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SOUTHERN CALIFORNIA INDEPENDENT SPORT FISHING SURVEY  
QUARTERLY REPORT FOR APRIL-JUNE, 1976

by

Vickie L. Wine

MARINE RESOURCES

Administrative Report No. 79-10

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SOUTHERN CALIFORNIA INDEPENDENT SPORT FISHING SURVEY<sup>1/</sup>  
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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 102,000 anglers and 3,700 divers landed 275,000 fishes, molluscs, and crustaceans. The major components of the catch were 1) white croaker, *Genyonemus lineatus*, 85,000 landed; 2) bass, *Paralabrax* spp., 48,000 landed; and 3) Pacific bonito, *Sarda chiliensis*, 42,000 landed.

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1/ Marine Resources Region, Administrative Report No. 79-10, April 1979.

2/ Marine Resources Region, California State Fisheries Laboratory, 350 Golden Shore, Long Beach, California 90802.

## SOUTHERN CALIFORNIA INDEPENDENT SPORT FISHING SURVEY

QUARTERLY REPORT FROM APRIL-JUNE, 1976

### 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 last 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 April 1 - June 30, 1976 quarter, 17 launch ramps, 4 boat hoists, and 4 boat rental locations were sampled a total of 256 times. Samplers interviewed 17,024 anglers and 700 divers who expended 116,528 angler-trip-hours<sup>3/</sup> and 3,754 diver-trip-hours<sup>3/</sup>. These fishermen landed 43,281 fishes and other organisms of 150 identified species, and 537 filleted fishes whose species could not be determined (Table 1).

### Effort

As water temperatures rose during the late spring months and surface fishes began to appear in substantial numbers off San Diego, angling effort increased steadily. Trolling for salmon, *Oncorhynchus* spp., attracted many anglers to the Santa Barbara area. Diving effort increased when water temperatures rose and lack of storm activity allowed turbidity levels to decrease.

### Catch

Anglers switched from fishing for deep-water rockfish, *Sebastes* spp., to fishing for surface fishes. Four of the favored game fishes, Pacific bonito, *Sarda chiliensis*; kelp bass, *Paralabrax clathratus*; barred sand bass, *P. nebulifer*; and California barracuda, *Sphyraena argentea*, accounted for 31% of the identified catch, while 41 species of rockfish contributed only 18%. Samplers identified 150 species of

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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.

fishes, molluscs, and crustaceans, of which 41 species composed 93% of the identified catch (Table 2).

The ten most commonly landed species were 1) white croaker, *Genyonemus lineatus*, 28%; 2) Pacific bonito, 14%; 3) kelp bass, 8%; 4) barred sand bass, 7%; 5) bocaccio, *Sebastes paucispinis*, 2%; 6) olive rockfish, *S. serranoides*, 2%; 7) California barracuda, 2%; 8) copper rockfish, *S. caurinus*, 2%; 9) black surfperch, *Embiotoca jacksoni*, 2%; and 10) vermilion rockfish, *S. miniatus*, 2%.

Santa Barbara County anglers landed good catches of surface fishes: king salmon, *Oncorhynchus tshawytscha*; kelp bass; and Pacific bonito composed nearly 25% of the identified catch. Surprisingly, even a few California barracuda were landed in this area. Rockfishes contributed 40% of the total catch. Divers landed good catches of red abalone, *Haliotis rufescens*, and rock scallop, *Hinnites multirugosus*.

In Ventura County rockfishes contributed 44% of the catch, and white croaker contributed 25%. Kelp bass and Pacific sanddab, *Citharichthys sordidus*, were common in the examined catches. Divers landed mostly pink abalone, *Haliotis corrugata*, and rock scallop (Table 3).

White croaker was the most commonly landed fish in Los Angeles County and accounted for a remarkable 43% of the catch. Landings of favored game fishes in this area occurred regularly: 25% of the catch was comprised of Pacific bonito; bass, *Paralabrax* spp.; California halibut, *Paralichthys californicus*; and California barracuda. Diving activity in this area was low but good catches of rock scallop were taken.

Orange County anglers were very pleased with their catches of favored game species. Very good catches of bass, Pacific bonito, and California barracuda were taken (56% of the total catch). Most divers

landed rock scallop.

Nearly 50% of the San Diego County catch was composed of bass and Pacific bonito. White croaker was the third most commonly taken fish in the area, contributing only 15% of the catch. Divers landed substantial numbers of red abalone and rock scallop.

#### Length Frequencies

Anglers paid close attention to the minimum size regulations on four species of fish but ignored the regulations on three other species (Table 4, Figures 1-5). Over 95% of all king salmon and 86% of all bass measured were legal size, but only 54% of the California halibut and 69% of the California barracuda measured were legal. The 1976-77 California Sport Fishing Regulations placed a 28-inch (71-cm) size limit on white seabass, *Atractoscion nobilis*, but allowed each angler to possess one "short" fish per day. Consequently, less than 4% of the white seabass landed were larger than the minimum size.

For the most part, divers paid close attention to the size limit regulations. About 90% of all abalone, *Haliotis* spp., measured were legal size.

#### ESTIMATES

An estimated 102,000 angler-days and 3,700 diver-days were spent fishing in southern California marine waters during April through June 1976 (Tables 5 and 6). An estimated 275,000 fishes and other organisms were landed.

Surface fishes were prevalent in the catch. Approximately 30% of the estimated catch was composed of white croaker (8,500 landed). Over 65% of these fish were landed in Los Angeles County. The three bass species contributed 17% of the catch (48,000 landed) and Pacific

bonito accounted for 15% of the catch (42,000 landed). An estimated 6,500 California barracuda and 3,700 California halibut were landed. Divers landed approximately 5,600 abalones and 3,000 rock scallop.

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, April Through June 1976.

Scientific name	Common name	No. sampled
<u>Fishes</u>		
<i>Alopias vulpinus</i>	thresher shark	7
<i>Amphistichus argenteus</i>	barred surfperch	53
<i>A. koelzi</i>	calico surfperch	2
<i>Anisotremus davidsonii</i>	sargo	44
<i>Anoplopoma fimbria</i>	sablefish	251
<i>Atherinops affinis</i>	topsmelt	16
<i>Atherinopsis californiensis</i>	jacksmelt	64
<i>Atractoscion nobilis</i>	white seabass	88
<i>Caulolatilus princeps</i>	ocean whitefish	529
<i>Cephaloscyllium ventriosum</i>	swell shark	2
<i>Cheilotrema saturnum</i>	black croaker	74
<i>Chromis punctipinnis</i>	blacksmith	20
<i>Citharichthys sordidus</i>	Pacific sanddab	397
<i>C. stigmatæus</i>	speckled sanddab	2
<i>C. xanthostigma</i>	longfin sanddab	9
<i>Cymatogaster aggregata</i>	shiner surfperch	13
<i>Damalichthys vacca</i>	pile surfperch	74
<i>Dasyatis dypterura</i>	diamond stingray	1
<i>Decapterus hypodus</i>	mexican scad	6
<i>Embiotoca jacksoni</i>	black surfperch	795
<i>E. lateralis</i>	striped surfperch	23
<i>Eopsetta jordani</i>	petrale sole	45
<i>Galeorhinus zyopterus</i>	soupin shark	4
<i>Genyonemus lineatus</i>	white croaker	12,105
<i>Girella nigricans</i>	opaleye	147
<i>Glyptocephalus zachirus</i>	rex sole	4
<i>Halichoeres semicinctus</i>	rock wrasse	7
<i>Heterostichus rostratus</i>	giant kelpfish	56
<i>Hexagrammos decagrammus</i>	kelp greenling	1
<i>Hippoglossina stomata</i>	bigmouth sole	12
<i>Hydrolagus colliei</i>	ratfish	7
<i>Hyperprosopon argenteum</i>	walleye surfperch	97
<i>H. ellipticum</i>	silver surfperch	3
<i>Hypsopsetta guttulata</i>	diamond turbot	45
<i>Hypsurus caryi</i>	rainbow surfperch	37
<i>Hypsypops rubicundus</i>	garibaldi	2
<i>Isurus oxyrinchus</i>	bonito shark	1
<i>Lepidopsetta bilineata</i>	rock sole	2
<i>Leptocottus armatus</i>	staghorn sculpin	2
<i>Medialuna californiensis</i>	halfmoon	339
<i>Menticirrhus undulatus</i>	California corbina	4
<i>Merluccius productus</i>	Pacific hake	13
<i>Mola mola</i>	common mola	1
<i>Mustelus californicus</i>	gray smoothhound	35
<i>M. henlei</i>	brown smoothhound	13
<i>Myliobatis californica</i>	bat ray	15
<i>Neoclinus blanchardi</i>	sarcastic fringehead	2
<i>N. uninotatus</i>	onespot fringehead	4



