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STATUS OF THE 1985 STRIPED BASS FISHERIES
IN VIRGINIA
AFTER IMPLEMENTATION OF THE 1985
AMENDMENT III
TO THE 1981 ASMFC INTERSTATE MANAGEMENT PLAN FOR STRIPED BASS

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AMENDMENT III

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Synopsis

The Virginia Marine Resources Commission (VMRC) implemented the ASMFC Interstate Fisheries Management Plan in March 1983. This implementation included all provisions in the Interstate Plan, including a closure (10 April - 21 May) on the spawning reaches of the rivers and a 24" size limit in coastal waters. On 1 March, 1984 the Commission put into effect Emergency Regulation XXIX. The purpose of Regulation XXIX was to effect an additional reduction in effort by 55%. This regulation extended the "closed spawning area" in the Rappahannock River an additional 22 miles down river, extended the closed spawning season from 10 April-21 May to 1 April-31 May, closed the ocean fishery 1 March-31 May, and established a recreational creel limit of 5 fish per day. It also eliminated the 4 fish tolerance for fish between 14 and 24". The Commission, in December 1984, abolished Emergency Regulation XXIX, and created Regulation XXIX which continued the stipulations in the Emergency Regulation and added the closure of Virginia's Potomac River tributaries concurrent with the Potomac River closure (1 January-15 February and 1 April-31 May). Regulation XXXII, developed in February, 1985 closed the Potomac Tributaries 1 January-31 May.

The Emergency Regulation was developed during January-February, 1984, before all Fall 1983 landing data were tabulated. It was targeted at the Spring commercial fisheries as they appeared, at that time, to be the most significant. Emergency Regulation XXIX, it was felt, would affect a 55% reduction by the added Spring reductions. When the Fall landing data were completed, and the recreational catch estimated (Austin, 1984, Table 1B) it appeared their magnitude, if the 1984 pattern followed 1983, would only result in a 36% reduction in mortality, not the desired 55%. In effect, Virginia would only reduce its total catch by 23,695, instead of 36,256 pounds.

As it turned out, The 1984 commercial catch was only 15,351 pounds (Austin, 1985, Table 1 & 2), with a combined commercial/recreational catch of 19,188 pounds, a 48,843 pound reduction of 71%. It was the consensus however, of the striped bass Scientific and Statistics Committee that only 41% of the 71% reduction was attributable to the above cited Emergency and subsequent regulations. Virginia therefore, failed to meet the 55% reduction as called for in the 1984 Studts Striped Bass Bill, and was subject to the moratorium stipulations.

The Atlantic States Marine Fisheries Commission, at its June, 1985 meeting passed **Amendment III** to the Interstate Plan. Amendment III called for the protection of all 1982, and subsequent year classes, until such time as 95%

had reached sexual maturity. Then in October, 1985 this was amended to protect at least 95% of the 1982 and subsequent year class females until they had the opportunity to spawn at least once. Several options for achieving this goal were proposed. The Marine Resources Commission, on 11 June, 1985, had met and passed Regulation 450-01-0034. This regulation was developed from recommendations sent from the Governor's Office. Regulation 450-01-0034 closed all Virginia to the possession of striped bass (except those taken from a stocked fresh water lake) from 1 December through 31 May, increased the Chesapeake and Tributaries size limit to 18", and removed the four fish tolerance between 18 and 24" in the Territorial Sea.

The rationale for this regulation was developed from the 1967-1983 commercial landings data of Grant (1974) and Loesch and Kriete (1984, 1985) that showed females, upon reaching 18" in their third spring would migrate from the Bay prior to 1 June, and would not appear therefore, in the Virginia fishery. These fish would not return until late November or December, after the seasonal closure. This way Virginia could continue a limited striped bass fishery, primarily on males, and at the same time remain in compliance with Amendment III.

