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SOUTHERN CALIFORNIA PARTYBOAT SAMPLING STUDY

QUARTERLY REPORT NO. 1

by

William D. Maxwell
and
Donald L. Schultze

**MARINE RESOURCES
ADMINISTRATIVE REPORT NO. 76-3**

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INTRODUCTION

Estimates of the total yearly catch from the partyboat fishery have been collected and published on a routine basis since 1935. Important data relating to the size and age composition of this segment of the marine sportfishery have been lacking. As a consequence, a southern California partyboat sampling study was initiated on April 1, 1975. The main objective of this sampling is to identify and measure all fishes taken by sportsmen on partyboats with primary emphasis given to California barracuda, *Sphyraena argentea*; yellowtail, *Seriola dorsalis*; white seabass, *Cynoscion nobilis*; and rockfishes, *Sebastes* spp.

OPERATIONS

Sampling effort at each port complex was allocated according to the number of boat trips reported for the same period during the previous season. Sample days within each port complex were chosen randomly but were often governed by the availability of space and the cooperation of the landings, particularly on busy weekends.

Port complexes are partyboat landings which have been grouped together because their boats often fish in the same general areas for the same species. Analysis by port complex facilitates the analysis of large amounts of sample data from six relatively homogeneous areas (Figure 1). Port complexes used during this study are the same as those used by the Department in past years for summarizing partyboat data.

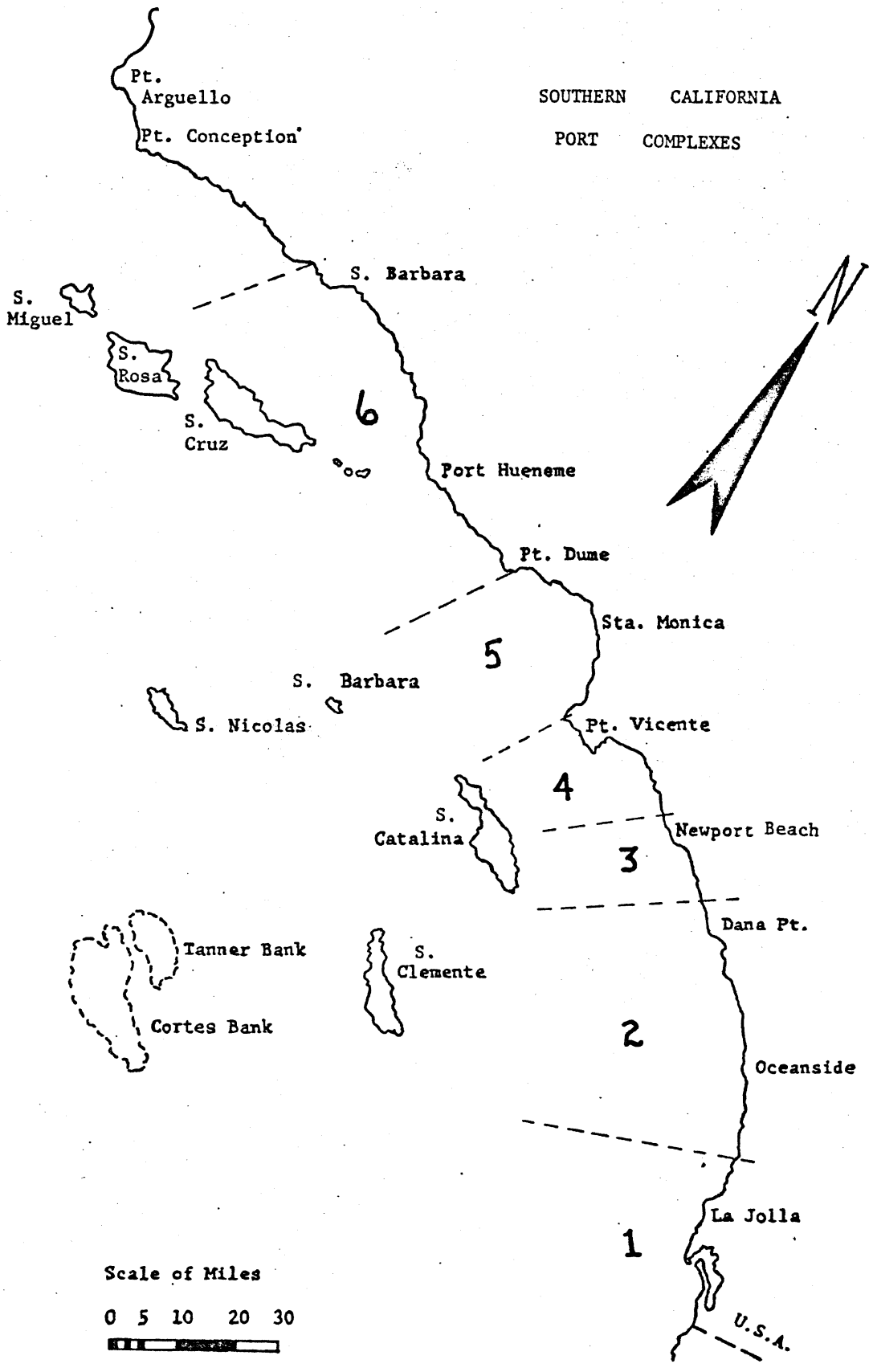


FIGURE 1. Port complexes for southern California partyboat fleet.

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ABSTRACT

During the period July 1 to September 30, 1975, Department personnel made 167 sampling trips aboard southern California partyboats. A total of 16,464 fish from 70 species was identified and measured.

Otoliths for use in age determination were removed from 976 rockfish carcasses representing 24 species.

Sampling personnel tagged and released 694 California barracuda, *Sphyraena argentea*; 56 white seabass, *Cynoscion nobilis*; 14 Pacific mackerel, *Scomber japonicus*; and 133 sablefish, *Anoplopoma fimbria*.

The 10 most common species sampled during this period represented 82% of the total number of fish measured. These were, in order of importance; bocaccio, *Sebastes paucispinis*; kelp bass, *Paralabrax clathratus*; barred sand bass, *Paralabrax nebulifer*; olive rockfish, *Sebastes serranoides*; Pacific bonito, *Sarda chiliensis*; blue rockfish, *Sebastes mystinus*; California barracuda; Pacific mackerel; sablefish; and brown rockfish, *Sebastes auriculatus*.

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Marine Resources Administrative Report No. 76-3. This study is being performed as part of Dingell-Johnson Project California F-32-R, "Southern California Marine Sport Fish Research" supported by Federal aid to Fish Restoration Funds. Field work was conducted in cooperation with the Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, under a contract entitled Stock Assessment, Fishery Evaluation, and Fishery Management of Southern California Recreational and Commercial Fisheries, Project 863.

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Operations Research Branch, California State Fisheries Laboratory, 350 Golden Shore, Long Beach, California 90802.

Department personnel made 167 trips aboard southern California partyboats and sampled all ports between San Diego and Santa Barbara. A total of 16,464 fishes from 70 species was identified and measured. Sampling personnel measured most fish in millimeters total length (TL)^{3/}. Fishes of the families Scombridae and Carangidae were measured in millimeters fork length.

Rockfish sampled for age determination were collected from the "fillet" line and their carcasses brought back to Long Beach where otoliths were removed and processed. During this period, otoliths were collected from 976 carcasses representing 24 species.

Incidental to the collection of length-frequency data, 694 California barracuda; 56 white seabass; 14 Pacific mackerel, *Scomber japonicus*; and 133 sablefish, *Anoplopoma fimbria*, were tagged and released. The latter species was tagged for a study being conducted by the National Marine Fisheries Service, Northwest Fisheries Center, Seattle, Washington.

DISCUSSION AND PRELIMINARY RESULTS

Examination of the sampling data (Table 1) reveals that the 10 most common species sampled during this period represented 82% of the total number of fish measured. These were, in order of importance; bocaccio, *Sebastes paucispinis*; kelp bass, *Paralabrax clathratus*; barred sand bass, *Paralabrax nebulifer*; olive rockfish, *Sebastes serranoides*; Pacific bonito, *Sarda chiliensis*; blue rockfish, *Sebastes mystinus*; California barracuda; Pacific mackerel,

^{3/}

Total length measures the distance from the anterior tip of the jaws, with mouth closed, to the end of the longest caudal ray with the rays brought to a horizontal position.

