

**FINAL REGULATORY IMPACT REVIEW
INDEX/SUMMARY**

**Amendment 8 to the Northern Anchovy Fishery
Management Plan**

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TABLE OF CONTENTS

	<u>Page</u>
Introduction (Appendix A, Sections 2.0 inclusive and 3.0 inclusive)	RIR-1
Purpose and Need for Amendment 8 (Appendix B, Section 1.2 inclusive)	RIR-2
Goals and Objectives of Amendment 8 (Appendix B, Section 2.1)	RIR-2
The Proposed Management Regime (Appendix B, Section 2.1.2; 3.8.2; 4.0.1 through 4.1.3; 5.2 through 5.2.2)	RIR-3
Small Entities Affected	RIR-3
Alternatives Considered	RIR-3
Limited Entry (Appendix B, Section 3.0 inclusive)	RIR-4
Purpose and Need for Action	RIR-4
Alternatives for Management of Fishing Effort	RIR-4
Benefits and Costs of Limited Entry	RIR-5
Target Fleet Size	RIR-6
Expected Effects of Target Fleet Size Option 5	RIR-6
Benefits and Costs of Target Fleet Size Option 5	RIR-7
Harvest Policy Options (Appendix B, Section 4.0 inclusive)	RIR-8
Purpose and Need for Action	RIR-8
Alternatives for Pacific Sardine MSY Control Rule	RIR-8
Expected Effects of Pacific Sardine Control Rule	RIR-9
Benefits and Costs of Sardine MSY Control Rule Options	RIR-9
Alternatives for Pacific Mackerel MSY Control Rule	RIR-10
Expected Effects of MSY Control Rules for Pacific Mackerel	RIR-10
Benefits and Costs of Pacific Mackerel MSY Control Rules	RIR-11
Default MSY control rule for Monitored species	RIR-11
Expected Effects, Benefits, and Costs of Default MSY Control Rule	RIR-11
Reporting, Recordkeeping and Compliance Requirements	RIR-11
Implementation Costs (Appendix C, Sections 1.0 through 1.4)	RIR-11
Other Applicable Law	RIR-12
Effects on Endangered Species and Marine Mammals	RIR-12
Coastal Zone Management Act	RIR-12
Executive Order 12866	RIR-13
Draft Initial Regulatory Flexibility Analysis (IRFA)	RIR-13
Paperwork Reduction Act (PRA)	RIR-17
Executive Order 12612	RIR-18
Coordination and Consultation	RIR-18
List of Preparers	RIR-18

Introduction (Appendix A, Sections 2.0 inclusive and 3.0 inclusive)

Amendment 8 to the Fishery Management Plan for the Northern Anchovy Fishery (FMP) proposes to place Pacific (chub) mackerel (*Scomber japonicus*), Pacific sardine (*Sardinops sagax*), Jack mackerel (*Trachurus symmetricus*), and market squid (*Loligo opalescens*) in a management unit with northern anchovy (*Engraulis mordax*). All of these small coastal pelagic species (CPS) are harvested by a fleet of vessels using mainly roundhaulnets. The FMP divides the species into two general categories: 1) Actively managed species, those that require federal harvest guidelines or quotas, and 2) Monitored species, those that are adequately managed without federal harvest guidelines or quotas. Management measures other than federal harvest guidelines and quotas may be used for both Actively managed and Monitored species. Amendment 8 provides a framework process for moving species from one category to another as biological and economic circumstances change.

Vessels using roundhaul gear (purse seines and lampara nets) are responsible for 99% of CPS total landings and revenues in any given year. The southern California round haul fleet, known locally as the "wetfish fleet", is the most important sector of the CPS fishery in terms of landings. The wetfish fleet is based primarily in Los Angeles Harbor, with smaller segments in the Monterey and Ventura areas. It harvests Pacific bonito, market squid, bluefin tuna and other tunas, as well as CPS. The fleet consists of about 40 active purse seiners averaging 20 meters in length. Approximately one-third of the wetfish fleet are steel-hulled boats built during the last 20 years. The rest are wooden-hulled, built in the heyday of the Pacific sardine fleet, from 1930 to 1949.

Anchovy is used for reduction to fish meal and oil, live and dead bait, and human consumption. Reduction landings, which generally receive much lower exvessel prices than nonreduction landings have been exceedingly low since 1983 due to competition with other sources of protein meal. Reduction was the main use for anchovy prior to 1983. Anchovy is more recently a critical source of live bait for recreational fishing.

Commercially harvested Pacific (chub) mackerel is processed into canned products for pet food and human consumption, and a small but increasing amount is sold to fresh fish markets that cater to California's growing Asian population. Jack mackerel, when available in southern California, is processed in the same canned product.

Pacific sardine is canned for human consumption and sold as live and dead bait. With sardine biomass increasing after years of low biomass levels, markets are being developed.

Squid are generally frozen or canned and exported for human consumption. Smaller amounts are sold domestically in fresh fish markets and used for live and dead bait. In the last several years, the demand for squid has increased greatly, which has raised concerns about protecting the resource. Very little is known about the biology of squid.

Growth or decline in fishing affects production, trade and employment throughout the California economy, as fishers make purchases and as the fish are processed, distributed, and marketed. Revenues from these expenditures filter through local, state, and regional economies. Economic multipliers can be used to calculate change in income and employment resulting from a change in the level or the success of fishing. Economic multipliers have been used to estimate indirect benefits of wetfish fishing, but the estimates are probably not reliable.

The most important counties along the West Coast in the context of CPS revenues and landings are Los Angeles/Orange, Santa Barbara/Ventura and Monterey (totals for 1993-1997).

Area	Landings (in metric tons)	1997 Revenues (in dollars)
Los Angeles/Orange County	246,204	41,268,508
Santa Barbara/Ventura County	209,401	73,148,255
Monterey County	80,999	18,669,794
Other California Areas	10,355	3,857,902
Oregon State	3,654	49,365
Washington State	<u>684</u>	<u>314,753</u>
Total	551,297	37,308,577

No Federal regulations governing gear restrictions and area closures are proposed above those already in place in California, Oregon, and Washington. Reporting requirements are managed by the respective states.

Purpose and Need for Amendment 8 (Appendix B, Section 1.2 inclusive)

The Pacific Fishery Management Council (Council) intends Amendment 8 to provide effective and comprehensive management of interjurisdictional resources, and make the most efficient use of state and federal administrative and scientific resources.

The collapse of the historical sardine fishery in the 1950s was due to overcapitalization and overfishing at the time of unfavorable environmental conditions. Environmental conditions are now favorable to sardine. The biomass has increased by about 35% per year since 1983 and is currently at more than 500,000 mt. It is likely that the CPS fishery will become overcapitalized faster than management authorities can react if sardine, or other CPS, increase in abundance or markets develop. Experience with CPS and other fisheries indicates that the process of developing fishery management programs at the state or federal level is slower than the rate at which a fishery can become overcapitalized. There is substantial excess capacity in the groundfish, herring and salmon fisheries, including the factory trawler fleet, for example, that could enter the CPS fishery in a matter of months if markets develop. Boats from overcapitalized herring fisheries off Oregon, Washington and Alaska recently entered the California squid fishery in response to increased availability and prices. The total number of boats harvesting squid in the California squid fishery approximately doubled during 1994-1997.

Increased abundance of sardine has extended the range of the species into Canada, which puts the resource beyond the management authority of any individual state. Commercial interest in sardine and in squid is likely to lead to increased harvesting capacity directed at CPS in general, which raises issues of managing bycatch, international and interstate cooperation, and cooperative research. An FMP for CPS would ensure that CPS are managed according to risk averse principals, which is particularly important for CPS. CPS are highly variable and often at low abundance levels, but potentially very productive. They also are ecologically important as forage for predators that include sportfish, marine mammals, and endangered species.

