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SOUTHERN CALIFORNIA PARTYBOAT SAMPLING STUDY
QUARTERLY REPORT NO. 8

by

Stephen J. Crooke

and

Donald L. Schultze

MARINE RESOURCES

Administrative Report No. 77-19

September 1977

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ABSTRACT

Between April 1 and June 30, 1977, 125 trips were sampled aboard southern California partyboats by Department personnel. A total of 14,842 fishes belonging to 72 species was identified and measured. Otoliths were removed from 134 rockfish carcasses representing 20 species for age determination studies.

The 10 most common species sampled during the quarter accounted for 76.9% of the catch. Individually, the most common were Pacific mackerel, *Scomber japonicus* (16.9%); kelp bass, *Paralabrax clathratus* (14.5%); bocaccio, *Sebastes paucispinis* (11.4%); Pacific bonito, *Sarda chiliensis* (10.3%); barred sand bass, *Paralabrax nebulifer* (5.6%); olive rockfish, *Sebastes serranoides* (5.3%); chilipepper, *S. goodii* (4.0%); California barracuda, *Sphyræna argentea* (2.9%); and ocean whitefish, *Caulolatilus princeps* (2.8%).

Fishing effort switched from "rockcod" to surface activity as it did during the second quarter of 1976.

1/

Marine Resources Administrative Report no. 77-19, September 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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Between April 1 and June 30, 1977, 125 trips were sampled aboard southern California partyboats by Department personnel. A total of 14,842 fishes belonging to 72 species was identified and measured.^{3/} Otoliths were removed from 134 rockfish carcasses representing 20 species for age determination studies.

The 10 most common species sampled during the quarter accounted for 76.9% of the catch (Table 1). Individually, the most common were Pacific mackerel, *Scomber japonicus* (16.9%); kelp bass, *Paralabrax clathratus* (14.5%); bocaccio, *Sebastes paucispinis* (11.4%); Pacific bonito, *Sarda chiliensis* (10.3%); barred sand bass, *Paralabrax nebulifer* (5.6%); olive rockfish, *Sebastes serranoides* (5.3%); chilipepper, *S. goodei* (4.0%); California barracuda, *Sphyræna argentea* (2.9%); and ocean whitefish, *Caulolatilus princeps* (2.8%).

The number of samples remained low because of manpower limitations. One new sampler was trained and the project is now at full strength.

During the quarter, partyboats switched from "rockcod" to surface fishing.

ROCKFISHES

A total of 5,812 rockfishes representing 34 species was identified. They accounted for 39.2% of the total sampled catch as compared to 32.0% for the same quarter last year. There was a marked decline in the dominance of rockfishes from the previous quarter (87.7%) due to the switch to surface fishing. Ten species accounted for 90.7% of rockfishes

^{3/}

For definition of length measurements see Maxwell and Schultze Administrative Report 76-3.

TABLE 1. Number of Fishes Measured from Southern California Partyboats, April through June 1977.

Common name	Scientific name	Number measured	Common name	Scientific name	Number measured
Sablefish	<i>Anoplopoma fimbria</i>	4	Rockfish, starry	<i>Sebastes constellatus</i>	100
Whitefish, ocean	<i>Caulolatilus princeps</i>	413	Rockfish, calico	<i>S. dallii</i>	22
Shark, swell	<i>Cephaloscyllium ventriosum</i>	2	Rockfish, splitnose	<i>S. diploprea</i>	7
Croaker, black	<i>Cheilotrema saturnum</i>	3	Rockfish, greenstriped	<i>S. elongatus</i>	70
Sanddab, Pacific	<i>Citharichthys sordidus</i>	1	Rockfish, swordspine	<i>S. ensifer</i>	3
Seabass, white	<i>Cynoscion nobilis</i>	20	Rockfish, widow	<i>S. entomelas</i>	5
Sole, petrale	<i>Eopsetta jordani</i>	18	Rockfish, pink	<i>S. eos</i>	108
Hagfish, Pacific	<i>Eptatretus stoutii</i>	1	Rockfish, yellowtail	<i>S. flavidus</i>	5
Croaker, white	<i>Genyonemus lineatus</i>	329	Chilipepper	<i>S. goodii</i>	598
Opaleye	<i>Girella nigricans</i>	18	Rockfish, squarespot	<i>S. hopkinsi</i>	282
Kelpfish, giant	<i>Heterostichus rostratus</i>	3	Rockfish, shortbelly	<i>S. jordani</i>	1
Sole, bigmouth	<i>Hippoglossina stomata</i>	3	Cowcod	<i>S. levis</i>	254
Ratfish	<i>Hydrolagus colliei</i>	1	Rockfish, Mexican	<i>S. macdonaldi</i>	9
Sole, slender	<i>Lyopsetta exilis</i>	1	Rockfish, vermilion	<i>S. miniatus</i>	498
Halfmoon	<i>Medialuna californiensis</i>	157	Rockfish, blue	<i>S. mystinus</i>	387
Salmon, silver	<i>Oncorhynchus kisutch</i>	3	Rockfish, speckled	<i>S. ovalis</i>	50
Salmon, king	<i>O. tshawytscha</i>	4	Bocaccio	<i>S. paucispinis</i>	1693
Lingcod	<i>Ophiodon elongatus</i>	37	Rockfish, canary	<i>S. pinniger</i>	77
Senorita	<i>Oxyjulis californica</i>	5	Rockfish, redstripe	<i>S. proriger</i>	1
Bass kelp	<i>Paralabrax clathratus</i>	2147	Rockfish, grass	<i>S. rastrelliger</i>	30
Bass, barred sand	<i>P. nebulifer</i>	827	Rockfish, rosy	<i>S. rosaceus</i>	16
Halibut, California	<i>Paralichthys californicus</i>	63	Rockfish, greenblotched	<i>S. rosenblatti</i>	64
Surfperch, sharpnose	<i>Phanerodon atripes</i>	1	Rockfish, flag	<i>S. rubrivinctus</i>	63
Sheephead, California	<i>Pimelometopon pulchrum</i>	44	Rockfish, bank	<i>S. rufus</i>	23
Thornback	<i>Platyrrhinoidis triseriata</i>	1	Rockfish, stripetail	<i>S. saxicola</i>	3
Shark, blue	<i>Prionace glauca</i>	1	Rockfish, olive	<i>S. serranoides</i>	779
Surfperch, rubberlip	<i>Rhacochilus toxotes</i>	3	Treefish	<i>S. serriceps</i>	36
Bonito, Pacific	<i>Sarda chiliensis</i>	1526	Rockfish, honeycomb	<i>S. umbrinus</i>	109
Mackerel, Pacific	<i>Scomber japonicus</i>	2506	Yellowtail	<i>Seriola dorsalis</i>	6
Sculpin	<i>Scorpaena guttata</i>	376	Queenfish	<i>Seriphus politus</i>	19
Cabezon	<i>Scorpaenichthys marmoratus</i>	29	Barracuda, California	<i>Sphyræna argentea</i>	425
Rockfish, kelp	<i>Sebastes atrovirens</i>	18	Dogfish, spiny	<i>Squalus acanthias</i>	8
Rockfish, brown	<i>S. auriculatus</i>	249	Lizardfish, California	<i>Synodus lucioceps</i>	3
Rockfish, copper	<i>S. caurinus</i>	53	Mackerel, jack	<i>Trachurus symmetricus</i>	1
Rockfish, gopher	<i>S. carnatus</i>	40	Sole, fantail	<i>Xystreurus liolepis</i>	1
Rockfish, greenspotted	<i>S. chlorostictus</i>	171			
Rockfish, black & yellow	<i>S. chrysomelas</i>	8	TOTAL		14,842

sampled and 24 species comprised the remaining 9.3% (Table 2).

Bocaccio was the most abundant rockfish taken by southern California partyboat anglers. It accounted for 29.0% of the catch, down from the previous quarter's 43.8%. Its mean length (Figures 1-3) was the same as that of the last quarter. Olive rockfish was the second most abundant species of *Sebastes*, contributing 13.4% to the catch. The decline in occurrence of bocaccio and increase in olive rockfish catches is indicative of renewed emphasis on surface fishing.

SURFACE GAMEFISHES

Five surface gamefish species accounted for 50.1% of the fishes measured. This was a slightly higher percentage than that of last year (47.4%) for the same quarter but a substantial increase from the catch of last quarter (7.0%). Pacific mackerel continued to be the dominant surface fish, just as they did last quarter, and the catch was still dominated by the 1974 year class whose mean length was about 38 cm FL (Figures 4-6). Data gathered on barred sand bass (Figures 7-9) showed the average length (\bar{x} = 38.2 cm) to be 3.0 cm longer than that of the same quarter last year. Kelp bass (Figures 10-12) were only 0.5 cm longer (\bar{x} = 34.3 cm) than those measured during this quarter last year. The catch of Pacific bonito continued to be dominated by one year old fish whose mean length was about 45 cm FL (Figures 13-15).

Data gathered for length histograms indicated the California barracuda fishery is continuing to recover (Figures 16-18). During May, the length frequencies of the strong 1973 and 1974 year classes appeared as a mode between 55 and 65 cm. Throughout the quarter, significant quantities of legal size fish were taken with the strong 1969 and 1970 year classes contributing the most fish.

TABLE 2. Species Composition of Rockfishes (*Sebastes* spp.) Catch from Partyboat Samples, April through June 1977.

