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SOUTHERN CALIFORNIA PARTYBOAT SAMPLING STUDY
QUARTERLY REPORT NO. 4

by

William D. Maxwell

and

Donald L. Schultze

MARINE RESOURCES

Administrative Report No. 77-2

January 1977

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ABSTRACT

From 1 April through 30 June, 1976, Department personnel made 146 trips aboard southern California partyboats. A total of 18,218 fishes from 76 species was identified and measured.

Otoliths were removed from 674 rockfish carcasses for use in age determination studies.

The 10 most common species sampled during this quarter represented 85.2% of the total number of fishes measured. These were, in order of importance: bocaccio, *Sebastes paucispinis*; kelp bass, *Paralabrax clathratus*; Pacific bonito, *Sarda chiliensis*; barred sand bass, *Paralabrax nebulifer*; chilipepper, *Sebastes goodei*; California barracuda, *Sphyræna argentea*; olive rockfish; *Sebastes serranoides*; white croaker, *Genyonemus lineatus*; ocean whitefish, *Caulolatilus princeps*; and vermilion rockfish, *Sebastes miniatus*.

Pacific bonito and California barracuda partyboat landings exceeded those of the entire 1975 season, and sampling data indicate the average length of barracuda caught from partyboats was significantly larger than that of the previous season.

1/

Marine Resources Administrative Report No. 77-2. This study is being conducted as part of Dingell-Johnson Project California F-32-R, "Southern California Marine Sportfish 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.

2/

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INTRODUCTION

In the second quarter of 1976, 146 trips were made aboard party-boats between San Diego and Santa Barbara. A total of 18,218 fishes belonging to 76 species was identified and measured^{3/} during the sampling period. Also, otoliths were removed from 674 rockfish carcasses for age determination studies.

The 10 most common species sampled were, in order of importance: bocaccio, *Sebastes paucispinis*; kelp bass, *Paralabrax clathratus*; Pacific bonito, *Sarda chiliensis*; barred sand bass, *Paralabrax nebulifer*; chilipepper, *Sebastes goodei*; California barracuda, *Sphyræna argentea*; olive rockfish, *Sebastes serranoides*; white croaker, *Genyonemus lineatus*; ocean whitefish, *Caulolatilus princeps*; and vermilion rockfish, *Sebastes miniatus*. As a group these species contributed 85.2% of the total sampled catch (Table 1).

The sampled quarter represented a transitional period during which effort was gradually shifted from "rockcod" fishing to "surface" fishing as local waters warmed-up and preferred game fishes became available on nearby fishing grounds. This was reflected in a lesser contribution of rockfishes to the total catch. In April, 83.6% of the sampled catch consisted of rockfishes, while the May and June figures dropped to 43.8% and 12.8% respectively.

DISCUSSION

Rockfishes

Thirty-four species were represented in the 7,745 rockfishes captured. For the entire quarter, rockfishes contributed 42.5% of the sampled catch as compared to 93.5% (January-March) and 74.0% (October-December) for the previous two quarters.

^{3/}

For definition of length measurements see Maxwell and Schultze Marine Resources Administrative Report 76-3.

TABLE 1. Number of Fishes Measured from Southern California Partyboats, April through June, 1976.

| Common name | Scientific name | Number measured | Common name | Scientific name | Number measured |
|------------------------|-----------------------------------|-----------------|----------------------------|------------------------------|-----------------|
| Shark, thresher | <i>Alopias vulpinus</i> | 1 | Rockfish, gopher | <i>Sebastes carnatus</i> | 21 |
| Surfperch, barred | <i>Amphistichus argenteus</i> | 1 | Rockfish, greenspotted | <i>S. chlorostictus</i> | 221 |
| Sargo | <i>Anisotremus davidsonii</i> | 7 | Rockfish, black and yellow | <i>S. chrysomelas</i> | 3 |
| Sablefish | <i>Anoplopoma fimbria</i> | 146 | Rockfish, starry | <i>S. constellatus</i> | 60 |
| Whitefish, ocean | <i>Caulolatilus princeps</i> | 343 | Rockfish, calico | <i>S. dallii</i> | 57 |
| Croaker, black | <i>Cheilotrema saturnum</i> | 2 | Rockfish, greenstriped | <i>S. elongatus</i> | 86 |
| Sandcub, Pacific | <i>Citharichthys sordidus</i> | 8 | Rockfish, swordspine | <i>S. ensifer</i> | 2 |
| Seabass, white | <i>Cynoscion nobilis</i> | 14 | Rockfish, widow | <i>S. entomelas</i> | 21 |
| Sole, petrale | <i>Eopsetta jordani</i> | 43 | Rockfish, pink | <i>S. eos</i> | 27 |
| Shark, soupfin | <i>Galeorhinus zyopterus</i> | 2 | Rockfish, yellowtail | <i>S. flavidus</i> | 4 |
| Croaker, white | <i>Genyonemus lineatus</i> | 414 | Rockfish, bronzespotted | <i>S. gilli</i> | 4 |
| Opaleye | <i>Girella nigricans</i> | 5 | Chilipepper | <i>S. goodii</i> | 1,135 |
| Wrasse, rock | <i>Halichoeres semicinctus</i> | 2 | Rockfish, rosethorn | <i>S. helvomaculatus</i> | 2 |
| Kelpfish, giant | <i>Heterostichus rostratus</i> | 5 | Rockfish, squarespot | <i>S. hopkinsi</i> | 28 |
| Sole, bigmouth | <i>Hippoglossina stomata</i> | 6 | Cowcod | <i>S. levis</i> | 52 |
| Ratfish | <i>Hydrolagus colliei</i> | 2 | Rockfish, Mexican | <i>S. macdonaldi</i> | 6 |
| Surfperch, walleye | <i>Hyperprosopon argenteum</i> | 1 | Rockfish, vermilion | <i>S. miniatus</i> | 285 |
| Halfmoon | <i>Medialuna californiensis</i> | 68 | Rockfish, blue | <i>S. mystinus</i> | 205 |
| Hake, Pacific | <i>Merluccius productus</i> | 3 | Rockfish, speckled | <i>S. ovalis</i> | 22 |
| Salmon, king | <i>Oncorhynchus tshawytscha</i> | 2 | Bocaccio | <i>S. paucispinis</i> | 4,329 |
| Lingcod | <i>Ophiodon elongatus</i> | 94 | Rockfish, chameleon | <i>S. phillipsi</i> | 1 |
| Senorita | <i>Oxyjulis californica</i> | 3 | Rockfish, canary | <i>S. pinniger</i> | 8 |
| Bass, kelp | <i>Paralabrax clathratus</i> | 3,481 | Rockfish, grass | <i>S. rastrelliger</i> | 12 |
| Bass, spotted sand | <i>P. maculatofasciatus</i> | 107 | Rockfish, rosy | <i>S. rosaceus</i> | 36 |
| Bass, barred sand | <i>P. nebulifer</i> | 1,641 | Rockfish, greenblotched | <i>S. rosenblatti</i> | 102 |
| Halibut, California | <i>Paralichthys californicus</i> | 71 | Rockfish, flag | <i>S. rubrivinctus</i> | 63 |
| Surfperch, white | <i>Phanerodon furcatus</i> | 1 | Rockfish, bank | <i>S. rufus</i> | 138 |
| Sheephead, California | <i>Pimelometopon pulchrum</i> | 39 | Rockfish, halfbanded | <i>S. semicinctus</i> | 3 |
| Ray, thornback | <i>Platyrhinoidis triseriata</i> | 1 | Rockfish, olive | <i>S. serranoides</i> | 496 |
| Shark, blue | <i>Prionace glauca</i> | 1 | Treefish | <i>S. serriiceps</i> | 30 |
| Ronquil, smooth | <i>Ratkbunella hypoplecta</i> | 1 | Rockfish, honeycomb | <i>S. umbrosus</i> | 61 |
| Guitarfish, shovelnose | <i>Rhinobatos productus</i> | 2 | Rockfish, whitebelly* | <i>S. vexillaris</i> | 75 |
| Bonito, Pacific | <i>Sarda chiliensis</i> | 2,302 | Yellowtail | <i>Seriola dorsalis</i> | 32 |
| Mackerel, Pacific | <i>Scomber japonicus</i> | 257 | Queenfish | <i>Seriophilus politus</i> | 14 |
| Sculpin | <i>Scorpaena guttata</i> | 165 | Barracuda, California | <i>Sphyræna argentea</i> | 1,091 |
| Cabezon | <i>Scorpaenichthys marmoratus</i> | 45 | Mackerel, jack | <i>Trachurus symmetricus</i> | 40 |
| Rockfish, kelp | <i>Sebastes atrovirens</i> | 55 | Croaker, yellowfin | <i>Umbrina roncadora</i> | 2 |
| Rockfish, brown | <i>S. auriculatus</i> | 93 | Lizardfish, California | <i>Synodus lucioceps</i> | 10 |
| | | | TOTAL | | 18,218 |

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

The small percentage of rockfishes in June samples was due to a reduced rockfish sampling schedule. Often we were confronted with a choice of sampling either a rockcod boat or surface fishing boat on the same day from a particular landing. Generally, we chose the latter because sampling surface game fish species has a higher priority in our program.