Goals and Objectives of Amendment 8 (Appendix B, Section 2.1)

The goals of Amendment 8 are:

1. Promote efficiency and profitability in the fishery, including stability of catch.
2. Achieve optimum yield (OY).
3. Encourage cooperative international and interstate management of CPS.
4. Accommodate existing fishery segments.
5. Avoid discard.
6. Provide adequate forage for dependent species.
7. Prevent overfishing.
8. Acquire biological information and develop a long-term research program.
9. Foster effective monitoring and enforcement.
10. Use resources spent on management of CPS efficiently.
11. Minimize gear conflicts.

The Proposed Management Regime (Appendix B, Section 2.1.2; 3.8.2; 4.0.1 through 4.1.3; 5.2 through 5.2.2)

1. Divide the managed resources into Actively managed species and Monitored species.
2. Limited entry for finfish south of 39° N latitude.
3. Comprehensive harvest policies.
4. North/South allocation of available harvest for sardine based on current state law.
5. Area closures (presently in Anchovy FMP).

Small Entities Affected

Vessels that harvest CPS (Pacific sardine, Pacific [chub] mackerel, jack mackerel and northern anchovy) or market squid along the west coast would be affected by Amendment 8. Most or all of these vessels represent small entities with annual receipts of less than \$3 million.

Landings receipt data (Appendix A, Table 2.1.2-2) indicate that about 423 vessels landed CPS finfish or market squid during 1997 (215 landed CPS finfish but no squid, 108 landed both finfish and market squid and 100 landed market squid but no CPS finfish). Numbers of vessels landing appreciable (>50 mt) quantities of CPS finfish or squid are smaller. During 1997, for example, only 56 roundhaul vessels landed appreciable amounts (>50 mt) of CPS finfish (Appendix A, Table 2.1.2-3). Most of the vessels landing appreciable quantities (>50 mt) of CPS finfish use roundhaul gear and operate out of ports in Orange/Los Angeles, Ventura/Santa Barbara and Monterey counties (Appendix A, Table 2.1.2-5).

Fish receipt data indicate that 173 processors (including parent processing plants and associated buying stations) purchased CPS finfish and squid from vessels during 1997 (Appendix A, Table 2.1.2-9). Processors, particularly when buying stations are aggregated by parent plants, probably have gross receipts in excess of \$3 million per year but some may qualify as small businesses.

Long term effects of Amendment 8 on small entities are expected to be neutral or positive (see below) because MSY control rule options will lead to higher levels of average long term catch and biomass (see below) with less risk of overfishing. Short term negative effects are, however, likely because catch quotas for Pacific sardine and Pacific (chub) mackerel may be reduced in the short term from status-quo levels (see below).

Effects on employment in the long term will likely be neutral or positive because MSY control rule options tend to maximize long term average revenues. Short term effects on employment are unlikely because few vessels rely on Pacific sardine or Pacific (chub) mackerel for the bulk of their revenues (Appendix A, Table 2.1.2-7).

Alternatives Considered

The Council considered options for all conservation and management measures it is recommending. A comparison of options was made on the basis of the following criteria:

1. The biological impact on the managed species.
2. Economic and social impacts relating to competition, employment, investment, productivity, exports, innovation and the cost and price of goods and services.
3. Information collection costs incurred by the government to implement Amendment 8.
4. Compliance costs and recordkeeping requirements imposed on small business, i.e., vessel operators.

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) requires that a fishery resource be managed as a unit stock throughout its range, but gives little guidance regarding management of transboundary stocks. All coastal pelagic resources are shared between the U.S., Mexico, and Canada, and no international agreement for managed resources exists between the two countries; therefore, Mexico harvests managed resources independent of U.S. regulations. The FMP presents harvest control rules that take the Mexican harvest into consideration when establishing OY, understanding that whatever choice is made, the Mexican harvest is beyond the control of the U.S.

Limited Entry (Appendix B, Section 3.0 inclusive)

Purpose and Need for Action

As described in the FMP (Appendix B, section 3.4), the CPS fishery is overcapitalized and vessels currently participating (105 vessels characterized as potential low-volume producers and 63 vessels characterized as potential high-volume producers, Appendix B, Section 3.4) are capable of harvesting more CPS finfish (Pacific sardine, Pacific [chub] mackerel, jack mackerel and northern anchovy) than is ever likely to be available. Current capacity may be as much as 20% greater than the combined maximum sustainable yield (MSY) for anchovy, Pacific (chub) mackerel and Pacific sardine (about 400,000 mt per year). Recent experience in the fishery and crude calculations indicate that about 75 vessels would have sufficient harvesting capacity to take all of the CPS finfish likely to ever be available (Appendix B, Section 3.4).

Vessels currently participating in the CPS finfish fishery are capable of harvesting more CPS finfish than is available under current biomass conditions. Harvest capacity is linked to effort production which in turn corresponds to the size of the fleet and its use of available inputs. Fisheries characterized by excess harvesting capacity are described as overcapitalized in terms of the number of vessels, and the amount of gear and equipment devoted to harvesting. As fisheries become overcapitalized, harvesting costs increase while catches remain constant, resulting in economically inefficient use of society's fishery resources. Problems for managers and the fishing industry are more severe in overcapitalized fisheries when abundance declines and catches must be reduced. In particular, more restrictive management measures are required and allocation issues are more acute. No relief from these problems will occur if harvest capacity continues to rise.

Managing harvest capacity, therefore, entails controlling vessel effort production, the number of vessels, or both. As a first step, limiting access of vessels to the fishery may be particularly useful.

Alternatives for Management of Fishing Effort

Three general alternative approaches to managing fishing effort in the CPS fishery were considered (Appendix B, Section 3.5). Alternative 1 was open access (status-quo). Alternative 2 was limited entry. Alternative 3 was ITQs, but ITQs are currently prohibited under a Congressional moratorium.

Open access management inevitably leads to overcapitalization and pressure on managers to allow high harvest levels. An increase in fleet size will result in greater fixed costs with more vessels in the fishery, and increased capital costs associated with expanded investment in the fishery. Also, a larger fleet will probably result in decreased revenue per boat, as more boats compete for a fixed allowable harvest, and increased operating costs per boat as a result of increased congestion and excess mobility on the fishing grounds. With open access there is also an increased likelihood for high mid-term and long-term management costs associated with the development and implementation of other regulatory measures to address overcapitalized fisheries and depleted stocks.

Expected Effects of Limited Entry

Limited entry programs are primarily designed to address economic problems associated with excess harvest capacity or overcapitalization in open access fisheries. A limited entry program for CPS would contain the number of vessels participating in the fishery and give managers a tool for controlling the overall level of effort and harvest capacity in the fishery. With the number of vessels limited, competition between vessels for a fixed allowable harvest is likely to be less intense and net revenues per vessel would improve. Limited entry would be an imperfect control, however, and increases in harvest capacity are still likely to occur under limited entry and a variety of possible conditions without controls on other productive inputs. Nonetheless, increases in capacity would probably be faster and more dramatic under open access management.

Limited entry is expected to encourage economic efficiency in the CPS fishery over the long term to the extent that: 1) further increases in capital investments from new vessels entering the fishery are slowed or prevented; 2) fixed costs associated with additional vessels are avoided; and, 3) harvesting and management costs remain low. Economic efficiency with limited entry is expected to be as high as, or higher than, under open

access management. A limited entry program for CPS is expected to reduce socioeconomic problems over the long term by reducing harvest levels during inevitable periods of low CPS production and biomass.

