FINAL
AMENDMENT 11

TO THE FISHERY MANAGEMENT PLAN FOR COMMERCIAL AND RECREATIONAL SALMON FISHERIES OFF THE COASTS OF WASHINGTON, OREGON, AND CALIFORNIA COMMENCING IN 1978

Incorporating the Environmental Assessment,
Regulatory Impact Review/Initial Regulatory Flexibility Analysis
and
Requirements of Other Applicable Law

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ACRONYMS

Council	Pacific Fishery Management Council
CWT	Coded–wire tag
CZMA	Coastal Zone Management Act
EA	Environmental Assessment
EEZ	exclusive economic zone
EIS	Environmental Impact Statement
ESA	Endangered Species Act
FMP	fishery management plan
KMZ	Klamath management zone (ocean zone between Humbug Mountain and Horse Mountain where management emphasis is on Klamath River fall chinook)
MFCMA	Magnuson Fishery Conservation and Management Act
MMPA	Marine Mammal Protection Act
MSY	maximum sustainable yield
NEPA	National Environmental Protection Act
NEV	net economic value
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPFMC	North Pacific Fishery Management Council
NPPA	Northwest Power Planning Council
OCN	Oregon coastal natural (coho)
ODFW	Oregon Department of Fish and Wildlife
OPI	Oregon production index
OY	optimum yield
PacFIN	Pacific Coast Fishery Information Network
PSC	Pacific Salmon Commission
PSTA	Pacific Salmon Treaty Act
RIR/IRFA	Regulatory Impact Review/Initial Regulatory Flexibility Analysis
SAS	Salmon Advisory Subpanel
SEIS	Supplemental Environmental Impact Statement
STT	Salmon Technical Team
WCZMP	Washington State Coastal Zone Management Program

EXECUTIVE SUMMARY

This document presents and analyzes the issues and impacts of Amendment 11 to the salmon fishery management plan of the Pacific Fishery Management Council. The proposed amendment was initially developed in April 1993 by ODFW. Following formal public hearings, the Council adopted it on November 16, 1993 for implementation by the Secretary of Commerce.

NEED AND PURPOSE

For the past three consecutive years (1991, 1992 and 1993), the Council has had to request an emergency rule to reduce the harvest rate on OCN coho in ocean salmon fisheries to properly manage this stock. Therefore, in April of 1993, the Council began development of Amendment 11 to:

1. address the failure of the seventh amendment to correctly anticipate the persistent low OCN coho stock abundance and subsequent frequency of annual spawner goals below MSY,

2. avoid possible imbalances in recreational coho harvest allocation at low allowable harvest levels and

3. avoid the constant use of an emergency rule to implement annual regulations.

PROPOSED ACTION

The Council developed one alternative for modifying the OCN coho spawning escapement goal and several recreational allocation alternatives for public review. During public review, the states of Oregon and California presented a joint state proposal. The Council's adopted proposal embodies the joint state proposal with minor modifications.

New OCN Coho Spawning Escapement Goal

The proposed new OCN coho spawning escapement goal maintains the MSY goal of the seventh amendment, but deletes the sliding scale portion of the old goal that allowed a reduction in the annual goal at stock sizes between 270,000 to 400,000 coho.

In the seventh amendment, the MSY spawning escapement goal was presented in terms of 200,000 total adult spawners. In the proposed new goal, the MSY level is presented in terms of 42 adults per mile in the Oregon coastal standard index survey areas. The 200,000 total adult escapement is an expansion of the number of spawners per mile by the total number of stream miles in which spawning occurs. Since the expansion could change in the future, the Council elected to state the goal in terms of the base number of adults per mile to avoid any confusion or need for further formal amendment.

While the new goal provides for a constant MSY escapement level, it allows for up to a 20 percent incidental harvest when stock sizes are below 250,000 coho. This is in recognition of the need to avoid precluding all other ocean fisheries that primarily harvest other stocks while having very minor impacts on OCN coho. This approach is similar to that used recently to allow some impacts on stocks listed under the ESA to prevent total closure of all fishing. Such a clause avoids the need to use emergency rules and clarifies, in advance, the management intent and constraints when the OCN stock is at very low levels of abundance. At very low stock sizes, the amendment requires the Council to use the minimum incidental harvest rate necessary to prosecute other fisheries while assuring that no irreparable harm will be done to the OCN stock.

Recreational Allocation

The proposed amendment makes no changes to the current allocation considerations in the salmon management plan, except with regard to the recreational fishery when the allowable recreational coho allocation south of Cape Falcon is equal to or less than 167,000 coho. At that relatively low level of harvest, two subareas with separate quotas would be created to ensure that a large southward shift in the recreational harvest would not occur.

The subareas created and their harvest shares are as follows:

A. Central Oregon (Cape Falcon to Humbug Mountain) 70 percent

B. South of Humbug Mountain - 30 percent

In addition,

1. Horse Mountain to Point Arena will be managed for an impact guideline of 3 percent of the south of Cape Falcon recreational allocation, and

2. there will be no coho harvest constraints south of Point Arena. However, the projected harvest in this area (which averaged 1,800 coho from 1986–1990) will be included in the south of Humbug Mountain impact quota.

3. Coho quota transfers can occur on a one–for–one basis between subareas if chinook constraints preclude access to coho.

IMPACT

The impact of the Council's proposed change in the spawning escapement goal should be to provide better protection for the genetic diversity of the OCN stock, reduce the probability that the stock will require listing under the ESA and allow it to rebound more quickly when favorable

environmental conditions occur. The spawning escapement goal amendment is likely to reduce coho harvest in the short-term while increasing it over the long-term. The amendment should reduce the need for emergency rules.

The allocation provisions of the proposed amendment should help maintain the historic average harvest distribution of coho during times of low allowable harvest.

INTRODUCTION

This document presents and analyzes the impacts of the proposed eleventh amendment to the "Environmental Impact Statement and Fishery Management Plan for Commercial and Recreational Salmon Fisheries Off the Coasts of Washington, Oregon and California Commencing in 1978". It is the fifth amendment since the FMP was converted into a framework plan in 1984. The amendment deals with the choice of a spawning escapement goal and recreational harvest allocation relating to the management of Oregon coastal natural (OCN) coho *Oncorhynchus kisutch*.

The description of the proposed amendment which follows, incorporates or summarizes the major elements analyzed by a RIR/IRFA and EA. Appendix A of this document contains or references the information required for a structurally complete EA and Appendix B contains the detailed impact information necessary to complete an RIR/IRFA. Appendix C contains a review of the amendment's consistency with federal and state coastal zone management programs and Appendix D provides a review of other applicable law.

MANAGEMENT OF OCN COHO

The term OCN coho designates a stock aggregate comprised of the naturally produced coho salmon from Oregon coastal streams. This stock aggregate constitutes the largest proportion of naturally produced coho salmon caught in ocean salmon fisheries off Oregon and California. In that regard, OCN coho are important contributors to the ocean harvest and generally set the allowable coho harvest rate for combined natural and hatchery production in any given year for the area south of Cape Falcon, Oregon. The OCN coho stock is part of the aggregate of hatchery and naturally produced coho south of Leadbetter Point, Washington which is referred to as the OPI area (Figure 1).

CURRENT FMP MANAGEMENT OBJECTIVES

Spawning Escapement Goal

Salmon Framework FMP (Council 1984)

- Specific rebuilding schedule to achieve a spawning escapement goal of 200,000 naturally spawning adult coho of OCN coho stocks by 1987 and every year thereafter.

The stock–recruitment relationship for coho from Oregon coastal rivers indicates that an **escapement level of 200,000 would approximate MSY** (ODFW 1982) and contribute to optimizing overall harvest of hatchery and natural production in ocean fisheries off Oregon and California.

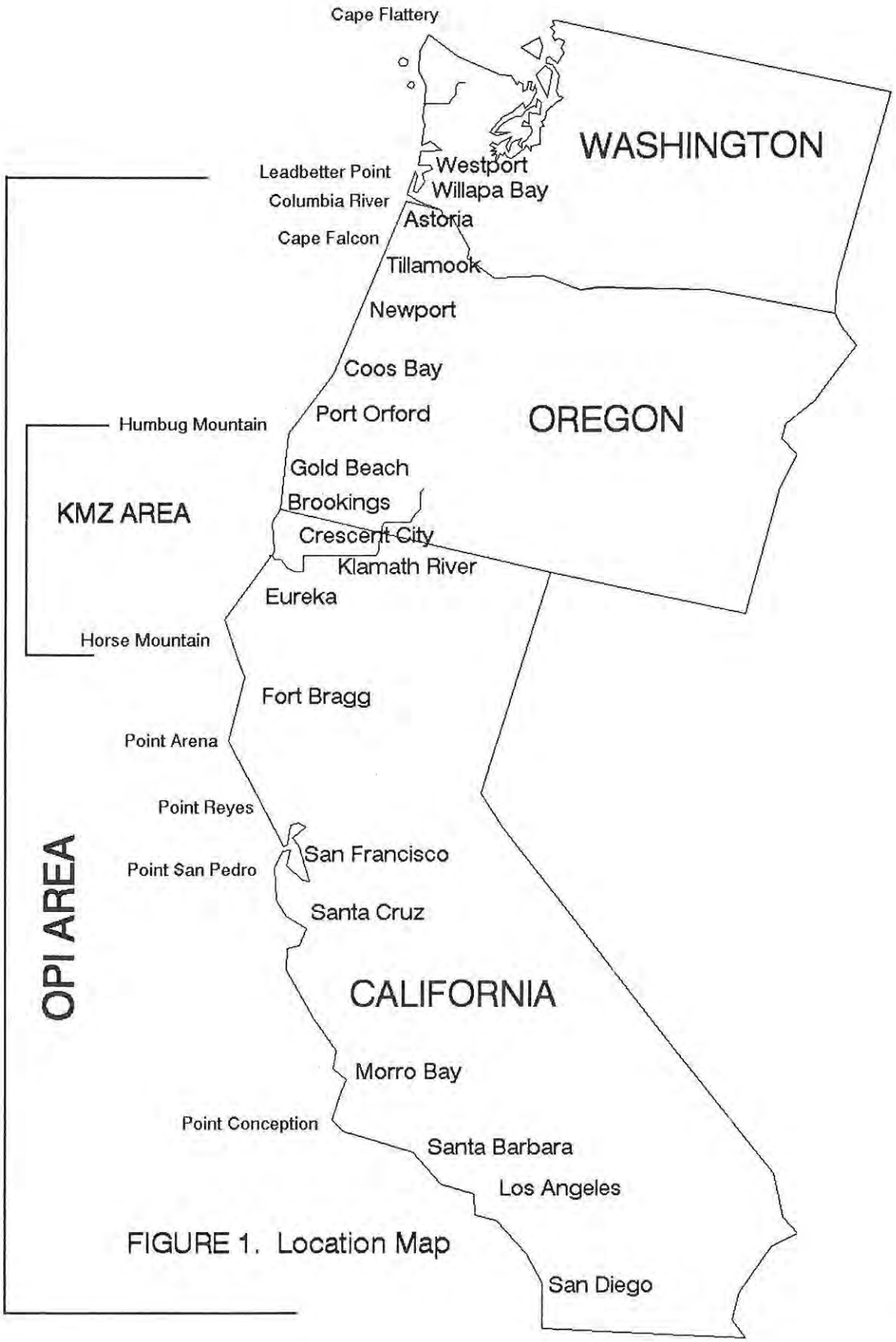

FIGURE 1. Location Map

From 1984 through 1986, the postseason estimate of OCN spawning escapement showed significant and consistent improvement over the previous 12 years and exceeded the rebuilding schedule goal each year.

Seventh Amendment to the FMP (Council 1986)

- Allows for a deviation from the fixed 200,000 goal at OCN abundance levels below 400,000. Specifically, the spawning escapement goal is set at one-half the stock size when OCN stock abundance is predicted to be between 270,000 and 400,000 coho.

This deviation was added to allow some harvest to occur in years when unusual conditions, such as the 1983 El Niño, might temporarily reduce stock abundance below 400,000. An analysis completed in the seventh amendment indicated such a goal increased economic benefits with a **low likelihood that occasionally allowing the spawning escapement to drop even to the floor level of 135,000 would jeopardize the continued productivity of the OCN stock.** The seventh amendment was implemented in 1987 and is the current FMP goal. [**Note**: in the 1986 management regime, the Council utilized a deviation similar to the seventh amendment]

Harvest Allocation

To help achieve optimum yield from the coho fisheries, the salmon framework FMP established:

- a specific schedule for the overall allocation of coho harvest between commercial and recreational fisheries south of Cape Falcon (modified by the seventh amendment primarily to provide more harvest to the recreational sector at low levels of abundance), and

- management considerations for developing subarea allocations south of Cape Falcon.

The management considerations which may be used to establish subarea quotas include the need to control stock specific impacts, especially on depressed natural stocks; respond to stock abundance levels and relative abundance of chinook and coho; meet escapement goals; maximize harvest and meet allocation considerations of concern to the Council. However, the FMP specifically **exempts closure of the recreational fishery for coho south of the Oregon-California border when the recreational coho quota south of Cape Falcon is reached.**

NEED AND PURPOSE FOR ASSESSING OCN COHO MANAGEMENT

Significant and Extended Depression of the Stock

The analysis in the seventh amendment, supporting deviation from the fixed 200,000 spawning escapement at low stock sizes, assumed such deviations would occur infrequently (see page B-5, Council 1986). However, since 1985 the annual spawning escapement **goal has been set below the 200,000 MSY level 50 percent of the time** (Table 1).

Based on estimates of the stock-recruitment relationship constructed from data collected in 1950 through 1968, the expected stock size of mature OCN coho at the MSY level of production should, on average, exceed 700,000 salmon (ODFW 1982). From 1970 through 1979, postseason

TABLE 1. Adult spawning escapement and total stock abundance of OCN coho stocks, rivers and lakes combined in thousands of fish.

Year of Adult Return	Spawning Goal[a/]	Spawning Escapement[b/]	Total Stock Abundance[c/]	
			Preseason Estimate	Postseason Estimate
1970	–	249.5	–	664.1
1971	–	324.0	–	1450.7
1972	–	127.7	–	669.8
1973	–	162.3	–	734.6
1974	–	133.3	–	703.6
1975	–	159.1	–	673.7
1976	–	162.1	–	1288.5
1977	–	67.8	–	476.3
1978	–	76.7	–	379.6
1979	–	173.8	–	645.2
1980	–	110.7	–	358.1
1981	175	77.0	–	357.8
1982	172	131.9	–	323.9
1983	140	59.8	–	236.7
1984	135	207.5	–	290.5
1985	175	191.1	302.6	311.3
1986	143[d/]	190.8	304.0	286.1
1987	200	82.5	476.0	192.5
1988	200	160.8	480.3	343.4
1989	200	144.5	446.2	306.5
1990	161[e/]	104.0	321.0	276.2
1991	200	135.5	421.9	243.4
1992[f/]	135[e/]	131.4	265.7	244.1
1993[f/]	142	–	283.3	–

a/ Council goal initially established in 1981 to rebuild OCN stocks and amended in 1987 (Amendment 7) to provide a range of 135,000 to 200,000 coho.

b/ Spawning escapements prior to 1985 were calculated using complete OCN spawning habitat mileage (streams and lakes combined) and based on a coastwide average adult–spawners–per–mile value observed for streams. Estimates since 1985 are calculated by individual coastal river basins with adult–spawners–per–mile values calculated for each basin separately.

c/ Calculated as: ocean escapement/(1–OPI ocean harvest rate).

d/ Salmon framework amendment rebuilding goal of 170,000 was modified by the Council for optimum yield considerations.

e/ Reflects Council framework amendment spawning goal (Amendment 7).

f/ Preliminary.

estimates of stock size averaged over 750,000 salmon. Since 1979, the postseason estimate of OCN coho stock size has not been above 360,000 salmon. **During this same period the spawner escapement has met or exceeded 200,000 coho in only one year, 1984.**

The reasons for the extended stock depression are not completely understood. In 1992, a stock status review under the Council's procedures to determine the occurrence of overfishing, as required by Amendment 10, determined that freshwater habitat was underseeded. Other factors identified as contributing to the decline of OCN coho in this review included widespread and significant degradation of freshwater habitat, a 15–year trend of poor oceanic conditions and overestimation of stock abundance (Council 1992b).

To help assure achievement of annual spawner goals and improve seeding of freshwater habitat, the Council modified its abundance estimation methods (in 1992) and recommended emergency action in 1991, 1992 and 1993 which reduced the harvest rate on OCN coho. These actions are documented in the Council's annual preseason reports, primarily in report III of each year (Council 1991, 1992a and 1993).

In July of 1993, NMFS was petitioned by several conservation and environmental groups to list 40 populations of Oregon wild coho salmon under the federal ESA. These populations include OCN coho stocks which appear to be in a consistent and significant depression. NMFS is currently conducting a comprehensive status review that will assess coho salmon populations in Washington, Oregon and California.

Further refinement of data used to manage OCN coho is being pursued by ODFW. The department is in the fourth year of a five year study to confirm the relationship between the number of natural spawners counted in standard index survey areas (48 different stream sections) and the total OCN spawning population (Cooney and Jacobs 1993). This study may provide a better definition of the total OCN spawning population when it is completed and the results may need to be incorporated into the Council's OCN coho management. However, to avoid further emergency rules, it is not possible to wait until the study is completed before correcting the salmon plan.

Harvest Allocation Effects at Low Stock Size

The usual coho migration pattern for maturing Oregon coastal stocks and early Columbia River hatchery stocks brings them along the northern California and Oregon coasts as they migrate northward toward their natal streams. Therefore, coho landings in California and southern Oregon (those south of Humbug Mountain) tend to occur early in the season and taper off rather quickly after July. The 1986–1990 average harvest by month south of Humbug Mountain Oregon indicates 84 percent of the season total recreational coho landings and 91 percent of the troll coho landings occur prior to August 1 (Table 2). Central Oregon fisheries generally reach their peak coho landings in July and August and the fish are available for harvest well into September.

TABLE 2. South of Humbug Mountain coho harvest distribution by month, 1986–1990.