The 1985 Fisheries

Traditionally, late winter Virginia striped bass fisheries (December-February) have been central and upper river gill net and ocean trawl fisheries (Tables 1 and 2). This pattern persisted in the upper Rappahannock during 1985, but at reduced levels. The winter ocean trawl fishery was all but eliminated. The fishery normally shifts geographically during spring (March-May) with most catches coming from the upper rivers, predominantly the Rappahannock, followed by the western side of the mainstem Bay. During recent years this has shifted down river due to the spawning area closure. Historically, these catches have been made with pound and staked gill nets. During 1984 and 1985 however, anchor nets took more than the staked nets. There has been a trend toward anchor nets during the last several years as an economic measure.

The 1982 year class made a strong showing in the Spring 1985 (Figure 1) fishery appearing first in the lower tributaries (February), then in the upper tributaries (primarily the Rappahannock) during March. Comparitively large landings were made on the eastern side of the Bay during April. These were probably out-migrating 1982 fish from Maryland. VMRC reports that these catches were a one-time one-day phenomenon as an apparent "wave" of fish moved through the area where gill nets are normally fished for early season weakfish.

Summer fisheries (June-September) continued at low levels. As in past years, striped bass are an occasional summer commercial by-catch rather than a directed fishery. During the period June-August most commercial catches were made in the main-stem Bay by pound net. Traditionally, these are small males. There were also anecdotal reports from recreational fishermen of increased catches of small (10-12") fish in the James and York Rivers.

The fall fisheries (October-December) are principally lower tributary pound and anchor gill nets. During Fall 1985, Virginia experienced the warmest October-November in 30 years. As a result many watermen continued their summer effort toward crabbing. Hurricane GLORIA, which struck on 26

September, and followed a month later on 4 November by a Northeaster of even greater strength, destroyed both fixed and drift gear, and produced a "slug" of freshwater in the upper tributaries. The combination of freshwater and up-river gear damage reduced what might have been an otherwise greater fall fishery. There were several reports of excellent recreational catches of >18" fish during the later half of November in the York and James Rivers. All fisheries closed in December.

VIMS sampled pound net catches, including all under-sized fish (<18"TL), during the fall in the upper Rappahannock River pound net fishery (Figure 2). The small representation of "older" (1982 and older) fish in the fall and early winter fisheries is due to their migration from the Bay to northern states. Only 58 legal-sized females of the 1982 year class were sampled during the fall fishery on the Rappahannock (Figure 3). These constituted 46% of the sampled catch of the 1982 year class. Fish of the 1982 and older year classes comprised 30% of the legal commercial catch sampled.

The 1983 year class began to appear in the fall commercial landings. This year class comprised 70% of the legal catch. One third were females.

Of the fall commercial catch of 7,667 pounds, 5,367 were 1983, and 1,763 were 1982 year classes. At an average weight of 2.7 pounds for 1983, and 3.8 pounds for 1982 year class females (Table 3a), there should have been 202 1982, and 681 1983 year class females taken in the fishery. If we were to assume these fish represent 5% of the female population of their respective year classes present in the Bay, then when combined with the remaining state-wide "protected" 95%, the two year classes are composed of the following (Table 3b):

1982: 4,040 females, at 15,274 pounds
or a year class total of approximately
10,060 individuals of both sexes, at 35,210 pounds,

1983: 13,620 females, at 36,748 pounds
or a year class total of approximately
40,740 individuals of both sexes, at 105,924 pounds.

There are no numerical estimates available as to the actual number of individuals in any year class. Therefore, these analyses are estimates of abundance drawn from the commercial catch. As such, it is not possible to "prove" conclusively that 5% or less of the 82 year class females were harvested. Conversely, neither is it possible to "prove" more than 5% were captured.

The small number of 1982 (3+) fish taken in the fall fishery (Table 3, Figure 3)), when compared to the spring catch (Table 1, Figure 1)) supports our supposition that most three plus fish over 18" migrate from the Bay during the summer of their third year, not to return until the following December (Grant 1974, Loesch and Kriete 1984, Loesch and Kriete 1985). If the 4,040 females, estimated above, composed the 1982 females present in Virginia's waters of the Chesapeake Bay in October-November 1985, then the actual abundance of the year class, coast-wide, is significantly higher as most were still along the Atlantic coast. Consequently, the 202 females actually harvested represent less than 5% of the year class.

