Age composition of the 1978 spring recreational

catch of Atlantic mackerel, <u>Scomber scombrus</u>,

in the Middle Atlantic region

by

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INTRODUCTION

Age samples of Atlantic mackerel, <u>Scomber scombrus</u>, were collected
by NMFS personnel as part of a survey of the 1978 recreational mackerel
catch of the Middle Atlantic region funded by the Mid-Atlantic Fisheries
Management Council. The results of that survey have previously been
reported (Christensen et al., 1979). Age analysis of the samples was
not completed in time to be included in that report.

METHODS

Mackerel were obtained in April 1978 from recreational and commercial
fishermen fishing primarily along the New Jersey coast and transported
to the Sandy Hook Laboratory where they were measured to the nearest
centimeter fork length and sexed. The heads were removed, frozen, and
sent to the Woods Hole Laboratory for otolith removal and aging. Aging
was accomplished by placing intact otoliths in black trays, imbedding
them in clear epoxy resin, and counting annular rings using reflected
light at 25-75x magnification under a binocular microscope.

A total of 2,778 mackerel caught by recreational anglers from
charter-, party-, and private-boats off Delaware, New Jersey, and
New York were measured to the nearest centimeter fork length (Christensen
et al., 1979). The number of fish measured at each centimeter length
increment was multiplied by the percentage composition of each age at
the same length increment to determine the number of fish caught in

each age group at each increment. The numbers at each age were summed from all length increments. The sums at each age were divided by the total number of fish measured to determine the percentage composition of each age in the recreational catch. The percentage composition at each age was multiplied by the total estimated Middle Atlantic catch of 3,795 metric tons (Christensen et al., 1979) to determine the estimated total recreational catch by age class in the Middle Atlantic region.

RESULTS

A total of 278 mackerel were aged. The percentage composition of each age at each centimeter length interval is listed in Table 1. The length frequency of all fish measured during the 1978 spring recreational survey is illustrated in Figure 1. The range in fork length was 27 to 44 cm and the mean fork length was 37.9 cm. The estimated number of fish in each age group at each length interval, the estimated total number and percent by age group, the mean length for each age group, and total estimated Middle Atlantic catch by age class is listed in Table 2. The fish ranged in age from 2 to >11 years old. Ages 2, 3, 4, 5, 6, 7, 8, 9, 10, and 11 made up .1, 2.4, 7.8, 5.7, 12.0, 10.1, 2.9, 22.9, 2.4, and 26.6% respectively of the recreational catch in 1978.

It is apparent from Table 2 that fish caught by recreational anglers came mainly from the older age classes. The remnants of the

large 1967 and 1969 year classes which were 11 and 9 years old respectively in 1978 still contributed nearly 50% of the total 1978 recreational catch. The age composition of the recreational catch differs significantly from the age composition of the total stock indicated by analysis of the NMFS 1978 spring bottom trawl surveys (Anderson and Overholtz, 1978). Comparisons of the two age composition estimates indicates that all age classes older than 5 are over represented in the recreational harvest. For example, ages 9 and up comprised 59.1% of the recreational harvest and only 4.4% of the total stock. However, the trawl data does not include catches made in less than 15 fathoms (27.4 m) while most recreational catches are made inshore of the 15 fathom isobath. It is possible that older mackerel tend to concentrate closer to shore than younger mackerel resulting in an increased angler catch of older fish.

BIBLIOGRAPHY

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Table 2. Numbers, percent age composition, mean length at age of 2,778 recreationally-caught Atlantic mackerel, and estimated catch in metric tons (MT) from New York through Virginia.

