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SOUTHERN CALIFORNIA PARTYBOAT SAMPLING STUDY
QUARTERLY REPORT NO. 7

by

Glenn F. Black

and

Donald L. Schultze

MARINE RESOURCES

Administrative Report No. 77-17

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ABSTRACT

From January 1 through March 31, 1977, Department personnel made 100 sampling trips aboard southern California partyboats. A total of 16,400 fishes from 68 species was identified and measured.

Otoliths, for age determination studies, were removed from 301 rockfish carcasses representing 23 species.

The 10 most common species sampled during this quarter were bocaccio, *Sebastes paucispinis* (38.5%); chilipepper, *S. goodei* (9.8%); widow rockfish, *S. entomelas* (7.7%); blue rockfish, *S. mystinus* (6.2%); olive rockfish, *S. serranoides* (4.2%); Pacific mackerel, *Scomber japonicus* (2.8%); vermilion rockfish, *Sebastes miniatus* (2.7%); speckled rockfish, *S. ovalis* (2.7%); greenspotted rockfish, *S. chlorostictus* (2.5%); and squarespot rockfish, *S. hopkinsi* (2.4%).

Fishing effort during this quarter was directed almost exclusively toward "rockcod", as it was for the same period in 1976.

1/

Marine Resources Administrative Report no. 77-17, August, 1977. This study is being performed as part of Dingell-Johnson Project California F-32-R, "Southern California Marine Sportfish Research" supported by Federal aid to Fish Restoration Funds. Field work was conducted in cooperation with the Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, under a contract entitled Stock Assessment, Fishery Evaluation, and Fishery Management of Southern California Recreational and Commercial Fisheries, Project 863.

2/

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From January 1 through March 31, 1977, 100 trips were made aboard southern California partyboats by Department personnel. A total of 16,400 fishes belonging to 68 species was identified and measured^{3/}. Otoliths, for age determination studies, were removed from 301 rockfish carcasses representing 23 species.

The 10 most common species sampled during the quarter were bocaccio, *Sebastes paucispinis* (38.5%); chilipepper, *S. goodei* (9.8%); widow rockfish, *S. entomelas* (7.7%); blue rockfish, *S. mystinus* (6.2%); olive rockfish, *S. serranoides* (4.2%); Pacific mackerel, *Scomber japonicus* (2.8%); vermilion rockfish, *Sebastes miniatus* (2.7%); speckled rockfish, *S. ovalis* (2.7%); greenspotted rockfish, *S. chlorostictus* (2.5%) and squarespot rockfish, *S. hopkinsi* (2.4%). As a group these species contributed 79.5% of the total sampled catch (Table 1).

The number of samples dropped significantly (38%) from the previous quarter due to a decrease in the amount of available manpower and to the loss of numerous sampling days because of poor weather conditions in March.

Effort by the southern California partyboat fishery was expended almost exclusively on "rockcod" during this quarter.

ROCKFISHES

A total of 14,389 rockfishes representing 33 species was identified and measured. Rockfishes contributed 87.7% to the total sampled catch as compared to 80.9% for the previous quarter. Data collected on species of *Sebastes* (Table 2) show that 90.2% of the rockfish catch was comprised of only 10 species, while the remaining 9.8% was represented by an additional 23 species.

^{3/} For definition of length measurements see Maxwell and Schultze Administrative Report 76-3.

TABLE 1. Number of Fishes Measured From Southern California Partyboats, January through March, 1977.

Common name	Scientific name	Number measured	Common name	Scientific name	Number measured
Sablefish	<i>Anoplopoma fimbria</i>	9	Rockfish, swordspine	<i>Sebastes enstifer</i>	7
Jacksmelt	<i>Atherinopsis californiensis</i>	6	Rockfish, widow	<i>S. entomelas</i>	1262
Whitefish, ocean	<i>Caulolatilus princeps</i>	251	Rockfish, pink	<i>S. eos</i>	22
Croaker, black	<i>Cheilotrema saturnum</i>	2	Rockfish, yellowtail	<i>S. flavidus</i>	114
Blacksmith	<i>Chromis punctipinnis</i>	5	Rockfish, bronzespotted	<i>S. gilli</i>	8
Sanddab, Pacific	<i>Citharichthys sordidus</i>	28	Chilipepper	<i>S. goodei</i>	1606
Seabass, white	<i>Cynoscion nobilis</i>	11	Rockfish, squarespot	<i>S. hopkinsi</i>	400
Sole, petrale	<i>Eopsetta jordani</i>	11	Cowcod	<i>S. levis</i>	93
Shark, soupfin	<i>Galeorhinus nyopterus</i>	2	Rockfish, Mexican	<i>S. macdonaldi</i>	11
Croaker, white	<i>Genyonemus lineatus</i>	215	Rockfish, vermilion	<i>S. miniatus</i>	446
Opaleye	<i>Girella nigricans</i>	3	Rockfish, blue	<i>S. mystinus</i>	1020
Wrasse, rock	<i>Halichoeres semicinctus</i>	1	Rockfish, speckled	<i>S. ovalis</i>	441
Sole, bigmouth	<i>Hippoglossina stomata</i>	4	Bocaccio	<i>S. paucispinis</i>	6309
Ratfish	<i>Hypoglossus colleti</i>	2	Rockfish, canary	<i>S. pinniger</i>	13
Halibut	<i>Medialuna californiensis</i>	24	Rockfish, grass	<i>S. rostralliger</i>	4
Salmon, king	<i>Oncorhynchus tshawytscha</i>	2	Rockfish, rosy	<i>S. rosaceus</i>	67
Lingcod	<i>Ophiodon elongatus</i>	35	Rockfish, greenblotched	<i>S. rosenblatti</i>	118
Bass, kelp	<i>Paralabrax clathratus</i>	76	Rockfish, yelloweye	<i>S. ruberrimus</i>	5
Bass, barred sand	<i>P. nebulifer</i>	137	Rockfish, flag	<i>S. rubrivinctus</i>	295
Halibut, California	<i>Paralichthys californicus</i>	14	Rockfish, bank	<i>S. rufus</i>	388
Sheephead, California	<i>Pimelometopon pulchrum</i>	33	Rockfish, striptail	<i>S. saxicola</i>	2
Thornback	<i>Platyrhinoidis triseriata</i>	2	Rockfish, halfbanded	<i>S. semicinctus</i>	22
Surfperch, rubberlip	<i>Rhacochilus toxotes</i>	1	Rockfish, olive	<i>S. serranoideus</i>	691
Bonito, Pacific	<i>Sarda chiltiensis</i>	358	Treefish	<i>S. sarriceps</i>	6
Mackerel, Pacific	<i>Scorpaena japonicus</i>	454	Rockfish, honeycomb	<i>S. umbrosus</i>	58
Sculpin	<i>Scorpaena guttata</i>	97	Yellowtail	<i>Seriola dorsalis</i>	2
Cabazon	<i>Scorpaenichthys marmoratus</i>	2	Queenfish	<i>Seriphus politus</i>	9
Rockfish, kelp	<i>Sebastes atrovirens</i>	3	Barracuda, California	<i>Spicara argentea</i>	131
Rockfish, brown	<i>S. auriculatus</i>	63	Spiny dogfish	<i>Squalus acanthias</i>	9
Rockfish, gopher	<i>S. caurinus</i>	11	Sea bass, giant	<i>Stereolepis gigas</i>	1
Rockfish, copper	<i>S. caurinus</i>	37	Lizardfish, California	<i>Synodus lucticeps</i>	1
Rockfish, greenspotted	<i>S. chlorostictus</i>	410	Mackerel, jack	<i>Trachurus symmetricus</i>	72
Rockfish, starry	<i>S. constellatus</i>	152	Sole, fantail	<i>Xystrekraya liolepis</i>	1
Rockfish, calico	<i>S. dallii</i>	41			
Rockfish, greenstriped	<i>S. elongatus</i>	254			
			TOTAL		15,400

TABLE 2. Species Composition of Rockfishes (*Sebastes* spp.) Catch from Partyboat Samples, January Through March 1977.