The bulk of rockfish landings consisted of the same species (Table 2) as those of previous reports. These are: bocaccio (55.9%), chilipepper (14.7%), olive rockfish (6.4%), vermilion rockfish (2.9%), greenspotted rockfish (2.9%), and blue rockfish (2.7%). The remaining 13.5% of the rockfish catch consisted of 28 additional species.

Length-frequency histograms for bocaccio and chilipepper show that while numbers of fish sampled decreased substantially from the previous quarter, the average size captured remained approximately the same (Figures 1 and 2).

Pacific Bonito, California Barracuda, White Seabass,
Yellowtail, Pacific Mackerel

The Pacific bonito sportfishery enjoyed an earlier than normal start this season. The California Partyboat Logs Preliminary Report through June showed the catch already well ahead of last year's entire catch. Bonito accounted for 12.6% of our samples during the quarter. The overwhelming majority were from the 1975 year-class (Figure 3).

California barracuda catches also began earlier than normal. The reported partyboat catch through June was already twice that of the 1975 season. The total catch not only increased substantially but our samples indicate that the average size of the fish hooked by partyboat anglers (Figure 4) was significantly larger than that of a year ago.

TABLE 2. Species Composition of Rockfishes (*Sebastes* spp.) Catch from Partyboat Samples, April through June, 1976.

| Common name | Scientific name | Frequency of occurrence (%) |
|------------------|-----------------------------|-----------------------------|
| Bocaccio | <i>Sebastes paucispinis</i> | 55.9 |
| Chilipepper | <i>S. goodei</i> | 14.7 |
| Olive | <i>S. serranoides</i> | 6.4 |
| Vermilion | <i>S. miniatus</i> | 3.7 |
| Greenspotted | <i>S. chlorostictus</i> | 2.9 |
| Blue | <i>S. mystinus</i> | 2.7 |
| Bank | <i>S. rufus</i> | 1.8 |
| Greenblotched | <i>S. rosenblatti</i> | 1.3 |
| Brown | <i>S. auriculatus</i> | 1.2 |
| Greenstriped | <i>S. elongatus</i> | 1.1 |
| Whitebelly* | <i>S. vexillaris</i> | 1.0 |
| Flag | <i>S. rubrivinctus</i> | 0.8 |
| Honeycomb | <i>S. umbrosus</i> | 0.8 |
| Starry | <i>S. constellatus</i> | 0.8 |
| Calico | <i>S. dallii</i> | 0.7 |
| Kelp | <i>S. atrovirens</i> | 0.7 |
| Cowcod | <i>S. levis</i> | 0.7 |
| Rosy | <i>S. rosaceus</i> | 0.5 |
| Treefish | <i>S. serriceps</i> | 0.4 |
| Squarespot | <i>S. hopkinsi</i> | 0.4 |
| Pink | <i>S. eos</i> | 0.3 |
| Gopher | <i>S. carnatus</i> | 0.3 |
| Widow | <i>S. entomelas</i> | 0.3 |
| Speckled | <i>S. ovalis</i> | 0.3 |
| Grass | <i>S. rastrelliger</i> | 0.2 |
| Canary | <i>S. pinniger</i> | 0.1 |
| Mexican | <i>S. macdonaldi</i> | 0.1 |
| Yellowtail | <i>S. flavidus</i> | <0.1 |
| Bronzespotted | <i>S. gilli</i> | <0.1 |
| Halfbanded | <i>S. semicinctus</i> | <0.1 |
| Black and yellow | <i>S. chrysomelas</i> | <0.1 |
| Swordspine | <i>S. ensifer</i> | <0.1 |
| Rosethorn | <i>S. helvomaculatus</i> | <0.1 |
| Chameleon | <i>S. phillipsi</i> | <0.1 |

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

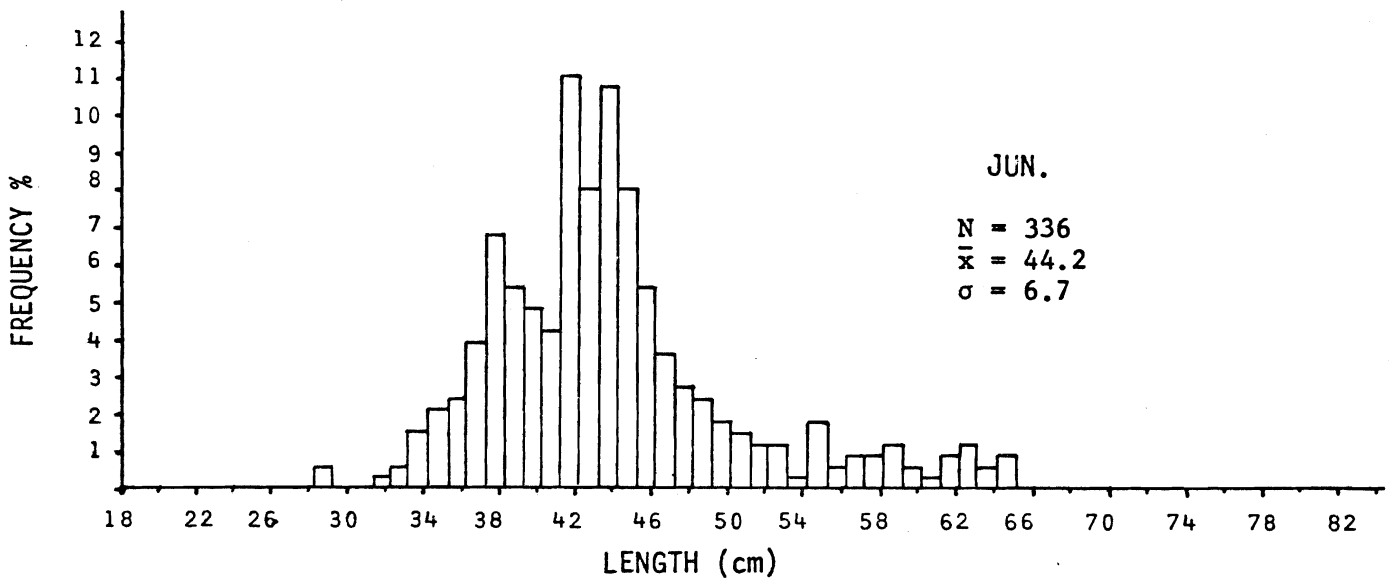
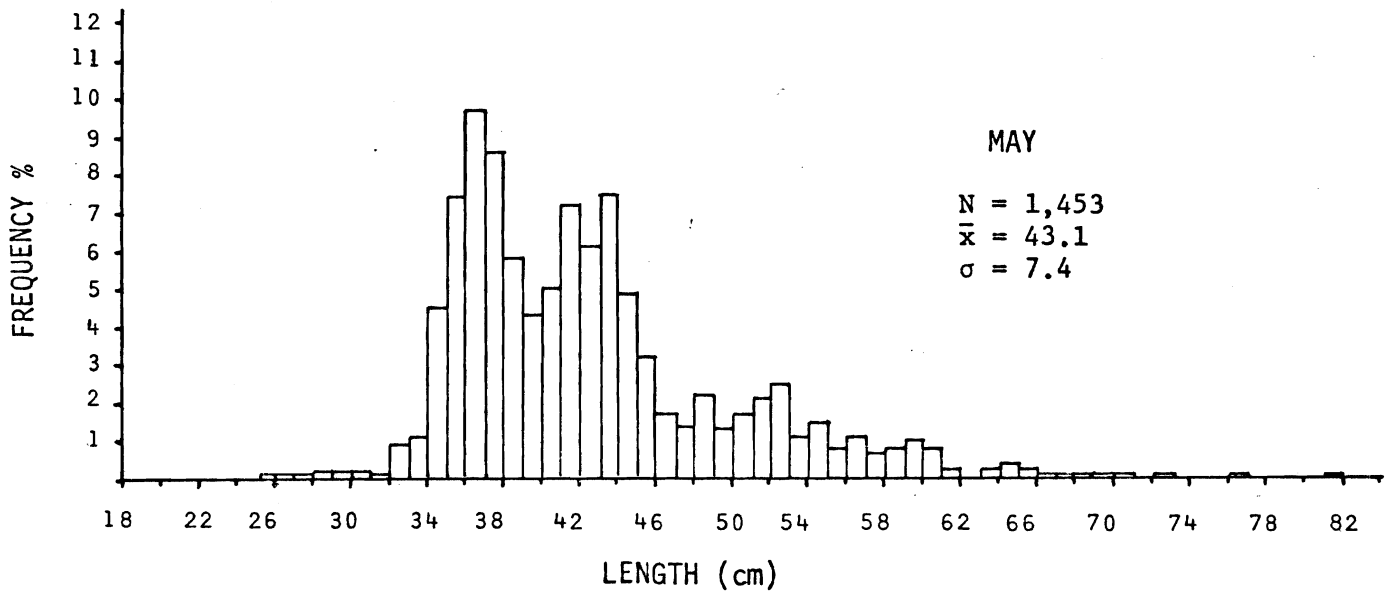
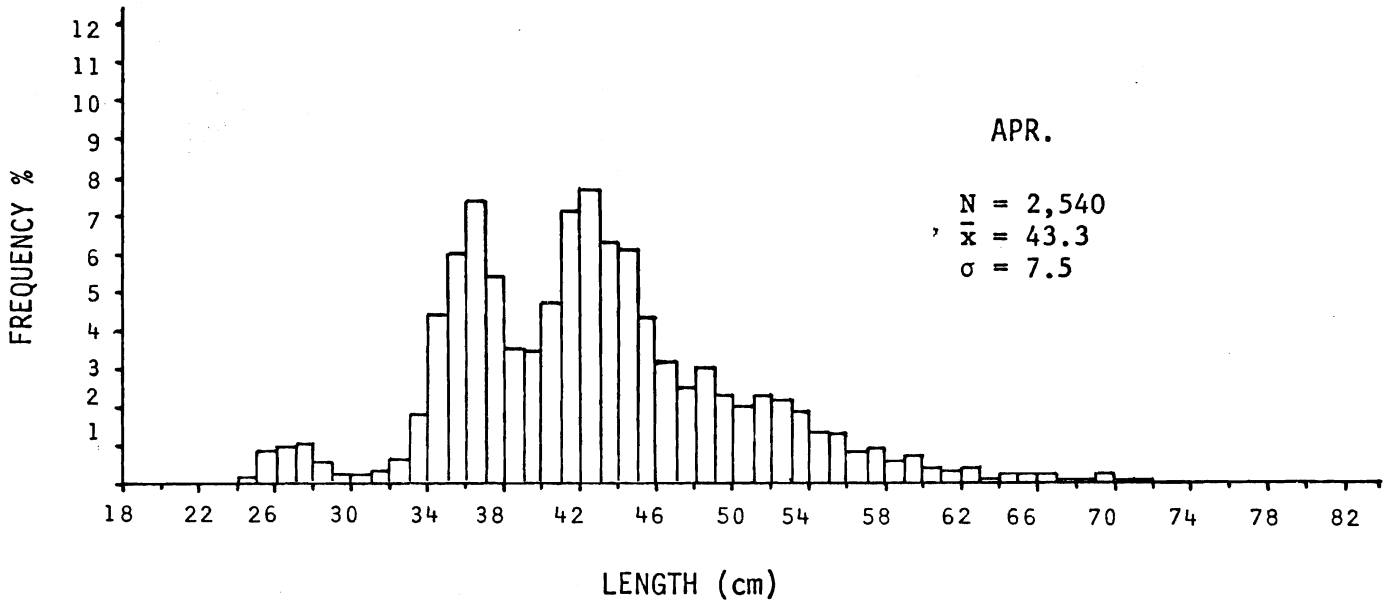