Common name	Scientific name	Frequency of Occurrence (%)
Bocaccio	<i>Sebastes paucispinis</i>	29.0
Olive	<i>S. serranoides</i>	13.4
Chilipepper	<i>S. goodei</i>	10.2
Vermilion	<i>S. miniatus</i>	8.5
Blue	<i>S. mystinus</i>	6.6
Squarespot	<i>S. hopkinsi</i>	4.8
Cowcod	<i>S. levis</i>	4.4
Brown	<i>S. auriculatus</i>	4.3
Greenspotted	<i>S. chlorostictus</i>	2.9
Honeycomb	<i>S. umbrosus</i>	1.9
Pink	<i>S. eos</i>	1.8
Starry	<i>S. constellatus</i>	1.7
Canary	<i>S. pinniger</i>	1.3
Greenstriped	<i>S. elongatus</i>	1.2
Greenblotched	<i>S. rosenblatti</i>	1.1
Flag	<i>S. rubrivinctus</i>	1.1
Copper	<i>S. caurinus</i>	0.9
Speckled	<i>S. ovalis</i>	0.9
Gopher	<i>S. carnatus</i>	0.7
Treefish	<i>S. serriceps</i>	0.6
Grass	<i>S. rastrelliger</i>	0.5
Bank	<i>S. rufus</i>	0.4
Calico	<i>S. dalli</i>	0.4
Kelp	<i>S. atrovirens</i>	0.3
Rosy	<i>S. rosaceus</i>	0.3
Mexican	<i>S. macdonaldi</i>	0.1
Black and yellow	<i>S. chrysomelas</i>	0.1
Splitnose	<i>S. diploproa</i>	0.1
Widow	<i>S. entomelas</i>	0.1
Yellowtail	<i>S. flavidus</i>	0.1
Stripetail	<i>S. saxicola</i>	<0.1
Swordspine	<i>S. ensifer</i>	<0.1
Shortbelly	<i>S. jordani</i>	<0.1
Redstripe	<i>S. proriger</i>	<0.1

EFFORT AND CATCH-PER-UNIT-EFFORT

Fishing effort (average number of anglers per trip) during April was greater than that of the comparable month a year ago (Table 3). Continued excellent weather was probably responsible. Fishing effort during May and June dropped when compared to last year due to stormy weather. Catch-per-unit-effort (average number of fish caught per angler hour) during the quarter remained about the same as in 1976 for the same time period.

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

1976

	Port complex	1976											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
No. trips/month	1	7	8	8	10	10	11	0	4	12	8	14	11
	2	7	5	7	7	10	9	5	7	5	2	4	6
	3	3	2	2	2	3	4	3	2	2	4	6	4
	4	7	5	6	9	10	8	13	9	8	9	7	8
	5	11	16	12	11	9	8	12	13	6	7	14	12
	6	10	11	12	9	9	8	10	16	10	13	15	15
TOTAL		45	47	47	48	51	48	43	51	43	43	60	56
Avg. no. anglers/trip	1	29.71	19.25	28.63	20.50	48.10	44.55	-	46.00	28.66	23.88	15.64	18.30
	2	26.57	23.00	20.57	21.57	30.20	36.89	51.20	45.71	29.60	21.50	18.50	19.70
	3	22.33	22.00	11.50	23.00	21.67	45.50	44.33	36.50	38.50	19.50	33.17	23.30
	4	30.57	29.00	26.17	25.33	26.20	39.38	43.23	49.11	30.75	27.20	25.28	27.50
	5	22.00	23.44	29.58	29.00	31.56	35.38	39.67	39.92	25.83	23.70	24.21	21.90
	6	16.40	25.64	23.83	22.89	26.22	27.13	43.30	38.44	24.00	21.46	18.00	19.60
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
No. fish caught/angler hour fished	1	1.20	1.36	1.20	0.95	1.28	2.07	-	0.40	0.70	1.14	2.45	2.21
	2	1.47	1.16	1.16	0.73	0.92	1.13	0.92	0.44	0.39	1.21	2.09	1.66
	3	1.25	0.50	2.16	1.47	0.67	0.70	0.43	0.55	0.55	0.89	1.61	1.00
	4	1.87	1.77	1.48	1.67	0.80	0.94	0.76	0.80	1.18	2.07	2.19	2.19
	5	3.28	2.77	2.51	1.97	1.47	0.74	0.69	1.05	1.09	1.00	1.66	2.54
	6	3.55	1.80	1.92	1.41	2.33	1.03	0.58	0.87	1.43	1.96	3.19	2.92
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

1977

	Port complex	1977					
		Jan	Feb	Mar	Apr	May	Jun
No. trips/ month	1	1	3	7	10	8	10
	2	6	2	2	2	3	5
	3	4	3	2	2	3	5
	4	7	4	4	7	12	10
	5	10	5	8	7	8	6
	6	14	11	7	10	7	10
TOTAL		42	28	30	38	41	46
Avg. no. anglers/trip	1	17.00	56.00	24.00	30.30	18.62	27.70
	2	18.33	32.50	23.00	24.00	19.67	30.40
	3	25.75	27.67	22.00	15.00	27.33	35.20
	4	28.57	32.50	24.00	33.00	31.17	42.80
	5	21.60	36.00	22.87	33.29	17.50	20.50
	6	19.00	30.45	26.14	25.50	23.14	12.30
Average		21.00	34.00	22.00	28.00	23.00	32.00
No. fish caught/angler hour fished	1	1.85	1.35	0.89	0.98	1.29	0.98
	2	1.11	0.48	1.77	0.22	0.96	2.18
	3	1.03	0.66	1.86	0.60	1.00	1.20
	4	2.95	2.30	1.19	1.55	1.70	1.60
	5	2.40	0.88	2.30	1.07	0.47	1.00
	6	4.04	1.54	1.11	1.64	1.05	0.59
Average		2.61	1.29	1.44	1.21	1.21	1.25

LENGTH HISTOGRAM FOR BOCACCIO (SEBASTES PAUCISPINIS)
DURING APRIL 1977.

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

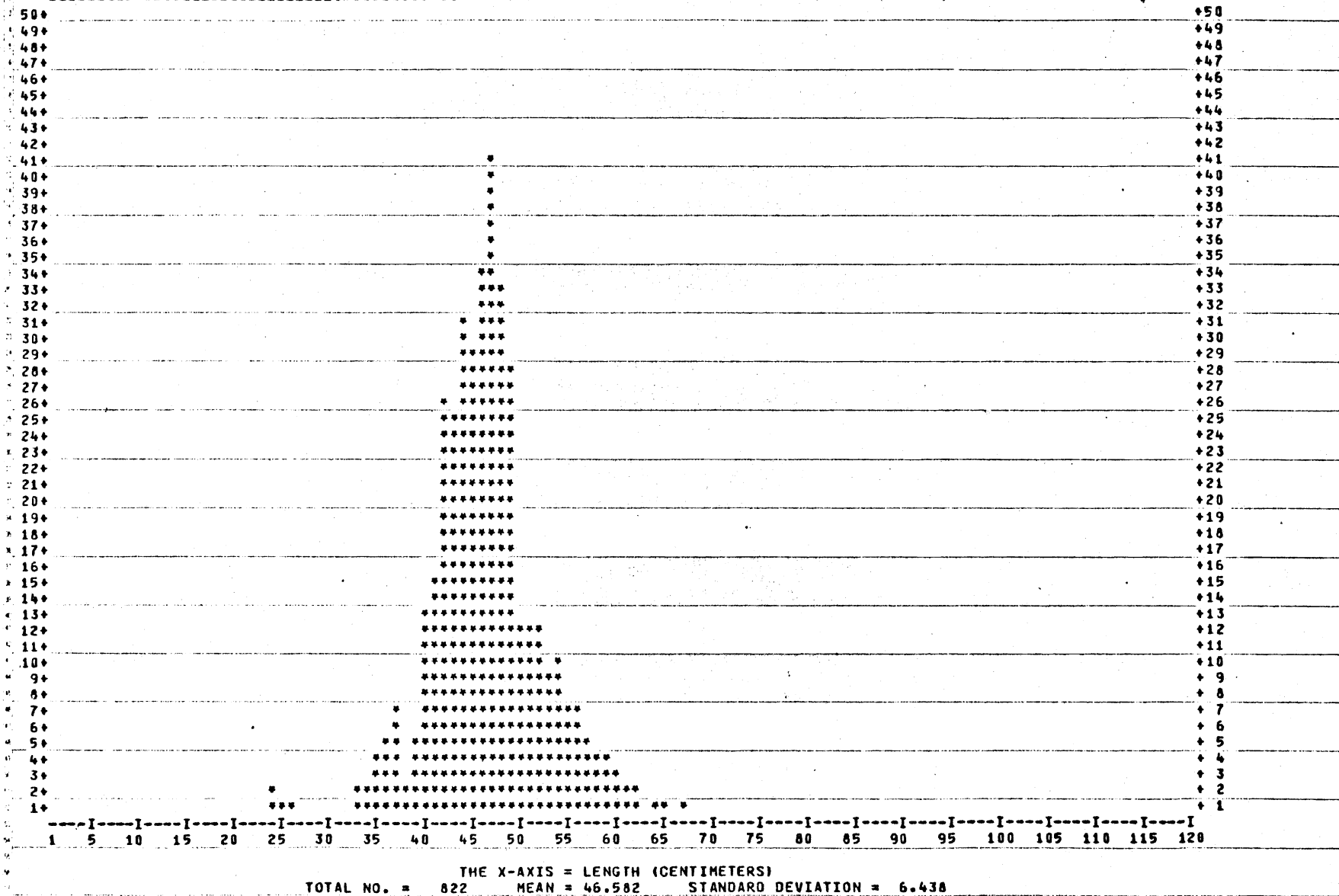


FIGURE 1. Length frequencies of bocaccio for April 1977.

