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SOUTHERN CALIFORNIA PARTYBOAT SAMPLING STUDY

QUARTERLY REPORT NO. 3

by

William D. Maxwell  
and  
Donald L. Schultze

MARINE RESOURCES  
Administrative Report No. 76-9

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ABSTRACT

During the period January 1 to March 31, 1976, Department personnel made 139 sampling trips aboard southern California partyboats. A total of 22,122 fishes from 73 species was identified and measured.

Otoliths were removed from 1,536 rockfish carcasses representing 31 species for use in age determination.

Sampling personnel tagged and released 68 California barracuda, *Sphyraena argentea*, and 18 sablefish, *Anoplopoma fimbria*.

The five most common species sampled during this period represented approximately 79% of the total number of fishes measured. These were, in order of importance; bocaccio, *Sebastes paucispinis*; chilipepper, *Sebastes goodei*; olive rockfish, *Sebastes serranoides*; greenspotted rockfish, *Sebastes chlorostictus*; and vermilion rockfish, *Sebastes miniatus*. Bocaccio alone accounted for 52% of the sampled catch.

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## INTRODUCTION

During the period 1 January through 31 March 1976, 139 trips aboard southern California partyboats resulted in the identification and measurement of 22,122 fish of 73 species.

Otoliths were removed from 1,536 rockfish carcasses representing 31 species for use in age determination studies.

Sampling personnel also tagged and released 68 California barracuda, *Sphyraena argentea*, and 18 sablefish, *Anoplopoma fimbria*.

Examination of sampling results (Table 1) reveals that the 10 most common species sampled were, in order of importance; bocaccio, *Sebastes paucispinis*; chilipepper, *Sebastes goodei*; olive rockfish, *Sebastes serranoides*; greenspotted rockfish, *Sebastes chlorostictus*; vermilion rockfish, *Sebastes miniatus*; greenstriped rockfish, *Sebastes elongatus*; flag rockfish, *Sebastes rubrivinctus*; blue rockfish, *Sebastes mystinus*; ocean whitefish, *Caulolatilus princeps*; and starry rockfish, *Sebastes constellatus*. This group represented 86.9% of the total number of fishes sampled with bocaccio alone contributing over 52% of the total catch.

Effort by the partyboat fishery during this quarter was expended exclusively on rockfish with the exception of Santa Barbara where some effort was diverted towards salmon fishing.

The number of samples dropped significantly from the previous quarter due to a decrease in the amount of available manpower and to the loss of numerous sampling days to inclement weather, particularly in February and March.

TABLE 1. Number of Fishes Measured From Southern California Partyboats, January through March, 1976.

Common name	Scientific name	Number measured	Common name	Scientific name	Number measured
		mm TL			mm TL
Surfperch, barred	<i>Amphistichus argenteus</i>	5	Rockfish, splitnose	<i>Sebastes diploproa</i>	1
Sargo	<i>Anisotremus davidsoni</i>	1	Rockfish, greenstriped	<i>S. elongatus</i>	438
Sablefish	<i>Anoplopoma fimbria</i>	141	Rockfish, swordspine	<i>S. ensifer</i>	13
Whitefish, ocean	<i>Caulolatilus princeps</i>	294	Rockfish, widow	<i>S. entomelas</i>	134
Blacksmith	<i>Chromis punctipinnis</i>	14	Rockfish, pink	<i>S. eos</i>	16
Sanddab, Pacific	<i>Citharichthys sordidus</i>	78	Rockfish, yellowtail	<i>S. flavidus</i>	17
Sanddab, longfin	<i>C. xanthostigma</i>	4	Rockfish, bronzespotted	<i>S. gilli</i>	3
Seabass, white	<i>Cynoecion nobilis</i>	1	Chilipepper	<i>S. goodei</i>	3,609
Surfperch, black	<i>Embiotoca jacksoni</i>	9	Rockfish, Rosethorn	<i>S. helvomaculatus</i>	13
Sole, petrale	<i>Eopsetta jordani</i>	44	Rockfish, squarespot	<i>S. hopkinsi</i>	131
Croaker, white	<i>Genyonemus lineatus</i>	102	Rockfish, shortbelly	<i>S. jordani</i>	48
Opaleye	<i>Girella nigricans</i>	2	Cowcod	<i>S. levis</i>	197
Kelpfish, giant	<i>Heterostichus rostratus</i>	2	Rockfish, Mexican	<i>S. macdonaldi</i>	17
Sole, bigmouth	<i>Hippoglossina stomata</i>	5	Rockfish, vermilion	<i>S. miniatus</i>	620
Halfmoon	<i>Medialuna californiensis</i>	1	Rockfish, blue	<i>S. mystinus</i>	369
Hake, Pacific	<i>Merluccius productus</i>	9	Rockfish, speckled	<i>S. ovalis</i>	153
Sole, dover	<i>Microstomus pacificus</i>	1	Bocaccio	<i>S. paucispinis</i>	11,608
Salmon, silver	<i>Oncorhynchus kisutch</i>	1	Rockfish, canary	<i>S. pinniger</i>	18
Salmon, king	<i>O. tshawytscha</i>	1	Rockfish, grass	<i>S. rastrelliger</i>	3
Lingcod	<i>Ophiodon elongatus</i>	61	Rockfish, rosy	<i>S. rosaceus</i>	139
Senorita	<i>Oxyjulis californica</i>	6	Rockfish, greenblotched	<i>S. rosenblatti</i>	290
Bass, kelp	<i>Paralabrax clathratus</i>	26	Rockfish, yelloweye	<i>S. ruberrimus</i>	1
Bass, barred sand	<i>P. nebulifer</i>	107	Rockfish, flag	<i>S. rubrivinatus</i>	397
Halibut, California	<i>Paralichthys californicus</i>	42	Rockfish, bank	<i>S. rufus</i>	150
Sole, English	<i>Parophrys vetulus</i>	1	Rockfish, stripetail	<i>S. saxicola</i>	1
Sheephead, California	<i>Pimelometopon pulchrum</i>	31	Rockfish, halfbanded	<i>S. semicinctus</i>	5
Skate, longnose	<i>Raja rhina</i>	1	Rockfish, olive	<i>S. serranoides</i>	852
Guitarfish, shovelnose	<i>Rhinobatos productus</i>	5	Treefish	<i>S. serriceps</i>	35
Mackerel, Pacific	<i>Scomber japonicus</i>	43	Rockfish, honeycomb	<i>S. umbrosus</i>	164
Sculpin	<i>Scorpaena guttata</i>	221	Rockfish, whitebelly*	<i>S. vexillaris</i>	77
Cabezon	<i>Scorpaenichthys marmoratus</i>	13	Barracuda, California	<i>Sphyræna argentea</i>	77
Rockfish, kelp	<i>Sebastes atrovirens</i>	4	Dogfish, spiny	<i>Squalus acanthias</i>	9
Rockfish, brown	<i>S. auriculatus</i>	51	Lizardfish, California	<i>Synodus lucioceps</i>	1
Rockfish, gopher	<i>S. carnatus</i>	46	Mackerel, jack	<i>Trachurus symmetricus</i>	71
Rockfish, greenspotted	<i>S. chlorostictus</i>	753	Sole, fantail	<i>Xystreureys liolepis</i>	3
Rockfish, starry	<i>S. constellatus</i>	293	Combfish, shortspine	<i>Zaniolepis frenata</i>	1
Rockfish, calico	<i>S. dallii</i>	21	TOTAL		22,122

\* Since there are no diagnostic features to distinguish between copper and whitebelly rockfish, both species are listed as *S. vexillaris*.

