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Seasonal and Geographic Characteristics of Fishery Resources, California Current Region: IX. Inshore Sportfishes

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INTRODUCTION

It has been stated that the sports fishery in California "...is probably the most dynamic of its kind in the world and is currently—not merely *potentially*—yielding some very high returns." (Mathews, 1971). More than one million anglers are estimated to be contributing to that yield each year. Talbot (1969) reported that in 1965 more than two million anglers fished on the Pacific coast spending almost \$300 million on this sport. Although there was no breakdown by states, he added, California, because of its population, better weather and species available undoubtedly enjoys a big share of the fishery's effort and catch. The majority of fishermen seldom go beyond the sight of land and many fish only from shores, jetties, and piers.

A subject of recent concern has been at least 12 inshore species of fish for which this great number of anglers are always seeking. The catches of many of these species have been declining by numbers and sizes with only a slight increase in anglers. The fish for which such concern is expressed are: the California halibut, the white sea bass, the halfmoon, the California yellowtail, the ocean whitefish, the California barracuda, the California bonito, the sheephead, the California black sea

bass, the California corbina, the spotfin croaker, and the yellowfin croaker (Table 1).

The biological and oceanographic surveys of the California Cooperative Oceanic Fisheries Investigations (Cal COFI) were originally directed toward the eggs and larvae of massive oceanic fish populations like the Pacific sardine (Kramer and Smith, 1971c) and its ecological associates, the northern an-

chovy (Kramer and Smith, 1971a), the jack mackerel (Kramer and Smith, 1970a), the Pacific mackerel (Kramer and Smith, 1970b), the Pacific hake (Kramer and Smith, 1970b), the rockfishes (Kramer and Smith, 1971b), the Pacific saury (1970b), and the characteristics of their environment, particularly the seasonality of their planktonic food and the water temperature. Unfortunately, the density of stations was not sufficient for the smaller, more dispersed populations characteristic of the sportfishes in general.

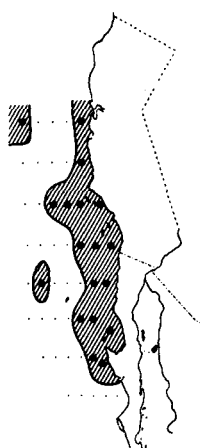
As yet, our data on these inshore sport fish species are not sufficient to determine the reasons for the decreases. However, there are enough data to reasonably describe and depict their seasonal and geographic distributions (Table 2, Figure 1a-i) which, combined with future research, may enable us to determine the reasons for the decreases. The distributions are based on

Table 1.—Selected species and/or family groups (see text) of inshore sport fishes in the California Current region.

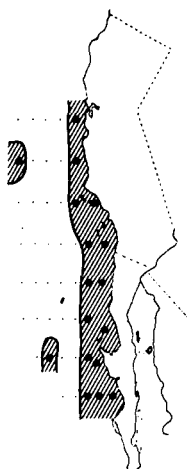
Family		Species	
Scientific name	Common name	Scientific name	Common name
Sciaenidae	Croakers	<i>Cynoscion nobilis</i>	White sea bass ^{1,2}
		<i>Menticirrhus undulatus</i>	California corbina ²
		<i>Roncador sternalis</i>	Spotfin croaker ²
		<i>Umbrina roncadore</i>	Yellowfin croaker ²
		<i>Cheilodactylus saturum</i>	Black croaker
		<i>Genyonemus lineatus</i>	White croaker or kingfish
		<i>Seriophilus politus</i>	Queenfish
Serranidae	Basses	<i>Stereolepis gigas</i>	Sea bass ²
		<i>Paralabrax clathratus</i>	Kelp bass
		<i>P. nebulifer</i>	Sand bass
		<i>P. maculatofasciatus</i>	Spotted bass
		<i>Mycteroperca</i> sp.	Groupers
Labridae	Wrasses	<i>Pimelometopon pulchrum</i>	Sheephead ²
		<i>Oxyjulis californica</i>	Señorita
		<i>Halichoeres semicinctus</i>	Rock wrasse
Bothidae	Left-eyed flounders	<i>Paralichthys californicus</i>	California halibut ^{1,2}
Scorpidae	Halfmoon	<i>Medialuna californiensis</i>	Halfmoon ^{1,2}
Carangidae	Jacks	<i>Seriola dorsalis</i>	California yellowtail ^{1,2}
Branchiostegidae	Tilefish or blanquillo	<i>Caulolatilus princeps</i>	Ocean whitefish ^{1,2}
Sphyraenidae	Barracudas	<i>Sphyraena argentea</i>	California barracuda ^{1,2}
Scombridae	Mackerels	<i>Sarda lineolata</i>	California bonito ²

¹Fish whose larvae have been identified to species. All others are assigned to and grouped within their families with look-alike larvae of species from which they have not been distinguished (see Table 2).

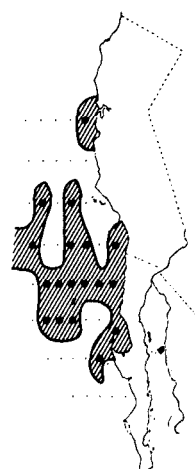
²Fish of concern in this report.