Recreational		May	June	July	August	September	Season
	KMZ[a/]	1.1	12.4	32.0	7.6	0.9	54.0
	South of KMZ	0.3	1.3	2.4	0.8	0.2	5.0
	Total	1.4	13.7	34.4	8.4	1.1	59.0
	Percent	2.4	23.2	58.3	14.2	1.9	–
Troll		May	June	July	August	September	Season
	KMZ	–	12.1	1.9	0.1	0.9	15.0
	South of KMZ	–	15.5	17.9	3.5	0.3	37.2
	Total	–	27.6	19.8	3.6	1.2	52.2
	Percent	–	52.9	37.9	6.9	2.3	–

a/ The KMZ is the Klamath management zone which extends from Humbug Mountain, Oregon on the north to Horse Mountain, California on the south.

The FMP limitation on closing the recreational coho fishery off California was adopted at a time when coho quotas and fishing seasons were relatively liberal. In this situation allocation was not a significant issue. The impacts of allowing the California recreational fishery to continue after the south of Cape Falcon coho quota was met (usually after mid–August) were minor as the season was near an end and coho catches were generally very low south of Humbug Mountain.

As the coho quota and overall harvest rates have been reduced by the depression of coho abundance, there is concern that the inability to implement closures or other restrictions south of Oregon could lead to a shift of the coho allocation to southern Oregon and California fisheries. The earlier fisheries to the south could take most of a small quota prior to the time the fish become readily available off central Oregon. In addition, earlier closures off central Oregon will increase the length of the season south of Horse Mountain for which coho harvest must be projected. This will add more uncertainty to achieving the spawner escapement and harvest allocation goals. Nearly one–half of the recreational impacts on OCN coho occurred south of Humbug Mountain during the 1986–1990 seasons (Figure 2).

The 1993 season is an example of how the harvest allocation can be significantly skewed at low total allowable harvest levels. In 1993 there were 68,000 coho available for the recreational fishery south of Cape Falcon and the season off Central Oregon had to be closed on August 10. In comparison, from 1976–1992 the recreational coho harvest south of Cape Falcon averaged over 200,000 coho. In this same period, the harvest south of Humbug Mountain averaged less than 25 percent of the total coho harvest south of Cape Falcon (Table 3). However, in 1993 about 56 percent of the recreational coho harvest was taken south of Humbug Mountain (with 25 percent occurring south of Horse Mountain). The total harvest south of Humbug Mountain might have been greater had not the fishery between Humbug and Horse mountains been reduced to four days per week, limited by a one–fish bag limit and closed for nearly one month in the middle of the season to reduce impacts on both Klamath River fall chinook and OCN coho.

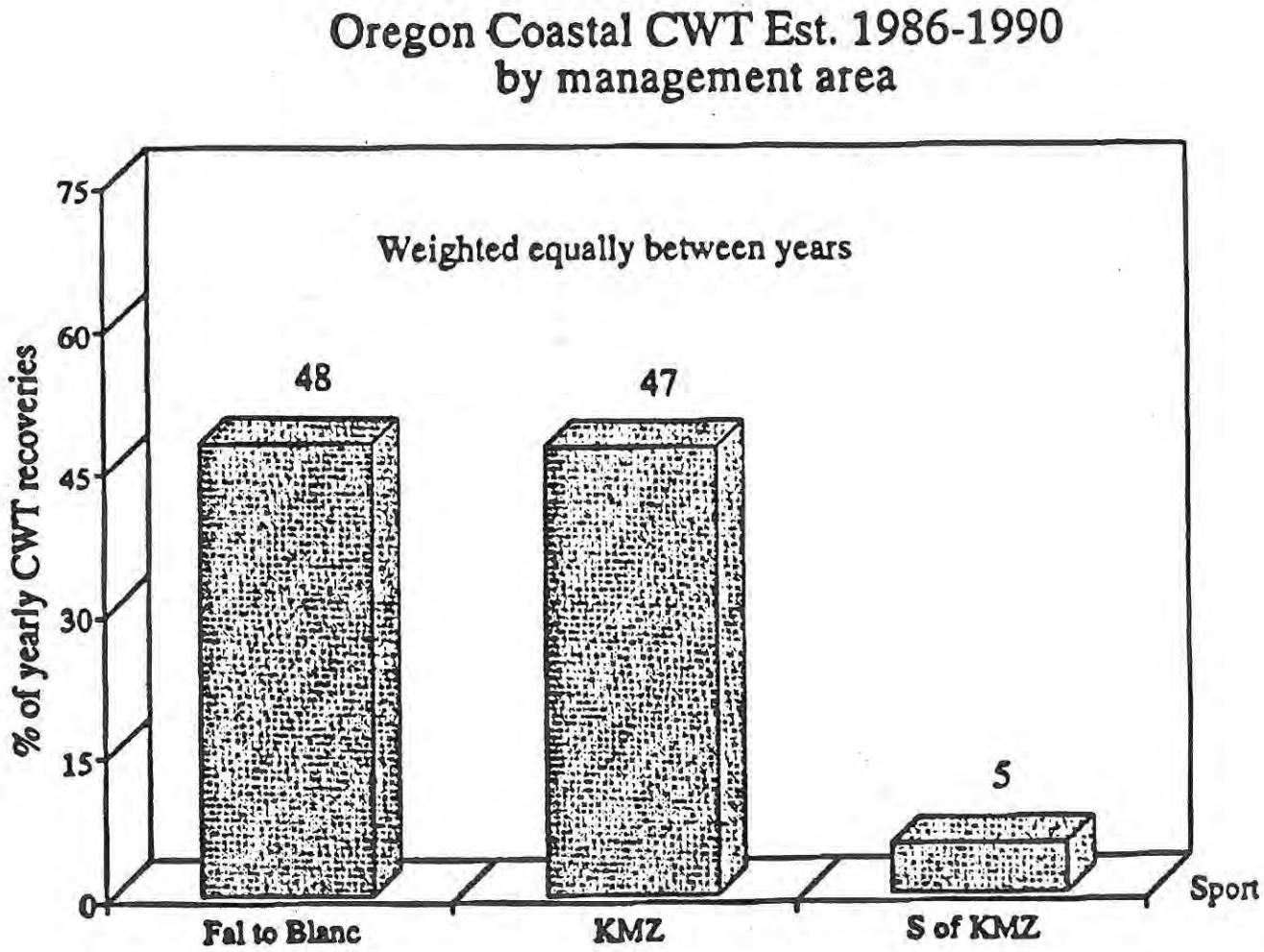

FIGURE 2. Recoveries of coded-wire-tagged Oregon coastal coho in recreational ocean salmon fisheries by management area. The management areas are: (1) Cape Falcon to Cape Blanco (which is less than 15 miles north of Humbug Mountain), (2) the KMZ (Humbug Mountain south to Horse Mountain) and (3) south of the KMZ.

TABLE 3. South of Cape Falcon recreational coho harvest, 1976–1992 (catch in thousands of fish).

	Cape Falcon to Humbug Mountain		KMZ		South of Horse Mountain		Total South of Cape Falcon
Year	Catch	%	Catch	%	Catch	%	Catch
1976	331.9	75	88.2	20	21.2	5	441.2
1977	119.2	81	24.4	17	3.0	2	146.6
1978	152.6	63	85.1	35	3.1	1	240.9
1979	124.6	76	37.5	23	1.9	1	164.1
1980	237.2	81	52.6	18	1.6	1	291.4
1981	137.2	88	16.7	11	2.2	1	156.1
1982	122.7	74	40.1	24	3.5	2	166.3
1983	93.3	68	41.3	30	2.3	2	136.9
1984	100.3	77	29.0	22	1.4	1	130.7
1985	144.0	86	22.2	13	1.1	1	167.3
1986	163.1	84	28.5	15	2.0	1	193.5
1987	134.7	68	62.2	31	2.6	1	199.4
1988	201.4	80	46.2	18	3.5	1	251.1
1989	205.0	71	77.9	27	4.8	2	287.6
1990	149.1	70	54.4	26	8.7	4	212.1
1991	197.5	68	62.3	22	29.2	10	289.0
1992	160.3	91	9.7	6	5.2	3	175.2
1993	30.9	44	21.4	31	17.1	25	69.3
Average							
76–80	193.1	75	57.5	23	6.2	2	256.8
81–85	119.5	79	29.8	20	2.1	1	151.5
86–90	170.6	75	53.8	23	4.3	2	228.7
76–92	163.2	77	45.8	21	5.7	2	214.7

Given this situation and the current consistently low harvest levels, it may be necessary to enact subarea quotas or guidelines off California (as well as Oregon) and close the recreational fishery to coho retention when the quotas are met to assure attainment of equitable harvest allocation. Skewed harvest distributions may also result from variations in annual regulations. In 1992 the area north of Humbug Mountain took 91 percent of the recreational coho harvest. This significant increase over the average percent was due primarily to the extremely reduced seasons between Humbug and Horse mountains to protect Klamath River fall chinook. The season reductions for chinook also significantly reduced coho harvest.

Summary

Degradation of freshwater habitat, poor ocean survival conditions and overestimation of abundance have all been major contributors to the depressed status of the OCN stock. The current prolonged depression, which has persisted since the early eighties, and abundance estimation problems were not anticipated in the Council's seventh amendment which allows for reduced spawning escapements when the stock abundance is projected to be below 400,000 coho.

The Council has taken steps to improve its OCN abundance estimation and incorporated them into annual quota development. However, actions outside the scope of the Council's annual management measures are necessary to restore freshwater productivity and it is unknown when ocean conditions will become more favorable. In this situation, the Council has relied on emergency rules which have reduced the harvest rate on OCN coho during each of the past three years in an attempt **to adequately seed freshwater habitat and prevent long-lasting damage to the productivity of OCN coho.** Rather than continue in this annual emergency mode, the Council requests consideration of an amendment to the FMP to

1. address the failure of the seventh amendment to correctly anticipate the persistent low OCN coho stock abundance and subsequent frequency of annual spawner goals below MSY,

2. avoid possible imbalances in coho harvest allocation at low allowable harvest levels and

3. avoid the constant use of an emergency rule to implement annual regulations.

PROPOSED ACTIONS AND ALTERNATIVES

To address the immediate problems with OCN coho management, the Council proposed consideration of three basic alternatives to the status quo in Draft Amendment 11. These alternatives are labeled A, B and C. In addition, at the public hearings, the states of Oregon and California jointly proposed an additional alternative which, with minor modifications, was adopted by the Council. All four alternatives are described below and contrasted in Table 4.

TABLE 4. Comparison of Alternatives for OCN Coho Management. Allocations and quotas apply only to fisheries south of Cape Falcon.

Consideration		Status Quo	Alternative A	Alternative B	Alternative C	Adopted Alternative
OCN Spawning Escapement Goal		(1) MSY goal of 200,000 adults with (2) 50 percent directed harvest rate for stock sizes below 400,000 to 270,000 (results in spawner escapement floor of 135,000) and (3) no guidance for "incidental" harvest at stock sizes below 270,000	(1) MSY goal of 42 adult spawners per mile in standard coastal index survey areas (equivalent to 200,000 adults) with (2) up to a 20 percent "incidental" exploitation rate below stock sizes of 250,000			Same as Alternatives A, B and C; except when expected spawning escapement is equal to or less than 28 adults per mile, Council may allow only mimimum incidental harvest to prosecute other fisheries that will cause no irreparable harm to the OCN stock.
Troll	Subarea Harvest Allocations	Optional to meet management objectives.				
	Closure of Subareas to Coho Retention	Optional to meet management objectives.				
	At Attainment of Allocation	All fisheries close to retention of coho.				
Sport	Subarea Harvest Allocations	Optional to meet management objectives.			Creates 3 major subareas, based on historic harvest pattern with specified inseason transfer of harvest among subareas.	Same as status quo; except when sport allocation is 167,000 or less, establishes 2 major subareas to limit deviation from historic harvest pattern. Limited inseason transfers.
	Closure of Subareas to Coho Retention	Not allowed in recreational fisheries off California. Optional in fisheries north of California to meet management objectives.		Optional. May be used in all subareas to meet management objectives.	Required when subarea harvest guidelines are met. Guidelines may be adjusted inseason.	Same as status quo; except when sport allocation is 167,000 or less, closure is an option north of Pt. Arena to meet subarea impact quota.
	At Attainment of Allocation	Coho retention cannot be prohibited in recreational fisheries off California, but projected catches to end of season are included in calculation of allocation attainment.		Coho retention ceases in all fisheries.	Recreational seasons close north of Horse Mt. Coho retention ceases south of Horse Mt.	Same as status quo; except when sport allocation is 167,000 or less, seasons must close north of Pt. Arena upon attainment of their respective subarea impact quotas.

Status Quo

Continue to manage the OCN coho stock under the current FMP objectives for spawning escapement and harvest allocation. The operative paragraphs of the current spawning escapement goal (paragraphs one and two of Section 3.5.1.1. of the FMP as modified by Amendment 7) state:

* * *

> The ocean escapement goals for OPI area coho stocks are to achieve a natural spawning escapement of 135,000 to 200,000 adult coho to Oregon coastal streams (depending upon stock abundance as outlined below) and to provide for treaty obligations, inside harvest opportunities, and hatchery requirements.
>
> For OCN coho, the spawning escapement goal is 135,000 for stock sizes of up to 270,000. Between stock sizes of 270,000 and 400,000; the spawning escapement goal will be one-half the stock size. For stock sizes above 400,000; the escapement goal will be 200,000.

* * *

The operative paragraphs of the current FMP prescribing how subarea allocations should be considered state (beginning at the fourth paragraph of Section 3.7.1.1. of the FMP as modified by Amendment 7):

* * *

> The allowable harvest south of Cape Falcon may be further partitioned into subareas to meet management objectives of the FMP. Allowable harvests for subareas south of Cape Falcon will be determined by an annual blend of management considerations including:
>
> 1. controlling ocean harvest impacts on depressed viable natural stocks within acceptable maximum allowable levels, as determined by the Council's guidelines
> 2. stock abundance
> 3. allocation considerations of concern to the Council
> 4. stock specific impacts within a species
> 5. relative abundance of chinook and coho in the fishery
> 6. escapement goals
> 7. maximizing harvest potential
>
> Troll coho quotas may be developed from the Oregon-California border to the management boundary separating Sacramento and Klamath River chinook stocks, or for other subareas south of Cape Falcon consistent with the above criteria. California recreational catches of coho would be included in the recreational quota

south of Cape Falcon, but the area south of the Oregon–California border would not close when the quota is met. Beyond this, no specific allocation between troll and recreational fisheries is proposed for California.

* * *

Alternative A – Constant MSY Spawning Escapement Goal

Under this alternative, the Council would return to the concept of a constant MSY spawner goal for OCN coho as provided in the 1984 framework plan, with the addition of up to a 20 percent exploitation rate at OCN stock sizes below 250,000. The addition of the incidental harvest allowance avoids the need for emergency rules to allow some beneficial ocean fishing in years when OCN stock sizes are very low and the constant MSY goal would allow for zero impacts on OCN coho. This allowance at very low exploitation levels prevents complete closure of all ocean fisheries and is consistent with actions occurring under recent consultations on stocks listed under the ESA.

Several methods were used to estimate the MSY spawning escapement level for OCN coho. The framework plan spawning escapement goal of 200,000 coho was actually a rounded expansion of the number of naturally spawning adults per mile in standard index stream areas surveyed by ODFW each year since 1950 (i.e., expanded by the total number of miles of streams in which spawning occurred). An ODFW study of coastal stream spawning escapements and subsequent production from 1950 through 1980 (Beidler *et al.* 1980), documented 42 adult spawners per mile in the standard survey streams as representative of the estimated MSY spawning escapement level. A description of the standard index stream areas surveyed for the spawner counts (48 stream sections at present) can be found in McGie (1986).

Given the ongoing ODFW study to better define the expansion of spawner counts to total spawning population (Cooney and Jacobs 1993), the operative goal in this alternative will be the base number MSY level of adults per mile (42) rather than the expanded total number of adults (200,000). Figure 3 displays the total fish per mile in perspective to the 42 fish per mile goal for the period 1981 through 1992.

The OCN coho spawner escapement goal would be stated as follows (replacing paragraphs one and two of Section 3.5.1.1.):

> The ocean escapement goals for OPI area coho stocks are to achieve an aggregate OCN adult spawning density of 42 adult spawners per mile in Oregon coastal "standard" index survey areas each year and to provide for treaty obligations, inside harvest opportunities, and hatchery requirements.
>
> For OCN coho, the yearly spawning escapement goal shall be based on enough spawners to achieve, in aggregate, 42 naturally spawning adults per mile in ODFW's "standard" coastal index survey areas. This goal is equivalent to 200,000 naturally–spawning adults for Oregon coastal habitat, as documented in current data sets used by the Council, and meets the long–term MSY goal established by the ODFW for this stock. The annual numerical escapement goal is 200,000 adult

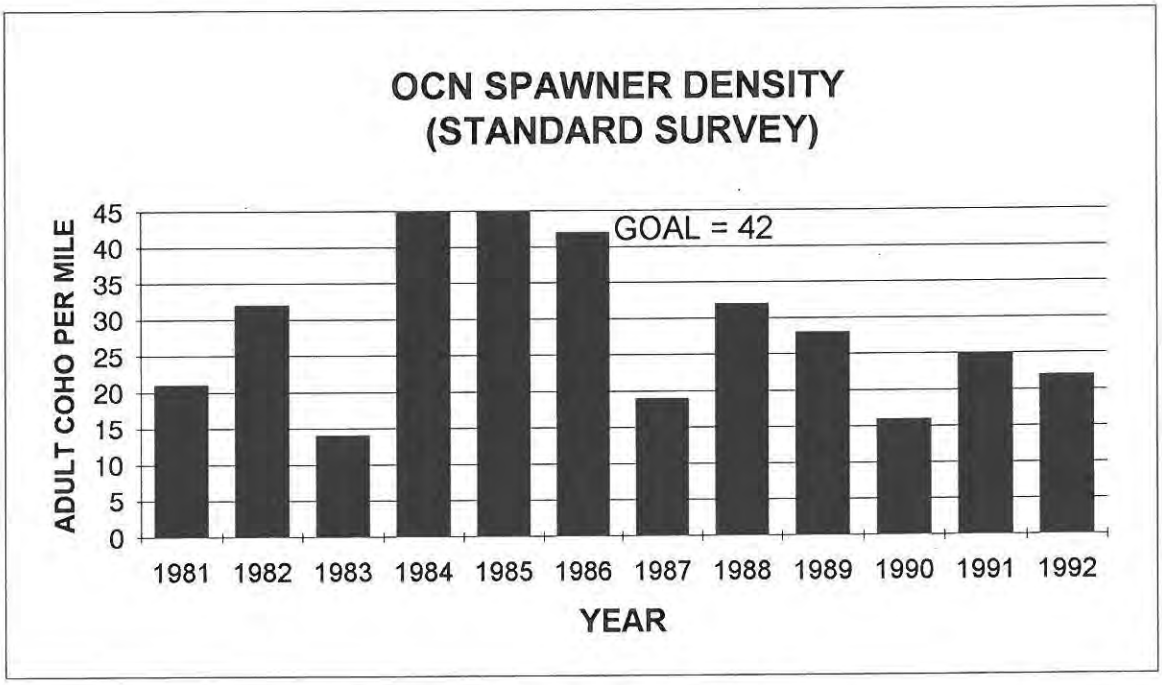

FIGURE 3. Number of adult OCN coho spawners per mile in Oregon's standard index stream areas.

coho. This goal may be reevaluated when Oregon completes revision of its Comprehensive Coho Management Plan.

