0
266 - 270	0	0		0	0	0	0	0	0	0	0
271 - 275	0	0		0	0	0	0	0	0	0	0
276 - 280	0	0		0	0	0	0	0	0	0	0
281 - 285	0	0		0	0	0	0	0	0	0	0
286 - 290	0	0		0	0	0	1	0	0	1	1
291 - 295	0	0		0	0	0	0	0	0	0	0
296 - 300	0	0		0	0	0	0	0	0	0	0
> 300	0	0		0	0	0	0	0	0	0	0
# Measured	55	28	0	5	1	9	2	5	2	24	107
Mean	52.62	55.64		61.00	52	72	188.50	83.00	84.00	81.88	59.97
StDEV	10.73	9.21		11.36		9.75	139.30	11.25	4.24	45.64	25.96

Table 25. American shad catch by station, 2003

Station	River Mile	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	C/F
		July 21, 25	Aug 5, 6	Aug 21, 22	Sep 2, 3	Sep 16, 17	Oct 1	Oct 14	Oct 30	Nov 12	
East											
18E	23	0	0	0	0	0	0	1		1	0.3
21E	23	3	1	0	4	0	0	3	1	4	1.8
17E	24	0	0	0	0	0	0	18	0	2	2.2
16E	25	0	4	0	5	0	0	10	11	0	3.3
15E	27	0			1					3	1.3
12E	29	1	0	0	0	0	0	6	1	0	0.9
13E	29	25	7	0	3	0	0	7	7		7.0
14E	29	36	2	0	11	0	0	12	1		7.8
19E	33	100	1	11	17	0	28	0	2	0	17.7
11E	34	5	14	0	0	0	0		0	0	2.4
9E	34	11	4	24	10	1	8	8	1	0	7.4
7EE	35	0	1	7	1	0	0	0	1	0	1.1
7EW	35				14	6	0	9	0	0	4.8
8E	35	6	11	1	18	2	18		25	0	10.1
4E	39	2	0	51	7	2	12	11	8	2	10.6
5E	39	0	0	13	4	0	2	1	0	2	2.4
West											
15WS	27	0	0	9			0	0	0	0	1.3
16WN	27	0	1	0	0	0	0	0	0	1	0.2
14W	29	3	4	26	1	0	0	0	7	3	4.9
12W	30	4	6	15	1	3	0	0	1	0	3.3
11W	32	5	2	25	1	0	0	0	2	0	3.9
10W	35	0	1	5	13	1	12	2		1	4.4
9W	35		3	3	2	0	9	2	2	0	2.6
8W	36	0	3	2		0	0	2	0	1	1.0
7W	37	5	0	0	4	5	4	0	1	0	2.1
4W	39	6	2	40	7	1	7	4	0	1	7.6
5W	39	0	0	28	4	4	1	0	0	0	4.1
Effort		25	25	25	25	25	25	23	24	25	
Catch		212	67	260	128	25	101	89	71	21	
C/E		8.48	2.68	10.40	5.12	1.00	4.04	3.87	2.96	0.84	

Table 26. Size-frequency distribution of American shad, Hudson River, 2003

TL	Week 1 July 21,25	Week 2 Aug 5-6	Week 3 Aug. 21-22	Week 4 Sept. 2-3	Week 5 Sept. 16-17	Week 6 Oct. 1	Week 7 Oct. 14	Week 8 Oct. 30	Week 9 Nov. 12	Weeks 4-9	Weeks 1-9
20 - 25	0	0	0	0	0	0	0	0	0	0	0
25 - 30	0	0	0	0	0	0	0	0	0	0	0
30 - 35	0	1	5	0	0	0	0	0	0	0	6
35 - 40	0	6	23	3	0	0	0	0	0	3	32
40 - 45	0	1	46	0	0	0	0	0	0	0	47
45 - 50	0	0	8	1	0	1	0	0	0	2	10
50 - 55	4	0	2	3	0	0	0	0	0	3	9
55 - 60	48	3	4	1	0	0	1	0	1	3	58
60 - 65	65	13	7	0	0	1	3	0	3	7	92
65 - 70	21	34	46	4	0	0	6	0	2	12	113
70 - 75	7	7	67	29	2	1	9	4	1	46	127
75 - 80	0	2	16	58	14	14	18	10	0	114	132
80 - 85	0	0	1	23	8	55	30	19	6	141	142
85 - 90	0	0	0	3	0	26	20	8	3	60	60
90 - 95	0	0	0	0	0	3	1	6	4	14	14
95 - 100	0	0	0	1	0	0	0	0	1	2	2
100 - 105	0	0	0	0	0	0	0	0	0	0	0
105 - 110	0	0	0	0	0	0	1	0	0	1	1
110 - 115	0	0	0	0	0	0	0	0	0	0	0
115 - 120	0	0	0	0	0	0	0	0	0	0	0
120 - 125	0	0	0	0	0	0	0	0	0	0	0
125 - 130	0	0	0	0	0	0	0	0	0	0	0
130 - 135	0	0	0	0	0	0	0	0	0	0	0
135 - 140	0	0	0	0	0	0	0	0	0	0	0
140 - 145	0	0	0	0	0	0	0	0	0	0	0
145 - 150	0	0	0	0	0	0	0	0	0	0	0
150 - 155	0	0	0	0	0	0	0	0	0	0	0
155 - 160	0	0	0	0	0	0	0	0	0	0	0
160 - 165	0	0	0	0	0	0	0	0	0	0	0
165 - 170	0	0	0	0	0	0	0	0	0	0	0
170 - 175	0	0	0	0	0	0	0	0	0	0	0
175 - 180	0	0	0	1	0	0	0	0	0	1	1
180 - 185	0	0	0	0	0	0	0	0	0	0	0
185 - 190	0	0	0	0	0	0	0	0	0	0	0
190 - 195	0	0	0	0	0	0	0	0	0	0	0
195 - 200	0	0	0	0	0	0	0	0	0	0	0
200 - 205	0	0	0	0	0	0	0	0	0	0	0
205 - 210	0	0	0	0	0	0	0	0	0	0	0
210 - 215	0	0	0	0	0	0	0	0	0	0	0
215 - 220	0	0	0	0	0	0	0	0	0	0	0
220 - 225	0	0	0	0	0	0	0	0	0	0	0
225 - 230	0	0	0	0	0	0	0	0	0	0	0
230 - 235	0	0	0	0	0	0	0	0	0	0	0
235 - 240	0	0	0	0	0	0	0	0	0	0	0
240 - 245	0	0	0	0	0	0	0	0	0	0	0
245 - 250	0	0	0	0	0	0	0	0	0	0	0
250 - 255	0	0	0	0	0	0	0	0	0	0	0
255 - 260	0	0	0	0	0	0	0	0	0	0	0
260 - 265	0	0	0	0	0	0	0	0	0	0	0
265 - 270	0	0	0	0	0	0	0	0	0	0	0
270 - 275	0	0	0	0	0	0	0	0	0	0	0
275 - 280	0	0	0	0	0	0	0	0	0	0	0
280 - 285	0	0	0	0	0	0	0	0	0	0	0
285 - 290	0	0	0	0	0	0	0	0	0	0	0
290 - 295	0	0	0	0	0	0	0	0	0	0	0
295 - 300	0	0	0	0	0	0	0	0	0	0	0
#measured	145	67	225	127	24	101	89	47	21	409	846
Mean	61.14	62.42	59.05	75.40	77.96	82.00	79.27	81.98	78.76	78.95	69.30
StDev	4.48	10.17	14.55	12.73	2.66	5.34	7.43	5.40	11.84	9.32	14.06

