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SOUTHERN CALIFORNIA MARINE SPORT FISHING FROM  
PRIVATELY OWNED BOATS: CATCH AND EFFORT  
FOR APRIL-JUNE 1982

by

Denyse Racine

MARINE RESOURCES

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ABSTRACT

The catch landed and effort expended by private-boat sport fishermen in southern California were studied between April and June 1982, in order to determine the impact of this segment of the sport fishery on local marine resources. Fishermen returning from fishing trips were interviewed at launch ramps, hoists, and boat-rental facilities. This report contains quantitative data and statistical estimates of total effort, total catch, catch of preferred species, and length frequencies for those species whose catches are regulated by minimum size limits.

An estimated 213,000 organisms were landed by 102,000 anglers and 3,300 divers. The major components of the catch were white croaker, *Genyonemus lineatus* (56,000 landed); and Pacific mackerel, *Scomber japonicus* (43,000 landed). Together these two species made up almost one-half of the estimated southern California sport catch.

Anglers' compliance with size limit regulations was variable. Approximately 91% of all basses, *Paralabrax* spp., measured were legal size. Only 10% of the white seabass, *Stractoscion nobilis*, were larger than the minimum size limit imposed on March 1, 1982. Divers' compliance with size limit regulations on abalone, averaged 94%.

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## INTRODUCTION

Recreational fishing activity in southern California marine waters affects the abundance of local fish populations and also influences migratory fish populations. To determine the extent of these fishing activities, the Department of Fish and Game studied one segment of the recreational fishery: fishermen using privately owned, trailerable boats.

The major purposes of the study were to estimate effort expended by anglers and divers, to estimate the magnitude and species composition of their catch, and to assess the degree of sport fishermen's compliance with size limit regulations.

The information generated by this study provides:

1) a baseline study for future comparisons of catch and effort trends; 2) evidence for adding, deleting, or changing fishing regulations; 3) an indication of fishing pressure on various species; and 4) supportive material for other agencies to use when assessing proposed actions which could affect southern California's living marine resources. The results of the study focus attention on areas in which management may be necessary.

## OPERATIONS

### Sampling Plan

The sampling plan consisted of a program of random field sampling at selected launch ramps, hoists, and boat-rental facilities in Santa Barbara, Ventura, Los Angeles, Orange, and San Diego 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 h to 1800 h, and an attempt was made to interview all returning anglers and divers. Information on length of angling trip, number of hours spent diving, number of fishing poles used, and number of people angling or diving was gathered, and all fishes, mollusks, and crustaceans in possession were identified and enumerated. Instances in which fishing parties did not keep their catches were noted, but no attempt was made to identify or quantify those fishes returned to the water. An attempt was made to measure all species with minimum size requirements.

#### Sampling Locations

Five counties were covered in the survey: Santa Barbara, Ventura, Los Angeles, Orange, and San Diego. Three sampling sites were located in Santa Barbara County, three sites in Ventura County, seven sites in Los Angeles County, five sites in Orange County, and eight sites in San Diego County.

#### Statistical Analysis

Data were averaged on a daily basis for each county, then expanded to estimate the total catch or effort for each county, each month. Catch estimates were made for each species which had a legal minimum size limit, for the most commonly landed species, for the *Sebastes* genus, and for the total number of organisms landed. Estimates were calculated separately for weekends and weekdays.

The number of boats that left a sampling area without being interviewed was recorded, providing an adjustment factor for the day's total catch or effort estimate.

## RESULTS AND DISCUSSION

### Data Samples

During the April 1 - June 30, 1982 quarter, 19 launch ramps, 4 boat hoists, and 4 boat-rental locations were sampled 397 times. Samplers interviewed 24,729 anglers and 903 divers who spent 164,866 angler-trip-hours<sup>3/</sup> and 1,072 diver-hours<sup>4/</sup> in southern California coastal waters. Samplers examined 46,180 fishes, mollusks, and crustaceans representing 127 species in the angler catch, along with 1,270 filleted fishes and 1,038 fishes and invertebrates which could not be identified to species due to time constraints or the incomplete condition in which the organisms were landed (Tables 1 and 2). In the sampled diver catch, 2,679 organisms, representing 45 species, plus 3 unidentified fishes, 9 unidentified filleted fishes, and 138 unidentified invertebrates were examined.

### Effort

An estimated 102,000 angler days were expended by southern California sport fishermen during the April-June, 1982 quarter. This represents an increase of nearly 100% from the previous (January-March, 1982) quarter. The appearance in the catch of preferred sport species, such as California barracuda, *Sphyraena argentea*; white seabass, *Atractoscion nobilis*; yellowtail, *Seriola lalandi*; albacore, *Thunnus alalunga*; and king salmon *Oncorhynchus tshawytscha*; probably accounted for most of the increase in angling effort.

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<sup>3/</sup> The unit of angler effort was 1 h of trip-time per angler. Adjustments were made for individuals using more than one fishing pole concurrently.

<sup>4/</sup> The unit of diver effort was 1 h spent underwater.

Unusually poor weather conditions, especially during June of this year, affected angling activity. Normally, angling effort increases considerably after the Memorial Day holiday. This year, however, angling effort decreased from May to June. In fact, only one-third of the total angler days estimated for last June (1981) were expended in June, 1982. Compared with the same quarter last year, angling effort during this quarter decreased by 4%.

The variation in angling effort by county closely followed the distribution of previous quarters. Los Angeles County received 43% of the total angling effort; San Diego and Orange counties received almost equal shares, 23% and 22%, respectively; and Santa Barbara/Ventura counties received 12% (Tables 3 and 4).

Diving effort increased by one-third compared with the previous quarter, but exhibited a 25% decrease from the same period last year. An estimated 3,300 diver days were expended this quarter. The majority of diving effort was expended in San Diego County (38%); the remainder was distributed fairly equally between the other four counties (Tables 5 and 6).

#### Catch

An estimated 204,000 fishes and other organisms were landed by anglers, and an estimated 10,000 organisms were landed by divers in southern California. Twenty-six species of fishes and invertebrates made up 95% of the combined angler/diver catch. The remaining 5% of the combined catch was composed of 113 species (Table 2).

Two species: white croaker, *Genyonemus lineatus* (56,000 landed); and Pacific mackerel, *Scomber japonicus* (43,000 landed);

made up almost one-half of the estimated angler catch. Rockfishes, *Sebastes* spp. (36,000 landed) comprised 17% of the estimated landings. Preferred game fishes such as white seabass (480 landed); king salmon (1,100 landed); California halibut, *Paralichthys californicus* (4,200 landed); yellowtail (240 landed); California barracuda (4,100 landed); and basses, *Paralabrax* spp. (28,000 landed), made up 18% of the total estimated catch. Of these, only the three bass species were present in substantial numbers (13%).

This quarter, Pacific bonito, *Sarda chiliensis*, represented only 3% of the angler catch (6,600 landed), in contrast to the same quarter last year when it was one of the top species landed by anglers. Over 1,000 king salmon were landed by anglers throughout southern California. Although this species made up a small proportion of the total estimated catch (0.5%), the "run", which began last quarter, was the first of any consequence in 6 yr.

Three species made up almost 60% of the estimated diver catch: red abalone, *Haliotis rufescens* (2,700 landed); rock scallop, *Hinnites multirugosus* (1,700 landed); and California sheephead, *Semicossyphus pulcher* (1,400 landed); The total estimated diver catch of 10,000 organisms represented a 5% increase over that of the previous quarter. This total, however, represents a 29% decline from the same period in 1981. Unfavorable weather conditions, creating poor underwater visibility, probably accounted for the decline.



### Variation by County

Anglers in Santa Barbara and Ventura counties landed an estimated 28,000 fishes, or 14% of the total southern California catch. One-half of the catch consisted of rockfishes, with copper rockfish, *Sebastes caurinus*; blue rockfish, *S. mystinus*; greenspotted rockfish, *S. chlorostictus*; and brown rockfish, *S. auriculatus*, being the major species landed (Table 7). The occurrence in the catch of white croaker decreased from 40% last quarter to 27% this quarter (7,600 landed). Pacific mackerel landings remained low, at 5% of the catch. Preferred sport species, which made up 11% of the catch, were primarily represented by kelp bass, *Paralabrax clathratus*, and king salmon. Over 87% of the salmon landed in southern California were landed in Santa Barbara/Ventura counties.

One-fourth of the total southern California diver catch was landed in Santa Barbara/Ventura counties. Over 40% of the estimated catch of 2,400 organisms was composed of two species: red abalone (550 landed) and rock scallop (480 landed).