Scientific name	Common name	No. sampled
<i>Oncorhynchus kisutch</i>	silver salmon	3
<i>O. tshawytscha</i>	king salmon	268
<i>Ophiodon elongatus</i>	lingcod	199
<i>Oxyjulis californica</i>	senorita	15
<i>Paralabrax clathratus</i>	kelp bass	3,377
<i>P. maculatofasciatus</i>	spotted sand bass	714
<i>P. nebulifer</i>	barred sand bass	2,873
<i>Paralichthys californicus</i>	California halibut	578
<i>Parophrys vetulus</i>	English sole	2
<i>Peprilus simillimus</i>	Pacific butterfish	1
<i>Phanerodon furcatus</i>	white surfperch	172
<i>Platichthys stellatus</i>	starry flounder	1
<i>Platyrrhinoidis triseriata</i>	thornback	4
<i>Pleuronichthys coenosus</i>	C O turbot	2
<i>P. ritteri</i>	spotted turbot	5
<i>P. verticalis</i>	hornyhead turbot	1
<i>Porichthys myriaster</i>	specklefin midshipman	3
<i>P. notatus</i>	plainfin midshipman	3
<i>Prionace glauca</i>	blue shark	123
<i>Psettichthys melanostictus</i>	sand sole	1
<i>Rhacochilus toxotes</i>	rubberlip surfperch	97
<i>Rhinobatos productus</i>	shovelnose guitarfish	20
<i>Roccus saxatilis</i>	striped bass	2
<i>Roncador stearnsii</i>	spotfin croaker	33
<i>Sarda chiliensis</i>	Pacific bonito	6,010
<i>Scomber japonicus</i>	Pacific mackerel	441
<i>Scorpaena guttata</i>	sculpin	522
<i>Scorpaenichthys marmoratus</i>	cabezon	222
<i>Sebastes atrovirens</i>	kelp rockfish	273
<i>S. auriculatus</i>	brown rockfish	499
<i>S. aurora</i>	aurora rockfish	2
<i>S. carnatus</i>	gopher rockfish	60
<i>S. caurinus</i>	copper rockfish	930
<i>S. chlorostictus</i>	greenspotted rockfish	497
<i>S. chrysomelas</i>	black & yellow rockfish	59
<i>S. constellatus</i>	starry rockfish	246
<i>S. dallii</i>	calico rockfish	97
<i>S. diploproa</i>	splitnose rockfish	1
<i>S. elongatus</i>	greenstriped rockfish	180
<i>S. ensifer</i>	swordspine rockfish	41
<i>S. entomelas</i>	widow rockfish	93
<i>S. eos</i>	pink rockfish	184
<i>S. flavidus</i>	yellowtail rockfish	79
<i>S. gilli</i>	bronzespotted rockfish	6
<i>S. goodei</i>	chilipepper	319
<i>S. helvomaculatus</i>	rosethorn rockfish	1
<i>S. hopkinsi</i>	squarespot rockfish	42
<i>S. juvenile</i>	juvenile rockfish	1
<i>S. lentiginosus</i>	freckled rockfish	1
<i>S. levis</i>	cowcod	39
<i>S. macdonaldi</i>	mexican rockfish	24
<i>S. maliger</i>	quillback rockfish	1
<i>S. melanops</i>	black rockfish	3
<i>S. melanostomus</i>	blackgill rockfish	5

Scientific name	Common name	No. sampled
<i>Sebastes miniatus</i>	vermilion rockfish	735
<i>S. mystinus</i>	blue rockfish	258
<i>S. ovalis</i>	speckled rockfish	9
<i>S. paucispinis</i>	bocaccio	1,011
<i>S. phillipsi</i>	chameleon rockfish	2
<i>S. pinniger</i>	canary rockfish	16
<i>S. rastrelliger</i>	grass rockfish	396
<i>S. rosaceus</i>	rosy rockfish	152
<i>S. rosenblatti</i>	greenblotched rockfish	187
<i>S. ruberrimus</i>	yelloweye rockfish	3
<i>S. rubrivinctus</i>	flag rockfish	140
<i>S. rufus</i>	bank rockfish	43
<i>S. semicinctus</i>	halfbanded rockfish	4
<i>S. serranoides</i>	olive rockfish	931
<i>S. serriceps</i>	treefish	87
<i>S. umbrosus</i>	honeycomb rockfish	214
<i>Sebastolobus alascanus</i>	shortspine thornyhead	3
<i>Semicossyphus pulcher</i>	California sheephead	315
<i>Seriola loralis</i>	yellowtail	74
<i>Seriphus politus</i>	queenfish	406
<i>Sphyræna argentea</i>	California barracuda	930
<i>Squalus acanthias</i>	spiny dogfish	84
<i>Squatina californica</i>	angel shark	2
<i>Stereolepis gigas</i>	giant seabass	8
<i>Strongylura exilis</i>	California needlefish	4
<i>Synodus lucioceps</i>	California lizardfish	172
<i>Thunnus alalunga</i>	albacore	24
<i>Trachurus symmetricus</i>	jack mackerel	147
<i>Triakis semifasciata</i>	leopard shark	1
<i>Umbrina roncadore</i>	yellowfin croaker	20
<i>Urolophus halleri</i>	round stingray	3
<i>Xystreurys liolepis</i>	fantail sole	7
<i>Zaniolepis frenata</i>	shortspine combfish	1
<i>Sebastes</i> spp.	unidentified filleted rockfish	492
----	unidentified filleted fish	45

#### Molluscs and Crustaceans

<i>Cancer antennarius</i>	rock crab	141
<i>C. anthonyi</i>	yellow crab	4
<i>C. productus</i>	red crab	14
<i>Cypraea spadicea</i>	chestnut cowry	32
<i>Haliotis corrugata</i>	pink abalone	287
<i>H. cracherodii</i>	black abalone	70
<i>H. fulgens</i>	green abalone	202
<i>H. rufescens</i>	red abalone	580
<i>H. sorenseni</i>	white abalone	11
<i>Hinnites multirugosus</i>	rock scallop	660
<i>Loxorhynchus grandis</i>	sheep crab	4
<i>Octopus bimaculatus</i>	twospot octopus	2
<i>Panulirus interruptus</i>	California spiny lobster	4
<i>Tivela stultorum</i>	pismo clam	27
<i>Brachyura</i>	unclassified spider crab	7

TABLE 2. Most Commonly Landed Species During April Through June 1976.