Table 27. Alewife catch by station, 2003

Station	River mile	Week 1 July 21,25	Week 2 Aug 5-6	Week 3 Aug. 21-22	Week 4 Sept. 2-3	Week 5 Sept. 16-17	Week 6 Oct. 1	Week 7 Oct. 14	Week 8 Oct. 30	Week 9 Nov. 12	C/F
East											
18E	23	0	0	0	0	0	0	0		0	0.0
21E	23	0	0	0	0	0	0	0	0	0	0.0
17E	24	0	0	0	0	0	0	0	0	0	0.0
16E	25	0	0	0	0	0	0	0	0	0	0.0
15E	27	0			0					0	0.0
12E	29	0	0	0	1	0	0	0	0	0	0.1
13E	29	0	0	0	2	0			4		1.0
14E	29	4	0	0	0	0	0	0	0		0.5
19E	33	0	0	0	0	0	0	0	0	0	0.0
11E	34	3	14	0	1	0	0		3	0	2.6
9E	34	2	0	0	0	0	0	0	0	0	0.2
7EE	35	0	0	0	0	0	0	0	0	0	0.0
7EW	35				0	6	0	0	0	0	1.0
8E	35	134	32	20	29	6	0		7	0	28.5
4E	39	1	0	8	14	4	0	0	0	0	3.0
5E	39	0	0	0	0	0	0	0	0	0	0.0
West											
15WS	27	0	0				0	0	0	2	0.3
16WN	27	1	0	0	0	0	0	0	6	0	0.8
14W	29	2	2	11	1	0	0	0	7	1	2.7
12W	30	1	1	3	10	1	0	10	0	0	2.9
11W	32	8	2	0	0	0	0	1	0	0	1.2
10W	35	0	10	11	13	2	14	10		0	7.5
9W	35		0	0	0	0	1	0	0	0	0.1
8W	36	0	4	0		0	0	0	3	0	
7W	37	0	4	0	1	0	0	3	0	0	0.9
4W	39	0	1	0	0	0	0	0	0	0	0.1
5W	39	0	1	0	0	0	0	0	1	0	0.2
Effort		25	25	24	25	25	25	23	24	25	
Catch		156	71	53	72	19	15	24	31	3	
C/E		6.24	2.84	2.21	2.88	0.76	0.60	1.04	1.29	0.12	

Table 28. Size-frequency distribution of alewife, Hudson River, 2003

TL	Week 1 July 21,25	Week 2 Aug 5-6	Week 3 Aug. 21-22	Week 4 Sept. 2-3	Week 5 Sept. 16-17	Week 6 Oct. 1	Week 7 Oct. 14	Week 8 Oct. 30	Week 9 Nov. 12	Weeks 4-9	Weeks 1-9
20 - 25	0	0	0	0	0	0	0	0	0	0	0
25 - 30	0	0	0	0	0	0	0	0	0	0	0
30 - 35	0	1	1	0	0	0	0	0	0	0	2
35 - 40	0	4	2	0	0	0	0	0	0	0	6
40 - 45	3	1	3	1	0	0	0	0	0	1	8
45 - 50	8	1	1	1	0	0	0	0	0	1	11
50 - 55	11	7	1	0	1	0	0	0	0	1	20
55 - 60	13	14	7	8	1	0	0	0	0	9	43
60 - 65	5	13	19	15	2	1	0	0	0	18	55
65 - 70	3	23	18	32	1	2	2	4	1	42	86
70 - 75	0	6	1	9	12	4	2	3	0	30	37
75 - 80	0	1	0	5	1	3	1	6	0	16	17
80 - 85	1	0	0	1	1	3	13	3	0	21	22
85 - 90	0	0	0	0	0	2	6	6	1	15	15
90 - 95	0	0	0	0	0	0	0	0	0	0	0
95 - 100	0	0	0	0	0	0	0	0	0	0	0
100 - 105	0	0	0	0	0	0	0	0	1	1	1
105 - 110	0	0	0	0	0	0	0	0	0	0	0
110 - 115	0	0	0	0	0	0	0	0	0	0	0
115 - 120	0	0	0	0	0	0	0	0	0	0	0
120 - 125	0	0	0	0	0	0	0	0	0	0	0
125 - 130	0	0	0	0	0	0	0	0	0	0	0
130 - 135	0	0	0	0	0	0	0	0	0	0	0
135 - 140	0	0	0	0	0	0	0	0	0	0	0
140 - 145	0	0	0	0	0	0	0	0	0	0	0
145 - 150	0	0	0	0	0	0	0	0	0	0	0
150 - 155	0	0	0	0	0	0	0	0	0	0	0
155 - 160	0	0	0	0	0	0	0	0	0	0	0
160 - 165	0	0	0	0	0	0	0	0	0	0	0
165 - 170	0	0	0	0	0	0	0	0	0	0	0
170 - 175	0	0	0	0	0	0	0	0	0	0	0
175 - 180	0	0	0	0	0	0	0	0	0	0	0
180 - 185	0	0	0	0	0	0	0	0	0	0	0
185 - 190	0	0	0	0	0	0	0	0	0	0	0
190 - 195	0	0	0	0	0	0	0	0	0	0	0
195 - 200	0	0	0	0	0	0	0	0	0	0	0
200 - 205	0	0	0	0	0	0	0	0	0	0	0
205 - 210	0	0	0	0	0	0	0	0	0	0	0
210 - 215	0	0	0	0	0	0	0	0	0	0	0
215 - 220	0	0	0	0	0	0	0	0	0	0	0
220 - 225	0	0	0	0	0	0	0	0	0	0	0
225 - 230	0	0	0	0	0	0	0	0	0	0	0
230 - 235	0	0	0	0	0	0	0	0	0	0	0
235 - 240	0	0	0	0	0	0	0	0	0	0	0
240 - 245	0	0	0	0	0	0	0	0	0	0	0
245 - 250	0	0	0	0	0	0	0	0	0	0	0
250 - 255	0	0	0	0	0	0	0	0	0	0	0
255 - 260	0	0	0	0	0	0	0	0	0	0	0
260 - 265	0	0	0	0	0	0	0	0	0	0	0
265 - 270	0	0	0	0	0	0	0	0	0	0	0
270 - 275	0	0	0	0	0	0	0	0	0	0	0
275 - 280	0	0	0	0	0	0	0	0	0	0	0
280 - 285	0	0	0	0	0	0	0	0	0	0	0
285 - 290	0	0	0	0	0	0	0	0	0	0	0
290 - 295	0	0	0	0	0	0	0	0	0	0	0
295 - 300	0	0	0	0	0	0	0	0	0	0	0
#measured	44	71	53	72	19	15	24	22	3	155	323
Mean	54.70	60.03	59.42	65.72	69.00	75.07	80.58	77.50	85.33	71.38	64.65
StDev	7.71	9.46	8.77	6.55	6.62	7.31	5.93	6.55	17.16	9.17	11.16

Table 29. Blueback herring catch by station, 2003

Station	River mile	Week 1 July 21,25	Week 2 Aug 5-6	Week 3 Aug. 21-22	Week 4 Sept. 2-3	Week 5 Sept. 16-17	Week 6 Oct. 1	Week 7 Oct. 14	Week 8 Oct. 30	Week 9 Nov. 12	C/F
East											
18E	23	0	0	0	0	1	0	0		132	16.6
21E	23	0	0	0	0	0	0	7	31	46	9.3
17E	24	0	0	0	0	0	0	18	29	7	6.0
16E	25	0	0	0	0	0	0	0	110	39	16.6
15E	27	0			1					6	2.3
12E	29	0	0	0	1	0	0	0	6	7	1.6
13E	29	0	0	0	1	0			38		6.5
14E	29	0	0	0	1	0	0	0	160		20.1
19E	33	0	0	0	1	0	0	0	0	0	0.1
11E	34	0	0	0	0	0	0		0	0	0.0
9E	34	0	0	1	0	0	0	0	0	0	0.1
7EE	35	0	0	0	0	0	0	0	0	0	0.0
7EW	35				0	0	0	46	0	0	7.7
8E	35	1	0	10	0	1	0		0	0	1.5
4E	39	0	5	3	1	2	1	0	6	0	2.0
5E	39	0	0	0	0	0	0	0	3	0	0.3
West											
15WS	27	0	0				0	2	0	0	0.3
16WN	27	0	4	686	0	0	0	8	5	2	78.3
14W	29	0	0	14	0	0	0	3	7	0	2.7
12W	30	0	4	0	1	0	0	7	1	0	1.4
11W	32	36	6	0	2	0	0	2	51	0	10.8
10W	35	0	1	0	3	0	16	9		0	3.6
9W	35		2	0	0	0	1	48	0	4	6.9
8W	36	0	0	0		0	0	4	0	0	
7W	37	17	0	0	0	0	0	14	2	0	3.7
4W	39	0	10	0	0	0	4	6	3	0	2.6
5W	39	4	0	4	0	0	0	0	55	0	7.0
Effort		25	25	24	25	25	25	23	24	25	
Catch		58	32	718	12	4	22	174	507	243	
C/E		2.32	1.28	29.92	0.48	0.16	0.88	7.57	21.13	9.72	