Twice as many fishes were landed in Los Angeles County as in any other area. The estimated catch of 95,000 fishes made up almost one-half of the total southern California catch. Over two-thirds of the catch was made up of two species: white croaker (40,000 landed) and Pacific mackerel (15,000 landed). Rockfishes made up 11% of the catch, a decrease from last quarter. This decrease is typical for this time of year as anglers traditionally begin targeting on preferred sport species. Anglers concentrated instead

on surface fish such as Pacific bonito, California barracuda, and bass. Almost 84% of the bonito landed in southern California were landed by Los Angeles County anglers. The majority of these fish were landed in King Harbor, Redondo Beach, where heated-water discharge from a coastal electric generating station keeps water temperatures higher than the surrounding coastal waters.

Results from a tagging study initiated in 1968 indicate that young-of-the-year bonito, spawned in southern California, are remaining in the heated-water discharge areas year round rather than migrating south to Baja California (Collins, Huppert, MacCall, Radovich, and Stauffer, 1980). Preferred sport species, at 14% of the catch, were represented by barred sand bass, *Paralabrax nebulifer* (5,000 landed), kelp bass (3,100 landed), halibut (2,600 landed), and barracuda (1,900 landed).

Divers in Los Angeles County landed an estimated 2,500 organisms, or one-quarter of the total diver catch. Divers are prohibited from taking abalone, *Haliotis* spp., along most of Los Angeles County's coastline, so the diver catch consisted mainly of rock scallop (750 landed) and sheephead (300 landed). Green abalone, *Haliotis fulgens*, was the major abalone species in the catch (180 landed).

Orange County anglers landed an estimated 33,000 fishes, over half of which were Pacific mackerel (13,000 landed), and white croaker (6,100 landed). Rockfishes made up a smaller proportion of the Orange County catch than in any other county; 2,600 rockfish (8% of the total county's catch) were landed. Preferred sport species made up 19% of the total catch, and were represented by barred sand bass (2,900 landed), kelp bass (1,200

landed), and barracuda (1,100 landed). Over 10% of the southern California catch of bonito was landed in Orange County (680 landed).

Fewer organisms were landed by Orange County divers than in any other county. Almost three-fourths of the estimated Orange County catch of 1,300 organisms was made up of two species: rock scallop and California sheephead (450 landed of each). The majority of Orange County's coastline is closed to the take of abalone, and that portion which is open possesses very few areas where the habitat is suitable for those species; hence the low number of abalone landed in Orange County (170 landed).

The San Diego County angler catch of 47,000 fishes was dominated by Pacific mackerel, which made up one-third of the total catch. Rockfishes contributed 18% of the total, with bocaccio, *Sebastes paucispinus*, being the most common rockfish species landed. Preferred sport species made up 32% of the catch. The three *Paralabrax* bass species (13,000 landed), along with California barracuda (1,000 landed), made up the majority of the favored sport fishing landings.

Although only 30 albacore were landed in San Diego County, none were observed in the landings of any other southern California county.

Divers seeking game in San Diego County landed almost 40% of the total southern California diver catch. Red abalone, at 59% of the total, was the predominant species (2,200 landed). California sheephead contributed another 11% of the catch (410 landed).

### Length Frequencies

Anglers' compliance with size-limit regulations for the three *Paralabrax* bass species remained at 91%, unchanged from the previous (January-March, 1982) quarter (Table 8, Figures 1-7). Anglers continued to show lack of compliance with size limit regulations for white seabass and California barracuda. Only 10% of the white seabass measured were legal size. Field experience indicates that this low compliance rate is due to anglers' inability to correctly identify this species. On March 1 of this year, a 61-cm (24-in.) fork length, minimum size limit was imposed on Pacific bonito. Until June 15, anglers were allowed to possess two undersized fish; thereafter, they were allowed five undersized fish. Of the 870 bonito measured this quarter, all were shorter than 24 in. This was the first season in 6 yr that king salmon were taken in substantial numbers. Although one sublegal-size fish per angler was allowed, 100% of the salmon measured were legal size. This figure probably reflects the availability of legal-size fish to the angling public, rather than a remarkable compliance with fishing regulations. The percentage of legal-size California halibut in the catch varied widely between counties. Only 34% of the halibut landed in Orange County were legal size, yet 97% of the halibut landed by Santa Barbara County anglers were legal size. The percentage of legal-size abalone in the catch varied from 99% for pink abalone, *Haliotis corrugata*, to 93% for red abalone, and averaged 94% for all species combined.

REFERENCES

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TABLE 1. List of Species Sampled from Southern California Private Boats; April through June 1982.

Scientific name	Common name	No. sampled
<u>Fishes</u>		
<i>Alopias superciliosus</i>	bigeye thresher	2
<i>A. vulpinus</i>	common thresher	8
<i>Amphistichus argenteus</i>	barred surfperch	68
<i>Anisotremus davidsonii</i>	sargo	17
<i>Anoplopoma fimbria</i>	sablefish	31
<i>Atherinopsis californiensis</i>	jacksmelt	145
<i>Atractoscion nobilis</i>	white seabass	137
<i>Balistes polylepis</i>	finescale triggerfish	5
<i>Brachyistius frenatus</i>	kelp surfperch	1
<i>Caulolatilus princeps</i>	ocean whitefish	218
<i>Cheilotrema saturnum</i>	black croaker	35
<i>Chromis punctipinnis</i>	blacksmith	46
<i>Citharichthys sordidus</i>	Pacific sanddab	702
<i>C. stigmaeus</i>	speckled sanddab	1
<i>Cypselurus californicus</i>	California flyingfish	13
<i>Damalichthys vacca</i>	pile surfperch	45
<i>Embiotoca jacksoni</i>	black surfperch	317
<i>E. lateralis</i>	striped surfperch	6
<i>Eopsetta jordani</i>	petrale sole	11
<i>Galeorhinus zyopterus</i>	soupfin shark	14
<i>Genyonemus lineatus</i>	white croaker	13,250
<i>Girella nigricans</i>	opaleye	225
<i>Haliichoeres semicinctus</i>	rock wrasse	10
<i>Heterodontus francisci</i>	horn shark	3
<i>Heterostichus rostratus</i>	giant kelpfish	37
<i>Hippoglossina stomata</i>	bigmouth sole	7
<i>Hydrolagus colliei</i>	ratfish	6
<i>Hyperprosopon argenteum</i>	walleye surfperch	36
<i>Hypsopsetta guttulata</i>	diamond turbot	65
<i>Hypsurus caryi</i>	rainbow surfperch	9
<i>Hypsypops rubicundus</i>	garibaldi	1
<i>Isurus oxyrinchus</i>	bonito shark	20
<i>Lepidopsetta bilineata</i>	rock sole	1
<i>Medialuna californiensis</i>	halfmoon	409
<i>Menticirrhus undulatus</i>	California corbina	17
<i>Merluccius productus</i>	Pacific hake	18
<i>Mugil cephalus</i>	striped mullet	7
<i>Mustelus californicus</i>	gray smoothhound	50
<i>M. henlei</i>	brown smoothhound	17
<i>Myliobatis californica</i>	bat ray	26
<i>Neoclinus stephensae</i>	yellowfin fringehead	3
<i>Odontopyxis trispinosa</i>	pygmy poacher	1
<i>Oncorhynchus kisutch</i>	silver salmon	8
<i>O. tshawytscha</i>	king salmon	214
<i>Ophichthus zophochir</i>	yellow snake eel	1

TABLE 1 - continued.

