COVER SHEET
Final – November 2003

Title of Environmental Review:	Environmental Assessment of a National Oceanic and Atmospheric Administration (NOAA) Determination That a Fishery Management and Evaluation Plan (FMEP) submitted by the Oregon Department of Fish and Wildlife (ODFW) Adequately Addresses Section 4(d) Limit Criteria and Does Not Appreciably Reduce the Likelihood of Survival and Recovery of Salmon and Steelhead Listed Under the Endangered Species Act
Evolutionarily Significant Unit Affected:	Oregon Coast Coho Salmon
Responsible Agency and Official:	D. Robert Lohn NOAA – National Marine Fisheries Service 7600 Sand Point Way N.E. Seattle, WA 98115
Contact:	Lance Kruzic Salmon Recovery Division NOAA – National Marine Fisheries Service 2900 NW Stewart Parkway Roseburg, Oregon 97470 (541) 957-3381
Legal Mandate:	Endangered Species Act of 1973, as amended and implemented 50 CFR Part 223
Location of Proposed Activities:	Siltcoos and Tahkenitch Lakes, Douglas and Lane Counties, Oregon Coast
Action Considered:	Approval of the FMEP submitted by the ODFW for approval under limit 4 of the 4(d) rule.

TABLE OF CONTENTS

1.0 Purpose Of and Need For the Proposed Action

1.1 Background

Coho salmon (*Oncorhynchus kisutch*) were historically very abundant along the Oregon Coast. The best available information suggests wild coho salmon averaged approximately one million fish in the late 1800's and early 1900's (Figure 1). Over the last several decades the abundance of wild coho salmon has declined steadily to all time lows in the mid-1990's. The Oregon Coast coho salmon Evolutionarily Significant Unit (ESU; the group of coho salmon inhabiting streams between Cape Blanco in southern Oregon to the Columbia River) was listed as a threatened species under the Endangered Species Act in 1998 (63 FR 42587).

The factors leading to the decline of Oregon Coast coho salmon are numerous and varied. The present depressed status of coho salmon along the Oregon Coast is the result of several longstanding, human-induced factors such as overharvest in commercial and recreational fisheries, habitat degradation, loss of habitat, and artificial propagation. These human induced factors serve to exacerbate the adverse effects of natural environmental variability from poor ocean conditions, drought, and floods.

Since the mid 1990's, commercial and recreational fishery impacts on Oregon Coast coho salmon have been curtailed substantially because of the poor health of the wild runs. Cumulative harvest rates on wild coho salmon were greater than 70% for decades (Figure 2). These harvest rates were not sustainable over the long term, especially in light of the degradation of spawning and rearing habitats and poor ocean survival conditions. In recent years, harvest impacts on wild coho salmon have decreased to 7% to 15% annually.

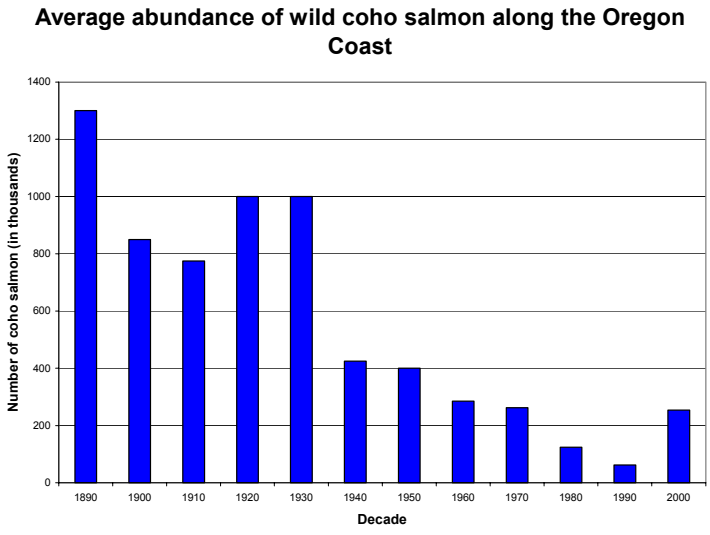

Figure 1. Historic abundance of wild coho salmon in the Oregon Coast ESU. Data provided by ODFW.

Some runs of wild coho salmon have increased in recent years due to harvest impact reductions and improved environmental conditions. The runs of coho salmon in Siltcoos, Tahkenitch, and Tenmile Lakes are such the case. The number of wild coho spawners in these lake basins has been high in recent years.

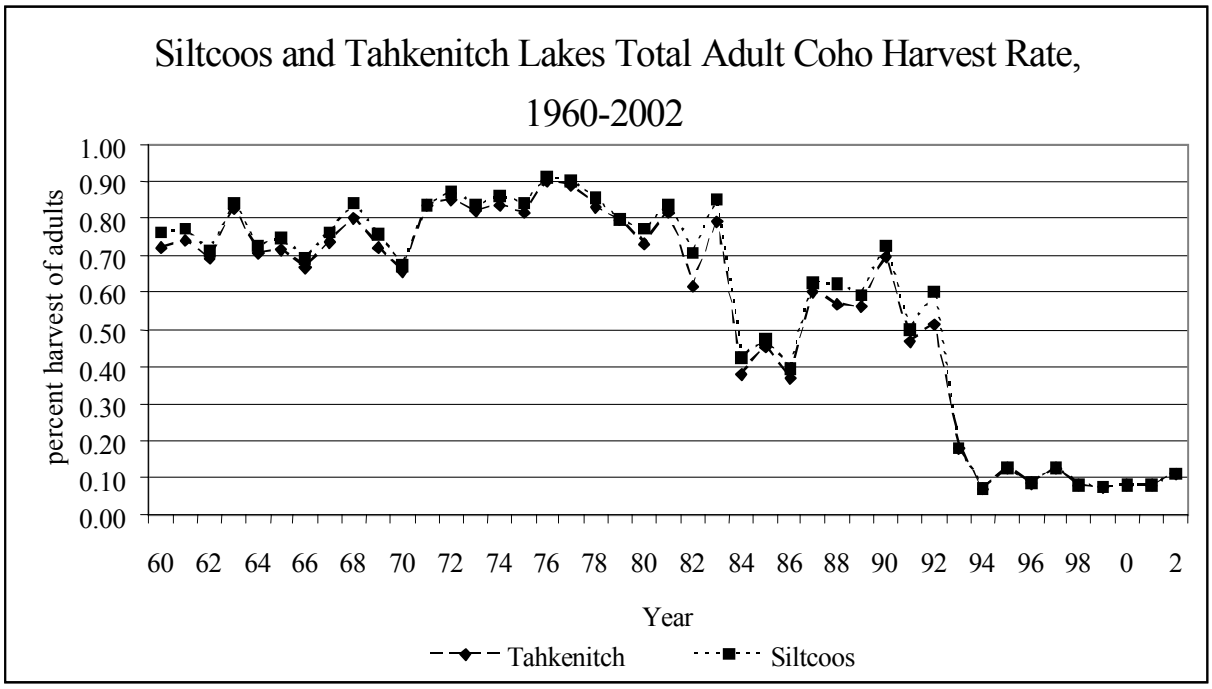

Figure 2. Cumulative harvest rates of Oregon Coast coho salmon in commercial and sport fisheries. Taken from FMEP.

The Oregon Department of Fish and Wildlife is seeking to restore some of the lost recreational harvest opportunities on some coho salmon runs that they deem to be healthy enough to sustain additional harvest impacts. Under the Endangered Species Act regulations governing the take of listed coho salmon along the Oregon Coast, called the 4(d) Rule, a directed harvest of listed salmon may be allowed under certain circumstances. The preamble of the 4(d) Rule (July 10, 2000, 65 FR 42422) provides the following language related to evaluating fishery impacts:

> "the biological impact of take on the ESU is the same, whether a particular number of listed fish are lost as a result of incidental impacts or intentional (directed) impacts."
>
> "Harvest activity will have direct impacts in very few situations—generally where the status of the affected population is already considered viable, even though the status of the larger ESU is not."
>
> "in setting out the standards by which any fishery harvest programs will be judged, NMFS has emphasized the means by which a management scheme maintains or achieves viable status for a populations rather than on the specific mechanism by which that impacts may be incurred. This final rule does not give a pass to any specific management plan at this time; each plan must be made available for public comment and reviewed against the standards for an FMEP."

The avenue for proposing a fishery on listed coho salmon by ODFW can be done through limit 4 of the 4(d) Rule. This limit (50 CFR 223.203(4)) directs the development of a Fisheries Management and Evaluation Plan (FMEP) that meets the specified criteria. NOAA's National Marine Fisheries Service (NMFS) evaluates the FMEP and decides whether the specified criteria are met and, if so, can concur with ODFW implementing the FMEP. The effects of the fishery on the listed species is the standard and not whether the fishery results in an incidental or direct take.

1.2 Description of Action

The ODFW has submitted a FMEP for approval under Limit 4 for a recreational fishery in Siltcoos and Tahkenitch Lakes in the Oregon Coast coho salmon ESU. The fishery, if approved, would occur on wild coho salmon returning to the lakes from October 1st through December 31st. The fishery would only occur in years when coho salmon returns are high and exceed the specified abundance criteria outlined in the FMEP. In years when fish returns were not high enough, a fishery in the lakes would not occur. The only area open to coho salmon fishing would be the lakes. The outlet stream where coho enter from the ocean and migrate to the lake would be closed to angling. The inlet streams where coho salmon spawn would also be closed to angling. The proposed bag limit for this fishery is one adult coho salmon per day, five adults per year, and one jack per day.

The proposed action is to approve the FMEP. The FMEP addresses the impacts of the fishery on listed Oregon Coast coho salmon. NMFS proposes to approve the FMEP if the plan adequately addresses the criteria in Limit 4, including the requirement that implementation of the fishery would not appreciably reduce the likelihood of survival and recovery of ESA-listed coho salmon. NMFS' action of approving this FMEP would allow the ODFW to conduct the coho salmon fishery in Siltcoos and Tahkenitch Lakes in compliance with the ESA. NMFS' approval of the FMEP is the federal action that requires review under the National Environmental Policy Act (NEPA).

This EA evaluates the potential environmental effects of the coho salmon fishery if approved by NMFS under Limit 4. Two alternatives are considered in this EA: (1) NMFS does not approve the ODFW FMEP under Limit 4, and (2) NMFS approves the FMEP under Limit 4 to allow the ODFW to conduct the fishery as outlined in the FMEP. No other alternatives were found that were reasonable and/or appreciably different from these two alternatives (Section 2.0, Alternatives Including the Proposed Action).