In the short term, limited entry is expected to have little effect on routine operations in the fishery, though a few operations could be greatly affected (see Section entitled "Initial Regulatory Flexibility Analysis"). Preferred options for target fleet size, window period qualifying criteria and exempted landings accommodate current participants by either issuing limited entry permits to vessels that harvest significant quantities of CPS or allowing small exempted landings of CPS by vessels without a limited entry permit.

Benefits and Costs of Limited Entry

A qualitative benefit-cost analysis indicates that net benefits from a limited entry program for CPS would likely be positive (Appendix B, Section 3.9). Reduced fixed costs and variable (operating) costs are associated with fewer vessels competing for a fixed harvest. Costs to federal authorities in issuing and administering limited entry permits are probably less than \$10,000 per year (Appendix C, Section 1.4).

Limited Entry Options

Within limited entry, the Council considered various options (Appendix B, Section 3.8 inclusive). The Council's decisions about which species to include (Appendix B, section 3.8.1), target fleet size (based on window period qualifying criteria; Appendix B, Sections 3.8.7-3.8.10), and permit transferability (Appendix B, Section 3.8.14) are most important and described in subsequent sections.

Other limited entry options described in Appendix B would apply limited entry requirements to fishing south of 39° N. latitude with no area specific endorsements (Sections 3.8.2-3.8.3); exclude small ("exempted") landings, recreational fishing, and the live bait fishery from limited entry requirements (Sections 3.8.4-3.8.6); use trip limits to avoid dramatic increases in fishing effort (Section 3.8.11); establish permit renewal criteria (sections 3.8.12-3.8.13); and establish policies for issuing new permits in the future (Section 3.8.15).

Species to Include under Limited Entry

There were two options considered by the Council: 1) CPS finfish only; and, 2) CPS finfish and squid. The Council recommends a limited entry program for CPS finfish only, rather than limited entry for CPS finfish and squid (Appendix B, Section 3.8.1). Although there is considerable overlap between fishing activity for finfish and squid, enough squid and finfish specialists exist in the fleet to warrant separate limited entry programs. Currently, California Department of Fish and Game is implementing a vessel licensing program for squid.

Expected Effects of Species Option1

Given the nature of CPS finfish fisheries, growth in the sardine segment of the fishery could be short-lived. A limited entry program for CPS finfish now would prevent excessive buildup of harvest capacity directed toward sardine, and future spillover into other finfish species and squid.

Although the squid harvest potential is not well known, there may be room for additional harvest capacity in this segment of the CPS fishery. A federal limited entry program for squid is not deemed to be necessary at this time. However, familiarity with open access fisheries indicates this situation could change quickly.

Benefits and Costs of Species Option1

Limited entry for the CPS finfish fishery should result in efficiency gains through a reduction in the fixed and operating costs that are incurred to take the available harvest, and therefore increased net benefits from the fishery (see below).

Excluding the squid fishery from limited entry while carefully monitoring its growth, will allow it to develop to its full economic potential without unnecessary constraints on harvest capacity at this point. Additional net benefits are expected as harvest capacity approaches an optimum.

Species Option 1 should therefore result in increased net benefits from the overall CPS fishery.

Target Fleet Size

Based on the Council's recommendations regarding geographic scope of the limited entry program, window period, and history of CPS species landed (Appendix B, Sections 3.8.2, 3.8.9 and 3.8.10), options for the target fleet size were based on a proportion of total CPS finfish landings south of 39° N latitude during a five-year (1993-1997) window period.

There were six options, including the status quo, considered for CPS finfish limited entry target fleet size (Appendix B, Section 3.8.7). Of these, the Council chose Option 5, a limited entry fleet consisting of those vessels accountable for 99% of total CPS finfish landings during the window period.

Expected Effects of Target Fleet Size Option 5

In 1997 (under open access management), 229 vessels landed 67,621 mt of CPS finfish south of 39° N latitude (295 mt per vessel) with an exvessel value of \$8 million (\$34,934 per vessel). There were 640 vessels with CPS finfish landings south of 39° N latitude during the 1993-1997 window period.

Under Option 5, 70 vessels would comprise the CPS finfish limited entry fleet (Appendix B, Table 3.8.7-1). Sixty of these vessels had CPS finfish landings south of 39° N latitude in 1997, accounting for 73% of total CPS finfish landings in 1997 and 66% of total finfish revenues. Average finfish landings were 741 mt per vessel, 37% of each vessel's total landings. Average finfish revenues were \$77,922 per vessel, 16% of each vessel's total revenues. Squid provided the bulk of exvessel revenues for most of these vessels in 1997.

Under Option 5, there would be 570 vessels not qualifying for CPS finfish limited entry permits based on minimum CPS finfish landings for the window period. Of these, 172 landed CPS finfish south of 39° N latitude in 1997, accounting for one percent of total CPS finfish landings in 1997 and three percent of total finfish revenues. Average finfish landings were two mt per vessel, less than one percent of each vessel's total landings. Average finfish revenues were \$1,100 per vessel, less than one percent of each vessel's total revenues. Most of these vessels depended on groundfish for the bulk of their revenues in 1997.

Under the status quo option (open access), patterns observed in finfish catches during 1997 would likely continue although squid landings may change in response to the 1997-1998 El Niño. This situation could change dramatically, however, with a substantial increase in the abundance of CPS finfish resources or with additional development of CPS finfish markets. It is difficult to predict the size of an open access fleet under conditions of higher biomass and better markets. Based on historical data and experience during the peak of the sardine fishery, a fleet size of 175-250 vessels seems plausible, particularly since the fleet would also harvest other species (e.g., squid, bonito, and tuna).

A limited entry fleet consisting of 70 vessels is more than capable of taking the total amount of CPS finfish landed in California during 1997. CPS finfish landings per vessel for those vessels qualifying for limited entry under Option 5 averaged about 50% of the vessel's total landings for the window period. This suggests that these vessels could redirect effort to CPS finfish and almost double their landings if conditions were right. Consider an intermediate size fleet of 55 vessels. In the course of a six-month season (26 weeks or 130 days without counting weekends), and assuming 50 mt/day for each vessel, 55 CPS limited entry vessels could land about 360,000 mt of CPS finfish per year which is near the upper bound of what might be expected under the best conditions.

The Council recommendations include an "exempted" landings provision which excludes small landings (one to five mt per trip) of CPS finfish from limited entry (Appendix B, Section 3.8.4). Therefore, most of the vessels not qualifying for limited entry permits that land small quantities of CPS per trip, either incidentally or as a target species, would not be affected by limited entry.

Benefits and Costs of Target Fleet Size Option 5

The approach used by the Council to specify a target fleet size in the CPS limited entry program automatically selects vessels that constitute the core CPS finfish fleet. Vessels qualifying likely represent a reasonable level of harvest capacity.

A qualitative benefit-cost analysis (Appendix B, Section 3.9) indicates that there would likely be increased net benefits from limited entry, because current landings would be realized with fewer vessels which would lower fixed costs, and probably lower operating costs. A target limited entry fleet of 70 vessels would likely be less efficient than a fleet of 55 vessels which would probably be capable of landing all the CPS finfish that might be expected under the best conditions. However, a 70 vessel fleet might better accommodate existing fishery segments, which is another objective of the CPS FMP.

Permit Transferability

There were three options initially considered for CPS finfish limited entry permit transferability (Appendix B, Section 3.8.14). The Council crafted a fourth option under which the limited entry permit is issued to the qualifying vessel, and can be transferred once within the first year of the limited entry program. After the first year of the limited entry program, transfer of a permit to another vessel is not allowed unless the original permitted vessel is stolen, lost or no longer able to participate in a federally managed commercial fishery. Application for the permit transfer to a replacement vessel originates from the vessel owner who must place it on a replacement vessel of the same or less net tonnage within one year of disability of the permitted vessel.

