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SOUTHERN CALIFORNIA INDEPENDENT SPORT FISHING SURVEY  
QUARTERLY REPORT FOR OCTOBER-DECEMBER, 1975

by

Vickie L. Wine

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ABSTRACT

A 1-yr study was undertaken to devise a sampling program which would determine fishing catch and effort levels of one segment of the southern California marine sport fishery. Personal interviews of fishermen were conducted at launch ramps, boat hoists, and boat rental locations from Santa Barbara County to the Mexican border. This report presents quantitative data and statistical estimates of effort, total catch, catch of preferred sport fish species, and length frequencies of selected species landed by private-boat sport fishermen.

An estimated 52,000 anglers and 4,300 divers landed 179,000 fishes, molluscs, and crustaceans. The major components of the catch were 1) rockfishes, *Sebastes* spp., 68,000 landed; 2) white croaker, *Genyonemus lineatus*, 38,000 landed; and 3) bass, *Paralabrax* spp., 13,000 landed.

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<sup>1/</sup> Marine Resources Region, Administrative Report No. 79-8  
April, 1979.

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# SOUTHERN CALIFORNIA INDEPENDENT SPORT FISHING SURVEY

QUARTERLY REPORT FOR OCTOBER-DECEMBER, 1975

## INTRODUCTION

A Southern California Independent Sport Fishing Survey was initiated July 1, 1975 by the California Department of Fish and Game in cooperation with the National Marine Fisheries Service. The purpose of the 1-yr survey was to develop a sampling plan that would determine the effort levels expended by sport anglers and divers fishing from privately owned boats, and to estimate the magnitude and species composition of the catch by these fishermen. This survey was continued after the termination of the original 1-yr contract, and the results obtained during the following two years (1976-1978) are available in Marine Resources Administrative Reports 78-2 and 79-3. However, the data gathered during the original survey were never made available to the public. This report is the second in a series which remedies that omission.

## OPERATIONS

The sampling plan consisted of a program of random field sampling at selected launch ramps, hoists, boat rental locations, and marinas from San Diego to Santa Barbara Counties. Sampling was conducted on all weekends and holidays, and on randomly chosen weekdays in accordance with available manpower. Field samplers remained at the sample locations from 1000 to 1800 hours and an attempt was made to interview all returning anglers and divers. Information on length of fishing trip, number of fishing poles used, and number of people angling or diving was gathered along with the identification and enumeration of all fishes, molluscs, crabs, and lobsters in possession (no data were requested about species caught but not kept). An attempt was made to measure all species with legal minimum size requirements; six other species were also measured

to provide data for life history studies.

## RESULTS AND DISCUSSION

During the October 1 - December 31, 1975 quarter, 17 launch ramps, 4 boat rental facilities, and 4 boat hoists were sampled a total of 215 times. Samplers interviewed 7,645 anglers and 623 divers who expended 48,011 angler-trip-hours <sup>3/</sup> and 3,327 diver-trip-hours <sup>3/</sup>. These fishermen landed 24,998 fishes and other organisms of 133 identified species, and 647 filleted fishes whose species could not be determined (Table 1).

### Effort

The number of fishing parties frequenting each sample site declined steadily from October to December as the warm water species left the area, weather conditions became less favorable, and the summer influx of vacationing fishermen ceased. The sample sites with the heaviest use were located in San Diego and Los Angeles Counties while the lowest level of fishing effort was in Santa Barbara County.

Weekday activity was light and the majority of all fishing effort took place on weekends. The total number of fishing parties on a Saturday or Sunday was usually about one-half as many as had been seen during the peak summer months. The ratio of weekend to weekday fishermen was 4:1.

### Catch

Rockfishes, *Sebastes* spp., formed a major portion of the catch, which is not unusual for this time of year when warm water species have left the area (Table 2). The ten most frequently landed species were 1) white croaker, *Genyonemus lineatus*, 24%; 2) bocaccio, *Sebastes paucispinis*, 8%; 3) barred sand bass, *Paralabrax nebulifer*, 5%; 4) Pacific bonito, *Sarda chiliensis*, 5%; 5) olive rockfish, *Sebastes serranoides*, 4%; 6) Pacific mackerel, *Scomber japonicus*, 3%; 7) vermilion rockfish, *Sebastes miniatus*,

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<sup>3/</sup> The unit of effort is 1 hour of trip time per angler or diver. Adjustments are made for those using more than one fishing pole concurrently.

3%; 8) sablefish, *Anoplopoma fimbria*, 3%; 9) greenspotted rockfish, *Sebastes chlorostictus*, 3%; and 10) copper rockfish, *S. caurinus*, 2%.

Divers were very active in the Santa Barbara area, bringing in large numbers of red abalone, *Haliotis rufescens*, and California spiny lobster, *Panulirus interruptus*. Over 57% of the sampled catch in this county was composed of rockfishes.

Ventura County divers concentrated their efforts on California spiny lobster; rock scallop, *Hinnites multirugosus*; pink abalone, *Haliotis corrugata*; and California sheephead, *Semicossyphus pulcher*. Anglers landed mostly rockfish, white croaker, and Pacific sanddab, *Citharichthys sordidus* (Table 3). The largest single component of the Los Angeles County catch was white croaker (30%). Rockfishes contributed 34% of the total catch, but a few surface fishes were also commonly taken in the area. Both Pacific bonito and Pacific mackerel were taken frequently, as were black surfperch, *Embiotoca jacksoni*; ocean whitefish, *Caulolatilus princeps*; and halfmoon, *Medialuna californiensis*. Divers landed a few California spiny lobsters and rock scallops.

One-third of the total catch in Orange County was composed of white croaker. Rockfishes were not a major component of the catch in this area due to the preponderance of sandy bottom habitat. However, a large variety of inshore species was taken, including the three bass species, *Paralabrax* spp.; black surfperch; Pacific bonito; and Pacific mackerel.

San Diego County divers landed good catches of California sheephead, California spiny lobster, rock scallop, red abalone, pink abalone, and green abalone, *Haliotis fulgens*. Anglers brought in large numbers of barred sand bass, white croaker, Pacific bonito, Pacific mackerel, and spotted sand bass, *Paralabrax maculatofasciatus*. Less than 30% of the total catch was composed of rockfishes.

### Length Frequencies

Examination of the length frequency data (Table 4, Figures 1-4) shows that a substantial number of sublegal fish appeared in the sampled catches. The three bass species averaged 79% legal, while only 63% of all California halibut, *Paralichthys californicus*, that were measured were legal size.

Very few illegal abalone, *Haliotis* spp., or California spiny lobster were seen in divers' catches. Only 3% of all measured lobsters were shorter than the minimum size limit, while the abalone catch averaged 9% sublegals.

### ESTIMATES

We estimated 52,000 angler-days and 4,300 diver-days were spent fishing in southern California marine waters during October through December 1975 (Tables 5 and 6). This represents a decrease of about one-half of the angler effort and one-tenth of the diver effort expended during the previous quarter.