TABLE 1. Number of Fish Measured from Southern California Partyboats, July Through September 1975.

| Common name | Scientific name | Number measured | Common name | Scientific name | Number measured |
|----------------------------|-------------------------------------|-----------------|-------------------------|------------------------------|-----------------|
| Surfperch, barred | <u>Amphistichus argenteus</u> | 2 | Rockfish, starry | <u>S. constellatus</u> | 105 |
| Sablefish | <u>Anoplopoma fimbria</u> | 687 | Rockfish, calico | <u>S. dallii</u> | 27 |
| Jacksmelt | <u>Atherinopsis californiensis</u> | 3 | Rockfish, greenstriped | <u>S. elongatus</u> | 3 |
| Whitefish, ocean | <u>Caulolatilus princeps</u> | 207 | Rockfish, swordspine | <u>S. ensifer</u> | 3 |
| Croaker, black | <u>Cheilotrema saturnum</u> | 2 | Rockfish, widow | <u>S. entomelas</u> | 105 |
| Blacksmith | <u>Chromis punctipinnis</u> | 54 | Rockfish, pink | <u>S. eos</u> | 2 |
| Seabass, white | <u>Cynoscion nobilis</u> | 167 | Rockfish, yellowtail | <u>S. flavidus</u> | 18 |
| Hagfish, Pacific | <u>Eptatretus stoutii</u> | 1 | Rockfish, bronzespotted | <u>S. gilli</u> | 1 |
| Shark, soupfin | <u>Galeorhinus zyopterus</u> | 1 | Chilipepper | <u>S. goodei</u> | 38 |
| Croaker, white | <u>Genyonemus lineatus</u> | 373 | Rockfish, squarespot | <u>S. hopkinsi</u> | 178 |
| Opaleye | <u>Girella nigricans</u> | 18 | Cowcod | <u>S. levis</u> | 10 |
| Kelpfish, giant | <u>Heterostichus rostratus</u> | 2 | Rockfish, Mexican | <u>S. macdonaldi</u> | 13 |
| Sole, bigmouth | <u>Hippoglossina stomata</u> | 3 | Rockfish, vermilion | <u>S. miniatus</u> | 141 |
| Surfperch, silver | <u>Hyperprosopon ellipticum</u> | 1 | Rockfish, blue | <u>S. mystinus</u> | 1,014 |
| Sole, rock | <u>Lepidopsetta bilineata</u> | 6 | Rockfish, speckled | <u>S. ovalis</u> | 7 |
| Halfmoon | <u>Medialuna californiensis</u> | 190 | Bocaccio | <u>S. paucispinis</u> | 3,592 |
| Lingcod | <u>Ophiodon elongatus</u> | 49 | Rockfish, grass | <u>S. rastrelliger</u> | 151 |
| Senorita | <u>Oxyjulis californica</u> | 10 | Rockfish, rosy | <u>S. rosaceus</u> | 61 |
| Bass, kelp | <u>Paralabrax clathratus</u> | 2,750 | Rockfish, greenblotched | <u>S. rosenblatti</u> | 1 |
| Bass, spotted sand | <u>Paralabrax maculatofasciatus</u> | 1 | Rockfish, yelloweye | <u>S. ruberrimus</u> | 1 |
| Bass, barred sand | <u>Paralabrax nebulifer</u> | 1,150 | Rockfish, flag | <u>S. rubrivinctus</u> | 100 |
| Halibut, California | <u>Paralichthys californicus</u> | 73 | Rockfish, halfbanded | <u>S. semicinctus</u> | 17 |
| Sole, English | <u>Parophrys vetulus</u> | 1 | Rockfish, olive | <u>S. serranoides</u> | 1,115 |
| Sheephead, California | <u>Pimelometopon pulchrum</u> | 62 | Treefish | <u>S. serriceps</u> | 45 |
| Turbot, spotted | <u>Pleuronichthys ritteri</u> | 1 | Rockfish, honeycomb | <u>S. umbrosus</u> | 28 |
| Croaker, spotfin | <u>Roncador stearnsii</u> | 1 | Rockfish, whitebelly* | <u>S. vexillaris</u> | 133 |
| Bonito, Pacific | <u>Sarda chiliensis</u> | 1,050 | Yellowtail | <u>Seriola dorsalis</u> | 3 |
| Mackerel, Pacific | <u>Scomber japonicus</u> | 751 | Queenfish | <u>Seriphus politus</u> | 5 |
| Sculpin | <u>Scorpaena guttata</u> | 220 | Barracuda, California | <u>Sphyræna argentea</u> | 869 |
| Cabezon | <u>Scorpaenichthys marmoratus</u> | 59 | Dogfish, spiny | <u>Squalus acanthias</u> | 2 |
| Rockfish, kelp | <u>Sebastes atrovirens</u> | 89 | Sea bass, giant | <u>Stereolepis gigas</u> | 1 |
| Rockfish, brown | <u>S. auriculatus</u> | 464 | Lizardfish, California | <u>Synodus lucioceps</u> | 11 |
| Rockfish, gopher | <u>S. carnatus</u> | 46 | Tuna, bluefin | <u>Thunnus thynnus</u> | 5 |
| Rockfish, greenspotted | <u>S. chlorostictus</u> | 37 | Mackerel, jack | <u>Trachurus symmetricus</u> | 48 |
| Rockfish, black and yellow | <u>S. chrysomelas</u> | 38 | Croaker, yellowfin | <u>Umbrina roncadore</u> | 41 |

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

sablefish, and brown rockfish, *Sebastes auriculatus*.

Results indicate some effect of bias introduced by the method of sampling. Albacore fishing trips were not sampled due to trip lengths and manpower limitations, particularly since fish lengths could be obtained at the canneries from commercial boats fishing in the same area. The same considerations precluded our sampling of offshore trips to Santa Catalina and San Clemente Islands.

Halfmoon and sheephead made up a lower percentage of our samples than we expected after examining partyboat logs. This can be directly attributed to the disproportionately fewer samples from the offshore areas.

Partyboat fishing during this period differed from the two preceding seasons by the presence of a significant albacore fishery, principally south of Los Angeles, which diverted effort normally expended in nearshore areas and the Coronado Islands.

The yellowtail fishery failed to materialize this season. The catch so far in 1975 is less than 11% of the 1974 catch for the same period. Similarly, catches of California barracuda and Pacific bonito are down from a year ago, while the Pacific mackerel catch is up, and the catch of rockfish continues to increase following the pattern of previous seasons.

All species of *Sebastes* taken by the partyboat fleet are reported under the single category of "rockfish". One of the primary objectives of the sampling study is to determine the species composition of this catch. Data from the past quarter (Table 2) show that the top three species contributed over 75% of the sampled catch. These results are typical of summer effort, which is generally directed

TABLE 2. Species Composition of Rockfish Catch, Sebastes spp., from Partyboat Samples, July through September, 1975.

| Common name | Scientific name | Percentage |
|------------------|-----------------------------|------------|
| Bocaccio | <u>Sebastes paucispinis</u> | 47.4 |
| Olive | <u>S. serranoides</u> | 14.7 |
| Blue | <u>S. mystinus</u> | 13.4 |
| Brown | <u>S. auriculatus</u> | 6.1 |
| Squarespot | <u>S. hopkinsi</u> | 2.3 |
| Grass | <u>S. rastrelliger</u> | 2.0 |
| Vermilion | <u>S. miniatus</u> | 1.9 |
| Whitebelly* | <u>S. vexillaris</u> | 1.8 |
| Starry | <u>S. constellatus</u> | 1.4 |
| Widow | <u>S. entomelas</u> | 1.4 |
| Flag | <u>S. rubrivinctus</u> | 1.3 |
| Kelp | <u>S. atrovirens</u> | 1.2 |
| Rosy | <u>S. rosaceus</u> | 0.8 |
| Gopher | <u>S. carnatus</u> | 0.6 |
| Treefish | <u>S. serriceps</u> | 0.6 |
| Chilipepper | <u>S. goodei</u> | 0.5 |
| Greenspotted | <u>S. chlorostictus</u> | 0.5 |
| Black and yellow | <u>S. chysomelas</u> | 0.5 |
| Honeycomb | <u>S. umbrosus</u> | 0.4 |
| Calico | <u>S. dallii</u> | 0.4 |
| Yellowtail | <u>S. flavidus</u> | 0.2 |
| Halfbanded | <u>S. semicinctus</u> | 0.2 |
| Mexican | <u>S. macdonaldi</u> | 0.2 |
| Cowcod | <u>S. levis</u> | 0.1 |
| Speckled | <u>S. ovalis</u> | 0.1 |
| Greenstriped | <u>S. elongatus</u> | <0.1 |
| Swordspine | <u>S. ensifer</u> | <0.1 |
| Pink | <u>S. eos</u> | <0.1 |
| Bronzespotted | <u>S. gilli</u> | <0.1 |
| Greenblotched | <u>S. rosenblatti</u> | <0.1 |
| Yelloweye | <u>S. ruberrimus</u> | <0.1 |

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

towards shallow water and kelp related species.

Catches of juvenile white seabass and California barracuda reflect their continued vulnerability to the partyboat fishery with 77% of the California barracuda and 89% of the white seabass hooked less than the minimum size limit of 28 inches (71.1 cm).

Effort and Catch per Unit Effort

Effort (anglers, angler hours^{4/}) and catch per unit of effort (fish per angler hour) values were determined for sampled port complexes (Figure 2). These values apply primarily to nearshore areas because offshore island trips were sampled only occasionally. It was necessary to use the partyboat skippers' estimates of total fish caught per trip for San Diego and Oceanside trips during July and August as San Diego samplers were not making independent estimates of this value during these months.

Peak passenger loads were observed during July and August. The greatest average number of anglers per trip was found at port complex 3 during July. The lowest average number of anglers per trip was also found at port complex 3 in September. A marked decline in passenger loads at all port complexes is evident for September.

The average number of hours spent fishing aboard partyboats varies primarily with the total length of the trip (half-day, three quarter-day, or all-day). Other factors affecting the number of hours fishing are availability of the fish and distance from home port to the fishing grounds.

^{4/} Angler hours are computed as the product of the number of anglers aboard a boat and the number of hours passengers fished during a trip.

