THE STATUS OF THE WHITE SEABASS RESOURCE AND ITS MANAGEMENT

by

Parke H. Young

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ABSTRACT

White seabass, *Cynoscion nobilis*, have been fished in California since late in the ninteenth century. At present the commercial fishery is stable, landing about 8 hundred thousand pounds per year, but the sport fishing has declined to the poorest catch on record.

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HISTORY OF THE FISHERY

California sport and commercial fishermen esteem the white seabass, *Cynoscion nobilis*, for its prestige and monetary value while consumers enjoy its fine mild flavor. White seabass are marketed fresh, usually steaked or filleted. When extremely abundant, institutional sized packages of fillets are frozen for later distribution.

Commercial Fishery

The large white unusually shaped otoliths (ear bones) of white seabass were used by coastal Indians as lucky stones, and they undoubtedly used this large palatable fish for food.

Early commercial fishery catch records indicate that by 1889 well over 250,000 lbs of white seabass were landed annually. The million pound level was surpassed in 1904, and remained fairly constant through 1915. Small boats using gill nets accounted for a major portion of these landings, with handlines and lampara nets taking only a small percent of the total catch. San Francisco was the center of early fishing operations; however, southern California had become dominant by 1916. Purse seines landed the majority of the fish in southern California from 1916 through 1924, with a peak landing of 2.9 million lbs in 1922. After 1924, purse seines were used less and less as it became more difficult to make profitable trips, and gill nets again became the principal gear after 1925. In 1940, it became illegal to use round haul nets for taking white seabass in California waters; nevertheless, this gear could be used in Mexico if the catch was declared on delivery to California ports. Hook and line and gill nets with 3.5 inch

or larger stretched mesh have been the only legal commercial gear in State waters since 1940. Synthetic fibers such as nylon, are used exclusively today, compared to cotton and hemp prior to World War II. Some fishermen dye their gill nets in various pastel colors, claiming greater efficiency. Fishermen combine 2 or 3 individual nets to form a "gang," ranging between 240 and 660 ft long and 24 to 30 ft deep. Mesh sizes, stretched knot to knot, ranges between 6 and 8 inches.

Gasoline or diesel powered vessels 30 to 50 ft in length are normally used to fish white seabass. These boats use a large mechanically powered drum to reel in and store the nets. In some areas, a few large skiffs operate close to shore with power gurdies to retrieve the nets. While the majority of the catch is made in coastal waters from Point Conception to San Diego, fair to heavy catches are made in Monterey Bay and off San Francisco in warm water years. A small consistent fishery operates in and near Tomales Bay. At present, principal ports of landing are San Pedro and San Diego, with many of the fish coming from nearby areas.

Historically, commercial white seabass landings have fluctuated widely. The most dramatic change occurred in the California fishery when the 1959 all time record catch of 3.4 million lbs declined to 574,000 lbs in 1962. Other year to year changes have not been as spectacular (Table 1).

A significant but variable portion of the total California landings of white seabass comes from Mexico. The historical record reveals success in Mexican waters also fluctuates widely with a low of 38,000 lbs in 1960, and a high of 851,000 lbs in 1965. Annual commercial landings during the past 56 years averaged 1,315,888 lbs; ranging from a minimum of 393,988 in 1944 to the all time peak season of 3,423,353 lbs in 1959. Generally declining white seabass landings in the late 1920's and most of the 1930's led to a series of regulations designed

to stabilize the catch. These laws included a minimum size limit of 28 inches total length, closed seasons, bag limits, and closed areas.

Recreational Fishery

White seabass are prized sportfish because they are difficult to capture, may be trophy sized specimens, and are delectable table fare. Because of their erratic habits, the fishery is not steady and large sport catches are made only occasionally. Most of the sport catch is made with hook and line using live bait or lures; some fish are taken by skindivers using spears. The early fishery trolled with hand lines using dead sardines or flyingfish as bait. Currently, the most popular tackle consists of long thin rods with either spinning or conventional reels. Preferred bait is live squid, or anchovies, usually fished off the bottom while the boat is at anchor. Metal lures are used frequently generally when fishing deep.

The sport fishery usually takes white seabass in the same areas fished by the commercial fleet; these are principally in rocky habitat and near kelp beds. Very small fish are taken in bays, such as Newport; intermediate sized fish are found in the mainland kelp beds close to shore such as off Oceanside; while large fish are generally captured near rocky headlands and offshore islands. Occasionally a shore fishery will develop in late summer in such areas as Playa del Rey in Santa Monica Bay and 40 pounders are not uncommon in these situations.

Prior to World War II, the partyboat catch peaked at 30,000 fish in 1939, but an annual average of 18,000 fish was taken during the 5 year period 1936-1940. Since 1947, landings have averaged 23,000 seabass per year. Fishing success more than tripled from 20,000 seabass in 1947 to 65,000 in 1949. Subsequently there has been a steady decline in number of fish in the partyboat catch to a low of only 3,385 fish in 1967. The last five year period (1965-1969) has been the poorest

on record, averaging only 5,000 fish.

