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ABSTRACT

During the 1996 Hudson River young-of-the-year (YOY) striped bass survey 4,346 YOY were caught in 204 seine hauls. The geometric mean index of abundance was 13.1 and the catch ranged from 0 to 188 striped bass. The 1996 YOY catches increased from week one to three, then showed a general decrease. During the six week period from early September to November, which has been sampled consistently since 1979, 1964 striped bass were caught in 134 seine hauls. The geometric mean index of abundance for the six week survey was 9.3, which was slightly below average. YOY striped bass lengths ranged from 12 to 142 mm total length (TL) from mid-July through mid-November. Mean daily growth during weeks 1-6 was 0.61 mm/day. In addition 106 older striped bass were captured, 49 of these were tagged and released. Sixty-one tagged striped bass have been recaptured. Returns ranged from Duxbury Bay, MA to Seaside Heights NJ, with 69% from the Hudson River. Fifty-three percent were recaptured by hook and line, and 32% by this survey.

The 1996 Western Long Island survey captured 1842 striped bass in 108 seine hauls from May through October. Striped bass ranged in size from 33 to 613 mm total length. The catch was dominated by yearling (58%), and two year olds were next abundant (25%). In addition, 932 striped bass were tagged and released. These bass ranged in age from one to 6, and in size from 153 to 613 mm TL. Six hundred and fifty five tagged striped bass have been recaptured. Returns ranged from New Brunswick, Canada to Kitty Hawk, North Carolina with the majority from New York. Return rate has ranged from zero to 10.2 percent per year. Hook and line was the dominant recapture gear. Survival rates tend to increase from younger to older striped bass while the variation in survival rates among years decreases.

JOB 1. An Investigation of the 1996 Hudson River Striped Bass Spawning Success.

Striped bass are an important commercial and recreational fish. Due to the decline of striped bass along the Atlantic coast during the late 1970's and early 1980's, the Atlantic States Marine Fishery Commission in conjunction with the states, has been monitoring the striped bass populations along the coast. One method of monitoring the population is by sampling young-of-the-year in their nursery areas, and developing an index of relative abundance. These young-of-the-year indices are incorporated into striped bass management.

Indices of annual abundance for striped bass are available for all of the important striped bass spawning areas. The various indices were summarized by Boreman and Austin (1985). The Maryland indices, which has the longest duration, started in 1954. The indices of the Virginia portion of the Chesapeake Bay and the Roanoke River-Albemarle Sound complex of North Carolina follow closely behind, starting in 1955. The Hudson River has indices data from 1969 from a variety of sources. The New York State Department of Environmental Conservation (NYSDEC) with financial support from P.L. 89-304, The Anadromous Fish Conservation Act, and The Sport Fish Restoration Account of the Aquatic Resources Trust Fund (D-J), commenced the

current investigation of striped bass spawning success in 1976.

The Maryland young-of-the-year index has been used as a trigger for striped bass management along the Atlantic Coast. The Hudson River Indices were validated in 1991 using yearling data from western Long Island (McKown, 1991a).

The objective of the NYSDEC study is to provide an annual index of relative abundance for young-of-the-year striped bass (geometric mean of YOY catch). Annual catch per unit of effort (CPUE) data for 1976 to 1996, total length data, and physical and chemical data are presented. In addition, CPUE and total length data are presented for other species of interest, and a listing of overall catch composition for the 1996 survey are provided with comparisons from 1980 through 1995.

METHODS AND MATERIALS

The study area covers a 15 mile (24 Kilometer) section of the lower Hudson River (Figure 1). Collections were made using a 200 foot x 10 foot beach seine with 1/4 inch square mesh in the wings and 3/16 inch square mesh in the bag (61

meters x 3 meters with 6 millimeters square mesh in the wings and 5 mm in the bag) set by boat at standard stations. The best 25 stations out of 36, based on the prevailing conditions, were sampled bi-weekly.

Nine bi-weekly sample runs of 25 seine hauls each were scheduled from mid-July through early November. Prior to 1985 only six bi-weekly sample runs were sampled from late August through early November. Current data collections can be subset to remain compatible with the earlier collections. The expanded catch data is identified by weeks. The three additional sampling weeks in July and early August are numbered 1-3. The remaining 6 weeks, which are equivalent to the sampling prior to 1985 are referred to as weeks 4-9.

Fish captured were sorted by species, counted and returned to the water. Striped bass and selected other species were retained in 5 gallon buckets (20 liters) for length determination. Striped bass were checked for binary coded wire tag (BCWT) using a portable tag detector manufactured by Northwest Marine Technology, Inc. of Seattle, Washington. This procedure was used to differentiate wild fish from tagged hatchery released fish. Yearling and older striped bass that set off the tag detector were returned to the hatchery for tag verification.

Due to the closure of the Hudson River striped bass hatchery in 1995, YOY were not scanned for CWTs in 1996. Striped bass were measured to the nearest millimeter for fork length (FL) and total length (TL). When there were more than 50 bass in a haul, a 50 fish subsample was measured, otherwise all were measured. Scales were removed from larger striped bass that were not visually discernable as YOY to determine their age. Scale samples were removed from the area between the two dorsal fins and above the lateral line. Striped bass larger than 170 mm TL were tagged with internal anchor tags supplied by the United States Fish and Wildlife Service (USFWS). These fish were tagged according to guidelines established by the USFWS coastwide tagging program. Other species of interest were also measured for total length.

In addition to the fisheries data, the following parameters: date, time, gear handling (i.e. hang downs, tears, or setting problems), air temperature, water temperature, salinity, tide stage, cloud cover, wind velocity (estimated) and wave height (estimated) were recorded at each station. Salinity was determined by refractometer, water temperature and air temperature were taken using a hand held thermometer.

This report summarizes the data collected during 1996 and compares the striped bass and other data to previous years.

RESULTS AND DISCUSSION

During the nine sampling runs commencing the week of 25 July, 1996 and terminating the week of 18 November, 1996 a total of 204 seine hauls were successfully completed. Four thousand three hundred and forty six YOY striped bass were captured during 1996. In addition, 106 older wild and one older hatchery released striped bass were captured.

YOY Striped Bass

Catch Per Unit of Effort

During the nine week survey, the young-of-the-year striped bass index was 21.3 arithmetic mean, and 13.1 geometric mean based on 204 seine hauls (Table 1). These data were subset for comparison with collections made prior to 1985 (Young, 1984). The resulting index for the six week survey was 14.7 arithmetic mean, and 9.3 geometric mean based on 134 seine hauls. The geometric mean indices for the six week survey from 1976 to 1996 are presented in Figure 2. The indices during this time period have large variations. The indices increased steadily from 1991 to 1994, and decreased slightly in 1995 and continued to decrease in 1996. ASMFC (1992) recommended that juvenile indices be evaluated to determine the best method of calculation. McKown (1991a) determined that the geometric

mean provided estimates of relative abundance with lower variance compared to the arithmetic mean. In addition, these geometric mean indices correlated significantly with yearling abundance estimates.

Commencing in 1985 the Hudson River survey was expanded to cover the period of mid-July to early November. The purpose of the expansion was to determine the period of peak abundance for young-of-the-year striped bass in the survey area. During 1996, young-of-the-year CPUE peaked during the third week of sampling (August 20-21), and generally declined after that (Figure 3 and Table 2). Since the survey was expanded, peak abundance generally has occurred during the first or second sampling run in mid-July or early August, but it has occurred up to the beginning of September (McKown, 1994).

Striped bass spawning is cued by water temperature, and varies by calendar date between years. Therefore sample weeks are an arbitrary period in striped bass development. To examine this, survey weeks were normalized to weeks from spawning. The Hudson River Utilities conduct an ichthyoplankton survey each spring and summer in the Hudson River. The week of first 5% striped bass post yolk sack larva (PYSL) and the week of peak PYSL were calculated (Coastal Environmental Services, Inc. and John Young,

Consolidated Edison; personal communication). The week of first 5% PYSL and the week of peak PYSL were subtracted from survey week to use as an indication of weeks from spawning. Figures 4 and 5 present the catch per unit effort (CPUE) versus week from first 5% PYSL and peak PYSL for 1985 through 1996. The 1988, 1989, 1990, 1993, 1994, and 1995 year classes were sampled by the survey at younger age than the other year classes.

Table 3 provides a summary of the annual mean CPUE by seine station. These data provide an indication of the yearly spatial distribution of the various year classes about the survey area. The 1996 distribution is presented in Figure 6. CPUE by station ranged from 4.2 - 36.5. Station 7W had the highest CPUE (36.5). There were four hauls greater than 100 YOY, and none over 200.

LENGTH FREQUENCY

Total length was measured from 3,805 wild young-of-the-year striped bass (Table 4 and Figure 7). The 1996 year class ranged in size from 12 to 142 mm TL over the nine week study. Mean bi-weekly lengths for the 1996 year class are presented in Figure 8. There was a significant increase in mean lengths during weeks 1 - 6. Mean bi-weekly lengths do not seem to increase after the end of September. This trend

is similar to previous years (McKown et al., 1996). Mean daily growth rate was 0.61 mm/day ($r^2 = 0.996$). Figure 9 shows Hudson River and western Long Island (WLI) YOY striped bass mean total length by date. In general, striped bass captured in WLI bays are larger than fish captured in the Hudson River for a similar date. Regression estimate of growth for WLI YOY was 0.74 mm/day ($r^2 = 0.997$). Sample size is not as robust for WLI data compared to Hudson data (WLI N= 242, Hudson N=3805).

Since survey week is an arbitrary time in YOY striped bass life history, mean total length from week of first 5% PYSL and peak PYSL was examined for 1985 through 1996 (Figures 10 and 11). The relationship looks quite a bit different than mean length by sample week (McKown 1994). The small initial mean length of the 1988, 1990, 1993 and 1994 year classes are due to being sampled at a younger age than the other year classes. The 1985, 1986, 1991, and 1995 year classes are larger by the end of the survey, but the differences are not as distinct during the beginning of the survey after adjusting for time from spawning. Regression analysis of mean total length versus week for the 1985 through 1996 year classes were performed during a common stage in life history for all years. Analyses were performed for weeks 8-15 from peak spawning and weeks 9-16 from first 5% spawning. There was a significant increase in

the mean length for all year classes. The slopes were tested by analysis of covariance (ANCOVA). When this common period of life history was tested for the 1985- 1996 year classes, there was a significant difference in slopes between years for weeks from peak PYSL (prob = 0.003), but no significant difference for weeks from first 5% PYSL (p = 0.10). Since the slopes were not significantly different for weeks from first 5% PYSL, the model of mean total length versus weeks from first 5% PYSL and year class (with no interaction term) was run. Week from first 5% PYSL and year class were significant. The means were tested, and the 1985, 1986, 1991, and 1995 year classes were significantly different than the other year classes.

The length and age frequency of older striped bass are presented in Table 5. Older striped bass ranged in length from 108 to 859 mm TL and in age from one to over seven. Ages were determined for 103 out of 106 older striped bass (Figure 12). Yearlings made up 90% of the older fish caught. Catch of yearling striped bass by station is presented in Table 6. Large catches of yearling occurred at station 15SW during weeks 1 and 2.

TAGGING

Striped bass were tagged with internal anchor tags

provided by the United States Fish and Wildlife Service as part of their coast wide tagging program. Forty nine of the older striped bass were tagged during 1996. Figure 13 and Table 7 presents age and total length frequency of tagged striped bass released in the Hudson River during 1988 through 1996. The majority of the tag released striped bass were yearling.

Sixty-seven tagged striped bass have been recaptured from this survey as of March 1997. Tag recaptures ranged from Seaside Heights, NJ to Duxbury Bay MA. Sixty-nine percent of the tag recaptures have been from the Hudson River, 42% from the survey area. Fifty-three percent were recaptured by hook and line, and 32% by seine (this survey). Ninety percent of the recaptured fish were released alive while 4% were killed. Table 8 presents a summary of the recapture information. Days at large ranged from 3 days for a 1996 release, to 1057 days for a 1993 release. The percent return by year ranged from 0 to 13%, year at large was determine from July through the following June. Seventeen fish have been recaptured by this survey. These fish ranged from eight to 273 days at large. All but one were recaptured at the same site they were released. Two fish were recaptured two times during the same season they were tagged. Growth rate was determined for those fish recaptured by this survey. It ranged from -0.56 to 0.82

mm/day, and averaged 0.27 mm/day with std +/- 0.24 (excluding the fish with apparent negative growth).

HATCHERY STOCKED STRIPED BASS

In 1996, one two year old hatchery release striped bass was recaptured. This fish was 335 mm total length and was recaptured at station 11E on 9/3/96.

PHYSICAL AND CHEMICAL DATA

Data on air temperature, water temperature, and salinity, were collected at each site. The bi-weekly means are presented in Table 9.

A multiple regression of natural log transformed catch versus water temperature, salinity, tide stage, wind direction and speed, and wave height was performed for the 1985 through 1991 data. Several parameters were significant during one, two, or three years (salinity, tide stage, and wave height), but only water temperature was significant in all years.

Linear regression analysis of bi-weekly and monthly catch per unit effort (CPUE) and natural log transformed CPUE (LNCPUE) versus mean water temperature were significant

in most years from 1985 - 1996. Variation in water temperature explained 39 to 91% of the variation in LNCPUE on a bi-weekly basis, and 72 to 98% of the variation in LNCPUE on a monthly basis. The LNCPUE produced a better fit to water temperature than the untransformed CPUE in most years. The regression analyses for 1996 are presented in Figures 14 and 15. A reason for the relationship between catch with water temperature is that catches decline when the water temperature drops starting around October.

Observed mean salinity values are presented in Figure 16. Mean bi-weekly salinity was extremely low during the 1st and last week of the survey (<1ppt).

A comparison of mean bi-weekly air temperature, water temperature, and salinity for 1985 through 1996 is shown in Figure 17 and Table 10. Air temperatures during the end of the survey (weeks six through nine) in 1991, 1992, and 1993 were lower than 1985 through 1990. During 1995 air temperature dropped dramatically from week eight to nine. Water temperature follows closely for all years, except for a low during week 7 in 1986. In 1996 the water temperature during weeks 8 and 9 were lower than in all previous years. In general salinity varied without trend over the nine weeks. Mean salinity in 1996 was lower than all other years during weeks 1, 2, 6, 8, and 9.

SPECIES COMPOSITION

Species composition for 1996 is presented in Table 11. During 1996, 35,380 fish of 38 species were caught in 204 seine hauls from July through November. Striped bass were the fourth most abundant species during 1996. Tables 12 and 13 present comparisons of the catch data from 1980 through 1996. YOY striped bass ranked in the top three species ten of the seventeen years.

CATCH DATA FOR OTHER SPECIES

Catch data for all other species has been recorded on an annual basis. The data for several of the more important species to the Hudson River Estuary and surrounding marine waters are reported here.

White Perch has been one of the dominant species in the Hudson River; however, its numbers both as adults and young have fallen from a high in 1982 to a low in 1985. The adult catch has remained low, while the young-of-the-year catch was high in 1986 and 1988 but low in other years. These data are presented in Figure 18.

CPUE data for blueback herring, alewife, and American shad are presented in Figure 19. Blueback herring has displayed biannual peaks through 1987, catches increased tremendously in 1990, 1992, 1995, and were back down in 1996. Alewife catch peaked in 1988 and has declined steadily since. CPUE increased slightly from 1993 to 1994. The nine week survey continued the rise in 1995 but was lower in 1996, while the six week survey showed a decrease from 1994 to 1995 and remained low in 1996. American shad has been rather consistent in its production with high years in 1981 and 1986 relative to all other years reported. American shad catch has shown biannual peaks since an all time low in 1991. Table 14 presents 1996 American shad catch by station. Catches of YOY American shad were higher in July and August, boosting the 9 week index while the six week index remained steady. Table 15 presents American shad length frequency for 1996. The catch was solely YOY fish. The mode increases through October and then levels off in November as the numbers drop.

Young-of-the-year bluefish CPUE has remained relatively consistent over the period of 1980 to 1996, with the lowest values occurring in 1996 (Figure 20). The full nine week survey shows similar trends to the six week survey except in 1985 and 1993. In these years the six week subset seriously underestimates the CPUE. Catch by station for YOY bluefish

is presented in Table 16. YOY bluefish were found throughout the survey area from July-October. Catches drop starting the end of September as the temperature decreases. The length frequency distribution of young-of-the-year bluefish is presented in Table 17. Three summer spawned bluefish were caught in August and September as indicated by length frequency. Summer spawn bluefish have been captured in most of the previous years.

CPUE data for winter flounder, summer flounder, and tomcod are presented in Figure 21. Winter flounder demonstrate a low rate of capture peaking in 1985 but falling back to previous levels from 1986 through 1996. Most of the winter flounder were caught at the southern most stations, generally below the Tappen Zee Bridge. The length frequency distribution of winter flounder is presented in Table 18. The majority of winter flounder caught were YOY, though there were a few yearling and older fish caught. The CPUE for summer flounder show an increasing trend in the Hudson River during 1985 and 1986, and a large decrease in 1987. Summer flounder catches increased from 1989 through 1991 and then have remained steady. Finally, CPUE for tomcod peaked during 1982 and 1988. Tomcod catch declined from 1988 through 1991 and have remained very low except for a small peak in 1992. Tomcod catches by station are presented in Table 19. The majority of the catches in 1996

were during the first two weeks at stations 12W and 10W. The length frequency distribution for tomcod is presented in Table 20. The majority of tomcod caught were YOY.

CONCLUSION

The 1996 young-of-the-year striped bass index decreased compared to the 1994 and 1995 indices. Catches in 1996 increased from week one to three, then decreased. The 1996 index of 9.3 was below the 16 year average of 13.5. Mean daily growth during weeks 1 - 6 was 0.61 mm/day. This was slower than daily growth of YOY caught around western Long Island during the same time (0.74 mm/day).

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TABLE 1 HUDSON RIVER INDEX OF RELATIVE ABUNDANCE FOR YOY STRIPED BASS FROM 1976 - 1996

YEAR	# HAULS	# Y-O-Y CAPTURE	C/f	STD DEV	STD ERROR	# ZEROS	GEOMETRIC MEAN	MEDIAN	MODE	RANGE
1976	86	1404	16.3	-	-	6		10	1	0-108
1977	88	3495	39.7	72.8	7.8	4	11.7	9	4	0-386
1978	70	2928	41.8	81.3	9.7	9	10	9	1	0-382
1979	117	585	5.0	8.0	0.7	39		2	0	0-43
1980	150	3597	24.0	57.6	4.7	33	6.2	6	0	0-547
1981	131	2823	21.6	42.5	3.7	9	8.9	9	2	0-346
1982	143	4362	30.5	48.0	4.0	8	14.2	14	0,10	0-285
1983	148	7112	48.1	110.7	9.1	8	16.3	18	2	0-1178
1984	146	5418	37.1	89.8	7.4	6	15.0	15	7	0-906
<u>6 WEEKS</u>										
1985	146	574	3.9	5.8	0.5	51	1.9	1	0	0-31
1986	147	904	6.1	9.0	0.7	34	2.9	2	0	0-55
1987	150	9100	60.7	157.3	12.8	13	15.9	18	1	0-1333
1988	145	7584	52.3	45.1	3.7	2	33.5	39	28	0-205
1989	150	6291	41.9	57.8	4.7	4	21.4	27	2	0-537
1990	142	5393	38.0	43.5	3.7	2	19.1	21	2,4	0-240
1991	140	959	6.9	8.0	0.7	30	3.6	6	0	0-41
1992	146	2525	17.3	15.5	1.3	5	11.4	13	6	0-83
1993	150	3975	26.5	34.3	2.8	7	12.6	14	1	0-230
1994	146	4159	28.5	31.7	2.6	4	17.6	20	5	0-246
1995	147	4027	27.4	45.1	3.7	2	16.2	17	7,11,16	0-389
1996	134	1964	14.7	18.4	1.6	6	9.3	9.5	5	0-143
<u>9 WEEKS</u>										
1985	216	999	4.6	6.6	0.4	71	2.2	2	0	0-32
1986	222	1942	8.7	11.3	0.8	38	4.3	4	0	0-57
1987	225	18649	82.9	184.6	12.3	13	25.1	34	1	0-1432
1988	220	15488	70.4	85.4	5.8	2	42.2	47	28	0-869
1989	225	13398	59.6	86.2	5.7	4	28.4	35	2	0-642
1990	217	12592	58.0	64.7	4.4	2	29.8	38	2	0-473
1991	215	3275	15.2	22.6	1.5	32	7.6	5	0	0-160
1992	221	5874	26.6	25.5	1.7	5	16.9	20	4,6,14	0-142
1993	225	12588	55.9	74.2	4.9	7	23.3	26	1	0-402
1994	221	9624	43.5	50.4	3.4	4	25.7	31	5	0-367
1995	221	7457	33.7	44.6	3	2	20.2	20	7	0-389
1996	204	4346	21.3	25.8	1.8	6	13.1	14	5	0-188

EFFORT AND DISTRIBUTION OF HAUL SEINES INCREASED AFTER 1978

Table 2

YOY STRIPED BASS CATCH BY STATION FOR 1996

STAT #	WEEK 1 JULY 25-26	WEEK 2 AUG 6-7	WEEK 3 AUG 20-21	WEEK 4 SEPT 3-4	WEEK 5 SEPT 24-25	WEEK 6 OCT 1-2	WEEK 7 OCT 16-17	WEEK 8 NOV 4	WEEK 9 NOV 18	WEEKS 4-9 TOTAL	WEEKS 1-9 TOTAL
<u>EAST</u>											
18E		37	37	11	6	14	19	2	20	72	146
21E	70	188	59	20	18	7	22	22	9	98	415
17E	28	35	25	4	5	13	16	5	31	74	162
16E	27	38	21	20	2	4	7	5	5	43	129
15E										0	0
14E	36	44	28	28	6	19	18	0	1	72	180
13E	18							8		8	26
12E	8	14	17	10	5	21	20	3	4	63	102
19E		12	52	19	16	13	6	3	11	68	132
11E	22	42	13	36	16	44	48		13	157	234
10E										0	0
9E	26	37	24	28	17	13	57	3	4	122	209
8E	37	45	24	50	45	90	10	5	6	206	312
7WE	25	7				8	30	4	0	42	74
7CE										0	0
7EE	45	6				7	18			25	76
71E										0	0
6E										0	0
5E	29				13	25				38	67
4E	20	38	6	23	6	9	15			53	117
3E	2	3	25	18	4	4	6			32	62
<u>WEST</u>											
16SW										0	0
16NW	13	7	1	1	5	5	8	4	2	25	46
15SW	22	6	6	18	11	7	3	0	0	39	73
15NW										0	0
14W	20	14	23	19	8	7	13	6	0	53	110
13W										0	0
12W	24	26	31	11	11	10	12	3	3	50	131
11W	87	54	25	14			7			21	187
10W	15	48	31	30	18	11	2	4	5	70	164
9W	14	25	31	19	5	9	2	2	4	41	111
8W	26	48	127	85	1	5	3	11	1	106	307
7W		39	176	143	0	18	1	7	50	219	434
5W		38	44	25	23	15	7			70	152
4W		49	42	37	19	14	27			97	188
3W										0	0
TOTAL	614	900	868	669	260	392	377	97	169	1964	4346
# SEINES	22	25	23	23	23	25	25	19	19	134	204
C/f	27.9	36.0	37.7	29.1	11.3	15.7	15.1	5.1	8.9	14.7	21.3
STD	19.1	35.6	39.2	30.2	9.8	17.7	13.8	4.9	12.6	18.4	25.8
MIN	2	3	1	1	0	4	1	0	0	0	0
MAX	87	188	176	143	45	90	57	22	50	143	188
# ZEROS	0	0	0	0	1	0	0	2	3	6	6

TABLE 3 HUDSON RIVER YOY MEAN CATCH PER 200 FOOT SEINE HAUL BY STATION FOR 1979 - 1996

SHORE STAT. #	RIVER MILE	1979	1980	1981	1982	1983	1984	WEEKS 4-9 1985	WEEKS 4-9 1986	WEEKS 4-9 1987	WEEKS 4-9 1988	WEEKS 4-9 1989	WEEKS 4-9 1990	WEEKS 4-9 1991	WEEKS 4-9 1992	WEEKS 4-9 1993	WEEKS 4-9 1994	WEEKS 4-9 1995	WEEKS 4-9 1996
EAST																			
18E	23	10.2	13.7	31.0	24.2	36.7	23.1	0.2	2.8	27.8	68.3	36.0	15.0	2.6	17.3	39.2	23.4	31.2	12.0
21E	23							0.0	1.0	65.5		60.5	50.8	0.8	15.7	18.5	30.0	30.8	16.3
17E	24	19.0	9.7	17.6	35.5	91.7	36.8	0.2	7.0	46.5	96.3	73.3	57.6	5.8	13.0	31.7	60.3	14.0	12.3
16E	25	8.3	6.3	4.0	19.8	21.4	11.0		3.0	48.7	15.2	22.3	1.3	12.8	30.8	16.8	13.0	7.2	
15E	27	4.8	24.0			302.6	52.8		8.0	29.0	38.0	10.0	10.0	6.3	12.5				
14E	29	1.0	35.5	10.6	15.2	42.2	11.8	0.2	4.3	30.2	51.0	42.3	28.0	2.0	15.7	26.8	20.0	16.0	12.0
13E	29	0.8	6.3	4.0			11.0	4.5	4.5	46.3	17.0	12.5	31.0	8.5	12.0	12.2	9.4	18.0	8.0
12E	29	2.0	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	8.2	14.0	10.5
19E	33						20.7	2.2	2.8	121.8	21.3	34.2	22.8	4.8	11.5	14.8	30.5	25.4	11.3
11E	34	4.3		22.5	9.6	26.4	8.0	2.8	2.5	163.8	62.4	59.0	22.4	22.2	33.8	19.8	44.8	146.0	31.4
10E	34																		
9E	34	11.8	3.7	6.7	11.7	5.2	6.2	0.3	0.8	33.4	33.8	22.3	50.6	7.6	17.8	21.8	16.6	14.3	20.3
8E	35	2.2	38.3	13.0	66.8	40.5	48.2	1.5	5.0	0.0	16.3		15.3	3.5		70.7	70.8	11.3	34.3
7E(W)	35	19.7	13.2	27.0	89.8	48.2	215.3	2.5	5.0	406.6	37.5	106.3	54.6	8.0	23.2	57.3	25.6	47.0	10.5
7E(C)	35							0.0											
7E(E)	35			43.0	84.2	35.7	146.0	0.7	6.6	274.7	41.5	50.3	28.8	8.3	6.8	90.0	16.8	16.0	12.5
7E(1)	35								10.0			1.0	17.5	1.0				52.0	
6E	36	2.0	12.7	5.5	41.3	47.0	34.3	0.5	2.5	39.7	18.5	34.8							
5E	39	0.5	28.5	25.7	20.7	14.5	53.0	5.0	0.0	9.0	26.0	21.0	17.0	9.2	13.5		11.0	18.0	19.0
4E	39	4.0	29.0	14.0	27.5	22.2	41.8	6.3	6.3	32.7	36.6	31.5	30.7	5.5	16.2	9.3	16.0	14.8	13.3
3E	39	1.5		12.0			109.5	3.6	2.0	37.2	36.3	28.0	17.7	4.0	9.7	9.6	55.6	20.2	8.0
1E	40	2.0				5.0													
20E	41																		
WEST																			
16W(S)	27	0.5	60.5	29.2	11.8	49.7	11.0	2.8	15.2	3.7	50.7	32.8	44.0		6.0			21.0	
16W(N)	27	1.0	68.3	32.0	16.7	17.5	15.2	3.7	12.3	27.8	64.8	82.7	93.0		15.8	21.7	11.0	16.3	4.2
15W(S)	27	3.5	25.9	10.2	6.8	71.0	35.3	2.6	5.5	9.8	67.7	22.0	77.5	15.6	17.4	56.4	55.0	26.7	6.5
15W(N)	27			9.4	10.0	36.3	31.5	0.0		21.0	28.5	53.4	47.6	3.0	16.2	11.0		18.2	
14W	29	3.0	45.5	55.5	15.7	33.3	4.2	5.7		71.5	58.2	38.7	39.6	9.5	8.3	30.7	16.8		8.8
13W	29	2.0	10.2	14.7	17.3					25.3	21.0		3.5	2.3	6.0			12.0	
12W	30	0.6	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	37.2	23.3	8.3
11W	32		137.0	9.4	12.2	8.3	5.2	2.7	2.2	12.5	45.6	13.2	6.6	7.5	13.2	17.2	32.3	14.2	10.5
10W	35	3.3	21.4	22.6		15.4	7.5	3.3	2.0	20.7	37.2	24.2	29.5	9.0	16.4	24.3	17.0	21.4	11.7
9W	35	9.4	27.7	61.3	11.4	16.3	12.0	5.3	5.0	24.4	86.8	30.3	36.0	4.7	18.6	15.3	13.8	24.4	6.8
8W	36	9.2	19.5	26.8	51.4	29.8	18.3	10.5	15.5	23.5	99.2	47.8	29.8	8.2	42.8	35.8	38.5	31.5	17.7
7W	37	1.5	4.0	47.0	51.3	46.5	34.3	11.3	10.0	13.2	97.2	61.5	74.6	8.5	42.8	13.8	36.8	35.2	36.5
5W	39	7.3	7.8	20.6	38.2	44.0	39.8	8.3	15.0	27.3	39.4	33.0	40.6	9.5	19.0	14.2	14.8	17.0	17.5
4W	39	9.2	15.2	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	17.8	40.8	24.3
3W	39	3.0	12.2	10.3	23.4	8.0			2.0										
20W	42																		
ANNUAL C/F		5.0	24.2	21.6	30.5	48.1	37.2	3.9	6.1	60.7	52.3	41.9	38.0	6.9	17.3	26.5	28.5	27.4	14.7

TABLE 3 CONT.

HUDSON RIVER YOY MEAN CATCH PER 200 FOOT SEINE HAUL BY STATION FOR 1985 - 1996

SHORE STAT. #	RIVER MILE	WEEKS 1-9 1985	WEEKS 1-9 1986	WEEKS 1-9 1987	WEEKS 1-9 1988	WEEKS 1-9 1989	WEEKS 1-9 1990	WEEKS 1-9 1991	WEEKS 1-9 1992	WEEKS 1-9 1993	WEEKS 1-9 1994	WEEKS 1-9 1995	WEEKS 1-9 1996
<u>EAST</u>													
18E	23	0.1	3.4	64.2	56.0	30.5	35.8	7.3	21.5	66.6	39.5	34.7	18.3
21E	23	0.0	1.0	70.3	23.5	111.8	70.2	1.1	24.6	89.8	42.3	59.4	46.1
17E	24	0.1	8.3	45.7	96.4	157.7	97.6	15.5	21.7	61.8	61.6	34.2	18.0
16E	25		3.0	135.0	50.1	34.5	42.6	5.3	17.0	50.7	26.6	38.7	14.3
15E	27		8.0	29.0	38.0	51.3	45.6	9.0		73.6			
14E	29	0.2	9.1	37.0	78.4	96.6	67.6	3.0	37.7	35.1	44.0	33.4	20.0
13E	29	3.7	4.5	93.3	14.5	12.5	31.0	30.3	19.7	55.6	14.3	82.3	13.0
12E	29	2.0	1.9	35.4	49.7	36.5	39.8	1.0	18.4	57.3	29.9	31.1	11.3
19E	33	1.7	6.0	259.5	88.8	67.6	33.1	7.7	19.8	33.1	59.7	31.8	16.5
11E	34	6.0	9.8	319.9	128.3	45.3	28.0	40.9	37.3	73.3	51.0	129.4	29.3
10E	34	1.0											
9E	34	1.0	6.0	47.4	37.0	42.9	57.3	17.0	35.5	73.0	55.8	14.8	23.2
8E	35	1.2	5.0	0.0	29.0		15.3	7.0		85.3	90.0	13.3	34.7
7E(W)	35	5.8	10.8	358.7	66.3	99.8	52.5	8.1	26.5	57.3	28.1	42.7	12.3
7E(C)	35	16.0											
7E(E)	35	5.0	12.9	222.0	54.3	58.0	30.1	10.1	13.9	65.1	26.4	17.1	19.0
7E(1)	35		10.0	54.0		1.0	17.5				149.0	52.0	
6E	36	1.3	1.9	38.9	51.8	31.0							
5E	39	5.0	13.8	9.0	25.8	26.0	34.0	17.0	13.5	186.0	11.0	10.5	22.3
4E	39	7.7	6.4	38.0	42.3	30.4	40.3	16.6	27.8	33.2	21.6	13.3	16.7
3E	39	4.1	4.9	46.9	29.9	24.4	21.9	7.4	13.1	17.4	46.8	17.8	8.9
1E	40												
20E	41	8.0											
<u>WEST</u>													
16W(S)	27	3.1	16.3	20.0	149.5	25.3	82.4		6.0			20.2	
16W(N)	27	4.0	15.3	53.1	89.6	62.2	162.4		22.2	48.4	11.0	22.8	5.1
15W(S)	27	3.9	7.1	145.8	109.8	63.0	159.6	45.8	32.4	80.6	57.9	27.6	8.1
15W(N)	27	0.7		63.3	32.3	53.3	53.5	3.0	32.5	11.0	105.0	26.6	
14W	29	4.6	10.0	93.0	65.1	55.6	64.9	40.6	20.0	76.9	24.4		12.2
13W	29		16.0	25.3	21.0		3.5	20.7	13.7		5.0	21.7	
12W	30	3.0	3.4	46.4	36.7	36.6	83.1	15.8	22.4	53.3	41.8	31.1	14.6
11W	32	2.8	4.9	18.7	42.8	11.2	7.0	11.6	11.9	28.7	39.9	18.3	37.4
10W	35	4.1	2.8	24.3	37.1	41.5	47.9	14.0	25.6	55.1	29.0	20.3	18.2
9W	35	5.2	6.4	25.4	96.5	37.4	39.5	6.6	21.1	20.9	32.3	34.5	12.3
8W	36	8.4	15.8	35.6	127.8	137.9	95.3	26.1	69.0	87.3	83.2	35.6	34.1
7W	37	10.5	15.7	65.7	114.1	56.6	71.0	20.9	59.5	43.2	74.2	34.6	54.3
5W	39	10.6	18.1	43.1	64.8	63.8	54.1	27.1	26.2	46.8	33.2	17.0	25.3
4W	39	15.9	20.1	71.4	93.9	143.8	80.6	23.4	28.6	38.8	27.8	35.1	31.3
3W	39		5.7										
20W	42	11.0											
ANNUAL C/H		4.6	8.7	82.9	70.4	59.5	58.0	15.2	26.6	55.9	43.5	33.7	21.3

TABLE 4 BI-WEEKLY LENGTH FREQUENCY FOR HUDSON RIVER STRIPED BASS DURING 1996, AND MEAN TOTAL LENGTH FROM 1985-1996

YOY (TL) mm	WEEK 1 JULY 25-26	WEEK 2 AUG 6-7	WEEK 3 AUG 20-21	WEEK 4 SEPT 3-4	WEEK 5 SEPT 24-25	WEEK 6 OCT 1-2	WEEK 7 OCT 16-17	WEEK 8 NOV 4	WEEK 9 NOV 18	WEEKS 4-9 TOTALS	WEEKS 1-9 TOTALS
0-19	11	0	0	0	0	0	0	0	0	0	11
20-24	23	7	1	1	0	0	0	0	0	1	32
25-29	26	16	0	1	0	0	0	0	0	1	43
30-34	49	35	7	1	0	0	0	0	0	1	92
35-39	88	69	38	1	0	1	3	0	0	5	200
40-44	101	83	58	4	0	0	0	0	1	5	247
45-49	85	124	87	18	1	3	1	0	0	23	319
50-54	68	99	86	41	11	7	0	2	1	62	315
55-59	49	119	88	99	10	8	4	2	3	126	382
60-64	42	86	76	71	18	25	5	4	9	132	336
65-69	29	53	66	100	37	25	17	10	19	208	356
70-74	4	36	63	69	22	28	43	10	24	196	299
75-79	1	22	42	61	27	50	53	13	18	222	287
80-84	0	7	29	28	32	44	36	17	26	183	219
85-89	0	2	13	20	29	38	41	8	15	151	166
90-94	0	0	9	13	19	28	54	8	21	143	152
95-99	0	0	0	7	12	29	33	6	9	96	96
100-104	0	0	0	2	11	14	28	6	5	66	66
105-109	0	0	0	1	11	15	17	3	3	50	50
110-114	0	0	0	2	7	12	16	1	6	44	44
115-119	0	0	0	0	4	9	11	3	3	30	30
120-124	0	0	0	0	6	13	7	2	3	31	31
125-129	0	0	0	0	3	8	4	0	1	16	16
130-134	0	0	0	0	0	5	1	0	0	6	6
135-139	0	0	0	0	0	2	0	1	1	4	4
140-144	0	0	0	0	0	2	2	1	1	6	6
145-149	0	0	0	0	0	0	0	0	0	0	0
150-154	0	0	0	0	0	0	0	0	0	0	0
155-159	0	0	0	0	0	0	0	0	0	0	0
160-164	0	0	0	0	0	0	0	0	0	0	0
165-169	0	0	0	0	0	0	0	0	0	0	0
170-174	0	0	0	0	0	0	0	0	0	0	0
175-179	0	0	0	0	0	0	0	0	0	0	0
180-184	0	0	0	0	0	0	0	0	0	0	0
185-189	0	0	0	0	0	0	0	0	0	0	0
190-194	0	0	0	0	0	0	0	0	0	0	0
195-199	0	0	0	0	0	0	0	0	0	0	0
>200	0	0	0	0	0	0	0	0	0	0	0
NO TL	38	142	205	129	0	26	1	0	0	156	541
TOTAL	614	900	868	669	36660	392	377	97	169	1964	4346
1996 MEAN TL	44.3	51.8	58.6	66.8	81.5	86.4	88.1	84.3	83.2		
STD	12.2	12.4	13.5	12.3	17.6	19.5	16.0	17.0	16.5		
MIN	12	22	22	24	48	39	35	52	42		
MAX	76	89	94	114	129	144	141	142	142		
1995 MEAN TL	41.98	62.41	69.86	77.87	87.48	94.72	100.04	99.91	90.59		
STD	8.95	11.19	11.40	11.81	13.15	16.26	17.97	20.38	19.83		
1994 MEAN TL	41.26	54.56	62.11	71.21	75.99	84.01	83.97	87.22	88.67		
STD	8.77	10.82	11.76	13.69	14.37	15.55	13.19	14.13	19.78		
1993 MEAN TL	38.12	52.58	62.11	68.62	75.81	82.95	84.01	87.50	88.59		
STD	8.13	11.53	12.31	13.09	12.84	14.55	12.91	15.29	19.19		
1992 MEAN TL	46.89	57.77	65.38	72.52	82.02	85.40	91.01	89.59	89.89		
STD	10.82	12.47	12.31	12.60	12.08	14.46	15.25	15.26	15.57		
1991 MEAN TL	62.42	71.48	82.04	89.93	97.61	100.96	101.95	93.76	97.59		
STD	15.45	14.34	15.00	18.54	18.56	22.94	27.32	27.56	22.76		
1990 MEAN TL	36.04	48.69	60.14	67.55	75.17	79.25	81.87	85.34	84.92		
STD	9.75	12.98	12.38	11.89	12.49	12.69	13.56	14.90	16.37		
1989 MEAN TL	36.10	46.68	57.32	65.12	72.43	81.10	81.01	82.11	85.05		
STD	9.35	9.39	10.84	11.29	11.15	12.15	12.41	12.45	14.17		
1988 MEAN TL	41.90	51.28	59.89	73.81	80.91	84.06	86.57	85.73	86.91		
STD	10.56	15.27	14.66	15.52	16.31	15.81	15.72	18.42	16.44		
1987 MEAN TL	47.84	59.75	67.04	72.22	80.55	85.55	84.92	87.55	84.96		
STD	9.51	9.55	10.38	10.59	10.71	11.98	13.36	13.54	15.24		
1986 MEAN TL	58.03	67.05	75.98	87.92	92.65	99.91	97.13	98.55	98.58		
STD	7.14	10.66	13.36	12.45	12.2	15.03	14.15	20.99	16.67		
1985 MEAN TL	53.41	63.74	80.48	84.4	95.27	103.02	105.94	100.43	104.22		
STD	10.01	11.27	15.13	15.26	15.24	15.6	18.6	13.47	19.95		

TABLE 5:
1996 BI-WEEKLY TOTAL LENGTH AND AGE FREQUENCY FOR OLDER STRIPED BASS CAPTURED IN THE
HUDSON RIVER

OLDER (TL) mm	WEEK 1 JULY 25-2	WEEK 2 AUG 6-7	WEEK 3 AUG 20-21	WEEK 4 SEPT 3-4	WEEK 5 SEPT 24-25	WEEK 6 OCT 1-2	WEEK 7 OCT 16-17	WEEK 8 NOV 4	WEEK 9 NOV 18	WEEKS 4-9 TOTALS	WEEKS 1-9 TOTALS
0-19	0	0	0	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0	0	0	0
65-69	0	0	0	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0	0	0	0
75-79	0	0	0	0	0	0	0	0	0	0	0
80-84	0	0	0	0	0	0	0	0	0	0	0
85-89	0	0	0	0	0	0	0	0	0	0	0
90-94	0	0	0	0	0	0	0	0	0	0	0
95-99	0	0	0	0	0	0	0	0	0	0	0
100-104	0	0	0	0	0	0	0	0	0	0	0
105-109	1	0	0	0	0	0	0	0	0	0	1
110-114	0	1	0	0	0	0	0	0	0	0	1
115-119	2	1	1	0	0	0	0	0	0	0	4
120-124	0	1	0	0	0	0	0	0	0	0	1
125-129	2	0	1	0	0	0	0	0	0	0	3
130-134	4	0	1	0	0	0	0	0	0	0	5
135-139	1	3	0	0	0	0	0	0	0	0	4
140-144	1	2	0	0	0	0	0	0	0	0	3
145-149	1	1	1	0	1	1	0	0	0	2	5
150-154	1	0	1	0	1	1	0	0	1	3	5
155-159	3	3	0	0	0	1	0	0	0	1	7
160-164	1	3	0	1	0	0	0	0	0	1	5
165-169	0	3	1	0	1	2	0	0	0	3	7
170-174	1	2	0	0	2	1	2	0	1	6	9
175-179	1	3	1	0	0	2	1	0	0	3	8
180-184	1	4	0	1	2	1	0	0	0	4	9
185-189	0	0	1	0	0	1	1	0	0	2	3
190-194	0	0	0	0	2	1	0	0	0	3	3
195-199	0	0	0	0	0	0	0	0	0	0	0
200-204	1	1	0	0	1	0	0	0	1	2	4
205-209	0	1	0	0	0	0	0	0	0	0	1
210-214	0	0	0	1	1	2	0	0	0	4	4
215-219	0	1	0	0	1	0	0	0	0	1	2
220-224	0	0	0	0	0	0	0	0	0	0	0
225-229	0	0	0	0	0	0	0	0	0	0	0
230-234	0	0	0	0	1	0	0	0	0	1	1
240-244	0	0	0	0	0	0	0	0	0	0	0
245-249	0	0	0	0	0	0	0	0	0	0	0
260-264	0	0	0	0	0	0	0	0	0	0	0
265-269	0	0	0	0	2	0	0	0	0	2	2
270-274	0	0	0	0	0	0	0	0	0	0	0
275-279	0	0	0	0	0	0	0	0	0	0	0
280-284	0	0	0	0	0	0	0	0	0	0	0
285-289	0	0	0	0	0	0	0	0	0	0	0
290-294	0	0	0	0	0	0	0	0	0	0	0
295-299	0	0	0	0	0	0	0	0	0	0	0
>300	0	0	0	0	2	3	3	0	0	8	8
NO TL	0	0	0	0	0	0	0	0	0	0	0
TOTAL	21	30	8	3	17	17	7	0	3	47	106

