

Table 1. History of Council Actions

- The Council initiated development of the FMP for Northern anchovy in January of 1977. The FMP was submitted to the U.S. Secretary of Commerce (Secretary) in June of 1978. Regulations implementing the FMP for Northern anchovy were published in the *Federal Register* on September 13, 1978 (43 *FR* 40868). Subsequently, the Council has considered seven amendments.
- The first amendment changed the method of specifying the domestic annual harvest for Northern anchovy and added a requirement for an estimate of domestic processing capacity and expected annual level of domestic processing. Approval for this amendment was published in the *Federal Register* on July 18, 1979 (44 *FR* 41806).
- The second amendment, which became effective on February 5, 1982, was published in the *Federal Register* on January 6, 1982 (47 *FR* 629). The purpose of this amendment was to increase the domestic fishing fleet's opportunity to harvest the entire optimum yield (OY) of Northern anchovy from the U.S. EEZ by releasing, inseason, unutilized portions of the Northern quota.
- During the spring of 1982, the Council considered a third amendment that divided the quota for Northern anchovy into two halves and made release of the second half conditional on the results of a mid-season review of the status of the stock. The methods proposed for the mid-season assessment were considered too complex to implement, and the amendment was not approved.
- The fourth amendment, which had two parts, was published in the *Federal Register* on August 2, 1983 (48 *FR* 34963) and became effective on August 13, 1983. The first part abolished the five-inch size limit in the commercial fishery and established a minimum mesh size of 5/8 inch for Northern anchovy. The mesh size requirement did not become effective until April 1986 in order to give the fleet additional time to comply without undue economic hardship. The second part established a mid-season quota evaluation that was simpler in design than the method proposed in Amendment 3.
- The fifth amendment in 1983 incorporated advances in scientific information concerning the size and potential yield of the central subpopulation of Northern anchovy. In addition, the fifth amendment included changes to a variety of other management measures. Two or more alternative actions were considered in each of seven general categories; (1) OY and harvest quotas; (2) season closures; (3) area closures; (4) quota allocation between areas; (5) the reduction quota reserve; (6) minimum fish size or mesh size; and (7) foreign fishing and joint venture regulations. The alternatives for the fifth amendment were reviewed by the Council during 1983. The final rule was published in the *Federal Register* on March 14, 1984 (49 *FR* 9572).
- In 1990, the sixth amendment implemented a definition of overfishing for Northern anchovy consistent with National Standard 7, and addresses vessel safety (56 *FR* 15299, April 16, 1991).
- The Council began developing the seventh amendment as a new FMP for CPS on a motion from NMFS and California in 1990. A complete draft was available in November of 1993, but the Council suspended further work, because NMFS withdrew support due to budget constraints. In July of 1994, the Council decided to proceed with the plan through the public comment period. NMFS agreed with the decision on the condition that the Council also consider the options of dropping or amending the anchovy FMP. Thus, four principal options were considered for managing CPS (1) drop the anchovy FMP (no federal or Council involvement in CPS); (2) continue with the existing FMP for anchovy (status quo); (3) amend the FMP for Northern anchovy; and (4) implement an FMP for the entire CPS fishery. In March of 1995, after considering all four principal options, the Council decided to proceed with the FMP for CPS. Final action was postponed until June 1995 when the Council adopted a draft plan that had been revised to address comments provided by NMFS and the SSC. Amendment 7 was submitted to the US Secretary of Commerce, but rejected by NMFS, Southwest Region, as being inconsistent with National Standard 7. NMFS announced its intention to drop the FMP for Northern anchovy (in addition to FMP's other species) in the *Federal Register* on March 26, 1996 (61 *FR* 13148), but the action was never completed.

- Development of Amendment 8 began in June, 1997 when the Council directed the CPSPDT to amend the FMP for Northern anchovy to conform to the recently revised Magnuson-Stevens Fishery Conservation and Management Act and to expand the scope of the FMP to include the entire CPS fishery. Amendment 8 was partially approved by the U.S. Secretary of Commerce on June 10, 1999, and final regulations were published on December 15, 1999 (64 *FR* 69888). The FMP was implemented on January 1, 2000.
- At its meeting in June 1999, the Council directed its Coastal Pelagic Species Management Team (CPSMT) to recommend appropriate revisions to the FMP and report to the Council the following September. A public meeting of the CPSMT was held in La Jolla, CA, on August 3 and 4, 1999, and August 24, 1999, and a meeting was held between the CPSMT and the Coastal Pelagic Species Advisory Subpanel on August 24, 1999. At its September 1999 meeting, the Council gave further direction to the CPSMT regarding MSY for squid. At its March 2000 meeting, the Council asked the CPSMT for a more thorough analysis of the alternatives proposed for establishing MSY for squid and for bycatch. At a public meeting in La Jolla, CA, on April 20 and 21, 2000, the CPSMT reviewed comments from the Council, the Council's Scientific and Statistical Committee (SSC) and prepared additional material for establishing MSY for squid based on spawning area.
- The Council distributed Amendment 9 for public review on July 27, 2000. At its September 2000 meeting, the Council reviewed written comments, received comments from its advisory bodies, and heard public comments, and decided to submit only two provisions for Secretarial review. Based on testimony concerning MSY for squid, the Council decided to include in Amendment 9 only the bycatch provision and a provision providing a framework to ensure that Indian fishing rights are implemented according to treaties between the U.S. and the specific tribes. Since implementation of the FMP, the CPS fishery has expanded to Oregon and Washington. As a result, the FMP must discuss Indian fishing rights in these areas. These rights were not included in the FMP; and the Council decided to address this issue in Amendment 9. The Council decided to conduct further analysis of the squid resource and will prepare a separate amendment that addresses OY and MSY for squid.
- The Secretary of Commerce approved Amendment 9 on March 22, 2001.
- In April 2001, the Council adopted the capacity goal and transferability provisions recommended by the CPSMT for inclusion in Amendment 10. The Council directed the CPSMT to develop an amendment to the CPS FMP that will include the capacity goal, provisions for permit transferability, a process for monitoring fleet capacity relative to the goal, and a framework for modifying transferability provisions as warranted by increases or decreases in fleet capacity. The amendment will also address determination of OY and MSY for market squid.
- In November 2001, the Council reviewed the findings of the market squid stock assessment review (STAR) workshop and endorsed the egg escapement approach as a proxy for squid MSY, as recommended by the market squid STAR Panel and CPSMT.
- In March 2002, the Council adopted draft Amendment 10 to the CPS FMP for public review.