LENGTH HISTOGRAM FOR BOCACCTO (SEBASTES PAUCISPINIS)
DURING MAY

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

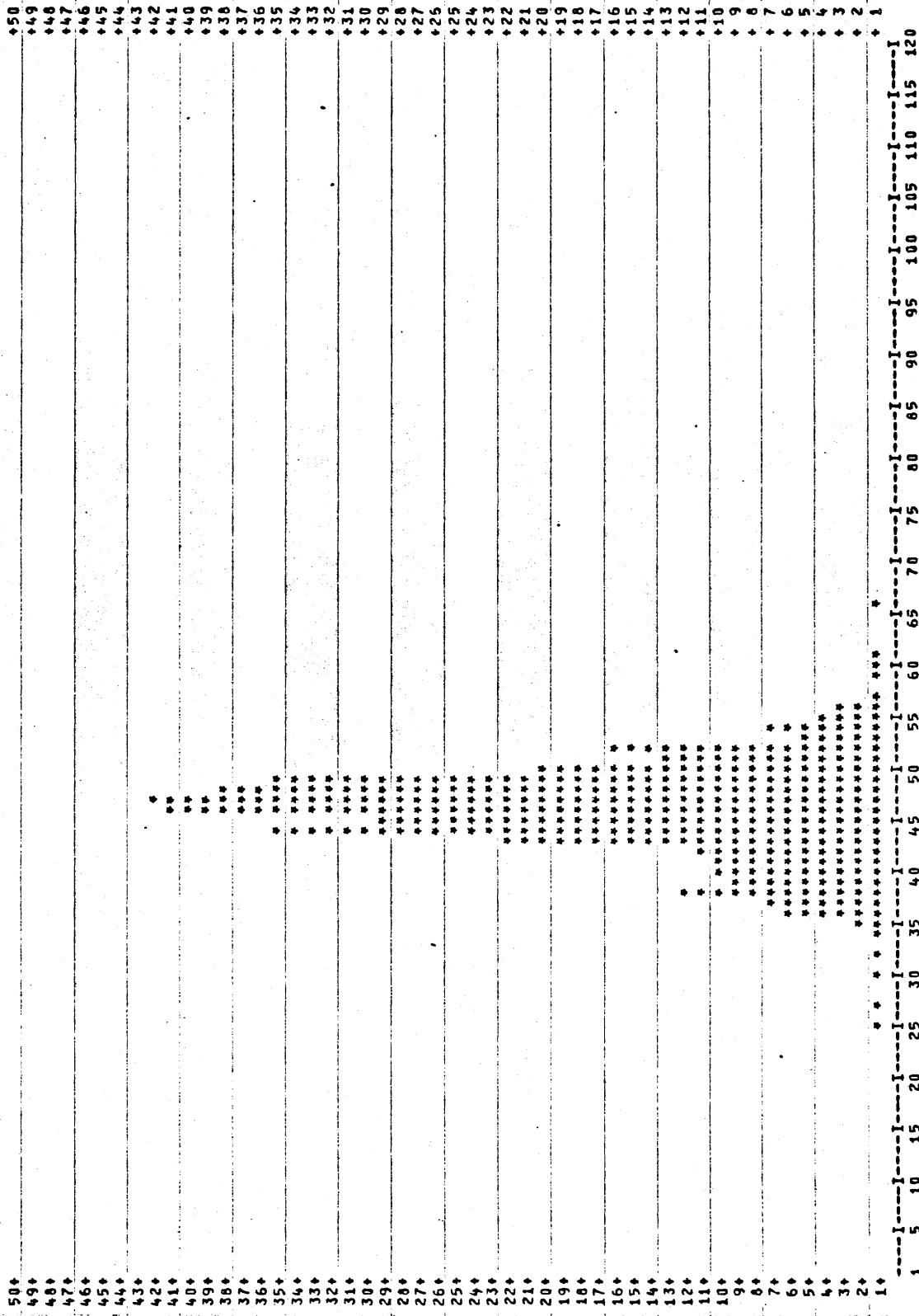
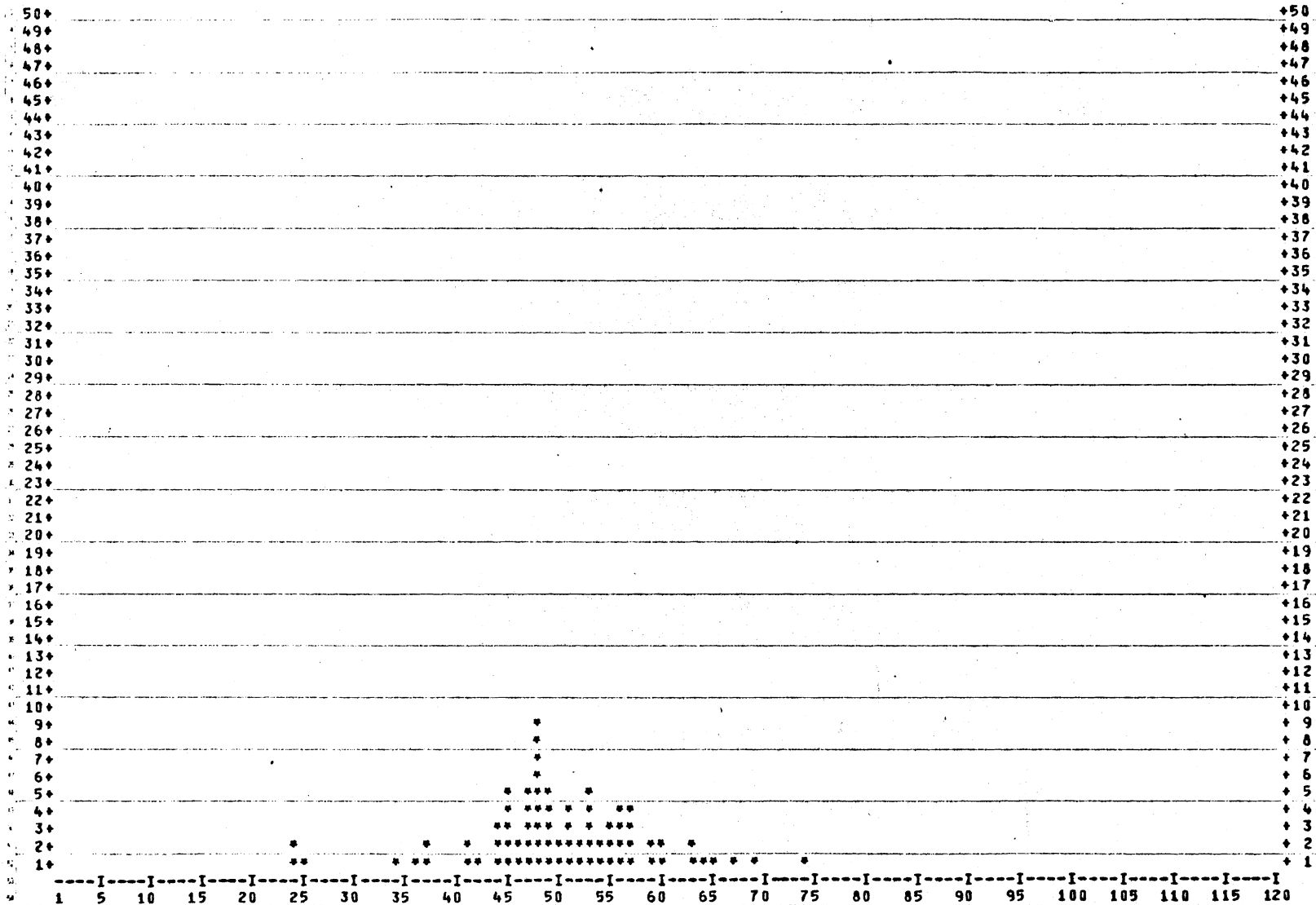


FIGURE 2. Length frequencies of bocaccio for May 1977.

LENGTH HISTOGRAM FOR BOCACCIO (SEBASTES PAUCISPINIS)
DURING JUNE 1977.

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



TOTAL NO. = 76 THE X-AXIS = LENGTH (CENTIMETERS)
MEAN = 50.039 STANDARD DEVIATION = 9.026

FIGURE 3. Length frequencies of bocaccio for June 1977.