1.3 Purpose of and Need for Action

The ODFW would like to implement a coho salmon fishery in Siltcoos and Tahkenitch Lakes. They have developed a FMEP under limit 4 of the 4(d) Rule and submitted the plan to NMFS for evaluation. NMFS has an obligation to evaluate the FMEP and make a decision in a timely

manner on whether or not to approve the FMEP under the ESA. ODFW is expecting a decision from NMFS on whether the fishery can be implemented in accordance with the FMEP.

As a part of the decision making process, NMFS must consider multiple federal laws and policies:

- evaluate whether the FMEP meets the criteria in the ESA 4(d) Rule of adequately protecting listed coho salmon
- consider other potential effects of implementing this new fishery to the human environment besides just listed coho salmon under NEPA (the purpose of this EA)
- consider other important federal mandates and policies related to recreational fishing (section 1.6).

1.4 Action Area

The action area is Siltcoos and Tahkenitch Lakes, located south of Florence along the Oregon Coast, the only location in which the proposed fisheries would occur (Figure 3). The only ESU affected is Oregon Coast coho salmon.

1.5 Scoping

Scoping for this new fishery proposal began with ODFW in 2002. ODFW held several public meetings in the local vicinity of the action area to let the public know ODFW was considering proposing to open a fishery for coho salmon in Tenmile, Tahkenitch, and Siltcoos Lakes. ODFW solicited public comment on the fishery proposal. In 2003, the Oregon Fish and Wildlife Commission also had several meetings to discuss the fishery proposal and decide whether ODFW should pursue developing an FMEP. Based on the public feedback at these ODFW meetings, the proposed fishery in Tenmile Lake was eliminated because the local constituency did not support a fishery there. The public supported a fishery in Siltcoos and Tahkenitch Lakes. Consequently, ODFW developed the FMEP to include only Siltcoos and Tahkenitch Lakes. The FMEP was officially submitted to NMFS in May, 2003.

As a part of NMFS' evaluation of the FMEP under the 4(d) Rule, the plan is required to undergo a 30 day public review and comment period. NMFS published a notice in the Federal Register on August 29, 2003, asking the public to review and comment on the FMEP. In addition, the FMEP and federal register notice announcing availability of the FMEP for public comment was sent directly to 35 individuals, interest groups, and agencies who are interested in fishery issues via electronic mail from Lance Kruzic, NMFS on September 2, 2003 (Attachment 1). One of the individuals on the email list posted the FMEP on a popular fishing discussion board on the web (*www.ifish.net*) that has over 5,800 registered persons, mostly from Oregon, Washington, and Idaho (Attachment 2). Posting the FMEP on this website reached more of the public than any other means of distribution. For example, the Ifish administrator reported over 765,000 "hits" on

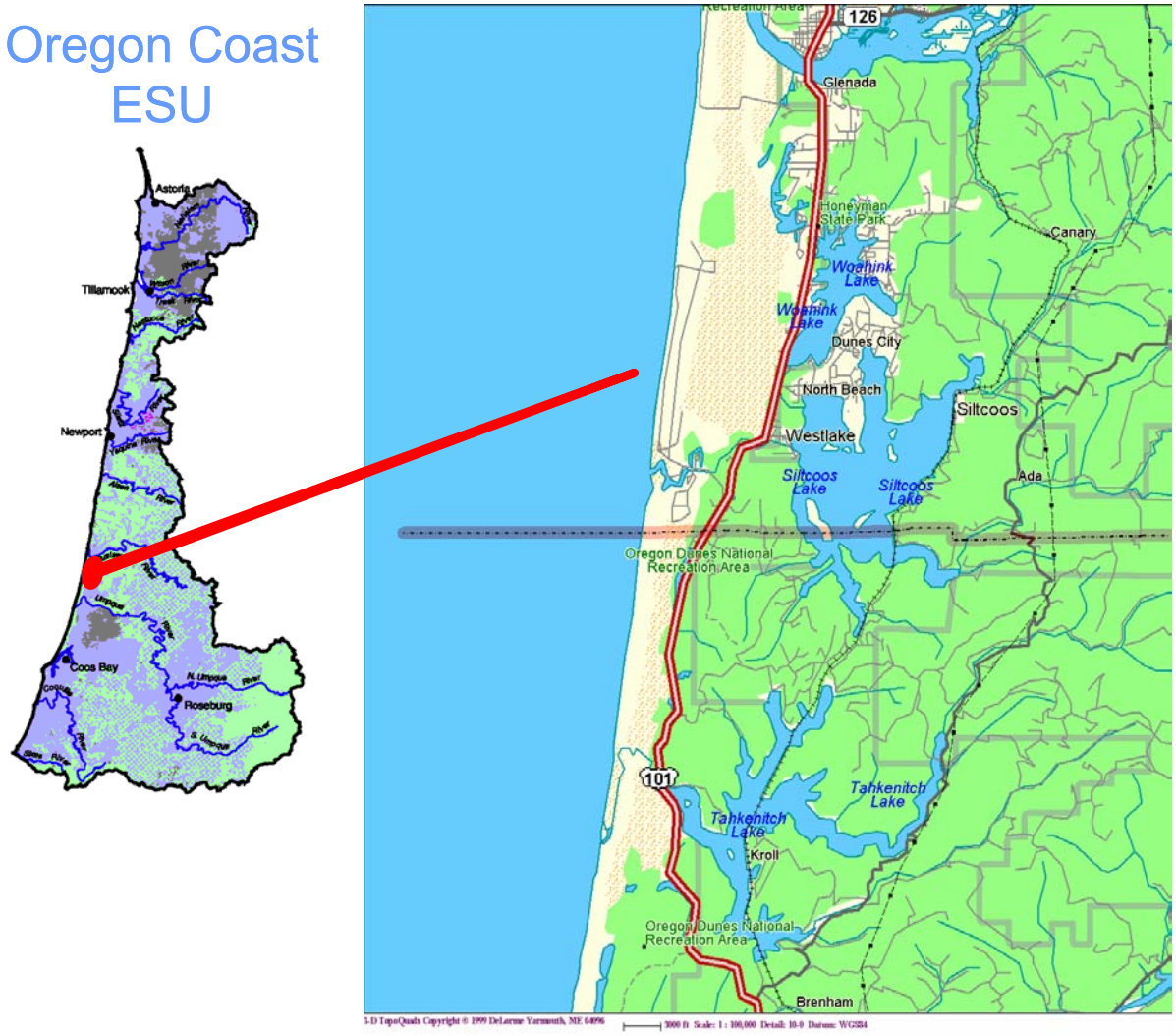

Figure 3. Map of Tahkenitch and Siltcoos Lakes along the Oregon Coast.

the website on September 9, 2003. This website generates a tremendous amount of interest from constituents in the Pacific Northwest and beyond.

1.6 Relationship to Other Plans and Policies

The Proposed Action analyzed in this EA relates directly to the Pacific Fishery Management Council's (PFMC) Amendment 13 of the Pacific Salmon Plan. Amendment 13 outlines the harvest framework for commercial and recreational fisheries in the ocean and freshwater for listed Oregon Coast coho salmon (Figure 4). Specific harvest rate limits are specified in Amendment 13 depending on coho salmon abundance and productivity. In general, harvest rates

can increase if wild coho spawner abundance and ocean survival increases above the specified benchmarks. If coho salmon abundance declines, then harvest impacts are reduced. A weak stock management approach is also incorporated into Amendment 13. Harvest rates in mixed stock fisheries, such as the ocean, can increase only if the weakest stock component of the Oregon Coast ESU has also met the specified abundance and survival benchmarks. In recent years the Northern Oregon Coast stocks have been the weakest and thus harvest impacts have been limited to not exceed 15% on these weak stocks. If in the future the north coast stocks recover to levels exceeding the spawner criteria in Figure 4, then harvest impacts could potentially increase in mixed stock fisheries.

In situations where a specific coho run has recovered and met the spawner abundance criteria, harvest impacts could increase in accordance with the harvest matrix as long as no other weak stocks are affected by the additional harvest. This is the situation in Siltcoos and Tahkenitch Lakes. The coho runs in these lakes are healthier than adjacent runs. Under Amendment 13, harvest impacts could increase to <30% on these specific stocks in 2003. Further explanation of this harvest rate increase is detailed in section 4.2.1 below. The weaker coho stocks returning to streams on the north coast would still have a cumulative harvest limit of 15%.

This is part of the basis for the proposal by ODFW in their FMEP. Amendment 13 is available from the PFMC's website at *http://www.pcouncil.org* (PFMC 2003). NMFS approved the Amendment 13 harvest framework under section 7 of the ESA in 1998.

2.0 Alternatives Including the Proposed Action

Two alternatives were identified and considered in this EA: under Alternative 1 (No Action), the FMEP would not be approved as qualifying for limitations on take prohibitions as provided in the ESA 4(d) Rule Limit 4; under Alternative 2, the FMEP would be approved, and actions implemented pursuant to the FMEP would qualify for limitations on take prohibitions as provided in the ESA 4(d) Rule Limit 4. Other general alternatives were considered but eliminated from the detailed analysis because they did not meet the purpose and need for the action or were outside the scope of this EA (see subsection 2.3, Additional Options Considered but not Analyzed in Detail).

	Marine Survival Index (based on return of jacks per hatchery smolt)			
Parent Spawner Status [1/]	**Extremely Low** (<0.0008)	**Low** (0.0008 to 0.0014)	**Medium** (>0.0014 to 0.0040)	**High** (>0.0040)
High Parent Spawners > 75% of full seeding	**E** ≤ 8%	**J** ≤ 15%	**O** ≤ 30%	**T** ≤ 45%
Medium Parent Spawners > 50% & ≤ 75% of full seeding	**D** ≤ 8%	**I** ≤ 15%	**N** ≤ 20%	**S** ≤ 38%
Low Parent Spawners > 19% & ≤ 50% of full seeding	**C** ≤ 8%	**H** ≤ 15%	**M** ≤ 15%	**R** ≤ 25%
Very Low Parent Spawners > 4 fish per mile & ≤ 19% of full seeding	**B** ≤ 8%	**G** ≤ 11%	**L** ≤ 11%	**Q** ≤ 11%
Critical [2/] Parental Spawners ≤ 4 fish per mile	**A** 0 - 8%	**F** 0 - 8%	**K** 0 - 8%	**P** 0 - 8%

Sub-aggregate and Basin Specific Spawner Criteria Data

Sub-aggregate	Miles of Available Spawning Habitat	100% of Full Seeding	"Critical"		Very Low, Low, Medium & High		
			4 Fish per Mile	12% of Full Seeding	19% of Full Seeding	50% of Full Seeding	75% of full Seeding
Northern	899	21,700	3,596	NA	4,123	10,850	16,275
North - Central	1,163	55,000	4,652	NA	10,450	27,500	41,250
South - Central	1,685	50,000	6,740	NA	9,500	25,000	37,500
Southern	450	5,400	NA	648	1,026	2,700	4,050
Coastwide Total	4,197	132,100	15,636		25,099	66,050	99,075

1/ Parental spawner abundance status for the OCN aggregate assumes the status of the weakest sub-aggregate.