AGE	WEEK 1 JULY 25-2	WEEK 2 AUG 6-7	WEEK 3 AUG 20-21	WEEK 4 SEPT 3-4	WEEK 5 SEPT 24-25	WEEK 6 OCT 1-2	WEEK 7 OCT 16-17	WEEK 8 NOV 4	WEEK 9 NOV 18	WEEKS 4-9 TOTALS	WEEKS 1-9 TOTALS
1	20	28	8	3	13	13	5	0	3	37	93
2	0	1	0	0	2	1	0	0	0	3	4
3	0	0	0	0	1	0	2	0	0	3	3
4	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	1	0	0	0	1	1
>7	0	0	0	0	1	1	0	0	0	2	2
NO AGE	1	1	0	0	0	1	0	0	0	1	3
TOTAL	21	30	8	3	17	17	7	0	3	47	106

Table 6

YEARLING STRIPED BASS CATCH BY STATION, HUDSON RIVER SURVEY 1996

STAT #	RIVER MILE	WEEK 1 JULY 25-26	WEEK 2 AUG 6-7	WEEK 3 AUG 20-21	WEEK 4 SEPT 3-4	WEEK 5 SEPT 24-25	WEEK 6 OCT 1-2	WEEK 7 OCT 16-17	WEEK 8 NOV 4	WEEK 9 NOV 18	WEEKS 4-9 TOTAL	WEEKS 1-9 TOTAL	
EAST													
18E	23		0	0	0	1	0	1	0	0	2	2	
21E	23	0	0	0	0	0	0	1	0	0	1	1	
17E	24	0	0	1	0	0	3	0	0	0	3	4	
16E	25	0	0	0	0	0	1	1	0	1	3	3	
15E	27										0	0	
14E	29	2	0	0	0	0	0	1	0	0	1	3	
13E	29	0							0		0	0	
12E	29	3	0	0	0	1	1	0	0	0	2	5	
19E	33		0	2	0	1	0	0	0	1	2	4	
11E	34	0	0	0	0	0	1	1		1	3	3	
10E	34										0	0	
9E	34	0	1	1	0	0	1	0	0	0	1	3	
8E	35	0	0	0	0	3	4	0	0	0	7	7	
7WE	35	0	1				0	0	0	0	0	1	
7CE	35										0	0	
7EE	35	1	1				0	0			0	2	
71E	35										0	0	
6E	36										0	0	
5E	39	1				5	0				5	6	
4E	39	0	2	0	0	0	1	0			1	3	
3E	39	0	0	0	0	0	0	0			0	0	
WEST													
16SW	27										0	0	
16NW	27	1	0	0	1	0	1	0	0	0	2	3	
15SW	27	11	21	3	0	0	0	0	0	0	0	35	
15NW	27										0	0	
14W	29	0	0	0	1	0	0	0	0	0	1	1	
13W	29										0	0	
12W	30	0	0	0	0	0	0	0	0	0	0	0	
11W	32	1	0	1	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	0	
8W	36	0	2	0	0	2	0	0	0	0	2	4	
7W	37		0	0	1	0	0	0	0	0	1	1	
5W	39		0	0	0	0	0	0			0	0	
4W	39		0	0	0	0	0	0			0	0	
3W	39										0	0	
TOTAL		20	28	8	3	13	13	5	0	3	37	93	
# SEINES		22	25	23	23	23	25	25	19	19	134	204	
C/f		0.9	1.1	0.3	0.1	0.6	0.5	0.2	0.0	0.2	0.3	0.5	
STD		2.4	4.2	0.8	0.3	1.2	1.0	0.4	0.0	0.4	0.7	1.8	
STDERR		0.5	0.8	0.2	0.1	0.3	0.2	0.1	0.0	0.1	0.1	0.1	
MIN		0	0	0	0	0	0	0	0	0	0	0	
MAX		11	21	3	1	5	4	1	0	1	5	21	
MEDIAN		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0	
# ZEROS		13	19	18	20	17	17	20	19	16	109	159	

Table 7

HUDSON RIVER TAG RELEASE INFORMATION

TL	1988	1989	1990	1991	1992	1993	1994	1995	1996
100-149	0	0	0	0	0	0	0	0	0
150-199	38	30	26	45	45	28	7	19	29
200-249	18	19	8	46	38	28	7	50	13
250-299	0	4	5	6	5	9	2	13	2
300-349	3	2	1	2	1	6	0	5	0
350-399	0	0	0	0	0	4	0	6	0
400-449	1	1	0	1	1	0	0	3	2
450-499	1	0	3	0	0	1	1	0	1
500-549	1	1	0	0	3	0	2	0	1
550-599	0	0	1	0	2	0	1	0	0
600-649	0	0	0	0	0	0	0	2	0
650-699	0	0	0	0	0	0	0	0	0
700-749	0	0	0	0	0	0	0	1	0
750-799	0	1	0	0	0	0	0	0	0
800-849	0	0	0	0	0	0	0	0	0
850-899	0	0	1	0	0	0	0	0	1
900-949	0	0	0	0	0	0	0	0	0
No TL	0	0	0	0	0	0	1	1	0
TOTAL	62	58	45	100	95	76	21	100	49

AGE	1988	1989	1990	1991	1992	1993	1994	1995	1996
0	1	0	0	0	0	1	0	6	0
1	52	41	27	78	81	40	12	67	40
2	4	11	8	12	6	23	4	17	3
3	1	0	2	0	2	6	0	4	2
4	1	0	0	0	4	0	2	2	0
5	0	1	0	0	0	0	0	0	0
6	1	0	1	0	0	0	1	0	0
7	0	0	0	0	0	0	0	0	0
8	0	0	1	0	0	0	0	2	0
9	0	1	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	1	0
NO AGE	2	4	6	10	2	6	2	1	4
TOTAL	62	58	45	100	95	76	21	100	49

Table 8

RECAPTURE INFORMATION FOR 1988-1996 HUDSON RIVER STRIPED BASS

RECAPTURE YEAR (July-June)	# RETURNS	% RETURNS	DAYS AT LARGE	YEAR OF RELEASE								
				1988	1989	1990	1991	1992	1993	1994	1995	1996
<u>RELEASE YEAR 1 (1988)</u>												
1	2	3	0-49	0	3	0	9	4	4	1	3	3
2	2	3	50-99	1	0	0	2	0	0	1	0	2
3	0	0	100-149	0	0	0	0	0	1	0	0	0
4	0	0	150-199	0	0	1	1	0	1	0	0	0
5	0	0	200-249	1	0	1	0	0	1	0	1	0
6	0	0	250-299	0	0	0	2	1	0	0	0	0
7	0	0	300-349	0	0	0	0	1	1	0	1	0
8	0	0	350-399	0	0	0	0	0	1	0	1	0
9	0	0	400-449	0	0	0	0	0	1	0	3	0
			450-499	0	0	0	0	0	0	0	0	0
			500-549	0	0	0	0	0	1	0	0	0
<u>RELEASE YEAR 2 (1989)</u>												
2	3	5	550-599	0	1	0	0	0	1	0	0	0
3	2	3	600-649	2	0	0	1	1	0	0	0	0
4	0	0	650-699	0	0	0	0	0	0	0	0	0
5	1	2	700-749	0	0	0	0	0	0	0	0	0
6	0	0	750-799	0	0	0	1	1	0	0	0	0
7	0	0	800-849	0	0	0	0	0	0	0	0	0
8	0	0	850-899	0	0	0	0	0	0	0	0	0
9	0	0	900-949	0	0	0	0	0	0	0	0	0
			950-999	0	0	0	0	0	0	0	0	0
			1000-1049	0	1	0	0	0	0	0	0	0
			1050-1099	0	0	0	0	0	1	0	0	0
			unknown	0	1	0	1	0	1	0	0	0
<u>RELEASE YEAR 3 (1990)</u>												
3	2	4	TOTAL	4	6	2	17	8	14	2	9	5
4	0	0										
5	0	0										
6	0	0										
7	0	0										
8	0	0										
9	0	0										
<u>RELEASE YEAR 4 (1991)</u>												
4	13	13	RECAPTURE GEAR	1988	1989	1990	1991	1992	1993	1994	1995	1996
5	3	3	HOOK&LINE	3	3	2	7	5	6	2	7	5
6	1	1	SEINE	0	3	0	7	3	4	0	2	0
7	0	0	TRAP	0	0	0	1	0	2	0	0	0
8	0	0	TRAWL	0	0	0	2	0	1	0	0	0
9	0	0	unknown	1	0	0	0	0	1	0	0	0
			TOTAL	4	6	2	17	8	14	2	9	5
<u>RELEASE YEAR 5 (1992)</u>												
5	4	4										
6	3	3										
7	1	1										
8	0	0										
9	0	0										
<u>RELEASE YEAR 6 (1993)</u>												
6	7	9	RECAPTURE STATE	1988	1989	1990	1991	1992	1993	1994	1995	1996
7	5	7	CT	0	0	1	1	1	0	0	0	0
8	0	0	MA	0	0	0	0	0	1	0	0	0
9	1	1	NJ	0	1	0	0	1	2	0	2	1
			NY	4	5	1	15	6	8	2	7	4
			RI	0	0	0	1	0	2	0	0	0
			unknown	0	0	0	0	0	1	0	0	0
			TOTAL	4	6	2	17	8	14	2	9	5
<u>RELEASE YEAR 7 (1994)</u>												
7	2	10										
8	0	0										
9	0	0										
<u>RELEASE YEAR 8 (1995)</u>												
8	4	4										
9	5	5										

Table 9

BI-WEEKLY AIR TEMPERATURE, WATER TEMPERATURE AND SALINITY FOR 1996

WEEK DATE	AIR TEMP				H2O TEMP				SALINITY			
	MEAN	MIN	MAX	STD	MEAN	MIN	MAX	STD	MEAN	MIN	MAX	STD
1 7/25-26	24.1	21.0	30.0	2.9	24.0	23.0	26.0	0.9	0.6	0.0	4.0	1.1
2 8/6-7	27.0	22.0	36.0	4.1	26.4	24.0	31.0	1.5	2.2	0.0	5.0	1.4
3 8/20-21	26.2	21.0	34.0	3.6	25.8	25.0	28.0	0.8	4.2	2.0	7.5	1.5
4 9/3-4	27.1	20.0	32.0	3.8	26.3	24.0	28.0	1.3	3.7	2.0	7.5	1.5
5 9/24-25	16.2	11.5	20.0	2.1	20.8	19.0	23.0	1.0	4.7	2.5	8.0	1.6
6 10/1-2	17.9	10.5	25.0	3.9	20.6	18.0	22.0	1.0	2.6	1.0	5.0	1.4
7 10/16-17	18.9	13.0	25.0	3.5	15.9	12.0	18.0	1.7	5.3	3.0	8.0	1.5
8 11/4/97	13.1	11.0	16.0	1.6	11.5	10.0	13.0	0.8	1.5	0.0	3.0	0.8
9 11/18/97	9.1	5.0	12.0	1.9	8.1	7.0	9.0	0.6	0.3	0.0	2.0	0.7

REGRESSION OF BI-WEEKLY H2O TEMPERATURE VERSUS BI-WEEKLY

CPUE

Regression Output:

Constant -10.3
 Std Err of Y Est 6.504
 R Squared 0.748
 No. of Observations 9
 Degrees of Freedom 7

X Coefficient(s) 1.558
 Std Err of Coef. 0.342

LN CPUE

Regression Output:

Constant 0.806
 Std Err of Y Est 0.289
 R Squared 0.834
 No. of Observations 9
 Degrees of Freedom 7

X Coefficient(s) 0.09
 Std Err of Coef. 0.015

REGRESSION OF MONTHLY H2O TEMPERATURE VERSUS BI-WEEKLY

CPUE

Regression Output:

Constant -10.8
 Std Err of Y Est 5.565
 R Squared 0.823
 No. of Observations 5
 Degrees of Freedom 3

X Coefficient(s) 1.585
 Std Err of Coef. 0.424

LN CPUE

Regression Output:

Constant 0.727
 Std Err of Y Est 0.23
 R Squared 0.908
 No. of Observations 5
 Degrees of Freedom 3

X Coefficient(s) 0.095
 Std Err of Coef. 0.017

Table 10

COMPARISON OF PHYSICAL DATA FROM 1985 - 1996

MEAN AIR TEMP (C)

WEEK	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
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
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
3		24.3	28.2	31.1	24.5	22.5	22.7	23.2	24.0	23.6	26.8	26.2
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
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
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
7	18.8	20.0	15.7	15.2	18.3	19.9	9.2	10.2	13.9	12.6	15.6	18.9
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
9	13.1	4.4	11.1	11.5	13.8	12.5	8.2	5.6	7.1	16.2	3.6	9.1

MEAN WATER TEMP (C)

WEEK	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
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
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
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
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
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
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
7	19.0	10.1	14.4	17.7	17.4	18.8	15.1	13.9	17.2	18.1	19.8	15.9
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
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

MEAN SALINITY (PPT)

WEEK	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
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
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
3	3.7	2.6	7.2	6.1	5.9	4.9	7.6	0.8	6.1	7.0	6.2	4.2
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
5	7.1		4.5	5.8	7.1	6.7	8.1	5.8	5.1	6.2	9.1	4.7
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
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
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
9	5.7	5.4	2.2	6.4	3.7	3.7	6.4	4.4		6.8	0.6	0.3

TABLE 11

1996 HUDSON RIVER SPECIES COMPOSITION

SPECIES	WEEK 1 JULY 25-26	WEEK 2 AUG 6-7	WEEK 3 AUG 20-21	WEEK 4 SEPT 3-4	WEEK 5 SEPT 24-25	WEEK 6 OCT 1-2	WEEK 7 OCT 16-17	WEEK 8 NOV 4	WEEK 9 NOV 18	WEEKS 4-9 TOTAL	WEEKS 1-9 TOTAL
DIADROMOUS											
ALEWIFE	25	5	2	0	0	1	0	0	0	1	33
AMERICAN EEL	2	6	7	4	3	4	3	8	1	23	38
AMERICAN SHAD	997	163	166	36	14	100	199	15	11	375	1701
ATLANTIC TOMCOD	42	42	6	1	1	0	1	2	2	7	97
BLUEBACK HERRING	2521	656	2474	4	0	128	235	3	29	399	6050
RAINBOW SMELT	0	0	0	0	0	0	0	0	0	0	0
STRIPED BASS (YOY)	614	900	868	669	260	392	377	97	169	1964	4346
STRIPED BASS (OLDER)	21	30	8	3	17	17	7	0	3	47	106
STRIPED BASS (HATCHERY)	0	0	0	0	0	0	0	0	0	0	0
STRIPED BASS (OLDER-HAT)	0	0	0	1	0	0	0	0	0	1	1
MARINE											
ATLANTIC MENHADEN	0	55	262	51	2	10	1	0	0	64	381
ATLANTIC NEEDLEFISH	0	5	8	5	0	0	0	0	0	5	18
BAY ANCHOVY	7	273	2423	905	2999	148	84	0	2	4138	6841
BLUEFISH (YOY)	40	37	30	32	18	5	2	0	0	57	164
BLUEFISH (OLDER)	0	0	0	0	0	0	0	0	0	0	0
BLUE SPOTTED CORNETFIS	0	0	0	0	0	0	0	0	0	0	0
BONEFISH	0	0	0	0	0	0	0	0	0	0	0
BUTTERFISH	0	0	0	0	5	0	0	0	0	5	5
CREVALLE JACK	0	0	3	1	4	1	1	0	0	7	10
CUNNER	0	0	0	0	0	0	0	0	0	0	0
GRAY SNAPPER	0	0	0	0	0	0	0	0	0	0	0
HICKORY SHAD	0	0	0	0	0	0	0	0	0	0	0
HOUNDFISH	0	0	0	0	0	0	0	0	0	0	0
INSHORE LIZARDFISH	0	0	0	0	0	0	0	0	0	0	0
LOOKDOWN	0	0	0	0	0	0	0	0	0	0	0
NAKED GOBY	0	0	0	0	0	0	0	0	0	0	0
NORTHERN KINGFISH	0	0	0	0	1	0	0	0	0	1	1
NORTHERN PIPEFISH	0	3	6	5	9	4	4	0	0	22	31
NORTHERN PUFFER	0	0	0	0	0	0	0	0	0	0	0
NORTHERN SENNET	0	0	0	0	0	0	0	0	0	0	0
NORTHERN STARGAZER	0	0	0	0	0	0	0	0	0	0	0
PIGFISH	0	0	0	0	0	0	0	0	0	0	0
PINFISH	0	0	0	0	0	0	0	0	0	0	0
PLANEHEAD FILEFISH	0	0	0	0	0	0	0	0	0	0	0
SILVER PERCH	1	0	1	9	6	0	0	0	0	15	17
SILVERSIDE SP.	2147	1748	1094	5742	1112	984	575	42	1	8456	13445
SMALLMOUTH FLOUNDER	0	0	0	0	0	0	0	0	0	0	0
SPANISH MACKERAL	0	0	0	0	0	0	0	0	0	0	0
SPOT	17	35	24	1	0	0	0	0	0	1	77
SPOTFIN MOJARRA	0	0	0	0	0	0	0	0	0	0	0
SPOTTED HAKE	0	0	0	0	0	0	0	0	0	0	0
STRIPED ANCHOVY	0	0	1	0	3	0	0	0	0	3	4
STRIPED MULLET	0	0	0	0	0	0	0	0	0	0	0
STRIPED SEAROBIN	0	0	0	0	0	0	0	0	0	0	0
SUMMER FLOUNDER	3	2	6	2	2	1	4	0	0	9	20
TAUTOG	0	0	0	0	0	0	0	0	0	0	0
WEAKFISH	0	0	1	0	0	0	0	0	0	0	1
WHITE MULLET	0	0	0	0	0	0	0	0	0	0	0
WINDOWPANE FLOUNDER	0	0	0	0	0	0	1	0	0	1	1
WINTER FLOUNDER	0	17	6	2	4	3	16	1	1	27	50
ESTUARINE											
FOURSPINE STICKLEBACK	0	9	0	1	0	0	0	0	2	3	12
HOGCHOKER	18	16	22	11	8	8	10	0	0	37	93
KILLIFISH SPP.	13	17	6	2	1	11	5	0	1	20	56
NORTHERN TONGUEFISH	0	0	0	0	0	0	0	0	0	0	0
THREE SPINE STICKLEBAC	0	0	0	0	0	0	0	0	0	0	0
WHITE PERCH (YOY)	41	97	159	172	84	44	15	6	3	324	621
WHITE PERCH (OLDER)	334	278	234	252	127	151	52	5	2	589	1435
FRESHWATER											
BLACK CRAPPIE	0	0	0	0	0	0	0	0	0	0	0
BLUEGILL	2	0	0	1	0	0	0	0	0	1	3
BROWN BULLHEAD	0	0	2	1	0	0	0	0	0	1	3
CARP	1	1	2	2	3	6	3	0	1	15	19
CHAIN PICKEREL	0	0	0	0	0	0	0	0	0	0	0
FALLFISH	0	0	0	0	0	0	0	0	0	0	0
GIZZARD SHAD	0	0	1	0	0	0	0	0	0	0	1
GOLDEN SHINER	1	0	0	0	0	0	0	0	0	0	1
GOLDFISH	0	0	0	0	0	0	0	0	0	0	0
LARGE MOUTH BASS	1	0	0	0	0	0	0	0	0	0	1
PUMPKINSEED SUNFISH	2	2	1	0	1	0	0	0	0	1	6
REDBREAST SUNFISH	0	0	0	0	0	0	0	0	0	0	0
SMALL MOUTH BASS	0	0	0	0	0	0	0	0	0	0	0
SPOTTAIL SHINER	10	8	21	6	0	0	0	0	3	9	48
SWALLOWTAIL SHINER	0	0	0	0	0	0	0	0	0	0	0
TESSELLATED DARTER	10	7	4	1	0	1	1	3	4	10	31
WHITE CATFISH	0	0	2	2	0	0	0	0	0	2	4
WHITE SUCKER	0	0	0	0	0	1	0	0	0	1	1
YELLOW PERCH	0	0	1	1	0	0	0	0	0	1	2
TOTAL	6479	4412	7849	7925	4684	2024	1595	177	235	16640	35380
# SEINES	22	25	23	23	23	25	25	19	19	134	204

Table 12

HUDSON RIVER COMPARISON OF SPECIES COMPOSITION FROM 1980 - 1996

SPECIES	1980	1981	1982	1983	1984	WEEKS	WEEKS	WEEKS	WEEKS	WEEKS	WEEKS	WEEKS	WEEKS	WEEKS	WEEKS	WEEKS	WEEKS
						4-9	4-9	4-9	4-9	4-9	4-9	4-9	4-9	4-9	4-9	4-9	4-9
1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996						
DIADROMOUS																	
ALEWIFE	143*	29	143*	161	39	116	244	54	408	53	53	8	1	0	33	3	1
AMERICAN EEL	36	80	116	122*	73	57	36	80	86	62	54	55	30	20	30	25	23
AMERICAN SHAD	621*	4110	1283	1841*	1246*	1527	3965	1198	1276	1723	1091	155	1540	238	1714	445	375
ATLANTIC TOMCOD	21	238	785*	152	191	258	326	277	546	339	181	11	114	4	12	5	7
BLUEBACK HERRING	4081*	7328	2848	6393*	915*	5968	1133	6698	4876	7013	27901	7504	22719	2412	1320	23033	299
RAINBOW SMELT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STRIPED BASS (YOY)	3594	2822	4364	7112	5425	574	904	9100	7584	6291	5393	959	2525	3975	4159	4027	1964
STRIPED BASS (OLDER)	315	670	111	691	70	69	40	21	112	93	54	103	114	90	24	147	47
STRIPED BASS (HATCHERY)	0	0	0	10	48	166	246	71	62	91	0	0	42	73	18	201	0
STRIPED BASS (OLDER-HAT)	0	0	0	0	0	0	3	1	1	0	0	0	0	3	0	3	1
MARINE																	
ATLANTIC MENHADEN	125*	924	147	595	29	179	1269	950	18	26	1075	32	610	16	611	9	54
ATLANTIC NEEDLEFISH	40	39	95	16	7	159	16	45	42	105	82	9	19	0	20	9	5
BAY ANCHOVY	361*	340	749	2219*	2244*	2129*	132	8037	994	14200	917	1563	5124	1011	5954	11173	4138
BLUEFISH (YOY)	305*	374	427*	362*	175	345	316	142	520	199	207	79	103	101	118	229	57
BLUEFISH (OLDER)	0	0	0	0	0	0	0	2	1	1	1	0	0	0	0	0	0
BLUE SPOTTED CORNETFIS	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BONEFISH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BUTTERFISH	1	1	0	1	0	0	0	0	0	10	0	0	0	0	0	0	5
CREVALLE JACK	4	8	21	11	25	14	17	3	26	8	30	13	4	9	8	14	7
CUNNER	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
GRAY SNAPPER	1	0	0	0	0	4	0	0	0	0	0	0	0	0	0	1	0
HICKORY SHAD	0	0	0	0	0	3	0	0	2	0	0	0	0	0	0	0	0
HOUND FISH	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
INSHORE LIZARD FISH	0	1	2	0	0	9	0	0	0	1	0	7	20	6	0	0	0
LOOKDOWN	1	0	1	0	0	4	0	0	3	0	0	0	0	1	0	0	0
NAKED GOBY	0	0	0	0	0	4	16	45	13	16	29	26	8	3	1	16	0
NORTHERN KINGFISH	5	2	10	7	6	40	3	3	22	12	7	29	30	24	10	17	1
NORTHERN PIPEFISH	60*	126	187	144*	151	335	133	248	638	285	280	171	93	113	61	227	22
NORTHERN PUFFER	0	1	1	5	0	1	0	1	0	0	0	0	0	1	0	3	0
NORTHERN SENNET	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
NORTHERN STARGAZER	0	0	0	0	0	0	0	0	2	0	0	1	0	5	0	0	0
PIGFISH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0
PINFISH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
PLANEHEAD FILEFISH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SILVER PERCH	1	0	0	0	0	1	0	0	3	0	0	19	11	53	73	2484	15
SILVERSIDE SP	977*	1887	1351	1413*	261	3486	14429	2528	22868	1213	10359	5718	7982	10462	21324	29067	5456
SMALLMOUTH FLOUNDER	0	0	0	0	0	0	0	0	0	0	0	7	0	2	0	0	0
SPANISH MACKEREL	0	0	0	0	0	0	0	0	1	1	2	0	1	0	0	0	0
SPOT	0	0	49	5	0	6	6	0	156	1	6	1	10	4	0	1	0
SPOTFIN MOJARRA	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0
SPOTTED HAKE	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
STRIPED ANCHOVY	0	0	75	0	0	70	1	0	2	0	0	4	32	2	2	2	3
STRIPED MULLET	1	0	39	58	20	4	7	3	0	0	0	1	0	0	0	0	0
STRIPED SEAROBIN	1	0	7	4	3	11	0	0	0	1	0	9	2	8	0	1	0
SUMMER FLOUNDER	11	3	7	1	3	21	52	1	0	7	5	24	17	23	18	15	9
TAUOG	3	32	9	1	1	2	16	4	85	0	3	8	1	0	0	0	0
WEAKFISH	2	1	2	18	4	53	1	0	5	4	9	11	1	0	3	0	0
WHITE MULLET	19	4	17	22	15	9	8	0	14	8	16	5	0	21	1	0	0
WINDOWPANE FLOUNDER	0	0	0	0	0	0	0	0	1	0	2	0	0	0	1	0	1
WINTER FLOUNDER	8	27	133	44	35	404	106	32	144	63	97	68	134	138	95	39	27
ESTUARINE																	
FOURSPINE STICKLEBACK	23	70	86	97*	59	266	176	392	173	18	27	15	5	0	1	0	3
HOGCHOKER	45	58	309	678*	199	368	337	141	255	287	166	85	112	106	226	100	37
KILLFISH SPP	666*	1209	2218*	1808*	1066	1690	1288	2837	2866	416	694	96	102	20	322	203	20
NORTHERN TONGUEFISH	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
THREE SPINE STICKLEBACK	18	0	0	0	0	0	0	39	0	0	0	0	0	0	0	0	0
WHITE PERCH (YOY)	6669*	7544	9092*	5897*	4174	1595	5743	1708	11638	4974	1001	273	551	343	912	335	324
WHITE PERCH (OLDER)	2848	10155*	6910*	5374	1652	1893	1199	1783	1466	1101	895	675	1008	614	537	589	
FRESHWATER																	
BLACK CRAPPIE	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
BLUEGILL	9	0	6	14	54	10	89	57	27	36	21	1	0	3	22	8	1
BROWN BULLHEAD	0	0	1	9	3	1	1	2	7	3	1	1	0	0	3	0	1
CARP	22*	13	23*	6	19	16	14	26	12	27	31	12	14	9	22	13	15
CHAIN PICKEREL	2	0	0	0	0	0	0	0	0	2	2	0	0	1	0	0	0
FALLFISH	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
GIZZARD SHAD	3	7	0	11	8	1	0	41	1	3	6	0	0	0	2	15	0
GOLDEN SHINER	36*	10	10	17	31	0	0	0	0	1	1	1	0	0	2	0	0
GOLDFISH	1	0	0	2	1	0	1	0	1	0	0	1	0	0	0	0	0
LARGE MOUTH BASS	4	0	3	2	6	0	4	3	1	2	2	1	0	0	2	2	0
PUMPKINSEED SUNFISH	462*	179	507*	250	206	46	32	12	13	23	22	5	0	1	18	4	1
REDBREAST SUNFISH	108	23	55	43	22	4	5	3	1	8	3	0	0	0	0	0	0
SMALL MOUTH BASS	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
SPOTTAIL SHINER	48	25	118	278*	278	3	4	2	42	81	40	4	1	0	32	2	9
SWALLOWTAIL SHINER	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TESSELATED DARTER	4	4	9	73	63	1	4	54	5	18	27	1	7	9	15	2	10
WHITE CATFISH	8	8	23*	114	13	3	8	22	9	20	6	6	3	4	1	3	2
WHITE SUCKER	8	34	4	3	3	0	2	3	1	6	0	1	1	0	2	1	1
YELLOW PERCH	31	14	25	12	6	0	0	2	0	1	2	0	0	0	0	0	1
TOTAL	18911	31095	35623	37632	22571	22724	33029	36087	57339	39226	51146	18004	42749	20329	37815	72420	16640
# SEINES	149	131	143	148	146	146	147	150	145	150	142	140	146	150	146	147	134
TOTAL # SPECIES	46	46	42	42	38	43	39	37	41	46	42	45	35	35	41	35	34
# DIADROMOUS	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	6
# MARINE	20	16	20	18	15	24	18	14	19	21	17	24	19	21	20	16	15
# ESTUARINE	5	4	4	4	3	4	4	5	4	4	4	5	4	3	4	4	4
# FRESHWATER	15	10	12	14	14	9	11	12	12	15	15	10	6	6	11	9	9

* TOO NUMEROUS TO COUNT

Table 13

HUDSON RIVER COMPARISON OF SPECIES COMPOSITION FROM 1980 - 1996, NINE WEEK EXPANDED SURVEY

SPECIES	WEEKS 1-9 1985	WEEKS 1-9 1986	WEEKS 1-9 1987	WEEKS 1-9 1988	WEEKS 1-9 1989	WEEKS 1-9 1990	WEEKS 1-9 1991	WEEKS 1-9 1992	WEEKS 1-9 1993	WEEKS 1-9 1994	WEEKS 1-9 1995	WEEKS 1-9 1996
DIADROMOUS												
ALEWIFE	283	314	170	551	107	160	21	11	1	68	99	33
AMERICAN EEL	125	73	117	171	120	120	99	85	60	71	61	38
AMERICAN SHAD	2175	4924	1521	2533	2679	2433	215	2646	471	2250	488	1701
ATLANTIC TOMCOD	415	362	279	580	368	280	12	313	6	13	7	97
BLUEBACK HERRING	6134	1381	7239	6121	8541	30327	7549	23111	2413	1378	23033	6050
RAINBOW SMELT	0	0	1	1	0	0	0	0	0	0	0	0
STRIPED BASS (YOY)	993	1942	18649	15488	13398	12592	3275	5874	12588	9624	7457	4346
STRIPED BASS (OLDER)	178	49	29	157	159	76	169	170	134	65	273	106
STRIPED BASS (HATCHERY)	193	261	131	62	91	0	0	42	77	18	206	0
STRIPED BASS (OLDER-HAT)	0	4	3	1	0	1	0	0	4	1	5	1
MARINE												
ATLANTIC MENHADEN	1683*	5212	1075	187	182	1707	608	1269	17	769	70	381
ATLANTIC NEEDLEFISH	214	42	173	82	156	151	97	37	33	58	52	18
BAY ANCHOVY	4704*	1175	13601	4341	28284	2381	7314	8920	1703	40588	19579	5841
BLUEFISH (YOY)	1338	709	792	1092	451	664	291	295	583	237	326	164
BLUEFISH (OLDER)	0	0	2	4	1	2	0	0	0	0	0	0
BLUE SPOTTED CORNETFISH	0	0	0	0	0	0	0	0	0	0	0	0
BONEFISH	0	0	0	0	0	0	0	0	0	0	0	0
BUTTERFISH	0	0	0	0	10	0	0	0	1	1	0	5
CREVALLE JACK	54	21	8	45	64	39	20	5	20	16	17	10
CUNNER	0	0	1	1	0	0	0	0	0	0	0	0
GRAY SNAPPER	5	0	1	0	0	0	0	0	0	0	1	0
HICKORY SHAD	0	3	0	0	2	0	0	0	0	0	0	0
HOUNDFISH	0	0	0	0	1	0	0	0	0	0	0	0
INSHORE LIZARDFISH	10	0	0	0	1	18	30	20	16	5	0	0
LOOKDOWN	5	0	0	0	7	1	0	0	1	0	0	0
NAKED GOBY	4	15	45	14	16	30	37	18	3	1	45	0
NORTHERN KINGFISH	46	11	4	36	14	25	70	41	44	28	28	1
NORTHERN PIPEFISH	529	191	387	821	329	445	568	177	156	97	455	31
NORTHERN PUFFER	2	1	4	3	1	2	24	0	6	2	7	0
NORTHERN SENNET	1	0	0	0	1	0	0	0	0	0	0	0
NORTHERN STARGAZER	0	0	1	2	0	6	2	5	7	0	0	0
PIGFISH	0	0	0	0	0	0	0	0	0	5	0	0
PINFISH	0	0	0	0	0	0	0	0	0	2	0	0
PLANEHEAD FILEFISH	1	0	0	0	0	0	0	0	0	0	0	0
SILVER PERCH	1	0	0	3	0	0	20	18	58	77	2486	17
SILVERSIDE SP	4556	15510	4503	26454	1787	12052	31642	11109	20402	42428	36600	13445
SMALLMOUTH FLOUNDER	1	0	0	0	0	0	9	0	2	0	0	0
SPANISH MACKERAL	0	0	0	0	1	1	3	0	1	2	0	0
SPOT	114	690	59	170	2	371	4	3	216	61	7	77
SPOTFIN MOJARRA	0	0	0	0	0	0	0	1	0	1	0	0
SPOTTED HAKE	0	0	0	0	0	0	1	0	0	0	0	0
STRIPED ANCHOVY	70	5	0	2	0	0	4	32	2	2	2	4
STRIPED MULLET	7	66	5	0	0	0	1	0	0	0	0	0
STRIPED SEAROBIN	15	22	0	0	1	11	81	5	17	1	1	0
SUMMER FLOUNDER	51	93	2	3	13	17	45	47	45	51	26	20
TAUTOG	2	20	4	105	0	11	27	1	0	0	0	0
WEAKFISH	64	1	0	5	4	9	83	1	1	4	0	1
WHITE MULLET	9	10	1	15	14	22	38	1	33	8	6	0
WINDOWPANE FLOUNDER	0	0	1	1	0	3	0	3	1	1	0	1
WINTER FLOUNDER	544	201	39	175	65	168	140	294	241	96	137	50
ESTUARINE												
FOURSPINE STICKLEBACK	269	198	449	245	48	34	39	21	2	1	1	12
HOGCHOKER	1256	814	566	884	1566	529	350	891	296	537	540	93
KILLIFISH SPP.	3044	1500	3453	4137	865	1088	505	152	185	357	809	56
NORTHERN TONGUEFISH	0	0	0	0	0	0	2	0	0	0	0	0
THREE SPINE STICKLEBACK	0	0	41	0	0	0	0	0	0	0	0	0
WHITE PERCH (YOY)	1904	8208	2580	16665	7605	1634	502	1219	835	1340	424	621
WHITE PERCH (OLDER)	4427	6416	3530	4435	5978	2325	2100	1412	1735	1719	2454	1435
FRESHWATER												
BLACK CRAPPIE	0	0	0	0	2	0	0	0	1	0	0	0
BLUEGILL	10	89	77	64	50	25	3	1	3	50	8	3
BROWN BULLHEAD	1	1	4	10	146	13	1	1	0	6	0	3
CARP	41	37	41	49	71	59	14	31	17	39	21	19
CHAIN PICKEREL	0	0	0	0	10	2	1	0	1	0	0	0
FALLFISH	0	0	0	0	0	1	0	0	0	0	0	0
GIZZARD SHAD	1	0	41	1	5	6	0	0	0	2	15	1
GOLDEN SHINER	0	2	0	0	4	4	1	0	0	2	0	1
GOLDFISH	1	1	2	2	1	0	0	1	0	0	1	0
LARGE MOUTH BASS	0	6	5	2	7	4	3	0	0	5	3	1
PUMPKINSEED SUNFISH	64	37	19	16	27	23	6	0	1	29	34	6
REDBREAST SUNFISH	8	13	8	1	13	3	1	2	0	2	4	0
SMALL MOUTH BASS	0	0	0	0	0	1	0	0	0	0	0	0
SPOTTAIL SHINER	4	9	9	63	293	82	31	5	3	48	15	48
SWALLOWTAIL SHINER	0	0	0	0	0	0	0	0	0	0	0	0
TESSELLATED DARTER	2	9	59	26	53	48	11	17	40	36	5	31
WHITE CATFISH	27	501	56	37	41	23	11	10	11	7	11	4
WHITE SUCKER	0	2	5	2	9	0	1	1	0	3	1	1
YELLOW PERCH	5	3	3	1	3	4	1	0	0	0	0	2
TOTAL # SEINES	35620	51155	59792	85863	73667	70170	56079	58117	42493	102213	95822	35380
	216	222	225	220	225	217	215	221	225	221	221	204
TOTAL # SPECIES	47	43	45	45	49	47	49	41	43	48	40	38
# DIADROMOUS	6	8	7	7	6	6	6	6	6	6	6	6
# MARINE	26	20	20	21	23	22	25	22	25	26	18	16
# ESTUARINE	4	4	5	4	4	4	5	4	4	4	5	4
# FRESHWATER	11	13	13	13	16	15	13	9	8	12	11	12

* TOO NUMEROUS TO COUNT

Table 14

AMERICAN SHAD CATCH BY STATION ON THE HUDSON RIVER YOY STRIPED BASS SURVEY 1996

AMERICAN SHAD STAT #	RIVER MILE	WEEK 1 JULY 25-26	WEEK 2 AUG 6-7	WEEK 3 AUG 20-21	WEEK 4 SEPT 3-4	WEEK 5 SEPT 24-25	WEEK 6 OCT 1-2	WEEK 7 OCT 16-17	WEEK 8 NOV 4	WEEK 9 NOV 18	WEEKS 4-9 TOTAL	WEEKS 1-9 TOTAL	
EAST													
18E	23		2	0	0	3	0	0	0	1	4	5	
21E	23	65	3	1	0	5	0	2	4	0	11	80	
17E	24	34	6	0	0	0	0	6	0	1	7	47	
16E	25	15	2	0	0	0	0	2	1	4	7	24	
15E	27										0	0	
14E	29	4	1	1	0	0	0	20	1	0	21	27	
13E	29	3							0		0	3	
12E	29	2	10	0	0	0	0	33	2	0	35	47	
19E	33		4	2	0	0	4	7	0	0	11	17	
11E	34	26	8	3	0	0	6	3		0	9	46	
10E	34										0	0	
9E	34	89	3	22	0	0	0	38	0	0	38	152	
8E	35	144	53	94	7	0	90	4	5	1	77	368	
7WE	35	99	13				0	3	0	0	3	115	
7CE	35										0	0	
7EE	35	31	0				2	7			9	40	
71E	35										0	0	
6E	36										0	0	
5E	39	76				0	0				0	76	
4E	39	48	4	5	0	0	0	0			0	57	
3E	39	222	17	0	6	5	1	0			12	251	
WEST													
16SW	27										0	0	
16NW	27	2	2	2	0	0	3	2	0	0	5	11	
15SW	27	2	0	0	0	0	0	1	0	0	1	3	
15NW	27										0	0	
14W	29	11	2	3	0	0	3	1	0	0	4	20	
13W	29										0	0	
12W	30	4	0	6	3	1	4	4	0	1	13	23	
11W	32	2	2	1	1			8			9	14	
10W	35	57	21	1	0	0	8	8	2	1	19	96	
9W	35	16	3	5	0	0	2	33	0	0	35	59	
8W	36	45	3	13	10	0	1	2	0	0	13	74	
7W	37		2	4	8	0	0	8	0	2	18	24	
5W	39		1	0	0	0	0	0			0	0	
4W	39		1	3	1	0	6	7			14	18	
3W	39										0	0	
TOTAL		997	163	166	36	14	100	199	15	11	375	1701	
# SEINES		22	25	23	23	23	25	25	19	19	134	204	
CI		45.3	6.5	7.2	1.6	0.6	4.0	8.0	0.8	0.6	2.8	8.0	
STD		55.0	11.1	19.6	3.0	1.5	11.9	11.0	1.5	1.0	7.6	24.0	
MIN		2	0	0	0	0	0	0	0	0	0	0	
MAX		222	53	94	10	5	60	38	5	4	60	222	
# ZEROS		0	3	7	16	19	13	4	13	12	77	37	

Table 15

AMERICAN SHAD MEASURED ON THE HUDSON RIVER YOY STRIPED BASS SURVEY 1996

AMERICAN SHAD (TL) mm	WEEK 1 JULY 25-26	WEEK 2 AUG 6-7	WEEK 3 AUG 20-21	WEEK 4 SEPT 3-4	WEEK 5 SEPT 24-25	WEEK 6 OCT 1-2	WEEK 7 OCT 16-17	WEEK 8 NOV 4	WEEK 9 NOV 18	WEEKS 4-9 TOTAL	WEEKS 1-9 TOTAL
0-19	0	0	0	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0	0	0	0
30-34	1	1	0	0	0	0	0	0	0	0	2
35-39	3	0	0	0	0	0	0	0	0	0	3
40-44	89	5	1	0	0	0	0	0	0	0	95
45-49	182	47	5	0	0	0	0	0	0	0	234
50-54	99	70	33	5	1	0	0	0	0	6	208
55-59	37	14	31	6	1	3	0	0	0	10	92
60-64	6	1	13	14	3	16	4	4	0	41	61
65-69	5	1	0	9	4	26	37	3	3	82	88
70-74	0	0	0	2	4	13	61	6	4	90	90
75-79	0	0	0	0	0	3	32	2	4	41	41
80-84	0	1	0	0	1	1	18	0	0	20	21
85-89	0	0	0	0	0	0	2	0	0	2	2
90-94	0	0	0	0	0	0	1	0	0	1	1
95-99	0	0	0	0	0	0	0	0	0	0	0
100-104	0	0	0	0	0	0	0	0	0	0	0
105-109	0	0	0	0	0	0	0	0	0	0	0
110-114	0	0	0	0	0	0	0	0	0	0	0
115-119	0	0	0	0	0	0	0	0	0	0	0
120-124	0	0	0	0	0	0	0	0	0	0	0
125-129	0	0	0	0	0	0	0	0	0	0	0
130-134	0	0	0	0	0	0	0	0	0	0	0
135-139	0	0	0	0	0	0	0	0	0	0	0
140-144	0	0	0	0	0	0	0	0	0	0	0
145-149	0	0	0	0	0	0	0	0	0	0	0
150-154	0	0	0	0	0	0	0	0	0	0	0
155-159	0	0	0	0	0	0	0	0	0	0	0
160-164	0	0	0	0	0	0	0	0	0	0	0
165-169	0	0	0	0	0	0	0	0	0	0	0
170-174	0	0	0	0	0	0	0	0	0	0	0
175-179	0	0	0	0	0	0	0	0	0	0	0
180-184	0	0	0	0	0	0	0	0	0	0	0
185-189	0	0	0	0	0	0	0	0	0	0	0
190-194	0	0	0	0	0	0	0	0	0	0	0
195-199	0	0	0	0	0	0	0	0	0	0	0
200-204	0	0	0	0	0	0	0	0	0	0	0
205-209	0	0	0	0	0	0	0	0	0	0	0
210-214	0	0	0	0	0	0	0	0	0	0	0
215-219	0	0	0	0	0	0	0	0	0	0	0
220-224	0	0	0	0	0	0	0	0	0	0	0
225-229	0	0	0	0	0	0	0	0	0	0	0
230-234	0	0	0	0	0	0	0	0	0	0	0
235-239	0	0	0	0	0	0	0	0	0	0	0
240-244	0	0	0	0	0	0	0	0	0	0	0
245-249	0	0	0	0	0	0	0	0	0	0	0
250-254	0	0	0	0	0	0	0	0	0	0	0
255-259	0	0	0	0	0	0	0	0	0	0	0
260-264	0	0	0	0	0	0	0	0	0	0	0
265-269	0	0	0	0	0	0	0	0	0	0	0
270-274	0	0	0	0	0	0	0	0	0	0	0
275-279	0	0	0	0	0	0	0	0	0	0	0
280-284	0	0	0	0	0	0	0	0	0	0	0
285-289	0	0	0	0	0	0	0	0	0	0	0
290-294	0	0	0	0	0	0	0	0	0	0	0
295-299	0	0	0	0	0	0	0	0	0	0	0
>300	0	0	0	0	0	0	0	0	0	0	0
NO TL	575	23	83	0	0	38	44	0	0	82	763
TOTAL	997	163	166	36	14	100	199	15	11	375	1701
MEAN TL	48.2	50.4	55.0	61.1	66.3	67.1	73.1	68.7	72.5		