STATUS OF BIOLOGICAL KNOWLEDGE

Range

White seabass inhabit coastal waters of western North America, from Juneau, Alaska, to Magdalena Bay, Baja California. An isolated population occurs in the northern portion of the Gulf of California. The center of abundance usually lies between Point Conception and Ballanas Bay, Baja California, shifting from year to year in response to environmental changes. In years when the sea temperatures are above normal, white seabass are found in fair numbers off San Francisco.

White seabass are the largest members of the family Sciaenidae in California. Some reach a weight of more than 80 lbs and are more than 4 ft long; however, specimens weighing more than 60 lbs rarely are seen. The average fish taken in the commercial catch is between 20 and 40 lbs.

Migrations

Catch records indicate white seabass migrate northward along the coast in spring and southward in fall, and appear to winter in Baja California waters. The northward movements appear to be associated with spawning.

Maturity

Spawning occurs in southern California from April to August, peaking in May and June. White seabass are known to congregate near shore during this period, usually in specific areas, such as off Long Point, Palos Verdes Peninsula; however, precise spawning areas have not been delineated. Fecundity, egg size, and embryonic development have not been determined for this species. Males start maturing when they are about 20 inches long, while females begin at 24 inches about a year later.

Food Habits

White seabass seem to prefer squid, fish, sardines, anchovies, and other fishes for food. Pelagic red swimming crabs also are eaten when available.

Age and Growth

Scales were used to determine age composition of the commercial catch in 1958, 1959, and 1960. These fish ranged in age from 3 to 16 years. The bulk of the catch consisted of 8, 9, and 10 year old bass. Otoliths indicate white seabass may be considerably older than the scale method of aging implies, particularly with larger and older fish.

DISCUSSION

Catch statistics obtained from the commercial fishing fleet appear to reflect both location and abundance of the older white seabass. Sportfishing data, on the other hand, do not include the efforts of the unattached angler and appear to be inadequate as an indicator of population levels in juvenile and sub-adult fish.

Why is the commercial catch so low in California waters? Has overfishing taken place, or has spawn survival been inadequate? Is the sportsman taking too many juveniles?

What are the age frequencies of both sport and commercial catches? There is a very great difference in the age readings of older fish when scales and otoliths are compared. Which technique is most reliable?

Can the Mexican population of white seabass support the relatively heavy fishing pressure of the last ten years?

Should the white seabass be managed for the maximum commercial product, allowing the angler to do his best under the circumstances?

TABLE 1. Yearly Landings in Pounds - White Seabass

Year	California waters	South of state	Total pounds
1916	477,091	321,024	798,115
1917	869,187	30,810	899,997
1918	1,458,667	154,853	1,613,520
1919	2,380,713	74,654	2,455,367
1920	2,375,646	252,462	2,628,108
1921	2,069,414	500,075	2,569,489
1922	2,195,831	736,220	2,932,051
1923	1,781,970	591,877	2,373,847
1924	938,760	550,829	1,489,589
1925	890,437	994,672	1,885,109
1926	1,477,789	738,613	2,216,402
1927	806,559	1,466,848	2,273,407
1928	824,879	475,335	1,300,214
1929	955,556	606,676	1,562,232
1930	1,239,285	387,137	1,626,422
1931	1,058,162	341,251	1,399,413
1932	667,363	137,433	804,796
1933	828,129	334,950	1,163,097
1934	468,299	382,898	851,197
1935	648,900	417,519	1,066,419
1936	564,956	243,137	808,093
1937	263,195	336,224	599,419
1938	269,987	356,660	626,647
1939	806,604	187,792	994,396
1940	811,307	104,409	915,716
1941	832,454	75,842	908,296
1942	356,655	197,300	553,855
1943	379,178	121,005	500,183
1944	254,070	139,918	393,988
1945	380,468	147,262	527,730
1946	472,204	144,272	616,476
1947	692,314	390,709	1,083,023
1948	789,691	324,599	1,114,290
1949	945,502	464,097	1,409,599
1950	1,123,463	407,911	1,531,374
1951	955,428	577,827	1,533,255
1952	692,292	454,811	1,147,103
1953	471,206	402,087	873,293
1954	434,354	771,757	1,206,111
1955	544,953	369,912	914,865
1956	413,956	667,267	1,081,223
1957	1,261,955	245,140	1,507,095
1958	2,750,652	99,111	2,849,763
1959	3,385,791	37,562	3,423,353
1960	1,086,895	149,303	1,236,198
1961	458,491	235,733	694,224
1962	208,867	365,541	574,408
1963	372,479	518,741	891,220
1964	550,817	840,264	1,391,081
1965	577,607	850,538	1,428,145
1966	674,545	663,305	1,337,850
1967	507,588	715,171	1,222,759
1968	210,050	651,830	861,880
1969	250,906	847,802	1,098,708
1970	426,299	675,146	1,101,445
1971	551,912	271,972	823,884 (tentative)