2/ "Critical" parental spawner status is defined as 4 fish per mile for the Northern, North-Central, and South-Central sub-aggregates. Because the ratio of high quality spawning habitat to total spawning habitat in the Rogue River Basin differs significantly from the rest of the basins on the coast, the spawner density of 4 fish per mile does not represent "Critical" status for that basin. Instead. "Critical" status for the Rogue Basin (Southern Sub-aggregate) is estimated as 12% of full seeding of high quality habitat.

Figure 4. The current harvest management matrix for Oregon Coast coho salmon in PFMC Plan Amendment 13.

2.1 Alternative 1 (No Action)

Under a No Action alternative, NMFS would not approve the FMEP as qualifying for limitation on take prohibitions under the 4(d) Rule, with the result being that the fishery would most likely

not be implemented. If ODFW decided to have the fishery without ESA authorization, they would be potentially liable for section 9 take violations. "Take," according to section 9 of the ESA, is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct. Harass is further defined as intentional or negligent actions that create the likelihood of injury to ESA-listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering.

A FMEP developed under the 4(d) Rule is the only avenue available for ODFW to get ESA authorization for the proposed fishery. This fishery is a direct take of wild coho salmon and can only be authorized under the 4(d) Rule. A direct take permit under section 10 of the ESA is not applicable in this case because the fishery does not result in a benefit to listed coho salmon.

2.2 Alternative 2 (Proposed Action)

The proposed action is to approve the FMEP subject to ODFW's compliance with reporting requirements. Reporting requirements relevant to the FMEP would be included in NMFS' 4(d) Rule concurrence letter to the ODFW. This would require that NMFS determine that the FMEP adequately address the criteria described in section (b)(4)(i) of that rule. These criteria ensure that the proposed fishery would not appreciably reduce the likelihood of the survival and recovery of the Oregon Coast coho salmon ESU.

Details of the fishery and the expected impacts on listed coho salmon are provided in the FMEP. A fishery that allows wild coho salmon to be harvested is proposed in Siltcoos and Tahkenitch Lakes. The fishery would be open from October 1st through December 31st in years when adult returns are forecasted to exceed 3,300 spawning adults for Siltcoos Lake and 2,200 spawning adults in Tahkenitch Lake and overall harvest impacts are in accordance with the limits specified in Amendment 13. The lakes would be open to coho salmon fishing, excluding an area within 200 feet of the outlet of each lake and an area within 200 feet of the major spawning tributaries. All of the streams would be closed to coho salmon angling (including the outlet stream between each lake and the ocean). The bag limit would be one adult and one jack salmon (<20 inches) per day and a cumulative total of no more than five wild coho salmon adults per year.

Upon final determination, NMFS would provide a letter of concurrence to the ODFW, specifying appropriate reporting requirements. NMFS' concurrence would require the ODFW to comply with FMEP reporting requirements, as defined in the letter of concurrence. The ODFW would evaluate whether the FMEPs' objectives are being accomplished and report annually to NMFS as specified in the FMEP. A comprehensive review of the FMEP would occur every three years. An annual report on the catch and estimated harvest impacts on listed coho salmon would be provided to NMFS by June 1st of each year. If monitoring and evaluation indicate that current assumptions are not being met, the fishery would be adjusted to comply with the impacts specified in Amendment 13. Changes could include not conducting a fishery, adjusting the quota of fish to be harvested, or limiting the duration of the fishery.

2.3 Additional Options Considered but not Analyzed in Detail

2.3.1 Do Not Make a Decision on the FMEP

The issue of allowing the intentional harvest of a listed species is controversial and seems to conflict with the spirit of the ESA. In this case, ODFW has proposed to harvest wild coho salmon from Tahkenitch and Siltcoos Lakes that are fish listed under the ESA. Since this FMEP may be controversial, one option considered was to simply not make a decision on whether or not to approve ODFW's FMEP and avoid potential backlash on the issue. However, this option was not considered a reasonable alternative as it did not meet the purpose and need for the proposed action. NMFS has an obligation as a regulatory agency to evaluate proposals submitted in accordance with ESA statutes and make a determination on the FMEP in a timely manner.

2.3.2 Reduce Fishery Impacts on Coho Salmon below the Level Proposed by ODFW

Another option considered was to implement a more conservative fishery than was proposed by ODFW in the FMEP. A more conservative fishery would provide some fishing opportunity for coho salmon in the lakes, but would not impact the runs as much. After reviewing the FMEP, the fisheries proposed are very conservative. The bag limit is one adult per day; five per year. The prime fishing areas near the outlet and inlet streams are closed to angling. Cumulative harvest rates in ocean and freshwater fisheries must comply with the limits imposed by the NMFS approved Amendment 13 to the Pacific Salmon Plan. It did not seem reasonable to require a more conservative fishery than what is specified in the FMEP.

2.3.3 Increase Fishery Impacts on Coho Salmon above the Level Proposed by ODFW

Another option considered was to allow a more liberal fishery to occur on coho salmon. This option was not reasonable because cumulative harvest rates are limited by Amendment 13 provisions. The FMEP specifies the harvest of coho salmon in the lakes would be managed as to not exceed the harvest impact levels specified in Amendment 13. NMFS would not unilaterally allow harvest impacts to be increased in this situation. Amendment 13 has been agreed upon for listed coho salmon by the Pacific Fishery Management Council, states of Oregon, California, and Washington, and NMFS. It is anticipated that the specified harvest impacts in Amendment 13 will be adhered to by the comanagers. Allowing harvest impacts greater than those specified in Amendment 13 would not be in violation of the Biological Opinion that approved Amendment 13 under the ESA.

3.0 Affected Environment

The human environment potentially affected by the alternatives includes Siltcoos and Tahkenitch Lakes and the environment directly surrounding the lakes. The proposed action would allow fishing for coho salmon in the lakes from October through December. The No Action alternative would not allow fishing for coho salmon.

Below is a description of specific biological, physical, and social resources potentially affected by the alternatives. However, it is important to first provide a general overview of the lakes environment and associated activities as a whole before the specifically describing the individual components below.

Siltcoos and Tahkenitch Lakes are located just south of the town of Florence, along the Oregon Coast (Figure 3). The two lakes are physically separated by only a few miles. The major river basins to the north and south of these lakes are the Siuslaw and Umpqua Basins, respectively. The inlet streams to the lakes drain from the Coast Range and serve as the spawning habitat for coho salmon and other fish species. The outlet streams from the lakes meander through coastal sand dunes for approximately two to four miles before entering directly into the Pacific Ocean (Figure 5). The upland areas surrounding the lakes are coastal rainforest; dominated by primarily douglas fir trees (Figure 13). The geology of the lake basins is seafloor sandstone (Alt and Hyndman 1978). Private timber companies own most of the upslope timber areas draining into the lakes. Along the shoreline, private residences are scattered around the lakes. The coastal sand dunes west of the lakes are federally managed by the U.S. Forest Service.

Figure 5. Mouth of Siltcoos Lake, 2003.
Photo by L. Kruzic, NMFS.

A variety of human activity occurs around the lakes throughout the year. Fishing from a boat is a very popular activity on Siltcoos and Tahkenitch Lakes throughout the entire year. These lakes are some of the most used lakes in the state of Oregon (Oregon State Marine Board 1996). Siltcoos Lake and Tahkenitch Lake ranked number 10 and 15, respectively, on the list of highest use lakes in Oregon. Both of these lakes had over 52,600 use days in 1995 (Oregon State Marine Board 1996). More than 95% of the use in the lakes was fishing, as opposed to cruising, sailing, and waterskiing. In 1995, no fishing for coho salmon was allowed in these lakes. Fishing for trout, bass, perch, bluegill, and crappie generate the most interest from March through October. This pattern of use is similar to statewide boat use (Figure 6). However fishing for these species is allowed year round in both lakes. The lakes support large numbers of waterfowl during the fall and winter months and are

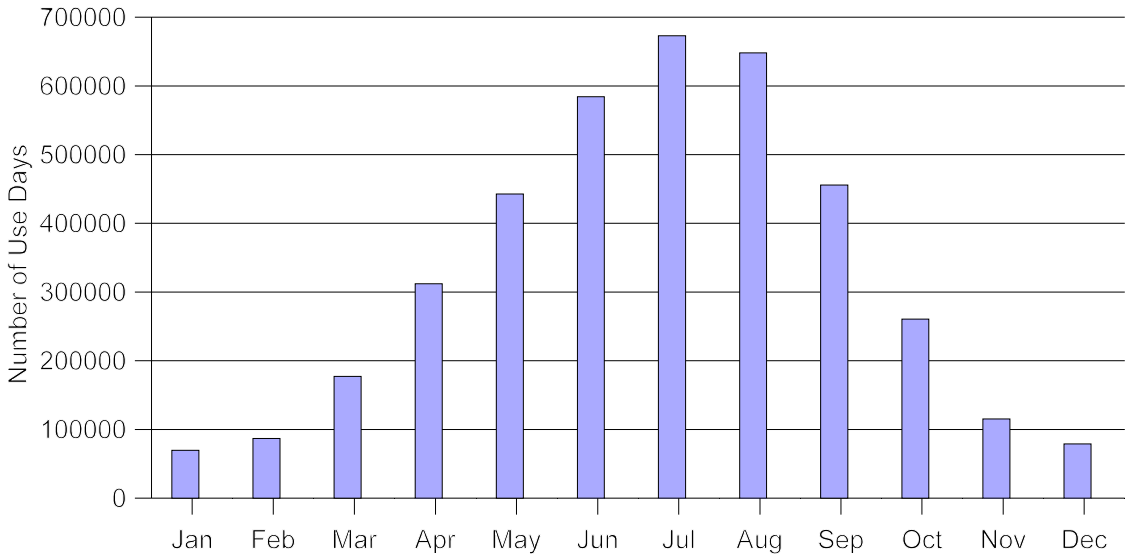

Figure 6. Oregon state-wide boat use, 1995.

hunted primarily by boat during the legal duck and goose seasons from October through January. Private residences and public use facilities are scattered along the lake shores. Timber cutting on the immediate upslope areas has occurred for decades around the lakes. Logging of several areas along Tahkenitch Lake is currently occurring in the summer of 2003. There are ten public campgrounds located within a couple miles of Siltcoos and Tahkenitch Lakes and get heavy use during the summer months. Seven commercial resorts are located on Siltcoos Lake. Tahkenitch Lake has two commercial resorts.