An estimated 179,000 fishes and other organisms were landed. Rockfishes contributed the largest portion of the catch (68,000 landed). The white croaker was the most frequently landed single species (38,000 landed). An estimated 13,000 bass, 7,000 Pacific bonito, 6,000 Pacific mackerel, and 2,000 California halibut were landed. Divers landed approximately 5,600 abalones, 2,800 rock scallops, and 5,100 California spiny lobsters.

REFERENCES

Wine, Vickie. 1978. Southern California Independent Sport Fishing Survey, Annual Report No. 2. Calif. Dept. Fish and Game, Mar. Res. Admin. Rept., (78-2):1-79.

\_\_\_\_\_, 1979. Southern California Independent Sport Fishing Survey, Annual Report No. 3. Calif. Dept. Fish and Game, Mar. Res. Admin. Rept., (79-3):1-100.

TABLE 1. List of Species Sampled from Southern California Private Boats, October Through December 1975.

Scientific name	Common name	No. sampled
<u>Fishes</u>		
<i>Alopias vulpinus</i>	common thresher	2
<i>Amphistichus argenteus</i>	barred surfperch	28
<i>A. koelzi</i>	calico surfperch	2
<i>Anisotremus davidsonii</i>	sargo	11
<i>Anoplopoma fimbria</i>	sablefish	657
<i>Atherinops affinis</i>	topsmelt	13
<i>Atherinopsis californiensis</i>	jacksmelt	125
<i>Atractoscion nobilis</i>	white seabass	39
<i>Caulolatilus princeps</i>	ocean whitefish	302
<i>Cephaloscyllium ventriosum</i>	swell shark	1
<i>Cheilotrema saturnum</i>	black croaker	13
<i>Chromis punctipinis</i>	blacksmith	11
<i>Citharichthys sordidus</i>	Pacific sanddab	201
<i>C. stigmaeus</i>	speckled sanddab	27
<i>Cymatogaster aggregata</i>	shiner surfperch	22
<i>Damalichthys vacca</i>	pile surfperch	44
<i>Decapterus hypodus</i>	mexican scad	6
<i>Embassichthys bathybius</i>	deepsea sole	2
<i>Embiotoca jacksoni</i>	black surfperch	524
<i>E. lateralis</i>	striped surfperch	5
<i>Eopsetta jordani</i>	petrale sole	8
<i>Epatretus stoutii</i>	Pacific hagfish	1
<i>Euthymnus pelamis</i>	skipjack	1
<i>Galeorhinus zyopterus</i>	soupin shark	18
<i>Genyonemus lineatus</i>	white croaker	6,012
<i>Girella nigricans</i>	opaleye	71
<i>Gymnothorax mordax</i>	California moray	1
<i>Halichoeres semicinctus</i>	rock wrasse	9
<i>Heterodontus francisci</i>	horn shark	1
<i>Heterostichus rostratus</i>	giant kelpfish	64
<i>Hexagrammos decagrammus</i>	kelp greenling	3
<i>Hippoglossina stomata</i>	bigmouth sole	17
<i>Hydrolagus colliei</i>	ratfish	2
<i>Hyperprosopon argenteum</i>	walleye surfperch	110
<i>Hypsopsetta guttulata</i>	diamond turbot	14
<i>Hypsurus caryi</i>	rainbow surfperch	24
<i>Hypsypops rubicundus</i>	garibaldi	1
<i>Medialuna californiensis</i>	halfmoon	172
<i>Menticirrhus undulatus</i>	California corbina	2
<i>Merluccius productus</i>	Pacific hake	80
<i>Mola mola</i>	common mola	6
<i>Mustelus californicus</i>	gray smoothhound	7
<i>M. henlei</i>	brown smoothhound	32
<i>Myliobatis californica</i>	bat ray	5
<i>Neoclinus stephensae</i>	yellowfin fringehead	1
<i>N. uninotatus</i>	onespot fringehead	1
<i>Oncorhynchus tshawytscha</i>	king salmon	2
<i>Ophiodon elongatus</i>	lingcod	173



TABLE 1-cont.

Scientific name	Common name	No. sampled
<i>Oxyjulis californica</i>	senorita	30
<i>Paralabrax clathratus</i>	kelp bass	393
<i>P. maculatofasciatus</i>	spotted sand bass	245
<i>P. nebulifer</i>	barred sand bass	1,183
<i>Paralichthys californicus</i>	California halibut	198
<i>Parophrys vetulus</i>	English sole	1
<i>Phanerodon furcatus</i>	white surfperch	159
<i>Platichthys stellatus</i>	starry flounder	4
<i>Platyrrhinoidis triseriata</i>	thornback	1
<i>Pleuronichthys coenosus</i>	C O turbot	1
<i>Porichthys myriaster</i>	specklefin midshipman	3
<i>P. notatus</i>	plainfin midshipman	1
<i>Prionace glauca</i>	blue shark	88
<i>Psettichthys melanostictus</i>	sand sole	1
<i>Rhacochilus toxotes</i>	rubberlip surfperch	39
<i>Rhinobatos productus</i>	shovelnose guitarfish	17
<i>Roccus saxatilis</i>	striped bass	6
<i>Roncador stearnsii</i>	spotfin croaker	51
<i>Sarda chiliensis</i>	Pacific bonito	1,134
<i>Scomber japonicus</i>	Pacific mackerel	798
<i>Scorpaena guttata</i>	sculpin	456
<i>Scorpaenichthys marmoratus</i>	cabezon	108
<i>Sebastes atrovirens</i>	kelp rockfish	243
<i>S. auriculatus</i>	brown rockfish	301
<i>S. aurora</i>	aurora rockfish	2
<i>S. carnatus</i>	gopher rockfish	72
<i>S. caurinus</i>	copper rockfish	584
<i>S. chlorostictus</i>	greenspotted rockfish	627
<i>S. chrysomelas</i>	black & yellow rockfish	22
<i>S. constellatus</i>	starry rockfish	254
<i>S. dallii</i>	calico rockfish	26
<i>S. elongatus</i>	greenstriped rockfish	265
<i>S. ensifer</i>	swordspine rockfish	7
<i>S. entomelas</i>	widow rockfish	77
<i>S. eos</i>	pink rockfish	6
<i>S. flavidus</i>	yellowtail rockfish	62
<i>S. gilli</i>	bronzespotted rockfish	2
<i>S. goodei</i>	chilipepper	364
<i>S. helvomaculatus</i>	rosethorn rockfish	1
<i>S. hopkinsi</i>	squarespot rockfish	20
<i>S. juvenile</i>	juvenile rockfish	2
<i>S. levis</i>	cowcod	38
<i>S. macdonaldi</i>	mexican rockfish	7
<i>S. melanops</i>	black rockfish	21
<i>S. miniatus</i>	vermillion rockfish	757
<i>S. mystinus</i>	blue rockfish	503
<i>S. ovalis</i>	speckled rockfish	7
<i>S. paucispinis</i>	bocaccio	1,916
<i>S. pinniger</i>	canary rockfish	45
<i>S. rastrelliger</i>	grass rockfish	213

TABLE 1-cont.

