OREGON

COASTAL SALMON RESTORATION INITIATIVE

ATTACHMENTS TO THE PLAN

VII. INFORMATION RELATED TO HABITAT RESTORATION PROJECTS

- Stream Habitat Improvement on Private Industrial Forest Lands (including map)
- Evergreen Magazine: Fish Habitat Restoration Work (July 1996)
- Tillamook/North Coast Salmonid Habitat Restoration: Guide to Project Selection
- Lower Columbia Tributaries Salmonid Habitat Restoration: Guide to Project Selection
- Lincoln and Siuslaw Fish Management Districts Salmonid Habitat Restoration: Guide to Project Selection
- South Coast and Lower Rogue Fish Management Districts Salmonid Habitat Restoration: Guide to Project Selection
- Draft of Guide to Restoration Projects in Umpqua Basin

VIII. RESPONSES OF STATE AGENCIES TO EXTERNAL GUIDANCE

- Recommendations by Conservation Organizations Regarding OCSRI & Responses of State Agencies
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IV. PLANNING TEAM MEETINGS AND AGENCY DIRECTORS REPORTS

- Packet of Bi-weekly Reports from Agency Directors to Governor
- Packet of Planning Team Meeting Notes

III. ITEMS RELATED TO EDUCATION AND OUTREACH

- OCSRI flyers
- For Sake of Salmon
- Oregon Heritage Stocks Program
- Salmon Watch Program
- Water Resources Department Outreach and Education

Acknowledgments

So many individuals, in one way or another, helped develop this plan that no list would be complete nor would any acknowledgment express our full gratitude for their efforts. Quite simply stated, the efforts of each are greatly appreciated. The many contributions included active sharing of ideas in problem-solving work sessions; coordination of meetings and administrative support for work sessions; and writing and editing of sections of the Plan. A special thanks is extended to the following who had major roles in developing the OCSRI:

- Members of the Governor's Natural Resources Office Staff
- State agency directors and staff
- Federal agency directors and staff
- Members of the agency planning, outreach and science teams
- Representatives of conservation and industry groups
- Representatives of local governments
- Local landowners
- Watershed council coordinators and participants

These individuals, collectively, focused their energy toward a common goal of improving one aspect of the quality of life that Oregon provides: ***the health of coastal salmon populations****.*

PREFACE

It is summer of 1996 and Oregon's Coastal Salmon Restoration Initiative (OCSRI) is in full stride. Under the leadership of Governor John Kitzhaber, active partnerships that include state and federal agencies, local governments, conservation organizations, industry representatives, watershed councils, and private landowners are working together to develop a plan to restore the vitality of wild salmon, steelhead, and cutthroat trout in coastal watersheds. An effort of this geographic, governmental, and social magnitude is unprecedented.

This report of Oregon's plan will be submitted to the National Marine Fisheries Service (NMFS), which is currently considering whether to list two groups of Oregon coastal coho salmon as threatened species under the Federal Endangered Species Act. NMFS may determine that Oregon's plan is sufficient to achieve recovery of the species, thus making formal listing unnecessary. Although the initial emphasis is on coho, this effort is intended to do far more than avoid the extinction of coho salmon. The goal of the OCSRI is to restore Oregon's coastal salmon and trout populations to a productive condition that will revive their cultural, recreational and economic roles in people's lives.

The OCSRI Plan has many elements designed to help conserve and restore populations of salmon and trout in Oregon coastal river basins, including:

- Specific actions to conserve "core" populations of salmon.
- Procedures to provide continuing leadership and improve interagency cooperation.
- Adjustments in harvest management and hatchery programs.
- Goals for riparian management in land-use planning.
- Measures to improve the condition of streams and riparian habitats.
- Proposals for funding and economic incentive programs.
- Opportunities to improve compliance with existing environmental laws.
- Public education programs.
- A proposal describing a comprehensive monitoring program.
- Descriptions of watershed council restoration projects.

Restoration of Oregon's anadromous fish resource faces many challenges, the biggest perhaps being to discover how people and salmon can coexist in the future. This challenge has no clear endpoint, no time when "success" can be declared forever. Some measure of success, however, may be reached if we can achieve a fundamental shift towards resource management philosophies and practices that support conservation and restoration of landscape forms more favorable to salmon. Afterall, a basic tenet of the OCSRI is that all Oregon citizens share responsibility for the changes in the landscape that have hurt salmon and, likewise, we all share responsibility for restoration. For the long term, our challenge is to negotiate societal decisions addressing complex, conflicting issues of human population growth and competition for natural resources in a manner that meets the needs of both salmon and people.

Jay Nicholas
August 1996

INTRODUCTION

Overview

This section of the OCSRI Plan touches on many aspects of Oregon's effort to restore coastal populations of salmon and steelhead. Topics include the following:

Reason for this Report

This report would not be needed if salmon and trout populations in Oregon were healthy today. Native populations of salmon and steelhead have declined dramatically in Oregon during the century and a half since the region has been exposed to industrial-scale development. Many populations of salmon, steelhead, and trout are extinct today; many populations are at risk of extinction; and relatively few are in a condition that may be considered healthy. The number of populations currently in each of these three categories is not known, and a debate over accuracy of the numbers only distracts people's attention from the seriousness of the problem.

Oregon's Coastal Salmon Restoration Initiative (OCSRI) is an unprecedented effort to turn the tide on the salmon's decline. No single action by government or Oregon citizens will restore salmon and trout to a viable role in Oregon's culture and economy, but a cooperative effort, sustained over time, may succeed. This document presents the essential elements of a planning and action process that has been in progress since October of 1995. The intent of this report is to describe progress to date and to list activities that are either underway or needed to restore the vitality of salmon and trout populations in Oregon coastal river basins.

The National Marine Fisheries Service (NMFS), which is currently considering a recommendation to list two groups of coho salmon in Oregon as threatened under the Federal Endangered Species Act, could arrive at a variety of conclusions regarding the listing. Oregon is hoping to retain state control over management of Oregon's natural resources. The goal of OCSRI is not merely to prevent the extinction of coho salmon in the coastal region, but to restore populations of salmon, steelhead, and cutthroat trout to levels that could be considered healthy.

Report Organization

The OCSRI Plan is organized as follows. First, the main body of the Plan is a stand-alone document that is a comprehensive overview of the Plan. This main body should provide sufficient detail for all but a few individuals who wish to have more technical detail--such as those who may be asked to conduct scientific review of all, or portions, of the Plan. Second, a series of Attachments is provided that contain supporting documentation to the Plan (technical, scientific, administrative, and educational). A decision was made to make several hundred copies of the main body of the plan but only a few copies of the Attachments, partly because the Attachments are two feet tall when stacked together. Sets of complete Attachments will be placed in several locations throughout the western portion of the state; any interested individual or group may learn these locations by phoning the Governor's Natural Resources Office (503) 378-8582, extension 821.

History of Federal Listing Petitions

A proposal by NMFS to list three distinct population segments (referred to as Evolutionarily Significant Units or ESUs) of coho salmon, including two that occur either wholly or partly in Oregon, was prompted by several petitions received during 1990-1993.

On July 21, 1993, NMFS received a petition from Oregon Trout, Portland Audubon Society, and Siskiyou Regional Educational Project (Oregon Trout et al.) to list five or more ESUs of indigenous, naturally-spawning coho salmon in Oregon and to designate critical habitat under the Endangered Species Act (ESA). The five ESUs identified by the petitioners included coho salmon populations from rivers south of Cape Blanco, the Coquille and Coos Rivers, the Umpqua River, rivers between the Umpqua and Nehalem Rivers, and the Columbia River.

On October 20, 1993, NMFS received a petition from Pacific Rivers Council and 22 co-petitioners (PRC et al.). This petition requested that NMFS list under the Federal ESA, either on an emergency basis or through normal listing procedures, all coho salmon populations in Washington, Idaho, Oregon, and California, and to designate critical habitat for the species.

On October 27, 1993, NMFS published a notice of finding (58 FR 57770) that a listing may be warranted and solicited information about the status of all populations of coho salmon in Washington, Oregon, and California. NMFS determined that such an expanded status review was warranted due to the general decline in many West Coast coho salmon populations.

On January 26, 1994, NMFS published a notice of finding (59 FR 3662) that a non-emergency listing may be warranted, and solicited information about the status of all populations of coho salmon coastwide. The notice also announced that information submitted in response to the PRC et al. petition would be used by NMFS in their coastwide review of coho salmon populations already underway (58 FR 57770, October 27, 1993).

Prior to the Oregon Trout et al. and PRC et al. petitions, NMFS received two separate petitions to list and designate critical habitat: (1) lower Columbia River coho salmon (55 FR 37342, September 11, 1990), and (2) coho salmon in Scott and Waddell Creeks, California (58 FR 33605, June 18, 1993). For both petitions, NMFS published determinations denying listings because evidence indicated that neither of the petitioned entities constituted a "species" under the ESA (56 FR 29553, June 27, 1991, and 59 FR 21744, April 26, 1994). Information considered in these earlier status reviews was also used in the NMFS coastwide review of coho salmon populations.

During the coastwide status review, NMFS assessed the best available scientific and commercial data and received technical information from Pacific Salmon Biological and Technical Committees (PSBTCs) in Washington, Oregon, and California. A committee was not convened in Idaho because coho salmon are considered extinct in that state. The PSBTCs consisted of scientists from Federal, state, and local resource agencies, Indian tribes, industries, professional societies, and public interest groups with technical expertise relevant to coho salmon. While

the NMFS status review focused on coho salmon populations in Washington, Oregon, and California, the geographic scope was broadened to include populations from southern British Columbia, due to their potential similarity to coho salmon populations in Washington.

An NMFS Biological Review Team, comprised of staff from the NMFS Northwest Fisheries Science Center and Southwest Regional Office, reviewed information from the PSBTCs and other sources and completed a coastwide status review for coho salmon. Full results of the NMFS review are published in the NOAA Technical Memorandum "Status Review of Coho Salmon from Washington, Oregon, and California."

On July 25, 1995, the National Marine Fisheries Service (NMFS) published a proposed rule (60 FR 38011) identifying six ESUs of coho salmon and proposing to list three ESUs as "threatened" under the Federal Endangered Species Act (ESA). The range of the threatened ESUs (Oregon Coast, Southern Oregon/Northern California, and central California coast ESUs) encompasses all coastal streams from south of the Columbia River to the San Lorenzo River, California. NMFS also designated two coho salmon ESUs (lower Columbia River/ southwest Washington coast and Puget Sound/Strait of Georgia ESUs) as "candidate species" because, while available information was insufficient to support a listing, NMFS had significant concerns that needed to be resolved prior to assessing the overall health of these ESUs.

History of State Listing Petitions

Oregon Trout and three co-petitioners submitted a petition to the Oregon Fish and Wildlife Commission on February 15, 1994 to list coho salmon (Oncorhynchus kisutch) as threatened or endangered under the Oregon Endangered Species Act (ORS 496.172 et seq., OAR 635-100-100 et seq.). The Commission subsequently determined that the petition contained sufficient scientific information to require initiation of a Departmental review of the biological status of coho salmon in Oregon (ORS 496.176[5]; OAR 635-100-110[6]).

To determine whether a native species is threatened or endangered with extinction, the Commission was required to determine, based on the best available scientific and other information, whether the natural reproductive potential of the species was in danger of failure due to limited population numbers, disease, predation, or other natural or man-made factors affecting its continued existence (ORS 496.176[3]; OAR 635-100-105).

In addition, the Commission was required to determine that at least one of the following factors exists:

- Most populations are undergoing imminent or active deterioration of their range or primary habitat.
- Overutilization for commercial, recreational, scientific, or educational purposes is occurring or is likely to occur.
- Existing state or federal programs or regulations are inadequate to protect the species or its habitat. (ORS 496.176[3]; OAR 635-100-105).

Finally, the Commission was required to consult with affected federal and state agencies, cities and counties, and federally-recognized Indian tribes; the Natural Heritage Advisory Council; other states having a common interest in the species; and the interested public in the process of making its determination (ORS 496.176[4]; OAR 635-100105 [10]).

The conclusion of the deliberation by the Oregon Fish and Wildlife Commission on February 22, 1995 was that coho salmon in Oregon did not merit listing under the state Endangered Species Act. The Commission concluded that the ESUs under consideration for listing were not in immediate danger of experiencing reproductive failure. The Oregon Department of Fish and Wildlife (ODFW) staff and the Commission acknowledged that, in general, coho were severely depressed; and that in some Gene Conservation Groups, they were continuing to decline. The Commission, however, designated coho salmon statewide as a State Sensitive Species and directed ODFW to revise assessments of the status of the species for the Commission annually.

Overview of OCSRI

Governor John Kitzhaber announced the planning effort to conserve and restore Oregon's coastal salmon and steelhead in October of 1995. One of his first steps was to establish a team approach for developing an action plan that would lead to restoring the health of coastal salmon and trout populations. Another early step was to require directors of key state agencies to meet with the Governor bi-weekly, reporting progress and resolving interagency obstacles. Outreach teams were directed to work with key agency stakeholders, ask for their advice, and present ideas for their comment. A Science Team was established to work on technical issues. Agencies worked with NMFS staff to develop action plans designed to address management practices and environmental factors that were affecting salmon production. All of this was occurring on a fast track, aiming at a mid-summer date for submitting a draft conservation plan to NMFS.

Details of the OCSRI Plan and the development process are presented in this report. The overall mission of OCSRI was captured in an information sheet designed for distribution to the general public.

It is the mission of the Oregon Salmon Restoration Initiative to restore our coastal salmon populations and fisheries to productive and sustainable levels which will provide substantial environmental , cultural, and economic benefits.

Other significant aspects of OCSRI include the following points:

- Salmon are recognized as an integral part of Oregon's cultural identity.
- The effort will serve as a model for intergovernmental and community based collaboration and partnerships.
- While OCSRI 's overall intent is to address anadromous salmon, steelhead and cutthroat trout, the greatest focus of this document is on coho salmon. Future work will address unique needs of other species.
- The effort to restore Oregon's salmon will only be successful if it represents grassroots involvement, ownership, and commitment in a cooperative work environment.
- The OCSRI will emphasize a voluntary versus regulatory approach. Efforts will be made to improve compliance with existing environmental protection laws. However, the intent is to make the existing system work better, not just establish a set of new laws.
- Everyone shares responsibility for the salmon's problem. There is no clear justification to single out parties to blame for the fact that salmon populations in Oregon are not healthy today. Consequently, everyone needs to share in actions that are needed to restore the health of salmon populations.
- The intent of the OCSRI is to restore native populations of salmon and trout. The emphasis will, therefore, be on conserving and restoring wild populations and the environments that support them.
- Hatchery production has a legitimate role in natural resource management. Some hatchery fish will continue to be produced for purposes that may include assisting restoration of depressed wild populations or supplementing fisheries.
- While wild coho populations are in the process of recovering, no directed harvest on this species is expected. After documenting a sustained period of recovery by coho to a predetermined level, some directed harvest of this species in recreational and commercial fisheries (especially of hatchery fish) is anticipated, consistent with achieving recovery of wild populations.
- The OCSRI Plan has been developed in an open environment that has actively solicited, considered, and incorporated suggestions from all affected and responsible parties. State agencies have outreached to stakeholders and constituents; conservation organizations have been asked to submit recommendations; agencies have been asked to consider recommendations in two recent scientific analyses of the salmon crisis; NMFS staff have submitted critique of an initial management measures package submitted by state agencies; and federal management partners have been asked to join in the effort.

The Science Team
Scientists with expertise in matters related to salmon were invited to the OCSRI. As a group, these scientists are referred to as the OCSRI Science Team. The team began work in March, 1996, expanding from 16 to 20 people (13 on a primary team and 7 on a secondary team), representing the following state and federal agencies:

- Oregon Department of Agriculture
- Oregon Department of Environmental Quality
- Oregon Department of Fish and Wildlife
- Oregon Department of Forestry
- Oregon State University
- Environmental Protection Agency
- National Biological Survey
- National Marine Fisheries Service

Initially, the major focus of the team was coho salmon, but efforts will shift to include issues related to steelhead, chinook, and chum in late 1996 and 1997. Science Team members are currently working on several assignments and will work on new assignments in the future as the need arises.

Major issues currently being addressed include the following:

- Sustainability modeling
- Mapping core areas for coho, chum, chinook, and steelhead
- Monitoring
- Predicting the effect of proposed restoration measures
- Proposing benchmarks for recovery, listing, and delisting
- Proposing emergency measures to prevent extinction of individual populations

Technical review of Science Team work and the overall draft CSRI Plan is being sought as an opportunity to improve the quality of the final Plan.

Comprehensive information on the background, current assignments, and expertise of Science Team members and their work products is in the Science Team Attachment to this document.

Historic Perspective of Coho Abundance

Near the turn of the century, coastal coho salmon were harvested principally by gill-net fleets that fished in coastal estuaries and the lower reaches of coastal rivers. Based on records of canned coho salmon from these fisheries, an average of 500,000 adult coho salmon were landed annually during the 1890s. Assuming these fisheries harvested 40 percent of the run, coastal coho salmon north of Cape Blanco numbered about 1.25 million adults annually around the turn of the century. While other assumptions may be made regarding methods of estimating turn of the century coho abundance of Oregon coastal coho, it is clear that returns in some years exceeded a million fish.

From the turn of the century through the 1930s, annual abundance of coho salmon averaged about 900,000. By the 1940s and 1950s, however, annual production had declined to half that level. During recent years, annual production of wild coho in Oregon coastal basins has been dramatically less, around 50,000 to 80,000 fish under adverse ocean conditions.

Goals for Coastal Coho Salmon

The OCSRI Science Team has developed an assessment of population levels that could be considered healthy for coastal coho salmon. These predictions of productive capacity offer an idea of the magnitude of improvement that might be achieved if the OCSRI is successful. Details of this assessment are contained in the Science Team Attachment to this document and are also summarized in Chapter V. Their assessment is that the ocean environment has a large influence on the levels of wild production that can be sustained by coho populations.

Based on the current habitat-based model, production of coho at full seeding might range from a little over 100,000 adults under adverse ocean conditions, to close to a million adults under extremely favorable ocean conditions. These predictions will undoubtedly be revised in the future, especially as data from the proposed OCSRI monitoring program is incorporated into the model. Most likely, production levels that can actually be achieved will be in the range of 100-400,000 coho.

Life History and Habitat Requirements of Coho Salmon (Oncorhynchus kisutch)

Coho salmon have been considered the most important commercially caught salmonid in Oregon, and until recently, were usually the most common salmonid in most coastal streams. Compared to other anadromous salmonids in Oregon, coho salmon have a very simple life history, with populations primarily on a 3-year cycle.

Adult coho salmon are distinguished from other Pacific salmon species by the presence of small black spots on their backs and the upper lobe of their tails. Adult coho salmon typically mature at 4-12 pounds. Juvenile coho salmon are identified by long, narrow, widely-spaced parr marks and the long leading edge of the anal fin.

Oregon lies near the southern boundary of the range of coho salmon in North America, which extends from Point Hope, Alaska to Monterey Bay, California. Within Oregon, coho salmon are found in the Columbia River and coastal streams. The Oregon Department of Fish and Wildlife has provisionally identified 94 populations of wild coho salmon on the Oregon Coast.

While wild coho salmon occur in most coastal basins, the most important producers occur from the Coquille River north, including: Nehalem River, Tillamook Bay tributaries, Nestucca River, Siletz River, Alsea River, Siuslaw River, Umpqua River, Coos River, Coquille River, and Rogue River.

In addition, three lake basins on the central coast are important producers of coho salmon: Siltcoos Lake, Tahkenitich Lake, and Tenmile Lakes. Although coho salmon production in these lake basins has drastically declined since the introduction of warmwater fishes, spawning survey counts indicate that these systems are still perhaps the most productive coho salmon habitat on the Oregon Coast.

Adult coho salmon migrate into fresh water in the fall to spawn. Spawning of wild coho salmon usually occurs from mid-November through February. Adult spawning coho salmon are typically 3 years old, and they are often accompanied by 2-year-old jacks (precocious males) from the next brood. Spawning occurs primarily in small tributaries located throughout coastal basins. The parents normally exhibit strong homing to their natal stream. The female digs a nest (redd) in the gravel and lays her eggs, which are immediately fertilized by accompanying adult males or jacks. The eggs are covered by digging and displacing gravel from the upstream edge of the nest. Each female lays about 2,500 eggs. The adults die soon after spawning.

The eggs hatch in about 35-50 days, depending upon water temperature (warm temperature speeds hatching). The alevins remain in the gravel two to three weeks until the yolk is absorbed and emerge as fry to actively feed in the spring. Juvenile coho salmon spend one summer and one winter in fresh water. The following spring, approximately one year after emergence, they undergo physiological changes that allow them to survive in sea

water. They then migrate to the ocean as silvery smolts about four or five inches in length.

The smolts undergo rapid growth in the ocean, reaching about 15-20 inches by fall. Little is known of the ocean migrations of coho salmon from Oregon coastal streams, however based on what is known, it appears migrations are mostly limited to coastal waters. Initial ocean migration appears to be to the north of their natal stream. After the first summer in the ocean, a small proportion of the males attain sexual maturity and return to spawn as jacks.

Migration patterns during the fall and winter are unknown. Those fish remaining at sea grow little during winter but feed voraciously during the next spring and summer, growing to about 23-33 inches in length. During this second summer in the ocean, a percentage of these maturing adults is vulnerable to capture in ocean troll and recreational fisheries, usually to the south of their natal stream. The survivors return to their home streams or neighboring streams where they spawn and die to complete the life cycle.

Habitat Requirements
Spawning and rearing of juvenile coho salmon generally take place in small low gradient (generally <3 percent) tributary streams, although rearing may also take place in lakes where available. For spawning, coho salmon require clean gravel, ranging in size from a pea to an orange; for rearing they require cool water temperatures (53-58 Fahrenheit preferred, with 68 maximum). Fry emerge from February to early June and occupy backwater pools and the stream margins. During summer, coho prefer pools in small streams, whereas during winter, they prefer off-channel alcoves, beaver ponds, and dam pools with complex. Complexity, primarily in the form of large and small wood, is an important element of productive coho salmon streams. Little is known about residence time or habitat use of estuaries during seaward migration, although it is usually assumed that coho salmon spend only a short time in the estuary before entering the ocean.

Evolutionarily Significant Units (ESUs) Relevant to Oregon
Two of the evolutionarily significant units (ESUs) of coho salmon proposed for listing under the Federal Endangered Species Act occur wholly or partly in Oregon.

- The Northern Oregon Coast ESU. This ESU includes all coastal populations from the mouth of the Columbia to Cape Blanco, including the Umpqua Basin. This ESU consists of three groupings of populations that are classified by ODFW as Gene Conservation Groups (GCGs).
- The Southern Oregon and Northern California ESU. This ESU includes all coastal populations in Oregon south of Cape Blanco to the California border, including the Rogue Basin. ODFW has identified only one GCG of coho salmon in the Oregon portion of this ESU. The ESU also includes coho populations in northern California, including the Klamath and Smith basins.

Analysis of Risks to the Oregon Coho ESUs
Salmon have declined to a small fraction of their historic abundance in Oregon because of a number of human activities. Society recognizes the immediate crisis: too few salmon. This crisis, however, is merely a symptom of many factors acting over a broad scale of space and time to reduce salmon production. These factors include, but are not limited, to:

- Fishing
- Urbanization
- Farming, grazing, and other related agricultural activities
- Logging
- Road building
- Hatchery operations
- Splash-damming in coastal streams
- Mining gravel from streambeds
- Withdrawing water from streams
- Damming streams

Factors that, individually and collectively, contributed to the decline of salmon populations are often referred to as risk factors. Customarily, these risk factors are discussed in categories related to their underlying cause: harvest management, hatchery management, habitat management, and a fourth category of miscellaneous factors referred to as other management risks.

- Harvest risks include all management activities pertinent to control of fishing-related mortality, including: ocean fisheries, in-river fisheries, direct harvest effects, indirect fishery effects, and effects on adults and juveniles.
- Hatchery risks include all management activities pertinent to use of artificial propagation, including decisions related to: broodstocks used, numbers stocked, locations where fish will be stocked, expansions or reductions in stocking programs, and criteria for smolt sizes.

- Habitat management risks include all management activities that influence the nature of freshwater landscapes in a way that will affect fish, including efforts to: conserve and improve the productive capacities of freshwater environments for salmonids; provide passage at culverts and dams; and screen withdrawals and diversions.
- Other management risks include: relative hospitability of the ocean environment; predation by marine mammals and birds; and other factors over which varying degrees of management influence may exist.

Additional information specific to risk factor identification and assessment for Oregon coho salmon is included in Chapter IV.

Obstacles to Success of the OCSRI Plan
As with any undertaking of this magnitude, there are many obstacles to success. Some are fundamental and easily recognizable while others are not. The purpose of this section is to briefly highlight some of these obstacles and to emphasize that the OCSRI Plan is not based on unrealistic optimism.

Funding
Money for personnel and projects will be required to do some of the work needed to restore the vitality of Oregon's salmon and trout populations. However, there are many, many serious issues competing for these resources: education, crime, transportation, and social services, to name just a few. Salmon will not get all the state or federal money that may be needed, nor will all of these other just causes. The challenge of OCSRI is to make the most effective use of public and private funds that are available.

Institutional Barriers
Many state, federal, and local governments are responsible for managing natural resources that are critical to the health of salmon populations. Each of these entities serves a slightly different set of constituents or stakeholders. Each of these constituencies may have a different view of the desirable role of salmon in Oregon's future. These management agencies have a long tradition of not communicating or cooperating very well with respect to conserving salmon. Time, public support, and continued leadership will be needed to erode these institutional barriers.

Monitoring Program
The OCSRI Plan includes a detailed proposal for a comprehensive, multi-disciplinary, multi-agency monitoring program. Such a program has great merit and has been talked about for years, but has never been established and funded. This monitoring program is crucial to Oregon's ability to conserve and restore salmon and trout populations. The challenge is to overcome traditional institutional and agency barriers, secure funding for an effective monitoring program, and implement the program under clear leadership.

Public Expectations For Quick-Fix
The "salmon crisis" in Oregon was over a century in the making. It will not be resolved quickly nor without cost. Many people may expect that blame should be assigned, simple solutions proposed, and quick resolutions achieved. If so, the public may become discouraged or apathetic when faced with the complex nature of the problem and the magnitude of the effort needed for its resolution. OCSRI's challenge is to develop education and outreach programs explaining the interconnections between humans and natural resources that we and salmon depend on, and to foster a reasonable sense of optimism that success can be achieved in the long term.

An Adverse Ocean Environment
Science agrees on one issue that was once wrongly taken for granted. The ocean off the Oregon coast is extremely variable with respect to its suitability for coho salmon. Natural cyclic highs and lows in ocean productivity off Oregon are a crucial factor underlying the potential for coho recovery in Oregon. No one knows whether a cycle of relatively good ocean conditions will resume soon, the current adverse conditions will continue for a period, or whether conditions in the near future will get worse than in the recent decade. The challenge of the OCSRI is to make improvements to the freshwater and estuarine habitats that support salmon so that these populations can persist until more favorable ocean conditions return.

What to Expect Next
Development of the OCSRI Plan marks just the beginning of a process to conserve and restore salmon and trout populations in Oregon. Foremost, actions have already been taken to obtain critical review of the Plan by a variety of interested and responsible parties, including NMFS and other scientists. Everyone who reviews the Plan is being asked to note any weaknesses and make constructive suggestions regarding needed changes or additions. This is an important step of an ongoing process to adjust the Plan to improve its effectiveness.