Below is a description of the specific components of the affected environment.

3.1 Coho Salmon

Coho salmon (*Oncorhynchus kisutch*) were historically highly abundant along the Oregon Coast. In the early 1900's it was estimated around one million coho salmon returned to rivers and streams of the Oregon Coast ESU. In the 1990's coho salmon returns to the Oregon Coast were at an all time low. Consequently, in 1998 the Oregon Coast coho salmon ESU was listed as threatened on the Endangered Species Act. The abundance of coho salmon along the Oregon Coast has increased from the lows observed in the late 1990's. Three coastal lakes (Tenmile, Tahkenitch, and Siltcoos) have been consistently more productive for coho salmon than the adjacent river systems in the ESU. The runs of coho salmon to these coastal lakes are the stronghold populations for the entire ESU. Specifically in Siltcoos and Tahkenitch Lakes the number of adult coho salmon spawners has increased substantially in recent years (Figure 7).

In Tahkenitch and Siltcoos Lakes, coho enter the lakes from the ocean from October through January. The adults migrate through the lakes to several inlet streams to spawn (Figure 8). After

spawning the fish die. The eggs develop in the gravel and hatch several months after fertilization. The juvenile fish rear in the streams or emigrate to the lakes. After about one year, the juvenile fish emigrate to the ocean as smolts. Coho salmon spend approximately 18 months in the ocean and then migrate back to Siltcoos and Tahkenitch Lakes to spawn as adults.

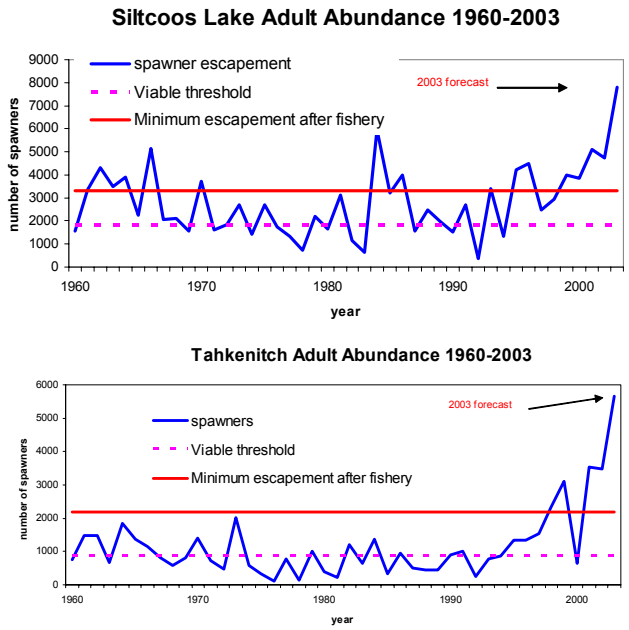

Figure 7. Abundance of coho salmon spawners in Tahkenitch and Siltcoos Basins.

It is important to describe the relationship between the runs of coho salmon in the Siltcoos and Tahkenitch Lake Basins and the larger ESU of Oregon Coast coho salmon. The runs of coho salmon in the Siltcoos and Tahkenitch Lake Basins are in close proximity to each other and exhibit similar biological and genetic characteristics. The Oregon Coast Technical Recovery Team is tasked with delineating the population structure of coho salmon along the Oregon Coast for recovery planning. This Recovery Team has not yet published a draft of their population structure findings. However, in the meetings, which are open to the public, the Recovery Team has indicated there is evidence to support the Siltcoos and Tahkenitch Lake Basins as being **one** population of coho salmon that is important for the viability of the ESU as a whole. There are likely to be many populations identified by the Recovery Team along the Oregon Coast that are important to the viability of the ESU.

Figure 8. Map of the coho salmon spawning habitat (in green) in Tahkenitch and Siltcoos Lake Basins. Taken from FMEP.

3.2 Other Fish Species

3.2.1 Rainbow Trout

Rainbow trout (*O. mykiss*) are common and abundant along the Oregon Coast. The dominant life form of *O. mykiss* in the rivers is steelhead. Steelhead are anadromous rainbow trout that go the ocean and then return to the rivers to spawn. Juvenile steelhead rear in freshwater along the Oregon Coast for one to three years. Siltcoos and Tahkenitch Lakes have runs of winter steelhead. There is also limited numbers of resident *O. mykiss* that live in the streams and lakes. However, most of the rainbow trout caught in the lakes are hatchery fish stocked for put-and-take fisheries. The current fishing regulations in Siltcoos and Tahkenitch Lakes are five trout per day; eight inch minimum size; open year round.

3.2.2 Cutthroat Trout

Coastal cutthroat (*Oncorhynchus clarki clarki*) are present along the Oregon Coast. Coastal cutthroat exhibit a wide range of life history strategies. The three basic variations include a resident or primarily non-migratory form, freshwater migrants, and marine migrants (sea-run) (Hall et al. 1997). Resident forms stay within the same stream reach their entire life. Freshwater migrants typically move from small tributaries to larger streams or to lakes and reservoirs. Marine migrants move from their natal stream to estuarine and nearshore, coastal areas for a period of time. Current abundance of resident cutthroat trout is high and widely distributed in

most streams along the central Oregon Coast. However, the sea run life form of cutthroat is lower in abundance than historical levels. The Oregon Coast cutthroat trout Distinct Population

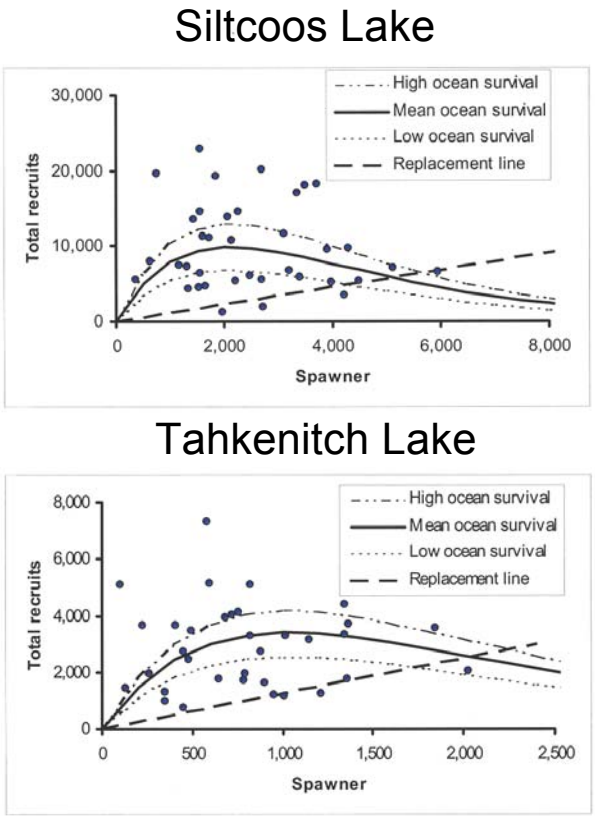

Figure 9. Stock-recruit relationship for coho salmon in Siltcoos and Tahkenitch Lakes. Taken from Zhou (2000).

Segment did not warrant listing under the ESA (July 5, 2002, 67 FR 44934).

3.2.3 Northern Pikeminnow

Northern pikeminnow (*Ptychocheilus oregonensis*; formerly known as squawfish) are abundant in Siltcoos and Tahkenitch Lakes. These fish are resident year round in the lakes and may prey upon juvenile coho salmon and other fish species. Information on the abundance and productivity of this native fish is sparse. It is likely the population is stable.

3.2.4 Sturgeon

Green and white sturgeon (*Acipenser* spp.) have been observed in Siltcoos and Tahkenitch Lakes. Although their occurrence in these lakes is rare. The populations of both species are abundant and widespread throughout the Pacific Northwest and California.

3.2.5 Non-native Fish

Many introduced warmwater fishes (family Centrarchidae) are found in Tahkenitch and Siltcoos Lakes. These species have increased in abundance since their introduction in the 1960's and later. Currently, largemouth bass, perch, crappie, and bluegill are highly abundant and support very popular fisheries in the lakes. These species are known to prey upon coho salmon and interact negatively with juvenile coho salmon. Numerous fishing tournaments have been held in these lakes for these species. Fishing is allowed year round with liberal bag limits.

3.3 Wildlife

NMFS requested a species list from the United States Fish and Wildlife Service to help identify species under their jurisdiction that may occur in the proposed action area. A copy of the USFWS letter to NMFS is included as Attachment 3. The following listed species (and other species of concern) were identified to have the highest likelihood of being present in the proposed action area.

3.3.1 Western Snowy Plover

The United States Fish and Wildlife Service published a rule on March 5, 1993, listing the Pacific coast population of the western snowy plover (*Charadrius alexandrinus nivosus*) as threatened under the Endangered Species Act. The plover is threatened throughout its range by loss and disturbance of habitat and nesting sites. The primary threats to the snowy plover are believed to be habitat degradation caused by human disturbance, urban development, introduced European beachgrass (*Ammophila* spp.), and predators. The Pacific coast breeding population of the snowy plover extends from the State of Washington to Baja California, Mexico, with the majority of breeding birds found in California. Wintering areas are primarily in coastal California and Mexico. However, most of the Oregon population of snowy plovers over winters along the beaches of the Oregon Coast

There are known snowy plover nesting sites near Siltcoos and Tahkenitch Lakes. The nest sites are located in the sand dunes near the mouth of the Siltcoos River where it enters the ocean. The sites are physically roped off from public access from March 15th through September 15th to protect nests. The nesting sites are outside of the action area, but within the general vicinity of Tahkenitch and Siltcoos Lakes. During the proposed action time periods of fishing from October through December, snowy plovers would have migrated from the local vicinity of the lakes to

overwinter in southern California, Mexico, or South America or residing along the sandy beaches of the coastline. Thus it is expected the proposed action would have no effect on snowy plovers.

3.3.2 Bald Eagle

Bald eagles (*Haliaeetus leucocephalus*) are listed as threatened under the Endangered Species Act. The numbers of bald eagles has increased substantially over the last several decades in response to recovery actions. Eagles are likely to be present in the proposed action area during the time period when a fishery may occur. Eagles typically overwinter in areas that attract large numbers of waterfowl in Oregon. Since waterfowl are abundant in the fall and winter months at Siltcoos and Tahkenitch Lakes, it would be expected bald eagles would be present. The critical time period where human disturbance of eagles should be avoided is during their nesting period in late spring and early summer. The nesting period is over by the time the fishery would occur from October through December.