J-July
A-August
S-September

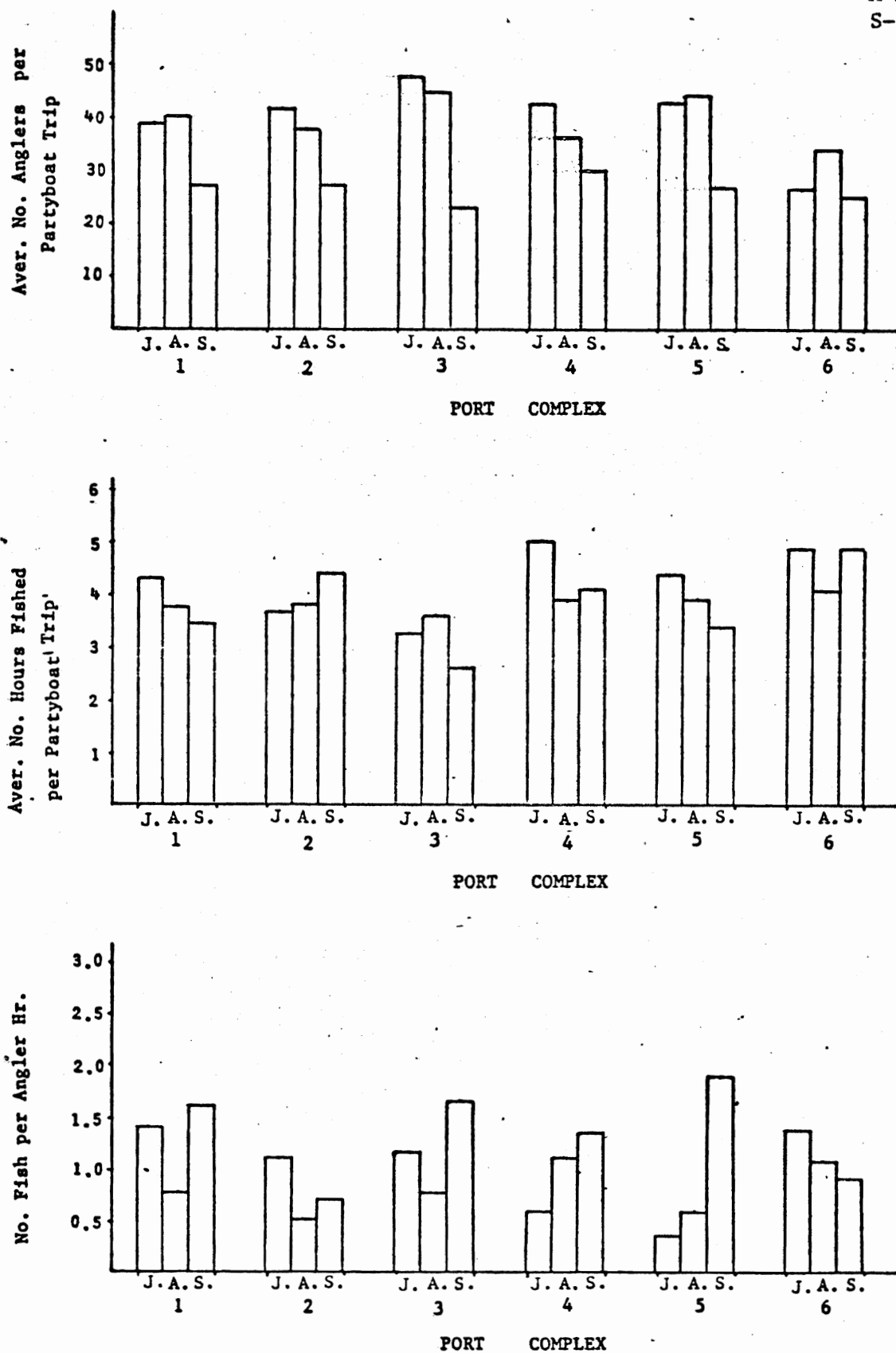


FIGURE 2. Catch and effort data for southern California port complexes, July through September 1975.

Generally shorter trips for port complex 3 reflect the greater number of half-day trips sampled from this port complex.

The number of fish caught per angler hour fished in June declines from 5.55 at port complex 1 to 1.53 at port complex 5. During June most vessels at these port complexes converted from rock-cod fishing to the pursuit of surface species such as Pacific bonito, California barracuda, yellowtail, and kelp and sand bass. The decline in catch per unit effort (CPUE) values from south to north probably reflects the lower abundance of these surface species in more northern waters. At port complex 6 little effort was made to pursue the surface game species and the higher CPUE value reflects the continued effort for rockfish.

During August CPUE values were generally lower than for June. As in 1971, 1972, and 1974, the presence of abnormally cold water off the southern California coast appears to have reduced the northward migration of the Pacific bonito, California barracuda, and yellowtail populations, reducing the game fish stocks available to local party-boat anglers.

In September a return to rock-cod fishing at many landings produced higher CPUE values for all port complexes except port complex 6.

Monthly length-frequencies for the more important program species as well as their mean lengths and standard deviations are presented in Figures 3 through 11.

All sampling information has now been processed and length frequency data are available upon request.

Age determination obtained from otolith samples has not been completed at this time.

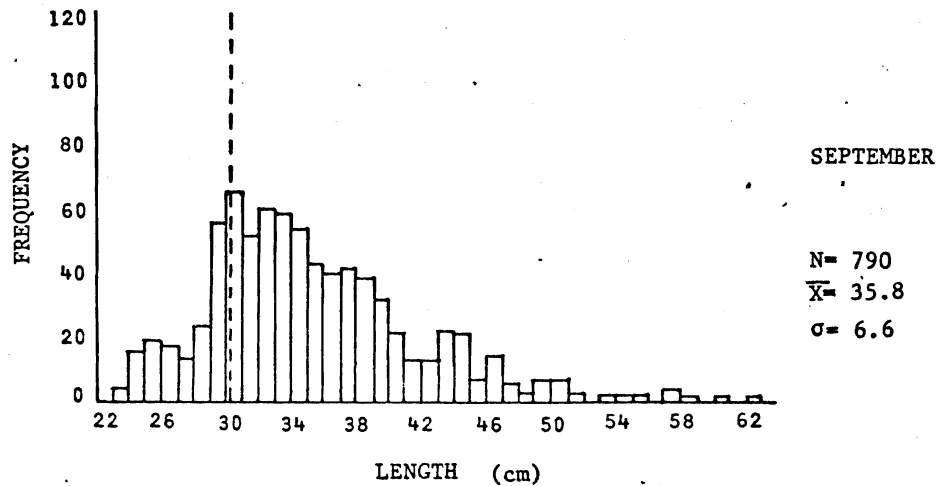
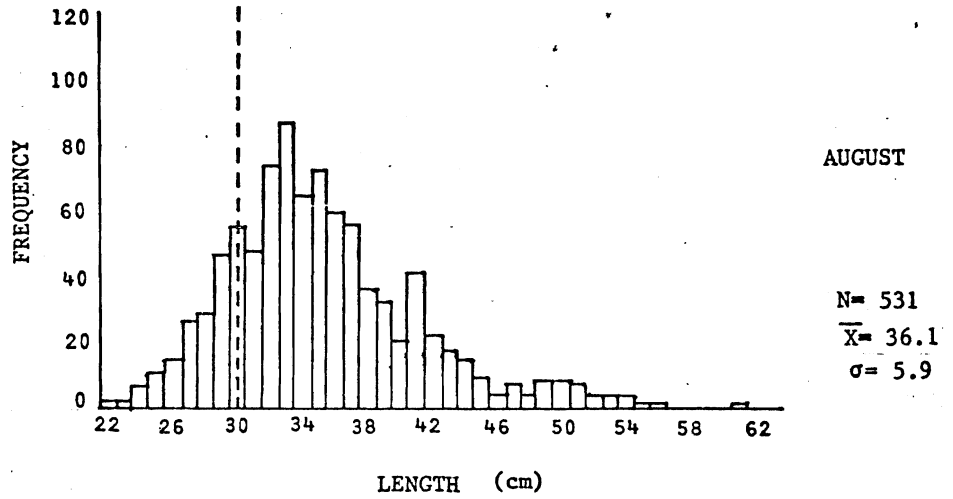
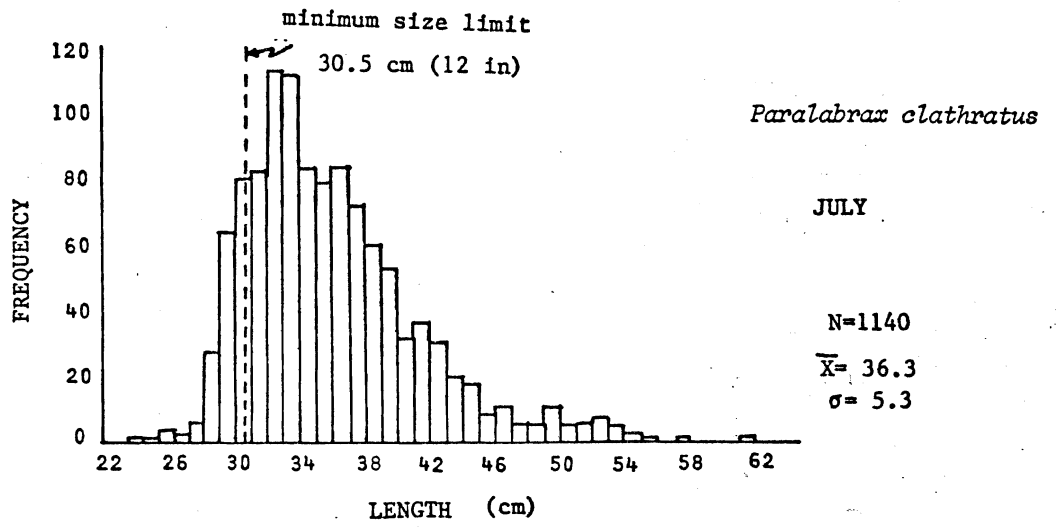


FIGURE 3. Length frequencies for kelp bass from southern California partyboats for July through September 1975.

