

REVIEW OF THE PELAGIC WET FISHERIES 1977

Total commercial landings of pelagic wet fishes increased in 1977, even though the largest fishery, northern anchovy, experienced a decline. The resurgence of the Pacific mackerel resource resulted in a 13-year high in its landings. Increased effort and favorable market conditions were partly responsible for a 25-year high for jack mackerel landings and a record high for Pacific herring landings. Market squid landings increased substantially over 1976, when southern California fishermen experienced a record year.

Northern Anchovy

The 1977 landings of anchovies (Table 1) include a portion of the landings for both the 1976-77 and 1977-78 anchovy reduction seasons (Table 2).

As of January 1, 1977, Monterey fishermen had caught 3,791 tons of a 15,000-ton quota. In the southern permit area (south of Point Buchon), San Pedro and Port Hueneme seiners had landed 67,330 tons toward a 100,000-ton quota. The three boats fishing out of Port Hueneme accounted for approximately 22% of this tonnage.

Fishing began very slowly after inclement weather greeted the new year. Landings remained low in both areas, with southern area fishermen complaining of poor availability of fishable concentrations and Monterey fishermen diverting their efforts toward Pacific herring. Cannery orders at Terminal Island were not met until the second week of March, when a catch rate of approximately 1,200 tons/day was sustained for 19 days. After April 1, San Pedro fishermen were again unable to fill cannery orders. Port Hueneme fishermen were even less successful as they accounted for less than 5% of the tonnage landed between January 1 and May 15, season closure. Monterey fishermen were also unsuccessful in

locating good concentrations of anchovies during the spring of 1977.

On March 31, the California Fish and Game Commission increased the southern area quota to 120,000 tons. Landings declined almost immediately, and the 1976-77 season closed May 15 with 101,434 tons and 5,007 tons being landed in the southern and northern permit areas, respectively.

A maximum of 33 and 4 boats participated in landings in the south and north, respectively, during the winter and spring of 1977. The price during this period fluctuated between \$50-55/ton in the north and \$48-57/ton in the south, with the highest prices being offered at the season's end.

Age composition of samples during the spring of 1977 supported previous conjecture that the 1974 and 1975 year classes were relatively weak. They represented less than 25% by number of all fish sampled compared with an average of well over 40% for 2- and 3-year-old fish during previous spring fisheries.

The 1977-78 season opened August 1 in the northern permit area (15,000-ton quota) and September 15 in the south (100,000-ton quota). Landings in both areas were substantial during most of the late summer and fall months.

Eleven Monterey boats (six seiners and five lampara vessels) participated in the best fall reduction fishery since 1973. Landings reached 7,136 tons by December 30, 1977, although effort was reduced somewhat by intermittent price disputes. The anchovy price at Monterey fluctuated between \$35 and \$41/ton during the fall, closing out the year at \$40.25/ton.

In the southern permit area, the 1977-78 season opened amidst controversy. Although Port Hueneme boats (three purse seiners) began fishing immediately,

TABLE 1
 Landings of Pelagic Wet Fishes in California in Short Tons 1964-77

Year	Pacific sardine	Northern anchovy	Pacific mackerel	Jack mackerel	Pacific herring	Market 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
1971...	149	44,853	78	29,941	120	15,756	90,947
1972...	186	69,101	54	25,559	63	10,030	104,993
1973...	76	132,636	28	10,308	1,410	6,031	150,489
1974...	7	82,691	67	12,729	2,630	14,452	112,576
1975...	3	158,510	144	18,390	1,217	11,811	190,075
1976...	27	124,919	317	21,693	2,410	10,131	159,497
1977*	4	111,476	5,930	49,453	5,826	14,121	186,810

*preliminary

TABLE 2
 Anchovy Landings for Reduction in the Southern and Northern Permit Areas for 1966-67 through 1977-78 in Short Tons

Season	Southern permit area	Northern permit area	Total
1966-67	29,589	8,021	37,610
1967-68	852	5,651	6,503
1968-69	25,314	2,736	28,050
1969-70	81,453	2,020	83,473
1970-71	80,095	657	80,752
1971-72	52,052	1,314	53,426
1972-73	73,167	2,352	75,519
1973-74	109,207	11,380	120,587
1974-75	109,918	6,669	116,587
1975-76	135,615	5,291	140,906
1976-77	101,434	5,007	106,441
1977-78*	68,477	7,211	75,688

*preliminary

the majority of the San Pedro fleet remained idle, as only one cannery at Terminal Island had agreed to a price (\$38/ton). By the end of September, all canneries were in operation and were paying \$41.25/ton. The price fluctuated between \$41 and \$43/ton for most of the fall. Fishing success was good for both fleets during the fall months, although daily landings declined somewhat in December. A maximum of 37 purse seiners participated in landings at Terminal Island. The Port Hueneme seiners landed 19% of the 67,414 tons caught between September 15 and December 31, 1977.