Scientific name	Common name	No. sampled
<i>Ophiodon elongatus</i>	lingcod	53
<i>Oxyjulis californica</i>	senorita	45
<i>Paralabrax clathratus</i>	kelp bass	2,051
<i>P. maculatofasciatus</i>	spotted sand bass	894
<i>P. nebulifer</i>	barred sand bass	3,414
<i>Paralichthys californicus</i>	California halibut	836
<i>Phanerodon furcatus</i>	white surfperch	24
<i>Platichthys stellatus</i>	starry flounder	2
<i>Platyrrhinoidis triseriata</i>	thornback	10
<i>Pleuronichthys ritteri</i>	spotted turbot	1
<i>P. verticalis</i>	hornyhead turbot	2
<i>Porichthys myriaster</i>	specklefin midshipman	2
<i>Prionace glauca</i>	blue shark	72
<i>Raja binoculata</i>	big skate	4
<i>Rhacochilus toxotes</i>	rubberlip surfperch	118
<i>Rhinobatos productus</i>	shovelnose guitarfish	63
<i>Roccus saxatilis</i>	striped bass	3
<i>Roncador stearnsii</i>	spotfin croaker	40
<i>Sarda chiliensis</i>	Pacific bonito	1,344
<i>Scomber japonicus</i>	Pacific mackerel	10,672
<i>Scorpaena guttata</i>	sculpin	1,218
<i>Scorpaenichthys marmoratus</i>	cabezon	157
<i>Sebastes atrovirens</i>	kelp rockfish	132
<i>S. auriculatus</i>	brown rockfish	409
<i>S. carnatus</i>	gopher rockfish	113
<i>S. caurinus</i>	copper rockfish	562
<i>S. chlorostictus</i>	greenspotted rockfish	753
<i>S. chrysomelas</i>	black and yellow rockfish	33
<i>S. constellatus</i>	starry rockfish	465
<i>S. dallii</i>	calico rockfish	18
<i>S. diploproa</i>	splitnose rockfish	1
<i>S. elongatus</i>	greenstriped rockfish	156
<i>S. ensifer</i>	swordspine rockfish	18
<i>S. entomelas</i>	widow rockfish	63
<i>S. eos</i>	pink rockfish	9
<i>S. flavidus</i>	yellowtail rockfish	22
<i>S. gilli</i>	bronzespotted rockfish	4
<i>S. goodei</i>	chilipepper	331
<i>S. helvomaculatus</i>	rosethorn rockfish	1
<i>S. hopkinsi</i>	squarespot rockfish	22
<i>S. lentiginosus</i>	freckled rockfish	3
<i>S. levis</i>	cowcod	44
<i>S. macdonaldi</i>	Mexican rockfish	29
<i>S. melanostomus</i>	blackgill rockfish	2
<i>S. miniatus</i>	vermilion rockfish	499
<i>S. mystinus</i>	blue rockfish	518
<i>S. nebulosus</i>	China rockfish	3

TABLE 1 - continued.

Scientific name	Common name	No. sampled
<i>Sebastes ovalis</i>	speckled rockfish	271
<i>S. paucispinus</i>	bocaccio	1,087
<i>S. phillipsi</i>	chameleon rockfish	8
<i>S. pinniger</i>	canary rockfish	13
<i>S. proriger</i>	redstripe rockfish	1
<i>S. rastrelliger</i>	grass rockfish	199
<i>S. rosaceus</i>	rosy rockfish	145
<i>S. rosenblatti</i>	greenblotched rockfish	61
<i>S. ruberrimus</i>	yelloweye rockfish	3
<i>S. rubrivinctus</i>	flag rockfish	129
<i>S. rufus</i>	bank rockfish	21
<i>S. saxicola</i>	stripetail rockfish	8
<i>S. semicinctus</i>	halfbanded rockfish	3
<i>S. serranoides</i>	olive rockfish	497
<i>S. serriceps</i>	reefish	150
<i>S. umbrosus</i>	honeycomb rockfish	109
<i>Semicossyphus pulcher</i>	California sheephead	672
<i>Seriola lalandi</i>	yellowtail	58
<i>Seriphus politus</i>	queenfish	578
<i>Sphyrnaena argentea</i>	California barracuda	958
<i>Squalus acanthias</i>	spiny dogfish	79
<i>Squatina californica</i>	Pacific angel shark	9
<i>Stereolepis gigas</i>	giant sea bass	9
<i>Strongylura exilis</i>	California neddlefish	14
<i>Synodus lucioceps</i>	California lizardfish	94
<i>Thunnus alalunga</i>	albacore	12
<i>Trachurus symmetricus</i>	jack mackerel	94
<i>Triakis semifasciata</i>	leopard shark	7
<i>Umbrina roncadore</i>	yellowfin croaker	374
<i>Xystreurus liolepis</i>	fantail sole	4
-	unidentified fish	58
-	unidentified filleted fish	434
<i>Sebastes</i> spp.	unidentified rockfish	35
<i>Sebastes</i> spp.	unidentified rockfish fillets	845

Mollusks and Crustaceans

<i>Cancer antennarius</i>	rock crab	48
<i>C. anthonyi</i>	yellow crab	7
<i>C. productus</i>	red crab	7
<i>Haliotis corrugata</i>	pink abalone	93
<i>H. cracherodii</i>	black abalone	42
<i>H. fulgens</i>	green abalone	74
<i>H. rufescens</i>	red abalone	749
<i>H. sorenseni</i>	white abalone	8
<i>Hinnites multirugosus</i>	rock scallop	530



TABLE 1 - continued.

<u>Scientific name</u>	<u>Common name</u>	<u>No. sampled</u>
<i>Loxorhynchus grandis</i>	sheep crab	6
<i>Panulirus interruptus</i>	California spiny lobster	2
<i>Tivela stultorum</i>	Pismo clam	3
<i>Mytilus</i> spp.	mussel	900
<i>Octopus</i> spp.	unidentified octopus	10
Brachyura	unidentified crab	19
Crustacea	unidentified crustacean	26
Mollusca	unidentified mollusk	109
<u>Echinoderms and Coelenterates</u>		
<i>Strongylocentrotus franciscanus</i>	giant red urchin	114
<i>S. purpuratus</i>	purple urchin	10
<i>Pisaster</i> spp.	sea star	18
Coelenterata	unidentified coelenterate	1
Echinodermata	unidentified echinoderm	2
<u>Other Invertebrates</u>		
Porifera	unidentified sponge	1

TABLE 2. Most Commonly Landed Species; April through June 1982.

Scientific name	Common name	No. sampled
<u>Fishes</u>		
<i>Genyonemus lineatus</i>	white croaker	13,250
<i>Scomber japonicus</i>	Pacific mackerel	10,672
<i>Paralabrax nebulifer</i>	barred sand bass	3,414
<i>P. clathratus</i>	kelp bass	2,051
<i>Sarda chiliensis</i>	Pacific bonito	1,344
<i>Scorpaena guttata</i>	sculpin	1,218
<i>Sebastes paucispinus</i>	bocaccio	1,087
<i>Sphyrnaea argentea</i>	California barracuda	958
<i>Paralabrax maculatofasciatus</i>	spotted sand bass	894
<i>Paralichthys californicus</i>	California halibut	836
<i>Sebastes chlorostictus</i>	greenspotted rockfish	753
<i>Citharichthys sordidus</i>	Pacific sanddab	702
<i>Semicossyphus pulcher</i>	California sheephead	672
<i>Seriphus politus</i>	queenfish	578
<i>Sebastes caurinus</i>	copper rockfish	562
<i>S. mystinus</i>	blue rockfish	518
<i>S. miniatus</i>	vermilion rockfish	499
<i>S. serranoides</i>	olive rockfish	497
<i>S. constellatus</i>	starry rockfish	465
<i>Medialuna californiensis</i>	halfmoon	409
<i>Sebastes auriculatus</i>	brown rockfish	409
<i>Umbrina roncador</i>	yellowfin croaker	374
<i>Sebastes goodei</i>	chilipepper	331
<i>Embiotoca jacksoni</i>	black surfperch	317
<u>Mollusks and Crustaceans</u>		
<i>Haliotis rufescens</i>	red abalone	749
<i>Hinnites multirugosus</i>	rock scallop	530

TABLE 3. Catch and Effort Estimates for Anglers; April through June 1982.

	Santa Barbara/ Ventura Counties	Los Angeles County	Orange County	San Diego County	Totals
<b>Angler parties</b>					
weekend	2,807	9,492	5,892	5,442	23,633
weekday	1,835	7,118	2,780	4,319	16,052
total	4,642	16,610	8,672	9,761	39,685
<b>Angler days</b>					
weekend	7,666	25,728	15,650	13,717	62,761
weekday	4,487	18,553	6,429	9,580	39,049
total	12,153	44,281	22,079	23,297	101,810
<b>Angler-trip-hours</b>					
weekend	48,685	172,856	104,444	94,236	420,221
weekday	29,502	123,095	43,370	61,945	257,912
total	78,187	295,951	147,814	156,181	678,133
<b>Total fishes landed</b>					
weekend	17,221	60,253	21,315	26,926	125,715
weekday	11,260	34,405	11,815	20,396	77,876
total	28,481	94,658	33,130	47,322	203,591
<b>No. rockfishes landed</b>					
weekend	9,747	6,506	2,395	4,240	22,888
weekday	4,570	3,682	242	4,197	12,691
total	14,317	10,188	2,637	8,437	35,579
<i>Atractoscion nobilis</i> (white seabass)					
	14	129	201	133	477
<i>Caulolatilus princeps</i> (ocean whitefish)					
	139	369	27	542	1,077
<i>Citharichthys sordidus</i> (Pacific sanddab)					
	349	923	316	1,565	3,153
<i>Embiotoca jacksoni</i> (black surfperch)					
	35	366	362	130	893
<i>Genyonemus lineatus</i> (white croaker)					
	7,629	40,450	6,070	1,950	56,099
<i>Girella nigricans</i> (opaleye)					
	45	378	183	66	672
<i>Medialuna californiensis</i> (halfmoon)					
	207	1,723	273	37	2,240

TABLE 3 - continued.