### Rockfish

A total of 20,687 fishes from 36 species was identified and measured as rockfish contributed 93.5% of the total sampled catch. Of those rockfish measured 56% (Table 2) were bocaccio while the next most abundant species, chilipepper, contributed 17.4% of the sampled rockfish catch.

Preliminary work on age determination using otoliths began for bocaccio, chilipepper, vermilion rockfish, olive rockfish, and cowcod, *Sebastes levis*. Initial results of the survey revealed that the larger specimens of all species examined will require some method of sectioning to obtain reliable age estimated. Rockfish otoliths tend to shatter when cut with available equipment and the Southeast Fisheries Center (NMFS), Miami, Florida is testing the feasibility of sectioning *Sebastes* otoliths with a device used to section bluefin tuna otoliths.

A comparison of the sampling data with the preliminary report from California partyboat logs shows that during this quarter rockfish made up 93.5% of the sampled catch while boat logs showed rockfish made up 94.8% of the reported catch. This indicates that, at least for this group of fish, the level of sampling effort appears to be sufficient, but more rigorous analysis will be required.

Monthly length-frequencies for the five most common species sampled as well as their mean lengths and standard deviations are presented in Figures 1 through 5.

### Bonito, Barracuda, White Seabass, Pacific Mackerel

Almost all effort was expended on rockfish and few "gamefish" were encountered during sampling trips in this quarter.

TABLE 2. Species Composition of Rockfish (*Sebastes* spp.) Catch From Partyboat Samples, January through March, 1976.

Common name	Scientific name	Frequency of occurrence (%)
Bocaccio	<i>Sebastes paucispinis</i>	56.1
Chilipepper	<i>S. goodei</i>	17.4
Olive	<i>S. serranoides</i>	4.1
Greenspotted	<i>S. chlorostictus</i>	3.6
Vermilion	<i>S. miniatus</i>	3.0
Greenstriped	<i>S. elongatus</i>	2.1
Flag	<i>S. rubrivinctus</i>	1.9
Blue	<i>S. mystinus</i>	1.8
Starry	<i>S. constellatus</i>	1.4
Greenblotched	<i>S. rosenblatti</i>	1.4
Cowcod	<i>S. levis</i>	1.0
Honeycomb	<i>S. umbrosus</i>	0.8
Bank	<i>S. rufus</i>	0.7
Rosy	<i>S. rosaceus</i>	0.7
Speckled	<i>S. ovalis</i>	0.7
Widow	<i>S. entomelas</i>	0.6
Squarespot	<i>S. hopkinsi</i>	0.6
Whitebelly	<i>S. vexillaris</i>	0.4
Brown	<i>S. auriculatus</i>	0.3
Gopher	<i>S. carnatus</i>	0.2
Shortbelly	<i>S. jordani</i>	0.2
Treefish	<i>S. serriceps</i>	0.2
Calico	<i>S. dallii</i>	0.1
Canary	<i>S. pinniger</i>	<0.1
Mexican	<i>S. macdonaldi</i>	<0.1
Yellowtail	<i>S. flavidus</i>	<0.1
Pink	<i>S. eos</i>	<0.1
Swordspine	<i>S. ensifer</i>	<0.1
Rosethorn	<i>S. helvomaculatus</i>	<0.1
Kelp	<i>S. atrovirens</i>	<0.1
Halfbanded	<i>S. semicinctus</i>	<0.1
Bronzespotted	<i>S. gilli</i>	<0.1
Splitnose	<i>S. diploproa</i>	<0.1
Grass	<i>S. rastrelliger</i>	<0.1
Yelloweye	<i>S. ruberrimus</i>	<0.1
Stripetail	<i>S. saxicola</i>	<0.1