The OCSRI Plan must be a vital process that is modified and improved as new information becomes available. Tactically speaking, the focus of the Plan needs to be expanded to provide more detail for steelhead, cutthroat trout, chum salmon and chinook salmon. Finally, the work of the OCSRI should be expanded, as feasible and

appropriate, to encompass the entire state.

Many of the immediate steps required for the OCSRI to be successful are evident:

- The leadership that has brought the Plan to this state of development must be continued.
- Watershed council coordinators must be funded coastwide.
- State and Federal agencies that have made great strides in overcoming traditional territorial conflicts must continue to coordinate, communicate, and improve efficiency in shared missions.
- Funding must be secured from appropriate state and federal sources to support conservation and restoration efforts.
- Economic and social incentives must be developed.
- Compliance with existing environmental laws must be improved.
- Public outreach and education programs must improve the public's understanding of the effect of habitat alteration on salmon.
- Proposed monitoring programs must be implemented.
- Hundreds of commitments by government, watershed councils, conservation organizations, industries, and private landowners must be verified.

Go to Governor Kitzhaber's Home Page

CHAPTER I

ESSENTIAL ELEMENTS OF A CONSERVATION PLAN

Introduction

This document introduces the first draft of a comprehensive plan to conserve and restore anadromous salmonid populations in Oregon's coastal river basins. The effort represented by this document is unprecedented in terms of the geographic area encompassed and in the extent of cooperative and technical involvement by people from public and private sectors.

This report is being prepared for presentation to several audiences. First, it is being prepared for the people of Oregon, to increase public awareness of the challenges and efforts needed to restore salmon in Oregon. Second, it is being prepared to assist coordination of state and federal management agencies by clarifying roles, responsibilities, and working relationships. Third, it is being prepared for the National Marine Fisheries Service, so that its merits may be considered when a final determination regarding listing of coastal coho is made in October 1996.

Development of this conservation plan, based primarily on state and local government and grassroots efforts, has been assisted in various ways by NMFS staff. One aspect of this assistance is a draft document prepared by NMFS staff describing essential elements of a conservation plan, relative to Endangered Species Act determinations. Although this document was not formally approved by NMFS, it was provided informally to the OCSRI Science Team as a courtesy. The draft NMFS document provided reasonable guidance; no elements of the guidance document are considered by OCSRI to be inappropriate.

The purpose of this chapter is to summarize Oregon's interpretation of guidance provided by NMFS and to explain a general sense of how the OCSRI Plan responds. Each of the nine critical elements of a conservation plan, as outlined in the draft NMFS document, are highlighted, along with a discussion of the manner in which the OCSRI Plan addresses each element. The nine critical elements are summarized below.

Nine Critical Elements

0. Identify the major factors that have contributed to the decline of the ESUs.
1. Establish priorities for action.
2. Establish objectives and timelines for recovering populations.
3. Establish criteria and standards to measure progress towards objectives.
4. Adopt measures (actions) needed to achieve the explicit objectives.
5. Establish a comprehensive monitoring program.
6. Provide high levels of certainty that actions will be implemented.
7. Integrate activities and projects to recover salmon populations and their habitat.
8. Utilize adaptive management in the recovery process.

Element 1 - Identify, at appropriate scales, the major factors that have contributed to the decline of the ESUs.

As noted in other sections of this document, many factors have contributed to the decline of anadromous salmonids in Oregon. Prominent among these are factors relating to the management of harvest, hatcheries, and habitat. In some geographic regions, hydropower is also considered a general risk category. In Oregon, however, large dams are not common so hydropower is not considered a broad risk category for Oregon coastal coho. In the OCSRI Plan, dams are considered under the habitat factor.

While recognizing that many factors have contributed to the decline of coho in Oregon coastal rivers, no scientific analysis has been conducted that is capable of assigning proportional blame for the decline in coho populations to specific factors. In all likelihood, such an analysis may be impossible. Clearly, however, if too many fish are harvested, too few will survive to spawn and populations will decline. There will also be a population decline if spawning and rearing habitats, or migratory routes, are degraded by land-use practices. If hatchery practices cause hatchery fish to have deleterious genetic or ecological interactions with wild fish, the populations will decline. And, if the ocean rearing environment is unfavorable to survival of coho salmon, production will decline, even if all other factors remain favorable.

Previous risk factor analyses by both ODFW and NMFS have acknowledged the likelihood that all of these factors have played a role in the decline of Oregon coastal coho. Direct evidence has been presented that harvest rates on wild coho have been much higher than intended by management plans. Data have been sufficient to demonstrate that freshwater rearing environments have been significantly altered from historic conditions and from conditions that are optimum for the species. The current adverse effect of the ocean environment has been well documented and appears to be consistent with large-scale climate and oceanic cyclic events. Data on the occurrence of hatchery coho in natural spawning populations, the numbers and sizes of hatchery fish released, and transfers of fish out of native basins is sufficient to establish significant concern regarding the effects that these practices may have had on wild populations.

The OCSRI Plan proposes remedial actions coastwide that are expected to address all of the major risk factor categories and improve survival of coho salmon at all life stages. While recognition of the general factors that have contributed to the decline of coastal coho is useful, it does not immediately lead to a detailed restoration prescription.

The OCSRI Plan is based on a presumption that factors limiting production in individual basins must be identified on the watershed level and corrected at that same level. An understanding that over-wintering habitat is limiting coho production coastwide is not particularly useful in the context of a specific watershed where degraded riparian habitats have contributed to summer water temperatures that are too warm for coho. Similarly, watersheds that are experiencing unacceptably high sediment loads may not benefit very much from projects that simply add large wood to stream channels. Ultimately, limiting factors must be identified and addressed watershed-by-watershed. This is the process that OCSRI Plan expects to occur within the context of the Watershed Councils.

Element 2 - Establish priorities for action.

With increasing emphasis on management of anadromous fish at the population, rather than the species, level and with hundreds of populations distributed throughout Oregon, decision makers must often choose to focus management attention on some populations at the expense of others., While many populations are legitimate candidates for restoration, limited resources are available. This situation forces choices to be made, which means that some activities related to restoration will be conducted while others will not.

The habitat that supports coho populations varies considerably, as do the characteristics of the populations. For example, individual populations are supported by habitats that range from large to small basins, from well protected and stable to poorly protected and unstable, and from providing an ideal rearing environment to providing a marginally tolerable rearing environment. Some populations may be capable of supporting fisheries, but some are depressed to extremely low abundance levels.

NMFS has identified several basins on the Oregon Coast that were judged as highest priority for coho conservation and restoration effort. The rationale behind the selections made by NMFS staff are legitimate. However, the OCSRI Plan does not intend to establish a single priority list of major basins that will be emphasized in coho restoration efforts, as seems to be suggested. Instead, priorities will be established in relation to a variety of factors, as described herein.

Since the OCSRI Plan seeks to make improvements in all basins in the coastal area through active Watershed Councils, some level of effort to conserve and restore coho will occur simultaneously coastwide. Within each basin, efforts will be prioritized, first to secure core areas for anadromous fish, and second to improve habitat and populations in suitable recovery areas nearby.

Core area maps will serve to focus efforts for state and federal management actions and voluntary landowner contributions. For example:

- Oregon State Police and agency enforcement of existing environmental laws can be focused in relation to core areas and species in most need of improvement within a specific basin.
- Culvert repair and replacement can be scheduled first in core areas.
- Irrigation diversions in core areas and key migratory routes can be given highest priority for funding.
- Instream and upslope land management can be scrutinized closely in relation to possible effects on core areas.

Allocation of resources to conservation and restoration will also be prioritized in relation to availability of resources. For example, the Oregon Department of Agriculture has been asked to focus implementation of Senate Bill 1010 in three basins: Tillamook, Umpqua, and Rogue. This emphasis is based on the resources of ODA in these basins and the potential for changes in agricultural practices in these basins to benefit coho and other anadromous salmonids. Similarly, the Oregon Department of Forestry has been asked to devote resources to the Tillamook Forest because of the extensive state forest holdings in this area, the high anadromous fishery values in

the region, and the impending harvest of substantial amounts of timber in the Tillamook Forest. These are just a few examples of how OCSRI is addressing prioritization of conservation and restoration efforts for coho and other anadromous species.

A general approach to prioritizing conservation and restoration decisions in Oregon has been based on staff work by ODFW and a prioritization process described in a document often referred to as the Bradbury Prioritization Process. The approach is based on evaluating the status of populations and habitat, and considers such factors as population size, biological characteristics, fishery value, limiting habitat, improvement potential, and availability of resources.

A prioritization process to guide development of the OCSRI Plan must:

- Be useful in a real-time frame.
- Be amenable for use by a decision group.
- Be suitable to make comparisons within species, between species, or within broad or restricted geographic regions.
- Allow for consideration of complex and anecdotal data and allow judgments by technical experts.
- Provide a source of information to compare and contrast populations and basins.
- Be applicable to a variety of purposes other than setting priority for restoration investment (e.g., decisions regarding habitat protection sanctuaries, priorities for implementing Wild Fish Policy, guidance for STEP activities, and identification of priority research or inventory needs).

Coastal Basins that Stand Out

Based on previous assessments, five coastal basins (Nehalem, Tillamook, Siletz, North Umpqua , and Rogue) stand out on the basis of species richness, high biological value, and high social value of the salmon and steelhead populations they support.

- The Nehalem, for example, supports populations of fall and summer chinook, coho, winter steelhead, and chum. This is a large basin that supports populations of several species that may be genetically distinct from other coastal populations.
- The Tillamook Basin (Miami, Kilchis, Wilson, Trask, and Tillamook) supports a similar species array as the Nehalem, including the most robust Oregon chum salmon populations and very large coastal fall chinook populations. While coho populations are currently very low in the Tillamook Basin, significant potential is thought to exist to restore these populations.
- The Siletz is a relatively small basin, but it stands out from other similar basins because it supports populations of spring and fall chinook, coho, winter and summer steelhead, and chum population.
- The North Umpqua Basin stands out primarily because of the presence of relatively large populations of wild spring chinook, summer steelhead, and winter steelhead. Sea-run cutthroat in this basin are at very low population levels and have recently been declared endangered by the NMFS.
- The Rogue Basin stands out because of its biological characteristics and large populations of wild spring chinook, fall chinook, summer steelhead, and winter steelhead populations that it supports.
- This list is provided as an example to demonstrate that the OCSRI intends to consider priorities for coho conservation and restoration within a broader context that includes all anadromous species.

Element 3 - Establish explicit objectives and timelines for correcting factors for decline and achieving desired population characteristics.

The OCSRI Plan recognizes the need to establish quantitative objectives for populations and risk factors, including timelines for correcting limiting factors. Several approaches to providing this information have been used. First, descriptions of management measures prepared by state agencies should describe quantitative aspects of desired conditions that the measure will achieve. For example, escapement goals or harvest management measures should describe quantitative objectives; hatchery management measures should describe numbers and locations of coho releases. It is more difficult to provide quantitative objectives for many habitat features that will be affected by management, because baseline conditions have not been established for all basins and also considerable variation exists between basins.

Several basic concepts have provided guidance for development of the OCSRI Plan. These concepts include the following:

- Conserve and restore natural watershed processes that create habitat characteristics favorable to salmonids, addressing management of contiguous landscapes.
- Conserve habitats required by salmonids during all life stages from embryos and alevins through adults.
- Conserve a well-dispersed network of high quality refugia to serve as centers of population expansion.

- Conserve connectivity between high-quality habitats to allow for reinvasion and population expansion, recognizing that migration corridors are essential to adults and juveniles.
- Conserve genetic structures and diversity within and among populations, gene conservation groups, and ESUs.

Element 4 - Establish quantifiable criteria and standards by which progress towards each objective will be measured.

The OCSRI has a proposal for a comprehensive monitoring program that would permit assessment of progress toward conservation and restoration goals for coho and other anadromous salmonids in Oregon coastal basins (see Science Team Attachment). This is an extremely ambitious and novel proposal that will be capable of detecting population increases and decreases of coho within gene conservation groups. The proposal includes the need to refine the monitoring program in the future to make it more sensitive to other species as well. This monitoring program will provide data needed to establish baseline conditions and evaluate progressed toward rebuilding.

The OCSRI has proposed a series of population benchmarks and interim indicators that may be used to evaluate trends in populations and their supporting habitat. These benchmarks and indicators will be reviewed by scientists and managers before agreement is reached regarding which will provide a formal basis for tracking progress.

Element 5 - Adopt measures (actions) needed to achieve the explicit objectives.

Identification of management measures designed to assist conservation and restoration of salmon and trout, and especially coho, is central to the OCSRI Plan. This draft contains management measures submitted by state agencies, Watershed Councils, and local county and city governments (see Management Measures Attachment and a summary in Chapter VI). Oregon has asked federal management agencies to submit a measures package also. This information is not available for review at this time, but has been promised for delivery in September.

Element 6 - Establish a comprehensive monitoring program, including methods to measure whether objectives are being met and to detect population declines and increases in each ESU.

The OCSRI contains a proposal describing a monitoring program that is considered an essential element of efforts to conserve and restore coho salmon populations. The strength of the Plan hinges on the management measures that are designed to assist the populations, as well as the management program that will be used to evaluate actual performance of the populations and the habitat that supports them.

The monitoring program, as proposed, is:

- Comprehensive
- Capable of detecting increases or declines
- Sensitive at ESU and GCG levels
- Capable of tracking implementation of proposed measures
- Capable of tracking achievement of habitat, harvest, hatchery objectives
- A proposed framework to facilitate integration of management entities
- A foundation for active adaptive management

The proposal has been submitted for peer review and will receive review by NMFS and other state and federal agencies that are proposed as active participants.

A comprehensive, interdisciplinary, interagency monitoring program has been discussed before, but discussions have never resulted in an on-the-ground program. Implementation of this proposed program in the future depends on: agreement regarding responsibility for accomplishing the distance monitoring elements, establishment of a leadership structure to supervise synthesis and reporting of results, and securing of funding for the program elements.

Details on sample sites, criteria, methods, frequencies, and other aspects of sampling plans have not been determined for all elements of the proposed program. OCSRI envisions this monitoring program, after improvements are made in design based on peer review, as gradually evolving from current monitoring efforts and gradually expanding in scope and intensity over a period of years.

Element 7 - Provide high levels of certainty that the identified measures and actions will be implemented.

The OCSRI recognizes the need for accountability. Consequently, state and federal agencies were asked to provide the following information in a matrix form that described each proposed management measure.

- Is the action currently in place or proposed?
- Is the action voluntary or regulatory; or does it involve agency policy, guidelines, or memoranda of understanding?
- If the measure is regulatory, is the law likely to be enforced?
- What is the legal authority or policy citation, if any, for the measure?
- Are there obstacles to implementation (e.g., lack of funding, social resistance, etc.)?
- Are new funds required for implementation of this measure?
- Is this measure in Phase I or Phase II?
- What criteria may be measures to monitor implementation of this measure? (e.g., number of land use plans approved, number of management plans written, actual changes in environmental conditions or fish populations)

Element 8 - Integrate federal, state, tribal, local, corporate, and non-governmental activities and projects that are designed to recover salmon populations and the habitats upon which they depend.

The Watershed Council process is Oregon's approach to integrate conservation and restoration efforts of all parties. Additional detail about the watershed council process and the Governor's Watershed Enhancement Board in relation to the OCSRI Plan is provided in Chapter VI. In Oregon, also, watershed councils will enlist the assistance of state and federal agencies, and local cooperators, often including other supportive entities such as For The Sake Of Salmon, and the National Resource Conservation Service.

One objective of the watershed council concept is to develop assessments of limiting factors within each basin and subbasin, and to develop cooperative conservation and restoration action plans based on the biological needs of the various species that are the target of the restoration effort. A major premise of the Watershed Council process is that all government, tribal, corporate, and private interests in the basin will be included in the decision making and problem solving aspects of the action plans that are developed.

Element 9 - Utilize an adaptive management approach that actively shapes management actions to generate needed information.

The OCSRI Plan includes a proposal to establish an adaptive management team that will provide leadership and continuity of active adaptive management principles, supported by a comprehensive monitoring program. This proposal is based in part on the premise that many management actions will proceed without being certain of their outcome.

The proposed approach involves:

- Establishing a cooperative management team, organized at the bioregional level.
- Having a membership that includes managers, scientists, and stakeholder representatives.
- Identifying questions and protocols for answering the questions.
- Designing an active strategy.
- Incorporating feedback loops to adapt measures.
- Relying on the scientific method to test results of actions taken.

Tangible commitment to adaptive management is needed to evaluate management alternatives that will be proposed to conserve and restore coho salmon and other anadromous salmonids.

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CHAPTER II

GOALS AND STRATEGIES
OF THE COASTAL SALMON RESTORATION INITIATIVE

The term goal is used here to describe a general description of a desired outcome or condition that Oregon wishes to achieve with respect to the OCSRI. The term strategy is used here to describe a methodology or process that will be used to achieve a specific goal. A number of goals have been identified with Oregon's CSRI, and related strategies have been identified to support achievement of each of these goals. Refinement of goal and strategy descriptions will undoubtedly continue to occur in the future. At present, however, these statements provide a reasonable representation of the overall vision of the Oregon Coastal Salmon Restoration Initiative.

GOAL 1 **An infrastructure will exist to provide long-term continuity in leadership, direction, and oversight of salmon restoration.**	Strategy 1.a - Establish accountability and responsibility for maintaining momentum of restoration effort through a specific position in state government. Strategy 1.b - Establish and maintain active process to overcome institutional barriers to restoration and improve communication and coordination within and between local governments, state agencies, and federal agencies.
GOAL 2 **Opportunities will exist for a wide range of natural resource uses that are consistent with salmon restoration.**	Strategy 2.a - Recognize salmon as an integral part of Oregon's cultural identity. Strategy 2.b - Anadromous salmonid populations will be restored to levels at which some amount of harvest is biologically sustainable. Strategy 2.c - Maintain traditional economic, recreational, and cultural uses of natural resources (including salmon) if they are consistent with achieving restoration of salmon populations, although not necessarily in traditional historic allocation proportions. Strategy 2.d - Explore new uses of natural resources that are consistent with restoration.
GOAL 3 **Achievement of overall OCSRI goals will be based to the greatest extent on existing laws and environmental protections, rather than extensive new ones.**	Strategy 3.a - Employ prioritized enforcement efforts to improve compliance with existing laws and environmental protections that are crucial to restoration. Strategy 3.b - Actively encourage and support voluntary actions hat will assist achievement of restoration goals. Strategy 3.c - Develop proposals for a variety of compensation and incentive programs to support achievement of restoration goals. Strategy 3.d - Develop proposals for a package of any new or modified laws or environmental protection rules that may be needed to achieve

	overall goals of OCSRI to support achievement of restoration goals.
GOAL 4 **An adequate funding base will be established and maintained to support the OCSRI.**	Strategy 4.a - Seek appropriate shift within existing state and federal agency budget priorities to support OCSRI. Strategy 4.b - Where appropriate, seek new sources of state and federal funding to support OCSRI. Strategy 4.c - Monitor agencies to ensure that restoration actions and resources are prioritized, and reduce duplication of effort. Strategy 4.d - Promote adaptive management of natural resources, including salmon.
GOAL 5 **Oregon's expectations for sustainability of interrelated natural resources will more accurately reflect a scientific understanding of the physical and biological constraints of the ecosystem.**	Strategy 5.a - Establish an infrastructure to assure responsibility and accountability for maintaining momentum of public outreach and education efforts through coordination of state and federal agencies responsible for natural resource management. Strategy 5.b - Develop active outreach and education programs to inform the public regarding the habitat needs of salmon and actions that may be taken to help restore salmon.
GOAL 6 **Sufficient freshwater and estuarine habitat will be available to support healthy populations of anadromous salmonids throughout coastal river basins.**	Strategy 6.a - Identify areas currently supporting relatively high densities of spawning and rearing by anadromous salmonids (i.e., core areas). Strategy 6.b - Focus habitat protection and restoration efforts in core areas in all basins. Strategy 6.c - Prioritize application of available resources in basins or geographic regions based on assessment of need and availability of resources. Strategy 6.d - Identify stream reaches and sub-basins where restoration efforts are most likely to be effective and focus restoration efforts in these areas.
GOAL 7 **Populations of salmonids in coastal river basins will achieve levels of natural production consistent with overall restoration goals.**	Strategy 7.a - Manage harvest and fishery related mortality to achieve numbers and distribution of spawners consistent with management objectives. Strategy 7.b - Manage hatchery populations consistent with natural production policies and management objectives (natural production, gene conservation, and wild fish policies). Strategy 7.c - Restore ecological role of salmon in coastal ecosystems in a manner and to an extent consistent with restoration goals.
	Strategy 8.a - Establish an infrastructure to support a comprehensive monitoring program. Strategy 8.b - Establish a comprehensive, interdisciplinary, interagency environmental monitoring program to monitor implementation of proposed actions and measure achievement of

GOAL 8 **A science-based system will support evaluation of progress in the OCSRI and will provide a basis for making appropriate future change to management decisions.**	environmental objectives. Strategy 8.c - Establish appropriate environmental benchmarks that will represent successful achievement of OCSRI goals and identify appropriate interim indicators that will track progress toward overall goals. Strategy 8.d - Establish "adaptive management" working group, to frame environmental management questions, identify practical alternatives for answering these questions, and suggest need for appropriate changes in resource management practices.

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CHAPTER III

A TEAM APPROACH TO DEVELOPING THE OCSRI PLAN

Introduction

Oregon's Coastal Salmon Restoration Initiative is a coastwide effort to involve all affected and responsible parties in the development of a sound, long-term process of improving the status of anadromous salmonid populations. Leadership for the OCSRI originated with Governor John Kitzhaber, and initial launching of the effort was developed through three teams:

- Agency Planning Team
- Outreach/Education Team
- Science Team

The composition, purpose, and working process of the Outreach/Education and Science teams are presented in separate sections of the OCSRI Plan.

The Planning Team formed in December of 1995 and established a regular bi-weekly meeting schedule that is planned to continue until the OCSRI Plan is completed. The team met in Salem to develop work assignments, receive direction, discuss progress, and seek solutions to problems. Notes of major topics and team assignments were distributed to the Planning Team, interested persons, and organizations. A packet of notes from Planning Team meetings is included in an Attachment.

The Agency Planning Team consisted of one or more representatives from the following state agencies:

- Department of Agriculture (ODA)
- Department of Environmental Quality (DEQ)
- Department of Fish and Wildlife (ODFW)
- Department of Forestry (ODF)
- Department of Geology and Mineral Industries (DOGAMI)
- Department of Land Conservation and Development (DLCD)
- Department of Transportation (ODOT)
- Division of State Lands (DSL)
- Economic Development Department (OEDD)
- Parks and Recreation Department (OPRD)
- Progress Board (OPB)
- State Marine Board (SMB)
- State Police (OSP)
- Water Resources Department (OWRD)

AUTHORITY AND RESPONSIBILITY OF STATE AGENCIES IN RELATION TO OREGON'S CSRI

Introduction

Many people do not understand that salmon are dependent on natural resources managed by various state and federal agencies and local and county governments. A common misperception is that the Oregon Department of Fish and Wildlife is solely responsible for conservation and restoration of salmon populations in the state, while in reality, many state agencies are responsible for managing the land and water that salmon depend on to survive and thrive. The purpose of this section is to explain how the state agencies are collectively responsible for such management.

Following are descriptions, provided by Planning Team members, of the statutory authority and responsibility of their respective agency relative to the OCSRI.

Oregon Department of Agriculture

Senate Bill 1010. The Oregon Legislature has taken steps to establish the Oregon Department of Agriculture as the lead state agency working with agriculture to address nonpoint source pollution. Senate Bill 1010, passed in the 1993 legislative session, provided the Department of Agriculture with the authority to develop, implement, and enforce agricultural water quality management programs where required by state or federal law. In 1995, the Legislature passed SB 502, giving the Department of Agriculture rather exclusive authority to develop any program or rules that directly regulate farming practices for the purposes of protecting water quality.

SB 1010 provides a structure for developing and implementing a local watershed plan to prevent and control water pollution associated with agricultural activities and soil erosion. ODA's authority triggered where a water quality management plan is required by state or federal law (e.g., TMDL basins, groundwater management areas, coastal zone management area). SB 1010 directs ODA to work with farmers and ranchers to develop overall Water Quality Management Plans for listed watersheds. The watershed plans identify problems in the watershed that need to be addressed and outline ways to correct them. The intent of SB 1010 is to provide a role for ODA to assist producers in addressing those agricultural activities in watersheds known to have the most problems with water quality, to prevent pollution problems wherever possible, and to alleviate any existing problems.

ODA's budget proposal for 1997-99 requests sufficient resources to develop an overall umbrella plan for the coastal zone management area, as well as six basin and/or subbasin plans. The basin plans will address specific agricultural nonpoint source pollution concerns in the individual basins. This program will be developed and implemented in close coordination with OCSRI priorities and objectives.

Confined Animal Feeding Operations (CAFO) Program. This regulatory program, defined under ORS 468B.200.230, ensures compliance with existing clean water laws of nonpoint pollution sources related to animal feeding operations. Its objective is to improve water quality by improving the level of compliance of CAFOs with water quality regulations through inspections, educational outreach, technical assistance, and timely and effective enforcement where needed.

In support of the salmon initiative, the Department of Agriculture will target CAFOs in the coastal zone management area as a major priority and initiate an aggressive compliance assurance program for this area. ODA's budget proposal for 1997-99 requests additional resources which would enable the CAFO program to address this priority on a sustained basis.

Oregon Department of Environmental Quality

The Oregon Department of Environmental Quality is responsible for protecting and maintaining water quality in Oregon. DEQ sets scientifically-based water quality standards at a level that will protect public water for human consumption and aquatic uses, and then takes action to assure water quality standards will be met now or in the future through a combination of enforceable permits, monitoring, technical assistance, and cooperative agreements with the Oregon Department of Agriculture, Department of Forestry, and other state and federal agencies.

Oregon Department of Fish and Wildlife

The Oregon Fish and Wildlife Commission and the Department of Fish and Wildlife have extensive responsibility for the use and protection of fish and wildlife within the state. The agency mission is to "protect and enhance Oregon's fish and wildlife and their habitats for use and enjoyment by present and future generations." Under this mission, ODFW has a dual role of regulating use of wildlife and of protecting wildlife and their habitats for the future. Oregon law gives ODFW authority for regulating sport and commercial harvest, enforcing laws (done in conjunction with Oregon State Police), propagation and distribution of fish and wildlife, and issuing of licenses and permits.

ODFW is also the agency responsible for long-term monitoring and assessment of wildlife populations; monitoring of factors, such as habitat condition, that affect wildlife populations; and informing the public, other agencies and decision makers on the potential effects of human activities on wildlife. Despite its mission to protect and enhance wildlife and their habitats, ODFW has no direct authority over uses of land and water, and thus has no direct authority over the management of wildlife habitat. The habitat protection responsibility is addressed through consultation with numerous other agencies in relation to how their activities and permits may affect fish and wildlife habitat and through cooperative approaches with business and governmental entities and local citizens to protect and enhance habitat quality.

Oregon Department of Forestry

The Oregon Department of Forestry has a multifaceted role in the coastal salmon restoration initiative. Its key role is implementing the Oregon Forestry Practices Act, a regulatory program of best management practices administered on all non-federal forest land. This program regulates harvesting, road construction, chemical use, reforestation, and prescribed burning. It is ODF's responsibility to adopt best management practices (BMPs) that will maintain viable fish and wildlife populations, and to the maximum extent practicable ensure that forest operations meet the state water quality standards. It is ODF's intent to ensure that BMPs are implemented and effective through a balanced program of education, enforcement, and monitoring.