Below a yearly OCN stock abundance of 250,000 adults, up to a 20 percent "incidental impact" exploitation rate will be allowed for the combined ocean troll, sport and freshwater fisheries targeting on non-OCN salmon stocks (e.g., to allow ocean fisheries north of Cape Falcon, troll and sport fisheries targeting on chinook off California and Oregon, or other selective fisheries that may be possible in the future through the use of such tools as the marking of hatchery fish).

Under this alternative, no change would be made in the harvest allocation criteria in the present FMP (status quo).

Alternative B - Constant MSY Spawning Escapement Goal and Closure of All Coho Fishing Upon Attainment of the Overall Coho Quota

Alternative B would be the same as Alternative A, except the Council would require that all fisheries cease landing of coho upon attainment of the overall troll and recreational coho **harvest** quotas south of Cape Falcon. Under the current FMP, the recreational fishery south of the Oregon-California border does not close for coho when the overall recreational coho harvest quota is met. The last paragraph of Section 3.7.1.1. would be modified appropriately to reflect this change as follows:

> Impacts (catch plus hook-and-release mortality in single species fisheries or fisheries with special landing ratios) from all commercial or recreational fisheries south of Cape Falcon will be counted toward their respective total allowable impact. All commercial or recreational fisheries will close to the landing of coho upon attainment of their respective overall commercial or recreational harvest quota.

In combination with the present FMP subarea allocation considerations, the new wording of the last paragraph in Section 3.7.1.1. (proposed above) would allow harvest allocations to limit any subarea fisheries established south of Cape Falcon for the purpose of meeting FMP management objectives.

Alternative C - Constant MSY Spawning Escapement Goal with Recreational Subarea Allocation Guidance

Alternative C would be the same as Alternative B, except there would be more explicit guidance for establishing **recreational** subarea allocations for all recreational fisheries south of Cape Falcon. This guidance could be treated as explicit directives of the FMP requiring plan amendment for any deviations, or as conceptual guidance subject to some modification in the Council's preseason process. The last paragraph in Section 3.7.1.1. would be replaced with the following paragraphs:

Impacts (catch plus hook–and–release mortality in single species fisheries or fisheries with special landing ratios) from all commercial or recreational fisheries south of Cape Falcon will be counted toward their respective total allowable impact. All commercial or recreational fisheries will close to the landing of coho upon attainment of their respective overall commercial or recreational harvest quota. The recreational fishery will be further guided by the following criteria.

Management of the **recreational** subarea allocations will be based on the 1976–1992 average coho harvest pattern for three major subareas south of Cape Falcon (Table 3). The harvest pattern has varied significantly from year to year due to variations in management regulations and the natural abundance and availability of coho. These variations will be considered in setting preseason allocation guidelines and in any proposed inseason modification of the guidelines. The major subareas and management criteria are:

Cape Falcon to Humbug Mountain – The season will close upon the earliest attainment of the subarea coho guideline, the south of Cape Falcon coho quota or the season ending date.

Humbug Mountain to Horse Mountain (KMZ) – The season will close upon the earliest attainment of the subarea coho guideline, the KMZ chinook quota, the overall south of Cape Falcon coho quota or the season ending date.

South of Horse Mountain – The fishery will be managed so as not to exceed the subarea coho impact guideline. Actions taken could include a restriction on coho retention or other appropriate measure to limit coho impacts. Coho retention would cease upon attainment of the overall south of Cape Falcon coho harvest quota.

Impact Transfers Between Subareas – Subarea guidelines could be adjusted inseason when preseason allocated impacts are not entirely needed by a subarea or if a subarea exceeds its allocation prior to management action. In either case, the Council would proceed under the criteria provided below. These criteria are based roughly on harvest impact data from the years 1979–1981 and may be modified without plan amendment upon recommendation of the STT and approval of the Council.

1. Transfers between all subareas south of Humbug Mountain will be made on a 1:1 basis.

2. Transfers between subareas north and south of Humbug Mountain will be made at a ratio of 2:1 (i.e., multiplied by 2 when going from south to north and by 0.5 when transferred from north to south).

Adopted Alternative (Joint Recommendation of Oregon and California)

Spawning Escapement Goal

The OCN coho spawning escapement goal of the Adopted Alternative is nearly identical to that proposed in Alternative A. As in Alternative A, the goal would be 42 natural adult spawners per mile in the standard index areas, but only up to a 20 percent exploitation rate would be allowed at OCN stock sizes below 250,000 as calculated under the expansion formula used by Beidler *et al.* (1980). The differences from Alternative A occur in the description of the incidental harvest at low stock sizes in the third paragraph of the proposed amendment language (below) and consist of:

1) A restatement of the stock size at which the incidental harvest rate applies that is designed to avoid any confusion about the stock size at which only an incidental harvest is allowed if the expansion of the 42 spawners per mile changes in the future.

2) A more general statement of the fisheries which might be allowed to proceed under an incidental harvest rate. This allows the Council flexibility to respond to the overall harvest management needs when the incidental harvest is invoked without limits that may be outdated or misguided by our lack of knowledge at this time.

3) A higher standard of review with regard to the magnitude of the incidental harvest rate when the spawning escapement is expected to be at 28 or less spawners per mile (28 spawners per mile equates to the current FMP floor level of 135,000 spawners).

The goal would be stated as follows (replacing paragraphs one and two of Section 3.5.1.1.):

* * *

~~The ocean escapement goals for OPI area coho stocks are to achieve a natural spawning escapement of 135,000 to 200,000 adult coho to Oregon coastal streams (depending upon stock abundance as outlined below) and to provide for treaty obligations, inside harvest opportunities, and hatchery requirements.~~

~~For OCN coho, the spawning escapement goal is 135,000 for stock sizes of up to 270,000. Between stock sizes of 270,000 and 400,000, the spawning escapement goal will be one-half the stock size. For stock sizes above 400,000, the escapement goal will be 200,000.~~

*** Proposed New Addition ***

The ocean escapement goals for OPI area coho stocks are to achieve an aggregate OCN adult spawning density of 42 adult spawners per mile in Oregon coastal "standard" index survey areas each year and to provide for treaty obligations, inside harvest opportunities and hatchery requirements.

For OCN coho, the yearly spawning escapement goal shall be based on enough spawners to achieve, in aggregate, 42 naturally spawning adults per mile in

ODFW's "standard" coastal index survey areas. This goal is equivalent to 200,000 naturally-spawning adults for Oregon coastal habitat, as documented in current data sets used by the Council, and meets the long-term MSY goal established by ODFW for this stock. This goal may be reevaluated when Oregon completes revision of its Comprehensive Coho Management Plan.

Below a yearly OCN stock abundance that is 125 percent of the annual numerical escapement goal (an abundance of 250,000 at the present spawner escapement goal of 200,000 adults), up to a 20 percent exploitation rate will be allowed for incidental impacts of the combined ocean troll, sport and freshwater fisheries. When the predicted spawner escapement is less than or equal to 28 coho per mile in standard index areas, the Council may allow an incidental exploitation rate of up to 20 percent that will provide only the minimum incidental harvest necessary to prosecute other fisheries, and which under no circumstances will cause irreparable harm to the OCN stock.

* * *

Allocation

Under this proposal, there would be no change to the current allocation considerations and management abilities, except with regard to the recreational fishery when the allowable recreational coho allocation south of Cape Falcon is equal to or less than 167,000. At that relatively low level of harvest, two subareas with separate quotas would be created to ensure that a large southward shift in the recreational harvest would not occur.

The choice of 167,000 as the trigger is significant in that (1) it represents a rather low harvest level in which the historical harvest pattern may be subject to a southward shift due to the timing of normal fishery seasons and the marine migratory route of the coho and (2) it is the upper limit of the recreational allocation that is subject to reduction to meet hook-and-release mortality in the troll all-salmon-except-coho fishery.

Including some purely clarifying edits in the second full paragraph below, this proposal would modify the operative paragraphs of the current FMP with regard to subarea allocations as follows (beginning at the fourth paragraph under "South of Cape Falcon" in Section 3.7.1.1. of the FMP):

* * *

The allowable harvest south of Cape Falcon may be further partitioned into subareas to meet management objectives of the FMP. Allowable harvests for subareas south of Cape Falcon will be determined by an annual blend of management considerations including:

1. controlling ocean harvest impacts on depressed viable natural stocks within acceptable maximum allowable levels, as determined by the Council's guidelines

2. stock abundance

3. allocation considerations of concern to the Council

4. stock specific impacts within a species

5. relative abundance of chinook and coho in the fishery

6. escapement goals

7. maximizing harvest potential

Troll coho quotas may be developed ~~from the Oregon–California border to the management boundary separating Sacramento and Klamath River chinook stocks or~~ for ~~other~~ subareas south of Cape Falcon consistent with the above criteria. California recreational catches of coho, **including projections of the total catch to the end of the season**, would be included in the recreational ~~quota~~ **allocation** south of Cape Falcon, but the area south of the Oregon–California border would not close when the ~~quota~~ **allocation** is met; except as provided below when the recreational allocation is at 167,000 or less. ~~Beyond this, no specific allocation between troll and recreational fisheries is proposed for California.~~

*** Proposed New Addition ***

When the south of Cape Falcon recreational allocation is equal to or less than 167,000 coho:

1. The recreational fisheries will be divided into two major subareas, as listed in #2 below, with independent quotas (i.e., if one quota is not achieved or is exceeded, the underage or overage will not be added to or deducted from the other quota; except as provided under #3 below).

2. The two major recreational subareas will be managed within the constraints of the following impact quotas, expressed as a percentage of the total recreational allocation (percentages based on avoiding large deviations from the historical harvest shares):

   A. Central Oregon (Cape Falcon to Humbug Mountain) – 70 percent

   B. South of Humbug Mountain – 30 percent

   In addition,

   1. Horse Mountain to Point Arena will be managed for an impact guideline of 3 percent of the south of Cape Falcon recreational allocation, and

   2. there will be no coho harvest constraints south of Point Arena. However, the projected harvest in this area (which averaged 1,800 coho from 1986–1990) will be included in the south of Humbug Mountain impact quota.

3. Coho quota transfers can occur on a one-for-one basis between subareas if chinook constraints preclude access to coho.

* * *

IMPACTS OF THE ALTERNATIVES

Status Quo - Sliding Scale Spawner Escapement Goal

Ecological Impacts

- Fails to anticipate the prolonged depression of the OCN coho stock.

  The seventh amendment spawning escapement goal is no longer appropriate to manage the OCN coho stock because it falsely assumed the need to lower the goal below the MSY 200,000 level would occur infrequently. However, since implementation of the sliding scale procedure, the annual spawner goal has dropped below the 200,000 MSY level fifty percent of the time. Additionally, from 1988 until its modification in 1992, the OCN abundance was overestimated. Had that not been the case, the spawner escapement goal would have been set below the 200,000 MSY level 100 percent of the time.

- May exacerbate and prolong underseeding of the freshwater habitat and jeopardize subpopulations within the OCN coho stock.

  The seventh amendment spawning escapement goal, due to the allowance of annual goals below MSY, promotes continuation of management for underseeded habitat which was identified in the OCN coho review team report. Continuation of this condition may jeopardize the diversity of the stock through the loss of subpopulations occupying degraded habitat with poor productivity.

Social and Economic Impacts

- May temporarily increase short-term fishery yield at the expense of long-term yield.

  By reducing spawning escapements at low abundance levels, the status quo may prolong the current stock depression below the MSY production level and retard the recovery of the stock when environmental conditions improve. The resulting reduction in long-term fishery yield includes not only direct harvest of OCN stock, but to a greater degree the access to other stocks which is limited or denied at low OCN abundance levels.

Environmental and Administrative Impacts

- Requires the Council to request an emergency rule to reduce harvest impacts on OCN coho as long as the current prolonged state of stock depression persists.

- Fails to provide direction for incidental fishery impacts at stock sizes below 270,000.

Status Quo - Allocation

Ecological Impacts

- Risk of a spawning escapement shortfall due to the need to make accurate projections of harvest off California.

Social and Economic Impacts

- Does not assure the historical recreational harvest allocation pattern south of Cape Falcon at low abundance levels of OCN coho--shifts harvest to California fisheries as seen in 1993.

Environmental and Administrative Impacts

- Requires relatively little inseason regulation compared to the other alternatives.
- Subarea flexibility may complicate the preseason process.

Alternative A - Constant MSY Spawning Escapement Goal and Status Quo Allocation

Ecological Impacts

- Reduces the risk of losing genetic variability and individual populations of OCN coho at low abundance levels by maintaining MSY escapement goal in all years.
- Increases risk over status quo of a spawning escapement shortfall due to the need to make more extended projections of harvest off California when stock size is below 400,000.

Social and Economic Impacts

- Expectation of greater long-term fishery yield, but reduced short-term yield when compared to status quo.
- Does not assure the historical recreational harvest allocation pattern south of Cape Falcon at low abundance levels of OCN coho--shifts harvest to California fisheries as seen in 1993.

Environmental and Administrative Impacts

- Less need to use an emergency rule.
- Increases the importance of restoring degraded freshwater habitat to increase OCN productivity.
- Less dependent on accurately forecasting the OCN abundance preseason.
- Provides direction for incidental fishery impacts at stock sizes below 250,000.

Alternative B – Constant MSY Spawning Escapement Goal and Closure Upon Attainment of the Overall Coho Quota

Ecological Impacts

- As in Alternative A, reduces the risk of losing genetic variability and individual populations of OCN coho at low abundance levels by maintaining MSY escapement goal in all years.
- No need to project California harvest and thus reduces risk of spawner escapement shortfall.

Social and Economic Impacts

- As in Alternative A, there is an expectation of greater long-term fishery yield, but reduced short-term yield when compared to status quo.
- Could be used to set recreational harvest allocation pattern south of Cape Falcon to meet FMP management objectives.

Environmental and Administrative Impacts

- As in Alternative A, there is less need to use an emergency rule to provide for adequate spawning escapement, the importance of restoring degraded freshwater habitat to increase OCN productivity is enhanced, there is less dependence on accurately forecasting the OCN preseason abundance and direction is provided for incidental fishery impacts at stock sizes below 250,000.
- No need to project California harvest to determine closure date of central Oregon fisheries.
- Flexibility in the subarea allocations allows Council management to respond to annual needs, but may complicate the preseason process.

Alternative C – Constant MSY Spawning Escapement Goal and Subarea Allocation Guidance

Ecological Impacts

- As in Alternatives A and B, reduces the risk of losing genetic variability and individual populations of OCN coho at low abundance levels by maintaining MSY escapement goal in all years.
- As in Alternative B, there is no need to project California harvest and thus reduces risk of spawner escapement shortfall.

Social and Economic Impacts

- As in Alternatives A and B, there is an expectation of greater long-term fishery yield, but reduced short-term yield when compared to status quo.

- Attempts to assure historic sharing of allowable impacts which may provide some stability for established ports which serve recreational fisheries.

Environmental and Administrative Impacts

- As in Alternatives A and B, there is less need to use an emergency rule to provide for adequate spawning escapement, the importance of restoring degraded freshwater habitat to increase OCN productivity is enhanced, there is less dependence on accurately forecasting the OCN preseason abundance and direction is provided for incidental fishery impacts at stock sizes below 250,000.

- As in Alternative B, no need to project California harvest to determine closure date of central Oregon fisheries.

- FMP subarea allocation guidance may reduce complexity of preseason process but may add complexity to inseason management in projecting subarea fishery capabilities.

- May have less flexibility than Alternative B to anticipate unusual or new situations without plan amendment.

Adopted Alternative (Joint Recommendation of Oregon and California)

Ecological Impacts

The Adopted Alternative reduces the risk of losing genetic variability and individual populations of OCN coho during long-term overall stock depressions. It does this by returning to an MSY spawning escapement goal without the sliding scale deviation allowed under Status Quo at low stock sizes.

An incidental harvest rate of up to 20 percent when the stock size is at low levels (below 250,000) will allow some harvest to occur in nearly all years under this alternative. However, if a full 20 percent is harvested, the spawning escapement will still always be greater than under Status Quo until the stock size declines to 168,750 (Table 5). At this stock size, a 20 percent incidental harvest rate would allow an escapement of 135,000 adult spawners which is the floor level under Status Quo.

Below a stock size of 168,750 coho, the alternative spawning escapement may be more or less than the Status Quo floor of 135,000 coho, depending on the incidental harvest rate chosen by the Council. At these lower stock sizes (those expected to result in 28 or fewer spawning adults per mile) the Adopted Alternative requires the Council to select the minimum incidental harvest rate necessary to prosecute other fisheries and which under no circumstances will cause irreparable harm to the stock. Such incidental harvest criteria is close to the test required for NMFS to allow incidental harvest on species listed under the ESA. In this way the Adopted Alternative provides direction for incidental harvest impacts at these low levels, whereas the Status Quo would likely rely on emergency action to set an incidental harvest level that could be similar to that allowed under the Adopted Alternative.

TABLE 5. Allowable harvest and spawning escapement under Status Quo and the Adopted Alternative.

Stock Size (thousands)	Allowable Harvest (thousands)		OCN Spawning Escapement			
			Total Adults (thousands)		Adults Per Mile	
	Status Quo	Adopted Alt.	Status Quo	Adopted Alt.	Status Quo	Adopted Alt.
500	300	300	200	200	42	42
400	200	200	200	200	42	42
350	175	175	175	200	37	42
300	150	150	150	200	31	42
250	115	50	135	200	28	42
200	65	≤40	135	≥160	28	≥34
175	40	≤35	135	≥140	28	≥29
150	15[a/]	≤30	135[a/]	≥120	28[a/]	≥25
125	0[a/]	≤25	135[a/]	≥100	28[a/]	≥21
100	0[a/]	≤20	135[a/]	≥80	28[a/]	≥17

a/ A request for an emergency rule is likely at these stock levels to either increase the allowable harvest for incidental fisheries or, in the case of zero allowable harvest, allow some incidental harvest to avoid complete closure of all ocean fisheries.