FIGURE 1. Length frequencies for bocaccio, *Sebastes paucispinis*, from southern California partyboats for April through June, 1976.

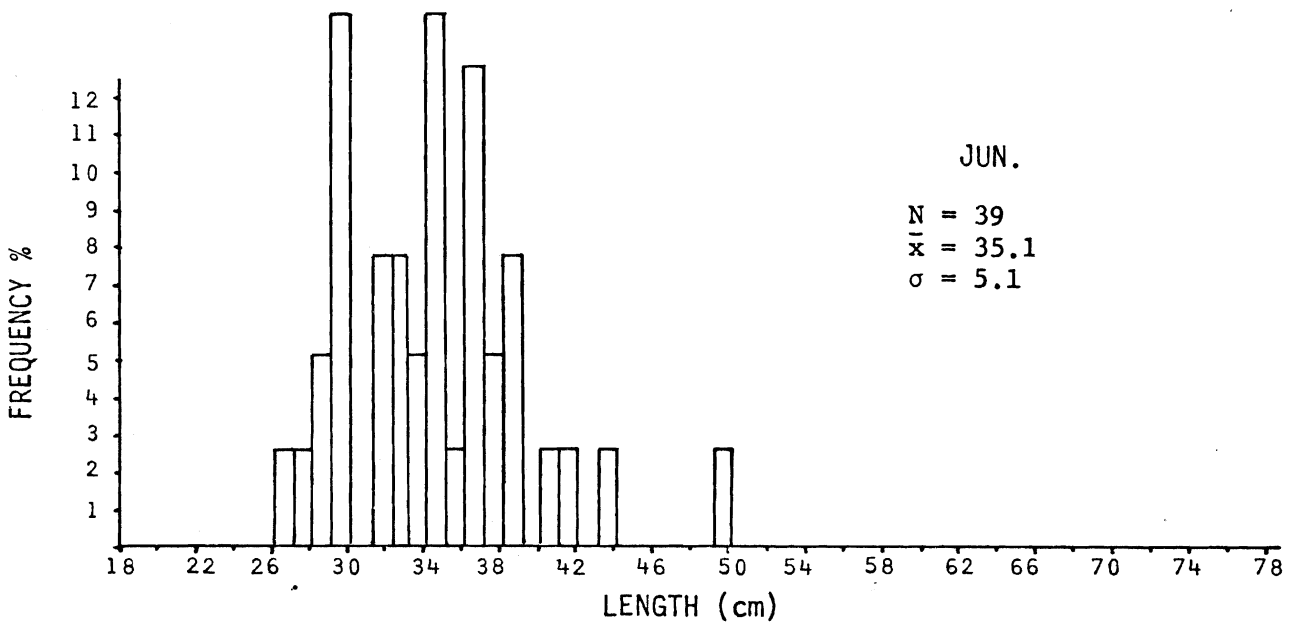
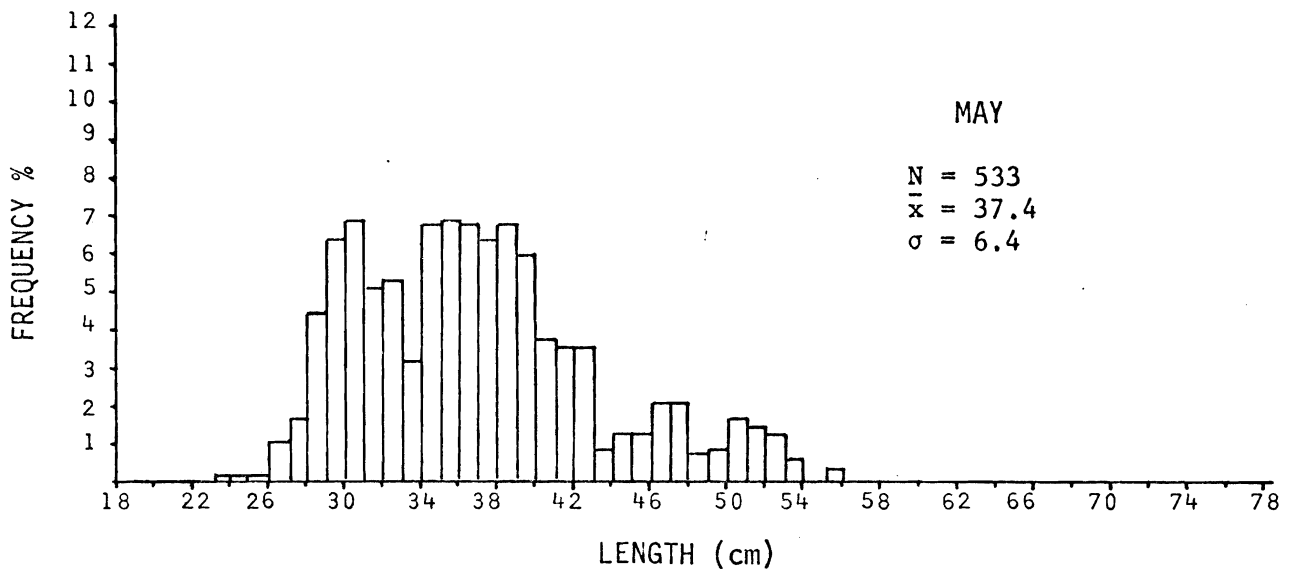
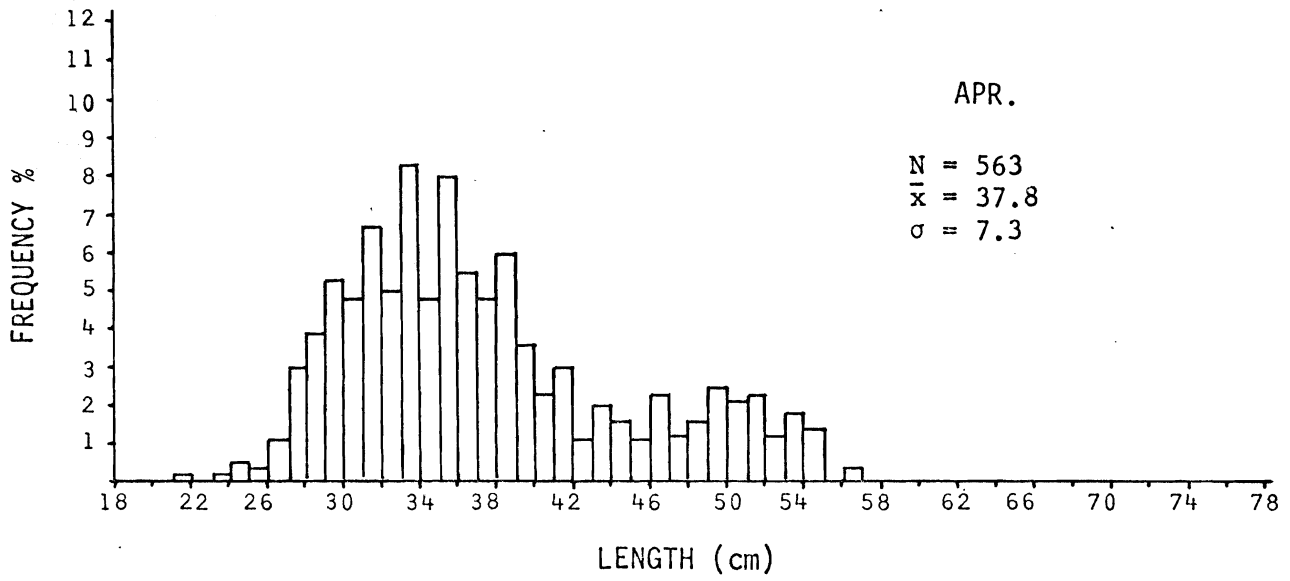