Scientific name	Common name	No. sampled
<i>Sebastes rosaceus</i>	rosy rockfish	381
<i>S. rosenblatti</i>	greenblotched rockfish	294
<i>S. ruberrimus</i>	yelloweye rockfish	8
<i>S. rubrivinctus</i>	flag rockfish	164
<i>S. rufus</i>	bank rockfish	1
<i>S. semicinctus</i>	halfbanded rockfish	15
<i>S. serranoides</i>	olive rockfish	1,093
<i>S. serriceps</i>	treefish	37
<i>S. umbrosus</i>	honeycomb rockfish	143
<i>S. zacentrus</i>	sharpchin rockfish	3
<i>Semicossyphus pulcher</i>	California sheephead	189
<i>Seriola dorsalis</i>	Yellowtail	2
<i>Seriphus politus</i>	queenfish	91
<i>Sphyraena argentea</i>	California barracuda	32
<i>Squalus acanthias</i>	spiny dogfish	60
<i>Strongylura exilis</i>	California needlefish	2
<i>Synodus lucioceps</i>	California lizardfish	96
<i>Thunnus alalunga</i>	albacore	66
<i>Trachurus symmetricus</i>	jack mackerel	26
<i>Triakis semifasciata</i>	leopard shark	1
<i>Umbrina roncadore</i>	yellowfin croaker	23
<i>Sebastes</i> spp.	unidentified filleted rockfish	596
----	unidentified filleted fish	51

Molluscs and Crustaceans

<i>Cancer antennarius</i>	rock crab	82
<i>Clinocardium nuttali</i>	basket cockle	150
<i>Cypraea spadicea</i>	chestnut cowry	18
<i>Haliotis corrugata</i>	pink abalone	133
<i>H. cracherodii</i>	black abalone	56
<i>H. fulgens</i>	green abalone	187
<i>H. rufescens</i>	red abalone	419
<i>H. sorenseni</i>	white abalone	17
<i>Hinnites multirugosus</i>	rock scallop	403
<i>Octopus bimaculatus</i>	twospot octopus	6
<i>Panulirus interruptus</i>	California spiny lobster	532
<i>Pugettia gracilis</i>	graceful kelp crab	2
<i>Tivela stultorum</i>	pismo clam	30
<i>Brachyura</i>	unclassified spider crab	2

TABLE 2. Most Commonly Landed Species During October Through December 1975.

Scientific name	Common name	No. sampled
<u>Fishes</u>		
<i>Geryonemus lineatus</i>	white croaker	6,012
<i>Sebastes paucispinis</i>	bocaccio	1,916
<i>Paralabrax nebulifer</i>	barred sand bass	1,183
<i>Sarda chiliensis</i>	Pacific bonito	1,134
<i>Sebastes serranoides</i>	olive rockfish	1,093
<i>Scomber japonicus</i>	Pacific mackerel	798
<i>Sebastes miniatus</i>	vermilion rockfish	757
<i>Anoplopoma fimbria</i>	sablefish	657
<i>Sebastes chlorostictus</i>	greenspotted rockfish	627
<i>S. caurinus</i>	copper rockfish	584
<i>Embiotoca jacksoni</i>	black surfperch	524
<i>Sebastes mystinus</i>	blue rockfish	503
<i>Scorpaena guttata</i>	sculpin	456
<i>Paralabrax clathratus</i>	kelp bass	393
<i>Sebastes rosaceus</i>	rosy rockfish	381
<i>S. goodei</i>	chilipepper	364
<i>Caulolatilus princeps</i>	ocean whitefish	302
<i>Sebastes auriculatus</i>	brown rockfish	301
<i>S. rosenblatti</i>	greenblotched rockfish	294
<i>S. elongatus</i>	greenstriped rockfish	265
<i>S. constellatus</i>	starry rockfish	254
<i>Paralabrax maculatofasciatus</i>	spotted sand bass	245
<i>Sebastes atrovirens</i>	kelp rockfish	243
<i>S. rastrelliger</i>	grass rockfish	213
<i>Citharichthys sordidus</i>	Pacific sanddab	201
<i>Paralichthys californicus</i>	California halibut	198
<i>Semicossyphus pulcher</i>	California sheephead	189
<i>Ophiodon elongatus</i>	lingcod	173
<i>Medialuna californiensis</i>	halfmoon	172
<i>Sebastes rubrivinctus</i>	flag rockfish	164
<i>Phanerodon furcatus</i>	white surfperch	159
<i>Sebastes umbrosus</i>	honeycomb rockfish	143
<i>Atherinopsis californiensis</i>	jacksmelt	125
<i>Hyperprosopon argenteum</i>	walleye surfperch	110
<i>Scorpaenichthys marmoratus</i>	cabezon	108
<u>Molluscs and Crustaceans</u>		
<i>Parulirus interruptus</i>	California spiny lobster	532
<i>Haliotis rufescens</i>	red abalone	419
<i>Hinnites multirugosus</i>	rock scallop	403
<i>Haliotis fulgens</i>	green abalone	187
<i>Clinocardium nuttalli</i>	basket cockle	150
<i>Haliotis corrugata</i>	pink abalone	133

TABLE 3. Ten Most Commonly Landed Species in Each County, October Through December 1975.

