

REVIEW OF THE PELAGIC WET FISHERIES FOR 1970 AND 1971

Total wet-fish landings during 1969 were the highest in 10 years. The statewide yield of 105,307 tons represented a twofold increase over the previous year (Table 1). This increase was due to the increase in anchovy landings which reached 67,639 tons. Mackerel deliveries fell slightly during the year; with Pacific mackerel landings dropping to 1,179 tons and jack mackerel to 25,961 tons. Landings of squid declined to 10,390 tons. Sardine deliveries fell to their lowest point since the Department began keeping records in 1916. Only 53 tons were taken during the year.

During 1970, wet-fish landings again showed an increase (Table 1). The total catch of 133,101 tons was the greatest in 20 years except for 1956 and 1958. Anchovy landings reached 96,243 tons, an all-time high. Deliveries of mackerel slipped for the second straight year. Pacific mackerel landings declined to their lowest point on record, 311 tons, while jack mackerel landings dropped to 23,875 tons. Deliveries of squid increased by 20% and reached 12,295 tons. The take of sardines increased to 221 tons due to legislation which provided for their use as dead bait.

Throughout 1969, the wet-fish fleet working off California consisted of 34 purse seiners and 21 lampara boats (exclusive of those fishing expressly for live bait). There were 20 "large" (60 ft. and over) and 9 "small" purse seiners based at San Pedro. One new vessel was built, the first in 22 years. At Port Hueneme there were two "small" purse seiners, and one "large" and two "small" seiners were at Monterey. However, during anchovy season the "large" Monterey vessel sank. Six lampara boats were active in southern California and 15 at Monterey.

The number of purse seiners fishing in 1970 increased to 39. There were 24 "large" and 10 "small" purse seiners in San Pedro. A lampara boat was converted to a purse seiner and joined the fleet. One "large" seiner, a converted live bait boat, joined the two "small" vessels operating out of Port Hueneme. Two "small" purse seiners landed fish at Monterey. The lampara fleet decreased to 20, five based in southern California and 15 at Monterey.

TABLE 1
Landings of Pelagic Wet-Fishes in
California in Tons; 1964-1970

Year	Sardine	Anchovy	Pacific Mackerel	Jack Mackerel	Herring	Squid	Total
1964.....	6,569	2,488	13,414	44,846	175	8,217	75,709
1965.....	962	2,866	3,525	33,333	258	9,310	50,254
1966.....	439	31,140	2,315	20,431	121	9,512	63,958
1967.....	74	34,805	583	19,090	136	9,801	64,489
1968.....	62	15,538	1,567	27,834	179	12,466	57,646
1969.....	53	67,639	1,179	25,961	85	10,390	105,307
1970.....	221	96,243	311	23,873	158	12,295	133,101

Pacific Sardine

The moratorium on the take of sardines (except that an incidental catch of 15% may be mixed with other fish) remained in effect until November 10, 1969. Legislation was passed in 1969 which permitted 250 tons per year to be taken for use as dead bait. The law provides that a vessel may possess and land 3 tons per day as long as the season is open or until the quota is reached. The 1969 catch remained low (53 tons) because of the late enactment of the law. However, the 1970 catch increased to 221 tons as fishermen took advantage of the new law. Most sardines taken during this period were caught either in San Diego Bay or off La Jolla. The fish were all large, most being over 3 years old.

Northern Anchovy

The California Fish and Game Commission authorized a quota of 75,000 tons during the 1969-70 season. The northern permit area (10,000 tons) opened August 1, 1969, and the southern permit area (65,000 tons) on September 15. Both areas were closed to fishing on May 15, 1970.

Fishing commenced August 4 at Monterey with the fishermen receiving \$19.50 per ton. On August 8, the price increased to \$20.50 per ton. Landings continued on a sporadic basis until November. Rough weather and lack of fish then curtailed landings until late April when the last landings of the season were recorded.

Anchovy fishing in the southern permit area started on September 16 with the price set at \$20.00 per ton. During the first 5 months of the season, fishermen experienced exceptionally good catches. This resulted in the Commission authorizing (January 9, 1970) an additional 65,000 tons. Fishing was poor during February and March because anchovy schools were deep and wild. On March 23, the Commission closed the inshore waters of southern California to the anchovy fishery (Zones I and III). This action was at the request of southern California sportsmen who were unable to get sufficient anchovies for live bait. Anchovy fishing then ceased since fishable schools were not available in the offshore areas. On May 5, fishing was again permitted in the nearshore zones of southern California (Zone I, beyond 6 miles around the Los Angeles area; Zone III, beyond 3 miles from other southern California shores). Over 8,000 tons of anchovies were then landed in the next 10 days.

A total of 83,473 tons of anchovies was landed during the 1969-70 season (Table 2).