Expected Effects of Permit Transferability Option 4

In most cases significant economic benefits are realized by allowing unconstrained transfer of limited entry permits if the initial allocation of permits is suboptimal. However in some cases, there may be social, income distributional, or other benefits of greater importance that can be realized by prohibiting or constraining permit transfer. In the latter cases the initial allocation may be optimal in terms of preserving a particular pattern of fishing operations, or fishing community structure, which are also addressed by the objectives of the CPS Fishery Management Plan.

Option 4 allows permit transfers during the first year of the program. Permit transfers in the first year may lead to improvements in economic efficiency to the extent that more efficient fishers obtain permits from less efficient ones. It is likely however, that the 70 vessels comprising the "target fleet" (Appendix B, Section 3.8.7, also see above) represent the optimum harvest capacity in terms of quantities landed, given recent conditions of resource availability in the CPS finfish fishery. Also, because the 70 vessels that would qualify for a limited entry permit accounted for the highest shares of CPS finfish landings during the window period, they are probably those with the greatest investments in the fishery, and are likely to be the most efficient harvesters in the fishery. If this is the case, transfer of permits to non-qualifying vessels is unlikely to result in a significant efficiency gains. However, there may be vessels of advanced design that are under construction for the CPS finfish fishery, or vessels being used in other fisheries, which are perceived as being able to operate more efficiently in the CPS finfish fishery than many of the qualifying vessels. In this case permit transfers are likely and overall efficiency gains could occur through improved technology without an undue increase in fleet harvest capacity. Because of this transferability feature, a limited entry permit can be a highly valued asset to its holder in the first year of the program.

After the first year of the program, Option 4 constrains permit transfers by limiting the transfer of a permit to situations where the original vessel is either lost, stolen, or no longer operable. The replacement vessel must be of equal or lesser net tonnage. This prevents a large influx of larger, higher powered vessels into the fishery after the first year of the program. Constrained transferability also tends to reduce the asset value of a permit. However, Option 4 does allow permit holders to modernize and upgrade the permitted vessels. This fosters reduced operating costs through improved technology without an excessive increase in fleet harvest capacity, and could lead to improvements in product quality. Option 4 also allows the sale of a permitted vessel to a new owner who can then operate the vessel in the CPS finfish fishery. The new owner can replace the vessel if it is lost, stolen, or otherwise no longer operable, with a vessel

not greater in net tonnage. Because of this limited opportunity for transfers, permits are likely to maintain significant asset value under Option 4.

Benefits and Costs of Permit Transferability Option 4

Under an open market for limited entry permits during the first year of the program, permits would tend to be sold to fishers who use the most efficient technology to take the available harvest. Fishers who use the most efficient harvesting technology will be able to outbid less efficient competitors. Moreover, vessels most willing to sell their permits are those that would be the least efficient of those qualifying. This should lead to efficiency gains through a reduction in fleet harvesting costs and hence, to increased net benefits from the fishery.

Constrained transfer of permits after the first year probably will probably reduce the number of vessels over time, but not at the rate and to the extent that would occur with no transferability. This is because a permitted vessel can be sold to a new owner, who can then continue to operate the vessel in the CPS finfish fishery, thus slowing the rate of attrition. While this situation may not reduce fixed costs, motivation to purchase a permitted vessel is usually based on the purchaser's expectation of being able to operate the vessel more efficiently than the previous owner. Thus, this form of permit transfer is likely to increase net benefits from the fishery. Option 4 would also allow permitted vessels to be replaced -- under certain conditions -- upgraded and modernized to improve their productivity. This could lead to lower harvesting costs and in turn, increased net benefits from the fishery.

Harvest Policy Options (Appendix B, Section 4.0 inclusive)

Purpose and Need for Action

Maximum sustainable yield (MSY) is central to requirements for managing fisheries under the Magnuson-Stevens Act. National Standard Guidelines were developed by the National Marine Fisheries Service (NMFS) to aid in preparation of FMPs. National Standard 1 describes how MSY control rules are the preferred approach to implementing MSY based policies. The Council considered several MSY control rule options for CPS.

As described in Appendix B, sections 2.1.2 and 4.0, CPS are managed as two groups. Stocks proposed to be "Actively managed" generally have species specific MSY control rules. Stocks proposed to be "Monitored" generally have generic or default MSY control rules. The distinction between Actively managed and Monitored stocks enables managers and scientists to concentrate on stocks and segments of the CPS fishery that need the greatest attention and where the greatest benefits are expected. Under Amendment 8 to the CPS FMP, Pacific sardine and Pacific (chub) mackerel will be Actively managed while northern anchovy, jack mackerel and market squid will be Monitored.

Operationally, the objective of an MSY control rule is to achieve relatively high and consistent levels of biomass in the population and catch in the fishery (Appendix B, Section 4.0.2). Biomass is particularly important for CPS used as forage (i.e. Pacific sardine, northern anchovy and market squid; Appendix A , Section 1) by fish, birds and marine mammals in the California Current Ecosystem. Biomass is less important for CPS (i.e. Pacific [chub] mackerel and jack mackerel) that are not important as forage.

Alternatives for Pacific Sardine MSY Control Rule

Thirteen MSY control rule options, including the status quo, were considered for sardine and evaluated based on simulation analyses (Appendix B, Table 4.2.5.1). MSY control rules for sardine can be explained by considering one as an example. Under the status quo option, the total target harvest would be $FRACTION=20\% \times$ estimated biomass in excess of CUTOFF of 50,000 mt, not to exceed the maximum catch (MAXCAT) harvest level of 200,000 mt. The stock would be overfished and directed harvest would cease if the estimated biomass was $< 50,000$ mt. Harvest levels for U.S. fisheries would be reduced in proportion to the percentage of the stock in U.S. waters.

Of the 13 options, the FMP Development Team recommended five (options G-K) because they performed as well or better than the deterministic equilibrium F_{MSY} option (Option L) and had CUTOFFs greater than 50,000 mt (Appendix B, Section 4.2.5.3). The deterministic equilibrium F_{MSY} (Option L) option is a traditional approach viewed as a minimum acceptable standard under the MSFCMA (Appendix B, Section 4.2.3.1). CUTOFF was a parameter in the MSY control rules that sets a lower bound on biomass levels at which directed fishing occurs (Appendix B, Section 4.1.2). Options with CUTOFFs greater than 50,000 mt were recommended because they included an implicit rebuilding program in the event sardine become overfished (Appendix B, Section 4.2.5.2). The Council chose Option J.

Expected Effects of Pacific Sardine Control Rule

Expected long term benefits of Option J and all other options for the MSY control rule for sardine are given in Appendix B, Table 4.2.5.1. Recommended options all perform well at preventing overfishing and maintaining relatively high and consistent catch levels over the long term.

Short term effects can be contrasted by applying MSY control rule options to the most recent estimate of coast wide biomass for sardine. Target harvest levels that would result under each option can be compared to the target harvest from Option 1, the status quo. Calculations in Table 1 below are based on a coast wide biomass estimate of 573,000 mt in 1997 and assume that the portion of the stock in US waters was 87% (Appendix B, Section 4.1.3). MSY control rule options involving sea surface temperature data use a three season average sea surface temperature of 18.1° C (the actual average sea surface temperature at Scripps Pier California during 1995-1997).

The actual quota set by California for 1998 (44,000 mt) is different from that calculated using Option A because of uncertainty about the geographic range of the biomass estimate and portion of the stock in U.S. waters. In setting the actual quota for 1997, California used an estimated 421,000 mt of sardine off northern Baja, southern and central California and assumed that 59% of that biomass was in U.S. waters (K. Hill, California Department of Fish and Game, Southwest Fisheries Science Center, La Jolla, California).

