DOMESTIC ANNUAL HARVESTING AND PROCESSING OF SQUID IN SOUTHERN CALIFORNIA

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Fishing Capacity and Domestic Annual Harvest (DAH)

The numbers and types of vessels fishing for squid during 1970-1975 are displayed in the attached tables. In Monterey almost 100% of the catch is taken by small, lampara vessels. Southern California harvests are split between vessels using dip nets (65%), purse seines (24%) and lampara nets (5%). Of these three vessel types, the purse seines have the greatest overall fishing capacity. Purse seine vessels from the San Pedro "wetfish fleet" have an estimated capacity of 3,401 metric tons per day (see Anchovy FMP Section 5.1). This fishing capacity has been divided among anchovy, jack mackerel, Pacific mackerel, Pacific bonito, bluefin tuna and squid (see attached tables).

Clearly the overall capacity of the fishing fleet in southern California exceeds by an order of magnitude the historical squid harvest. Market demand and resulting daily "limits" imposed by processors on the fishing fleet are the main constraints on the harvest of all wetfish species presently. The Fisherman's Cooperative Association of San Pedro, which allocates the daily limits among the local purse seine vessels, assures that sufficient vessels are fishing for shoreside processors to take the "limits." In addition the Co-op assures that each vessel has a fair chance to fish.

The domestic annual harvest (DAH) of squid in southern California is expected to equal the amount that the processors order. Recent experience in southern California suggests that DAH will be between 7,000 and 11,000 metric tons, twenty-five percent of which will probably be caught by purse seine vessels. Given the excess fishing capacity available

Domestic Annual Processing (DAP)

The ability of domestic processors to process squid depends on two factors: the actual physical capabilities of the plant and their ability to market squid. The amount that a plant could potentially process under ideal conditions depends on the physical characteristics of the plant, while the amount that the plants will actually process depends on worldwide market conditions, inventories, and availability of squid and other products. In this estimate of domestic processing capacity, both of these factors are recognized.

To determine the maximum physical capacity, squid processors in California were surveyed by telephone. In the Monterey area, six processors were contacted (four of which freeze squid and two of which both freeze and can squid). The maximum daily freezing capacity for these plants ranged from 27 to 91 metric tons a day for a total maximum freezing capacity of 363 metric tons a day. The maximum canning capacity for the Monterey area was estimated at 95 metric tons a day.

In the southern California area, nine processors were contacted, including six processors that freeze squid, two that can squid and one that both cans and freezes squid. The maximum capacity for freezing squid ranged from 27 to 113 metric tons a day, for a total estimated freezing capacity in southern California of 336 metric tons a day. The canning capacity was estimated at 267 tons a day.

in San Pedro, however, the domestic harvest of squid could easily expand by up to 9,000 metric tons without reducing the domestic harvest of other wetfish species delivered to domestic processors.

These maximum daily processing capacities represent the physical maximum that the plant could handle. However, these numbers do not represent what the plants will actually process during the year. The processors that freeze and can squid also process many other products including other species of fish, fruits and vegetables. What they will process depends more on market conditions than on physical plant capacities.

Assuming that all fish harvested are either frozen or canned (ignoring the small amounts sold as fresh squid), the maximum processing likely to occur is estimated by multiplying the maximum monthly harvest rate times the length of the fishing season. The months that squid are harvested vary by year and by the area. The season for both Monterey and southern California was determined by the number of months with landings exceeding 454 metric tons (500 short tons). During the 1970-1978 period the season ranged from 2 to 6 months in Monterey and 3 to 7 months in southern California. The maximum monthly amount of squid landed in Monterey during this same period was 3,694 metric tons (in June 1981), giving a maximum annual processing of 7,000 to 22,000 metric tons. In the southern California area, the maximum monthly harvest was 2,708 metric tons (January 1976), which gives an annual maximum range of 11,000-19,000 metric tons. The total for California is 18,000-41,000 metric tons. These estimates of processing capacity are in excess of the amounts that the processors have historically taken.

Given no change in the markets for squid, the processors are expected to handle no more than recent harvests. Thus the DAP equals 11,000 metric tons for southern California.

Landings and values of five major species caught by anchovy vessels, 1973-1976; extrapolations made for 1977, 1978, 1979, and 1980.