	Santa Barbara/ Ventura Counties	Los Angeles County	Orange County	San Diego County	Totals
<i>Oncorhynchus tshawytscha</i> (king salmon)	951	91	45	6	1,093
<i>Ophiodon elongatus</i> (lingcod)	127	18	15	36	196
<i>Paralabrax clathratus</i> (kelp bass)	1,111	3,064	1,185	2,526	7,886
<i>P. maculatofasciatus</i> (spotted sand bass)	3	112	654	3,160	3,929
<i>P. nebulifer</i> (barred sand bass)	208	4,984	2,891	7,682	15,765
<i>Paralichthys californicus</i> (California halibut)	660	2,571	327	599	4,157
<i>Sarda chiliensis</i> (Pacific bonito)	84	5,541	680	293	6,598
<i>Scomber japonicus</i> (Pacific mackerel)	1,527	14,726	12,963	13,836	43,052
<i>Scorpaena guttata</i> (sculpin)	352	3,602	386	1,201	5,541
<i>Sebastes atrovirens</i> (kelp rockfish)	301	70	0	267	638
<i>S. auriculatus</i> (brown rockfish)	1,123	316	20	161	1,620
<i>S. caurinus</i> (copper rockfish)	1,916	97	6	152	2,171
<i>S. chlorostictus</i> (greenspotted rockfish)	185	683	226	666	2,760
<i>S. goodei</i> (chilipepper)	255	478	348	145	1,226
<i>S. miniatus</i> (vermillion rockfish)	738	552	96	853	2,239
<i>S. mystinus</i> (blue rockfish)	1,662	181	42	157	2,042

TABLE 3 - continued.

	Santa Barbara/ Ventura Counties	Los Angeles County	Orange County	San Diego County	Totals
<i>Sebastes paucispinus</i> (bocaccio)	806	1,568	602	892	3,868
<i>S. rastrelliger</i> (grass rockfish)	489	287	38	98	912
<i>S. serranoides</i> (olive rockfish)	681	752	137	526	2,096
<i>Semicossyphus pulcher</i> (California sheephead)	11	431	272	257	971
<i>Seriola lalandi</i> (yellowtail)	0	162	16	59	237
<i>Seriphus politus</i> (queenfish)	18	1,605	613	268	2,504
<i>Sphyraena argentea</i> (California barracuda)	102	1,933	1,070	1,027	4,132
<i>Thunnus alalunga</i> (albacore)	0	0	0	33	33
<i>Trachurus symmetricus</i> (jack mackerel)	15	183	5	195	398

TABLE 4. Standard Error of the Estimates for Anglers; April through June 1982.

	Santa Barbara/ Ventura Counties	Los Angeles County	Orange County	San Diego County	Totals
Angler parties	421	2,126	550	1,241	2,558
Angler days	1,068	6,341	1,373	3,061	7,253
Angler-trip-hours	7,458	40,305	9,462	21,399	47,197
Total fishes landed	3,388	8,949	3,163	7,703	12,685
No. rockfishes landed	1,962	1,641	323	2,286	3,446
albacore	0	0	0	26	26
barred sand bass	46	1,034	293	1,752	2,056
black surfperch	19	99	98	67	156
blue rockfish	343	64	17	79	358
bocaccio	206	508	146	207	604
brown rockfish	255	199	10	51	328
California barracuda	48	300	291	249	489
California halibut	128	428	66	117	467
California sheephead	6	154	57	74	181
chilipepper	119	164	105	61	236
copper rockfish	470	23	3	56	474
grass rockfish	145	87	12	59	180
greenspotted rockfish	225	195	45	158	340
halfmoon	123	545	76	15	564
jack mackerel	10	113	3	70	134
kelp bass	146	379	189	434	624
kelp rockfish	173	33	0	86	196
king salmon	316	36	16	3	319
lingcod	47	14	10	9	51
ocean whitefish	59	142	10	174	233
olive rockfish	137	96	25	197	259
opaleye	11	105	61	28	125
Pacific bonito	31	870	302	64	923
Pacific mackerel	426	1,633	2,113	2,404	3,618
Pacific sanddab	97	340	108	560	671
queenfish	9	371	318	87	496
sculpin	77	463	67	548	725
spotted sand bass	2	46	122	512	528
vermilion rockfish	123	248	23	250	374
white croaker	2,145	6,250	856	483	6,680
white seabass	8	33	45	41	69
yellowtail	0	52	8	30	61

TABLE 5. Catch and Effort Estimates for Divers; April through June 1982.

	Santa Barbara/ Ventura Counties	Los Angeles County	Orange County	San Diego County	Totals
<b>Diver parties</b>					
weekend	251	201	173	333	958
weekday	59	84	103	158	404
total	<u>310</u>	<u>285</u>	<u>276</u>	<u>491</u>	<u>1,362</u>
<b>Diver days</b>					
weekend	622	463	439	889	2,413
weekday	125	197	228	358	908
total	<u>747</u>	<u>660</u>	<u>667</u>	<u>1,247</u>	<u>3,321</u>
<b>Diver-hours</b>					
weekend	801	744	380	1,029	2,954
weekday	142	406	245	385	1,178
total	<u>943</u>	<u>1,150</u>	<u>625</u>	<u>1,414</u>	<u>4,132</u>
<b>No. organisms landed</b>					
weekend	2,022	2,100	972	2,913	8,007
weekday	381	395	345	757	1,878
total	<u>2,403</u>	<u>2,495</u>	<u>1,317</u>	<u>3,670</u>	<u>9,885</u>
<i>Haliotis corrugata</i> (pink abalone)	217	36	0	46	299
<i>H. cracherodii</i> (black abalone)	87	14	46	0	147
<i>H. fulgens</i> (green abalone)	6	176	123	71	376
<i>H. rufescens</i> (red abalone)	549	4	0	2,168	2,721
<i>Hinnites multirugosus</i> (rock scallop)	478	747	454	39	1,718
<i>Paulirus interruptus</i> (California spiny lobster)	0	4	0	0	4
<i>Paralabrax clathratus</i> (kelp bass)	122	73	28	167	390
<i>Semicossyphus pulcher</i> (California sheephead)	212	296	456	411	1,375

TABLE 6. Standard Error of the Estimates for Divers; April through June 1982.

	Santa Barbara/ Ventura Counties	Los Angeles County	Orange County	San Diego County	Totals
Diver parties	34	49	45	84	113
Diver days	85	117	111	214	281
Diver-hours	107	258	110	284	413
No. organisms landed	387	575	275	649	988
black abalone	33	12	37	0	51
California sheephead	63	83	123	87	183
California spiny lobster	0	3	0	0	3
green abalone	3	107	72	35	134
kelp bass	44	27	9	41	66
pink abalone	49	16	0	28	59
red abalone	149	3	0	442	466
rock scallop	120	212	125	21	274



TABLE 7. Ten Most Commonly Landed Species in Each County; April through June 1982.