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

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

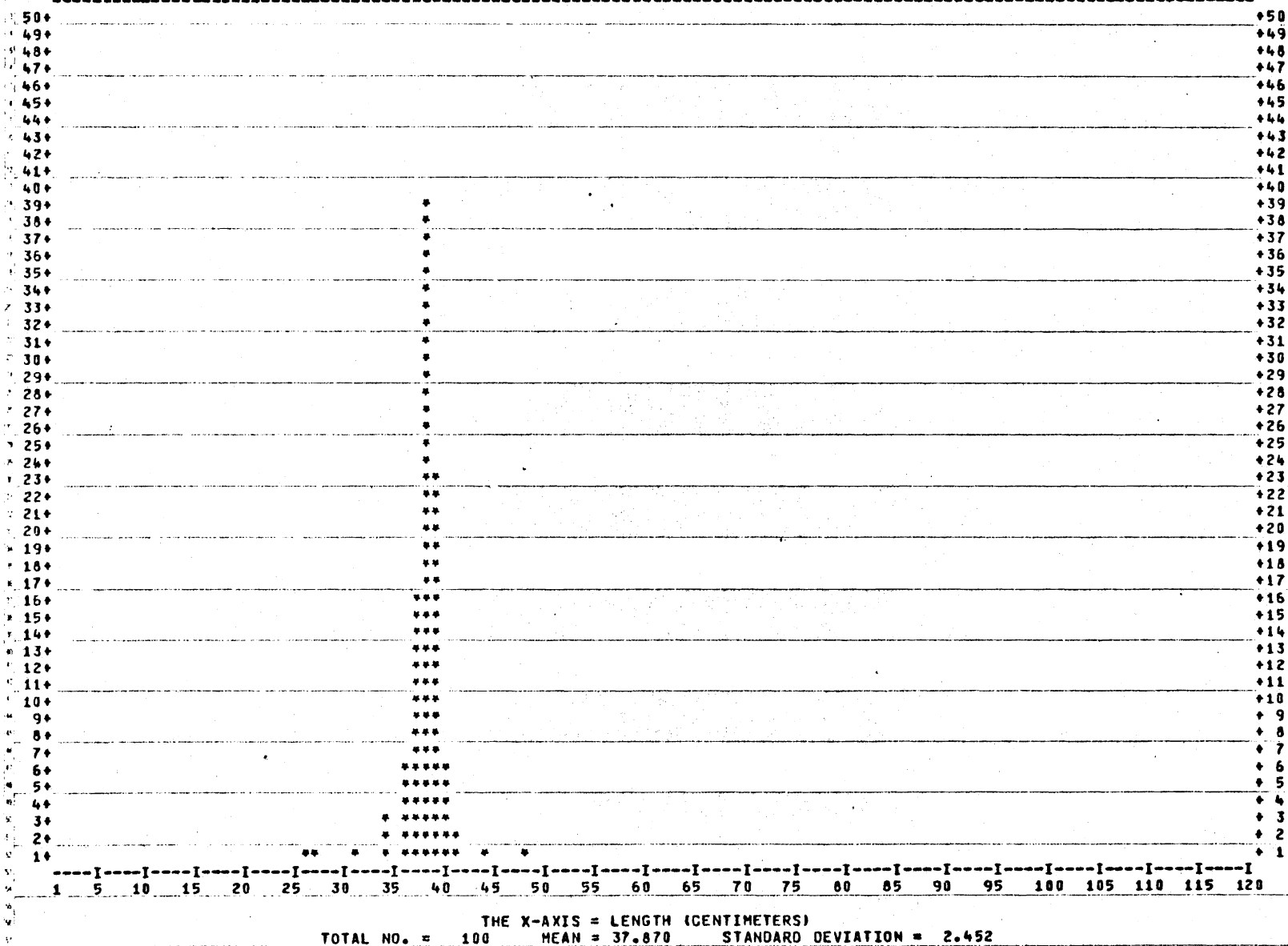


FIGURE 4. Length frequencies of Pacific mackerel for April 1977.

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

THE Y AXES = FREQUENCY (NUMBER OF FISH)
MULTIPLICATION FACTOR = 3.0

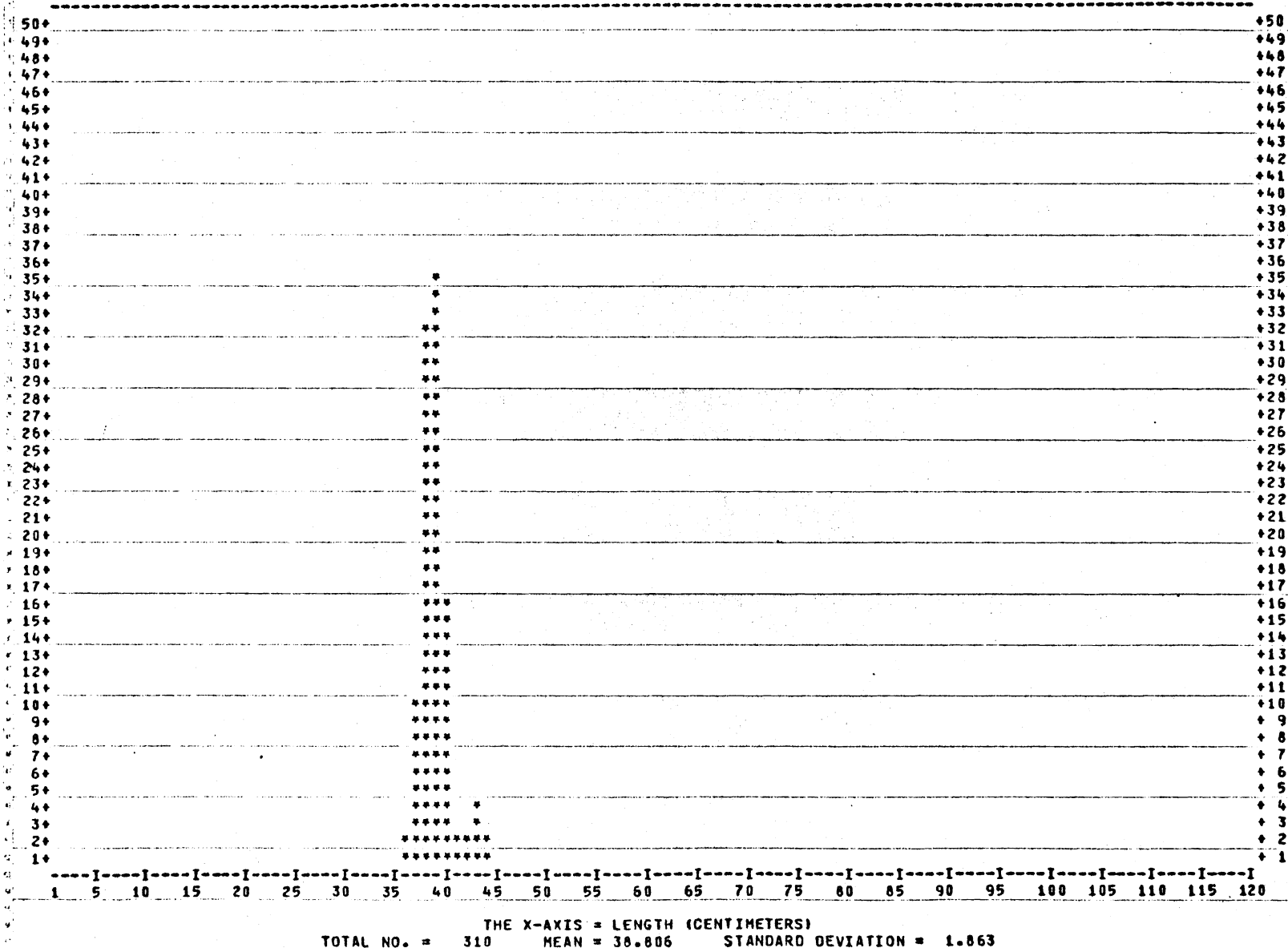
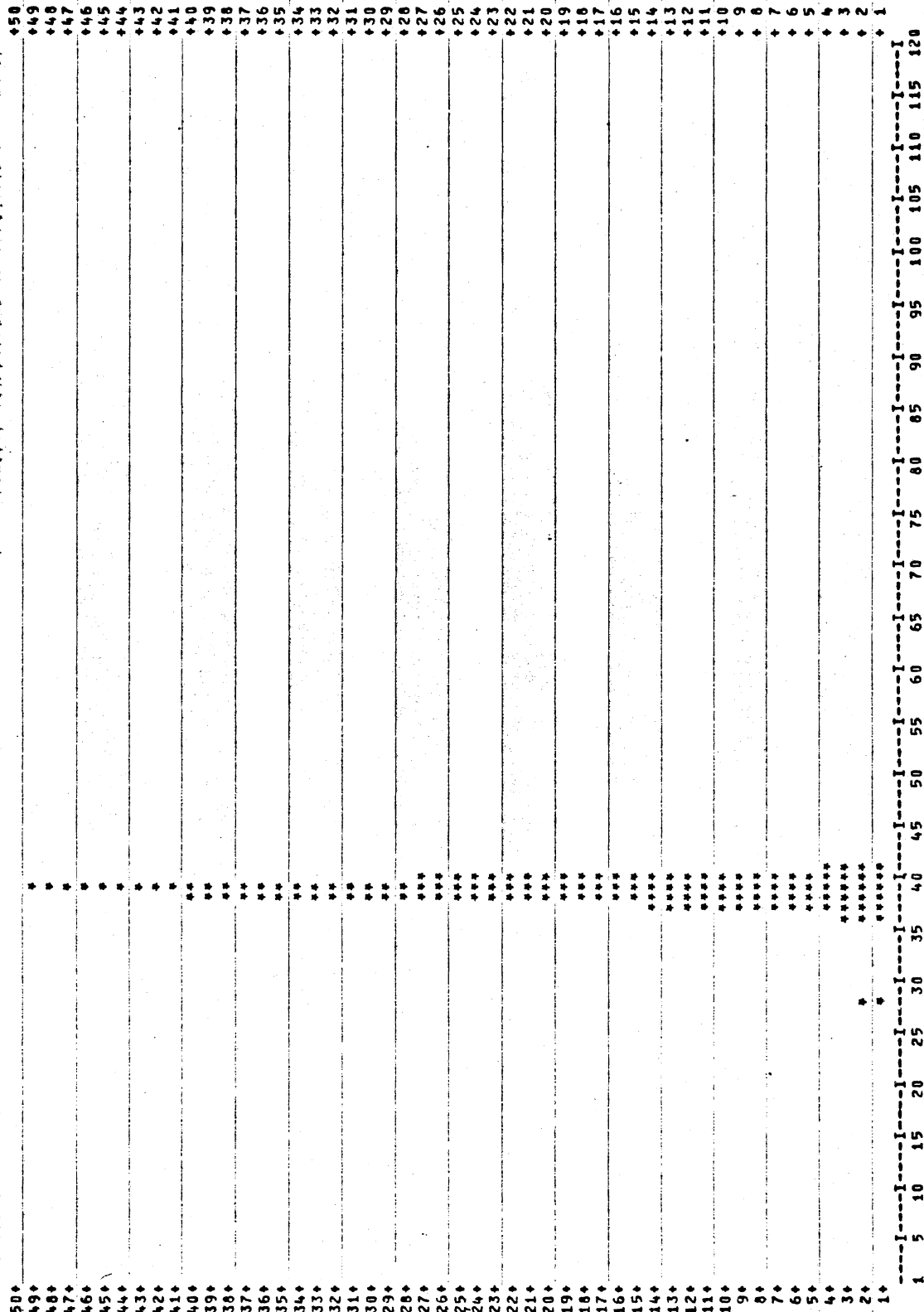


FIGURE 5. Length frequencies of Pacific mackerel for May 1977.