County	Rank	Scientific name	Common name
Santa Barbara	1.	<i>Sebastes serranoides</i>	olive rockfish
	2.	<i>S. caurinus</i>	copper rockfish
	3.	<i>Haliotis rufescens</i>	red abalone
	4.	<i>Clinocardium nuttali</i>	basket cockle
	5.	<i>Panulirus interruptus</i>	California spiny lobster
	6.	<i>Sebastes miniatus</i>	vermilion rockfish
	7.	<i>S. paucispinis</i>	bocaccio
	8.	<i>S. mystinus</i>	blue rockfish
	9.	<i>S. atrovirens</i>	kelp rockfish
	10.	<i>Genyonemus lineatus</i>	white croaker
Ventura	1.	<i>Genyonemus lineatus</i>	white croaker
	2.	<i>Sebastes caurinus</i>	copper rockfish
	3.	<i>S. rosaceus</i>	rosy rockfish
	4.	<i>Panulirus interruptus</i>	California spiny lobster
	5.	<i>Sebastes paucispinis</i>	bocaccio
	6.	<i>S. mystinus</i>	blue rockfish
	7.	<i>S. chlorostictus</i>	greenspotted rockfish
	8.	<i>S. constellatus</i>	starry rockfish
	9.	<i>Hinnites multirugosus</i>	rock scallop
	10.	<i>Sebastes miniatus</i>	vermilion
Los Angeles	1.	<i>Genyonemus lineatus</i>	white croaker
	2.	<i>Sebastes paucispinis</i>	bocaccio
	3.	<i>S. serranoides</i>	olive rockfish
	4.	<i>Sarda chiliensis</i>	Pacific bonito
	5.	<i>Scomber japonicus</i>	Pacific mackerel
	6.	<i>Anoplopoma fimbria</i>	sablefish
	7.	<i>Sebastes miniatus</i>	vermilion rockfish
	8.	<i>Embiotoca jacksoni</i>	black surfperch
	9.	<i>Scorpaena guttata</i>	sculpin
	10.	<i>Sebastes chlorostictus</i>	greenspotted rockfish
Orange	1.	<i>Genyonemus lineatus</i>	white croaker
	2.	<i>Embiotoca jacksoni</i>	black croaker
	3.	<i>Paralabrax clathratus</i>	kelp bass
	4.	<i>Hinnites multirugosus</i>	rock scallop
	5.	<i>Sebastes goodei</i>	chilipepper
	6.	<i>Anoplopoma fimbria</i>	sablefish
	7.	<i>Phanerodon furcatus</i>	white surfperch
	8.	<i>Sebastes paucispinis</i>	bocaccio
	9.	<i>Atherinopsis californiensis</i>	jack smelt
	10.	<i>Scomber japonicus</i>	Pacific mackerel
San Diego	1.	<i>Paralabrax nebulifer</i>	barred sand bass
	2.	<i>Genyonemus lineatus</i>	white croaker
	3.	<i>Sarda chiliensis</i>	Pacific bonito
	4.	<i>Haliotis rufescens</i>	red abalone
	5.	<i>Sebastes serranoides</i>	olive rockfish
	6.	<i>Scomber japonicus</i>	Pacific mackerel
	7.	<i>Paralabrax maculatofasciatus</i>	spotted sand bass
	8.	<i>Sebastes chlorostictus</i>	greenspotted rockfish
	9.	<i>S. paucispinis</i>	bocaccio
	10.	<i>Haliotis fulgens</i>	green abalone

TABLE 4. Occurrence of Sublegal Fishes in Examined Catches.

Scientific name	Common name	No. examined	% legal
	<u>Fishes</u>		
<i>Atractoscion nobilis</i>	white seabass	27	7.4*
<i>Paralabrax clathratus</i>	kelp bass	288	73.3
<i>P. maculatofasciatus</i>	spotted sand bass	115	64.4
<i>P. nebulifer</i>	barred sand bass	679	84.7
<i>Paralichthys californicus</i>	California halibut	108	63.0
	<u>Molluscs</u>		
<i>Haliotis corrugata</i>	pink abalone	107	92.5
<i>H. cracherodii</i>	black abalone	45	100.0
<i>H. fulgens</i>	green abalone	90	95.6
<i>H. rufescens</i>	red abalone	286	87.8
<i>Panulirus interruptus</i>	California spiny lobster	347	97.1

\* The 1976-77 California Sport Fishing Regulations allowed one sublegal size white seabass to be kept by an angler; therefore, these short fish are not illegal, but they are under the minimum size limit.

TABLE 5. Catch and Effort Estimates for Anglers and Divers, October Through December 1975

	Santa Barbara- Ventura Counties	Los Angeles County	Orange County	San Diego County	Total
<b>Angler Parties</b>					
weekend	1,593	4,451	3,251	3,296	12,591
weekday	<u>1,363</u>	<u>2,771</u>	<u>1,161</u>	<u>2,528</u>	<u>7,823</u>
total	2,956	7,222	4,412	5,824	20,414
<b>Diver Parties</b>					
weekend	329	175	209	348	1,061
weekday	<u>290</u>	<u>133</u>	<u>77</u>	<u>163</u>	<u>663</u>
total	619	308	286	511	1,724
<b>Angler Days</b>					
weekend	4,224	12,321	8,499	8,798	33,842
weekday	<u>3,116</u>	<u>6,440</u>	<u>2,699</u>	<u>6,102</u>	<u>18,357</u>
total	7,340	18,761	11,198	14,900	52,199
<b>Diver Days</b>					
weekend	881	414	480	948	2,723
weekday	<u>787</u>	<u>283</u>	<u>169</u>	<u>383</u>	<u>1,622</u>
total	1,668	697	649	1,331	4,345
<b>Angler-Trip-Hours</b>					
weekend	24,475	75,557	54,529	59,026	213,587
weekday	<u>17,168</u>	<u>42,290</u>	<u>16,534</u>	<u>39,312</u>	<u>115,304</u>
total	41,643	117,847	71,063	98,338	328,891
<b>Diver-Trip-Hours</b>					
weekend	6,361	2,050	2,114	4,004	14,529
weekday	<u>5,151</u>	<u>1,168</u>	<u>872</u>	<u>1,450</u>	<u>8,641</u>
total	11,512	3,218	2,986	5,454	23,170
<b>Total Fishes Landed</b>					
weekend	22,606	50,594	16,569	21,931	111,700
weekday	<u>15,314</u>	<u>33,269</u>	<u>7,601</u>	<u>11,214</u>	<u>67,398</u>
total	37,920	83,863	24,170	33,145	179,098
<b>No. Rockfishes Landed</b>					
weekend	12,225	19,646	3,204	6,553	41,628
weekday	<u>8,847</u>	<u>14,165</u>	<u>1,021</u>	<u>2,622</u>	<u>26,655</u>
total	21,072	33,811	4,225	9,175	68,283
<b><i>Anoplopoma fimbria</i></b> (sablefish)					
	144	2,955	719	311	4,129

TABLE 5-cont.

	Santa Barbara- Ventura Counties	Los Angeles County	Orange County	San Diego County	Total
<i>Atractoscion nobilis</i> (white seabass)	0	70	134	86	290
<i>Caulolatilus princeps</i> (ocean whitefish)	216	1,494	142	527	2,379
<i>Citharichthys sordidus</i> (Pacific sanddab)	485	861	39	55	1,440
<i>Embiotoca jacksoni</i> (black surfperch)	87	3,660	1,425	62	5,234
<i>Genyonemus lineatus</i> (white croaker)	3,760	20,333	8,395	5,255	37,743
<i>Girella nigricans</i> (opaleye)	51	255	92	111	509
<i>Haliotis corrugata</i> (pink abalone)	643	53	86	281	1,063
<i>H. cracherodii</i> (black abalone)	91	0	313	67	471
<i>H. fulgens</i> (green abalone)	48	122	267	746	1,183
<i>H. rufescens</i> (red abalone)	1,064	0	20	1,771	2,855
<i>Himmites multirugosus</i> (rock scallop)	1,222	433	879	236	2,770
<i>Medialuna californiensis</i> (halfmoon)	0	1,420	22	24	1,466
<i>Oncorhynchus tshawytscha</i> (king salmon)	5	0	6	0	11
<i>Ophiodon elongatus</i> (lingcod)	643	227	49	87	1,006
<i>Panulirus interruptus</i> (Calif. spiny lobster)	3,685	1,010	7	405	5,107
<i>Paralabrax clathratus</i> (kelp bass)	825	2,074	373	561	3,833
<i>P. maculatofasciatus</i> (spotted sand bass)	0	66	619	1,033	1,718

TABLE 5-cont.