Common name	Scientific name	Frequency of occurrence (%)
Bocaccio	<i>Sebastes paucispinis</i>	43.8
Chilipepper	<i>S. goodei</i>	11.2
Widow	<i>S. entomelas</i>	8.8
Blue	<i>S. mystinus</i>	7.1
Olive	<i>S. serranoides</i>	4.8
Vermilion	<i>S. miniatus</i>	3.1
Speckled	<i>S. ovalis</i>	3.1
Greenspotted	<i>S. chlorostictus</i>	2.8
Squarespot	<i>S. hopkinsi</i>	2.8
Bank	<i>S. rufus</i>	2.7
Flag	<i>S. rubrivinctus</i>	2.0
Greenstriped	<i>S. elongatus</i>	1.8
Starry	<i>S. constellatus</i>	1.1
Greenblotched	<i>S. rosenblatti</i>	0.8
Yellowtail	<i>S. flavidus</i>	0.8
Cowcod	<i>S. levis</i>	0.6
Rosy	<i>S. rosaceus</i>	0.5
Brown	<i>S. auriculatus</i>	0.4
Honeycomb	<i>S. umbrosus</i>	0.4
Calico	<i>S. dalli</i>	0.3
Copper	<i>S. caurinus</i>	0.3
Pink	<i>S. eos</i>	0.2
Halfbanded	<i>S. semicinctus</i>	0.2
Canary	<i>S. pinniger</i>	< 0.1
Gopher	<i>S. carnatus</i>	< 0.1
Mexican	<i>S. macdonaldi</i>	< 0.1
Bronzespotted	<i>S. gilli</i>	< 0.1
Swordspine	<i>S. ensifer</i>	< 0.1
Treefish	<i>S. serriceps</i>	< 0.1
Yelloweye	<i>S. ruberrimus</i>	< 0.1
Grass	<i>S. rastrelliger</i>	< 0.1
Kelp	<i>S. atrovirens</i>	< 0.1
Stripetail	<i>S. saxicola</i>	< 0.1

As in the previous quarter, bocaccio was the most abundant rockfish captured by southern California partyboat anglers, accounting for 43.8% of the total sampled rockfish catch; chilipepper was the next most numerous species, contributing 11.2% to the rockfish catch. Monthly length-frequencies for these two species as well as blue rockfish and olive rockfish are presented in Figures 1 through 12.

SURFACE GAMEFISHES

Most gamefishes were relatively scarce in the partyboat catch this quarter. The partyboat catch of California barracuda, *Spyraena argentea*, made up less than 1% of the total number of fishes sampled, the same as last quarter. The sampled catch of Pacific mackerel dropped from 4.4% reported for October through December of 1976 to 2.8% for January through March of 1977. Length frequencies for Pacific mackerel measured in January (Figure 13) showed fish predominantly from the 1976 year class as did the fish measured in the previous month, while length frequencies for February (Figure 14) showed a stronger 1974 year class than those of January. The number captured in March was relatively small, but still reflected the same year classes (Figure 15). The total sampled catches of white seabass, *Cynoscion nobilis*, and yellowtail, *Seriola dorsalis*, remained at the low levels of the previous three months.

The sampled catch of Pacific bonito, *Sarda chiliensis*, increased from 1% to 2% on the partyboats over the last quarter. Bonito were more abundant to the partyboat fishery during this quarter than they were for the corresponding quarter last year when no fish were sampled. This is substantiated by the preliminary analysis of partyboat logs which showed almost a 30 fold increase in the reported catch of bonito for this time

period over that of the previous year. This may be due, in part, to the extremely warm nearshore water temperatures found this year compared to those of last year for the same months.

EFFORT AND CATCH-PER-UNIT-EFFORT

Fishing effort (average number of anglers per trip) during the months of January and March compared closely with effort recorded during the same months in 1976. Fishing effort during February, however, showed an increase in the number of anglers fishing during the month compared with that of January and March of this year and February of 1976. This may be due, in part, to fishermen taking advantage of extremely mild weather experienced during the month of February.