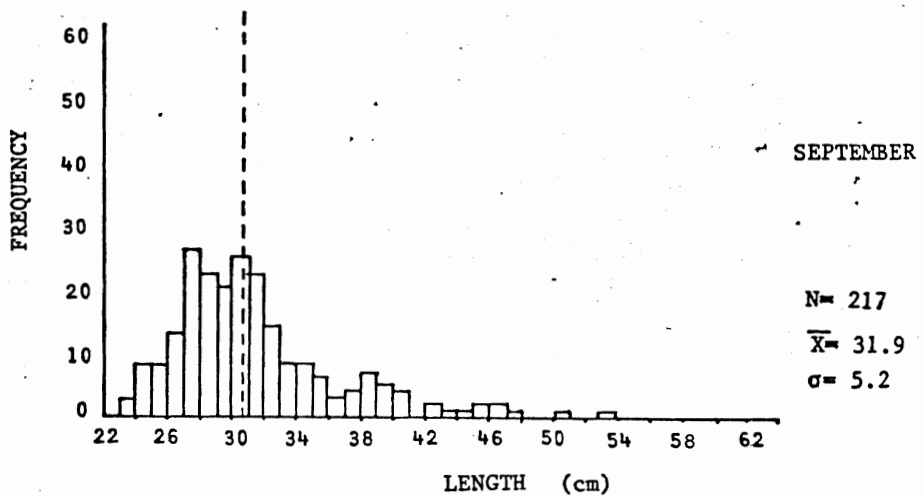
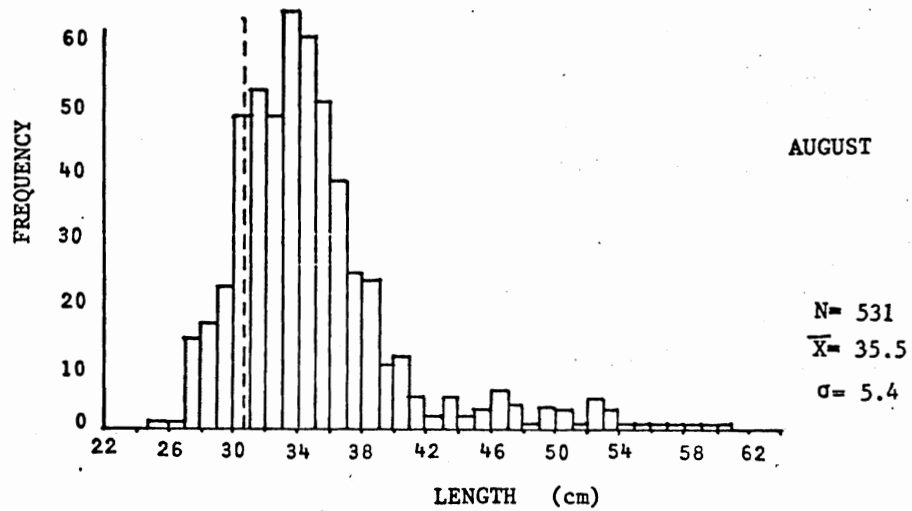
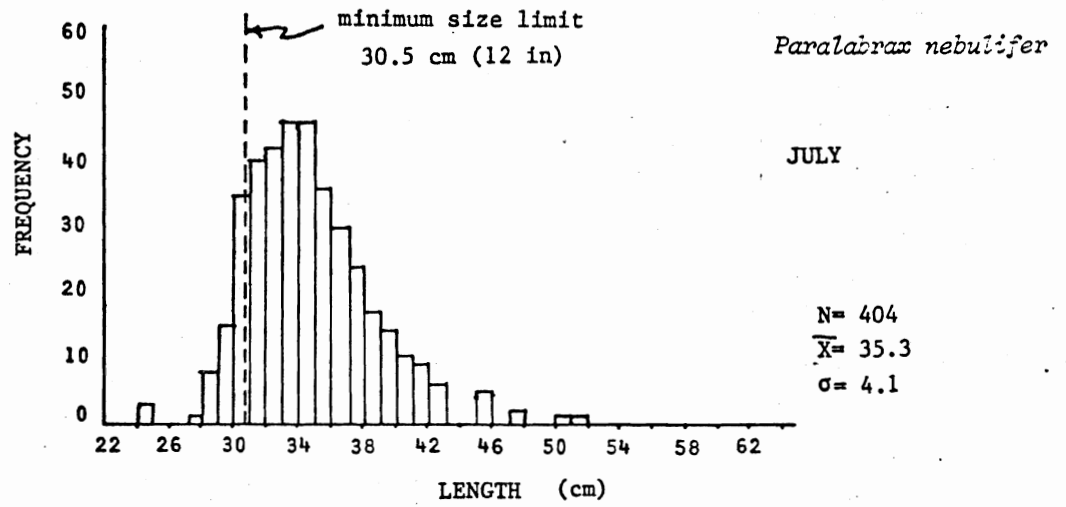


FIGURE 4. Length frequencies for barred sand bass from southern California partyboats for August through September 1975.

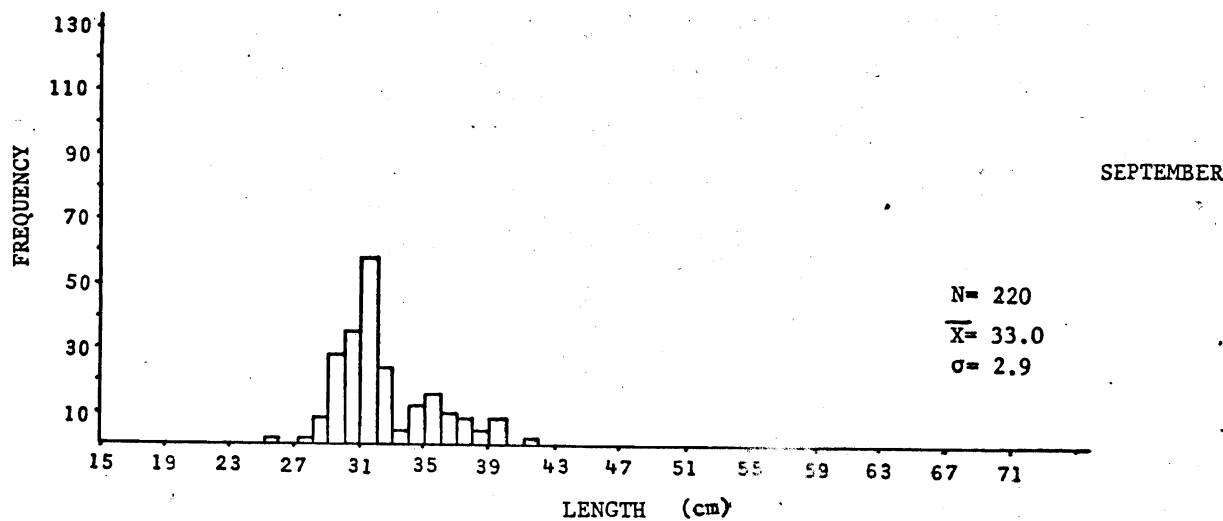
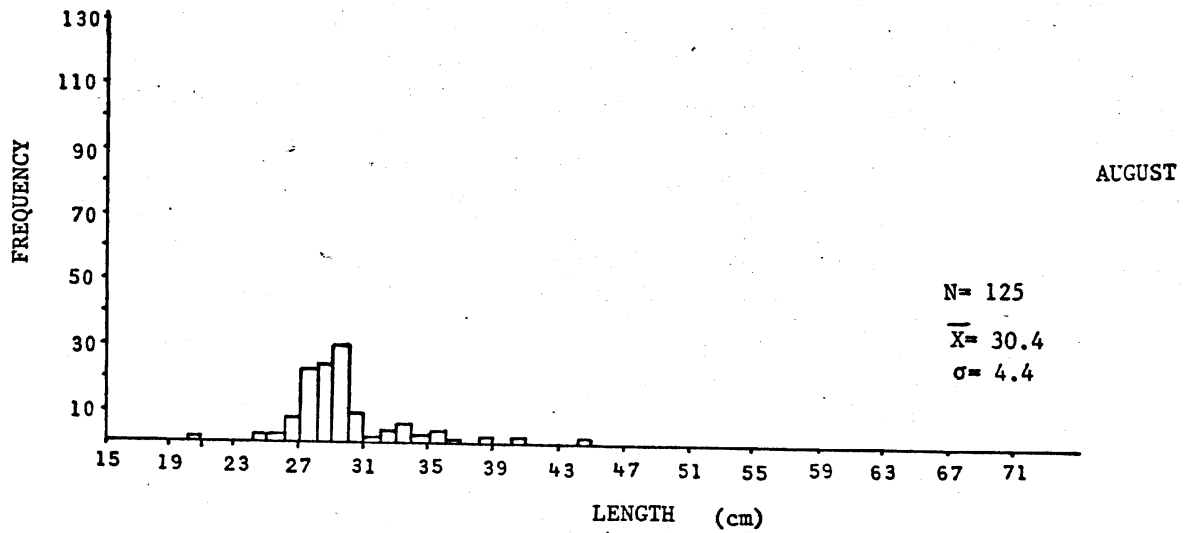
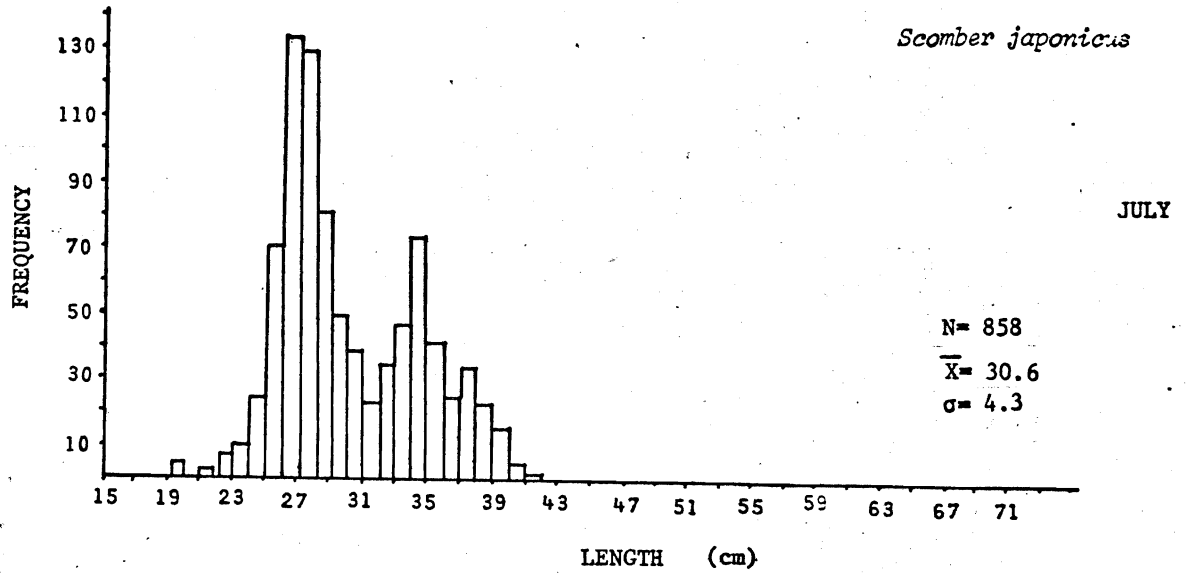