Scientific name	Common name	No. sampled
<u>Fishes</u>		
<i>Genyonemus lineatus</i>	white croaker	12,105
<i>Sarda chiliensis</i>	Pacific bonito	6,010
<i>Paralabrax clathratus</i>	kelp bass	3,377
<i>P. nebulifer</i>	barred sand bass	2,873
<i>Sebastes paucispinis</i>	bocaccio	1,011
<i>S. serranoides</i>	olive rockfish	931
<i>Sphyraena argentea</i>	California barracuda	930
<i>Sebastes caurinus</i>	copper rockfish	930
<i>Embiotoca jacksoni</i>	black surfperch	795
<i>Sebastes miniatus</i>	vermilion rockfish	735
<i>Paralabrax maculatofasciatus</i>	spotted sand bass	714
<i>Paralichthys californicus</i>	California halibut	578
<i>Caulolatilus princeps</i>	ocean whitefish	529
<i>Scorpaena guttata</i>	sculpin	522
<i>Sebastes auriculatus</i>	brown rockfish	499
<i>S. chlorostictus</i>	greenspotted rockfish	497
<i>Scomber japonicus</i>	Pacific mackerel	441
<i>Seriophilus politus</i>	queenfish	406
<i>Citharichthys sordidus</i>	Pacific sanddab	397
<i>Sebastes rastrelliger</i>	grass rockfish	396
<i>Medialma californiensis</i>	halfmoon	339
<i>Sebastes goodei</i>	chilipepper	319
<i>Semicossyphus pulcher</i>	California sheephead	315
<i>Sebastes atrovirens</i>	kelp rockfish	273
<i>Oncorhynchus tshawytscha</i>	king salmon	268
<i>Sebastes mystinus</i>	blue rockfish	258
<i>Anoplopoma fimbria</i>	sablefish	251
<i>Sebastes constellatus</i>	starry rockfish	246
<i>Scorpaenichthys marmoratus</i>	cabezon	222
<i>Sebastes umbrosus</i>	honeycomb rockfish	214
<i>Ophiodon elongatus</i>	lingcod	199
<i>Sebastes rosenblatti</i>	greenblotched rockfish	187
<i>S. eos</i>	pink rockfish	184
<i>S. elongatus</i>	greenstriped rockfish	180
<i>Phanerodon furcatus</i>	white surfperch	172
<i>Synodus lucioceps</i>	California lizardfish	172
<i>Sebastes rosaceus</i>	rosy rockfish	152
<u>Molluscs and Crustaceans</u>		
<i>Hinnites multirugosus</i>	rock scallop	660
<i>Haliotis rufescens</i>	red abalone	580
<i>H. corrugata</i>	pink abalone	287
<i>H. fulgens</i>	green abalone	202

TABLE 3. Ten Most Commonly Landed Species in Each County, April Through June 1976.

County	Rank	Scientific name	Common name
Santa Barbara	1.	<i>Genyonemus lineatus</i>	white croaker
	2.	<i>Paralabrax clathratus</i>	kelp bass
	3.	<i>Sebastes caurinus</i>	copper rockfish
	4.	<i>Oncorhynchus tshawytscha</i>	king salmon
	5.	<i>Haliotis rufescens</i>	red abalone
	6.	<i>Sarda chiliensis</i>	Pacific bonito
	7.	<i>Sebastes paucispinis</i>	bocaccio
	8.	<i>S. atrovirens</i>	kelp rockfish
	9.	<i>S. rastrelliger</i>	grass rockfish
	10.	<i>S. serranoides</i>	olive rockfish
Ventura	1.	<i>Genyonemus lineatus</i>	white croaker
	2.	<i>Sebastes caurinus</i>	copper rockfish
	3.	<i>S. paucispinis</i>	bocaccio
	4.	<i>Paralabrax clathratus</i>	kelp bass
	5.	<i>Sebastes serranoides</i>	olive rockfish
	6.	<i>Haliotis corrugata</i>	pink abalone
	7.	<i>Sebastes miniatus</i>	vermilion rockfish
	8.	<i>Hinnites multirugosus</i>	rock scallop
	9.	<i>Sebastes chlorostictus</i>	greenspotted rockfish
	10.	<i>Citharichthys sordidus</i>	Pacific sanddab
Los Angeles	1.	<i>Genyonemus lineatus</i>	white croaker
	2.	<i>Sarda chiliensis</i>	Pacific bonito
	3.	<i>Paralabrax clathratus</i>	kelp bass
	4.	<i>Embiotoca jacksoni</i>	black surfperch
	5.	<i>Paralabrax nebulifer</i>	barred sand bass
	6.	<i>Sebastes paucispinis</i>	bocaccio
	7.	<i>S. serranoides</i>	olive rockfish
	8.	<i>S. miniatus</i>	vermilion rockfish
	9.	<i>Caulolatilus princeps</i>	ocean whitefish
	10.	<i>Paralichthys californicus</i>	California halibut
Orange	1.	<i>Sarda chiliensis</i>	Pacific bonito
	2.	<i>Genyonemus lineatus</i>	white croaker
	3.	<i>Paralabrax clathratus</i>	kelp bass
	4.	<i>Sphyræna argentea</i>	California barracuda
	5.	<i>Paralabrax nebulifer</i>	barred sand bass
	6.	<i>P. maculatofasciatus</i>	spotted sand bass
	7.	<i>Seriphus politus</i>	queenfish
	8.	<i>Sebastes paucispinis</i>	chilipepper
	9.	<i>Scomber japonicus</i>	Pacific mackerel
	10.	<i>Embiotoca jacksoni</i>	black surfperch
San Diego	1.	<i>Sarda chiliensis</i>	Pacific bonito
	2.	<i>Paralabrax nebulifer</i>	barred sand bass
	3.	<i>Genyonemus lineatus</i>	white croaker
	4.	<i>Paralabrax clathratus</i>	kelp bass
	5.	<i>P. maculatofasciatus</i>	spotted sand bass
	6.	<i>Haliotis rufescens</i>	red abalone
	7.	<i>Scomber japonicus</i>	Pacific mackerel
	8.	<i>Sebastes serranoides</i>	olive rockfish
	9.	<i>Caulolatilus princeps</i>	ocean whitefish
	10.	<i>Hinnites multirugosus</i>	rock scallop

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	80	3.8*
<i>Oncorhynchus tshawytscha</i>	king salmon	267	95.5
<i>Paralabrax clathratus</i>	kelp bass	2,892	86.3
<i>P. maculatofasciatus</i>	spotted sand bass	715	79.9
<i>P. nebulifer</i>	barred sand bass	2,459	87.6
<i>Paralichthys californicus</i>	Calif. halibut	529	54.1
<i>Sphyræna argentea</i>	Calif. barracuda	803	68.6
<u>Molluscs</u>			
<i>Haliotis corrugata</i>	pink abalone	280	85.0
<i>H. cracherodii</i>	black abalone	66	100.0
<i>H. fulgens</i>	green abalone	236	96.2
<i>H. rufescens</i>	red abalone	577	88.0

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

TABLE 5. Catch and Effort Estimates for Anglers and Divers, April Through June 1976.

	Santa Barbara Ventura Counties	Los Angeles County	Orange County	San Diego County	Total
<b>Angler Parties</b>					
weekend	3,120	7,734	7,548	6,074	24,476
weekday	<u>2,470</u>	<u>4,999</u>	<u>2,303</u>	<u>4,859</u>	<u>14,631</u>
total	5,590	12,733	9,851	10,933	39,107
<b>Diver Parties</b>					
weekend	285	160	249	373	1,067
weekday	<u>29</u>	<u>62</u>	<u>32</u>	<u>172</u>	<u>295</u>
total	314	222	281	545	1,362
<b>Angler Days</b>					
weekend	8,126	21,911	20,216	16,613	66,866
weekday	<u>5,587</u>	<u>12,591</u>	<u>5,391</u>	<u>11,579</u>	<u>35,148</u>
total	13,713	34,502	25,607	28,192	102,014
<b>Diver Days</b>					
weekend	805	357	680	1,045	2,887
weekday	<u>71</u>	<u>157</u>	<u>86</u>	<u>466</u>	<u>780</u>
total	876	514	766	1,511	3,667
<b>Angler-Trip-Hours</b>					
weekend	56,496	138,000	137,904	126,966	459,366
weekday	<u>36,505</u>	<u>80,351</u>	<u>33,749</u>	<u>92,381</u>	<u>242,986</u>
total	93,001	218,351	171,653	219,347	702,352
<b>Diver-Trip-Hours</b>					
weekend	5,455	2,346	3,994	3,781	15,576
weekday	<u>357</u>	<u>834</u>	<u>260</u>	<u>1,505</u>	<u>2,956</u>
total	5,812	3,180	4,254	5,286	18,532
<b>Total Fishes Landed</b>					
weekend	26,223	56,705	34,737	41,486	159,151
weekday	<u>13,129</u>	<u>56,765</u>	<u>11,516</u>	<u>34,685</u>	<u>116,095</u>
total	39,352	113,470	46,253	76,171	275,246
<b>No. Rockfishes Landed</b>					
weekend	11,454	10,783	4,103	5,866	32,206
weekday	<u>5,449</u>	<u>3,482</u>	<u>627</u>	<u>2,982</u>	<u>12,540</u>
total	16,903	14,265	4,730	8,848	44,746