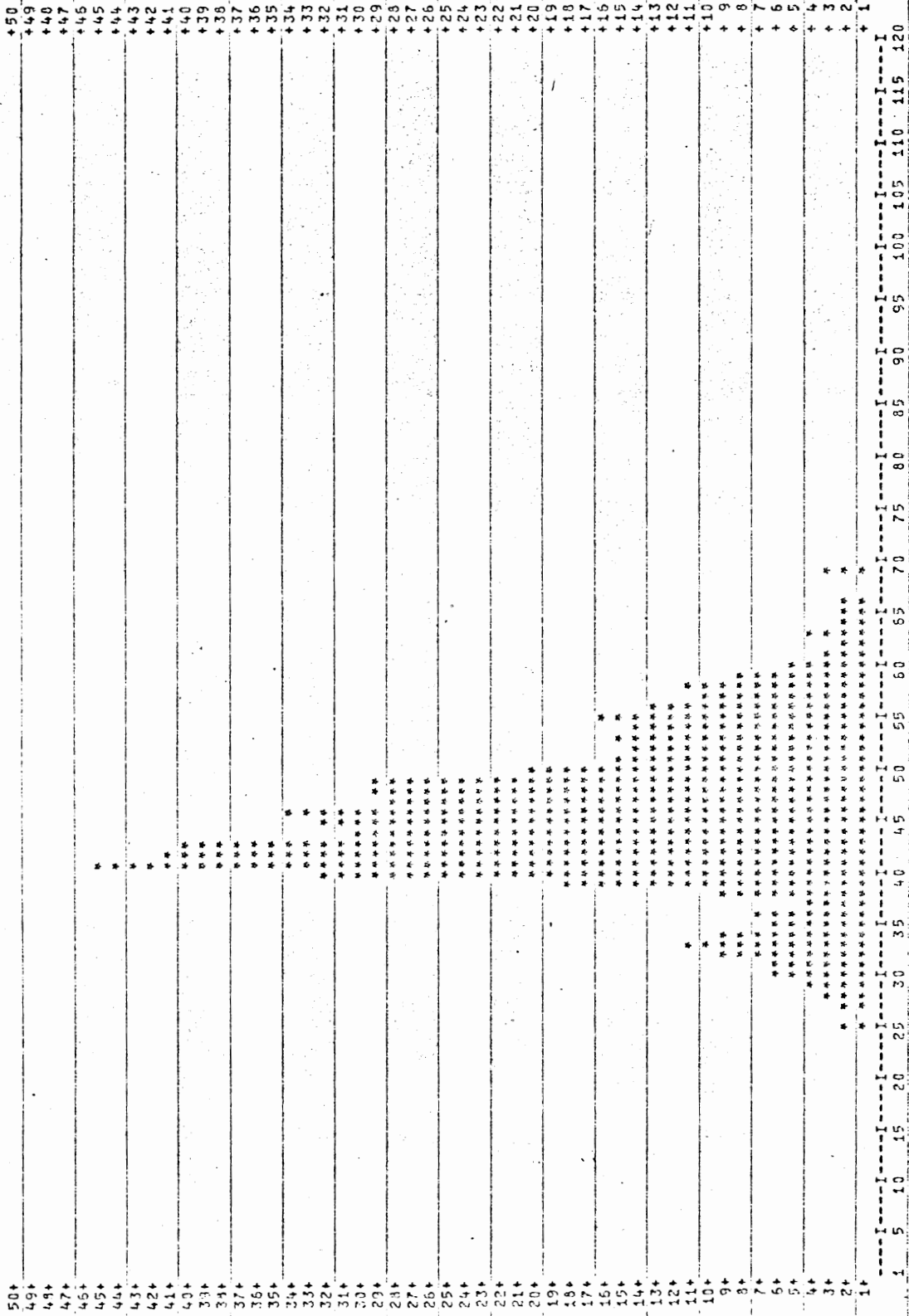
The emphasis of winter fishing effort towards more readily caught rockfishes resulted in higher catch-per-unit-effort (average number of fishes caught per angler hour fished) values than those of summer months when surface game species are pursued (Table 3).

TABLE 3. Effort and Catch-per-Unit-Effort Values Determined from Partyboat Samples for Each Port Complex and Month, January 1976 through March 1977.

Port complex	MONTH														
	1976						1977								
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
No. trips/month	7	8	8	10	10	11	0	4	12	8	14	11	1	3	7
	7	5	7	10	10	9	5	7	5	2	4	6	6	2	2
	3	2	2	2	3	4	3	2	2	4	6	4	4	3	2
	7	5	6	9	10	8	13	9	8	9	7	8	7	4	4
	11	16	12	11	9	8	12	13	6	7	14	12	10	5	8
	10	11	12	9	9	8	10	16	10	13	15	15	14	11	7
TOTAL	45	47	47	48	51	48	43	51	43	43	60	56	42	28	30
Avg. no. anglers/trip	29.71	19.25	28.63	20.50	48.10	44.55	-	46.00	28.66	23.88	15.64	18.30	17.00	56.00	24.00
	26.57	23.00	20.57	21.57	30.20	36.89	51.20	45.71	29.60	21.50	18.50	19.70	18.33	32.50	23.00
	22.33	22.00	11.50	23.00	21.67	45.50	44.33	36.50	38.50	19.50	33.17	23.30	25.75	27.67	22.00
	30.57	29.00	26.17	25.33	26.20	39.38	43.23	49.11	30.75	27.20	25.28	27.50	28.57	32.50	24.00
	22.00	23.44	29.58	29.00	31.56	35.38	39.67	39.92	25.83	23.70	24.21	21.90	21.60	36.00	22.87
	16.40	25.64	23.83	22.89	26.22	27.13	43.30	38.44	24.00	21.46	18.00	19.60	19.00	30.45	26.14
Average	24.91	23.32	33.38	24.06	31.96	37.90	43.26	42.22	28.14	23.30	21.30	21.50	21.00	34.00	22.00
No. fish caught/angler hour fished	1.20	1.36	1.20	0.95	1.28	2.07	-	0.40	0.70	1.14	2.45	2.21	1.85	1.35	0.89
	1.47	1.16	1.16	0.73	0.92	1.13	0.92	0.44	0.39	1.21	2.09	1.66	1.11	0.48	1.77
	1.25	0.50	2.16	1.47	0.67	0.70	0.43	0.55	0.55	0.89	1.61	1.00	1.03	0.66	1.86
	1.87	1.77	1.48	1.67	0.80	0.94	0.76	0.80	1.18	2.07	2.19	2.19	2.95	2.30	1.19
	3.28	2.77	2.51	1.97	1.47	0.74	0.69	1.05	1.09	1.00	1.66	2.54	2.40	0.88	2.30
	3.55	1.80	1.92	1.41	2.33	1.03	0.58	0.87	1.43	1.96	3.19	2.92	4.04	1.54	1.11
Average	2.15	1.69	1.74	1.42	1.23	1.13	0.70	0.77	0.96	1.62	2.24	2.28	2.61	1.29	1.44

LENGTH HISTOGRAM FOR BOCCACCIO (SEBASTES PAUCISPINIS)
DURING JANUARY 1977.