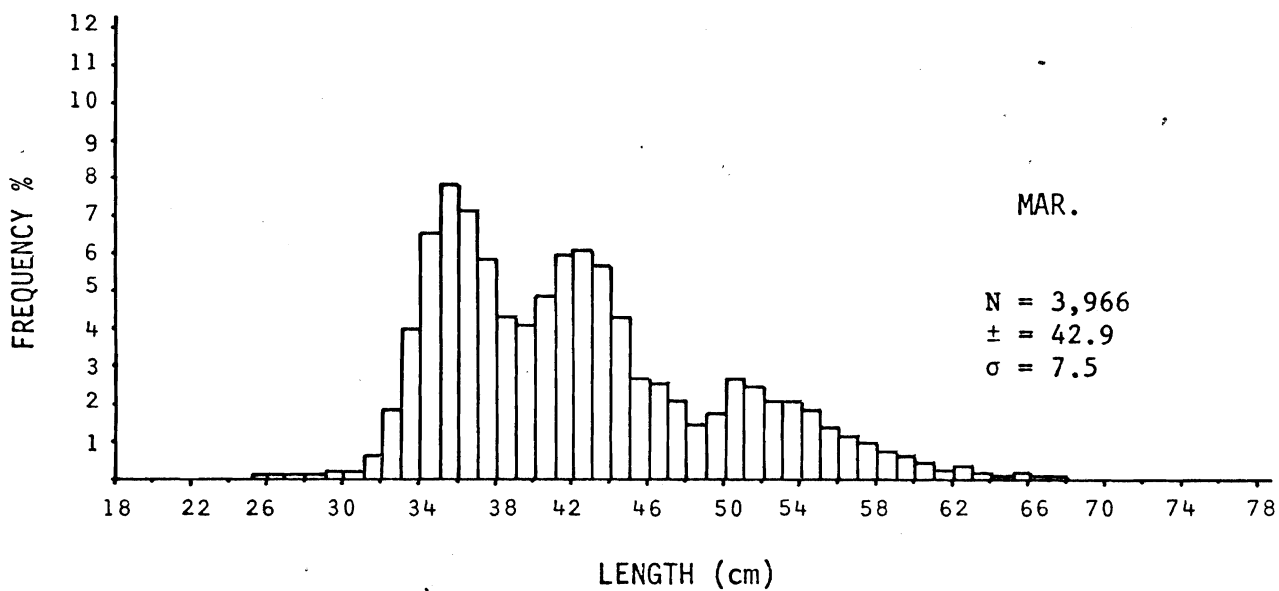
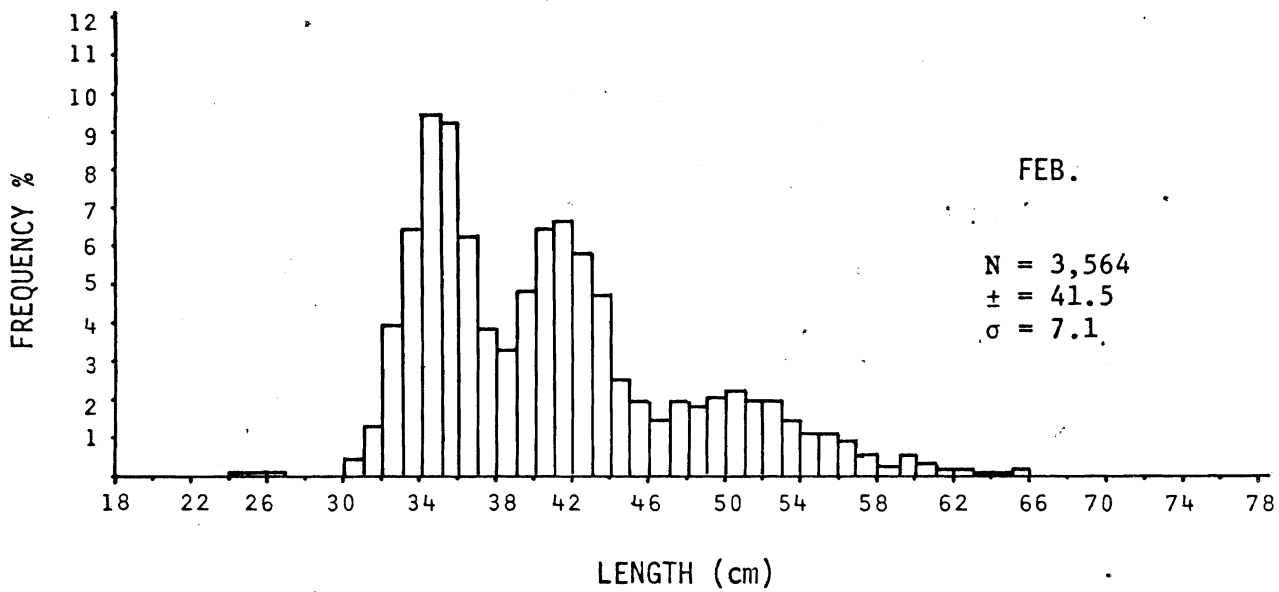
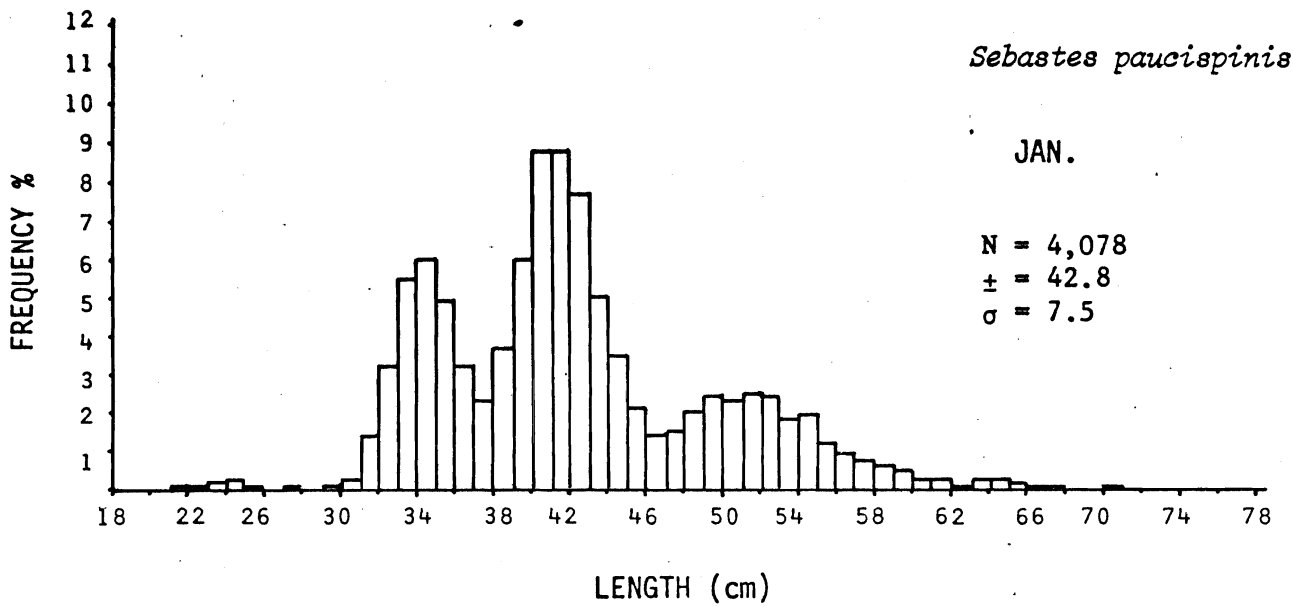


FIGURE 1. Length frequencies for bocaccio from southern California partyboats for January through March 1976.