	Santa Barbara Ventura Counties	Los Angeles County	Orange County	San Diego County	Total
<i>Anoplopoma fimbria</i> (sablefish)	197	514	141	255	1,107
<i>Atractoscion nobilis</i> (white seabass)	8	80	330	170	588
<i>Caulolatilus princeps</i> (ocean whitefish)	186	1,109	119	1,058	2,472
<i>Citharichthys sordidus</i> (Pacific sanddab)	760	879	141	528	2,308
<i>Embiotoca jacksoni</i> (black surfperch)	86	2,746	789	441	4,062
<i>Genyonemus lineatus</i> (white croaker)	8,257	54,751	7,318	14,519	84,845
<i>Girella nigricans</i> (opaleye)	42	217	75	347	681
<i>Haliotis corrugata</i> (pink abalone)	886	32	135	168	1,221
<i>H. cracherodii</i> (black abalone)	149	139	0	0	288
<i>H. fulgens</i> (green abalone)	0	113	360	721	1,194
<i>H. rufescens</i> (red abalone)	800	34	0	2,109	2,943
<i>Hinnites multirugosus</i> (rock scallop)	911	716	557	850	3,034
<i>Medialuna californiensis</i> (halfmoon)	4	802	49	1,100	1,955
<i>Oncorhynchus tshawytscha</i> (king salmon)	1,764	0	0	0	1,764
<i>Ophiodon elongatus</i> (lingcod)	604	61	27	204	896
<i>Panulirus interruptus</i> (Calif. spiny lobster)	0	8	7	17	32
<i>Paralabrax clathratus</i> (kelp bass)	2,966	5,099	6,738	6,246	21,049
<i>P. maculatofasciatus</i> (spotted sand bass)	0	227	1,463	4,142	5,832

	Santa Barbara Ventura Counties	Los Angeles County	Orange County	San Diego County	Total
<i>Paralabrax nebulifer</i> (spotted sand bass)	34	2,875	4,547	13,481	20,937
<i>Paralichthys californicus</i> (Calif. halibut)	550	1,741	517	886	3,694
<i>Sarda chiliensis</i> (Pacific bonito)	1,315	20,295	8,092	12,713	42,415
<i>Scomber japonicus</i> (Pacific mackerel)	28	231	860	1,352	2,471
<i>Scorpaena guttata</i> (sculpin)	242	1,164	587	1,021	3,014
<i>Sebastes atrovirens</i> (kelp rockfish)	1,184	221	60	169	1,634
<i>S. auriculatus</i> (brown rockfish)	589	1,159	64	580	2,392
<i>S. caurinus</i> (copper rockfish)	3,792	365	7	363	4,527
<i>S. chlorostictus</i> (greenspotted rockfish)	1,105	441	61	676	2,283
<i>S. goodei</i> (chilipepper)	229	373	1,015	107	1,724
<i>S. miniatus</i> (vermillion rockfish)	1,172	1,297	245	1,112	3,826
<i>S. mytinus</i> (blue rockfish)	404	650	103	136	1,293
<i>S. paucispinis</i> (bocaccio)	2,328	2,292	434	443	5,497
<i>S. serranoides</i> (olive rockfish)	1,419	1,679	265	1,038	4,401
<i>S. rastrelliger</i> (grass rockfish)	837	688	200	333	2,058
<i>Semicossyphus pulcher</i> (Calif. sheephead)	440	140	233	800	1,613
<i>Sphyræna argentea</i> (Calif. barracuda)	46	454	5,075	961	6,536
<i>Trachurus symmetricus</i> (jack mackerel)	180	694	71	22	967



TABLE 6. Standard Error of the Estimates.

	Santa Barbara- Ventura Counties	Los Angeles County	Orange County	San Diego County	Total
Angler Parties	938	945	1,538	1,100	2,313
Diver Parties	46	50	63	71	117
Angler Days	2,160	2,561	4,071	2,845	5,991
Diver Days	138	128	179	209	333
Angler-Trip-Hours	15,554	16,781	29,205	23,419	43,874
Diver-Trip-Hours	974	823	975	743	1,769
Total Fishes Landed	4,460	16,313	8,738	9,197	21,141
No. Rockfishes Landed	3,257	1,765	870	1,027	3,941
barred sand bass	15	510	982	2,769	2,982
black abalone	61	53	0	0	81
black surfperch	26	718	212	162	766
blue rockfish	75	167	71	57	204
bocaccio	515	419	151	111	690
brown rockfish	163	218	32	117	298
California barracuda	37	99	1,861	209	1,876
California halibut	124	195	123	147	300
California sheephead	128	38	77	199	252
California spiny lobster	0	7	6	13	16
chilipepper	95	85	264	36	295
copper rockfish	579	123	6	110	602
grass rockfish	237	130	78	99	298
green abalone	0	42	151	225	274
greenspotted rockfish	244	130	36	176	330
halfmoon	3	279	24	365	460
jack mackerel	120	180	34	9	219
kelp bass	643	746	1,789	886	2,226
kelp rockfish	394	70	33	64	407
king salmon	1,094	0	0	0	1,094
lingcod	117	19	14	48	129
ocean whitefish	58	221	41	330	403
olive rockfish	409	306	86	194	553
opaleye	19	52	33	213	223
Pacific bonito	443	4,570	3,062	2,407	6,021
Pacific mackerel	17	72	476	395	623
Pacific sanddab	229	280	74	281	464
pink abalone	286	22	54	45	292
red abalone	232	23	0	380	446
rock scallop	191	235	147	253	421
sablefish	92	161	97	88	227
sculpin	103	211	177	184	347
spotted sand bass	0	45	446	805	921
vermilion rockfish	224	207	85	121	339
white croaker	1,838	15,679	1,545	3,384	16,219
white seabass	5	21	84	54	102