3.3.3 Northern Spotted Owl

Spotted owls (*Strix occidentalis caurina*) may be present in the action area at some point in time throughout the year. However, it is most likely the owls would be using the lakes area as a migration corridor. The upland habitat surroundings the lakes has been intensely logged in the past. Since spotted owls prefer late successional mature forest, the proposed action does not have much preferred habitat for the owls (Figure 10). It is likely the proposed action would have no effect on spotted owls (personal communication Lynn Gemlo, USFWS Wildlife Biologist, September 10, 2003).

3.3.4 Marbled Murrelet

It is not likely the proposed action would have an effect on the marbled murrelet (*Brachyramphus marmoratus*) because the birds may only be periodically present in the area from October through December (personal communication Lynn Gemlo, USFWS Wildlife Biologist, September 10, 2003).

3.3.5 Brown Pelican

The brown pelican (*Pelecanus occidentalis*) occurs along the Oregon coastline. This species nests in large colonies, relying almost exclusively upon small, inaccessible coastal islands as breeding sites, or rookeries. It is not likely brown pelican would be present inland at Siltcoos and Tahkenitch Lakes during October through December because their prey preference is marine species found in the ocean.

3.3.6 Oregon Silverspot Butterfly

The US Fish and Wildlife Service included the Oregon Silverspot Butterfly (*Speyeria zerene hippolyta*) on the species list for the proposed action. However, the revised recovery plan states this butterfly was not historically (or currently) present in the vicinity of Siltcoos and Tahkenitch Lakes (USFWS 2001). The silverspot butterfly was historically present north of Florence near Heceta Head and south near the Oregon-California border.

3.3.7 Osprey

Osprey (*Pandion haliaetus*) are common at Siltcoos and Tahkenitch Lake during the spring and summer months. There are many nesting sites in tree snags along the shoreline of the lakes that the osprey use for breeding (Figure 11; L. Kruzic, NMFS, personal observation). During the proposed action period, osprey are not present because they migrate south and overwinter in South America.

Figure 10. Aerial view of Mallard Arm on Tahkenitch Lake.

3.3.8 Waterfowl

Numerous species of duck and geese (Family: Anatidae) are present in the proposed action area year round. Siltcoos and Tahkenitch Lakes attract waterfowl during their fall migrations southward. Both of the lakes are open to hunting during the legal season from October through January and are used by waterfowl hunters. Nearly all of the hunting occurs by accessing different areas of the lakes by a boat. None of the waterfowl species have been identified as a concern. Harvest of waterfowl is regulated by state wildlife hunting regulations. The proposed action would likely have no effect on waterfowl because hunting activities cause the birds to disperse to discrete, hidden areas where they feel safe. These "safe" areas are not the areas where anglers would likely be fishing for returning coho salmon.

3.3.9 Other Piscivorous Birds

Many piscivorous birds inhabit or migrate through the action area. Species present include belted kingfishers (*Ceryle alcyon*), great blue herons (*Ardea herodias*), green herons (*Butorides striatus*), great egret (*Casmerodius albus*), harlequin ducks (*Histrionicus histrionicus*), common mergansers (*Mergus merganser*), cormorants (*Phalacrocorax* spp.), and gulls (family Laridae). All of these species are present throughout the year in Tahkenitch and Siltcoos Lakes and accustom to human and boat activities (L. Kruzic, personal observation, Tahkenitch Lake). Fishing is allowed year round. The proposed action of allowing fishing for coho salmon from October through December is not likely to have an effect on these species.

Figure 11. Osprey nest located along the shoreline of Tahkenitch Lake.
Photo by L. Kruzic, NMFS.

3.3.10 Aquatic and Terrestrial Animals

Many aquatic and terrestrial organisms are located within the action area, but they are not expected to be impacted by the proposed action because most of the fishing would occur from boats out on the lakes. Any angling from the bank would occur predominately from boat docks and residential areas where there is access. Most of the shoreline around the lakes does not have road access. These species include river otters (*Lutra canadensis*), black bears (*Ersus americanus*), raccoons (*Procyon lotor*), mountain lions (*Puma concolor)*, blacktailed deer (, Roosevelt elk (and mink *(Mustela vison*). These species are not included in the detailed analysis below.

3.4 Plants

No plant species occur in the proposed action area that are federally listed under the Endangered Species Act. No other plant species have been identified as of special concern. Since most of fishing for coho salmon would occur from a boat, impacts on riparian and upland plants is minimized. Plants are excluded from the detailed analysis in section 4.

3.5 Water Quality

Information on the water quality of Tahkenitch and Siltcoos Lakes is limited. The Oregon Department of Environmental Quality includes both lakes on the 303(d) list indicating an impaired characteristic and/or functioning of the lakes. Problems with excessive growth of algae and moss occurs in both lakes. Extensive growth of *Elodea densa*, a non-native aquatic plant

and a "B" designated weed (Oregon Department of Agriculture), dominates the macrophyte assemblage and interferes with beneficial uses of the lakes.

3.6 Riparian and Upland Habitat

Tahkenitch and Siltcoos Lakes are surrounded by forest dominated by Douglas fir trees. The vast majority of the land is owned by private timber companies. There is a 25 to 50 foot riparian strip along the lake that has not been harvested to a substantial degree (Figure 10). Most of the upslope areas within both of the lake basins have been logged in the past. Various age classes of regeneration tree stands are present. Several tree stands are currently being logged in both basins.

Interspersed along the shoreline are residential homes and commercial resorts. Many private boat docks are present throughout both of the lakes. There are several established boat launch facilities that are used by the public to access the lakes. The proposed coho fishery would use existing facilities. It is expected there would be no effect from the coho salmon fishery on riparian and upslope habitat.

3.7 Aesthetics

Aesthetics is defined as pertaining to a sense of the beautiful, having a sense of the beautiful, or characterized by a love of beauty. Tahkenitch and Siltcoos Lakes are unique environments that offer aesthetic qualities. The lakes are not pristine wilderness environments but offer a sense of beauty to many residents and visitors. Many of the comments received from the public while the FMEP was out for review under the 4(d) Rule stated they enjoyed fishing on these beautiful lakes. The proposed fishery for coho salmon would increase the number of boats fishing on the lakes from October through December, thus potentially adversely affecting the aesthetic characteristics of the lakes.

3.8 Economics

Siltcoos and Tahkentich Lakes attract many visitors throughout the year. In addition, many people live year round in homes and resorts along the lakes. Many businesses reside in the local vicinity of the lakes and provide services to the public. There are seven resorts on Siltcoos Lake that provide accommodations, boat rentals, food, fishing tackle, and boat moorage. Figure 12 shows one of the most developed boat moorages on Siltcoos Lake. There is at least one private business on Tahkenitch Lake that provides services to visitors. There are also many private and non-private campgrounds in the local vicinity. Any decision to approve or not approve a coho salmon fishery on these lakes will have effects on the local economy. These effects are detailed in section 4.

Figure 12. Photograph of boat harbor on Siltcoos Lake.
Photo by L. Kruzic, NMFS.

Figure 13. Photograph of Tahkenitch Lake, August, 2003.
Photo by L. Kruzic, NMFS.

Table 1. Percentage of Oregon resident anglers by ethnicity and race in 2001 (USDI and USDC 2003).

Characteristic	General Population in Oregon (%)	Resident Anglers (%)
Ethnicity		
Hispanic	6	4*
Non-hispanic	94	96
Race		
White	95	96
Black	2*	**
All others	4	**

* estimated based on small sample size
** sample size too small to report data reliably

3.9 Environmental Justice

Executive Order 12898 (59 FR 7629) states that Federal agencies shall identify and address, as appropriate "…disproportionately high and adverse human health or environmental effects of [their] programs, policies and activities on minority populations and low-income populations…." While there are many economic, social, and cultural elements that influence the viability and location of such populations and their communities, certainly the development, implementation and enforcement of environmental laws, regulations and policies can have impacts. Therefore, Federal agencies, including NMFS, must ensure fair treatment, equal protection and meaningful involvement for minority populations and low-income populations as they develop and apply the laws under their jurisdiction.

In the proposed action area, there are minority and low income populations that this Executive Order could apply to, including Hispanics, Asians, and Native Americans. The Florence Chamber of Commerce reported the following race composition of its residents in 1999:

- 92.9% White
- 3.7% Hispanic
- 2.5% Asian
- 1.2% Native American
- 0.9% Black

The proposed action is to allow fishing to occur on coho salmon. Every person would have equal opportunity to participate in the new fishery. The costs of being able to fish for salmon legally in Oregon in 2003 are shown in *Table 2*.

Table 2. Cost of fishing licenses and tags for Oregon residents in 2003.

Age Class	Cost of License	Cost of Salmon Tag	Total Cost to Participate in Proposed Fishery
Adult (18 &over) annual license	$19.75	$16.50	$36.25
Juvenile (14-17) annual license	$6.75	$6.50	$13.25
Child (under 14) annual license	Free	$6.50	$6.50
1 day fishing license	$8.00	Included in license	$8.00
7 day fishing license	$34.75	Included in license	$34.75

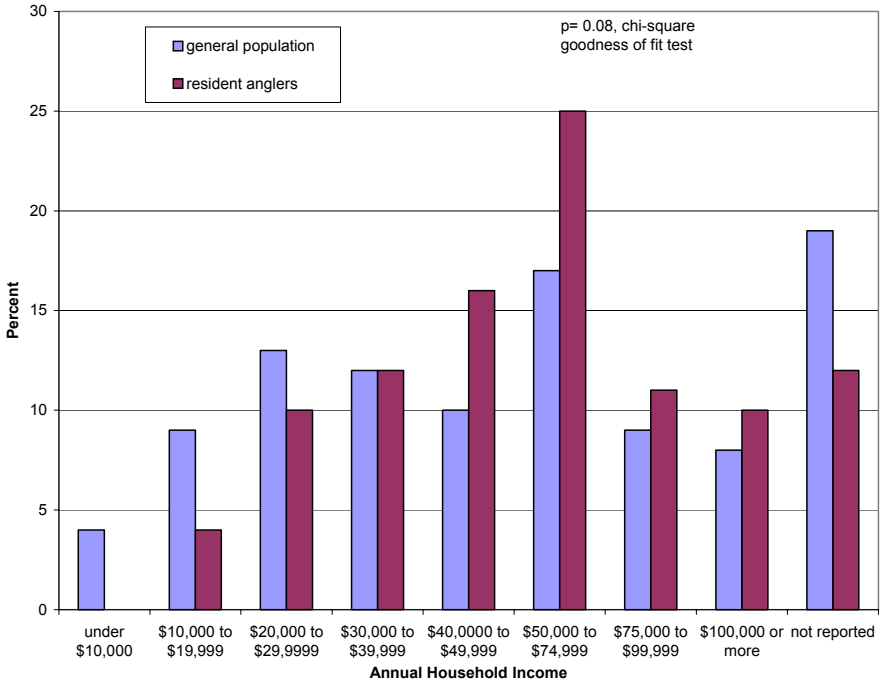

Figure 14. Annual household income of Oregon residents, 2001, in comparison with the general population of Oregon residents (USDI and USDC 2003).