THE Y AXES = FREQUENCY (NUMBER OF FISH)
MULTIPLICATION FACTOR = 6.0

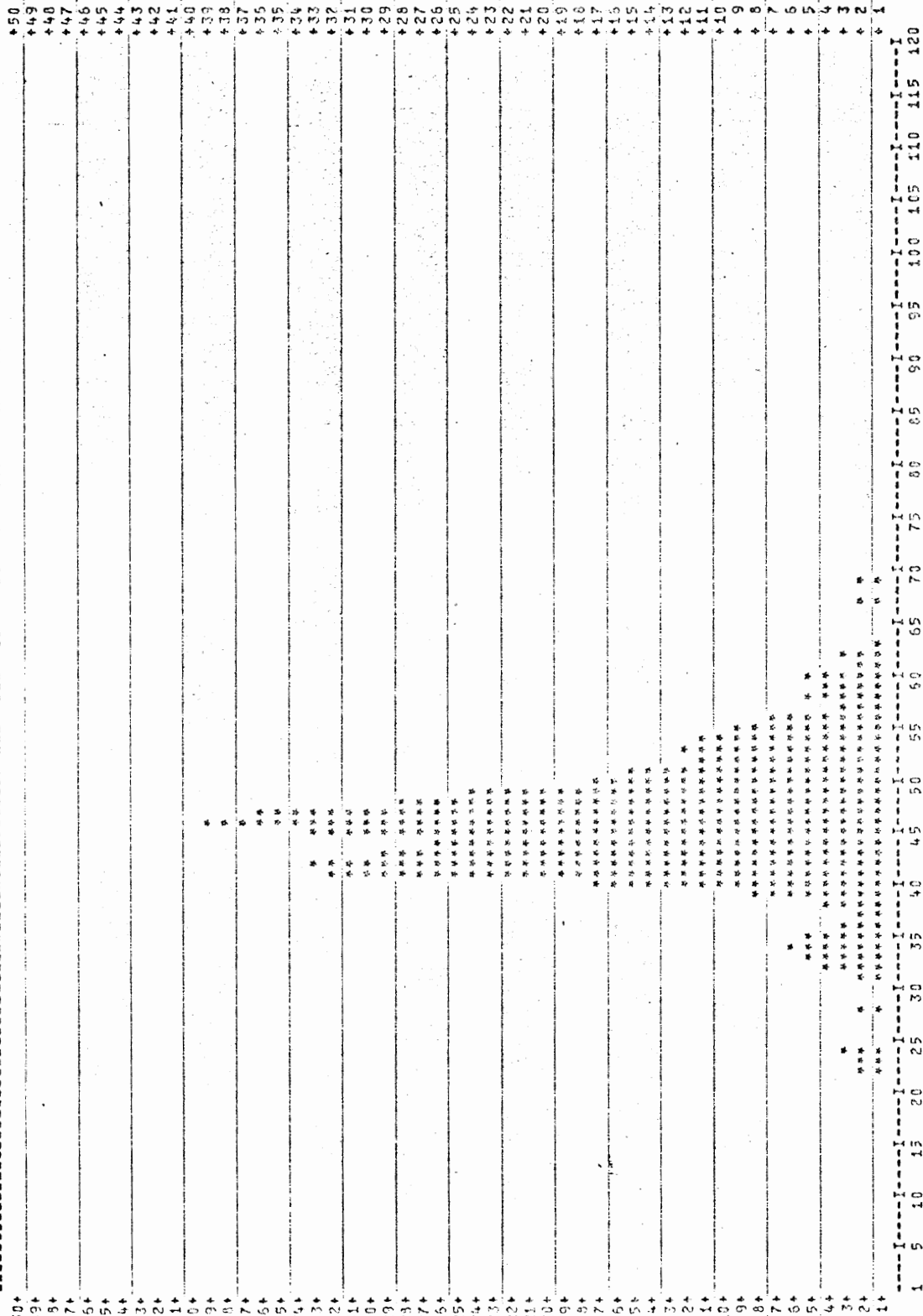


TOTAL NO. = 3513 THE X-AXIS = LENGTH (CENTIMETERS)
MEAN = 45.634 STANDARD DEVIATION = 7.773

FIGURE 1. Length frequencies of bocaccio for January 1977.

LENGTH HISTOGRAM FOR BOCCACCIO (SEBASTES PAUCISPINIS)
DURING FEBRUARY 1977.

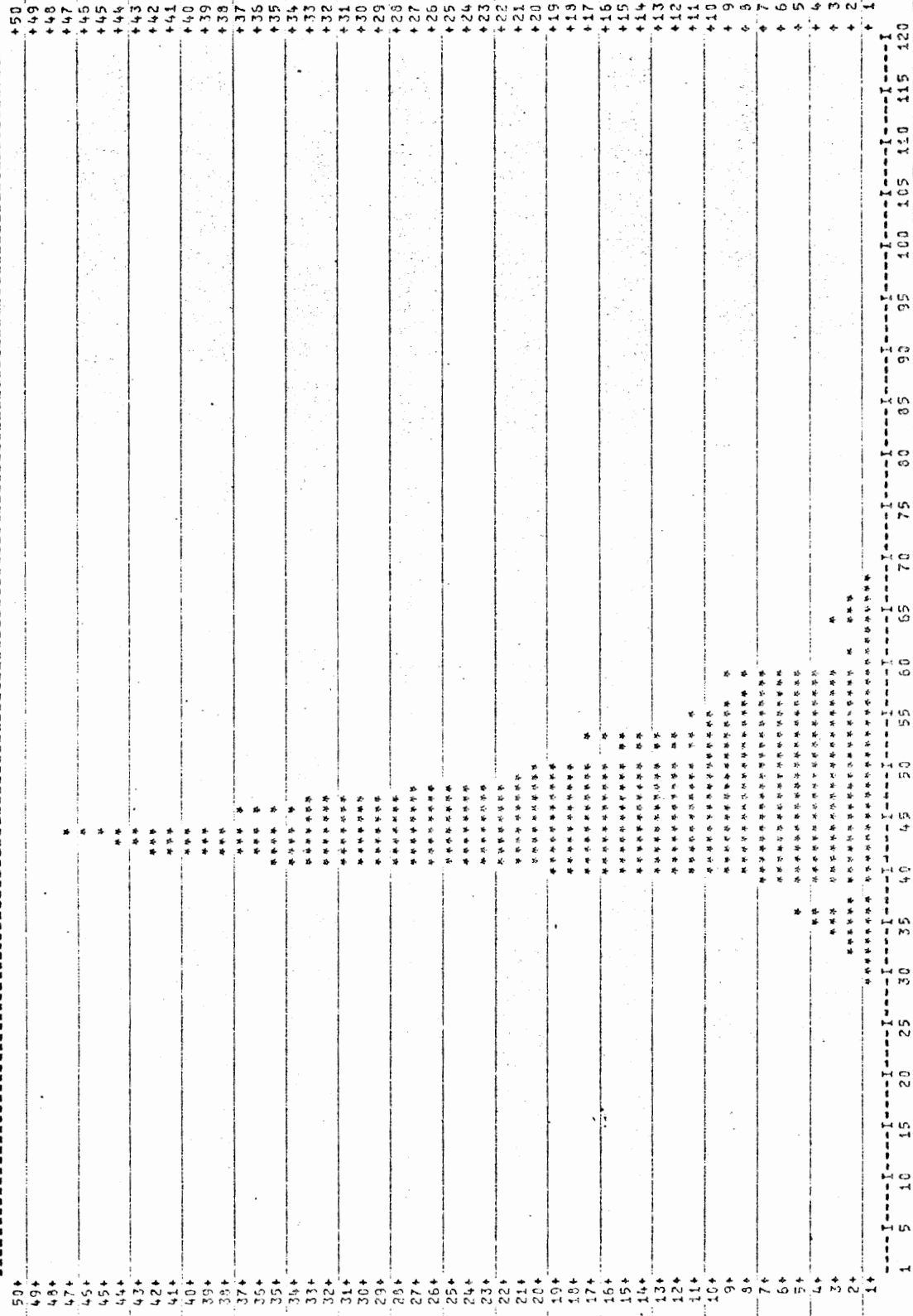
THE Y AXES = FREQUENCY (NUMBER OF FISH)
MULTIPLICATION FACTOR = 4.0



TOTAL NO. = 1786 THE X-AXIS = LENGTH (CENTIMETERS)
MEAN = 45.945 STANDARD DEVIATION = 6.984

FIGURE 2. Length frequencies of bocaccio for February 1977.