Analysis of the 1983 year class is more difficult. Clearly, during spring they had not entered the fishery in any numbers (Figure 1), but by fall composed 70% of the legal catch (Figure 3). This is the result of their rapid summer growth. Even with this rapid growth, and dominance in the fall fishery, most had not reached 18" by the fall (Figure 2). If one assumes that out-Bay migration was minimal, and most of the fall fishery concentrated in the Rappahannock, then the estimate of 13,600 females is reasonably accurate for the Rappahannock stock. Since fishing pressure was minimal in the York, Bay, and Ocean; and since the James remains closed, then the 681 females taken during the fall represents less than 5% of the state-wide stock present in the Bay.

It would appear then, that Virginia's combination of 18" size limit and six month closed season has brought the state within Amendment III compliance.

The Regulations further reduced the recreational catch. In the past, estimates ranging from 15 to 25% of the commercial catch have been used. The five fish creel limit, imposed in 1984, has made it impossible to estimate the catch. Strong conservation efforts by organized sportfishing groups resulted in greater releases during 1985. As a result, the recreational catch was estimated at 15% (10,066 pounds).

Recruitment to Virginian Waters

Recruitment, characterized by the juvenile seining index in Virginia's Chesapeake Bay tributaries, has shown an upward trend since 1981 when it was only 1.6 (Colvocoresses, 1985). In fact, the 4.4 in 1984 was the highest since the 6.4 for the dominant 1970 year class, and was well above the average of 2.8. The 1985 recruitment index of 2.4 was down from 1984, but actual recruitment may have been better than the index suggests due to the drought which may have displaced some Rappahannock young-of-the-year up river.

Potential Problems/Management Alternative

The greatest problem encountered to date, and foreseen for the immediate future, is the collection of fish now that the fisheries are closed. Fishery independent estimates have been made, but are expensive. Further, estimates of total Virginia rivers stock sizes is not possible at present without at least a Virtual Population Analysis (VPA), but must be developed to document 5/95% catches. It is our intention to continue pound net sampling, including the purchase of undersized fish, and those taken by specially permitted watermen on the spring spawning grounds.

Virginia has eliminated all commercial by-catches, and has implemented a sliding 30"TL territorial coastal sea size limit, thereby bringing it into final conformance with Amendment III.

Recommendations

The recruitment index and biological data from the commercial fishery monitoring must continue. Fishery independent surveys or specially permitted commercial gear must be used to monitor the year class strength, length/weight, and sex in order to develop an estimate of the actual abundance of the year class.

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Table 1

Virginia Commercial and Recreational Fishery Landings

1983-1985

<u>Water Body</u> (numbers refer to Fig. 1, Austin, 1985)	1983		1984		1985	
	<u>Pounds</u>	<u>Percent</u>	<u>Pounds</u>	<u>Percent</u>	<u>Pounds</u>	<u>Percent</u>
Upper Tributaries (377, 049, 067,)	30,175	46	3,858	25	39,284	50
Lower Tributaries (195, 295, 395, 177, 277)	11,313	17	5,243	34	13,195	17
Potomac Tributaries (085, 050, 059, etc.)	1,510	02	456	02	0	0
Main Stem Bay (011, 111, 211, 311, 411)	7,841	12	2,890	18	14,105	18
Ocean (600's)	3,586	05	2,904	18	527	<.01
Commercial sub-total	54,425	(75)	15,351	(75)	67,111	(85)
Recreational sub-total (as % of Commercial)	<u>13,606</u>	<u>25</u>	<u>3,837</u>	<u>25</u>	<u>10,066</u>	<u>15</u>
TOTAL	68,031	100	19,188	100	77,177	100

Gear Type

Otter trawl	290	<01	2,484	16	49	<.01
Pound Net	24,503	45	4,590	29	4,934	07
Staked Gill Net	19,807	36	3,846	25	15,706	23
Drift or Anchor Gill Net	9,638	17	4,332	28	46,422	69
Hook and Line	<u>187</u>	<u><01</u>	<u>99</u>	<u><01</u>	<u>0</u>	<u>0</u>
TOTAL	54,425	100	15,351	100*	67,111	100