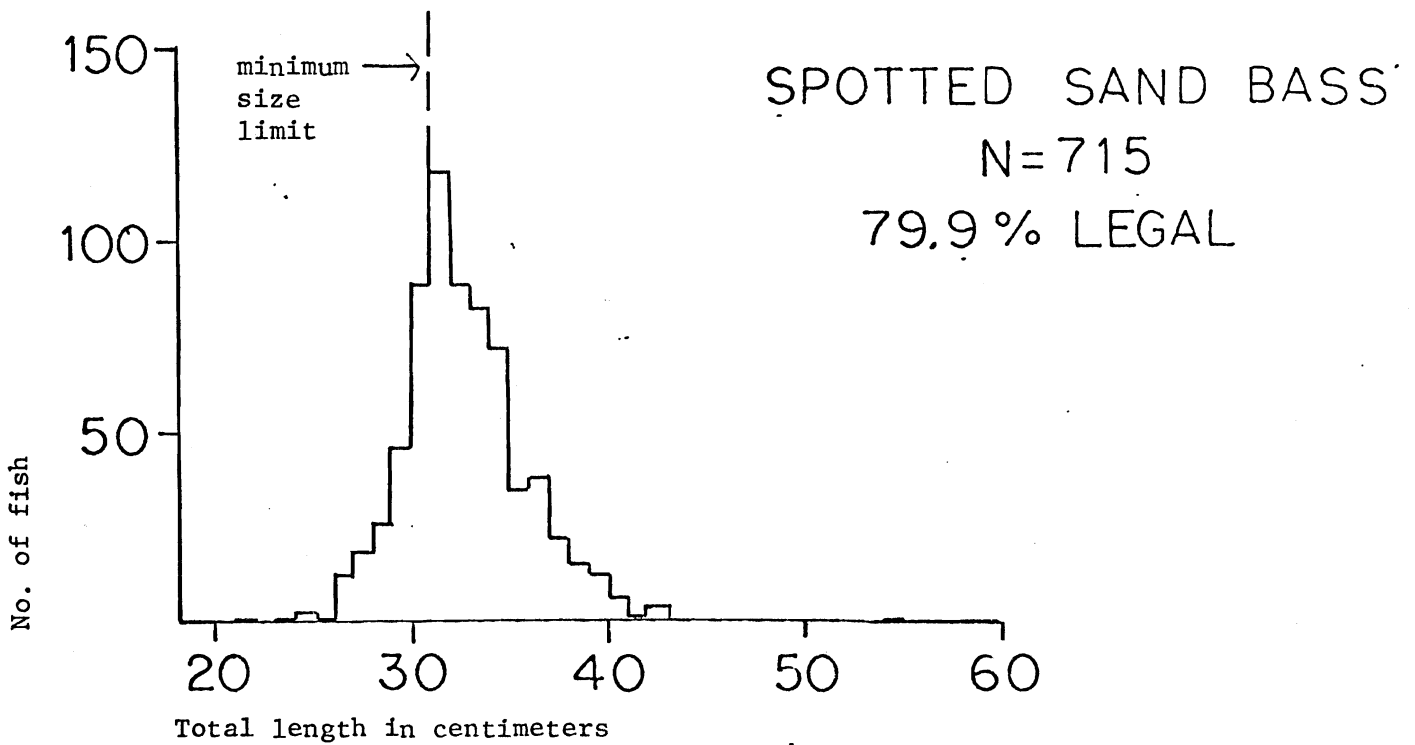
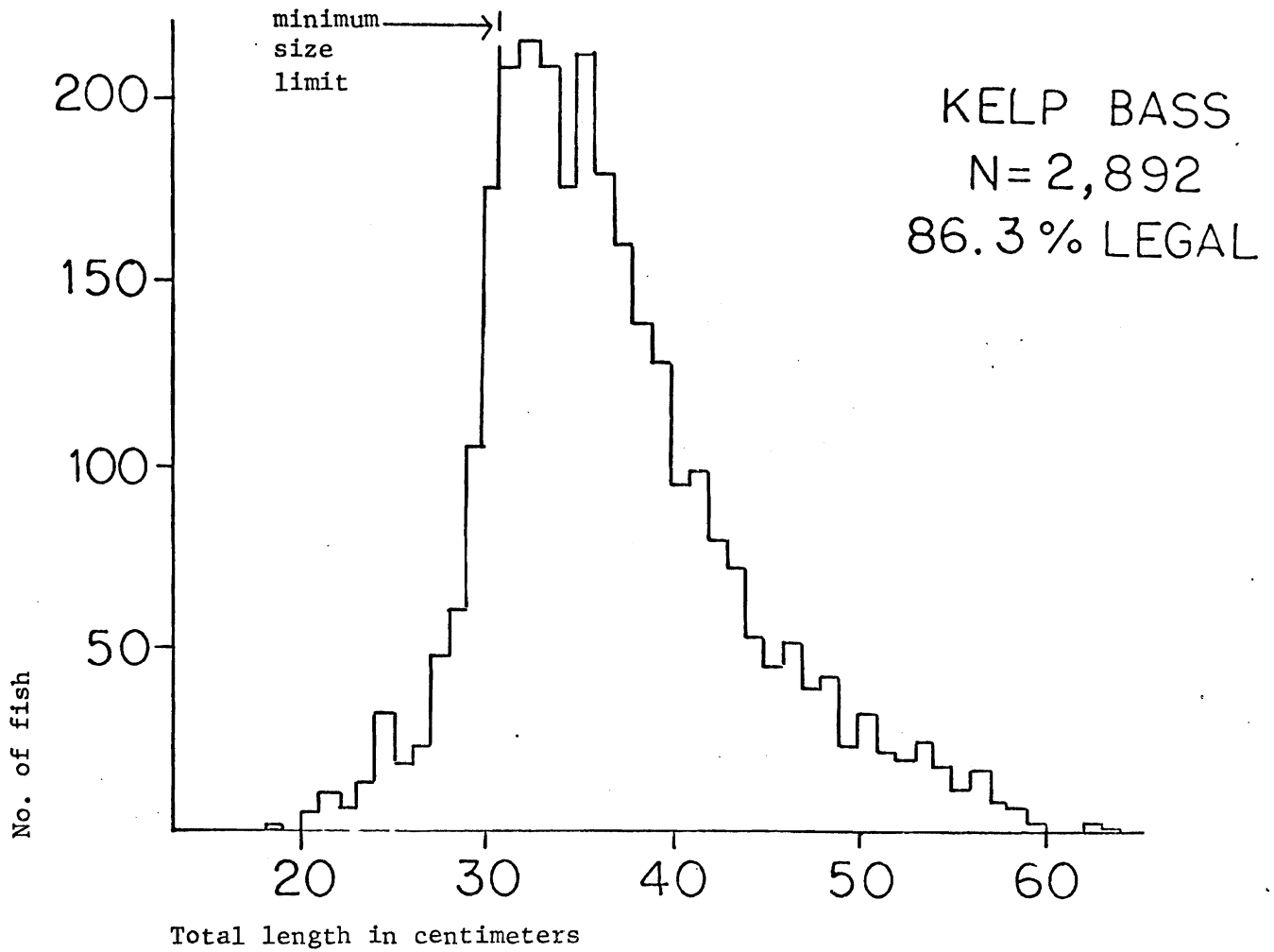


FIGURE 1. Length frequencies of kelp bass and spotted sand bass.

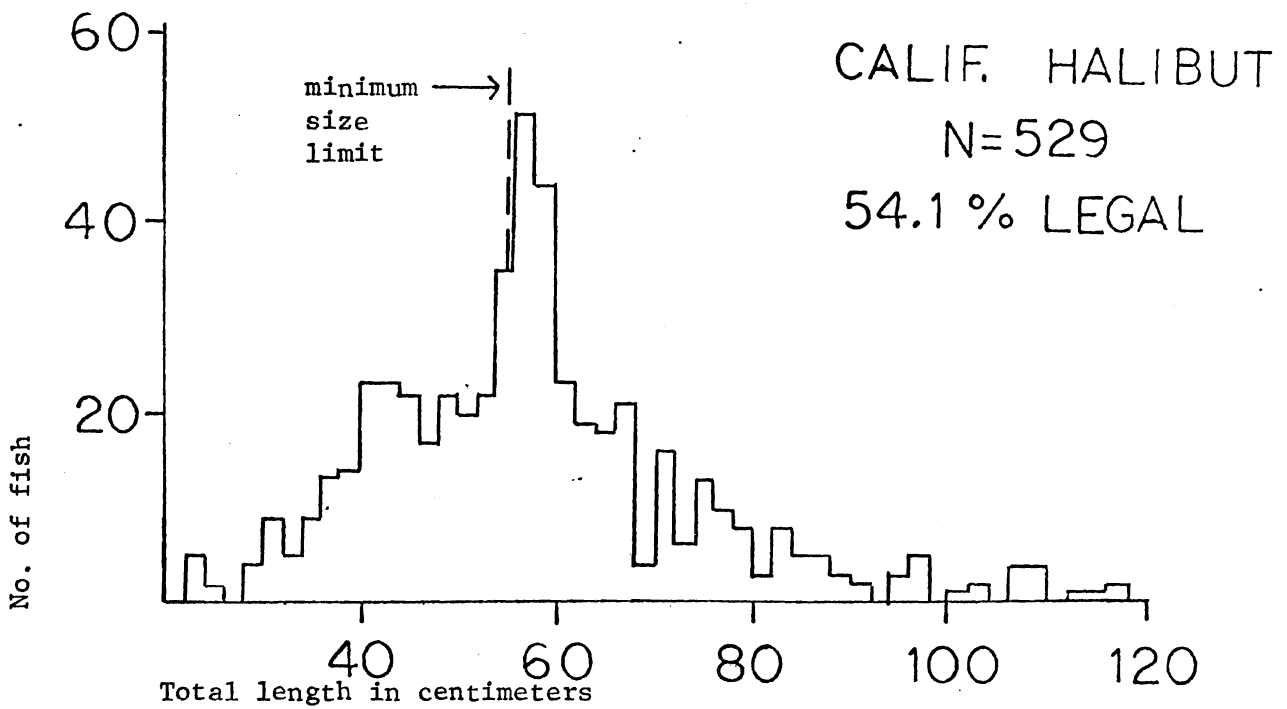
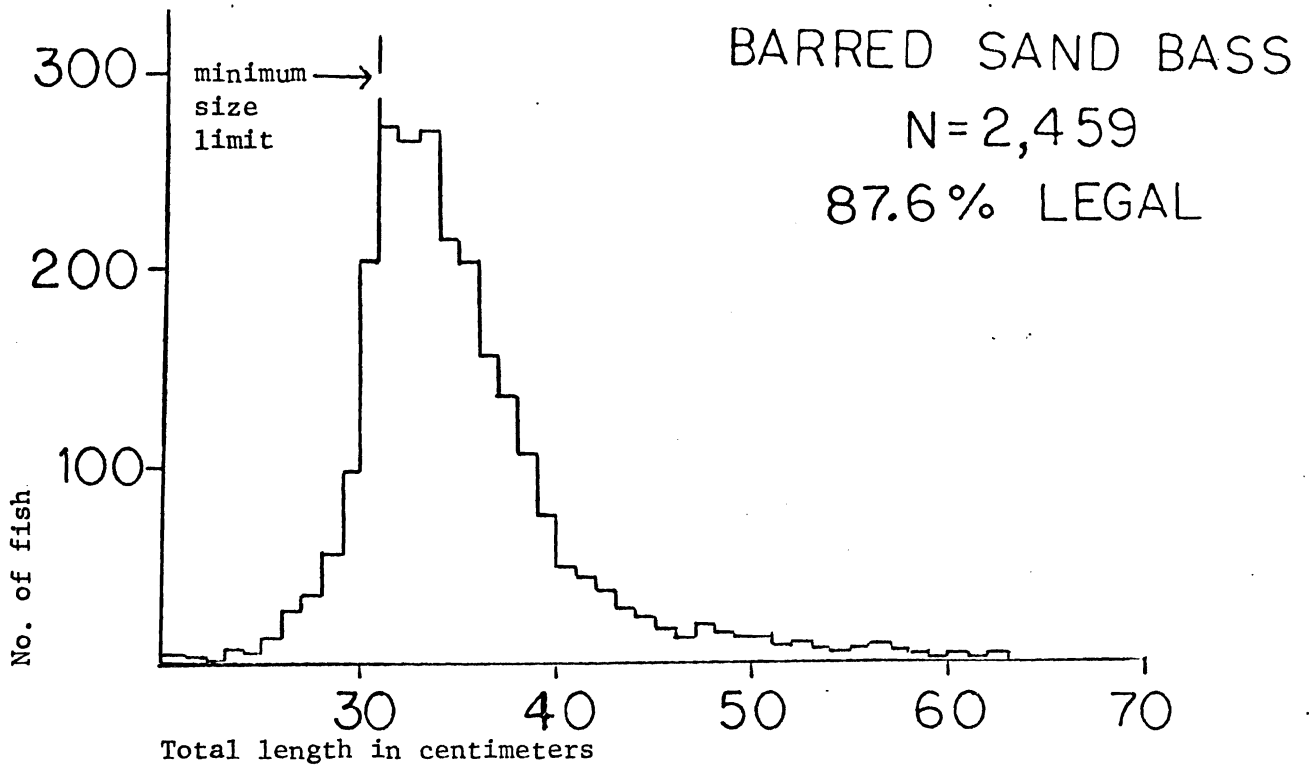