LENGTH HISTOGRAM FOR BOCCACCIO (SEBASTES PAUCISPINIS)
 DURING MARCH 1977.
 THE Y AXES = FREQUENCY (NUMBER OF FISH)
 MULTIPLICATION FACTOR = 2.0

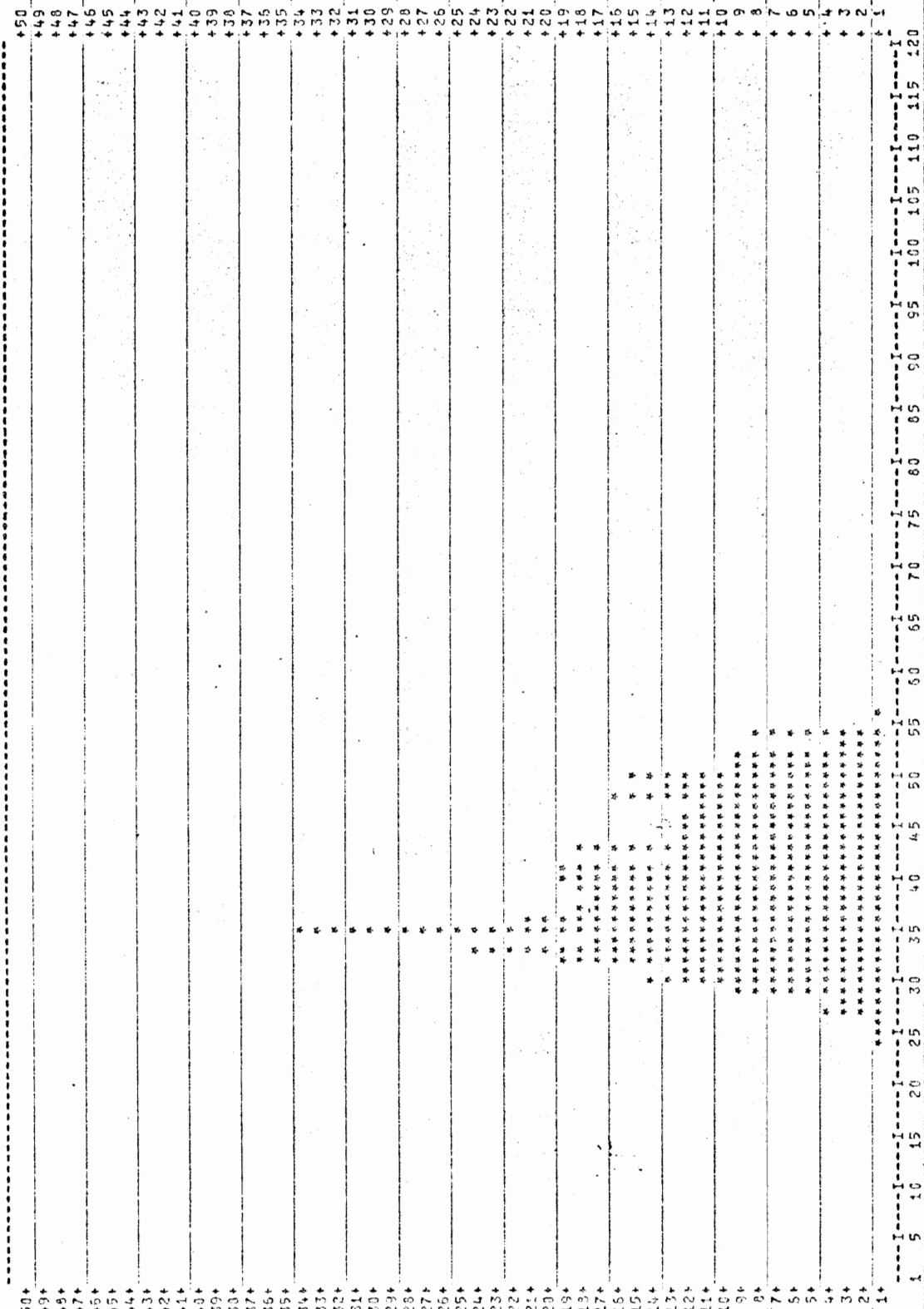


TOTAL NO. = 1010 THE X-AXIS = LENGTH (CENTIMETERS)
 MEAN = 96.633 STANDARD DEVIATION = 6.460

FIGURE 3. Length frequencies of bocaccio for March 1977.

LENGTH HISTOGRAM FOR CHILIPEPPER (SEBASTES GOODEI)
DURING JANUARY 1977.

THE Y AXES = FREQUENCY (NUMBER OF FISH)
MULTIPLICATION FACTOR = 2.0



TOTAL NO. = 821 THE X-AXIS = LENGTH (CENTIMETERS)
MEAN = 39.724 STANDARD DEVIATION = 7.068

FIGURE 4. Length frequencies of chilipepper for January 1977.

LENGTH HISTOGRAM FOR CHILIPEPPER (SEBASTES GOODEI)
 DURING FEBRUARY 1977.
 THE Y AXES = FREQUENCY (NUMBER OF FISH)
 MULTIPLICATION FACTOR = 2.0



FIGURE 5. Length frequencies of chilipepper for February 1977.