County	Rank	Scientific name	Common name
Santa Barbara/ Ventura	1.	<i>Genyonemus lineatus</i>	white croaker
	2.	<i>Sebastes caurinus</i>	copper rockfish
	3.	<i>S. mystinus</i>	blue rockfish
	4.	<i>Scomber japonicus</i>	Pacific mackerel
	5.	<i>Paralabrax clathratus</i>	kelp bass
	6.	<i>Sebastes chlorostictus</i>	greenspotted rockfish
	7.	<i>S. auriculatus</i>	brown rockfish
	8.	<i>Oncorhynchus tshawytscha</i>	king salmon
	9.	<i>Sebastes paucispinus</i>	bocaccio
	10.	<i>S. miniatus</i>	vermillion rockfish
Los Angeles	1.	<i>Genyonemus lineatus</i>	white croaker
	2.	<i>Scomber japonicus</i>	Pacific mackerel
	3.	<i>Sarda chiliensis</i>	Pacific bonito
	4.	<i>Paralabrax nebulifer</i>	barred sand bass
	5.	<i>Scorpaena guttata</i>	sculpin
	6.	<i>Paralabrax clathratus</i>	kelp bass
	7.	<i>Paralichthys californicus</i>	California halibut
	8.	<i>Sphyræna argentea</i>	California barracuda
	9.	<i>Medialuna californiensis</i>	halfmoon
	10.	<i>Seriphus politus</i>	queenfish
Orange	1.	<i>Scomber japonicus</i>	Pacific mackerel
	2.	<i>Genyonemus lineatus</i>	white croaker
	3.	<i>Paralabrax nebulifer</i>	barred sand bass
	4.	<i>P. clathratus</i>	kelp bass
	5.	<i>Sphyræna argentea</i>	California barracuda
	6.	<i>Semicossyphus pulcher</i>	California sheephead
	7.	<i>Sarda chiliensis</i>	Pacific bonito
	8.	<i>Paralabrax maculatofasciatus</i>	spotted sand bass
	9.	<i>Seriphus politus</i>	queenfish
	10.	<i>Sebastes paucispinus</i>	bocaccio
San Diego	1.	<i>Scomber japonicus</i>	Pacific mackerel
	2.	<i>Paralabrax nebulifer</i>	barred sand bass
	3.	<i>P. maculatofasciatus</i>	spotted sand bass
	4.	<i>P. clathratus</i>	kelp bass
	5.	<i>Haliotis rufescens</i>	red abalone
	6.	<i>Genyonemus lineatus</i>	white croaker
	7.	<i>Citharichthys sordidus</i>	Pacific sanddab
	8.	<i>Scorpaena guttata</i>	sculpin
	9.	<i>Sphyræna argentea</i>	California barracuda
	10.	<i>Sebastes paucispinus</i>	bocaccio

TABLE 8. Occurrence of Sublegal-Size Fishes in Examined Catches;  
April through June 1982.

Scientific name	Common name	No. examined	Percent legal
<u>Fishes</u>			
<i>Atractoscion nobilis</i>	white seabass	121	10
<i>Oncorhynchus tshawytscha</i>	king salmon	195	100
<i>Ophiodon elongatus</i>	lingcod	47	79
<i>Paralabrax clathratus</i>	kelp bass	1,518	90
<i>P. maculatofasciatus</i>	spotted sand bass	682	88
<i>P. nebulifer</i>	barred sand bass	2,437	92
<i>Paralichthys californicus</i>	California halibut	749	75
<i>Sarda chiliensis</i>	Pacific bonito	870	0
<i>Sphyræna argentea</i>	California barracuda	573	52
<u>Mollusks and Crustaceans</u>			
<i>Cancer antennarius</i>	rock crab	43	100
<i>Haliotis corrugata</i>	pink abalone	78	99
<i>H. cracherodii</i>	black abalone	38	97
<i>H. fulgens</i>	green abalone	49	96
<i>H. rufescens</i>	red abalone	609	93

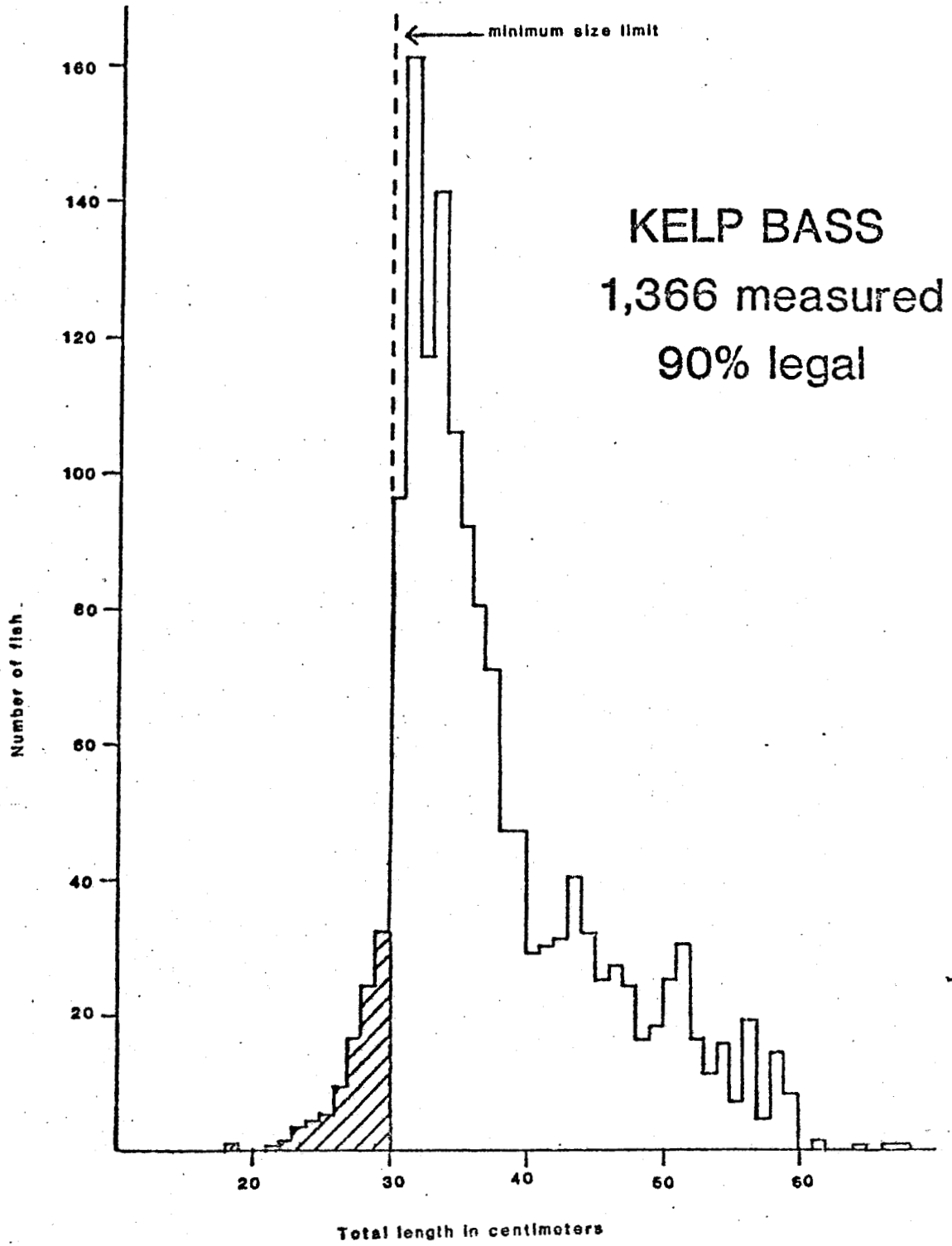


Figure 1. Length frequency of kelp bass.