A supporting role is through ODF's authority under the Forestry Assistance Program, which provides technical and cost-share assistance to forest landowners to promote high levels of voluntary stewardship.

Minor supporting roles are through the implementation of a fire suppression program and the Forest Resources Planning program that tracks and analyzes resource trends and issues related to forest lands.

Department of Geology and Mineral Industries

The role of the Oregon Department of Geology and Mineral Industries in the Coastal Salmon Restoration Initiative is in its regulatory authority over upland surface mining activities in Oregon. DOGAMI reviews and permits mining and reclamation plans, inspects mines, and enforces mining statutes and rules. Because run-off from mines may be a sediment source to streams, and poor reclamation practices may lead to sediment influx to streams, monitoring of mines in coastal watersheds is a line of defense against preventable turbid run-off. The department's goal is to minimize this sediment source and to increase the awareness among miners of the salmon issue.

Department of Land Conservation and Development

The Land Conservation and Development Commission (LCDC) and its administrative arm, the Department of Land Conservation and Development (DLCD), manage Oregon's statewide program for land-use planning. LCDC sets broad standards for planning in the form of 19 statewide planning goals and relative administrative rules. LCDC's responsibility in salmon recovery is to ensure that statewide planning goals (and, by extension, local plans and land-use decisions) are applied in a manner that avoids damage to salmon habitat and associated resources. DLCD reviews city and county plans and key state agency programs to ensure their consistencies with state land-use policies. DLCD's mission is to protect and enhance Oregon's quality of life through sound local land-use planning.

Oregon Department of Transportation

The Oregon Department of Transportation is the state road authority. In this capacity, ODOT constructs, operates, maintains, and administers the state transportation network that parallels many major coastal streams and the Pacific Ocean. ODOT's role in this initiative is to evaluate and modify road maintenance and construction practices with the intent of minimizing, to the extent practicable, impacts associated with the activities.

Division of State Lands

The Division of State Lands administers Oregon's Removal-Fill Law, which was intended to protect, conserve, and allow the best use of the state's water resources. This law requires that a permit be obtained from the Division to remove, fill or alter more than 50 cubic yards of material within the bed or banks of most of the state's waterways, including wetlands and the Pacific Ocean; and for all fills, removals and alterations within State Scenic Waterways and areas designated as essential native anadromous salmonid habitat.

The DSL also manages state-owned Common School Fund Trust lands, including most of the Elliott State Forest in Coos and Douglas Counties, as well as submerged and submersible lands beneath tidally-influenced and navigable waterways. These resources are managed under the Oregon Constitution for the greatest benefit of the people of the state, and consistent with sound conservation practices.

Oregon Economic Development Department

The role of the Oregon Economic Development Department in the coastal salmon restoration initiative is defined in its role to assist resource dependent communities achieve higher quality of life and desirable growth. The department administers programs and funds supportive of this mission, and the success of the programs is closely tied to the health of our state's natural resources.

The department's intent in this initiative is to evaluate and modify their programs in a manner that supports the goals of the salmon restoration initiative and, to the extent practicable, minimizes impacts associated with their

activities.

Oregon Parks and Recreation Department

The Oregon State Parks and Recreation Department's role in the coastal salmon restoration initiative is defined in its natural resource management policy of proactive management for desired and future conditions in educating and informing the public about resource management.

OPRD plans to evaluate, develop, and implement salmonid habitat projects within its properties to improve habitat and to educate the public about the importance of salmonids and the need to provide and protect habitat for their future survival. Where necessary and practical, maintenance practices will be modified to avoid potential impacts. OPRD also intends to cooperate with neighbors and government agencies to improve salmonid habitats outside park boundaries by providing materials for enhancement projects.

Oregon State Marine Board

The State Marine Board is the state's boating agency. All motorized watercraft and sailboats over 12 feet in length used on state waters must be registered and titled with the Marine Board. The Board has established equipment and carriage requirements for recreational watercraft and also has authority to regulate boat speed, motor size, and other uses of boats on sole state waters. In addition, the SMB licenses ocean charter boats and registers outfitters and fishing guides. All new polystyrene foam flotation used on state waters must be fully encapsulated and permitted through the Board. State boating laws are enforced, under contract with SMB, by the Oregon State Police and county sheriff. Funding for public boating access facilities (such as ramps, boarding floats, restrooms, and boat pump out stations) is available through SMB. The State Marine Board also provides support for Oregon's Adopt-a-River program.

Oregon State Police (Fish and Wildlife Division)

The role of the Oregon State Police, Fish and Wildlife Division, in the coastal salmon restoration initiative is defined as assuring compliance with laws that protect and enhance the long-term health and equitable utilization of the fish and wildlife resources. This role includes monitoring of sport and commercial fisheries (which encompasses both ocean and inland fisheries), enforcement of applicable habitat regulations, and investigation of environmental violations. As directed by Oregon Revised Statutes and the Governor, members of the Oregon State Police are entrusted with the responsibility to enforce all laws and regulations of the state.

Oregon Water Resources Department

The Oregon Water Resources Department is responsible for management of the state's water allocation system. This responsibility includes managing ground and surface water; monitoring instream flows; processing transfers; and working to achieve water conservation with agriculture, municipal, industrial, and water user groups. The department is evaluating its policies, practices, and procedures to ensure their activities are conducted consistent with salmon protection and restoration.

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CHAPTER IV

FACTORS RESPONSIBLE FOR THE DECLINE OF OREGON COASTAL COHO

Introduction

Salmon have declined to a small fraction of their historic abundance in Oregon. Society recognizes the immediate crisis, namely, too few salmon. This crisis is actually a symptom of many factors acting over a broad scale of space and time to reduce salmon production, including but not limited to:

- Fishing
- Urbanization
- Farming, grazing, and other related agricultural activities
- Logging
- Road building
- Hatchery operations
- Splash-damming in coastal streams
- Mining gravel from streambeds
- Withdrawing water from streams
- Damming streams

Risk Factors

Factors that have individually and collectively contributed to the decline of salmon populations are often referred to as risk factors. It has become customary to discuss risk factors in categories related to their underlying cause: harvest management, hatchery management, habitat management, and a category that includes miscellaneous factors.

Harvest management risks include all management activities related to control of fishing-related mortality, including ocean fisheries, in-river fisheries, direct harvest effects, indirect fishery effects, and effects on adults and juveniles.

Hatchery management risks include all management activities related to the use of artificial propagation, including decisions related to broodstocks used, numbers stocked, locations where fish will be stocked, expansions or reductions in stocking programs, and criteria for smolt sizes.

Habitat management risks include all management activities that influence the nature of freshwater landscapes in a way that will affect fish, including efforts to conserve and improve the productive capacities of freshwater environments for salmonids, to provide passage at culverts and dams, and to screen withdrawals and diversions.

Other management risks include the relative hospitability of the ocean environment; predation by marine mammals and birds; and other factors over which varying degrees of management influence may exist.

For restoration to be effective, it is important to identify the factors that have caused population declines or are impeding recovery. Issues related to each of the four areas of concern were considered in separate status reviews for coho salmon previously prepared by NMFS and ODFW; part of this discussion is taken from these previous works. The purpose of this section is to provide a brief discussion of the major risk factors that have been identified for Oregon coastal coho salmon.

General Impacts of Harvest

Harvest rates can, both directly and indirectly, influence extinction risk. Harvest mortality can directly affect spawner numbers and trends. Harvest in mixed stock fisheries managed for optimal production of more abundant stocks will overexploit the less productive stocks contributing to the fishery. This can diminish both the range and the genetic diversity of the species as a whole. Harvest can also produce strong selective

pressure for smaller size at maturity. Smaller size at maturity can compromise the species' adaptive ability by reducing numbers of eggs and spawning habitat selection. In responding to changes in abundance, trends in harvest rates can also mask trends in stock productivity. By masking trends in productivity, harvest can affect the perception of risk resulting from other factors, and thus delay remediation for other threats to the survival of the species.

Impact of Harvest on Oregon Coho

Coho salmon from both of the Oregon coastal ESUs are harvested in mixed stock ocean fisheries and in terminal recreational fisheries. Fishery-related mortality on Oregon coastal coho salmon has probably been in the 70-80 percent range from the 1950s through the early 1980s. These rates are higher than rates considered sustainable, based on Oregon's Coho Salmon Management Plan. Productivity of coastal populations, as measured by recruits per spawner, has been declining since the mid-1970s.

Although habitat degradation and declines in ocean productivity are thought to have contributed to a decline in productivity, harvest should also be considered a contributing factor. Harvest management traditionally has attempted to maximize sustainable yield in mixed stock fisheries, and in some years exceeded harvest rate targets thought to be sustainable for smaller groups of populations. As a consequence, it is likely that less productive populations and smaller populations have been reduced to levels where loss of genetic diversity is a concern. Although data do not clearly demonstrate outright extirpation of small populations or range reductions, these phenomena may be masked by a low, natural level of straying by wild and hatchery populations nearby.

General Impacts of Artificial Propagation

Artificial propagation may affect wild salmonid populations in a number of ways. For example, occurrence of hatchery fish in spawning populations of wild fish may mask declines in natural populations. making it difficult to detect changes in abundance and to determine whether the wild fish are self-sustaining. Also, artificial propagation presents the potential for genetic and ecological risks to natural populations that may affect their productivity. Stock transfers that result in interbreeding of hatchery and natural fish (or hatchery programs that lead to high levels of straying) can cause loss of fitness in local populations and loss of diversity among populations.

Impacts of Recent Hatchery Programs on Oregon Coho

Actual impacts of hatchery programs on wild coho populations in the Oregon coastal region have not been assessed. It is common, however, to assess other aspects of hatchery management programs and also to consider these populations as surrogates that permit inference of potential impact on wild populations. Features that provide a basis for evaluating the potential level of impact include:

- Numbers and sizes of fish released
- Release locations
- Stock transfers
- Occurrence of stray hatchery fish in natural spawning populations

Hatchery production of coho salmon in the Oregon portion of the ESU that is shared with California has been at a relatively low level and of fairly recent duration. In the California portion of this ESU, larger numbers of hatchery coho are released, more transfers occur between hatcheries, and some hatchery coho have been imported from sources outside the ESU. The vast majority of hatchery coho production in the southern Oregon ESU occurs at one Rogue River hatchery and was developed from native fish in the mid-1970s.

Data are not available to establish the proportion of hatchery fish that are present in spawning areas with wild coho in the southern Oregon portion of the ESU, although some marked hatchery coho have been detected at non-parent hatcheries and in non-native basins.

Hatchery production of coho salmon in the north Oregon coast has been at a higher level and of extended duration. ODFW hatchery programs in this region typically released 3 to 6 million smolts and 1 to 4 million coho fry annually during the 1980s. Private hatcheries in this region released variable numbers of coho during the 1980s that approached 20 million annually. Transfers of coho salmon between ODFW hatcheries typically used stocks from within the area. In contrast, private hatcheries in this region imported Puget Sound stocks, which were later mixed with Oregon coastal stocks. Private hatcheries are not presently in operation.

Since the 1970s, outplants of coho salmon into Oregon coastal rivers using stocks from outside the Oregon coast have been rare.

Recoveries of marked fish and detection of distinct scale patterns provided clear evidence of straying by private hatchery coho, both within and between basins, when they were operating. Several locations have been noted where hatchery coho are known or expected to be common, including the North Nehalem, Trask, Salmon, and Siletz. ODFW has reserved judgment regarding the accuracy and interpretation of scale analysis to detect stray coho from several coastal hatcheries.

At face value, these scale data are basis for concern regarding the possibility that significant proportions of several naturally spawning populations are actually composed of hatchery coho. Some marked hatchery fish have been detected in natural spawning areas, but recoveries have been at a level that is not sufficient to confirm or refute the scale analysis data. Hatchery coho appear to be relatively rare in some basins, notably the lake systems and populations in the southern portion of the northern-coast ESU.

In the future, the proportion of stray coho among natural spawning populations will be clearly established by sampling in spawning areas because all hatchery fish will be marked.

Importance of Habitat

Coho salmon evolved in freshwater ecosystems that were historically characterized by flood plains, braided channels, and off-channel areas--all of which contained considerable structural complexity, such as large wood complexes. Anthropogenic activities have greatly simplified and degraded freshwater habitats utilized by anadromous salmonids in Oregon and throughout the Pacific Northwest. Anthropogenic activities include timber harvest; mining; water withdrawals; stream cleaning; livestock grazing; road construction; stream channelization, dredging and other navigation improvements on rivers; diking and filling of wetlands; waste disposal; gravel removal; farming; urbanization; and splash dam logging

Habitat reduction and degradation probably has reduced the resiliency of coho salmon to withstand natural variability in biological and physical factors, such as low spawner abundance, severe hydrologic events (high or low flows), and variability in ocean productivity. Habitats that have been altered by human activities are more likely to suffer degradation from disturbance events such as severe winter storms. For example, the frequency of debris torrents often increases in conjunction with land-use activities such as logging and road building. While debris torrents are recognized as potential sources of woody debris that may ultimately be beneficial to salmon production, such events may have a disastrous effect on salmon production in the short term.

Although some habitat functions can be readily restored through habitat improvement projects, other functions (e.g., production and recruitment of large woody debris into streams or transportation of fine sediments out of spawning gravels) may require decades or centuries to recover. Also, instream habitat restoration work can only be conducted in a relatively small proportion of watersheds. Usually, a considerable lag time can be expected between initiation of corrective action and restoration of significantly improved habitat function.

Impact of Contemporary Habitat Condition on Oregon Coho

Degradation of coho freshwater habitats along the Oregon coast is extensive. Several estimates have been proposed to quantify the loss of historical habitat in Oregon coastal areas. These proposed values suggest that productive potential for Oregon coastal coho has been degraded 50 to 90 percent from pre-development conditions. All human activities have contributed to these changes. Contemporary habitats in coastal river basins are usually characterized by a combination of the following features:

- Stream channels generally lack complexity.
- Little large wood is present in stream channels.
- Off-channel and slough habitat is uncommon.
- Water temperatures are higher because riparian habitats have been denuded.
- Summer flows are lower because less water is retained in upriver areas and water is withdrawn from streams.

Winter habitat is thought to be a primary factor limiting coho salmon production in many coastal Oregon watersheds. In localized stream reaches, subbasins, and watersheds, however, other habitat features are

dominant limiting factors to coho production.

Other Factors Contributing to the Decline of Oregon Coho

Factors thought to contribute to the decline of Oregon coho include ocean conditions and predation by birds and marine mammals.

Ocean Conditions
Cyclic variation in the ocean environment is thought to be a major determinant of stock-size and productivity of Oregon coastal coho. Climate conditions are known to have changed recently in the Pacific Northwest, and Pacific salmon stocks have been affected by changes in ocean production that occurred during the 1970s. Climate factors affecting ocean conditions are large scale processes that also affect terrestrial and freshwater environments. Logically, climate factors that affect the productivity of the ocean environment may have simultaneous effects on the productivity of the freshwater and estuarine environment. These climate conditions are thought to be cyclic in nature, but it is not possible to accurately predict whether conditions will return to more favorable conditions in the near future. Changes in ocean productivity since 1976 are thought to be a major determinant of the recent decline in coho return ratios.

Predation by Birds and Marine Mammals Clearly, birds and marine mammals eat some adult and juvenile salmon. The impact of this predation on regional coho production remains a matter of intense debate. Scientific studies and a recent review of Pacific Northwest salmon by the National Research Council and the Botkin Report have tended to assert that predation by coastal bird and marine mammal populations is not a major, underlying cause of the decline in coho or other regional salmonid populations. Based on the comments received at Oregon coastal county fairs in 1996, however, many people believe that cormorants, and especially seals and sea lions, are primarily responsible for the decline in Oregon's coho populations.

To more fully address Oregon's assessment of the predation problem, we have included the following information specific to seals and sea lions. To date, much of this information has been absent from agency planning documents.

The Issue of Seals and Seal Lions as Predators

Seals and sea lions (pinnipeds) are predatory animals that depend almost exclusively on fish for their diet. As such, pinnipeds have long been viewed as competitors of humans for marine fish resources. For most of the first part of this century, seals and sea lions were hunted and killed as part of bounty programs in an attempt to keep these animals out of coastal bays and rivers, and to reduce their numbers overall. Although bounty programs were based on the idea that reducing pinniped numbers would result in increased fish populations, no scientific data proved this assumption.

In 1972, the federal government passed the Marine Mammal Protection Act (MMPA) which removed all management authority for pinnipeds from the states and vested it with the National Marine Fisheries Service (NMFS). Oregon currently has no legal authority to manage seal and sea lion populations. Increases in pinniped numbers in the Pacific Northwest over the past 20 years have raised new concerns about the potential impacts of seal and sea lion predation on depleted fish resources.

Pinniped Population Status
Since the mid-1970's, ODFW has monitored seal and sea lion populations in Oregon by conducting aerial photographic surveys several times each year of the entire Oregon coast, including all bays and offshore rocks. These surveys show that while Steller sea lion numbers in Oregon have been stable at about 3,000 animals (a federally listed threatened species), the populations of harbor seals and California sea lions have increased significantly at about 6-7 percent per year since ODFW surveys began. The year-round population of harbor seals in Oregon is estimated at 10,000 animals.

Counts of California sea lions in Oregon (non-breeding population) currently peak at 5,000-7,000 animals in the fall, with abundance in the winter and spring at about 2,000. While some recent evidence may suggest the increase in harbor seal numbers is beginning to slow; the California sea lion breeding population in California is continuing to increase. Today's populations of harbor seals and California sea lions are thought to be at or near historic levels.

Pinniped Food Habits
Scientific documentation of seal and sea lion food habits is complex, costly and time-consuming. Their prey

species can be documented by direct observation of animals feeding at the surface (results biased toward large prey such as salmon that must be brought to surface and killed to be consumed) and by examination of fecal samples (results biased by uneven digestion of identifiable parts of different prey species). The most direct and quantifiable study method is to collect pinnipeds for stomach content examination, but federal approval for such studies is rarely granted.

In general, seals and sea lions are known as opportunistic feeders, preying on whatever type of fish is locally or seasonally abundant. Studies of pinniped food habits show that as many as 20-50 different species of fish are taken by seals and sea lions in any one study area. This research also shows that the diets of these animals change from week to week and area to area, throughout the year. Common prey species taken by pinnipeds include schooling and bottom fishes such as whiting, herring, smelts, rockfish, flatfish, sculpins, surfperch, sandlance, lamprey, squid, and octopus.

Predation On Salmon And Steelhead

The main concern about pinniped food habits is usually their consumption of salmonids (salmon and steelhead). While seals and sea lions will take salmon and steelhead, these fish comprise only a portion of their diet (usually 5-10 percent overall) and primarily seasonally, during periods of salmon spawning runs.

While pinnipeds commonly take salmon and steelhead off sport and commercial fishing lines, seals and sea lions are not considered to be highly effective predators of adult salmonids in the open waters off the Oregon coast. However, pinnipeds can be very effective at catching adult salmonids in bays and rivers where water is shallow and natural or man-made obstructions slow fish down. Their larger size makes sea lions more effective than the harbor seals at catching adult salmonids. Consumption of downstream migrating salmonid smolts by harbor seals may be an issue in some cases.

Impacts On Salmon Populations

Determining potential impacts of pinniped predation on salmon populations is difficult, in part due to the complex and variable nature of their diets, and the seasonal changes in abundance of fish and pinnipeds (e.g., while the availability of salmon as prey varies greatly throughout the year, California sea lions are largely absent from Oregon from June through August, but occur at high numbers in the fall and at lower numbers in the winter and spring).

Over-simplified calculations that combine peak (usually not average) pinniped numbers with a certain estimate of salmonids in the diet (usually from a single study and inappropriately applied to a broad geographic area), often over the period of one year (even though salmon may not be available as prey year round), do not result in statistically valid or even generally useful estimates of salmonid consumption by pinnipeds. Such calculations involve numerous questionable assumptions and many sources of error that render results of little value.

Previous discussions of the impact of pinniped predation on salmonid populations (e. g. Botkin Report to Oregon Legislature; Snake River Salmon Recovery Plan) have recognized that, while in certain cases locally abundant predators may negatively impact severely depressed fish stocks in areas with stream passage problems, in most cases natural predation by pinnipeds on relatively abundant and healthy stocks is not a primary concern.

An important point to consider is that both pinnipeds and salmonids have co-existed in the coastal marine environment for millions of years. Therefore, natural predation on salmonids by pinnipeds is unlikely to have caused the present low abundance of some salmonid stocks. Overall declines in some salmonid populations can be most directly attributed to issues of spawning and rearing habitat quality, water diversions, dams or other obstructions with inadequate fish passage facilities, ocean conditions, and fishing and related mortality, among other problems.

As mentioned above, the real concern for pinniped predation is when fish populations have already been depressed for various reasons. If, for example, fish numbers are abnormally low, barriers to fish passage exist, and local predator numbers are high, then predation by seals and sea lions may have a significant negative impact on individual salmonid stocks. Such is the case at the locks at Ballard, Washington where California sea lions have consumed a significant portion of the wild winter steelhead run each year for the past decade. In most other areas, however, this type of direct impact has not been documented.

Protection Efforts

Recent amendments to the Marine Mammal Protection Act (1994) provided a very restrictive and highly

complex opportunity for states to address limited problems with seals, sea lions, and threatened or endangered salmonid stocks. While specifically provided to allow the State of Washington to deal with sea lions at the locks at Ballard, this provision in the law has not been effective there. Further, the amendments do not provide any option for states to handle general predation issues coast wide.

The amendments do, however, direct the NMFS to work with the states to address the issue of growing pinniped populations and their potential effects on depressed salmonid stocks in the Northwest. Currently, Oregon is working with California and Washington, as well as NMFS, to identify areas with potentially significant impacts of pinniped predation on salmonids and to develop recommendations and a report to the U. S. Congress on ways to address the identified problems. This report and recommendations, expected to be completed by early 1997, should result in federal support and resources for the states to undertake new efforts to determine the impacts of pinniped predation on depressed salmonid stocks in a number of areas.

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CHAPTER V

PRODUCTION GOALS AND LISTING CRITERIA

Introduction

This section contains recommendations based on analysis and discussion by a number of OCSRI Science Team members. Documentation supporting these recommendations is in the Science Team attachment to this Plan.

The Science Team was assigned the task of developing descriptions for the following:

- Level of production of wild coho salmon that might be achieved, given our current understanding of habitat availability and population dynamics. These levels could be used to describe goals for healthy levels of production.
- Circumstances under which Oregon coho ESUs should be designated as endangered or threatened, and the circumstances under which these ESUs should be delisted. These circumstances are referred to as listing and delisting criteria.
- Procedures that should be implemented to prevent extinction of individual populations of coho. This procedure should specify population levels at which actions would be taken and describe various actions that should be considered, as well as an approach to decision making and action implementation. These are referred to as emergency measures to prevent extinction of individual populations.

Production Goals

The 1982 ODFW Coho Salmon Management Plan identified production goals for wild coastal coho. Because of a number of factors, including unfavorable marine survival, these production levels have never been realized. Much new information is now available about the factors affecting production of coho salmon and the effects of natural weather cycles on salmon production. The interactions between freshwater and marine survival of coho salmon are of particular interest to the development of realistic production goals for wild fish.

Research has demonstrated that the quality of freshwater habitat (particularly over-winter habitat) has a direct influence on freshwater survival rate. To be equally productive, salmon inhabiting a stream with poor quality habitat will require a higher rate of marine survival than salmon inhabiting a stream with good quality habitat. As a result of these interactions, marine survival can play a dominant role in determining the productivity and sustainability of coho salmon populations.

Because of these interactions between marine survival and habitat quality, extended periods of low marine survival result in only the best freshwater habitats supporting viable coho salmon populations. A prolonged period of poor ocean survival has occurred for coho offshore Oregon since the late 1970s. The effect predicted by population modeling has actually been observed through random sampling of coho spawner abundance. Those observations indicate that very few stream reaches have large spawner populations, and that most stream reaches have few or no spawning coho salmon. Therefore, when developing production goals, both the quality of the freshwater habitat and the probable levels of marine survival must be considered.

The production goals presented in this chapter were developed based on three levels of marine survival, which were 10, 5, and 3 percent (see table on following page). Therefore, three tiers of freshwater habitat would be capable of supporting coho production, corresponding to the three levels of ocean survival. All production goals were derived with the assumption of having fully seeded freshwater habitat, however, and should be viewed as potentially achievable levels of production based strictly on current modeling results. For the Oregon portion of the ESU that included southern Oregon and Northern California, production goals were calculated for the Rogue Basin only. Production potential for coho salmon is thought to be very small in other Oregon streams in this ESU.

Production Levels of Healthy Populations

Because estimates of potential production are based on modeling of freshwater habitat capacity, which relies

heavily on winter habitat conditions, these estimates may be optimistic--especially for areas such as the Umpqua and Rogue basins where high summer water temperatures occur. Temperature factors may be a more severe constraint than winter habitat on populations in these basins, limiting production below the maximum levels estimated (see table on following page). Consequently, current estimates of potential production should be viewed as giving general guidance. Undoubtedly, this guidance will be revised in the future as life-cycle models are improved.

Healthy coho salmon populations for Oregon coho were considered to occur when full production of current freshwater habitat was achieved. Potential production levels vary as marine survival changes. Because current marine survival is poor, attaining the production goals of the higher levels of marine survival will occur only after achieving adequate spawner abundance in the poor habitat that currently has few, if any, spawners. Achieving adequate spawner abundance in these poorer habitats may require that several generations experience improved marine survival. To achieve the highest production levels predicted by the model, marine survival would have to stay at very high levels for an extended period of time--a period sufficient for populations to expand from the habitats they currently occupy, to less favorable habitats not currently occupied. Thus, the highest potential production levels predicted by the model may not be practically achievable.

For current habitat conditions, the model predicts that wild coho production could range from about 140,000 to 900,000 for the north Oregon Coast ESU; and from about 5,000 to 90,000 coho for the Rogue Basin (see table specific to this basin). Based on an assessment of the overall reliability of the production models currently available, however, the potential production at full seeding for wild coastal coho probably lies more in the range of 100,000 to 400,000 fish for the northern ESU and 5,000 to 20,000 fish for the Rogue Basin.

Production Goals for Coho Salmon in Oregon Coastal ESU (Current Habitat)

		Habitat Quality			
Basin	**Marine Survival**	**High**	**Moderate**	**Poor**	**Total**
Nehalem	10%	71,200	31,500	23,900	126,600
	5%	35,600	15,800		51,400
	3%	21,400			21,400
Tillamook	10%	8,600	15,900	6,800	31,300
	5%	4,300	8,000		12,300
	3%	2,500			2,500
Nestucca	10%	7,600	9,100	8,800	25,500
	5%	3,800	4,600		8,400
	3%	2,300			2,300
Siletz	10%	13,500	5,400	4,400	23,300
	5%	6,700	2,700		9,400
	3%	4,000			4,000
Yaquina	10%	22,200	13,200	2,700	38,100
	5%	11,100	6,600		17,700

	3%	6,700			6,700
Alsea	10%	62,200	14,400	8,000	84,600
	5%	31,400	7,200		38,600
	3%	18,900			18,900
Siuslaw	10%	74,400	34,000	19,000	127,400
	5%	37,200	17,000		54,200
	3%	22,300			22,300
Coastal Lakes	10%	40,000			40,000
	5%	20,000			20,000
	3%	12,000			12,000
Smith / Lower	10%	23,400	22,600	10,300	56,300
Umpqua	5%	11,700	11,300		23,000
	3%	7,000			7,000
Upper Umpqua	10%	78,800	52,500	69,200	200,500
	5%	39,400	26,200		65,600
	3%	23,600			23,600
Coos	10%	18,100	15,900	3,100	37,100
	5%	9,000	8,000		17,000
	3%	5,400			5,400
Coquille	10%	22,900	28,400	20,200	71,500
	5%	11,500	14,200		25,700
	3%	6,900			6,900
Direct Ocean Tributaries	10%	26,300	26,500	9,000	61,800
	5%	13,100	13,300		26,400
	3%	7,900			7,900
Total ESU	10%	469,200	269,400	185,400	924,000
	5%	234,800	134,900		369,700
	3%	140,900			140,900
Lower Rogue/Illinois	10%	-	5,700	8,400	14,100
	5%	-	2,800		2,800

	3%	-			0
Upper Rogue	10%	16,600	12,700	54,600	83,900
	5%	8,300	6,400		14,700
	3%	5,000			5,000
Total Rogue Basin	10%	16,600	18,400	54,600	89,600
	5%	8,300	9,200		17,500
	3%	5,000			5,000

Population Abundance Modeling

Three independent modeling approaches were used in developing proposed criteria to evaluate status of Oregon coastal coho salmon. The approaches differed in their assumptions, input data sets, and levels of resolution. The degree of agreement among the models adds confidence to the overall conclusions.