Table 30. Size-frequency distribution of blueback herring, Hudson River, 2003

TL	Week 1 July 21,25	Week 2 Aug 5-6	Week 3 Aug. 21-22	Week 4 Sept. 2-3	Week 5 Sept. 16-17	Week 6 Oct. 1	Week 7 Oct. 14	Week 8 Oct. 30	Week 9 Nov. 12	Weeks 4-9	Weeks 1-9
20 - 25	0	0	0	0	0	0	0	0	0	0	0
25 - 30	0	0	0	0	0	0	0	0	0	0	0
30 - 35	0	1	2	0	0	0	0	0	0	0	3
35 - 40	0	11	10	2	0	0	0	0	0	2	23
40 - 45	7	2	25	3	1	0	3	0	0	7	41
45 - 50	16	1	10	2	0	0	6	1	1	10	37
50 - 55	21	7	6	1	0	1	34	26	3	65	99
55 - 60	14	4	5	1	0	7	51	44	43	146	169
60 - 65	0	1	11	0	3	5	32	21	35	96	108
65 - 70	0	0	4	3	0	3	34	2	7	49	53
70 - 75	0	0	0	0	0	5	8	1	6	20	20
75 - 80	0	0	1	0	0	1	3	2	0	6	7
80 - 85	0	0	0	0	0	0	2	0	2	4	4
85 - 90	0	0	0	0	0	0	2	0	0	2	2
90 - 95	0	0	0	0	0	0	0	0	0	0	0
95 - 100	0	0	0	0	0	0	0	0	0	0	0
100 - 105	0	0	0	0	0	0	0	1	0	1	1
105 - 110	0	0	0	0	0	0	0	0	0	0	0
110 - 115	0	0	0	0	0	0	0	0	0	0	0
115 - 120	0	0	0	0	0	0	0	0	0	0	0
120 - 125	0	0	0	0	0	0	0	0	0	0	0
125 - 130	0	0	0	0	0	0	0	0	0	0	0
130 - 135	0	0	0	0	0	0	0	0	0	0	0
135 - 140	0	0	0	0	0	0	0	0	0	0	0
140 - 145	0	0	0	0	0	0	0	0	0	0	0
145 - 150	0	0	0	0	0	0	0	0	0	0	0
150 - 155	0	0	0	0	0	0	0	0	0	0	0
155 - 160	0	0	0	0	0	0	0	0	0	0	0
160 - 165	0	0	0	0	0	0	0	0	0	0	0
165 - 170	0	0	0	0	0	0	0	0	0	0	0
170 - 175	0	0	0	0	0	0	0	0	0	0	0
175 - 180	0	0	0	0	0	0	0	0	0	0	0
180 - 185	0	0	0	0	0	0	0	0	0	0	0
185 - 190	0	0	0	0	0	0	0	0	0	0	0
190 - 195	0	0	0	0	0	0	0	0	0	0	0
195 - 200	0	0	0	0	0	0	0	0	0	0	0
200 - 205	0	0	0	0	0	0	0	0	0	0	0
205 - 210	0	0	0	0	0	0	0	0	0	0	0
210 - 215	0	0	0	0	0	0	0	0	0	0	0
215 - 220	0	0	0	0	0	0	0	0	0	0	0
220 - 225	0	0	0	0	0	0	0	0	0	0	0
225 - 230	0	0	0	0	0	0	0	0	0	0	0
230 - 235	0	0	0	0	0	0	0	0	0	0	0
235 - 240	0	0	0	0	0	0	0	0	0	0	0
240 - 245	0	0	0	0	0	0	0	0	0	0	0
245 - 250	0	0	0	0	0	0	0	0	0	0	0
250 - 255	0	0	0	0	0	0	0	0	0	0	0
255 - 260	0	0	0	0	0	0	0	0	0	0	0
260 - 265	0	0	0	0	0	0	0	0	0	0	0
265 - 270	0	0	0	0	0	0	0	0	0	0	0
270 - 275	0	0	0	0	0	0	0	0	0	0	0
275 - 280	0	0	0	0	0	0	0	0	0	0	0
280 - 285	0	0	0	0	0	0	0	0	0	0	0
285 - 290	0	0	0	0	0	0	0	0	0	0	0
290 - 295	0	0	0	0	0	0	0	0	0	0	0
295 - 300	0	0	0	0	0	0	0	0	0	0	0
#measured	58	27	74	12	4	22	175	98	97	408	567
Mean	50.52	45.37	48.15	49.83	56.50	62.95	59.82	57.55	60.52	59.28	56.27
StDev	4.48	8.41	9.99	11.82	11.09	7.11	7.73	6.70	5.51	7.44	9.06

Table 31. Atlantic menhaden catch by station, 2003

Station	River Mile	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	C/F
		July 21, 25	Aug 5, 6	Aug 21, 22	Sep 2, 3	Sep 16, 17	Oct 1	Oct 14	Oct 30	Nov 12	
East											
18E	23	0	0	0	0	0	0	0		1	0.1
21E	23	0	0	0	0	2	0	0	0	0	0.2
17E	24	0	0	0	0	1	0	1	0	0	0.2
16E	25	0	0	0	0	0	0	0	0	0	0.0
15E	27	0			0					0	0.0
12E	29	0	0	0	0	0	0	0	0	0	0.0
13E	29	0	0	16	0	0			0		2.7
14E	29	0	0	0	0	0	0	0	0		0.0
19E	33	0	0	0	0	0	1	0	0	0	0.1
11E	34	272	15	0	200	1	0		0	0	61.0
9E	34	1	0	0	0	0	0	0	0	0	0.1
7EE	35	0	144	0	0	0	2	0	0	0	16.2
7EW	35				0	1	0	0	0	0	0.2
8E	35	1	0	1	0	106	0		0	0	13.5
4E	39	2	0	0	0	2	0	0	0	0	0.4
5E	39	4	0	0	0	0	0	0	0	0	0.4
West											
15WS	27	0	0	0			0	2	1	0	0.4
16WN	27	0	0	0	0	0	2	0	0	0	0.2
14W	29	0	0	3	0	5	5	2	0	0	1.7
12W	30	0	0	0	0	0	1	3	0	0	0.4
11W	32	0	0	0	0	0	0	7	0	0	0.8
10W	35	0	0	1	0	1	5	0		0	0.9
9W	35		0	0	0	0	0	0	0	0	0.0
8W	36	0	0	0		0	0	0	0	0	0.0
7W	37	0	0	0	0	0	0	1	0	0	0.1
4W	39	0	0	0	0	0	0	0	0	0	0.0
5W	39	0	0	0	0	0	0	0	0	0	0.0
Effort		25	25	25	25	25	25	23	24	25	
Catch		280	159	21	200	119	16	16	1	1	
C/E		11.20	6.36	0.84	8.00	4.76	0.64	0.70	0.04	0.04	