FIGURE 2. Length frequencies of barred sand bass and California halibut.

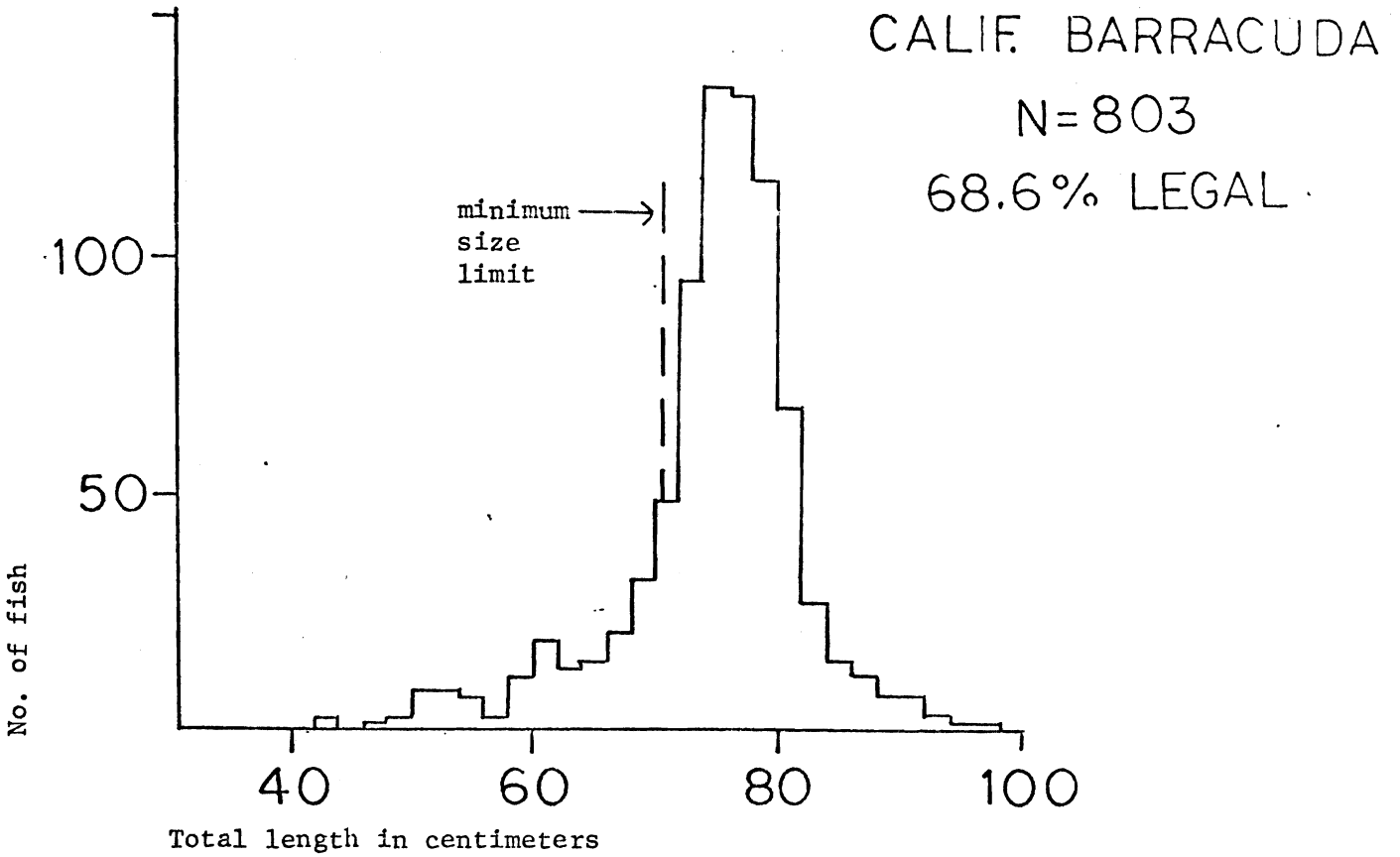
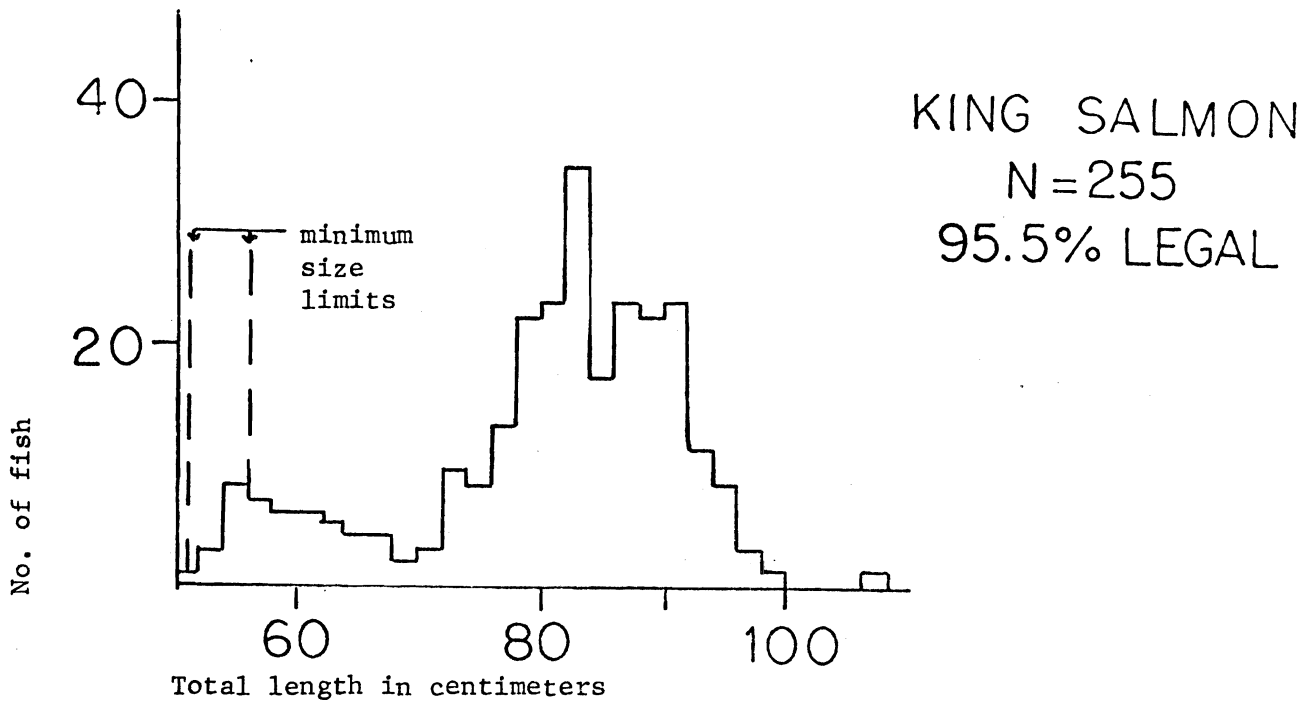