Harvest levels for 1998 from the various MSY control options (see Table 1) would be substantially different for sardine if water conditions had been cold rather than warm in recent years. Target harvest levels decline rapidly with three season average temperature in MSY control rules that are temperature dependent because sardine are less productive in cold water ocean conditions (Appendix B, Section 4.2.3.4).

Benefits and Costs of Sardine MSY Control Rule Options

Benefits arise from using sardine either as catch or as forage and spawning biomass in the California Current ecosystem. In the long term, spawning biomass is important as "seed stock" to the extent that it results in higher biomass for use as catch and forage in future years.

Benefits and costs from fishery utilization are approximately proportional to catch times recent average price (about \$127 per mt during 1997). Thus, short term benefits and costs from fishery utilization can be approximated (see Table 1) by multiplying U.S. catch levels for 1998 under each option times recent average price. Similarly, long term benefits and costs from fishery utilization can be approximated (see Table 1) by multiplying average long term catches in the U.S. (average catches from Appendix B, Table 4.2.5.1, prorated assuming 87% of the sardine stock in U.S waters) by recent average price.

Long term benefits and costs from using sardine as forage and seed stock may be roughly proportional to the expected long term average biomass expected under each MSY control rule option (Appendix B, Table 4.2.5.1 and Table 1 below). Unfortunately, it is not possible to convert average biomass to monetary units because no estimates of value per unit of biomass are available.

TABLE 1. MSY Control Rule Options for Pacific Sardine. Option J was chosen by the Council.

	Temperature Dependent	FRACTION for 1998	CUTOFF (1,000 mt)	MAXCAT (1,000 mt)	U.S. Harvest in 1998 Based on 1997 Biomass (1,000 mt)	1998 Revenue (\$1,000)	Average Long Term Revenue (\$1,000)	Average Long Term Biomass (1,000 mt)
Option A (Status Quo)	no	20%	50	400	91	\$11,553	\$16,731	936
Option B	yes	30%	50	400	136	\$17,330	\$17,560	964
Option C	no	20%	100	400	82	\$10,448	\$18,209	1,073
Option D	yes	30%	100	400	123	\$15,673	\$18,894	1,091
Option E	yes	30%	100	300	123	\$15,673	\$18,262	1,280
Option F	yes	25%	100	400	103	\$13,061	\$19,502	1,216
Option G	yes	15%	100	400	62	\$7,836	\$19,753	1,543
Option H	yes	15%	100	300	62	\$7,836	\$18,642	1,665
Option I	yes	25%	100	300	103	\$13,061	\$18,629	1,400
Option J	yes	15%	150	200	55	\$7,008	\$16,056	1,962
Option K	yes	30%	50	200	136	\$17,330	\$15,563	1,516
Option L (Stochastic Fmsy)	no	11.8%	0	Infinite	59	\$7,437	\$19,880	1,408
Option M (Deterministic Equilibrium Fmsy)	no	8.8%	0	Infinite	44	\$5,538	\$18,772	1,784

Alternatives for Pacific Mackerel MSY Control Rule

Two MSY control rule options were developed for Pacific (chub) mackerel (Appendix B, Section 4.3.2). Option 1 is the status quo and currently used by state authorities to manage the California fishery. Option 2 is a modification to the status quo that makes an adjustment for catch by fisheries in Mexico. Both options are based on published¹ simulation analysis that estimate average yield and spawning biomass as a function of FRACTION and CUTOFF parameters (MacCall et al. 1985). The analysis suggests that FRACTIONS close to 30% for the fishery as a whole and CUTOFFs close to 20,000 mt maximize long term average catch (i.e. provide MSY). The Council chose Option 2.

Under Option 1 (status-quo), the target harvest level for Pacific (chub) mackerel in U.S. fisheries is set equal to FRACTION=30% of the estimated biomass above a CUTOFF=18,200 mt. No target harvest level is calculated when estimated biomass is above 135,000 mt. The harvest level under Option 1 is not reduced to account for biomass resident in Mexican waters because mackerel catch in Mexico was insignificant when Option 1 was developed and implemented in state law. The fishery for mackerel in Mexico has increased in recent years and Mexican catches amounted to 40% of total catch during 1997.

Option 2 is similar to Option 1 except that the total target harvest level (30% of the estimated biomass above 18,200) is prorated by the estimated fraction of the biomass in U.S. waters (70%, Appendix B, Section 4.1.3.2). Thus, the target harvest level for U.S. fisheries under Option 2 is 70% of the total target harvest and 70% as large as under Option 1. In addition, a target harvest level is calculated even when estimated stock biomass exceeds 135,000 mt.

Expected Effects of MSY Control Rules for Pacific Mackerel

The immediate effect of Option 2 will be a reduction in harvest by U.S. fisheries of 30%. For example, the quota set by the State of California for the fishery during 1988 (about 31,000 mt) based on an estimated biomass of 120,000 mt under Option 1 would have been about 21,000 mt under Option 2.

1/ MacCall, A.D., R.A. Klingbeil, and R.D. Methot. 1985. Recent increased abundance and potential productivity of Pacific mackerel (*Scomber japonicus*). CalCOFI Rep. 26: 119-129.

However, the long term effects of Option 2 will likely be increased biomass and catch levels. Simulation analyses indicate highest average long term catch levels (MSY) when the harvest rate for the fishery as a whole is near 30%. Reductions in the U.S. harvest rate bring the total harvest rate down near 30% and closer to levels that provide MSY for the stock as a whole.

Benefits and Costs of Pacific Mackerel MSY Control Rules

The primary benefit of Option 2 is greater harvest levels over the long term. Risk of overfishing (catches in excess of MSY for the stock as a whole) would be reduced. Overfishing results in relatively low catch and revenue levels in the long term.

Default MSY control rule for Monitored species

Monitored stocks may be managed based on species-specific or a conservative default MSY control rule. The default MSY control rule (intended primarily for stocks that are Monitored) is a conservative benchmark approach that sets ABC for the entire stock (U.S., Mexico, Canada and international fisheries) equal to 25% of the best estimate of the MSY catch level (Appendix B, Section 4.1.1). The primary purpose of the default MSY control rule was to help managers decide based on a framework management process (Appendix B, Section 2.1.2) when to promote stocks from the Monitored to Actively managed categories. As described in Appendix B, Section 2.2.6.3, catch levels in a Monitored fishery that exceed or are projected to exceed (within two years) ABC trigger a point of concern that should result in promotion of the stock to Actively managed status.

Expected Effects, Benefits, and Costs of Default MSY Control Rule

The default MSY control rule for species that are Monitored will have no effect on persons in the CPS fishery. If catch levels for Monitored species increase beyond 25% of the best estimate of the MSY catch level, or if concerns about the status of the stock develop, then the Council is obligated to move the stock to the Actively managed category (Appendix B, Section 2.1.2). In most cases, this would involve developing a stock species MSY control rule similar to those recommended for Pacific sardine and Pacific (chub) mackerel (see above).

Benefits from the default MSY control rule are primarily operational. The default rule makes it possible for managers to use an efficient two-tiered management approach that devotes few resources to stocks with low levels of catch, while meeting requirements of the Magnuson-Stevens Act.

Reporting, Recordkeeping and Compliance Requirements

Vessels landing CPS and other fish at ports in Oregon, Washington, and California are required to obtain landing receipts (fish tickets) at point of sale according to state laws. Landing receipts are used by the states to monitor total landings. MSY control rules in the CPS fishery rely on landing receipt data, and do not require any additional or new reporting or recordkeeping.