The three models were:

- A habitat-based life cycle model based on individual stream reaches.
- A spawner-recruit model with basin-scale resolution.
- A graphical trend analysis of GCG-scale abundance data.

Documentation about these three models is provided in the Science Team Attachment.

Habitat-Based Life Cycle Model

Production of individual habitat reaches was modeled as a function of numbers of spawners, egg to parr survival, and overwinter survival. After natural marine mortality and 15 percent harvest impacts, spawners returned to their natal reach, with 5 percent straying to other reaches in the same basin. Natural mortality, egg to parr survival, and overwinter survival were modeled with random variation. Egg to parr survival was higher at low spawner densities, making it easier for stocks to rebound from low levels. Counteracting this resilience at low stock sizes, spawners could fail to find mates due to random events of straying, return timing, and sex ratio. The probabil

ity of these random events increased rapidly with declining stock size, resulting in decreased spawning efficiency, or in depensation.

Input data consisted of habitat quality data from stream surveys in 16 to 67 percent of each coastal river basin. Stocks from each major basin on the coast were modeled by seeding the highest quality habitats with different numbers of fish and recording the stock size after 10 generations. Each simulation was repeated 1,000 times to obtain a range of likely outcomes given the natural variation in these systems.

A generic representation of model behavior is presented in the figure below. There was strong probability of a decrease after ten generations at high starting population sizes, and steadily reduced probability of a decrease with lower starting populations, until depensation appeared as an important factor. At that point, the probability of decreasing populations escalated as stock sizes fell. The inflection point labeled on the figure below is the point at which depensatory factors started to override other stock dynamics in the model. The proposed criteria for endangered status for each basin were based on the modeled inflection points as determined by inspection.

General Behavior of Habitat-Based Life Cycle Model. Shows percent of simulations with decrease in population size after 10 generations over a range of starting population sizes. Inflection point represents increasing influence of the depensatory effects at small stock size.

The model contains characteristic equilibrium stock sizes for each basin, which are determined by habitat quality and marine survival. Marine survival was dominant in determining population size, but habitat quality determined the ability for stocks in a basin to persist through periods of low marine survival rates. Initial population size was not important as long as numbers were high enough to avoid depensatory effects.

Spawner-Recruit Model

The second modeling approach used was based on a modified Ricker spawner-recruit relationship. The primary data set used to develop this approach was ODFW's time series of spawner counts for coho in stream sections of each major coastal river basin. Using these data and fishery harvest estimates, the number of adult coho produced each year (recruits) was related to the number of parents (spawners) that produced them. Annual estimates of recruits per spawner were then used to examine the productivity, and also the variability in productivity, for coho in each basin. From these productivity estimates, a model was developed to predict the chances that coho in a specific basin would fall below a numerical conservation threshold after a certain number of years under different ranges of ocean survival and fishery harvest rates. A key aspect of this predictive model was the incorporation of randomized variation to simulate natural environmental fluctuations.

The spawner-recruit analysis suggested that marine survival was the major determinant of stock size, given the current status of habitat. Initial population was not important to the long-term status, but short-term probabilities of extinction increased rapidly as stocks dropped below one-third of full seeding.

Trend Analysis Model

The third modeling approach was a graphical analysis of trends in coho salmon abundance. This approach can be a powerful means of visualizing risk and can help ensure protection at low levels of population abundance where inaccuracy or lack of sensitivity in predictions from models cannot be tolerated because of potentially catastrophic outcomes. Similarly, this approach has value in recognizing when GCGs (Gene Conservation Group) or ESUs (Evolutionarily Significant Unit) no longer need the protection of listing.

Graphical analysis of long-term data sets (1950-1995) of estimated yield (pre-harvest adult abundance) revealed that adult coho of the Mid-North GCG experienced a sharp decline in abundance starting in the late 1970s or early 1980s. Not only are their numbers decreasing, but their capacity to rebound in abundance appears diminished. This trend needs monitoring to see where future data fall, and also to determine whether a different regression model would suggest a potential for listing. While amplitudes in abundance of adults in the Umpqua and the Mid-South GCG appear to be declining, overall trends in adult yield do not suggest major shifts in population characteristics through time. Monitoring and graphical analysis of any available data for the southern ESU needs to be initiated.

Comparisons and Conclusions

The two population dynamics models were in agreement regarding the importance of marine survival in determining overall stock levels. Over a wide range of starting population sizes, marine survival was the major determinant of subsequent population size. This was the result of density-dependent compensation mechanisms in these two models. Both models also included depensation at low population sizes, and both showed that there is a point where depensatory effects override the normal population dynamics. This point was largely independent of marine survival, which made it easier to specify. Clearly, stocks that drop below this level are at a higher risk of extinction.

The recent downward trend in abundance of the northern GCG, as identified in the trend analysis, is consistent with a drop in marine survival, a decline in habitat quality, or both. A continuation of this trend could cause population levels to drop to levels where the population dynamics models would predict that depensation would occur. The habitat-based model shows that high-quality habitat provides a buffer for stocks against poor marine conditions. Basins with better habitat have lower probabilities of extinction, even at low marine survival.

Listing Criteria

The purpose of defining listing criteria is to describe circumstances that would initiate listing of an ESU as threatened or endangered under the Federal Endangered Species Act. The proposed criteria for endangered status are based on the Science Team's understanding of stock dynamics at low abundance levels. The stock

level where depensatory effects began to override normal, density dependent population dynamics was chosen to define endangered status for each basin. The proposed endangered criteria are derived from the best assessment of stock sizes that would be vulnerable to random events in population dynamics. For example, spawners may not be sexually mature on the spawning grounds at the same time, or they may stray into unpopulated areas, or be solitary survivors. If only a few spawners are present, the sex ratio will likely be skewed. The number of eggs deposited is determined by the number of females present. If no males are present the eggs will not be fertilized. All of these factors serve to reduce the spawning efficiency of a population.

The proposed criteria for threatened include three different indicators that stocks may soon become endangered. Threatened criteria define situations that reflect considerable risk of populations reaching the endangered level within a few years. Stock sizes approaching the endangered level could drop below due to the stochastic and variable nature of coho salmon recruitment. If there is a clear declining trend in stock abundance likely to result in endangered levels within two brood cycles, perhaps timely action could be taken to curtail the decline. Finally, if a major contiguous portion of the northern GCG has populations below the endangered threshold, there may be risks to the integrity, productivity, and the sustainability of the GCG.

Proposed Listing Criteria for Endangered Status

- The ESU shall be listed as endangered if a GCG is defined as endangered.
- A GCG shall be considered endangered if the three-year average abundance of wild spawners (all three brood cycles) is lower than the endangered threshold for the GCG. The endangered threshold is defined as the sum of the endangered level populations for each of the major basins in the GCG.

Proposed Listing Criteria for Threatened Status

- The ESU shall be listed as threatened if a GCG is defined as threatened.
- A GCG shall be considered threatened if the three-year average abundance of wild spawners (all three brood cycles) is less than three times the endangered threshold for that GCG. This level defines the threatened threshold.
- A GCG shall be considered threatened if trend analysis for wild spawner populations predicts that abundance of the GCG is likely to fall below the endangered threshold for that GCG within six years.
- In the northern GCG, if a substantial number of adjacent basins (shown in table on following page) are defined as endangered, the GCG shall be considered threatened, even if the three-year average abundance of wild spawners in the GCG is above the threatened threshold. (Re: substantial. A disagreement among the Science Team members primarily responsible for definition of the term substantial was resolved by intervention of the Team Leader, who offers the number four as being a substantial number for consideration by those who review this proposal.)

The Thresholds of Wild Spawner Abundance for Determining Threatened and Endangered Status of Oregon Coastal Coho Salmon		
Major Basin or Gene Conservation Group	**Population Abundance of Wild Spawners**	
	Endangered Status	**Threatened Status**
NORTHERN ESU:		
North-Mid Coast GCG		
Nehalem	500	1,500
Tillamook	200	600
Nestucca	130	390
Siletz	200	600
Yaquina	350	1,050
Alsea	600	1,800
Siuslaw	1,000	3,000
Sum (Listing Threshold)	**2,980**	**8,940**
Umpqua GCG		
Smith/Lower Umpqua	250	750
Upper Umpqua	900	2,700
Sum (Listing Threshold)	**1,150**	**3,450**
Mid-South Coast GCG		
Coos	250	750
Coquille	350	1,050
Sum (Listing Threshold)	**600**	**1,800**
TOTAL Northern ESU	**4,730**	**14,190**
SOUTHERN ESU:		
South Coast GCG		
Lower Rogue/Illinois	130	390
Upper Rogue	250	750
Sum (Listing Threshold)	**380**	**1,140**

Proposed Criteria for Delisting

Once listed, a change to the next lower level of protection for a GCG (or delisting) would require that:

- Each endangered GCG maintain a status above the endangered level for nine consecutive years to be eligible to have its status revised to threatened.
- A threatened GCG maintain a status above the threatened level for nine consecutive years, or above a level that is three times the threatened level for six consecutive years, to be eligible for delisting.

In addition:

- More than 50 percent of the major basins in the ESU must be in compliance with the ODFW Wild Fish Policy for at least the most recent six consecutive years prior to approval of a status change from endangered to threatened; or at least three of the most recent consecutive years prior to changing status from threatened to not listed.

And:

- A monitoring program capable of assessing trends in habitat quality and coho population status at the GCG level must be in place with commitment for its continuation.

Criteria for Trend to Higher Abundance

Maintenance of populations above listing criteria for nine consecutive years is based on the need to ensure that random events do not lead to premature delisting, which might place the taxon at even greater risk. Nine years represents three brood cycles and provides nine data points for trend analysis, which should be adequate. If population levels in the GCG are more than three times the threatened status level, there is greater assurance of population recovery, and thus a 6-year time frame is sufficient to prevent premature delisting The delisting of a group does not necessarily infer that group is "healthy." It simply means that the group is no longer at an endangered or threatened level of risk.

Criteria for Hatchery-Wild Interactions

The potential impacts of hatchery fish on wild populations can be categorized relative to: genetics, ecological factors, and population recruitment. The potential for genetic effects occurs when hatchery fish mix as natural spawners with populations of wild fish. Potential ecological impacts include competition, disease, and predation. Recruitment effects occur when naturally spawning hatchery fish contribute to the recruitment of wild populations; in this case, the poor health of a wild population may be hidden by a constant supply of artificially produced spawners.

As proposed by ODFW, hatchery programs will be managed in a manner consistent with ODFW's Wild Fish Management Policy (WFP). With respect to hatchery fish, this means that for each wild coho in major basins, no more than 10 percent of the spawners may be hatchery fish (see thresholds table for list of major basins). If the hatchery stock in question is from a local broodstock and is maintained in a manner that prevents genetic deviation from the source wild population, then 30 to 50 percent of the natural spawning population may be hatchery fish, depending on the degree to which wild fish are incorporated in the broodstock. These limitations should help control both genetic and ecological impacts of hatchery fish on wild populations. A discussion of the logic underlying these guidelines is described further in the Science Team Attachment.

To upgrade an ESU to the next level, monitoring data must indicate that at least 50 percent of the major basins in the ESU (see thresholds table in this section) have been in compliance with ODFW's Wild Fish Policy for the most recent six consecutive years to upgrade from endangered to threatened, or for the most recent three consecutive years to upgrade from threatened to not listed. Such a finding would demonstrate that hatchery programs are being operated in a way that minimizes the genetic and ecological risks to the population.

Criteria for Monitoring Program

Monitoring is a fundamental element of any conservation plan. A detailed monitoring proposal has been prepared and is currently under review. An adequate motoring program must be in place to assess population

status at the GCG level in order to ascertain that delisting standards have been achieved. Delisting of the ESU will not occur without adequate data, which must come from such a program. In addition, there must be assurances that the monitoring program will continue after delisting.

Emergency Measures

When populations or Gene Conservation Groups become endangered, extraordinary actions may be necessary to reverse downward population trends. We recommend the following process be initiated to improve the status of any of the major coastal populations (shown in the tables in this chapter) that fall below the threshold for threatened status. Action Integration Team

An interdisciplinary, interagency team of technical experts should be assembled to assess population status, limiting factors, and corrective actions needed to improve the status of the population. This team will consider possible corrective measures and make recommendations to appropriate resource management agencies, private landowners, conservation groups, and watershed councils. Listed below are some examples of measures that should be considered; others may be proposed at a later date.

Harvest Measures

0. Within the affected basin, restrict or close estuary and/or in-river fisheries for any species that may affect mortality of adult or juvenile coho salmon.
1. Restrict or close ocean fisheries for any species in selected areas or times for the purpose of increasing spawning numbers of coho salmon in specific populations or regions.

These measures address the problem of fishery-related mortality that may occur when fishing is actually directed on a different species than the one for which a conservation concern exists.

Hatchery Measures

0. Within the affected basin, modify, reduce, or eliminate aspects of hatchery programs determined to be detrimental to the endangered species. Detrimental impacts could be ecological (e.g., due to predation or competition), or genetics.
1. Implement population supplementation using appropriate broodstocks and hatchery practices.
2. Implement a captive broodstock program.

Habitat Measures

0. Initiate fast-track watershed analysis and attempt to identify habitat problems that could be addressed or improved on a short-term basis (e.g., culverts, screens, sources of sediment, etc.).
1. Work within the watershed council process to integrate action by all entities capable of addressing the most critical problems.

Other Measures

0. Implement measures designed to reduce predation by birds or marine mammals in areas where there is documentation their impact on the endangered species is significant.

Return to Coastal Salmon Restoration Initiative Home Page

CHAPTER VI-A PART I

State Agency Measures
(by agency)

DEPARTMENT OF ENVIRONMENTAL QUALITY
MANAGEMENT MEASURES THAT SUPPORT OCSRI

PHASE 1 ACTIONS

DEQ1 - Coastal Nonpoint Control Program
Nonpoint sources of pollution will be minimized in coastal areas through comprehensive state and local programs. Full implementation of management measures designed by EPA and NOAA is expected by 2004 with benefits to coho continuing beyond full implementation. DEQ will implement by developing several new programs. Construction Site Erosion Control; reduce sediment loading from construction activities; On-Site Sewage Disposal Systems Inspection and Education Program: reduce bacteria and nutrient loading from failing septic systems; Road and Bridge Construction and Maintenance: reduce sediment, toxic loads and other runoff from road and bridge construction and maintenance.

DEQ2 - Implementation of Recently Revised Water Quality Standards for Temperature and Dissolved Oxygen
Water quality standards for dissolved oxygen and temperature have been modified and a new standard developed for intergravel dissolved oxygen to be more protective of cold water fisheries. Implementation plans will be developed for both permitted and nonpoint sources of pollution. Particular attention will be paid to coastal streams as these parameters are critical limiting factors in every life stage of salmonids.

DEQ3 - Implementation of 303(D) List Priorities for TMDL Development
Prioritize list of water quality limited waters to address limiting factors for coastal coho salmon recovery. DEQ is revising its list of water quality limited waterbodies and is developing a priority list for TMDL development, under Section 303 (d) (1) of the Clean Water Act. Waterbodies are being listed due to sediment or habitat degradation where this leads to impairment of salmonids, in addition to exceedances of Oregon water quality standards such as temperature and dissolved oxygen. The presence of threatened or endangered species within a given waterbody and the Oregon Coho Salmon Restoration Initiative will become a rated criteria for priority action.

DEQ4 - Watershed Council Support
The Department will enhance and improve support of local watershed council efforts to improve water quality in the coho salmon's range. Enhance DEQ's current watershed council technical assistance by providing additional monitoring support, targeting both basin and project level sites in watersheds with mature programs. In areas where watershed activity is beginning or unfocused, additional technical assistance staff will be assigned to provide for primarily program development, project guidance, and linkages to government programs and funding. Additional monitoring work will be developed as programs evolve.

DEQ5 - Enhanced 401 Certification Program in Coastal Watersheds
Improve review and enforcement of stipulated conditions for federally permitted activities in coastal salmonid waters. Section 401 is a Clean Water Act authority with wide scope, which requires water quality impact review for any state and federal permit which occurs in the waters of the state including wetlands. Program review can be targeted to address specific concerns related to salmonid life stages. Enhancement of the program would include additional staff for permit application and compliance review. Update of current rules would be initiated to clarify hydroelectric facility permitting requirements.

DEQ6 - Tillamook Bay National Estuary Program
Continue to support and provide technical assistance for the development of a coordinated conservation management plan in the Tillamook Bay watershed that addresses salmon concerns. Tillamook Bay is an estuary of national significance as recognized through the National Estuary Program. A local management committee is charged with developing and implementing a conservation plan that will ensure water quality standards supportive of coho salmon and other coldwater fisheries are attained. This will be expressed in

various steps including: development of a Comprehensive Conservation and Management Plan (CCMP); implementation of activities throughout the planning process, this effort will continue upon plan completion; and establishing a monitoring program.

DEPARTMENT OF LAND CONSERVATION AND DEVELOPMENT MANAGEMENT MEASURES THAT SUPPORT OCSRI

PHASE 1 ACTIONS

DLCD1 - Statewide Land Use Program
Oregon's Statewide Planning Program, first adopted in 1973, provides a basic level of resource protection through the mechanism of enforceable local comprehensive land use plans. In simple terms, a comprehensive plan reflects the process of identifying and balancing both natural resource values and land use and development pressures. It is an enforceable policy document implemented through land use (zoning) and land division ordinances at the local level.

DLCD2 - Implement New Goal 5 Rules for Riparian Protection
Statewide Planning Goal 5 rules were amended in June 1996, and include improved protec-tion for riparian areas. DLCD's task is to ensure that coastal local governments inte-grate the new requirements into their comprehensive plans and ordinances as soon as possible. Requires developing partnerships and workplans with coastal local governments.

DLCD3 - Implement The Coastal Nonpoint Pollution Control Program (CNPCP)
With DEQ, continue to manage the overall development of the require-ments of the coastal nonpoint pollution control program. The primary responsibility for implement-ing nonpoint source control measures under the CNPCP lies with other agencies. Requires developing part-nerships with: ODA, DSL, ODFW, WRD, ODOT, ODF, the Marine Board, and local ju-risdic-tions.

DLCD4 - Implement Urban Management Measures Under the CNPCP
Several of the Urban Management Measures in the CNPCP are designed to be imple-mented:

- Through local planning and development review pro-cesses.
- By local public works officials in their management of road systems.

DLCD will facilitate implementation of these mea-sures by developing rules, technical assistance, or admin-istering grants to local govern-ments as necessary to implement specific CNPCP requirements. Requires developing part-nerships and workplans with coastal local govern-ments.

DLCD5- Periodic Review
State law requires that local jurisdictions periodically review and update their compre-hensive plans and ordinances to address new requirements and changing circumstanc-es. DLCD staff will empha-size the importance of salmon-related plan improvements in new peri-odic reviews. Further, DLCD will urge local jurisdictions to amend their plans as necessary to integrate new provisions implementing the requirements of the Coastal Nonpoint Pollution Control Program.

DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES MANAGEMENT MEASURES THAT SUPPORT OCSRI

PHASE 1 ACTIONS

DOGAMI1 - Change Mine Inspection Priorities
Mine inspection priorities are being changed to concentrate more on coastal sites. Target is to identify turbid runoff problems at mines, if any.

DOGAMI2 - Location and Construction of Egress to Side Channels
The Dept. of Geology and Mineral Industries is part of an Oregon-Washington-Idaho program funded by the Environmental Protection Agency to identify proper locations and construction of egress channels to connect streams with off-channel ponds. Action promotes voluntary reclamation above minimum requirements.

DOGAMI3 - BMP Manual for Mine Reclamation

A manual that covers the best management practices for mine land reclamation has been prepared.

DOGAMI4 - GIS Geological Maps
Department geological mapping is moving to digital maps compatible with GIS databases. These maps help identify landslide and other features potentially harmful to salmonids.

DOGAMI5 - Voluntary Enhancements
Working with mine operators to bring about voluntary efforts to enhance salmon habitat. Also, annual reclamation award system has been changed to include stream habitat improvement as a criteria for an award.

DOGAMI6 - Discussions With BLM and Forest Service
DOGAMI will make salmon and coastal salmonid habitat restoration a regular part of our discussions with our counterparts in the Bureau of Land Management and US Forest Service.

DOGAMI7 - Fish Friendly Reclamation as Awards Criteria
Department of Geology and Mineral Industries will, starting in 1997, use fish-friendly reclamation practices as a criteria for its annual reclamation awards. This is a new approach to the awards, given to outstanding operator, outstanding reclamation, outstanding operator of a small mine, and outstanding reclamation after exploration.

PHASE 2 ACTIONS

DOGAMI8 - Geological and Hydrological Characterization of Groundwater
Working with WRD to improve the geological and hydrological characterization of groundwater that may assist in improved understanding of stream flow regimes.

DIVISION OF STATE LANDS
MANAGEMENT MEASURES THAT SUPPORT OCSRI

PHASE 1 ACTIONS

DSL1 - Analyze 404 Program Assumption
DSL will continue to analyze state assumption of the Clean Water Act Section 404 dredge and fill permitting authority currently exercised by the Army Corps of Engineers and other program streamlining options. Although the primary purpose of assumption would be to institute one-stop permitting centralized at the state level, it would coincidentally benefit salmon and other fish species in that all removal-fill activities would be subject to state scrutiny and operating conditions, not just those larger than 50 cubic yards. In addition, 404 assumption would require repeal or modification of current statutory and regulatory exemptions from state removal-fill permitting (e.g., exemptions related to dikes and dams).

DSL2 - Establish Best Management Practices for Removal-Fill Activities
DSL will work with other agencies, including ODFW and DEQ, to establish Best Management Practices for various types of removal-fill activities (e.g., erosion control, fish habitat enhancement) that reflect the latest science and engineering and provide heightened habitat protection.

DSL3 - Strengthen Interagency Coordination
Issues have arisen recently regarding DSL's attempts to coordinate all removal-fill permitting activities, from issuance through monitoring and enforcement, with other affected state agencies, especially ODFW and DEQ. We will work with these agencies to adopt Memoranda of Agreement regarding interagency communication and coordination on removal-fill permits and emergency authorizations.

DSL4 - Define "Acceptable Adverse Impacts" in Essential Habitat
The rules on removal-fill permitting in essential indigenous anadromous salmonid habitat specify that fill or removal in those areas shall be authorized only upon a showing that the activity will have only acceptable adverse impacts on salmonids or habitat, or will benefit salmonids. We will establish guidelines defining "acceptable adverse impacts."

DSL5 - Make GA for Road Construction More Fish Friendly
We have revised the General Authorization (GA) for removal-fill activities associated with road construction to include road removal and culvert replacement as well as preferences for bridges over culverts, for bioengineered methods of streambank stabilization over structural methods, and for instream placement of

large woody debris removed during construction. The revised GA specifies that all culverts must meet ODFW fish passage criteria.

DSL6 - Make the GA for Erosion Control More Fish Friendly
We have revised the GA for removal-fill activities associated with erosion control to apply to multiple related projects within a watershed (to facilitate watershed enhancement and reduce potential cumulative impacts) and to include preferences for bioengineered methods of streambank stabilization over structural methods and for instream placement of large woody debris removed during construction. In addition, projects using gabions and jetties are not longer able to use the GA, but will be subject to the greater scrutiny afforded an individual permit.

DSL7 - Facilitate More Fish Habitat Enhancement Projects
We have revised the GA for removal-fill activities associated with fish habitat enhancement to be more fish-friendly and to apply to more projects by:

@. Eliminating the applicability to gabions.
a. Including full-spanning boulder weirs.
b. Including hydrologically connected off-channel ponds
c. Increasing the allowed yardage for pools and ponds from 50 cubic yards, to 350 cubic yards.
d. Increasing the allowed yardage for back/side channels from 100 cubic yards, to 350 cubic yards.
e. Including culvert replacement to allow fish passage.
f. Requiring culverts to meet ODFW fish passage criteria
g. Streamlining the approval process.
h. Adding a preference for bioengineered methods of streambank stabilization over structural methods.

DSL8 - Facilitate More Wetland Restoration and Enhancement Projects
Revised the GA for wetland restoration and enhancement to add preferences for bioengineered methods of streambank stabilization over structural methods and for instream placement of large woody debris removed during construction, and to streamline the approval process.

DSL9 - Develop Guidelines for Issuance of Individual Permits Versus GAs
DSL will work with ODFW and DEQ to develop guidelines regarding types or removal-fill projects that may meet the standards for a GA, but whose potential individual or cumulative impacts deserve the full scrutiny of an individual permit (e.g., 5,000 cubic yards of riprap in essential salmonid habitat.).

DSL10 - Develop Permanent Rules for Recreational Placer Mining
Under the 1993 law regulating removal-fill activities in essential indigenous anadromous salmonid habitat, recreational placer mining came under the jurisdiction of the Removal-Fill Law for the first time. For 1996, DSL implemented a temporary administrative rule providing a GA for recreational placer alterations of less than 25 cubic yards. The GA requires DSL to ask applicants to provide data about the timing, location and other features of their operation, which we will use in conjunction with monitoring to develop permanent administrative rules for this activity.

DSL11a - Assist in Replacement of Push-Up Dams That Interfere With Fish Passage
DSL is working with ODFW, WRD, ODA, OSP, and local watershed councils to clarify all agencies' jurisdiction over push-up dams, to inventory existing dams, and to work with property owners for the purpose of identifying alternatives to push-up dams and funding sources to install alternative diversion methods for those dams that interfere with fish passage. The focus will be on cooperative efforts with enforcement as a backstop where cooperative efforts are unsuccessful. The agencies also will develop public education and technical assistance materials on the effects of push-up dams and the alternatives.

DSL12 - Analyze Imposition of a Surcharge as Compensatory Mitigation for Gravel Removal, to be Dedicated to Fish Habitat Projects
The Army Corps of Engineers has announced plans to impose a $0.07 cent/cubic yard surcharge on gravel removal in the Willamette River; with the revenue directed to ODFW for fish habitat projects. DSL is analyzing a similar surcharge program in coastal river systems as compensatory mitigation for the impacts of gravel removal on fish and their habitat.

DSL13 - Develop Information Packets for Watershed Councils
DSL will develop a fact sheet and standard technical information package for watershed councils to better facilitate activities requiring removal-fill permits (e.g., fish habitat enhancement, erosion control and wetland

restoration and enhancement).

