AMENDMENT 9

COASTAL PELAGIC SPECIES FISHERY MANAGEMENT PLAN

ENVIRONMENTAL ASSESSMENT / REGULATORY IMPACT REVIEW AND DETERMINATION OF THE IMPACT ON SMALL BUSINESSES

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LIST OF ACRONYMS AND ABBREVIATIONS

CDFG	California Department of Fish and Game
Council	Pacific Fishery Management Council
CPS	Coastal Pelagic Species
CPSMT	Coastal Pelagic Species Management Team
CPUE	catch per unit of effort
CZMA	Coastal Zone Management Act
EA	environmental assessment
EFH	essential fish habitat
EIS	Environmental Impact Statement
E.O.	Executive Order
FMA	fishery management area
FMP	fishery management plan
Magnuson-Stevens Act	Magnuson-Stevens Fishery Conservation and Management Act
MSY	maximum sustainable yield
mt	metric tons
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
PRA	Paperwork Reduction Act
RFA	Regulatory Flexibility Act
RIR	Regulatory Impact Review
Secretary	U.S. Secretary of Commerce
SSC	Scientific and Statistical Committee
u&a grounds	usual and accustomed grounds and stations

1.0 ABSTRACT

The proposed action is to implement Amendment 9 to the Coastal Pelagic Species (CPS) Fishery Management Plan (FMP) under the provisions of the Magnuson-Stevens Fishery Conservation and Management Act of 1976 as amended (Magnuson-Stevens Act). In this document, potential bycatch in the CPS fishery is evaluated based on current information, and alternatives are presented to gather information on bycatch as the harvest of CPS increases. Since implementation of the FMP, the fishery has expanded to Oregon and Washington, where Indian fishing rights must be met according to treaties between the U.S. and specific tribes. These rights were not included in the FMP; therefore, this amendment also addresses this issue.

2.0 INTRODUCTION

On June 10, 1999, Amendment 8 to the Northern Anchovy Fishery Management Plan was partially approved by the U.S. Secretary of Commerce (Secretary). Amendment 8 added four species to the plan, implemented limited entry to prevent overcapitalization, and changed the name of the plan. Species included in the management unit of the FMP are Pacific sardine (*Sardinops sagax*), Pacific mackerel (*Scomber japonicus*), Northern anchovy (*Engraulis mordax*), market squid (*Loligo opalescens*), and Jack mackerel (*Trachurus symmetricus*). Pacific sardine and Pacific mackerel are actively managed species in the FMP, that is, harvest guidelines are calculated based on current biomass estimates of each resource. Jack mackerel, northern anchovy, and market squid are monitored species, that is, no current biomass estimates are made. Jack mackerel and northern anchovy are underutilized species. Market squid is managed by the state of California. All species are economically significant to the CPS fishery.

Two of the topics required by the Magnuson-Stevens Act to be included in all FMPs were disapproved in Amendment 8, which required action to correct these deficiencies. Optimum yield for market squid was disapproved, because Amendment 8 did not provide an estimate of maximum sustainable yield (MSY). Bycatch provisions were disapproved, because Amendment 8 did not contain a standardized reporting methodology to assess the amount and type of bycatch in the fishery, and because there was no explanation of whether additional management measures to minimize bycatch and the mortality of unavoidable bycatch were practicable. At its meeting in June 1999, the Pacific Fishery Management Council (Council) directed its Coastal Pelagic Species Management Team (CPSMT) to develop a revision to the FMP and report to the Council the following September. A public meeting of the CPSMT was held in La Jolla, California on August 3 and 4, 1999, and on August 24, 1999, a meeting was held between the CPSMT and the Coastal Pelagic Species Advisory Subpanel. At its September 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, California 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. Based on the testimony presented, the most significant being views regarding MSY for squid, the Council decided to include only the bycatch provision and the provision for Indian fishing rights in the amendment and submit it to National Marine Fisheries Service (NMFS) for official review. Further analysis of the squid resource will be conducted, which will lead to a subsequent amendment that addresses MSY for squid.

Considerable doubt has been expressed in public comments and by the SSC regarding the approach taken to determine an MSY for squid. To date, no method used has led to a determination that can be considered as reliably reflecting the status of the resource. Landings have been solely determined by market demand, and recent high landings may only reflect the coincidental needs of the market and favorable environmental conditions. Similarly, very low landings may reflect unfavorable environmental conditions. Since squid live less than one year, averaging any set of numbers is likely to be inadequate for effective management. Although trawl data obtained from Mexico to Washington show significant catches of squid far beyond the range of the fishery, how well the incidental catch represents the actual distribution of squid is uncertain or even if the squid in more northern areas should be considered part of the same stock. The SSC recommended they work with NMFS and the California Department of Fish and Game to organize a stock assessment workshop to integrate ongoing squid research in California into the FMP. The SSC also made three observations; the fishery has taken place in the same areas near Monterey and in Southern California for decades; the catch is dramatically reduced by the occurrence of *El Niño* events, but catches rebound rapidly from very low levels; and significant spawning activity takes place in areas that are not fished. For these reasons, the SSC felt the resource would not be adversely affected by a delay in setting MSY until after the recommended workshop is completed.

3.0 AFFECTED ENVIRONMENT

Comprehensive information on the affected environment may be found in Appendix A, Sections 1.6 - 1.8, and Appendix D to Amendment 8 (the CPS FMP). The California Current is one of the world's four major eastern boundary currents characterized by coastal upwelling, high nutrient levels, and high productivity. High nutrient levels result from an influx of high-nutrient, subarctic water plus upwelling of nutrient-rich water within the system. Pelagic fish species dominate the exploitable biomass of the system, with major concentrations close to the coastline. The offshore boundary for pelagic fish is best described by the mean position of the summer wind stress maximum at approximately 200 km from the continental margin. In the southern California region, the offshore boundary is defined by the western coasts of the Channel Islands. The California Current ecosystem is essentially a region of divergence and upwelling.

The most intense upwelling is centered near Cape Mendocino in northern California during the spring and summer. The cool core of upwelled water near the coast is most pronounced in summer, when it extends from near Cape Blanco, Oregon along the northern and central California coasts and, in a plumelike structure, to the southwest of Point Conception. A secondary upwelling zone occurs off Baja California, with a springtime, local maximum near Punta Baja.

The combined effects of the southerly surface currents and coastal upwelling result in cool sea-surface temperatures over most of the northern part of the California Current. Winter sea-surface temperatures off Vancouver Island average 8° C and increase southwards to 22° C in southern Baja California. Summer sea-surface temperatures in the region of maximum upwelling, from Cape Blanco to Point Conception, are particularly cool. July sea-surface temperatures in the nearshore areas of northern California average less than 12° C, which is slightly colder than the July sea-surface temperatures in the northernmost Gulf of Alaska. Mean summer sea-surface temperatures are above 14° C in the region between Cape Blanco and Vancouver Island.

Seasonal and interannual environmental variability within the California Current ecosystem are associated with variations in the Pacific Basin atmospheric pressure systems, which control the local winds and Ekman transport, and affect flows of the equatorward California Current, the poleward undercurrent, and the inshore countercurrent. Variations on time scales of several years are associated with alterations in the tropical pressure system, (i.e., the *El Niño* / Southern Oscillation phenomenon). *El Niño* events markedly increase temperature and alter the flow of currents in the California Current.

The California Current comprises four relatively distinct, though related, ecological components; the pelagic, the littoral, the demersal, and the anadromous. The pelagic component encompasses the offshore surface water layer and the species therein, including coastal pelagic fish and squid. Most of the forage produced in the California Current ecosystem (i.e., phytoplankton and zooplankton) comes from the pelagic component.