The maximum cost to participate in this fishery would be if a person bought a license and salmon tag for $36.25, which allows the person to fish in all of Oregon's streams and lakes all year long. The costs of a fishing license appear to be reasonable and are not likely to disproportionately affect low income people. The costs of fishing gear and tackle exceed the costs of the fishing license.

The U.S. Fish and Wildlife Service conducted a national survey of fishing, hunting, and wildlife related recreation in 2001 (USDI and USDC 2003). The income and race characteristics of Oregon residents that fished in 2001 are in Table 1 and Figure 14. No information was available showing the income levels of resident anglers with regard to race or ethnicity, so it is not known whether there is opportunity for all residents in Oregon to fish.

4.0 Environmental Consequences

NMFS determined that the ESA 4(d) Rule and its implementation would not significantly impact the human environment. The analysis and findings in the EAs and Findings of No Significant Impact are incorporated here by reference.

Figure 15 establishes the existing environmental activities from which the alternatives can be compared. It is important to set the context of the activities occurring in and around Siltcoos and Tahkenitch Lakes since the primary effects of the proposed action on the human environment are related to human impacts while fishing for coho salmon. These effects are having more use of the lakes by anglers and boats and the effects to the coho salmon population from being harvested.

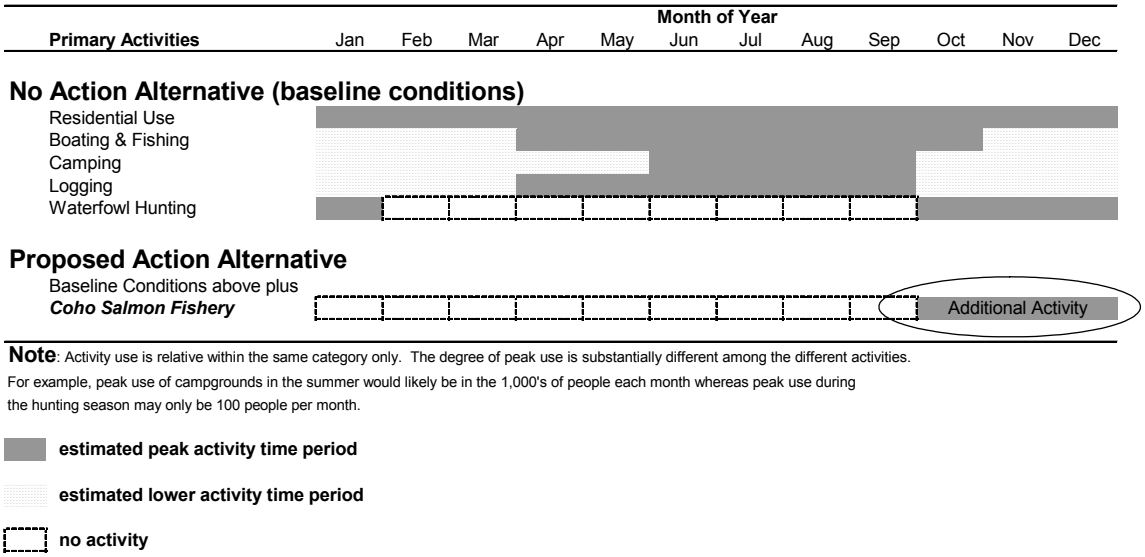

Figure 15. Comparison of the No Action and Proposed Action alternatives assessed in the EA.

Below is the assessment of the environmental consequences of each alternative.

4.1 Alternative 1 (No Action)

If the FMEP is not approved under the 4(d) Rule, ODFW would likely not conduct the coho salmon fishery in Siltcoos and Tahkenitch Lakes because listed coho salmon would be killed illegally. An unapproved or unpermitted direct harvest of wild coho salmon in this fishery would be a clear violation of the ESA.

The No Action alternative would have essentially no new effects on the existing environmental baseline conditions identified in Figure 15, as discussed below.

4.1.1 Coho Salmon

Under the No Action alternative, a coho salmon fishery in Tahkenitch and Siltcoos Lakes would not be conducted. No wild coho salmon would be harvested in the lakes. All of the streams would remain closed as under current permanent angling regulations.

For perspective on the number of coho salmon that would *not* likely be harvested under the No Action alternative, from 1982 through 1992 (the last year a fishery was open for coho salmon in the lakes), the average harvest of coho salmon was 323 and 22 fish in Siltcoos and Tahkenitch Lakes, respectively. The highest catch on record was 1,091 and 122 coho salmon. The abundance of coho salmon spawning in the lake basins is reported in Figure 7. Based on the viable escapement levels and the forecasted return of coho salmon in 2003 (Figure 17), it is anticipated spawning escapement will fully seed the available habitat in these basins with or without a fishery in the lakes in 2003. Spawning escapements greater than 5,000 and 3,000 fish in Siltcoos and Tahkenitch Lakes, respectively, has **not** been shown to result in higher abundance and productivity (see Figure 9). Preliminary information from the Technical Recovery Team describes Siltcoos and Tahkenitch Lakes as likely being a single population of coho salmon. A terminal fishery in the lakes would not affect any of populations in the ESU because once the coho return to the lakes there are most likely going to spawn in the basin. It is unlikely that the fish would emigrate out of the lake, re-enter saltwater, and migrate to an adjacent river system, re-enter freshwater, and spawn.

4.1.2 Other Fish Species

Under the No Action alternative, fishing for trout, bass, perch, crappie, bluegill, and all the other species present in the lakes would still be allowed year round. Therefore, there would be no effects of the No Action alternative on existing fisheries in both lakes. All of these species are highly abundant in the lakes and there are currently no concerns regarding their production.

4.1.3 Wildlife

Under the No Action alternative, a coho salmon fishery would not occur in Tahkenitch and Siltcoos Lakes. The effects on all wildlife species under the present environmental conditions applies to this alternative. There are likely to be no differences between the No Action and Proposed Action alternatives on wildlife.

4.1.4 Plants

Under the No Action alternative, a coho salmon fishery would not occur in Tahkenitch and Siltcoos Lakes. The effects on plants under the present environmental conditions applies to this

alternative. There are likely to be no differences between the No Action and Proposed Action alternatives on plants.

4.1.5 Water Quality

Under the No Action alternative, a coho salmon fishery would not occur in Tahkenitch and Siltcoos Lakes. The effects on water quality under the present environmental conditions applies to this alternative. There are likely to be no differences between the No Action and Proposed Action alternatives on water quality.

4.1.6 Riparian and Upland Habitat

Under the No Action alternative, a coho salmon fishery would not occur in Tahkenitch and Siltcoos Lakes. The effects on riparian and upland habitat under the present environmental conditions applies to this alternative. There are likely to be no differences between the No Action and Proposed Action alternatives on habitat.

4.1.7 Aesthetics

Under the No Action alternative, a coho salmon fishery would not occur in Tahkenitch and Siltcoos Lakes. The effects on aesthetics under the present environmental conditions applies to this alternative.

4.1.8 Economics

Under the No Action alternative, a coho salmon fishery would not occur in Tahkenitch and Siltcoos Lakes. Existing environmental conditions and activities apply to this alternative. However, it is important to note the foregone economic benefits associated with not conducting a new fishery for coho salmon. Since the proposed action is to approve the fishery, the potential economic losses under the No Action alternative need to be considered also. There are seven fishing resorts in operation on Siltcoos Lake and at least one resort on Tahkenitch Lake. A fishery for coho salmon from October through December would provide an economic boost to the local vicinity during this time period. From October through December this area has a much reduced use of campgrounds and boat ramps. A coho salmon fishery would likely generate thousands of dollars to local businesses. However, if the No Action alternative is chosen, these

Table 3. Reported catch of adult coho salmon from Siltcoos and Tahkenitch Lakes and outlet rivers and estimated number of adult spawners.

	Siltcoos		Tahkenitch	
Year	Catch*	Adult Spawners	Catch*	Adult Spawners
1982	360	1162	0	1210
1983	272	636	0	647
1984	1091	5953	123	1360
1985	236	3212	12	347
1986	398	3986	47	955
1987	121	1555	5	495
1988	358	2468	0	449
1989	184	1963	11	451
1990	202	1529	19	899
1991	248	2730	30	1007
1992	85	368	0	264
1993	closed	3415	closed	791
1994	closed	1345	closed	880
1995	closed	4240	closed	1348
1996	closed	4502	closed	1348
1997	closed	2501	closed	1539
1998	closed	2943	closed	2334
1999	closed	4001	closed	3122
2000	closed	3835	closed	634
2001	closed	5104	closed	3526
2002	closed	4749	closed	3487
2003**	?	7828	?	5668
average catch	323		22	

* catch includes streams and lakes.
** forecasted adult spawners developed by L. Kruzic, NMFS.

economic benefits would not accrue. Section 4.2.8 below describes the estimated economic benefits from having a coho salmon fishery in the lakes.

4.1.9 Environmental Justice

Executive Order 12898 (59 FR 7629) directs Federal agencies to identify and address, as appropriate, any disproportionately high and adverse human health or environmental effects on minority populations and low-income populations. Under the No Action alternative, no effects would occur above and beyond the existing environmental baseline.

4.2 Alternative 2 (Proposed Action)

The proposed action is to approve ODFW's FMEP for a coho salmon fishery in Tahkenitch and Siltcoos Lakes. This would authorize the harvest of wild coho salmon under the Endangered Species Act. A coho salmon fishery would occur if the impacts would not exceed the limits established in Amendment 13 harvest framework for ocean and freshwater fisheries. A fishery is

not guaranteed to occur every season – only if there are unused impacts after the ocean fisheries, based on return abundance.

A fishery would occur from October through December in the lakes only. There would likely be some fishing from the banks and docks of the lakes, but the majority of fishing would occur from boats. The potential effects on the human environment are from the activities associated with fishing for coho salmon during the specified period. This would include launching boats from existing facilities, motoring around the lakes, trolling the lakes, and potentially staying in resorts and campgrounds. The existing environmental baseline of existing activities occurring in the local vicinity of the lakes is shown in Figure 15. The additional activity from the proposed action is also specified.