Table 2. Regulatory Actions

January 25, 2000. NMFS published harvest guidelines for Pacific sardine and Pacific mackerel for the fishing year beginning January 1, 2000. A harvest guideline of 186,791 mt was established for Pacific sardine, based on a biomass estimate of 1,581,346 mt. The harvest guideline was allocated for Subarea A, which is north of 35° 40' N latitude (Pt. Piedras Blancas) to the Canadian border, and for Subarea B, which is south of 35° 40' N latitude to the Mexican border. The northern allocation was 62,264 mt; the southern allocation was 124,527 mt. The sardine harvest guideline was in effect until December 31, 2000, or until it was reached and the fishery closed. A harvest guideline of 42,819 mt was established for Pacific mackerel based on a biomass estimate of 239,286 mt. The harvest guideline for Pacific mackerel was in effect until June 30, 2000, or until it was reached and the fishery closed. (65FR3890)

September 11, 2000. NMFS announced the annual harvest guideline for Pacific mackerel in the exclusive economic zone off the Pacific coast. Based on the estimated biomass of 116,967 mt and the formula in the FMP, a harvest guideline of 20,740 mt was calculated for the fishery beginning on July 1, 2000. This harvest guideline is available for harvest for the fishing season July 1, 2000, through June 30, 2001. (65FR54817)

November 1, 2000. NMFS announced the closure of the directed fishery for Pacific mackerel in the exclusive economic zone off the Pacific coast on October 27, 2000. The FMP and its implementing regulations require NMFS to set an annual harvest guideline for Pacific mackerel based on a formula in the FMP and to close the fishery when the harvest guideline is reached. The harvest guideline of 20,740 metric tons is projected to be reached before the end of the fishing season on June 30, 2001, which requires closing the directed fishery and setting an incidental harvest limit for Pacific mackerel so that the harvest of other coastal pelagic species will not be further restricted. The intended effect of this action is to ensure conservation of the Pacific mackerel resource. For the reasons stated here and in accordance with the FMP and its implementing regulations at 50 CFR 660.509, the directed fishery for Pacific mackerel will be closed October 27, 2000, after which time no more than 20 percent by weight of any landing of Pacific sardine may be Pacific mackerel. (65FR65272)

November 17, 2000. NMFS published a correction to the Pacific mackerel closure which was published on November 1, 2000. In 65FR65272, make the following correction: On page 65272, in the third column, under the heading SUPPLEMENTARY INFORMATION, the last sentence is corrected to read as follows: "For the reasons stated here and in accordance with the FMP and its implementing regulations at 50 CFR 660.509, the directed fishery for Pacific mackerel will be closed October 27, 2000, after which time no more than 20 percent by weight of a landing of Pacific sardine, northern anchovy, jack mackerel, or market squid may consist of Pacific mackerel." (65FR69483)

December 27, 2000. NMFS announced the annual harvest guideline for Pacific sardine in the exclusive economic zone off the Pacific coast for the January 1, 2001, through December 31, 2001, fishing season. This harvest guideline has been calculated according to the regulations implementing the FMP. The intended effect of this action is to establish allowable harvest levels for Pacific sardine off the Pacific coast. Based on the estimated biomass of 1,182,465 mt and the formula in the FMP, a harvest guideline of 134,737 mt was calculated for the fishery beginning January 1, 2001. The harvest guideline is allocated one-third for Subarea A, which is north of 35° 40' N latitude (Pt. Piedras Blancas) to the Canadian border, and two-thirds for Subarea B, which is south of 35° 40' N latitude to the Mexican border. Any unused resource in either area will be reallocated between areas to help ensure that the optimum yield will be achieved. The northern allocation is 44,912 mt; the southern allocation is 89,825 mt. (65FR81766)

February 22, 2001. NMFS announced changes to the restriction on landings of Pacific mackerel for individuals participating in the CPS fishery and for individuals involved in other fisheries who harvest small amounts of Pacific mackerel. The incidental limit on landings of 20 percent by weight of Pacific mackerel in landings of Pacific sardine, northern anchovy, jack mackerel, and market squid remains in effect; however, CPS fishermen may land up to 1 mt of Pacific mackerel even if they land no other species from the trip. Non-CPS fisherman may land no more than 1 mt of Pacific mackerel per trip. After the harvest guideline of 20,740 mt is reached, all landings of Pacific mackerel will be restricted to 1 mt per trip. This action is authorized by the FMP and is intended to ensure that the fishery achieves, but does not exceed, the harvest guideline while minimizing the economic impact on small businesses. For the reasons stated here, no fishing

vessel may land more than 1 mt of Pacific mackerel per fishing trip, except that fishing vessels with other CPS on board may land more than 1 mt of Pacific mackerel in a fishing trip if the total amount of Pacific mackerel on board the vessel does not exceed 20 percent by weight of the combined weight of all CPS on board the vessel. (66FR11119)

March 30, 2001. NMFS announced the closure of the fishery for Pacific mackerel in the exclusive economic zone off the Pacific coast at 12 a.m. on March 27, 2001. The FMP and its implementing regulations require NMFS to set an annual harvest guideline for Pacific mackerel based on a formula in the FMP and to close the fishery when the harvest guideline is reached. The harvest guideline of 20,740 mt has been reached. Following this date no more than 1 mt of Pacific mackerel may be landed from any fishing trip. The effect of this action is to ensure conservation of the Pacific mackerel resource. (66FR17373)