	Santa Barbara- Ventura Counties	Los Angeles County	Orange County	San Diego County	Total
<i>P. nebulifer</i> (barred sand bass)	209	1,066	1,181	5,378	7,774
<i>Paralichthys californicus</i> (California halibut)	33	1,044	150	582	1,809
<i>Sarda chiliensis</i> (Pacific bonito)	115	3,367	533	2,544	6,559
<i>Scomber japonicus</i> (Pacific mackerel)	0	4,174	483	1,020	5,677
<i>Scorpaena guttata</i> (sculpin)	75	4,179	232	558	5,044
<i>Sebastes atrovirens</i> (kelp rockfish)	1,461	370	6	360	2,197
<i>S. auriculatus</i> (brown rockfish)	914	2,364	34	121	3,433
<i>S. caurinus</i> (copper rockfish)	3,332	1,274	33	168	4,807
<i>S. chlorostictus</i> (greenspotted rockfish)	928	1,467	186	838	3,419
<i>S. goodei</i> (chilipepper)	257	688	869	514	2,328
<i>S. miniatus</i> (vermilion rockfish)	1,876	2,676	307	783	5,642
<i>S. mystinus</i> (blue rockfish)	1,837	1,568	72	169	3,646
<i>S. paucispinis</i> (bocaccio)	2,043	7,515	493	882	10,933
<i>S. serranoides</i> (olive rockfish)	1,350	5,042	438	1,092	7,922
<i>S. rastrelliger</i> (grass rockfish)	741	808	100	58	1,707
<i>Semicossyphus pulcher</i> (California sheephead)	465	69	195	394	1,123
<i>Sphyraena argentea</i> (California barracuda)	0	35	27	147	209
<i>Trachurus symmetricus</i> (jack mackerel)	28	329	0	62	419



TABLE 6. Standard Error of the Estimates

	Santa Barbara- Ventura Counties	Los Angeles County	Orange County	San Diego County	Total
Angler Parties	375	496	549	596	1,023
Diver Parties	148	72	60	84	194
Angler Days	974	1,511	1,493	1,541	2,799
Diver Days	399	161	141	216	502
Angler-Trip-Hours	5,935	8,897	9,569	10,441	17,747
Diver-Trip-Hours	2,751	762	696	856	3,060
Total Fishes Landed	5,196	10,276	3,419	3,600	12,540
No. Rockfishes Landed	3,208	6,867	984	1,460	7,781
barred sand bass	118	231	247	1,125	1,181
black abalone	59	0	229	31	239
black surfperch	42	1,060	400	26	1,134
blue rockfish	413	48	48	57	422
bocaccio	485	1,796	134	244	1,881
brown rockfish	317	433	19	30	538
California barracuda	0	21	26	37	50
California halibut	17	442	42	138	465
California sheephead	202	21	69	134	253
California spiny lobster	1,516	416	6	148	1,579
chilipepper	92	251	369	200	498
copper rockfish	725	797	20	56	1,079
grass rockfish	234	163	55	25	292
green abalone	20	63	88	224	250
greenspotted rockfish	261	455	59	189	561
halfmoon	0	406	20	18	407
jack mackerel	19	272	0	25	274
kelp bass	168	1,274	98	117	1,294
kelp rockfish	877	134	6	120	895
king salmon	4	0	6	0	7
lingcod	118	57	19	29	136
ocean whitefish	71	481	57	191	525
olive rockfish	416	1,118	126	275	1,231
opaleye	32	80	32	42	101
Pacific bonito	70	1,069	205	624	1,257
Pacific mackerel	0	1,324	210	728	1,525
Pacific sanddab	140	422	21	27	446
pink abalone	246	36	40	91	268
red abalone	488	0	14	566	747
rock scallop	543	240	342	84	690
sablefish	79	934	316	99	994
sculpin	32	1,437	66	104	1,443
spotted sand bass	0	26	145	264	302
vermilion rockfish	540	479	101	230	764
white croaker	1,054	2,928	1,823	859	3,707
white seabass	0	27	65	34	78