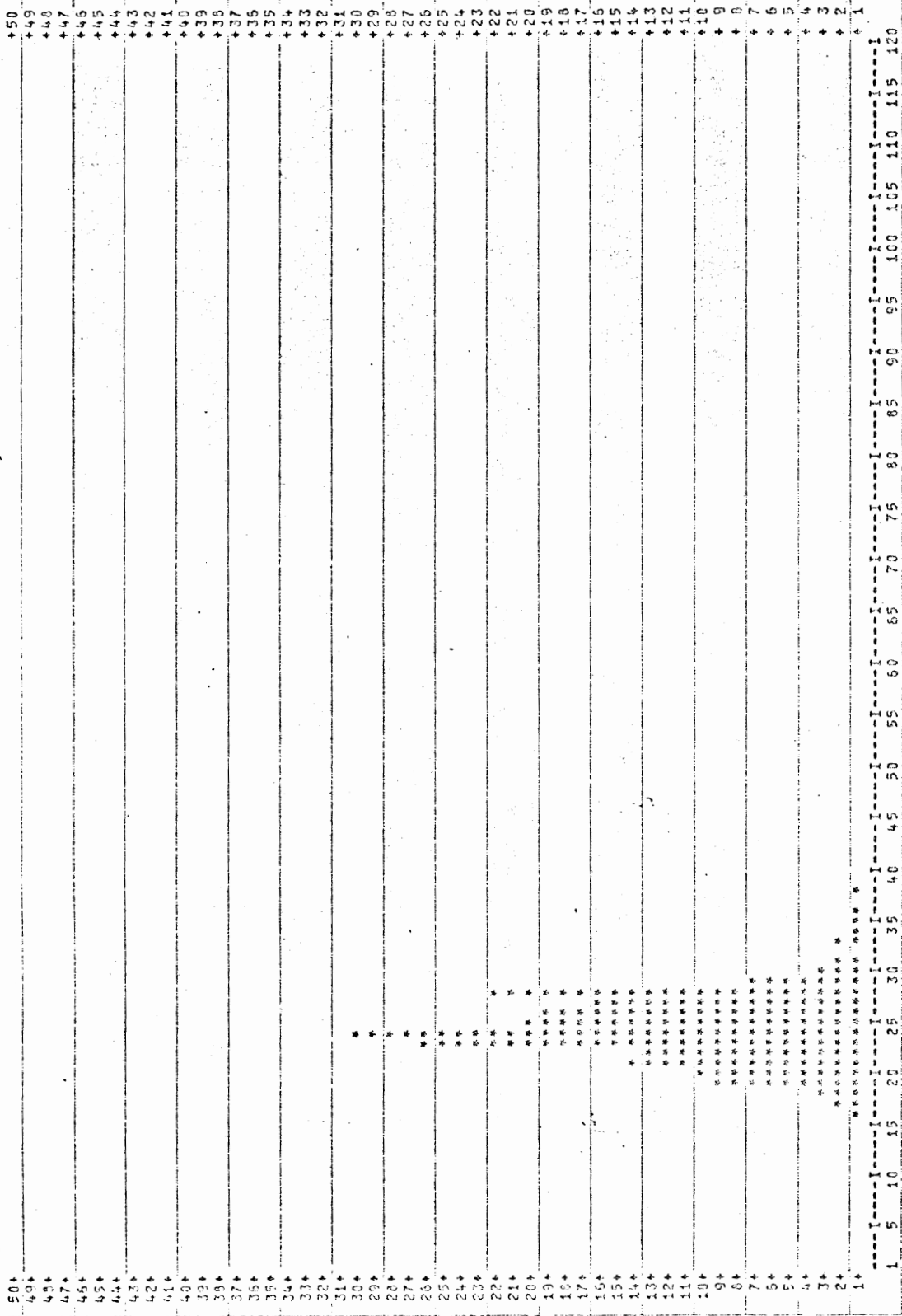
LENGTH HISTOGRAM FOR CHILIPEPPER (SEBASTES GOODEI)
DURING MARCH 1977,

THE Y AXES = FREQUENCY (NUMBER OF FISH)
MULTIPLICATION FACTOR = 1.0



FIGURE 6. Length frequencies of chilipepper for March 1977.

LENGTH HISTOGRAM FOR BLUE ROCKFISH (SEBASTES MYSTINUS)
 DURING JANUARY 1977.
 THE Y AXES = FREQUENCY (NUMBER OF FISH)
 MULTIPLICATION FACTOR = 2.0



TOTAL NO. = 420 THE X-AXIS = LENGTH (CENTIMETERS)
 MEAN = 24.560 STANDARD DEVIATION = 3.832

FIGURE 7. Length frequencies of blue rockfish for January 1977.

LENGTH HISTOGRAM FOR BLUE ROCKFISH (SEBASIES HYSTINUS)
 DURING FEBRUARY 1977.
 THE Y AXES = FREQUENCY (NUMBER OF FISH)
 MULTIPLICATION FACTOR = 2.0

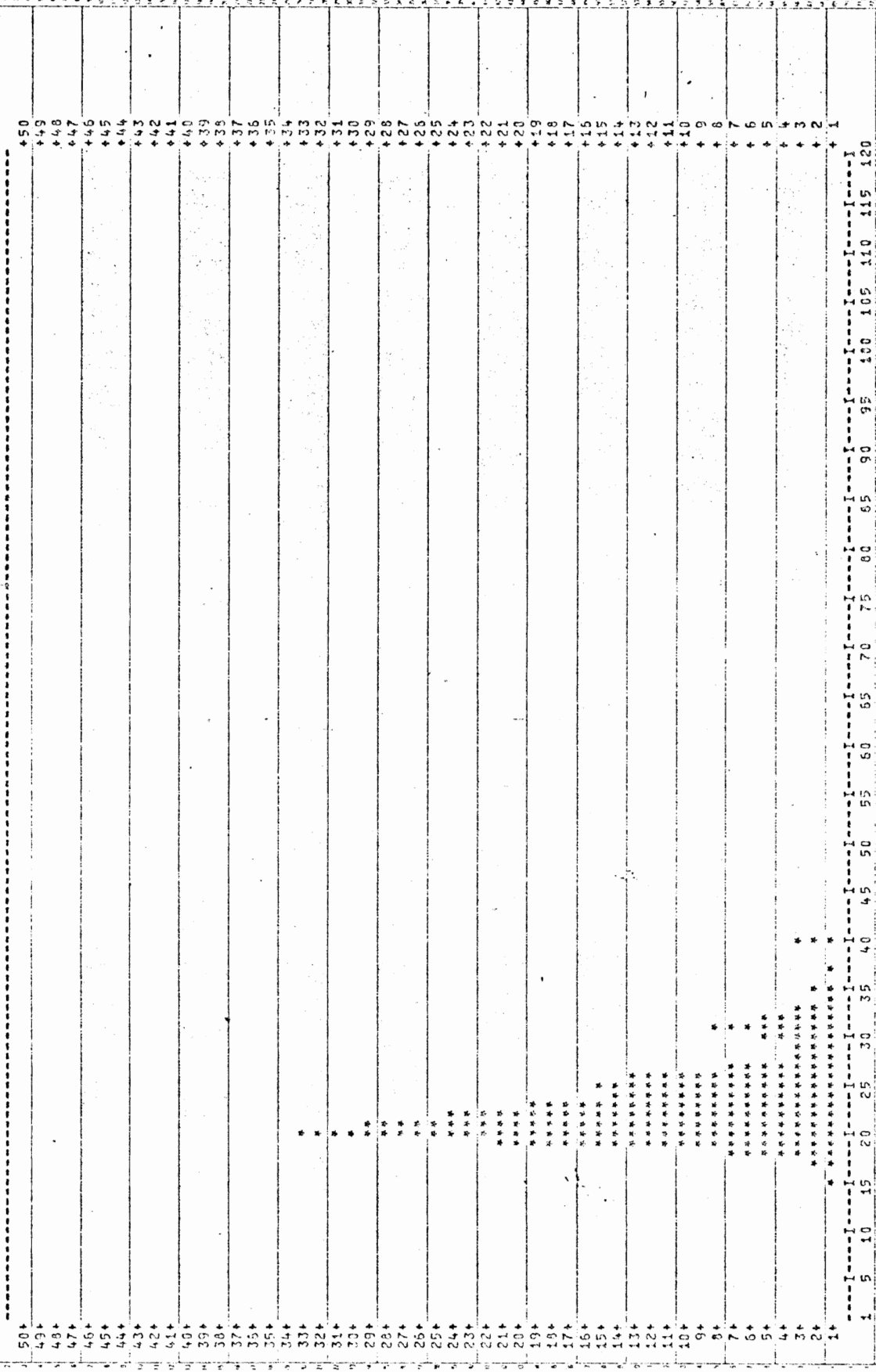


FIGURE 8. Length frequencies of blue rockfish for February 1977.

LENGTH HISTOGRAM FOR BLUE ROCKFISH (SEBASTES MYSTINUS)
DURING MARCH 1977.