Issuance of limited entry permits relies on landings documentation (e.g. official landings receipts) for the specified window period. These data are readily available to managers in centralized and readily accessible databases. The necessary data are collected automatically because vessels making commercial landings at ports in California, Oregon and Washington are required to obtain landings receipts (fish tickets) at point of sale under state law. Vessel owners must provide landing receipts or other documentation to verify landings only in cases where existing records are inadequate. Additional reporting, recordkeeping and compliance requirements under limited entry are expected to be minimal (Appendix B, Section 3.5.2).

Implementation Costs (Appendix C, Sections 1.0 through 1.4)

Costs were grouped into the categories of administrative, scientific, and enforcement, with a separate estimate for the administrative costs of issuing permits. The costs of employee benefits and NOAA overhead costs were added to direct labor costs. Scientific costs are the largest component under any option one might choose to manage coastal pelagic species. Administrative costs can be multiplied by any reasonable factor

to account for underestimating those costs, and they would remain small compared to the costs of scientific research. A summary of the costs follow²:

Administrative	\$24,057
Additional Scientific Costs	\$1,036,896
Enforcement	\$210,997
Permits	<u>\$7,600</u>
Total	\$1,089,652

Other Applicable Law

Effects on Endangered Species and Marine Mammals

The purposes of the Endangered Species Act of 1973 (ESA) are to provide a means whereby the ecosystems upon which threatened and endangered species depend may be conserved, to provide a program for the conservation of such threatened and endangered species, and to take such steps as may be appropriate to achieve the objectives of the treaties and conventions created for these purposes. Section 7 of the ESA requires all federal agencies to ensure that any action authorized, funded or carried out by such an agency is not likely to jeopardize the continued existence of any threatened or endangered species. Under the ESA, species in danger of extinction throughout all or a significant portion of their range can be listed as endangered, and species likely to become endangered in the foreseeable future can be listed as threatened.

Marine mammal management is based on the Marine Mammal Protection Act of (MMPA) of 1972 and the ESA. Under the MMPA, marine mammals whose abundance falls below the optimum sustainable population level (the number of animals at which productivity is maximum, usually regarded as 60% of carrying capacity or maximum population size) can be listed as depleted. Populations listed as threatened or endangered under the ESA are automatically depleted under the terms of the MMPA. Fisheries that interact with species listed as depleted, endangered, or threatened may be significantly affected under the terms of the ESA and MMPA.

Northern anchovy, market squid, and sardine are forage for at least two bird species (brown pelican and least tern) and four marine mammals (fin whale, humpback whale, sei whale, and Guadalupe fur seals) classified as endangered under the ESA; one marine mammal species (Northern or Steller's sea lion) classified as threatened under the ESA; and one marine mammal species (northern fur seal) classified as depleted under the MMPA. In addition, anchovy, sardine, and squid are forage for all depleted, threatened, and endangered salmon stocks along the coast (See Appendix A, Section 1.7 for details on marine mammals and Appendix A, Section 1.8 on seabirds).

It is not currently possible 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. However, the CPS plan contains the goal of providing adequate forage for dependent species (see Appendix B, Section 2.1), and this goal is implemented through harvest policies that reserve a portion of the biomass as forage for all dependent species (Appendix B, Section 4.0).

NMFS Southwest Region is in the process of consulting with the U.S. Department of Fish and Wildlife on the effects of the CPS FMP on endangered or threatened species or critical habitat.

Coastal Zone Management Act

Section 307(c)(1) of the Federal Coastal Zone Management Act (CZMA) of 1972 requires all federal activities that directly affect the coastal zone be consistent with approved state coastal zone management programs to the maximum extent practicable. The Council believes the proposed action is consistent to the maximum

2/ These costs may take the form of additional costs, or a reallocation of existing funds. In particular, additional scientific costs may be a shift in resources from groundfish to CPS efforts.

extent practicable with applicable State coastal zone management programs. The NMFS has corresponded with the responsible state agencies under Section 307 of the Coastal Zone Management Act to obtain their concurrence in this finding.

Executive Order 12866

Executive Order 12866 regarding regulatory planning and review, was signed on September 30, 1993, and established guidelines for promulgating new regulations and reviewing existing regulations. While the executive order covers a variety of regulatory policy considerations, the benefits and costs of regulatory actions are a prominent concern. The regulatory philosophy in the executive order stresses that agencies should assess all costs and benefits of all regulatory alternatives. In choosing among regulatory approaches, the philosophy is to choose those approaches that maximize net benefits to society.

Executive Order 12866 requires that the Office of Management and Budget review proposed regulatory programs considered "significant." A significant regulatory action is one likely to:

1. 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;
2. create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;
3. materially alter the budgetary impact of entitlements, grants, user fees, or loan programs of the rights and obligations of recipients thereof; or
4. raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this Executive Order.

A regulatory program is "economically significant" if it is likely to result in the effects described in item #1 above. This RIR is designed to provide information to determine whether the proposed regulation is likely to be economically significant. Consistent with Executive Order 12866, NMFS requires the preparation of an RIR for all regulatory actions that either implement a new FMP or significantly amend an existing FMP.

Goals and policy objectives for Amendment 8 are described earlier in this document and in Appendix B, Section 2.0. Federal costs under Amendment 8 are estimated to be low and near status-quo levels (Appendix C), while costs to state and other agencies are expected to be unchanged.

Overall, net benefits from Amendment 8 are expected to be positive and higher than for alternatives. Benefits would accrue from implementation of a limited entry system, more effective management, and more efficient use of scarce state and federal resources. The total value of the CPS fishery may exceed \$100 million but the total amount would be only minimally affected by Amendment 8. The portion of the total value that might be redistributed would likewise not exceed \$100 million.

The proposed action would not have significant adverse effects on the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities.

The proposed action is not expected to adversely affect State, local, or tribal governments or communities because the action is not expected to impact supply or markets for CPS.

Regulatory Flexibility Act

The RIR is also designed to determine whether the proposed rule has a "significant economic impact on a substantial number of small entities" under the Regulatory Flexibility Act (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 proposed action meets both the "significant" and "substantial" criteria, preparation of an initial regulatory flexibility analysis (IRFA) is required. This proposed action meets neither the "significant" nor the "substantial" criteria; therefore, the Council and/or NOAA may waive the requirement to prepare a Regulatory Flexibility Analysis.

The businesses likely to be affected by Amendment 8 are commercial harvesters engaged in the coastal pelagic species fishery. The following discussion of impacts focuses specifically on the consequences of Amendment 8 on the participants in that fishery.

The Small Business Administration defines a small business in commercial fishing as a firm with receipts of up to \$3 million annually. All fishing vessels which would be affected by the alternatives to status quo have annual revenues of less than \$3 million. For many of the CPS business entities, landings of CPS represent only a portion of annual revenue. Annual exvessel revenues from CPS species averaged 16% of total exvessel revenue for the 811 vessels coastwide that landed CPS finfish, or squid, or both during the 1993-97 period vessels; less than five percent depended on CPS for all of their exvessel fishing revenues. On average, only 17% of the 811 vessels depended on CPS species for most of their annual exvessel fishing revenues. Many of these entities are vessels that participate in the groundfish, herring, salmon, and other fisheries in addition to CPS.

In general, NMFS has indicated a "substantial number" of small entities to be "more than 20% of those small entities engaged in the fishery. Economic impacts on small business entities are considered to be "significant" if the proposed action would result in any of the following: (a) reduction in annual gross revenues by more than 5 percent; (b) increase in total costs of production by more than five percent as a result of an increase in compliance costs; (c) compliance costs as a percent of sales for small entities are at least 10% higher than compliance costs as a percent of sales for large entities; (d) capital costs of compliance represent a significant portion of capital available to small entities, considering internal cash flow and external financing capabilities; or (e) as a rule of thumb, two percent of small business entities being forced to cease business operations.