*Sebastes goodei*

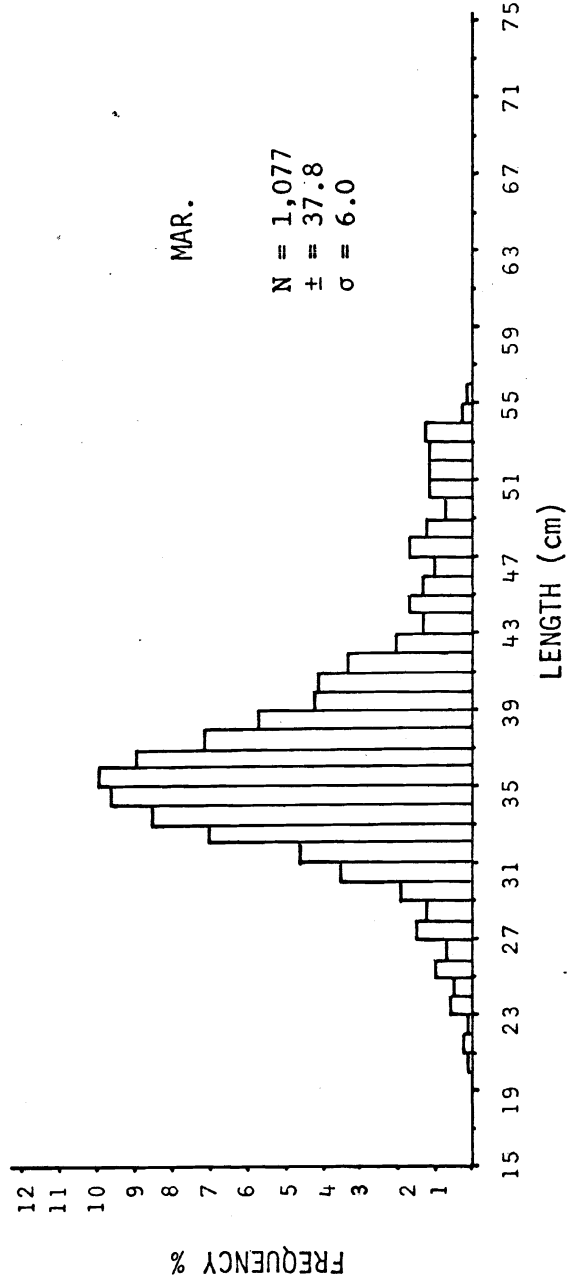
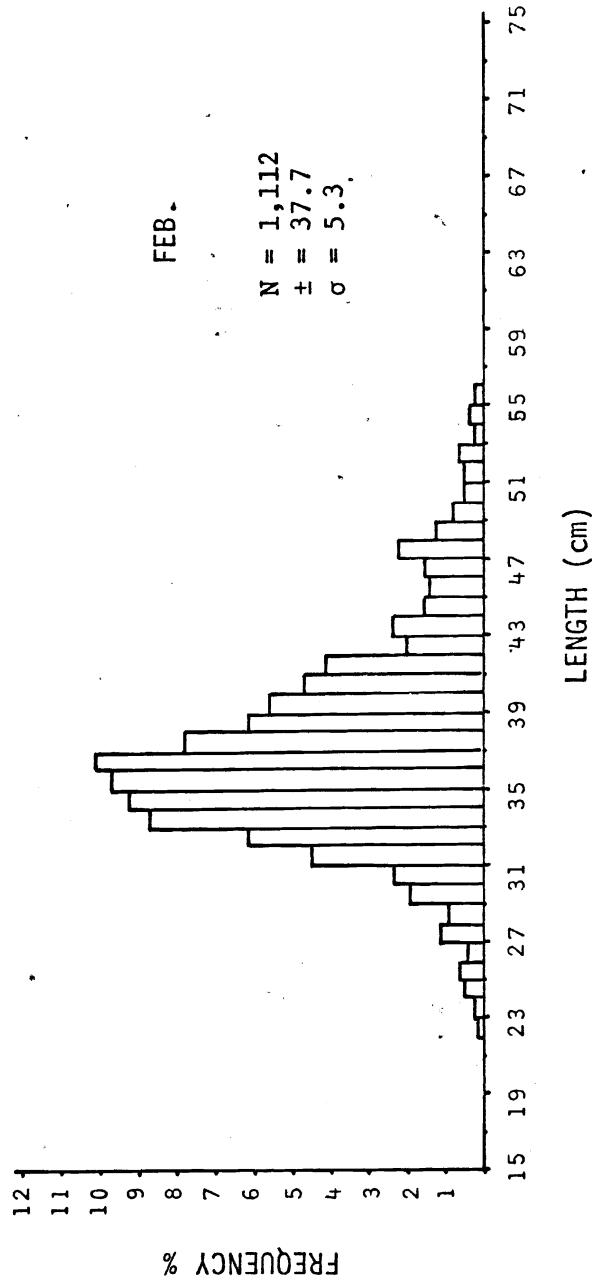
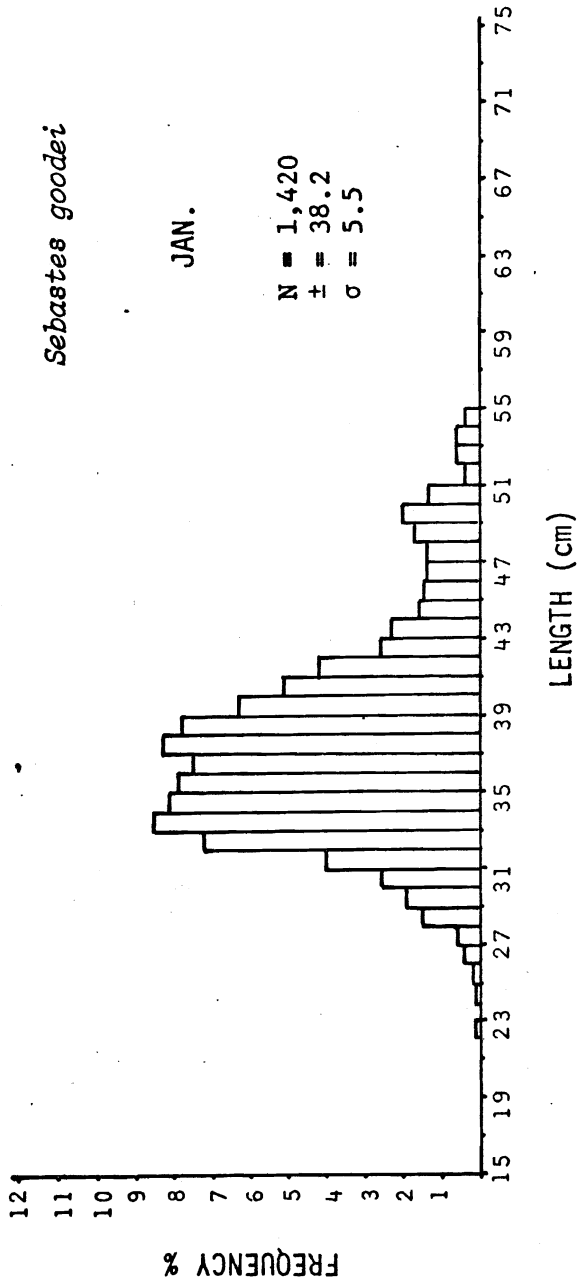


FIGURE 2. Length frequencies for chilipepper from southern California partyboats for January through March 1976.