FIGURE 5. Length frequencies for Pacific mackerel from southern California partyboats for August through September 1975.

Sarda chiliensis

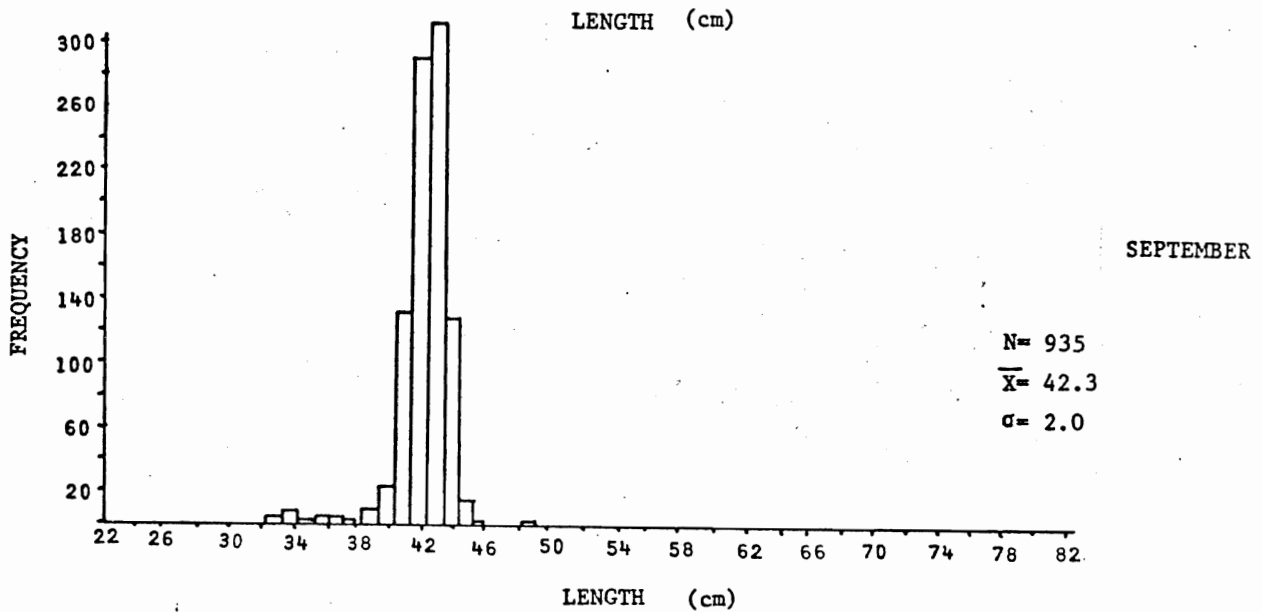
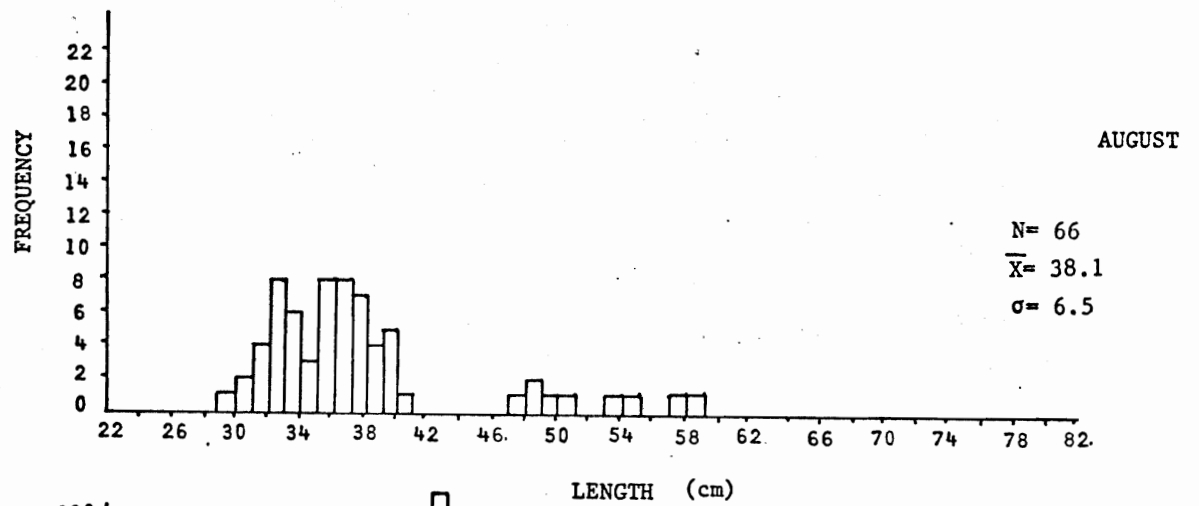
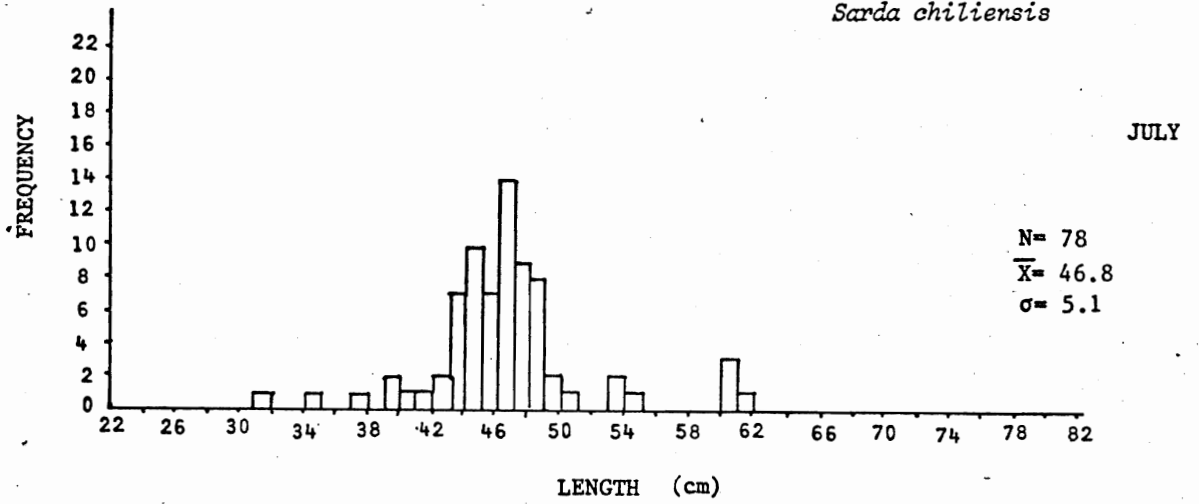


FIGURE 6. Length frequencies for Pacific bonito from southern California partyboats for August through September 1975.