Social and Economic Impacts

As in the other alternatives to Status Quo, the Adopted Alternative would likely result in greater long-term fishery yield, but reduced short-term yield due to the restructuring of the spawning escapement goal.

The allocation aspects of the Adopted Alternative are different from the Status Quo only with regard to the recreational fishery when allowable harvest is equal to or less than 167,000 coho. At these low allowable harvest levels, there is a high probability that southern recreational fisheries will take a disproportionately large share of the harvest. The Adopted Alternative directly addresses this problem and should prevent its occurrence, thereby spreading the economic hardships during these times more equally among port areas. The area south of Point Arena is exempted from closing to coho retention since it has minor impacts on coho and since the proportion of coho in the catch is the least of any area.

Environmental and Administrative Impacts

Under the Adopted Alternative, there should be less need for emergency rules with regard to stock protection and harvest allocation than under the Status Quo. Because its special allocation provisions only apply to the recreational fishery when harvest is below a certain level, the Adopted Alternative is least likely to complicate the management process while most effectively addressing the allocation problem than any of the other alternatives.

COUNCIL RECOMMENDATION

The Council recommends implementation of its Adopted Alternative as the best approach at the present time to addressing the long-standing depression of the OCN coho stock and any allocation imbalances that may occur at low allowable harvest levels for coho salmon south of Cape Falcon.

The basic concept and most of the details of the Adopted Alternative were developed by the states of Oregon and California after reviewing the Council's proposed options. The staffs of these two states are intimately involved in the management details of the OCN coho stock and the fisheries which impact it. As better data from ongoing studies becomes available, further improvements in the management of OCN coho may be possible.

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APPENDIX A
FINAL ENVIRONMENTAL ASSESSMENT SUMMARY OF AMENDMENT 11 TO THE FISHERY MANAGEMENT PLAN FOR COMMERCIAL AND RECREATIONAL SALMON FISHERIES OFF THE COASTS OF WASHINGTON, OREGON, AND CALIFORNIA COMMENCING IN 1978

INTRODUCTION

Shortly after the enactment of the Magnuson Fishery Conservation and Management Act (MFCMA), the Council prepared the first ocean salmon fishery management plan (FMP) and Environmental Impact Statement (EIS) which was approved and implemented in 1977. A new FMP/EIS was developed for the 1978 season. Since that time, the 1978 FMP has been amended ten times.

From 1979 to 1983, the FMP was amended annually to establish management measures for each year's fishery and a Supplemental Environmental Impact Statement (SEIS) was prepared for each amendment. In 1984, a framework amendment was implemented and was accompanied by another SEIS. The framework amendment established a mechanism to implement preseason and inseason regulatory adjustments without an FMP amendment. This amendment is the fifth amendment since implementation of the framework FMP. The issue contained in Amendment 11 to the 1978 FMP was identified formally during a scoping session at the April 1993 Council meeting.

The Environmental Assessment (EA) for this amendment has been prepared according to 40 CFR 1501.3 and 1508.9, and NOAA Administrative Order (NAO) 216-6 to determine whether an EIS is required by Section 102(2)(C) of the NEPA. An EIS normally is required for any major action that will have a significant impact on the quality of the human environment. An EIS is not required if the EA concludes there is no significant impact.

An analysis of the environmental impacts of this amendment is provided in the main body of the amendment document and Appendix B. The Table below identifies the pages of the amendment which discuss the need for action and analyze the potential environmental impacts of the amendment alternatives. Thus, this appendix either contains or references the information required for a "structurally complete" EA.

Requirement	Page Reference
Need for Action	3
Description of Alternatives	9
Ecological Impacts	19
Social and Economic Impacts	19 and Appendix B
Interaction with Other Issues	[none - single issue amendment]
Council Recommendation	23

SUMMARY OF IMPACTS

Productive Capability of the Resource

Amendment 11 considers the need for short-term socioeconomic benefits versus the risk of endangering the productive capability of the OCN coho salmon resource during prolonged periods of depression. The proposed alternative may reduce risk by re-establishing a fixed MSY spawning escapement goal. The present FMP allows for a reduction in the numerical MSY spawning goal at stock sizes below 400,000.

Ocean and Coastal Habitats

The issue considered in this FMP amendment has no direct or significant indirect impacts on ocean and coastal habitats beyond that contemplated in the current FMP.

Public Health and Safety

Fishing in the ocean can be hazardous. The MFCMA and salmon FMP require the Council to consider whether an FMP amendment will result in the need for temporary adjustments for access to the fishery for vessels prevented from harvesting due to weather or other oceanic conditions affecting the safety of the vessels. The Council reviewed this concern in adopting the eighth amendment to the FMP.

The issue considered in this FMP amendment does not have any direct or anticipated indirect impacts on public health and safety that are different than those considered under the framework plan and the eighth amendment. This amendment is not anticipated to result in any increase or decrease in the need for considering additional fishery access, due to unsafe weather, beyond that already existing under the present FMP. The fisheries in the area affected by Amendment 11 proceed under quotas which are generally reached (and the fishery closed) over a portion of the total season in which the quota may be harvested. In the near term, in years in which the stock abundance of OCN coho is below 400,000 coho, the proposed alternative may tend to shorten season length since fewer coho will be available for harvest. However, in the long term, this effect could be reversed by more effective recovery of the stock and fewer years in which stock sizes are below 400,000.

Endangered or Threatened Species and Marine Mammals

The Council and NMFS have determined that the measures proposed in this amendment are unlikely to change Council-managed fisheries in a way that will adversely affect Stellar sea lion populations or any stock of salmon listed or proposed for listing under the ESA.

In 1989, NMFS and the U.S. Fish and Wildlife Service completed a formal Section 7 consultation concerning the issuance of exemptions for commercial fisheries under the MMPA. The biological opinions prepared during the consultation assessed the impacts of all commercial fishery operations, including salmon fisheries under Council management, on endangered/threatened species listed as of July 1989. The consultation resulted in the conclusion that the issuance of the MMPA exemptions was not likely to jeopardize the continued existence of any listed species. Since 1989, Stellar sea lion have been listed as threatened under the ESA. The change proposed by Amendment 11 is minor with regard to impacts on marine mammals and falls within the scope of the 1989 consultation

prepared for the ocean salmon fisheries. Amendment 11 is not expected to change the impacts of the current FMP in any way with regard to Stellar sea lion that would place this species at jeopardy.

Formal Section 7 consultation on affects of annual salmon management and conservation measures under the FMP on Sacramento River winter-run chinook salmon was completed in March 1991. Actions contemplated in Amendment 11 should not increase impacts on this salmon stock.

Formal consultation was completed on Snake River sockeye salmon and Snake River fall and spring/summer chinook salmon stocks prior to the 1992 and 1993 fishing seasons. The proposed action should decrease the impacts of Council-managed fisheries south of Cape Falcon on these stocks. Total impacts of Council-managed fisheries on Snake River salmon will be maintained within the limits of the issued biological opinion or as directed in any future consultations.

NMFS is currently reviewing all coho stocks in Washington, Oregon and California for listing under the ESA. The OCN stock would be included in this review. Since the general affect of Amendment 11 is to provide more protection for OCN coho, the impacts of the amendment should be positive.

Further discussion of the ESA and the MMPA is provided in Appendix D (page D-1).

Cumulative and Controversial Impacts

This FMP amendment will not have any direct or anticipated indirect cumulative impacts that are in addition to the impacts already discussed in this document.

Flood Plains, Wetlands, National Trails and Rivers

The actions proposed by this amendment will have no significant or adverse affect on flood plains or wetlands and trails and rivers listed or eligible for listing on the National Trails and Nationwide Inventory of Rivers.

Data Collection

The actions proposed do not contain a collection of information requirement and are therefore not subject to the paperwork reduction act (see Appendix D).

Federalism

The proposed actions do not contain policies with federalism implications sufficient to warrant preparation of a federalism assessment under E.O. 12612 (see Appendix D).

Coastal Zone Management Consistency

The proposed actions are consistent to the maximum practicable extent with approved Washington, Oregon, California and San Francisco Bay coastal zone management plans (see Appendix C).

AGENCIES AND PERSONS CONSULTED

Representatives of the following entities, organizations or businesses were consulted in formulating the proposed action, considering alternatives, and preparing this EA.

California Department of Fish and Game
National Marine Fisheries Service
Oregon Department of Fish and Wildlife
Pacific Fishery Management Council
Washington Department of Fisheries
U.S. Coast Guard

This proposed amendment is not expected to have any impact on salmon management activities under the jurisdiction of the North Pacific Fishery Management Council (NPFMC). Copies of the draft amendment have been provided to the NPFMC for review and comment.

FINDING OF NO SIGNIFICANT ENVIRONMENTAL IMPACT

For the reasons discussed and referenced above, it is determined that neither approval nor disapproval of any alternative presented in Amendment 11 would significantly affect the quality of the human environment in a way that has not already been contemplated in the SEIS for the FMP. Accordingly, preparation of a SEIS on these issues is not required by Section 102(2)(C) of the NEPA or its implementing regulations.

_____ _____

Assistant Administrator for Fisheries, NOAA Date

APPENDIX B
REGULATORY IMPACT REVIEW/INITIAL REGULATORY FLEXIBILITY ANALYSIS/FISHERY IMPACT STATEMENT

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REVIEW OF PROBLEM AND PROPOSED ACTION

A revision to the OCN spawner escapement goal is being proposed in response to a prolonged depression of the OCN stocks and problems with the abundance estimates (see Need and Purpose for Assessing OCN Coho Management, page 3). Under the proposed action, the current sliding scale spawner escapement goal (between 135,000 and 200,000 naturally spawning adult coho, depending upon stock abundances) would revert to the equivalent of the constant MSY goal level (200,000 naturally spawning coho), similar to the goal in place prior to implementation of the sliding scale goal. The proposed change would, in the short-term, be expected to reduce allowable coho ocean harvests. Lower allowable ocean harvests elevate prospects for geographic preemption of harvest in the recreational fishery and raises the question of a need for interport allocation.

The following is a general description of the aspects of status quo management affected by the alternatives considered.

> Spawner escapement goal: 200,000 naturally spawning adult coho at stock abundances above 400,000; 50 percent of total stock abundance at stock abundances between 270,000 and 400,000; incidental harvests only through emergency action at stock abundance below 270,000.
>
> Closure on Quota Attainment South of Falcon: troll fisheries south of Cape Falcon and recreational fisheries from the Oregon-California boarder to Cape Falcon close on attainment of overall troll and recreational quotas; recreational fisheries south of the Oregon-California boarder may not be closed on attainment of overall south of Cape Falcon or subarea recreational coho quotas.
>
> Subarea Allocation Guidance: None.

The specific options considered were as follows (see Proposed Actions and Alternatives, page 9).

Alternative A - Constant MSY Spawning Escapement Goal With an Allowance for Incidental Harvest at Low Abundance (42 naturally spawning adults per mile in ODFW's "standard" coastal index survey areas. This goal is currently believed to be equivalent to the goal of 200,000 naturally spawning adults for Oregon Coastal habitat. A minimum incidental harvest of up to 20 percent would be allowed.)

Alternative B - Constant MSY Spawning Escapement Goal With an Allowance for Incidental Harvest at Low Abundance; and Closure of All Recreational Coho Fishing Upon Attainment of the Overall Coho Quota (under status quo management, recreational fisheries south of the Oregon-California boarder cannot be closed to coho retention when the south of Cape Falcon coho quota is reached--conservation objectives have usually been achieved through closures in Oregon fisheries).

Alternative C - Constant MSY Spawning Escapement Goal With an Allowance for Incidental Harvest at Low Abundance; Closure of All Recreational Coho Fishing Upon Attainment of the Overall Coho Quota; and Subarea Allocation Guidance (Explicit guidance would be provided

for recreational fishery subarea allocations based on the 1976 to 1992 average coho harvest patterns for three major subareas south of Cape Falcon and provisions would mandate closure of the KMZ and Cape Falcon to Humbug Mountain areas on attainment of the coho harvest guideline)

Adopted Alternative – Constant MSY Spawning Escapement Goal; At Low Recreational Allocation Levels Closure of Recreational Fishing in Subareas on Attainment of Subarea Quotas, Except for the Area South of Point Arena; and Subarea Allocation Guidance. (Explicit guidance is provided on subarea recreational quotas, however, subarea quotas would be established only when the coho allocation to the recreational fishery is below 167,000 fish. Above a recreational allocation of 167,000 coho, there would be no subarea allocations and closures to coho retention would continue to be allowed only north of the Oregon–California boarder. When subarea quotas are established, closures on attainment of the subarea quotas would be required for all recreational fisheries except those south of Point Arena.)

There are three distinct aspects of the alternatives:

1. Change of the goal level to the equivalent of the 200,000 spawner goal with up to 20 percent incidental harvest at abundance levels below 250,000 fish.

2. Restatement of the escapement goal in terms of numbers of spawners per mile rather than ocean escapement.

3. Allocational provisions (1) establishing guidelines for recreational fishery subarea allocations and (2) expanding the Council authority to limit California recreational fisheries and thereby effectively allocate.

DESCRIPTION OF THE FISHERY

The following is a descriptive summary of aspects of the salmon fishery most directly related to the this plan amendment. A full description of the fishery and updated fishery information may be found in Appendix B of the 1981 salmon plan amendment and the Council's annual review of the salmon fisheries (Council, 1993).

The primary species harvested in the commercial and sport ocean salmon fisheries on the west coast are chinook and coho (Table B–1). In odd numbered years, pink salmon are harvested north of Cape Falcon in relatively small numbers.

Cape Falcon divides the west coast salmon fishery into two primary management areas. In recent history, management in the area north of Cape Falcon has been driven largely by (1) concerns over weak coho stocks occurring along the Washington coast and in Puget Sound, and (2) court orders and harvest sharing agreements pertaining to tribal fisheries. Management south of Cape Falcon has largely been driven by the need to meet Klamath River fall chinook and OCN escapement goals. The need for adequate ocean escapement of OCN stocks has become

TABLE B-1. Salmon harvest and recreational effort in West Coast ocean salmon fisheries.[a/]

Year	Coho		Chinook		Recreational Trips
	Recreational	Troll	Recreational	Troll	
NORTH OF CAPE FALCON					
1976–1980	575.4	782.8	131.8	201.6	490.6
1981–1985	205.0	182.4	59.8	70.0	188.5
1986–1990	185.5	73.0	28.1	50.9	132.4
1991	232.0	81.3	13.3	29.7	139.6
1992[b/]	134.0	19.2	18.9	45.9	113.8
SOUTH OF CAPE FALCON					
1976–1980	256.8	642.9	115.3	713.0	490.5
1981–1985	151.5	349.0	136.8	605.8	354.3
1986–1990	229.5	428.3	199.7	1,188.5	463.9
1991	289.0	364.9	94.3	368.9	365.0
1992[b/]	175.2	50.3	84.1	267.0	278.7

a/ Data from Review of 1992 Ocean Salmon Fisheries, Council 1993.
b/ Preliminary.

increasingly constraining over the last several years. The greatest surplus of coho production available for harvest in the ocean comes from Columbia River hatcheries. There are significant Indian, commercial and sport fisheries inside Puget Sound and the Columbia River as well as a number of other coastal rivers (including the Klamath River).

Troll Fishery

Harvest of salmon in the ocean fisheries is one activity in which commercial fishing vessels on the west coast participate. Only troll gear may be used in the harvest of salmon. Harvest by any other gear must be discarded. Roughly 2,000 vessels participated in the troll fishery in 1992 (Table B-2).[1/] This is down from the early 1980s when roughly 8,000 vessels participated in some years. About 10 to 15 percent of the vessels take fifty percent of the commercial harvest. Examination of state information shows that most vessels tend to be under about 36 feet in length. Data for Oregon and California indicate that vessels between about 36 and 45 feet in length harvest a greater share of the harvest relative to their numbers as compared to vessels less than 36 feet and more than 45 feet.

This amendment deals directly with the harvest of coho. A comparison of chinook and coho exvessel value by state shows that coho harvest contributes more to salmon revenues in the north (Oregon and Washington) than in the south (California) (Table B-3). For the most part, the commercial coho harvest generally occurs in summer months during all-salmon-species seasons. Coho fishing in the spring is usually restricted in order to allow additional growth prior to harvest. Chinook are generally larger and bring a higher price per pound than coho. Pink salmon are generally smaller and bring a lower price per pound than coho.

Recreational Fishery

Recreational trips are taken on either private or charter vessels. Numbers of charter vessels licensed are shown in Table B-4. Some charter companies may own more than one vessel. Charter agents will often handle bookings for a number of different charter vessels. Proportions of charter and private trips by area are shown in Table B-5.

South of Cape Falcon angler success rates per trip are displayed in Table B-6 and total numbers of trips in Table B-7. South of Cape Falcon, coho is a greater contributor to ocean recreational trips in northern areas than southern areas (Table B-8a). North of Cape Falcon average success rates run about 0.86 salmon per trip with coho contributing 85 percent of the recreational catch. Until recently, south of Cape Falcon recreational harvest has generally not been constrained by the coho quota to as great a degree as the fishery north of Cape Falcon.

1/ Because some vessels may be licensed in more than one state, the sum of the number of vessels licensed in each state is greater than the total number of vessels in the fishery. Depending on the state, between 5 and 20 percent of the vessels participating have other states as their home states.

TABLE B-2. West Coast salmon troll boat-size catch statistics in pounds of dressed salmon for 1992.[a/]

Vessels			Catch[b/]		
Length Category (feet)	Number	Percentage	Average Per Boat (pounds)	Total (pounds)	Percent of Total
		CALIFORNIA			
20≤	99	9.0	350.0	34,361	2.0
21–25	275	25.0	820.0	225,503	14.0
26–30	188	17.0	1,157.0	217,568	13.0
31–35	157	14.0	1,501.0	235,715	15.0
36–40	181	17.0	2,543.0	460,202	29.0
41–45	90	8.0	2,792.0	251,236	16.0
46–50	63	6.0	1,649.0	103,899	6.0
51–55	19	2.0	3,258.0	61,896	4.0
>56	8	1.0	1,701.0	9,777	1.0
Unknown	3	c/	4,659.0	13,978	1.0
TOTAL	1,083		1,491.0	1,614,404	
		OREGON			
20≤	8	1.2	618.1	4,945	0.4
20–29	241	37.1	850.2	204,899	16.8
30–39	244	37.6	2,391.4	583,490	47.9
40–49	134	20.6	2,909.3	389,852	32.0
≥50	22	3.4	1,574.2	34,633	2.8
TOTAL	649		1,876.5	1,217,819	
		WASHINGTON			
25≤	241	39.9	276.4	66,617	11.4
26–36	167	27.7	727.0	121,416	20.8
>36	170	28.1	2,175.5	369,833	63.5
Unknown	26	4.3	955.7	24,848	4.3
TOTAL	604		4,135.4	582,714	

a/ Preliminary data from Review of 1992 Ocean Salmon Fisheries, Council 1993.
b/ Excludes pink salmon landings.
c/ Less than 1.