As in other major eastern boundary currents, anchovy, sardine, whiting, jack mackerel, and Pacific mackerel achieve the largest populations. These populations are key to the trophic dynamics of the entire California Current ecosystem. Anchovy and sardines are the only fish in the ecosystem that consume large quantities of primary production (phytoplankton), all five of the species are significant consumers of zooplankton. All five species, particularly mackerels and whiting, are important predators of the early stages of other fish. The juvenile stages of all five species, and in many cases the adults, are important as forage for seabirds, pinnipeds, cetaceans, and other fish.

Trophic interactions between CPS and higher-trophic-level fish are poorly understood, and it is unknown if populations of individual predaceous fish are enhanced or hindered by large populations of CPS. It is not known if the value of CPS as forage to adult predators outweighs the negative effects of predation by CPS on larvae and juveniles of predator fish species plus competitive removal of phytoplankton, zooplankton, and other fish.

3.1 Essential Fish Habitat

A complete description of CPS essential fish habitat (EFH) may be found at Appendix D of Amendment 8. In determining EFH for CPS, the estuarine and marine habitat necessary to provide sufficient production to

support MSY and a healthy ecosystem were considered. Using presence/absence data, EFH is based on a thermal range bordered within the geographic area where a managed species occurs at any life stage, where the species has occurred historically during periods of similar environmental conditions, or where environmental conditions do not preclude colonization by the species. The specific description and identification of EFH for CPS finfish accommodates the fact the geographic range of all species varies widely over time in response to the temperature of the upper mixed layer of the ocean, particularly in the area north of 39° N latitude. This generalization is probably also true for market squid, but few data are available. Adult CPS finfish are generally not found at temperatures colder than 10° C or warmer than 26° C, and preferred temperatures and minimum spawning temperatures are generally above 13° C. Spawning is most common at 14° C to 16° C.

3.2 Marine Mammal Predators

CPS are eaten by a number of marine mammals, dependence on CPS varying from predator to predator. A great deal of information is available about the diets of marine mammals, and the total amount of CPS eaten per year has been estimated for a few. It is not currently possible, however, to estimate the total amount of CPS used as forage by all marine mammals in the California Current ecosystem or the size of CPS populations necessary to sustain predator populations. Some of the species, such as the Pribilof population of the northern fur seal and Steller's sea lion are listed as depleted. The San Miguel stock of northern fur seal is not depleted.

3.3 Seabird Predators

Pelagic schooling fish are key components of marine food webs and primary prey of many seabirds. CPS are important to seabirds, because of their abundance near the sea surface, relatively small size, fusiform shape, and dense concentration. Seabird populations of the California Current ecosystem and other eastern boundary currents are large relative to areas not driven by large-scale coastal upwelling.

CPS are consumed by a large number of seabirds off the coasts of California, Oregon, and Washington. Availability of anchovies is known to directly affect the breeding success of pelicans, terns, gulls, and auks. It is likely that many predators of anchovies will also eat sardines as the population increases. Owing to their size and occurrence near the surface, Pacific mackerel are likely to be important to seabirds, especially in southern California. Pacific mackerel have been observed in the diet of pelican. Jack mackerel are probably not important to seabirds, because of their large size and relatively deep schooling habits. Studies of seabird diet during autumn, however, when small jack mackerel are near shore and more available, may indicate their seasonal importance as forage. Recent increased abundance of sardines off southern California was followed by increased breeding success and abundance of brown pelicans.

4.0 BACKGROUND

4.1 Contents of Fishery Management Plans

Fishery management plans prepared by a fishery management Council or by the Secretary must, among other things, establish a standardized reporting methodology to assess the amount and type of bycatch occurring in the fishery, and include conservation and management measures that, to the extent practicable and in the following priority:

1. Minimize bycatch.
2. Minimize the mortality of bycatch that cannot be avoided.

4.2 Description of Coastal Pelagic Species Fishing Methods

CPS vessels fish with roundhaul gear (purse seine or lampara nets of approximately one-half mile in total length). These are encircling type nets, which are deployed around a school of fish or part of a school. When the school is surrounded, the bottom of the net may be closed, then the net drawn next to the boat. The area including the free-swimming fish is diminished by bringing one end of the net aboard the vessel. When the fish are crowded near the fishing vessel, pumps are lowered into the water to pump fish and water into the ship's hold. Another technique is to lift the fish out of the net with netted scoops (e.g., brails). Roundhaul fishing results in little unintentionally caught fish, primarily, because the fishers target a specific school, which usually consists of one species. The tendency is for fish to school by size, so if another species is present in the school, it is typically similar in size. The most common incidental catch in the CPS fishery is another CPS species (e.g., Pacific mackerel incidental to the Pacific sardine fishery). If larger fish are in the net, they can be released alive before pumping or brailing by lowering a section of the cork-line or by using a dip-net. The load is pumped out of the hold at the dock, where the catch is weighed and incidentally caught fish can be observed and sorted. Because pumping at sea is so common, any incidental catch of small fish would not be sorted at sea. Incidental harvest of non-prohibited larger fish are often taken home for personal use or processed. CPS finfish landings are sold as relatively high volume/low value products (e.g., mackerel canned for pet food, sardine frozen and shipped to Australia to feed penned tuna, and anchovy reduced to meal and oil). In addition to fishing for CPS finfish, many of the vessels fish for market squid, Pacific bonito, bluefin tuna, and Pacific herring.

Market squid are fished at night with the use of powerful lights, which aggregate squid, where they can be pumped directly from the sea or encircled with a net.

There are other vessels that target CPS in small quantities and usually sell their landings to specialty markets for relatively high prices. During the period 1993 through 1997, these included:

- Approximately 18 live bait vessels in southern California and two vessels in Oregon and Washington that caught about 5,000 mt per year of CPS finfish (mostly anchovy and sardine) for sale to recreational anglers. Squid were also used for bait. (Under the FMP, live bait harvest is unrestricted except at very low levels of spawning biomass).

- Roundhaul vessels that caught a maximum of 1,000 mt to 3,000 mt per year of anchovy, sold as dead bait.

- Roundhaul and other mostly small vessels that target CPS finfish (particularly mackerel and sardine) for sale in local fresh fish markets or canneries.

5.0 BYCATCH

5.1 Purpose and Need for Action

National Standard 9 states "conservation and management measures shall, to the extent practicable; (1) minimize bycatch, and (2) to the extent bycatch cannot be avoided, minimize the mortality of such bycatch." The guidelines require the Council to consider the bycatch effects of existing and planned conservation and management measures. Bycatch is defined as fish that are harvested in a fishery, but not sold or kept for personal use. Bycatch also includes the discard of fish at sea or elsewhere, including economic discards and regulatory discards, and fishing mortality resulting from the encounter with fishing gear that does not result in capture. Bycatch that cannot be avoided must, to the extent practicable, be returned to the sea alive. Any proposed conservation and management measures that do not give priority to avoiding the capture of bycatch must be supported by appropriate analysis. The Council must promote the development of a database on bycatch and bycatch mortality in the fishery to the extent practicable. The Council must review and, where necessary, improve the data collection methods, data sources, and applications of data for each fishery to determine the amount, type, disposition, and other characteristics of bycatch and bycatch mortality in each fishery. The Council must, for each management measure, assess the effects on the amount and type of bycatch and bycatch mortality in the fishery. The Council must select measures that to the extent practicable will minimize bycatch and bycatch mortality.

5.2 Description and Documentation of Bycatch

For the purpose of this discussion, the fishery for CPS can be divided into two areas, north and south of Pigeon Point, California (approximately 37° 10' N latitude). In recent history, virtually the entire commercial fishery for CPS finfish has taken place south of Pigeon Point. The potential for taking salmon exists in this area, but diminishes as one moves south of Monterey, California (37° N latitude). The potential for incidentally taking salmon increases as one moves north from Monterey. There is increased interest in harvesting Pacific sardine in Oregon and Washington, but there is little information on the incidental catch with purse seine gear from just north of Monterey, California to the Canadian border.