Table 16

BLUEFISH CATCH BY STATION ON THE HUDSON RIVER YOY STRIPED BASS SURVEY 1996

BLUEFISH		WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6	WEEK 7	WEEK 8	WEEK 9	WEEKS	WEEKS
STAT #	RIVER	JULY	AUG	AUG	SEPT	SEPT	OCT	OCT	NOV	NOV	4-9	1-9
	MILE	25-26	6-7	20-21	3-4	24-25	1-2	16-17	4	18	TOTAL	TOTAL
EAST												
18E	23		1	4	2	1	0	1	0	0	4	9
21E	23	4	1	0	2	1	0	0	0	0	3	8
17E	24	0	1	2	0	1	1	1	0	0	3	6
16E	25	1	4	1	1	3	0	0	0	0	4	10
15E	27										0	0
14E	29	0	4	0	1	0	0	0	0	0	1	5
13E	29	3							0		0	3
12E	29	1	0	1	1	2	0	0	0	0	3	5
19E	33		0	0	2	0	0	0	0	0	2	2
11E	34	1	0	3	4	2	0	0		0	6	10
10E	34										0	0
9E	34	2	0	1	3	0	0	0	0	0	3	6
8E	35	10	3	9	10	0	0	0	0	0	10	32
7WE	35	0	4				0	0	0	0	0	4
7CE	35										0	0
7EE	35	3	0				2	0			2	5
71E	35										0	0
6E	36										0	0
5E	39	2				1	0				1	3
4E	39	1	0	3	1	1	0	0			2	5
3E	39	0	3	0	1	0	0	0			1	4
WEST												
16SW	27										0	0
16NW	27	2	0	1	0	0	0	0	0	0	0	3
15SW	27	2	5	0	3	2	0	0	0	0	5	12
15NW	27										0	0
14W	29	0	0	1	0	0	0	0	0	0	0	1
13W	29										0	0
12W	30	2	1	0	0	0	1	0	0	0	1	4
11W	32	1	1	1	0			0			0	3
10W	35	1	0	1	0	0	0	0	0	0	0	1
9W	35	0	2	0	0	3	0	0	0	0	3	5
8W	36	4	2	0	0	1	1	0	0	0	2	5
7W	37		1	1	0	0	0	0	0	0	0	2
5W	39		1	1	0	0	0	0			0	2
4W	39		3	0	1	0	0	0			1	4
3W	39										0	0
TOTAL		40	37	30	32	18	5	2	0	0	57	162
# SEINES		22	25	23	23	23	25	25	19	19	134	204
C/f		1.8	1.5	1.3	1.4	0.8	0.2	0.1	0.0	0.0	0.4	0.8
STD		2.2	1.6	2.0	2.2	1.0	0.5	0.3	0.0	0.0	1.1	1.5
MIN		0	0	0	0	0	0	0	0	0	0	0
MAX		10	5	9	10	3	2	1	0	0	10	10
# ZEROS		7	10	9	11	13	21	23	25	25	118	144

Table 17

BLUEFISH MEASURED ON THE HUDSON RIVER YOY STRIPED BASS SURVEY 1996

BLUEFISH (TL) mm	WEEK 1 JULY 25-26	WEEK 2 AUG 6-7	WEEK 3 AUG 20-21	WEEK 4 SEPT 3-4	WEEK 5 SEPT 24-25	WEEK 6 OCT 1-2	WEEK 7 OCT 16-17	WEEK 8 NOV 4	WEEK 9 NOV 18	WEEKS 4-9 TOTAL	WEEKS 1-9 TOTAL
0-19	0	0	0	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0	0	0	0
50-54	0	1	0	0	0	0	0	0	0	0	1
55-59	0	0	1	0	0	0	0	0	0	0	1
60-64	0	0	0	0	0	0	0	0	0	0	0
65-69	0	0	0	0	0	0	0	0	0	0	0
70-74	0	0	0	0	1	0	0	0	0	1	1
75-79	0	0	0	0	0	0	0	0	0	0	0
80-84	0	0	0	0	0	0	0	0	0	0	0
85-89	4	0	0	0	0	0	0	0	0	0	4
90-94	4	1	0	0	0	0	0	0	0	0	5
95-99	5	0	0	0	0	0	0	0	0	0	5
100-104	6	0	0	0	0	0	0	0	0	0	6
105-109	5	3	0	0	0	0	0	0	0	0	8
110-114	4	3	0	0	2	0	0	0	0	2	9
115-119	0	2	0	0	0	0	0	0	0	0	2
120-124	2	5	1	0	0	0	0	0	0	0	8
125-129	3	5	0	0	0	0	0	0	0	0	8
130-134	2	4	3	2	0	0	0	0	0	2	11
135-139	2	7	6	0	1	0	0	0	0	1	16
140-144	0	1	1	0	0	0	0	0	0	0	2
145-149	1	2	1	0	1	0	0	0	0	1	5
150-154	0	0	2	3	0	0	0	0	0	3	5
155-159	0	1	2	1	0	0	0	0	0	1	4
160-164	0	0	5	4	0	0	0	0	0	4	9
165-169	1	0	3	3	0	0	0	0	0	3	7
170-174	0	1	0	4	1	0	1	0	0	6	7
175-179	1	0	1	5	4	0	0	0	0	9	11
180-184	0	0	0	3	3	0	1	0	0	7	7
185-189	0	0	2	3	0	0	0	0	0	3	5
190-194	0	0	1	0	2	1	0	0	0	3	4
195-199	0	1	0	1	0	0	0	0	0	1	2
200-204	0	0	0	1	0	1	0	0	0	2	2
205-209	0	0	1	0	0	0	0	0	0	0	1
210-214	0	0	0	2	0	1	0	0	0	3	3
215-219	0	0	0	0	1	0	0	0	0	1	1
220-224	0	0	0	0	1	0	0	0	0	1	1
225-229	0	0	0	0	0	0	0	0	0	0	0
230-234	0	0	0	0	0	0	0	0	0	0	0
235-239	0	0	0	0	0	0	0	0	0	0	0
240-244	0	0	0	0	0	0	0	0	0	0	0
245-249	0	0	0	0	0	0	0	0	0	0	0
250-254	0	0	0	0	0	0	0	0	0	0	0
255-259	0	0	0	0	0	0	0	0	0	0	0
260-264	0	0	0	0	0	0	0	0	0	0	0
265-269	0	0	0	0	0	0	0	0	0	0	0
270-274	0	0	0	0	0	0	0	0	0	0	0
275-279	0	0	0	0	0	0	0	0	0	0	0
280-284	0	0	0	0	0	0	0	0	0	0	0
285-289	0	0	0	0	0	0	0	0	0	0	0
290-294	0	0	0	0	0	0	0	0	0	0	0
295-299	0	0	0	0	0	0	0	0	0	0	0
>300	0	0	0	0	1	1	0	0	0	2	2
NO TL	0	0	0	0	0	1	0	0	0	1	1
TOTAL	40	37	30	32	18	5	2	0	0	57	164
MEAN TL	111.1	127.7	151.6	172.7	174.4	233.0	175.5				
# SEINES	22	25	23	23	23	25	25	19	19	134	204

Table 18

WINTER FLOUNDER MEASURED ON THE HUDSON RIVER YOY STRIPED BASS SURVEY 1996

WINTER FLOUNDER (TL) mm	WEEK 1 JULY 25-26	WEEK 2 AUG 6-7	WEEK 3 AUG 20-21	WEEK 4 SEPT 3-4	WEEK 5 SEPT 24-25	WEEK 6 OCT 1-2	WEEK 7 OCT 16-17	WEEK 8 NOV 4	WEEK 9 NOV 18	WEEKS 4-9 TOTAL	WEEKS 1-9 TOTAL
0-19	0	0	0	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0	0	0	0
35-39	0	1	0	0	0	0	0	0	0	0	1
40-44	0	0	0	0	0	0	0	0	0	0	0
45-49	0	2	0	0	0	0	0	0	0	0	2
50-54	0	1	0	1	0	0	0	0	0	1	2
55-59	0	3	1	0	0	0	0	0	0	0	4
60-64	0	3	4	0	0	0	0	0	0	0	7
65-69	0	6	1	1	0	0	0	0	0	1	8
70-74	0	0	0	0	0	1	0	0	0	1	1
75-79	0	0	0	0	1	1	0	0	0	2	2
80-84	0	0	0	0	0	0	1	0	0	1	1
85-89	0	0	0	0	0	1	5	1	0	7	7
90-94	0	0	0	0	1	0	2	0	0	3	3
95-99	0	0	0	0	0	0	2	0	0	2	2
100-104	0	0	0	0	0	0	0	0	0	0	0
105-109	0	0	0	0	0	0	0	0	0	0	0
110-114	0	0	0	0	0	0	2	0	1	3	3
115-119	0	0	0	0	0	0	1	0	0	1	1
120-124	0	0	0	0	0	0	1	0	0	1	1
125-129	0	1	0	0	0	0	0	0	0	0	1
130-134	0	0	0	0	0	0	1	0	0	1	1
135-139	0	0	0	0	0	0	0	0	0	0	0
140-144	0	0	0	0	0	0	0	0	0	0	0
145-149	0	0	0	0	0	0	0	0	0	0	0
150-154	0	0	0	0	0	0	0	0	0	0	0
155-159	0	0	0	0	0	0	0	0	0	0	0
160-164	0	0	0	0	0	0	1	0	0	1	1
165-169	0	0	0	0	0	0	0	0	0	0	0
170-174	0	0	0	0	0	0	0	0	0	0	0
175-179	0	0	0	0	0	0	0	0	0	0	0
180-184	0	0	0	0	1	0	0	0	0	1	1
185-189	0	0	0	0	0	0	0	0	0	0	0
190-194	0	0	0	0	0	0	0	0	0	0	0
195-199	0	0	0	0	0	0	0	0	0	0	0
200-204	0	0	0	0	0	0	0	0	0	0	0
205-209	0	0	0	0	0	0	0	0	0	0	0
210-214	0	0	0	0	0	0	0	0	0	0	0
215-219	0	0	0	0	0	0	0	0	0	0	0
220-224	0	0	0	0	0	0	0	0	0	0	0
225-229	0	0	0	0	0	0	0	0	0	0	0
230-234	0	0	0	0	1	0	0	0	0	1	1
235-239	0	0	0	0	0	0	0	0	0	0	0
240-244	0	0	0	0	0	0	0	0	0	0	0
245-249	0	0	0	0	0	0	0	0	0	0	0
250-254	0	0	0	0	0	0	0	0	0	0	0
255-259	0	0	0	0	0	0	0	0	0	0	0
260-264	0	0	0	0	0	0	0	0	0	0	0
265-269	0	0	0	0	0	0	0	0	0	0	0
270-274	0	0	0	0	0	0	0	0	0	0	0
275-279	0	0	0	0	0	0	0	0	0	0	0
280-284	0	0	0	0	0	0	0	0	0	0	0
285-289	0	0	0	0	0	0	0	0	0	0	0
290-294	0	0	0	0	0	0	0	0	0	0	0
295-299	0	0	0	0	0	0	0	0	0	0	0
>300	0	0	0	0	0	0	0	0	0	0	0
NO TL	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	17	6	2	4	3	16	1	1	27	50
MEAN TL		63.3	62.2	59.5	144.5	79.3	103.0	87.0	111.0		

Table 19

TOMCOD CATCH BY STATION ON THE HUDSON RIVER YOY STRIPED BASS SURVEY 1996

TOMCOD STAT #	RIVER MILE	WEEK 1 JULY 25-26	WEEK 2 AUG 6-7	WEEK 3 AUG 20-21	WEEK 4 SEPT 3-4	WEEK 5 SEPT 24-25	WEEK 6 OCT 1-2	WEEK 7 OCT 16-17	WEEK 8 NOV 4	WEEK 9 NOV 18	WEEKS 4-9 TOTAL	WEEKS 1-9 TOTAL	
EAST													
18E	23		0	0	0	0	0	0	0	1	1	1	
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	
14E	29	0	0	0	0	0	0	0	0	0	0	0	
13E	29	1							0		0	1	
12E	29	0	0	0	0	0	0	0	0	1	1	1	
19E	33		0	0	0	0	0	0	0	0	0	0	
11E	34	0	0	0	0	0	0	0		0	0	0	
10E	34										0	0	
9E	34	0	0	0	0	0	0	0	0	0	0	0	
8E	35	3	4	0	0	0	0	0	0	0	0	7	
7WE	35	0	0				0	0	0	0	0	0	
7CE	35										0	0	
7EE	35	0	0				0	0			0	0	
71E	35										0	0	
6E	36										0	0	
5E	39	0				0	0				0	0	
4E	39	1	0	0	0	0	0	0			0	1	
3E	39	0	0	0	0	0	0	0			0	0	
WEST													
16SW	27										0	0	
16NW	27	3	0	0	0	0	0	0	0	0	0	3	
15SW	27	0	0	0	0	0	0	0	0	0	0	0	
15NW	27										0	0	
14W	29	0	4	0	0	0	0	0	0	0	0	4	
13W	29										0	0	
12W	30	22	23	5	0	1	0	1	2	0	4	54	
11W	32	0	0	0	0		0	0			0	0	
10W	35	12	10	0	1	0	0	0	0	0	1	23	
9W	35	0	0	0	0	0	0	0	0	0	0	0	
8W	36	0	0	0	0	0	0	0	0	0	0	0	
7W	37		1	1	0	0	0	0	0	0	0	2	
5W	39		0	0	0	0	0	0			0	0	
4W	39		0	0	0	0	0	0			0	0	
3W	39										0	0	
TOTAL		42	42	5	1	1	0	1	2	2	7	97	
# SEINES		22	25	23	23	23	25	25	19	19	134	204	
C#		1.9	1.7	0.3	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.5	
STD		5.2	5.0	1.1	0.2	0.2	0.0	0.2	0.5	0.3	0.3	2.5	
MIN		0	0	0	0	0	0	0	0	0	0	0	
MAX		22	23	5	1	1	0	1	2	1	2	23	
# ZEROS		16	20	21	22	22	25	24	18	17	128	185	

Table 20

TOMCOD MEASURED ON THE HUDSON RIVER YOY STRIPED BASS SURVEY 1996

TOMCOD (TL) mm	WEEK 1 JULY 25-26	WEEK 2 AUG 6-7	WEEK 3 AUG 20-21	WEEK 4 SEPT 3-4	WEEK 5 SEPT 24-25	WEEK 6 OCT 1-2	WEEK 7 OCT 16-17	WEEK 8 NOV 4	WEEK 9 NOV 18	WEEKS 4-9 TOTAL	WEEKS 1-9 TOTAL
0-19	0	0	0	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0	0	0	0
65-69	1*	1	0	0	0	0	0	0	0	0	2
70-74	2	3	1	0	0	0	0	0	0	0	6
75-79	1	8	1	0	0	0	0	0	0	0	10
80-84	13	8	3	0	0	0	0	0	0	0	24
85-89	10	9	0	1	0	0	0	0	0	1	20
90-94	7	9	0	0	0	0	0	0	0	0	16
95-99	4	2	0	0	0	0	0	0	0	0	6
100-104	3	1	0	0	1	0	1	0	0	2	6
105-109	0	1	0	0	0	0	0	0	0	0	1
110-114	1	0	0	0	0	0	0	1	0	1	2
115-119	0	0	0	0	0	0	0	1	0	1	1
120-124	0	0	0	0	0	0	0	0	0	0	0
125-129	0	0	0	0	0	0	0	0	0	0	0
130-134	0	0	0	0	0	0	0	0	1	1	1
135-139	0	0	0	0	0	0	0	0	0	0	0
140-144	0	0	0	0	0	0	0	0	0	0	0
145-149	0	0	0	0	0	0	0	0	0	0	0
150-154	0	0	0	0	0	0	0	0	0	0	0
155-159	0	0	0	0	0	0	0	0	0	0	0
160-164	0	0	0	0	0	0	0	0	0	0	0
165-169	0	0	0	0	0	0	0	0	0	0	0
170-174	0	0	0	0	0	0	0	0	0	0	0
175-179	0	0	0	0	0	0	0	0	1	1	1
180-184	0	0	0	0	0	0	0	0	0	0	0
185-189	0	0	0	0	0	0	0	0	0	0	0
190-194	0	0	0	0	0	0	0	0	0	0	0
195-199	0	0	0	0	0	0	0	0	0	0	0
200-204	0	0	0	0	0	0	0	0	0	0	0
205-209	0	0	0	0	0	0	0	0	0	0	0
210-214	0	0	0	0	0	0	0	0	0	0	0
215-219	0	0	0	0	0	0	0	0	0	0	0
220-224	0	0	0	0	0	0	0	0	0	0	0
225-229	0	0	0	0	0	0	0	0	0	0	0
230-234	0	0	0	0	0	0	0	0	0	0	0
235-239	0	0	0	0	0	0	0	0	0	0	0
240-244	0	0	0	0	0	0	0	0	0	0	0
245-249	0	0	0	0	0	0	0	0	0	0	0
250-254	0	0	0	0	0	0	0	0	0	0	0
255-259	0	0	0	0	0	0	0	0	0	0	0
260-264	0	0	0	0	0	0	0	0	0	0	0
265-269	0	0	0	0	0	0	0	0	0	0	0
270-274	0	0	0	0	0	0	0	0	0	0	0
275-279	0	0	0	0	0	0	0	0	0	0	0
280-284	0	0	0	0	0	0	0	0	0	0	0
285-289	0	0	0	0	0	0	0	0	0	0	0
290-294	0	0	0	0	0	0	0	0	0	0	0
295-299	0	0	0	0	0	0	0	0	0	0	0
>300	0	0	0	0	0	0	0	0	0	0	0
NO TL	0	0	1	0	0	0	0	0	0	0	1
TOTAL	42	42	6	1	1	0	1	2	2	7	97
MEAN TL	87.4	84.8	79.6	85.0	100.0		100.0	111.5	153.5		

FIGURE 1

NYS DEC YOY STRIPED BASS SEINE STATIONS

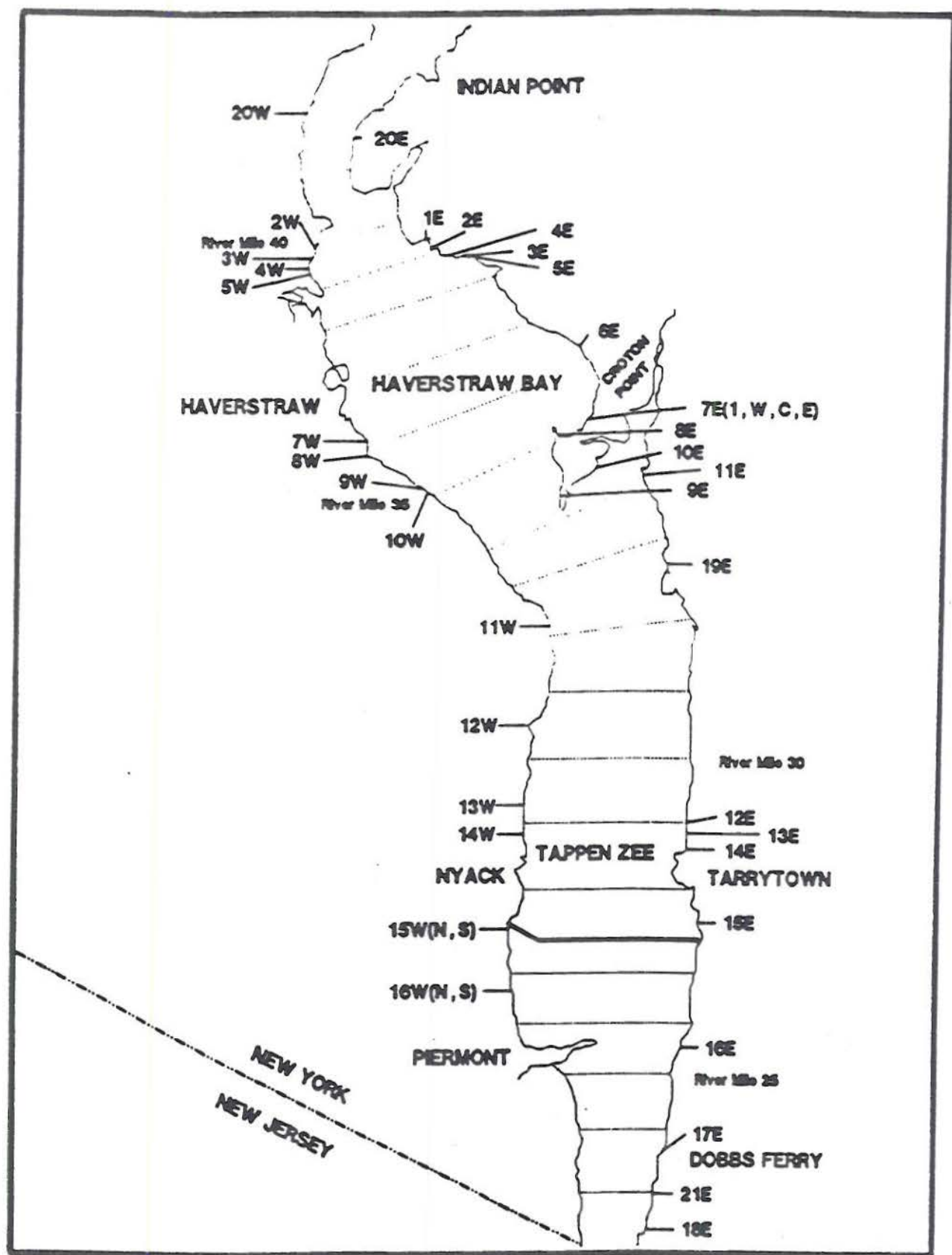


Figure 2

HUDSON RIVER YOY STRIPED BASS INDEX

200 FOOT BEACH SEINE

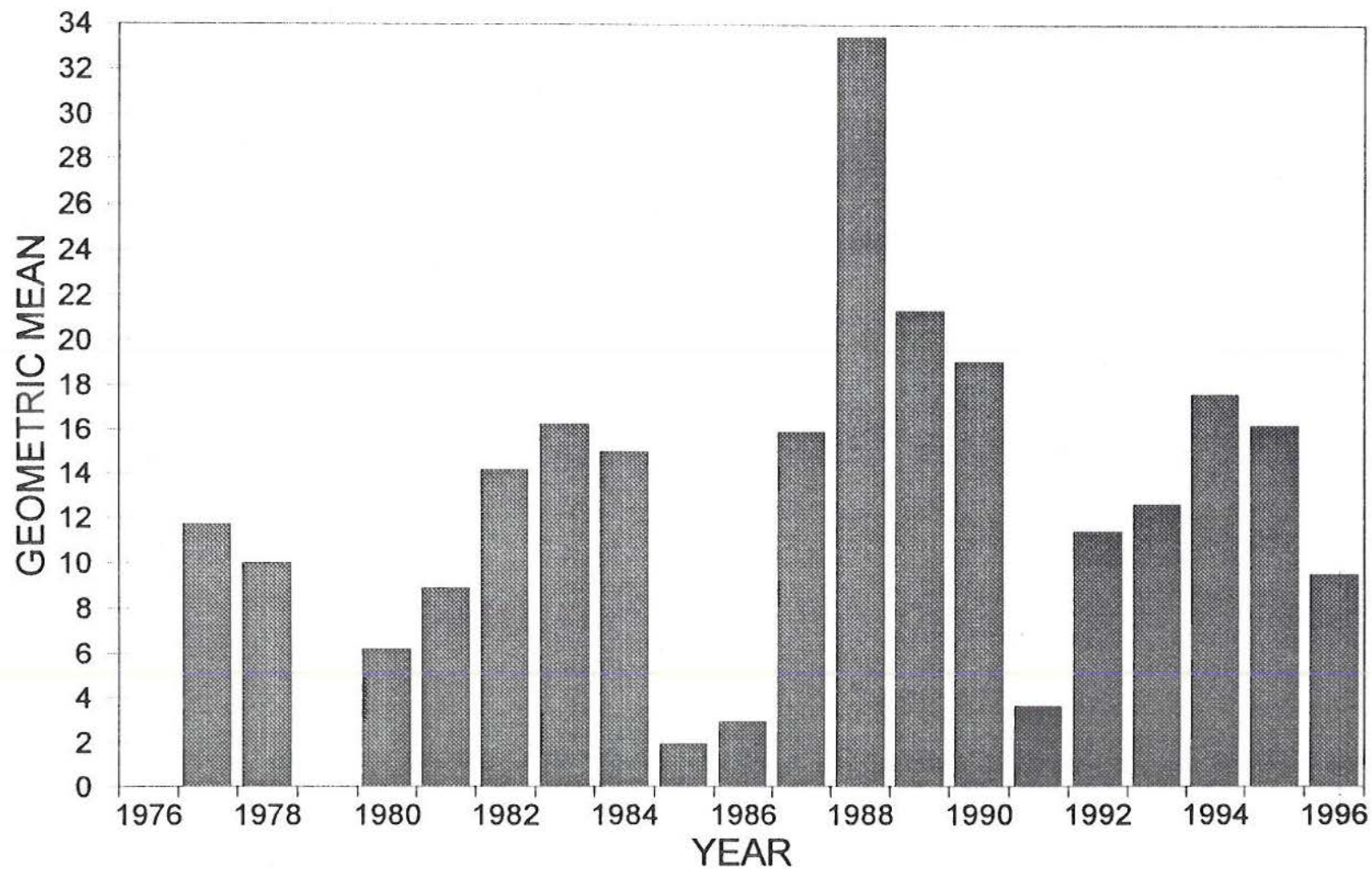


Figure 3

1996 HUDSON RIVER YOY STRIPED BASS

BI-WEEKLY CPUE

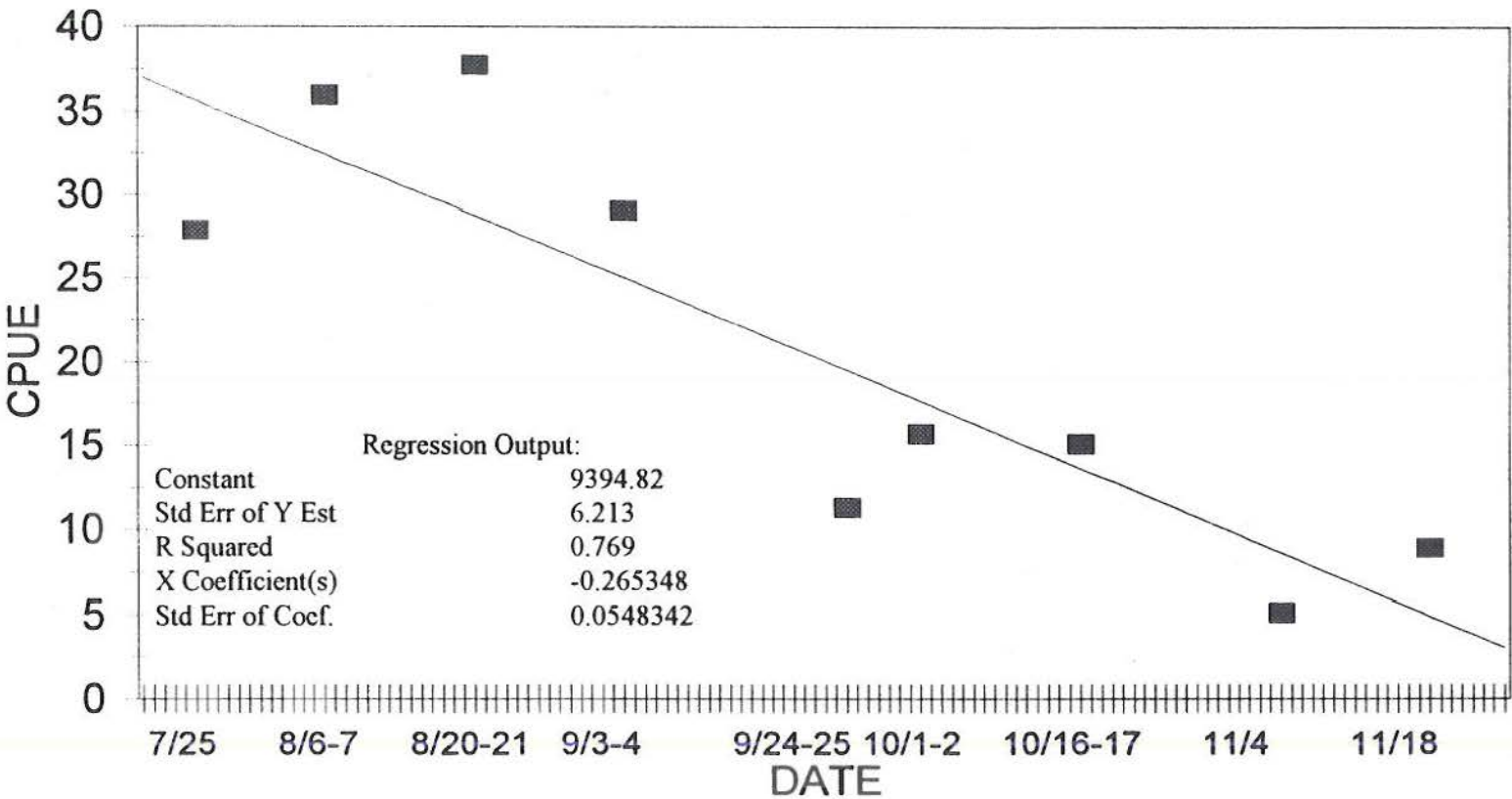


Figure 4

HUDSON RIVER YOY STRIPED BASS

CPUE MEASURED FROM FIRST 5% PYSL

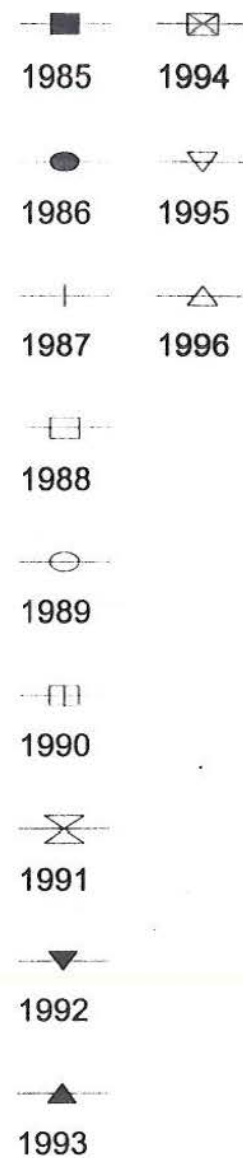
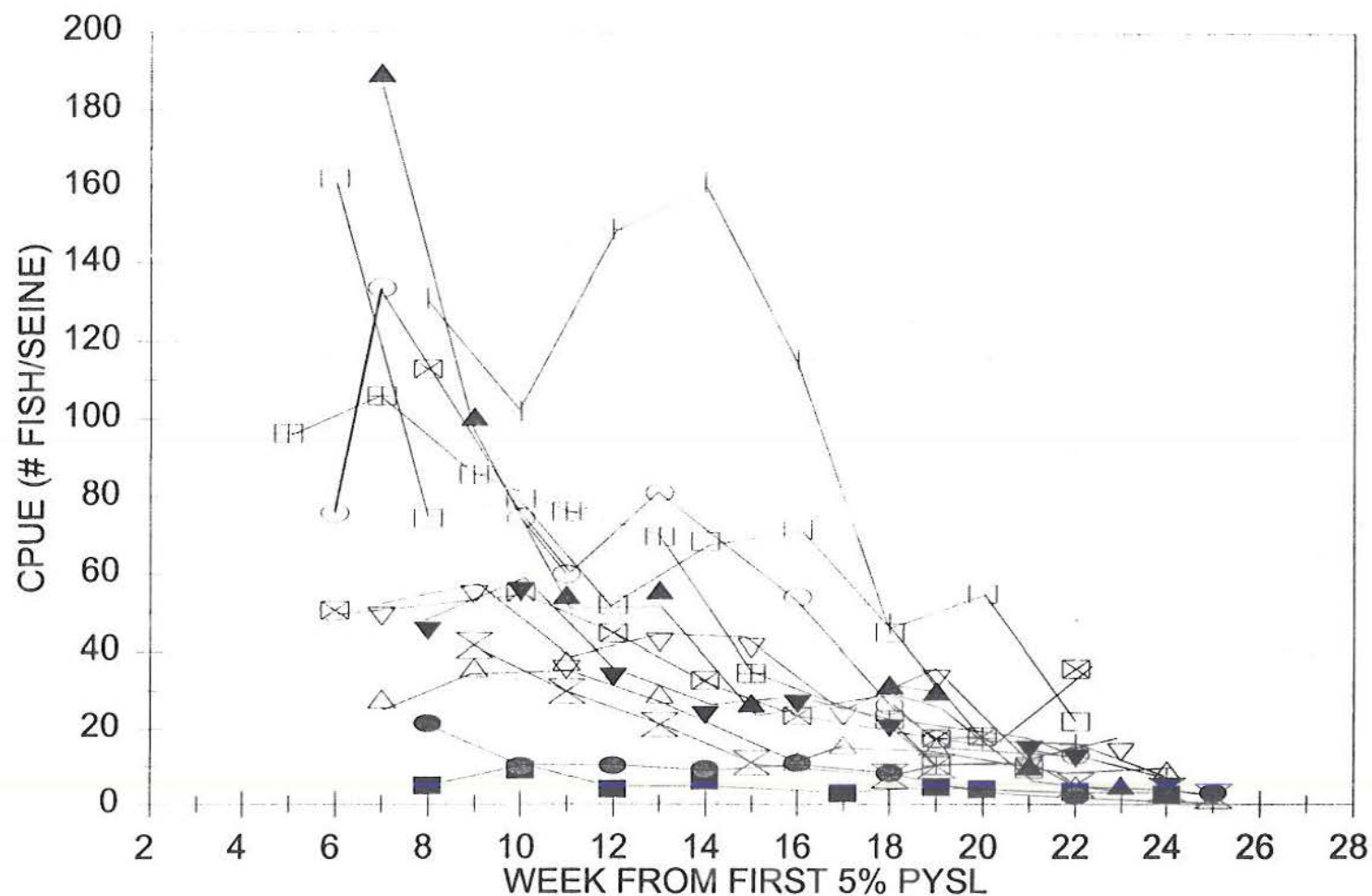