July 25, 2001. NMFS announced a harvest guideline of 13,837 mt for Pacific mackerel for the fishing season July 1, 2001 through June 30, 2002. A directed fishery of 6,000 mt was established, which, when attained, would be followed by an incidental allowance of 45% of Pacific mackerel in a landing of any coastal pelagic species. If a significant amount of the harvest guideline remained unused before the end of the fishing season on June 30, 2002, the directed fishery would be reopened. This approach was taken because of concern about the low harvest guideline's potential negative effect on the harvest of Pacific sardine if the fishery for Pacific mackerel had to be closed. The two species occur together often and could present incidental catch problems. (66FR38571)

November 27, 2001. NMFS announced the closure of the directed fishery for Pacific mackerel in the exclusive economic zone off the Pacific coast at 12:00 noon on November 21, 2001. For the fishing season beginning July 1, 2001, 6,000 mt of the 13,837 mt harvest guideline was established for a directed fishery. More than 6,000 mt has been landed. Therefore, the directed fishery for Pacific mackerel was closed on November 21, 2001, after which time no more than 45% by weight of a landing of Pacific sardine, northern anchovy, jack mackerel, or market squid could consist of Pacific mackerel. The intended effect of this action was to ensure that the harvest guideline was achieved, but not exceeded, and to minimize bycatch of Pacific mackerel while other CPS were being harvested. (66FR59173)

December 27, 2001. NMFS published the harvest guideline for Pacific sardine for the fishing season beginning January 1, 2002. A harvest guideline of 118,442 mt was established for Pacific sardine based on a biomass estimate of 1,057,599 mt. The harvest guideline is allocated for Subarea A, which is north of 35° 40' N. latitude (Pt. Piedras Blancas) to the Canadian border, and for Subarea B, which is south of 35° 40' N. latitude to the Mexican border. The northern allocation is 39,481 mt; the southern allocation is 78,961mt. The sardine harvest guideline is in effect until December 31, 2002, or until it is reached and the fishery closed. (66FR66811)

April 15, 2002. NMFS announced the reopening of the directed fishery for Pacific mackerel in the U.S. EEZ off the Pacific coast on April 1, 2002. A significant portion of the Pacific mackerel harvest guideline remains unharvested (6,585 mt). Therefore, the incidental catch allowance that has been in effect since November 21, 2001, is removed, and any landing of Pacific mackerel may consist of 100% Pacific mackerel. This action was taken to help ensure that the harvest guideline is attained. If the harvest guideline is projected to be reached before June 30, 2002, the directed fishery will be closed and an appropriate incidental landing restriction imposed. (67FR16322)

Table 3. Vessel age and calculated gross tonnage (GT) for the initial and current limited entry fleet.

	Initial Fleet	Current Fleet
Average Vessel Age	35 years	31 years
Range of Vessel Ages	12 - 66 years	1 - 65 years
Average GT	71.3 mt	86.9 mt
Range of GT	12.8 - 206.9 mt	23.8 - 224.8 mt
Sum of Fleet GT	4,635.9 mt	5,650.9 mt

Table 4. Coastal pelagic species limited entry permit vessel listing, with U.S. Coast Guard registered measurements and calculated gross tonnage (GT) values for each vessel.

Vessel Name	CG Number	L.E. Permit Number	Year Built	Registered Measurements (ft.) ¹			Calculated GT ²
				Length	Breadth	Depth	
Misty Moon	D578511	1	1976	49.6	19.0	10.1	63.8
Paloma	D280452	2	1960	47.4	16.5	8.3	43.5
St. George II	D238969	3	1939	71.4	21.2	9.7	98.4
Barbara H	D643518	4	1981	64.9	24.0	11.6	121.1
San Antonio	D236947	5	1937	72.1	19.5	8.7	82.0
Annie D	D246533	6	1944	73.2	21.5	9.3	98.1
San Pedro Pride	D549506	7	1973	79.6	24.5	12.3	160.7
Ferrigno Boy	D602455	8	1978	69.6	23.7	12.6	139.3
King Philip	D1061827	9	1997	79.0	26.0	11.4	156.9
Sea Wave	D951443	10	1989	78.0	22.0	18.0	206.9
Mary Louise	D247128	11	1944	58.3	18.0	8.0	56.2
Bainbridge	D236505	12	1937	78.6	22.7	9.6	114.8
Pioneer	D246212	13	1944	77.8	24.3	11.2	141.9
Maria	D236760	14	1937	70.7	20.5	9.2	89.3
St. Joseph	D633570	15	1981	62.9	22.0	9.1	84.4
Sea Scout	D248454	16	1945	81.5	23.1	10.9	137.5
Retriever	D582022	17	1977	54.2	19.6	8.7	61.9
Atlantis	D649333	18	1982	49.6	19.0	10.1	63.8
G. Nazzareno	D246518	19	1944	78.0	22.7	10.5	124.6
Sea Queen	D582167	20	1974	68.4	22.0	11.1	111.9
Pacific Leader	D643138	21	1981	59.5	21.0	9.2	77.0
Chovie Clipper	D524626	22	1970	51.1	18.0	10.3	63.5
Pacific Journey ^a	OR 661 ZK	23	2001	64.3	22.0	10.3	97.7
Ocean Angel I	D584336	24	1977	49.6	19.0	10.1	63.8
Maria T	D509632	25	1967	57.3	18.1	9.8	68.1
Manana	D253321	26	1947	40.1	13.2	6.7	23.8
Miss Juli	D548223	27	1973	49.5	17.8	9.4	55.5
Mineo Bros.	D939449	28	1989	58.0	21.0	9.0	73.4
Sea Queen	D583781	29	1977	49.0	16.0	8.0	42.0
Little Joe II	D531019	30	1971	50.1	16.0	7.6	40.8
Caitlin Ann	D960836	31	1990	95.0	33.0	10.7	224.7
Eldorado	D690849	32	1985	56.0	17.0	8.6	54.9
Kristen Gail	D618791	33	1980	87.0	26.0	12.8	194.0
Fiore D'Mare	D550564	34	1973	71.5	23.0	11.4	125.6
Endurance	D613302	35	1979	49.0	16.0	8.0	42.0
New Sunbeam	D284470	36	1961	50.3	20.0	4.0	27.0
Calogera A	D984694	37	1992	57.75	21.0	10.5	85.3
Eileen	D252749	38	1947	79.4	22.1	10.2	119.9
Pamela Rose	D693271	39	1985	54.0	19.0	9.0	61.9