5.2.1 Effects of Management Measures

Incidental catch increases in the CPS fishery when purse seines are set in shallow water such that the seine comes in contact with the bottom or a rocky outcropping. These areas are almost entirely near land, as water depth increases dramatically with distance from shore. Currently, federal regulations (50 CFR 660.507) include numerous areas closed to reduction fishing with purse seines (Appendix B). Reduction fisheries tend to be high volume fisheries, and all high volume fisheries tend to have an increased potential for incurring bycatch. Therefore, precluding reduction fishing in these specific areas reduces the potential for incurring incidental harvest, thus, reducing potential bycatch in the closed areas. However, fishing for reduction, in and of itself, does not result in a greater potential for incurring bycatch than other high volume fisheries. There are also regulations (50 CFR 660.506) requiring specific mesh size on purse seines used for reduction fishing for anchovy. The mesh size was adopted to minimize the harvest of smaller anchovy, replacing a regulation on size limits. Other management measures (limited entry, management areas, vessel markings, etc.) are neutral with regard to bycatch.

As stated in the fishery description contained in Amendment 8, most bycatch in the CPS fishery is incidental harvest that is sold. Several circumstances in the fishery tend to reduce bycatch, these are:

1. Most of what would be called bycatch under the Magnuson-Stevens Act is caught when roundhaul nets fish in shallow water over rocky bottom, a practice that fishers try to avoid to protect gear or are specifically prohibited to fish, because of area closures.

2 South of Pt. Buchon, California, many areas are closed to roundhaul nets under California law and the FMP, which reduces the chance for bycatch.

3 In California, a portion of the sardine caught incidentally by squid or anchovy fishers can be sold for reduction, which reduces discard.

4 The five tons or less allowable landing by vessels without limited entry permits under the FMP should reduce any regulatory discard, because those fish can be landed.

5 From 1996 to the partial year 1999, bycatch from the live bait logs was reported with an incidence of 10% (Appendix A). The primary species taken as incidental catch was barracuda. Virtually all fish caught incidentally in this fishery are either used for bait, for personal use, or released alive.

6 The California Department of Fish and Game (CDFG) has implemented a logbook program for the squid fishery. The data to be collected includes bycatch.

5.2.2 South of Pigeon Point

Information from at-sea observations of the CDFG and conversations with CPS fishers suggest that bycatch has been and is not significant. Some individuals have expressed concern that sportfish and salmon might constitute significant bycatch in this fishery. This is a reasonable concern, because anchovy and sardine are forage for virtually all predators, but there are no data to confirm significant bycatch, whereas, information from CDFG port samples indicates minimal bycatch in the California fishery. The behavior of predators may have something to do with this. Predators tend to dart through a school of prey rather than linger in the school, and predators can more easily avoid encirclement with a purse seine.

In California, CDFG samples coastal pelagic landings in Monterey and ports to the south. Biological samples are taken to monitor the fish stocks, and dock samplers report incidentally caught fish (see Appendix A). Reports of bycatch by California dock samplers confirm small and insignificant landings of bycatch at California off-loading sites. These data are likely representative of actual bycatch, because fish are pumped from the sea into fish holds aboard the fishing vessel. Fishers do not sort catch at sea that pass through the pump; they land whatever is caught and pumped into the hold. Between 1985 and the partial year of 1999, there were 5,306 CDFG port samples taken from the sardine and mackerel landings. From 1992 to 1999, incidental catch was reported on only 179 occasions, representing a 3.4% occurrence in which some incidental catch was noted. The reports of incidental catch were sparse, and prior to 1992 none was reported. Earlier incidents of bycatch may not have been noted, because the harvest of anchovy and sardine was small, and only in recent years has the harvest of sardine increased. The incidental catch reported are primarily those species that are marketable and do not meet the definition of bycatch in the Magnuson-Stevens Act. Unless an incidental species represents a significant portion of the load, at least a whole percentage point, the amount of the incidental catch is not recorded. Of the incidental catch reported, the two most prevalent species were market squid at 79%, and northern anchovy at 12% incidence within samples (not by load composition). CDFG port sample information provides a useful database for determining the significance of bycatch in the CPS fishery off California (south of Pigeon Point), the primary area of the CPS fishery.

5.2.3 North of Pigeon Point

The CPS fishery has not operated on a significant scale during recent times north of Monterey, California; therefore, little is known about incidental catch or bycatch that might occur in this area. However, there is increased interest in harvesting Pacific sardine off the coasts of Washington and Oregon. The states of Oregon and Washington are gathering information about the effects of these northern fisheries. By the end of 1999, 776 mt of sardine had been landed in Oregon by ten vessels making 31 landings. Most of the landings were made by purse seine gear (less than 300 pounds were harvested by six trawl vessels in the whiting fishery, and less than 500 pounds were harvested in Winchester Bay, Oregon for a local bait fishery). In 22 directed landings by three vessels, incidental catch consisted of 3,100 pounds of Pacific mackerel, which was processed. On one observed trip, the incidental catch consisted of one blue shark and one salmon, the salmon was released alive. Logbooks accounting for 99% of the landings indicate an incidental catch of one additional salmon and, reportedly, about 300 pounds of skipjack tuna. Logbooks also show that 64% of the harvest was off Oregon and 36% off southern Washington.

Final information is available on the 2000 fisheries in Oregon and Washington. In Oregon, by the end of October 2000, 18 vessels landed 9,524 mt of sardine. Three vessels made more than 99% of the landings. Bycatch included chinook and coho salmon, dogfish, soupfin and salmon sharks, herring, hake, flatfish, and one sunfish. One sea lion was encircled by the net and was released unharmed. The species of salmon was

usually not recorded on the log sheets, and they were often released before the observrs could determine the species. Observed salmon averaged 2.1 salmon per trip or 1.0 salmon per set of the gear, with 76% being released alive. The estimated total catch of salmon for the fishery, observed and expanded is as follows:

	Chinook salmon		Coho salmon		Unknown		Total		Grand total
	alive	dead	alive	dead	alive	dead	alive	dead	
observed	3	5	11	3	21	3	35	11	46
expanded total based on salmon/trip	43	72	159	43	303	43	504	159	663
expanded total based on salmon/set	34	56	124	34	237	34	394	124	518

As reported by the Washington Department of Fish and Wildlife (WDFW) (October 2000), 4,791.4 mt of sardines were landed into Washington from a total of 153 landings. 288 sets were made, 190 (60%) of which were successful. Average catch per set was approximately 25 mt. Based on observer data, logbooks, and port sampling, bycatch of non-targeted species was minimal. Bycatch included chinook and coho salmon, herring, dogfish, soupfin shark, and other species. Salmonids, sharks, and herring were the three species groups of greatest concern in terms of bycatch. Estimated total catch of these species was:

Chinook salmon (released alive)	**Chinook salmon** (dead)	**Coho salmon** (released alive)	**Coho salmon** (dead)	**Unknown salmon** (released alive)	**Shark** (released alive)	**Shark** (dead)	**Herring**
38	3	276	116	7	169	31	12,698

Overall, salmonids and sharks accounted for less than 1% of the bycatch; other incidental catch included anchovy, Pacific mackerel, starry flounder, black rockfish, sole, and thresher shark.

Oregon's work plan for 2000 (Appendix C) is aimed at analyzing bycatch in its fishery through logbooks, observers, port sampling, and grates over hatches to minimize retention of larger incidental species.

The WDFW has adopted permit conditions for its sardine fishery in 2000 (Appendix C) that include logbooks and observers. The fishery must take place beyond three miles and north of the Columbia River.

Canada reported minimal bycatch in its sardine fishery in 1999 (Dennis Chalmers, Department of Fisheries and Oceans, BC, personal communication).

5.3 Alternatives Considered, Including Proposed Action

The following alternatives were considered. Regardless of what method is eventually used to obtain data on incidental harvest and bycatch, all collected information would be included in the annual Stock Assessment and Fishery Evaluation report.