# SPOTTED SAND BASS

600 measured

88% legal

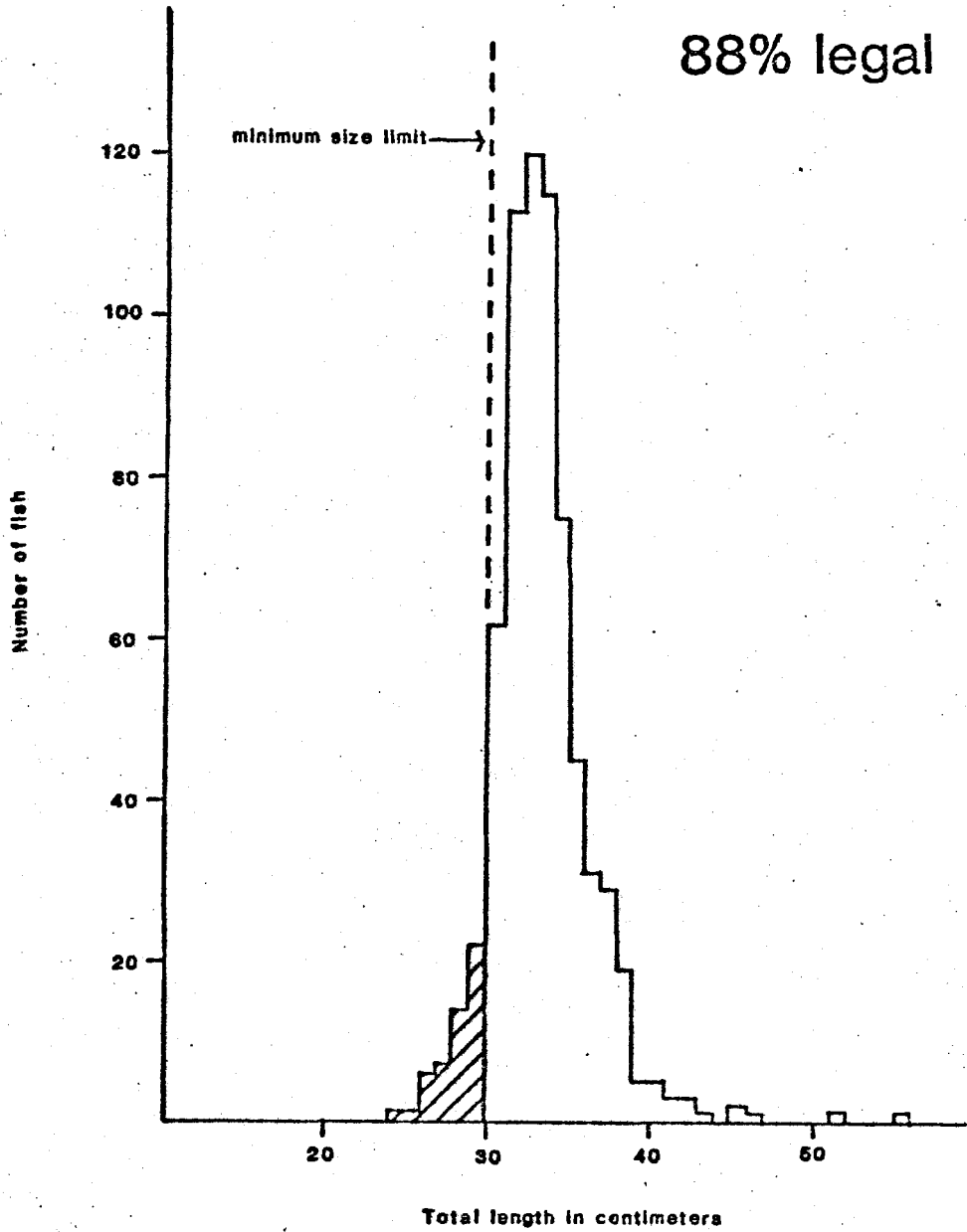


Figure 2. Length frequency of spotted sand bass.

# BARRED SAND BASS

2,241 measured

92% legal

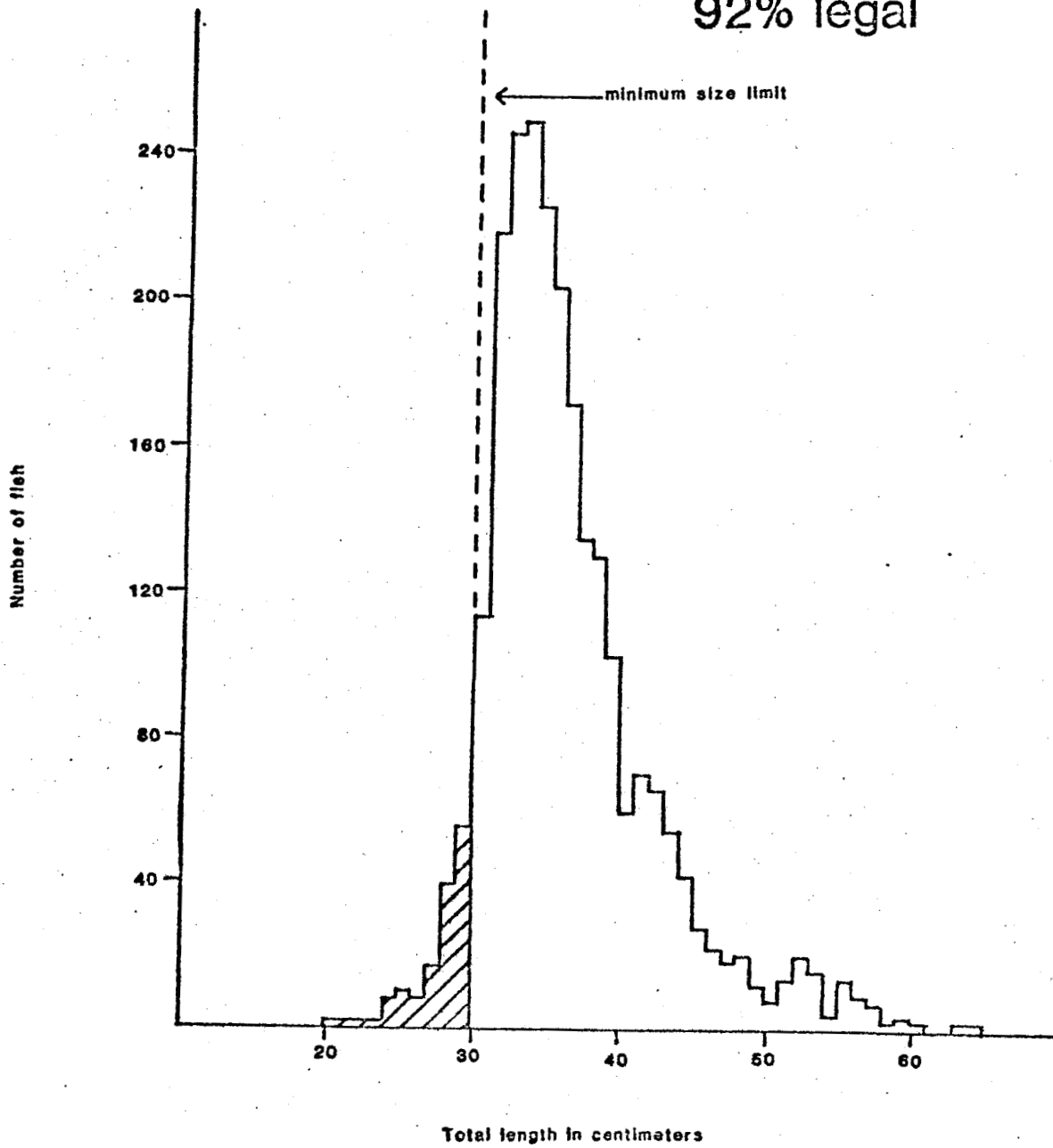


Figure 3. Length frequency of barred sand bass.