The 1974 and 1975 year classes continued to be poorly represented in sampled landings. Samples were predominated by 1-year-olds (1976 year class), which accounted for approximately 38% of individuals sampled.

During 1977 an estimated 983 tons of anchovies were landed for nonreduction purposes, i.e. canning, frozen bait, fresh-fish markets. An additional 7,066 tons are estimated to have been used for live-bait purposes.

Pacific Sardine

The moratorium on taking Pacific sardines remained in effect with fewer than five tons being landed incidentally with mackerels. Sardines were rarely seen during 1977, occurring in fewer than 1% of mackerel cannery landings. Live-bait fishermen only rarely reported seeing any young-of-the-year, "firecrackers," as the central population continued to remain in a very depressed state.

Pacific Mackerel

Fishermen will long remember 1977 as the year of the return of the "blue mackerel." As a result of an extremely successful 1976 spawning season, a large 1976 year class became fully vulnerable to the purse seine fishery during 1977.

Pacific mackerel frequently school with jack mackerel, and during the first few months of the year the tonnage landed incidental to jack mackerel landings increased dramatically. During this period of time a moratorium continued to regulate the commercial catch of Pacific mackerel, and fishermen were only allowed to land loads that contained 18% or less by weight of "blues." However, during May the mixture of Pacific mackerel became of such a magnitude that fishermen indicated the "blues" were interfering with the jack mackerel fishery. Jack mackerel landings did decrease in May, and fishermen complained they frequently had to "dump" loads that had too high a proportion of Pacific mackerel.

On June 8, emergency legislation was passed permitting an increase in the incidental catch of Pacific mackerel to 40% by weight. This law also permitted pure loads to be landed if they did not exceed three tons and provided that only the pure loads and the tonnage landed that exceeded 18% by weight in mixed loads would be counted against

the quota to be established for the 1977-78 season beginning October 1.

During the remainder of the year, approximately 4,400 tons were landing bringing the 1977 annual landings to an estimated 5,930 tons. This total represents the highest annual landings since 1964 when 13,414 tons were landed.

In December 1977 the California Department of Fish and Game recommended a 5,000-ton quota be officially established for the 1977-78 season (October 1-September 30).

Jack Mackerel

Landings during 1977 reached a 25-year high of 49,453 tons. This is more than double the average annual landings between 1965 and 1976. The record landings occurred in 1952 when 73,261 tons were caught.

Several factors have influenced the increase in landings during 1977. During February the major cannery for jack mackerel, which had been destroyed by fire in 1974, began operation again, and another cannery began processing jack mackerel for the first time. Anchovy fishing from January to May and bluefin tuna fishing during the summer were below expectations, resulting in more effort being expended on jack mackerel. The southern California fishing industry was encouraged to take more jack mackerel because of the possible future allocation of tonnage to foreign fleets. Availability of jack mackerel on traditional fishing grounds remained high during most of the year, and the price, which began at \$95/ton, rose to \$100 early in the year and remained stable. Landings might have been considerably higher if market conditions had not been depressed in August through October, resulting in reduced cannery orders. The low tolerance for Pacific mackerel caught incidentally with jack mackerel may have also reduced landings in the spring.

Size and age composition data indicated that two year classes (1974 and 1976) contributed to the bulk of the tonnage landed. The 1975 year class was poorly represented, and it now appears that 1975 was a weak spawning year for both mackerels as well as for the northern anchovy.

Pacific Herring

During 1977 California's herring landings reached a record high of approximately 5,826 tons. The previous high of 4,748 tons was landed in 1952 and was the result of increased demand for alternative species, created by a scarcity of Pacific sardines.

The herring fishery continued to be regulated by seasonal quotas by area—San Francisco (4,015 tons), Tomales (825 tons), Bodega (250 tons), and Humboldt (50 tons) Bays. In addition, quotas were allocated by gear (round haul and gill net) in San Francisco and

Tomales Bays. In Bodega and Humboldt Bays only gill nets were allowed. The Tomales Bay fishery operated on a limited-entry basis, with a drawing for seventeen permits. A total of 230 and 24 permits were issued for San Francisco and Bodega Bays, respectively.

Market Squid

California's squid fishery is best summarized in terms of landings north and south of Point Conception. To the north the catches are landed primarily at Monterey, historically a summer fishery. In the south, historically a winter fishery, San Pedro is the major port of delivery, with substantial landings taking place at Port Hueneme.

Monterey fishermen had their fourth poor year out of the past five years and their third straight season when landings have fallen below 3,000 tons. Squid failed to

show up on traditional fishing grounds during the early summer, and it was not until late summer and early fall that good catches were made by the lampara boat fishery. Annual landings are estimated at 2,234 tons.

Almost directly opposed to the trends in the north, landings in the south have increased in five out of the last six years, and during 1977 a record 11,887 tons were landed in spite of a relatively poor 1977 winter season, cut short by frequent storms. The record resulted primarily from unseasonably high landings during the summer and the early start of the 1977-78 winter season. More than 70% of the landings occurred in four months: January, August, November, and December.

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