Figure 5

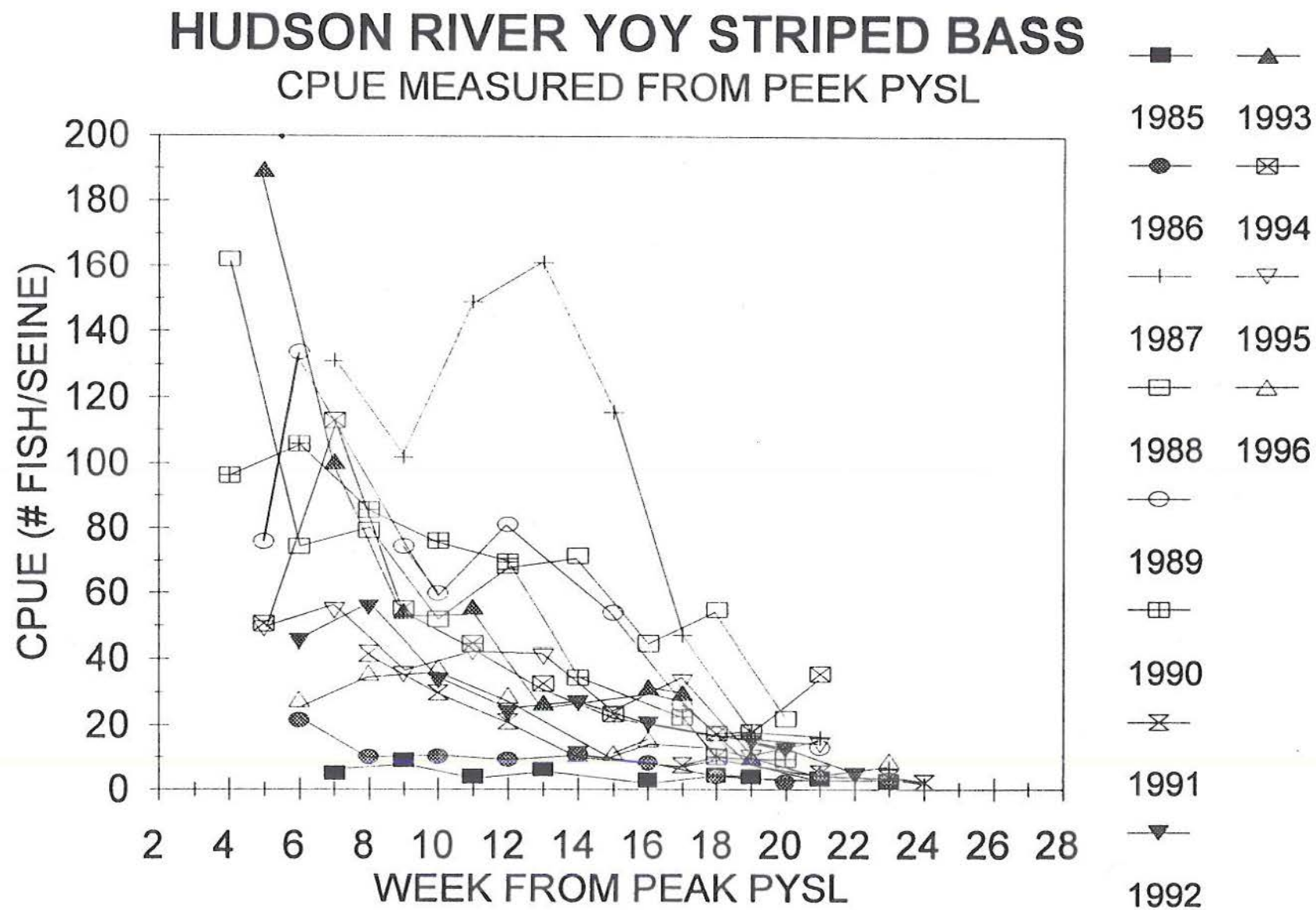


Figure 6

1996 C/F BY STATION FOR WEEKS 4 - 9

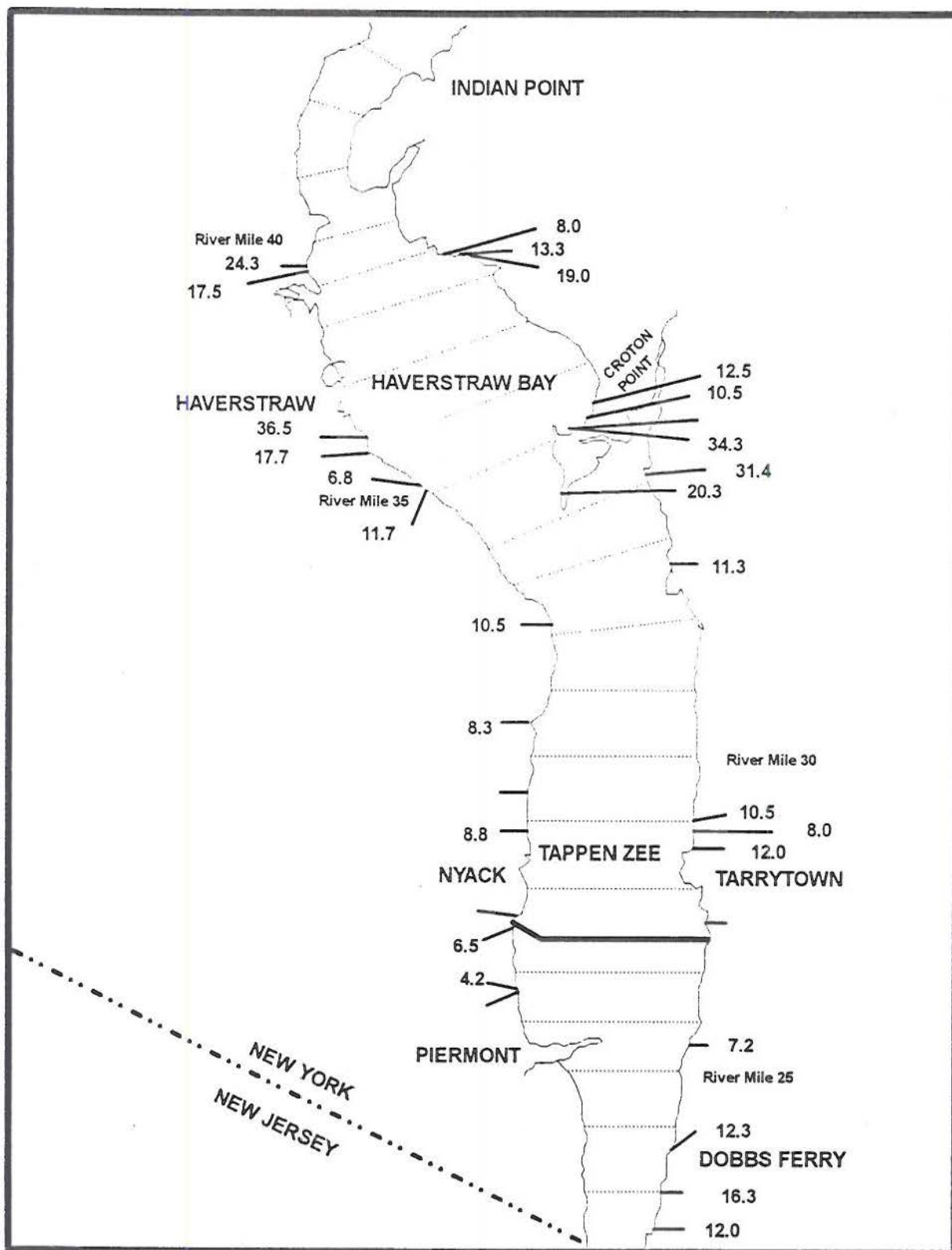


Figure 7

SIZE DISTRIBUTION OF YOY STRIPED BASS FROM THE HUDSON RIVER 1996

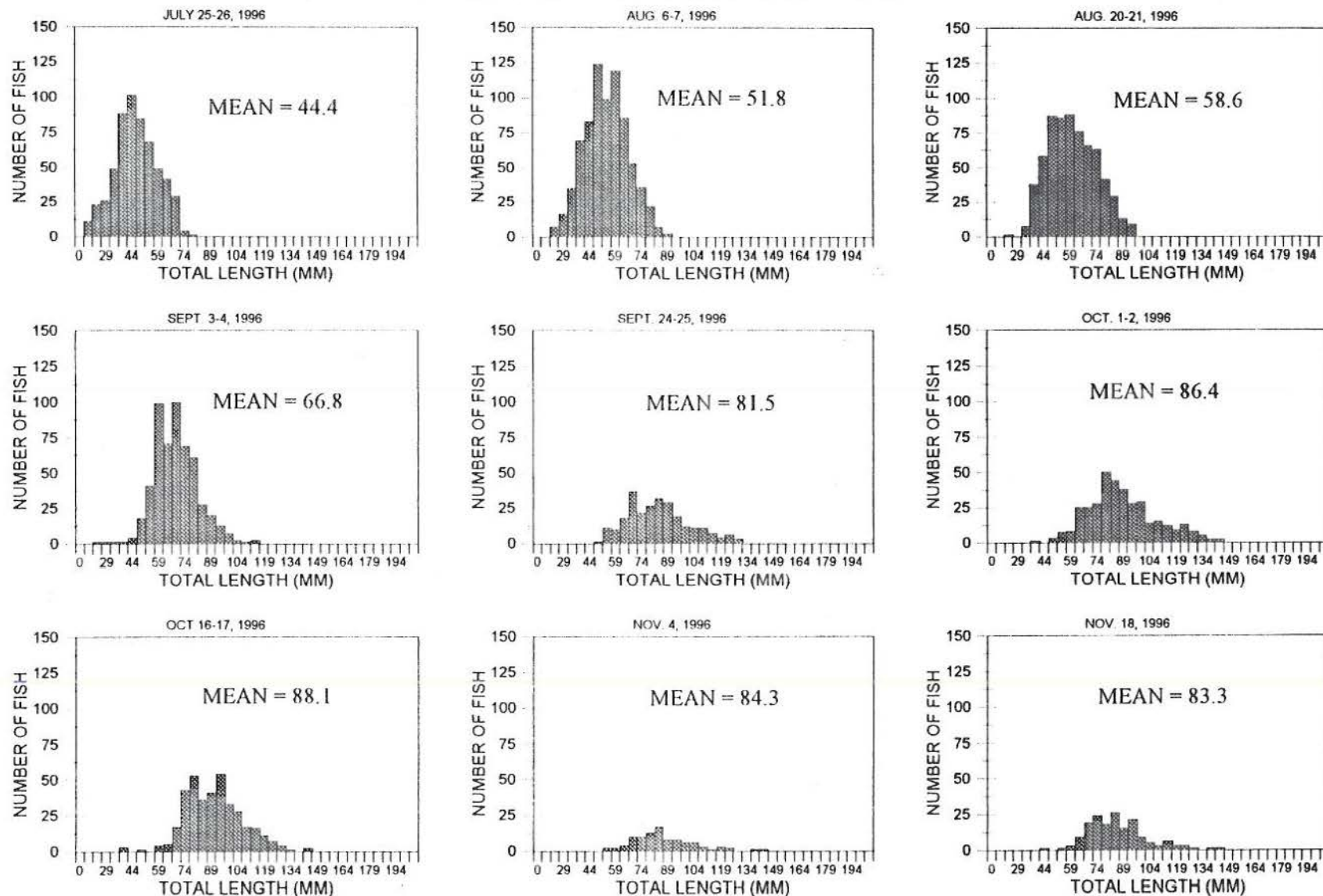


Figure 8

1996 HUDSON RIVER YOY STRIPED BASS BI-WEEKLY GROWTH

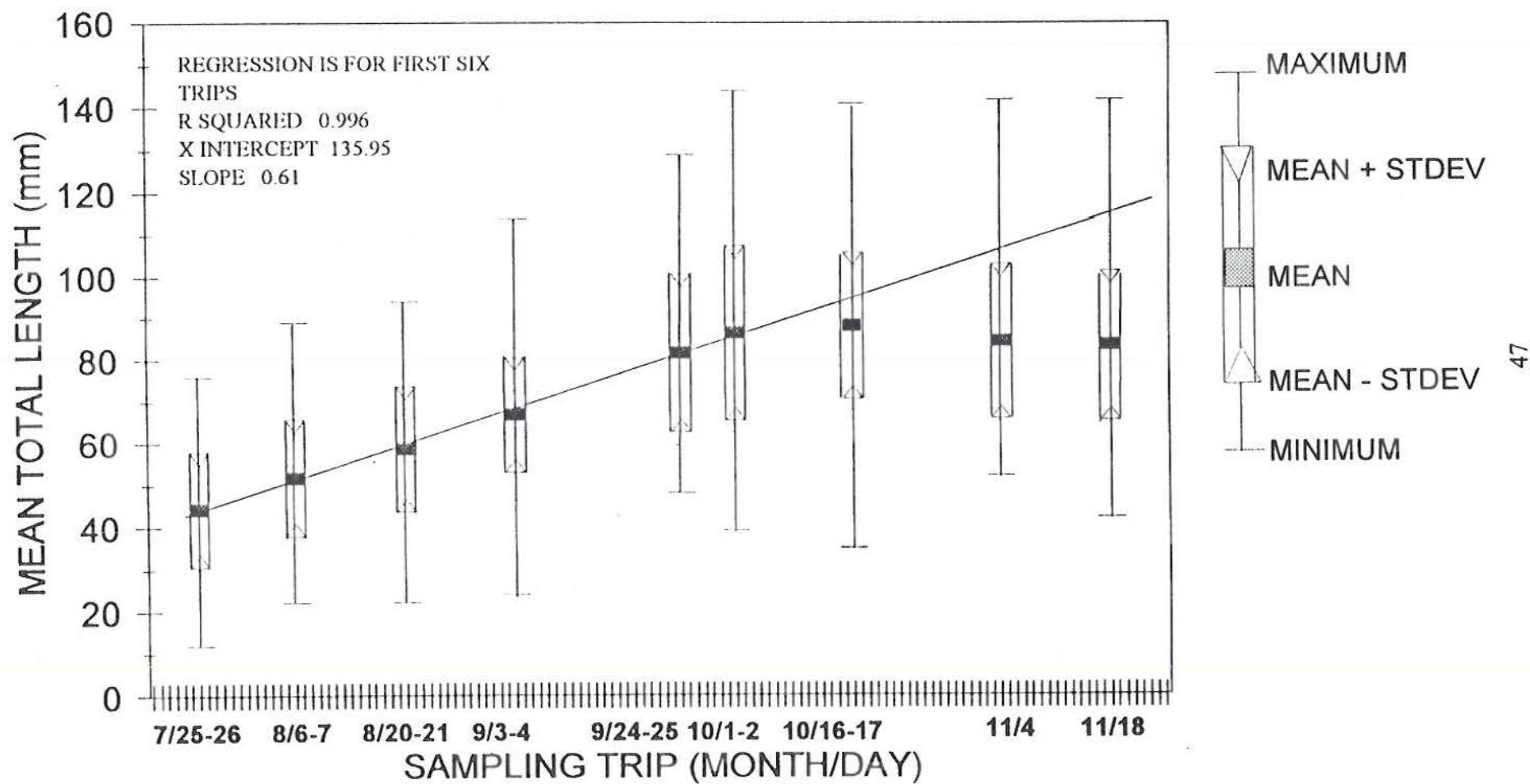


Figure 9

1996 HUDSON AND WLI YOY STRIPED BASS

GROWTH BY TRIP

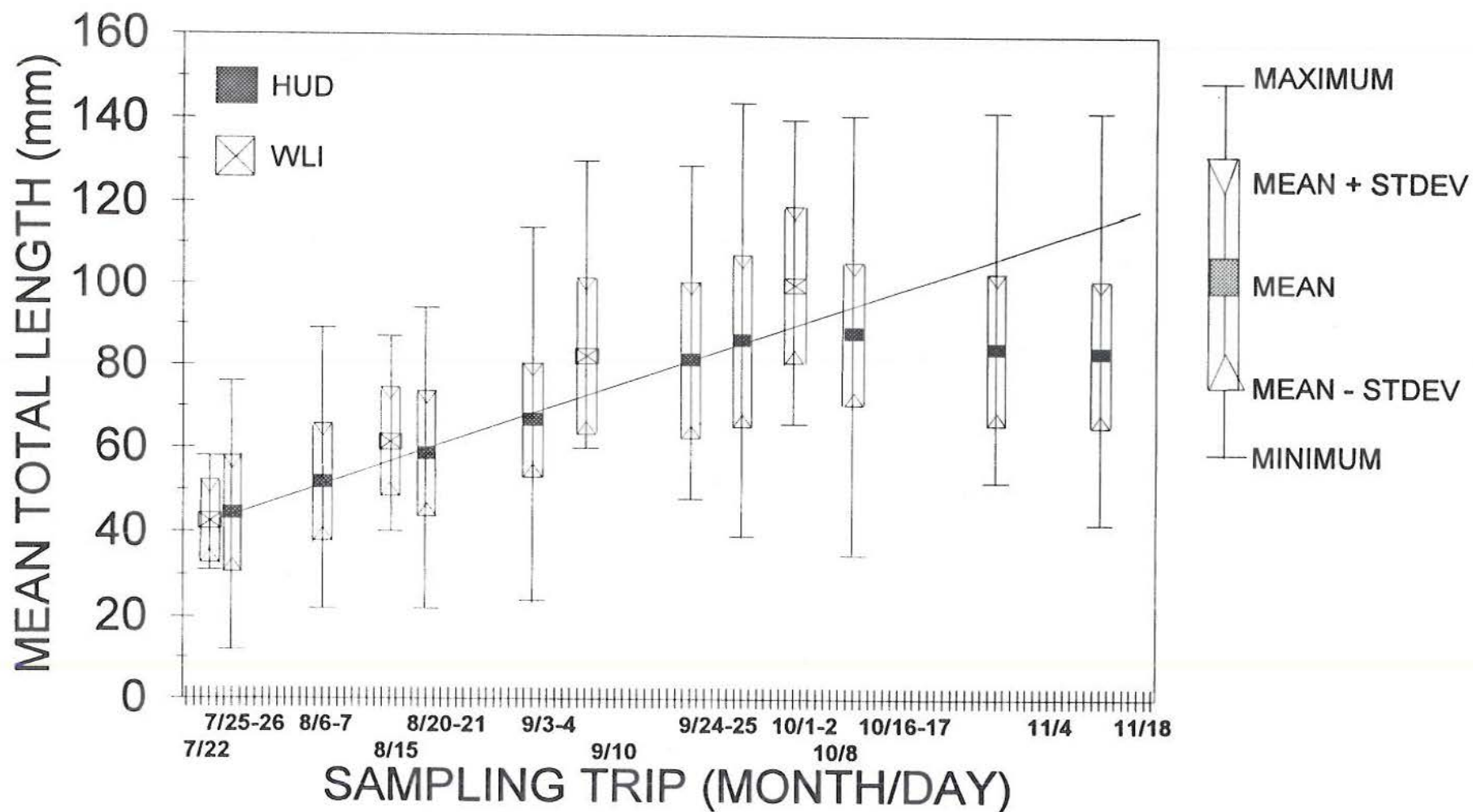
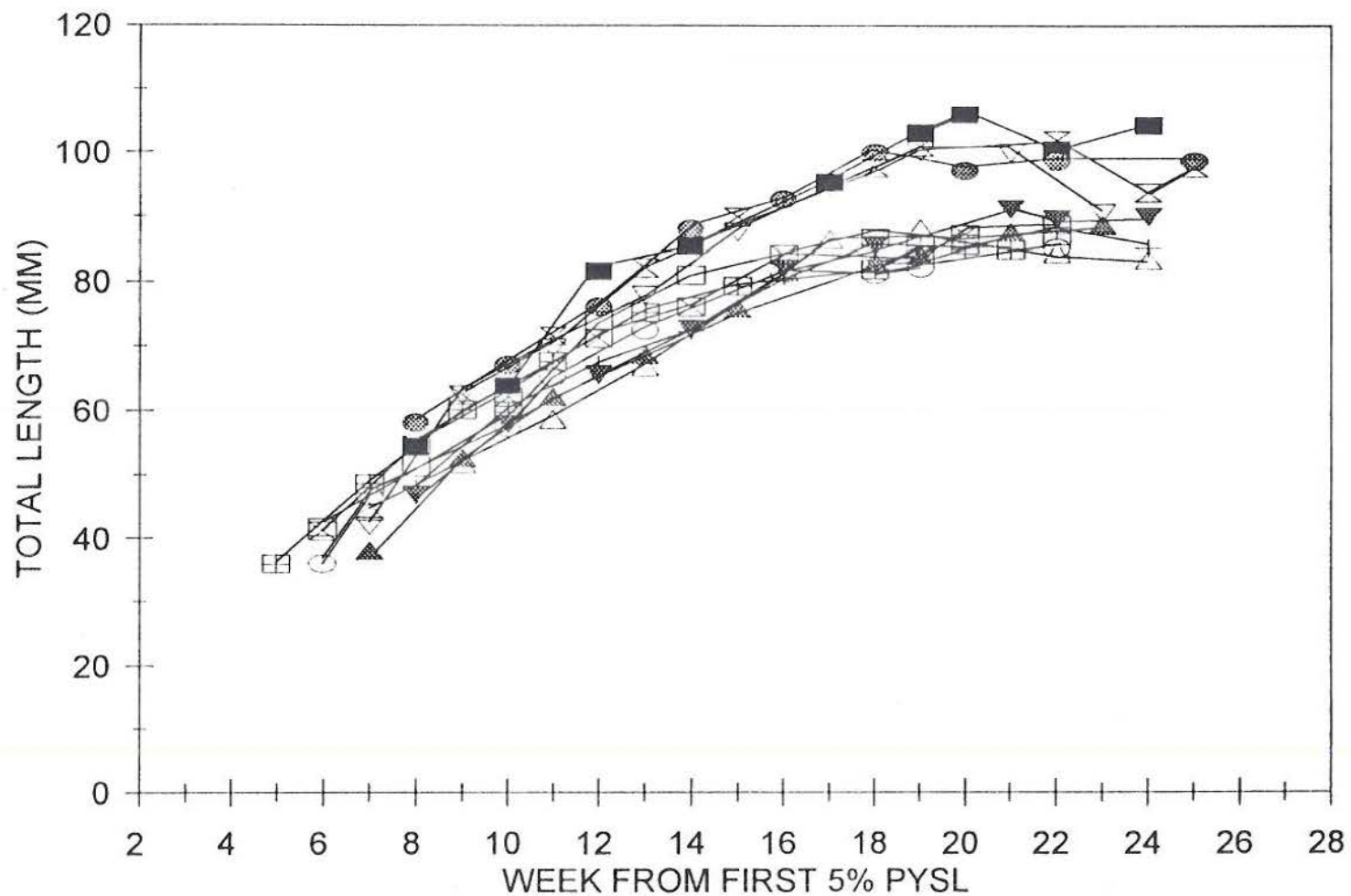


Figure 10

HUDSON RIVER YOY STRIPED BASS

MEAN TOTAL LENGTHS FROM FIRST 5% PYSL



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

Figure 11

HUDSON RIVER YOY STRIPED BASS MEAN TOTAL LENGTHS FROM PEEK PYSL

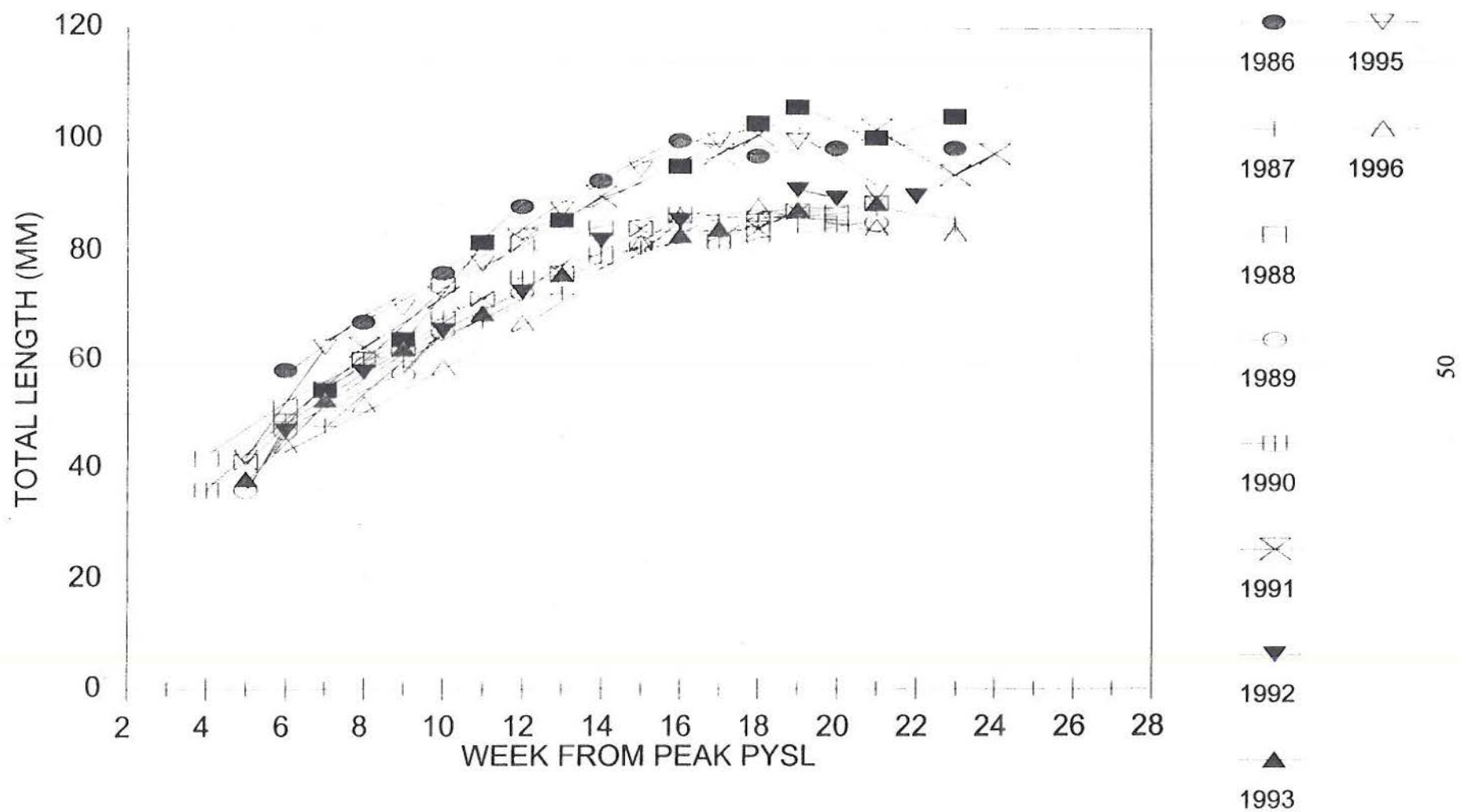


Figure 12

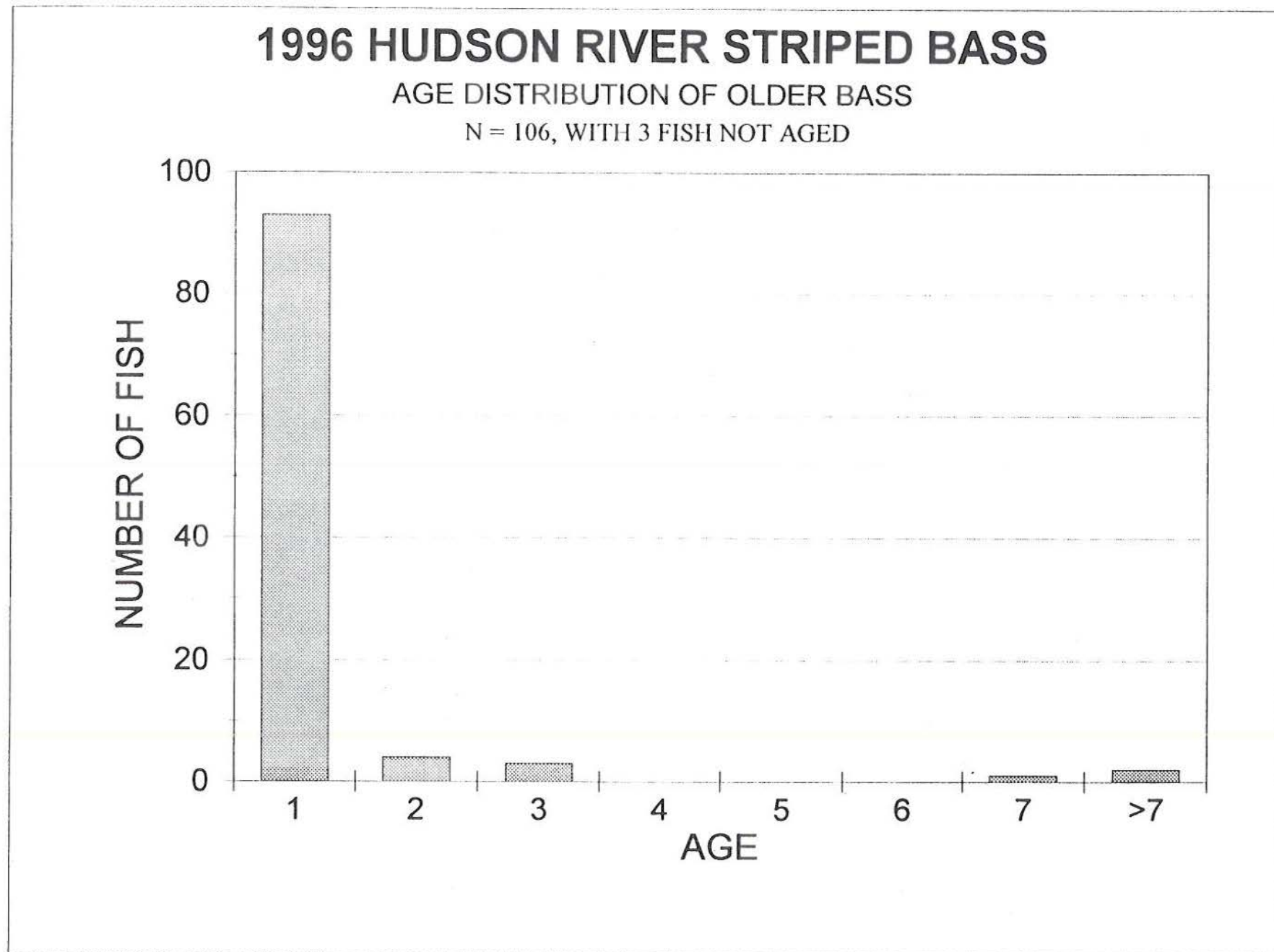


Figure 13

HUDSON RIVERTAG RELEASE INFORMATION

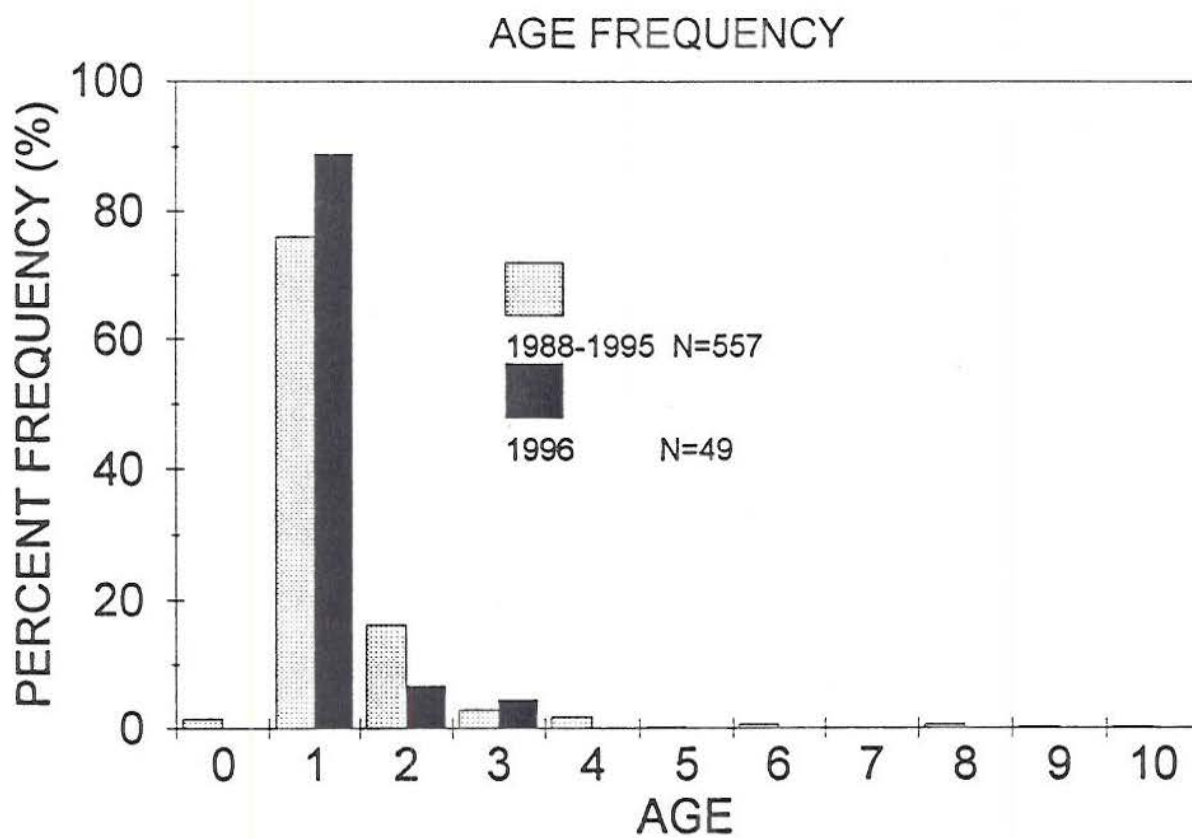
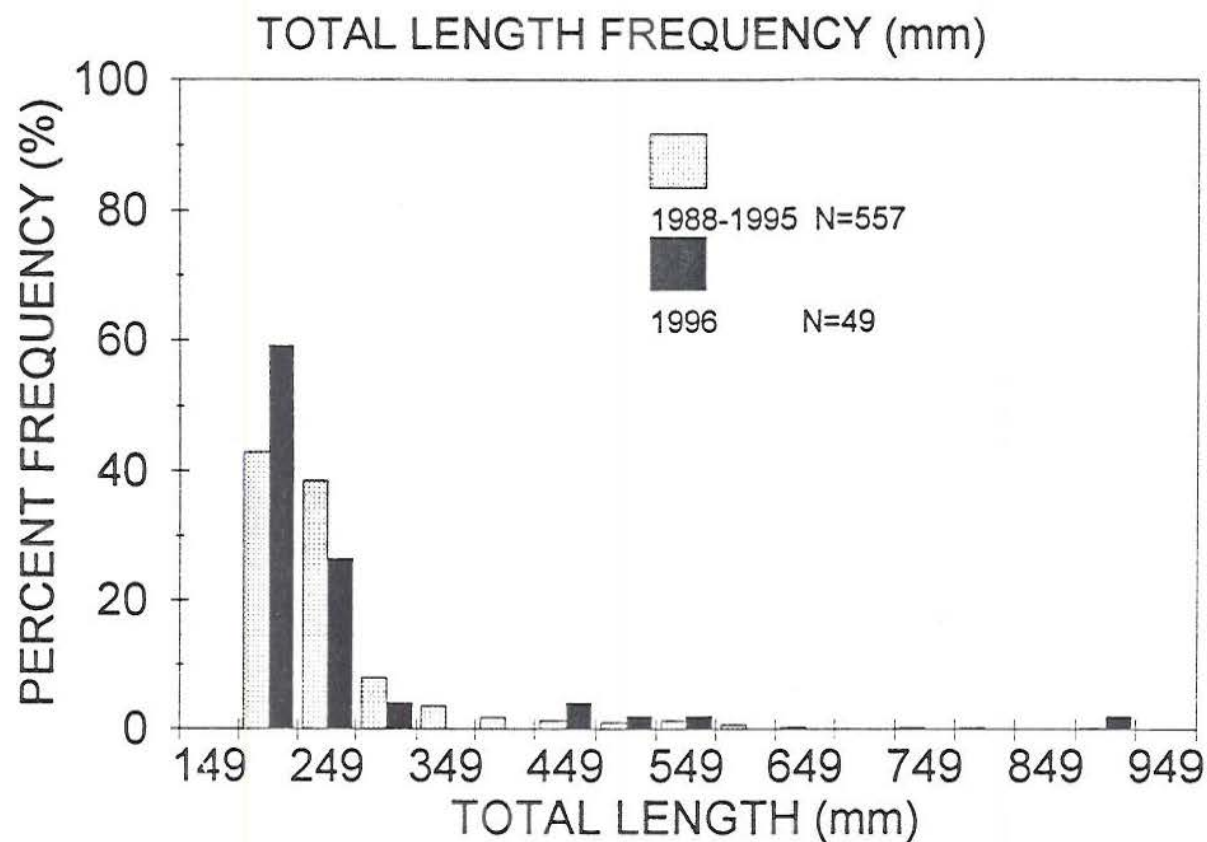
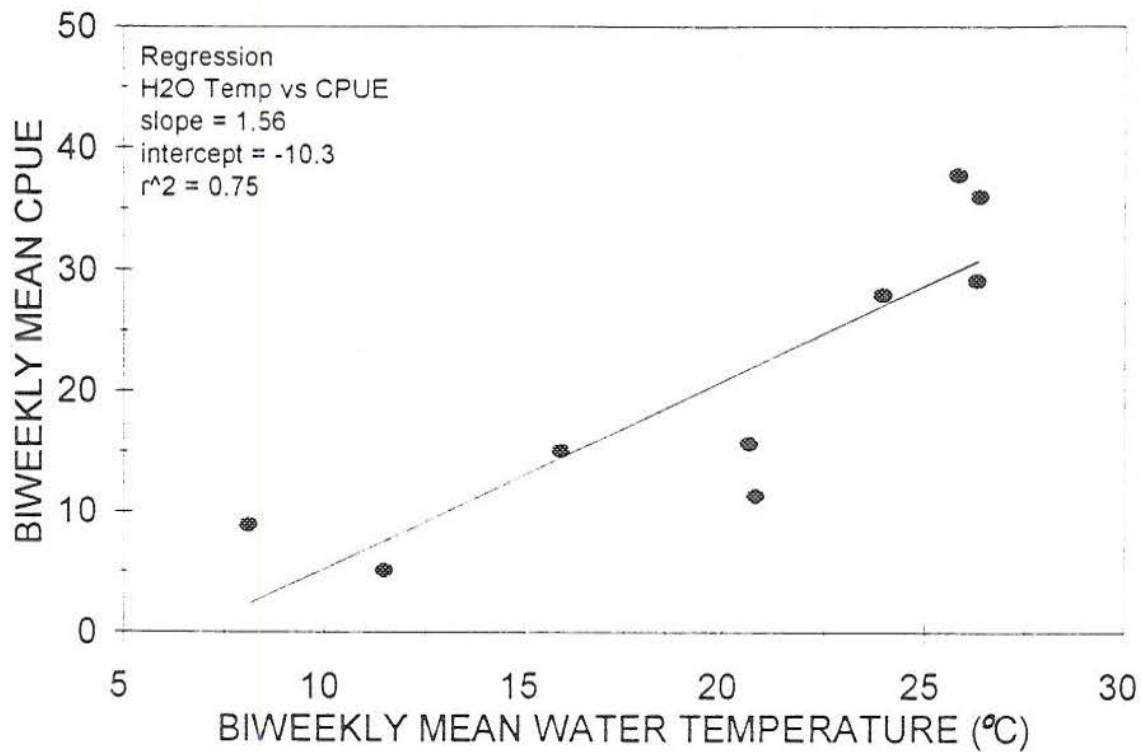


Figure 14

1996 HUDSON RIVER YOY STRIPED BASS

BIWEEKLY MEAN WATER TEMP. vs CPUE



1996 HUDSON RIVER YOY STRIPED BASS

MONTHLY MEAN WATER TEMP. vs CPUE

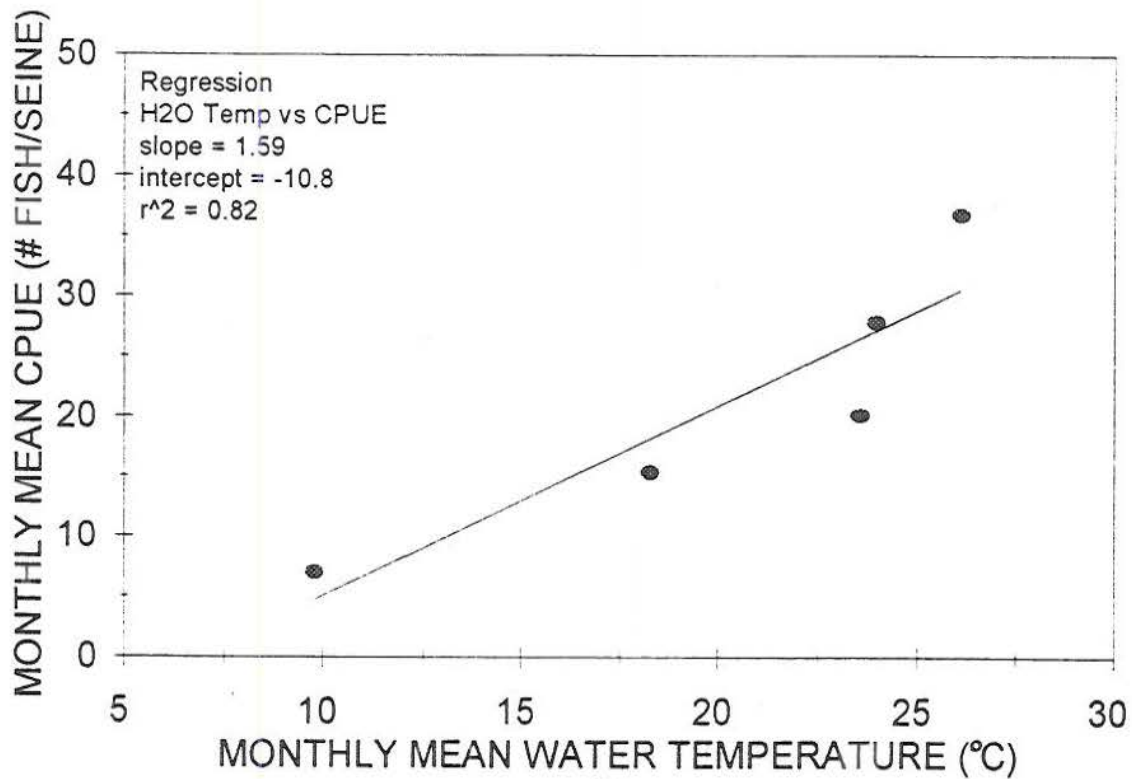
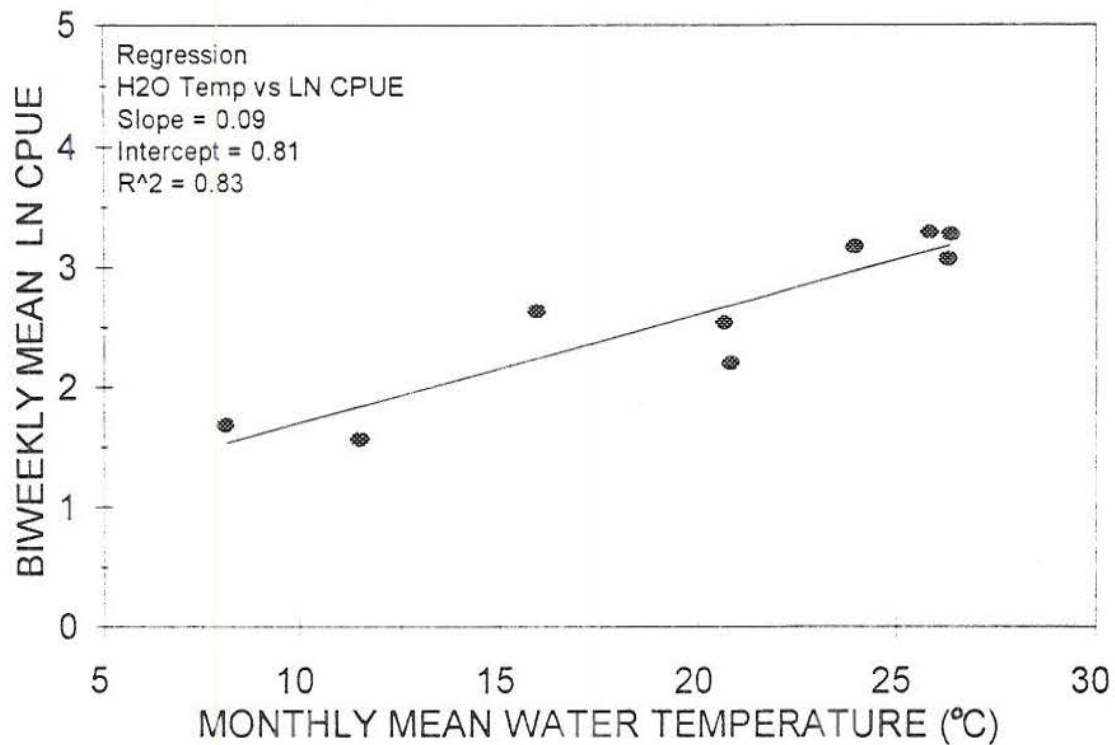