Table 32. Size-frequency distribution of atlantic menhaden Hudson River, 2003

TL	Week 1 July 21,25	Week 2 Aug 5-6	Week 3 Aug. 21-22	Week 4 Sept. 2-3	Week 5 Sept. 16-17	Week 6 Oct. 1	Week 7 Oct. 14	Week 8 Oct. 30	Week 9 Nov. 12	Weeks 4-9	Weeks 1-9
20 - 25	0	0	0	0	0	0	0	0	0	0	0
25 - 30	0	0	0	0	1	0	0	0	0	1	1
30 - 35	0	0	0	0	0	0	0	0	0	0	0
35 - 40	0	0	1	0	0	0	0	0	0	0	1
40 - 45	0	0	2	0	0	0	0	0	0	0	2
45 - 50	3	0	1	0	2	0	1	0	0	3	7
50 - 55	1	0	1	3	0	0	0	0	0	3	5
55 - 60	2	0	0	11	2	6	3	0	0	22	24
60 - 65	1	0	1	4	3	3	0	0	1	11	13
65 - 70	0	1	4	3	2	1	5	0	0	11	16
70 - 75	0	0	4	3	1	1	2	0	0	7	11
75 - 80	1	1	2	2	2	0	2	0	0	6	10
80 - 85	0	0	1	3	1	0	2	0	0	6	7
85 - 90	0	0	0	0	5	0	0	0	0	5	5
90 - 95	0	0	0	1	3	2	0	0	0	6	6
95 - 100	0	0	0	0	1	2	0	0	0	3	3
100 - 105	0	0	0	0	0	0	0	0	0	0	0
105 - 110	0	0	0	0	1	1	0	0	0	2	2
110 - 115	0	0	0	0	1	0	0	0	0	1	1
115 - 120	0	0	0	0	2	0	0	0	0	2	2
120 - 125	0	0	2	0	5	0	0	0	0	5	7
125 - 130	0	0	0	0	1	0	0	0	0	1	1
130 - 135	0	0	0	0	3	0	0	0	0	3	3
135 - 140	0	0	1	0	0	0	0	0	0	0	1
140 - 145	0	0	1	0	1	0	0	0	0	1	2
145 - 150	0	0	0	0	5	0	0	0	0	5	5
150 - 155	0	0	0	0	5	0	0	0	0	5	5
155 - 160	0	0	0	0	0	0	0	0	0	0	0
160 - 165	0	0	0	0	4	0	0	0	0	4	4
165 - 170	0	0	0	0	0	0	0	0	0	0	0
170 - 175	0	0	0	0	0	0	0	0	0	0	0
175 - 180	0	0	0	0	0	0	0	0	0	0	0
180 - 185	0	0	0	0	0	0	0	0	0	0	0
185 - 190	0	0	0	0	0	0	0	0	0	0	0
190 - 195	0	0	0	0	0	0	0	0	0	0	0
195 - 200	0	0	0	0	0	0	0	0	0	0	0
200 - 205	0	0	0	0	0	0	0	0	0	0	0
205 - 210	0	0	0	0	0	0	0	0	0	0	0
210 - 215	0	0	0	0	0	0	0	0	0	0	0
215 - 220	0	0	0	0	0	0	0	0	0	0	0
220 - 225	0	0	0	0	0	0	0	0	0	0	0
225 - 230	0	0	0	0	0	0	0	0	0	0	0
230 - 235	0	0	0	0	0	0	0	0	0	0	0
235 - 240	0	0	0	0	0	0	0	0	0	0	0
240 - 245	0	0	0	0	0	0	0	0	0	0	0
245 - 250	0	0	0	0	0	0	0	0	0	0	0
250 - 255	0	0	0	0	0	0	0	0	0	0	0
255 - 260	0	0	0	0	0	0	0	0	0	0	0
260 - 265	0	0	0	0	0	0	0	0	0	0	0
265 - 270	0	0	0	0	0	0	0	0	0	0	0
270 - 275	0	0	0	0	0	0	0	0	0	0	0
275 - 280	0	0	0	0	0	0	0	0	0	0	0
280 - 285	0	0	0	0	0	0	0	0	0	0	0
285 - 290	0	0	0	0	0	0	0	0	0	0	0
290 - 295	0	0	0	0	0	0	0	0	0	0	0
295 - 300	0	0	0	0	0	0	0	0	0	0	0
#measured	8	2	21	30	51	16	15	0	1	113	144
Mean	54.63	71.00	76.24	64.37	108.41	72.25	67.20		61	85.71	82.40
StDev	9.86	5.66	30.32	10.22	36.92	17.50	10.02			33.51	32.75

Table 33. Atlantic silversides catch by station, 2003

Station	River Mile	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	C/F
		July 21, 25	Aug 5, 6	Aug 21, 22	Sep 2, 3	Sep 16, 17	Oct 1	Oct 14	Oct 30	Nov 12	
East											
18E	23	13	27	3	33	31	4	59		0	21.3
21E	23	1	2	6	1	2	34	13	27	0	9.6
17E	24	81	0	6	8	0	24	6	12	2	15.4
16E	25	70	5	24	13	5	17	5	11	0	16.7
15E	27	9			7					1	5.7
12E	29	1	2	13	6	0	7	0	0	0	3.2
13E	29	0	35	12	41	10			15		18.8
14E	29	0	10	8	60	1	29	7	3		14.8
19E	33	2	6	15	49	16	133	9	10	0	26.7
11E	34	1	26	0	125	762	20		13	1	118.5
9E	34	0	6	291	125	8	28	61	5	0	58.2
7EE	35	0	3	0	15	0	8	0	3	0	3.2
7EW	35				10	9	5	0	0	0	4.0
8E	35	7	26	10	7	1	93		5	0	18.6
4E	39	0	0	0	31	4	1	1	0	0	4.1
5E	39	1	1	6	13	35	3	0	0	0	6.6
West											
15WS	27	12	12	213			385	93	30	0	106.4
16WN	27	2	16	28	12	66	24	9	7	0	18.2
14W	29	0	2	10	24	3	50	9	0	0	10.9
12W	30	2	1	143	180	28	130	1	1	0	54.0
11W	32	0	1	0	1	0	6	0	0	0	0.9
10W	35	1	4	11	2	0	2	1		0	2.6
9W	35		0	2	2	1	2	0	0	0	0.9
8W	36	0	5	0		5	4	0	0	0	1.8
7W	37	0	4	5	10	76	13	0	0	0	12.0
4W	39	2	10	0	54	0	3	0	1	0	7.8
5W	39	0	2	0	6	3	26	0	0	0	4.1
Effort		25	25	25	25	25	25	23	24	25	
Catch		205	206	806	835	1066	1051	274	143	4	
C/E		8.20	8.24	32.24	33.40	42.64	42.04	11.91	5.96	0.16	