Sebastes mystinus

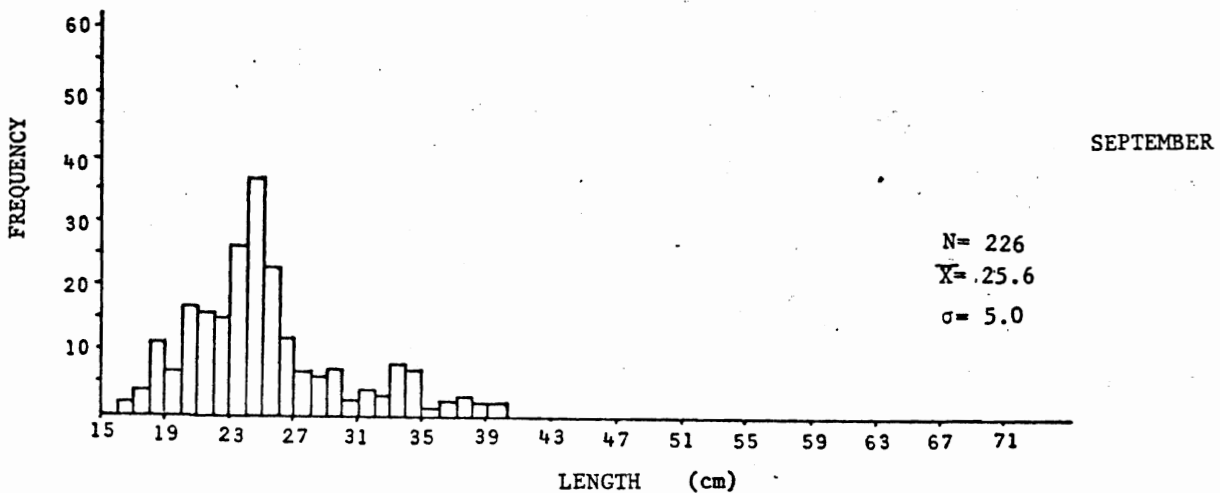
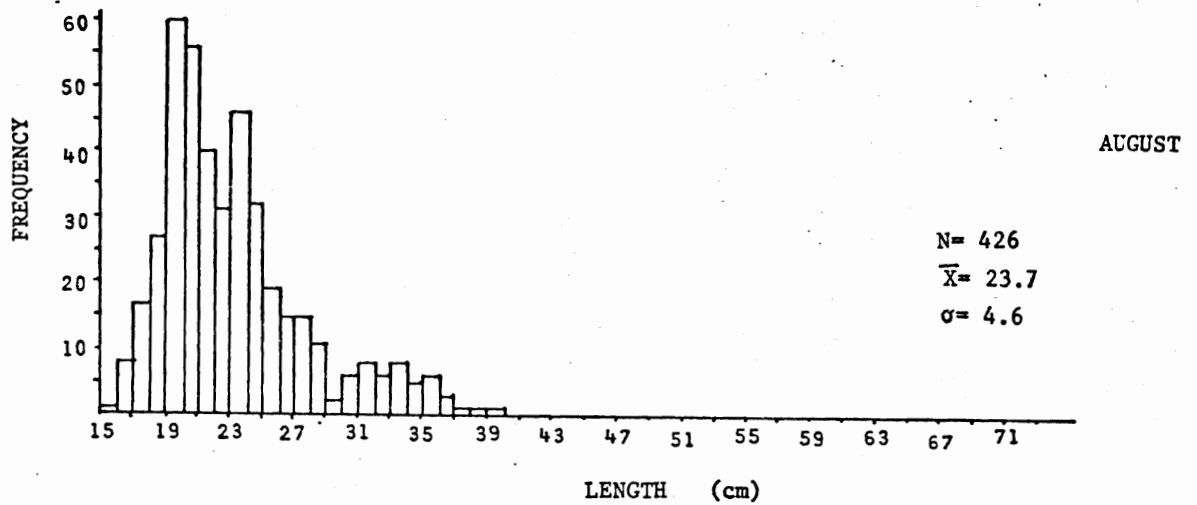
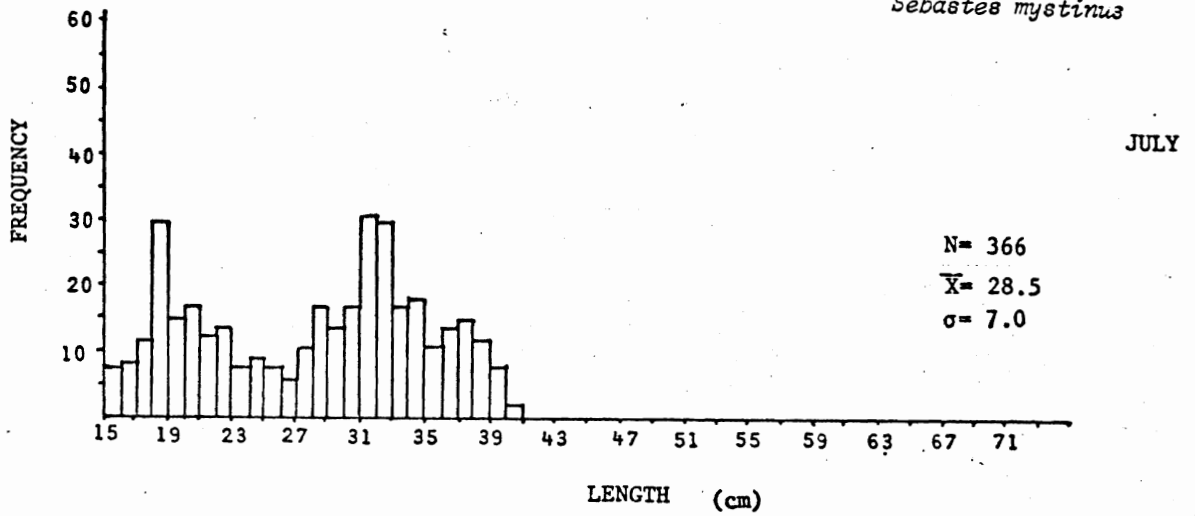


FIGURE 7. Length frequencies for blue rockfish from southern California partyboats for August through September 1975.

Sebastes paucispinis

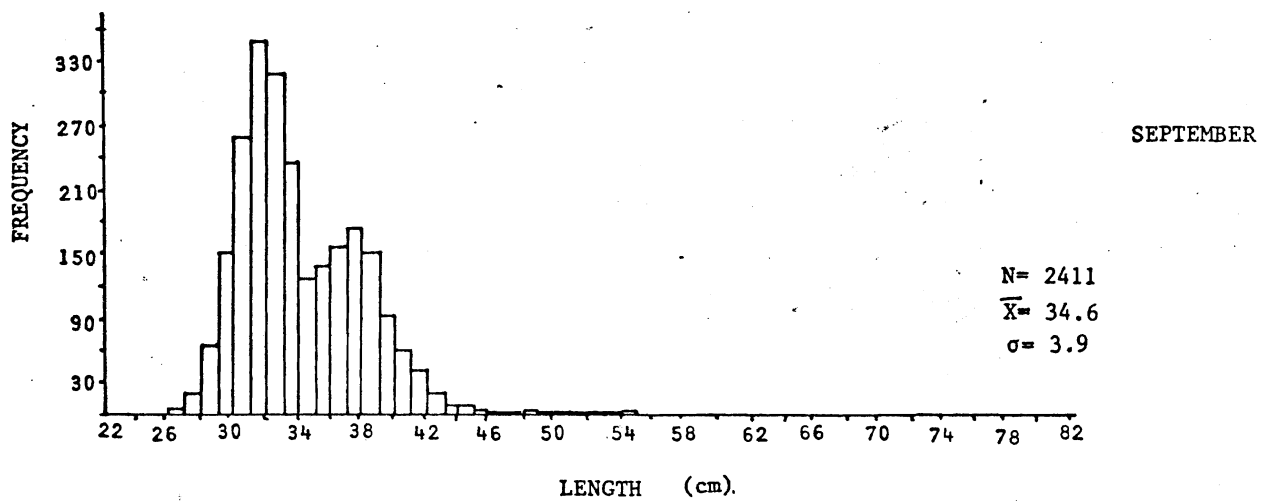
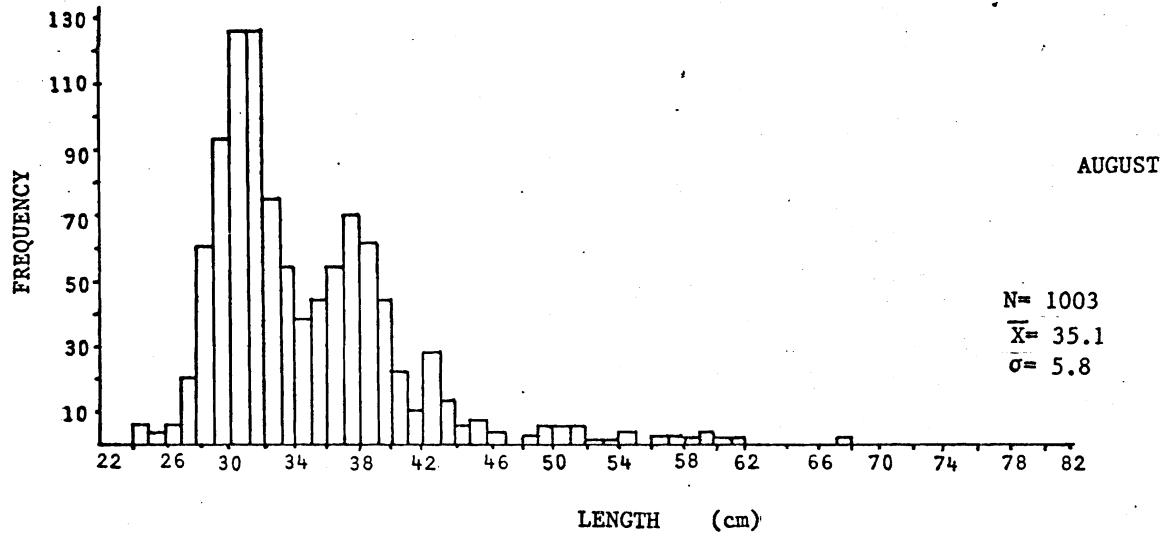
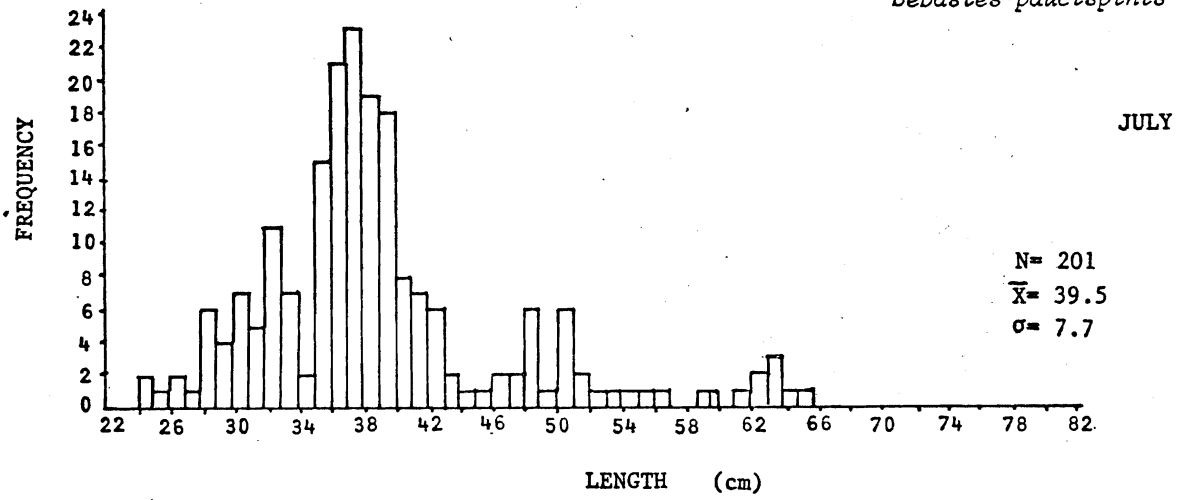


FIGURE 8. Length frequencies for bocaccio from southern California partyboats for August through September 1975.