FIGURE 2. Length frequencies for chilipepper, *Sebastes goodei*, from southern California partyboats for April through June, 1976.

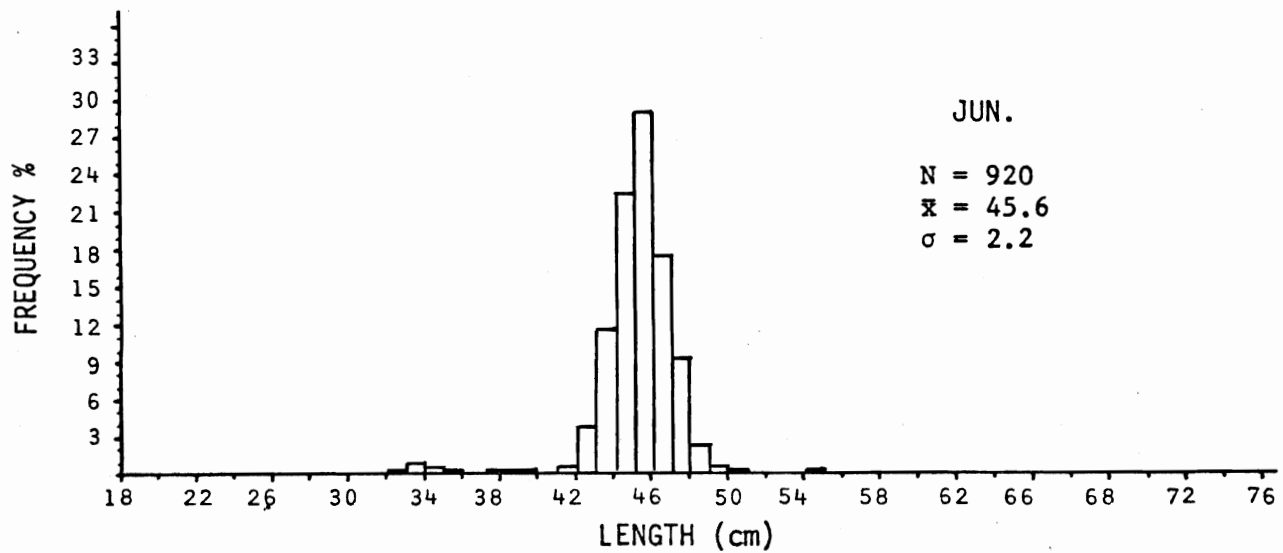
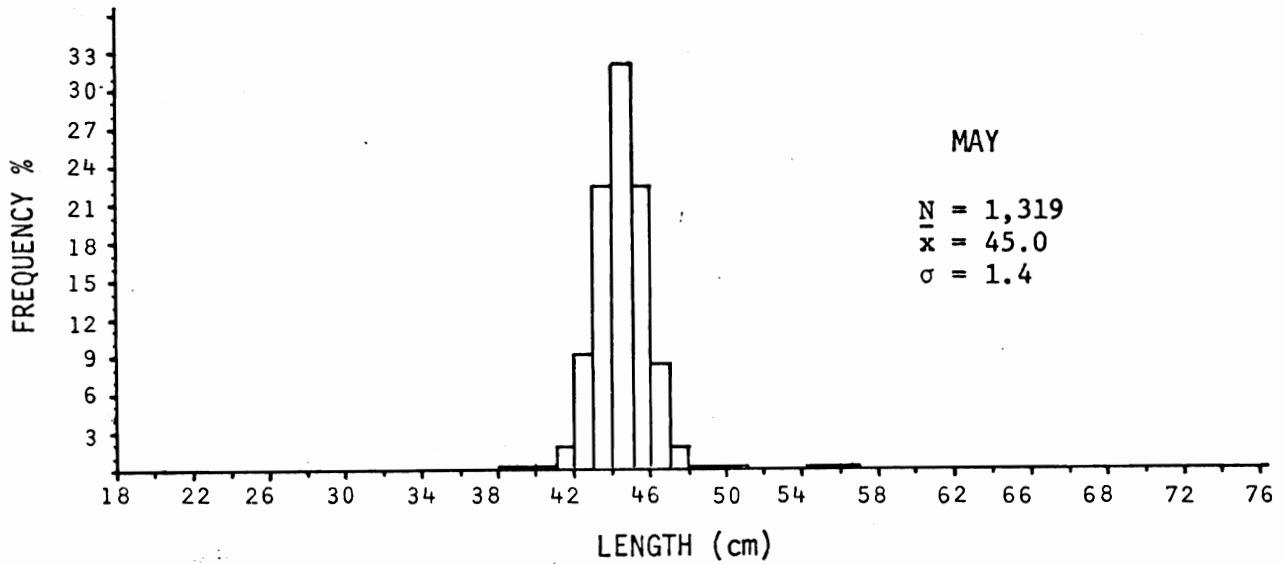
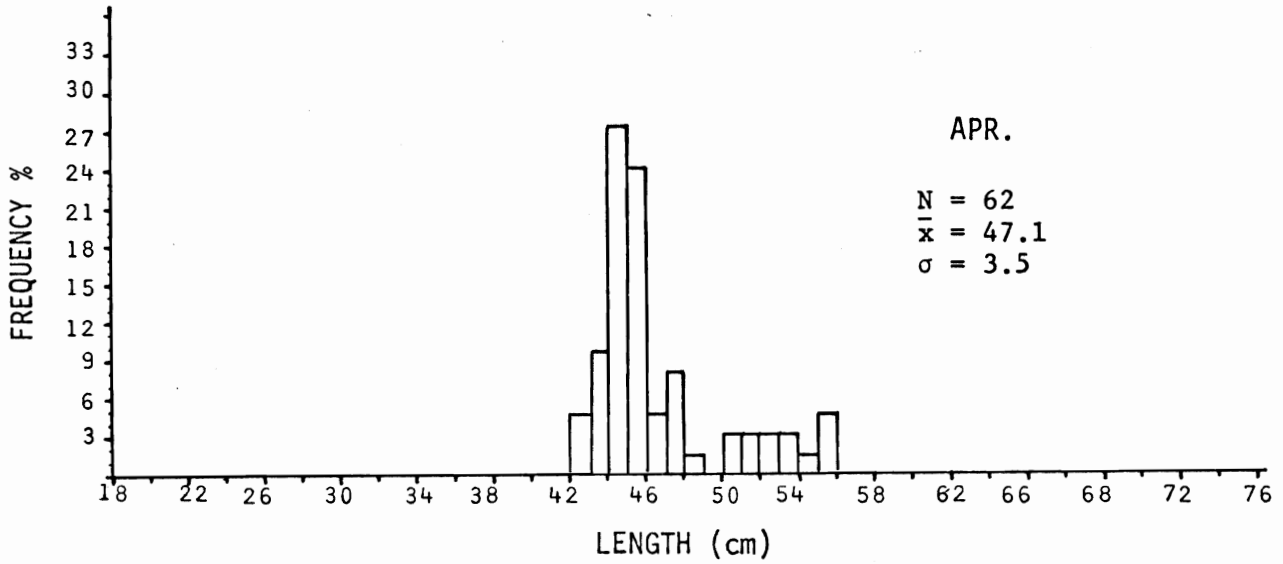


FIGURE 3. Length frequencies for Pacific bonito, *Sarda chiliensis*, from southern California partyboats for April through June, 1976.