Table 34. Size-frequency distribution of atlantic silversides Hudson River, 2003

TL	Week 1 July 21,25	Week 2 Aug 5-6	Week 3 Aug. 21-22	Week 4 Sept. 2-3	Week 5 Sept. 16-17	Week 6 Oct. 1	Week 7 Oct. 14	Week 8 Oct. 30	Week 9 Nov. 12	Weeks 4-9	Weeks 1-9
20 - 25	0	0	0	0	0	0	0	0	0	0	0
25 - 30	0	1	0	0	0	0	0	0	0	0	1
30 - 35	4	1	0	0	0	0	0	0	0	0	5
35 - 40	13	5	2	0	0	0	0	0	0	0	20
40 - 45	17	4	4	0	0	0	0	0	0	0	25
45 - 50	13	6	4	1	2	0	0	0	0	3	26
50 - 55	6	3	5	0	8	0	0	0	0	8	22
55 - 60	9	18	2	0	7	1	0	1	1	10	39
60 - 65	3	32	22	2	8	2	1	0	0	13	70
65 - 70	7	63	55	5	4	2	0	1	0	12	137
70 - 75	6	54	95	17	18	8	0	6	0	49	204
75 - 80	0	16	48	51	28	11	6	4	0	100	164
80 - 85	0	0	10	49	34	19	21	6	0	129	139
85 - 90	0	0	4	26	22	13	13	11	0	85	89
90 - 95	0	0	0	6	5	11	10	22	0	54	54
95 - 100	0	0	0	1	1	1	9	17	0	29	29
100 - 105	0	0	0	0	0	0	0	6	0	6	6
105 - 110	0	0	0	0	0	0	0	0	0	0	0
110 - 115	0	0	0	0	0	0	0	1	0	1	1
115 - 120	0	0	0	0	0	0	0	0	0	0	0
120 - 125	0	0	0	0	0	0	0	0	0	0	0
125 - 130	0	0	0	0	0	0	0	0	0	0	0
130 - 135	0	0	0	0	0	0	0	0	0	0	0
135 - 140	0	0	0	0	0	0	0	0	0	0	0
140 - 145	0	0	0	0	0	0	0	0	0	0	0
145 - 150	0	0	0	0	0	0	0	0	0	0	0
150 - 155	0	0	0	0	0	0	0	0	0	0	0
155 - 160	0	0	0	0	0	0	0	0	0	0	0
160 - 165	0	0	0	0	0	0	0	0	0	0	0
165 - 170	0	0	0	0	0	0	0	0	0	0	0
170 - 175	0	0	0	0	0	0	0	0	0	0	0
175 - 180	0	0	0	0	0	0	0	0	0	0	0
180 - 185	0	0	0	0	0	0	0	0	0	0	0
185 - 190	0	0	0	0	0	0	0	0	0	0	0
190 - 195	0	0	0	0	0	0	0	0	0	0	0
195 - 200	0	0	0	0	0	0	0	0	0	0	0
200 - 205	0	0	0	0	0	0	0	0	0	0	0
205 - 210	0	0	0	0	0	0	0	0	0	0	0
210 - 215	0	0	0	0	0	0	0	0	0	0	0
215 - 220	0	0	0	0	0	0	0	0	0	0	0
220 - 225	0	0	0	0	0	0	0	0	0	0	0
225 - 230	0	0	0	0	0	0	0	0	0	0	0
230 - 235	0	0	0	0	0	0	0	0	0	0	0
235 - 240	0	0	0	0	0	0	0	0	0	0	0
240 - 245	0	0	0	0	0	0	0	0	0	0	0
245 - 250	0	0	0	0	0	0	0	0	0	0	0
250 - 255	0	0	0	0	0	0	0	0	0	0	0
255 - 260	0	0	0	0	0	0	0	0	0	0	0
260 - 265	0	0	0	0	0	0	0	0	0	0	0
265 - 270	0	0	0	0	0	0	0	0	0	0	0
270 - 275	0	0	0	0	0	0	0	0	0	0	0
275 - 280	0	0	0	0	0	0	0	0	0	0	0
280 - 285	0	0	0	0	0	0	0	0	0	0	0
285 - 290	0	0	0	0	0	0	0	0	0	0	0
290 - 295	0	0	0	0	0	0	0	0	0	0	0
295 - 300	0	0	0	0	0	0	0	0	0	0	0
#measured	78	203	251	158	137	68	60	75	1	499	1031
Mean	48.91	64.77	69.73	79.34	75.77	81.03	85.75	88.91	58.00	80.75	72.51
StDev	11.51	9.31	8.03	6.29	11.08	8.23	6.97	9.76		9.83	13.34

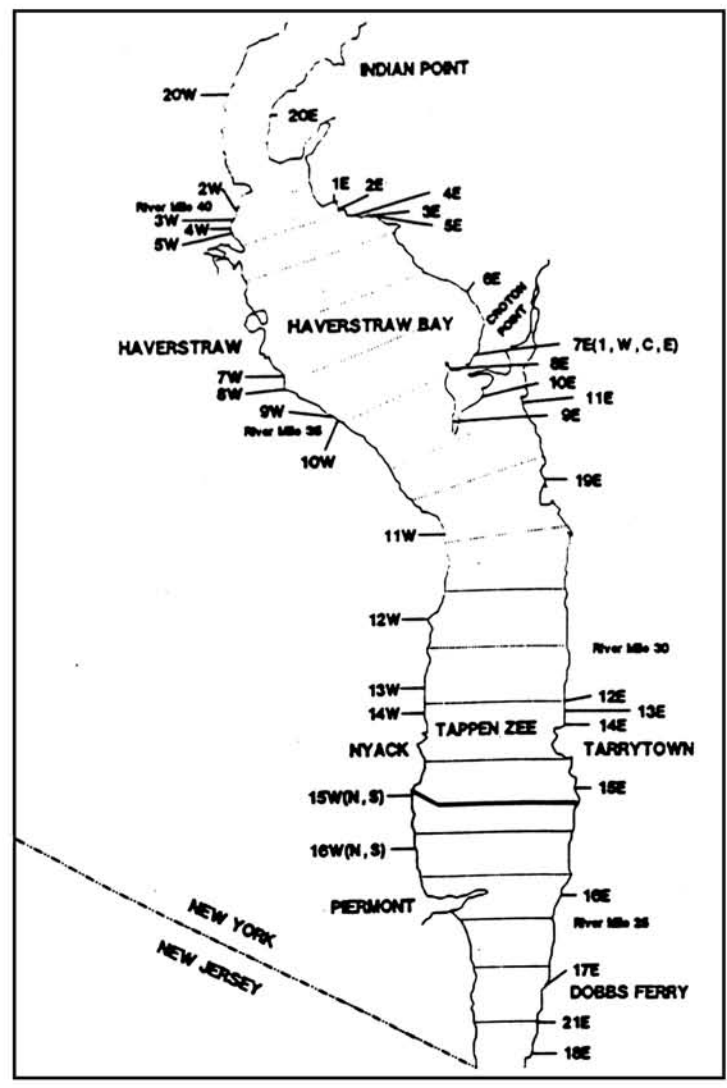
Table 35. YOY blue crab catch by station, 2003

Station	River Mile	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	C/F
		July 21, 25	Aug 5, 6	Aug 21, 22	Sep 2, 3	Sep 16, 17	Oct 1	Oct 14	Oct 30	Nov 12	
East											
18E	23	11	0	0	0	0	0	0		0	1.4
21E	23	2	0	0	0	2	1	0	0	0	0.6
17E	24	2	0	0	0	0	0	0	0	0	0.2
16E	25	3	0	0	2	1	2	0	0	0	0.9
15E	27	2			1					0	1.0
12E	29	1	0	1	1	1	1	0	0	0	0.6
13E	29	7	1	1	6	1			0		2.7
14E	29	0	3	0	0	0	0	0	0		0.4
19E	33	0	0	0	0	0	0	0	0	0	0.0
11E	34	0	0	0	0	0	1		0	0	0.1
9E	34	0	0	0	0	0	0	0	0	0	0.0
7EE	35	0	0	0	0	0	1	0	0	0	0.1
7EW	35				0	0	2	0	0	0	0.3
8E	35	3	0	0	0	0	2		0	0	0.6
4E	39	1	0	0	0	0	0	0	0	0	0.1
5E	39	0	0	0	2	0	0	0	0	0	0.2
West											
15WS	27	0	0	0			1	0	2	0	0.4
16WN	27	0	1	0	1	0	0	0	0	0	0.2
14W	29	0	0	0	4	0	0	0	0	0	0.4
12W	30	0	0	0	0	0	5	0	0	0	0.6
11W	32	0	0	0	0	0	2	0	0	0	0.2
10W	35	0	1	0	0	0	0	0	0	0	0.1
9W	35		0	0	0	0	0	1	0	0	0.1
8W	36	0	0	0		0	0	0	0	0	0.0
7W	37	0	0	0	0	0	0	0	0	0	0.0
4W	39	1	0	0	0	0	0	0	0	0	0.1
5W	39	0	0	0	0	1	0	0	0	0	0.1
Effort		25	25	25	25	25	25	23	24	25	
Catch		33	6	2	17	6	18	1	2	0	
C/E		1.32	0.24	0.08	0.68	0.24	0.72	0.04	0.08	0.00	