TABLE B-3. West Coast exvessel values of troll-caught salmon (thousands of 1992 dollars).[a/]

Year	California	Oregon	Washington	Total
		COHO		
1981-1985	797	3,324	1,862	5,984
1986-1990	568	3,784	415	4,767
1991	719	1,445	354	2,519
1992	17	222	99	338
		CHINOOK		
1981-1985	15,559	5,059	2,850	23,469
1986-1990	24,961	11,046	1,539	37,546
1991	8,627	1,778	809	11,214
1992	4,385	2,487	1,200	8,072
		TOTAL		
1981-1985	16,357	8,383	4,713	29,453
1986-1990	25,529	14,830	1,954	42,313
1991	9,347	3,223	1,163	13,733
1992	4,402	2,709	1,299	8,410

a/ Data from Review of 1992 Ocean Salmon Fisheries, Council 1993.

TABLE B-4. Number of California and Washington salmon fishing charter vessels and number of Oregon charter vessels.[a/b/]

Year	California		Oregon	Washington
	Total Including Casual and Active Vessels	Active Vessels Only		
1988	166	95	313	281
1989	182	89	322	276
1990	160	93	170	273
1991	186	78	171	267
1992	139	49	208	266

a/ Data from Review of 1992 Ocean Salmon Fisheries, Council 1993.

b/ Most Oregon charter vessels participate in the salmon fishery when the opportunity is present.

TABLE B-5. Average number of charter and private recreational ocean salmon fishing trips by management area for 1988-1992 (in thousands).[a/]

Management Area	Trips		Proportion
	Charter	Private	Charter
North of Cape Falcon	56	72	0.44
Cape Falcon to Humbug Mt.	39	123	0.24
KMZ (Humbug Mt. to Horse Mt.)	6	100	0.05
Horse Mt. to Pt. Arena	4	13	0.20
South of Pt. Arena	73	61	0.54

a/ Data from Review of 1992 Ocean Fisheries, Council 1993.

TABLE B–6. Total number of trips for south of Cape Falcon subareas by month and year.

Month	Total Angler Trips By Subarea						
	1986	1987	1988	1989	1990	1991	1992
	CAPE FALCON TO HUMBUG MT.						
May	2.2	–	2.7	2.0	1.3	2.3	3.7
June	10.7	10.9	19.0	36.5	15.5	33.1	19.9
July	85.4	93.0	80.6	86.8	67.0	96.6	68.2
Aug.	15.2	47.0	69.0	45.8	69.6	–	34.4
Sept.	–	17.6	20.4	9.6	16.2	–	8.5
Oct.	–	–	–	–	–	–	–
TOTAL	113.5	168.5	191.7	180.7	169.6	132.0	134.7
	KMZ (HUMBUG MT. TO HORSE MT.)						
May	5.7	6.0	4.7	6.5	3.5	2.1	–
June	25.2	33.3	34.2	34.2	40.8	33.3	–
July	33.7	55.8	51.9	66.6	65.8	44.9	21.9
Aug.	26.5	35.7	24.0	28.6	20.1	2.9	–
Sept.	1.1	11.9	3.9	6.8	2.3	6.3	10.1
Oct.	5.0	5.9	–	–	–	a/	3.9
TOTAL	97.2	148.6	118.7	142.7	132.5	89.5	35.9
	SOUTH OF HORSE MT.						
Feb.	2.1	8.6	10.6	9.8	10.2	–	0.4
Mar.	13.9	18.9	16.1	15.9	20.6	12.3	10.5
Apr.	18.4	17.6	18.9	35.0	30.3	18.2	10.0
May	12.8	13.6	19.9	14.2	8.6	11.0	11.6
June	22.5	17.8	27.5	22.9	27.7	27.9	13.9
July	34.9	38.1	38.3	30.4	39.2	44.2	29.4
Aug.	23.2	31.7	20.7	22.2	15.3	19.7	14.4
Sept.	7.7	14.7	9.8	11.9	10.4	5.8	12.4
Oct.	4.8	7.3	3.8	4.0	5.1	4.4	5.4
Nov.	0.9	1.7	–	1.9	3.4	0.1	0.1
TOTAL	141.2	161.4	155.0	158.4	160.6	143.6	107.7

a/ Less than 50 trips.

TABLE B–7. Average number of salmon caught per recreational trip by south of Cape Falcon subarea, year and month.

Month	Per Trip Success Rate For Recreational Salmon Fishery By Subarea						
	1986	1987	1988	1989	1990	1991	1992
	CAPE FALCON TO HUMBUG MT.						
May	1.23	–	0.22	0.85	0.15	0.48	0.22
June	1.82	0.38	1.13	1.44	1.30	1.33	1.37
July	1.45	1.19	1.26	1.27	1.12	1.65	1.38
Aug.	1.68	0.73	1.16	1.07	0.83	–	1.17
Sept.	–	0.81	0.69	0.09	0.39	–	0.84
Oct.	–	–	–	–	–	–	–
Average	1.51	0.97	1.13	1.19	0.94	1.55	1.26
	KMZ (HUMBUG MT. TO HORSE MT.)						
May	0.65	0.27	0.51	0.66	0.69	0.10	–
June	0.58	0.49	0.89	0.92	1.08	1.30	–
July	0.68	1.15	1.07	1.27	0.60	0.79	0.55
Aug.	0.55	0.69	0.43	0.92	0.28	0.31	–
Sept.	0.09	0.90	0.21	0.32	0.17	0.32	0.23
Oct.	0.12	0.19	–	–	–	–	0.18
Average	0.58	0.80	0.84	1.04	0.69	0.92	0.42
	SOUTH OF HORSE MT.						
Feb.	0.57	0.64	0.64	0.82	0.66	–	0.25
Mar.	1.16	0.75	0.99	0.80	0.85	0.65	0.34
Apr.	1.28	1.09	1.32	1.22	0.72	0.71	0.54
May	0.70	0.81	0.96	0.47	0.65	0.49	0.56
June	0.93	0.92	0.92	0.80	0.72	0.91	0.71
July	0.94	1.09	0.83	0.68	0.71	0.78	0.89
Aug.	0.70	1.13	0.49	0.62	1.12	0.36	0.67
Sept.	0.68	0.90	0.40	1.03	0.52	0.29	0.84
Oct.	0.42	0.97	1.21	0.93	0.76	0.50	0.54
Nov.	0.67	0.65	–	1.26	0.50	0.00	0.00
Average	0.90	1.02	0.92	0.89	0.79	0.68	0.69

TABLE B–8a. Percent contribution of coho to the recreational fishery south of Cape Falcon by subarea for 1986–1992.

	Percent Coho In Recreational Salmon Catch						
Month	1986	1987	1988	1989	1990	1991	1992
	CAPE FALCON TO HUMBUG MT.						
May	96	–	50	88	87	82	75
June	94	71	88	95	95	94	91
July	95	88	95	95	94	98	95
Aug.	97	75	92	97	94	–	96
Sept.	–	64	87	78	81	–	90
Oct.	–	–	–	–	–	–	–
Average	95	82	93	96	93	97	95
	KMZ (HUMBUG MT. TO HORSE MT.)						
May	51	6	29	42	42	50	–
June	53	30	17	53	63	73	–
July	59	69	62	53	56	80	68
Aug.	37	42	53	50	70	89	–
Sept.	0	25	63	41	75	70	65
Oct.	0	0	–	–	–	0	
Average	50	52	46	52	60	76	65
	SOUTH OF HORSE MT.						
Feb.	–	–	–	–	–	–	0
Mar.	0	–	0	–	–	0	0
Apr.	–	–	0	0	0	0	0
May	1	0	1	3	11	11	6
June	1	4	1	9	18	52	4
July	4	3	9	11	16	41	14
Aug.	2	1	1	4	15	19	1
Sept.	0	2	0	1	7	6	5
Oct.	0	0	–	–	3	0	0
Average	2	2	2	3	9	30	7

TABLE B–8b. Percent contribution of coho to the recreational fishery south of Horse Mountain by subarea for 1986–1992.

	Percent Coho In Recreational Salmon Catch						
Month	1986	1987	1988	1989	1990	1991	1992
	HORSE MOUNTAIN TO POINT ARENA						
May	a/	0	8	a/	50	71	23
June	6	23	6	31	58	83	67
July	15	17	42	47	58	73	51
Aug.	20	31	13	40	33	55	–
Sept.	a/	50	0	a/	a/	a/	36
Average	12	21	26	39	56	76	44
	SOUTH OF POINT ARENA						
Feb.	0	0	0	0	0	–	a/
Mar.	a/	0	a/	a/	0	a/	a/
Apr.	0	0	a/	0	0	a/	a/
May	1	a/	1	3	9	2	2
June	1	a/	0	4	8	33	2
July	1	a/	0	1	10	21	6
Aug.	1	a/	a/	1	14	12	1
Sept.	a/	1	a/	a/	8	6	1
Oct.	a/	0	0	0	3	a/	a/
Average	0	0	0	1	6	14	3

a/ Fewer than 50 coho and/or chinook were caught. There is not sufficient data readily available to determine the coho contribution.

ANALYSIS

Change of the Goal Level to the Equivalent of the 200,000 Spawner Goal

The Economic Issue

The choice between a sliding scale goal and a fixed escapement goal is essentially one of risk management. As with most situations involving risk, there is a tradeoff between higher risk levels and the potential level of rewards. Lower risk levels are generally associated with lower levels of potential reward. The choice before the Council is whether or not to adopt a lower risk spawning escapement goal, decreasing the short term expected fishery benefits, but also decreasing the probability that the stocks of concern will collapse. Over the long term, there would be an expected increase in allowable harvests which will reduce the costs associated with the adoption of a lower risk spawning escapement goal.[2/]

There are two aspects of risk, the probability of negative outcomes and the size of the negative outcomes. The size of the negative outcomes considered by the Council in 1986 is the same as the size considered today: potential overfishing and endangerment of the survival of coho stocks along with the attendant losses of economic and social value. What may have changed is the assessment of the probability that the negative outcomes will occur.

When the Council assessed the situation in 1986 it believed that implementation of a sliding scale escapement goal could achieve additional social and economic benefits with a minimum increase in the probability of a stock decline. The NEV analysis at that time showed that the additional increment of harvest allowed under the sliding scale increased the expected present value of the resource despite an expected decline in production three years later. It was not possible to estimate the extent by which future production would be reduced in the long-term (more than one brood cycle). However, it was believed that this policy would not result in diminishing stock returns because between 1969 and 1986, the stock had rebounded nine times from escapement levels of between 57,000 and 135,000 coho (see page 6; Council, 1986). Additionally, the probability that the sliding scale would be used was viewed as low, "given recent year escapements and current expectations of ocean conditions" (see page B-5; Council, 1986).

Beliefs about the probability of a stock decline have changed since the implementation of Amendment 7. First, stock sizes have generally been lower and the sliding scale used more often than anticipated. Since its first use, the sliding scale escapement goal has been set below the 200,000 MSY level fifty percent of the time (Table 1). If stock abundance had been more precisely forecast, the sliding scale would have been used in every year.

2/ Amendment 7 showed that if modeled stock-recruitment relationships hold, over the abundance ranges addressed in the sliding scale the reduction in present value from the future harvest forgone would not outweigh the value of taking the harvest in the current year. Whether or not those stock-recruitment relationships hold is one of the issues addressed in this section.

Second, the viability of some coastal coho stocks may be endangered. In July of 1993, NMFS was petitioned to list 40 Oregon wild coho salmon populations under the federal ESA, including a number of OCN coho stocks which appear to be in a consistent and significant depression. Third, beliefs that the sliding scale spawning goal would not result in diminishing stock returns may have been incorrect as the broods in most years since implementation of the sliding scale have not replaced themselves (though their may be other explanations for the poor recruitment).

Fourth, the precision of information on which the Council relies to appropriately implement the sliding scale goal may be lower than initially anticipated. The analysis provided as part of Amendment 7 assumes that abundance levels are accurately forecast. Accurate forecasting becomes more important when target escapement levels decline. A 135,000 spawner goal may be an acceptable spawning escapement level. However, if preseason estimates are too high, too great a harvest may be allowed and the spawning escapement levels achieved may be substantially below acceptable levels. Preseason abundance forecasts have exceeded post season estimates of abundance in every year since 1986. While adjustments to the model may eventually eliminate this bias, even the estimates from an unbiased estimator may not provide sufficiently precise estimates of stock abundance.

Given that the risk level is greater than earlier perceived, the economic question to be addressed here is "What level of reduced fishery benefits would be expected from the proposed means of reducing risk?" One of the policy questions to be addressed by the Council should be "Is the level of risk reduction achieved from the proposed action worth the payment (reduced fishery benefit) for the risk reduction?"

The Cost of Reducing Risk

An estimate of the cost of reducing risk has been developed by using the results of Coho Assessment Model runs which contrast management under the current sliding scale escapement goal with management under the proposed 42 fish per mile (200,000 spawner) escapement goal based on 1990 and 1992 fisheries. The following assumptions were used to assign values to reductions and increases in coho harvest resulting from the adoption of the proposed escapement goal.

Assumptions for the Analysis

Commercial Fisheries and Hatchery Production Assumptions

For the commercial fishery and hatchery sales, the most recent five year average prices and weights were used to determine per fish exvessel values. For price, five year averages are used based on an expectation that in coming years salmon prices will continue to fluctuate at levels similar to those of the recent past. There are forecasts for continued increases in world salmon supply. If these forecasts are correct, the depressed prices of more recent years may be a better indicator of future values than the five year average. (The same assumptions were made for Columbia River Indian fisheries. No reduced harvest is modeled for the Indian ocean fisheries.)

NEV was assumed to be somewhere between 50 and 90 percent of exvessel value (based on a review of NEV studies conducted by Rettig and McCarl, 1984). Seventy percent of exvessel price was used as the NEV estimate for base case modeling. A higher percentage value may be warranted if economic resources (labor, vessels, fuel, ice etc.) released from salmon harvest would become unemployed or go unused, absent the opportunity to harvest salmon.

Recreational Fisheries Assumptions

Recreational trips were apportioned between charter and private vessels based on the five year average of the relative proportions of effort for these two fishing modes. In general, success rates for each fishery are positively related to ocean abundance which is positively related to allowable harvests. Therefore the success rate for the year analyzed is used to estimate the number of trips supported per coho rather than an average.

Recreational fisheries north of Horse Mountain were assumed to be coho limited. For these fisheries, any reduction in coho harvest is assumed to be accompanied by a proportional reduction in number of trips taken. South of Horse Mountain it is assumed that reductions in coho harvest result only in additional hook-and-release mortality for which no direct economic value is assigned. The effects of hook-and-release mortality on total allowable harvests and escapement are already taken into account in the CAM results. The average NEV of a recreational trip was assumed to be $55.59 for ocean fisheries and $53.16 for Buoy-10. These assumptions were based on a study by Olsen *et al.* (1991). The study covers only the consumer surplus. The study did not differentiate between trips made on private and charter vessels. For other inside sport fisheries (except Puget Sound, see below) it was assumed that success rates would decline with little effect on the total number of trips taken. No value is specifically associated with the decline in success rates.

Effort Shifts Between the Columbia River Buoy-10 and the Ocean Sport Fishery

It was estimated that additional harvest which might be allowed in the Columbia River ocean management area as a result of an expanded north of Cape Falcon total allowable catch could be absorbed without creating additional overlap with the Buoy-10 fishery. This could be done by opening earlier in June and opening some weekends in July. Therefore no effort shift between the Buoy-10 and ocean fishery was projected and additional Columbia River management area quota was assumed to generate new trips for the area.

Puget Sound Fishery Assumptions

Because changes in ocean escapement may affect a wide variety of salmon uses within Puget Sound (including natural escapement) a range of average per fish net economic values was assumed. The range ($10 to $100 per fish) was intended to cover a reasonable range of possible average per fish NEV values. A sensitivity analysis was conducted which showed the results were relatively unsensitive to the assumed NEV per fish escaping to Puget Sound. The hypothesized management measures used in the biological modeling assured that no critical stock north of Cape Falcon was adversely impacted by the proposed amendment.

Coastal Inside Fisheries

Average harvest rates for reduced or increased escapements of Washington coastal stocks were used to distribute stock changes among fisheries and escapement. Changes to sport fishery harvests were assumed to affect success rates only and not number of trips taken. No adjustment was made to NEVs for a reduction in success rates. Included in the results of the economic analysis is an estimate of the changes in escapement. No attempt was made to assign a value to these changes.

Columbia River Dam Counts

Included in the results of the economic analysis is an estimate of the change in dam counts. No attempt was made to assign a value to these changes.

Results

In general, it appears that the short term cost of reducing the risk to OCN stocks will be in the millions of dollars (NEV changes of −$1.5 million and −$3.2 million were estimated for 1990 and 1992, respectively (Table B–9). Table B–10 shows that the analysis is relatively insensitive to assumptions made about values of fish escaping to Puget Sound and commercial NEV as a proportion of ex–vessel values. Over the long term some rebuilding of the stocks would be expected. In future years, this rebuilding would reduce the negative effects illustrated by this short–term analysis of the effects of abandoning the sliding scale spawner escapement goal.

Provision for Minimum 20 Percent Harvest Rate

A minimum harvest rate of up to 20 percent is specified as part of the change to the OCN spawner escapement goal and is intended to allow the continuation of salmon fisheries which are not directed on coho when OCN abundance is too low to allow any direct fisheries on this stock. There would be some continued opportunity for chinook directed harvest by ocean troll and recreational fisheries as well as inside fisheries. In situations where accessing allowable chinook harvest levels would result in coho hook–and–release mortalities greater than the 20 percent harvest rate allowed, some allocational priorities may need to be established. Under no circumstances would a 20 percent harvest level be allowed, if this harvest level would be expected to have a long term detrimental effect on stock productivity. The allowance for up to a 20 percent incidental harvest is expected to eliminate the need and administrative costs for emergency actions which may be requested to allow incidental harvests in non–target fisheries at low coho abundances.