Figure 15

1996 HUDSON RIVER YOY STRIPED BASS

BIWEEKLY MEAN WATER TEMP. vs LN CPUE



1996 HUDSON RIVER YOY STRIPED BASS

MONTHLY MEAN WATER TEMP. vs LN CPUE

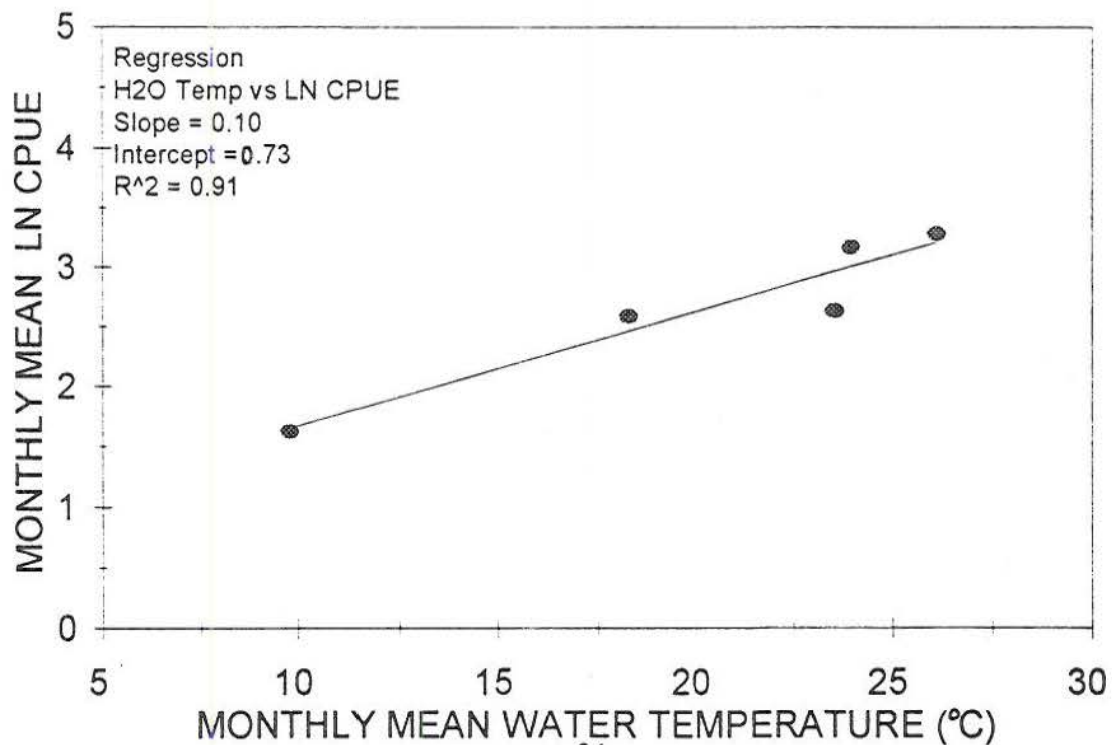


FIGURE 16

1996 HUDSON RIVER BI-WEEKLY SALINITY MEAN, STD, RANGE

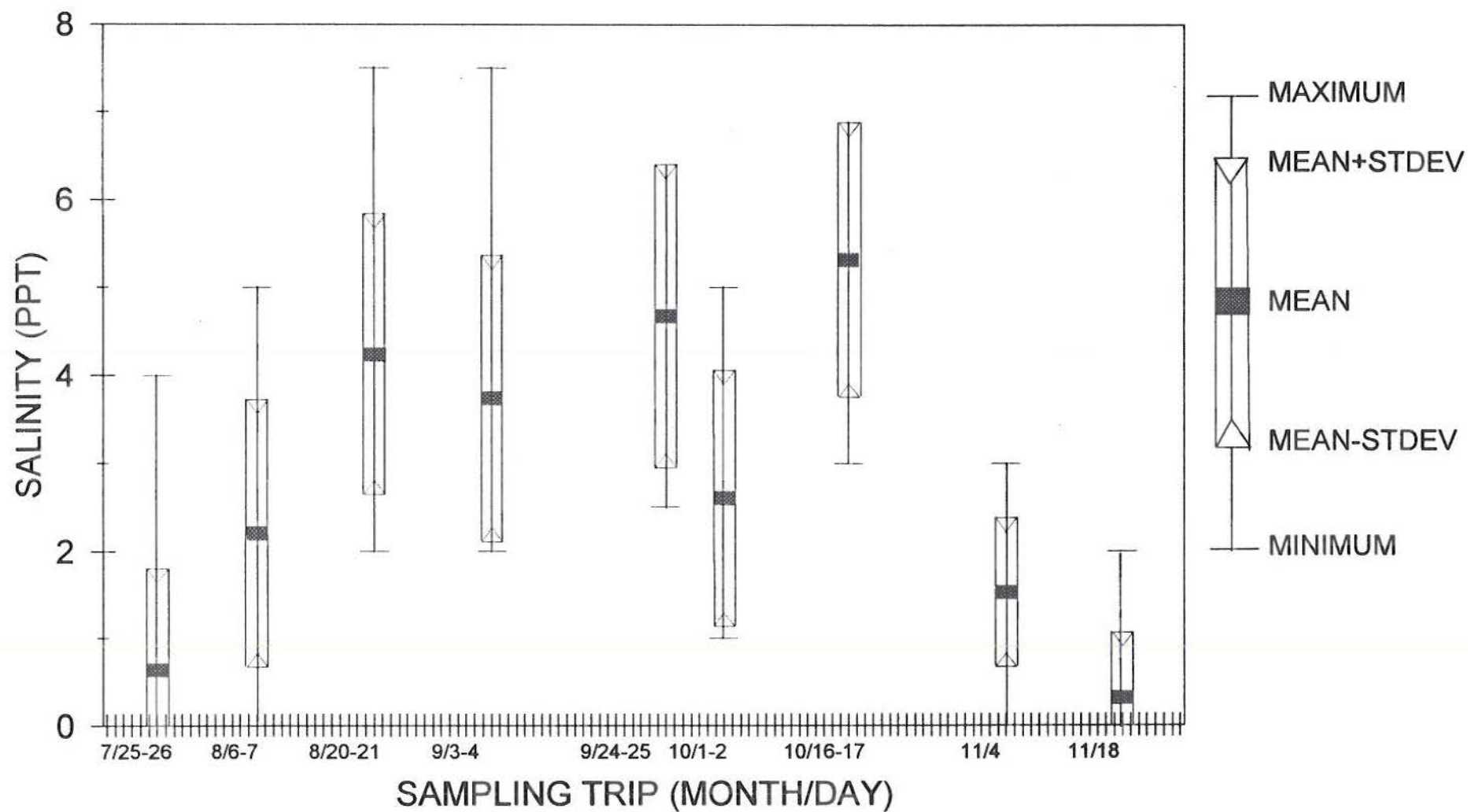
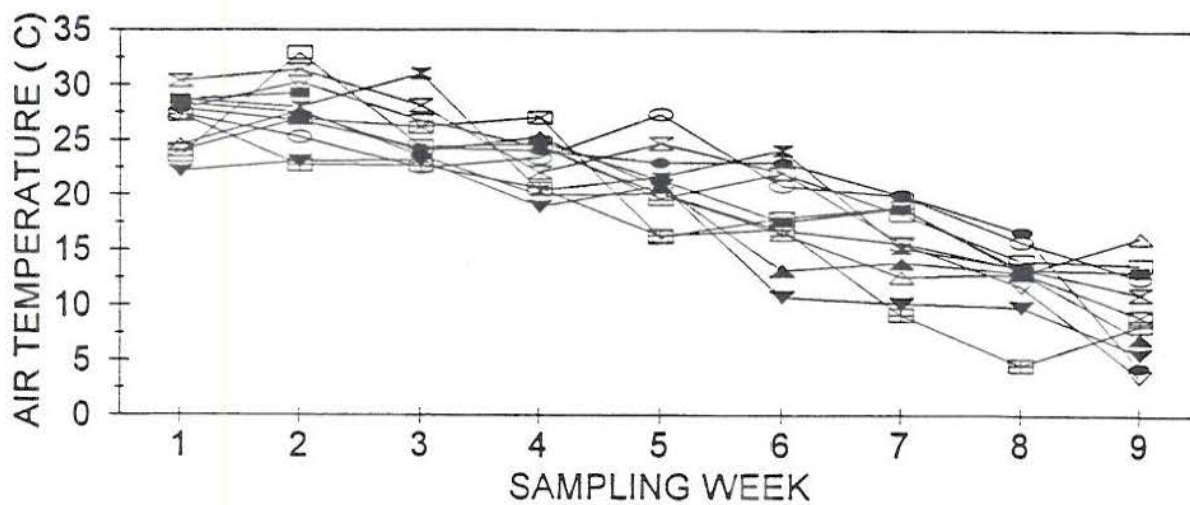
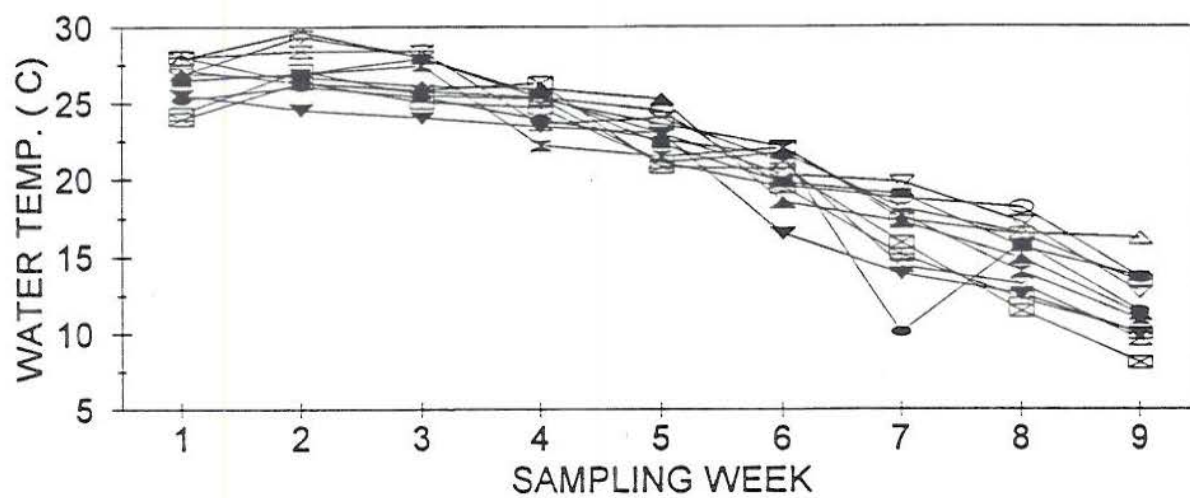


Figure 17

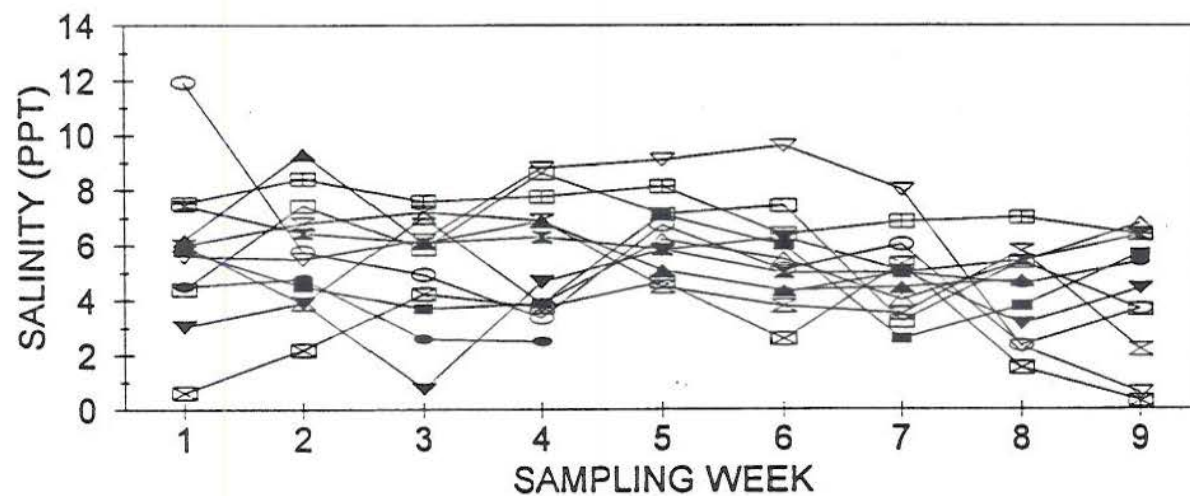
BIWEEKLY MEAN AIR TEMP. 1985-1996



BIWEEKLY MEAN WATER TEMP. 1985-1996

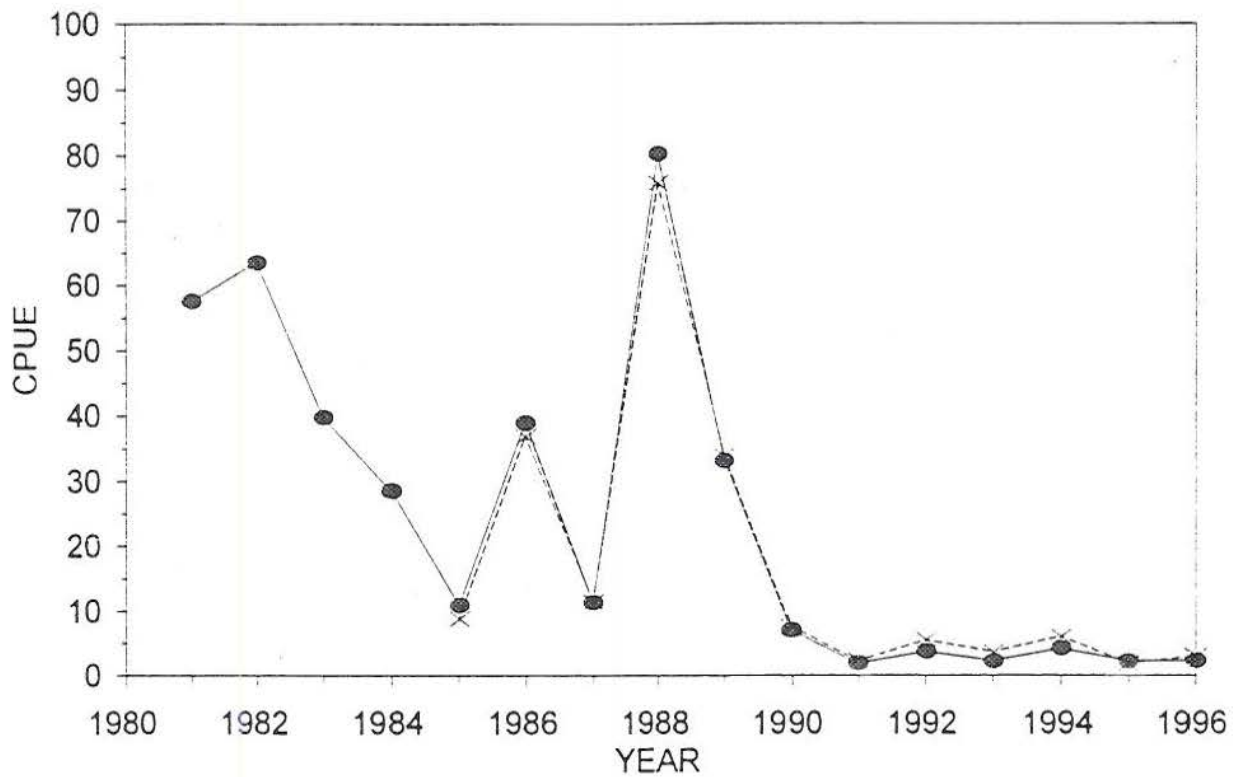


BIWEEKLY MEAN SALINITY 1985-1996



■ 1985 ● 1986 ▨ 1987 ✕ 1988 □ 1989 ○ 1990
 ▤ 1991 ▼ 1992 ▲ 1993 △ 1994 ▽ 1995 ▩ 1996

WHITE PERCH YOY CPUE



WHITE PERCH OLDER CPUE

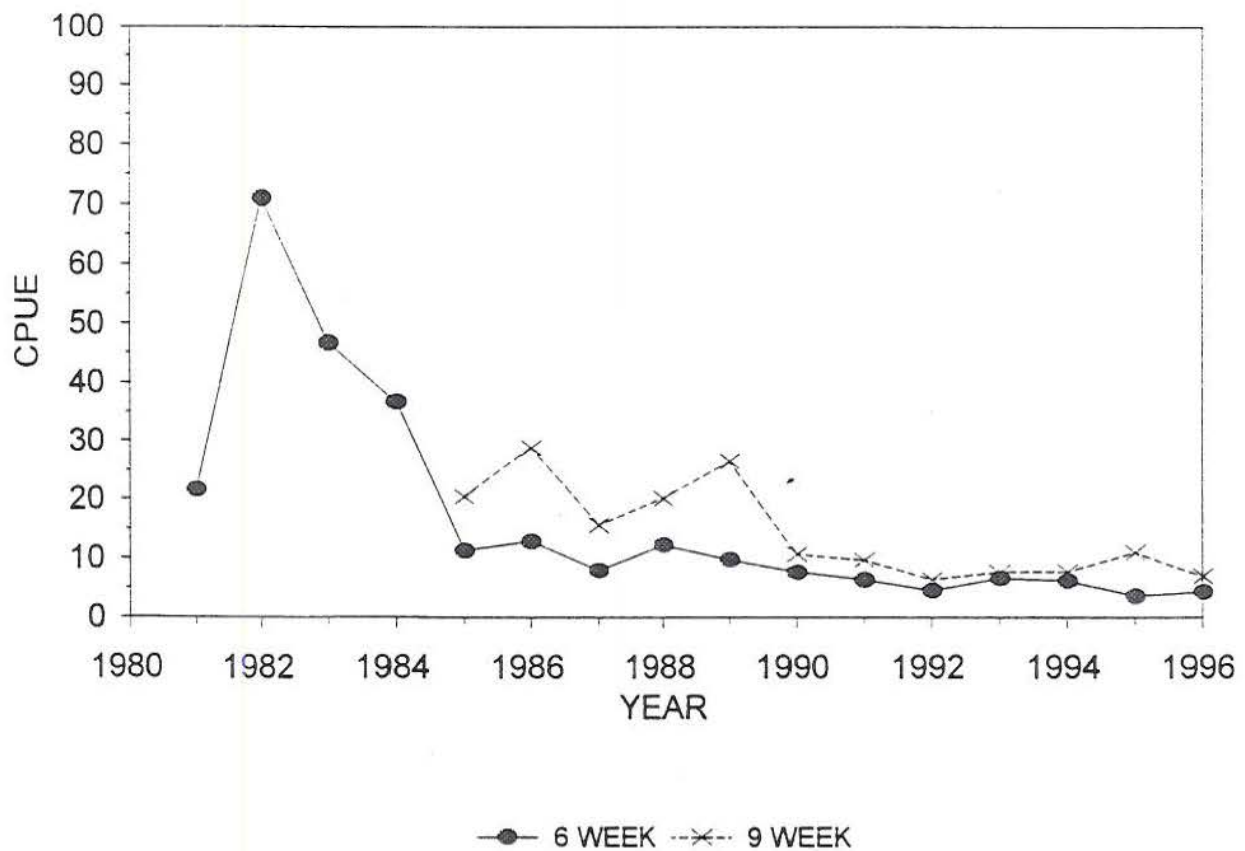


Figure 19

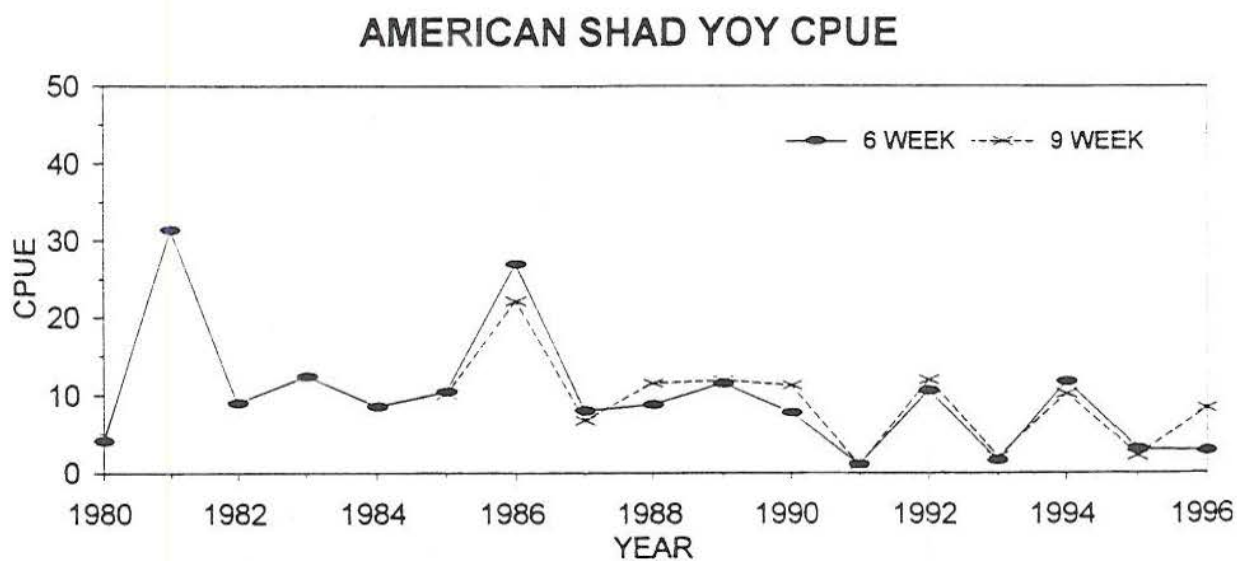
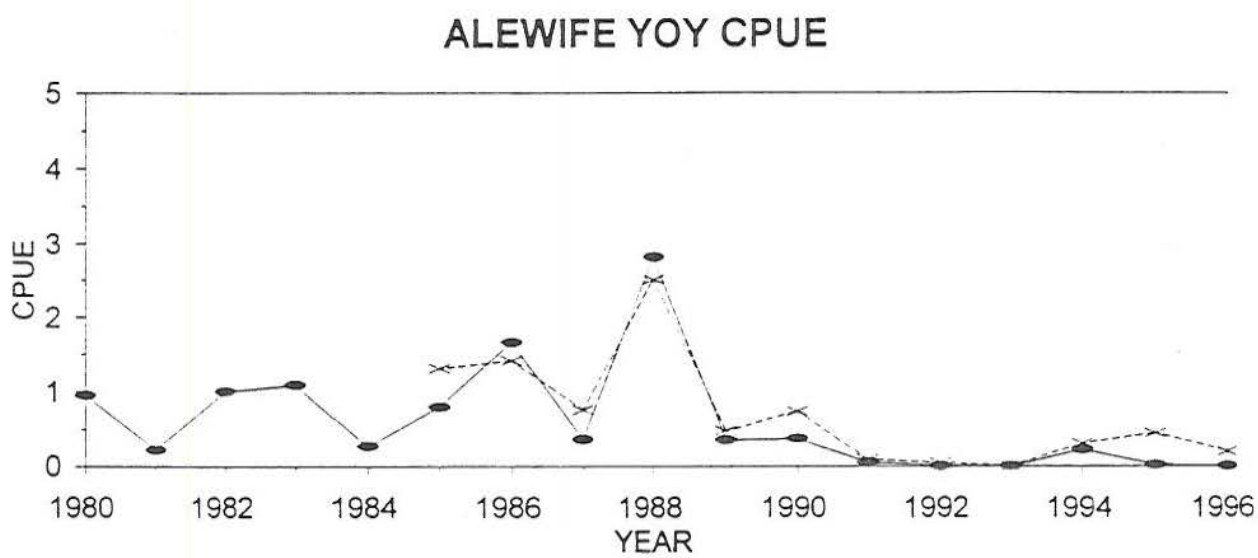
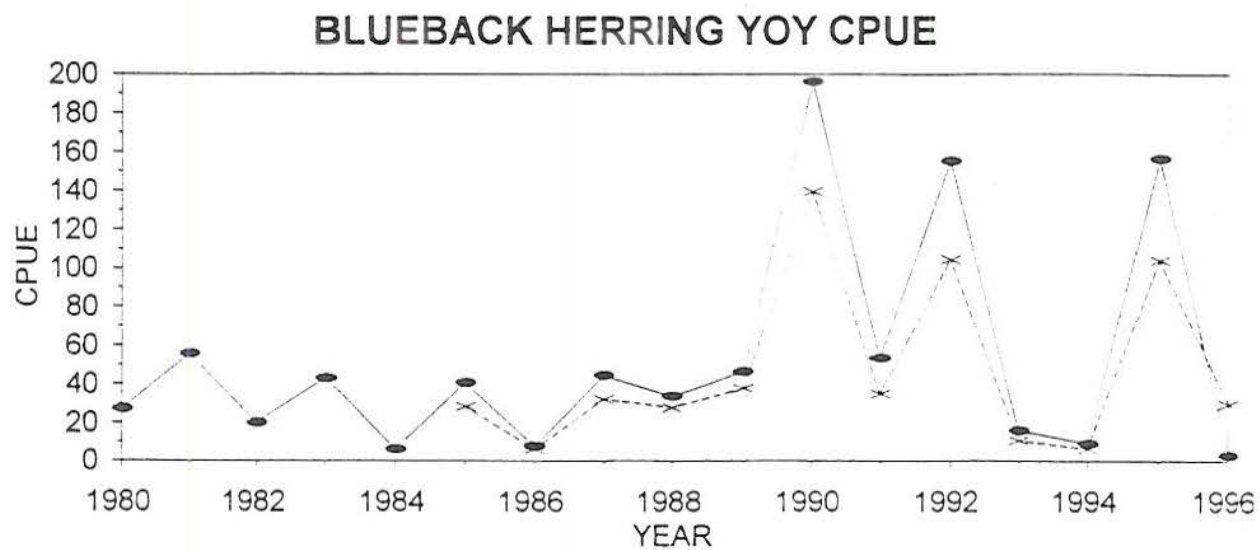


Figure 20

BLUEFISH YOY CPUE

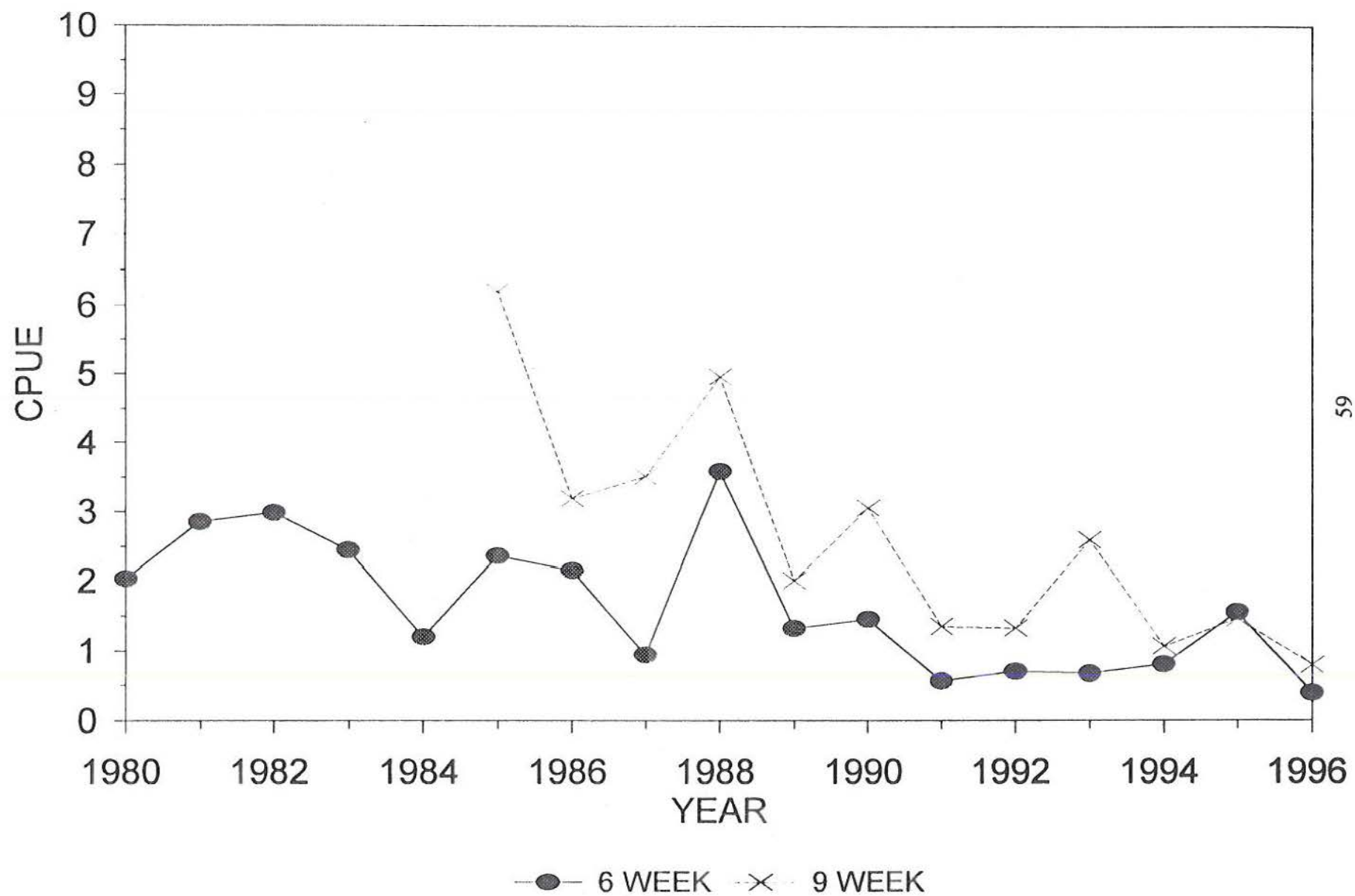
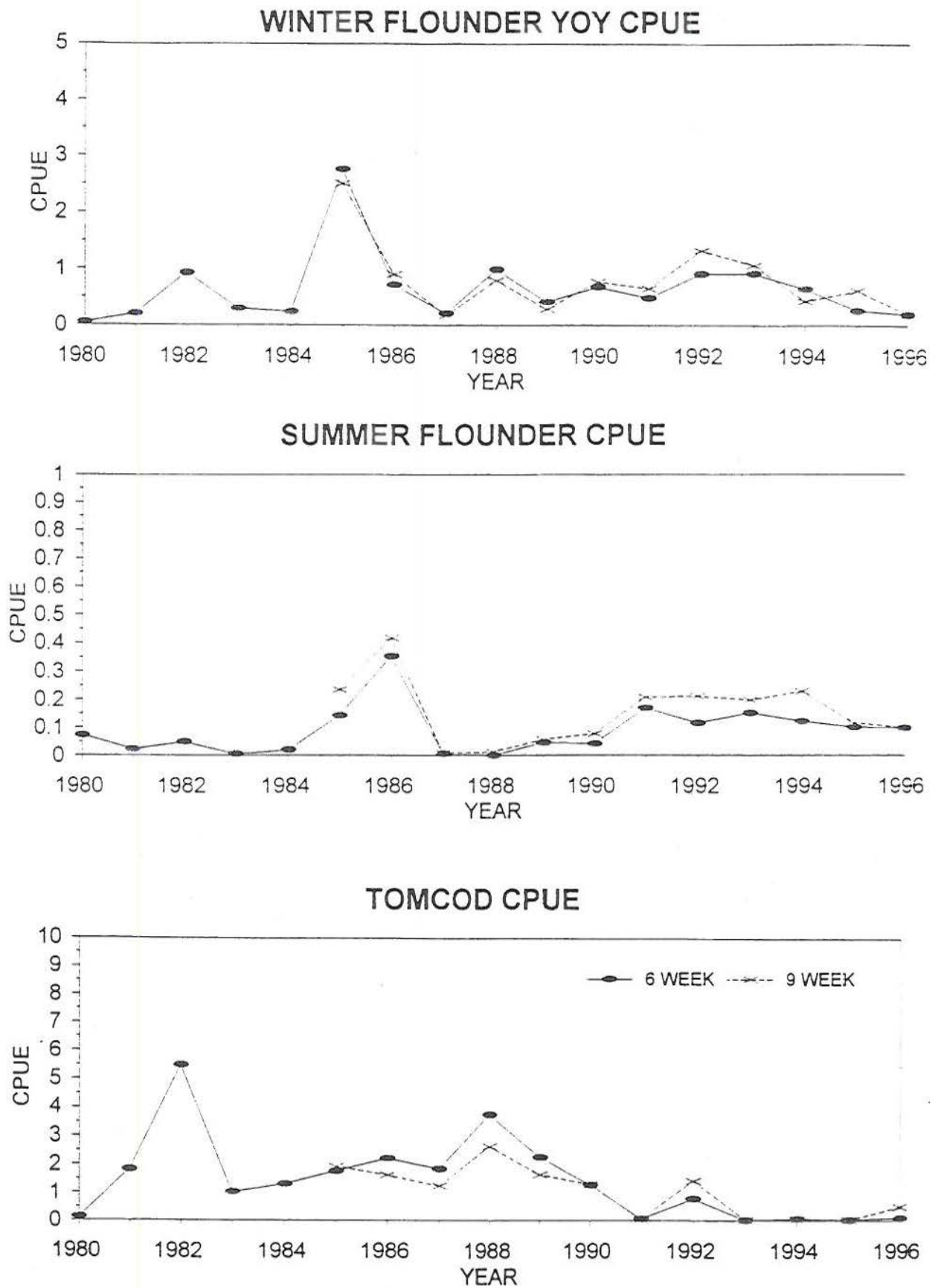


Figure 21



JOB 2. An Investigation of the Movements and Growth of the
1995 Hudson River Year Class

Hudson River striped bass generally spend their first year of life in nursery areas in the lower Hudson River. The following spring one year old (yearling) striped bass are found in the Hudson River and in the bays around western Long Island. The primary purpose of this study is to examine those fish which have migrated out of the Hudson River as one and two year old striped bass. One year old (yearling) striped bass have been encountered in and around western Long Island as reported by a number of authors (Alperin, 1966; Texas Instruments, Inc., 1977; Young, 1980, 1982, 1986, 1987; Young and McKown, 1987; McKown and Young, 1988; McKown and Young, 1989; McKown, 1991a; McKown, 1991b; McKown, 1992; McKown and Penski, 1994; McKown and Savona, 1994; McKown et al., 1996; and McKown and LoBue, 1996). The New York State Department of Environmental Conservation (NYSDEC) commenced the current investigation of yearling striped bass in 1984. The 1996 survey received financial support from the Sport Fish Restoration Account of the Aquatic Resources Trust Fund (D-J) and P.L. 89-304, and the Anadromous Fish Conservation Act.

The present work will provide details of the 1996

collections and a comparison with those collections made from 1984 through 1995. The objectives of this study are: 1) to collect size and age data from older striped bass captured; 2) to estimate growth rates of the juvenile striped bass in the nursery areas of western Long Island and New York Harbor; and 3) to evaluate the use of tag recapture data for estimating total annual mortality rates.

METHODS AND MATERIALS

Department personnel conducted a standard series of seine hauls in the bays primarily around western Long Island (Figure 1) using a 200 foot x 10 foot beach seine with 1/4 inch square mesh in the wings, and 3/16 inch square mesh in the bunt. In addition, a 500 foot x 12 foot beach seine with 3 inch stretched mesh in the wings and a 2 inch stretched mesh bag was used on one round in June to supplement the catch of older, larger fish. Limited work has been done around central Long Island in areas where young striped bass have been captured in the past.

All fish were identified and counted. Striped bass were measured for fork length, total length, weight, and scale samples were taken. Scale samples were removed from the area between the two dorsal fins and above the lateral line. Striped bass were checked for binary coded wire tags (BCWT)

using a tag detector from Northwest Marine Technology, Inc. to determine if they were hatchery released. Hatchery released striped bass were collected, the BCWT removed and the tags sent to the United States Fish and Wildlife Service (USFWS). Striped bass larger than 170 mm TL were tagged with internal anchor tags supplied by the USFWS. These fish were tagged according to guidelines established by the USFWS coastwide tagging program. Total length was measured from other species of interest to Department biologists.

The following information was also recorded at each station: net size, station location, station number, date, time, tide stage, water temperature, air temperature, salinity, weather conditions, and gear and sample handling evaluation. Salinity was measured using a refractometer, and air and water temperatures were measured using hand held thermometers.

In the event that a large number of fish were captured, the following sub-sampling technique was used to estimate their number. A known volume of fish were identified and counted to develop a multiplier. The volume of the remainder of the sample was expanded to obtain an estimate of the number caught. During 1996 all but 34 striped bass were measured.

Subsamples of ages and age length keys were used to estimate ages of the sample. All striped bass greater than 400 mm total length, all tag recaptured fish, and the eight older fish caught in October were aged. Age length keys were developed from 1985-1995 data to estimate the ages of the remaining fish. The historical data comprised over 12,000 fish, which was divided by month and split into 10mm length bins. These were used to create monthly length/age frequency distributions to estimate the ages of the 1996 samples. The larger fish were aged due to overlapping age classes, while tag recaptured fish were aged because the ages were necessary input for the age structured survival model. Recaptured fish will continue to be aged using scales in the future.

The results of the 1996 investigation are summarized below. In addition, comparisons with the collections from 1984 through 1995 are presented.

RESULTS AND DISCUSSION

One hundred and eight seine hauls were made on 20 dates between May 7, 1996 and October 23, 1996. This effort captured 1842 striped bass.

AGE FREQUENCY

The 1996 Long Island age frequency is presented in Table 1 and Figures 2 and 3. In 1996, seven year classes were represented from around western Long Island. Age classes one and two contributed 83% of the age samples. Yearling (1995 YC) were dominant in the catch during 1996, accounting for 58% of the catch. The next most abundant age group was age two (1994 YC) which accounted for 25% of the catch. The catch in Manhasset Bay on the north shore had the largest range of ages (0-6). Little Neck Bay had an age range of 0-5, with YOY being most abundant at 55% and two year olds being the second most abundant at 20%. The majority of fish were captured in Jamaica Bay (68%), most of which were yearlings (68%) and two year olds (29%). Jamaica Bay had the highest catch per unit of effort (CPUE, 32.3 bass/seine).

Table 2 presents the 1996 age frequency by month. Striped bass were captured from May through October during 1996. The majority of the striped bass were caught in July, however the highest CPUE occurred in August (97.5) when 390 fish were captured in only 4 seines. A significant number of YOY were captured in the north shore bays during late summer, constituting 13% of the total 1996 catch.

A comparison of age frequencies by year for 1984 through 1996 is presented in Table 3 and Figure 4. Little Neck Bay and Manhasset Bay on the north shore had the largest range of ages in all years, while the catches on the south shore have been dominated by one or two year classes. Yearlings have dominated the catch in all years except 1986 and 1990, when two year olds dominated and in 1993 when yearling and age two were co-dominant. Young-of-the-year striped bass have been caught in the bays around Long Island in all years from 1987 through 1996.

LENGTH FREQUENCY

The 1996 Long Island total length frequency is presented in Figure 5, and the north and south shore total length frequencies are presented in Figure 6. Striped bass ranged in length from 33 to 613 mm TL, with a mode of 150 - 199 mm TL. A comparison of north shore to the south shore shows a wider range of size caught on the north shore during 1996. Total length frequency by bay is presented in Table 4. Little Neck Bay had the largest range of length from 34 mm to 613 mm. Total length frequency by month is presented in Table 5. The range of lengths is similar among months, and young of the year begin being caught in July. A comparison of total length frequencies for 1984 through 1996 is presented in Table 6. The comparison shows that the modes for striped bass captured in 1986 were larger than all other

years for both the north and south shores, and in 1993 modes were larger for the south shore compared to other years.

The natural log of weight versus total length is presented in Figure 7. The weight length relationship approximates isometric growth, with a slope of 2.94

TAGGING

During 1987 a tagging program was initiated in conjunction with the U.S. Fish and Wildlife Service's coast wide striped bass tagging program. Internal anchor tags were provided by the U.S. Fish and Wildlife Service.

Eighty five bass were tagged during 1987 using a large tag which could only be used on fish 300 mm TL or greater. During 1988 a smaller tag was added which could be used on fish 170 mm TL or greater. This greatly increased the number of striped bass that could be tagged, since the project targets younger, smaller fish. From 1988 through 1996, 6,339 striped bass were tagged, 236 - 1156 fish were tagged annually (McKown and Young, 1988; McKown and Young, 1989; McKown, 1991a; McKown, 1991b; McKown, 1992; McKown and Penski, 1994; McKown and Savona, 1994; McKown et al., 1996; and McKown and LoBue, 1996). During 1996, 932 striped bass were tagged.

Age and total length frequency of striped bass tagged during 1987 through 1996 are presented in Table 7. During 1996, tagged striped bass ranged in age from 1 to 6, and were predominantly ages one and two (51% and 41%). These fish ranged in size from 153 mm to 613 mm total length.

The tag recaptures from 1987 through 1996 are presented in Table 8. Tagged fish have been recaptured from New Brunswick, Canada to Kitty Hawk, North Carolina, though most returns have come from New York. Most of the New York returns have been from western Long Island Sound (42 - 62%), except 1996 when most of the returns were from Jamaica Bay. Table 8 presents a summary of the recapture information by year of release. The percent return by year ranged from zero to ten percent, and has been relatively consistent between release years and years at large (recapture year was calculated from May through the following April). Hook and line was the dominant recapture gear, though recaptures also occurred in seines, anchor and drift gill nets, traps, and trawls. Twenty-four tagged fish were recaptured by this survey from 1987 through 1996. All were recaptured in the same bay they were released, half from the same station. Days at large ranged from 3 to 2941 days.

The New York Power Authority, in conjunction with the Hudson River Foundation, has been tagging striped bass in

the lower Hudson Estuary since 1985. During 1996 two Hudson River Foundation tagged striped bass were recaptured. During 1995 no Hudson River Foundation tagged striped bass were recaptured, five were recaptured in 1994, two were recaptured in 1993, five in 1992, five in 1991, one in 1990, five in 1989, three in 1988, one in 1987, and eight in 1986.

The New York Power Authority had been releasing hatchery reared striped bass into the lower Hudson River during 1983-1995. From 1985-1995 these fish had been marked with magnetically coded wire tags. In addition, hatchery fish have been released into the Chesapeake Bay since the mid 1980's. During 1996, 3 BCWT fish were recaptured in Jamaica Bay during August and September. The BCWT's show that all three fish were released into the Hudson River in 1994. During 1995 three BCWT fish were captured in June in Jamaica Bay, these fish were also from the 1994 year class released into the Hudson River. During 1994 five BCWT fish were recaptured, three of these fish were Hudson River hatchery fish, and two were Chesapeake. During 1993 two hatchery fish were recaptured, both were from the Chesapeake Bay. Two Hudson River hatchery fish were recaptured in 1988 and 1989 (one each year).

TOTAL ANNUAL SURVIVAL RATE

Survival was estimated for age one, two, and older

striped bass using the maximum likelihood estimate approach from Brownie et al. (1985). The 1988 - 1996 tagging data was analyzed with the age structured survival model developed in 1994, using the software MARK (White and Burnham, 1996). The model allows for age and time specific survival and reporting rates for ages one, two and older striped bass. The recapture matrix is presented in Table 9. The model with time and age effects for survival and age effects for reporting was selected as the model with the best fit and most parsimonious. Estimates of survival and reporting rates are presented in Table 10. Survival rates tend to increase from younger to older striped bass, while the variation in survival rates among years decrease. Reporting rates increase sequentially by age for the three age groups

SPECIES COMPOSITION

Species composition and CPUE for 1996 is presented in Table 11. Older striped bass ranked 5th with a 14.8 CPUE. A comparison between 1984 through 1996 is presented in Table 12. Striped bass have ranked in the top ten species twelve out of the thirteen years. Menidia sp. were the top species in 1996, 1995, 1994, 1993, 1992, 1991, 1990, 1989, 1988 and 1987, bay anchovy in 1986, and Fundulus sp. in 1985 and 1984. In all, 100 species of fish have been captured during the thirteen years of this study while 42 species were

captured in 1996.

COMMUNITY STRUCTURE

Community structures of Little Neck Bay, Manhasset Bay, and Jamaica Bay were examined from 1986 through 1996. Throughout this time the number of species caught each year in Little Neck Bay ranged from 21 to 33, in Manhasset Bay from 23 to 30, and in Jamaica Bay from 27 to 38 (Table 13). Marine species were predominant, and accounted for about half the species caught in Little Neck and Manhasset Bays and three quarters of the species caught in Jamaica Bay. Diadromous and estuarine species were equally important, and accounted for the remainder. The top species in all three bays were silverside species in most years, including 1996, ranging from 41 to 86% of the catch each year (Table 14). During 1996, Fundulus species were second most abundant in Manhasset and Little Neck Bays, while Atlantic herring were second in Jamaica Bay.

Several commercial and recreationally important species were found within the top five species. Striped bass was ranked in the top five in Little Neck Bay nine of the eleven years, winter flounder was ranked in the top five in Manhasset Bay seven of the eleven years and in Jamaica Bay eight of the eleven years, and bluefish six of the eleven years in Jamaica Bay. In 1995 and 1996 striped bass was in

the top five species in all three bays.

CATCH DATA FOR OTHER SPECIES

Catch data for all other species has been recorded on an annual basis, and starting in 1986 some other species of interest have been measured. The CPUE of bluefish is presented in Figure 8. The CPUE of bluefish increased from 1985 to 1987, and has been low since then. Total length frequency by bay and month for 1996 is presented in Table 15. Bluefish were caught on both the north and south shores during 1996, Jamaica Bay had the highest catches. Bluefish catches occurred from June through September, with the major catch in September.

Bluefish total length frequency from 1986 through 1996 is presented in Table 16. Most of the bluefish caught were young-of-the-year based upon length frequency data. Bluefish were caught mainly from June through September in all years (no sampling was conducted in September and/or October 1986, 1991, 1993, and 1995). Summer spawned bluefish were encountered in 1992, 1990 and 1987 during the late summer and early fall. Summer spawned bluefish were not encountered in other years (Young and McKown, 1987; McKown and Young, 1988; McKown and Young, 1989; McKown, 1991a; McKown, 1991b; McKown, 1992; McKown and Penski, 1994; McKown and Savona, 1994; McKown et al., 1996; and McKown and

LoBue, 1996).

Winter flounder CPUE is presented in Figure 9. Winter flounder abundance steadily increased from 1985 through 1988, dropped in 1989, rose to a high in 1992 and decreased in 1993 and 1994, rose in 1995, and fell again in 1996. Table 17 presents winter flounder total length frequency by bay and month for 1996. The majority of winter flounder were caught in Stony Brook Harbor in June and the second highest abundance was found in Jamaica Bay. Seasonally, winter flounder were caught throughout the whole survey, from May through October, with high catches occurring in June. Table 18 presents 1986 through 1996 winter flounder length frequencies. Winter flounder were caught from May to October in all years (no sampling was conducted in September and/or October 1986, 1991, 1993, and 1995). The highest catches were in June and July. Young-of-the-year were most abundant, with small numbers of larger fish captured early in the season from April through June (Young and McKown, 1987; McKown and Young, 1988; McKown and Young, 1989; McKown, 1991a; McKown, 1991b; McKown, 1992; McKown and Penski, 1994; McKown and Savona, 1994, McKown et al., 1996; and McKown and LoBue, 1996).

Summer flounder CPUE has remained low during the study, with slight peaks in 1986 and 1991 (Figure 10). Summer flounder length frequency by bay and month for 1996 is

presented in Table 19. Summer flounder were caught mainly in Jamaica Bay during 1996. Seasonally, they were caught from May through July, with highest catches in July. Table 20 presents the 1986 through 1996 summer flounder length frequency distributions. Summer flounder were caught mainly from May to July or August. The high catch in most years was in June (no sampling was conducted in September and/or October in 1986, 91, 93, and 95).

Alosid CPUE are presented in Figure 11. Alewife CPUE slowly increased from 1984 - 1989, but dropped in 1990, increased slightly in 1994, dropped in 1995 and increased again in 1996. American shad CPUE has been steady but low throughout the study with a slight rise in 1990 and 1996. Blueback herring CPUE was low from 1984 - 1990, with a large increase in 1991 and a sharp decline in 1992, remaining low through 1996.