Vessel Name	CG Number	L.E. Permit	Year	Registered Measurements (ft.) ¹			Calculated GT ²
		Number	Built	Length	Breadth	Depth	
New Stella	D598813	40	1978	58.0	22.0	8.4	71.8
Traveler	D661936	41	1983	56.0	17.0	6.9	44.0
Lucky Star	D295673	42	1964	49.9	17.0	7.3	41.5
Ocean Angel II	D622522	43	1980	74.5	28.0	10.7	149.5
Mello Boy	D1061917	44	1997	66.0	26.0	12.0	138.0
Trionfo	D625449	45	1980	63.8	19.3	9.6	79.2
Jenny Lynn	D541444	46	1972	66.0	21.6	8.9	85.0
Heavy Duty	D655523	47	1983	52.7	21.2	10.1	75.6
Aliotti Bros	D685870	48	1985	67.6	26.0	9.1	107.2
Lady J	D647528	49	1982	50.3	17.0	7.1	40.7
Anna S	D253402	50	1947	50.8	16.2	9.1	50.2
Endeavor	D971540	51	1990	57.4	19.0	9.9	72.3
Antoinette W	D606156	52	1978	45.4	16.0	7.6	37.0
Donna B	D648720	53	1982	73.2	25.0	12.9	158.2
Papa George	D549243	54	1973	72.0	22.8	11.5	126.5
Mercurio Bros	D650376	55	1982	42.0	16.7	8.6	40.4
Kathy Jeanne	D507798	56	1967	65.9	22.2	8.8	86.3
Merva W	D532023	57	1971	56.7	17.9	8.0	54.4
Santa Maria	D236806	58	1937	79.2	19.5	8.8	91.1
Buccaneer	D592177	59	1978	62.1	19.9	9.0	74.5
Midnight Hour	D276920	60	1958	61.1	18.0	8.6	63.4
Nancy B II	D542513	61	1972	56.4	18.0	8.8	59.9
Miss Kristina	D580843	62	1977	50.0	16.0	7.4	39.7
Emerald Sea	D626289	63	1980	62.7	26.0	7.9	86.3
Connie Marie	D624240	64	1980	49.9	17.9	9.1	54.5
Theresa Marie	D629721	65	1980	40.6	14.7	6.6	26.4

¹ Vessel dimension data were obtained from the U.S. Coast Guard web site <http://psix.uscg.mil>

² Vessel calculated gross tonnage is $GT=0.67(\text{length}*\text{breadth}*\text{depth})/100$. See 46 CFR 69.209.

³ Pacific Journey was built in Canada and is not currently registered with the U.S. Coast Guard. Measurements are from marine surveyor Det Norske Veritas. Pacific Journey replaced Tribute in 2001.

Table 5. Number of commercial landings sampled per year by the CDFG port sampling program, 1985-2001.

Year	Sardine Landings	Mackerel Landings	Total Landings
2001	172	89	261
2000	110	85	195
1999	157	70	227
1998	97	97	194
1997	113	116	229
1996	96	85	181
1995	254	215	469
1994	119	167	286
1993	85	183	268
1992	231	113	344
1991	169	42	211
1990	99	233	332
1989	149	451	600
1988	190	385	575
1987	128	510	638
1986	105	440	545
1985	40	333	373

Table 6. Incidental catch from landings sampled by the CDFG port sampling program, 1992-1999. (Information represents **occurrence** of incidental catch, not numbers or weights of fish.)

Yr	Anchovy	Jacksmelt	Herring	White Croaker	M. Squid	Lingcod	Pac Mack	Y-tail	Jack Mackerel	Y-fin Tuna	Skipjack Tuna	Total
99	5	1	1									7
98	3		2	1	4							10
97	1		1		44							46
96	8			1	22	1						32
95	5		1		71		1	1	1			80
94			1									1
93												--
92						1				1	1	3

Table 7. Incidental catch recorded by CDFG CPS port samplers in Los Angeles County, California, 2001.

Fishes	Incidents	Elasmobranchs	Incidents	Invertebrates, Vegetation and Garbage	Incidents
Halibut	8	Pacific electric ray	2	Kelp	50
Bonito	1	"Sand shark"	1	Crab	7
Sablefish	3	Spiny dogfish	1	Sea cucumber	2
Cusk eel	4	Smoothhound	1	"Debris"	1
Kelp bass	1	"Shark"	1	Kelp fronds	1
Sand bass	2	Sevengill shark	1	Lobster	3
Flyingfish	1	Bat ray	22	Plastic bottle	1
Lizardfish	6	"Skates"	4	Sea star	2
Tonguefish	3	Thornback	4	"Sea weed"	4
Sardine	13	Horn shark	4	Snail	1
"Flatfish"	33	Swell shark	1	Squid	16
Butterfish	5	Stingray	2	Squid eggs	1
Pompano	1				
Barracuda	5				
Midshipman	13				
Senorita	1				
"Bass"	1				
Anchovy	10				
Jacksmelt	4				
White croaker	19				
Pacific mackerel	21				
Jack mackerel	29				
California Scorpionfish	26				
Total	210	Total	44	Total	89

Table 8. Observed market squid incidental catch by percent frequency of occurrence (October 1998 through September 2001).