DSL14 - Develop Public Education Materials on Removal-Fill Projects
DSL will develop better public education tools (e.g., fact sheets) to help reduce the number of removal-fill violations and provide information on Best Management Practices for fish-friendly project design and construction. We are now enclosing a copy of the OCSRI flyer, "What you can do to help salmon restoration where you live and work," with every removal-fill application, waterway lease, and wetland land use notification. We also have provided copies to our major stakeholders for their distribution to members.

DSL15 - Target Compensatory Wetlands Mitigation to Fish-Friendly Projects
Where a wetland removal or fill is located in a coastal watershed near a stream, we will target the required compensatory mitigation (wetland creation, restoration or enhancement) to off-channel ponds and other fish-friendly projects within the same watershed.

DSL16a - Inventory Coastal Wetlands
DSL will focus its local wetland inventory grant money in coastal counties for the 1997-99 biennium.

DSL17 - Reduce Water Pollution From Waterway Lessees
Working with DEQ and the Marine Board (OMB) to strictly enforce laws and regulations regarding water pollution associated with leases of state-owned submerged and submersible lands (e.g., marinas, houseboats). DSL will rewrite its lease language to require lessees to meet applicable DEQ and OMB statutory requirements.

DSL18 - Improve Fish Habitat on the Elliott State Forest
DSL will work with ODF to identify measures such as road removal, culvert replacement and fish habitat enhancement that could improve habitat conditions on the Elliott State Forest (90% owned by the State Land Board) and that are consistent with the Elliott Habitat Conservation Plan.

DSL19 - Evaluate Habitat Potential of Scattered Tracts in Coastal Basins
Most of the uplands under Land Board jurisdiction in the coastal basins is classified as forest land and is within state forests. The habitat value of these lands will be identified and, if appropriate, designated for conservation and protection in ODF's forest management plans. However, there are some scattered tracts outside of state forest boundaries. DSL will work with ODF to inventory these scattered tracts and their habitat potential, and for those with valuable habitat, evaluate the potential to lease, sell or exchange them for conservation purposes in accord with the Board's Asset Management Plan.

DSL20 - Implement South Slough Estuary Conservation Strategy
The South Slough National Estuarine Research Reserve will continue to implement its estuary conservation strategy, which includes restoration of estuarine habitat at four sites; development of interagency agreements and other management mechanisms to conserve coastal wetlands at four sites; acquisition of additional land to further protect the South Slough watershed; onsite research and monitoring of critical coastal habitats; and provision of opportunities for public education and interpretation regarding estuarine environments.

DSL21 - Clarify Jurisdiction Over Woody Debris Removal and Fill the Gaps
DSL will work with ODFW, ODF and DOJ to clarify the agencies' jurisdiction over removal of large woody debris in streams, lakes and estuaries. Where jurisdictional gaps are found, the agencies will work to fill them, either through regulations or legislation.

DSL22 - Analyze Limiting Gravel Removal to Annual Recruitment
DSL will continue to analyze the ability to limit gravel removal on individual bars to annual recruitment. This includes participating in two separate interagency working groups studying issues related to recruitment. When feasible cost-effective methods of measuring recruitment are developed, those measurements will be required in all DSL gravel removal permits.

PHASE 2 ACTIONS

DSL16a - Inventory Coastal Wetlands
DSL's 1997-99 budget request includes a Program Option Package for lottery funds to supplement currently available federal wetland inventory funding.

DSL23 - Add Field Staff in Coastal Salmonid Areas

Currently the DSL's field staff in coastal basins handle all removal-fill permit activities (e.g., processing, technical assistance, interagency coordination, monitoring and enforcement) as well as proprietary duties (e.g., leasing). In 1996, DSL funded two additional temporary field staff to work in coastal basins, focusing initially on flood recovery issues and then on public education, technical information, and permit monitoring and enforcement, especially in essential habitat areas. Also, DSL is submitting Program Option Package in 1997-99 budget request to add two permanent positions (one field, one support), primarily to address the increased workload associated with the essential salmonid habitat regulatory program.

DSL24 - Install New Computer System Enabling Tracking of Cumulative Impacts
DSL will migrate to a new systems environment that will enable us to track the cumulative number of removal-fill permits issued in a particular waterway, to facilitate analysis of cumulative impacts.

DSL25 - Reclassify Support Staff to Free Up Professional Staff Time for Field Work
DSL proposes to reclassify its Field Operations support staff from OS-1 to OS-2, allowing them to handle more of the administrative tasks associated with removal-fill permits, such as phone contacts and reviewing the applications. This will free up professional staff time for more field work, including technical assistance, monitoring, and enforcement.

OREGON DEPARTMENT OF AGRICULTURE
MANAGEMENT MEASURES THAT SUPPORT OCSRI

PHASE 1 ACTIONS

ODA1 - SB 1010 Program to Develop Overall Water Quality Management Plans
Program to develop overall water quality management plans for listed watersheds through a cooperative effort with watershed farmers and ranchers. Plan will identify problems and outline ways to correct those problems.

ODA2 - CAFO (Confined Animal Feeding Operations) Program
Ensures compliance with existing clean water laws of non-point pollution sources related to animal feeding operations. Regulatory program under ORS 468B.200.230.

ODA3 - Habitat Restoration Jobs Program (Hire The Fisherman Program)
Hire the Fisherman Program is a federally funded grant program administered by ODA. ODA provides coordination and SWCD provides administrative oversight.

ODA4 - ODA-GWEB SWCD $2,000 Grant Program.
Provides each Soil and Water Conservation District (45 total) with $2,000 each biennium to grant for natural resource projects in their respective district. Ongoing grant program in cooperation with GWEB.

ODA5 - ODA-GWEB SWCD Landowner Workshops
Provides funding for 5-8 workshops for landowners on watershed issues. Ongoing grant program in cooperation with GWEB.

ODA6 - ODA-GWEB SWCD Watershed Council Coordinator Support
Support of coordinator is being administered by the SWCD but coordinators workplan is defined by the Council. Program initiated 1995.

ODA7 - Soil and Water Conservation Commission Planning and Implementation Grant Program
Soil and Water Conservation Commission Planning and Implementation Grant Program to provide support for natural resource planning and projects. Program has been ongoing since 1981.

PHASE 2 ACTIONS

ODA8 - Land Management Stewardship Outreach
Formalize ongoing efforts within ODA to promote land management stewardship. Outreach and educational activities involving the Oregon Department of Agriculture's Information Office would include:

- Development of specific publications (i.e., brochures, handbooks) to improve riparian habitat in

agricultural areas.
- Production of videos to inform and explain what ODA is doing in the area of coastal salmon restoration.
- Development of materials for slide or oral presentations to affected agricultural groups.
- Collaborative efforts with other state agencies and their representative Outreach Team members that involve funding by all participating agencies.

ODA9 - Accelerated Pre-SB1010 Program
SB1010 program (proposed) focuses on voluntary, collaborative efforts. Activities would involve determining management measure implementation priorities by watershed, and coordinating the development and implementation of agricultural water quality management plans for targeted watersheds.

ODA10 - Courtesy CAFO Compliance Audit Program
(Proposed) program focusing on voluntary, collaborative efforts. Activities would involve providing a courtesy audit at the request of landowner. Contingent on EPA Sec.104(b)(3) funding and industry interest. When program becomes established, a proactive effort to seek out those showing evidence of non-compliance may be initiated.

ODA11 - Riparian Zone Management Program
Designed to fill voids from the restructuring of the National Resource Conservation Service (NRCS), from a declining availability (due to increased demands) of fisheries habitat technical assistance from ODFW, and from an ongoing need to provide additional technical resources to landowners to improve natural resource management on agricultural lands. A team of individuals will provide technical assistance in improving habitat conditions on private lands in the coastal zone. Landowners will have an unprecedented opportunity to obtain technical assistance in resource management. The positive rapport that exists between ODA and agricultural stakeholders provides an opportunity for quick development of partnerships and cooperative efforts toward salmon restoration that is not possible by other agencies.

OREGON DEPARTMENT OF FORESTRY MANAGEMENT MEASURES THAT SUPPORT OCSRI

PHASE 1 ACTIONS

ODF1 - Improve Fish Passage BMPs on Stream Crossing Structures
Modification of BMPs for stream crossing structures to require adult/juvenile passage upstream and downstream.

ODF2 - Increase Design for Larger Flows
Modification of BMPs for stream crossing structures from 25-year to 50-year storm events.

ODF3 - Upgraded Road Construction and Fill Requirements
Road construction BMPs have been changed to require excavation and fills to be minimized at stream crossings, and that any road fill greater than 15 feet deep must obtain prior approval.

ODF4 - Upgraded Skid Trail Construction and Fill Requirements
Skid trail construction BMPs have been changed to require excavation and fills to be minimized at stream crossings, and that any skid trail fill greater than 8 feet deep must obtain prior approval.

ODF5 - Increased Riparian Protection
Vegetation retention requirements in RMAs have been changed to increase the potential delivery to near optimal LWD and other inputs from riparian areas.

ODF6 - Protection of Significant Wetlands, Including Estuaries
Recent vegetation retention requirements for wetlands and their riparian management areas increases protection and the potential delivery of LWD around these features including all estuaries.

ODF7 - Forest Practice Chemical Protection Rules Increased Buffers
Increased stream buffers for fungicides and non-biological insecticides from 60 feet, to 300 feet for most waters; and establishes a buffer of 60 feet for remaining waters.

ODF8 - Elliott State Forest Habitat Conservation Plan
Conservation plan for Northern Spotted Owls and Marbled Murrelets increases riparian protection on the

Elliott State Forest.

ODF9 - 25 Percent In-Unit Leave Tree Placement and Additional Voluntary Retention
Directs the retention of in-unit leave trees along Type F and N streams.

ODF10 - Road Erosion and Risk Project
The purpose of the project will be to:

1. Implement a systematic process to identify road related risks to coastal salmon recovery.
2. Establish priorities for problem solution.
3. Design and implement actions to reduce road related risks. Roads assessed by this project will include all roads on non-federal forest land used as part of an industrial or state forest operation since 1973.

ODF11 - North Coast Restoration Habitat Initiative/Council
Initiative to voluntarily conserve, restore and enhance salmonid habitat of the north coast. This management measure includes forest landowners, ODFW, Oregon Wildlife Heritage Foundation, and ODF.

ODF12 - Mid-Coast Restoration Initiative
A developing initiative to voluntarily conserve, restore and enhance salmonid habitat of the mid coast. This management measure includes: forest landowners, ODFW, Oregon Wildlife Heritage Foundation, and ODF.

ODF13 - South Coast Restoration Initiative
A developing initiative to voluntarily conserve, restore, and enhance salmonid habitat on the south coast.

ODF14 - Northwest State Forest Lands Management Plan
ODF is preparing a Northwest Forest Management Plan and drafting a Habitat Conservation Plan that will use the Oregon Forest Practices Act as the starting point for securing aquatic habitat. This planning activity is expected to be completed in 1997.

ODF15 - Increase Number of Streams and Stream Miles Protected
Through Forest Practice Rule changes, protected stream miles have increased approximately 30 percent.

ODF16 - Riparian Hardwood Conversions
FP rules have been developed to allow and provide incentives for the conversion of hardwood dominated RMAs (on conifer sites) to establish conifers. This process enables sites capable of growing conifers to contribute conifer LWD in a more timely manner. This process will be modified to require an additional review process before implementation for hardwood conversions within core areas.

ODF17 - Upper Siuslaw Enhancement (Weyerhaeuser)
Weyerhaeuser working with Oregon Wildlife Heritage Foundation and ODFW has identified four potential sites in the upper Siuslaw River system for planned 1996 structure placement.

ODF18 - Large Woody Debris Placement Incentives
Forest Practice Rules have been developed to provide landowner incentives to work with ODF and ODFW in the voluntary placement of LWD and other material where appropriate (implemented fall of 1994).

ODF19 - Large Woody Debris Placement Guidelines
ODF and ODFW have developed guidelines for landowners for woody-debris placement projects.

ODF20(a) - Fish Presence Survey
An interagency effort to fund and complete a comprehensive fish presence survey and to identify fish barriers.

ODF21 - 1996 Storm Monitoring Project
Evaluate the effectiveness of current forest practices in minimizing the effects associated with a major storm event. Cooperators include: ODF, USFS, BLM and OFIC.

ODF22 - Stream Habitat Assessment
Forest industry and state forest lands have voluntarily contracted with ODFW to complete stream habitat surveys. Approximately 3,000 miles of stream have been completed; assessments should continue for the next several years.

ODF23 - South Siletz Monitoring
Boise Cascade and ODFW will monitor channel morphology, turbidity, sedimentation, pH, temperature, bid load movement, and flows on the South Fork Siletz River (project dates 1996-1998).

ODF24 -North Fork Coquille Monitoring/Assessment
Within the North Fork Coquille watershed, Menasha has conducted several projects on individual tributaries, including spawning surveys (1994-1996) and temperature monitoring.

ODF25 - South Fork Coos River Monitoring/Assessment
Menasha is conducting salmon spawning surveys on tributaries of the South Fork Coos River.

ODF26 - Coos River Mainstem Monitoring/Assessment
Menasha is conducting salmon spawning surveys (minimum of two coho life cycles) on Goat Creek, a tributary of the Coos River. Survey began in 1994-1995.

ODF27 - Coquille, Siletz and Sixes Watershed Monitoring
A long-term monitoring project has been implemented on Georgia Pacific lands in the three above basins. The project began in 1994 and will continue indefinitely.

ODF28 -Forest Practices Monitoring Program
The FP monitoring program evaluates: the implementation of forest practices BMPs, determines if BMPs are meeting their intended purposes; and validates assumptions upon which rules may have been developed.

ODF29 - Monitoring of Riparian Management Areas
In the fall of 1994, ODF adopted new water protection rules requiring specific riparian management leave areas. An RMA monitoring project is proposed to assess the effectiveness of these rules.

ODF30 - Monitoring Water Temperature Protection BMPs
This project was initiated in 1994 and will continue for the next several years. The general approach for this project has been to record stream temperatures and physical characteristics of a variety of streams subject to various silvicultural activities allowed under the water protection rules.

ODF31 - Evaluation of Road and Timber Harvest BMPs to Minimize Stream Sediment Impacts
This project is designed to determine if the BMPs are minimizing the delivery of sediment to waters of the state.

ODF32 - Fish Presence/Absence Surveys and Fish Population Surveys
A 1995 industry contract with ODFW was done to survey for the absence and presence of fish and juvenile fish populations. Additional work is planned for 1996 and 1997.

ODF33 - Fish Passage Surveys
The Coos Watershed Association and Weyerhaeuser have completed analysis of all "major" anadromous fish culverts in the Coos River Watershed. Weyerhaeuser will contract with ODFW in 1996 to do additional stream evaluation.

ODF34 - Coos, Millicoma and Upper Siuslaw Rivers Watershed Analysis
Weyerhaeuser is completing watershed analysis for all of their ownership in Oregon. This analysis follows modified protocol used by the State of Washington under their FPA.

ODF35 - South Fork Siletz Watershed Analysis
Voluntary analysis by Boise Cascade to assess the geomorphic vulnerabilities of the South Fork Siletz system, determine stream health, and assess any road concerns.

ODF36 - Ecola Creek Watershed Analysis
Analysis of Ecola Creek watershed (Cannon Beach) Willamette Industries (formally Cavenham) to identify sensitive or high risk areas, requiring special care in management decisions and operations.

ODF37 - Kilchis Watershed Analysis
Proposed assessment project to assess possible cumulative effects of changes in hydrology, sediment routing, and other factors due to land use practices throughout the Kilchis watershed channel network (Tillamook Bay NEP Monitoring Program).

ODF38 - Associated Oregon Logger Education and Certification Program
Logger training program to include elements that will develop operator understanding of riparian protection and habitat development. This program is offered through Associated Oregon Loggers.

ODF39(a) - Forest Resource Trust
Program to convert under-producing non-industrial forest land to healthy forests.

ODF40 - Stewardship Incentive Program
Cost-share program for non-industrial forest landowners to do resource protection and enhancement projects.

ODF41 - Palmer Creek (Siletz) Acclimation Ponds
Georgia Pacific construction of an acclimation pond for the hatchery Siletz River winter steelhead (may be used for hatchery coho).

ODF42 - State Forestry Lands Road Assessment and Expedited Remediation
State forest lands will be working over the next two years to restore roads and to replace culverts and other stream crossing structures damaged by the 1996 storm. The majority of these roads are located in the Tillamook Bay Watershed. Repair and upgrade management activities of state forests require meeting or exceeding all FPA rules.

ODF43 - Clearcut Limitations
ORS 527.740 restricts clearcuts to 120 acres in size. Combined acreage clearcuts that exceed 120 acres must be separated by 300 feet until any adjacent areas are reforested and have reached free to grow (generally at least four years).

ODF44 -State Forest Lands Stream Habitat Assessment and Instream Projects
During 1994 and 1995, 305 miles of stream were surveyed for habitat on State Forest Lands. Fish distribution surveys have been done on 260 streams. Contracts with ODFW are planned to complete assessments for the remaining streams.

ODF45 - Implement "Landowner Stewardship Award" Program
ODFW/ODF program to provide recognition and incentives to landowners who take voluntary action to make improvements to salmon habitat.

PHASE 2 ACTIONS

ODF20(b) - Fish Presence Survey
An interagency effort to fund and complete a comprehensive fish presence survey and to identify fish barriers.

ODF39(b) - Forest Resource Trust
This program currently will only provide funding for afforestation and reforestation, an improvement that would help fish passage would be to make funding available for culvert replacement.

ODF46 - Enhancement of ODF Monitoring Program
Enhancement of elements of ODF monitoring program, focusing on key NMFS concerns (e.g., small stream protection, mass wasting, changes to hydrologic, and cumulative effects).

ODF47 - Planned "Stewardship" Assistance
ODF technical advisors to provide technology transfer of salmon information to forest landowners.

ODF48 - Public Benefit Project Trust Account
A tax incentive for landowners to improve public values on private lands (ODF, ODA, ODFW, DEQ, and DSL).

ODF49 - Fish Habitat Improvement Tax Credit
Continue (sunsets Jan. 1, 1997) and improve FHI tax credit (ODFW, ODF, DSL, and ODA).

ODF50 - Riparian Tax Incentive
Re-authorize (sunsets Jan. 1, 1997) and improve the Riparian Tax Incentive Program (ODFW, ODA, and

ODF).

ODF51 - Liability Limits for Fish Enhancement Projects
Propose statute to limit liability for landowners doing enhancement that follows ODFW/ODF placement guidelines.

ODF52 - Integration of Technical and Financial Assistance
Provide a "one-stop-shop" system for landowner information and financial assistance (ODF, ODA [SWCD], ODFW, DEQ, OSU, and WRD).

ODF53 - Geographic Information System
GIS hydrological layer for the range of the coastal coho. Information available to support regulatory and voluntary program implementation.

ODF54 - State Forest Land Research
Proposal for additional investments from state forest land revenues in research (implementation of departmental research policy), threatened and endangered species surveys, resource inventory, and enhanced GIS capacity.

ODF55 - Watershed Assessments
This assessment will be done in cooperation with ODFW, OFIC and ODF using existing stream habitat survey work and the road erosion and risk project information (ODF10). The assessments will be flexible and be developed on an ad hoc and watershed specific basis to address specific problems such as culverts and fish passage.

ODF56 - Elimination of 25,000 Bf Exemption Harvest Tax
Harvest taxes are not paid on the first 25,000 board feet of timber harvested. This proposal would eliminate this exemption and use the funds to provide support for the proposed "stewardship assistance" to be developed by the department.

OREGON DEPARTMENT OF FISH AND WILDLIFE MANAGEMENT MEASURES THAT SUPPORT OCSRI

PHASE 1

ODFWIA1 - Establish New Escapement Goals
Establish new interim wild coho adult spawner escapement goals for each of four new disaggregated subunits encompassing all Oregon coastal river basins and lakes. The present OCN escapement goal is based on a single aggregate for the whole coast. Breaking the goal into smaller components allows establishment of escapement goals for smaller areas, allowing for better assessment of harvest impacts and directed management strategies to rebuild wild stocks. Escapement goals for each area are given.

ODFWIB1 - Adult Escapement and Juvenile Coho Salmon Production Information
Collect critical information on the status and distribution of wild adult escapement and juvenile coho salmon production on federal, non-federal and private lands with information summarized and presented using GIS techniques. Extensive, accurate monitoring of numbers and distribution of spawning adults and juvenile salmon is essential to estimate the production of coho salmon, monitor population trends, and determine status relative to listing or delisting criteria.

ODFWIB2 - Information Base for Habitat Restoration
Provide information base for habitat restoration of salmon spawning and rearing habitat through inventory of salmon habitat quality and distribution and salmon population distribution, and through determination of salmon production capacity. ODFW will conduct extensive inventories of salmon habitat quality and quantity within coastal watersheds. Inventories will identify areas of good and poor habitat; this will be a source of information to cooperators in habitat restoration projects. The inventory data will serve as the baseline against which to compare effects of restoration activities.

ODFWIB3 - Habitat Restoration Evaluation
Provide information base for restoration of salmon spawning and rearing habitat by evaluating representative restoration projects to quantify the effectiveness of techniques used and to determine appropriate restoration strategies for use in specific situations. Representative habitat restoration projects will be investigated to assess

effectiveness and to guide methods useful for future restoration efforts.

ODFWIB4 - Inventory of Artificial Barriers
Complete an inventory of artificial barriers to upstream and downstream migration. ODFW will conduct inventories of fish passage barriers, including road culverts, diversion dams, and any other artificial features that may block upstream or downstream migration.

ODFWIC1 - Policy on Management of Salmonid Predators
Develop policy on management of salmonid predators within the framework of federal responsibility for many predatory species. Will work with other states and with National Marine Fisheries Service and U.S. Fish and Wildlife Service, which have management authority over marine mammals and avian predators, respectively, to develop an Oregon policy on predation management and to insert state concerns over predation into federal management of the predator species.

ODFWIC2 (a-c) - Predator Impacts

@. Evaluate potential for impacts of predation by migratory avian predators to salmon restoration.
a. Evaluate potential for impacts of pinniped predation on salmon restoration.
b. Evaluate potential for impacts from aquatic predators (e.g., introduced fish, native fish, predaceous mammals) on salmon restoration.

Despite public concerns, there is presently little information on the actual magnitude of predatory losses to salmon from various predators. These actions call for research studies to:

- Determine food habits and consumption rates of predators birds in critical areas.
- Survey for predator distribution, abundance and foraging behavior to estimate potential impacts.
- Summarize and evaluate data on incidence of predator scars on salmon to assess magnitude of non-lethal predation attempts.
- Identify areas of special concern for frequent predation.

ODFWIC3 - Predator Management
Manage predators in specific problem areas with current levels of understanding about predatory interactions. Efforts will concentrate on known problem areas in rivers and estuaries and at structures which concentrate salmon and attract predators. Approaches may include hazing, scare devices, exclusion devices and relocation. Based on the effectiveness of these actions, any recommendations for additional actions will be made to the responsible federal agencies.

ODFWID1 - Use of Volunteers
Expand use of volunteers to help implement OCSRI coho restoration actions.

ODFWIIA1 - Implement Gene Conservation Strategies
Implementation of gene conservation strategies for coastal coho salmon as approved by the Oregon Fish and Wildlife Commission in 1994. Actions include:

- Incorporation of wild fish into hatchery broodstocks (will consider temporary use of captive broodstock developed from wild juveniles if wild runs are insufficient).
- Reduced percentage of hatchery fish spawning with wild fish by improved acclimation.
- Improved adult capture facilities.
- More precise release strategies.
- Reduced numbers of hatchery fish released.

ODFWIIA2 - Reduce Coastal Hatchery Coho Smolt Releases
Reduce coastal hatchery coho smolt releases from 6.4 million in 1990, to 2.2 million by 1998. Will reduce stocking to 2.2 million, down from 6.4 million since 1990, to decrease the potential effects of possible spawning of hatchery fish with wild fish. Some hatchery production may be transferred to Columbia River hatchery production to maintain coho contribution to any ocean and in-river fisheries and also to increase total fish available due to historically higher return rates for coho from Columbia River hatcheries. Action is dependent on federal funds to operate the Columbia River hatcheries.

ODFWIIA3 - Develop Management Objectives, Including Genetic Guideline
Develop specific management objectives, including genetic guidelines, for each coastal coho hatchery

program. Will review each hatchery program on the coast to:

- Establish the specific purpose for each program.
- Ensure consistency with sound genetic principles.
- Evaluate effectiveness and economic efficiency.
- Assess potential impacts to wild fish.

Intent is to minimize risks to wild fish while maintaining harvest opportunities.

ODFWIIA4 - Mark All Hatchery Coho
Externally mark all Oregon hatchery coho prior to release as smolts, beginning with 1995 brood. Marking will enhance monitoring of hatchery strays, aid in the development of new hatchery broodstocks based on wild fish, and facilitate the potential development of selective fisheries targeted on hatchery fish.

ODFWIIB1 - Utilize Hatcheries To Rebuild Wild Runs
Revise hatchery coho programs at four coastal hatcheries to provide additional support to restoration of wild coho populations. We will reduce coho production at Nehalem, Trask, Salmon River and Fall Creek hatcheries to about 200,000 smolts per year and use these hatchery fish, developed from wild broodstock, to help rebuild wild coho populations. Will use adaptive approaches to evaluate effectiveness.

ODFWIIB2 - Evaluate Effectiveness of Using Hatchery Reared Fish
Evaluate the potential for rebuilding wild populations with hatchery raised fish from local broodstocks. Evaluate the effectiveness of using hatchery reared fish as a means of restoring wild populations. This action will evaluate the actions taken in the four hatcheries discussed above.

ODFWIIIA1 - Minimize Fishery Related Impacts
Restrict ocean coho harvest impacts in PFMC ocean fisheries and in Oregon terminal state water fisheries to increase potential to meet wild coho salmon spawner escapement goals. Total fishery impacts will be curtailed to ensure meeting escapement goals. Any allowable directed harvest will occur only after demonstrated improvements in wild stock abundance in multiple watersheds.

ODFWIIIA2 - Manage Estuary and River Salmon Fisheries to Minimize Impact
Manage Oregon inside estuary and river salmon fisheries to minimize impact on wild coho.

We will maintain coho fishery closures in most coastal rivers and bays to protect wild runs. Restrictive "special area" and "marked-only" coho fisheries using gear, location and time restrictions will be applied to coho and other fisheries to limit incidental impacts to coho.

ODFWIIIA3 - Manage Trout Fisheries to Reduce Ecological Interactions and Mortality on Juvenile Salmonids
Manage trout fisheries in coastal basins to reduce ecological interactions and harvest related mortality on juvenile salmonids. Stocking of trout in coastal rivers and streams will be relocated to standing waters to remove trout competition from salmon in streams, reduce incidental impacts to salmon from trout fishing, and provide increased trout fishing opportunity through maximizing the return of stocked trout.

ODFWIIIA4 - Develop a Management Strategy for Future Harvest Opportunities
Develop a management strategy for expansion of future harvest opportunities based on rebuilding Oregon coastal wild populations. While coho fisheries are constrained due to the current low productivity, we are developing specific guidelines to develop future fishing opportunity in a controlled manner in conjunction with rebuilding of wild runs. Harvest levels will be based on having met escapement goals and level of smolt survival.

ODFWIIIB - Develop Selective Ocean Coho Harvest Opportunities
Implement selective ocean coho fisheries targeting on regional marked hatchery stocks while minimizing impacts on wild coho stocks. As opportunities to re-open fisheries arise, direct any allowable fisheries toward marked hatchery fish and require immediate release of all unmarked coho to protect the wild fish. Marked hatchery fish will not be available until 1998.