LENGTH HISTOGRAM FOR PACIFIC MACKEREL (SCOMBER JAPONICUS)
DURING JUNE 1977.
THE Y AXES = FREQUENCY (NUMBER OF FISH)
MULTIPLICATION FACTOR = 15.0



TOTAL NO. = 2096 MEAN = 38.553 STANDARD DEVIATION = 1.965

FIGURE 6. Length frequencies of Pacific mackerel for June 1977.

LENGTH HISTOGRAM FOR BARRED SAND BASS (PARALABRAX NEBULIFER)
 DURING APRIL 1977. THE Y AXES = FREQUENCY (NUMBER OF FISH)
 MULTIPLICATION FACTOR = 1.0

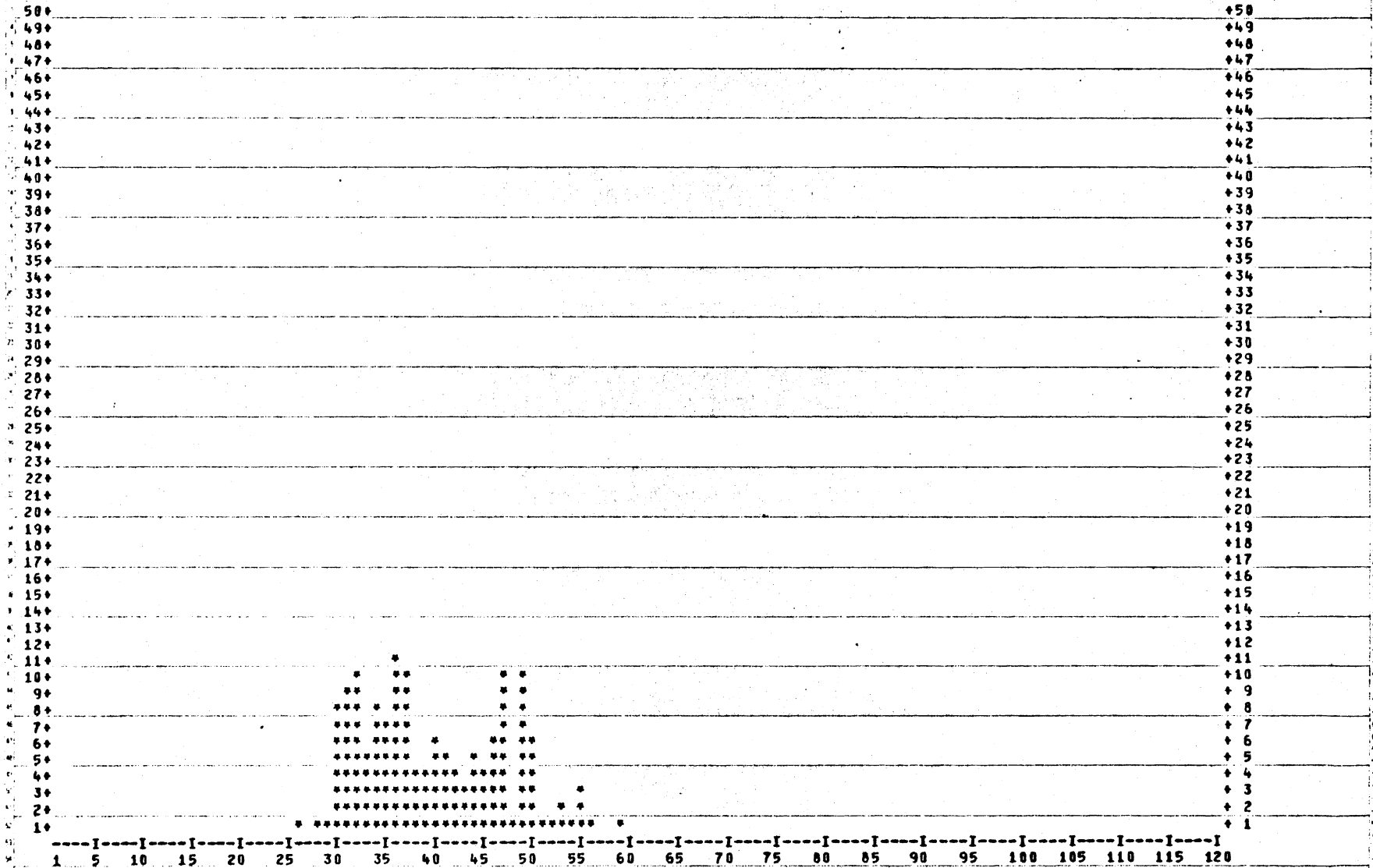
Length (cm)	Frequency
50	49
49	48
48	47
47	46
46	45
45	44
44	43
43	42
42	41
41	40
40	39
39	38
38	37
37	36
36	35
35	34
34	33
33	32
32	31
31	30
30	29
29	28
28	27
27	26
26	25
25	24
24	23
23	22
22	21
21	20
20	19
19	18
18	17
17	16
16	15
15	14
14	13
13	12
12	11
11	10
10	9
9	8
8	7
7	6
6	5
5	4
4	3
3	2
2	1
1	1

TOTAL NO. = 26 THE X-AXIS = LENGTH (CENTIMETERS)
 MEAN = 30.269 STANDARD DEVIATION = 5.867

FIGURE 7. Length frequencies of barred sand bass for April 1977.

LENGTH HISTOGRAM FOR BARRED SAND BASS (PARALABRAX NEBULIFER)
DURING MAY 1977.

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

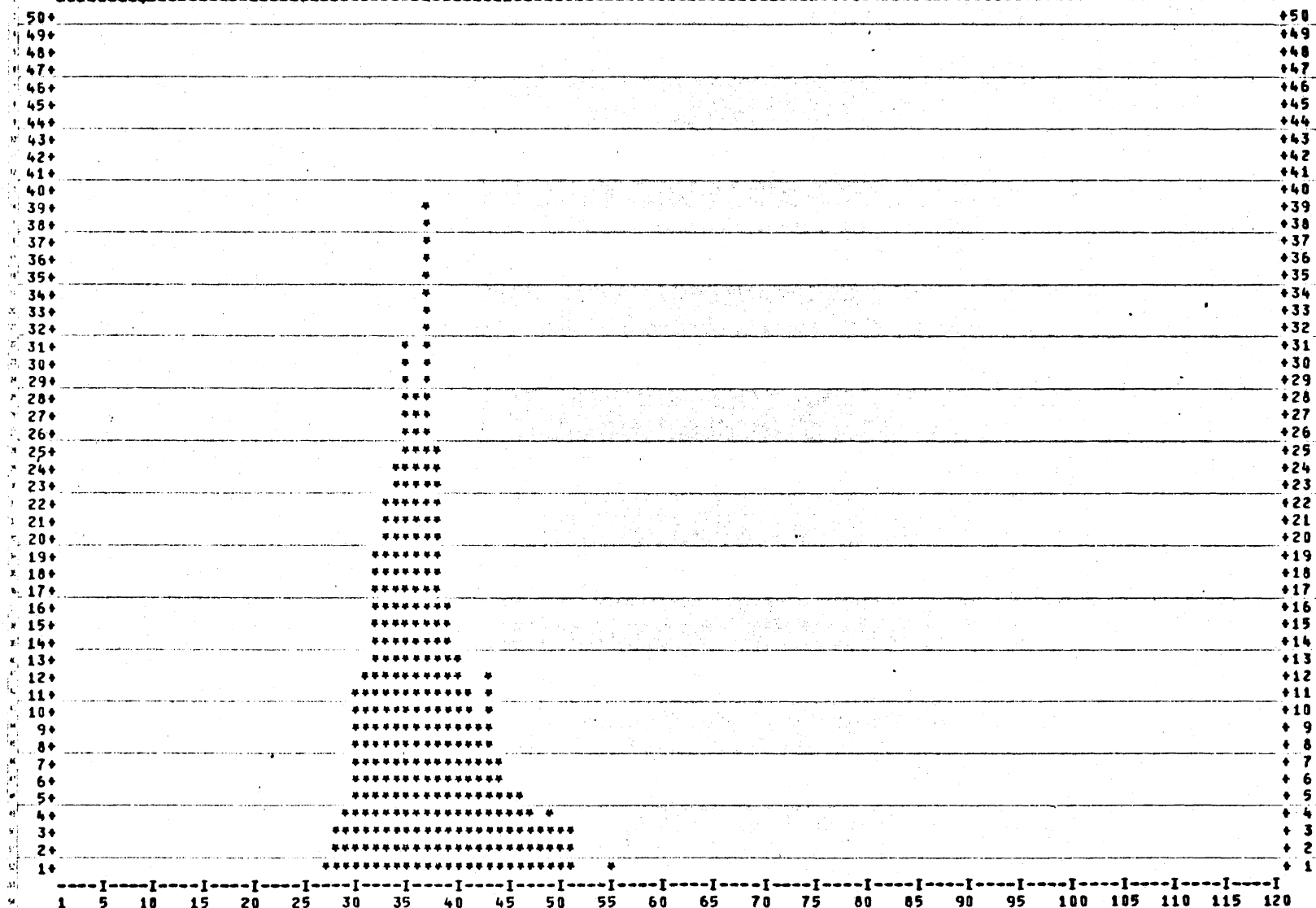


THE X-AXIS = LENGTH (CENTIMETERS)
TOTAL NO. = 149 MEAN = 39.913 STANDARD DEVIATION = 7.383

FIGURE 8. Length frequencies of barred sand bass for May 1977.

LENGTH HISTOGRAM FOR BARRED SAND BASS (PARALABRAX NEBULIFER)
DURING JUNE 1977.

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



THE X-AXIS = LENGTH (CENTIMETERS)
TOTAL NO. = 652 MEAN = 37.245 STANDARD DEVIATION = 5.237

FIGURE 9. Length frequencies of barred sand bass for June 1977.