* 02 percent lost
rounding off

Table 2

Virginia Commercial Catch

1985

MONTH	UPPER TRIBUTARIES		LOWER TRIBUTARIES		BAY		OCEAN		TOTALS	
	LANDINGS	FRACTION	LANDINGS	FRACTION	LANDINGS	FRACTION	LANDINGS	FRACTION	LANDINGS	FRACTION
Jan	624	<0.01	0	0.00	440	<0.01	38	<0.01	1,102	0.01
Feb	2,863	0.03	10,108	0.13	0	0.00	60	<0.01	13,031	0.16
Mar	30,687	0.39	197	<0.01	199	<0.01	17	<0.01	31,100	0.40
Apr	164	<0.01	156	<0.01	12,868	0.16	396	<0.01	13,584	0.17
May	0	0.00	29	<0.01	27	<0.01	16	<0.01	72	<0.01
Jun	0	0.00	0	0.00	495	<0.01	0	0.00	495	<0.01
Jul	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Aug	0	0.00	0	0.00	60	<0.01	0	0.00	60	<0.01
Sep	652	<0.01	0	0.00	0	0.00	0	0.00	652	<0.01
Oct	1,728	0.02	132	<0.01	16	<0.01	0	0.00	1,876	0.02
Nov	2,566	0.03	2,573	0.03	25	<0.01	0	0.00	5,139	0.06
Dec	**	0.00	**	0.00	**	0.00	**	0.00	**	0.00
	<u>39,284</u>	<u>0.48</u>	<u>13,195</u>	<u>0.17</u>	<u>14,105</u>	<u>0.17</u>	<u>527</u>	<u><0.01</u>	<u>67,111</u>	<u>0.86*</u>

Recreational Catch
 (@ .15 of 67,111) 10,066 0.15
 TOTAL 1984 VA LANDINGS 77,177 1.01*

* 0.01 OVER DUE
TO ROUNDING-OFF

** CLOSED SEASON

Table 3a

Composition of Fall 1985 Commercial Catch
(Data from Rappahannock pound net catches)