THE Y AXES = FREQUENCY (NUMBER OF FISH)
MULTIPLICATION FACTOR = 1.0

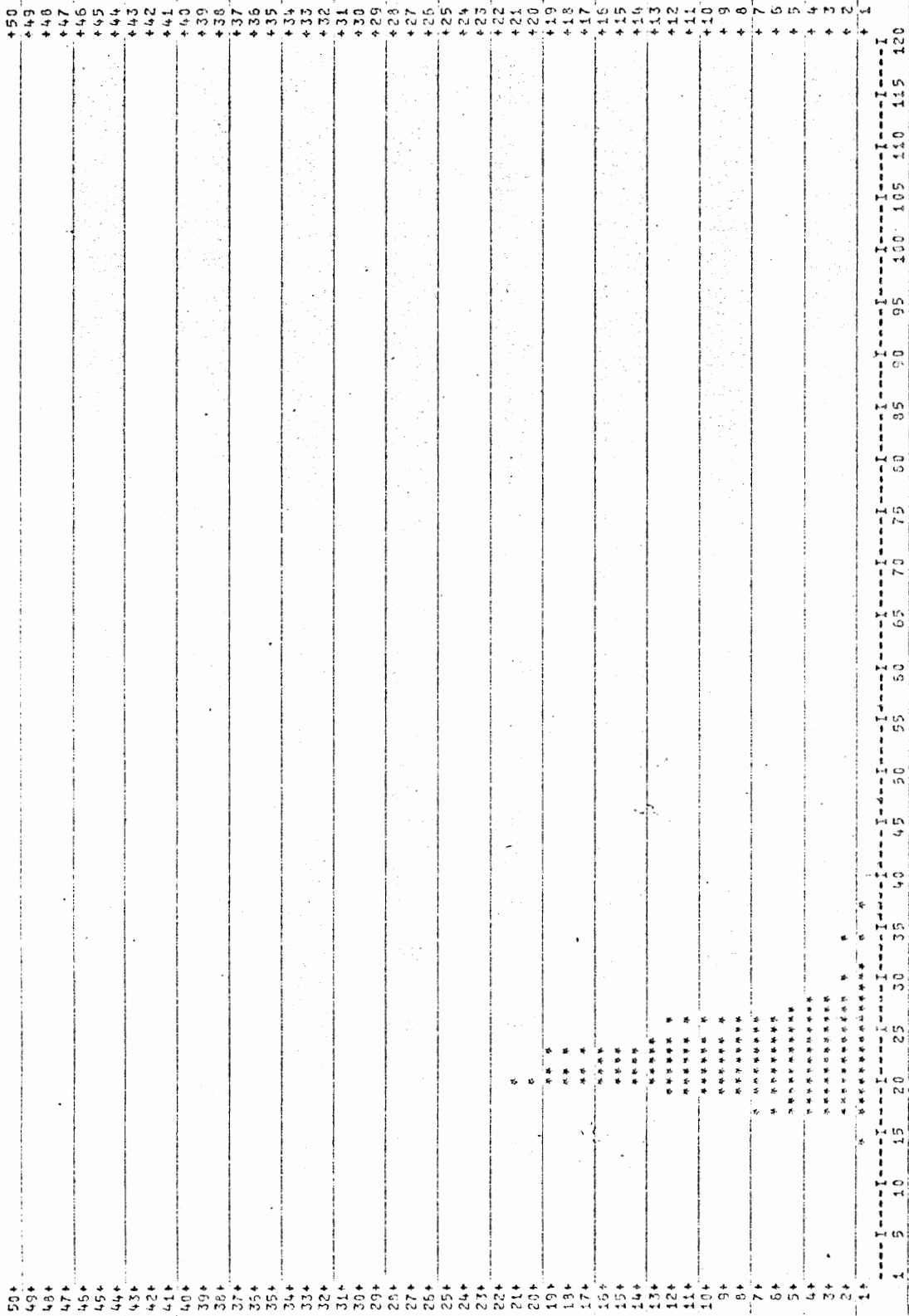
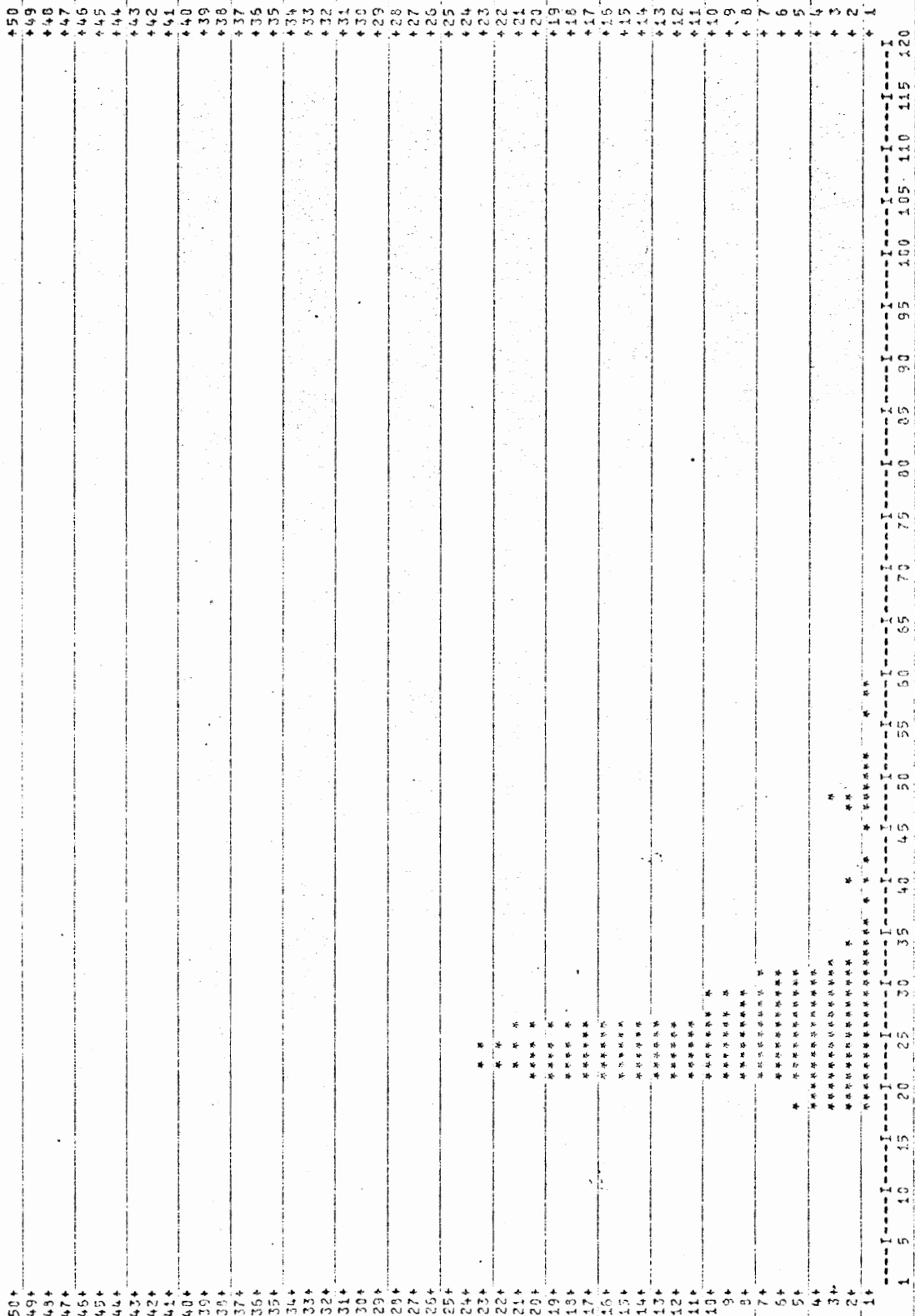