LIMITED ENTRY

The Council recommends limited entry for CPS finfish species only. There were 811 vessels coastwide that landed CPS finfish, or squid, or both during the 1993-97 period (Appendix B, Section 3.8.10). Of the 811 vessels with CPS landings during 1993 to 1997, 640 had CPS finfish landings south of 39° N latitude. For the purposes of this analysis the 640 vessels with finfish landings south of 39° N latitude will be treated as the affected population. Of this group, 128 vessels would have to be affected significantly for there to be a substantial number (20%) of vessels significantly affected. Under the option chosen by the Council, 570 vessels (90% of the 640) would not qualify for a limited entry permit (Appendix B, Section 3.8.7). However, limited entry is not expected to affect most of the non-qualifying vessels, primarily because any vessel that does not receive a limited entry permit will still be allowed to land from one to five mt per trip of CPS finfish under exempted landing limits (Appendix B, Section 3.8.4). The exempted landing limit currently proposed is five mt per trip.

Impacts will be analyzed in terms of quantities of CPS finfish and all other species landed, and corresponding exvessel revenues for each of the 640 vessels in the affected population. The primary source of data is Washington, Oregon, and California landings receipts (fish tickets), which contain basic information including the date of the landing, the fishing vessel's identification number, pounds landed by species and the exvessel price per pound received for each species. Data from fish tickets are accessible through the Pacific States, PacFIN Management database to individuals with confidential data clearance. Cost data are unavailable for these vessels, as well as any information about revenues a vessel earns from landings outside Washington, Oregon, and California, and from non-fishing activities.

Analysis based on 1993 to 1997 participation

Reduction in annual gross revenues by more than five percent

Based on landings and exvessel revenues from 1993 to 1997, 122 of the 570 vessels that would not qualify for a limited entry permit depended on CPS finfish landings for at least five percent of their total exvessel revenues for the period. Since 122 vessels is 19% of the affected population (640) and 21% of the non-qualifying vessels (570), there is a possibility that this action may affect a substantial number of small entities. For all other non-qualifying vessels, CPS finfish represented 5% or less of total annual revenue for the period.

For the 122 non-qualifying vessels that relied on CPS finfish for at least five percent of their total exvessel revenues from 1993 to 1997, their dependence on CPS finfish during the period can be summarized as follows:

CPS finfish landings, CPS finfish revenues and total landings summaries for 122 vessels not qualifying for a limited entry permit, but dependent on CPS finfish landings for at least 5% of their total exvessel revenues during 1993 to 1997.

Number of Vessels	Dependence on CPS Finfish (fin rev/tot rev)	Finfish Landings (mt/vessel)			Finfish Revenues(\$1,000/vessel)			Total Revenues (\$1,000/vessel)		
		1993 - 1997			1993 - 1997			1993 - 1997		
		Ave	Max	Min	Ave	Max	Min	Ave	Max	Min
17	100%	13.03	55.50	0.05	2,958	23,227	25	2,958	23,227	25
10	75 - 99%	16.52	36.79	0.16	12,944	54,871	79	15,760	70,497	92
9	50 - 74%	12.91	47.97	0.04	5,729	19,235	38	9,282	29,722	71
22	25 - 49%	15.24	67.14	0.11	8,908	74,000	84	25,801	213,282	225
64	5 - 24%	5.77	75.14	0.03	2,941	39,876	24	28,165	366,962	167
122	>= 5%	9.90	75.14	0.03	5,045	74,000	24	21,816	366,962	25

Out of the 122 non-qualifying vessels realizing more than five percent of their revenue from CPS finfish, 70 landed no more than five mt and 44 landed no more than one mt of CPS finfish for the entire 1993 to 1997 period. These 44 to 70 vessels (depending on the exempted landing limit) would likely be able to continue landing CPS finfish at the levels allowed under the proposed exempted landings limits. This leaves between 78 (landing more than one mt of CPS finfish from 1993 to 1997) and 52 (landing more than five mt of CPS finfish from 1993-1997) non-qualifying vessels that received more than five percent of their total exvessel revenue from CPS finfish that may be constrained by the one to five mt per trip exempted landings limit.

Capital costs of compliance

This analysis does not compare compliance costs as a percentage of sales among small and large businesses, because all of the entities affected are small businesses under the definitions of the RFA. This section examines capital costs of compliance as a significant portion of capital available to small entities. Total exvessel revenues of less than \$2,000 per year are probably not sufficient to support any kind of viable fishing entity over the long term. Of the 122 non-qualifying vessels that depended on CPS finfish for more than five percent of their total exvessel fishing revenue during 1993-1997, 63 had average total exvessel fishing revenues of less than \$2,000 per year. Of the 78 non-qualifying vessels that depended on CPS finfish for more than five percent of their total exvessel revenues and landed more than one mt of CPS finfish during 1993-1997, 12 had average CPS finfish landings greater than one mt per year, and average total exvessel fishing revenues less than \$2,000 per year.

Vessels that do not initially receive a limited entry permit can purchase a permit to participate in the fishery in the first year of the program, therefore CPS finfish revenue need not be forgone if the vessel was not given a permit in the initial allocation. This represents an additional capital cost for a non-qualifying vessel desiring to participate in the Pacific coast CPS finfish fishery south of 39° N latitude. Non-qualifying vessels that depend on CPS finfish for the bulk of their exvessel revenues, have annual exvessel revenue greater than \$2,000 and would be constrained by the one to five mt exempted landings limit would probably be those most interested in purchasing a CPS finfish permit from a qualifying vessel.

Permit prices are likely to represent a significant portion of the capital available to vessels with annual exvessel revenues below \$2,000. It is doubtful that vessels with this level of annual exvessel revenue would be able to finance the purchase of a permit from their internal cash flow. Moreover, because transferability of a CPS finfish limited entry permit becomes highly constrained after the first year of the program, its value as an asset or collateral is greatly reduced. Therefore, external sources of permit financing would seemingly be extremely limited for vessels with annual exvessel revenues less than \$2,000. Participation in the CPS finfish fishery by the 12 non-qualifying vessels averaging more than one mt of CPS finfish landings per year, highly dependent on CPS finfish revenues, but with average total exvessel revenue less than \$2,000 per year, would appear to be in greatest jeopardy under the limited entry options selected by the Council, more so than any other vessel group.

Two percent of small business entities being forced to cease business

There were 12 non-qualifying vessels that depended on CPS finfish for more than five percent of their total exvessel revenues, averaging more than one mt of CPS finfish landings, and less than \$2,000 total exvessel revenue per year during 1993-1997. Given these circumstances, a one mt per trip exempted landing limit, and depending on the purchase price of a limited entry permit, these vessels could be forced to reduce their harvests of CPS finfish south of 39° N latitude under the limited entry options chosen by the Council. Twelve vessels is less than two percent of the affected population of 640 vessels.

Five of the 21 non-qualifying vessels that depended on CPS finfish for more than five percent of their total exvessel revenues, landed more than one mt of CPS finfish, and averaged less than \$2,000 total exvessel revenue per year during 1993-1997, had average CPS finfish landings greater than five mt per year. Under a five mt exempted landing limit, these vessels might be forced to reduce their harvests of CPS finfish south of 39° N latitude under the limited entry options chosen by the Council. Five vessels is less than one percent of the affected population, and less than one percent of the 570 vessels not qualifying for a CPS finfish limited entry permit under the chosen options.

During the 1993-1997 period there were 17 non-qualifying vessels that depended on CPS finfish for 100% of their exvessel revenue. Based on the number of years during the 1993-1997 period a vessel had CPS finfish landings, only six of these 17 vessels had average annual landings greater than five mt, but none of these six vessels had average annual CPS finfish landings greater than 18 mt, and only two out of the six vessels had average exvessel revenue greater than \$2,000 per year. Under these circumstances, a five mt per trip exempted landing limit, and depending on the purchase price of a limited entry permit, there might be at least four non-qualifying vessels that would be forced to reduce their harvests of CPS finfish south of 39° N latitude under limited entry. Four vessels is less than two percent of the 570 vessels that would not qualify for a CPS finfish limited entry permit under the limited entry options chosen by the Council, and less than one percent of the affected population.