Restatement of the Spawner Escapement Goal in Terms of Numbers of Fish per Mile of Habitat

In the past, the OCN spawner escapement goal was stated in terms of a number of fish needed to achieve MSY spawning densities rather than the number of spawners per mile now proposed. Observation of the relation between estimated ocean escapement and estimated spawning densities were used to determine the spawning escapement goal. The assumed relationship and thus the goal have been dependent on the correctness of these estimates. Revision of the methods

TABLE B–9. Projected coho–related NEV's (short term) based on the proposed revision to the OCN escapement goal (thousands of dollars) and changes in spawning escapement (thousands of fish).

	1990	1992
NORTH OF CAPE FALCON		
Recreational	1,262	1,055
Troll	290	50
SOUTH OF CAPE FALCON		
Recreational		
Cape Falcon to Humbug Mt.	–1,243	–4,288
KMZ	–835	0
South of Horse Mt.	0	0
TOTAL	–2,078	–4,288
Troll		
Cape Falcon to Humbug Mt.	–641	–181
KMZ	–23	0
South of Horse Mt.	–72	–75
TOTAL	–736	–256
Columbia River		
Gillnet	73	82
Indian	1	2
Hatchery	17	20
Ocean Escapement to Coastal Streams	70	81
Ocean Escapement to Puget Sound	–441	67
Total Specified NEV	–1,540	–3,189
Changes in Spawning Escapement to Coastal Rivers	67 fish	62 fish
(Changes in OCN Escapement)	(40 fish)	(46 fish)

TABLE B–10. Changes in short–term NEV (millions of dollars) for base case and single parameter modifications of assumptions.

	1990	1992
Base Case		
Puget Sound Per Fish Values = $50	–1.5	–3.2
Commercial NEV = 70 percent of exvessel value		
Modification of Base Case		
Puget Sound Per Fish Values = $10	–1.2	–3.2
Puget Sound Per Fish Values = $100	–2.0	–3.1
Commercial NEV = 90 percent of exvessel value	–1.6	–3.2
Commercial NEV = 50 percent of exvessel value	–1.5	–3.2

used to derive either of these estimates, and the consequent revision of the estimates, may require changing the goal through emergency action or a plan amendment, so long as the spawning escapement goal is stated as a total number of fish escaping to spawn. On the other hand, statement of the spawning escapement goal as the desired end result (42 spawners per mile of spawning habitat) rather than an objective expected to achieve the result (200,000 fish spawner escapement) will allow the Council to use the most up-to-date "best available information" to achieve MSY escapement without emergency actions or plan amendments. Elimination of the need for emergency actions and plan amendments in response to revision of models and estimators is expected to reduce administrative costs.

While eliminating the extensive review and administrative procedures required for plan amendments, the integrity of the models and public opportunity for involvement in decisions changing the ocean escapement targets would be preserved through the current Council operating procedure for review of estimation models. This operating procedure specifies a formal annual process which functions to provide peer review of technical estimation and modeling procedures, assure the best and most objective technical analyses possible, and resolve disputes over methodology. The results of these reviews are presented to the Council as recommendations on which the Council receives public comment prior to taking action. Thus, by stating the spawning escapement goal in terms of a number of fish per mile it is expected that administrative costs will be reduced while at the same time maintaining opportunity for technical review and public comment on any changes to the goal.

Allocational Provisions

Need for Consideration of Additional Allocation Provisions

Due to coho migration patterns, California and southern Oregon have generally harvested the majority of their historic shares earlier than areas off central Oregon (Table B-11a). At reduced allowable harvest levels, southern areas may continue to harvest the majority of their historic shares causing a closure of northern fisheries prior to their height. This would shift harvest shares from northern to southern areas. Since southern areas have a higher OCN impact rate, a southward shift of harvest would require a reduction in the total south of Cape Falcon ocean harvest in order to maintain acceptable OCN impact levels. Thus, the need for allocation may be outlined as follows.

- Under anticipated revisions to pre and post season abundance estimation techniques, lower preseason abundance estimates are expected in coming years.

- Reduced allowable harvest levels are expected as a result of the combined effect of revised abundance estimation techniques and, in years of low abundance, the elimination of the sliding scale spawner goal (as proposed under all alternatives in this amendment).

- At reduced harvest levels the potential exists for geographic redistribution of harvest to the south and pre-emption of harvest opportunity for northern areas.

- Allocation guidelines which maintain harvest shares closer to historic levels may reduce two adverse effects which would otherwise be expected to result from an anticipated southward shift in harvest:

    1. preseason allocation controversies similar to those seen north of Cape Falcon prior to the establishment of interport sharing schedules; and

    2. ocean harvests south of Cape Falcon lower than would be allowed if harvest were distributed in historic geographic patterns (the lower allowable catches would be due to an increased share of harvest in southern areas, which have a higher OCN impact rate).

Proposed Allocation Provisions

There are two aspects of allocation provisions addressed by this amendment (1) guidance for establishing subarea quotas, and (2) management measures which may be used to implement subarea quotas.

The current FMP provides only general guidance on how harvest shares should be allocated between subareas. Alternative C provides specific guidance on the allocation of recreational harvest shares south of Cape Falcon. The allocation formula proposed under Alternative C is based on average catch shares for 1976 to 1992 and would generally be expected to set preseason allocations of 77 percent of the coho harvest for the area from Cape Falcon to Humbug Mountain, 21 percent of the coho harvest for the KMZ and 2 percent of the coho harvest for the area south of Horse Mountain.

The adopted alternative also provides guidance on allocation of recreational harvest south of Cape Falcon, however, application of this guidance is restricted to low allocation levels. Applying allocation guidance only to low allocation levels recognizes that the problems which need to be addressed do not generally occur at higher allocation levels. To apply subarea allocation rules to higher harvest levels would unnecessarily increase management complexity and unnecessarily constrain natural variation in the fishery. The harvest shares established for recreational coho allocation levels below 167,000 fish are 70 percent for central Oregon (Cape Falcon to Humbug Mountain) and 30 percent south of Humbug Mountain. This variation from the long term average of 23 percent for the area south of Humbug Mountain is a compromise intended to preserve harvest shares closer to the long-term average than would an allocation identical to the long term average. The long term average distribution of historic shares includes a number of years in which the area south of Humbug Mountain harvested over 30 percent of the recreational harvest. If harvest south of Humbug Mountain were restricted to the long term average of 23 percent, there would be a shift in the average in favor of central Oregon. The 30 percent level was chosen because it was reported to be a level which would allow southern areas to harvest up to one standard deviation above their long-term average in years of low abundance while not allowing the southward shift to be excessive.

The south of Humbug Mountain allocation established under the adopted alternative combines two areas which would have separate quotas under Alternative C--the KMZ and the area south of Horse Mountain. Table B-8b shows that within the south of Horse Mountain fishery, on a per trip basis, coho make a substantially greater contribution to the recreation fishery in the area

between Horse Mountain and Point Arena than in the area south of Point Arena. For this reason the Council decided not to establish a third subarea south of Horse Mountain, but rather, to limit harvest in the Horse Mountain to Point Arena area (a 3 percent impact guideline) and use the KMZ recreational fishery to absorb any unusually heavy south of Point Arena coho harvest. Because the KMZ coho landings are much larger than those south of Point Arena, the percentage reduction in KMZ coho harvest necessary to compensate for excessive south of Point Arena coho harvest would be much less than the percentage reduction in south of Arena harvest necessary to keep that area within its historic harvest levels. The 3 percent impact guideline for the Horse Mountain to Point Arena area is 50 percent greater than the long-term average for the entire south of Horse Mountain area.

Under status quo, the actions the Council is able to take to enforce the allocation restrictions are limited. Alternatives B and C would provide the Council with the ability to effectively allocate by allowing the closure of all recreational coho fishing in California fisheries. The closures may be closures for coho retention, or, if necessary to prevent unacceptable hook and release mortality, complete closure of the recreational fishery in a subarea. With respect to these implementation measures, Alternative C differs from Alternative B in that Alternative C mandates a closure of the KMZ and Cape Falcon to Humbug Mountain areas on attainment of the harvest guideline or subarea allocations.[3/] Under the adopted alternative, allocation between subareas occurs only at low levels of allowable recreational harvest. At low harvest levels, the adopted alternative allows the Council to effectively control allocation between central Oregon and areas south of Humbug Mountain, through closure if necessary.[4/] The area south of Humbug Mountain contains two subareas which would receive separate allocations under Alternative C. The adopted alternative would manage these areas as one subarea except that (1) the area between Horse Mountain and Point Arena would be managed for a 3 percent impact guideline and (2) coho restrictions on recreational fisheries south of Point Arena would not be allowed. Thus the allocation burden for the fisheries south of Humbug Mountain would be born by the KMZ and Horse Mountain to Point Arena fisheries. The Council would be able to control attainment of the overall quota and the allocation between the two major subareas, however, the Council would control the allocations between the three minor subareas south of Humbug Mountain. The three percent guideline on the Horse Mountain to Point Arena fisheries may serve to limit that fishery and to guarantee that it receives up to three percent of the harvest guideline.

Impacts of Recreational Allocation Formula Guidelines

Establishment of a subarea allocation schedule as part of the FMP is proposed to minimize preseason controversy and confusion which might arise over the general FMP objective which states that harvest rates for commercial and recreational fisheries will be established which are consistent with "continuance of established recreational and commercial fisheries." There are a number of ways in which such an objective might be interpreted, particularly when the issue is

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3/ Subarea allocations may be modified from preseason allocations if it appears one subarea will not need all of its allocation while other areas run short.

4/ Major subarea allocations may not be modified from the recreational allocations established by this amendment unless chinook constraints preclude accessing the coho.

one of declining fisheries rather than the establishment of any new fisheries. In north of Cape Falcon fisheries, the Council has interpreted this objective to imply sharing of the conservation burden between fisheries in proportion to historic harvest shares. A similar interpretation for the south of Cape Falcon fisheries might imply an allocation like that set out in Alternative C or the adopted alternative. Absent specification of an allocation formula, in low coho harvest years the Council would have to establish allocations during the preseason process in order to ensure that the objective for continuance of fisheries would be achieved. Otherwise a shift of harvest shares would be expected from northern to southern fisheries.

Impacts of New Harvest Restrictions on Southern Fisheries

South of Horse Mountain

Alternatives B and C – Under Alternatives B and C, all coho retention in the recreational fishery would cease upon attainment of the overall coho harvest quota. Under the adopted alternative, closures to coho retention in this area would be allowed only as far south as Point Arena and only in years in which the south of Cape Falcon recreational coho allocation falls below 167,000 fish. The contribution of coho to the catch in this area as a whole is generally minor (usually less than 10 percent) and a significant reduction in recreational effort or the value of the recreational experience would not usually be expected to result from a closure to coho retention, especially after mid-August (Table B-8a).

In certain situations under Alternative C, however, limits on retention of coho in the sport fishery may have a significant effect. For example, by the end of June 1991 the recreational fishery had harvested 5 percent of the total south of Cape Falcon quota (Table B-11a). This was more than double the Alternative C 2 percent harvest guideline. Therefore, under Alternative C it is expected that the fishery would have been closed to coho retention for the remainder of the season. In July of 1991, 41 percent of the fish caught were coho. Closure of the fishery to coho retention would have reduced the July success rate from 0.78 fish per trip (Table B-7) to 0.46 fish per trip. If there were no reduction in effort in response to the closure, 73,400 trips would have been taken without coho retention and at least 7,400 coho discarded. Regulation induced discards are often viewed as socially undesirable by both recreational and commercial fishers.

In 1990, rapid fulfillment of the south of Horse Mountain subarea quota would also have likely resulted in a closure at the end of June. This closure would have reduced retained-fish per trip from 0.71 to 0.60 in July and, if continued, from 1.12 to 0.95 in August. If there were no reduction in effort in response to the closure, 74,200 trips would have been taken without coho retention and at least 15,400 coho discarded. However, because of the slow pace of the fishery in 1990, it is likely that the fishery would have been reopened when it became apparent that the central Oregon fishery was not likely to take its subarea guidelines. This may have been apparent by the end of July at which time the area between Cape Falcon and Humbug Mountain (central Oregon) had harvested only about 50 percent of its subarea harvest guideline (38 percent of the south of Cape Falcon quota).

In 1993, low allowable harvests created a situation in which the area south of Horse Mountain rapidly reached its 2 percent share. A closure at the end of May would have resulted in the retention of 15 thousand fewer coho. This would have reduced angler satisfaction to some degree

TABLE B-11a. Cumulative percent[a/] of the south of Cape Falcon recreational coho quota by subarea and month for 1986-1993 (underlined values indicate periods when harvest levels are near those which would be allowed under the proposed allocations schedule).

Month	Years							
	1986	1987	1988	1989	1990	1991	1992	1993
South of Cape Falcon Quota and Catch (thousands of coho):								
Harvest Quota	189	269	298	283	235	259	172	68
Catch	194	199	251	288	212	289	175	69
CUMULATIVE PERCENT OF TOTAL QUOTA								
Cape Falcon to Humbug Mt.								
May	1	0	0	1	0	0	0	0
June	11	1	6	18	9	16	15	0
July	73	37	39	55	38	76	67	26
Aug.	86	47	63	72	61	76	89	44
Sept.	86	50	67	72	63	76	93	44
Oct.	86	50	67	72	63	76	93	44
KMZ (Humbug Mt. to Horse Mt.)								
May	1	0	0	1	0	0	0	1
June	5	2	2	7	12	12	0	2
July	12	18	14	23	22	23	5	17
Aug.	15	22	15	27	23	24	5	30
Sept.	15	23	15	27	24	24	6	31
Oct.	15	23	15	27	24	24	6	31
South of Horse Mt.								
Feb.	0	0	0	0	0	0	0	0
Mar.	0	0	0	0	0	0	0	0
Apr.	0	0	0	0	0	0	0	0
May	0	0	0	0	0	0	0	1
June	0	0	0	1	2	5	0	3
July	1	1	1	1	4	11	3	22
Aug.	1	1	1	2	5	11	3	25
Sept.	1	1	1	2	5	11	3	25
Oct.	1	1	1	2	5	11	3	25

a/ Values do not add to 100 percent because quotas were either not met or exceeded.

TABLE B–11b. Cumulative percent[a/] of the south of Horse Mountain recreational coho quota by subarea and month for 1986–1993 (underlined values indicate periods when harvest levels are near those which would be allowed under the Alternative C allocations schedule).

Month	Years							
	1986	1987	1988	1989	1990	1991	1992	1993
South of Cape Falcon Quota and Catch (thousands of coho):								
Harvest Quota	189	269	298	283	235	259	172	68
Catch	194	199	251	288	212	289	175	69
CUMULATIVE PERCENT OF TOTAL QUOTA								
Horse Mountain to Point Arena								
May	0	0	0	0	0	0	0	0
June	0	0	0	0	1	3	0	1
July	1	1	1	1	2	7	2	18
Aug.	1	1	1	1	2	7	2	21
Sept.	1	1	1	1	2	7	2	21
Oct.	1	1	1	1	2	7	2	21
South of Point Arena								
Feb.	0	0	0	0	0	0	0	0
Mar.	0	0	0	0	0	0	0	0
Apr.	0	0	0	0	0	0	0	0
May	0	0	0	0	0	0	0	1
June	0	0	0	0	1	2	0	2
July	0	0	0	0	2	4	1	4
Aug.	0	0	0	0	3	4	1	5
Sept.	0	0	0	0	3	4	1	5
Oct.	0	0	0	0	3	4	1	5

a/ Values do not add to 100 percent because quotas were either not met or exceeded.

both through the act of discarding and a reduction in the average retained fish per trip. Data on the number of trips taken and success rates for 1993 are not currently available so it is difficult to further assess the adverse impacts on closures to coho retention south of Horse Mountain.

Adopted Alternative – Under the adopted alternative, a closure in the area south of Horse Mountain would have been allowed only in 1993 and only in part of the south of Horse Mountain area (the only year examined in which the recreational coho allocation fell below 167,000 fish-- Table 11b). Because restrictions on coho retention are allowed only from Horse Mountain south to Point Arena, the south of Point Arena fishery would have been allowed to take the five percent of the quota share it is reported to have harvested (Table B-11b). The fishery between Horse Mountain and Point Arena would have been restricted to 3 percent of the south of Cape Falcon quota rather than the 21 percent share it actually harvested. This means that the south of Horse Mountain harvest would have been 8 percent under the adopted alternative as compared to 3 percent under Alternative C and 25 percent under status quo.

KMZ

Alternatives B and C – Alternative B would allow for the complete closure of sport fisheries if it is anticipated that a closure to coho retention would result in excessive coho hook and release mortality. The KMZ is the area south of Humbug Mountain most likely to have a high coho hook-and-release mortality when coho retention is prohibited. Alternative C would mandate the closure of the KMZ area in the event the harvest guideline is reached.

A review of fishery data for 1986 through 1992 shows that under Alternative C, it is possible the KMZ recreational fishery would have closed by the end of July in 1989 and 1990. Closure at the end of July in 1989 would have resulted in an effort reduction of 35,400 trips. Coho harvest would have been decreased by 14,100 fish and chinook harvest would have declined 14,500 fish. In 1989, the fishery off central Oregon was closed from August 21 through September 1. A closure in the KMZ may have allowed the central Oregon fishery to remain open. Because success rates off the central Oregon coast declined rapidly between the August and the September reopening, it is difficult to determine how many additional trips may have been provided by a closure in the KMZ. In 1990, because the central Oregon fishery had only taken 38 percent of the south of Cape Falcon quota by the end of July, it is not likely that the KMZ fishery would have been constrained.

If harvest quotas were established in the preseason process, under Alternative B it might be possible to allow the KMZ recreational fishery to continue the harvest of salmon species other than coho when coho harvest quotas were approached. Table B-8a shows that the contribution of coho to the recreational fishery may frequently exceed 50 percent. A closure to coho retention would likely decrease the value of the fishing experience and decrease effort in the fishery. Therefore the coho harvest reductions discussed in the previous paragraph (about 14,000 coho) would be considered an upper bound on the number of fish which might be encountered and subject to hook and release mortality under a closure to coho retention.