ODFWIIIB2 - Develop Opportunities for Terminal Coho Fisheries
Develop opportunities for terminal ocean and freshwater area coho fisheries, which target hatchery production while minimizing impacts on wild stocks. We will develop strategies for release of marked

hatchery fish to draw them back to areas where they can be targeted for harvest without impacting wild runs and where there is little likelihood of interacting with wild fish in the spawning areas.

ODFWIIIC1- Develop Improved Adult Abundance Predictor (Pre-Season)
Develop an improved adult abundance predictor (pre-season) for wild coastal coho. We will continue efforts to develop a more accurate preseason predictor of wild OCN coho abundance to allow assessment of yearly harvest related impacts. This information is essential in developing harvest strategies which correctly evaluate impacts on wild fish.

ODFWIIIC2 - Evaluate Coho Hook and Release Mortality
Conduct ocean studies to evaluate coho hook and release mortality rates by gear type, effectiveness of selective fishery gear in targeting single species, and coho salmon encounter rates. Studies will be conducted to find gear and fishing techniques that are effective for other species but minimize likelihood of catching coho, or that facilitate safe release of wild coho. The studies will also increase knowledge of the magnitude of effects on coho.

ODFWIIIC3 - Monitor Marine Survival
Monitor marine survival of wild coho produced in selected index streams. Studies of the ocean survival rates for wild coho will allow more accurate assessment of ocean conditions and marine survival of smolts to adults, leading to an improved ability to manage stocks to achieve increased likelihood of reaching spawning escapement goals.

ODFWIVA1 - Provide Technical Assistance
Promote increased habitat protection by cooperating and sharing data with and providing technical assistance to federal agencies, other state agencies, and local governments that have regulatory authority over activities that occur in salmon habitat. While ODFW has no statutory authority over habitat on lands administered by other agencies, ODF will support and encourage habitat protection through technical assistance; data sharing; review and comment on plans, permits and NEPA documents; and direct participation in interagency planning efforts.

ODFWIVA2 - Improve Riparian Tax Incentive Program
Provide effective incentive for developers, cities, and private landowners to protect salmon habitat by re-authorizing and improving ODFW's Riparian Tax Incentive Program. This program provides incentives to landowners to protect riparian lands, but is scheduled to sunset. Reauthorization will continue this incentive based approach, and improvements could include expansion to cover additional lands, particularly urban, and to remove or raise financial limits.

ODFWIVA3 - Protect Instream Flows
Identify and pursue opportunities to protect instream flow. Conduct surveys to identify streams where quantity of flow is limiting salmon production. As needs are identified, proceed with application for instream rights.

ODFWIVA4 - Administratively Close Fill And Removal Areas
Protect important salmon spawning and rearing areas by consulting with DSL and WRD on the possibility of administratively closing them to fill and removal activities. Will pursue with DSL and WRD legal options for administratively protecting these critical areas from fill and removal. An old WRD statute may contain the authority.

ODFWIVA5 - Prevent Large Wood Removal
Join with other agencies in OCSRI to develop and promote concepts to protect from unauthorized removal large wood and rock that is providing salmonid habitat value. Current law only protects "embedded" materials from removal. Without better restrictions, large wood and rock deposited in streams is being removed and thus not contributing to salmonid habitat.

ODFWIVA6 - Provide Technical Assistance
Provide technical assistance to private landowners, watershed councils, and other cooperators to guide protection of high priority salmonid habitat areas on forest, agriculture and other lands. Without specific authority for habitat protection, ODFW's role is one of encouragement through cooperative efforts and technical assistance. We will increase staff to increase assistance to land owners and agencies in habitat protection efforts.

ODFWIVA7 - Landowner Stewardship Award
Implement a "Landowner Stewardship Award" program to provide recognition and incentive to landowners who voluntarily improve salmon habitat. We are developing a joint award with the Board of Forestry to recognize landowners who are managing their lands under good forestry practices and to protect and enhance salmonid habitat. This should serve as an incentive for voluntary efforts.

ODFWIVB1 - Direct Habitat Restoration To Where It Will Do The Most Good
Guide or direct habitat restoration efforts toward areas where the investment will provide the greatest increase in productivity for wild coho. Prioritize restoration projects for maximal effectiveness, based on assessment of specific limiting factors, potential for success, source or recovery status, projects based on proven approaches and techniques, and magnitude of gains expected. Tools will include some form of watershed analysis, completion of restoration guides for non-federal land, and reliance on effective restoration approaches supported by research.

ODFWIVB2 - Promote Habitat Restoration
Promote and support salmon habitat restoration activities. ODFW will actively work with land owners and agencies to promote habitat restoration projects and actions to restore watershed functions. Will need to increase staff to provide the ability to serve in technical consultation role.

ODFWIVB3 - Promote Beavers
Promote the use of beaver to restore coho habitat through providing technical assistance and information to landowners and local agencies. Beaver dams provide critically needed over winter habitat for juvenile coho and are a natural approach requiring little human maintenance. Will use a cooperative approach and would recommend beaver control only in cases of specific damage.

ODFWIVB4 - Use Hatchery Carcasses
Pursue funds, landowner cooperation, and labor to restore benefits to juvenile salmonid production through placement of hatchery salmon carcasses in priority stream reaches. Salmon production has been shown to be heavily dependent on nutrients derived from salmonid carcasses. Will work with DEQ to pursue using surplus hatchery carcasses to boost natural salmon production in streams until natural runs can contribute this function.

ODFWIVB5 - Restore Instream Flow
Pursue opportunities to restore instream flow to provide needed water and to reduce stream temperatures through purchase, lease, or donation of existing out-of-stream water rights. Will attempt to realize provision of needed instream water rights through acquisition and conversion of existing out-of-stream rights through voluntary means.

ODFWIVB6 - Fish Habitat Improvement Tax Credit Program
Provide effective incentive for developers, cities, and private landowners to protect and restore salmon habitat by re-authorizing and improving ODFW's Fish Habitat Improvement Tax Credit Program. This program offers incentives for action to private landowners who improve habitat for fish. The program needs to be reauthorized, and it should also be improved to increase its effectiveness.

ODFWIVB7 - ODFW Job Rotations
Pursue job rotation opportunities for ODFW fishery biologists in other state agencies through temporary assignments to provide technical assistance in restoring coho habitat. Efforts are underway to share ODFW habitat restoration expertise through temporary assignment to other agencies.

ODFWIVBC1 - Cooperative Removal of Barriers
Pursue opportunities to remove artificial barriers to fish passage. Despite long-standing legal requirements to provide fish passage, many barriers still exist. ODFW will emphasize stimulating increased provision of passage through cooperative approaches, but will also work with OSP to identify where enforcement approaches are needed.

ODFWIVBC2 - Screen Diversions Less Than 30 Cfs
Screen diversions less than 30 cfs to prevent entrainment of salmonids. The existing cooperative cost share program for fish screening will be focused in central and north coast areas to protect salmon smolts from being diverted out of the rivers and streams.

ODFWIVBC3 - Watershed Health Funds ($200,000) To Meet Fish Screening Needs

Utilize the Watershed Health funds ($200,000) to meet fish screening needs for diversions less than 30 cfs in the Rogue and South Coast basins. Funds carried forward from the Watershed Health program are being dedicated to a fully funded program to screen diversions in the southern basins.

ODFWIVBC4 - Screening of Water Diversions Greater Than 30 Cfs.
Assure screening of water diversions greater than 30 cfs. State law already requires screening of these diversions. Cooperative approaches are preferred, but ODFW will work with OSP where necessary to speed compliance.

ODFWIVBC5 - Develop/Implement A Screening Compliance Strategy
Develop and implement a comprehensive diversion screening compliance strategy, including coordination with OSP and the Governor's Office, by November 1996. ODF will work with OSP to increase the enforcement emphasis on screening water diversions as required by state law.

OREGON DEPARTMENT OF TRANSPORTATION MANAGEMENT MEASURES THAT SUPPORT OCSRI

PHASE 1 ACTIONS

ODOT1 - National Pollutant Discharge Elimination System
ODOT developed a manual of recommendations for improvements to practices to reduce pollutants associated with stormwater (ODOT MMS Water Quality Review 1995). In addition, new specifications, special provisions, and new design standards have been developed. An erosion control team has been developed to increase the effectiveness of erosion control measures statewide. An illicit discharge program has been implemented to identify and remove unauthorized connections to ODOT discharge systems.

ODOT2 - Endangered Species Act (ESA) of 1973, As Amended
New proposed listings for fish have affected the way ODOT does business in coastal watersheds. ODOT has prepared Biological Assessments on construction projects that have the potential for adverse effects on proposed fish species. Consequently, conservation measures have been added to projects that have resulted in less sediment in streams (through increased erosion control), a reduction in the amount of inwater work required, appropriate inwater work timing restrictions, less removal of riparian vegetation, and a reduced likelihood of hazardous spills.

ODOT3 - Integrated Pest Management (IPM) Program
District IPM Teams have been developed to check the location of threatened and endangered plant species. These teams are currently updated (through a newly-developed newsletter called "Solid Green") on vegetation management activities that will protect and enhance salmon and their habitat. Team members have developed IPM goals and objectives plus action thresholds for 20 plus roadside vegetation management and landscape activities. In addition, annual training sessions (applicator recertifications) are held on: non-crop vegetation management, landscaping, and Regional Interagency IPM noxious weed training. Salmon recovery issues will be an integral part of the agenda for each of these upcoming training sessions.

ODOT4 - Hazardous Materials Program
On select construction projects, the benefits of a containment basin have been evaluated and implemented after considering factors such as vulnerability of the water resources, risk and consequences of a spill, and various mitigation alternatives. Best Management Practices (BMPs) have been developed to prevent and reduce the risk of contamination during normal maintenance operations.

ODOT5 - Clean Water Act - 401 Certification
Under the newly revised 401 Certification program, ODOT will be required to minimize water quality impacts to streams, particularly water quality-limited streams.

PHASE 2 ACTIONS

ODOT6 - Salmon Restoration Initiative Program Manager Position
One person will be hired to provide overall coordination and assurance of implementation of this plan. This person would provide:

- Regular briefings to the ODOT director and Governor's office on action item implementation progress.
- Coordination for watershed council activities.

- Communication with other agencies.
- Coordination internally and externally (e.g., contractors) for education/communication on fish issues, monitoring and reporting on implementation and effectiveness of ODOT's salmon restoration action plan.

ODOT7 - Culvert Inventory, Assessment And Remediation
All ODOT coastal culverts and tidegates will be inventoried and evaluated for potential fish passage problems through an Interagency Agreement with Oregon Department of Fish and Wildlife. ODOT will replace or modify problem culverts as appropriate and based on ODFW's recommended priorities and ODOT's authorized funding.

ODOT8 - Responding To Sources of Sediment
Inventory and prioritize for action (based on proximity to ODFW high fishery resource value areas) locations with visible erosion along ODOT rights-of-way. Develop contingency plans for placement of materials (e.g., soil and trees) as a result of mass wasting (e.g., slides and pop-outs), erosion, and sanding. Develop Best Management Practices for reacting to these sediment sources located near water (e.g., directions for placement of erosion control structures).

ODOT9 - Participation In Watershed Councils
ODOT District Managers or their representative will participate in watershed councils or coordinating councils. The Salmon Restoration Program Manager will provide coordination within ODOT to provide consistency between districts on ODOT priorities and policies as pertains to watershed council participation, and will provide communication to the districts and areas regarding information coming from the Governor's Watershed Enhancement Board.

ODOT10 - Master Plan For Surplus Properties (Part I)
Do a systematic assessment of all ODOT-owned properties (including surplus properties) for future environmental mitigation and maintenance disposal site usage. Regional Property Master Plans will be developed based on the systematic assessments.

ODOT11 - Environmentally Sensitive Design
Train all functions involved with transportation design to consider natural resource concerns early in project design and development.

ODOT12 - Storage And Disposal Plan For Woody Debris
Develop temporary storage sites for woody debris within each ODOT Region. The woody debris from these sites will be placed in, or adjacent to streams/wetlands by Oregon Department of Fish and Wildlife biologists or Watershed Council representatives.

PHASE 2 ACTIONS

ODOT13 - Statewide Erosion Control Handbook
A statewide erosion control handbook will be developed by a contractor. It will be an elaboration of the current Tualatin Valley handbook with additional material on regional solutions, recent best management practice development, and slope stabilization.

ODOT14 - Review And Development of A Geographically-Appropriate Program For Winter Maintenance Activities And Sidecast Sweeping
Review sanding practices, winter maintenance activities, and sidecast sweeping activities for western Oregon and develop a geographically-appropriate program for these activities. Implement the recommendations of the developed program, as appropriate.

ODOT15 - Aggregate Permit Review
Review of current instream or near-stream aggregate permits for existing material sources. These instream or near-stream material sources will be evaluated for potential future shut-down due to their disturbance to salmonid habitat. The need for possible mitigation at shut-down will also be evaluated.

ODOT16 - Integrated Pest Management Program
Modify the Integrated Pest Management program to include salmon issues. Modify the spray program as appropriate to reduce impacts.

ODOT17 - Education
Increased awareness of fish issues through the creation of a training video; participation in public outreach meetings concerning the salmon initiative; future involvement in watershed councils; and internal training information, sessions and meetings. ODOT District Managers will educate ODOT employees (on watershed council needs) and watershed councils (on ODOT activities).

ODOT18 - Preferential Use of Bioengineering Solutions
While designing projects, use bioengineering (vegetative plantings) options preferentially over riprap where appropriate. If the use of riprap is essential, design to minimize impacts to stream habitat.

ODOT19 - Burning In Riparian Areas
Ensure that the standard specifications do not permit burning in riparian areas.

ODOT20 - Habitat For Fish In Wetland Mitigation
Include habitat for fish in wetland mitigation in project design as appropriate. The most common type of wetland mitigation is pasture wetland. However, this type of wetland is currently relatively common. In the future, wetland mitigation and aquatic threatened and endangered species conservation measures will include more benefits for fish such as:

- Creation of in-channel or off-channel wetlands.
- Restoration of estuarine wetlands.
- Inclusion of large woody debris in the stream.
- Coordination with the salmon and trout enhancement program (STEP) for stream enhancement efforts.

ODOT21 - Minimize Potential Impacts of Accident Spills
Minimize future risk of accidents spilling material into waterways through the development of a map of sensitive areas, site review and prioritization of sites. The goal would be to minimize the risk of a spill occurring or the impacts if a spill did occur, or both. Based on this information, ODOT will look at Best Management Practices, site by site, that could reduce the likelihood of hazardous spills.

ODOT22 - Aquatic Pest Plant Management Plan
Develop an aquatic pest plant management plan. ODOT will participate on the proposed Aquatic Plant Management Council comprised of one representative from each agency. The council will develop a uniform state plan to detect, control, and prevent aquatic weeds from invading waters inhabited by salmonids.

PHASE 2 ACTIONS

ODOT23 - Retention of Surplus Properties (Part II - Legislative Change)
Allow ODOT to retain ownership of surplus lands that have natural resource value, for the purpose of conserving the resources, rather than selling off the properties. ODOT would attempt to receive mitigation credit from wetland and other resource regulators for the protection of natural resources. ODOT would include sites that would provide enhancement or natural resource protection in the systematic assessment of surplus properties.

ODOT24 - Mitigation Banking
A credit/debit banking system for fish enhancement per watershed could be developed in conjunction with the Oregon Department of Fish and Wildlife, U.S. Fish and Wildlife Service, and National Marine Fisheries Service to help offset negative impacts that construction projects may have in any particular watershed. ODOT could get credit from a fish enhancement mitigation bank for fish mitigation.

OREGON ECONOMIC DEVELOPMENT DEPARTMENT MANAGEMENT MEASURES THAT SUPPORT OCSRI

PHASE 1 ACTIONS

OEDD1 - Rejuvenation of A Polyculture Project In Lincoln County, If It Is Deemed Good For Salmon
A polyculture project in Lincoln County that has failed to move forward since April 1992 could be rejuvenated if ODFW and NMFS deemed the project good for wild salmon. The project was originally designed to take pressure off of native coho runs in the central coast by creating an alternative terminal fishery.

OEDD2 - Effective Administration of U.S. Fish And Wildlife Service Funds For Watershed Restoration Work On Public And Private Lands
OEDD is responsible for administering approximately $1.03 million of U.S. Fish and Wildlife Service funding to support environmental restoration projects developed by local entities. OEDD is working with the Governor's Watershed Enhancement Board staff and the U.S. Fish and Wildlife Service to develop a more efficient distribution of the funds.

OEDD3 - Providing Technical Assistance To The Methane Energy And Agriculture Development Project In Tillamook County
The project, a joint venture of the Tillamook County Soil and Water Conservation District and the Tillamook People's Utility District, is a broad effort to solve the dairy industry's problems with non-point source pollution created by manure.

OEDD4 - Funding Projects To Improve, Expand And Construct New Water And Wastewater Treatment Facilities
OEDD regularly funds, and will continue to fund, projects to build water and wastewater treatment facilities for improvement of the quality of water throughout the state. Address improvement funding requests from:

- Communities that need to expand capacity.
- Communities whose systems fail to meet current federal or state water quality regulations.
- Communities that have emergencies like broken system components.

OEDD5 - Review of Regional Strategies Projects For Consistency With Salmon Restoration Efforts
Strongly recommend to Regional Strategy boards that they review project applications to ensure projects funded have no adverse impact on fish habitat or populations.

OEDD6 - Review of Water And Wastewater Projects For Consistency With Salmon Restoration Efforts
Require water and wastewater funding applicants to complete a form indicating whether a proposed project could have an adverse impact on fish habitat or populations. Economic Development will refer projects with potentially damaging impacts to the Oregon Department of Fish and Wildlife for review before making a funding decision.

OEDD7 - Funding Watershed Coordinator Positions On The South Coast
The Oregon Economic Development Department contributed in March 1996 $140,000 from the Governor's Strategic Reserve Fund to a $240,000 package to pay the salaries of 18 watershed council coordinators on the south coast for six months. The Governor's Natural Resource Office contributed the remaining $100,000.

OEDD8 - Contributing To A Revolving Loan Fund For Watershed Restoration Contractors In Tillamook County
The Oregon Economic Development Department is contributing $100,000 to a $300,000 revolving loan fund to support establishment of environmental restoration contracting businesses in Tillamook County. The fund is administered by the Tillamook Economic Development Council with oversight by the steering committee that runs the local Jobs In The Woods program. This fund will enable graduates of the Jobs In The Woods training to start their own contracting businesses.

OEDD9 - Old Growth Diversification Fund
The Oregon Economic Development Department will contribute Old Growth Diversification Fund money to small woodland habitat restoration projects coordinated by the Oregon Wildlife Heritage Foundation and undertake a complementary education and outreach effort in partnership with the Oregon Forest Resources Institute.

OREGON PARKS AND RECREATION DEPARTMENT MANAGEMENT MEASURES THAT SUPPORT OCSRI

PHASE 1 ACTIONS

OPRD1 - Disposition of Hazard And Blowdown Trees On OPRD Property
Take fish habitat needs into consideration when deciding the disposition of blowdown and hazard trees. Places

high priority on offering trees to ODFW or other agencies or groups to be used as fish habitat.

OPRD2 - Improve Fish Habitat And Riparian Zones Within OPRD Lands
Over the next two years the OPRD (with assistance from ODFW) will identify fish habitat needs, including riparian zone restoration needs on coastal streams within OPRD properties. Interpretive and educational programs will be developed at the high visibility project sites.

OPRD3 - Clear Creek Spawning Habitat
OPRD, in cooperation with ODFW and Dunes NRA, is re-establishing spawning habitat in Clear Creek at Tugman State Park. This project has high visibility and would lend itself to interpretation.

OPRD4 - Sixes River Restoration
With technical assistance from ODFW, the OPRD will place large woody debris in the Salmon and Little Rivers within OPRD properties in the VanDuzer Corridor.

OPRD6 - Spencer Creek Restoration
In cooperation with Boise Cascade and ODFW, the OPRD is proposing to place large woody debris for the purpose of creating off-channel rearing areas in Spencer Creek. In conjunction with this project, an interpretive trail with signs is planned.

OPRD7 - Jackson Creek Restoration
OPRD and ODFW has completed 0.25 mile of stream improvement on Jackson Creek at Cape Lookout State Park.

OPRD8 - North Wolf Creek Restoration
OPRD, in a cooperative effort with ODFW and ODF, will be providing large woody debris for placement in the North Ford of Wolf Creek along approximately one mile of stream to enhance spawning and rearing habitat.

PHASE 2 ACTIONS

OPRD9 - Provide Interpretive Opportunities In State Parks To Help Educate People About Salmonids
Develop informational signs and kiosks at coastal parks to interpret life histories and habitat needs of salmonids. Develop interpretive signs on a site-specific basis to interpret high profile habitat enhancement projects within park properties. OPRD is currently using evening campfire programs to educate people about salmon and the Salmon Restoration Initiative. Currently using the Sea Grant Video (entitled "Return of the Salmon) in conjunction with short talks on the initiative. Other interpretive tools (e.g., slide programs and other videos) will be used as they become available. OPRD staff will also be available to make presentations to interested groups such as local Chambers of Commerce and Good Sam Clubs. Develop trails in conjunction with high visibility habitat restoration projects and use interpretive signing to educate people about the different types of restoration projects being used to improve salmon habitat and why they are important. Guided tours can be done during high visitation periods and for school and other interested groups.

OPRD10 - Develop An Interpretive/Educational Center
Design and place an interpretive and educational display at one or two of OPRD's large urban parks. OPRD's interpretive and outreach program offers the opportunity to educate a number of people about Oregon's Coastal Salmon Restoration Initiative and help gain public support for this effort.

OREGON STATE MARINE BOARD
MANAGEMENT MEASURES THAT SUPPORT OCSRI

PHASE 1 ACTIONS

SMB1 - Increase Number of Streams Adopted Through Adopt-A-River Program
Work with SOLV to increase efforts to gain adoption of stream and rivers, particularly source and recovery reaches.

SMB2 - Enforce New Outfitter/Guide Laws
Cooperate with county sheriffs and Oregon State Police to enforce provisions of new laws for outfitter and guide operations. Place special emphasis on fishing guides on coastal bays and rivers.

SMB3 - Increase Marine Law Enforcement Efforts On Bays And Coastal Streams
Work with county sheriffs and OSP to reduce incidence of boating law violations.

SMB4 - Review Existing Boating Regulations On Bays And Coastal Rivers
Work with ODFW and OSP to assess the adequacy of current boating regulations, focusing on source and recovery streams. Amend existing regulations and adopt new rules, if necessary.

SMB5 - Acquire Early Review And Coordination On Construction Projects
Establish agency policy and procedure to secure early involvement by appropriate fish biologists in location, design, and timing decisions for projects involving construction in bays and coastal rivers.

SMB6 - Involve ODFW Biologists In Process of Permitting Marine Events
Establish an agency policy and procedure to secure review by appropriate fish biologists of applications for marine events.

SMB7 - Incorporate Information About Coastal Salmon Restoration Measures In Information Kiosks At Bays And Coastal Rivers
Develop timely information with ODFW and add to kiosks as they are revised.

SMB8 - Increase Compliance With Foam Floatation Encapsulation Regulations
Emphasize compliance with existing regulations requiring the encapsulation of foam used for floatation of docks.

PHASE 2 ACTIONS

SMB9 - Increase Number of Boat Waste Pump-Outs And Dump Stations
Implement the existing Vessel Waste Disposal Plan using federal Clean Vessel Act funds, with priority given to projects on coastal bays and rivers.

WATER RESOURCES DEPARTMENT
MANAGEMENT MEASURES THAT SUPPORT OCSRI

PHASE 1 ACTIONS

WRD1a - Assist In Replacement of Push-Up Dams That Interfere With Fish Passage
With other agencies and local watershed councils, clarify agencies' jurisdictions over push-up dams; inventory existing dams; and work with property owners to identify alternatives to push-up dams that interfere with fish passage. Effort initially gives focus to the Rogue and South Coast Basins, but may expand to include other basins depending on staff availability.

WRD2 - Pending Water Rights Review
An interagency team reviewed over 1,200 pending water right applications in the coastal zone. WRD, ODFW, ODA, and DEQ (along with local district biologists and watermasters) participated in the evaluation of applications to identify potential conflicts and recommend measures or permit conditions needed for protection of coastal salmon.

WRD3 - Public Interest Review of Water Use Applications
In June 1996, the Water Resources Commission adopted rules (Division 33) that clarify and expand the public interest review of new water use applications to ensure that new water uses do not adversely affect sensitive, threatened, or endangered fish species. The process incorporates an interagency team review as part of the public interest determination (see #2 above).

WRD4 - Instream Water Rights
WRD will propose issuance of 550 pending instream water right applications by October 1996. There were 350 proposed final orders issued as of June 1996. The action will increase flow protection for salmon and provide the basis for instream flow regulation on coastal streams.

WRD5 - Re-Examine Appropriate Instream Flow
WRD is re-examining appropriate instream flow values for coastal basins to ensure adequate flow for fish

protection.

WRD6a - Install Staff Gauges
Install up to 40 staff gauges this year on priority streams and critical habitat areas identified by the Science Team (comprised primarily of ODFW and NMFS biologists).

WRD7 - Require Fish Screening and By-Pass Flows on Ponds
1995 House Bill 2153 requires WRD to issue water right certificates on existing ponds. Water Resources Department has completed its identification and evaluation of 3,400 coastal ponds and has required fish screening and by-pass flows on all ponds where fish are present.

WRD8a - Inventory Diversions
During the summer of 1996, WRD hired 13 stream walkers to locate points of diversion on priority streams on the coast.

WRD9 -Instream Transfers And Leases
Place priority on processing instream water right transfers and leases that benefit fish.

WRD10 - Digitize Water Rights
By October 1996, the WRD will have digitized water right maps locating the place of water use and associated points of diversion for the entire coast; the maps include an overlay of instream water rights. These maps will be available to resource agencies upon request.

WRD11 - Public Information And Outreach
Continue public information and outreach efforts utilizing both central and field staff. The activity will provide information to the general public on restoration measures, as well as educating water users. Special fact sheets have already been prepared and distributed to WRD's constituency.

WRD12a - Groundwater Studies
In the New River area of the south coast, WRD is working with the Cranberry Association, which has hired a hydrologist to evaluate the groundwater/surface water relationship. The studies are being done to allow better management and regulation of the resource and thereby assure increased fish protection. WRD is urging completion of the work this biennium.

WRD13 - Increased Compliance Monitoring
Increased compliance monitoring activities, based in part on the priority areas identified by Science Team (composed primarily of ODFW and NMFS biologists). In the summer of 1996, new watermaster offices were established in Newport and Florence, and the presence in the Tillamook office was significantly increased. An additional 15 person-days/month of monitoring and enforcement activities are occurring in the north and mid-coast region.

WRD14 - Revise Basin Programs
Based on priority areas identified by the Science Team, evaluate appropriatenes of revising basin programs and water use classifications to increase protection for salmon. Basin programs and water use classifications determine allowable uses of water within basins. Revising the programs could include closure of some streams to further appropriation.

WRD15 - Declare Serious Water Management Problem Areas
Based on priority areas identified by the Science Team, consider designation of serious water management problem areas. This would allow increased measurement and reporting on all water rights.

WRD16 - Community Water Conservation Plans
Communities located in core habitat areas will receive the highest priority for assistance on water conservation plans. This is designed to meet these communities' water needs while improving instream flow conditions. If necessary, additional staff may be committed to assist these communities.

WRD17a - Global Positioning Systems (GPS)
WRD currently is using two Global Positioning Systems' (GPS) equipment to accurately locate points of diversions. Three additional GPS units have recently been acquired, bringing the total to five units.