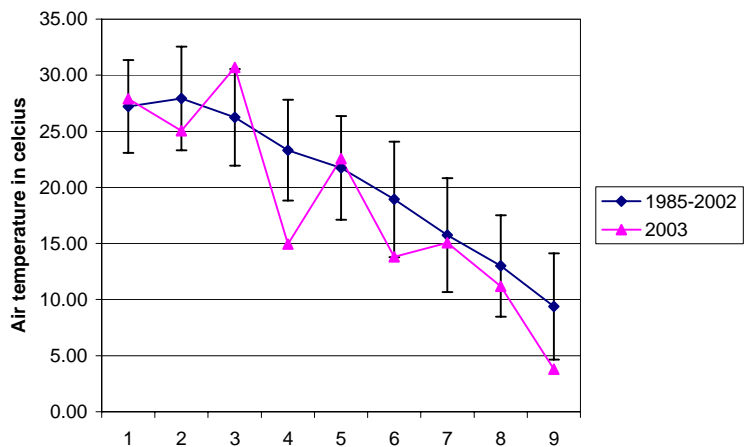
Table 36. Older blue crab catch by station, 2003

Station	River Mile	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	C/F
		July 21, 25	Aug 5, 6	Aug 21, 22	Sep 2, 3	Sep 16, 17	Oct 1	Oct 14	Oct 30	Nov 12	
East											
18E	23	0	0	1	1	1	0	0		0	0.4
21E	23	0	12	8	0	0	0	0	0	0	2.2
17E	24	0	0	3	0	0	0	0	0	0	0.3
16E	25	1	2	2	0	1	0	0	0	0	0.7
15E	27	0			0					0	0.0
12E	29	0	0	0	1	1	0	0	0	0	0.2
13E	29	0	5	4	0	0			0		1.5
14E	29	0	0	0	0	0	0	0	0		0.0
19E	33	0	0	0	0	0	0	0	0	0	0.0
11E	34	1	0	0	0	0	0		0	0	0.1
9E	34	0	0	0	0	0	0	0	0	0	0.0
7EE	35	0	0	0	0	1	0	0	0	0	0.1
7EW	35				0	3	0	0	0	0	0.5
8E	35	3	5	0	0	0	0		0	0	1.0
4E	39	2	0	0	0	0	0	0	0	0	0.2
5E	39	0	1	1	0	0	0	0	0	0	0.2
West											
15WS	27	0	0	0			1	0	0	0	0.1
16WN	27	0	0	2	0	0	0	0	0	0	0.2
14W	29	0	0	0	1	1	0	0	0	0	0.2
12W	30	0	0	3	0	0	0	0	0	0	0.3
11W	32	2	0	0	0	1	0	0	0	0	0.3
10W	35	0	0	1	0	0	0	0	0	0	0.1
9W	35		0	0	0	0	0	0	0	0	0.0
8W	36	0	0	2		0	0	0	0	0	0.3
7W	37	0	0	3	0	0	0	0	0	0	0.3
4W	39	1	2	1	0	0	0	0	0	0	0.4
5W	39	0	5	1	0	0	0	0	0	0	0.7
Effort		25	25	25	25	25	25	23	24	25	
Catch		10	32	32	3	9	1	0	0	0	
C/E		0.40	1.28	1.28	0.12	0.36	0.04	0.00	0.00	0.00	

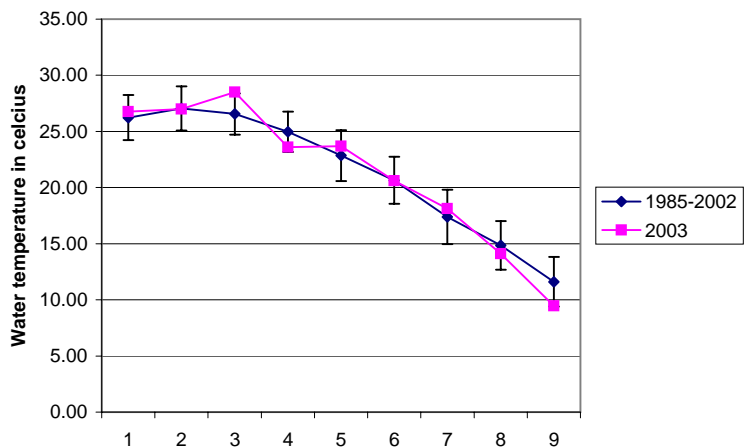
FIGURE 1 NYS DEC YOY STRIPED BASS SEINE STATIONS