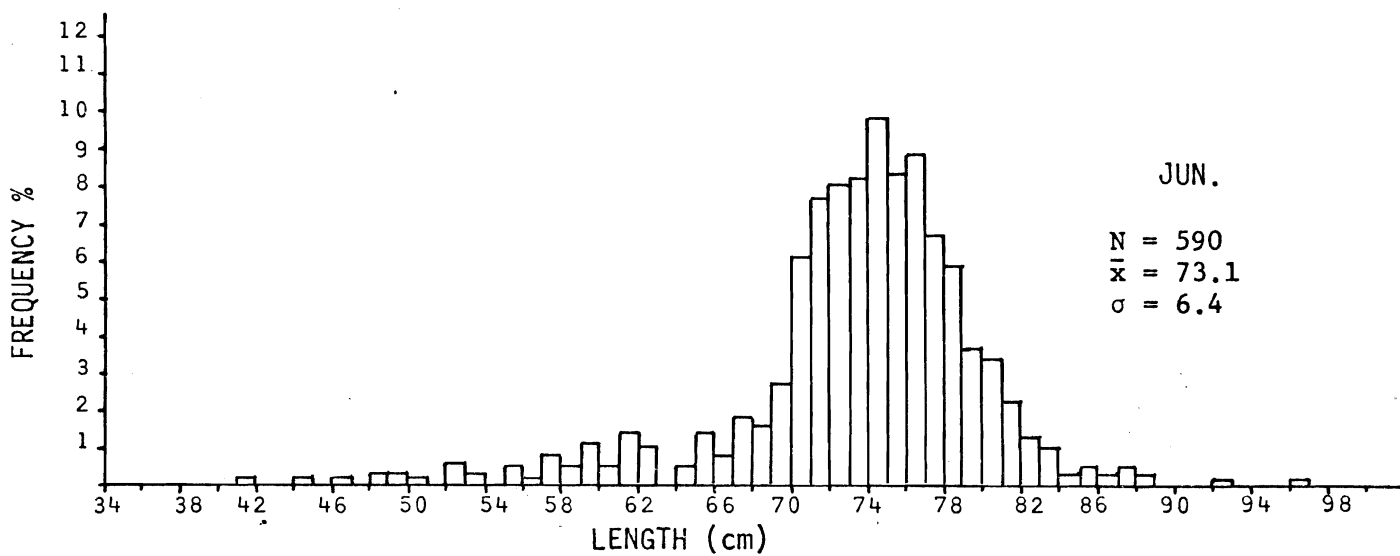
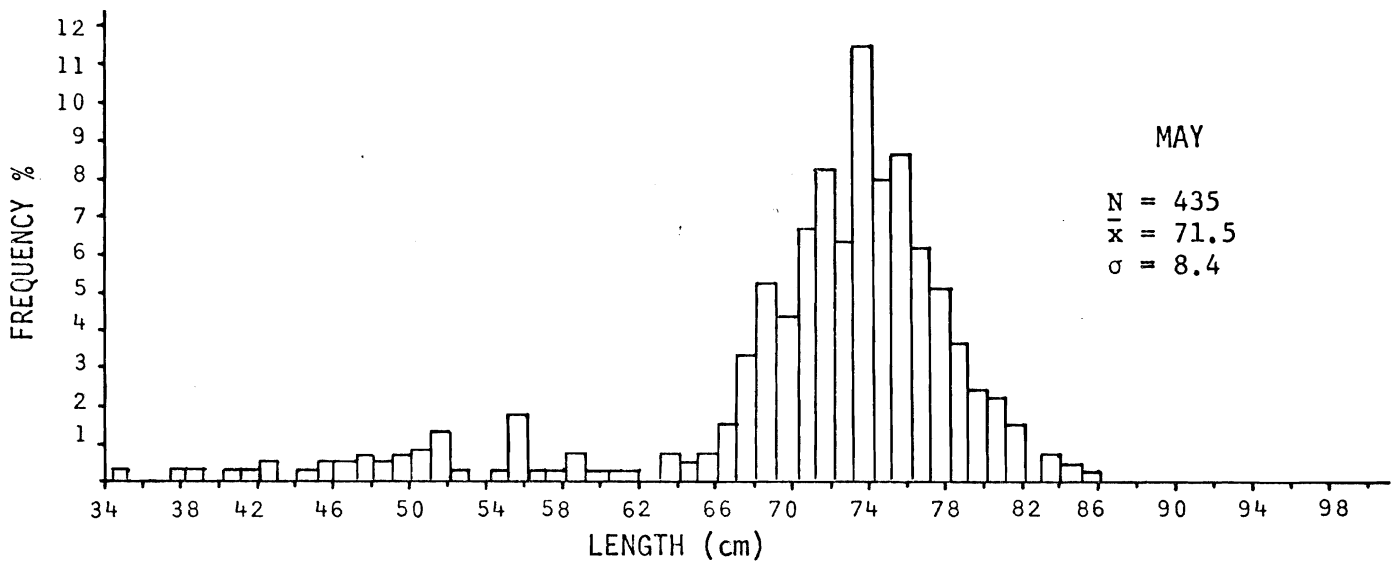
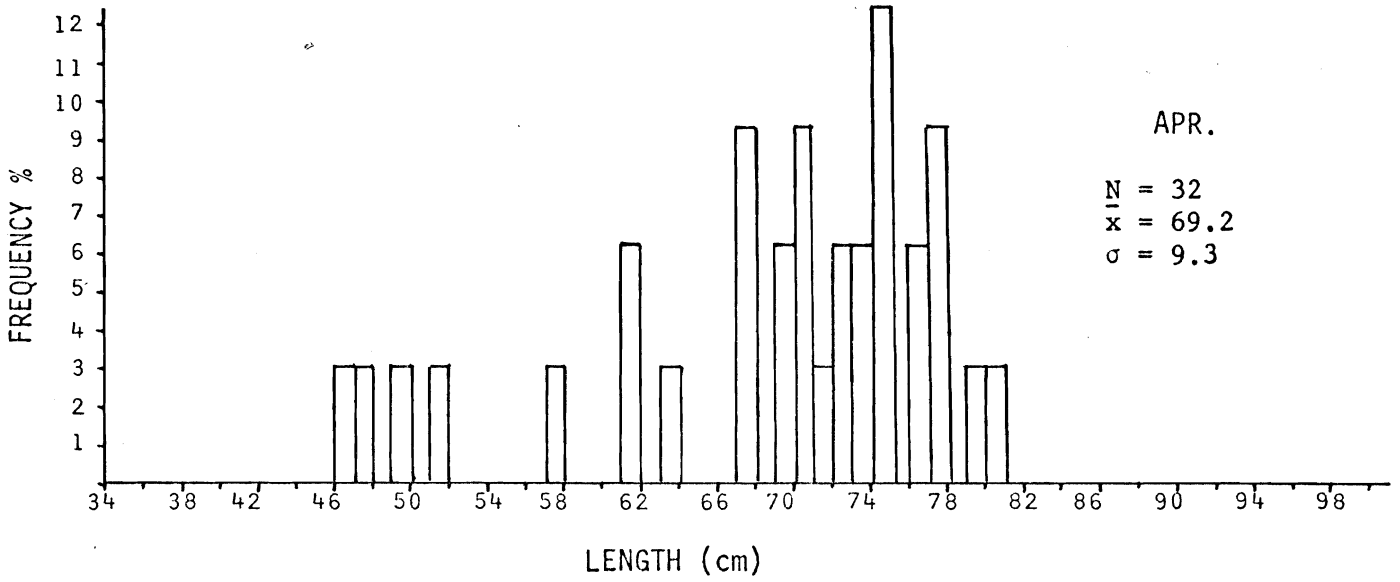


FIGURE 4. Length frequencies for California barracuda, *Sphyræna argentea*, from southern California partyboats for April through June, 1976.