Species	Percent frequency of occurrence
Pacific sardine	16.2
Pacific mackerel	7.0
Northern anchovy	4.5
Jack mackerel	2.8
Market squid eggs	1.8
Bat ray	1.4
California barracuda	1.4
Kelp	0.9
Pelagic red crab	0.8
Pacific butterfish	0.7
Horn shark	0.5
Sole	0.5
Colonial invertebrates	0.4
Sea star	0.3
Cabezon	0.3
Sea cucumbers	0.3
Ray	0.3
Smelt	0.3
Mexican pompano	0.2
Octopus	0.2
Rock crab	0.2
Sculpin	0.2
Blue shark	0.1
California halibut	0.1
Flyingfish	0.1
Bocaccio	0.1
California spiny lobster	0.1
Halibut	0.1
Jacksmelt	0.1
Mackerel unclassified	0.1
Pacific bonito	0.1
Pacific sole	0.1
Queenfish	0.1
Rockfish	0.1
Sanddab	0.1
Shrimp unclassified	0.1
Skate	0.1
Spider crab	0.1
Spotted sand bass	0.1
Wahoo	0.1
Yellowtail	0.1

Table 9. Summary of salmonid bycatch in Pacific sardine fisheries landings into Oregon and Washington, 2000-2001.

	Chinook (live)	Chinook (dead)	Coho (live)	Coho (dead)	Pink (live)	Unid Sal (live)	Unid Sal (dead)	Total (live)	Total (dead)	Grand Total
2001										
Oregon	45	45	201	134	22	45	0	313	179	492
Washington	449	170	571	504	0	80	0	1100	674	1774
2000										
Oregon	43	72	159	43	0	303	43	505	158	663
Washington	38	3	276	116	0	7	0	321	119	440

Table 10. Observed and reported catches of non-target species caught in the Pacific sardine fishery off of Oregon, 2001.

Species	Logbook Data		Observer Data	
	# Caught	# Released Alive	# Dead	
Dogfish	20	1	1	
Blue shark	1			
Thresher shark	1			
Unknown	1			
Herring		50,000 lb		
Chinook salmon		2	2	
Coho salmon		9	6	
Pink salmon		1		
Salmon (unknown spp.)	472 (311 alive, 161 dead)	2		
Pacific mackerel	275,165 lb		16,400 lb	
Jellyfish			undetermined	

Table 11. Observed and expanded total number of salmon caught in the Pacific sardine fishery off of Oregon, 2000-2001. (Expanded total is based on salmon per trip).

	Chinook		Coho		Pink	Unknown		Total		Grand Total
	alive	dead	alive	dead	alive	alive	dead	alive	dead	
2001 observed	2	2	9	6	1	2	0	14	8	22
2001 expanded total	45	45	201	134	22	45	0	313	179	492
2000 expanded total	43	72	159	43	0	303	43	504	159	663

Table 12. Expanded observed bycatch data for the 2000 and 2001 Washington trial sardine fisheries. Expanded data based upon salmon and shark per mt sardines landed.

Year	Chinook (live)	Chinook (dead)	Coho (live)	Coho (dead)	Unkn. Salmon (live)	Shark (live)	Shark (dead)
2001	449	170	571	504	80	150	50
2000	38	3	276	116	7	169	31

Table 13. Species noted as encountered on CDFG Live Bait Logs, 1996-2001.

Year	Days Fished	Grunion	Smelts	Barracuda	Herring	Stickle-back	Shiner Surfperch	Sea Star
2001	883	1		56				
2000	291	1		34				
1999	449		1	7	1			
1998	809			69	1		1	
1997	773			104			3	1
1996	522		5	27	3	1		
Total	3727	2	6	297	5	1	4	1

Table 14. Estimates of Pacific sardine and Northern anchovy live bait harvest in California (mt). Data for 1939-1992 from Thomson et al. (1994), and 1993-2001 from CDFG logs.

Year	Anchovy	Sardine	Year	Anchovy	Sardine
1939	1,364	0	1970	5,543	0
1940	1,820	0	1971	5,794	0
1941	1,435	0	1972	5,307	0
1942	234	0	1973	5,639	0
1943	World War II	World War II	1974	5,126	0
1944	World War II	World War II	1975	5,577	0
1945	World War II	World War II	1976	6,202	0
1946	2,493	0	1977	6,410	0
1947	2,589	0	1978	6,013	107
1948	3,379	0	1979	5,364	0
1949	2,542	0	1980	4,921	12
1950	3,469	0	1981	4,698	6
1951	4,665	0	1982	6,978	38
1952	6,178	0	1983	4,187	193
1953	5,798	0	1984	4,397	53
1954	6,066	0	1985	3,775	11
1955	5,557	0	1986	3,956	17
1956	5,744	0	1987	3,572	216
1957	3,729	0	1988	4,189	50
1958	3,843	0	1989	4,594	100
1959	4,297	0	1990	4,842	543
1960	4,225	0	1991	5,039	272
1961	5,364	0	1992	2,572	1,807
1962	5,595	0	1993	669	176
1963	4,030	0	1994	2,076	1,506
1964	4,709	0	1995	1,278	2,055
1965	5,645	0	1996	703	1,801
1966	6,144	0	1997	1,077	2,344
1967	4,898	0	1998	304	2,037
1968	6,644	0	1999	453	2,411
1969	4,891	0	2000	716	1,116
1970	5,543	0	2001	1,054	1,106

Table 15. Ratio of Northern anchovy to Pacific sardine in preliminary reported live bait catch in California, 1994-2001.

Year	Anchovy	Sardine	Total	% Anchovy	% Sardine
2001	1,054	1,106	2,159	0.49	0.51
2000	716	1,116	1,831	0.39	0.61
1999	453	2,411	2,864	0.16	0.84
1998	304	2,037	2,341	0.13	0.87
1997	1,077	2,344	3,420	0.31	0.69
1996	703	1,801	2,504	0.28	0.72
1995	1,278	2,055	3,333	0.38	0.62
1994	2,076	1,506	3,582	0.58	0.42

Table 16. Commercial harvest (metric tons) of CPS finfish in Ensenada, Northern Baja California, Mexico, 1978-2001^{/1}. Market squid are not commercially fished off Ensenada.