The CPUE data for tomcod and tautog are presented in Figure 12. Tomcod CPUE had peaks in 1989, and lows in 1986 and 1992 with a relatively steady increase since 1992. Table 21 presents total length frequency by bay and month for 1996. Most tomcod were caught in Little Neck Bay in May and June as young-of-the-year. This is similar to the catches in 1995. Table 22 presents total length frequency from 1986 - 1996. Tomcod were caught from May to July in

most years (Young and McKown, 1987; McKown and Young, 1988; McKown and Young, 1989; McKown 1991a; McKown, 1991b; McKown, 1992; McKown and Penski, 1994; McKown and Savona, 1994; McKown et al., 1996; and McKown and LoBue, 1996).

Tautog CPUE remained relatively constant from 1984 to 1990 peaked in 1991 and decreased in 1992 and has remained low since (Figure 12). Table 23 presents the tautog total length frequency by bay and month for 1996. Low numbers of tautog were caught in Jamaica Bay, Little Neck Bay and Manhasset Bay during 1996. Tautog were caught from May through October. Tautog total length frequency from 1986 - 1996 is presented in Table 24. The majority of tautog caught were young-of-the-year in all years. Large catches occurred during 1991, 1988 and 1987. When older fish were caught, it was only from May through July (Young and McKown, 1987; McKown and Young, 1988; McKown and Young, 1989; McKown, 1991a; McKown, 1991b; McKown, 1992; McKown and Penski, 1994; McKown et al., 1994; McKown et al., 1996; and McKown and LoBue, 1996).

SUMMARY

One thousand eight hundred and forty-two striped bass were caught in 108 seine hauls during 1996. The catch was dominated by yearling (58%), and two year olds were next

abundant (27%). Two hundred and forty-two young-of-the-year striped bass were caught in western Long Island during 1996, 24 in 1995, 64 in 1994, 303 in 1993, 269 in 1992, 203 in 1991, 30 in 1990, 54 during 1989, 184 during 1988, and 19 were caught in 1987.

Nine hundred and thirty-two striped bass were tagged in conjunction with the U.S. Fish and Wildlife Service's coast wide striped bass tagging program during 1996, 236 in 1995, 1,156 in 1994, 562 during 1993, 580 during 1992, 937 during 1991, 413 during 1990, 848 during 1989, 377 during 1988, and 85 in 1987. The return rate has ranged from zero to twelve percent per year. Returns have ranged from New Brunswick, Canada to Kitty Hawk, North Carolina with the majority from New York. Hook and line was the dominant recapture gear. Survival rates were estimated from the 1988 - 1996 tagging data using the program MARK developed by White and Burnham (1996). An age based model was developed for ages one, two, and older striped bass. The model with the best fit had time and age effects for survival and age effects for reporting. Survival rates tend to increase from younger to older fish, while variation in survival rates among years decrease with age. Reporting rates increase sequentially with age.

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TABLE 1: WLI 1996 ESTIMATED AGE FREQUENCY BY BAY

AGE	JAM	LNB	MAN	PJH	SBH	BPB	TOTAL	%
0	4	132	106	0	0	0	242	13.1%
1	852	33	181	0	0	0	1066	57.9%
2	367	48	39	0	4	1	459	24.9%
3	26	21	10	0	1	0	58	3.2%
4	1	0	1	0	0	0	2	0.1%
5	0	2	0	0	0	0	2	0.1%
6	0	0	1	0	0	0	1	0.1%
7	0	0	0	0	0	0	0	0.0%
>8	0	0	0	0	0	0	0	0.0%
NO AGE	0	2	0	0	0	0	2	0.1%
NO TL	10	0	0	0	0	0	10	0.5%
TOTAL	1260	238	338	0	5	1	1842	
# SEINES	39	29	32	3	3	2	108	
C/F	32.3	8.2	10.6	0.0	1.7	0.5	17.1	

TABLE 2: WLI 1996 ESTIMATED AGE FREQUENCY BY MONTH

AGE	MAY	JUNE	JULY	AUGUST	SEPT.	OCT.	TOTAL	%
0	0	0	32	125	53	32	242	13.1%
1	116	223	429	109	187	2	1066	57.9%
2	63	110	46	146	89	4	458	24.9%
3	7	28	8	8	6	1	58	3.1%
4	0	2	0	0	0	0	2	0.1%
5	0	1	0	0	1	0	2	0.1%
6	0	0	0	0	0	1	1	0.1%
7	0	0	0	0	0	0	0	0.0%
>8	0	0	0	0	0	0	0	0.0%
NO AGE	0	1	0	1	0	0	2	0.1%
NO TL	1	4	1	1	3	0	10	0.5%
TOTAL	187	369	516	390	339	40	1841	
# SEINES	37	28	18	4	9	12	108	
C/F	5.1	13.2	28.7	97.5	37.7	3.3	17.0	

TABLE 3 COMPARISON OF STRIPED BASS AGE FREQUENCY COLLECTED FROM WESTERN LONG ISLAND FROM 1984 - 1996

LOCATION	YEAR	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	UNKNOWN	TOTAL	HAULS
<u>NORTH SHORE</u>																			
<u>LITTLE NECK BAY</u>																			
	1984		971	151	18	2	3	2										1147	26
	1985		2	60	28	7	5	2	1								1	106	16
	1986		34	211	150	31	26	11	2	2		1	1	1			21	491	40
	1987	9	29	7	14	12	6		1	1	1						1	81	38
	1988	176	296	36	7	15	12	2	3	2					1		10	560	44
	1989	37	188	162	24	2	3		2	1	1						7	427	31
	1990	17	91	142	30	6	2	2	3	1							7	301	39
	1991	176	151	237	134	32	4	2	3	2	2	1	3	1			13	761	25
	1992	152	209	124	27	13	10	2	1	1		1					14	554	33
	1993	189	30	78	28	8	3	3	2	2		1		1			7	352	29
	1994	13	379	174	38	4	3	2	2	1							27	643	35
	1995	5	69	51	14	3	1	1					1				4	149	26
	1996	132	33	48	21		2										2	238	29
<u>MANHASSET BAY</u>																			
	1984		33	21	2	4												60	29
	1985		7	6														13	23
	1986		6	76	13	11	8										1	115	34
	1987		9	11	24	2	1											47	42
	1988	8	73	51	6	3	2	2	1								3	149	29
	1989	7	102	53	11	1	4		2	1							4	185	35
	1990	13	7	56	10	28	8	12	5	3	5		1					148	23
	1991	26	195	94	23	2	1			1	1						8	351	36
	1992	115	60	17	29	8	3										3	235	35
	1993	111	296	222	23	3	1			1							15	672	31
	1994	50	500	279	111	23	9	4	1	1	0	3	1				444	1426	29
	1995	18	50	25	7	3											5	108	23
	1996	106	181	39	10	1		1										338	32
<u>HEMPSTEAD HARBOR</u>																			
	1984		8	5			2											15	22
	1985																	0	12
	1986						1										1	2	8
	1987			3	9	1	1		1							1	1	17	26
	1988		1			1	1											3	19
	1989																	0	3
	1990																	0	6
<u>DAVIDS ISLAND</u>																			
	1990		2			1		1										4	11
<u>STONY BROOK HARBOR</u>																			
	1984			1	7	2	1											11	1
	1988			13	3												1	17	5
	1989			2					1									3	3
	1993				1		1											2	7
	1994				1													1	4
	1996			4	1													5	3
<u>PORT JEFF. HARBOR</u>																			
	1985				1													1	6
	1988																	0	9
	1993																	0	7
	1994				1													1	10
	1996																	0	3
<u>LONG ISLAND SOUND</u>																			
	1985		1															1	6

TABLE 3 CONT... COMPARISON OF STRIPED BASS AGE FREQUENCY COLLECTED FROM WESTERN LONG ISLAND FROM 1984 - 1996

LOCATION	YEAR	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	UNKNOWN	TOTAL	HAULS
<u>SOUTH SHORE</u>																			
<u>STATEN ISLAND</u>																			
	1984		28	2	3		1		1									35	34
	1985			1		2												3	12
	1986				3	1	1											5	15
	1987	2			1													3	7
	1988		2	1													1	4	13
	1989		10	2														12	4
<u>JAMAICA BAY</u>																			
	1984	1	87	7	12	1				1								109	45
	1985		68	38	6	1												113	23
	1986		24	55	6												4	89	43
	1987	8	42	11	12	5	3	1									1	83	65
	1988		268	6	3	1												278	58
	1989	10	501	162	10	1	1										7	692	58
	1990		25	52	5	1												83	52
	1991	1	494	114	11	2											11	633	58
	1992	2	295	74	4	1											12	388	46
	1993	3	40	54	1	2	1										5	106	48
	1994	1	65	8	8												2	84	56
	1995	1	265	31	6	3											9	315	32
	1996	4	852	367	26	1											10	1260	39
<u>SOUTH OYSTER BAY</u>																			
	1984		36	1														37	36
	1985																	0	25
	1986																	0	13
	1987				2													2	21
	1988																	0	3
	1989																	0	2
<u>GREAT SOUTH BAY</u>																			
	1984		4															4	6
	1988		3															3	4
<u>BELLPORT BAY</u>																			
	1985		77	4													5	86	10
	1988		182	1													4	187	20
	1989		183	9													3	195	16
	1990		1	7														8	5
	1991		24	2														26	5
	1992		10															10	3
	1993		2	12														14	4
	1994																	0	8
	1995																3	3	2
	1996			1														1	2
<u>PECONIC BAY</u>																			
	1986																1	1	7
	1987		1	3														4	8
	1988		1															1	5
	1989			2														2	3
<u>TOTAL</u>																			
	1984	1	1167	188	42	9	7	2	1	1								1418	199
	1985		155	109	35	10	5	2	1								6	323	133
	1986		64	342	172	43	36	11	2	2		1	1	1			28	703	160
	1987	19	81	35	62	20	11	1	2	1	1						3	237	211
	1988	184	826	108	19	20	15	4	4	2					1		19	1202	213
	1989	54	984	392	45	4	8	0	5	2	1						21	1516	155
	1990	30	126	257	45	36	10	15	8	4	5		1				7	544	136
	1991	203	864	447	168	36	5	2	3	3	3	1	3	1			32	1771	124
	1992	269	574	215	60	22	13	2	1	1		1					29	1187	117
	1993	303	368	366	53	13	6	3	2	3		1		1			27	1146	119
	1994	64	944	461	159	27	12	6	3	2		3	1				473	2155	142
	1995	24	384	107	27	9	1	1					1				21	575	83
	1996	242	1066	459	58	2	2	1									12	1842	108

TABLE 4: 1996 WLI STRIPED BASS LENGTH FREQUENCY BY BAY

TOTAL LENGTH	JAM	LNB	MAN	PJH	SBH	BPB	TOTAL
0-49	0	24	13	0	0	0	37
50-99	2	101	65	0	0	0	168
100-149	104	20	62	0	0	0	186
150-199	448	12	98	0	0	0	558
200-249	240	11	24	0	2	1	278
250-299	274	3	18	0	2	0	297
300-349	134	26	12	0	0	0	172
350-399	36	22	8	0	1	0	67
400-449	8	6	10	0	0	0	24
450-499	3	8	4	0	0	0	15
500-549	1	2	0	0	0	0	3
550-599	0	1	0	0	0	0	1
600-649	0	1	1	0	0	0	2
650-699	0	0	0	0	0	0	0
700-749	0	0	0	0	0	0	0
750-799	0	0	0	0	0	0	0
800-849	0	0	0	0	0	0	0
850-899	0	0	0	0	0	0	0
900-949	0	0	0	0	0	0	0
950-999	0	0	0	0	0	0	0
>1000	0	0	0	0	0	0	0
NO TL	10	1	23	0	0	0	34
TOTAL	1260	238	338	0	5	1	1842
# OF SEINES	39	29	32	3	3	2	108

TABLE 5: 1996 TOTAL LENGTH FREQUENCY BY MONTH

TOTAL LENGTH	MAY 1996	JUNE 1996	JULY 1996	AUG 1996	SEPT 1996	OCT 1996	1996 WLI
0-49	0	0	25	12	0	0	37
50-99	3	1	7	90	46	21	168
100-149	84	36	49	0	6	11	186
150-199	34	197	316	10	1	0	558
200-249	18	46	81	62	70	1	278
250-299	40	36	8	77	135	1	297
300-349	4	21	17	79	49	2	172
350-399	2	10	8	33	12	2	67
400-449	1	11	3	0	8	1	24
450-499	0	7	1	2	5	0	15
500-549	0	1	0	1	1	0	3
550-599	0	1	0	0	0	0	1
600-649	0	0	0	0	1	1	2
650-699	0	0	0	0	0	0	0
700-749	0	0	0	0	0	0	0
750-799	0	0	0	0	0	0	0
800-849	0	0	0	0	0	0	0
850-899	0	0	0	0	0	0	0
900-949	0	0	0	0	0	0	0
950-999	0	0	0	0	0	0	0
>1000	0	0	0	0	0	0	0
NO TL	1	4	2	24	4	0	34
TOTAL	187	371	517	390	338	40	1842
# OF SEINES	37	28	18	4	9	12	108

TABLE 6 COMPARISON OF STRIPED BASS TOTAL LENGTH FREQUENCY COLLECTED FROM WESTERN LONG ISLAND FROM 1984 - 1996

NORTH SHORE BAYS														SOUTH SHORE BAYS													
TL(mm)	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	TL(mm)	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
0-49	0	0	0	0	5	16	7	0	49	47	0	0	37	0-49	0	0	0	2	0	0	0	0	0	0	1	0	0
50-99	10	1	0	7	173	38	11	67	155	258	43	30	166	50-99	29	0	1	7	20	29	0	15	9	3	0	3	2
100-149	450	4	7	16	270	146	38	241	94	124	227	35	82	100-149	52	7	9	14	196	180	13	360	161	28	29	159	104
150-199	214	6	3	14	86	97	46	157	112	196	639	77	110	150-199	35	118	11	21	170	419	13	140	126	13	31	101	448
200-249	66	13	45	12	40	136	76	133	119	130	307	21	37	200-249	34	36	17	9	71	136	14	96	37	25	4	20	241
250-299	45	48	121	11	51	94	103	129	77	116	246	31	23	250-299	12	21	36	11	6	92	26	33	26	31	8	14	274
300-349	109	13	165	13	24	27	55	152	50	62	206	20	38	300-349	8	10	16	3	2	25	11	5	19	14	4	9	134
350-399	30	14	85	15	14	21	16	96	33	35	82	16	31	350-399	9	5	5	0	3	8	9	4	15	2	3	3	36
400-449	11	27	79	28	10	12	11	70	27	21	22	11	16	400-449	1	6	4	9	1	1	4	3	4	0	3	4	8
450-499	3	4	29	15	9	12	13	22	18	15	22	7	12	450-499	2	0	2	4	0	4	1	2	0	2	0	2	3
500-549	5	2	33	3	10	4	23	12	17	5	22	3	2	500-549	0	0	2	4	1	0	0	1	0	2	1	1	1
550-599	4	4	20	4	6	5	21	9	15	4	11	1	1	550-599	1	0	0	3	0	0	0	0	0	0	0	2	0
600-649	1	1	8	1	4	2	8	6	2	2	3	1	2	600-649	2	0	0	0	0	0	0	0	0	0	0	0	0
650-699	1	0	7	3	9	3	7	7	4	4	4	0	0	650-699	0	1	0	1	0	0	0	0	0	0	0	0	0
700-749	1	1	2	1	2	0	9	3	2	1	3	1	0	700-749	0	0	0	0	0	0	0	0	0	0	0	0	0
750-799	0	0	2	0	2	0	4	1	1	2	3	0	0	750-799	0	0	0	0	0	0	0	0	0	0	0	0	0
800-849	0	0	0	0	0	2	0	0	0	2	2	0	0	800-849	0	0	0	0	0	0	0	0	0	0	0	0	0
850-899	0	0	1	0	0	0	1	1	0	2	2	1	0	850-899	0	0	0	0	0	0	0	0	0	0	0	0	0
900-949	0	0	0	0	1	0	2	0	0	0	1	1	0	900-949	0	0	0	0	0	0	0	0	0	0	0	0	0
950-999	0	0	0	1	0	0	0	0	0	0	1	0	0	950-999	0	0	0	0	0	0	0	0	0	0	0	0	0
>1000	0	0	1	1	0	0	0	0	0	0	0	0	0	>1000	0	0	0	0	0	0	0	0	0	0	0	0	0
NO TL	0	0	5	0	13	0	2	6	14	0	225	1	24	NO TL	0	0	1	0	2	5	0	0	1	0	0	0	10
TOTAL	950	138	613	145	729	615	453	1112	789	1026	2071	257	581	TOTAL	185	204	104	88	472	899	91	659	398	120	84	318	1261
# SEINES	78	63	82	106	106	72	79	61	68	74	78	49	67	# SEINES	121	70	71	97	98	80	57	63	49	52	64	34	41

TOTALS														TL(mm)	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
0-49	0	0	0	2	5	16	7	0	49	47	1	0	37	0-49	0	0	0	2	5	16	7	0	49	47	1	0	37
50-99	39	1	1	14	193	67	11	82	164	261	43	33	168	50-99	39	1	1	14	193	67	11	82	164	261	43	33	168
100-149	502	11	16	30	466	326	51	601	255	152	256	194	186	100-149	502	11	16	30	466	326	51	601	255	152	256	194	186
150-199	249	124	14	35	256	516	59	297	238	209	670	178	558	150-199	249	124	14	35	256	516	59	297	238	209	670	178	558
200-249	100	49	62	22	112	272	90	229	156	155	311	41	278	200-249	100	49	62	22	112	272	90	229	156	155	311	41	278
250-299	57	69	157	23	57	186	129	162	103	147	254	45	297	250-299	57	69	157	23	57	186	129	162	103	147	254	45	297
300-349	117	23	182	17	26	54	66	157	69	76	210	29	172	300-349	117	23	182	17	26	54	66	157	69	76	210	29	172
350-399	39	19	90	15	17	29	25	100	48	37	85	19	67	350-399	39	19	90	15	17	29	25	100	48	37	85	19	67
400-449	12	33	83	37	11	13	15	73	31	21	25	15	24	400-449	12	33	83	37	11	13	15	73	31	21	25	15	24
450-499	5	4	31	20	9	16	14	24	18	17	22	9	15	450-499	5	4	31	20	9	16	14	24	18	17	22	9	15
500-549	5	2	35	7	11	4	23	13	17	7	23	4	3	500-549	5	2	35	7	11	4	23	13	17	7	23	4	3
550-599	5	4	20	7	6	5	21	9	15	4	11	3	1	550-599	5	4	20	7	6	5	21	9	15	4	11	3	1
600-649	3	1	8	1	4	2	8	6	2	2	3	1	2	600-649	3	1	8	1	4	2	8	6	2	2	3	1	2
650-699	1	1	7	4	9	3	7	7	4	4	4	0	0	650-699	1	1	7	4	9	3	7	7	4	4	4	0	0
700-749	1	1	2	1	2	0	9	3	2	1	3	1	0	700-749	1	1	2	1	2	0	9	3	2	1	3	1	0
750-799	0	0	2	0	2	0	4	1	1	2	3	0	0	750-799	0	0	2	0	2	0	4	1	1	2	3	0	0
800-849	0	0	0	0	0	2	0	0	0	2	2	0	0	800-849	0	0	0	0	0	2	0	0	0	2	2	0	0
850-899	0	0	1	0	0	0	1	1	0	2	2	1	0	850-899	0	0	1	0	0	0	1	1	0	2	2	1	0
900-949	0	0	0	0	1	0	2	0	0	0	1	1	0	900-949	0	0	0	0	1	0	2	0	0	0	1	1	0
950-999	0	0	0	1	0	0	0	0	0	0	1	0	0	950-999	0	0	0	1	0	0	0	0	0	0	1	0	0
>1000	0	0	1	1	0	0	0	0	0	0	0	0	0	>1000	0	0	1	1	0	0	0	0	0	0	0	0	0
NO TL	0	0	6	0	15	5	2	6	15	0	225	1	34	NO TL	0	0	6	0	15	5	2	6	15	0	225	1	34
TOTAL	1135	342	718	237	1202	1516	544	1771	1187	1146	2155	575	1842	TOTAL	1135	342	718	237	1202	1516	544	1771	1187	1146	2155	575	1842
# SEINES	199	133	160	211	213	155	136	124	117	126	142	83	108	# SEINES	199	133	160	211	213	155	136	124	117	126	142	83	108

TABLE 7

USFWS TAG RELEASE AGE AND TOTAL LENGTH FREQUENCY
1987-1996

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
0	0	1	0	0	0	1	0	0	0	0
1	0	214	414	54	259	256	116	496	84	479
2	0	96	362	252	438	208	344	432	104	386
3	11	15	43	44	166	57	52	149	27	57
4	52	17	4	32	34	22	11	22	9	2
5	14	14	8	8	5	12	7	11	1	2
6	6	4	0	7	2	2	3	5	1	1
7	0	4	4	6	3	1	2	3	0	0
8	0	2	2	2	3	1	3	2	0	0
9	0	0	1	2	3	0	0	0	0	0
10	0	0	0	0	1	1	1	0	0	0
11	0	0	0	0	2	0	0	0	1	0
12	0	0	0	0	1	0	1	0	0	0
13	0	1	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0
NO AGE	2	9	10	6	20	19	22	36	9	5
TOTAL	85	377	848	413	937	580	562	1156	236	932

TL	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
100-150	0	0	1	2	0	1	0	0	0	0
150-200	0	130	278	32	163	124	104	261	69	254
200-250	0	107	264	81	224	153	148	297	41	234
250-300	0	51	180	127	162	101	140	233	43	205
300-350	13	23	51	65	155	67	74	198	29	135
350-400	14	16	29	24	98	46	35	81	18	59
400-450	37	10	13	15	73	29	21	24	15	24
450-500	13	8	16	14	23	18	16	21	9	14
500-550	5	10	4	19	13	17	7	16	4	3
550-600	3	4	5	19	8	14	4	10	3	1
600-650	0	4	1	5	6	2	2	3	1	2
650-700	0	9	3	3	7	4	4	4	0	0
700-750	0	2	0	4	3	2	1	1	1	0
750-800	0	2	0	2	0	1	2	3	0	0
800-850	0	0	2	0	0	0	2	2	0	0
850-900	0	0	0	1	1	0	2	1	1	0
900-950	0	1	0	0	0	0	0	0	1	0
NO TL	0	0	1	0	1	1	0	1	1	1
TOTAL	85	377	848	413	937	580	562	1156	236	932

Table 8

RECAPTURE INFORMATION FOR STRIPED BASS TAGGED DURING 1987 - 1996

	RELYEAR									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
DAL										
NO DAL										
0-99	3	6	23	15	29	14	14	20	5	19
100-199	1	8	11	15	29	9	14	11	9	5
200-299		4	12	2	4	5	3	5	2	
300-399	1	4	12	14	21	14	10	11	2	
400-499		2	9	6	9	12	5	6	6	
500-599			4	3	3	1	1	2	1	
600-699	3	2	5	4	3	4	3	4		
700-799	2	3	5	5	9	4	1	6		
800-899	1	3	4	1	7			3		
900-999		1	1		1			1		
1000-1099	1	2	3	1	4	3	5			
1100-1199	1	3	3	3	4	1	6			
1200-1299			1	1	1	1	2			
1300-1399					2	1				
1400-1499	3		2		3	3				
1500-1599		2	1	1	4	1				
1600-1699					2					
1700-1799					1					
1800-1899		2			1					
1900-1999				1	2					
>2000		1	3	3						
TOTAL	16	45	106	79	143	76	68	72	26	24

	RELYEAR									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
RECSTATE										
CT	1		6	4	7		1	4		
DE									1	
MA	1	3	5	4	3	2	5	2	2	
MD		1	1	3			1	2		
ME	1	3		3	2		1			
NB			1						1	
NC							1			
NJ	1	2	5	3	7	2		3	1	
NY	11	31	80	58	119	69	57	58	20	24
RI	1	5	5	2	4	2	2	2	1	
VA			1	1						
TOTAL	16	45	106	79	143	76	68	72	26	24

RELYEAR	RECYEAR	RETURNS	
1987	1987	4	0.6
	1988	2	0.3
	1989	6	0.9
	1990	1	0.2
	1991	3	0.5
1988	1988	16	2.4
	1989	11	1.7
	1990	9	1.2
	1991	5	0.8
	1992	2	0.3
	1993	2	0.3
	1996	1	0.2
1989		3	0.5
	1989	37	5.6
	1990	41	6.3
	1991	11	1.7
	1992	8	1.2
	1993	3	0.5
	1995	1	0.2
	1996	2	0.3
1990	1990	32	4.9
	1991	25	3.8
	1992	10	1.5
	1993	6	0.9
	1994	1	0.2
	1995	4	0.6
	1996	1	0.2
1991	1991	67	10.2
	1992	30	4.6
	1993	22	3.4
	1994	11	1.7
	1995	9	1.4
	1996	4	0.6
1992	1992	24	3.7
	1993	33	5.0
	1994	8	1.2
	1995	5	0.8
	1996	6	0.9
1993	1993	36	5.5
	1994	17	2.6
	1995	3	0.5
	1996	12	1.8
1994	1994	34	5.2
	1995	25	3.8
	1996	13	2.0
1995	1995	17	2.6
	1996	9	1.4
1996	1996	24	3.7

	RELYEAR									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
GEARTYPE										
.			1	1	1	1		1	14	
ANCHORGILL	3	1	1	1	2		1	1		
DRIFTGILL			2	1						
HOOK&LINE	13	40	88	73	132	68	61	63	10	20
OTHER			2		1		1			
SEINE		1	5		3	6	2	6		3
TRAP		3	3	1	2	1	2		1	
TRAWL			4	2	1		1			1
TOTAL	16	45	106	79	143	76	68	72	26	24

TABLE 9 Recoveries for estimating subadult survival of striped bass. Numbers released and recaptured by release year and recovery year.

Recoveries of Striped Bass Released at Age 1

Rel Yr	N ₁₁	1	2	3	4	5	6	7	8	9
1	165	5	2	3	1	1	0	0	0	0
2	360		5	12	2	2	0	0	1	1
3	33			2	0	0	0	0	0	0
4	246				7	7	8	3	1	1
5	205					2	5	2	0	2
6	116						4	2	0	0
7	492							10	2	1
8	84								1	4
9	381									4

Recoveries of Striped Bass Released at Age 2

Rel Yr	N ₂₁	1	2	3	4	5	6	7	8	9
1	89	4	5	3	1	0	1	0	0	1
2	328		22	13	4	2	2	0	0	1
3	265			17	12	8	1	0	1	0
4	435				35	15	11	5	6	1
5	196					13	10	3	2	1
6	343						27	10	2	9
7	431							10	16	6
8	104								9	3
9	346									10

TABLE 9 CONT...

Recoveries of Striped Bass Released at Ages 3 and 4

Rel Yr	N ₁	1	2	3	4	5	6	7	8	9
1	29	2	2	1	1	1	0	0	0	0
2	45		6	5	2	2	1	0	0	0
3	75			8	6	2	1	1	2	1
4	199				21	6	2	2	1	2
5	67					5	8	0	2	1
6	62						4	2	0	0
7	170							10	4	4
8	36								5	1
9	52									2

Release and recovery years run from May 1st until the following April 30th.
 Only May through August releases used to approximate a batch release.
 Only releases of age one through age four fish used.
 The 1988 through 1996 tag releases were used.

Table 10

WLI AGE STRUCTURED MODEL RESULTS

Tagging Program	Survival Period	Size	Survival	SE	Model s	Description f	GOF P-Value	Model Min. AIC	Selection LRT
NY WLI age 1,2, & older	5/88-4/89	age 1	0.25	0.09	var (a&t)	var (a)	0.3572	Yes	Yes
	5/89-4/90		0.34	0.08		const.(t)			
	5/90-4/91		0	0					
	5/91-4/92		0.49	0.1					
	5/92-4/93		0.41	0.13					
	5/93-4/94		0.17	0.12					
	5/94-4/95		0.08	0.05					
	5/95-4/96		0.79	0.19					
	4/96-3/97*	age 2	0.65	0.19					
	5/88-4/89		0.56	0.14					
	5/89-4/90		0.35	0.07					
	5/90-4/91		0.35	0.07					
	5/91-4/92		0.43	0.07					
	5/92-4/93		0.53	0.08					
	5/93-4/94		0.46	0.08					
	5/94-4/95		0.76	0.07					
	5/95-4/96	older	0.46	0.14					
	4/96-3/97*		0.73	0.08					
	5/88-4/89		0.72	0.17					
	5/89-4/90		0.61	0.09					
	5/90-4/91		0.54	0.06					
	5/91-4/92		0.55	0.06					
	5/92-4/93		0.66	0.05					
	5/93-4/94		0.65	0.06					
	5/94-4/95		0.79	0.05					
	5/95-4/96	older	0.82	0.04					
	4/96-3/97*		0.83	0.04					
reporting age 1	5/88-3/97	age 1	0.03	0.01					
reporting age 2	5/88-3/97	age 2	0.12	0.01					
reporting older	5/88-3/97	older	0.25	0.03					
* not a complete year									

GOF - Goodness of Fit

AIC - Akaike's information criteria

LRT - Likelihood Ratio Test

TABLE 11

1996 WESTERN LONG ISLAND SPECIES COMPOSITION

SPECIES	LNB	LNB C/F	MAN	MAN C/F	JAM	JAM C/F	SBH	SBH C/F	PJF	PJF C/F	BPB	BPB C/F	TOTAL #	TOTAL C/F
DIADROMOUS														
ALEWIFE	1	0.0	13	0.4	12	0.3	0	0.0	0	0.0	49	24.5	75	0.7
AMERICAN EEL	1	0.0	1	0.0	1	0.0	0	0.0	0	0.0	7	3.5	10	0.1
AMERICAN SHAD	2	0.1	54	1.7	0	0.0	0	0.0	0	0.0	0	0.0	56	0.5
ATLANTIC TOMCOD	104	3.6	13	0.4	1	0.0	0	0.0	1	0.3	0	0.0	119	1.1
BLUEBACK HERRING	16	0.6	48	1.5	0	0.0	0	0.0	0	0.0	0	0.0	64	0.6
STRIPED BASS (YOY)	132	4.6	106	3.3	4	0.1	0	0.0	0	0.0	0	0.0	242	2.2
STRIPED BASS (OLDER)	106	3.7	232	7.3	1253	32.1	5	1.7	0	0.0	1	0.5	1597	14.8
STRIPED BASS (HATCHERY)	0	0.0	0	0.0	3	0.1	0	0.0	0	0.0	0	0.0	3	0.0
MARINE														
ATLANTIC HERRING	625	21.6	988	30.9	5507	141.2	0	0.0	0	0.0	0	0.0	7120	65.9
ATLANTIC MENHADEN	86	3.0	96	3.0	146	3.7	0	0.0	0	0.0	0	0.0	328	3.0
ATLANTIC NEEDLEFISH	0	0.0	0	0.0	7	0.2	0	0.0	0	0.0	0	0.0	7	0.1
BAY ANCHOVY	96	3.3	174	5.4	999	25.6	0	0.0	1	0.3	0	0.0	1270	11.8
BLUEFISH (YOY)	57	2.0	89	2.8	129	3.3	0	0.0	0	0.0	0	0.0	275	2.5
BLUEFISH (OLDER)	0	0.0	0	0.0	1	0.0	0	0.0	0	0.0	0	0.0	1	0.0
BUTTERFISH	0	0.0	3	0.1	0	0.0	0	0.0	0	0.0	0	0.0	3	0.0
CREVALLE JACK	0	0.0	1	0.0	1	0.0	0	0.0	0	0.0	0	0.0	2	0.0
GRUBBY SCULPIN	3	0.1	1	0.0	3	0.1	0	0.0	1	0.3	0	0.0	8	0.1
LINED SEA HORSE	0	0.0	0	0.0	1	0.0	0	0.0	0	0.0	0	0.0	1	0.0
NORTHERN KINGFISH	0	0.0	0	0.0	5	0.1	0	0.0	0	0.0	0	0.0	5	0.0
NORTHERN PIPEFISH	5	0.2	4	0.1	59	1.5	4	1.3	1	0.3	0	0.0	73	0.7
NORTHERN PUFFER	0	0.0	0	0.0	31	0.8	0	0.0	0	0.0	0	0.0	31	0.3
NORTHERN SEA ROBIN	0	0.0	0	0.0	9	0.2	0	0.0	0	0.0	0	0.0	9	0.1
PERMIT	0	0.0	0	0.0	1	0.0	0	0.0	0	0.0	0	0.0	1	0.0
SAND LANCE sp.	2	0.1	1	0.0	0	0.0	0	0.0	5422	1807.3	0	0.0	5425	50.2
SEABOARD GOBY	1	0.0	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	0.0
SEA ROBIN SP.	0	0.0	14	0.4	0	0.0	0	0.0	0	0.0	0	0.0	14	0.1
SILVERSIDE sp.	5531	190.7	17756	554.9	13627	349.4	274	91.3	0	0.0	0	0.0	37188	344.3
SMALL MOUTH FLOUNDER	2	0.1	0	0.0	59	1.5	0	0.0	0	0.0	0	0.0	61	0.6
SPOT	21	0.7	0	0.0	89	2.3	0	0.0	0	0.0	0	0.0	110	1.0
SPOTFIN BUTTERFLYFISH	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0
SPOTTED HAKE	4	0.1	0	0.0	2	0.1	0	0.0	0	0.0	0	0.0	6	0.1
STRIPED SEA ROBIN	0	0.0	0	0.0	4	0.1	0	0.0	0	0.0	0	0.0	4	0.0
SUMMER FLOUNDER	1	0.0	0	0.0	8	0.2	0	0.0	0	0.0	0	0.0	9	0.1
TAUTOG	1	0.0	2	0.1	5	0.1	0	0.0	0	0.0	0	0.0	8	0.1
WHITE MULLET	0	0.0	0	0.0	110	2.8	0	0.0	1	0.3	0	0.0	111	1.0
WINDOWPANE	18	0.6	22	0.7	35	0.9	1	0.3	0	0.0	0	0.0	76	0.7
WINTER FLOUNDER (YOY)	48	1.7	19	0.6	148	3.8	662	220.7	1	0.3	0	0.0	878	8.1
WINTER FLOUNDER (OLDER)	18	0.6	19	0.6	122	3.1	2	0.7	0	0.0	0	0.0	161	1.5
ESTUARINE														
FOUR SPINE STICKLEBACK	0	0.0	0	0.0	9	0.2	2	0.7	0	0.0	0	0.0	11	0.1
FUNDULUS sp.	1474	50.8	2300	71.9	793	20.3	11	3.7	0	0.0	11	5.5	4589	42.5
HOGCHOKER	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	15	7.5	15	0.1
THREE SPINE STICKLEBACK	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0
RAINWATER KILLFISH	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	1.5	3	0.0
SHEEPSHEAD MINNOW	3	0.1	8	0.3	0	0.0	0	0.0	0	0.0	0	0.0	11	0.1
WHITE PERCH	26	0.9	11	0.3	44	1.1	0	0.0	0	0.0	1	0.5	82	0.8
FRESHWATER														
GIZZARD SHAD	0	0.0	2	0.1	0	0.0	0	0.0	0	0.0	0	0.0	2	0.0
TOTAL FINFISH	8386	289.2	21978	686.8	23228	595.6	961	320.3	5428	1809.3	87	43.5	60068	556.2
# DIADROMOUS	6		6		4		1		1		3		6	
# MARINE	16		15		23		4		6		0		28	
# ESTUARINE	4		3		3		2		0		4		7	
# FRESH WATER	0		1		0		0		0		0		1	
# SEINES	29		32		39		3		3		2		108	
# FISH SPECIES	26		25		30		7		7		7		42	
CRABS														
BLUE	19	0.7	4	0.1	132	3.4	0	0.0	0	0.0	26	13.0	181	1.7
CALICO	97	3.3	387	12.1	22	0.6	15	5.0	0	0.0	0	0.0	521	4.8
GREEN	19	0.7	4	0.1	0	0.0	1	0.3	0	0.0	0	0.0	24	0.2
HORSHOE	133	4.6	72	2.3	45	1.2	18	6.0	3	1.0	0	0.0	271	2.5
MUD	1	0.0	5	0.2	1	0.0	0	0.0	26	8.7	0	0.0	33	0.3
ROCK	4	0.1	10	0.3	0	0.0	0	0.0	0	0.0	0	0.0	14	0.1
SPIDER	2	0.1	0	0.0	1	0.0	1	0.3	0	0.0	0	0.0	4	0.0
TERRIPAN	0	0.0	0	0.0	1	0.0	0	0.0	0	0.0	0	0.0	1	0.0

TABLE 12

COMPARISON OF SPECIES COMPOSITION FROM WESTERN LONG ISLAND FROM 1984 - 1996

SPECIES	1984 #	1985 #	1986 #	1987 #	1988 #	1989 #	1990 #	1991 #	1992 #	1993 #	1994 #	1995 #	1996 #
DIADROMOUS													
ALEWIFE	3	64	59	144	412	286	14	21	0	38	142	1	75
AMERICAN EEL	122	46	79	61	116	35	5	3	4	4	10	0	10
AMERICAN SHAD	61	1	13	30	26	18	82	18	3	10	5	0	56
ATLANTIC TOMCOD	641+	100	52	216	362	471	218	56	13	110	154	39	119
BLUEBACK HERRING	307	289	311	108	152	331	37	1936	38	0	0	0	64
STRIPED BASS (YOY)	1	0	0	19	184	54	30	203	269	303	64	30	242
STRIPED BASS (OLDER)	1417	323	703	218	1016	1461	514	1568	918	841	2086	542	1597
STRIPED BASS (HATCHERY)	0	0	0	0	2	1	0	0	0	2	5	3	3
MARINE													
ATLANTIC HERRING	1209	16	28203	1056	1887	71	441	8	331	10340	189	63	7120
ATLANTIC MACKEREL	0	0	3	1	1	0	2	2	7	1	6	0	0
ATLANTIC MENHADEN	280	119	1638	260	40729	4343	5696	8563	7402	719	16078	231	328
ATLANTIC NEEDLEFISH	73	4	4	15	60	51	5	35	6	0	13	11	7
BAY ANCHOVY	7063+	454	37098	10046	15491	8878	23323	8616	6216	1048	738	154	1270
BLACK SEA BASS	1	0	0	0	0	0	0	0	0	0	6	3	0
BLUEFISH	1978	389	3695	11800	930	2893	1030	1247	1089	404	357	281	276
BLUESPOTTED CORNETFISH	0	0	0	0	0	2	0	0	0	0	0	0	0
BUTTERFISH	2	0	0	6	0	1	0	0	0	0	2	0	3
BURRFISH	6	0	0	0	1	0	0	1	0	0	0	1	0
CREVALLE JACK	52	5	11	31	161	5	17	6	3	13	17	4	2
CUNNER	69	20	4	9	49	1	3	0	1	5	2	1	0
COWFISH	0	0	0	0	0	1	0	0	0	0	0	0	0
EEL LEPTOCEPHALUS	0	0	0	0	4	0	3	0	0	0	0	0	0
4-BEARDED ROCKLING	0	0	0	0	15	0	5	4	0	21	0	0	0
FOUR SPOT FLOUNDER	0	0	0	0	0	1	0	0	0	0	0	0	0
GOATFISH	0	0	0	1	0	0	0	0	0	0	0	0	0
GREY SNAPPER	0	2	0	15	2	0	0	0	0	0	0	0	0
GRUBBY SCULPIN	36	7	10	10	269	45	7	28	33	33	30	11	8
HALFBEAK	0	0	0	0	2	0	1	0	0	0	0	0	0
HICKORY SHAD	1	0	0	0	1	18	0	0	1	0	0	0	0
HOUDFISH	0	0	0	0	0	0	0	0	0	2	0	0	0
INSHORE LIZARDFISH	7	0	1	0	2	6	7	0	18	4	48	0	0
LINED SEA HORSE	60	38	78	10	73	16	18	18	2	1	2	1	1
LONG HORN SCULPIN	4	0	0	0	0	0	0	0	0	0	0	0	0
LOOKDOWN	1	0	0	0	0	0	0	0	0	0	0	0	0
NAKED GOBY	6	1	0	4	49	13	2	25	11	7	1	0	0
NORTHERN KINGFISH	168	0	77	42	88	2	29	96	36	10	80	34	5
NORTHERN PIPEFISH	555	207	855	385	1160	423	149	421	164	159	364	130	73
NORTHERN PUFFER	74	29	144	62	48	17	9	206	27	66	51	26	31
NORTHERN SEA ROBIN	0	3	90	0	4	0	0	1	1	4	40	1	9
NORTHERN SENNET	1	0	2	10	2	0	0	0	2	0	4	0	0
NORTHERN STARGAZER	2	0	0	0	0	0	1	0	8	0	7	0	0
OYSTERTOAD FISH	111	37	46	91	289	22	1	7	0	0	1	2	0
PERMIT	5	0	4	10	2	19	2	0	0	0	0	0	1
PINFISH	0	0	0	0	0	0	0	0	0	0	10	0	0
PLANEHEAD FILEFISH	0	2	0	0	0	1	0	0	0	0	0	0	0
POLLACK	1585	3	9	8	144	2	5	2	4	0	26	0	0
RED HAKE	0	7	0	0	0	0	0	0	0	0	0	1	0
ROCK GUNNEL	0	0	1	2	5	8	0	0	0	0	0	0	0
ROUND HERRING	0	0	0	1	2	0	0	0	0	0	0	0	0
SAND LANCE sp.	3	185	0	179	148	3	400	148	617	960	10	3	5425
SCAD	0	0	0	3	2	0	1	0	0	0	0	0	0
SCUP	12	19	1	5	0	0	0	0	0	0	0	0	0
SEABOARD GOBY	0	0	0	0	0	0	0	0	0	0	0	0	2
SEA ROBIN SP.	0	0	0	0	0	0	0	0	0	1	0	0	14
SHORT BIGEYE	0	0	0	1	0	0	0	0	0	0	0	0	0
SILVER HAKE	4	1	0	0	0	0	0	0	0	0	0	0	0
SILVER PERCH	0	0	0	0	0	0	0	0	0	0	0	83	0
SILVERSIDE sp.	6630+	6364	24574	81751	196485	93194	59127	63554	77126	22866	57310	29768	37188
SMALL MOUTH FLOUNDER	49	4	0	3	24	6	5	29	18	8	11	1	61
SMOOTH DOGFISH	0	0	0	0	0	5	0	0	0	0	0	0	0
SNAKEFISH	0	0	0	1	0	0	0	0	0	0	0	0	0
SPANISH MACKEREL	0	0	0	0	0	0	61	0	0	0	26	0	0
SPOT	1	17	353	5	2	0	23	8	1	6	61	3	110
SPOTFIN BUTTERFLYFISH	0	0	0	9	0	0	0	0	0	0	0	0	1
SPOTTED HAKE	3	0	3	0	5	0	0	6	0	3	2	1	6
STRIPED ANCHOVY	0	0	0	0	1	1	0	0	0	0	0	0	0
STRIPED MULLET	129+	3	192	63	1	11	0	0	0	0	0	0	0
STRIPED SEA ROBIN	52	4	0	3	3	7	3	55	14	1	27	3	4
SUMMER FLOUNDER	105	39	103	43	14	36	14	78	19	52	57	26	9
TAUTOG	80	49	70	198	270	42	40	475	50	18	18	12	8
TRUNKFISH	0	0	0	0	0	5	0	0	0	0	0	0	0
WEAKFISH	425	0	50	2	7	0	20	12	0	1	0	0	0
WHITE HAKE	0	0	0	1	0	0	0	0	0	0	0	0	0
WHITE MULLET	63	13	580	127	238	229	5	142	16	203	9	0	111
WINDOWPANE	146	359	146	121	178	72	141	133	95	329	89	10	76
WINTER FLOUNDER	904	610	1139	1981	3567	734	1960	2672	3351	2347	2284	1670	1039

TABLE 12 CONT...