Kelp bass and barred sand bass (Figures 5 and 6) appeared in our samples frequently and contributed a substantial portion to the total catch, while white seabass and California yellowtail were seen infrequently.

Pacific mackerel, *Scomber japonicus*, increased in number in June and preliminary analysis indicates that the majority were from the 1974 year-class.

Effort and Catch-per-Unit-Effort

A shift of fishing effort from rockfishes to game fishes during the quarter resulted, generally, in lower catch-per-unit-effort values at most port complexes compared with those of the preceding six months. The one exception to this trend occurred at port complex 1, where, in June, good catches of Pacific bonito, kelp bass, barred sand bass, and California barracuda resulted in an increased catch-per-unit-effort (Table 3, Figure 7).

The shift in fishing effort occurs at southern port complexes first, as waters in this area are first to increase in temperature, and migratory and resident game species, such as barracuda, bonito, yellowtail, Pacific mackerel, kelp bass and barred sand bass, become more available. Generally, the early appearance of large numbers of Pacific bonito and California barracuda indicates good availability of these species during the following summer months.

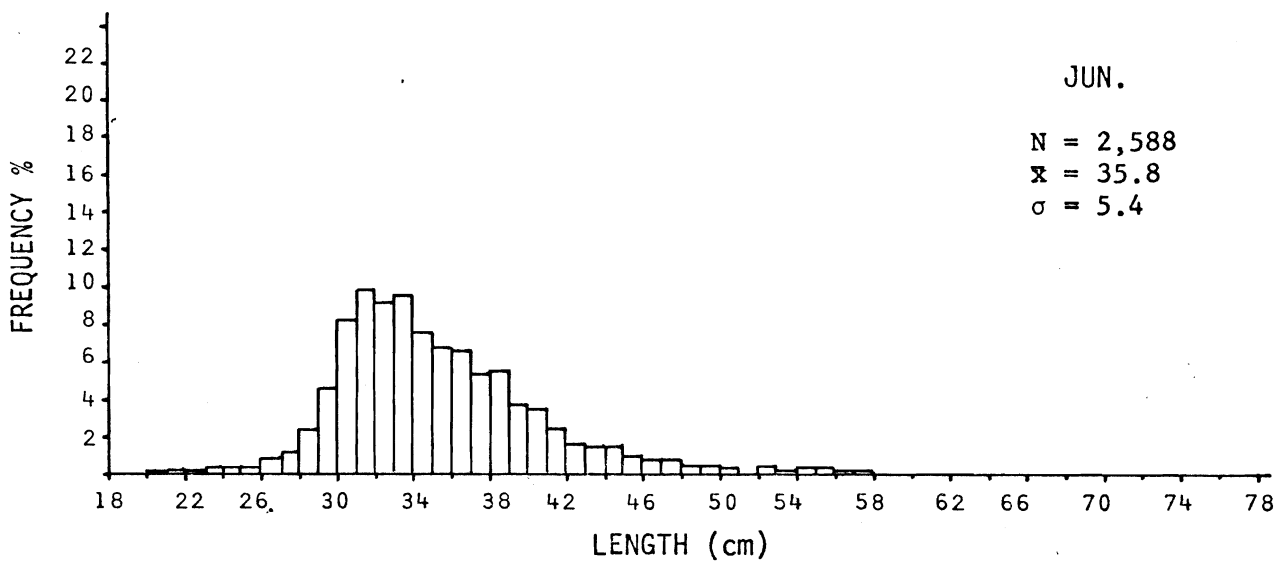
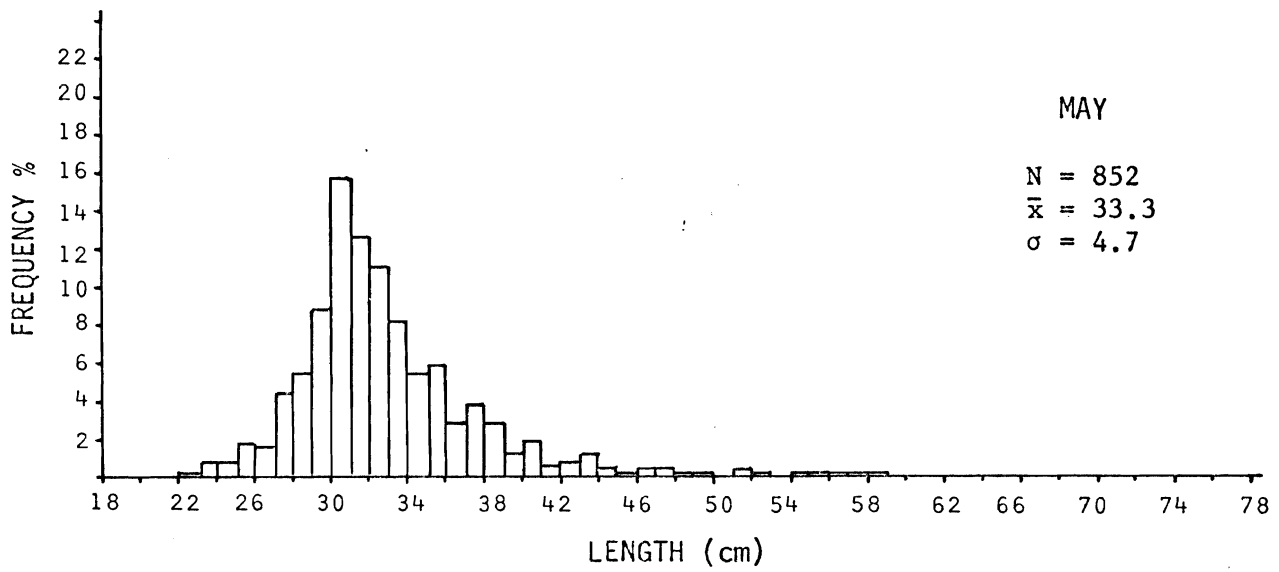
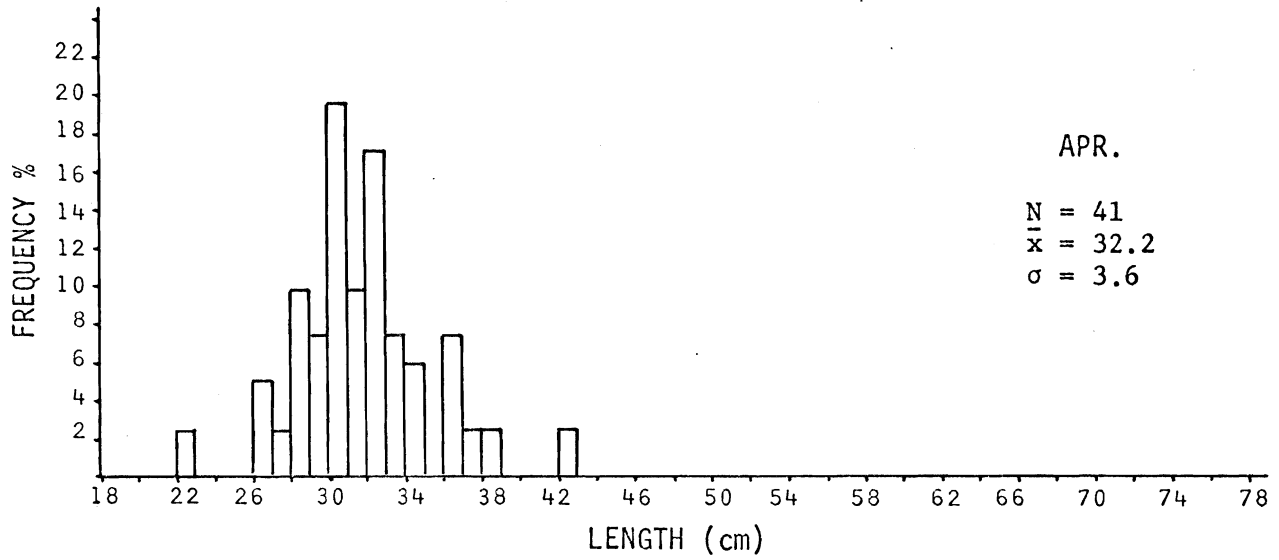


FIGURE 5. Length frequencies for kelp bass, *Paralabrax clathratus*, from southern California partyboats for April through June, 1976.