LENGTH HISTOGRAM FOR KELP BASS (PARALABRAX CLATHRATUS)
DURING APRIL 1977.

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

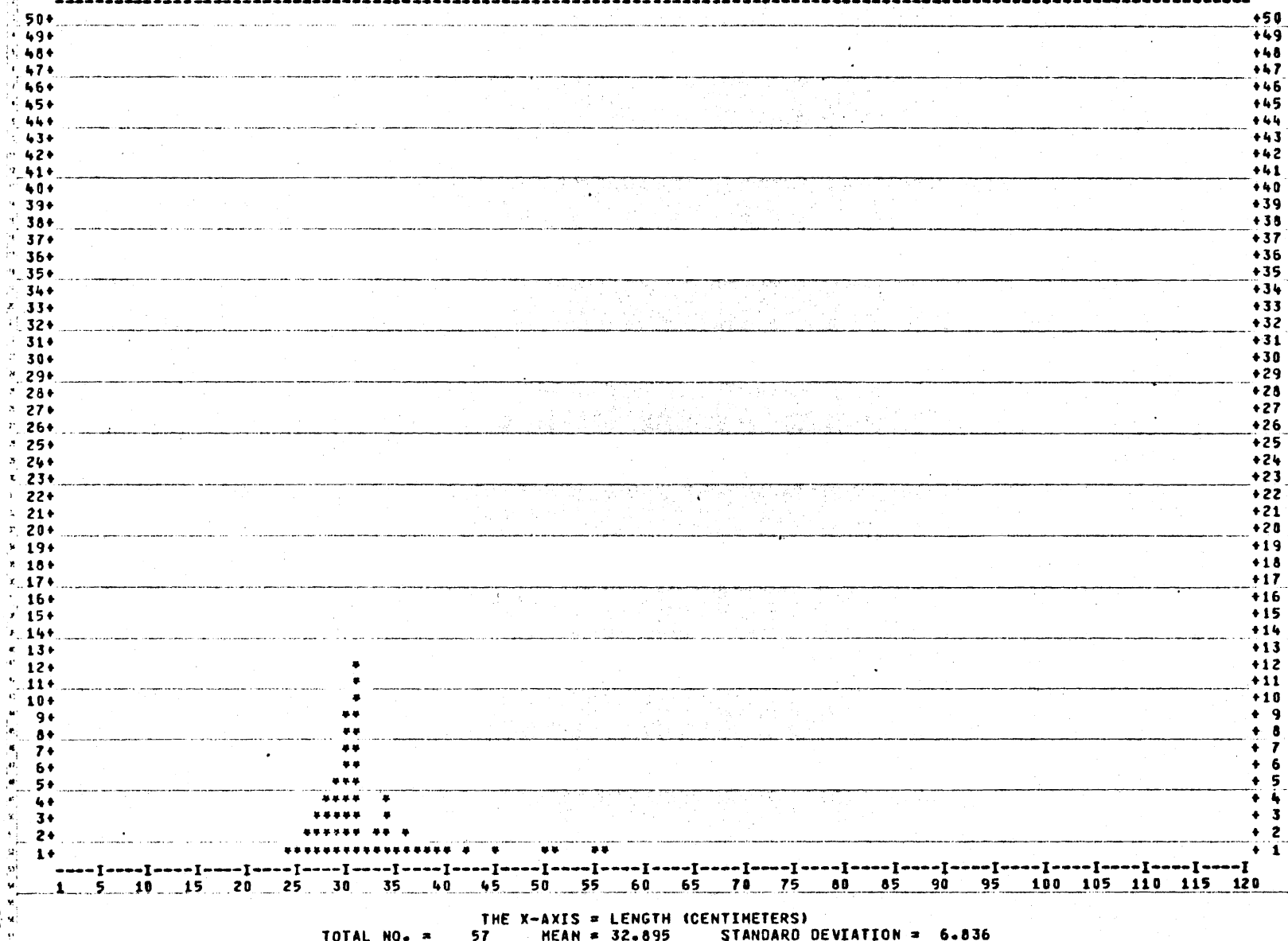


FIGURE 10. Length frequencies of kelp bass for April 1977.

LENGTH HISTOGRAM FOR KELP BASS (PARALABRAX CLATHRATUS)
DURING MAY 1977.