WRD18 - Savage Rapids Dam Task Force

Staff and provide administrative support to Savage Rapids Dam Task Force. Legislatively authorized task force is addressing major fish passage problem on the Rogue River.

WRD19 - Fill And Removal Area Closure
WRD will consider closing fill-and-removal areas when requested by ODFW or other agencies.

PHASE 2 ACTIONS

WRD1b - Assist In Replacement of Push-Up Dams That Interfere With Fish Passage
Work to identify funding sources to install alternative diversion methods for those dams that interfere with fish passage.

WRD6b - Install Additional Staff Gauges
WRD has identified the need for additional gauges and is seeking funding in the next biennium for installation of approximately 40 additional stream and staff gauges to aid instream flow monitoring. Add telemetry to gauging stations to enhance WRD capability to monitor instream flows on coastal streams. Develop a mechanism to distribute flow information to other agencies.

WRD8b - Complete Inventory of Diversions
For the 1997-99 biennium, WRD will seek funding to hire 10 stream walkers to complete the inventory of diversions.

WRD12b - Groundwater Studies
Initiate new investigations in the coastal basins to quantify groundwater supplies and identify surface and groundwater interconnections. Include a public information effort on groundwater resources.

WRD17a - Global Positioning Systems
Additional GPS equipment may be purchased next biennium to accelerate locating and mapping diversion points.

WRD20 - New Watermaster Districts
WRD has identified the need for increasing water right enforcement capabilities and is seeking as part of its budget request for the 1997-99 biennium to establish two new watermaster districts on the north and central coasts. WRD21 - Additional Compliance Monitoring Staff WRD has identified the need, and is seeking funding, for up to 15 additional field staff to monitor instream flows and water diversions, prevent illegal use, and contribute to public outreach.

WRD21 - Additional Compliance Monitoring Staff
WRD has identified the need, and is seeking funding, for up to 15 additional field staff to monitor instream flows and water diversions, prevent illegal use, and contribute to public outreach.

WRD22 - Off-Stream Storage
WRD has identified the need, and is seeking funds, for cost-share of off-stream multi-purpose storage projects that would provide instream flow benefits to fish.

WRD23 - Additional Data Collection And Analysis Staff
WRD has identified the need, and is seeking funding, for up to 15 additional data collection and analysis positions (in addition to those in action item #18). WRD is also seeking to initiate new investigations in key coastal basins to quantify groundwater supplies and to identify surface and groundwater interconnections. This will include a public information effort on groundwater resources in the coastal zone.

WRD24 - Additional Technical Assistance Staff
WRD has identified the need, for and is seeking funding, for up to 16 additional technical assistance positions to work with watershed councils and communities to improve instream flow protection, water supply, conservation, and water management conditions.

WRD25 - Additional Staff For Instream Leases And Grants
WRD has identified the need, and is seeking funding, for up to 7 additional positions to encourage and facilitate instream water right leasing and transfers on key streams, and to provide grants to landowners and communities for stewardship and long-term water supply issues (including grants for application fees, mapping costs, and compensation to water right holders for long-term instream water right leases and

transfers).

Return to Coastal Salmon Restoration Initiative Home Page

CHAPTER VI-A PART II

SUMMARY OF THE STATE MANAGEMENT MEASURES BY SPECIFIC MANAGEMENT ISSUES ADDRESSED

HARVEST
Phase 1 Actions

Topic: Setting Harvest Levels

ODFWIA1	Establish New Escapement Goals
ODFWIB1	Adult Escapement and Juvenile Coho Salmon Production Information
ODFWIIIA1	Minimize Fishery Related Impacts
ODFWIIIC1	Develop An Improved Adult Abundance Predictor (Pre-Season)
ODFWIIIC2	Evaluate Coho Hook and Release Mortality
ODFWIIIC3	Monitor Marine Survival

Topic: Types of Harvest

ODFWIIA4	Mark All Hatchery Coho
ODFWIIIA2	Manage Estuary and River Salmon Fisheries to Minimize Impact
ODFWIIIA3	Manage Trout Fisheries to Reduce Ecological Interactions and Mortality on Juvenile Salmonids
ODFWIIIA4	Develop Management Strategy for Future Harvest Opportunities
ODFWIIIB2	Develop Opportunities for Terminal Coho Fisheries

Topic: Illegal Catch

SMB2	Enforce New Outfitter/Guide Laws

Topic: Bycatch

None Proposed.

Topic: Loss of Genetic Integrity and Diversity

ODFWIIA1	Implement Gene Conservation Strategies

Topic: Ecological Effects (nutrient cycle)

ODFWIVB4	Use Hatchery Carcasses

Topic: Predation and Competition
Factor: Exotic Fish

ODFWIC2a-c	Predator Impacts

Factor: Piscivorous Birds and Marine Mammals

ODFWIC1	Policy on Management of Salmonid Predators
ODFWIC2(a-c)	Predator Impacts
ODFWIC3	Predator Management
ODFWIIB1	Utilize Hatcheries to Rebuild Wild Runs
ODFWIIB2	Evaluate Effectiveness of Using Hatchery Reared Fish
ODFWID1	Use of Volunteers
OEDD1	Rejuvenation of A Polyculture Project in Lincoln County

HATCHERIES
Phase 1 Actions

Topic: Ecological Effects
(e.g., Competition Among Hatchery and Native Fish)

ODFWIIA2	Reduce Coastal Hatchery Coho Smolt Releases
ODFWIIIA3	Manage Trout Fisheries to Reduce Ecological Interactions and Mortality on Juvenile Salmonids
ODFWIIA4	Mark All Hatchery Coho

ODF41	Palmer Creek (Siletz) Acclimation Ponds

Topic: Loss of Genetic Integrity and Domestication

ODFWIIA1	Implement Gene Conservation Strategies
ODFWIIA2	Reduce Coastal Hatchery Coho Smolt Releases
ODFWIIA3	Develop Management Objectives, Including Genetic Guideline

Topic: Demographic Effects

ODFWIIA4	Mark All Hatchery Coho

Topic: Disease

None identified.

HABITAT
Phase 1 Actions

Topic: Physical Habitat

OEDD2	Effective Administration of U. S. Fish and Wildlife Service Funds (Jobs-In-The-Woods) for Watershed Restoration
ODFWID1	Use of Volunteers
DEQ6	Tillamook Bay National Estuary Program
ODA3	Habitat Restoration Jobs Program (Hire The Fisherman Program)
ODOT11	Environmentally Sensitive Design
DSL7	Facilitate More Fish Habitat Enhancement Projects
DSL12	Analyze Imposition of a Surcharge as Compensatory Mitigation for Gravel Removal, to be Dedicated to Fish Habitat Projects
DSL18	Improve Fish Habitat on Elliott State Forest
DSL19	Evaluate Habitat Potential of Scattered Tracts in Coastal Basins
ODF15	Increase Number of Streams and Stream Miles Protected
ODFWIVA1	Provide Technical Assistance
ODFWIVA6	Provide Technical Assistance
ODFWIVB1	Direct Habitat Restoration to Where It Will Do Most Good
ODFWIVB2	Promote Habitat Restoration
ODFWIVB3	Promote Beavers
ODFWIVB7	ODFW Job Rotations
DOGAMI7	Fish-Friendly Reclamation as Awards Criteria
OPRD3	Clear Creek Spawning Habitat
OPRD4	Sixes River Restoration
SMB5	Acquire Early Review and Coordination on Construction Projects
SMB6	Involve ODFW Biologists in the Process of Permitting Marine Events
ODF22	Stream Habitat Assessments
ODOT2	Endangered Species Act (ESA) of 1973, As Amended
DLCD1	Statewide Land Use Program
DLCD5	Periodic Review

Factor: Riparian Vegetation

DLCD2	Implement New Goal 5 Rules for Riparian Protection
ODF8	Elliott State Forest Habitat Conservation Plan
DSL18	Improve Fish Habitat on Elliott State Forest
DSL19	Evaluate Habitat Potential of Scattered Tracts in Coastal Basins
ODF16	Riparian Hardwood Conversion
ODF14	Northwest State Forest Lands Management Plan/HCP
ODOT19	Burning in Riparian Areas
OPRD1	Improve Fish Habitat and Riparian Zones Within OPRD Lands

Subfactor: Large Woody Debris

DSL7	Facilitate More Fish Habitat Enhancement Projects

DSL21	Clarify Jurisdiction Over Woody Debris Removal and Fill the Gaps
ODFWIVA5	Prevent Large Wood Removal
OPRD1	Disposition of Hazard and Blowdown Trees on OPRD Property
OPRD5	Salmon River Restoration
OPRD6	Spencer Creek Restoration
OPRD7	Jackson Creek Restoration
OPRD8	North Wolf Creek Restoration
ODF1	LWD Placement Guidelines
ODF5	Increased Riparian Protection
ODF8	Elliott State Forest Habitat Conservation Plan
ODF9	25 Percent In-Unit Leave Tree Placement and Additional Voluntary Retention
ODF11	North Coast Restoration Habitat Initiative/Council
ODF12	Mid-Coast Restoration Initiative/Council
ODF13	South Coast Restoration Initiative
ODF14	Northwest State Forest Lands Management Plan /HCP
ODF17	Upper Siuslaw River Enhancements (Weyerhaeuser)
ODF18	LWD Placement Incentives
ODF44	State Lands Stream Habitat Assessment and Instream Projects
ODOT12	Storage and Disposal Plan for Woody Debris
Factor: Dredging	
DSL1	Analyze 404 Program Assumption
Factor: Streamband Armoring and Channelization	
ODOT18	Preferential Use of Bio-engineering Solutions
Factor: Diking, Draining, Removal	
ODOT5	Clean Water Act (CWA) - 401 Certification
DSL1	Analyze 404 Program Assumption
DSL2	Establish Best Management Practices for Removal-Fill Activities
DSL3	Strengthen Interagency Coordination
DSL4	Define "Acceptable Adverse Impacts" in Essential Habitat
DSL5	Make GA for Road Construction More Fish-Friendly
DSL6	Make GA for Erosion Control More Fish-Friendly
DSL8	Facilitate More Wetland Restoration and Enhancement Projects
DSL9	Develop Guidelines for Issuance of Individual Permits Versus GAs
DSL13	Develop Information Packets for Watershed Councils
DSL14	Develop Public Education Materials on Removal-Fill Projects
DSL15	Target Compensatory Wetlands Mitigation to Fish-Friendly Projects
DSL16a	Inventory Coastal Wetlands
DSL20	Implement South Slough Estuary Conservation Strategy
ODF6	Protection of Significant Wetlands, Including Estuaries
ODOT10	Master Plan for Surplus Properties (Part I)
ODOT20	Habitat for Fish in Wetland Mitigation
ODFWIVA4	Administratively Close Fill and Removal Areas
WRD19	Fill and Removal Area Closure
Factor: Gravel and Other Instream Mining	
ODOT15	Aggregate Permit Review
DSL2	Establish Best Management Practices for Removal-Fill Activities
DSL4	Define "Acceptable Adverse Impacts" in Essential Habitat
DSL10	Develop Permanent Rules for Recreational Placer Mining
DSL22	Analyzing Limiting Gravel Removal to Annual Recruitment

ODFWIVA4	Administratively Close Fill-and-Removal Areas
WRD19	Fill-and-Removal Area Closure
	Phase 2 Actions
Topic: Physical Habitat	
ODFWIVA2, ODF50	Riparian Tax Incentive Program
ODFWIVB6, ODF49	Fish Habitat Improvement Tax Credit Program
ODF47	Planned "Stewardship" Assistance
ODF55	Implement Watershed Assessments
ODF56	Eliminate 25,000 Bf Exemption
ODOT23	Retention of Surplus Properties
ODOT24	Mitigation Banking
Factor: Diking, Draining, Removal and Filling	
DSL16b	Inventory Coastal Wetlands
DSL23	Add Field Staff in Coastal Salmonid Areas
	HABITAT **Phase 1 Actions**
Topic: Water Quality	
DEQ1, DLCD3	Coastal Nonpoint Control Program
DLCD4	Implement Urban Management Measures Under CNPCP
DLCD5	Periodic Review
DEQ2	Implementation of Recently Revised Water Quality Standards for Temperature and Dissolved Oxygen
DEQ3	Implementation of 303(d) List Priorities for TMDL Development
DEQ5	Enhanced 401 Certification Program in Coastal Watersheds
DSL9	Develop Guidelines for Issuance of Individual Permits Versus GAs
ODA1	Implement SB 1010
ODOT1	NPDES Program
ODOT5	Clean Water Act (CWA) 401 Certification
ODOT10	Master Plan for Surplus Properties (Part I)
ODOT11	Environmentally Sensitive Design
ODOT22	Aquatic Pest Plant Management Plan
	Phase 2 Actions
ODA9	Accelerated Pre-SB1010 Program in Association With Coastal Zone Management Program
	Phase 1 Actions
Factor: Riparian Zone Function	
ODOT19	Burning in Riparian Areas
ODA1	Implement SB 1010
	Phase 2 Actions
ODA9	Accelerated Pre-SB1010 Program in Association With Coastal Zone Management Program
ODA11	Proposed Riparian Zone Management Program
	Phase 1 Actions
Factor: Pollution (Including Chemical Pollution and Trash and Litter on River Banks and in Streams)	
DEQ2	Implementation of Recently Revised Water Quality Standards for Dissolved Oxygen
ODA2	Confined Animal Feeding Operations Program
OEDD3	Providing Technical Assistance to the Methane Energy and Agriculture Development Project in Tillamook County
OEDD4	Funding Projects to Improve, Expand and Construct New Water and

_____	Wastewater Treatment Facilities
ODOT3	Integrated Pest Management (IPM) Program
ODOT4	Hazardous Materials Program
ODOT16	Integrated Pest Management Program (Modifications)
ODOT21	Minimize Potential Impacts of Accident Spills
ODF7	Forest Practice Chemical Protection Rules Increased Buffers
SMB1	Increase Number of Rivers Adopted Through Adopt-A-River Program
SMB3	Increase Marine Law Enforcement Efforts on Bays and Coastal Streams
SMB4	Review Existing Boating Regulations on Bays and Coastal Waters
SMB8	Increase Compliance With Foam Flotation Encapsulation Regulations
DSL17	Reduce Water Pollution From Waterway Lessees
	Phase 2 Actions
SMB9	Increase Numbers of Boat Waste Pump-Outs and Dump Stations
ODA10	Courtesy CAFO Compliance Audit Program
	Phase 1 Actions
Factor: Temperature	
DEQ2	Implementation of Recently Revised Water Quality Standards for Temperature
DEQ3	Implementation of 303(d) List Priorities for TMDL
ODFWIVB5	Restore Instream Flow
ODF5	Increased Riparian Protection
Factor: Sediment/Turbidity	
ODF2	Increase Design for Larger Flows
ODF3	Upgraded Road Construction and Fill Requirements
ODF4	Upgraded Skid Trail Construction and Fill Requirement
ODF42	State Forestry Lands Road Assessment and Expedited Remediation
ODF10	Road Erosion and Risk Reduction Project
ODF38	Associated Oregon Logger Education and Certification Program
DOGAMI1	Change Mine Inspection Priorities
DOGAMI3	BMP Manual for Mine Reclamation
DOGAMI5	Voluntary Enhancements
DSL2	Establish Best Management Practices for Removal-Fill Activities
DSL18	Improve Fish Habitat on Elliott State Forest
ODOT8	Responding to Sources of Sediment
ODOT13	Statewide Erosion Control Handbook
ODOT14	Review and Development of Geographically Appropriate Program for Winter Maintenance Activities and Sidecast Sweeping
Topic: Water Quantity	
ODFWIVA3	Protect Instream Flows
ODFWIVB5	Restore Instream Flow
WRD2	Pending Water Rights Review
WRD3	Public Interest Review of Water Use Applications
WRD4	Instream Water Rights
WRD5	Re-Examine Appropriate Instream Flow
WRD6	Install Staff Guages
WRD8a	Inventory Diversions
WRD9	Instream Transfers and Leases
WRD10	Digitize Water Rights
WRD11	Public Information and Outreach
WRD12a	Groundwater Studies

WRD13	Increased Compliance Monitoring
WRD14	Revise Basin Programs
WRD15	Declare Serious Water Management Problem Areas
WRD16	Community Water Conservation Plans
WRD17a	Global Positioning Systems

Phase 2 Actions

DOGAMI8	Geological and Hydrological Characterization of Groundwater
WRD12b	Groundwater Studies
WRD8b	Inventory Diversions
WRD17b	Global Positioning Systems
WRD20	New Watermaster Districts
WRD21	Additional Compliance Monitoring Staff
WRD22	Off-Stream Storage
WRD23	Additional Data Collection and Analysis Staff
WRD24	Additional Technical Assistance Staff
WRD25	Additional Staff for Instream Leases and Grants

Phase 1 Actions

Factor: Land Use Changes

ODF43	Clearcut Limitations

Topic: Fish Passage
Factor: Culverts and Other Road Crossing Structures

ODOT7	Culvert Inventory, Assessment and Remediation
ODOTX	Implement Passage Requirements
ODF1	Improve Fish Passage BMPs on Stream Crossing Structures
ODF20a	Fish Presence Survey
ODF33	Fish Passage Surveys
ODF32	Fish Presence/Absence Surveys and Fish Population Surveys
ODF42	State Forestry Lands Road Assessment and Expedited Remediation
ODF10	Road Erosion and Risk Reduction Project
ODFWIVBC1	Cooperative Removal of Barriers
ODFWIB4	Inventory of Artificial Barriers
DSL5	Make GA for Road Construction More Fish-Friendly
DSL7	Facilitate More Fish Habitat Enhancement Projects
DSL18	Improve Fish Habitat on Elliott State Forest

Phase 2 Actions

ODF20b	Fish Presence Survey

Phase 1 Actions

Factor: Diversions and Dams

ODFWIVBC2	Screen Diversions Less Than 30 cfs
ODFWIVBC3	Watershed Health Funds ($200,000) to Meet Fish Screening Needs
ODFWIVBC4	Screening of Water Diversions Greater Than 30 cfs
ODFWIVBC5	Develop/Implement a Screening Compliance Strategy
DSL11a and WRD1a	Assist in Replacement of Push-Up Dams That Interfere With Fish Passage
WRD6	Require Fish Screening and By-Pass Flows on Ponds
WRD8a	Inventory Diversions
WRD17a	Global Positioning Systems
WRD18	Savage Rapids Dam Task Force

Phase 2 Actions

DSL11b and WRD1b	Assist in Replacement of Push-Up Dams
WRD8b	Inventory Diversions

WRD17b	Global Positioning Systems

ASSESSMENT, MONITORING AND RESEARCH

Note: A proposed coordinated state monitoring plan has been developed and is included in this plan in a a separate section. The list below includes only those measures proposed by the state agencies and cooperators as part of their individual efforts.

Phase 1 Actions

Topic: Assessment

ODFWIB2	Information Base for Habitat Restoration
ODFWIB3	Habitat Restoration Evaluation
ODFWIB4	Inventory of Artificial Barriers
ODF20a	Fish Presence Survey
ODF22	Stream Habitat Assessments
ODF24	North Fork Coquille Monitoring Assessment (Menasha Corp)
ODF25	South Fork Coos River Monitoring Assessment (Menasha Corp.)
ODF26	Coos River Mainstem Monitoring/Assessment (Menasha Corp.)
ODF32	Fish Presence/Absence Surveys and Fish Population Surveys
ODF33	Fish Passage Surveys
ODF34	Coos, Millicoma and Upper Siuslaw Rivers Watershed Analysis
ODF35	South Fork Siletz Watershed Analysis (Boise Cascade Corp.)
ODF36	Ecola Creek Watershed Analysis
ODF37	Kilchis River Watershed Analysis
WRD6a	Install Staff Guages
WRD8a	Inventory Diversions
WRD10	Digitize Water Rights
DOGAMI4	GIS Geological Maps
DSL16a	Inventory Coastal Wetlands

Phase 2 Actions

ODF20b	Fish Presence Survey
ODF53	Geographic Information System
DOGAMI8	Geological and Hydrological Characterization of Groundwater
DSL16b	Inventory Coastal Wetlands
DSL24	Install New Computer System Enabling Tracking of Cumulative Effects
WRD6b	Install Additional Staff Guages
WRD8b	Complete Inventory of Diversions
WRD12b	Groundwater Studies
WRD23	Additional Data Collection and Analysis Staff

Phase 1 Actions

Topic: Monitoring

ODFWIIIC1	Develop Improved Adult Abundance Predictor
ODFWIIIC2	Evaluate Coho Hook and Release Mortality
ODFWIIIC3	Monitor Marine Survival
DSL20	Implement South Slough Estuary Conservation Strategy
ODF21	1996 Storm Monitoring Project
DSL23	Add Field Staff in Coastal Salmonid Areas
ODF23	South Siletz Monitoring (Boise Cascade)
ODF27	Coquille, Siletz and Sixes Watershed Monitoring (Georgia Pacific)
ODF28	Forest Practices Act Monitoring Program
ODF29	Monitoring of Riparian Management Areas
ODF30	Monitoring Water Temperature Protection BMPs
	Evaluation of Road and Timber Harvest Best Management Practices to

ODF31	Minimize Stream Sediment Impacts
	Phase 2 Actions
ODF46	Enhancement of ODF Monitoring Program
ODF54	State Forest Land Assessment, Monitoring and Research
	Phase 1 Actions
Topic: Research	
ODFWIIIC1	Develop Improved Adult Abundance Predictor (Pre-Season)
ODFWIC2a-c	Predator Impacts
ODFWIC3	Predator Management
DSL20	South Slough Estuary Research
	Phase 2 Actions
ODF54	State Forest Land Assessment, Monitoring and Research
	INSTITUTIONAL/ORGANIZATIONAL STRUCTURES, AND INCENTIVE AND FUNDING PROPOSALS
	Phase 1 Actions
Topic: Institutional and Organizational Structure	
OEDD5	Review of Regional Strategies Projects for Consistency With Salmon Restoration Efforts
OEDD6	Review of Water and Wastewater Projects for Consistency With Salmon Restoration Efforts
OEDD7	Funding Watershed Coordinator Positions on the South Coast
OEDD8	Contributing to a Revolving Loan Fund for Watershed Restoration Contractors in Tillamook County
ODA6	ODA-GWEB SWCD Watershed Council Coordinator Support
ODA7	SWCC Planning and Implementation Grant Program
DOGAMI5	Voluntary Enhancements
DOGAMI6	Discussions With BLM and U.S. Forest Service
ODFWID1	Use of Volunteers
DEQ4	Watershed Council Support
DEQ6	Tillamook Bay National Estuary Program
ODOT6	Salmon Restoration Initiative Program Manager Position
ODOT9	Participation in Watershed Councils
	Phase 2 Actions
DSL25	Reclassify Support Staff to Free Up Professional Time for Field Work
	Phase 1 Actions
Topic: Incentives	
ODA3	Hire The Fisherman Program
ODA4	ODA-GWEB SWCD $2,000 Grant Program
ODFWIVA2	Improve Riparian Tax Incentive Program
ODF45, ODFWIVA7	Landowner Stewardship Award
ODF39a	Forest Resource Trust
ODF40	Stewardship Incentive Program (SIP)
	Phase 2 Actions
ODF48	Public Benefit Project Trust Account
ODF39b	Forest Resource Trust
ODF49	Fish Habitat Improvement Tax Credit
ODFWIVA7, ODF50	Riparian Tax Incentive Program
ODF51	Liability Limits for Fish Enhancement Projects
ODF52	Integration of Technical and Financial Assistance
WRD1b	Assist in Replacement of Push-Up Dams That Interfere With Fish

WRD22	Off-Stream Storage

Phase 1 Actions

Topic: Funding

OEDD2	Effective Administration of U.S. Fish and Wildlife Service Funds for Watershed Restoration Work on Public and Private Lands.
OEDD8	Contributing to a Revolving Loan Fund for Watershed Restoration Contractors in Tillamook County
OEDD9	Old-Growth Diversification Fund
ODA3	Habitat Restoration Jobs Program (Hire The Fisherman Program)
DSL12	Analyze Imposition of a Surcharge as Compensatory Mitigation for Gravel Removal, to be Dedicated to Fish Habitat Projects

Phase 2 Actions

ODF56	Eliminate 25,000 Bf Exemption

EDUCATION AND OUTREACH

Note: A proposed comprehensive state outreach plan has been prepared and is included in this plan in the Education and Outreach Attachment. The list below only includes education and outreach measures proposed by individual agencies.

Phase 1 Actions

ODOT17	Education
ODA5	ODA-GWEB SWCD Landowner Workshops
SMB7	Incorporate Information About Coastal Salmon Restoration Measures in Information Kiosks at Bays and Coastal Rivers
DSL13	Develop Information Packets for Watershed Councils
DSL14	Develop Public Education Materials on Removal-Fill Projects
OEDD9	Old Growth Diversification Fund

Phase 2 Actions

OPRD9	Provide Interpretive Opportunities in State Parks to Help Educate People About Salmonids
OPRD10	Develop an Interpretive/Educational Center
ODA8	Proposed Land Management Stewardship Outreach

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CHAPTER VI-A

SUMMARY OF STATE AGENCY MEASURES

Introduction

The purpose of this section is to summarize the management measures proposed by agencies within a framework corresponding to the management issues that the actions address.

This section is organized into two parts. Part I provides a list measures proposed by each state agency, including a brief description of each measure. Part II lists the measures proposed to address the various management issues identified in the OCSRI Plan as being important relative to the salmon life cycle. A detailed description of all measures proposed by state agencies is provided in the Attachments portion of the Plan, including references to the National Research Council and Botkin reports, proposed objectives for addressing each management issue, monitoring and implementation proposals, and a description of obstacles to implementation.

The issues framework is organized under the following categories:

- Harvest
- Habitat
- Hatcheries
- Assessment, Monitoring, and Research
- Institutional/Organizational Structures, and Incentives and Funding
- Education and Outreach

These management measures are designated as either:

- **Phase 1** measures (those that can be implemented with existing resources and budgets)
- **Phase 2** measures (those that would require additional resources and budget, and/or legislation to implement).

The management measures are listed by an agency code that references the related measures described in the individual agency action sections included in the Attachment section. For example, the first management measure proposed by the Oregon Department of Fish and Wildlife is coded as ODFW 1 throughout this summary and the Attachment section. Also, the following agency codes were used:

- Oregon Department of Agriculture - ODA
- Oregon Department of Environmental Quality - DEQ
- Oregon Department of Fish and Wildlife - ODFW
- Oregon Department of Forestry - ODF
- Oregon Department of Geology and Mineral Industries - DOGAMI
- Department of Land Conservation and Development - DLCD
- Oregon Department of Transportation - ODOT
- Division of State Lands - DSL
- Oregon Economic Development Department - OEDD
- Oregon Parks and Recreation Department - OPRD
- Oregon State Police - OSP
- State Marine Board - SMB
- Water Resources Department - WRD

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CHAPTER VI-B

MANAGEMENT MEASURES FROM FEDERAL AGENCIES

The measures for federal agencies are still in the preparation stages.

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SECTION VI-C

WATERSHED COUNCIL PROCESS AND GOVERNOR'S WATERSHED ENHANCEMENT BOARD

Introduction

Watershed Councils are Oregon's means of decision making and local involvement in habitat maintenance and restoration for the Coastal Salmon Restoration Initiative. This includes:

- Assessing and addressing specific limiting factors to salmon recovery.
- Making total watershed assessments across ownership lines.
- Integrating the role of local landowners.
- Prioritizing and implementing on-the-ground work.
- Making habitat improvement decisions based on the best available science.
- Receiving and disseminating technical habitat information.