Adopted Alternative – For the KMZ, the adopted alternative mandates neither complete closure of the recreational fishery nor closure to coho retention when quotas are approached, but allows the Council to impose such restrictions in years when the total south of Cape Falcon coho

allocation is below 167,000 fish. Because allocation guidelines come into affect only at allocation levels below 167,000 coho, 1993 is the only example year examined to which the adopted allocation schedule would apply. In 1993, the south of Humbug Mountain quota of 30 percent of the south of Cape Falcon coho quota, combined with an 8 percent south of Horse Mountain share (discussed above), would have left 22 percent of the south of Cape Falcon coho quota for the KMZ area. This is just above the 21 percent which would have been allowed under Alternative C and substantially below the 31 percent which was allowed under status quo.

Effects of the Allocation Formula on Central Oregon Coast Fisheries (Cape Falcon to Humbug Mountain)

Alternatives B and C

The current plan already allows for the closure of central Oregon sport fisheries in order to meet coho quotas. Therefore, there is no change for this area under Alternative B. The new provision affecting the central Oregon coast would be the allocation formula and options allowing closure of California recreational fisheries specified in Alternative C and the adopted alternative. Under Alternative C, the central Oregon recreational fishery exceeded the share it would have been allocated preseason in 1986 and 1992. However, it is not likely that the fishery would have been shut down any earlier. In 1986, it would have become apparent by the end of July that the central Oregon fishery, if unconstrained, would exceed its historic share. By that time the majority of the more southern area coho catches would have been taken. It would likely have been projected that there would be additional quota available to allow the central Oregon fishery to continue and exceed its historic harvest share. In 1992, chinook constraints on recreational fishing in the KMZ may well have caused the Council to allow a deviation from the 77 percent allocation guideline for coho and no action would have been taken to close the central Oregon fishery. In 1993 and 1991, the allocation formula may have provided more harvest for central Oregon.

Had the 1991 fishery been managed to stay within its quota, a hindcasting of the effects of Alternative C would show that the central Oregon harvest share in 1991 would potentially have increased 12 percent (from 65 percent to 77 percent of the south of Cape Falcon recreational quota) as a result of restrictions south of Humbug Mountain. This 12 percent increase in harvest share would represent 31,000 fish, which translates to 19,300 trips (at the observed 1991 July coho success rate of 1.61 coho per trip).

A south of Horse Mountain closure in 1993, would likely have allowed the area off central Oregon to reach at least 66 percent of its historical share, rather than the 44 percent actually harvested. Measured as a proportion of the mid-summer season, the additional harvest would likely have resulted in a fairly sizable increase in the duration of the central Oregon mid-summer season. However, because of the low quota level the increase in absolute terms would have been relatively small.

Adopted Alternative

Because the adopted alternative applies only in years when the south of Cape Falcon recreational coho allocation is below 167,000 fish, the adopted alternative would provide more fish to the central Oregon coast only in 1993. Under the adopted alternative, restrictions in the fishery south of Humbug Mountain would have allowed the harvest of 70 percent of the quota share in the area off the central Oregon coast. This is below the 77 percent which would have been allowed under Alternative C, but substantially above the 44 percent share actually taken under status quo management.

COMMUNITY IMPACT MODELING

Coastal county per pound and per trip income impacts results from the annual salmon reviews were used in the income impact modeling. The results used in the annual review are from the Fishery Economic Assessment Model which is based in part on U.S. Forest Service IMPLAN coefficients. All modeling was done at the local county level.

Table B–12 presents a summary of income impacts for a hindcasting of the short–term effects from adoption of the proposed OCN escapement goal. Changes in recreational fishing related community level income impacts may be over stated to the degree that individuals would substitute other fishing or recreational activities in the coastal communities for lost opportunities to harvest salmon. Additionally, over the long–term some rebuilding of stocks would be expected to result in a lessening of the negative effects one might observe in any one year.

REGULATORY FLEXIBILITY ACT CONSIDERATIONS

The Regulatory Flexibility Act requires a determination as to whether a proposed action will have a significant impact on a large number of small entities. The primary effect of the proposal to change the OCN spawning escapement goal will be on ocean commercial and recreational fisheries harvesting coho. The general conclusion of the following sections is that the short term effects of the proposed increase in the spawner escapement goal will have a significant impact on a substantial number of small entities. Over the long term, the effect of this amendment is expected to be less significant (due to some stock rebuilding) and possibly even positive (if absent this action OCN stocks would have become listed as endangered species). There are no new reporting, recordkeeping or other compliance requirements resulting from the proposed rule. No other rules duplicate or overlap the proposed rule. No alternatives have been identified which would achieve the desired objective while reducing the significant impact on small entities, though Alternative C and the adopted alternative may tend to spread the impact out over a larger geographic area and hence larger number of entities.

Commercial Fisheries

Salmon fishing is only one component of the fishing activity of most commercial fishing vessels which fish for salmon. Coho fishing is only one component of the salmon harvest. On average, coho revenues for vessels in California generally comprise less than 10 percent of the total salmon revenues. For vessels in Oregon and Washington, coho generally contribute 20 to 50 percent of the salmon fishing revenues. A hindcasting of the effects of the proposed spawner

TABLE B–12. Projected coho–related coastal community income impacts (short–term) based on the proposed revision to the OCN escapement goal (thousands of dollars). (Page 1 of 1)

	1990	1992
North of Cape Falcon		
Recreational	1,293	1,087
Troll	504	89
South of Cape Falcon		
Recreational		
Cape Falcon to Humbug Mt.	–1,068	–3,669
KMZ	–623	0
South of Horse Mt.	0	0
Troll		
Cape Falcon to Humbug Mt.	–1,602	–438
KMZ	–55	0
South of Horse Mt.	–190	–238

escapement goal for 1990 showed a reduction in gross coho revenue of about 40 percent for areas south of Cape Falcon. This would imply average reductions in total salmon revenue of between about 8 and 20 percent for areas off Oregon and around 1 to 4 percent for areas off California. Reductions in coho revenue hindcasted for 1992 were 100 percent. Some commercial vessels may seek to increase their participation in other fisheries as a means of replacing lost salmon revenues. Coho revenues for fisheries north of Cape Falcon are expected to increase. Hindcasting for 1990 and 1992 showed coho revenue increases of 40 and 20 percent, respectively.

Oregon vessels generally comprise just over 25 percent of the total west coast salmon fleet. Based on salmon revenues, all salmon vessels would generally be considered small business entities (gross receipts of less than $2.0 million). Absent information about revenues from other fishing activities it appears that the proposed action would, at least in the short term, have a significant effect on a substantial number of small entities within the troll sector. In the long term, this amendment is expected to decrease the probability that these businesses will be worse off due to the potential for OCN coho stocks to become endangered.

Recreational Fisheries

The harvest of coho is an important component of recreational fisheries north of Horse Mountain. Between Horse Mountain and Humbug Mountain it is not clear to what degree constraints on coho harvest would reduce the number of fishing trips. In years like 1992, restrictions to protect Klamath River fall chinook may limit the coho catch to levels well below the historic average. Prohibitions on coho retention in this area would likely result in some reduction in effort, however, not in proportion to the reduction in the coho quota. Closure on attainment of a coho quota would result in effort reductions in all–species seasons proportional to changes in the coho quota.

From Humbug Mountain north to Cape Falcon, recreational fisheries have generally been constrained by coho fishing, with the exception of minor chinook–directed fisheries. In this area, changes in coho harvest probably imply close to proportional changes in salmon fishery related revenue for businesses supporting ocean recreational activities. Hindcasting for 1990 and 1992 showed 14 and 54 percent reductions, respectively, in the coho quota for areas between Humbug Mountain and Cape Falcon. North of Cape Falcon increases of 12 and 17 percent were hindcast for 1990 and 1992, respectively.

Charter vessel businesses supporting recreational salmon trips often provide groundfish and other ocean sport fishing experiences as well as marine mammal observation. Therefore, any reduction in salmon fishing opportunities may not always be completely reflected by the proportion of reduction in total business revenues. Some private vessel anglers may also substitute other ocean recreational fishing opportunities when salmon harvest opportunities are not present.

Most charter vessels are small businesses and participate in the salmon fishery when the opportunity is present. The proportional contribution of salmon fishing revenues to the total income of these vessels is unknown. However, there appears to be a reasonable probability that the proposed reductions in the OCN spawner escapement goal will have a significant impact on a substantial number of small business entities in the charter vessel sector. Similarly, many small

coastal business depend on the expenditures of anglers participating in both the charter and private vessel fishing modes. These businesses will also be adversely affected by the proposed amendment. On the otherhand, the businesses may also benefit from the reduced risk that coho stocks may become endangered. It is the intent of this amendment to reduce the risk that over the long term businesses will be worse off than they will be in the short term under this amendment.

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Council. 1981. Proposed plan for managing the 1981 salmon fisheries off the coast of California, Oregon, and Washington, an amendment to the fishery management plan for commercial and recreational salmon fisheries off the coast of Washington, Oregon, and California commencing in 1978.

Council. 1986. Seventh amendment to the fishery management plan for commercial and recreational salmon fisheries off the coast of Washington Oregon and California commencing in 1978.

Council. 1993. Review of the 1992 ocean salmon fisheries.

APPENDIX C
CONSISTENCY WITH FEDERAL AND STATE COASTAL ZONE MANAGEMENT PROGRAMS

COASTAL ZONE MANAGEMENT ACT OF 1972

The CZMA of 1972 specifies at Section 307(c)(1) that:

> Each federal agency conducting or supporting activities directly affecting the coastal zone shall conduct or support those activities in a manner which is, to the maximum extent practicable, consistent with approved state management programs.

The MFCMA specifies at Section 303(b) that:

> Any FMP which is prepared by any council or by the Secretary, with respect to any fishery, may . . . (5) incorporate (consistent with the national standards, the other provisions of MFCMA, and any other applicable law) the relevant fishery conservation and management measures of the coastal states nearest to the fishery.

Both the CZMA and the MFCMA establish policies that affect the conservation and management of fishery resources.

NOAA administers both the MFCMA and the CZMA. Moreover, it is NOAA's policy that the two statutes are fundamentally compatible and should be administered in a manner to give maximum effect to both laws. It is also NOAA's policy that most FMPs (and amendments of FMPs) constitute a federal activity that "directly affects" the coastal zone of a state with an approved coastal zone management program. NOAA recognizes that fisheries constitute one of the key resources of the coastal zone and the preparation and implementation of FMPs to regulate fisheries in the EEZ could have a direct affect on the state's coastal zone because of the division in the fishery resources between the EEZ and state territorial and internal waters.

The CZMA and the MFCMA establish time frames for consistency review and approval of FMPs and amendments that are approximately equal. However, these time frames may, on occasion, cause procedural problems in coordinating consistency review and approval of FMPs or amendments.

NOAA regulations require that consistency determinations be provided to states with approved programs "at least 90 days before final approval of the federal activity unless both the federal agency and the state agency agree to an alternative notification schedule" (15 CFR 930.54[b]). Similarly, NOAA regulations encourage federal agencies to provide consistency determinations "at the earliest practical time" in the planning of an activity, "before the federal agency reaches a significant point of decision making in its review process" (930.54[b]). A state must indicate its agreement or disagreement with the consistency determination within 45 days. If the state fails to respond within 45 days, the state's agreement may be presumed. However, the state may request one 15-day

extension before the expiration of the 45-day period, and the federal agency must comply. Longer extensions may be granted by the federal agency (15 CFR 930.41).

The sections that follow summarize those portions of the Washington, Oregon and California coastal zone management programs that may be relevant to changes in the salmon FMP proposed in Amendment 11.

Washington State Coastal Zone Management Program

The Department of Ecology is lead state agency for implementation of the WCZMP. The coastal zone boundary embodies a two-tier concept. The first or primary tier, bounded by the "resource boundary," encompasses all of the state's marine waters and their associated wetlands, including, at a minimum, all upland area 200 feet landward from the ordinary high water mark. The second tier, bounded by the "planning and administrative boundary," is composed of the area within the 15 coastal counties which front on saltwater. The second tier is intended to be the maximum extent of the coastal zone and, as such, is the context within which coastal policy planning is accomplished through the WCZMP.

Management of the coastal zone is subject to the Shoreline Management Act and implementing regulations, the federal and state clean air act requirements and the energy facility siting law. Together, these authorities establish priorities for permissibility of uses and provide guidance as to the conduct of uses for Washington's coastal zone. The emphasis of the program includes not only Washington's coastal waters, but the shoreline jurisdiction throughout the 15 coastal counties.

The WCZMP provides a consistency review mechanism for federal activities affecting the coastal zone based on specific policies and standards. For federal activities requiring no permits, but having coastwide implications (such as FMPs), the policies and standards addressed in the Shoreline Management Act of 1971 (RCW 90.58) and the Final Guidelines (WAC 173-16) provide the basis for determining consistency.

Shoreline Management Act

The management goals in the Shoreline Management Act emphasize a balance between conservation and use of the shorelines. More specific priorities were given to "shorelines of statewide significance" encompassing an area including Washington ocean waters and shoreline from Cape Disappointment on the south to Cape Flattery on the north, including harbors, bays, estuaries and inlets.

The present salmon FMP and proposed amendment are consistent with the following directives contained in the WCZMP concerning shoreline management.

> Recognize and Protect the Statewide Interest Over Local Interest – The current FMP and this amendment utilize statewide and/or regionwide management to assure protection of the salmon resource and to determine fishery harvest allocation and distribution.

Preserve the Natural Character of the Shoreline – The salmon FMP and this proposed FMP amendment have no direct impact on the natural character of the Washington shoreline. The current FMP is supportive of this directive, especially where degradation of the natural character of the shoreline also degrades the fish producing capacity of the environment.

Result in Long-term Over Short-term Benefit – The FMP requires the annual consideration of long-term resource needs and long- and short-term social and economic impacts. The determination of OY balances these competing demands. Amendment 11 does not alter this aspect of the FMP. The amendment considers the best way to ensure that the long-term productivity of the OCN coho stock is protected.

Protect the Resources and Ecology of the Shoreline – The purpose of the FMP and subsequent amendments is to conserve and protect the salmon resource for current and future use. The proposed amendment will not alter this purpose.

Increase Public Access to Publicly-owned Areas of the Shoreline – The amendment to the FMP will not have any direct or indirect affect on public access to publicly-owned areas along the coastal zone.

Increase Recreational Opportunities for the Public in the Shoreline – Amendment 11 should have little impact on either increasing or decreasing recreational opportunity in the shoreline. The proposed amendment considers the best way to ensure long-term productivity of a naturally spawning stock which may contribute to more stable recreational opportunities in or near the shoreline.

Washington Department of Ecology Final Guidelines

The concept of preferred shoreline uses has been incorporated in final Department of Ecology guidelines, with water-dependent uses clearly a priority over water-oriented or non water-oriented uses. The guidelines address uses compatible with (1) the natural environment, (2) the conservancy environment, (3) the rural environment and (4) the urban environment. Of the 21 individual development policies in the final guidelines, three have relevance or potential relevance to the federal activity proposed in this amendment to the FMP.

Commercial Development – Shoreline-dependent commercial development and developments which will provide shoreline enjoyment for a large number of people shall be preferred. New commercial activities shall locate in urbanized areas.

Ports and Water-related Industry – Industry which requires frontage on navigable waters should be given priority over other industrial uses. Prior to allocating shorelines for port uses, regional and statewide needs for such uses should be considered.

Recreation – Priority will be given to developments which provide recreational uses and other improvements facilitating public access to shorelines. Water-oriented

> recreation is a preferred use along the shorelines, but it should be located and conducted in a way which is compatible with the environment.

The present FMP and Amendment 11 have no direct impact on commercial development, allocation of shoreline to ports and water related industry, or recreational development.

Oregon State Coastal Zone Management Program

The Oregon program calls for consistency review to activities directly affecting the coastal zone, including air, water, scenic, living, economic, cultural and/or mineral resources of the coastal zone.

The basis for the Oregon program is the 1973 Oregon Land Use Act, ORS 197. Oregon's program relies on the combined authority of state and local governments to regulate uses and activities in the coastal zone. The principal components of Oregon's program are: (1) 19 statewide planning goals and supporting guidelines adopted by the LCDC, the state's coastal zone agency; (2) coordinated comprehensive local plans prepared by local governments and approved by the LCDC; and (3) selected state statutes implemented by various state agencies. Local and state planning decisions must comply with the statewide planning goals, which serve as the program's overriding standards until local comprehensive plans are developed and acknowledged by LCDC. Once acknowledged, the comprehensive plans supersede the goals as standards for state and federal planning and activities in the coastal zone. Coastal zone boundaries are generally defined to extend to the state's seaward limit (three nautical miles offshore) and inland to the crest of the coastal mountain range.

The consistency of this FMP amendment with each pertinent goal of the Oregon Coastal Zone Program is described below.

Goal 19 – Ocean Resources

The FMP as amended is consistent with Goal 19, the most pertinent aspect of the Oregon State Coastal Zone Management Program relating to salmon management. The overall statement of Goal 19 is:

> To conserve the long-term values, benefits and natural resources of the nearshore ocean and continental shelf. All local, state, and federal plans, projects, and activities which affect the territorial sea shall be developed, managed, and conducted to maintain, and where appropriate, enhance and restore, long-term benefits derived from the nearshore oceanic resources of Oregon. Since renewable ocean resources and uses, such as food production, water purity, navigation, recreation, and aesthetic enjoyment will provide greater long-term benefits than will nonrenewable resources, such plans and activities shall give clear priority to the proper management and protection of renewable resources.

Guidelines for Goal 19 reflect concerns for awareness of impacts upon fishing resources, biological habitat, navigation and ports, aesthetic uses, recreation and other issues. The management objectives that are expressed in the FMP and this amendment are consistent with the objective of Goal 19, the protection and conservation of ocean resources. Goal 19 emphasizes the long-term benefits that

would be derived from the conservation and restoration of the renewable nearshore oceanic resources. The FMP, including Amendment 11 and its consideration of risk to the productivity of OCN coho, emphasizes the need to provide for the conservation and protection of salmon stocks and should enhance the production and conservation of the salmon resource.

Goal 5 – Open Spaces, Scenic and Historic Areas, and Natural Resources

Goal 5 also addresses the issue of conservation of natural resources. The guidelines call for fish and wildlife areas and habitats to be protected and managed in accordance with the Oregon Fish and Wildlife Commission's management plans. The FMP was found consistent with the management objectives for salmon stocks off Oregon that were developed by ODFW and adopted by the Oregon Fish and Wildlife Commission. None of the issues in this FMP amendment will change the consistency of the FMP with Goal 5.