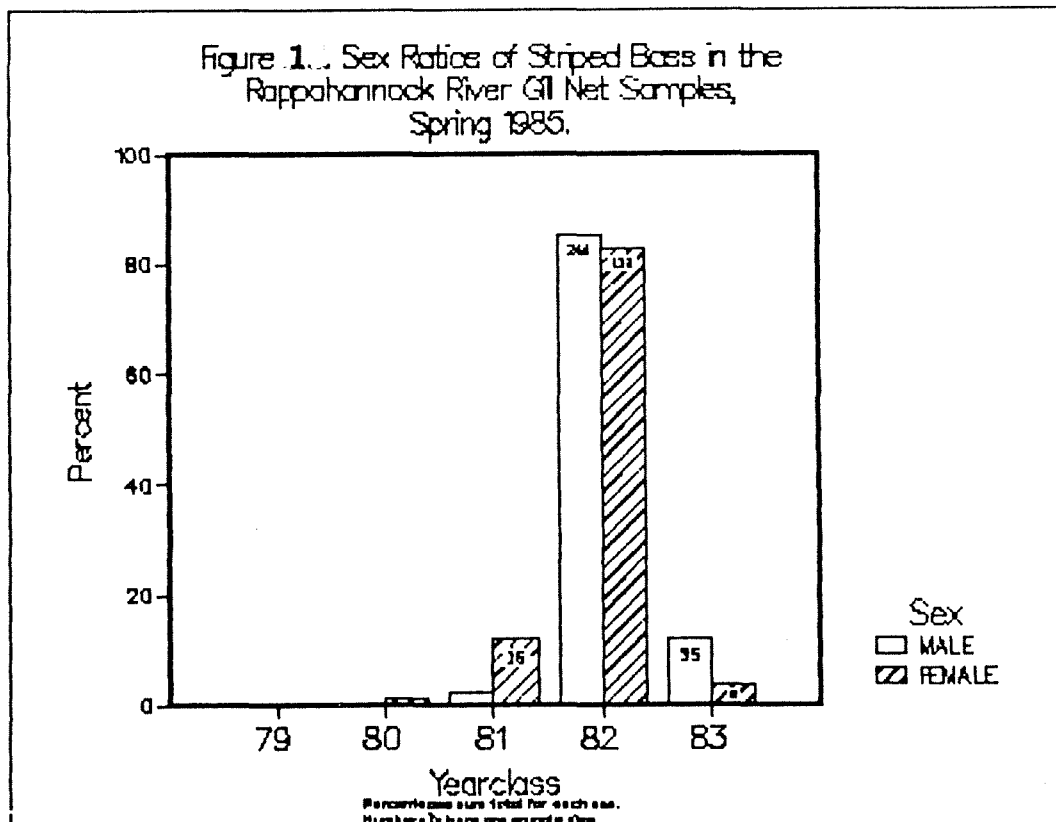
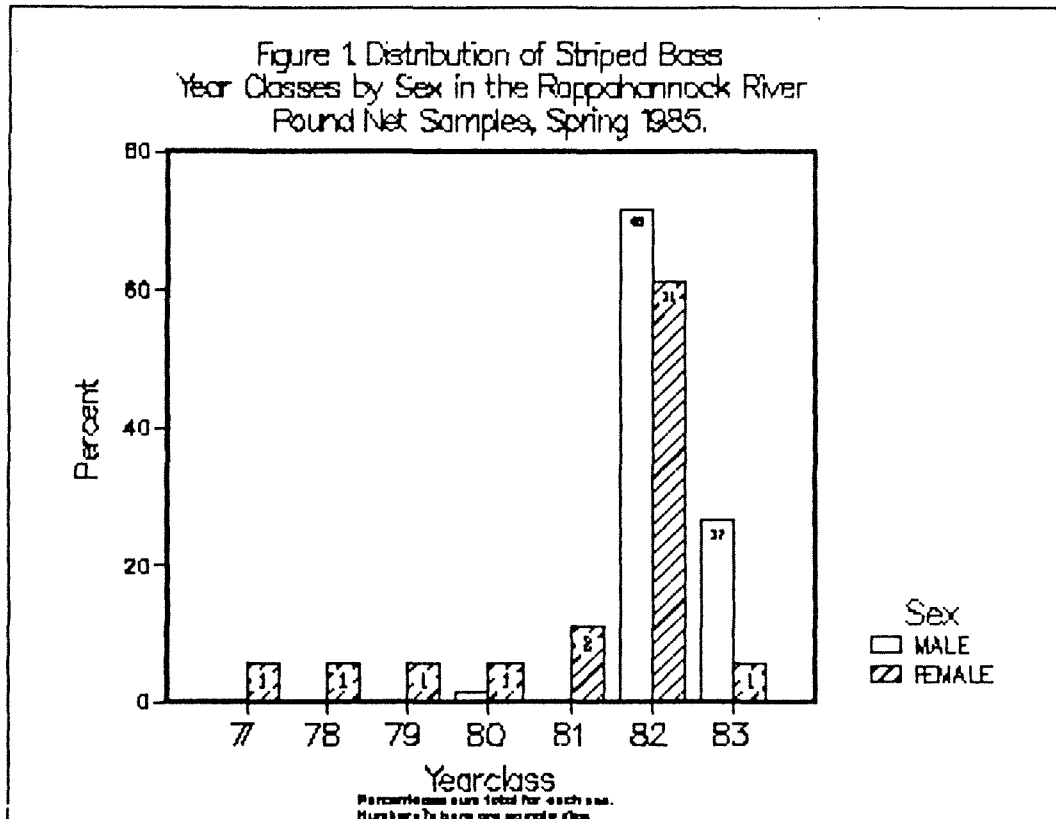
Year Class	N	Mean Weight	%	Calculated Year Class Contribution	
				Pounds	Individuals
1977					
male	1	8.0	<0.1%	8.0	(1)
1978					
female	1	9.8	<0.1	9.8	(1)
1979					
female	1	7.1	<0.1	7.1	(1)
1980	9	5.8	1.0	52.0	(9)
male	4	5.5	0.5	22.0	(4)
female	5	6.0	0.5	30.0	(5)
1981	21	5.4	3.0	230.0	(43)
male	5	4.1	<0.1	7.7	(2)
female	16	5.8	2.9	222.3	(41)
1982	126	3.5	23.0	1,763.0	(503)
males	68	3.3	13.0	997.0	(301)
female	58	3.8	10.0	767.0	(202)
1983	374	2.6	70.0	5,367.0	(2,064)
males	245	2.6	46.0	3,527.0	(1,356)
female	126	2.7	24.0	1,840.0	(681)
unknown	<u>3</u>	<u>2.9</u>	<u><0.1</u>	<u>8.0</u>	<u>(3)</u>
TOTALS	533		99.0*	7,437.0*	2,622