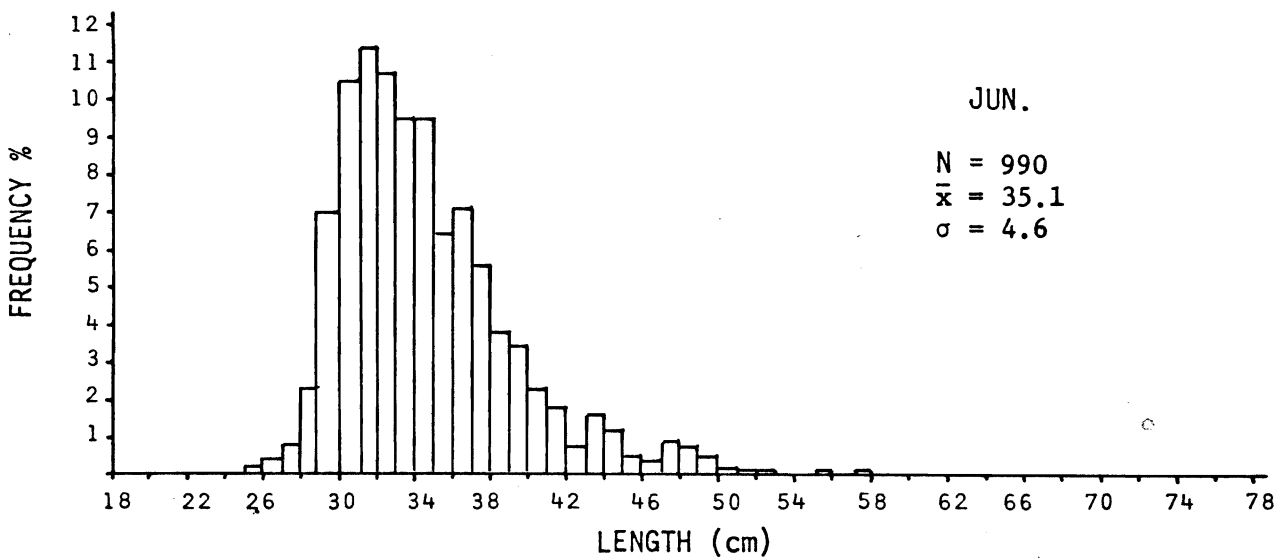
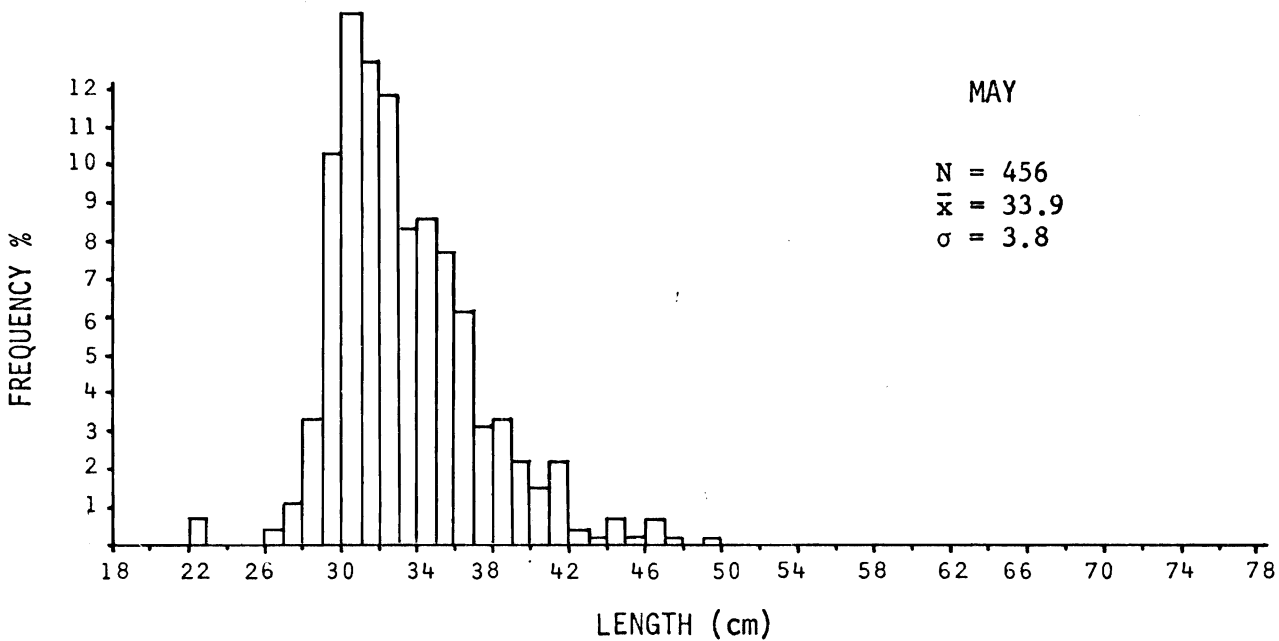
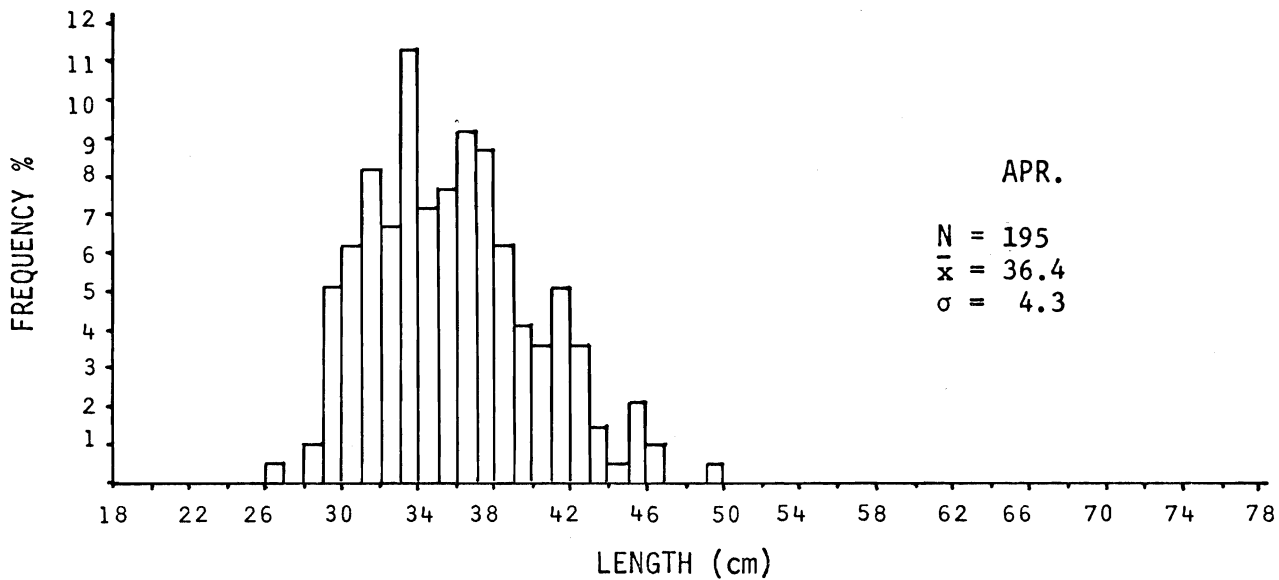


FIGURE 6. Length frequencies for barred sand bass, *Paralabrax nebulifer*, from southern California partyboats for April through June, 1976.

TABLE 3. Effort and Catch-per-Unit-Effort Values Determined from Partyboat Samples for Each Port Complex* and Month, from July 1975 through June 1976.