The 1970-71 reduction season quota was increased to 100,000 tons in the southern permit area and remained at 10,000 tons in the northern area. Zones were abolished in the southern area, and the month of February was closed as a result of the live bait short-

age the prior season. Opening and closing dates for both permit areas were the same as the previous season.

During August, fishermen landed over one half of the seasons total catch at Monterey. The price was \$22.00 per ton. Landings ceased in September, but resumed in October and continued through December. The 1970-71 season catch produced the smallest total landings in the northern permit area since the first reduction season (Table 2).

The 1970-71 reduction season in the southern permit area started on September 20 with the price of anchovies being \$23.00 per ton. Fishermen experienced 5 months of good fishing, the same as the previous year. February was closed, and when activity resumed in March, no fishable schools could be found. The fish were either scattered on the surface or in large schools at great depths. Poor conditions prevailed until May when fishable quantities were again available.

By the time the season closed, a total of 80,752 tons had been landed (Table 2).

Anchovy behavior during both seasons was similar for the first time since the reduction fishery was authorized. Throughout the fall, boats fishing anchovies worked around the Channel Islands, off Port Hueneme, and outside Santa Monica Bay. As winter approached, the fishery shifted to the southeast. During

this time, fishermen worked Santa Monica Bay and the San Pedro Channel. In the spring, fishing effort was concentrated off Newport Beach.

The value of local anchovy meal (65% protein) has increased steadily since the start of the 1969-70 season. During September 1969, it opened at \$147.00 per ton. By December, anchovy meal was \$165.00 per ton and it remained at that price until March 1970. Then it rose to \$170.00 a ton, and in May was quoted at \$174.00 per ton. Throughout the 1970-71 season, the price remained at \$175.50 per ton.

Live bait fishing during 1969 and 1970 was rated as good except for the winter of 1969. Anchovies did not appear in Los Angeles-Long Beach Harbor nor off San Diego or Port Hueneme during this period. However, they did return in the spring. The reported catch declined in 1969 but increased in 1970 (Table 3). This probably reflects a variation in the number of boats reporting their catch since such records are voluntary.

Mackerel

Jack mackerel landings declined during 1969 (25,691 tons) and 1970 (23,873 tons). Increased anchovy landings and a ban on canning mackerel for human consumption (November 1969 to May 1970) because of high DDT levels were responsible for the decline. During both years, the Cortes Bank area and Catalina Island provided most of the fish. The price remained at \$75.00 per ton, the level it has been at since 1966. The 1968 year class dominated (70%) the 1969 catch, while the 1968 and 1969 year classes dominated (70%) the 1970 landings. Other year classes (1966 and 1967) accounted for the remainder of the catch during both years.

Pacific mackerel landings declined in 1969 to 1,179 tons and in 1970 to an all time low of 311 tons (Table 1). Most fish delivered in 1969 were taken by purse seiners in either small schools of 100% Pacific mackerel or in schools of mixed fish (jack and Pacific mackerel). Mixed loads accounted for most of the landings during 1970 although a few small loads of 100% Pacific mackerel were delivered. In November 1970, a moratorium on the take of Pacific mackerel took effect. It provided for a mixed load tolerance of up to 18% Pacific mackerel. The 1968 year class contributed heavily to landings both years. Spawning success in 1969 was poor, and 1970 produced a relatively small but noticeable year class.

Squid

Squid landings dropped to 10,390 tons in 1969 (Table 1). This drop reflected a decrease in demand for the canned product. Landings rose to 12,295 tons in 1970 due to increased demand by canners. While the Monterey squid fishery failed, landings in southern California increased to meet the demand.—

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TABLE 2
Anchovy Landings for Reduction in the Southern and Northern Permit Areas 1965-66 through 1970-71

Season	Southern permit area	Northern permit area	Total
1965-1966*	16,468	375	16,843
1966-1967†	29,589	8,021	37,610
1967-1968‡	852	5,651	6,503
1968-1969§	25,314	2,736	28,050
1969-1970§	81,453	2,020	83,473
1970-1971§	80,095	657	80,752

Seasons

- * November 12, 1965 through April 30, 1966.
 † October 1, 1966 through April 30, 1967.
 ‡ September 15, 1967 through May 15, 1968.
 § August 1 through May 15.

TABLE 3
Commercial Landings and Live Bait Catch of Anchovies in Tons; 1964-1970

Year	Reduction	Other commercial	Live bait	Total
1964	0	2,488	5,191	7,679
1965	170	2,696	6,148	9,014
1966	27,335	3,705	6,691	37,731
1967	32,349	2,455	5,387	40,191
1968	13,795	1,743	7,176	22,714
1969	65,204	2,435	5,538	73,177
1970	92,955	3,288	6,105	102,348