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

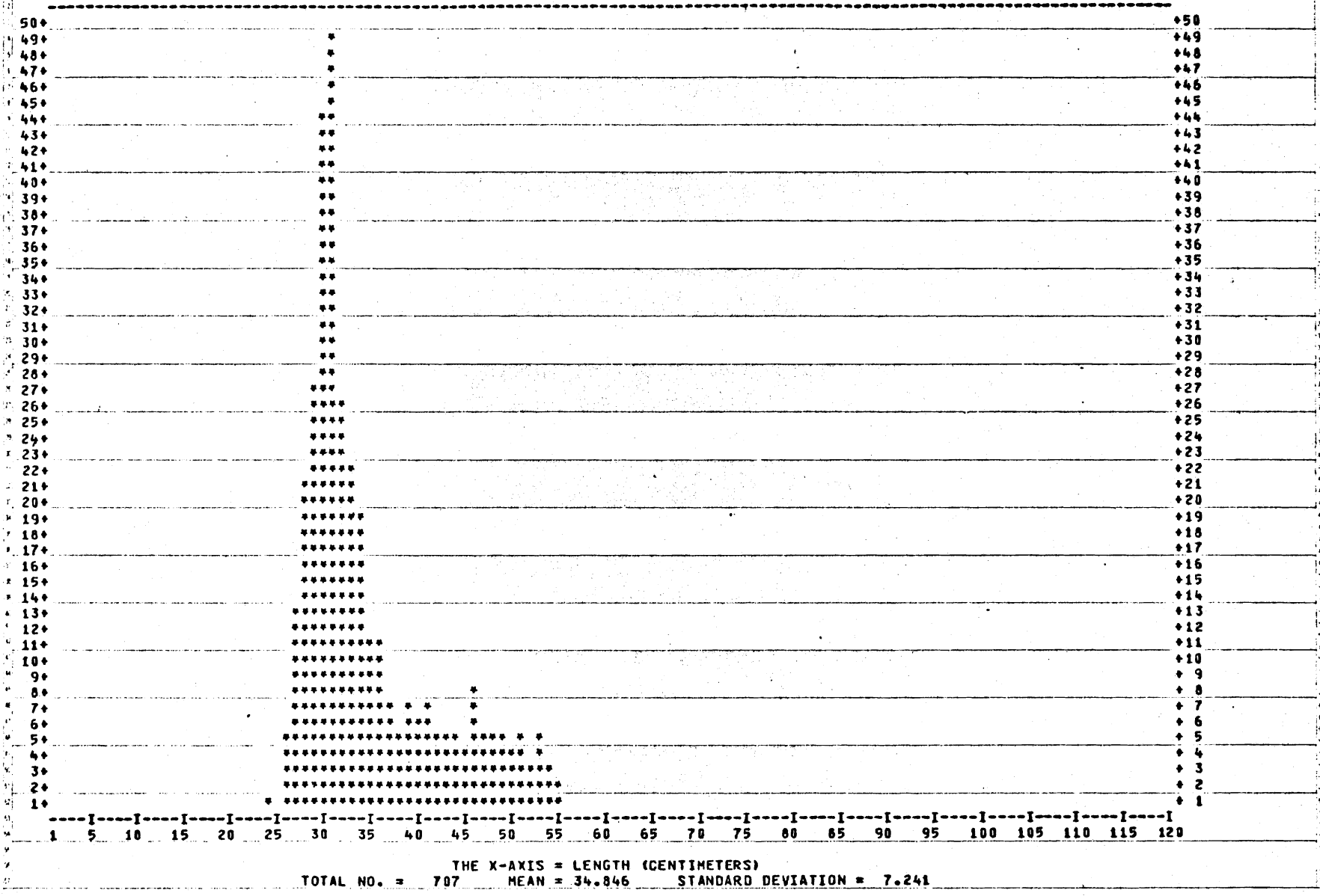


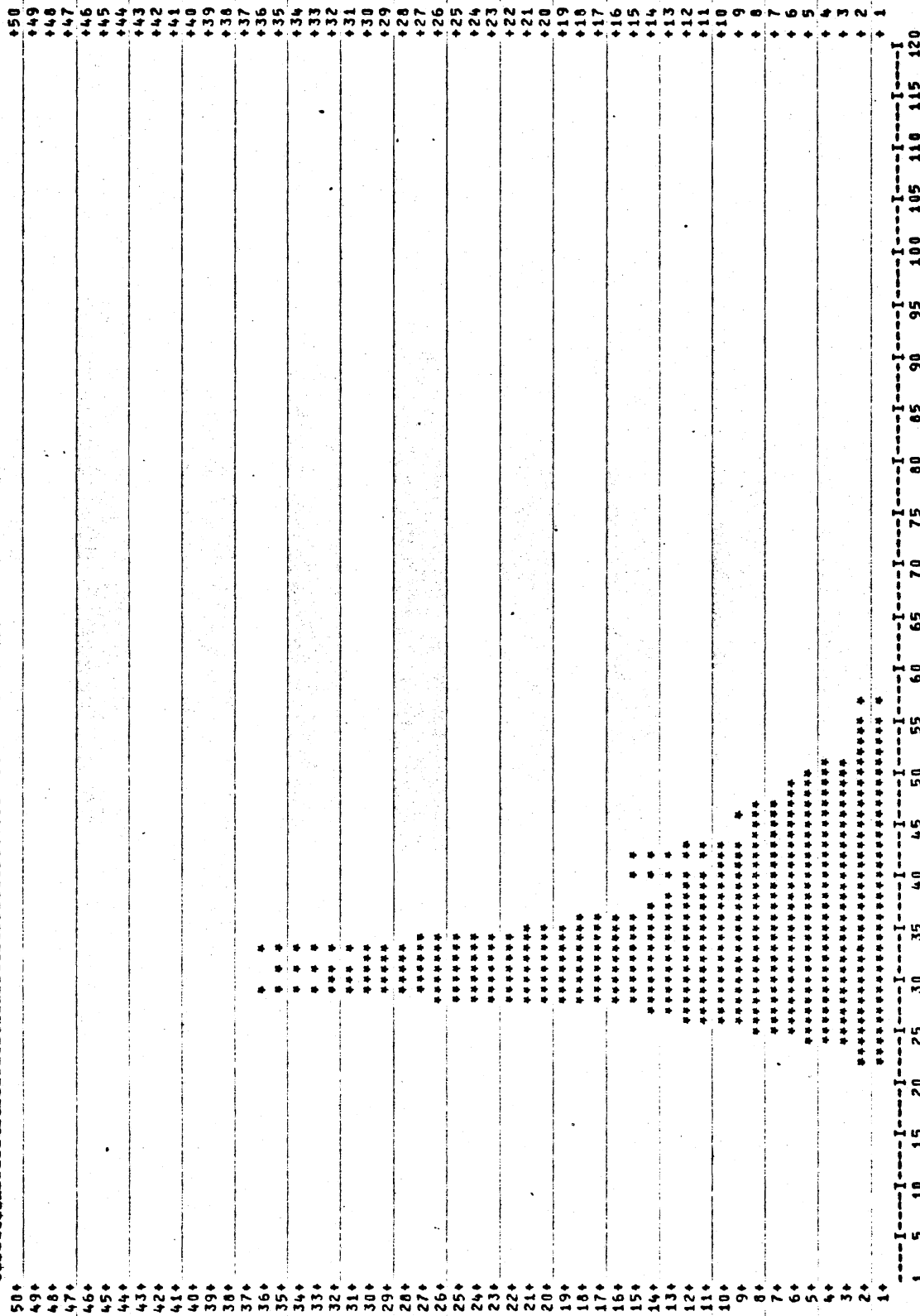
FIGURE 11. Length frequencies of kelp bass for May 1977.

LENGTH HISTOGRAM FOR KELP BASS (PARALABRAX CLATHRATUS)

DURING JUNE

THE Y AXES = FREQUENCY (NUMBER OF FISH)

MULTIPLICATION FACTOR = 3.0



TOTAL NO. = 1383 THE X-AXIS = LENGTH (CENTIMETERS)
 MEAN = 39.144 STANDARD DEVIATION = 7.286

FIGURE 12. Length frequencies of kelp bass for June 1977.

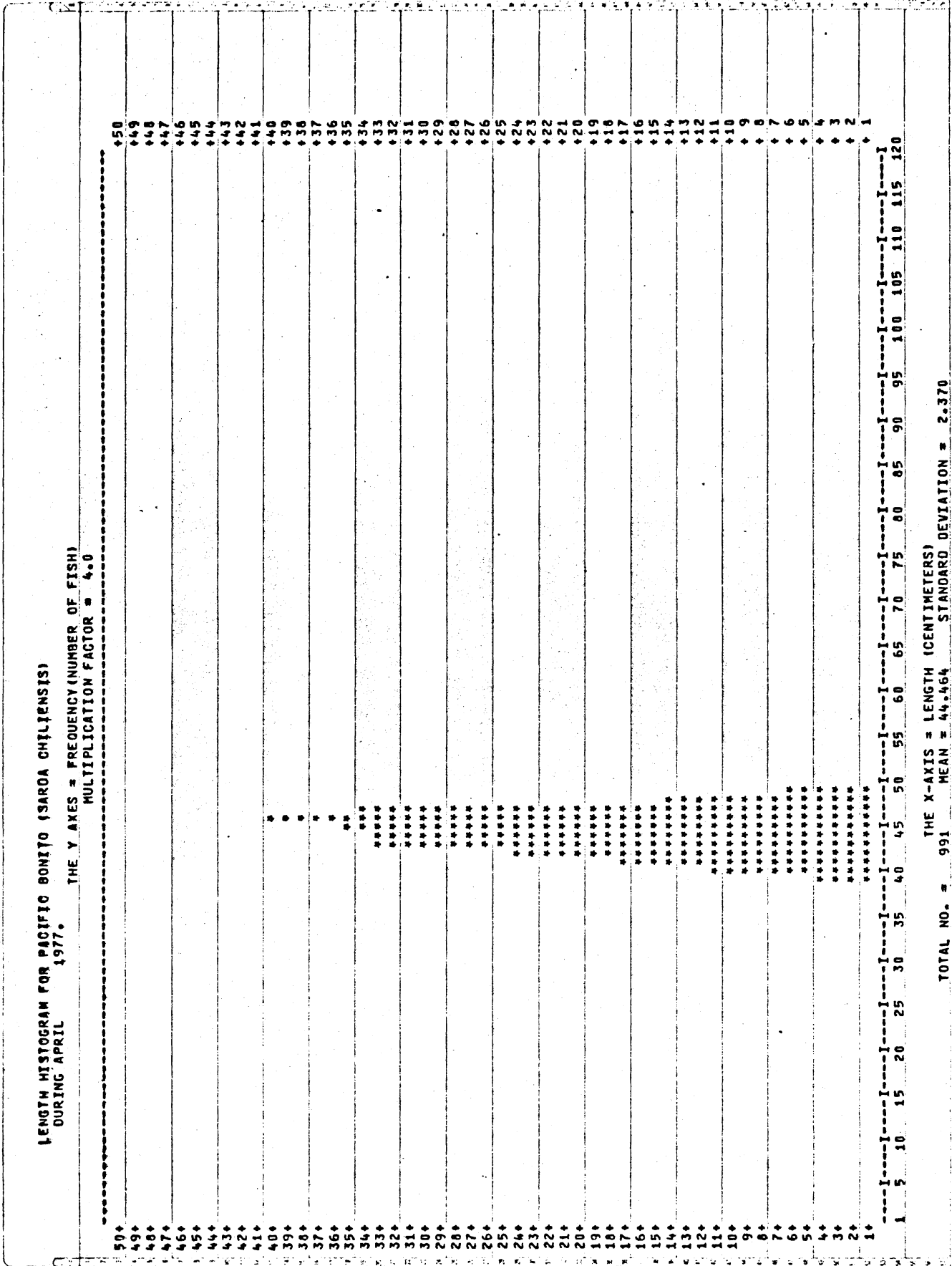


FIGURE 13. Length frequencies of Pacific bonito for April 1977.

LENGTH HISTOGRAM FOR PACIFIC BONITO (SARDA CHILIENSIS)
DURING MAY 1977.

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

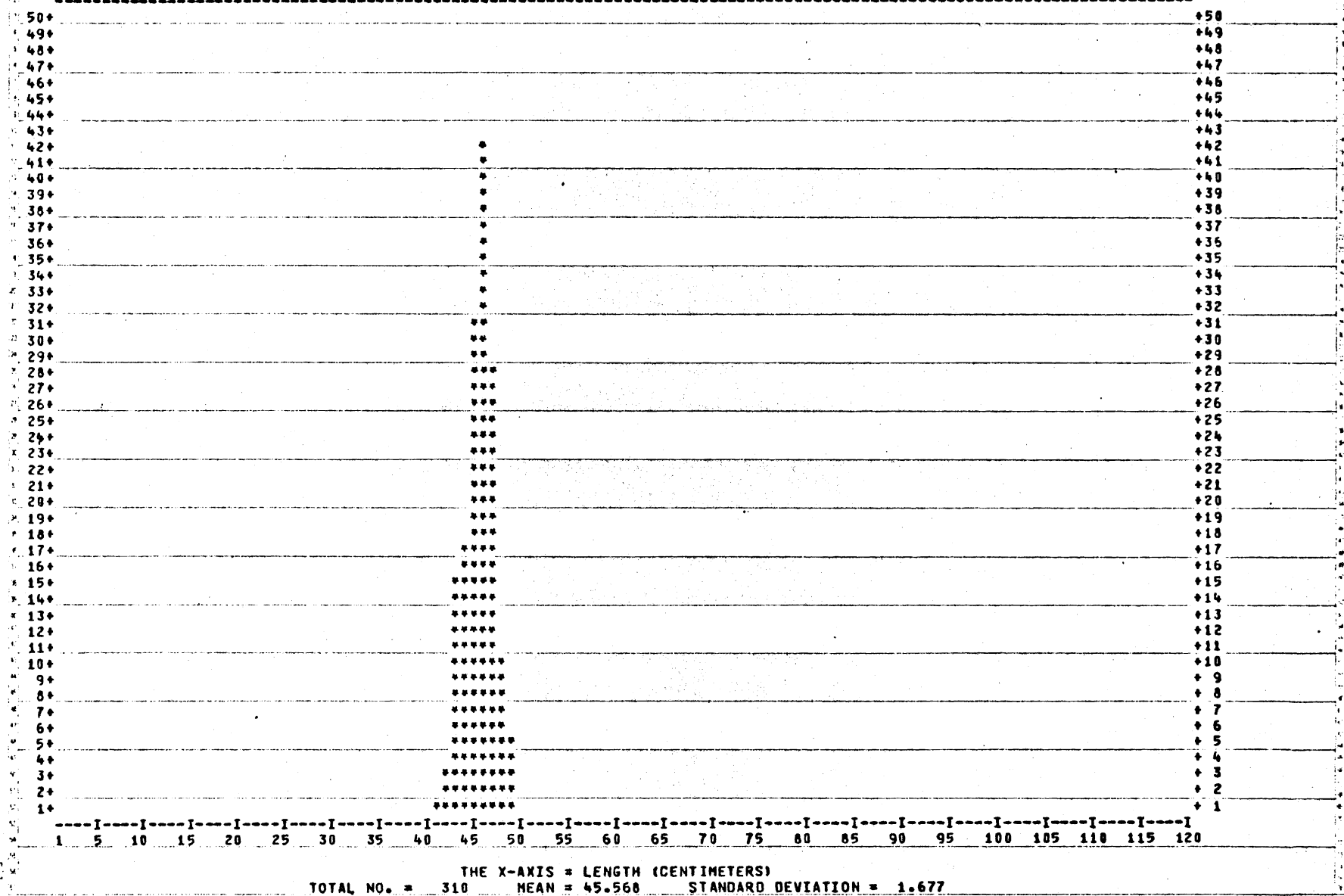


FIGURE 14. Length frequencies of Pacific bonito for May 1977.