COMPARISON OF SPECIES COMPOSITION FROM WESTERN LONG ISLAND FROM 1984 - 1996

SPECIES	1984 #	1985 #	1986 #	1987 #	1988 #	1989 #	1990 #	1991 #	1992 #	1993 #	1994 #	1995 #	1996 #
ESTUARINE													
FOUR SPINE STICKLEBACK	221	93	10	57	1218	2853	41	51	7	11	187	1	11
FUNDULUS sp.	9546+	8321	14835	31512	39976	38555	14902	15774	25074	6013	6031	10192	4589
HOGCHOKER	12	37	2	6	181	142	122	124	21	21	233	32	15
NINE SPINE STICKLEBACK	0	4	0	0	4185	1057	0	0	0	0	0	0	0
THREE SPINE STICKLEBACK	10	149	3	639	28	15	2	2	0	1	1	0	1
RAINWATER KILLFISH	0	0	3	11	0	1	0	0	0	0	0	0	3
SHEEPSHEAD MINNOW	0	0	0	247	541	17	188	5	892	67	172	0	11
WHITE PERCH	44	29	67	120	57	31	56	19	33	51	81	16	82
FRESHWATER													
BLUEGILL	0	0	0	0	8	0	0	0	0	0	0	0	0
BROWN TROUT	0	0	0	0	0	0	0	0	2	0	1	0	0
CARP	0	19	0	0	2	16	12	0	0	1	3	0	0
GIZZARD SHAD	0	0	0	0	1	0	4	0	0	0	0	4	2
GOLDEN SHINER	0	0	0	0	5	0	0	0	0	0	0	0	0
LARGE MOUTH BASS	0	0	0	0	0	1	0	0	0	0	0	0	0
RAINBOW TROUT	0	0	0	0	0	7	1	1	1	0	0	1	0
REDBREAST SUNFISH	0	0	0	0	0	1	0	0	0	0	0	0	0
REDFIN PICKEREL	0	0	0	0	0	0	0	1	0	0	0	0	0
TOTALS	34340+	18485	115321	141759	310887	156537	108784	106380	123944	47105	87151	42597	60068
# SEINES	199	133	160	211	213	155	133	124	117	126	142	83	108
# SPECIES	51	44	43	54	60	55	50	44	42	42	48	37	42
# DIADROMOUS	6	6	6	6	6	6	6	6	5	5	5	3	6
# MARINE	40	31	31	41	43	37	35	30	30	30	35	28	28
# ESTUARINE	5	6	6	7	7	8	6	6	5	6	6	4	7
# FRESH WATER	0	1	0	0	4	4	3	2	2	1	2	2	1

TABLE 13

LITTLE NECK BAY

Number of Species

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
# Diadromous	6	6	5	5	5	4	4	4	3	2	6
# Marine	13	13	23	13	22	17	13	13	18	13	16
# Estuarine	5	3	5	3	2	2	4	4	3	2	4
Total # Species	24	22	33	21	29	23	21	21	24	18	26
# Seine Hauls	40	38	44	31	39	25	33	29	35	26	29

MANHASSET BAY

Number of Species

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
# Diadromous	6	3	4	6	3	5	3	2	4	3	6
# Marine	19	14	16	18	19	20	19	18	15	11	15
# Estuarine	5	7	5	3	4	3	5	5	4	3	3
Total # Species	30	24	25	27	26	28	27	25	23	18	24
# Seine Hauls	34	42	29	35	23	36	35	31	23	23	32

JAMAICA BAY

Number of Species

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
# Diadromous	5	4	4	5	4	6	3	3	4	1	4
# Marine	23	24	25	29	30	26	26	21	29	25	23
# Estuarine	2	4	4	4	4	3	4	3	3	2	3
Total # Species	30	32	33	38	38	35	33	27	36	28	30
# Seine Hauls	43	65	58	58	52	58	46	27	56	32	39

Table 14

LITTLE NECK BAY

Rank	1	2	3	4	5
1986	Bay Anchovy	Silverside	Fundulus	Menhaden	Striped Bass
1987	Silverside	Bay Anchovy	Bluefish	Fundulus	Winter Flounder
1988	Silverside	Menhaden	Fundulus	Winter Flounder	Striped Bass
1989	Silverside	Menhaden	Bay Anchovy	Fundulus	Bluefish
1990	Bay Anchovy	Silverside	Menhaden	Fundulus	Striped Bass
1991	Silverside	Blueback Herring	Bay Anchovy	Fundulus	Striped Bass
1992	Silverside	Menhaden	Bay Anchovy	Striped Bass	Fundulus
1993	Silverside	Fundulus	Striped Bass	Atlantic Herring	Bay Anchovy
1994	Silverside	Menhaden	Striped Bass	Fundulus	Winter Flounder
1995	Silverside	Fundulus	Striped Bass	Winter Flounder	Tomcod
1996	Silverside	Fundulus	Striped Bass	Tomcod	Bay Anchovy

MANHASSET BAY

Rank	1	2	3	4	5
1986	Atlantic Herring	Fundulus	Silverside	Bluefish	Bay Anchovy
1987	Silverside	Fundulus	Bay Anchovy	Winter Flounder	Bluefish
1988	Silverside	Fundulus	Bay Anchovy	Menhaden	Atlantic Herring
1989	Silverside	Fundulus	Bay Anchovy	Bluefish	Winter Flounder
1990	Silverside	Fundulus	Bay Anchovy	Winter Flounder	Sandlance
1991	Silverside	Menhaden	Fundulus	Bay Anchovy	Winter Flounder
1992	Silverside	Fundulus	Winter Flounder	Bay Anchovy	Sheepshead Minnow
1993	Atlantic Herring	Silverside	Fundulus	Sandlance	Winter Flounder
1994	Silverside	Fundulus	Striped Bass	Bay Anchovy	Winter Flounder
1995	Silverside	Fundulus	Striped Bass	Atlantic Herring	Bluefish
1996	Silverside	Fundulus	Atlantic Herring	Striped Bass	Bay Anchovy

Table 14 CONT...

JAMAICA BAY

Rank	1	2	3	4	5
1986	Silverside	Fundulus	Bay Anchovy	Pipefish	Bluefish
1987	Silverside	Fundulus	Bluefish	Winter Flounder	Bay Anchovy
1988	Silverside	Fundulus	Bay Anchovy	Atlantic Herring	Winter Flounder
1989	Silverside	Fundulus	Bay Anchovy	Striped Bass	Bluefish
1990	Silverside	Fundulus	Bay Anchovy	Winter Flounder	Bluefish
1991	Silverside	Fundulus	Bay Anchovy	Winter Flounder	Striped Bass
1992	Silverside	Fundulus	Winter Flounder	Bay Anchovy	Sandlance
1993	Silverside	Fundulus	Winter Flounder	Bluefish	White Mullet
1994	Silverside	Fundulus	Winter Flounder	Bluefish	Pipefish
1995	Silverside	Fundulus	Winter Flounder	Striped Bass	Bluefish
1996	Silverside	Atlantic Herring	Striped Bass	Bay Anchovy	Fundulus

TABLE 15: BLUEFISH MEASURED ON THE WESTERN LONG ISLAND SURVEY 1996

TL	MAY	JUNE	JULY	AUG	SEPT	OCT	TOTAL	TL	LNB	MAN	SBH	PJH	JAM	BPB	TOTAL	% FREQ
O-19	0	0	0	0	0	0	0	O-19	0	0	0	0	0	0	0	0.0
20-39	0	0	0	0	0	0	0	20-39	0	0	0	0	0	0	0	0.0
40-59	0	0	0	0	0	0	0	40-59	0	0	0	0	0	0	0	0.0
60-79	0	1	7	0	0	0	8	60-79	0	1	0	0	7	0	8	3.0
80-99	0	0	75	0	0	0	75	80-99	2	0	0	0	73	0	75	27.8
100-119	0	0	60	0	0	0	60	100-119	37	8	0	0	15	0	60	22.2
120-139	0	0	8	6	0	0	14	120-139	2	8	0	0	4	0	14	5.2
140-159	0	0	0	23	1	0	24	140-159	0	23	0	0	1	0	24	8.9
160-179	0	0	0	6	27	0	33	160-179	2	18	0	0	13	0	33	12.2
180-199	0	0	0	1	35	0	36	180-199	5	27	0	0	4	0	36	13.3
200-219	0	0	0	0	18	0	18	200-219	8	4	0	0	8	0	18	6.7
220-239	0	0	0	0	1	0	1	220-239	0	0	0	0	1	0	1	0.4
240-259	0	0	0	0	0	0	0	240-259	0	0	0	0	0	0	0	0.0
260-279	0	0	0	0	0	0	0	260-279	0	0	0	0	0	0	0	0.0
280-299	0	0	0	0	0	0	0	280-299	0	0	0	0	0	0	0	0.0
300-319	0	0	0	0	0	0	0	300-319	0	0	0	0	0	0	0	0.0
320-339	0	0	0	0	0	0	0	320-339	0	0	0	0	0	0	0	0.0
340-359	0	0	0	0	0	0	0	340-359	0	0	0	0	0	0	0	0.0
360-379	0	0	0	0	0	0	0	360-379	0	0	0	0	0	0	0	0.0
380-399	0	0	0	0	0	0	0	380-399	0	0	0	0	0	0	0	0.0
400-419	0	0	0	0	0	0	0	400-419	0	0	0	0	0	0	0	0.0
420-239	0	0	0	0	0	0	0	420-239	0	0	0	0	0	0	0	0.0
440-459	0	0	0	0	0	0	0	440-459	0	0	0	0	0	0	0	0.0
460-479	0	0	0	0	0	0	0	460-479	0	0	0	0	0	0	0	0.0
480-499	0	0	0	0	0	0	0	480-499	0	0	0	0	0	0	0	0.0
500-519	0	0	0	0	0	0	0	500-519	0	0	0	0	0	0	0	0.0
520-539	0	0	0	0	0	0	0	520-539	0	0	0	0	0	0	0	0.0
540-559	0	0	0	0	0	0	0	540-559	0	0	0	0	0	0	0	0.0
560-579	0	0	0	0	0	0	0	560-579	0	0	0	0	0	0	0	0.0
580-599	0	0	0	0	0	0	0	580-599	0	0	0	0	0	0	0	0.0
600-619	0	0	0	0	0	0	0	600-619	0	0	0	0	0	0	0	0.0
>620	0	1	0	0	0	0	1	>620	0	0	0	0	1	0	1	0.4
NO TL	0	0	3	3	0	0	6	NO TL	3	0	0	0	3	0	6	
TOTAL	0	2	153	39	82	0	276	TOTAL	57	89	0	0	130	0	276	
SEINES #	37	28	18	4	9	12	108	SEINES #	29	32	3	3	39	2	108	

TABLE 16 BLUEFISH TOTAL LENGTH FREQUENCY FROM 1986 - 1996

TL	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
0-19	0	0	0	0	0	0	0	0	0	0	0
20-39	0	43	0	0	0	0	0	0	0	0	0
40-59	33	126	8	12	10	2	32	9	5	0	0
60-79	351	278	98	25	66	14	57	47	8	12	8
80-99	524	228	118	121	187	117	123	62	31	23	75
100-119	256	205	103	107	93	126	62	74	47	33	60
120-139	85	142	65	120	96	68	64	82	66	15	14
140-159	32	103	68	77	80	75	39	48	57	32	24
160-179	12	95	49	69	36	132	19	24	42	24	33
180-199	21	95	19	39	16	50	0	10	10	4	36
200-219	3	72	5	17	10	31	0	1	0	0	18
220-239	4	9	7	5	2	8	0	0	2	0	1
240-259	0	1	1	0	0	0	0	0	2	0	0
260-279	0	1	0	0	1	0	1	0	0	0	0
280-299	0	0	0	0	9	0	4	0	0	0	0
300-319	0	1	0	0	4	0	1	0	0	1	0
320-339	0	0	0	0	3	0	0	0	0	0	0
340-359	0	2	0	1	0	0	0	0	0	1	0
360-379	0	0	0	0	0	0	0	1	0	0	0
380-399	0	0	0	0	0	0	0	1	0	0	0
400-419	0	0	0	0	0	0	0	0	0	0	0
420-439	0	0	0	0	0	0	0	0	0	0	0
440-459	0	0	0	0	0	0	0	0	0	0	0
460-479	0	0	0	0	0	0	0	0	0	0	0
480-499	0	0	0	0	0	0	0	0	0	0	0
500-519	0	0	0	0	0	0	0	0	0	2	0
520-539	1	0	0	0	0	0	0	0	0	0	0
540-559	0	0	0	0	0	0	0	0	0	0	0
560-579	1	1	0	0	0	0	4	0	1	0	0
580-599	2	1	0	0	0	0	6	0	0	0	0
600-619	1	0	1	0	0	0	4	0	1	0	0
620-639	4	0	3	1	0	0	2	0	0	2	0
640-659	4	1	1	1	0	0	2	0	0	0	0
660-679	5	0	2	0	0	0	0	0	0	0	0
>680	4	1	10	6	0	1	2	0	0	0	1
NO LENGTH	2352	10395	372	2292	417	623	667	45	85	132	6
TOTAL	3695	11800	930	2893	1030	1247	1089	404	357	289	276
# SEINES	160	211	213	155	138	124	117	126	142	83	100

TABLE 17:

WINTER FLOUNDER MEASURED ON THE WESTERN LONG ISLAND SURVEY 1996

TL	MAY	JUNE	JULY	AUG	SEPT	OCT	TOTAL	TL	LNB	MAN	SBH	PJH	JAM	BPB	TOTAL	% FREQ
O-19	1	0	0	0	0	0	1	O-19	0	1	0	0	0	0	1	0.2
20-39	41	113	2	0	0	0	156	20-39	9	1	101	0	44	0	155	36.2
40-59	20	32	28	0	9	6	95	40-59	5	7	24	1	59	0	96	22.0
60-79	2	1	59	0	14	23	99	60-79	21	10	0	0	68	0	99	23.0
80-99	6	1	7	2	10	6	32	80-99	15	5	0	0	12	0	32	7.4
100-119	6	5	0	0	2	4	17	100-119	4	5	2	0	6	0	17	3.9
120-139	7	8	1	0	0	0	16	120-139	5	4	0	0	7	0	16	3.7
140-159	5	1	0	0	0	0	6	140-159	0	1	0	0	5	0	6	1.4
160-179	0	1	0	0	0	0	1	160-179	1	0	0	0	0	0	1	0.2
180-199	2	1	0	0	0	0	3	180-199	1	2	0	0	0	0	3	0.7
200-219	0	0	0	0	0	0	0	200-219	0	0	0	0	0	0	0	0.0
220-239	0	0	0	0	0	0	0	220-239	0	0	0	0	0	0	0	0.0
240-259	0	0	0	0	0	0	0	240-259	0	0	0	0	0	0	0	0.0
260-279	0	0	0	0	0	0	0	260-279	0	0	0	0	0	0	0	0.0
280-299	1	2	0	0	0	0	3	280-299	2	1	0	0	0	0	3	0.7
300-319	2	0	0	0	0	0	2	300-319	1	1	0	0	0	0	2	0.5
320-339	0	0	0	0	0	0	0	320-339	0	0	0	0	0	0	0	0.0
340-359	0	0	0	0	0	0	0	340-359	0	0	0	0	0	0	0	0.0
360-379	0	0	0	0	0	0	0	360-379	0	0	0	0	0	0	0	0.0
380-399	0	0	0	0	0	0	0	380-399	0	0	0	0	0	0	0	0.0
400-419	0	0	0	0	0	0	0	400-419	0	0	0	0	0	0	0	0.0
420-239	0	0	0	0	0	0	0	420-239	0	0	0	0	0	0	0	0.0
440-459	0	0	0	0	0	0	0	440-459	0	0	0	0	0	0	0	0.0
460-479	0	0	0	0	0	0	0	460-479	0	0	0	0	0	0	0	0.0
480-499	0	0	0	0	0	0	0	480-499	0	0	0	0	0	0	0	0.0
500-519	0	0	0	0	0	0	0	500-519	0	0	0	0	0	0	0	0.0
520-539	0	0	0	0	0	0	0	520-539	0	0	0	0	0	0	0	0.0
540-559	0	0	0	0	0	0	0	540-559	0	0	0	0	0	0	0	0.0
560-579	0	0	0	0	0	0	0	560-579	0	0	0	0	0	0	0	0.0
580-599	0	0	0	0	0	0	0	580-599	0	0	0	0	0	0	0	0.0
600-619	0	0	0	0	0	0	0	600-619	0	0	0	0	0	0	0	0.0
>620	0	0	0	0	0	0	0	>620	0	0	0	0	0	0	0	0.0
NO TL	69	539	0	0	0	0	608	NO TL	3	0	536	0	69	0	608	
TOTAL	162	704	97	2	35	39	1039	TOTAL	67	38	663	1	270	0	1039	
SEINES #	37	28	18	4	9	12	108	SEINES #	29	32	3	3	39	2	108	

TABLE 18

WINTER FLOUNDER TOTAL LENGTH FREQUENCY FROM 1986 - 1996

TL	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
0-19	0	0	1	0	27	0	3	0	1	0	1
20-39	20	87	199	86	227	144	229	145	200	31	156
40-59	305	469	594	157	419	558	521	516	475	219	95
60-79	368	190	256	98	378	325	345	276	194	163	99
80-99	43	16	114	49	66	68	88	82	50	30	32
100-119	22	37	87	49	13	22	25	83	31	8	17
120-139	33	70	88	46	19	11	10	58	16	10	16
140-159	30	61	62	20	16	15	12	24	10	6	6
160-179	23	47	35	22	9	4	4	9	3	4	1
180-199	25	25	28	8	2	4	5	3	5	2	3
200-219	13	15	5	5	2	0	1	3	0	1	0
220-239	6	14	8	4	3	3	0	1	1	1	0
240-259	7	16	13	4	2	0	0	2	2	0	0
260-279	8	12	16	11	4	0	1	5	2	0	0
280-299	8	13	16	10	3	0	2	4	2	0	3
300-319	6	6	6	10	1	1	1	6	0	5	2
320-339	3	1	6	4	0	0	0	3	3	0	0
340-359	1	2	6	2	0	0	0	2	5	0	0
360-379	0	0	2	1	0	0	0	1	0	1	0
380-399	1	0	0	0	0	0	0	0	0	0	0
>400	0	0	0	1	0	0	0	0	1	0	0
NO TL	217	900	2025	147	769	1517	2104	1124	1283	1189	608
TOTAL	1139	1981	3567	734	1960	2672	3351	2347	2284	1670	1039
# SEINES	160	211	213	155	136	124	117	126	142	83	108

TABLE 19: SUMMER FLOUNDER MEASURED ON THE WESTERN LONG ISLAND SURVEY 1998

TL	MAY	JUNE	JULY	AUG	SEPT	OCT	TOTAL	TL	LNB	MAN	SBH	PJH	JAM	BPB	TOTAL	% FREQ
0-19	0	0	0	0	0	0	0	0-19	0	0	0	0	0	0	0	0.0
20-39	0	0	0	0	0	0	0	20-39	0	0	0	0	0	0	0	0.0
40-59	0	0	0	0	0	0	0	40-59	0	0	0	0	0	0	0	0.0
60-79	0	0	2	0	0	0	2	60-79	0	0	0	0	2	0	2	22.2
80-99	0	0	2	0	0	0	2	80-99	0	0	0	0	2	0	2	22.2
100-119	0	0	2	0	0	0	2	100-119	0	0	0	0	2	0	2	22.2
120-139	0	0	0	0	0	0	0	120-139	0	0	0	0	0	0	0	0.0
140-159	0	0	0	0	0	0	0	140-159	0	0	0	0	0	0	0	0.0
160-179	0	0	0	0	0	0	0	160-179	0	0	0	0	0	0	0	0.0
180-199	0	0	0	0	0	0	0	180-199	0	0	0	0	0	0	0	0.0
200-219	0	0	0	0	0	0	0	200-219	0	0	0	0	0	0	0	0.0
220-239	0	0	0	0	0	0	0	220-239	0	0	0	0	0	0	0	0.0
240-259	0	0	0	0	0	0	0	240-259	0	0	0	0	0	0	0	0.0
260-279	0	0	0	0	0	0	0	260-279	0	0	0	0	0	0	0	0.0
280-299	1	0	0	0	0	0	1	280-299	0	0	0	0	1	0	1	11.1
300-319	1	1	0	0	0	0	2	300-319	1	0	0	0	1	0	2	22.2
320-339	0	0	0	0	0	0	0	320-339	0	0	0	0	0	0	0	0.0
340-359	0	0	0	0	0	0	0	340-359	0	0	0	0	0	0	0	0.0
360-379	0	0	0	0	0	0	0	360-379	0	0	0	0	0	0	0	0.0
380-399	0	0	0	0	0	0	0	380-399	0	0	0	0	0	0	0	0.0
400-419	0	0	0	0	0	0	0	400-419	0	0	0	0	0	0	0	0.0
420-239	0	0	0	0	0	0	0	420-239	0	0	0	0	0	0	0	0.0
440-459	0	0	0	0	0	0	0	440-459	0	0	0	0	0	0	0	0.0
460-479	0	0	0	0	0	0	0	460-479	0	0	0	0	0	0	0	0.0
480-499	0	0	0	0	0	0	0	480-499	0	0	0	0	0	0	0	0.0
500-519	0	0	0	0	0	0	0	500-519	0	0	0	0	0	0	0	0.0
520-539	0	0	0	0	0	0	0	520-539	0	0	0	0	0	0	0	0.0
540-559	0	0	0	0	0	0	0	540-559	0	0	0	0	0	0	0	0.0
560-579	0	0	0	0	0	0	0	560-579	0	0	0	0	0	0	0	0.0
580-599	0	0	0	0	0	0	0	580-599	0	0	0	0	0	0	0	0.0
600-619	0	0	0	0	0	0	0	600-619	0	0	0	0	0	0	0	0.0
>620	0	0	0	0	0	0	0	>620	0	0	0	0	0	0	0	0.0
NO TL	0	0	0	0	0	0	0	NO TL	0	0	0	0	0	0	0	
TOTAL	2	1	6	0	0	0	9	TOTAL	1	0	0	0	8	0	9	
SEINES #	37	28	18	4	9	12	108	SEINES #	29	32	3	3	39	2	108	

TABLE 20: SUMMER FLOUNDER TOTAL LENGTH FREQUENCY FROM 1986 - 1996

TL	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
0-19	0	0	0	0	0	0	0	0	0	0	0
20-39	1	0	0	1	1	3	0	0	1	0	0
40-59	7	1	0	12	1	7	3	2	5	0	0
60-79	3	0	0	9	1	8	3	13	7	4	2
80-99	7	0	0	8	2	15	1	14	13	9	2
100-119	7	0	0	0	2	12	1	6	6	0	2
120-139	5	0	0	1	1	7	2	4	0	2	0
140-159	7	0	0	2	1	6	2	1	4	0	0
160-179	4	0	0	1	0	1	0	0	1	0	0
180-199	0	0	0	1	1	2	0	1	3	1	0
200-219	1	1	0	0	0	2	0	1	2	2	0
220-239	0	5	0	0	0	1	0	1	0	0	0
240-259	5	10	0	1	0	1	0	0	2	1	0
260-279	6	6	2	0	0	3	1	3	0	1	0
280-299	5	10	3	0	2	2	1	1	4	1	1
300-319	18	6	5	0	0	3	0	2	3	2	2
320-339	3	2	2	0	0	1	1	2	2	1	0
340-359	6	0	0	0	1	1	2	0	0	2	0
360-379	4	1	2	0	0	1	1	1	1	0	0
>380	0	1	0	0	0	1	1	0	3	0	0
NO TL	0	0	0	0	1	1	0	0	0	0	0
TOTAL	87	43	14	36	14	78	19	52	57	28	9
# SEINES	160	211	213	155	136	124	117	126	142	83	108

TABLE 21: TOMCOD MEASURED ON THE WESTERN LONG ISLAND SURVEY 1996

TL	MAY	JUNE	JULY	AUG	SEPT	OCT	TOTAL	TL	LNB	MAN	SBH	PJH	JAM	BPB	TOTAL	% FREQ
0-19	0	0	0	0	0	0	0	0-19	0	0	0	0	0	0	0	0.0
20-39	18	0	0	0	0	0	18	20-39	14	4	0	0	0	0	18	10.5
40-59	54	1	0	0	0	0	55	40-59	45	9	0	0	1	0	55	32.0
60-79	0	16	0	0	0	0	16	60-79	15	0	0	1	0	0	16	9.3
80-99	0	3	0	0	0	0	3	80-99	3	0	0	0	0	0	3	1.7
100-119	0	0	0	0	0	0	0	100-119	0	0	0	0	0	0	0	0.0
120-139	0	0	0	0	0	0	0	120-139	0	0	0	0	0	0	0	0.0
140-159	0	0	0	0	0	0	0	140-159	0	0	0	0	0	0	0	0.0
160-179	0	0	0	0	0	0	0	160-179	0	0	0	0	0	0	0	0.0
180-199	0	0	0	0	0	0	0	180-199	0	0	0	0	0	0	0	0.0
200-219	0	0	0	0	0	0	0	200-219	0	0	0	0	0	0	0	0.0
220-239	0	0	0	0	0	0	0	220-239	0	0	0	0	0	0	0	0.0
240-259	0	0	0	0	0	0	0	240-259	0	0	0	0	0	0	0	0.0
260-279	0	0	0	0	0	0	0	260-279	0	0	0	0	0	0	0	0.0
280-299	0	0	0	0	0	0	0	280-299	0	0	0	0	0	0	0	0.0
300-319	0	0	0	0	0	0	0	300-319	0	0	0	0	0	0	0	0.0
320-339	0	0	0	0	0	0	0	320-339	0	0	0	0	0	0	0	0.0
340-359	0	0	0	0	0	0	0	340-359	0	0	0	0	0	0	0	0.0
360-379	0	0	0	0	0	0	0	360-379	0	0	0	0	0	0	0	0.0
380-399	0	0	0	0	0	0	0	380-399	0	0	0	0	0	0	0	0.0
400-419	0	0	0	0	0	0	0	400-419	0	0	0	0	0	0	0	0.0
420-439	0	0	0	0	0	0	0	420-439	0	0	0	0	0	0	0	0.0
440-459	0	0	0	0	0	0	0	440-459	0	0	0	0	0	0	0	0.0
460-479	0	0	0	0	0	0	0	460-479	0	0	0	0	0	0	0	0.0
480-499	0	0	0	0	0	0	0	480-499	0	0	0	0	0	0	0	0.0
500-519	0	0	0	0	0	0	0	500-519	0	0	0	0	0	0	0	0.0
520-539	0	0	0	0	0	0	0	520-539	0	0	0	0	0	0	0	0.0
540-559	0	0	0	0	0	0	0	540-559	0	0	0	0	0	0	0	0.0
560-579	0	0	0	0	0	0	0	560-579	0	0	0	0	0	0	0	0.0
580-599	0	0	0	0	0	0	0	580-599	0	0	0	0	0	0	0	0.0
600-619	0	0	0	0	0	0	0	600-619	0	0	0	0	0	0	0	0.0
>620	0	0	0	0	0	0	0	>620	0	0	0	0	0	0	0	0.0
NO TL	27	0	0	0	0	0	27	NO TL	27	0	0	0	0	0	27	
TOTAL	99	20	0	0	0	0	119	TOTAL	104	13	0	1	1	0	119	
SEINES #	37	28	18	4	9	12	108	SEINES #	29	32	3	3	39	2	108	

TABLE 22

TOMCOD TOTAL LENGTH FREQUENCY FROM 1986 - 1996

TL	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
0-9	0	0	0	0	0	0	0	0	1	0	0
10-19	0	0	0	0	0	0	0	0	130	29	18
20-29	0	1	6	7	3	14	0	40	14	5	55
30-39	0	8	41	42	38	9	1	50	9	3	16
40-49	2	33	60	44	55	9	7	2	0	1	3
50-59	13	50	26	37	56	7	2	5	0	0	0
60-69	7	22	2	16	30	12	2	7	0	0	0
70-79	0	5	17	16	15	5	0	2	0	0	0
80-89	4	5	28	2	5	0	0	1	0	0	0
90-99	8	4	13	3	1	0	1	1	0	0	0
100-109	8	9	10	0	2	0	0	2	0	0	0
110-119	2	5	6	0	0	0	0	0	0	0	0
120-129	1	2	0	0	0	0	0	0	0	0	0
130-139	0	0	0	0	0	0	0	0	0	0	0
140-149	0	0	0	0	0	0	0	0	0	0	0
150-159	0	0	0	0	0	0	0	0	0	0	0
160-169	0	0	0	0	0	0	0	0	0	0	0
170-179	0	0	3	0	0	0	0	0	0	0	0
180-189	0	0	0	0	0	0	0	0	0	0	0
>190	0	0	0	0	0	0	0	0	0	0	0
NO TL			150	304	13	0	0	0	0	1	0
TOTAL	45	144	362	471	218	56	13	110	154	39	27
# SEINES	160	211	213	155	136	124	117	126	142	83	119

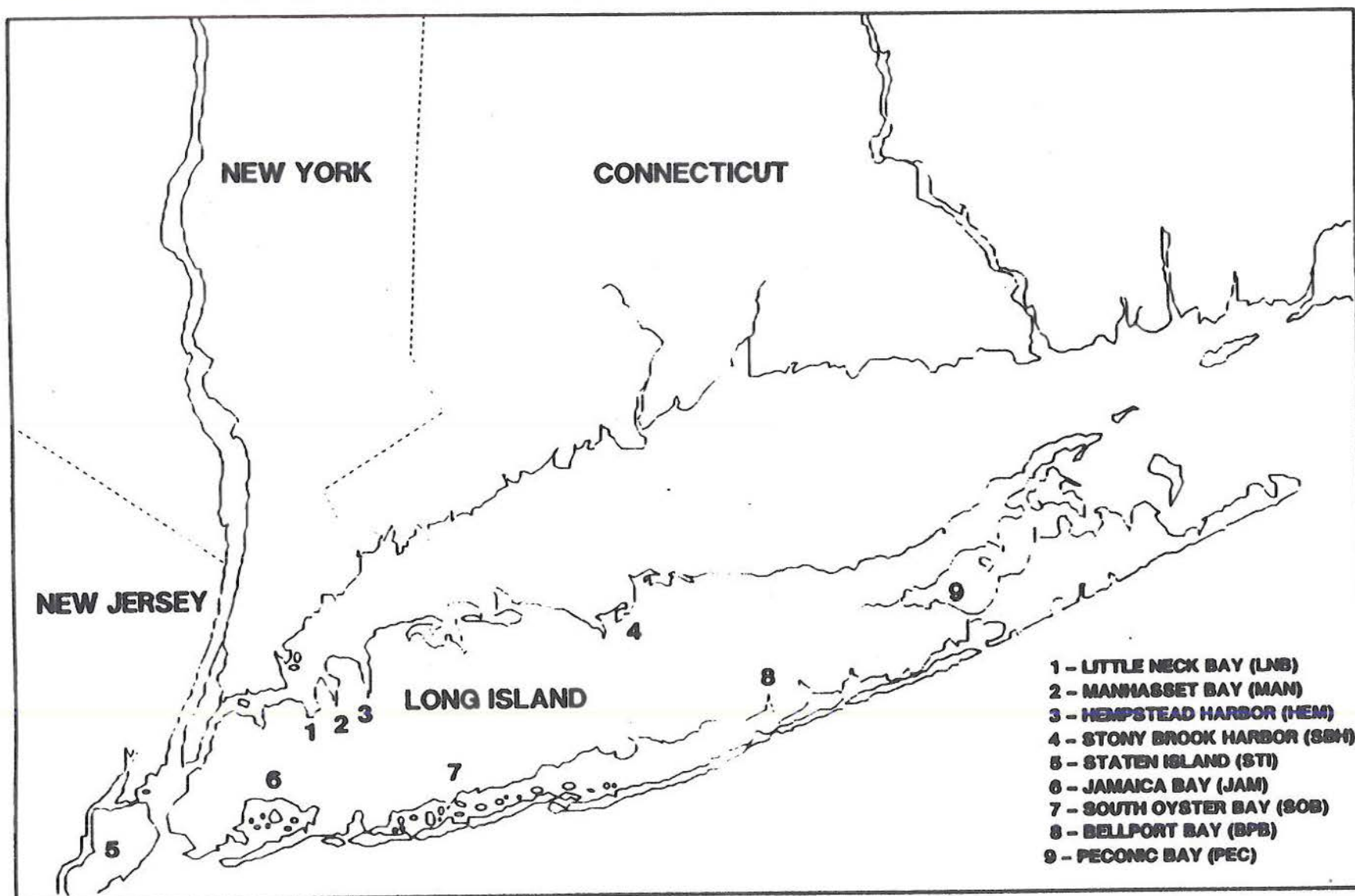
TABLE 23: TAUTOG MEASURED ON THE WESTERN LONG ISLAND SUEVEY 1996

TL	MAY	JUNE	JULY	AUG	SEPT	OCT	TOTAL	TL	LNB	MAN	SBH	PJH	JAM	BPB	TOTAL	% FREQ
0-19	0	0	0	0	0	0	0	0-19	0	0	0	0	0	0	0	0.0
20-39	0	0	1	0	0	0	1	20-39	0	0	0	0	1	0	1	12.5
40-59	0	0	1	0	0	0	1	40-59	0	0	0	0	1	0	1	12.5
60-79	0	0	0	0	0	2	2	60-79	0	0	0	0	2	0	2	25.0
80-99	1	0	0	0	0	0	1	80-99	0	1	0	0	0	0	1	12.5
100-119	0	1	0	0	0	0	1	100-119	1	0	0	0	0	0	1	12.5
120-139	0	0	0	0	0	0	0	120-139	0	0	0	0	0	0	0	0.0
140-159	0	0	0	0	0	0	0	140-159	0	0	0	0	0	0	0	0.0
160-179	0	0	0	0	0	0	0	160-179	0	0	0	0	0	0	0	0.0
180-199	0	0	0	0	0	0	0	180-199	0	0	0	0	0	0	0	0.0
200-219	0	0	0	0	0	0	0	200-219	0	0	0	0	0	0	0	0.0
220-239	0	0	0	0	0	0	0	220-239	0	0	0	0	0	0	0	0.0
240-259	0	0	0	0	0	0	0	240-259	0	0	0	0	0	0	0	0.0
260-279	0	0	0	0	0	0	0	260-279	0	0	0	0	0	0	0	0.0
280-299	0	0	0	0	0	0	0	280-299	0	0	0	0	0	0	0	0.0
300-319	0	0	0	0	0	0	0	300-319	0	0	0	0	0	0	0	0.0
320-339	0	0	0	0	0	0	0	320-339	0	0	0	0	0	0	0	0.0
340-359	0	0	0	0	0	0	0	340-359	0	0	0	0	0	0	0	0.0
360-379	0	0	0	0	0	0	0	360-379	0	0	0	0	0	0	0	0.0
380-399	0	0	0	0	0	0	0	380-399	0	0	0	0	0	0	0	0.0
400-419	0	1	0	0	0	0	1	400-419	0	0	0	0	1	0	1	12.5
420-239	0	1	0	0	0	0	1	420-439	0	1	0	0	0	0	1	12.5
440-459	0	0	0	0	0	0	0	440-459	0	0	0	0	0	0	0	0.0
460-479	0	0	0	0	0	0	0	460-479	0	0	0	0	0	0	0	0.0
480-499	0	0	0	0	0	0	0	480-499	0	0	0	0	0	0	0	0.0
500-519	0	0	0	0	0	0	0	500-519	0	0	0	0	0	0	0	0.0
520-539	0	0	0	0	0	0	0	520-539	0	0	0	0	0	0	0	0.0
540-559	0	0	0	0	0	0	0	540-559	0	0	0	0	0	0	0	0.0
560-579	0	0	0	0	0	0	0	560-579	0	0	0	0	0	0	0	0.0
580-599	0	0	0	0	0	0	0	580-599	0	0	0	0	0	0	0	0.0
600-619	0	0	0	0	0	0	0	600-619	0	0	0	0	0	0	0	0.0
>620	0	0	0	0	0	0	0	>620	0	0	0	0	0	0	0	0.0
NO TL	0	0	0	0	0	0	0	NO TL	0	0	0	0	0	0	0	
TOTAL	1	3	2	0	0	2	8	TOTAL	1	2	0	0	5	0	8	
SEINES #	37	28	18	4	9	12	108	SEINES #	29	32	3	3	39	2	108	

TABLE 24: TAUTOG TOTAL LENGTH FREQUENCY FROM 1986 - 1996

TL	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
0-19	0	5	0	0	0	0	0	1	0	0
20-39	14	92	1	17	58	14	3	3	3	1
40-59	12	43	15	8	75	21	9	8	1	1
60-79	23	41	12	5	17	4	2	4	2	2
80-99	42	24	7	3	7	1	0	1	2	1
100-119	58	25	1	0	3	0	0	1	4	1
120-139	23	7	1	0	2	0	0	0	0	0
140-159	9	6	0	0	1	1	0	0	0	0
160-179	4	2	0	0	0	1	0	0	0	0
180-199	0	0	0	0	1	0	0	0	0	0
200-219	0	0	0	0	0	0	0	0	0	0
220-239	0	0	0	0	1	0	0	0	0	0
240-259	3	0	0	0	0	0	0	0	0	0
260-279	1	0	0	0	0	1	0	0	0	0
280-299	3	0	0	0	0	0	0	0	0	0
300-319	1	1	0	0	0	0	1	0	0	0
320-339	1	1	0	0	0	0	0	0	0	0
340-359	0	2	0	0	0	0	0	0	0	0
360-379	1	1	0	1	0	0	0	0	0	0
380-399	1	1	0	2	0	0	0	0	0	0
>400	6	9	3	4	1	3	3	0	0	2
NO TL		10	2	0	309	4	0	0	0	0
TOTAL	202	270	42	40	475	50	18	18	12	8
# SEINES	211	213	155	136	124	117	126	142	83	108