1. No action.

2. Recommend that state agencies, federal agencies, and tribes develop an observer program for all new fisheries for CPS North of Pigeon Point lighthouse (37° 10.9' N latitude). **Preferred option.**

3. Recommend that state agencies, federal agencies, and tribes develop programs to monitor and record CPS bycatch at the docks. **Preferred option.**

4. Evaluate use of grates to cover openings of holds through which fish are pumped, which would screen out any bycatch of larger fish to allow live release before going into the ship's hold. **Preferred option.**

5. Require logbooks for the limited entry fishery, the live bait fishery, and the incidental fishery (those vessels landing less than five mt).

6. Allow landing of all bycatch. This would require changes to state and federal laws.

7. Require industry funded observers for all of the CPS limited entry fishery.

5.4 Discussion of Alternatives

The no action alternative would accept the provisions of the various states, those planned and/or in place, to measure bycatch, which are not essentially different from the preferred options; however, the preferred options provide specific guidance and set policy for the continuing assessment of bycatch.

The preferred options of this amendment define a large portion of the current state and federal efforts directed at minimizing bycatch and bycatch mortality. The preferred options of Amendment 9 do not change management under the FMP. The amendment provides an assessment of bycatch issues not adequately addressed in the FMP, and the preferred options define ongoing efforts to monitor incidental harvest in the fishery that potentially lead to bycatch as defined by the Magnuson-Stevens Act.

Current data indicate bycatch is not a significant problem, therefore, there is insufficient justification to require observers for the limited entry fishery (Alternative 7) or logbooks for all harvesters of CPS (Alternative 5). The cost of either program exceeds the likely benefit of any additional information about the amount and variety of bycatch. The landing of all bycatch (Alternative 6) merely to make a note of its existence conflicts with the desire to release incidental species, and it contradicts existing state and federal rules regarding prohibited species; therefore, this option may cause more harm than good.

Requiring the use of grates to cover the hold of all commercial coastal pelagic vessels (Alternative 4) would cost approximately $100 per vessel. The total cost of requiring grates might be lower, as many of these grates already exist; in the past, they were used in the herring fishery off California, when purse seines were the primary gear. Since most of the incidental species in southern California do not meet the definition of bycatch, requiring grates could be implemented only in the northern areas of the fishery, where information on bycatch is lacking. As a management measure, grates could reduce the amount and type of bycatch and bycatch mortality in the fishery by allowing larger incidentally caught fish to be sorted at sea and returned to the water.

The Council recommends that state agencies, federal agencies, and tribes develop programs to monitor and record CPS bycatch at the docks (Alternative 3). California, Oregon, and Washington have programs at this time, and there is no plan to discontinue them. As noted previously, CDFG port sample information provides a useful database. Port sample information obtained from expanding fisheries in Oregon and Washington will serve to improve and bolster the existing database of dockside bycatch observations.

The Council also recommends that state agencies, federal agencies, and tribes develop an observer program for all new fisheries for CPS North of Pigeon Point Lighthouse (Alternative 2). This recommended management measure seeks to document the occurrence of bycatch in the northern fisheries. Currently, the states of Oregon and Washington each require some level of observer coverage in CPS fisheries operating off their coasts. This management measure could provide valuable information on the extent of bycatch in the northern area. Currently in California, only small bait fisheries operate north of Pigeon Point. Under the FMP, all fishing vessels operating in the CPS fishery may be required to accommodate observers (Section 2.2.1.1 of Amendment 8). The FMP notes that, "[a]n observer program will be considered only for circumstances where other data collection methods are deemed insufficient for management of the fishery."

5.5 Environmental Consequences

From the information available, the environmental consequences of any option considered are not likely to be significant, with the possible exception of endangered or threatened salmonid species. However, recent results from observed trips in the fisheries off Oregon and Washington are encouraging with regard to minimizing the bycatch of salmon and suggest that additional measures are not needed. Canadian fisheries have also shown a small occurrence of bycatch. The recommended alternatives will reveal potential problems as the fisheries change, especially with regard to an expansion of the total catch or expansion of offshore fisheries. Alternative 6, which would require the landing of all incidental harvest would increase bycatch; therefore, this approach during the current fisheries is not acceptable. All indicators show that the amount of bycatch in the CPS fishery is low; therefore, whatever bycatch occurs is not anticipated to affect any stock. All existing fisheries are being monitored (through logbooks, port sampling, and at-sea observers) to determine changes in bycatch as CPS fisheries expand. Alternative 6 would have minimal economic effect, because it would force the landing of only small amounts of incidentally caught species. The greatest uncertainty about how purse seine fisheries affect bycatch exists north of Monterey, California. Although the gear, in and of itself, may have a minimal impact on bycatch, the areas fished at specific times of the year or under certain conditions could have differing effects. Logbooks that record time and area of sets would help define the situation, as would observers, which could determine the behavior of species in the net and the potential for releasing incidentally caught species alive. This approach has been adopted by Oregon and Washington.

No action (Alternative 1) would have minimal impact, because the states of California, Washington, and Oregon have taken steps to assess the impact of their fisheries with regard to bycatch.

Alternative 5 would have some economic impact to the extent that fishers would have to fill out logbooks and provide them to either the individual states or NMFS. During the qualifying period for limited entry permits, 640 vessels had landed one pound or more of CPS. If this provision were implemented, a considerable number of logbooks would have to be filled out and considerable state or federal governmental manpower would be required to print and distribute the logbooks, and to process the data provided.

An observer program for limited entry vessels, as proposed in Alternative 7, would require from 10% to 20% of the trips covered to provide a reliable estimate of bycatch at sea. CPS fishing vessels make daily trips. The cost of an observer would range from $100 to $350 a day, depending on travel and the qualifications required for the observers. At this time, there are 64 limited entry vessels, which make many small volume landings (i.e., 50 mt or less). On average, at the current level of harvest, a vessel makes about 45 trips per year for finfish, which would total 2,880 trips for the fleet. The estimated average cost of an observer program would be $97,200 [(2,880 trips) (15% trips observed) ($225.00 average observer cost)]. The cost to the individual vessel would be approximately $1,519 ($97,200/64). This is probably not a significant cost to the industry, but has been determined, based on the information available, to be an unnecessary cost. The impact on the individual vessel would depend on the size class of the vessel and its annual revenue; therefore, Alternative 7 is not a preferred option.

5.6 Regulatory Action

Section 2.2.1.1 of the FMP authorizes the use of observers to obtain scientific data as needed; however, there is no authorization in federal regulations implementing the FMP. The language in the FMP reads:

> All fishing vessels operating in this management unit, including catcher/processors, at-sea processors, and vessels that harvest in Washington, Oregon, or California and land catch in another area, may be required to accommodate NMFS certified observers on board to collect scientific data. An observer program will be considered only for circumstances where other data collection methods are deemed insufficient for management of the fishery. Implementation of any observer program will be in accordance with appropriate procedures outlined under this framework.

The option of the Regional Administrator to require observers should be included in the implementing regulations. Amendment 9 sets a high priority to use this authority to obtain information on bycatch. Observers would be required by the Regional Administrator only if reliable bycatch could not be obtained by other methods.

6.0 TREATY INDIAN FISHING RIGHTS

Oregon fishers began harvesting Pacific sardine during the summer of 1999, when the FMP was implemented. In 2000, the Oregon fishery continued and Washington fishers also entered the fishery. The CPS fishery now extends to the usual and accustomed fishing grounds of Indian tribes that have treaties with the U.S. involving certain fishing rights. Treaty Indian fishing rights were not addressed in the FMP.

6.1 Legal Considerations

Treaties between the United States and numerous Pacific Northwest Indian tribes reserve to these tribes the right of taking fish at usual and accustomed grounds and stations ("u&a grounds") in common with all citizens of the United States. See *U.S. v. Washington*, 384 F. Supp. 312, 349-350 (W.D. Wash. 1974).