Year	Sardine	Anchovy	Pacific mackerel	Jack mackerel
1978	0	135,036	0	n/a
1979	0	192,476	0	n/a
1980	0	242,907	0	n/a
1981	0	258,745	0	n/a
1982	0	174,634	0	n/a
1983	274	87,429	135	n/a
1984	0	102,931	128	n/a
1985	3,722	117,192	2,582	n/a
1986	243	93,547	4,883	n/a
1987	2,432	124,482	2,082	n/a
1988	2,035	79,495	4,484	902
1989	6,224	81,811	13,687	0
1990	11,375	99	35,767	25
1991	31,392	831	17,500	30
1992	34,568	2,324	24,345	n/a
1993	32,045	284	7,741	n/a
1994	20,877	875	13,319	85
1995	35,396	17,772	4,821	0
1996	39,065	4,168	5,604	47
1997	68,439	1,823	12,477	78
1998	47,812	972	50,726	480
1999	58,569	3,482	10,168	781
2000	51,173	1,562	7,182	0
2001	22,246	76	4,078	0

/1 Source: Data provided by Biol. Walterio Garcia-Franco, Instituto Nacional de la Pesca, Ensenada.

Table 17. Pacific sardine time series of stock biomass (age-1 fish in mt) and recruitment (age-0 fish in 1,000s) estimated at the beginning of semester 2 of each year. Stock biomass estimates are presented for Area 1 (*Inside*) and the Total Area of the stock. The 95% confidence intervals (CI) for Total Area biomass and recruitment estimates are also presented. See Conser et al. (2001) for details regarding methods used to derive estimates.

Year	Stock biomass				Recruitment		
	Area 1	Total Area	Lower CI	Upper CI	Total Area	Lower CI	Upper CI
83	5,160	5,160	2,838	10,593	136,715	81,424	247,317
84	12,631	12,697	8,633	21,818	219,570	140,150	380,174
85	20,229	20,700	14,833	33,546	214,612	144,140	355,474
86	29,015	30,549	23,149	47,123	881,452	626,663	1,376,263
87	73,890	77,335	59,908	114,700	848,884	606,457	1,272,934
88	107,881	117,451	94,475	161,783	1,514,815	1,068,053	2,360,016
89	165,712	184,806	150,033	257,873	1,137,582	774,913	1,922,349
90	178,364	212,005	172,399	294,998	4,557,052	2,967,789	8,105,133
91	218,867	255,720	192,889	400,869	5,419,305	3,386,492	9,434,244
92	331,042	396,653	296,490	613,863	3,853,609	2,423,474	6,997,714
93	310,159	414,063	316,699	627,553	8,438,703	5,672,733	14,107,041
94	452,187	597,933	469,907	871,270	11,079,031	7,774,557	17,875,746
95	498,620	699,738	555,514	1,001,197	7,349,791	5,138,966	11,552,173
96	551,579	801,400	655,898	1,109,174	5,967,108	4,188,319	9,481,244
97	512,049	799,611	667,520	1,071,563	9,702,305	6,703,749	15,457,928
98	489,991	814,152	670,965	1,106,158	18,533,895	12,607,022	29,697,885
99	717,496	1,128,472	887,194	1,598,895	8,735,328	5,417,935	15,248,587
00	681,209	1,136,424	878,663	1,640,441	10,645,970	5,819,861	20,781,050
01	595,901	1,057,599	750,750	1,648,778	5,537,943	2,937,915	11,255,609

Table 18. Annual U.S. West Coast Pacific sardine landings and harvest guidelines (metric tons) by state and management subarea, 1981-2001.