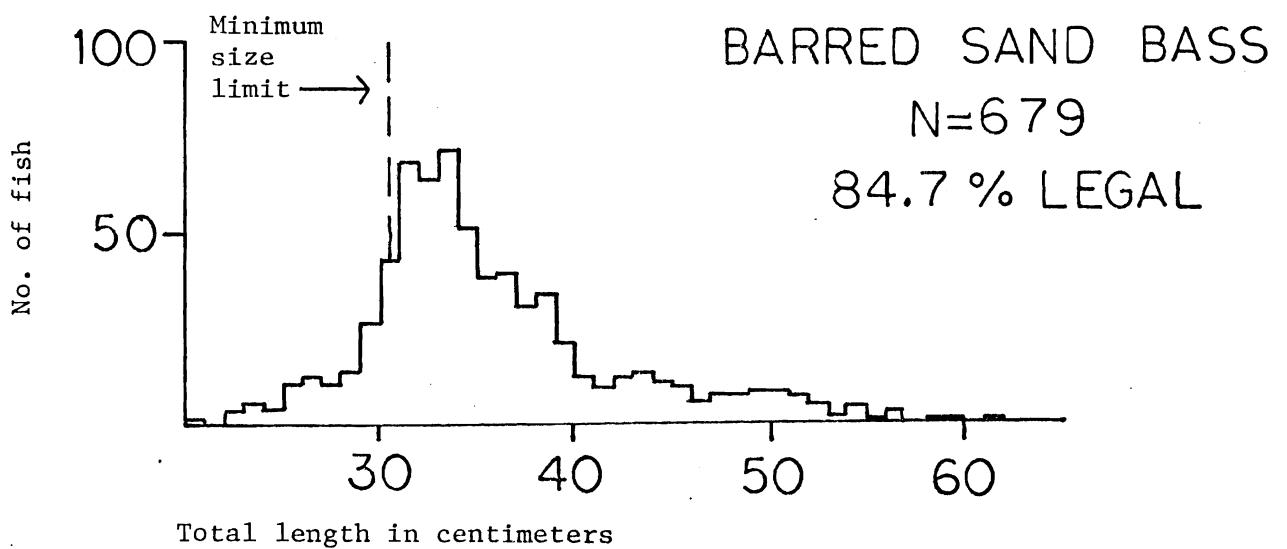
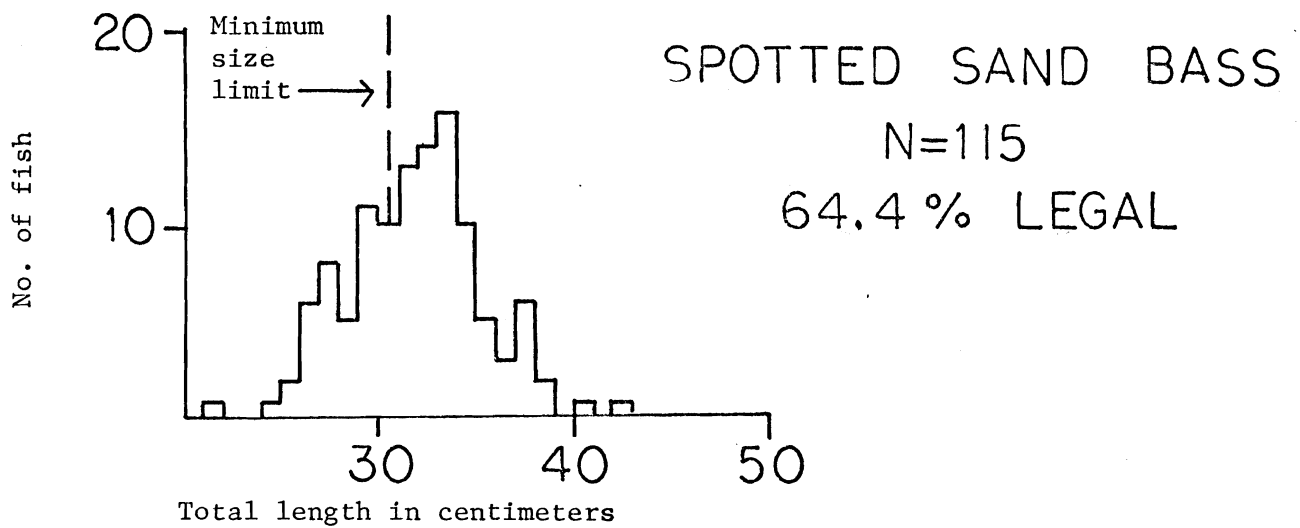
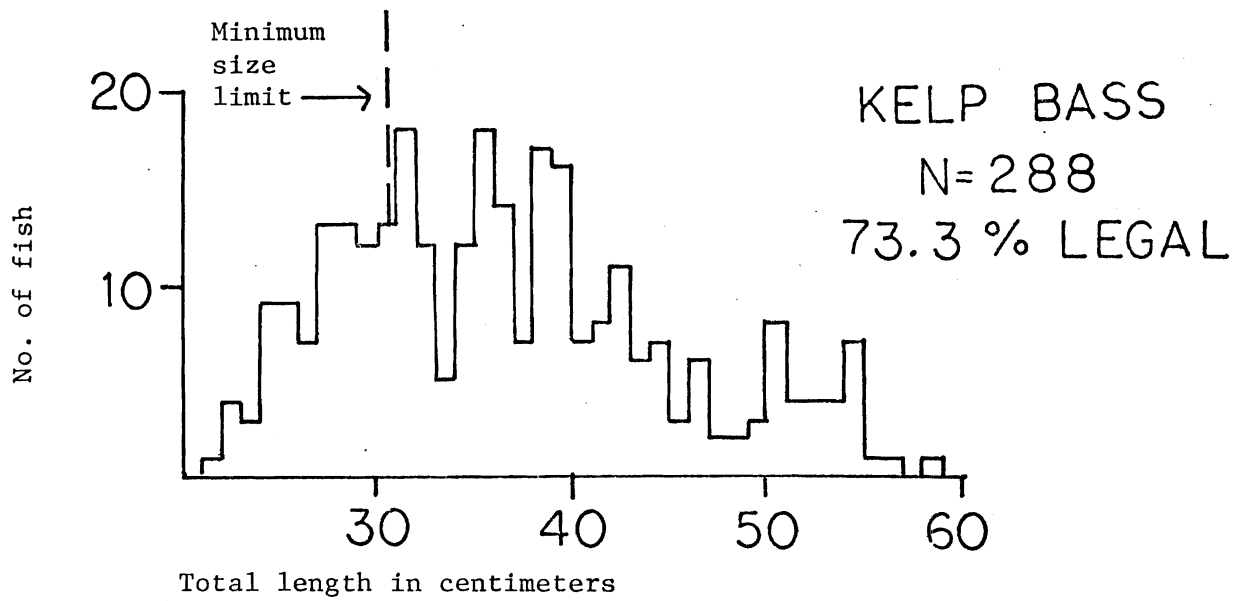


FIGURE 1. Length frequencies of kelp bass, spotted and sand bass, and barred sand bass.