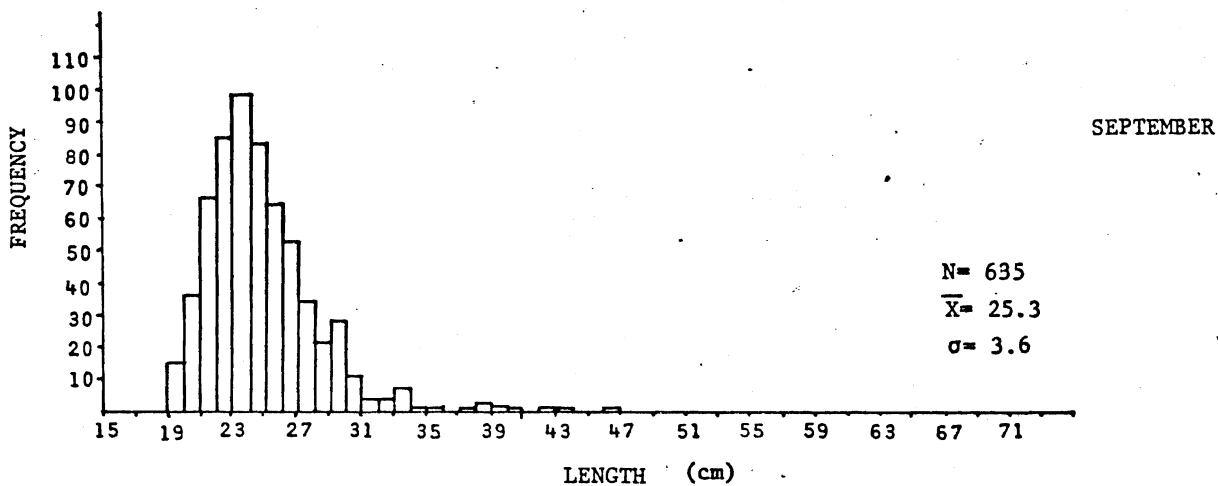
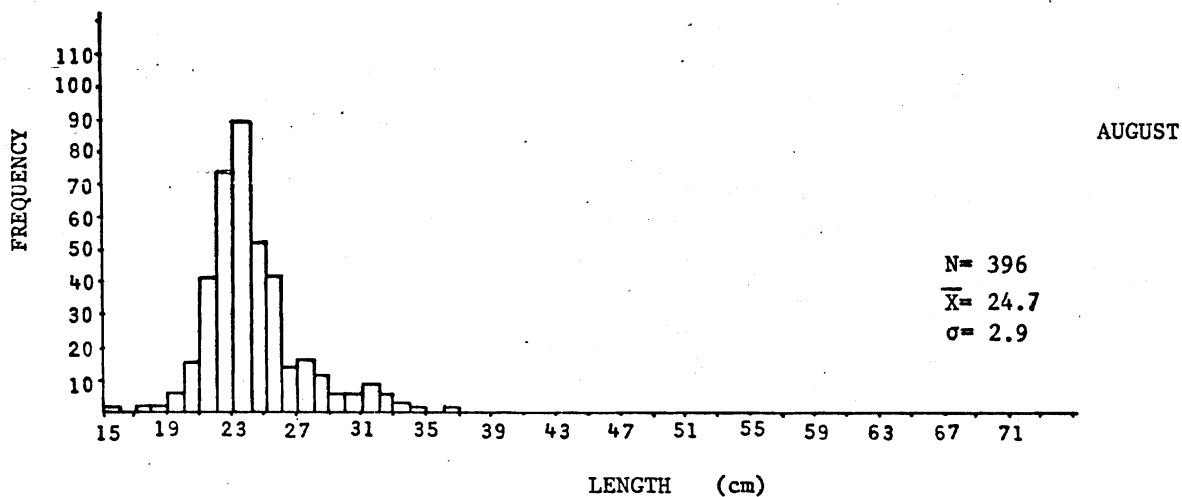
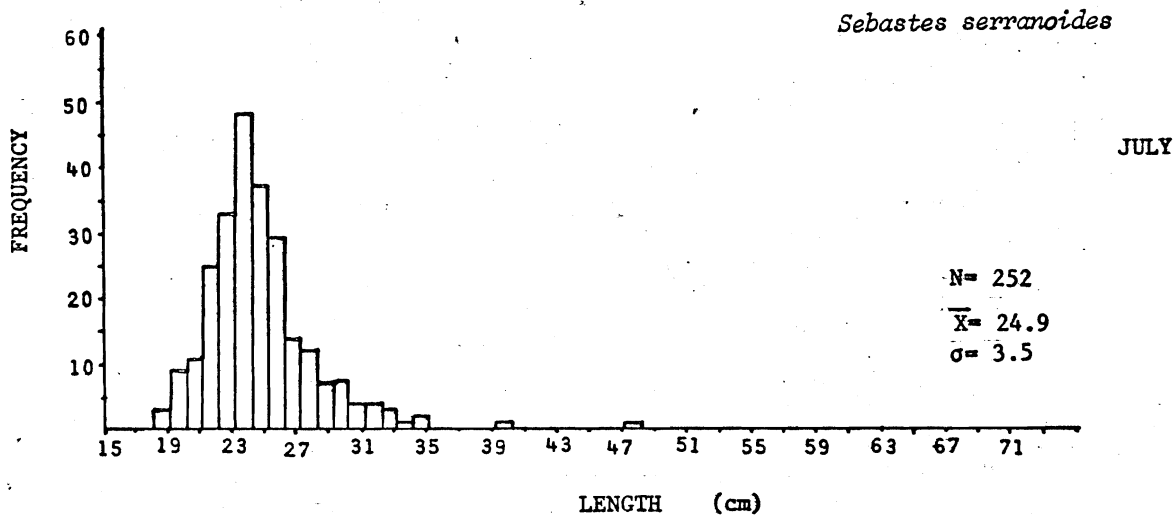


FIGURE 9. Length frequencies for olive rockfish from southern California partyboats for August through September 1975.