Year	So. Calif.			Calif. Total			Oregon			Washington			Management Area Landings				WOC Total		Harvest Guidelines			
	So. Calif.	No. Calif.	Calif. Total	Oregon	Washington	So. Subarea	Northern Subarea	Northern Subarea	So. Subarea	Northern Subarea	So. Subarea	Northern Subarea	So. Subarea	Northern Subarea	So. Subarea	Northern Subarea	Total	So. Subarea	Northern Subarea	So. Subarea	Northern Subarea	Total HG
1981	34.4	0.0	34.4	0.0	0.0	34.4	0.0	0.0	0.0	0.0	34.4	0.0	0.0	34.4	0.0	34.4	0.0	n/a	n/a	n/a	n/a	n/a
1982	1.8	0.0	1.8	0.0	0.0	1.8	0.0	0.0	0.0	0.0	1.8	0.0	0.0	1.8	0.0	1.8	0.0	n/a	n/a	n/a	n/a	n/a
1983	0.6	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.6	0.0	n/a	n/a	n/a	n/a	n/a
1984	0.9	0.3	1.2	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.9	0.3	0.0	0.9	0.3	1.2	0.0	n/a	n/a	n/a	n/a	n/a
1985	3.7	2.2	5.8	0.0	0.0	5.8	0.0	0.0	0.0	0.0	3.7	2.2	0.0	3.7	2.2	5.8	0.0	n/a	n/a	n/a	n/a	n/a
1986	304.0	84.4	388.5	0.0	0.0	388.5	0.0	0.0	0.0	0.0	304.0	84.4	0.0	304.0	84.4	388.5	0.0	n/a	n/a	n/a	n/a	n/a
1987	391.6	47.8	439.4	0.0	0.0	439.4	0.0	0.0	0.0	0.0	391.6	47.8	0.0	391.6	47.8	439.4	0.0	n/a	n/a	n/a	n/a	n/a
1988	1,185.4	3.0	1,188.4	0.0	0.0	1,188.4	0.0	0.0	0.0	0.0	1,185.4	3.0	0.0	1,188.4	3.0	1,188.4	0.0	n/a	n/a	n/a	n/a	n/a
1989	598.7	238.0	836.7	0.0	0.0	836.7	0.0	0.0	0.0	0.0	598.7	238.0	0.0	598.7	238.0	836.7	0.0	n/a	n/a	n/a	n/a	n/a
1990	1,537.1	127.1	1,664.2	0.0	0.0	1,664.2	0.0	0.0	0.0	0.0	1,537.1	127.1	0.0	1,537.1	127.1	1,664.2	0.0	n/a	n/a	n/a	n/a	n/a
1991	6,601.4	985.9	7,587.3	0.0	0.0	7,587.3	0.0	0.0	0.0	0.0	6,601.4	985.9	0.0	6,601.4	985.9	7,587.3	0.0	n/a	n/a	n/a	n/a	n/a
1992	14,821.9	3,127.6	17,949.5	0.0	0.0	17,949.5	0.0	0.0	0.0	0.0	14,821.9	3,127.6	0.0	14,821.9	3,127.6	17,949.5	0.0	n/a	n/a	n/a	n/a	n/a
1993	14,669.6	675.6	15,345.2	0.2	0.0	15,345.2	0.2	0.0	0.0	0.0	14,669.6	675.8	0.0	14,669.6	675.8	15,345.4	0.0	n/a	n/a	n/a	n/a	n/a
1994	9,348.5	2,295.0	11,643.5	0.0	0.0	11,643.5	0.0	0.0	0.0	0.0	9,348.5	2,295.0	0.0	9,348.5	2,295.0	11,643.5	0.0	n/a	n/a	n/a	n/a	n/a
1995	34,645.7	5,681.2	40,326.9	0.0	0.0	40,326.9	0.0	0.0	0.0	0.0	34,645.7	5,681.2	0.0	34,645.7	5,681.2	40,326.9	0.0	n/a	n/a	n/a	n/a	n/a
1996	24,565.0	7,988.1	32,553.1	0.0	0.0	32,553.1	0.0	0.0	0.0	0.0	24,565.0	7,988.1	0.0	24,565.0	7,988.1	32,553.1	0.0	n/a	n/a	n/a	n/a	n/a
1997	29,885.4	13,359.7	43,245.1	0.0	0.0	43,245.1	0.0	0.0	0.0	0.0	29,885.4	13,359.7	0.0	29,885.4	13,359.7	43,245.1	0.0	n/a	n/a	n/a	n/a	n/a
1998	32,462.1	10,493.3	42,955.4	1.0	0.0	42,955.4	1.0	0.0	0.0	0.0	32,462.1	10,494.3	0.0	32,462.1	10,494.3	42,956.4	0.0	n/a	n/a	n/a	n/a	n/a
1999	42,017.2	17,246.3	59,263.5	775.5	0.0	59,263.5	775.5	0.0	0.0	0.0	42,017.2	18,021.8	0.0	42,017.2	18,021.8	60,039.0	0.0	n/a	n/a	n/a	n/a	n/a
2000	42,296.9	11,367.4	53,664.2	9,527.9	0.0	53,664.2	9,527.9	0.0	0.0	0.0	42,296.9	20,895.3	0.0	42,296.9	20,895.3	63,192.1	0.0	n/a	n/a	124,527.0	62,264.0	186,791.0
2001	44,708.9	7,102.5	51,811.4	12,780.3	11,127.1	51,811.4	12,780.3	11,127.1	0.0	0.0	44,708.9	31,009.9	0.0	44,708.9	31,009.9	75,718.8	0.0	n/a	n/a	89,825.0	44,912.0	134,737.0

Table 19. West Coast Pacific sardine landings by country. Mexican landings are for Ensenada, Northern Baja California.

Year	Mexico	United States	Canada	Total
1981	0.0	14.8	0.0	14.8
1982	0.0	1.8	0.0	1.8
1983	273.6	0.6	0.0	274.2
1984	0.2	1.2	0.0	1.4
1985	3,722.3	5.8	0.0	3,728.1
1986	242.6	388.5	0.0	631.1
1987	2,431.6	439.4	0.0	2,871.0
1988	2,034.9	1,188.4	0.0	3,223.3
1989	6,224.2	836.7	0.0	7,060.9
1990	11,375.3	1,664.2	0.0	13,039.5
1991	31,391.8	7,587.3	0.0	38,979.1
1992	34,568.2	17,953.4	0.0	52,521.6
1993	32,045.0	15,346.5	0.0	47,391.5
1994	20,876.9	11,643.7	0.0	32,520.6
1995	35,396.2	40,255.3	25.0	75,676.5
1996	39,064.7	32,553.1	88.0	71,705.8
1997	68,439.1	43,289.4	34.0	111,762.5
1998	47,812.2	43,311.8	745.0	91,869.0
1999	58,569.4	60,129.7	1,250.0	119,949.1
2000	51,172.9	68,033.4	1,718.0	120,924.3
2001	22,246.0	75,718.9	1,600.0	99,564.9

Table 20. RecFIN estimated recreational harvest of Pacific (chub) mackerel in California by fishing mode (metric tons), 1980-2001.

Year	Man Made Structures	Beach/Bank	Shore Modes	Party/Charter	Private/Rental	Calif Total
1980	351.2	76.4	-	1,213.5	1,026.9	2,668.0
1981	224.1	63.4	-	593.8	520.2	1,401.5
1982	271.5	3.2	-	866.4	543.1	1,684.2
1983	371.0	3.4	-	701.7	403.8	1,479.8
1984	257.4	24.0	-	577.7	585.5	1,444.6
1985	145.8	0.6	-	558.7	400.1	1,105.2
1986	-	-	92.7	529.2	398.5	1,020.4
1987	-	-	450.8	253.9	629.3	1,334.1
1988	-	-	105.5	262.3	503.0	870.9
1989	-	-	256.7	147.1	235.7	639.5
1993	106.7	1.0	-	160.0	354.1	621.8
1994	203.8	4.5	-	410.6	390.0	1,009.0
1995	119.1	1.8	-	381.4	539.7	1,042.0
1996	96.9	0.8	-	323.5	287.0	708.3
1997	171.2	3.4	-	166.8	660.2	1,001.7
1998	111.8	1.0	-	132.5	219.1	464.4
1999	54.6	5.1	-	59.4	81.1	200.2
2000	41.7	19.2	-	77.1	120.7	258.7
2001	138.3	208.8	-	52.2	162.2	561.4

Notes from RecFIN query:

1. No data in from 1990 to 1992.
2. No data in wave 1 1995.
3. Data in 2001 are preliminary and may be incomplete.
4. Northern California charter boats were not fully sampled due to refusals.