NMFS recognizes four tribes as having u & a grounds in the marine areas managed by this FMP: the Makah, Hoh, and Quileute tribes, and the Quinault Indian Nation. The Makah Tribe is a party to the Treaty of Neah Bay, Jan. 31, 1855, 12 Stat. 939. See 384 F. Supp. at 349, 363. The Hoh and Quileute tribes and the Quinault Indian Nation are successors in interest to tribes that signed the Treaty with the Quileute, et al. (Treaty of Olympia), July 1, 1855, 12 Stat. 971. See 384 F. Supp. at 349, 359 (Hoh), 371 (Quileute), 374 (Quinault). The tribes' u&a grounds do not vary by species of fish. *U.S. v. Washington*, 157 F. 3d 630, 645 (9th Cir. 1998).

The treaty fishing right is generally described as the opportunity to take a fair share of the fish, which is interpreted as up to 50% of the harvestable surplus of fish that pass through the tribes' u&a grounds. *Washington v. Washington State Commercial Passenger Fishing Vessel Association*, 443 U.S. 658, 685-687 (1979) (salmon); *U.S. v. Washington*, 459 F. Supp. 1020, 1065 (1978) (herring); *Makah v. Brown*, No. C85-160R, and *U.S. v. Washington*, Civil No. 9213 - Phase I, Subproceeding No. 92-1 (W.D. Wash., Order on Five Motions Relating to Treaty Halibut Fishing, at 6, Dec. 29, 1993) (halibut); *U.S. v. Washington*, 873 F. Supp. 1422, 1445 and n. 30 (W.D. Wash. 1994), aff'd in part and rev'd in part, 157 F. 3d 630, 651-652 (9th Cir. 1998), cert. denied, 119 S.Ct. 1376 (1999) (shellfish); *U.S. v. Washington*, Subproceeding 96-2 (Order Granting Makah's Motion for Summary Judgment, etc. at 4, November 5, 1996) (Pacific whiting). The court applied the conservation necessity principle to federal determinations of harvestable surplus in *Makah v. Brown*, No. C85-160R/ *U.S. v. Washington*, Civil No. 9213 - Phase I, Subproceeding No. 92-1, Order on Five Motions Relating to Treaty Halibut Fishing, at 6-7, (W.D. Wash. Dec. 29, 1993).

The treaty right was originally adjudicated with respect to salmon and steelhead. However, it is now recognized as applying to all species of fish and shellfish within the tribes' u&a grounds. As stated in *U.S. v. Washington*, 873 F.Supp. 1422, 1430, aff'd 157 F. 3d 630, 644-645 (9th Cir. 1998), cert. denied, 119 S.Ct. 1376:

> The fact that some species were not taken before treaty time – either because they were inaccessible or the Indians chose not to take them – does not mean that their right to take such fish was limited. Because the 'right of taking fish' must be read as a reservation of the Indians' pre-existing rights, and because the right to take any species, without limit, pre-existed the Stevens Treaties, the Court must read the 'right of taking fish' without any species limitation.

The original 1974 District Court decision in *U.S. v. Washington* specifically references Quileute tribal fishing for sardines at treaty times. *U.S. v. Washington*, 384 F.Supp. 312, 372 (W.D. Wash. 1974).

NMFS recognizes the areas set forth in the framework below as marine u&a grounds of the four Washington coastal tribes. The Makah u&a grounds were adjudicated in *U.S. v. Washington*, 626 F.Supp. 1405, 1466 (W.D. Wash. 1985), aff'd 730 F.2d 1314 (9th Cir. 1984). The u&a grounds of the Quileute, Hoh, and Quinault tribes have been recognized administratively by NMFS. See, e.g., 64 Fed. Reg. 24087-24088 (May 5, 1999) (u&a grounds for salmon); 50 CFR 660.324(c) (u&a grounds for groundfish); 50 CFR 300.64(i) (u&a grounds for halibut). The u&a grounds recognized by NMFS may be revised as ordered by a federal court.

The legal principles described above support the conclusion that treaty Indian fishing rights apply to CPS that pass through the coastal tribes' ocean u&a grounds. The quantity of this right has not yet been determined or adjudicated.

6.2 Prospective Tribal Fisheries for Coastal Pelagic Species

With the resurgence of Pacific sardines, and their movement north along the West Coast, it is likely that some of the Pacific Northwest ocean fishing tribes may wish to exercise their treaty fishing rights on CPS in their u&a grounds. Currently, no regulatory impediment to tribal fisheries exists, because the tribes' u&a grounds are in CPS Subarea A, which is an open access area with its own allocation of one-third of the coastwide harvest guideline (65 Fed. Reg. 3890-3892, January 25, 2000). However, it is possible that specific treaty Indian allocations may be necessary in the future. To anticipate this eventuality, and to establish an orderly process for implementing treaty fisheries, it is proposed to include a treaty Indian fishing rights framework in the FMP.

Three options are described below. The no action alternative would leave no way to address Indian fishing rights if changes in the fishery occurred that opened up the possibility for the affected tribes to exercise their fishing rights under U.S. treaties. Such a system could be developed when the rights were to be exercised, but the better approach is to include it in the FMP so that no delay in allocations would occur. The other two options are essentially the same, the only difference being the degree to which the process is included in Federal regulations. Both options are designed to give the Council prior notice of proposed treaty fisheries so that allocation and other issues can be addressed before fisheries commence. In addition, both options would recognize the Indians' treaty rights; describe the u&a grounds of the four ocean fishing tribes; provide an orderly procedure, through the Council process, for implementation of treaty rights; and contain various measures related to the exercise of treaty rights.

No other options were considered because the procedures developed to meet obligations under U.S. treaties have resulted from a series of cases before U.S. courts. There are no environmental consequences of these options, as the alternatives merely describe a process of making allocations. Currently, there are no restrictions on anyone from harvesting CPS north of 39° N. latitude, as long as the harvest guideline is not exceeded. However, if a separate quota system were implemented north of 39° N. latitude, allocations among users could affect various fisheries depending on the amount of the allocations.

Option 1: No Action

Option 2: Adopt and include in the FMP a framework process similar to that used for treaty Indian fisheries under the Pacific Coast Groundfish Fishery Management Plan. Specifics of the proposed framework are as follows:

(a) Pacific Coast treaty Indian tribes have treaty rights to harvest CPS in their usual and accustomed fishing areas in U.S. waters.

(b) Pacific Coast treaty Indian tribes means the Hoh, Makah, and Quileute Indian Tribes and the Quinault Indian Nation.

(c) The Pacific Coast treaty Indian tribes' usual and accustomed fishing areas within the fishery management area (FMA) are set out below. Boundaries of a tribe's fishing area may be revised as ordered by a federal court.

(1) Makah – That portion of the FMA north of 48° 02'15" N latitude (Norwegian Memorial) and east of 125° 44'00" W longitude.

(2) Quillayute – That portion of the FMA between 48° 07'36" N latitude (Sand Point) and 47° 31'42" N latitude (Queets River) and east of 125° 44' 00" W longitude.

(3) Hoh – That portion of the FMA between 47° 54'18" N latitude (Quillayute River) and 47° 21'00" N latitude (Quinault River) and east of 125° 44' 00" W longitude.

(4) Quinault – That portion of the FMA between 47° 40'06" N latitude (Destruction Island) and 46° 53'18" N latitude (Point Chehalis) and east of 125° 44'00" W longitude.

(d) Procedures. The rights referred to in paragraph (a) will be implemented by the Secretary, after consideration of the tribal request, the recommendation of the Council, and the comments of the public. The rights will be implemented either through an allocation of fish that will be managed by the tribes, or through regulations that will apply specifically to the tribal fisheries. An allocation or a regulation specific to the tribes shall be initiated by a written request from a Pacific Coast treaty Indian tribe to the NMFS Southwest Regional Administrator, at least 120 days prior to the start of the fishing season as specified at 50 CFR 660.510, and will be subject to public review according to the procedures in 50 CFR 660.508(d). The Regional Administrator generally will announce the annual tribal allocation at the same time as the annual specifications. The Secretary recognizes the sovereign status and co-manager role of Indian tribes over shared federal and tribal fishery resources. Accordingly, the Secretary will develop tribal allocations and regulations in consultation with the affected tribe(s) and, insofar as possible, with tribal consensus.