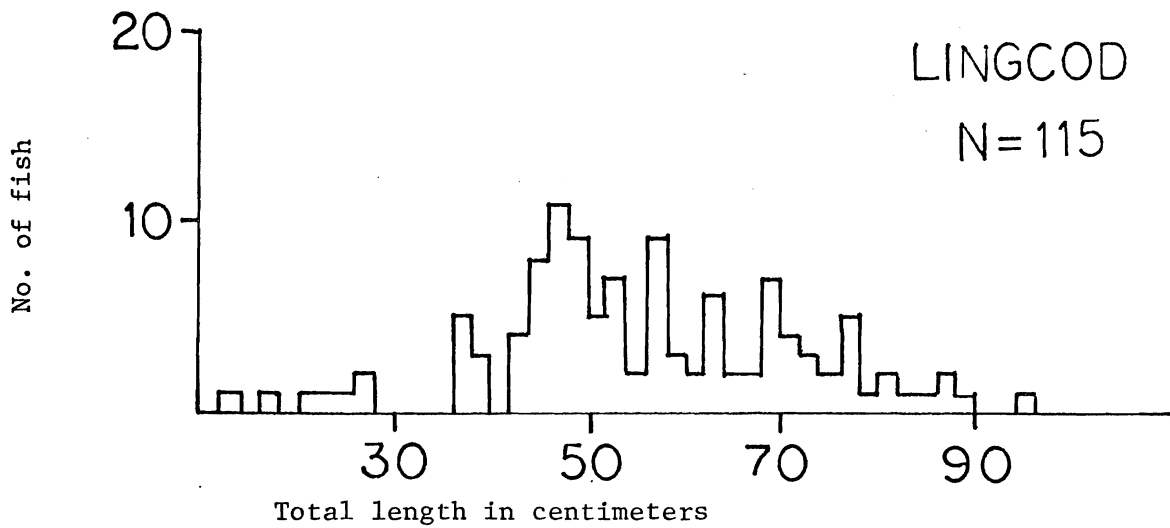
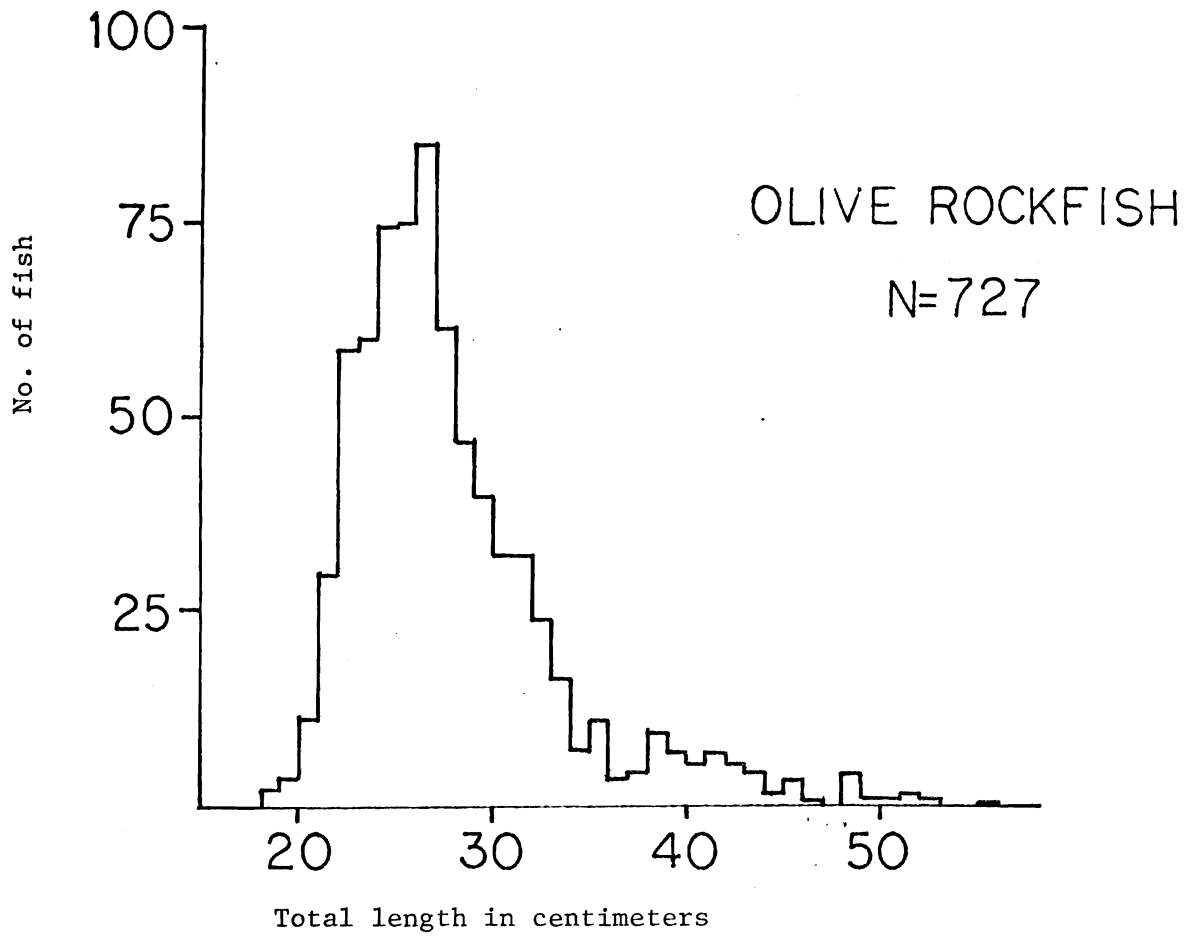


FIGURE 2. Length frequencies of olive rockfish and lingcod.