Table 3b

	1982 individuals			1983 individuals		
	5%	95%	100%	5%	95%	100%
females	202	3,838	4,040	681	12,939	13,620
males	301	5,719	6,020	1,356	25,764	27,120
TOTALS	503	9,557	10,060	2,037	38,703	40,740

1982 year class
35,210 pounds

1983 year class
105,924 pounds



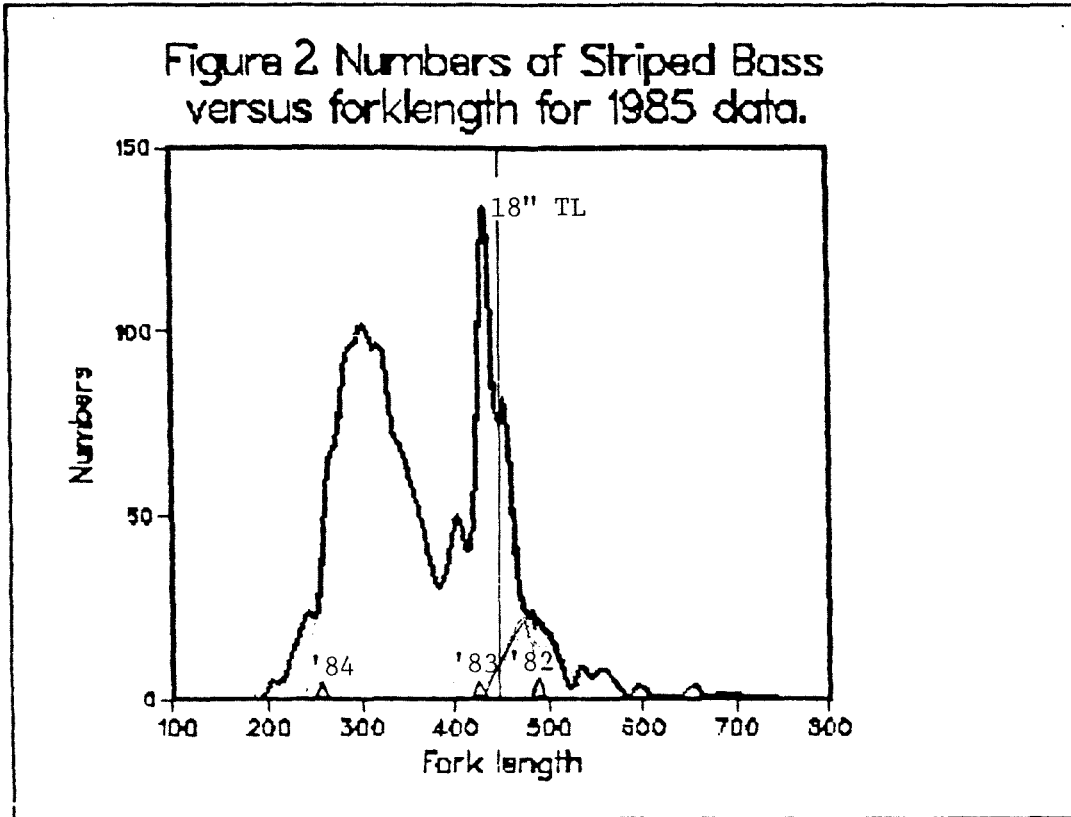
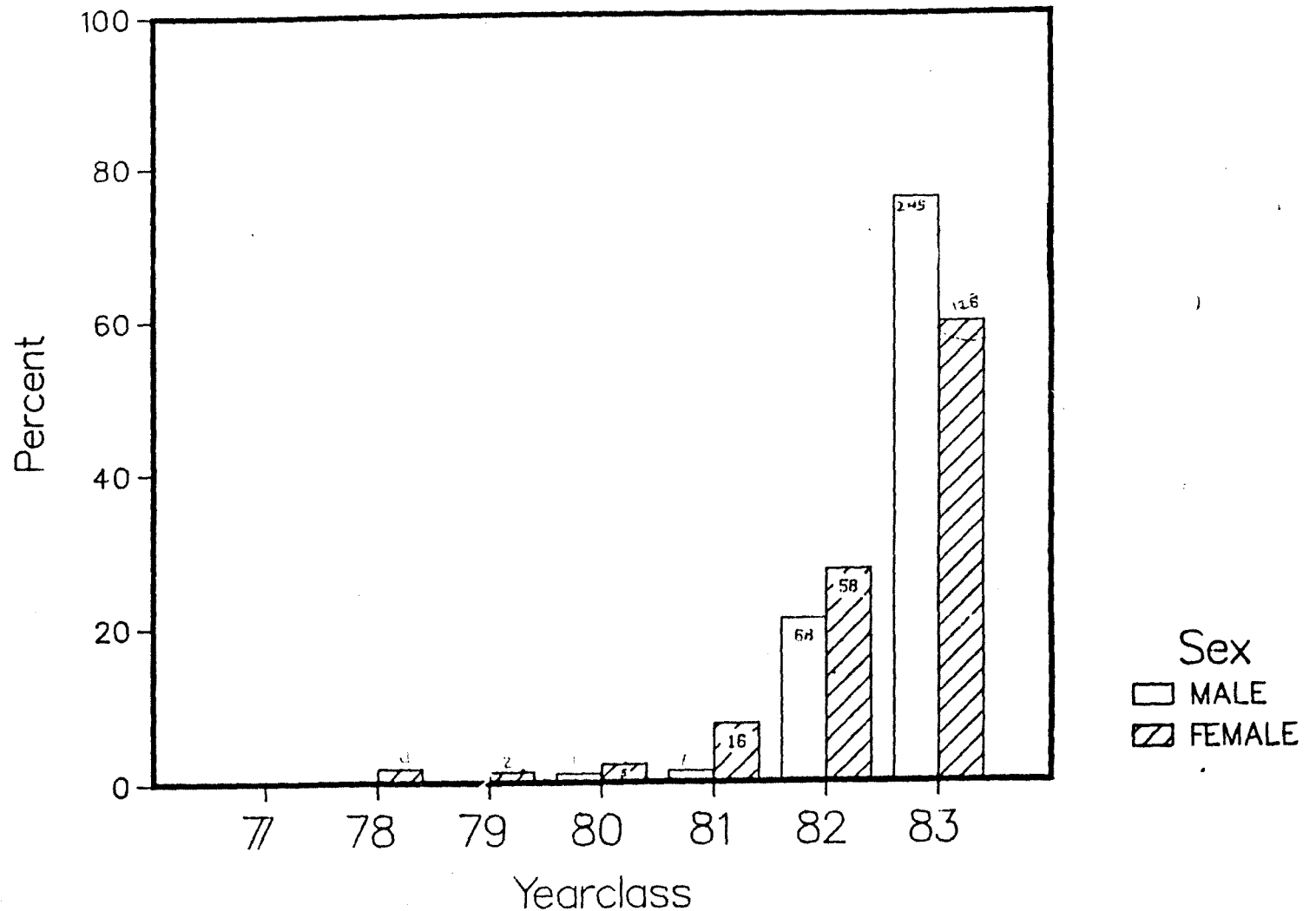


Figure 3. Distribution of Striped Bass Year Classes by Sex in the Rappahannock River Pound Net Samples, Fall 1985.



Percentages sum total for each sex.
Numbers in bars are sample size.