FIGURE 3. Length frequencies of king salmon and California barracuda.

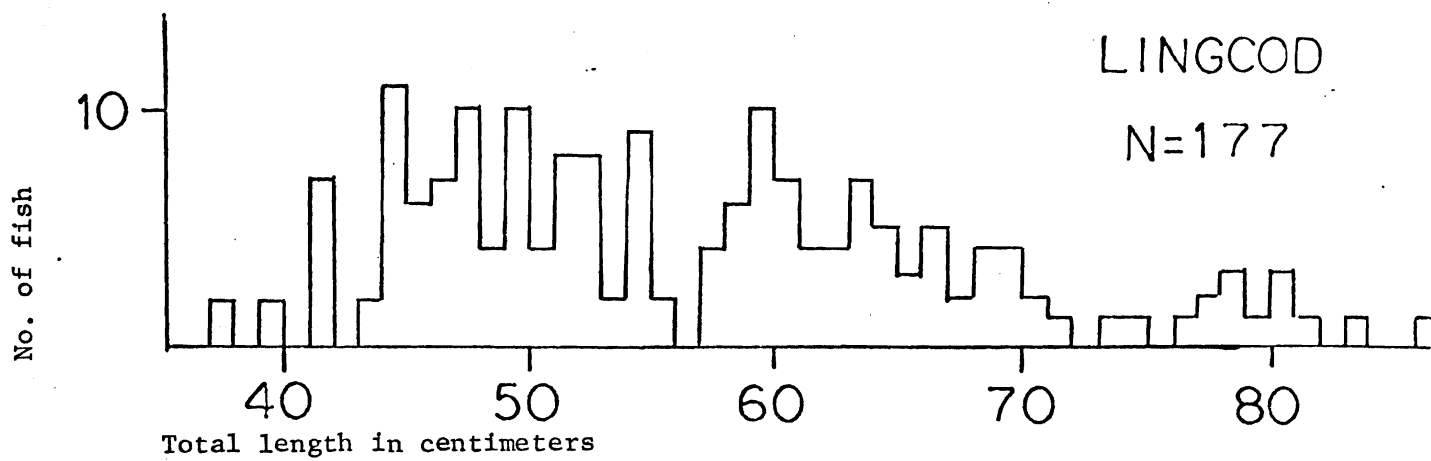
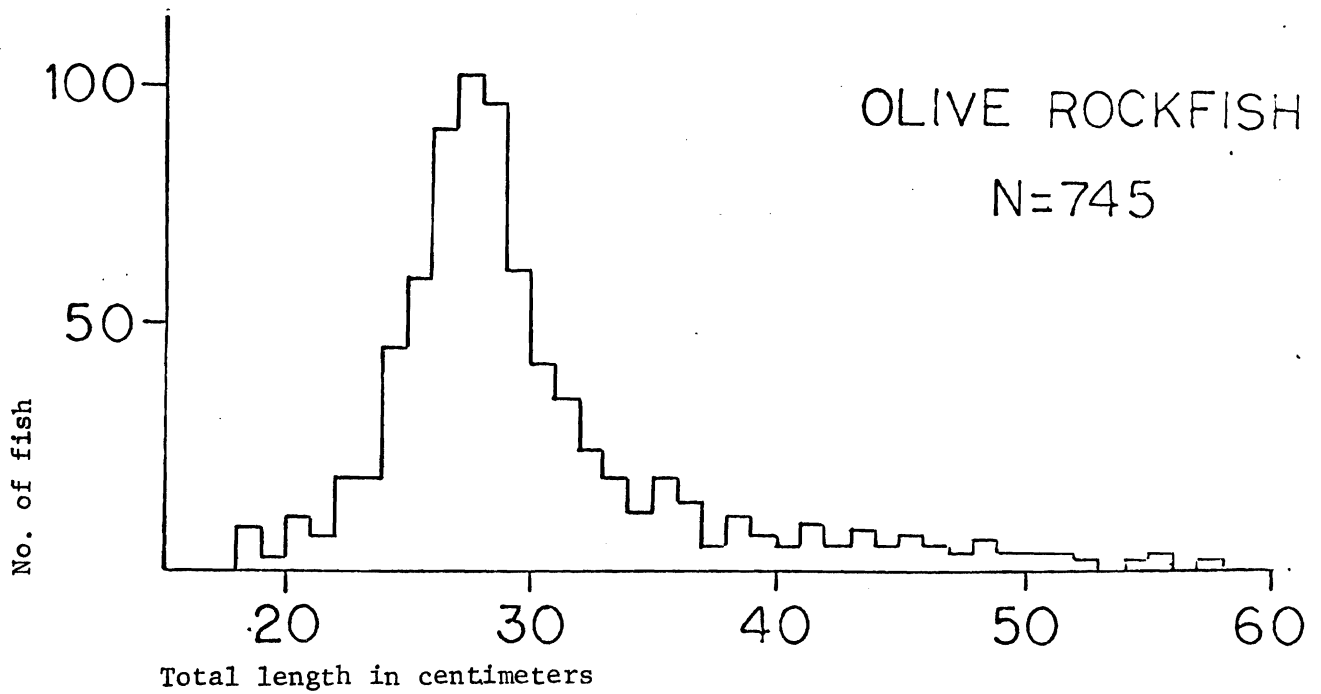
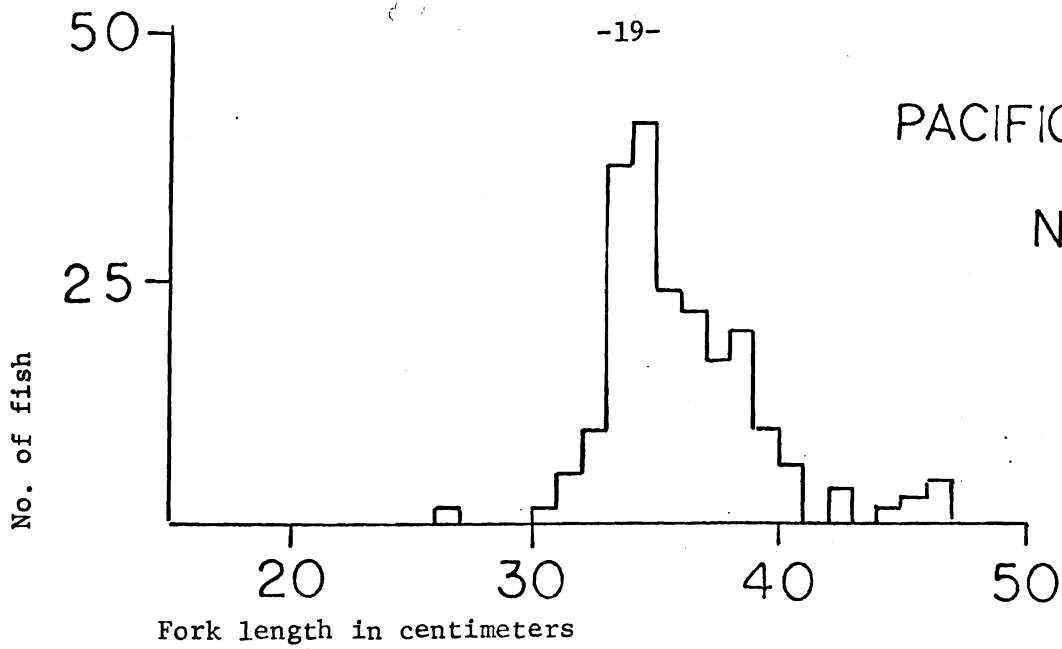


FIGURE 4. Length frequencies of Pacific mackerel, olive rockfish, and lingcod.