Table 21. RecFIN estimated recreational harvest of Pacific (chub) mackerel by subarea (metric tons), 1980-2001.

Year	Southern California	Northern California	Oregon	Washington	Total
1980	2,658.8	9.1	-	-	2,668.0
1981	1,232.6	168.9	-	-	1,401.5
1982	1,571.4	112.8	-	-	1,684.2
1983	1,353.8	126.0	1.0	-	1,480.9
1984	1,256.9	187.7	0.2	-	1,444.9
1985	1,053.4	51.8	0.0	-	1,105.2
1986	986.1	34.3	-	-	1,020.4
1987	1,320.3	13.8	-	-	1,334.1
1988	848.4	22.5	-	-	870.9
1989	634.1	5.4	-	-	639.5
1990	N/A	N/A	N/A	N/A	N/A
1991	N/A	N/A	N/A	N/A	N/A
1992	N/A	N/A	N/A	N/A	N/A
1993	590.2	31.6	1.1	-	622.9
1994	993.7	15.3	0.1	-	1,009.1
1995	1,039.7	2.3	0.0	-	1,042.0
1996	677.7	30.6	0.1	-	708.4
1997	603.2	398.6	1.0	-	1,002.7
1998	443.1	21.3	0.1	0.3	464.8
1999	199.7	0.6	-	0.3	200.5
2000	257.7	1.1	0.1	-	258.8
2001	557.5	3.9	-	-	561.4

Notes from RecFIN query:

1. No data in from 1990 to 1992.
2. No data in wave 1 1995.
3. Data in 2001 are preliminary and may be incomplete.
4. Northern California charter boats were not fully sampled due to refusals.

Table 22. West coast landings (mt) and real¹ exvessel revenues (\$ 2001) for Pacific sardine, Pacific mackerel², jack mackerel, anchovy and market squid, 1981-2001.

Year	Pacific		Pacific		Pacific		Jack		Jack		Anchovy		Squid	
	Sardine mt	Sardine Rev	Mackerel mt	Mackerel Rev	Mackerel mt	Mackerel Rev	Mackerel mt	Mackerel Rev	Mackerel mt	Mackerel Rev	Anchovy mt	Anchovy Rev	Squid mt	Squid Rev
1981	15	\$5,291	35,388	\$12,766,640	17,778	\$6,405,067	52,309	\$5,738,827	23,510	\$8,905,449				
1982	2	\$888	36,065	\$11,997,898	19,617	\$6,576,209	42,155	\$3,586,703	16,308	\$5,895,948				
1983	1	\$278	41,479	\$12,787,103	9,829	\$2,849,673	4,430	\$666,251	1,824	\$1,203,414				
1984	1	\$1,330	44,084	\$12,733,276	9,149	\$2,090,587	2,899	\$636,162	564	\$458,131				
1985	6	\$2,098	37,772	\$9,840,157	6,876	\$1,914,406	1,638	\$343,449	10,276	\$5,558,682				
1986	388	\$118,727	48,089	\$11,568,579	4,777	\$1,228,237	1,557	\$478,753	21,278	\$6,569,323				
1987	439	\$88,127	46,725	\$9,432,109	8,020	\$1,668,703	1,467	\$436,769	19,984	\$5,580,584				
1988	1,188	\$217,121	50,864	\$11,551,709	5,068	\$1,084,804	1,518	\$546,341	37,232	\$10,726,070				
1989	837	\$240,915	47,713	\$9,395,846	10,745	\$2,057,903	2,511	\$1,305,582	40,893	\$9,132,603				
1990	1,664	\$251,218	40,092	\$6,761,988	3,223	\$550,090	3,259	\$802,889	28,447	\$6,002,001				
1991	7,587	\$1,092,108	32,019	\$6,516,114	1,712	\$303,491	4,068	\$810,039	37,389	\$7,423,538				
1992	17,954	\$2,176,853	19,045	\$4,725,327	1,526	\$283,811	1,166	\$285,095	13,110	\$2,970,229				
1993	15,347	\$1,790,192	12,129	\$1,756,517	1,950	\$332,913	2,003	\$571,101	42,830	\$11,815,116				
1994	11,644	\$2,062,923	10,293	\$1,637,664	2,906	\$443,339	1,859	\$630,104	55,892	\$20,054,058				
1995	40,256	\$4,108,618	8,823	\$1,265,043	1,877	\$311,034	2,016	\$483,973	70,252	\$25,159,923				
1996	32,553	\$3,351,756	9,725	\$1,435,065	2,438	\$331,730	4,505	\$1,053,621	80,320	\$34,944,089				
1997	42,839	\$4,368,593	20,162	\$2,983,569	1,534	\$302,320	5,778	\$887,259	70,247	\$23,441,949				
1998	42,581	\$3,827,513	20,405	\$2,690,528	1,563	\$326,639	1,553	\$253,567	2,709	\$1,610,638				
1999	60,130	\$5,383,919	9,094	\$1,141,192	1,579	\$209,982	5,311	\$1,001,354	91,519	\$34,732,086				
2000	67,888	\$7,477,028	21,360	\$2,883,210	1,316	\$252,619	11,565	\$1,202,074	117,711	\$27,660,108				
2001	75,720	\$9,112,837	7,618	\$1,299,292	3,839	\$613,991	19,256	\$1,419,999	85,829	\$17,546,593				

Source: PacFIN data extracted May, 2002.

¹Real values are current values adjusted to eliminate the effects of inflation. This adjustment has been made by dividing current values by the current year GDP implicit price deflator, with a base year of 2001.

²Pacific mackerel landings and revenues also include landings and revenues of unspecified mackerel.