Alternative analysis based on 1997 participation

Reduction in annual gross revenues by more than five percent

1997 is the most recent year for which complete CPS landings data are available. In 1997 there were 229 vessels landing 67,621 mt of CPS finfish south of 39° N latitude. Of the 172 vessels that would not qualify for a limited entry permit, only 44 depended on CPS finfish for five percent or more of their total exvessel fishing revenues in 1997. For the other 128 vessels, CPS finfish represented less than five percent of total annual revenue in 1997. Thus, the inability to land CPS over the exempted landing limits is not expected to reduce annual gross revenues by more than five percent for those 128 vessels.

The 44 non-qualifying vessels that depended on CPS finfish for five percent or more of their total exvessel fishing revenues in 1997 represented 19% of the 229 vessels that had CPS finfish landings in 1997. These vessels were relatively small harvesters that mainly used hook-and-line gear to land 268 mt of CPS finfish at a weighted average exvessel price of \$.23 per pound. This compares to 67,353 mt of CPS finfish landed by predominantly purse seine vessels at a weighted average exvessel price of \$.05 per pound. It would seem that these 44 vessels supply CPS finfish to high value speciality markets (e.g. fresh fish), although the disposition of these landings is unknown from fish tickets. However this does suggest that a particular segment of the CPS finfish fishery may be especially vulnerable to limited entry.

For each of the 44 vessels with more than five percent of their 1997 exvessel revenue from CPS finfish it was assumed that the number of days for which there were CPS finfish landings in 1997 equaled the number of CPS finfish trips. For two of these vessels it was not possible to derive the number of CPS finfish trips in 1997. Out of the remaining 42 vessels, 34 averaged one mt or less landings per trip and 40 averaged five mt or less landings per trip of CPS finfish. These 34 to 40 vessels (depending on the exempted landing limit) would likely be able to continue landing CPS finfish at the levels allowed under the proposed exempted landings limits. Out of the 42 vessels this leaves between eight (with CPS finfish landings greater than one mt

per trip in 1997) and two (with CPS finfish landings greater than five mt per trip in 1997) non-qualifying vessels that received more than five percent of their total exvessel revenue from CPS finfish and may be constrained by the one to five mt per trip exempted landings limit.

Two percent of small business entities being forced to cease business

Of the 44 non-qualifying vessels that depended on CPS finfish for more than five percent of their total exvessel revenue during 1997, 10 had total exvessel fishing revenue of less than \$2,000 for the year. Of the eight non-qualifying vessels that depended on CPS finfish for more than five percent of their total exvessel fishing revenue and landed more than one mt of CPS finfish during 1997, one had total exvessel revenue of less than \$2,000 for the year. This vessel averaged more than five mt of CPS finfish landings per trip, and depended on CPS finfish for most of its total exvessel revenue during 1997. Under a one to five mt per trip exempted landing limit, and depending on the purchase price of a limited entry permit, this vessel would probably be forced to substantially reduce harvests of CPS finfish south of 39° N latitude under the limited entry options selected by the Council.

Summary

The exempted landings provision significantly reduces the impact of CPS finfish limited entry on vessels that would fail to qualify for a limited entry permit under the options chosen by the Council. Based on landings and exvessel revenues for the 1993-1997 period there are 122 vessels, nearly 20% of the affected population, that would not qualify for limited entry permits, but depended on CPS finfish landings for more than five percent of their total exvessel revenues for the period. Therefore the impact of CPS finfish limited entry could be significant in terms of a "substantial number" of small entities potentially foregoing more than five percent of their annual gross revenues. However, average CPS finfish landings for these 122 vessels for the 1993-1997 period was 10 mt, or two mt per year. Given this low level of landings, even at one trip per year (two mt per trip), most of the 122 non-qualifying vessels would be allowed to continue landing CPS finfish under the proposed five mt exempted landing limit. If the exempted landing limit were one mt then up to 12 of the 122 vessels could be forced to reduce harvests south of 39° N latitude and, depending on per trip costs, could potentially be forced out of business because with annual total exvessel revenues less than \$2,000 it is doubtful that they could afford to purchase a limited entry permit. Twelve vessels is less than two percent of the affected population of 640 vessels.

The 70 vessels that would qualify for limited entry permits probably would not be significantly impacted in terms of expected revenues under limited entry options chosen by the Council. However, they do stand to receive a potential windfall, at least during the first year of the program, by being awarded a permit with a value on the open market.

Under the limited entry options selected by the Council, potential CPS finfish harvesting capacity would be reduced and capped by eliminating some vessels from the fishery -- non-qualifying vessels that land more than five mt per trip -- and preventing the entry of additional high volume vessels. Vessels that land minor amounts of CPS finfish would be able to continue fishing without a limited entry permit. Even though their share of total CPS finfish landings is expected to be minimal, landings by these vessels are important in terms of supplying high value speciality markets. However, this segment of the CPS finfish fishery appears less likely to become overcapitalized since specialized markets (e.g. fresh fish) are thought to be greatly limited.

Paperwork Reduction Act (PRA)

Limited Entry Forms

If a limited entry option is chosen by the Council and approved, vessel owners would be required to submit applications for permits to participate in the fishery. Permits would probably be fully transferable. The estimated costs of implementing a permit system are presented in Appendix C (see Section 1.4). Such a limited entry scheme would effect from 48 to 101 vessels, depending on the option chosen. Appendix C uses a mid-point of 75 vessels to arrive at the estimate of permit costs. As stated, the estimated cost of a permit is approximately \$43.00.

Two forms would be needed to implement the program, an application form and an official permit form. These two forms must be approved by the Office of Management and Budget before permits can be issued.

Permits are proposed to be renewed every two years; therefore, once the initial permits are issued, the number of annual respondents would be 38 ($75 \times \frac{1}{2}$). However, a figure of 10% was used to estimate the number of transfers that might take place during the year. This brings the number of annual respondents to 45 ($37.5 + 7.5$). There is one response required per individual, and the form would require about 30 minutes to complete, taking into consideration the necessary tasks such as gathering the data, as well as filling out the form. The total number of hours added to the reporting burden would be 22.5 hours ($45 \times \frac{1}{2}$ hr/response).

Maintaining the data base and to enter the required information during the year is estimated to require about 25 hours annually.

Vessel Markings

If limited entry is approved, federal regulations will require that all permitted vessels be identified by displaying each vessel's official number on the port and starboard sides of the deckhouse or hull, and on an appropriate weather deck so as to be visible from enforcement vessels and aircraft. The official number would be affixed to each vessel in block Arabic numerals at least 14 inches in height. This is a common marking procedure for U.S. fishing vessels. Approximately 15 minutes is required to paint each number on a vessel at the three locations. The total burden would be 56 hours ($75 \times \frac{3}{4}$ hr/vessel).

For the two requirements above, assuming they are approved, public comment is sought regarding whether the proposed collection of information and the time required to mark individual vessels is necessary. Comment is also sought on how the two tasks might be improved, especially regarding the potential of minimizing the burden on the fishing industry.

Executive Order 12612

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

Coordination and Consultation

Development of this Regulatory Impact Review (RIR) was coordinated with the Council's Coastal Pelagic Species Plan Development Team and staff, and NMFS scientists and managers. The options initially were identified by the Council at its March, April, and June 1998 meetings. Final action was taken at the September 1998 Council meeting in Sacramento, California.

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