(e) Identification. A valid treaty Indian identification card issued pursuant to 25 CFR Part 249, Subpart A, is prima facie evidence that the holder is a member of the Pacific Coast treaty Indian tribe named on the card.

(f) Fishing (on a tribal allocation or under a federal regulation applicable to tribal fisheries) by a member of a Pacific Coast treaty Indian tribe within that tribe's usual and accustomed fishing area is not subject to provisions of the CPS regulations applicable to non-treaty fisheries.

(g) Any member of a Pacific Coast treaty Indian tribe must comply with any applicable federal and tribal laws and regulations, when participating in a tribal CPS fishery implemented under paragraph (d) above.

(h) Fishing by a member of a Pacific Coast treaty Indian tribe outside that tribe's usual and accustomed fishing area, or for a species of CPS not covered by a treaty allocation or applicable federal regulation, is subject to the CPS regulations applicable to non-treaty fisheries.

Any revision to the framework would require a FMP amendment. Implementing regulations would refer to the framework in the FMP.

Option 3: Authorize adoption of the framework to accommodate treaty fishing rights in the implementing regulations. The initial proposed regulations would be as set out in the framework described above.

7.0 SUMMARY OF ENVIRONMENTAL CONSEQUENCES

An environmental assessment (EA) is required by the National Environmental Policy Act (NEPA) to determine whether the action considered will result in significant impact on the human environment. If the action is determined not to be significant based on an analysis of relevant considerations, the EA and resulting finding of no significant impact would be the final environmental documents required by NEPA. An environmental impact statement (EIS) need only be prepared for major federal actions significantly affecting the human environment. An EA must include a brief discussion of the need for the proposal, the alternatives considered, a list of document preparers, and the impacts of the alternatives on the human environment. The purpose and need for the proposed action was discussed in section 2.0 of this document, the management alternatives and the potential environmental and socio-economic effects of those alternatives were discussed in section 5.0 and 6.0. The list of preparers is provided in section 10.0.

National Standard 8 provides protection to fishing communities; "Conservation and management measures shall, consistent with the conservation requirements of the Magnuson-Stevens Act (including the prevention of overfishing and rebuilding of overfished stocks,) take into account the importance of fishery resources to fishing communities in order to (A) provide for the sustained participation of such communities, and (B) to the extent practicable, minimize adverse economic impacts on such communities." Amendment 9 codifies the Regional Administrator's authority to require observers, if necessary, on fishing vessels for scientific purposes, a provision already included in the CPS FMP. Amendment 9 establishes the determination of bycatch as a priority for a recommendation that observers be placed on developing fisheries north of 37° 10.9' N latitude and only recommends that an observer program be developed. Currently, no fisheries for CPS other than small bait fisheries occur in California north of 37° 10.9' N latitude. The states of Oregon and Washington are assessing bycatch with state managed observer programs in their respective areas. Therefore, there is no adverse economic impacts imposed by Amendment 9.

7.1 Beneficial and Adverse Impacts

Amendment 9 describes the magnitude of bycatch and makes recommendations for addressing concerns about potential bycatch in areas where there is little experience with fishing for CPS. Amendment 9 implements no management measures and requires no action of the fishing industry; therefore, there are no adverse impacts. The beneficial impacts are that the extent of bycatch has been described from the information available, and a coordinated approach to measuring bycatch has been adopted.

7.2 Public Health and Safety

There are no proposed actions that would have any effect on public health and safety.

7.3 Unique Characteristics

The proposed actions are not expected to have any significant adverse impact on unique characteristics of the area such as historic or cultural resources, park lands, wetlands, or ecologically critical areas.

7.4 Controversial Effects

The proposed actions are not expected to involve significant controversial issues for the broader public. There is concern about bycatch in the areas where salmon are common, but current information shows minimal incidental harvest. There is concern about depletion of sardine as forage for other species; however, the harvest formula in the FMP provides for high levels of forage. There also is concern about local depletion of forage, even though there are restrictions on total harvest. The supposition the fishery could harvest sufficient amounts of sardine in a particular area to create food problems for other species is difficult to analyze. Such a possibility was suggested in the past with regard to anchovy and brown pelicans, which have a limited range from nesting sites. However, the availability of sardine as forage is more under the control of environmental conditions than the fishery.

7.5 Uncertainty or Unique / Unknown Risks

The proposed actions are not expected to have any significant effects on the human environment that are highly uncertain or involve unique or unknown risks.

7.6 Precedent / Principle Setting

The proposed actions are not expected to have any significant effects in establishing a precedent and do not include actions that would represent a decision in principle about a future consideration.

7.7 Relationship / Cumulative Impact

The proposed actions are not expected to have any significant cumulative impacts that could have a substantial adverse effect on the fishery resources or any related resource. The proposed actions are intended to minimize the possibility of cumulative impacts by measuring and minimizing bycatch in a changing fishery.

7.8 Historical / Cultural Impacts

The proposed actions are not expected to have any significant effects on historical sites listed in the National Register of Historic Places and will not result in any significant impacts on significant scientific, cultural, or historic resources.

7.9 Interaction with Existing Laws for Habitat Protection

The proposed actions are not expected to have any significant interaction that might threaten a violation of federal, state, or local law or requirements imposed for the protection of the environment. The proposed actions have no direct effect on ocean or coastal habitat.

8.0 OTHER APPLICABLE LAW

8.1 Endangered Species Act

An informal consultation was initiated with the Protected Resources Division, Southwest Region, on January 12, 1999, with regard to the effects of Amendment 8 on endangered and threatened marine mammals and salmon under the jurisdiction of the NMFS. On June 3, 1999, a determination was made that Amendment 8 would not likely adversely affect listed species under NMFS jurisdiction.

On June 8, 1999, NMFS provided the Fish and Wildlife Service with background information on the harvest strategies in Amendment 8 and their potential impact on other species, and requested that the agency concur with the determination that Amendment 8 would not likely adversely affect any threatened or endangered birds under the jurisdiction of the Fish and Wildlife Service. On June 10, 1999, the Fish and Wildlife Service responded, stating that Amendment 8 would not adversely affect endangered or threatened birds under its jurisdiction.

Consultation was reinitiated with the Protected Resources Division, Southwest Region, following the publication of additional listed species, and on September 2, 1999, a determination was made that the FMP was not likely to adversely affect Central Valley spring-run chinook and coastal California chinook. The fishery has since expanded to Oregon and Washington; therefore, in accordance with the conditions established in the previous determination, consultation was reinitiated on April 19, 2000. This consultation has not been completed.

8.2 Marine Mammal Act

Amendment 9 is not anticipated to have an adverse impact on marine mammals.

8.3 National Environmental Policy Act

NMFS initially has determined that implementation of any of the alternatives in this amendment would not significantly affect the quality of the human environment; therefore, preparation of an EIS is not required by Section 102(C) of NEPA or its implementing regulations.

8.4 Executive Order 12866

Based on the RIR prepared for this document, the rule to implement Amendment 9 is not likely to be *significant* under E.O. 12866. That is, Amendment 9 is not likely to have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or state, local, or tribal governments or communities.