| | Port complex | Months | | | | | | | | | | | | TOTAL |
|-------------------------------------|--------------|--------|---------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|----------|
| | | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul-Jun |
| No. trips/month | 1 | 10 | 11 | 10 | 13 (1) | 10 | 10 | 7 | 8 | 8 | 10 | 10 | 11 | 118 (1) |
| | 2 | 7 | 5 (3) | 6 (2) | 8 | 9 | 6 | 7 | 5 | 7 | 7 | 10 | 9 | 86 (5) |
| | 3 | 3 | 6 (2) | 4 | 5 | 7 | 5 | 3 | 2 | 2 | 2 | 3 | 4 | 46 (2) |
| | 4 | 12 | 10 | 10 (2) | 12 | 9 | 7 | 7 | 5 | 6 | 9 | 10 | 8 | 105 (2) |
| | 5 | 9 | 7 (3) | 13 (1) | 15 | 19 | 14 | 11 | 16 | 12 | 11 | 9 | 8 | 144 (4) |
| | 6 | 8 | 7 (2) | 10 (1) | 11 | 8 | 8 | 10 | 11 | 12 | 9 | 9 | 8 | 111 (3) |
| | TOTAL | 49 | 46 (10) | 53 (6) | 64 (1) | 62 | 50 | 45 | 47 | 47 | 48 | 51 | 48 | 640 (17) |
| Avg. no. anglers [†] /trip | | | | | | | | | | | | | | Average |
| | 1 | 38.70 | 39.91 | 26.50 | 25.50 | 15.80 | 18.90 | 29.71 | 19.25 | 28.63 | 20.50 | 48.10 | 44.55 | 30.19 |
| | 2 | 41.86 | 37.80 | 27.00 | 20.13 | 13.63 | 17.50 | 26.57 | 23.00 | 20.57 | 21.57 | 30.20 | 36.89 | 26.40 |
| | 3 | 47.25 | 44.50 | 22.50 | 25.75 | 24.43 | 23.80 | 22.33 | 22.00 | 11.50 | 23.00 | 21.67 | 45.50 | 29.70 |
| | 4 | 42.42 | 35.90 | 29.50 | 35.18 | 26.22 | 22.14 | 30.57 | 29.00 | 26.17 | 25.33 | 26.20 | 39.38 | 31.07 |
| | 5 | 42.44 | 43.86 | 26.46 | 28.60 | 23.72 | 21.79 | 22.00 | 23.44 | 29.58 | 29.00 | 31.56 | 35.38 | 27.46 |
| | 6 | 26.00 | 33.57 | 24.70 | 20.64 | 27.86 | 22.25 | 16.40 | 25.64 | 23.83 | 22.89 | 26.22 | 27.13 | 24.15 |
| | Average | 39.78 | 39.26 | 26.11 | 25.97 | 22.78 | 21.06 | 24.91 | 23.32 | 33.38 | 24.06 | 31.96 | 37.90 | 26.71 |
| Avg. no. hours fished/trip | | | | | | | | | | | | | | Average |
| | 1 | 4.32 | 3.75 | 3.45 | 3.46 | 3.30 | 3.50 | 4.29 | 4.88 | 3.50 | 3.55 | 2.13 | 2.14 | 3.50 |
| | 2 | 3.66 | 3.80 | 4.42 | 3.53 | 4.56 | 3.83 | 3.75 | 3.50 | 4.29 | 3.36 | 4.53 | 3.19 | 3.80 |
| | 3 | 3.25 | 3.63 | 2.63 | 3.63 | 3.36 | 4.10 | 3.75 | 2.38 | 2.25 | 3.25 | 4.00 | 3.38 | 3.40 |
| | 4 | 5.02 | 3.88 | 4.13 | 4.75 | 3.78 | 4.36 | 3.96 | 4.40 | 5.00 | 3.56 | 4.58 | 4.66 | 4.30 |
| | 5 | 4.44 | 3.89 | 3.40 | 3.53 | 3.94 | 2.77 | 2.98 | 3.13 | 3.23 | 3.11 | 3.36 | 3.25 | 3.31 |
| | 6 | 4.91 | 4.11 | 4.90 | 4.23 | 5.25 | 4.91 | 3.80 | 4.11 | 3.96 | 4.08 | 3.42 | 4.38 | 4.26 |
| | Average | 4.27 | 3.84 | 3.82 | 3.86 | 4.02 | 3.91 | 3.78 | 3.73 | 3.71 | 3.51 | 3.63 | 3.42 | 3.59 |
| Catch/unit effort [‡] | | | | | | | | | | | | | | Average |
| | 1 | 1.40 | 0.78 | 1.60 | 2.02 | 2.68 | 1.40 | 1.20 | 1.36 | 1.20 | 0.95 | 1.28 | 2.07 | 1.44 |
| | 2 | 1.10 | 0.51 | 0.71 | 1.78 | 2.09 | 1.27 | 1.47 | 1.16 | 1.16 | 0.73 | 0.92 | 1.13 | 1.14 |
| | 3 | 1.17 | 0.78 | 1.67 | 1.32 | 1.53 | 0.85 | 1.25 | 0.50 | 2.16 | 1.47 | 0.67 | 0.70 | 1.16 |
| | 4 | 0.60 | 1.13 | 1.36 | 1.67 | 1.48 | 2.42 | 1.87 | 1.77 | 1.48 | 1.67 | 0.80 | 0.94 | 1.24 |
| | 5 | 0.37 | 0.62 | 1.91 | 1.91 | 2.11 | 3.60 | 3.28 | 2.77 | 2.51 | 1.97 | 1.47 | 0.74 | 1.86 |
| | 6 | 1.41 | 1.09 | 0.91 | 1.92 | 2.08 | 1.29 | 3.55 | 1.80 | 1.92 | 1.41 | 2.33 | 1.03 | 1.66 |
| | Average | 1.01 | 0.82 | 1.36 | 1.77 | 2.00 | 1.81 | 2.15 | 1.69 | 1.74 | 1.42 | 1.23 | 1.13 | 1.46 |

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

* See Maxwell and Schultze Marine Resources Administrative Report 76-3

† Computed as the product of the number of anglers aboard a boat and the number of hours passengers fished during a trip

‡ Average number of fishes caught per angler hour fished

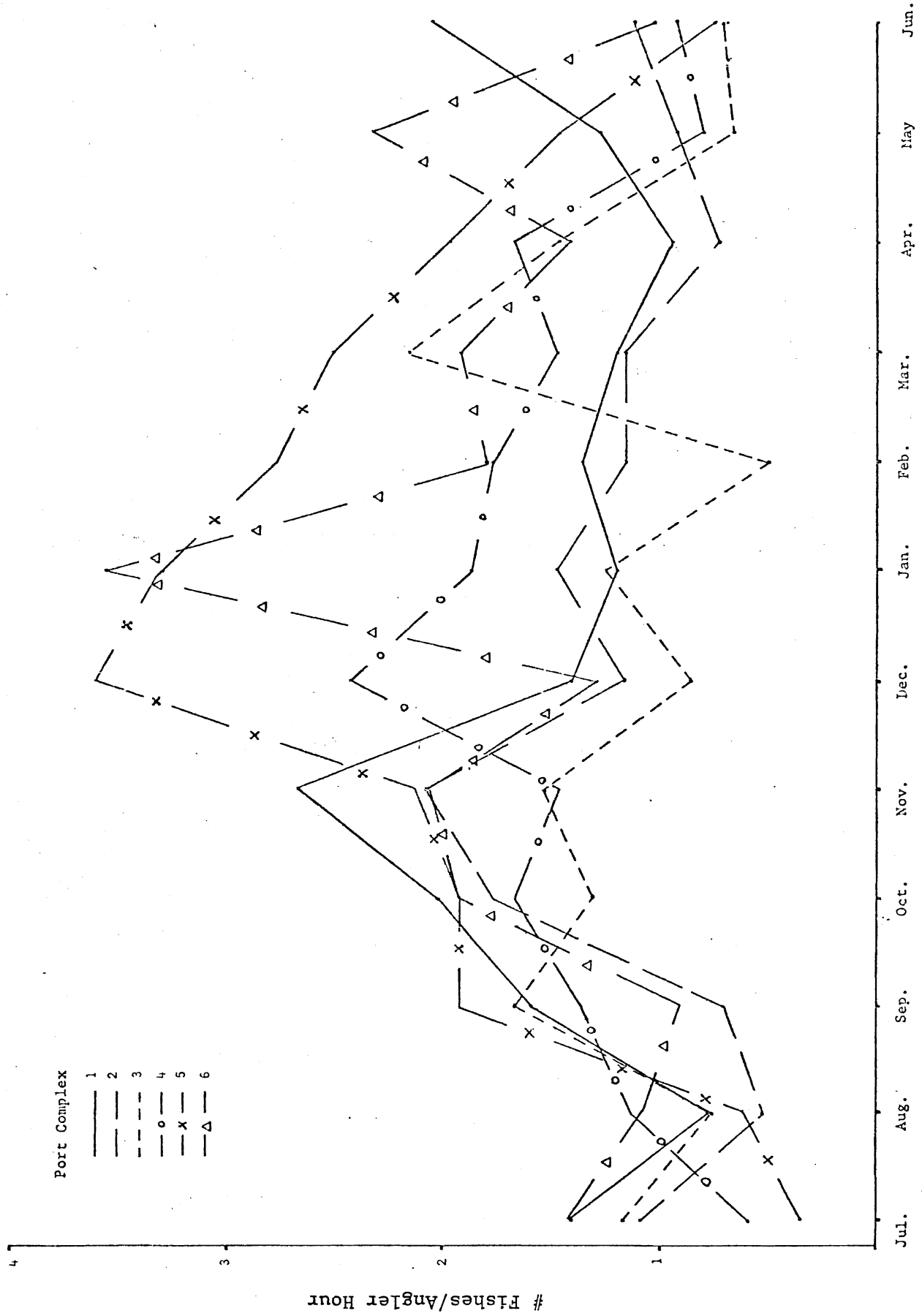


FIGURE 7. Catch per unit effort for sampled port complexes from July 1975 through June 1976.