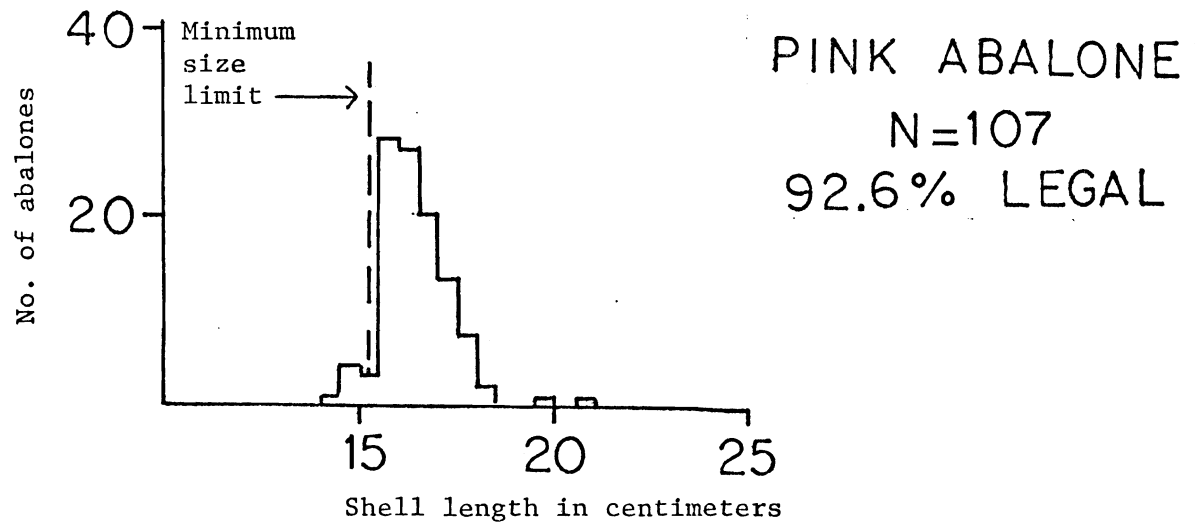
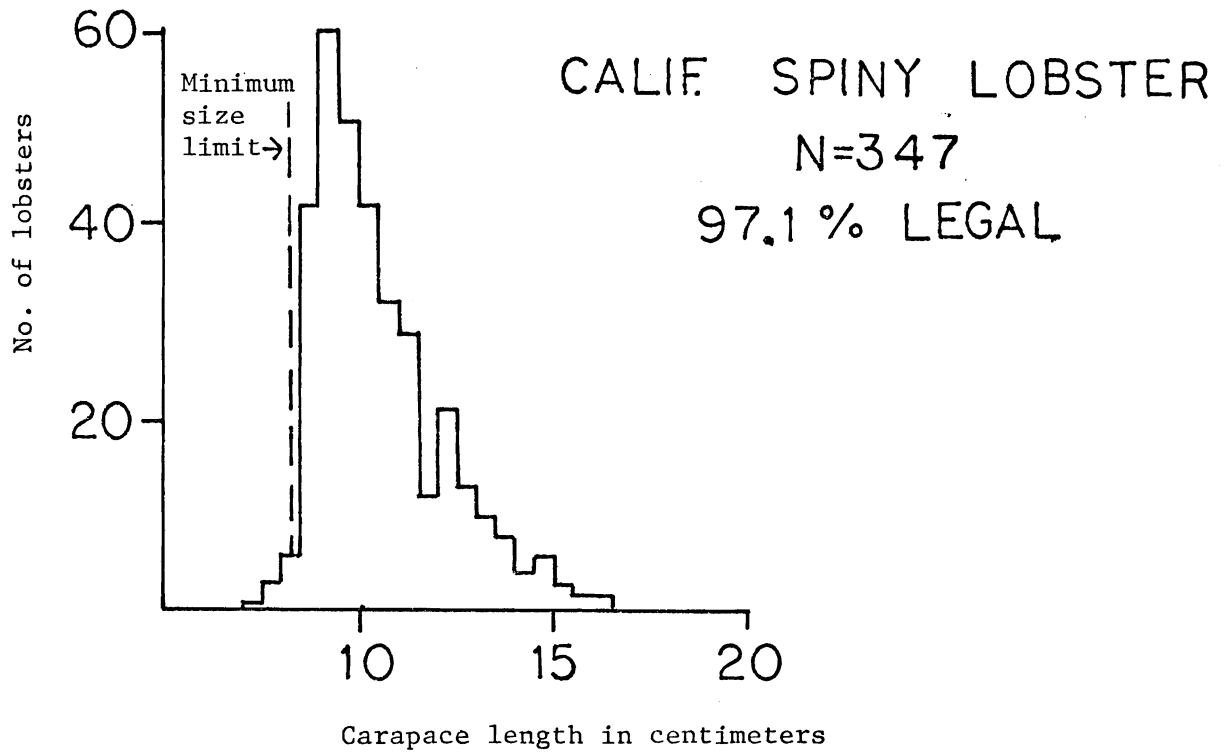
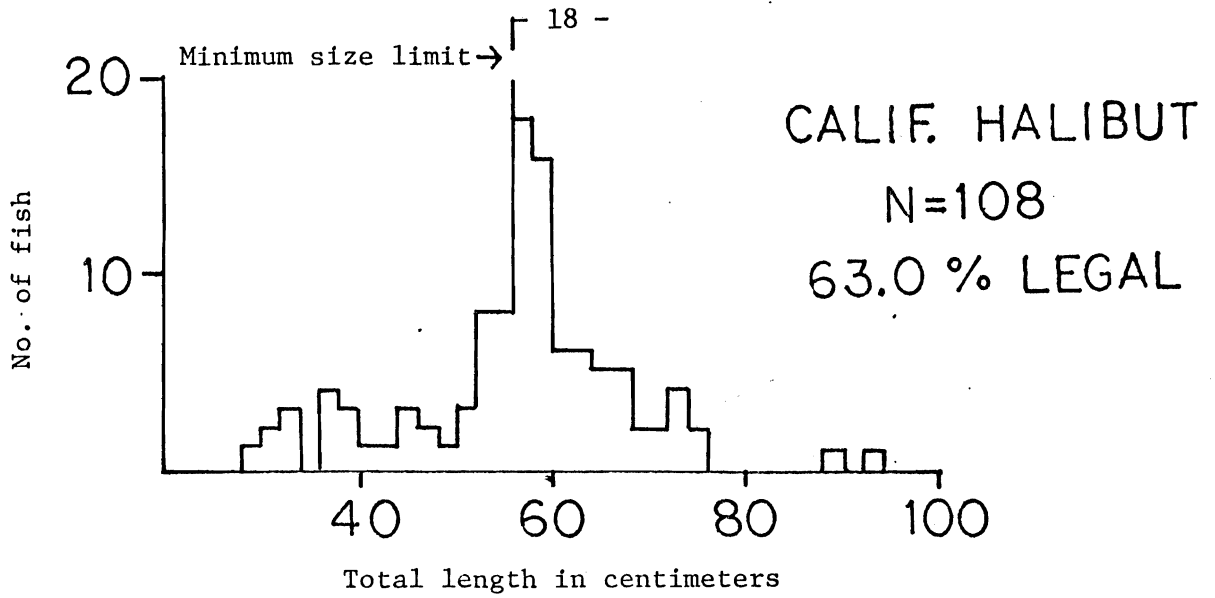


FIGURE 3. Length frequencies of California halibut, California spiny lobster, and pink abalone.

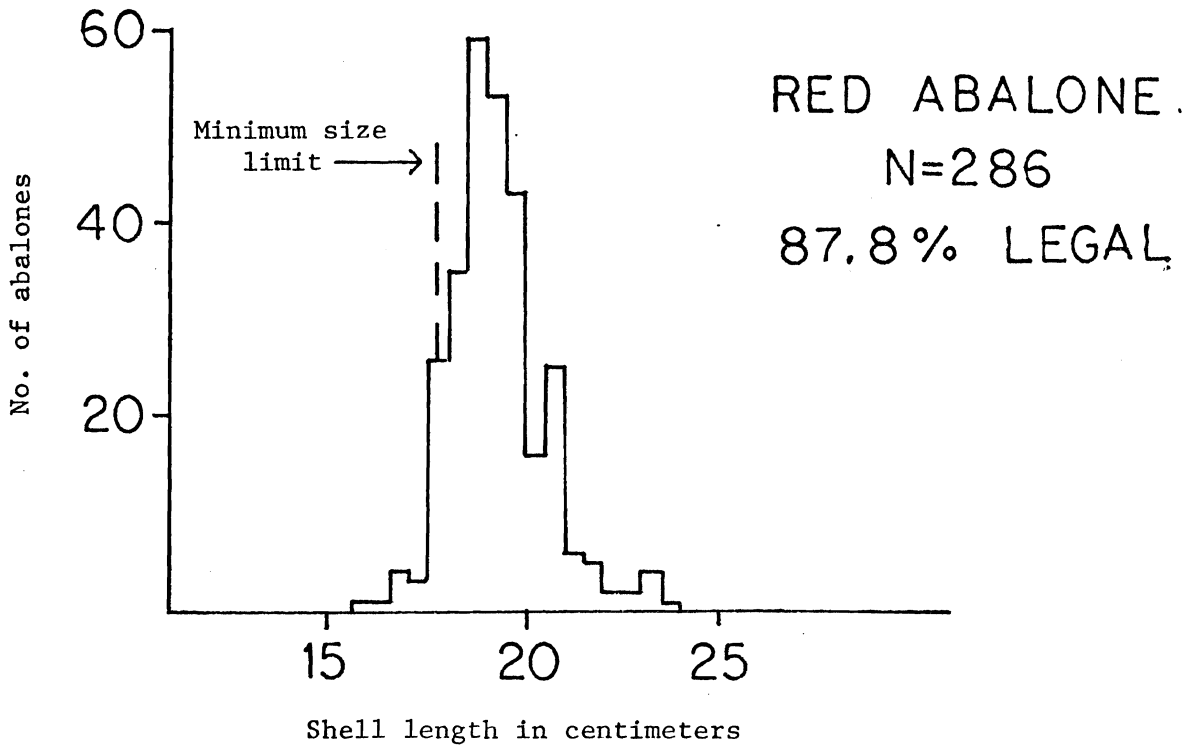


FIGURE 4. Length frequency of red abalone.