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*Sebastes serranooides*

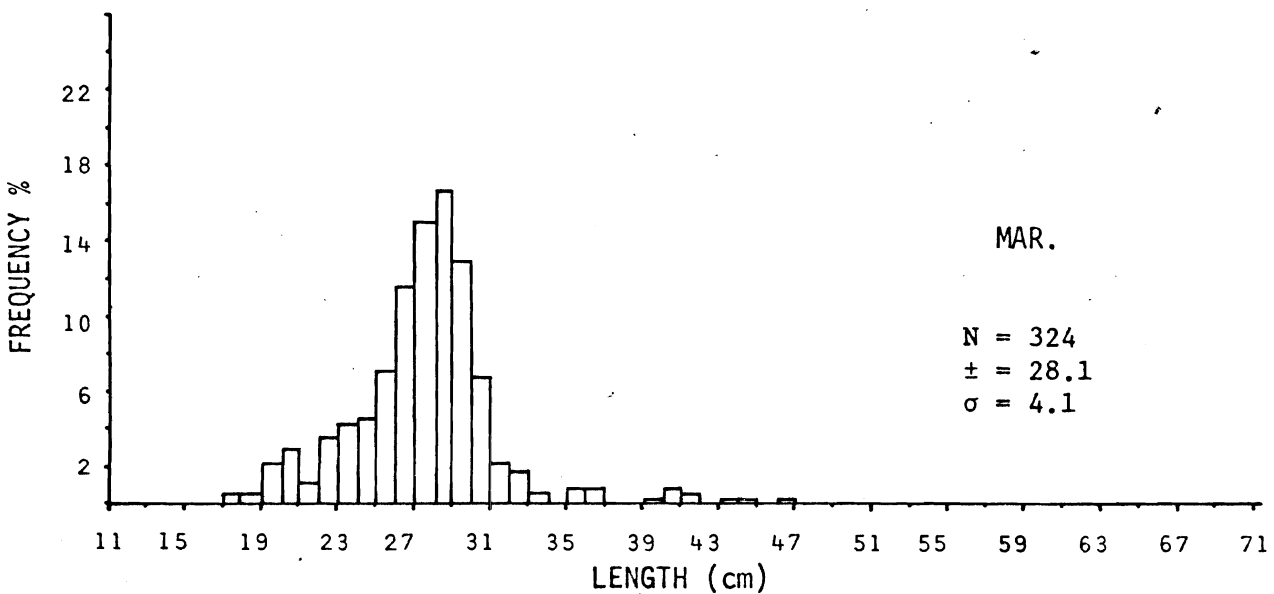
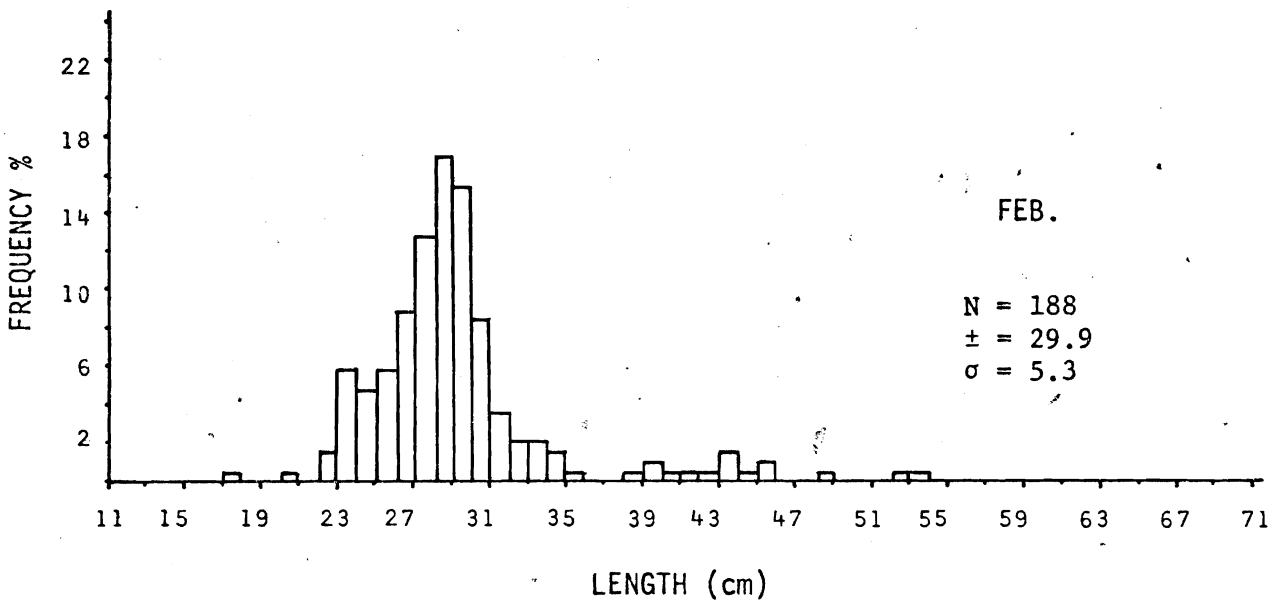
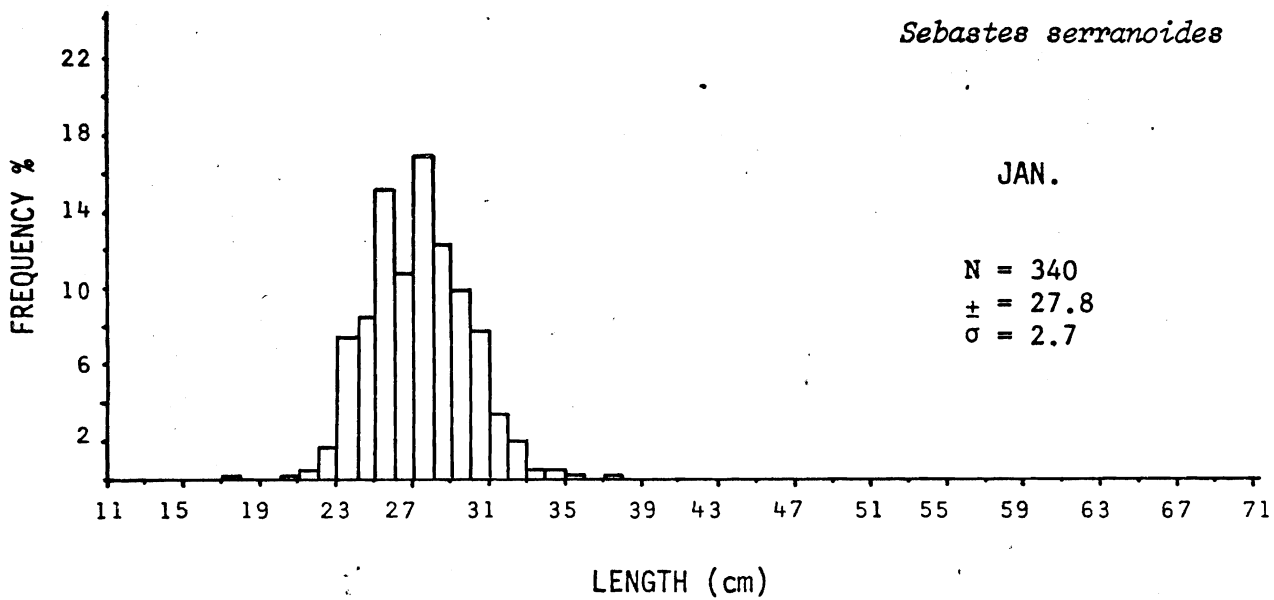


FIGURE 3. Length frequencies for olive rockfish from southern California partyboats for January through March 1976.