| Length (cm)	2	3	4	5	6	7	8	9	10	11	>11	Totals
27	1											1
28	2											2
29												0
30		2										2
31												0
32		1	3									4
33		1	17	5								23
34		8	42	13	4							67
35		9	51	55	9							124
36		18	35	18	96	35		53				255
37		28	69	41	124	69		138	14	83	14	580
38				25	100	176	25	151	25	226		728
39							55	221	28	194	83	581
40								72		143	72	287
41										94		94
42											24	24
43											5	5
44											1	1
Number	3	67	217	157	333	280	80	635	67	740	199	2778
Percent	.1	2.4	7.8	5.7	12.0	10.1	2.9	22.9	2.4	26.6	7.2	100.0
Mean Length at Age (cm)	27.7	35.8	35.4	36.0	36.9	37.5	38.7	38.7	38.2	38.9	-	-
Estimated Total Catch (MT) by Age	4	92	296	214	455	383	109	867	92	1011	272	3795
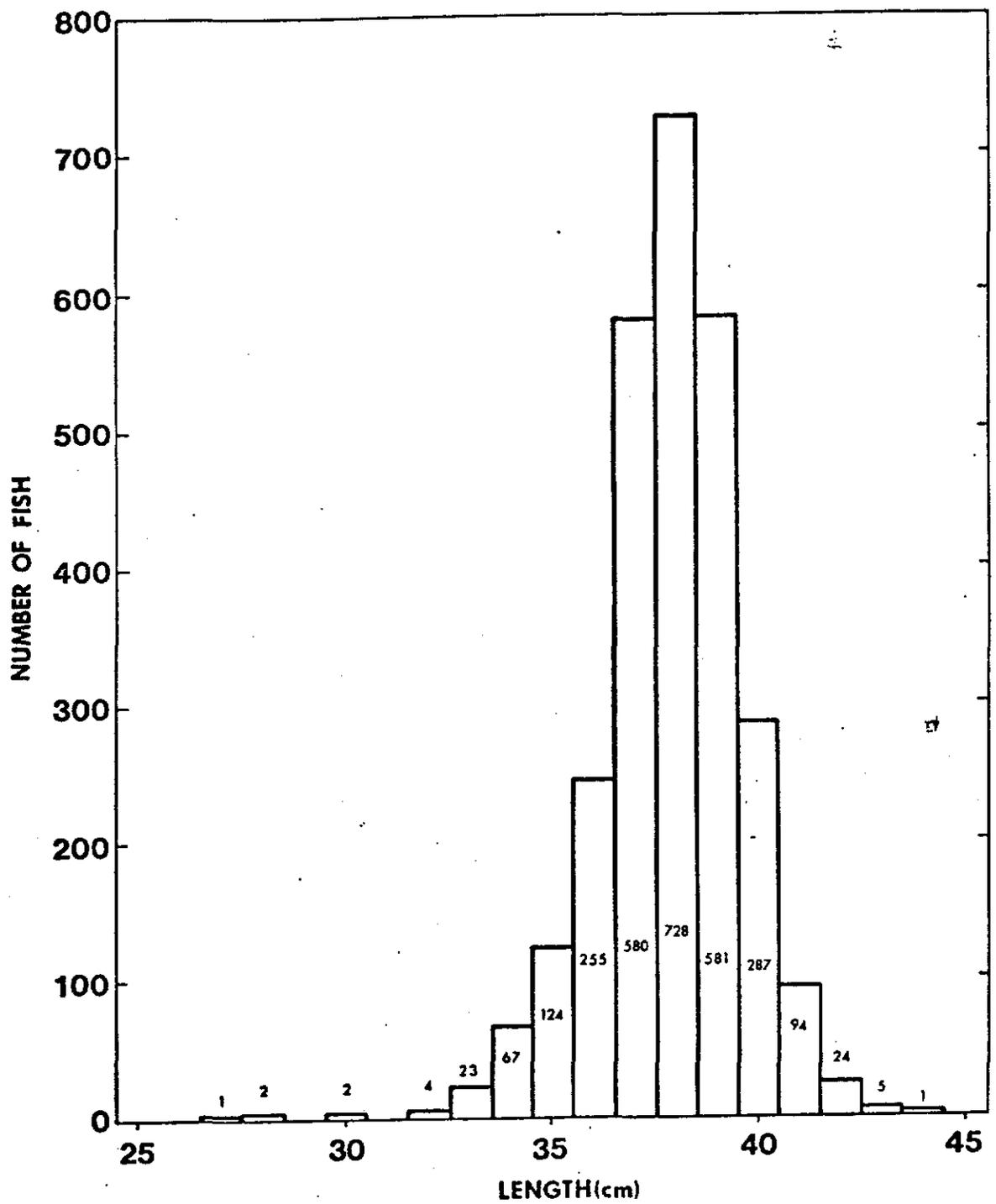
Figure 1. Length frequency of a sample of 2,778 Atlantic mackerel caught by recreational anglers along the middle Atlantic coast.

Table 1. Percent age at length for 278 Atlantic mackerel sampled during the 1978 spring season.

Length (cm)	2	3	4	5	6	7	8	9	10	11	>11
27	100.0										
28	100.0										
29	100.0										
30		100.0									
31			100.0								
32		27.3	72.7								
33		5.3	73.7	21.0							
34		12.3	63.2	19.3	5.3						
35		7.3	41.5	43.9	7.3						
36		6.9	13.9	6.9	37.9	13.9		20.7			
37		4.8	11.9	7.1	21.4	11.9		23.8	2.4	14.3	2.4
38				3.4	13.8	24.1	3.4	20.7	3.4	31.0	
39							9.5	38.1	4.8	33.0	14.3
40								25.0		50.0	25.0
41										100.0	