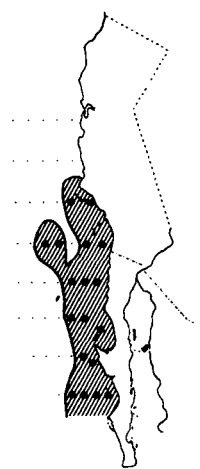
a. WHITE SEA BASS
FEBRUARY



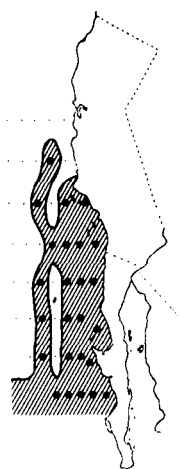
b. CALIFORNIA HALIBUT
FEBRUARY & JULY



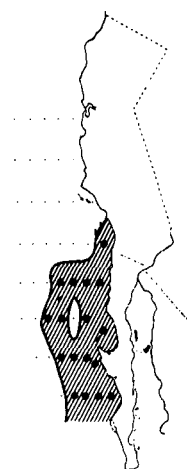
c. HALFMOON
JULY



f. CALIFORNIA BARRACUDA
JULY



g. CROAKERS
JANUARY & AUGUST



h. BASSES
AUGUST

the enumerations of fish larvae collected in the plankton tows of CalCOFI¹—each occurrence in any survey conducted from 1955 to 1960 (1956-59 for wrasses and 1956-60 for basses).

The larvae of six of the species of concern have been identified and enumerated and five have been assigned to

their families with their look-alikes of the same or different genera (Table 1). The California bonito is not discussed here because there are so few larvae in our collections—although the commercial catch attests a rather large population. The reasons for their absence in the plankton tows are not known. The six known species are the barracuda, the white sea bass, the halibut, the yellowtail, the ocean whitefish, and the halfmoon. The larvae assigned to and grouped with others in their families are

those of the sheephead of the wrasse family (Labridae), which includes the señorita and the rock wrasse—neither one considered a sport fish; the black sea bass of the bass family (Serranidae), which includes the kelp bass, sand bass, spotted bass, and two species of groupers from Baja California (sometimes known from San Diego County)—all considered sport fish; the spotfin croaker, yellowfin croaker, and corbina of the croaker family (Sciaenidae), which includes the black croaker, white

¹Organizations, area of investigation, and treatment of the data were presented by Kramer and Smith (1970a).

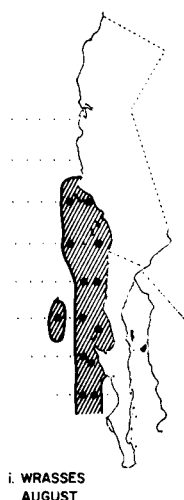
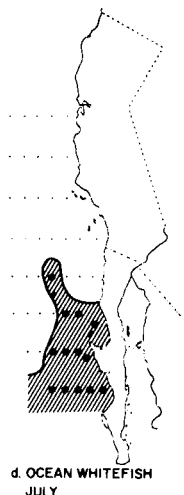


Figure 1a-i.—Regions of spawning of selected species or families of inshore sport fishes in the California Current region 1955-60 (1956-59 for wrasses, 1956-60 for basses). Each circle represents the total number of occurrences in each pooled area (see Kramer and Smith, 1970a). The months designated are those of peak spawning for the fishes depicted (see Table 2 for seasons).

croaker or kingfish, and the queenfish—all considered sport fish. (Note: the white sea bass listed above as one of the known larva species is also a member of the croaker family.)

SEASONAL AND GEOGRAPHIC DISTRIBUTIONS

Seasonal

All of the species except the white sea bass have their peak spawning in July or August. The croakers and the halibut

also have peak spawnings in January and February, respectively; white sea bass peaks only in February.

Inshore-offshore

All of the species are inshore and offshore spawners except the halibut and the wrasses, which spawn only inshore.

North-south

Almost all of the species are chiefly southern spawners except halibut and

white sea bass, whose spawning ranges extend northward, probably the entire length of California; southward, the halibut spawns the entire length of Baja California, and the white sea bass is delimited to Punta Eugenia. Ocean whitefish and the yellowtail are exclusively southern spawners. The only records we have of yellowtail larvae off southern California are for 1957 (Figure 1e). Part of that year was included in the so-called warm years—mid-1957 through 1959. The halfmoon is delimited from Point Conception, California, to Punta Eugenia, B.C. The barracuda, croakers, and wrasses spawn from Point Conception southward. The basses spawn from San Diego southward.

RESEARCH REQUIRED

NMFS now has the responsibility for the study of all marine fishes and fisheries, recreational and commercial. The management of recreational fisheries will require additional studies of the target species; to better monitor the catch, bigger samples of the landings will be needed. Competition between the sport and commercial fishing industries, the international character of sport fish distributions, and the ill-defined management objectives for recreational fisheries all pose problems to be solved by fishery scientists in the near future.

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Table 2.—Seasonal and geographic spawning of selected species or families (see text) of inshore sport fishes in the California Current region, 1955-60.

Larva species	Spawning months (season)	Peak spawning months ²	Area of spawning ¹				Geographical delimitation ¹		
			California		Baja California				
			Onshore	Offshore	Onshore	Offshore	Seaward	Northward	Southward
Differentiated									
White sea bass	January-March	February	x	x	x	x	Yes	No	Yes
California halibut	January-April June-September	February and July	x	—	x	—	Yes	No	Yes
Halfmoon	June and July	July	x	x	x	x	Yes	Yes	Yes
Ocean whitefish	June-August	July	—	—	x	x	Yes	Yes	No
California yellowtail	July-August	July	3	—	x	x	Yes	Yes	No
California barracuda	June-August	July	x	x	x	x	Yes	Yes	No
Undifferentiated (grouped to families)									
Croakers (including corbina, spotfin croaker, yellowfin croaker)	January-March June-October	January and August	x	x	x	x	Yes	Yes	No
Basses (including giant black sea bass)	July-October	August	x	—	x	x	Yes	Yes	No
Wrasses (including sheephead)	July-October	August	x	—	x	—	Yes	Yes	No

¹See Figure 1a-i.

²Also see Figure 1a-i.

³Onshore California only in 1957 (see text).

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