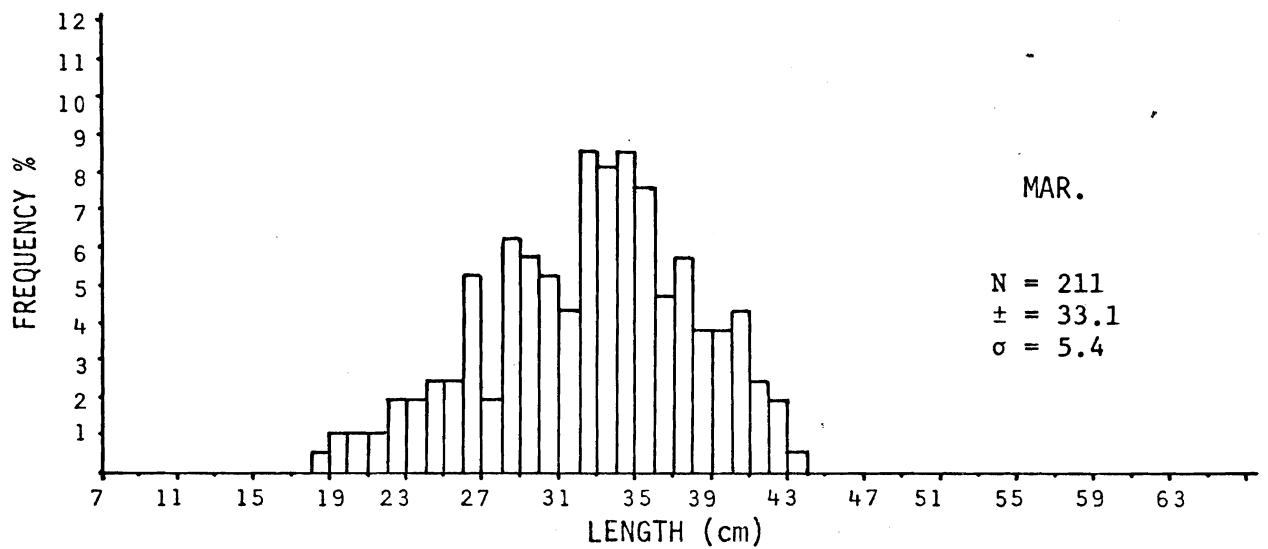
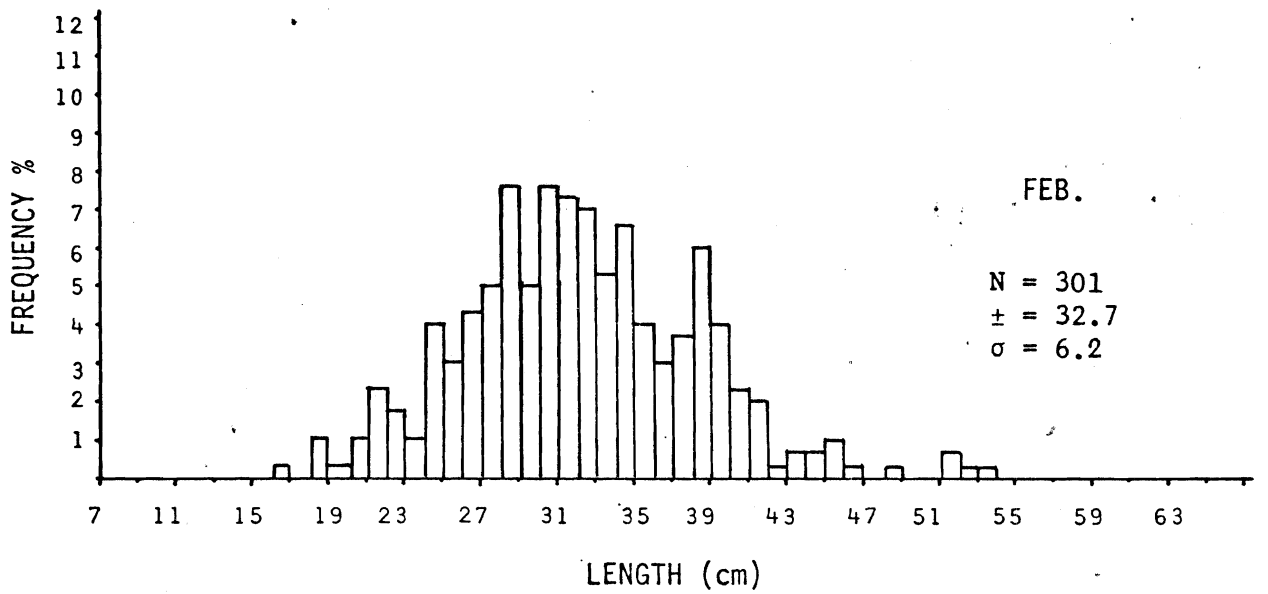
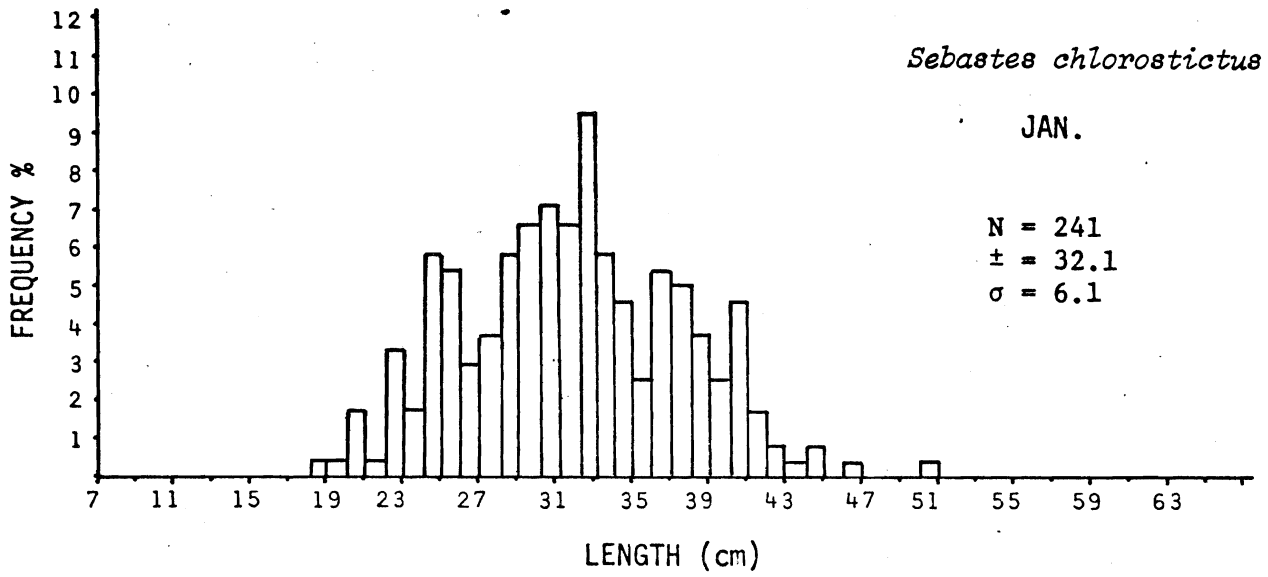


FIGURE 4. Length frequencies for greenspotted rockfish from southern California partyboats for January through March 1976.