Biweekly mean air temperature, 1985-2003



Biweekly mean water temperature, 1985-2003



Biweekly mean salinity

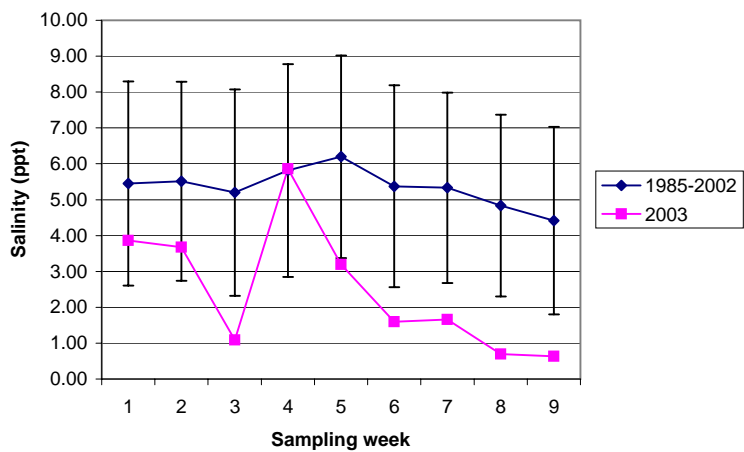


Figure 2

Hudson River YOY Striped bass index of abundance

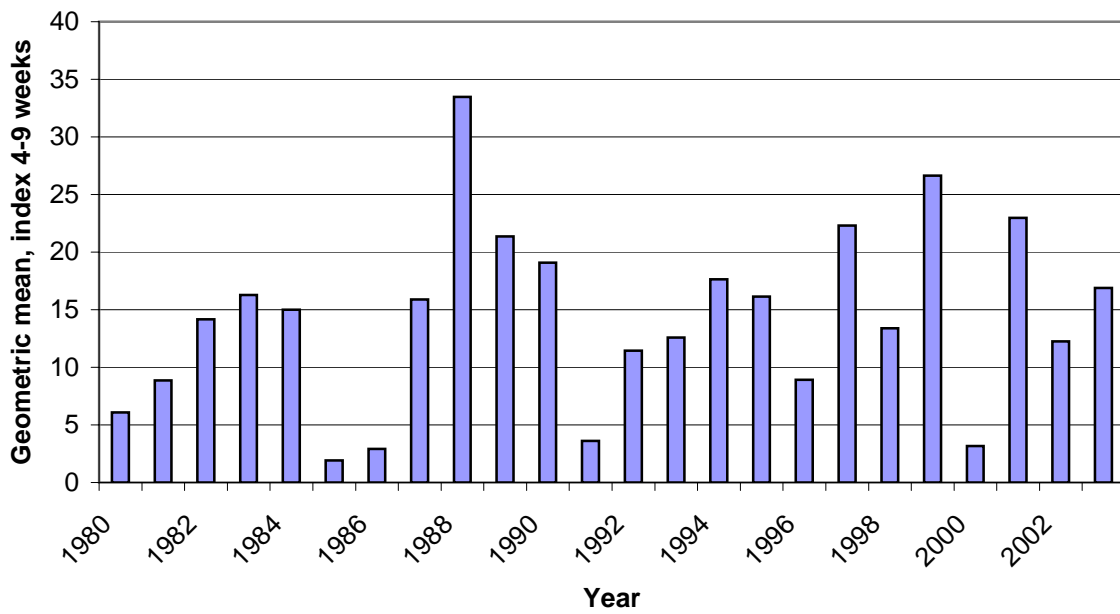


Figure 3

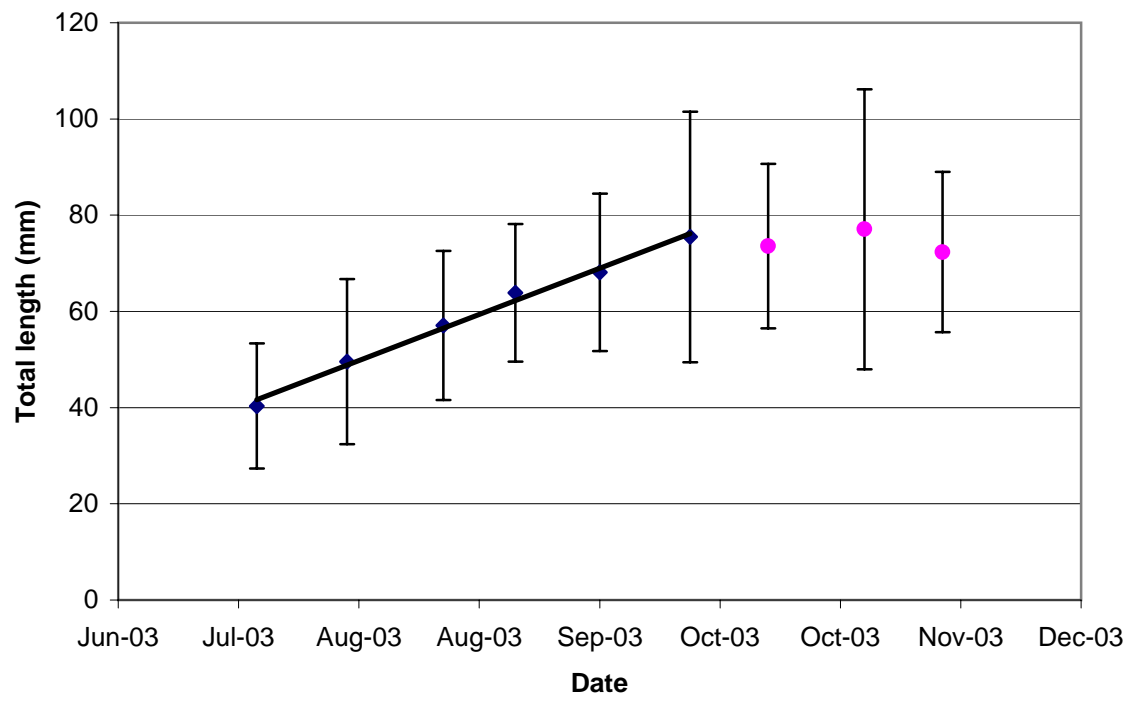
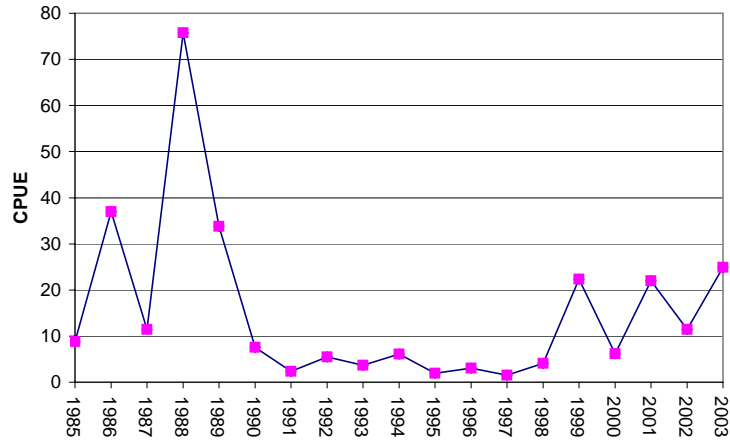
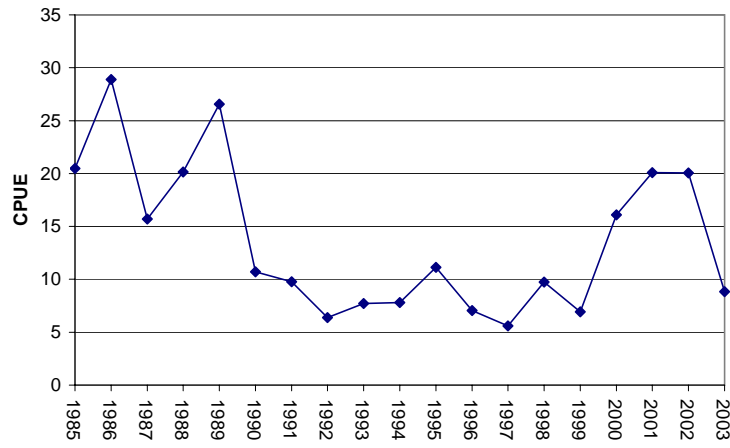


Figure 4. Growth of YOY striped bass in the 2003 cohort

YOY white perch



Older white perch



Atlantic tomcod

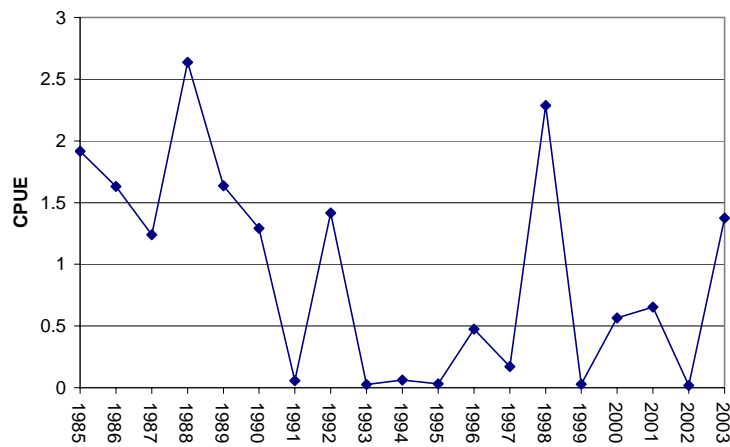
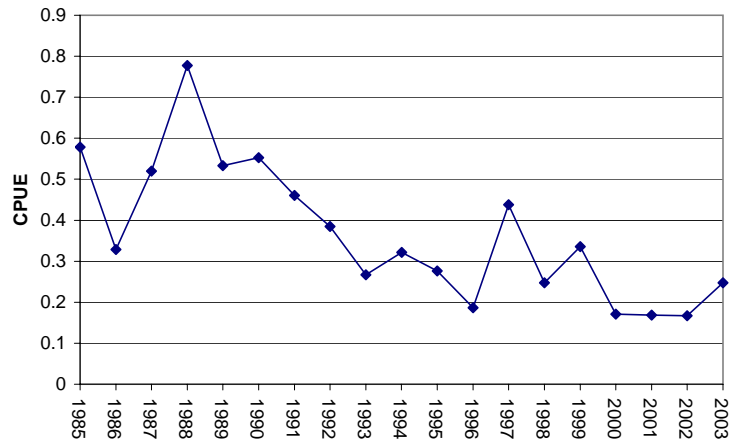
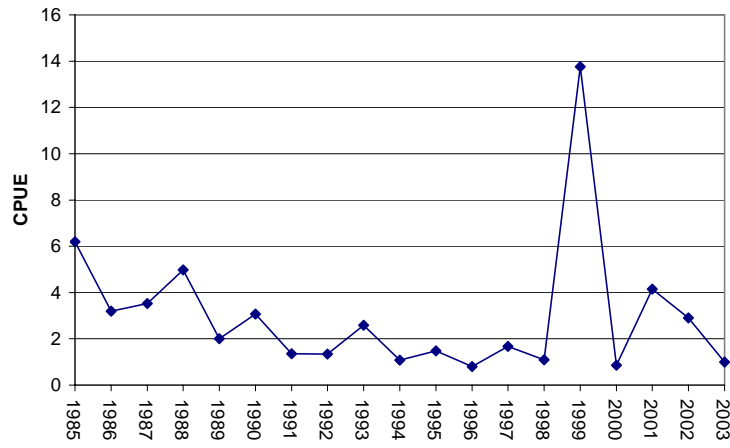