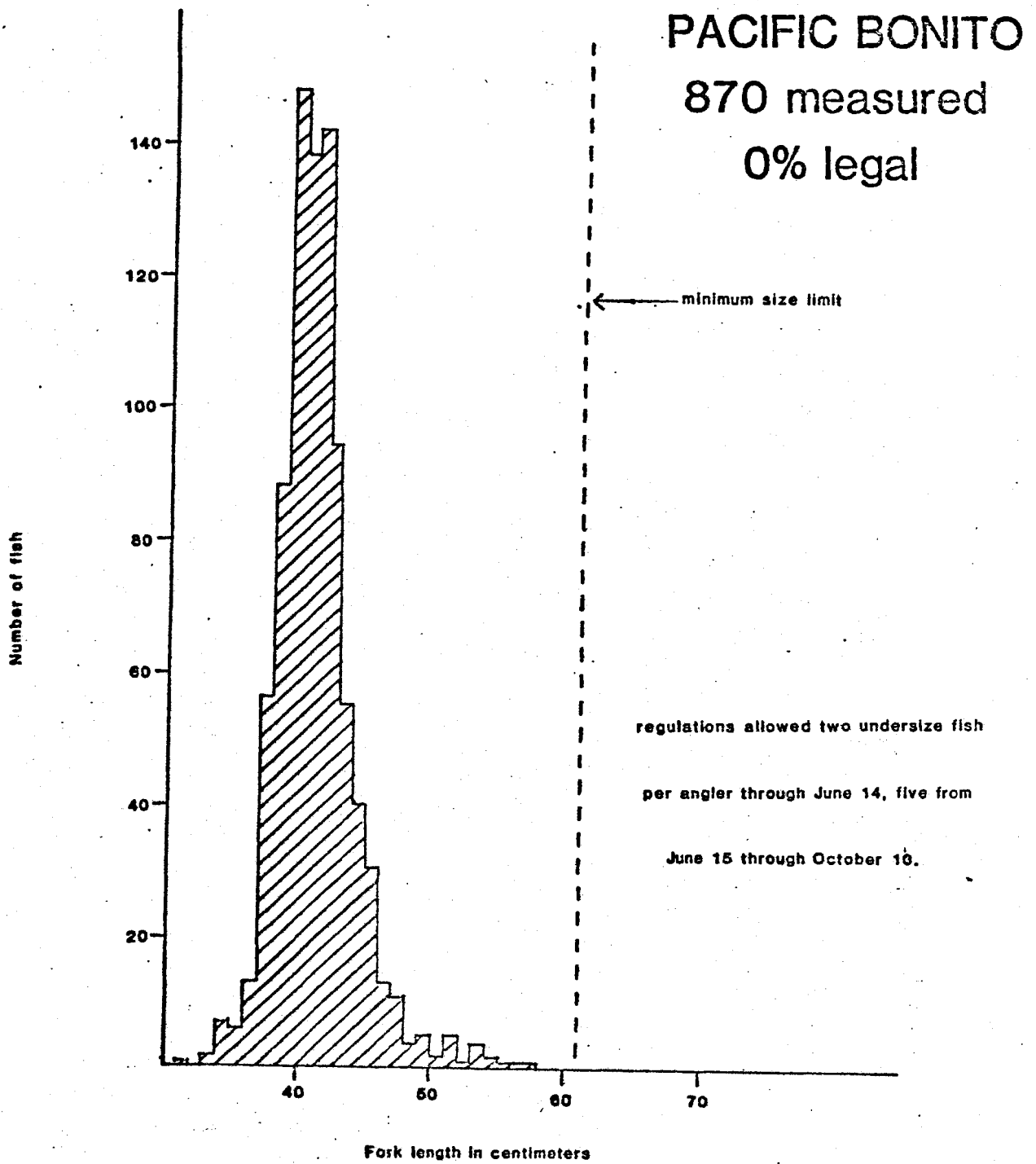


Figure 4. Length frequency of Pacific bonito.

# CALIFORNIA HALIBUT

749 measured

75% legal

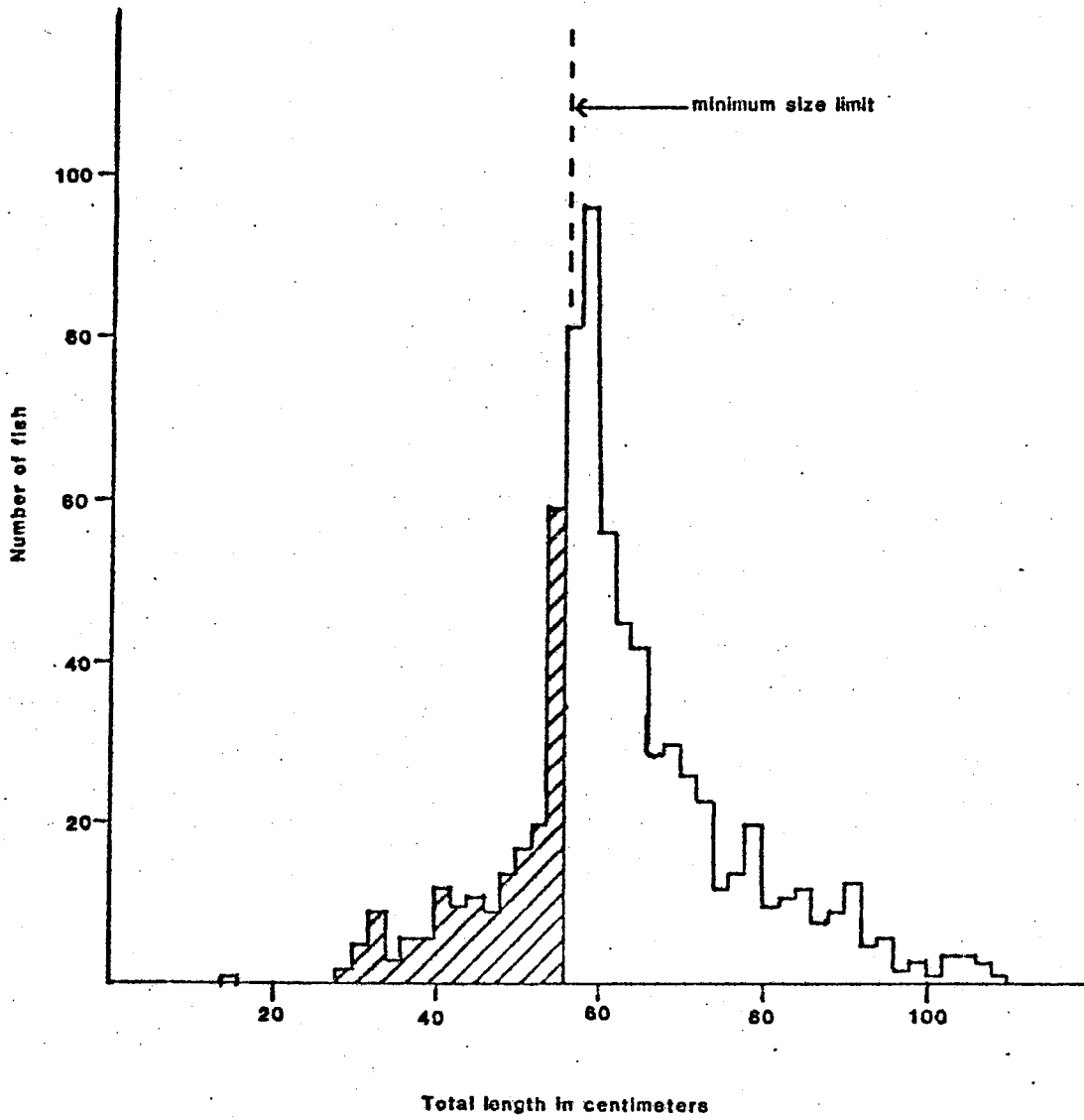
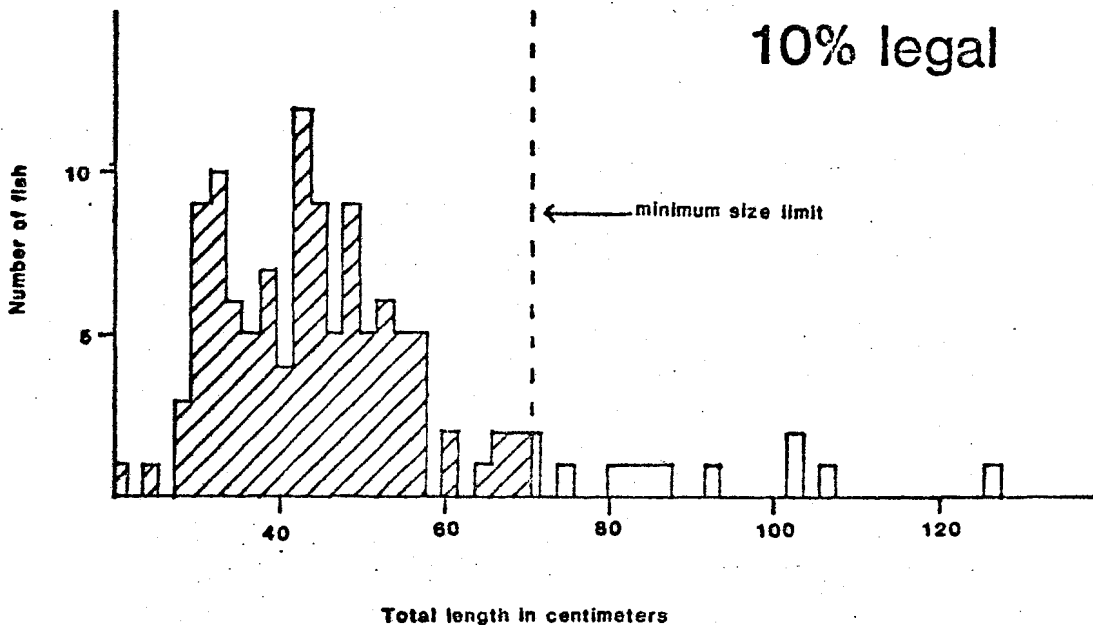


Figure 5. Length frequency of California halibut.