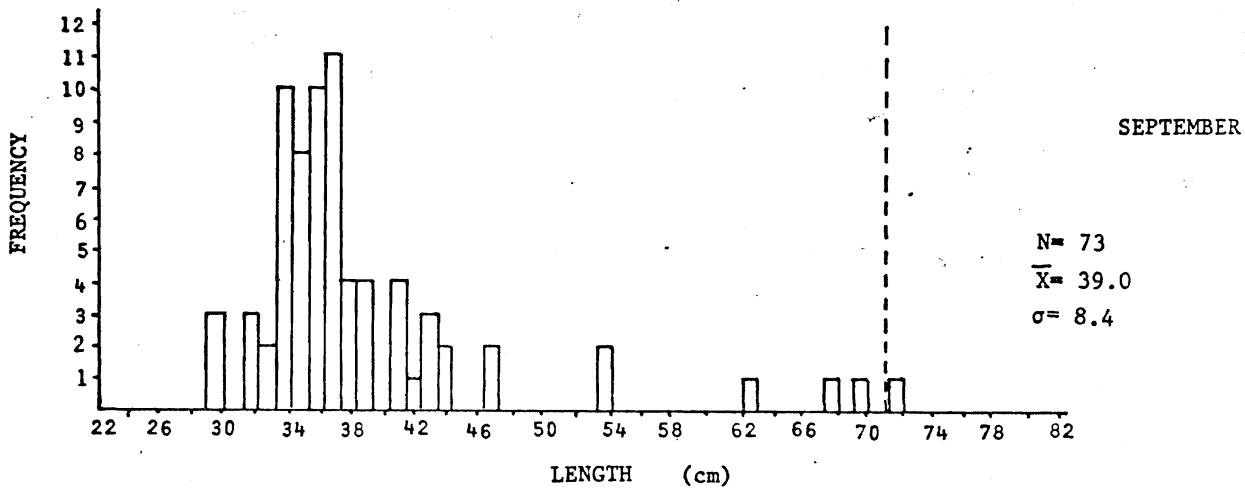
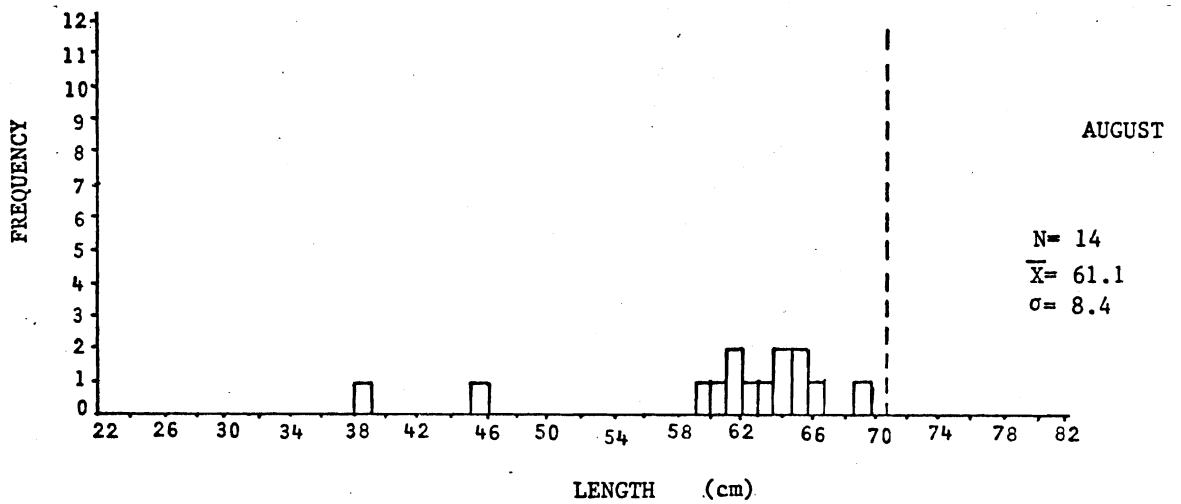
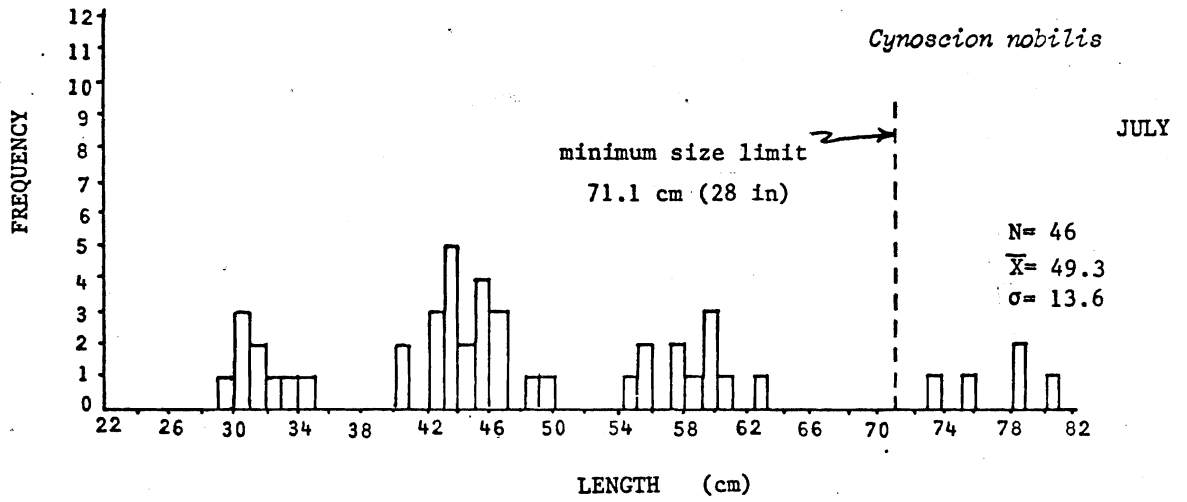


FIGURE 10. Length frequencies for white seabass from southern California partyboats for August through September 1975.

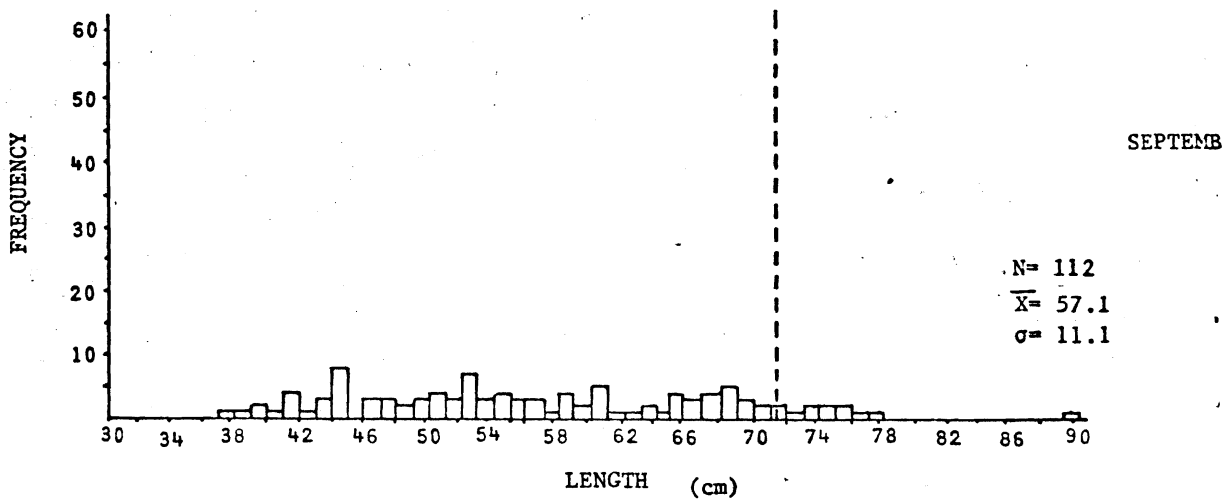
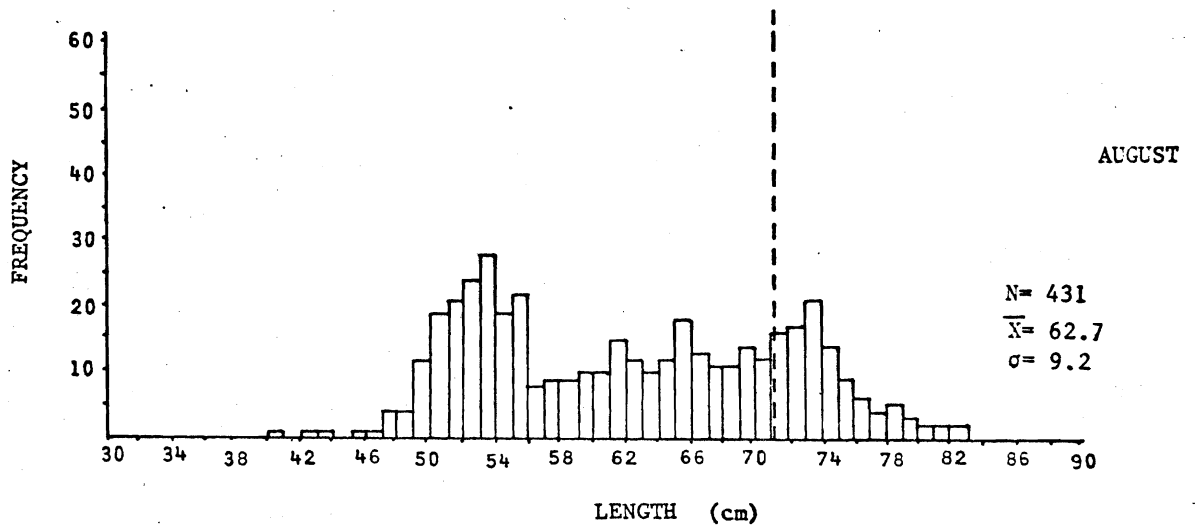
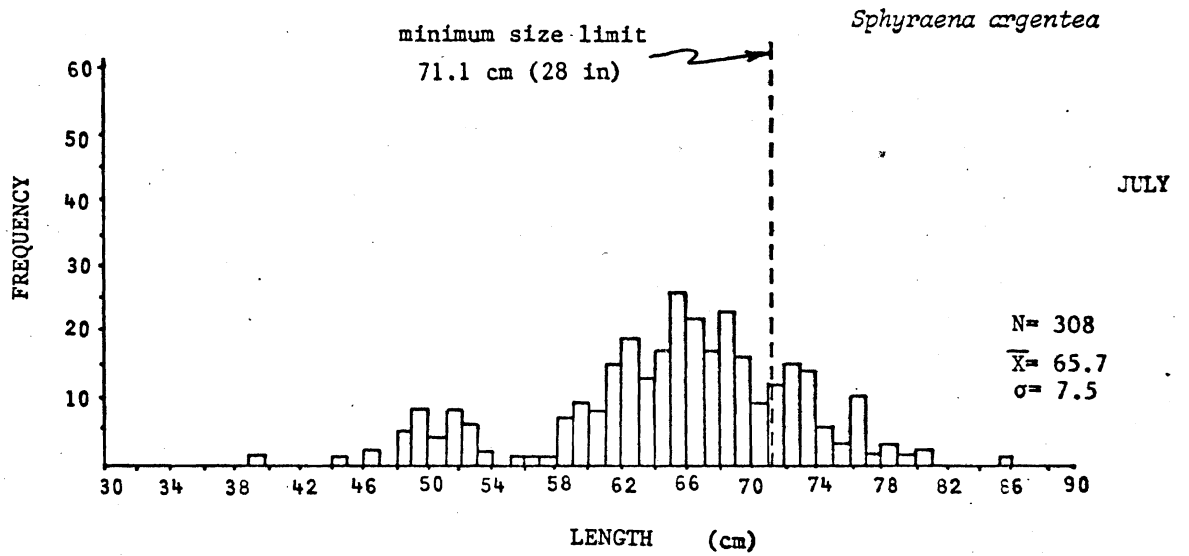


FIGURE 11. Length frequencies for California barracuda from southern California for August through September 1975.