ındings rt tons)	Anchovy (reduction)	Jack mackerel	Pacific mackerel	Pacific bonito	Bluefin tuna	Total	Real Values[3]
1973	130,548	10,000	6	9,527	1,650	151,731	
1974	80,909	12,503	27	5,798	2,157	101,394	
1975	156,070	16,829	138	1,872	2,400	177,309	
1976	122,122	21,613	169	2,253	1,940	148,097	
1977[1]	109,714	50,260	3,501	5,242	850	169,567	
1978[1]	10,976	32,550	11,845	3,500[2]	1,176	60,047	
1979[1]	52,004	16,903	28,145	265	1,462	98,779	
1980[1]	48,169	21,282	30,976	6,445	577	107,449	
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1973	6,646	962	1	1,982	772	10,361	17,26
1974	3,357	1,470	3	1,548	1,225	7,603	11,69
1975	4,931	1,526	13	525	1,153	8,148	11,47
1976	5,393	2,161	17	638	1,125	9,334	12,44
1977[1]	4,937	5,026	350	1,688	862	12,863	16,07
1978[1]	494	3,581	1,302	1,365	964	7,706	9,06
1979[1]	2,393	2,535	4,221	103	1,242	10,494	11,28
1980[1]	2,697	3,724	5,421	866	2,881	15,589	15,58

Extrapolations using 1973-1976 average of percentage of total landings caught by anchovy fleet.

CF&G estimate.

Values deflated according to GNP price deflator, 1980 = 100.

Number of boats reporting landings of squid, by type of gear, by port, 1970-1975.

Port	Dip Net	Purse seine or ring net	Lampara	Other[1]	Total
			1975		
San Pedro	30	11	7	14	62
Monterey	1	-	18	1	20
Port Hueneme	5	2	-	11	18
San Diego	3	-	-	11	14
Total	39	13	25	37	114
			1974		
San Pedro	50	12	6	4	72
Monterey	1	-	20	1	22
Port Hueneme	7	2	-	1	10
San Diego	9	1	-	12	22
Total	67	15	26	18	126
			1973		
San Pedro	40	10	4	3	57
Monterey	-	-	15	-	15
Port Hueneme	4	1	2	-	7
San Diego	3	1	-	6	10
Total	47	12	21	9	89
			1972		
San Pedro	7	11	2	-	20
Monterey	-	-	33	-	33
Port Hueneme	5	3	2	-	10
San Diego	2	-	-	3	5
Total	14	14	37	3	68
			1971		
San Pedro	9	13	5	-	27
Monterey	-	-	20	-	20
Port Hueneme	7	2	1	-	10
San Diego	1	-	-	5	6
Total	17	15	26	5	63
			1970		
San Pedro	11	10	4	1	26
Monterey	-	-	17	-	17
Port Hueneme	5	-	1	-	6
San Diego	-	-	-	1	1
Total	16	10	22	2	50

[1] Includes encircling nets, nets, gill nets, other trawls and non-defined gear.

Note: Figures may not coincide exactly with other sources due to differences in data aggregations.

Source: California Dept. of Fish and Game Landings records.

Landings and percentage landings of squid, by type of gear, by port, 1970-1975 (tons).

Port	Dip Net	%	Purse seine & ring net	%	Lampara	%	Other[1]	%	T
				1975					
San Pedro	4,312	62%	1,738	25%	336	5%	515	8%	6
Monterey	2	0.1	-	-	2,419	99.9	-	-	2
Port Hueneme	811	34	235	10	-	-	1,344	56	2
San Diego	2	29	-	-	-	-	5	71	
Total	5,127	44	1,973	17	2,755	23	1,864	16	11
				1974					
San Pedro	3,397	58%	1,464	25%	981	17%	14	0%	5
Monterey	-	-	-	-	6,359	100	-	-	6
Port Huenume	1,644	82	115	6	-	-	246	12	2
San Diego	84	71	26	22	-	-	8	7	
Total	5,125	36	1,605	11	7,340	51	268	2	14
				1973					
San Pedro	2,294	64%	1,239	35%	30	1%	5	0%	3
Monterey	-	-	-	-	618	100	-	-	
Port Hueneme	1,553	87	0	0	171	10	44	2	1
San Diego	15	83	-	-	-	-	3	17	
Total	3,862	64	1,243	21	819	14	52	1	5
				1972					
San Pedro	1,018	45%	1,092	49%	125	6%	-	-	2
Monterey	-	-	-	-	6,114	100	-	-	6
Port Hueneme	678	40	1,013	59	25	1	-	-	1
San Diego	2	100	-	-	-	-	-	-	
Total	1,698	17	2,105	21	6,264	62	-	-	10
				1971					
San Pedro	2,761	68%	1,203	29%	134	3%	-	-	4
Monterey	-	-	-	-	8,326	100	-	-	8
Port Hueneme	2,361	89	276	10	18	1	-	-	2
San Diego	1	100	-	-	-	-	-	-	
Total	5,123	34	1,479	10	8,478	56	-	-	15
				1970					
San Pedro	3,424	65%	1,499	28%	368	7%	-	-	5
Monterey	-	-	-	-	4,031	100	-	-	4
Port Hueneme	2,751	93	193	6	29	1	-	-	3
San Diego	-	-	-	-	-	-	-	-	
Total	6,175	50	1,692	14	4,428	36	-	-	12

[1]Includes encircling nets, nets, gill nets, otter trawl nets and non-defined gear

Note: Figures do not correspond exactly with other sources due to differences in aggregations.

Source: California Dept. of Fish and Game Landings records.