8.5 Regulatory Flexibility Act

This Regulatory Impact Statement must determine whether the proposed rule is a significant economic impact on a substantial number of small entities under the RFA. The purpose of the RFA is to relieve small businesses, small organizations, and small governmental entities from burdensome regulations and record keeping requirements. If the alternatives meet both the significant and substantial criteria, preparation of an Initial Regulatory Flexibility Analysis is required. Two regulatory measures are proposed by Amendment 9. One is to codify the Regional Administrator's authority to require observers, if necessary, on fishing vessels for scientific purposes, a provision already included in the FMP. Amendment 9 establishes the determination of bycatch as a priority for a recommendation that observers be placed on developing fisheries north of 37° 10.9' N latitude and only recommends that an observer program be developed. No fisheries for CPS other than bait fisheries occur in California north of 37° 10.9' N latitude at this time and the states of Oregon and Washington are assessing bycatch with state managed observer programs in their respective areas. The second regulatory measure is to codify the process used to make allocations to specific Indian tribes as required by U.S. treaties. The management area where the affected tribes reside is an open access fishery; therefore, there are no limitations on any harvester within the constraints of the harvest guideline. Therefore,

there is no cost to the industry imposed by the proposed rule, and Amendment 9 is not likely to have a significant economic impact on a substantial number of small entities. As a result, an initial regulatory flexibility analysis was not prepared.

8.6 Paperwork Reduction Act

This amendment does not require additional reporting requirements.

8.7 Coastal Zone Management Act

Any of the alternatives considered would be implemented in a manner that is consistent to the maximum extent practicable with applicable state coastal zone management programs. NMFS has requested concurrence with this finding with the responsible state agencies under Section 307 of the Coastal Zone Management Act.

8.8 Executive Order 13132

This rule does not contain policies with federalism implications sufficient to warrant preparation of a federalism assessment under E.O. 12612.

9.0 FINDING OF NO SIGNIFICANT IMPACT

Based on the information contained in the Environmental Assessment for Amendment 9 to the Coastal Pelagic Species Fishery Management Plan, I have determined that neither implementation of the proposed actions nor the status quo would significantly affect the quality of the human environment, and the preparation of an EIS is not required by Section 102(2)(C) of the National Environmental Policy Act or its implementing regulations. Therefore, a finding of no significant impact is appropriate.

_____ _____

Assistant Administrator For Fisheries, NOAA Date

10.0 LIST OF PREPARERS

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APPENDIX A
SUMMARY OF OBSERVED INCIDENTAL CATCH

Table 1. Number of landings sampled by California port samplers from 1985 to 1999.

Total Landings Sampled per Year			
Year	**Sardine**	**Mackerel**	**Total**
1999	61	--	61
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
		Total	5306

Table 2. Incidence of incidental documented by California port samplers.

Incidental catch from Port Sampling Records

Year	Species	Incidence	Totals
1999	Anchovy	5	
	Jacksmelt	1	
	Herring	1	
			7
1998	Herring	2	
	Anchovy	3	
	White Croaker	1	
	Market Squid	4	
			10
1997	Market Squid	44	
	Anchovy	1	
	Herring	1	
			46
1996	Market Squid	22	
	White Croaker	1	
	Anchovy	8	
	Lingcod	1	
			32
1995	Market Squid	71	
	Jack Mackerel	1	
	Pacific Mackerel	1	
	Yellowtail	1	
	Anchovy	5	
	Herring	1	
			80
1994	Herring	1	
			1
1993	None reported		
1992	Market Squid	1	
	Yellowfin Tuna	1	
	Skipjack Tuna	1	
			3
		Total	179

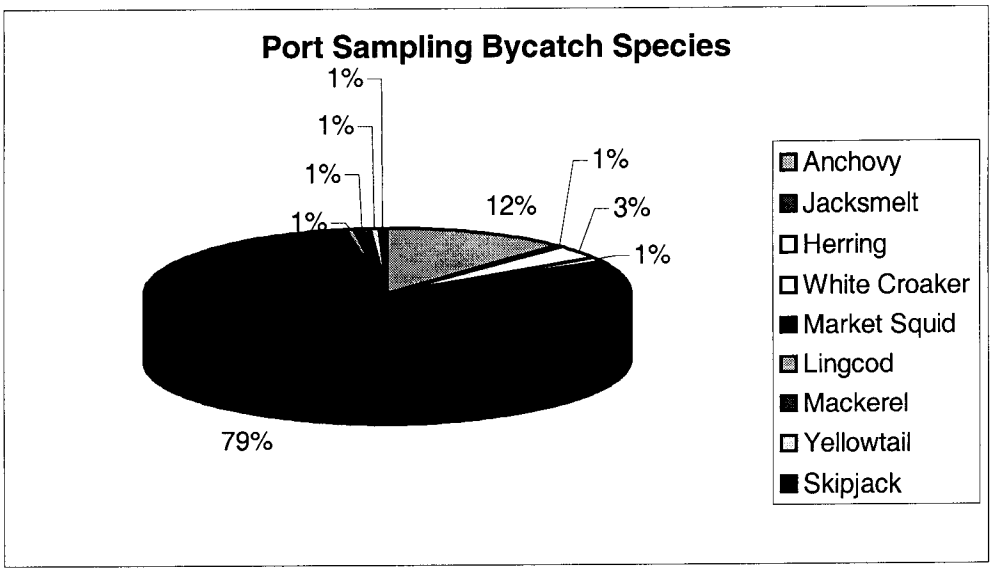


Table 3. Incidence of incidental catch from live bait logs.

Live Bait Logs		
Year	**Species**	**Incidence**
1999	Smelts, true	1
	Barracuda	4
1998	Herring	1
	Shiner Surfperch	1
	Barracuda	84
1997	Shiner Surfperch	3
	Sea Star	1
	Barracuda	102
1996	Barracuda	1
	Total Reports	198

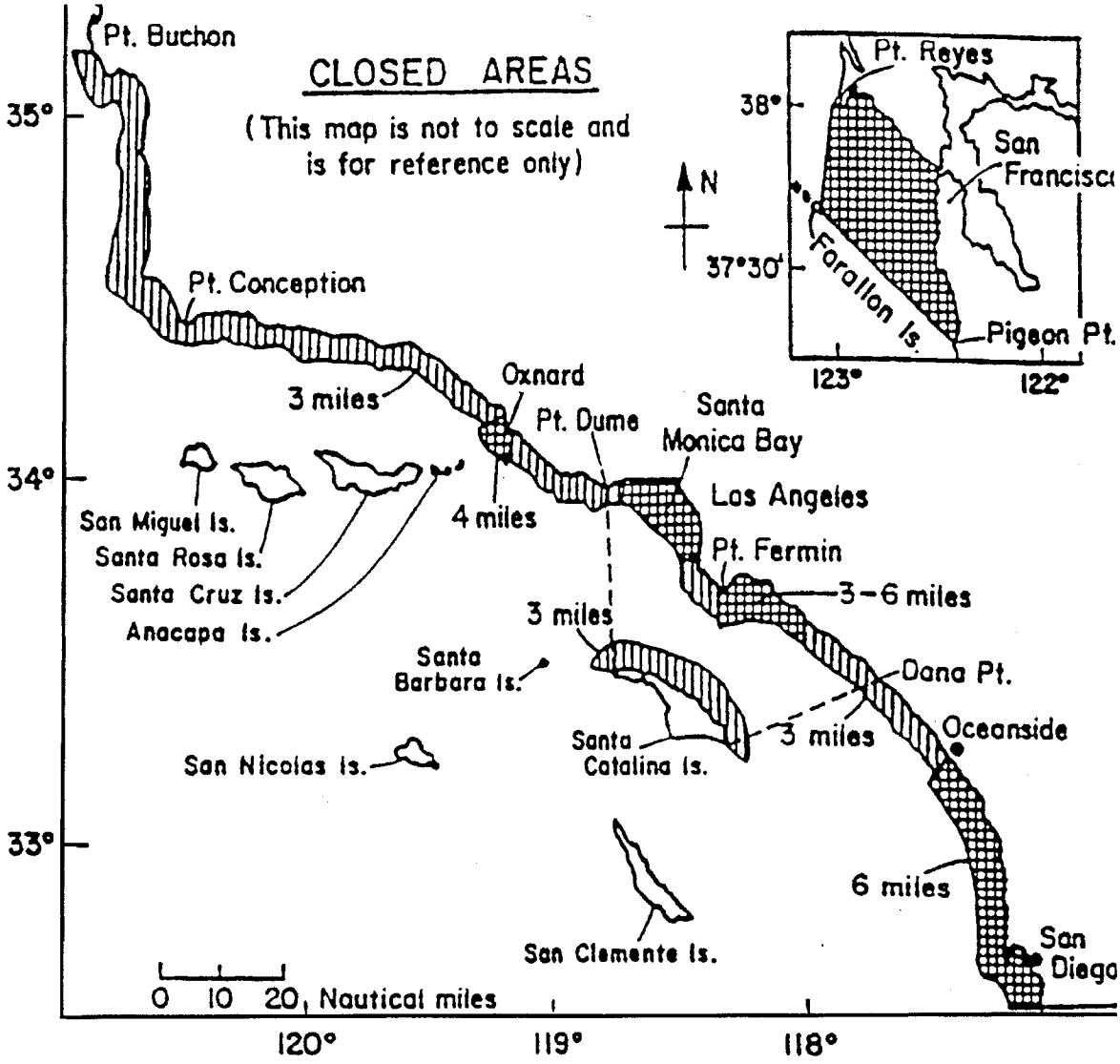
Table 4. Summary of total incidental catch from live bait logs.