FIGURE 9. Length frequencies of blue rockfish for March 1977.
TOTAL NO. = 149 MEAN = 22.517 STANDARD DEVIATION = 3.538

LENGTH HISTOGRAM FOR OLIVE ROCKFISH (SEDATIES SERRANOIDES)
 DURING JANUARY 1977.
 THE Y AXES = FREQUENCY (NUMBER OF FISH)
 MULTIPLICATION FACTOR = 1.0



TOTAL NO. = 203 THE X-AXIS = LENGTH (CENTIMETERS)
 MEAN = 26.709 STANDARD DEVIATION = 7.523

FIGURE 10. Length frequencies of olive rockfish for January 1977.

LENGTH HISTOGRAM FOR OLIVE ROCKFISH (SEBASTES SERRANOIDES)
DURING FEBRUARY 1977.

THE Y-AXIS = FREQUENCY NUMBER OF FISH;
MULTIPLICATION FACTOR = 1.00

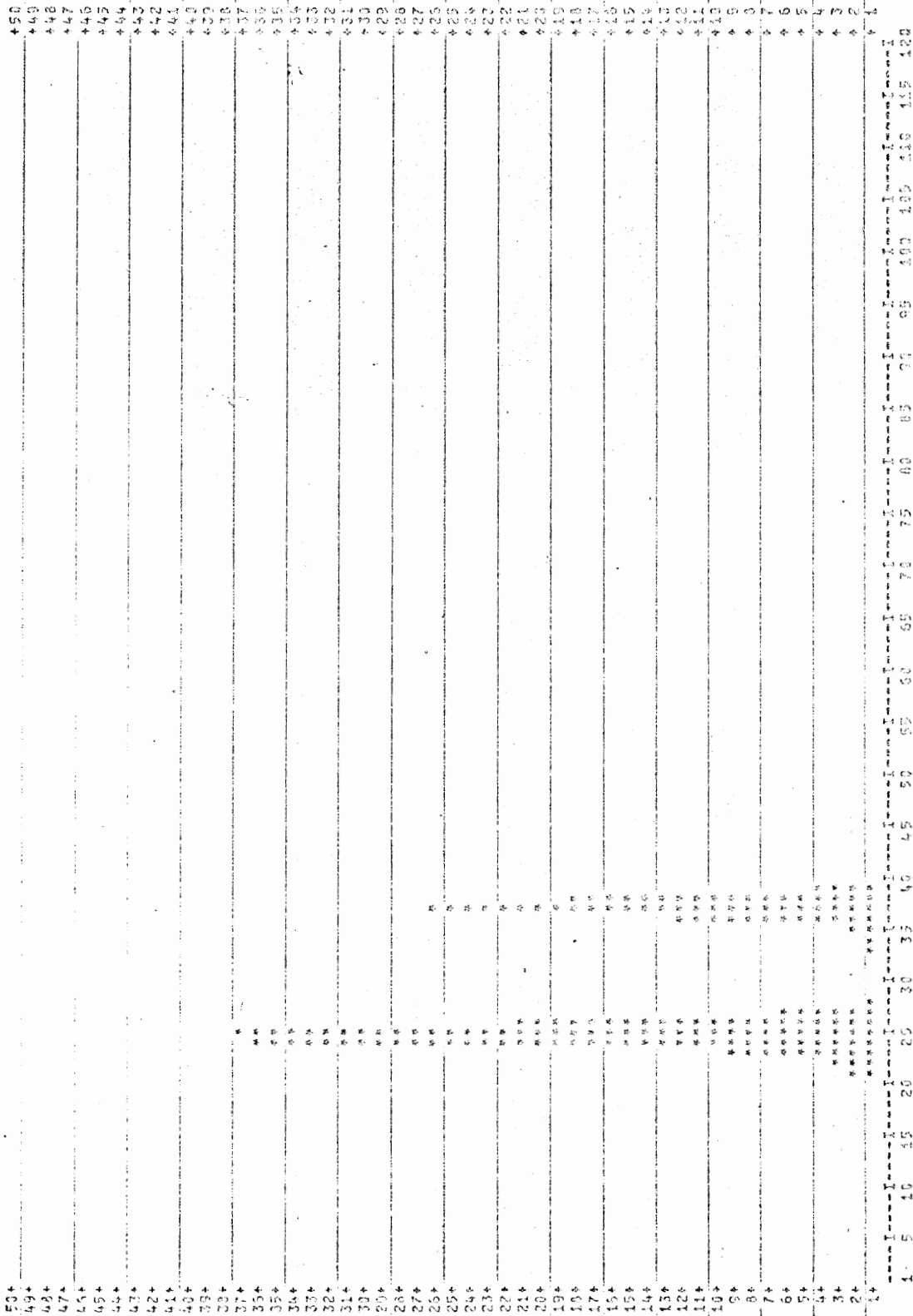


TOTAL NO. = 233 MEAN = 27.918 STANDARD DEVIATION = 3.930
THE X-AXIS = LENGTH (CENTIMETERS)

FIGURE 11. Length frequencies of olive rockfish for February 1977.

LENGTH HISTOGRAM FOR PACIFIC MACKEREL (SCOMBER JAPONICUS)
DURING FEBRUARY 1977.

THE Y AXES = FREQUENCY (NUMBER OF FISH)
MULTIPLICATION FACTOR = 2.0



TOTAL NO. = 305 MEAN = 29.220 STANDARD DEVIATION = 6.415
THE X-AXIS = LENGTH (CENTIMETERS)

FIGURE 14. Length frequencies of Pacific mackerel for February 1977

LENGTH HISTOGRAM FOR PACIFIC MACKEREL (SCOMBER JAPONICUS)
DURING MARCH 1977.

THE Y-AXIS = FREQUENCY (NUMBER OF FISH)
MULTIPLICATION FACTOR = 1.0

50	50
49	49
48	48
47	47
46	46
45	45
44	44
43	43
42	42
41	41
40	40
39	39
38	38
37	37
36	36
35	35
34	34
33	33
32	32
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8	8
7	7
6	6
5	5
4	4
3	3
2	2
1	1

1 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120

TOTAL NO. = 18,674 (SCOMBER JAPONICUS)
STANDARD DEVIATION = 2.010

FIGURE 15. Length frequencies of Pacific mackerel for March 1977.