Goal 16 – Estuarine Resources

Goal 16 addresses the protection of estuarine resources. This goal emphasizes the need for protection, maintenance, development, and appropriate restoration of long-term environmental, economic, and social values; diversity, and benefits of Oregon's estuaries. Comprehensive plans and activities affecting estuaries must protect the estuarine ecosystem including its biological productivity, habitat, diversity, unique features, and water quality. However, Goal 16 underscores the need to classify Oregon estuaries and to specify "the most intensive level of development or alteration which may be allowed to occur within each estuary". Neither the FMP nor its amendments has a direct affect on development or alteration of the estuarine environment.

Goal 8 – Recreational Needs

Goal 8 refers to existing and future demand by citizens and visitors for recreational facilities and opportunities. Planning guidelines recommend that inventories of recreational opportunities be based on adequate research and analysis of the resource, and where multiple uses of the resource exist, provision be made for recreational users. The proposed amendment has no direct effect on this goal. However, it recognizes the need to maintain established recreational fisheries and provide for the long-term productivity of salmon stocks which contribute to recreational opportunities.

Goal 1 – Citizen Involvement

Goal 1 calls for the coordination of state, regional and federal planning with the affected governing bodies and citizenry. Guidelines address communication methods, provision of technical information, and feedback mechanisms to assure the opportunity for citizen involvement in planning processes. The FMP process provides for close collaboration and coordination between state and federal management entities and assures citizen involvement in decision making through the forum of the Council and through a series of public hearings that are convened before the Council adopts any fishery management measures. Amendment 11 does not impact citizen involvement in the fishery management process.

Lastly, insofar as FMPs and FMP amendments have the potential to indirectly affect the coastal zone by stimulating private development of new markets or development of fish handling and processing

facilities, or otherwise influence land-use planning, this amendment is also consistent with Goals 2, 9, and 17.

California State Coastal Zone Management Plan and San Francisco Bay Plan

Coastal Plan

The California State Coastal Zone Management Plan is based upon the California Coastal Act of 1976, Division 20, California Public Resources Code, Sections 30000, et seq.; the California Urban and Coastal Park Bond Act of 1976, Division 5, CPRC 5096.777 et seq.; and the California Coastal Commission Regulations, California Administrative Code, Title 14.

The California Coastal Act establishes a structure for state approval of local coastal programs (Section 30050). The California Coastal Commission is the state's coastal zone agency (Section 30300). The coastal zone boundaries are generally the seaward limit of state jurisdiction, and inland to 1,000 yards from the mean high tide line.

The general provisions of the California plan that address issues significant to this analysis concern the protection of the ocean's resources, including marine fish and the natural environment. The plan also calls for the balanced utilization of coastal zone resources, taking into account the social and economic needs of the people of the state. Specific coastal zone policies developed to achieve these general goals and which are applicable or potentially applicable to the regulatory measures proposed in the FMP (as amended) have been identified as follows.

- Section 30210 – . . . recreational opportunities shall be provided for all the people consistent with the need to protect natural resource areas from overuse.

  This goal is consistent with the FMP which seeks to provide recreational fishing opportunities consistent with the needs of other user groups and the need to protect the resource. Nothing in the proposed actions will have a direct or indirect effect on the use of natural resource areas beyond that already contemplated in the present FMP.

- Section 30231 – The biological productivity and quality of coastal waters, streams, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained, and, where feasible, restored . . .

  Any action considered in the FMP amendment does not affect the quality of coastal waters. It provides for the conservation and optimum use of salmon stocks, which are an integral part for the ecology of the coastal waters.

- Section 30230 – Uses of the marine environment shall be carried out in a manner . . . that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.

  The FMP amendment does not jeopardize the reproductive capability of any resource, has no significant environmental impacts, and promotes equitable utilization among user groups with the intent of maintaining the salmon harvest at levels which provide the long-term MSY.

- Section 30234 – Facilities serving the commercial fishing and recreational boating industries shall be protected, and where feasible, upgraded.

  The FMP does not specifically address the development of shoreside facilities that serve the commercial and recreational fishing industries.

- Section 30260 – Coastal-dependent industrial facilities (such as fishing support) shall be encouraged to locate or expand within existing sites and shall be permitted reasonable long-term growth where consistent with the California Coastal Act.

  The FMP does not address the location of coastal dependent industry.

- Section 30708 – All port-related developments shall be located . . . so as to . . . give highest priority to the use of existing and space within harbors for port purposes including . . . necessary (commercial fishing) support and access facilities.

  The FMP does not address the location of ports.

- Section 30411 – The CDFG and the Fish and Game Commission are the state agencies responsible for the establishment and control of wildlife and fishery management programs.

  The director of CDFG is a voting member of the Council. A representative from CDFG participates on the Council's STT and helped develop the FMP and each amendment. The MFCMA mandated that all interested individuals, including state fishery management personnel, would have the opportunity to participate in the preparation of FMPs and amendments. This action is consistent with the provisions of Section 30411 because the CDFG has been involved in the planning process for those parts of the amendment that pertain to the management of California and coastwide fisheries.

San Francisco Bay Plan

The San Francisco Bay Conservation and Development Commission has jurisdiction over the San Francisco Bay itself, as well as any river, stream, tributary, creek, flood control, or drainage channel that flows into San Francisco Bay. The San Francisco Bay Plan was approved by the California legislature in 1969. Part II of the plan describes the Commission's objectives as follows.

1. Protect the bay as a great natural resource for the benefit of present and future generations.

2. Develop the bay and its shoreline to their highest potential with a minimum of bay filling.

Part III of the San Francisco Bay Plan describes the findings and policies of the Commission including fish and wildlife policies for the San Francisco Bay. The adopted policies state:

1. The benefits of fish and wildlife in the bay should be insured for present and future generations of Californians. Therefore, to the greatest extent feasible, the remaining

marshes and mudflats around the bay, the remaining water volume and surface area of the bay, and adequate fresh water inflow into the bay should be maintained.

2. Specific habitats that are needed to prevent the extinction of any species, or to maintain or increase any species that would provide substantial public benefits, should be protected, whether in the bay or on the shoreline behind dikes . . . .

Part IV of the bay plan presents the findings and policies concerning the development of the bay and the adjacent shoreline. Emphasis is given to the consideration of construction projects on filled lands and the controls over-filling and dredging in San Francisco Bay.

The FMP and this amendment do not address or affect water flows, shoreline development, or other habitat in the San Francisco Bay.

CONSISTENCY DETERMINATION

The amendment document, including its appendices, describes the issues considered in Amendment 11 to the salmon FMP and evaluates the likely impacts of various actions that are to be taken. The EA and RIR/IRFA (incorporated in the issue descriptions and Appendices A and B) compare the expected impacts of the amendment from environmental, social and economic perspectives. Actions recommended in this amendment have been determined to have no significant impact under the NEPA, Executive Order 12991 and Regulatory Flexibility Act.

Based on the above discussions and supported by these determinations, the Council finds that any action likely to result from the FMP amendment is consistent, to the maximum extent practicable, with the approved Washington, Oregon, California and San Francisco Bay coastal zone management plans.

APPENDIX D
OTHER APPLICABLE LAW

ENDANGERED SPECIES ACT OF 1973

The purposes of the ESA are to provide a means whereby the ecosystems upon which endangered and threatened species depend may be conserved, to provide a program for the conservation of such endangered and threatened 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 agency is not likely to jeopardize the continued existence of any endangered or threatened species.

Prior to 1990, the Council and NMFS determined that populations of endangered/threatened species listed under the ESA were not likely to be adversely affected by the conservation and management measures in the FMP and subsequent amendments (through Amendment 9). In 1989, NMFS and the U.S. Fish and Wildlife Service completed a formal Section 7 consultation concerning the issuance of exemptions for commercial fisheries under the MMPA. The biological opinions prepared during the consultation assessed the impacts of all commercial fishery operations, including salmon fisheries under Council management, on endangered/threatened species listed as of July 1989. The consultation resulted in the conclusion that the issuance of the MMPA exemptions was not likely to jeopardize the continued existence of any listed species.

Since July 1989, the following species or stocks have been listed under the ESA: Sacramento River winter-run chinook salmon (threatened), Snake River sockeye salmon (endangered), Snake River spring/summer and fall chinook salmon (both listed as threatened); and the Stellar sea lion (threatened). The change proposed by Amendment 11 is minor with regard to impacts on marine mammals and falls within the scope of the 1989 consultation prepared for the ocean salmon fisheries. Amendment 11 is not expected to change the impacts of the current FMP in any way with regard to Stellar sea lion that would place this species at jeopardy.

Formal Section 7 consultations were completed by the Council and NMFS for the 1991, 1992 and 1993 ocean salmon fishery management measures to assure that the proposed regulations were not likely to jeopardize the continued existence of the Sacramento winter run and Snake River salmon stocks. Council-managed salmon fisheries in 1994 and beyond will meet the terms of these already completed biological opinions or any new consultations as they occur.

Amendment 11 changes the OCN coho spawning escapement goal and thereby the management of the fisheries off Oregon and California which impact this stock. The direction of the management change is generally toward more protection of the productive capacity of the natural stock. Therefore, due to the interrelated management of coho and chinook fisheries, the affect of the amendment should be toward reducing impacts on listed stocks in the areas managed for OCN coho. A biological analysis and Section 7 consultation of all fisheries proposed under the FMP, including Amendment 11, if adopted, will be completed prior to the start of the fishing season each year.

On March 11, 1993, NMFS received a petition to list two central California coho stocks under the ESA. A second petition to list five Oregon stocks was received on July 21, 1993 and a third petition

for a review of coho stocks coast-wide on October 20, 1993. In response to the first two petitions, NMFS announced its intent to conduct a comprehensive status review to assess all coho stocks in Washington, Oregon and California (October 27, 1993, 58 FR 57770). Many of the stocks now under review for ESA listing would be affected by Amendment 11. Since the affect of Amendment 11 is generally toward more protection of the productive capacity of the natural coho stock rearing off Oregon and California, the proposed amendment should have a beneficial effect on the petitioned coho stocks.

MARINE MAMMAL PROTECTION ACT OF 1972

The purpose of the MMPA is to protect marine mammals and to prevent certain marine mammal species and stocks from falling below their optimum sustainable population which is defined in Section 3(8) as:

> . . . the number of animals which will result in the maximum productivity of the population or the species, keeping in mind the carrying capacity of the habitat and the health of the ecosystem of which they form a constituent element.

Recreational and commercial salmon fishermen occasionally will have an incidental involvement with marine mammals. On November 23, 1988, the President signed Public Law 100-711, the MMPA amendments of 1988. Among other things, this law established a five-year program to allow the incidental taking of marine mammals by commercial fishermen and to collect information regarding marine mammal interactions with fisheries.

Before enactment of the amendments, the MMPA prohibited the take of marine mammals incidental to commercial fishing unless authorized by an incidental take permit or a small take exemption. Congress added Section 114, which replaced most earlier provisions for granting incidental take authorizations to commercial fishermen with an interim exemption system valid until October 1, 1993.

Section 114 gave most commercial fishermen a five-year exemption from the incidental taking provisions of the MMPA, provided that certain conditions were met. The primary objective of this interim system was to provide a means to obtain reliable information about interactions between commercial fishing activities and marine mammals while allowing commercial fishing activities to continue despite NOAA fisheries' current inability to make optimum sustainable production findings. The information collected in conjunction with the exemption system and information on the sizes and trends of marine mammal populations will be used to develop a long-term program to govern the taking of marine mammals associated with commercial fisheries. All commercial fishing vessels are included in one of the three following categories: (I) a frequent incidental taking of marine mammals; (II) an occasional incidental taking of marine mammals; and (III) a remote likelihood, or no known incidental taking, of marine mammals.

Beginning July 21, 1989, vessel owners had to be registered and have proof of an exemption in order to engage lawfully in any Category I or II fishery. Owners of vessels must register with the Secretary to obtain an exemption certificate to take marine mammals incidentally, must display or possess physical evidence of exemption, and must submit periodic reports to NOAA fisheries. In addition, vessels engaged in Category I fisheries must take onboard a natural resources observer if requested by the Secretary. Fishing in a Category I or II fishery without an exemption is a violation of the

MMPA and owners and masters of vessels are subject to penalties. Owners of vessels in Category III fisheries are not required to register with the Secretary to obtain an exemption certificate but they must report all lethal incidental takings.

Beginning May 12, 1992, the salmon troll fishery north of Cape Falcon, Oregon, was categorized as a Category III fishery (57 FR 20328, May 12, 1992). Review of the best available information confirmed that incidental takings of marine mammals in this fishery are infrequent. The salmon troll fishery south of Cape Falcon was categorized as a Category II fishery. On June 14 (58 FR 32905, June 14, 1993) NMFS issued notice of an interim final list that maintained these fishery categories for the troll salmon fisheries off Washington, Oregon and California.

Amendment 11 applies primarily to the area south of Cape Falcon which contains the Category II salmon troll fishery. The changes to the current FMP by Amendment 11 are minor with regard to impacts on marine mammals by commercial salmon fishing, or in any other way. The impacts fall within the scope of the previous category determinations for the ocean fishery. Under the current depressed levels of the OCN coho stock, the short-term impact of Amendment 11 may be to reduce troll and recreational salmon fishing effort south of Cape Falcon. This could tend to reduce interactions in the short-term.

PACIFIC NORTHWEST ELECTRIC POWER PLANNING AND CONSERVATION ACT OF 1980

There are two major fishery resource conservation purposes of the NPPA. The first is to protect, mitigate and enhance the fish and wildlife, including related spawning grounds and habitat, of the Columbia River and its tributaries, particularly anadromous fish which are of importance to the social and economic well-being of the Pacific Northwest. This purpose is addressed by the Columbia Basin Fish and Wildlife Program which was adopted by the Northwest Power Planning Council in November 1982 and amended October 1984, February 1987, and September 1992.

The second purpose is to protect, mitigate and enhance the fish and wildlife, including related spawning grounds and habitat throughout the Pacific Northwest, and including provision of "sufficient quantities and qualities of flows for successful migration, survival, and propagation of anadromous fish." This purpose is addressed in the fish and wildlife program and the Regional Energy Plan adopted in April 1983 and most recently amended in April 1991.

The Council, NMFS, states and treaty Indian tribes have participated with the Northwest Power Planning Council (established by the NPPA) in developing and carrying out the fishery provisions of the NPPA, including amendments to the 1982 plan. The objectives of these fishery related activities were found to be generally consistent and compatible with the conservation and management goals of the salmon FMP. However, it has not yet been determined if the measures proposed in the 1992 amendment are sufficient to meet the level of protection required under the ESA for Snake River salmon stocks.

Amendment 11 will not alter the basic consistency of the present salmon FMP with regard to the NPPA and the fish and wildlife program adopted by the Northwest Power Planning Council.

PACIFIC SALMON TREATY ACT OF 1985

The PSTA was established to implement the Pacific Salmon Treaty between the U.S. and Canada. The treaty provides for bilateral cooperation in salmon management, research and enhancement by establishing a bilateral commission with coastwide responsibilities for management of "intercepting" salmon fisheries. The PSTA provides for coordination with the Council-managed fisheries by requiring that at least one representative to the PSC's southern panel be a voting member of the Council and by requiring consultation with the Council in the promulgation of regulations necessary to carry out the obligations under the treaty. Nothing in the current salmon FMP has been identified as inconsistent with the PSTA, and Amendment 11 does not alter that basic consistency.

PAPERWORK REDUCTION ACT OF 1980

The major purposes of the Paperwork Reduction Act of 1980 are (1) to minimize the federal paperwork burden for individuals, small businesses, state, and local governments; (2) to minimize the cost to the federal government of collecting, maintaining, using, and disseminating information; and (3) to ensure that the collection, maintenance, use and dissemination of information by the federal government is consistent with applicable laws relating to confidentiality. The Council has determined that neither the FMP amendment nor the regulations that will implement the amendment will involve any new federal government collection of information and will not violate the purposes and requirements of the Paperwork Reduction Act.

EXECUTIVE ORDER 12612 (FEDERALISM)

Executive Order 12612 of October 26, 1987, provides federal agencies with guidance on the formulation and implementation of policies that have federalism implications. Federal agencies are to examine the constitutional and statutory authority supporting any federal action that would limit the policy-making discretion of the states. Amendment 11 has no relevance to state policy-making authority. Therefore, the Council has determined that the FMP amendment does not have sufficient federalism implications to require the preparation of a federalism assessment.

EXECUTIVE ORDER 12866 (REGULATORY PLANNING AND REVIEW)

Executive Order 12866, "Regulatory Planning and Review", was signed on September 30, 1993. It 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. Section 1 of the order deals with the regulatory philosophy and principles that are to guide agency development of regulations. The regulatory philosophy stresses that, in deciding whether and how to regulate, 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.

The regulatory principles in Executive Order 12866 emphasize careful identification of the problem to be addressed. The agency is to identify and assess alternatives to direct regulation, including economic incentives, such as user fees or marketable permits, to encourage the desired behavior. When an agency determines that a regulation is the best available method of achieving the regulatory objective, it shall design its regulations in the most cost-effective manner to achieve the regulatory objective. Each agency shall assess both the costs and the benefits of the intended regulation and,

recognizing that some costs and benefits are difficult to quantify, propose or adopt a regulation only upon a reasoned determination that the benefits of the intended regulation justify its costs. Each agency shall base its decisions on the best reasonably obtainable scientific, technical, economic and other information concerning the need for, and consequences of, the intended regulation.

The NMFS requires the preparation of a Regulatory Impact Review (RIR) for all regulatory actions that either implement a new fishery management plan (FMP) or significantly amend an existing plan. The RIR is part of the process of preparing and reviewing FMPs and provides a comprehensive review of the changes in net economic benefits to society associated with proposed regulatory actions. The analysis also provides a review of the problems and policy objectives prompting the regulatory proposals and evaluation of the major alternatives that could be used to solve the problems. The purpose of the analysis is to ensure that the regulatory agency systematically and comprehensively considers all available alternatives so that the public welfare can be enhanced in the most efficient and cost-effective way. The RIR addresses many of the items in the regulatory philosophy and principles of Executive Order 12866.

Executive Order 12866 requires that the Office of Management and Budget review proposed regulatory programs that are considered to be "significant". A "significant" regulatory action is one that is 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 or 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. The RIR is designed to provide information to determine whether the proposed regulation is likely to be "economically significant".

The RIR for amendment 11 is contained in Appendix B along with Regulatory Flexibility Act considerations.