Below is an assessment of the effects on specific resources in the area.

4.2.1 Coho Salmon

Under this alternative, a coho salmon fishery in Tahkenitch and Siltcoos Lakes, as described in ODFW's FMEP, would be authorized under the Endangered Species Act. The populations of coho salmon returning to the lake basins would be affected by the harvest of returning fish to the lakes. The assessment of effects of the proposed fishery on listed coho salmon is described in ODFW's FMEP.

To summarize the effects on listed coho salmon, a fishery would be implemented in years when the returns of coho salmon are high and exceed escapement thresholds specified in the FMEP. The goal is to have at least 3,300 and 2,200 adults spawning annually in Siltcoos and Tahkenitch Lake Basins, respectively, after the fishery occurs. These escapement levels are estimated to be the maximum sustained production level for these runs (Zhou 2000). Stock productivity was shown to decline when there were more than 5,000 spawners in Siltcoos Basin and 3,000 spawners in Tahkenitch Basin (Figure 9). Allowing more fish to spawn does not automatically result in higher abundance and productivity in the next generation. Overall exploitation rates on these coho salmon populations from ocean and freshwater fisheries would be limited to the harvest rates specified in the Amendment 13 of PFMC's Pacific Salmon Plan (Figure 4). Further information on this harvest matrix is described in section 3.1 above.

The minimum escapement thresholds for the runs in Siltcoos and Tahkenitch Lakes are 3,300 and 2,200 spawning adults annually. It is important to maintain sufficient escapement in order to minimize deleterious genetic and demographic effects to this coho salmon population. If a fishery harvests a large percentage of the run, there may be too few spawners left to maintain a healthy population.

Table 3 shows the reported catch of coho salmon from 1982 to 1992 (the last year a fishery occurred in these lakes) in Siltcoos and Tahkenitch Lakes. These previous catch levels provide the best indication of what future catch may be if the fishery was implemented. However, the

proposed fishery is more conservative than the previous fisheries from 1982-92 because the outlet streams and mouths of the streams would be closed to angling, whereas in the past these areas were open to fishing.

If a fishery was implemented in the lakes in 2003, Figure 17 shows the allocation of harvest impacts to these runs and the estimated spawning escapement. Even under the highest harvest rate on record for the lakes, the estimated spawning escapement would still be far above the viable level and the optimal escapement level determined by Zhou (2000). The 2003 coho return has also met the "high" parent spawning status prescribed in the Amendment 13 harvest matrix (Figure 4). Escapement in 2000 exceeded the criteria of 75% of full seeding of the optimal habitat in Siltcoos and Tahkenitch Lakes The marine survival index as determined by PFMC is in "medium" category. This allows for additional harvest impacts to occur in a terminal area, such as the lakes where no other weak stocks (e.g. north coast) would be affected, up to a 30% level.

A creel survey would be conducted throughout the fishing season to monitor the catch of coho salmon in both lakes. The season would be closed or reduced if harvest levels are expected to exceed the maximum harvest impacts outlined in Amendment 13 or result in a level of spawners below the minimum guidelines specified in the FMEP.

It is also important to consider the potential impacts of taking fish out from a population that could have spawned and contributed important ocean-derived nutrients to the stream environment. Bakke (2003) cited literature suggesting approximately 200 spawners per mile provide sufficient nutrient input from salmon carcasses to small streams. Nutrient enhancement from fish carcasses is also an important biological component potentially affected by harvest. An assessment of the number of adult coho spawners per mile of spawning habitat suggests sufficient nutrient input into the lake basins in recent years (Figure 16).

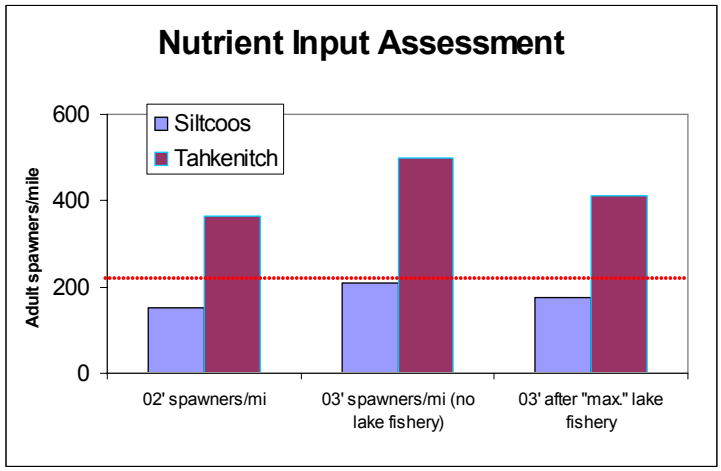

Figure 16. Assessment of potential carcass densities in the lake basins. Estimated spawning miles from Jacobs (2003).

4.2.2 Other Fish Species

If a coho salmon fishery was approved, there would be additional people fishing from October through December. Of all of the fish species present in the lakes, trout and bass are probably

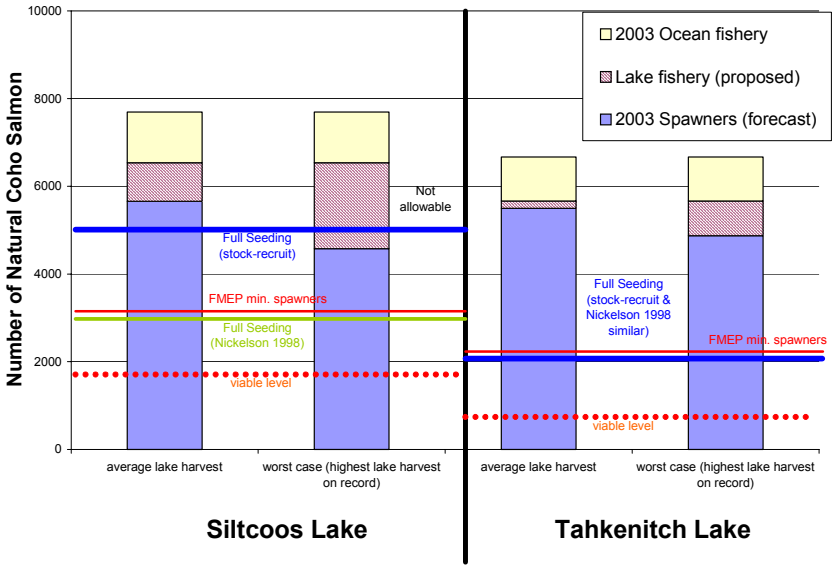

Figure 17. Estimated harvest and escapement of coho salmon returning to Siltcoos and Tahkenitch Lake Basins in 2003. The forecasted number of spawners in each basin was derived by using the year 2002 ratio of spawners in the lakes to the preseason forecast for the ESU, and then applying this ratio to the 2003 ESU forecast of 118,000 fish (*www.pcouncil.org).* "FW harvest rate" is the estimated harvest rate of coho salmon in the lakes and outlet rivers (FW means freshwater) as reported in Zhou (2000).

most vulnerable to being caught by anglers fishing for coho salmon. Fishing for trout and bass is allowed year round. Therefore, if an angler catches a trout or bass they could be retained. There is no concerns over the health of the trout and bass population. Bass are a non-native species. Most of the trout are hatchery fish stocked so that they can be harvested. There would be no detrimental effects from the proposed action on these fish species.

4.2.3 Wildlife

Of the wildlife species listed in section 3.3, the only species that are present in the local vicinity and possibly affected by the proposed action are bald eagles. It is not expected that the proposed fishery would adversely affect the behavior of bald eagles above what occurs under the existing environmental baseline. Under baseline conditions, waterfowl hunting would probably be the primary activity affecting bald eagles. Hunters would be shooting at waterfowl which would probably deter eagles from using the area during the hunting activities. Fishing from boats would not likely have an effect on the behavior of bald eagles in the local vicinity.

4.2.4 Plants

If the coho salmon fishery was approved, additional fishing would be allowed from October through December. Anglers would be fishing primarily from boats. No new boat facilities would be constructed. Anglers would be using existing boat launches and moorages. Since no plant species were identified as a concern, there would likely be no impacts to plants.

4.2.5 Water Quality

If the coho salmon fishery was approved, additional fishing would be allowed from October through December. Anglers would be fishing primarily from boats. No new boat facilities would be constructed. Anglers would be using existing boat launches and moorages. There is likely to be more pollution associated with the operation of gasoline engines. The expected use by boats in this fishery is likely to be less than the use observed in the summer months. See Figure 6 for the general use of waterways in Oregon by boats. The primary water quality issue identified by the Oregon Department of Environmental Quality for Siltcoos and Tahkenitch Lakes was excessive growth of algae and non-native weeds. A new fishery for coho salmon would not affect (either positively or negatively) the growth of algae and weeds in these lakes.

4.2.6 Riparian and Upland Habitat

If the coho salmon fishery was approved, additional fishing would be allowed from October through December. Anglers would be fishing primarily from boats. No new boat facilities would be constructed. Anglers would be using existing boat launches and moorages. There is likely to be no effect on riparian and upland habitat from this new fishery.

4.2.7 Aesthetics

If the coho salmon fishery was approved, additional fishing would be allowed from October through December. Anglers would be fishing primarily from boats. More use of the lakes from October through December may affect the aesthetics of the lakes. Waterfowl hunters are also using the lakes during this time period. The additional use of the lakes during the coho salmon fishery is not likely going to be as high as the use of the lakes during the summer months. Thus, even though more use may occur during the fall, the overall use of the lakes during this time is lower than in the summer.

4.2.8 Economics

Fishing provides important economic benefits to local communities from the sale of fishing licenses, boats, tackle, lodging, gasoline, and food. The latest survey done in 2001 by the USDI and USDC (2003) estimated total expenditures in Oregon on fishing related activities generates $602 million a year. More than 687,000 people over the age of 15 fished in Oregon in 2001, spending an average of $887 per angler annually. Additional revenue accrues to the region from

tourism and other non-consumptive uses, some portion of which is dependent upon or encouraged by the presence of salmon. There are seven fishing resorts located on Siltcoos Lake and at least one resort on Tahkenitch Lake that would benefit economically from a coho salmon fishery. In personal communication with Nightingale's Fishing Camp Resort on Siltcoos Lake (L. Kruzic, NMFS, September 16, 2003), a coho fishery would provide a boost of their sales during a period of time that has seen decreased sales since the fishery was closed in 1993.