Figure 5

American eel



YOY bluefish



Winter flounder

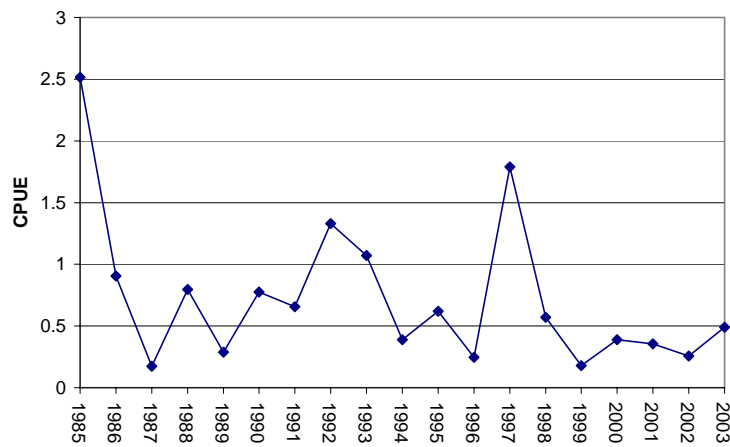
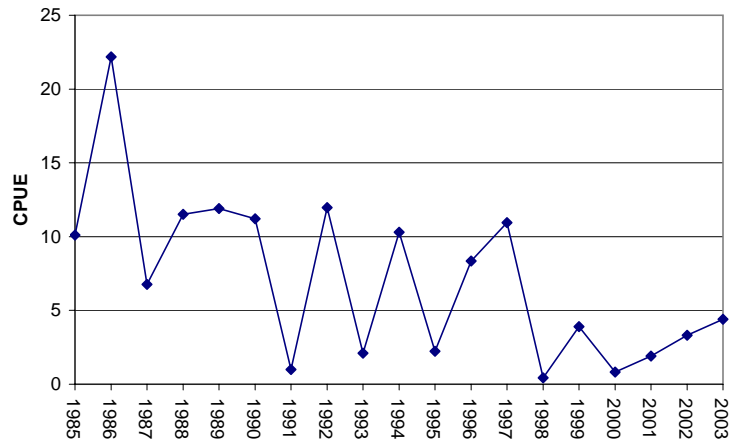
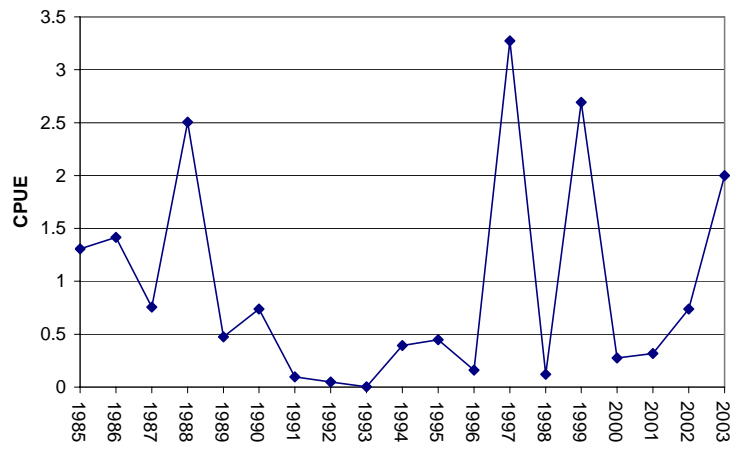


Figure 6

American shad



Alewife



Blueback herring

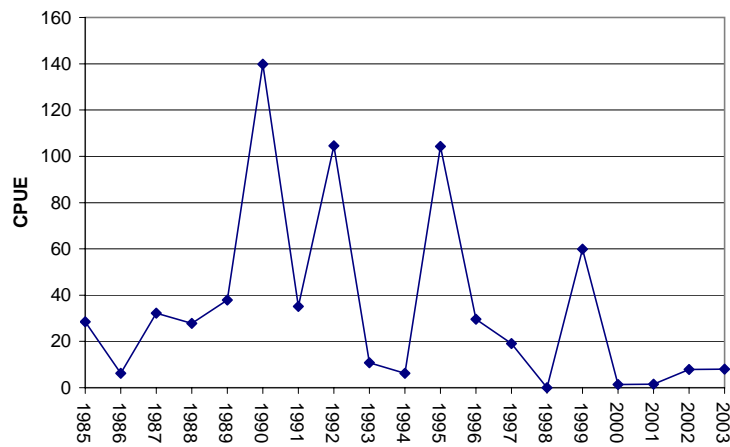
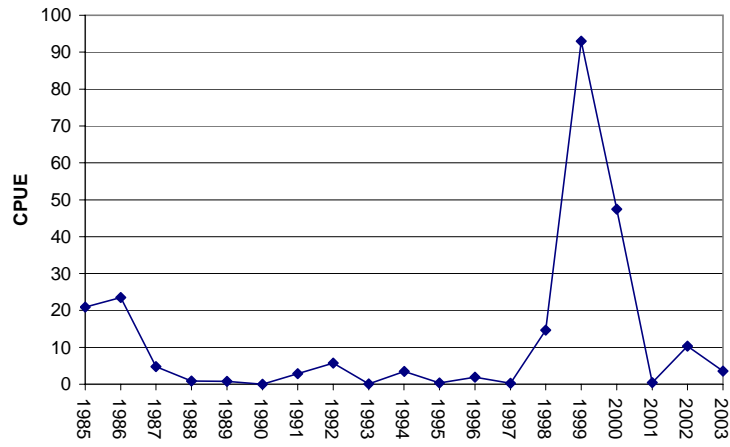
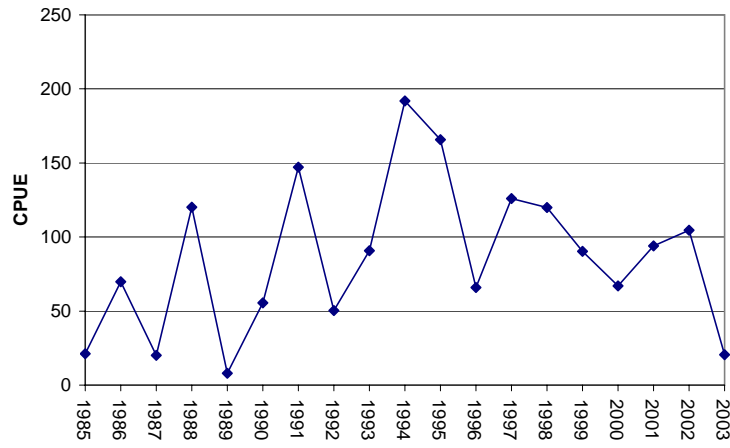


Figure 7

Atlantic Menhaden



Atlantic silversides



Bluecrab

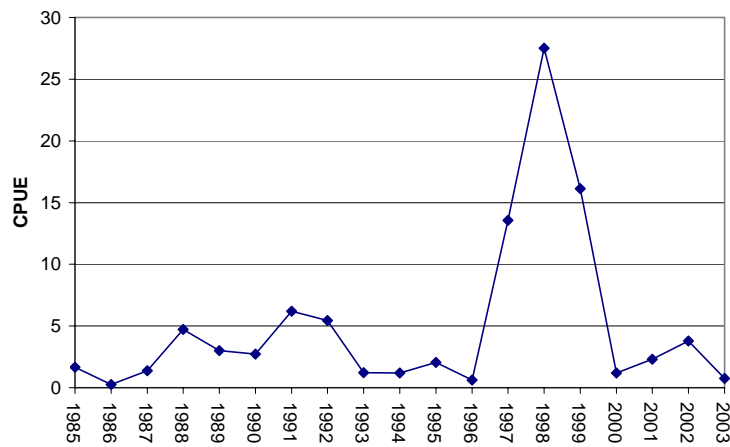


Figure 8