# WHITE SEABASS

121 measured

10% legal



# CALIFORNIA BARRACUDA

573 measured

52% legal

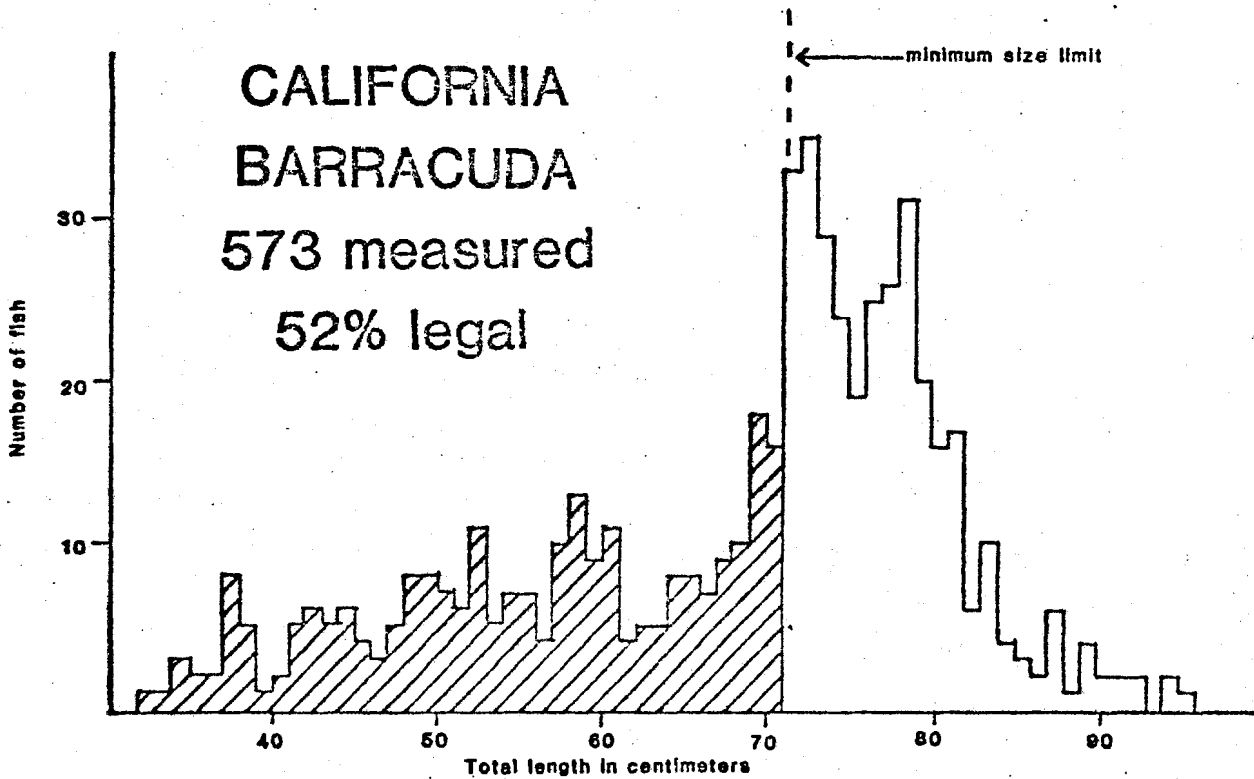


Figure 6. Length frequencies of white seabass and California barracuda.



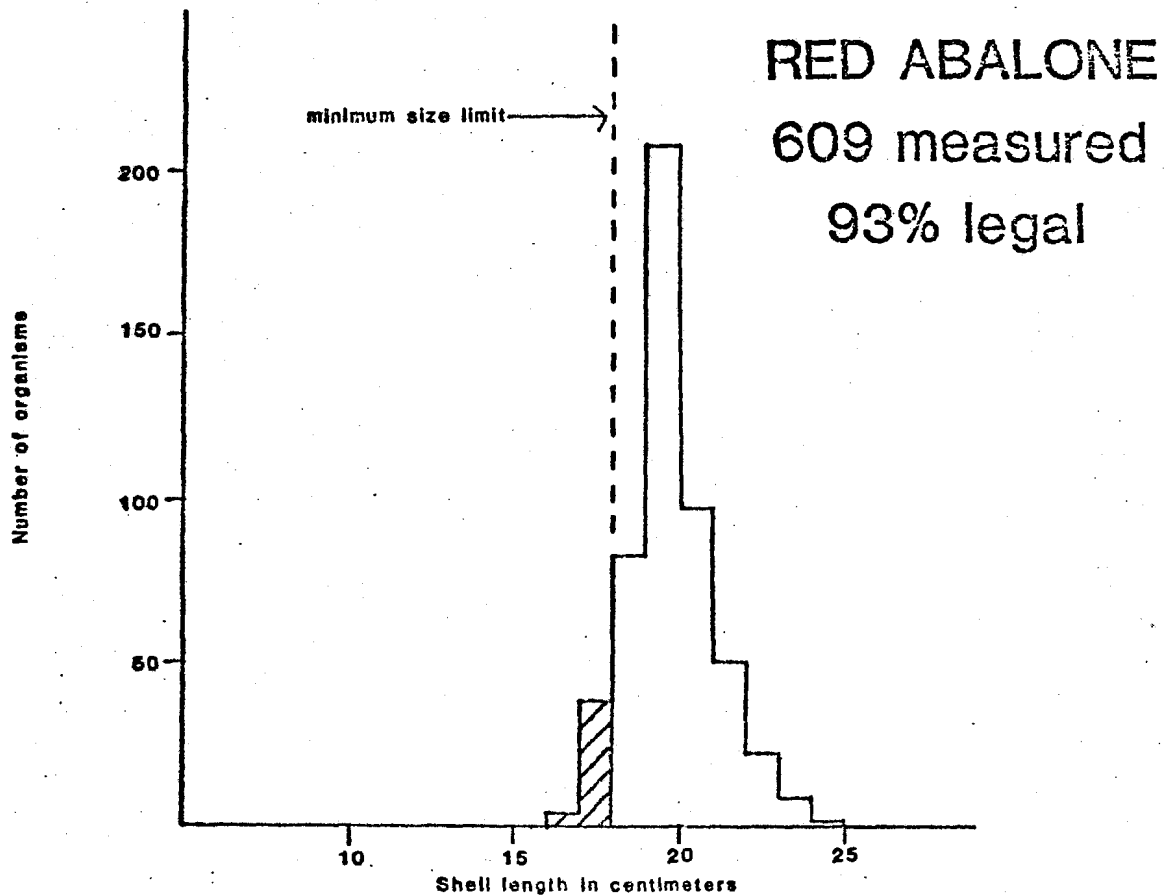
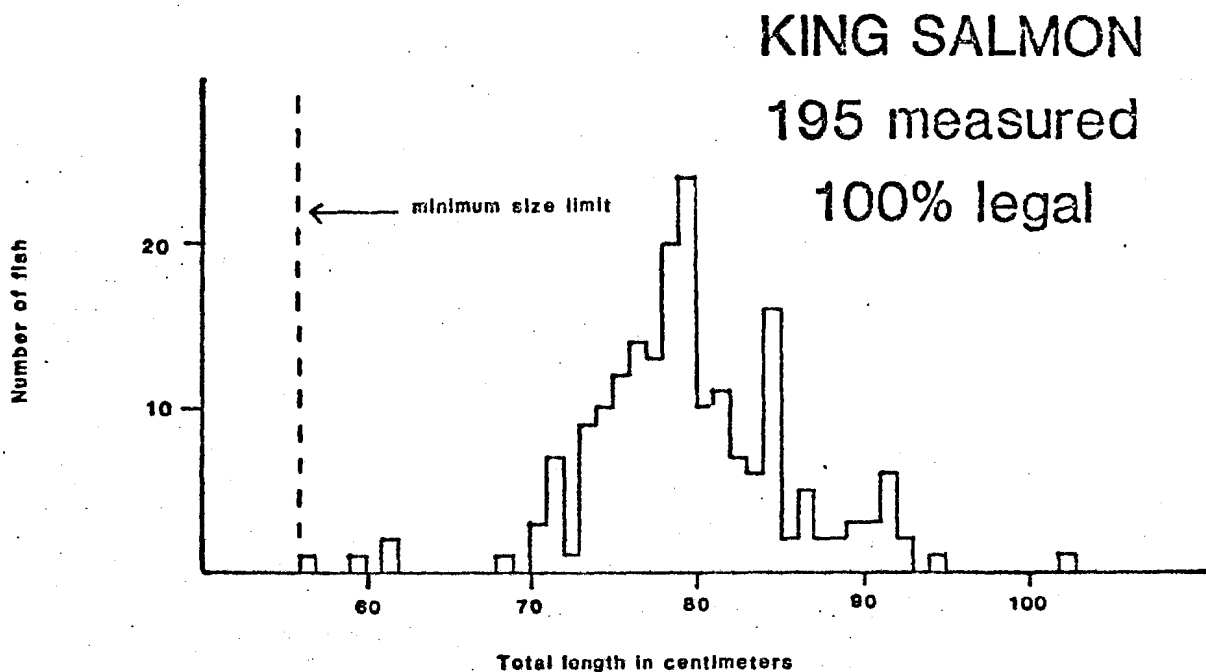


Figure 7. Length frequencies of king salmon and red abalone.