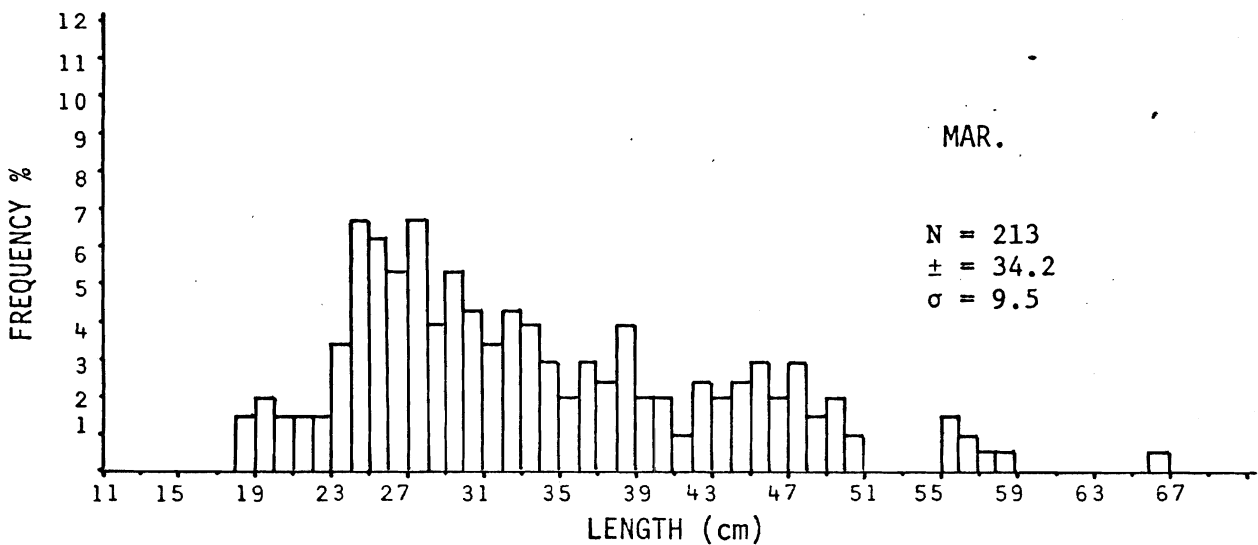
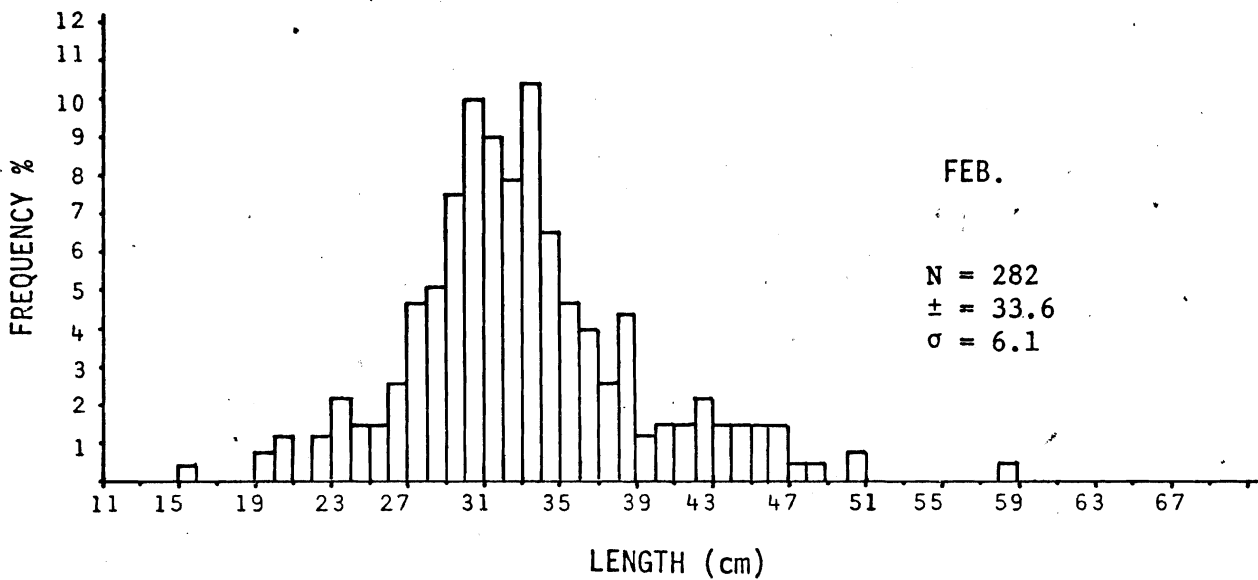
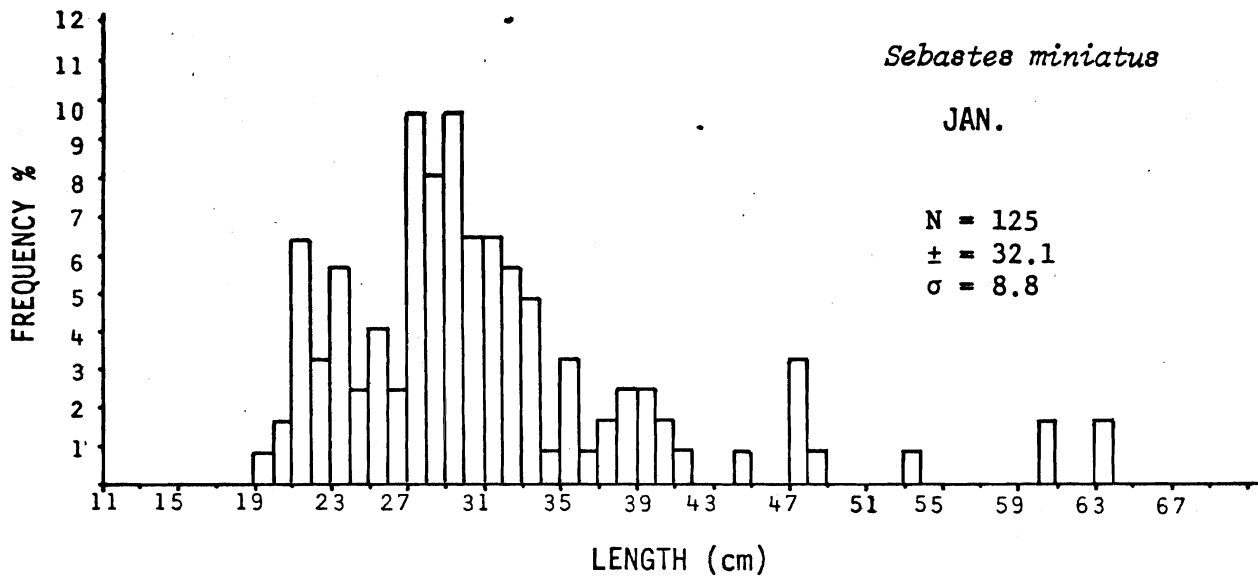


FIGURE 5. Length frequencies for vermillion rockfish from southern California partyboats for January through March 1976.

No Pacific bonito, *Sarda chiliensis*, were measured and only one white seabass, *Cynoscion nobilis*, occurred in the samples.

A total of 77 California barracuda was sampled in this quarter. Of this number only seven were larger than the 28-inch (71.1-cm) minimum size limit. Sampling personnel tagged and released 68 of the total.

Pacific mackerel, *Scomber japonicus*, were also very scarce during this quarter with a total of 43 fish appearing in the samples. The majority of the fish were from the 1974 year-class.

#### Effort and Catch per Unit Effort

Effort (trips, anglers, angler hours<sup>3/</sup>) and catch per unit effort (fish per angler hour) values were determined for southern California port complexes<sup>4/</sup> (Table 3).

Passenger loads aboard sampled partyboats increased only slightly during January, February, and March from the low of December. The greatest increase in the average number of anglers per trip occurred aboard boats from port complexes 1, 2 and 4. A marked decline in the number of passengers was observed in January at port complex 6, and in March at port complex 3. Poor weather caused a number of trips to be canceled and contributed to the reduced winter passenger loads.

The average time (angler hours) spent fishing per sampled trip varied little within port complexes. Angler hours per trip between port complexes fluctuated from a low of 2.25 at port complex 3 to a high of 5.00 at port complex 4, both in March.

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<sup>3/</sup> Angler hours are computed as the product of the number of anglers aboard a boat and the number of hours passengers fished during a trip.

<sup>4/</sup> For definitions of port complexes see Maxwell and Schultze Marine Resources Administrative Report 76-3.

TABLE 3. Effort and Catch per Unit Effort Values Determined From Partyboat Samples for Each Port Complex and Months July 1975 through March 1976.