LENGTH HISTOGRAM FOR PACIFIC BONITO (SARDA CHILIENSIS)

DURING JUNE 1977.

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

Length (cm)	Frequency
1	50
5	49
10	48
15	47
20	46
25	45
30	44
35	43
40	42
45	41
50	40
55	39
60	38
65	37
70	36
75	35
80	34
85	33
90	32
95	31
100	30
105	29
110	28
115	27
120	26
	25
	24
	23
	22
	21
	20
	19
	18
	17
	16
	15
	14
	13
	12
	11
	10
	9
	8
	7
	6
	5
	4
	3
	2
	1

TOTAL NO. = 225
THE X-AXIS = LENGTH (CENTIMETERS)
MEAN = 46.640
STANDARD DEVIATION = 1.991

FIGURE 15. Length frequencies of Pacific bonito for June 1977.

LENGTH HISTOGRAM FOR CALIFORNIA BARRACUDA (SPHYRAENA ARGENTEA)
DURING APRIL 1977.

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

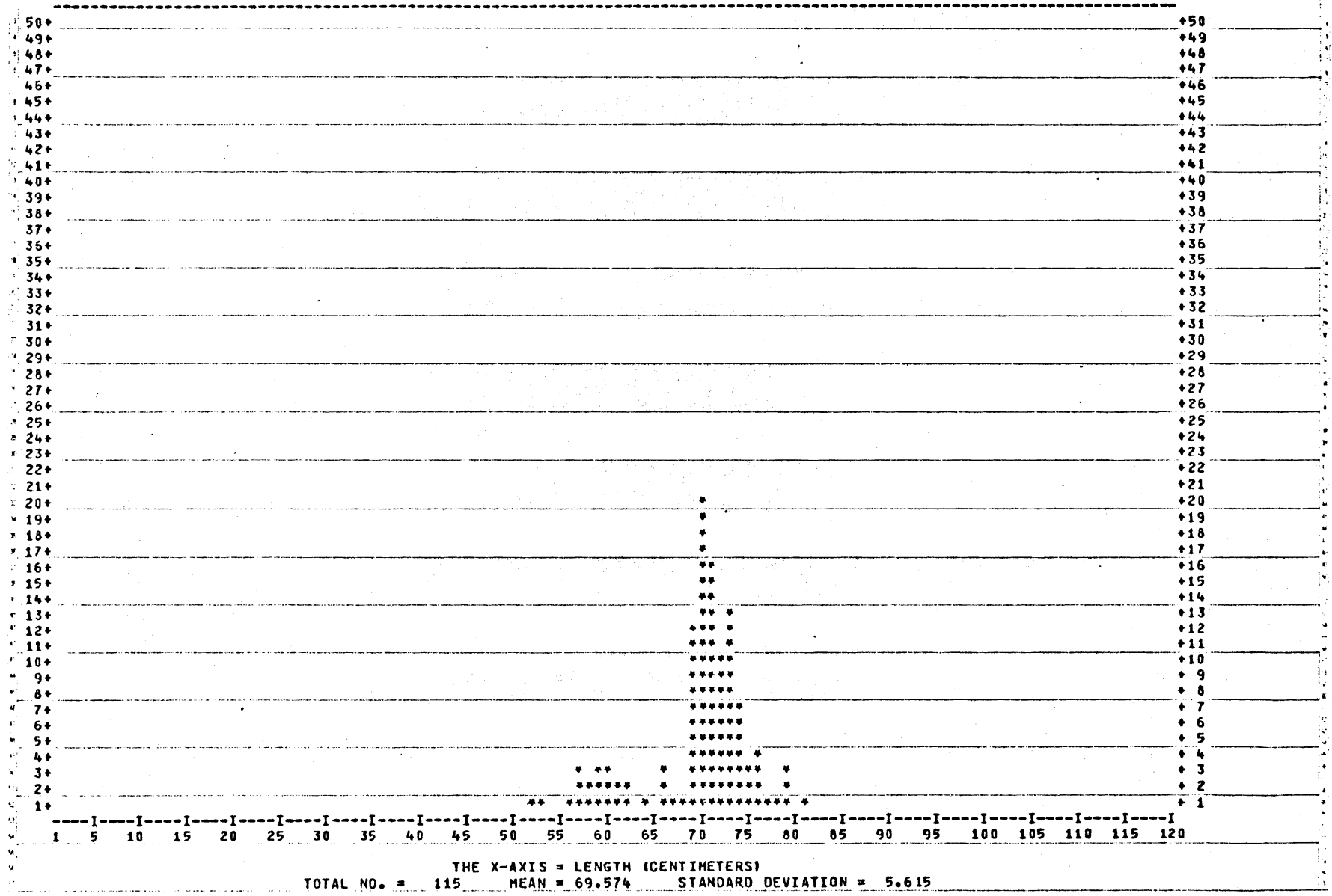


FIGURE 16. Length frequencies of California barracuda for April 1977.

LENGTH HISTOGRAM FOR CALIFORNIA BARRACUDA (SPHYRAENA ARGENTEA)
DURING MAY 1977.

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

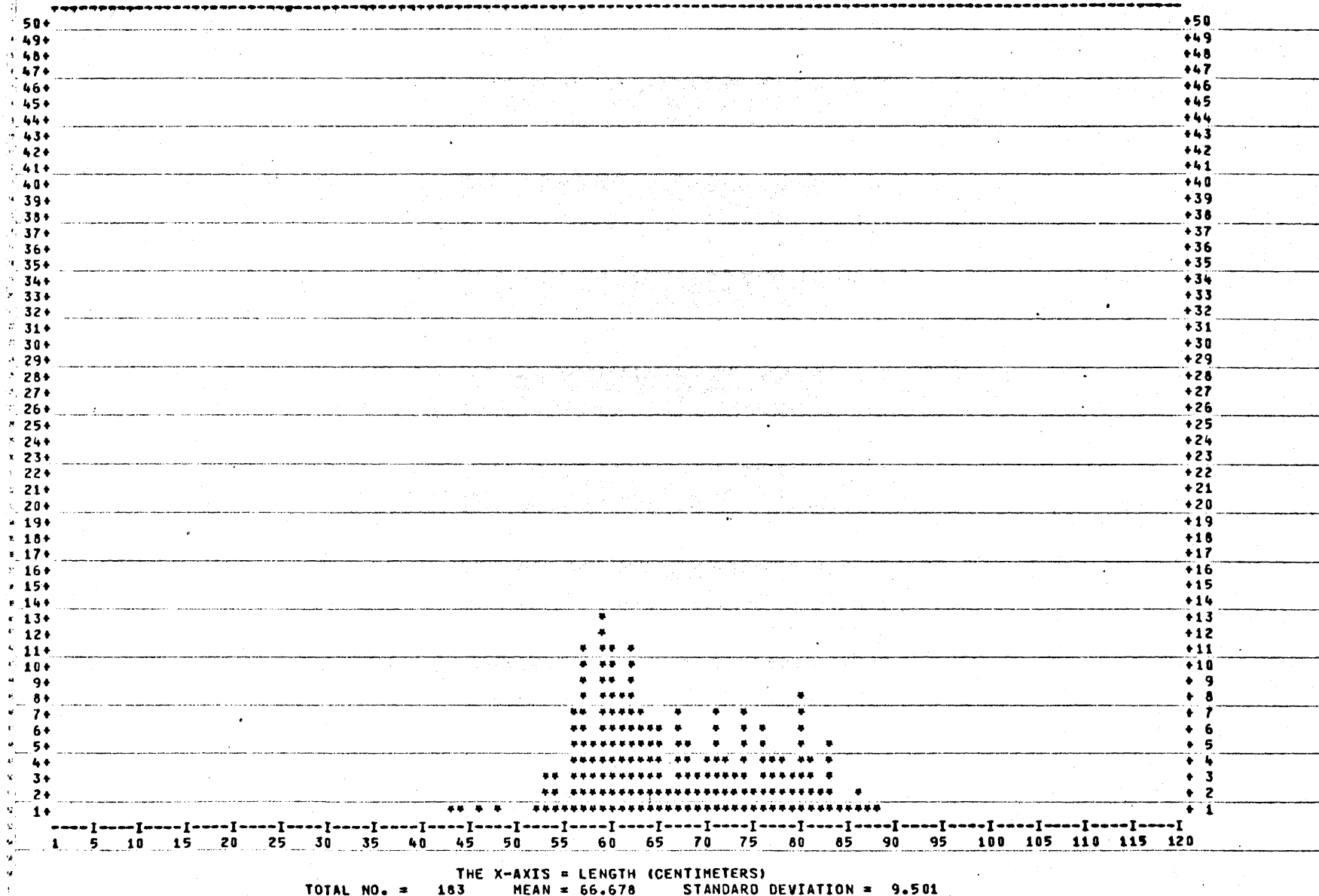


FIGURE 17. Length frequencies of California barracuda for May 1977.

LENGTH HISTOGRAM FOR CALIFORNIA BARRACUDA (SPHYRAENA ARGENTEA)
DURING JUNE 1977.

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