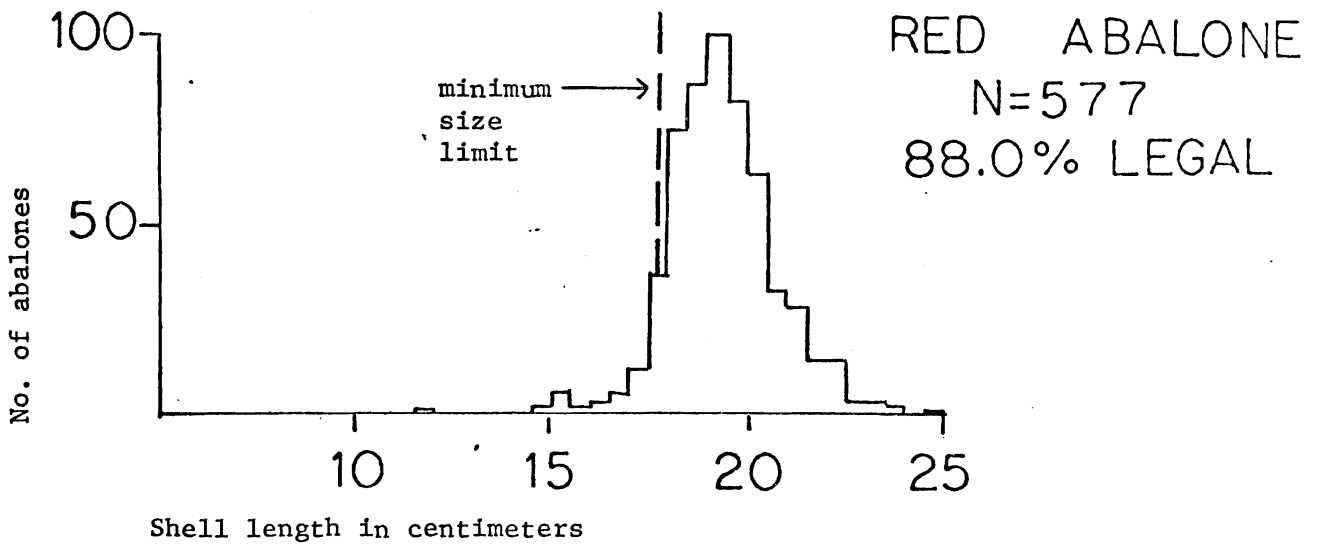
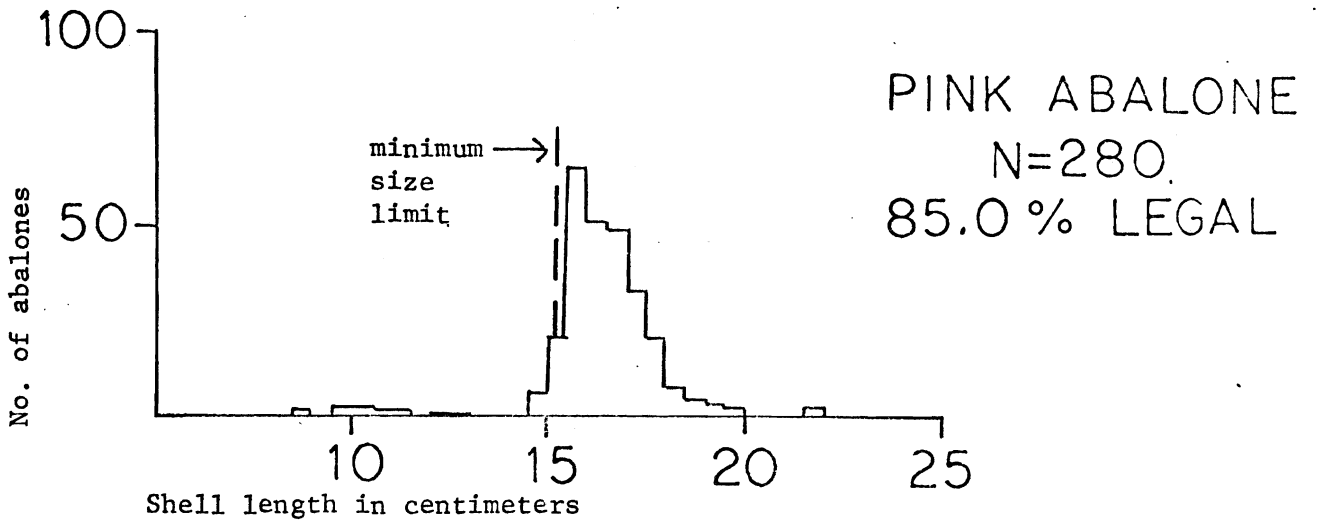
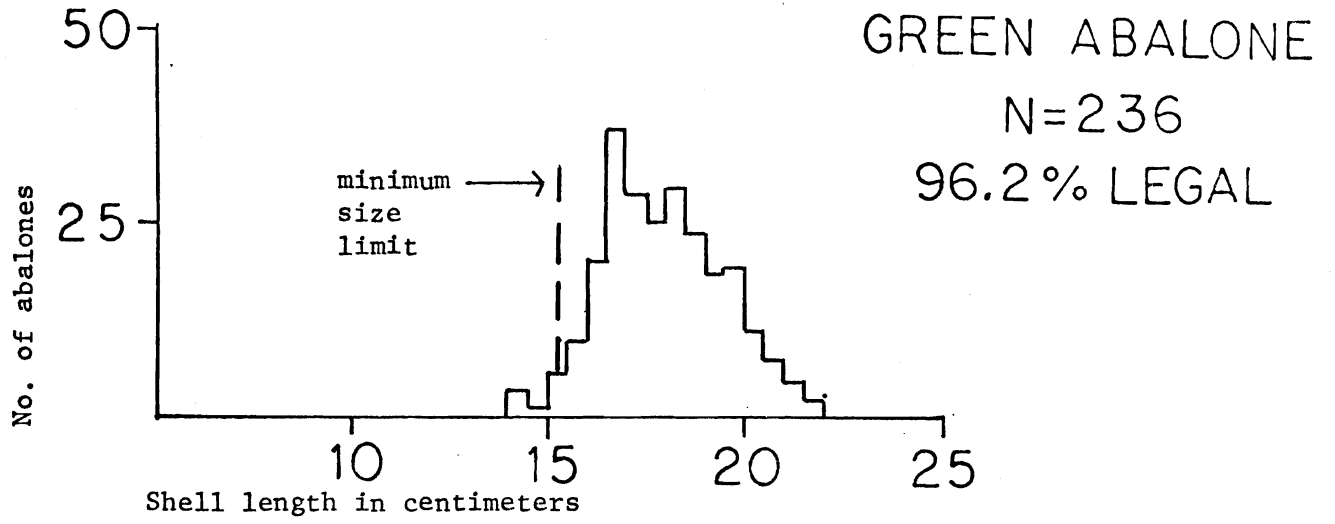


FIGURE 5. Length frequencies of green, pink, and red abalones.