No. trips/month	Port complex	Month												TOTAL Jul-Mar
		July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	
	1	10	11	10	13 (1)	10	10	7	8	8	8	8	87 (1)	
	2	7	5 (3)	6 (2)	8	9	6	7	5	7	7	5	60 (5)	
	3	3	6 (2)	4	5	7	5	3	2	2	2	2	37 (2)	
	4	12	10	10 (2)	12	9	7	11	5	7	5	6	78 (2)	
	5	9	7 (3)	13 (1)	15	19	14	11	16	12	12	12	146 (4)	
	6	8	7 (2)	10 (1)	11	8	8	10	11	12	12	12	85 (3)	
	<b>Total</b>	49	46 (10)	53 (6)	64 (1)	62	50	45	47	47	47	47	463 (17)	
	Avg. no. anglers/trip	38.70	39.91	26.50	25.50	15.80	18.90	29.71	19.25	28.63	28.63	28.63	Average	
	1	41.86	37.30	27.00	20.13	18.63	17.50	26.57	23.00	20.57	20.57	20.57	26.99	
	2	47.25	44.50	22.50	25.75	24.43	23.80	22.33	22.00	11.50	11.50	11.50	25.90	
	3	42.42	35.30	29.50	35.13	26.22	22.14	30.57	29.00	26.17	26.17	26.17	27.11	
	4	42.44	43.86	25.46	26.60	23.72	21.79	22.00	23.44	29.58	29.58	29.58	30.79	
	5	26.00	33.57	24.70	20.64	27.86	22.25	16.40	25.64	23.83	23.83	23.83	29.10	
	6	39.78	39.26	26.11	25.97	22.78	21.06	24.91	23.32	33.38	33.38	33.38	24.54	
	Average	4.32	3.75	3.45	3.46	3.30	3.50	4.29	4.88	3.50	3.50	3.50	Average	
	1	3.66	3.80	4.42	3.53	4.56	3.83	3.75	3.50	4.29	4.29	4.29	3.83	
	2	3.25	3.63	2.63	-3.63	3.36	4.10	3.75	2.38	2.25	2.25	2.25	3.93	
	3	5.02	3.88	4.13	4.75	3.78	4.36	3.96	4.40	5.00	5.00	5.00	3.22	
	4	4.44	3.89	3.40	3.53	3.94	2.77	2.98	3.13	3.23	3.23	3.23	4.36	
	5	4.91	4.11	4.90	4.23	5.25	4.91	3.80	4.11	3.96	3.96	3.96	3.47	
	6	4.27	3.84	3.82	3.86	4.02	3.91	3.78	3.73	3.71	3.71	3.71	4.46	
	Average	1.40	0.78	1.60	2.02	2.68	1.40	1.20	1.36	1.20	1.20	1.20	Average	
	1	1.10	0.51	0.71	1.78	2.09	1.27	1.47	1.16	1.16	1.16	1.16	1.52	
	2	1.17	0.78	1.67	1.32	1.53	0.85	1.25	0.50	2.16	2.16	2.16	1.25	
	3	0.60	1.13	1.36	1.67	1.48	2.42	1.87	1.77	1.48	1.48	1.48	1.25	
	4	0.37	0.52	1.91	1.91	2.11	3.60	3.28	2.77	2.51	2.51	2.51	1.53	
	5	1.41	1.39	0.91	1.92	2.09	1.29	3.55	1.80	1.92	1.92	1.92	2.12	
	6	1.01	0.82	1.36	1.77	2.00	1.81	2.15	1.69	1.74	1.74	1.74	1.52	
	Average												Average	

( ) Number of samples lacking complete catch or effort data and not used in CPUE estimates.

Total trip time is recorded as fishing time (angler hours actually spent fishing) and running time (time spent traveling to and from the fishing grounds and moving from fishing spot to fishing spot). Sampling for January, February, and March indicates that actual fishing time comprises on the average 45 to 60% of the total trip time. Boats from port complex 1 spent a smaller percentage of time running and more time fishing than boats from other port complexes. Boats from port complex 4 spent the greatest percentage of total time running, however, port complex 4 trips were also generally longer than at other port complexes and anglers averaged more actual fishing hours than at other port complexes.

The catch per unit effort (number of fish caught per angler hour fished) for each port complex shows the greatest fishing success to be aboard boats from port complex 4, 5, and 6 during January, February and March (Figure 6). An increased CPUE for port complex 3 in March resulted from fewer anglers making good catches of bocaccio. Only two samples were taken in March at this port complex. However, both samples produced a CPUE of over two fish per angler hour.

The higher CPUE's for the more northerly port complexes 4, 5 and 6 are due to continued good catches of rockfish, primarily bocaccio and chilipepper. The general decline of the CPUE aboard sampled boats fishing from San Diego to Newport Beach (port complexes 1, 2 and 3) is due to poor winter availability of surface game species such as bonito, barracuda and mackerel combined with reduced catches of rockfish.

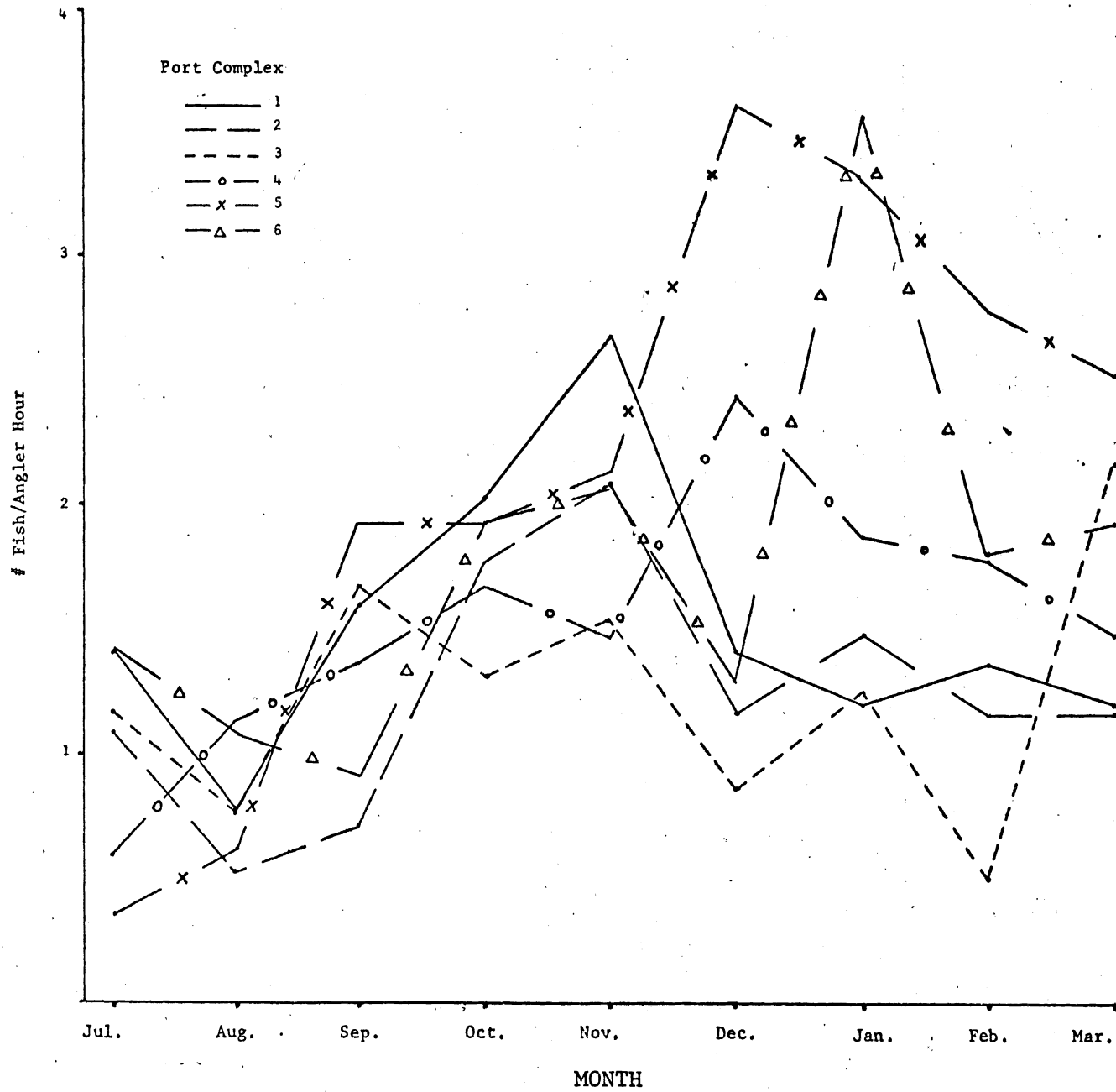


FIGURE 6. Catch per unit effort for sampled port complexes during July 1975 through March 1976.