FIGURE 1 LONG ISLAND BEACH SEINE SURVEY AREAS



1996 STRIPED BASS AGE FREQUENCY

WESTERN LONG ISLAND TOTALS N=1829

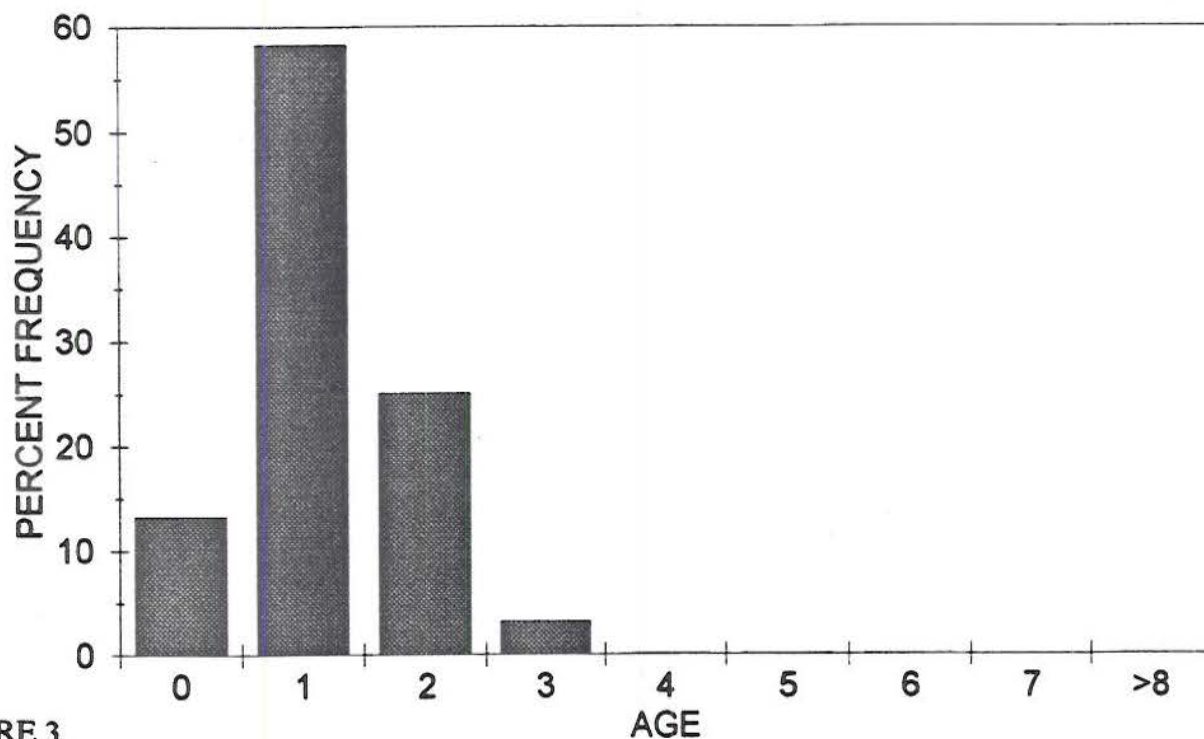


FIGURE 3

1996 STRIPED BASS AGE FREQUENCY

NORTH SHORE N=579 SOUTH SHORE N=1251

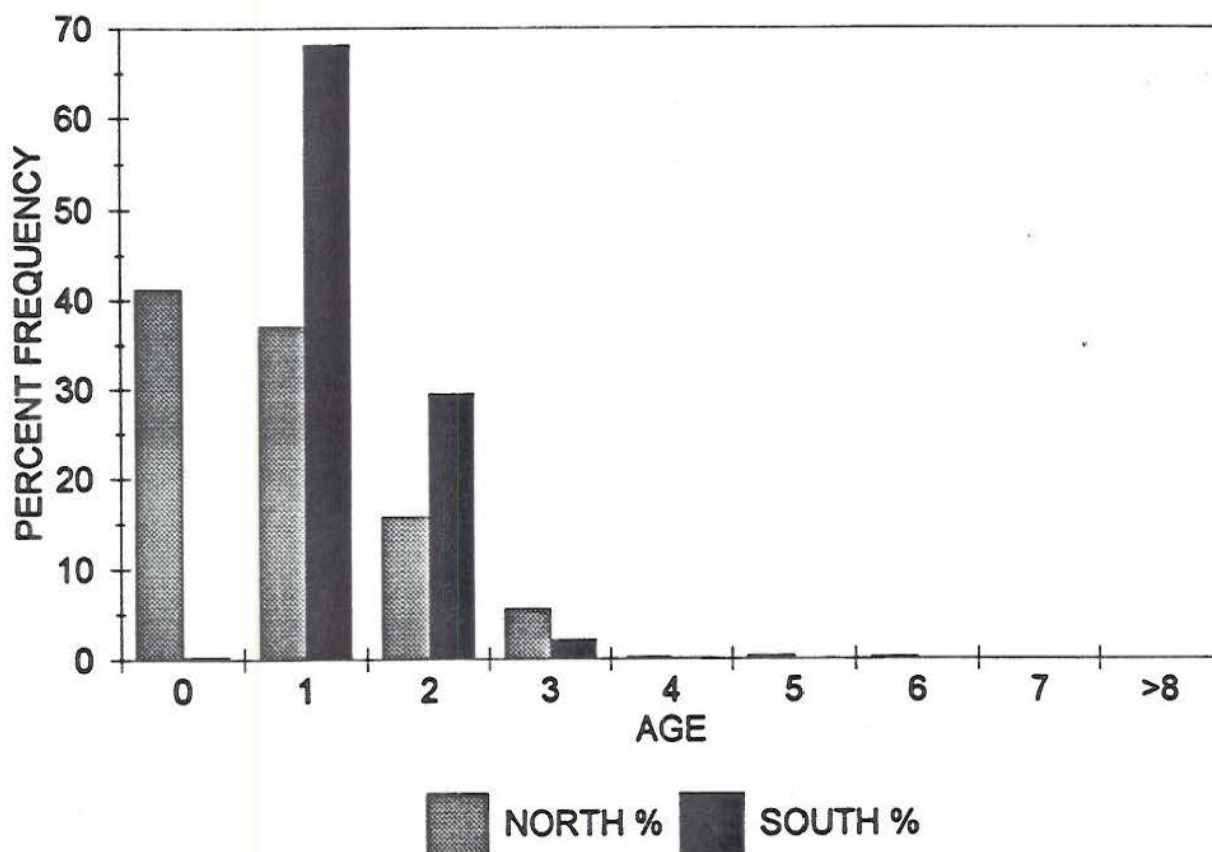
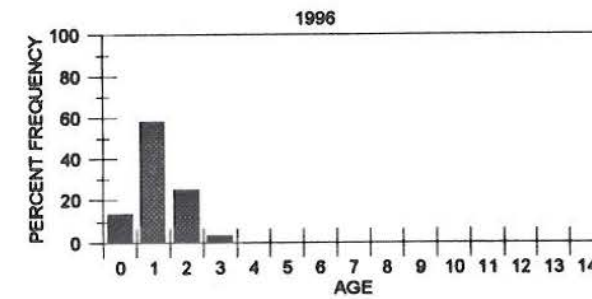
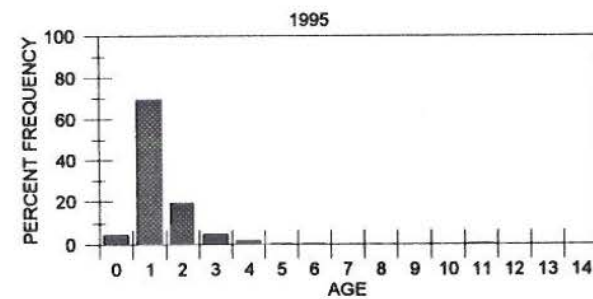
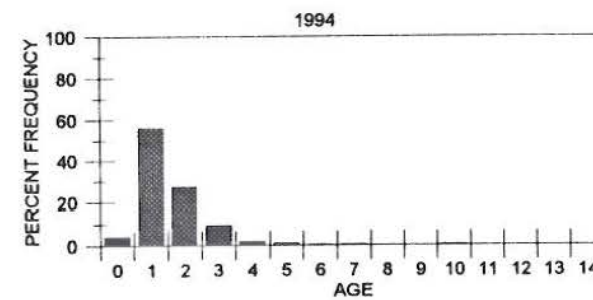
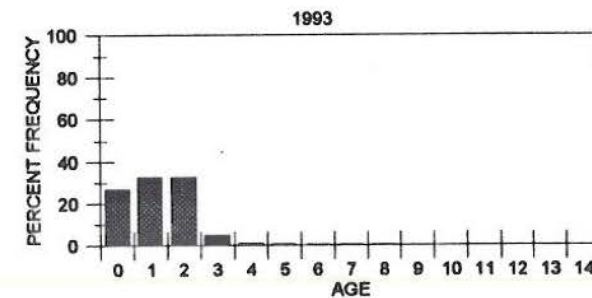
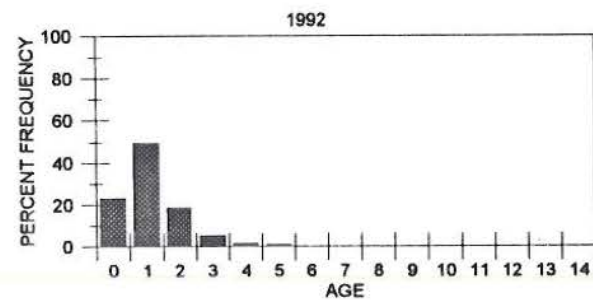
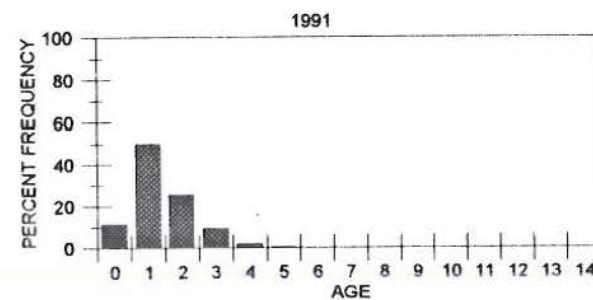
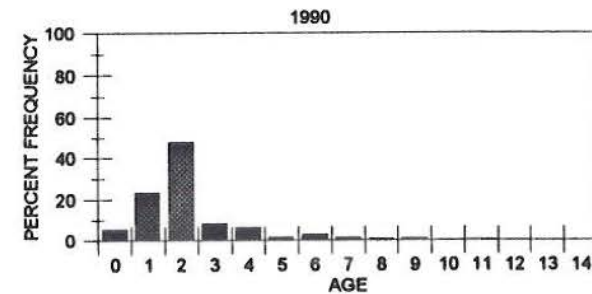
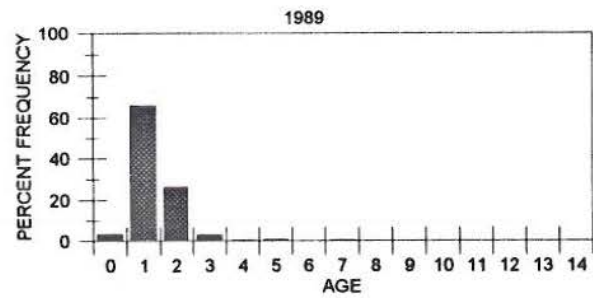
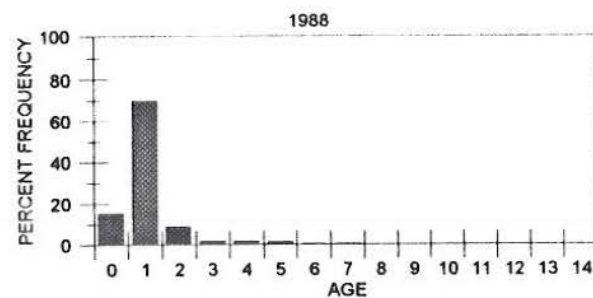
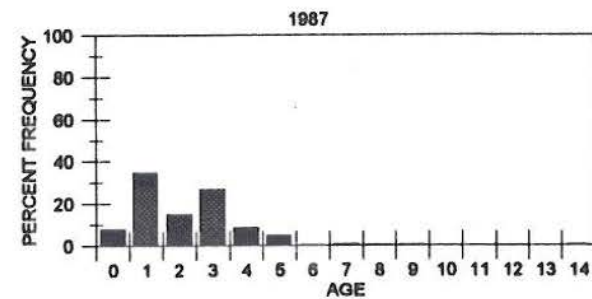
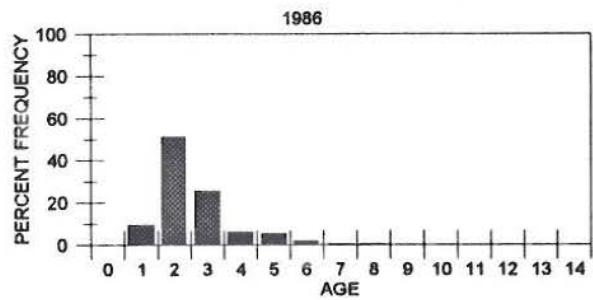
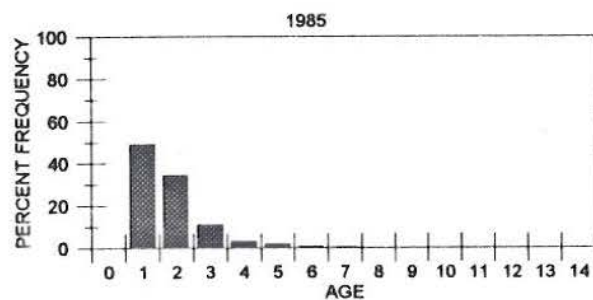


FIGURE: 4

STRIPED BASS AGE FREQUENCY 1985-1996



1996 STRIPED BASS TOTAL LENGTH WESTERN LONG ISLAND N= 1808

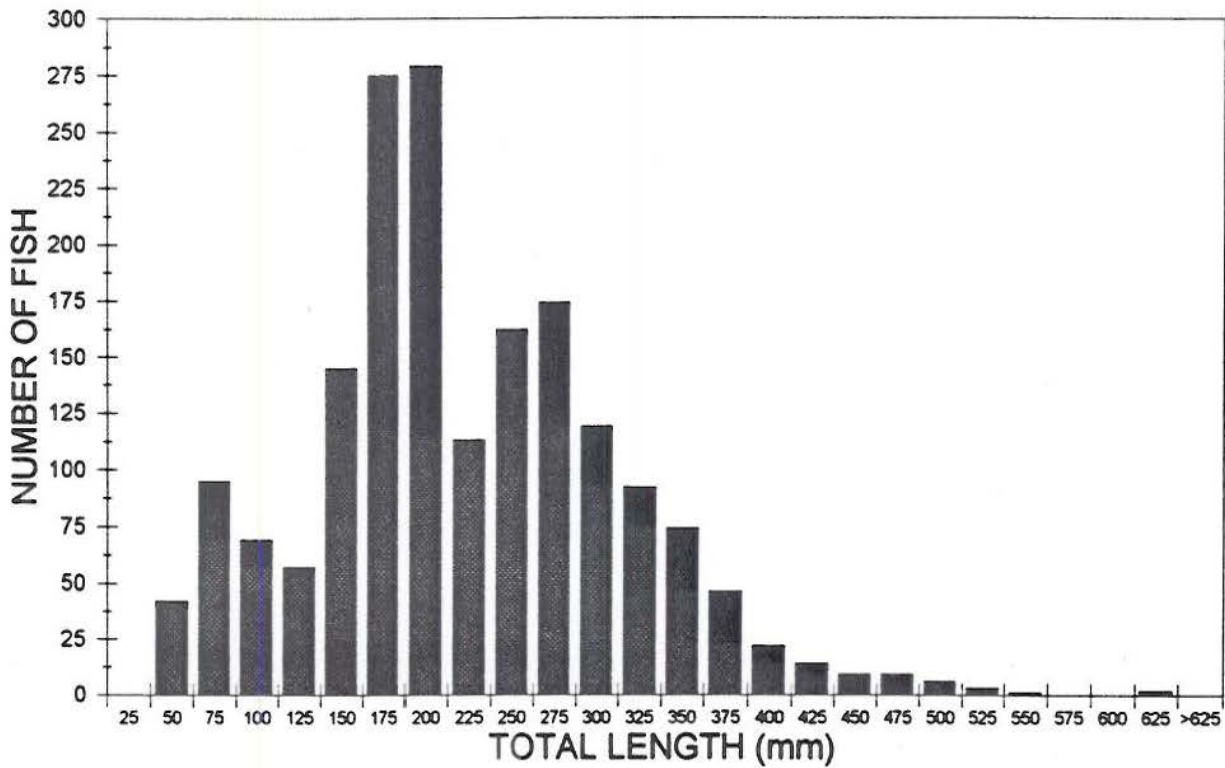


FIGURE 6

1996 STRIPED BASS TOTAL LENGTH NORTH SHORE N=557 SOUTH SHORE N=1251

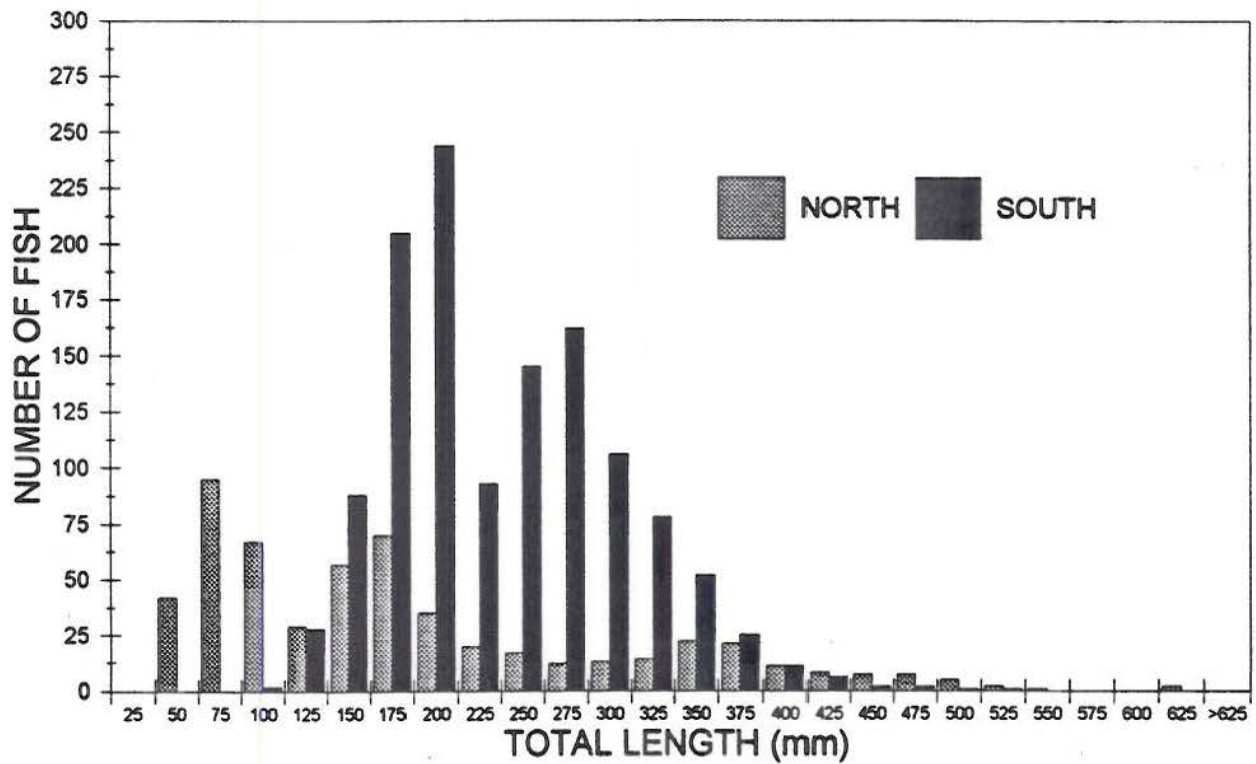


FIGURE 7

1996 STRIPED BASS

LN TOTAL LENGTH vs LN WEIGHT

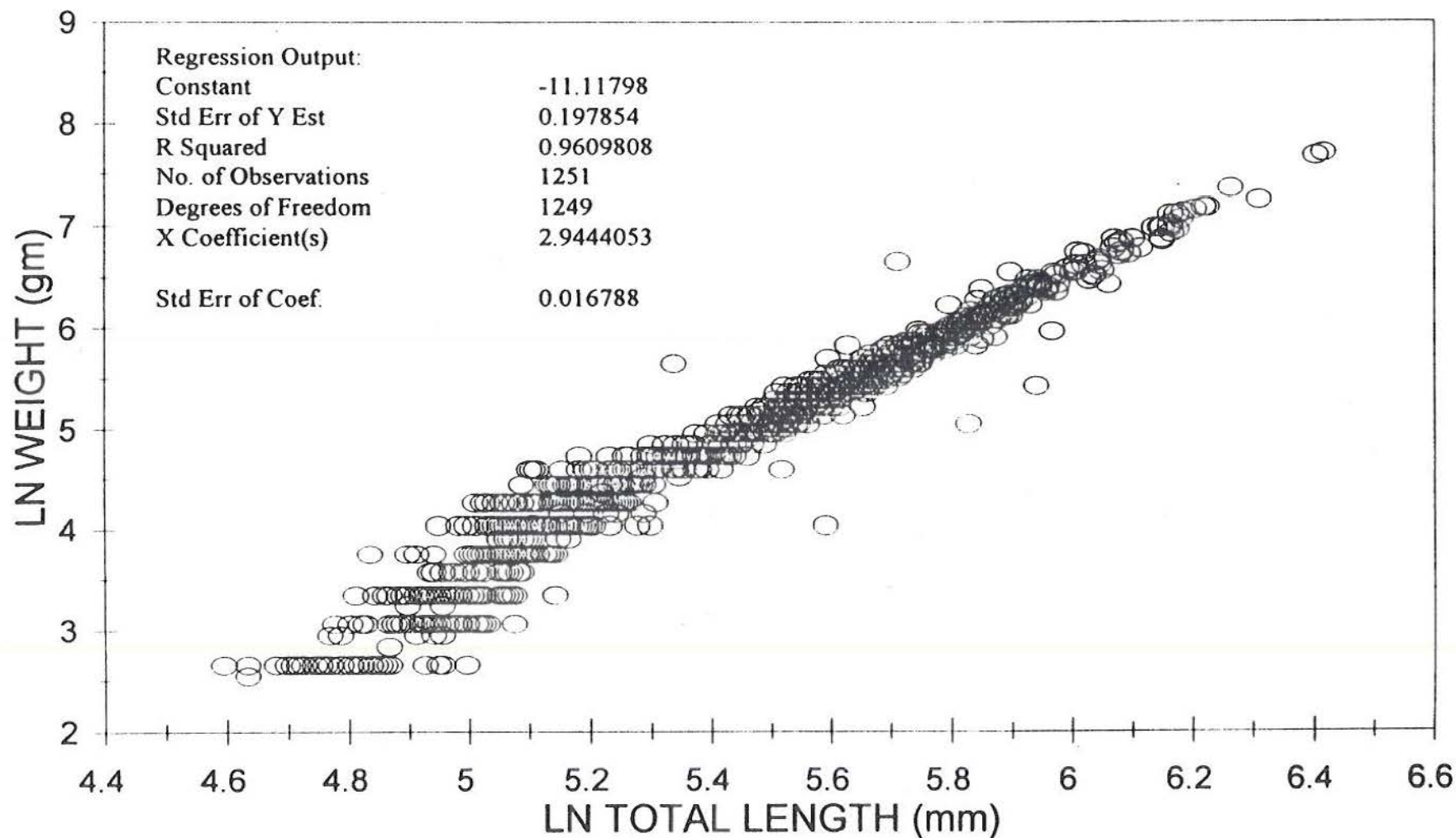


FIGURE: 8

BLUEFISH CPUE FROM WLI SURVEY

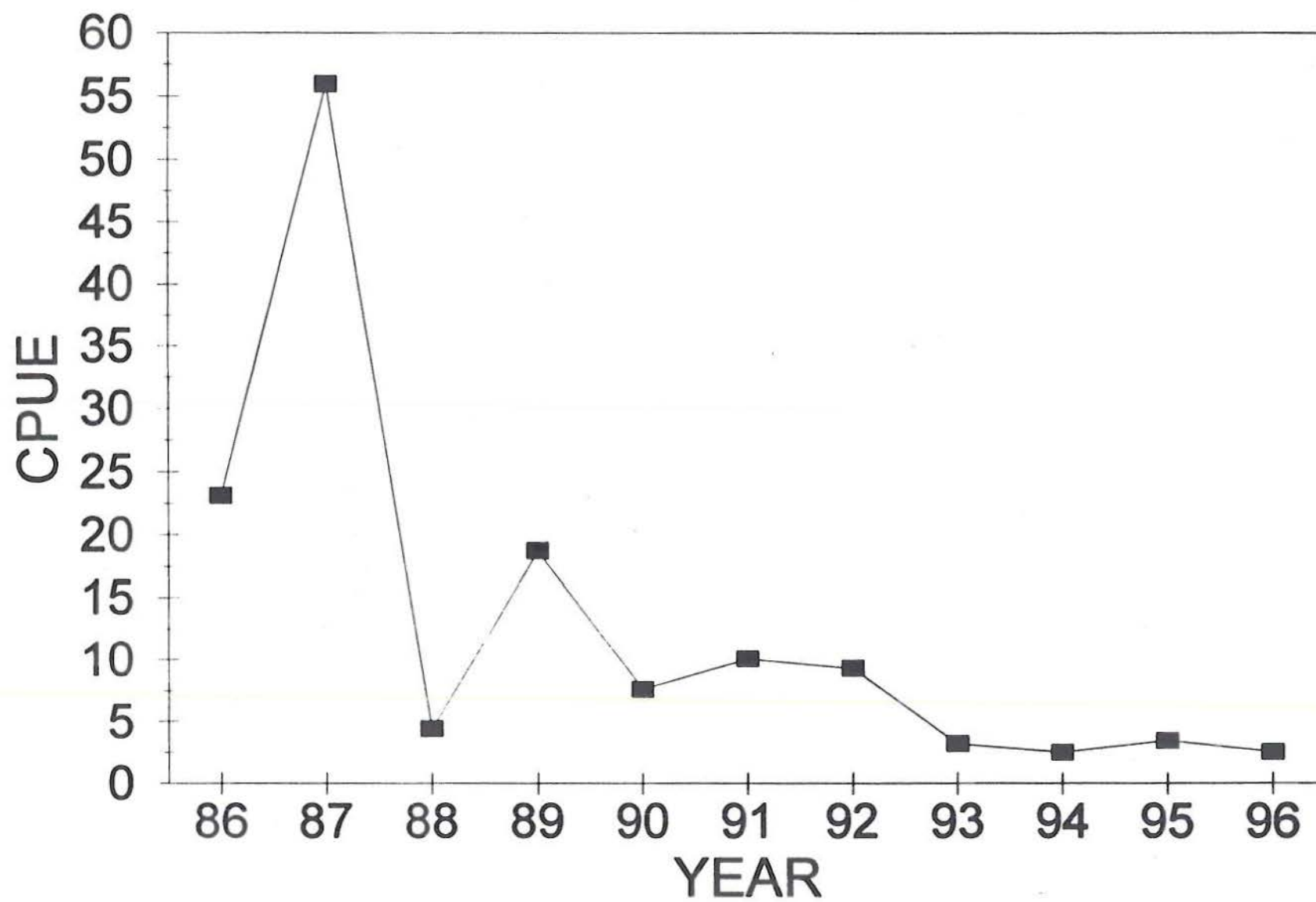


FIGURE: 9

WINTER FLOUNDER CPUE FROM WLI SURVEY

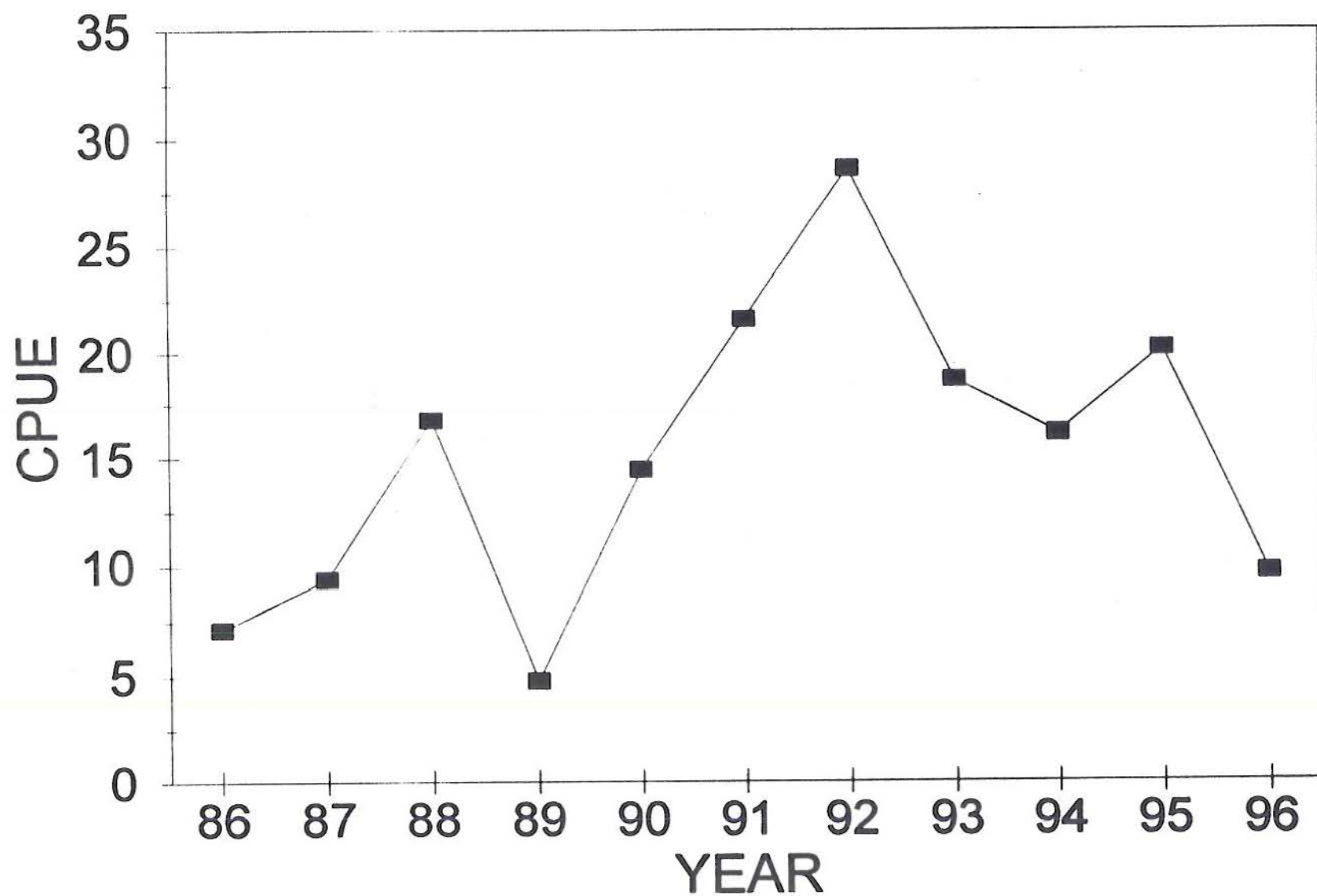


FIGURE 10

SUMMER FLOUNDER CPUE FROM WLI SURVEY

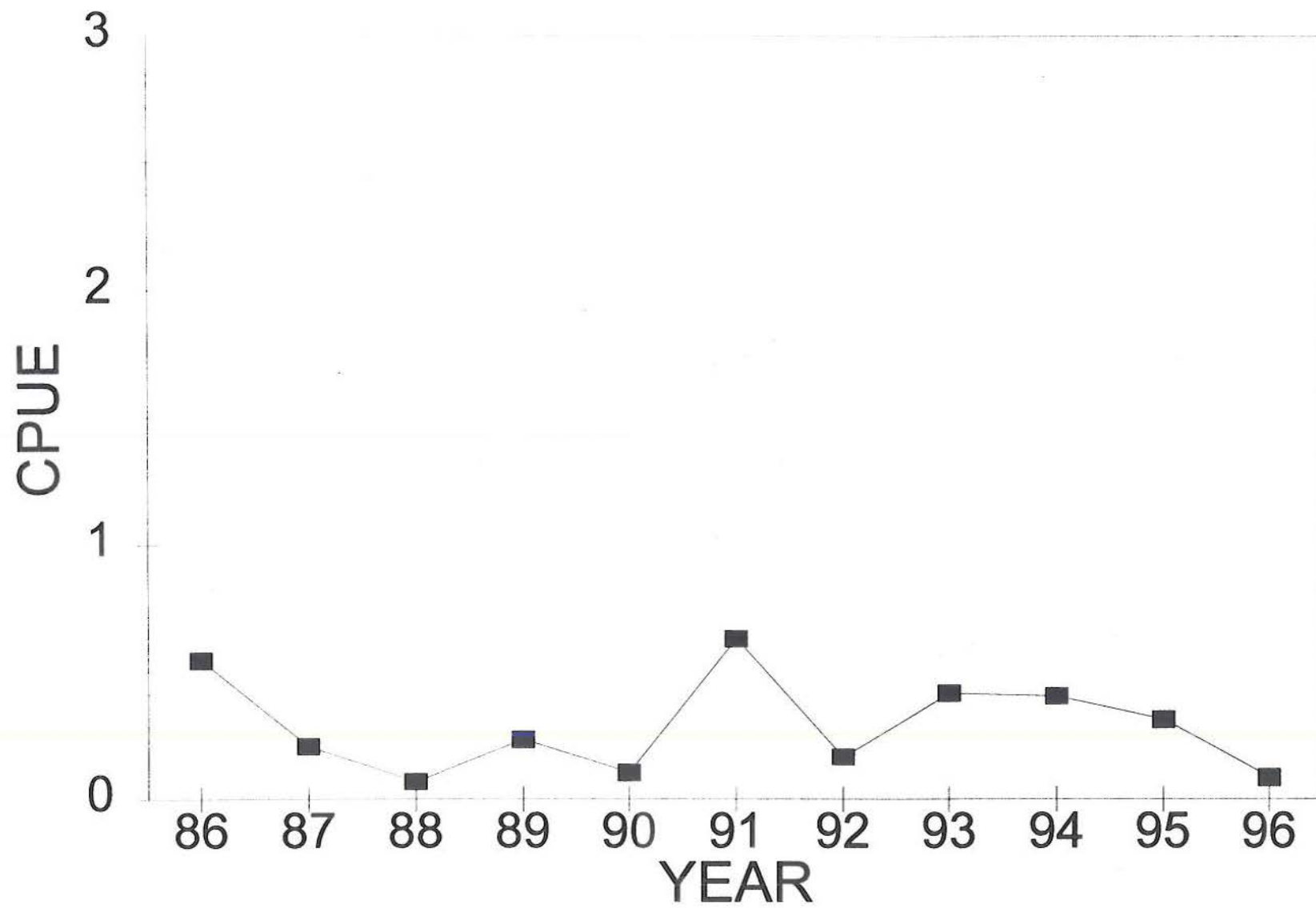


FIGURE 11

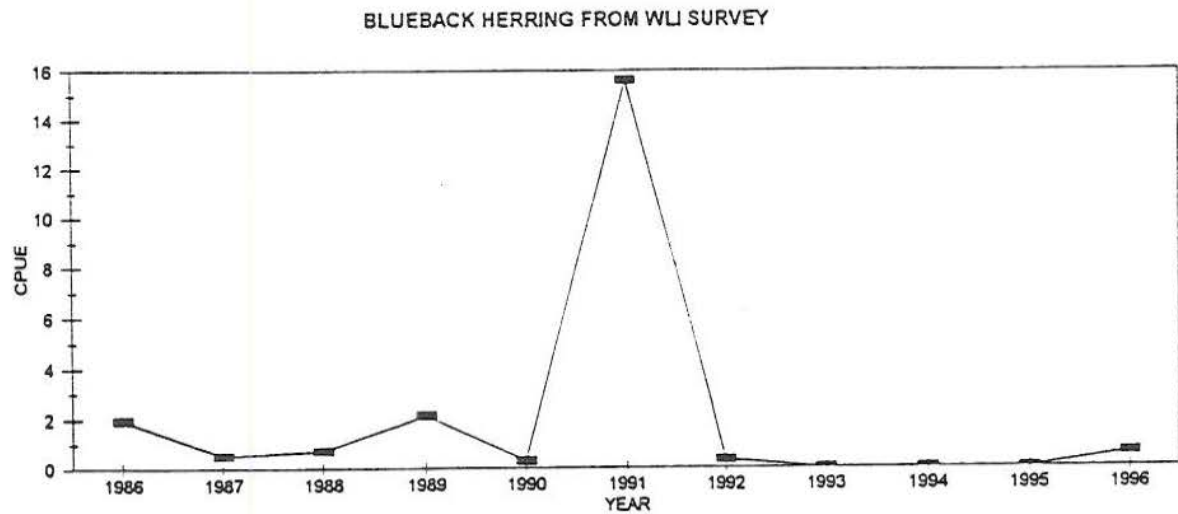
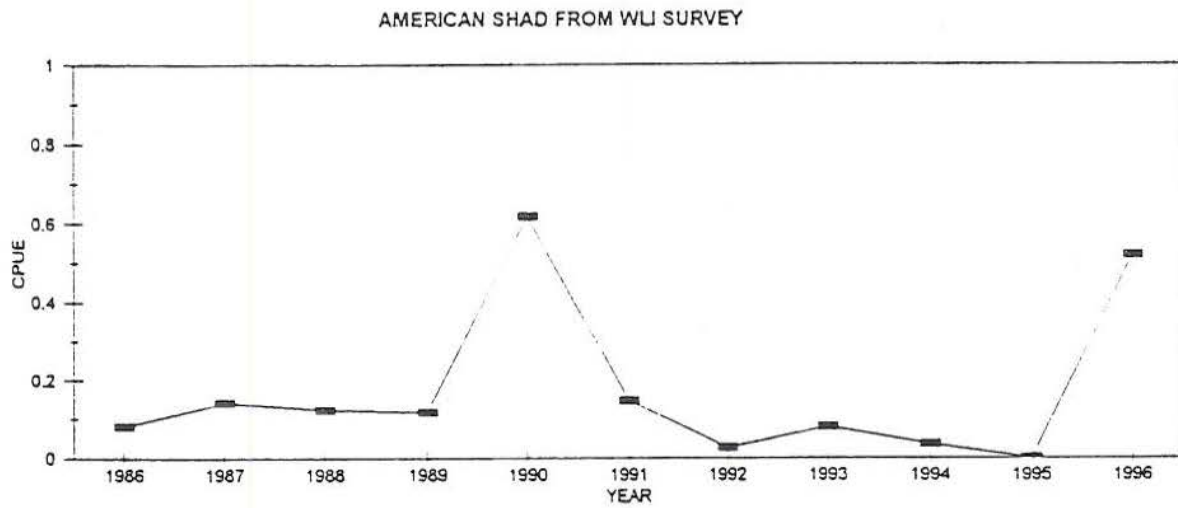
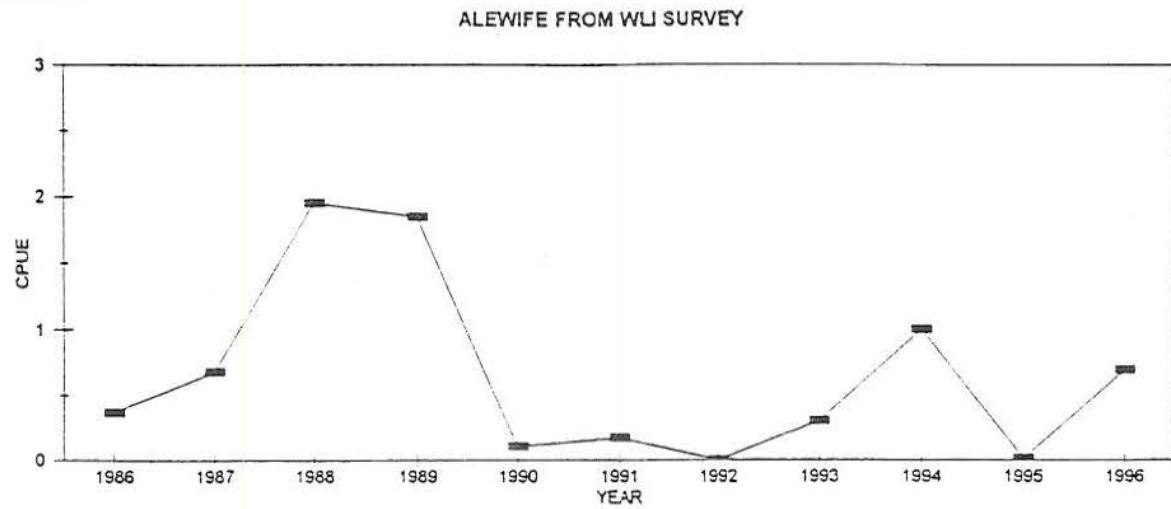
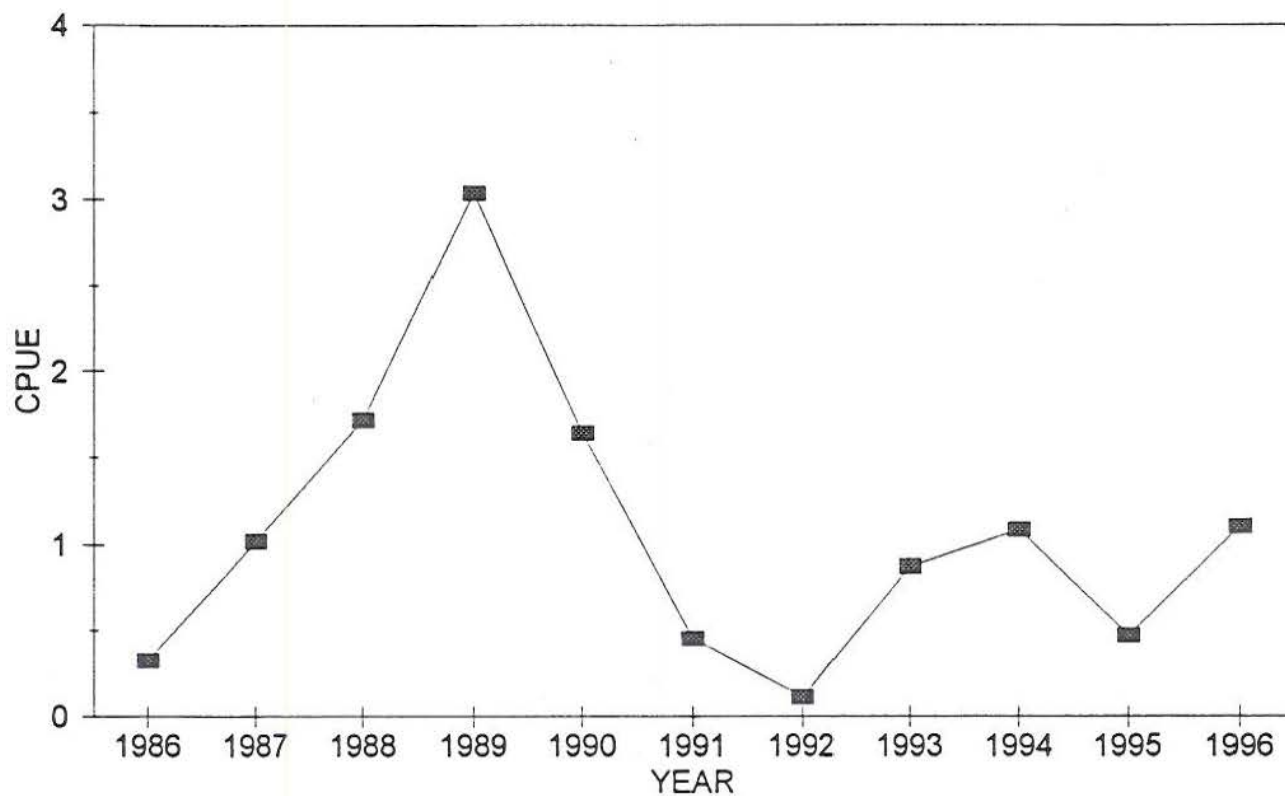
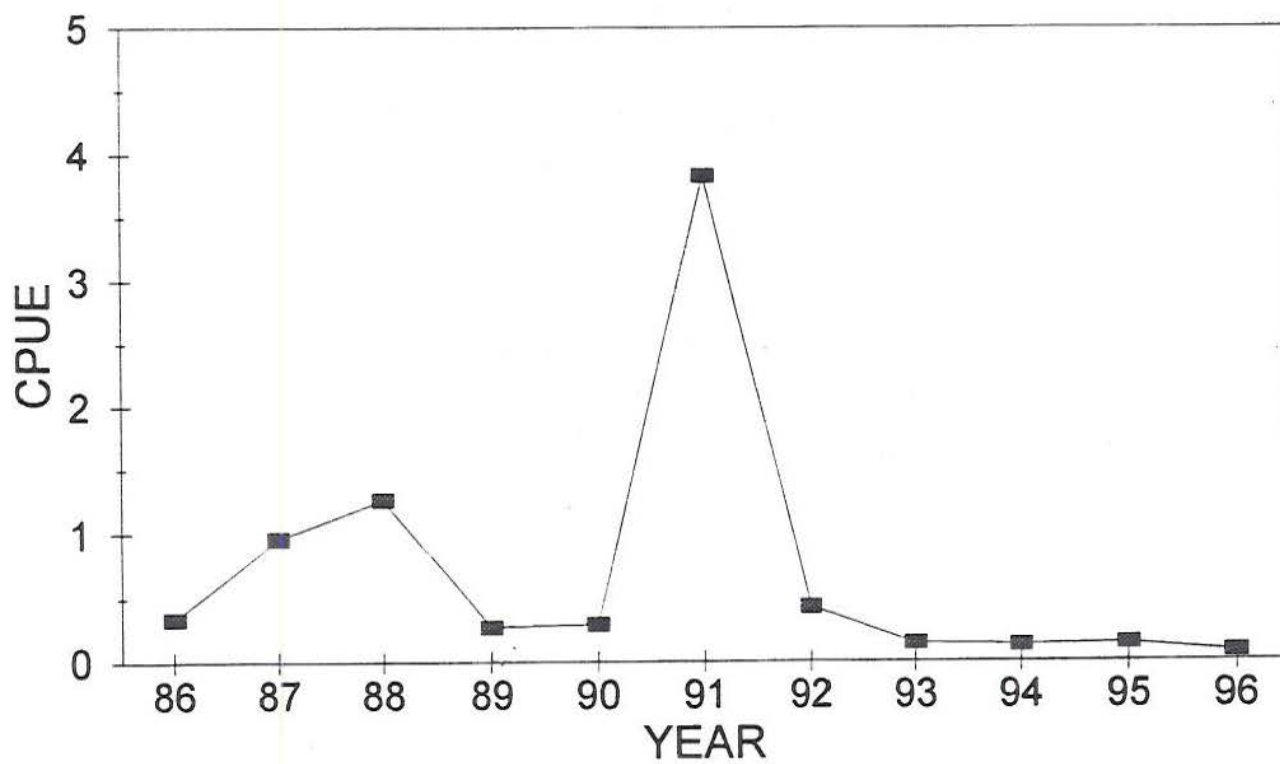


FIGURE: 12

ATLANTIC TOMCOD FROM WLI SURVEY



TAUTOG CPUE FROM WLI SURVEY



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