A policy jointly issued by the Fish and Wildlife Service and the National Marine Fisheries Service on June 3, 1996 (61 FR 27978) and was issued pursuant to the Presidential Executive order 12962, issued on June 7, 1995, requires Federal agencies, to the extent permitted by law, and where practical and in cooperation with States and Tribes, to improve the quality, function, sustainable productivity, and distribution of aquatic resources for increased recreational fishing opportunity. Among other actions, the order requires all Federal agencies to aggressively work to promote compatibility and reduce conflict between administration of the ESA and recreational fisheries.

If a fishery can be implemented that is consistent with the requirements of the ESA, then this policy suggests that the fishery should be conducted because of the social and economic benefits.

4.2.9 Environmental Justice

Executive Order 12898 (59 FR 7629) directs Federal agencies to identify and address, as appropriate, any disproportionately high and adverse human health or environmental effects on minority populations and low-income populations. As under the No Action alternative, the Proposed Action alternative would not be expected to affect human health of any population located in the action area.

Under the Proposed Action alternative, increased fishing opportunities would result as compared to the No Action alternative. These fishing opportunities would be available to all population segments (see *Table 2* and Figure 14). It is not likely low-income persons would be disproportionately affected. The local vicinity has few residents that are not white (see section 3.9 above).

4.3 Cumulative Impacts

Cumulative impacts from NMFS' current proposed action under 4(d) rule Limit 4 would be minor. Incremental impacts on the environment are included in the discussion above. NMFS' 4(d) Rule is only one element of a large suite of regulations and environmental factors that may influence the overall management of fishery programs. For example, water quality is monitored and measured through permits from the Department of Environmental Quality. Programs that meet the requirements of the 4(d) Rule Limit 4 would include monitoring and adaptive management measures so that managers can respond to changes in the status of affected listed

salmon. Monitoring and adaptive management would help ensure that the affected ESUs are adequately protected and help counter-balance any negative cumulative impacts.

Many activities are continuing to occur in the local vicinity of Siltcoos and Tahkenitch Lakes that will affect coho salmon into the future. Currently there are many areas along the lakes that are being clear cut. This logging is occurring on privately owned land and has not been evaluated under the ESA. Development of forest lands along the shore line of the lakes is projected to accelerate over the next 20 to 100 years as the town of Florence populates surrounding areas (CLAMS 2003). The long term outlook for coho salmon considering all the cumulative effects is marginal as continued demand for natural resources and population growth occurs. The effects of the proposed action on the survival and recovery of coho salmon returning to the lakes will be self regulating because returns have to exceed minimum numbers before a fishery can occur- an abundance based harvest regime. If in the future cumulative impacts affect coho salmon to the point where their status declines substantially, a fishery will not occur, and therefore, will not affect the future status of coho salmon.

5.0 Agencies Consulted

The following agencies and entities were consulted during the development of this environmental assessment.

National Marine Fisheries Service
U.S. Fish and Wildlife Service, Roseburg Field Office
U.S. Fish and Wildlife Service, Oregon State Office, Portland
Oregon Department of Fish and Wildlife

6.0 References

Fisheries Management and Evaluation Plan

Oregon Coastal Coho -- Siltcoos and Tahkenitch Lakes Fisheries – Public Review Draft. Oregon Department of Fish and Wildlife. Fish Division. Salem. May 20, 2003.

Federal Register Notices

Links to all federal register notices may be found at: *http://www.gpoaccess.gov/fr/index.html*

Literature

Alt, D.D., and D.W. Hyndman. 1978. Roadside geology of Oregon. Mountain Press Publishing Company. Missoula, Montana.

Bakke, B. 2003. Comments on Coastal Lakes Coho Fishery Management and Evaluation Plan. Public comments submitted to L. Kruzic, NOAA Fisheries, from Native Fish Society. Available from NOAA Fisheries, 2900 NW Stewart Parkway, Roseburg, Oregon 97470.

CLAMS (Coastal Landscape Analysis and Monitoring Study). 2003. Available at *http://www.fsl.orst.edu/clams/*

Jacobs, S. 2003. Siltcoos and Tahkenitch Coho Spawner Monitoring. Handout at ODFW/NOAA Fisheries public meeting October 22, 2003. Salem, Oregon.

Hall, J.D., P.A. Bisson, and R.E. Gresswell, editors. 1997. Sea-run cutthroat trout: biology, management, and future conservation. Oregon Chapter, American Fisheries Society; Corvallis, Oregon.

Nickelson, T.E. 1998. A habitat-based assessment of coho salmon production potential and spawner escapement needs for Oregon Coastal streams. Information Report 98-4. Oregon Department of Fish and Wildlife. Portland, Oregon. 15 pp.

Oregon Marine Board. 1996. Oregon recreational boating survey. A report to the Oregon State Marine Board. Salem, Oregon. 179 pp.

PFMC (Pacific Fishery Management Council). 2003. Amendment 13 to the Pacific Coast Salmon Plan. Hard copies available from Pacific Fishery Management Council, 7700 NE Ambassador Place, Suite 200, Portland, Oregon 97220. Website http://www.pcouncil.org/

USFWS (United States Fish and Wildlife Service) 2001. Revised recovery plan for the Oregon silverspot butterfly. Region 1 Portland, Oregon. 113 pp.

USDI (U.S. Department of Interior) and USDC (U.S. Department of Commerce). 2003. Year 2001 National survey of fishing, hunting, and wildlife-associated recreation. Oregon.

Zhou, S. 2000. Stock assessment and optimal escapement of coho salmon in three Oregon coastal lakes. Information Report. Fish Division. Oregon Department of Fish and Wildlife. Portland, Oregon.

7.0 Attachments

Attachment 1 Federal Register Notice requesting public review and comment on ODFW's FMEP. Distribution list of recipients notified via email.

Attachment 2 Posting of fishery proposal on internet bulletin board (*www.ifish.net*)

Attachment 3 Letter from U.S. Fish and Wildlife Service to NMFS with Species List for fishery proposal.

8.0 Finding of No Significant Impact

NOAA's National Marine Fisheries Service (NMFS) Northwest Region (NWR) has prepared an Environmental Assessment (EA) for its proposed approval of the Siltcoos and Tahkenitch Lakes coho salmon FMEP submitted by the Oregon Department of Fish and Wildlife under limit 4 of the 4(d) Rule.

NOAA Fisheries considered and analyzed the following alternatives, each of which is discussed in detail in the EA:

> Alternative 1 (No Action): Do not approve the FMEP, which would result in no coho salmon fishery in Siltcoos and Tahkenitch Lakes.
>
> Alternative 2 (Proposed Action): Approve the FMEPs as submitted, including implementation and reporting requirements necessary to monitor and evaluate fishery impacts to the runs of coho salmon in Siltcoos and Tahkenitch Lakes.

The proposed action was selected as the preferred alternative because it will allow ODFW to implement a recreational fishery that is within allowable impact levels for Oregon Coast coho salmon specified in Amendment 13 and will not adversely affect the viability of the local population and the ESU. The fisheries are fully described in the EA and in the FMEP submitted by ODFW.

Implementation of NOAA Fisheries' decision would be expected to result in the following environmental, social, and economic effects:

- Negligible effects on riparian and stream habitat from anglers walking along the stream and using boats.
- Fishery effects on listed coho salmon are expected individually and cumulatively with other actions to be below the level that would appreciably reduce the likelihood of survival and recovery of the Oregon Coast ESU, as specified within the FMEP.
- Few, if any, additional effects on other aquatic and terrestrial species from the coho salmon fishery.
- Economic and social benefits to the local community and fishing resorts in the Siltcoos and Tahkenitch Lakes region.

These effects are fully described in the EA.

In the EA, NOAA Fisheries considered the context and intensity of the factors identified in NOAA NAO 216-6 section 6.01b, as well as short and long term effects of the proposed action. Based on the analysis in the EA, NOAA Fisheries finds that:

1. Public health and safety will be minimally affected by the selected alternative. Any degradation of water quality will be minor, if at all measurable.

2. The selected alternative's effects on the human environment are not likely to be highly controversial based on a review of the comments submitted during the public comment period. There will be socioeconomic benefits from the selected alternative (as described in the EA).

3. This action does not establish a precedent for future actions with significant effects nor does it represent a decision in principle about a future consideration, because NOAA Fisheries has analyzed many comparable fishery programs under limit 4 of the 4(d) Rule.

4. This action is of limited context and intensity, with limited environmental effects, individually or cumulatively. Cumulative impacts were considered but no significant cumulative impacts are expected from implementation of the proposed action.

5. The effects of this action are relatively certain and do not involve unique or unknown risks because the fishery is in a limited area that can be monitored and managed closely.

6. The proposed action will not adversely affect areas listed in or eligible for listing in the National Register of Historic Places, or cause loss or destruction of significant scientific, cultural or historic resources.

7. ESA-listed coho salmon returning to Siltcoos and Tahkenitch Lakes will be adversely affected by the proposed action. However, based on NOAA Fisheries' analysis, the proposed action will not appreciably reduce the likelihood of survival and recovery of the local population or the Oregon Coast ESU in the wild. The only runs of coho salmon affected by the proposed action are in Siltcoos and Tahkenitch Lakes. No other populations within the ESU will be affected.

8. The proposed action will not adversely modify or destroy designated critical habitat as defined by the ESA or designated essential fish habitat (EFH) as defined by the Magnuson-Stevens Act. As discussed in the EA, any adverse effects will be minimal. The proposed permit conditions and operating procedures are designed to minimize the adverse effects.

9. The proposed action does not threaten a violation of Federal, State, or local law requirements imposed for the protection of the environment.

Environmental Justice: Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*. The analysis of the impacts in the EA indicates that there will be no disproportionately high and adverse environmental impacts, as

described in the executive order, on minority and low-income populations by the proposed action.

References:

NMFS. 2003. Environmental Assessment of a National Oceanic and Atmospheric Administration (NOAA) Determination That a Fishery Management and Evaluation Plan (FMEP) submitted by the Oregon Department of Fish and Wildlife (ODFW) Address Section 4(d) Limit Criteria and Do Not Appreciably Reduce the Likelihood of Survival and Recovery of Salmon and Steelhead Listed Under the Endangered Species Act

Determination

Based on the analysis in the EA, I conclude that the proposed action to approve the Siltcoos and Tahkenitch Lakes coho salmon FMEP does not constitute a major Federal action significantly affecting the quality of the human environment within the meaning of section 102(2)(c) of the National Environmental Policy Act of 1969 (as amended). Therefore, an environmental impact statement is not required.

William T. Hogarth

11/26/03

William T. Hogarth, Ph.D.
Assistant Administrator for Fisheries
National Oceanic and Atmospheric Administration

Date