Live Bait Incidental Species	Incidence
Barracuda	191
Shiner Surfperch	4
Herring	1
Smelts, true	1
Sea Star	1
Total	198

Table 5. Summary of days fished in the live bait fishery.

Live Bait Days Fished	
Year	**Days**
1999	187
1998	812
1997	778
1996	131
Total	1908

APPENDIX B
CLOSED AREAS



APPENDIX C
STATE APPROACHES FOR DETERMINING BYCATCH

Oregon Work Plan for the 2000 Sardine Fishery

In Oregon, sardines are managed under the Developmental Fishery Program which allows a limit to the number of participants. For sardines, a maximum of 15 permits can be issued. In 2000, ten permits were renewed from 1999. The remaining five permits were issued through a lottery in February that had 35 applications. Permits are not transferable.

Permit holders are required to make at least five landings of 500 pounds or one landing of at least 5000 pounds of sardines to renew their permit for the next year. Permit holders are also required to keep a logbook and allow observers on board the vessel. Seine gear vessels are required to place a grate over the hold of the vessel and trawl gear must use a fish excluding device to sort out larger species of fish.

Goals and Objectives

The goal for this year's work is to gather information on sardines off Oregon to improve the coast wide stock assessment of sardines, to document the extent of bycatch, and to monitor the size and age composition of the population. Objectives will be to:

1. Collect size, age, and distribution data of adult sardines off Oregon, from both the harvest areas and outside harvest areas.
2. Document bycatch, in terms of species and amount. Recommend additional gear modifications or time/area closures to reduce bycatch if necessary.
3. Document harvest methods, distribution of harvest, and catch per unit of effort (CPUE).

Planned Work

We expect most of the harvest activity to occur out of Astoria, Oregon, so will hire a seasonal sampler to work out of that port. This person will focus on ride-along trips on commercial vessels to document bycatch and collect market samples. Additional time will be spent working up samples and summarizing logbook information.

Ride-along trips on commercial vessels. To document harvest methods and bycatch (species and amounts).

Port sampling of commercial landings. Collect samples for size, sex, and maturity data. Age structures will also be taken and sent to California for analysis.

Incidental catch. Monitor unloading at processing plants for incidental catch data.

Collect logbooks from commercial vessels. To determine distribution of harvest, CPUE, and unobserved by-catch information.

Fishery independent data. Participate in NMFS cruises to collect additional size and age data from outside the harvest areas and collect distribution data of sardines off Oregon.

California Work Plan for the 2000 Sardine Fishery

In California, sardines are managed under the Federal Coastal Pelagic Species Management Plan, which also includes Pacific mackerel and northern anchovy. South of 39° N latitude (Point Arena, California), limited entry is in effect. To qualify for a limited entry permit, vessels must have landed at least 100 mt of finfish between January 1, 1993 and November 5, 1997. Approximately 70 vessels have qualified for the permit. The permit can be transferred once during the year 2000, after which the permit becomes nontransferable.

Vessels fishing for live bait must submit logs when sardines are captured.

Goals and Objectives

The goal of this project is to collect fishery dependent biological data on sardine populations off California for use in population assessments, to determine species composition of purse seine landings, monitor the status of the quota, and assist in fish aging.

Planned Work

Most fishing for sardines occurs out of the ports of San Pedro, California and Monterey, California. Scientific aides will be hired to routinely monitor landings and sample fish from the purse seine fleet.

Port Sampling of Commercial Landings

Market samples. Samples taken from unloading boats will be stored at CDFG and processed for weight, length, sex, and maturity data. Otoliths will be taken for aging. Samplers will also collect fishing information from each vessel sampled, such as tons landed, fishing location and species composition (percentage of sardines, Pacific mackerel and jack mackerel present in each observed landing). Bycatch will be noted but not enumerated.

Fish Aging

After age data has been added to the sample database, sample data will be summarized in reports for use in assessing the current sardine population and determining the quota for the next year.

Quota Monitoring

Staff will monitor quota landings and distribute landing summaries on a quarterly basis.

Washington Work Plan for the 2000 Sardine Fishery

In Washington, sardines are managed under the Emerging Commercial Fishery provisions as a trial commercial fishery. An Emerging Commercial Fishery permit and a Trial Sardine Fishery permit are required and are nontransferable. The total sardine harvest taken in 2000 cannot exceed 4,000 mt in a fishery beginning May 15 and continuing through October 15, or until the quota is achieved, whichever occurs first. The fishery is open to purse seine gear only.

Goals and Objectives

The goal for this trial fishery is to provide fishing opportunity consistent with the Council's CPS FMP and WDFW policy; collect information on sardines off Washington to improve the coastwide stock assessment; and document the extent of bycatch occurring in the fishery. Objectives include:

1. Collect size, age, sex, and maturity data from the catch landed into Washington.

2. Document bycatch, in terms of species, amount, and condition. Recommend management measures to reduce bycatch, as necessary.

3. Document harvest methods, distribution of harvest, and CPUE.

Requirements

Logbooks are required. Observers are required on at least 50% of all fishing trips at the owner's expense. Only sardine, mackerel, anchovy, and squid may be retained. All other species caught incidentally must be returned to the water immediately and care exercised to avoid any unnecessary injury. Notification of departure on a fishing trip must be made 24 hours before leaving port. Permits are valid in waters more than three miles from the shore and north of the mouth of the Columbia River, west of Cape Flattery and south of

the border with British Columbia, Canada. No salmon may be landed on the boat's deck but must be released or dip netted directly from the net before the completion of each set.

Agency Action

At the option of the Department of Fish and Wildlife, agency personnel must be allowed aboard the vessel and be granted full access to the catch and to gather biological data as needed. Up to 500 sardine per day may be retained by WDFW for biological information. Consistent with standards in the offshore whiting fishery, a mortality greater than 1 chinook salmon per 20 mt of Pacific sardine would be sufficient to rescind a permit or close the trial commercial fisheries.

Planned Work

Washington sardine fishing activities occur out of the ports of Ilwaco and Westport. WDFW has hired two additional full-time observers and is utilizing existing port sampling staff to augment our observer program and conduct dockside sampling. The observers work onboard commercial fishing trips to document bycatch, determine catch composition, and collect market samples. Port samplers monitor unloading at processing plants for incidental catch data, weigh sub-samples of the sardine catch, and collect logbooks to determine harvest distribution, CPUE, and unobserved bycatch information.

Additional staff time is spent extracting otoliths (to be sent to the CDFG for age analysis), determining sex and maturity of samples, and summarizing observer and logbook information.

WDFW will provide a summary of the 2000 trial sardine fishery to the Council following the conclusion of the fishery.