A comprehensive watershed management strategy is being initiated to address the complex natural resource issues facing Oregon. This strategy entails a long-term commitment by local, state and federal land managers; private landowners; and private citizens to address watershed protection, enhancement, and restoration. Formation of cooperative partnerships is essential to seek common solutions to protect the health of Oregon's ecosystems, support sustainable resource use, and enhance local economies. The most effective means to mobilize, educate, and involve local citizens in such an effort is by creating and supporting watershed councils.

Background

In 1993, the Oregon Legislature created the Watershed Health Program as part of a natural resources strategy based on recognition of the critical importance of watersheds to Oregon's livability and economic health. The cornerstone of the program was the creation of local watershed councils to work in partnership with local, tribal, state, and federal agencies to help collectively solve watershed problems. Under House Bill 2215 and Senate Bill 81 (which created and funded the Watershed Health Program) the Grande Ronde River Basin, and the South Coast and Rogue River Basins were targeted for funding and technical support contingent upon formation of watershed councils and development of watershed assessments and action plans.

Based on actions identified in watershed plans within the South Coast, approximately $3.2 million raised through the Oregon Lottery was spent on council support; instream, riparian and upslope restoration projects; and education and outreach. Councils leveraged an additional $3.5 million, including both in-kind and cash contributions, to match watershed health dollars.

This large infusion of watershed health money into the South Coast, along with creation of watershed councils and the ability to do watershed work, put that area far ahead of other watersheds on the coast.

Another watershed improvement effort is the Umpqua Basin Fishery Resource Initiative, which is similar to a watershed council and is officially recognized by Douglas County. They have done assessments and have been able to do many public and private projects.

Other watershed councils are in varying stages of formation. The Middle and North Coast Watershed Councils are either newly formed or in the process of forming. Some councils do not yet have watershed assessments or work plans. The effectiveness of these forming councils depends on how fast and well they organize, how they get funding, and the scope of work necessary in each council. The Governor's Natural Resource Office recognizes these deficiency factors and is putting extra effort into assisting in the formation and support of these councils.

For other information on watershed councils, see the table (List of Officially Recognized Watershed Councils and Status of Their Funding and Assessments/Work Plans) at the end of this section.

Although watershed councils have not been the lead group in the Middle and North Coast, some salmon

restoration work is being done in those areas. The Wildlife Heritage Foundation, for example, is leading an effort with private industrial forest owners on major watershed restoration work. Other important restoration efforts there include federal programs such as Jobs in the Woods and Hire the Fishers. These groups, in addition to the Soil and Water Conservation Districts, are expected to be major players in watershed councils just as they are on the South Coast.

In 1995, the Legislature passed HB 3441 which merged the watershed council principle created by HB 2215 with other successes of the Watershed Health Program into the Governor's Watershed Enhancement Board (GWEB). (A copy of HB 3441 is included with the Watershed Council Measures in Attachment I.)

Role of GWEB

Since 1987, GWEB has taken a strong lead in the promoting and funding of demonstration watershed enhancement and education projects. With the passage of HB 3441 during the 1995 legislature, GWEB continues its role as a grant program and takes on the additional, stronger role of providing technical support to watershed councils and seeking stable funding for watershed council infrastructure.

Another role of GWEB is to provide councils with information relating to watersheds and to continue coordinating the efforts of these councils.

Funding

Currently, GWEB is funded at $2.5 million per biennium, which includes project money and a staff of seven.

The budget proposal for the 1997-98 biennium requests an additional $5 million. These funds will be used to help provide councils with technical assistance necessary to create more comprehensive watershed assessments, action plans, and projects. One million dollars of this request is to fund watershed coordinators. The budget proposal also requests a new staffing position to be responsible for setting up and coordinating watershed level monitoring efforts.

GWEB Role in Monitoring the OCSRI

In Phase Two of the salmon restoration initiative, the Governor's Watershed Enhancement Board will assume a major role in monitoring progress of the restoration initiative. Assigning this role to GWEB recognizes the need for an independent audit of the results of watershed work. GWEB will also develop a standardized reporting format with a common data base to simplify the reporting and assessment task.

This task will entail summarizing actions and monitoring results of agencies, watershed councils, and other local entities on an annual basis. This evaluation will gauge the progress and success of the habitat portion of the OCSRI and provide an opportunity to re-evaluate the plan or to supplement monitoring programs.

A caveat to this plan is that GWEB must receive the above mentioned funding in the next legislative session as current staffing will not be adequate to do this large, additional task.

Definition of Watershed Council

A watershed council is a locally organized, voluntary, non-regulatory group established to assess the watershed's condition and to build a work plan to implement enhancement and protection activities within the watershed. Watershed councils offer local residents the opportunity to be involved in making decisions that affect their watershed.

Watershed Council-Technical Teams

Councils generally request participation from local, state, federal, and private resource professionals to participate in a Technical Advisory Committee (TAC). The TAC is a scientific, interdisciplinary, nonpolitical group whose purpose is to provide advice and guidance on technical issues. The TAC advises councils on watershed assessment; developing priorities, plans and projects; and implementing monitoring programs.

Watershed Council Recognition

A watershed council becomes an official entity when recognized by a local government, usually the Board of Commissioners. While state approval of council recognition is not required, councils must meet requirements outlined in House Bill 3441 to receive certain state awarded grants. Official state recognition also makes them better candidates for federal and private grants. Under HB 3441, watershed councils are required to have a balanced membership representative of the environmental, economic, and landowners' interests within their basin.

Partnerships

The foundation of watershed councils is the formation of partnerships among residents; local, state, and federal agencies; private landowners; and other interested groups. Such partnerships help with integration of local efforts, including improved coordination and communication, which results in the ability to accomplish long-term watershed management planning and project implementation.

Pilot Projects

Watershed Councils are expected to be the backbone of the habitat portion of the OCSRI. One of their major goals is to coordinate across federal, state, and private ownership boundaries. This goal is especially important because a major aspect of long-term salmon recovery is the ability to integrate watershed assessment and implementation of recovery efforts throughout all ownerships in the watershed. To date, there have been varying degrees of success, depending on the strength of the council and the willingness of all partners to work together.

Three watersheds (Applegate, Coquille, and Siuslaw) have been selected as pilot projects for the OCSRI. Two of these, the Applegate and Coquille, already have strong integration programs. The two will work towards a coordinated assessment in one document to be used as a template for the remainder of the councils on the coast.

Siuslaw, the other pilot watershed, is a newly formed council. The rationale for choosing this watershed as a pilot is to develop a template for new councils, particularly on the North Coast. The Bureau of Land Management, U.S. Forest Service, U.S. Fish and Wildlife Service, state resource agencies, and private landowners in the watershed have committed money and resources to developing a full watershed assessment and work plan from the initial steps to completion. The federal agencies and some timber companies already have assessments and are willing to work together to meld them into a common plan.

Stability and Funding of Watershed Councils

The strength of watershed councils is in their leadership and their ability to galvanize local support for watershed protection and restoration. To be effective leaders, councils must be able to develop a stable infrastructure.

The foundation for this infrastructure is in the form of a paid council coordinator. Volunteer coordinators can be effective, but it is evident that the ability to coordinate projects, work with a technical team, and raise funding to the levels needed to sustain a viable, long-term program such as needed for Oregon's Coastal Salmon Restoration Initiative is not realistic on a volunteer basis. The most effective councils have paid coordinators.

Long-term funding for watershed councils, and particularly coordinators, is an issue that remains unsolved.

To retain the local autonomy needed to be effective, councils must work at becoming self-supporting by obtaining funding through local governments; local businesses; industry; and grants from state, federal and private sources. While most established councils have become very proficient at raising money for watershed projects, only a few have been able to obtain a sustainable funding base for operations.

At this time councils rely heavily on state funding. GWEB has provided some base funding for council coordinators; and for the OCSRI, the Governor made a grant from his discretionary fund of $240,000 for continuation of South Coast coordinators for six months. However, as noted by the enclosed table, there is very little stable, long-term funding for councils.

Heavy reliance is being placed on coastal watershed councils to lead the habitat portion of the restoration effort. As a result, sources of both public and private funding are increasing. To date, most of this money is

directed for on-the-ground work or specific projects. In many cases, grant regulations prohibit the use of this money for hiring of people; in other situations grantors have shown a reluctance to fund infrastructure. Such funding restrictions fail to recognize that supporting paid coordinators may be one of the best investments because a coordinator has the ability to leverage money from many sources.

Outlook For the Future

The situation is changing in several ways:

- Because of the high interest in watershed management and the expectations of watershed councils to accomplish this task, money available for projects from state and federal agencies and private foundations is increasing at a rapid rate. Because OCSRI funding is high priority, much of this money is expected to go to this effort.
- State funding (including money for coordinators) is being requested for 1996-97. Details have not been worked out, but this money will probably require a local match and be reduced over time to encourage councils to become self supporting in the future.
- Federal resource agencies are recognizing the need to fund infrastructure in the future and are budgeting accordingly.
- For Sake of Salmon (a group formed to protect salmon along the coasts of California, Oregon and Washington) has made funding and support of watershed councils a top priority. The have been successful in getting legislation introduced in Congress for support of watershed council coordinators.
- Watershed councils will continue to function and be effective. New ones are being formed on a regular basis. The councils will be effective at varying levels and will reach their full potential when they have a stable, long-term funding base.

Roles and Responsibilities of Local Watershed Councils

- Foster communication and cooperation among all interests within a watershed, in part by having membership representing a balance of interested and affected people within the watershed.
- Provide local involvement, awareness, decision making, and coordination for watershed planning and activities.
- Provide a forum for conflict resolution and decision making to resolve critical resource management issues and shape the watershed's future, in part by providing the community information regarding all aspects of decision making and by conducting all meetings as open public meetings.
- Prepare and implement a Watershed Action Plan that identifies issues, and sets goals and priorities for actions to protect and enhance the watershed.
- Develop and implement solutions to address problems identified in the Watershed Action Plan.
- Promote basin-wide monitoring of watershed conditions.
- Seek financial commitments from government, and private and local community sources.
- Promote watershed education within the community.
- Foster political understanding, support, and involvement within the watershed. Work with local community leaders to support and obtain funding for council activities.
- Provide information to involve the community in technical watershed assessment issues.

The Watershed Action Plan

The action plan is a working document that characterizes the conditions in the watershed, identifies priority areas (based on the watershed assessment) for restoration and protection, defines public involvement strategies, and lists funding sources to implement the plan. The plan is developed by the council or its technical committee based on the watershed assessment.

Besides documenting existing conditions, a watershed assessment evaluates natural processes, human activities, and land uses within the watershed.

The Watershed Action Plan is intended to be a public document that involves input and participation by all interests within the watershed. It forms the basis for understanding watershed conditions; identifying priority actions; and coordinating local, state, and federal efforts to implement these actions.

The action plans are intended to serve as the strategic blueprint for watershed restoration, enhancement, and protection based on specific issues that have been identified through currently available information. They are dynamic documents, subject to change and updating as more information becomes available.

The intent of Watershed Action Plans is to address all watershed conditions and features from a ridgetop-to-ridgetop perspective; identify areas in need of enhancement as well as those in need of protection; establish priorities; and develop a workable strategy for addressing priority issues.

Suggested Watershed Action Plan Contents (as developed by the Oregon Watershed Health Program)

Statement of Purpose and Goals
This section defines the scope of the plan (ridgetop-to-ridgetop) and emphasizes consideration of all watershed processes and biological components with emphasis on issues of critical concern including social, economic, and political realities.

Linkages to Existing Programs
This section identifies players relevant (local and non-local) to Watershed Action Plan development and implementation, and also outlines how the watershed council will involve and interact with each.

Complying with Regulations and Ordinances
This section identifies regulations and ordinances (local, state, federal) along with permitting requirements and timelines involved.

Involving and Educating the Public
This section identifies and discusses tools available to the council for outreaching to, educating, and involving the public in the watershed council process. This section should identify goals and objectives, as well as target audiences and methods to reach them. Development of a timeline is recommended to identify and target specifics. Another recommendation is development of a method for measuring and evaluating the effectiveness of outreach activities.

Working Assessment
The assessment is the result of a compilation, review, and interpretation of currently available watershed information. The document identifies landowners, jurisdictions, pertinent regulations, and information gaps; identifies and ranks priority issues and areas; examines baseline monitoring activities and any monitoring gaps; and also identifies benchmarks to measure progress of strategies. The working assessment is the product of the combined efforts of all interests within a watershed.

Watershed Health Strategy
This section identifies specific areas for specific action (protection, management, or restoration) based on prioritization of critical areas and resources. It outlines how actions will be implemented, what effects are expected, and what monitoring efforts are needed.

Monitoring: Basin-wide and Project Specific
This section looks at two types of monitoring issues: basin-wide and project specific. The watershed action plan should identify basin-wide monitoring efforts by agencies and other groups, and also include suggestions for coordinating this information or making the monitoring more efficient. The plan identifies where gaps exist and develops plans to fill them. It also develops protocols to ensure consistent monitoring efforts. Benchmarks to measure overall progress of enhancing watershed health should be established, and methods developed for their evaluation. Monitoring protocols for specific projects should also be developed allowing consistent and useful information to be obtained.

Updating the Action Plan
The Plan is a dynamic document subject to change and updating as new information becomes available. The plan should have a method and timetable for periodic review, and updating, along with a method for accomplishing both.

Dispute Resolution
This section describes the process for resolving disputes over watershed health issues and the action plan.

Building Local Capabilities
Long-term success of councils will depend on developing local capabilities to sustain the council and its efforts. This section should identify sources of funds for: council support and its efforts, technical support of the council and its activities, and other support necessary for the council to function.

Copies of Sample Assessments for the Applegate and Coquille watersheds are included in Attachment I, under Watershed Council Measures.

Analysis of Councils in the Future

The future of the watershed council process in Oregon hinges on development of long term secure funding sources for council support and activities. Funding for established councils (state funding) expires in October 1996. There is no currently planned funding from the state after this. This leaves approximately 14 recognized councils on the Oregon Coast without current levels of financial support for council support functions after October 1996. This also will make development of new councils in the Mid-Coast and North Coast a longer and more difficult process (Coquille, Coos, Bear, Applegate, Illinois Valley councils have currently secured funding from various sources that will enable them to function for another one to two years).

At the present time, planning, prioritizing, and strategizing is not at the desired level. The state is proposing to key on three councils (Applegate, Coquille, and Siuslaw) and work with these groups to develop comprehensive, all inclusive watershed assessments and plans to address critical watershed issues, resources, and areas. When complete, this document development process will gradually be applied statewide.

The GWEB Program will continue to assist and support watershed councils at the level the Program is able to depend upon future funding levels.

List of Officially Recognized Watershed Councils and the Status of Their Funding, Watershed Assessments, and Work Plans (North to South on Oregon Coast)

Name	End Funding	Assessment Yes/No	Work Plan Yes/No
Tillamook/Nestucca	6/97	no	no
Netarts	6/97	no	no
Mid-coast	6/97	no	no
Umpqua Basin	11/96	pending	yes
Ten-Mile Basin	11/96	yes	yes
Coos	2/97	yes	yes
Coquille	10/97	yes	yes
South Coast	11/96	yes	yes
Floras Creek	11/96	yes	yes
Port Orford	11/96	yes	yes
Elk/Sixes	11/96	yes	yes
Euchre Creek	11/96	yes	yes
Chetco	11/96	yes	yes
Winchuck	11/96	yes	yes
Rogue Basin:			

	Bear Creek	ongoing	yes	yes
	Middle Rogue	11/96	yes	yes
	Upper Rogue	11/96	yes	yes
	Applegate	4/97	yes	yes
	Illinois Valley	11/96	yes	yes
	Lower Rogue	11/96	yes	yes
Little Butte Creek		11/96	yes	yes
Evans Creek		11/96	yes	no

List of Watershed Councils in Process of Obtaining Formal Recognition

- Upper Nehalem
- Necanicum
- Siuslaw
- Pistol River
- Hamlet Creek

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SECTION VI-D

OREGON'S LAND USE PROGRAM

Background

Oregon's Land Use Program is fundamental to the management of natural resources in Oregon. The land use program provides the basic land allocation framework for urban, agricultural , and forest lands statewide. Oregon's program, first adopted in 1973, provides a basic level of resource protection through the adoption of enforceable local comprehensive land use plans. Oregon law requires that all local governments adopt a comprehensive plan for the use of lands within their jurisdiction. Local plans are required to conform to a set of 19 Statewide Planning Goals (see list below) adopted by the Land Conservation and Development Commission (LCDC). A summary of local comprehensive plan provisions that are most likely to have a direct effect on coastal salmonid habitat is an Attachment to this document.

Statewide Planning Goals

Oregon's Statewide Planning Goals are the framework for the state's land use planning program. The goals are state policies on land use, resource management, economic development, and citizen involvement. Essentially, the goals establish requirements for how certain lands are to be zoned and used, how development is to occur, and how land use decisions are to be made.

There are 19 Statewide Planning Goals:

1. Citizen Involvement
2. Land Use Planning
3. Agricultural Lands
4. Forest Lands
5. Open Spaces, Scenic, Historic, and Natural Resources
6. Air, Water, and Land Resources Quality
7. Areas Subject to Natural Disasters and Hazards
8. Recreational Needs
9. Economic Development
10. Housing
11. Public Facilities and Services
12. Transportation
13. Energy Conservation
14. Urbanization
15. Willamette River Greenway
16. Estuarine Resources
17. Coastal Shorelands
18. Beaches and Dunes
19. Ocean Resources

The Land Conservation and Development Commission is responsible for adopting and interpreting the Statewide Planning Goals. More importantly, the LCDC also reviews local comprehensive plans for compliance with the applicable goals. LCDC assures that each local plan meets all of the applicable goal requirements, and further, that local ordinances are adopted to implement the plan.

The Statewide Planning Goals are periodically amended to reflect case law, changing needs, and state requirements. All comprehensive plans in the state are required to have periodic review and be updated to accommodate changing circumstances, including new goal requirements.

Local Government Role

Oregon's planning program is a partnership between the state and local governments. While the LCDC develops the Statewide Planning Goals and reviews plans for compliance with the goals, local governments are

the primary implementing authorities for the mandates in the goals. For example, while the goals contain a requirement to preserve forest lands for forest uses, local plans designate which lands are forest lands, and how they are to be used. Everyday land use decisions are made by local governments, as governed by the policies and requirements of their comprehensive plans.

A comprehensive plan is an enforceable policy document typically implemented through local ordinances governing land uses and land divisions. Plans are developed after completing an inventory of land uses and natural resources, and balancing the need to protect such resources with the need to provide land for community growth. Local plans are an effective mechanism for influencing land use patterns and, to some extent, site design (i.e., where subdivisions can occur, and how subdivision lots provide for the protection of riparian resources). Plans are most effective in influencing new land uses (e.g., the nature and design of a new subdivision, rather than the activities in an established subdivision).

Oregon's planning program is based in part on the need to periodically update comprehensive plans. Thus, every few years every jurisdiction must review its plan in light of changing circumstances and new requirements. The process, called Periodic Review, results in a work program for the jurisdiction to complete over several years. Most work program items are expected to result in changes to the local plan.

Ultimately, through the mechanism of a comprehensive plan which meets the requirements of the Statewide Planning Goals, all land use decisions in the state conform to the requirements of the Statewide Planning Goals. The Land Conservation and Development Commission and the Department of Land Conservation and Development do not directly regulate land uses. They do not make local land use decisions. Responsibility for implementing comprehensive plans rests with local governments.

Oregon Coastal Management Program

The Oregon Coastal Management Program is a federally-approved state program for the conservation and management of coastal resources. Oregon's coastal program reflects the opportunities and requirements of the federal Coastal Zone Management Act, in part through the requirements of four of Oregon's Statewide Planning Goals (Goals 16-19).

The four Coastal Planning Goals (same as Statewide Goals 16-19) are:

- Estuarine Resources
- Coastal Shorelands
- Beaches and Dunes
- Ocean Resources

Oregon's Coastal Management Program is a network of state and local programs and authorities governing the use of land and resources in the coastal zone. For example, the coastal program includes:

- DEQ's pollution control laws.
- Department of Forestry's forestry management laws and programs.
- Division of State Lands' Removal-Fill authority.
- Local comprehensive plans developed according to the requirements of the Statewide Planning Goals.

Local government comprehensive plans (which are based on the Coastal Program's four goals) contain policies and requirements for the use of estuaries, shorelands, and beaches and dunes. Given the limited scope of local jurisdictions over marine waters and resources, local plans do not implement the Ocean Resources Goal.

The Estaurine and Coastal Shorelands Goals offer significant resource protection in support of salmon protection and restoration.

Aquatic Resource Protection Elements of Oregon's Land Use Program

Estuarine Resources Goal
Oregon's estuaries are classified to specify the most intensive level of development or alteration possible in each estuary. The planning theory for Oregon's estuarine resources is to protect their diversity of resources. The planning approach was to develop a strategic planning approach for classifying estuaries, coupled with an intermediate level approach for classifying management units within each estuary. In addition to protecting

the higher level classification, the intermediate levels provide local implementation through tactical planning that evaluates the effects at the project level. Under the Oregon Estuary Classification system, estuaries are placed into one of four classifications:

- Deep-Draft Development Estuaries: Columbia River, Yaquina Bay, Coos Bay
- Shallow-Draft Development Estuaries: Tillamook Bay, Nehalem Bay, Depoe Bay, Siuslaw River, Umpqua River, Coquille River, Rogue River, and Chetco River
- Conservation Estuaries: Necanicum River, Netarts Bay, Nestucca River, Siletz Bay, Alsea Bay, and Winchuck River
- Natural Estuaries: Sand Lake, Salmon River, Elk River (Curry County), Sixes River, and Pistol River

All other estuaries are defined as either Conservation or the Natural estuaries.

The Estuarine Resources Goal establishes the level of use appropriate for each estuary classification. The goal defines Natural, Conservation, and Development management units, and the uses and activities that are permissible in each type of management unit. For example, navigation is an allowed use in all management units, but marinas requiring dredge and fill of estuarine areas are only permitted in development management units.

Further, the Estaurine Goal permits the following:

- Natural management units in all Oregon estuaries.
- Conservation management units in both Conservation and Development estuaries.
- Development management units only in Development estuaries.

Most valuable estuarine habitats are classified as Natural management units, where virtually no alterations of estuarine habitat are permitted.

Local jurisdictions that have an estuary have developed comprehensive plans for the use and management of estuarine resources. LCDC has acknowledged that the local estuary management plans are in compliance with the requirements of the Estaurine Goal. The local planning process has provided natural or conservation management protection to 99.4 percent of the tidal marshes of the state. Nearly 94 percent of the surface area of all estuaries are designated conservation or natural management units. These designations have significantly reduced the development pressure on Oregon's estuarine resources.

Coastal Shorelands Goal
The Coastal Shorelands Goal establishes priorities for the use of coastal shorelands, and requires that certain shoreland resources be protected from development. In particular, the Shorelands Goal requires protection of riparian resources and significant wetland habitats (major marshes) within areas subject to the goal. The Shorelands Goal does not apply to all shorelands in the coastal zone, but rather to lands adjacent to the ocean, estuaries, and coastal lakes. A more specific description is contained in the goal.

Resource protections found in any of the Statewide Planning Goals all rely on an accurate inventory of the resource of concern, as well as some idea which specific land uses are of potential harm to that resource. Under the Coastal Shorelands Goal, local jurisdictions are required to inventory riparian resources, especially vegetation helpful to maintaining fish habitat. The Coastal Shorelands Goal riparian protection requirements have been integrated into local ordinances.

Natural Resources Goal
Statewide Goal #5 (Open Spaces, Scenic, Historic, and Natural Resources) requires local governments to develop plans and implement ordinances to protect natural resources. The goal was implemented by administrative rules developed in 1974. The rules required local governments to inventory natural resources. Inventories were judged sufficient when there was information on "location, quality and quantity" of the resource. Local jurisdictions that did not have sufficient information on the location, quality and quantity of the resource were allowed not to include the resource on the local government inventory.

When the inventory is completed, the local government must determine if the resource is "significant." For all "significant" resources, the local government must develop a management plan to protect the resource fully, partially or not at all.

In 1995, the Land Conservation and Development Commission initiated a review of Goal 5 and revisions to

the goal to provide more focused natural resource protection under the state land use program. After significant public debate, the Commission focused the planning requirements of local governments to address riparian corridors and wetlands. This approach was taken in an attempt to introduce a landscape perspective to community planning. Each local government must inventory riparian corridors throughout the jurisdiction. The local government must protect the riparian corridor from permanent alterations (structures). Coupled with flood hazard protection ordinances, the newly adopted planning requirement will add to local government protections of aquatic resources in a systematic manner. The riparian inventory requirement applies to both urban and rural landscapes.

Wetland inventories are now required by all local jurisdictions in Oregon. Outside urban growth boundaries, local governments must use information from the National Wetlands Inventory. Within urban growth boundaries, local governments must conduct more detailed inventories and identify significant wetlands for protection.

Planning Protections by Gene Conservation Unit

Northern Oregon Drainages (North of Umpqua)
The drainages of the northern Oregon coast include all of Tillamook, Lincoln and parts of Clatsop, Columbia, Washington, Yamhill, Polk, Benton and Lane counties. Planning protections in those areas include the following:

- The drainages of the Necanicum and Ecola Creek and the upper Nehalem in Clatsop County require all structures to be located outside the zone of riparian vegetation, unless direct water access is required.
- The Necanicum and Ecola Creek estuaries are designated as conservation estuaries.
- The city of Seaside does not have specific riparian setback requirements.
- The city of Cannon Beach requires a 10 or 15 feet setback on both sides of all streams. Columbia County has a 50 feet setback from all class 1 streams and a 25 feet setback from all other streams, rivers or sloughs. These setbacks apply to the upper Nehalem.
- Tillamook County has a setback from all streams of 50, 25 or 15 feet depending on the size of the stream. The county has an ordinance that requires retention of at least 50 percent of the forest and understory vegetation of the riparian corridor. These standards apply to the lower Nehalem and all drainages to Tillamook Bay, Netarts, Nestucca, Neskowin, Salmon River and Sand Lake.
- Tillamook and Nehalem bays are designated as shallow draft development estuaries; Netarts, Nestucca and Neskowin are designated as conservation estuaries; and Sand Lake and Salmon River are designated as natural estuaries.
- Drainages in Lincoln County have a 50-feet setback required. These setbacks apply to the Siletz, Depoe Bay, Big Creek, Yaquina River, Beaver Creek, Alsea River, and Yachats River.
- Lane County has established a 100-feet setback from all Class 1 streams. This requirement applies to: Tenmile Creek, Big Creek, Berry Creek, Sutton Creek ,and the Siuslaw and Siltcoos Rivers.
- Douglas County requires a 50-feet setback from Tahkenitch Creek.
- There are riparian setbacks for nearly all streams in the north Oregon coast; however, the setback requirements are not consistent across jurisdictional boundaries. Also, there is no correlation between estuarine designation (protection) and riparian protections. The local comprehensive plans recognize the importance of riparian corridors, but do not have integrated provisions recognizing the relationship between streams and estuarine conditions. None of the plans provide specific requirements, nor identify opportunities, for riparian restoration.

Umpqua Basin
Nearly the entire drainage of the Umpqua is within Douglas County. Planning protections in that basin include the following:

- The county requires a 50-feet building setback from all streams.
- Cities in Douglas County have less specific or smaller buffers (25-50 feet).
- Umpqua River is a shallow draft development estuary.

South Coast, North of Cape Blanco
The Coos County area is drained by Coos and Coquille Rivers, Tenmile Creek, and the drainages of the Twomile, New River, and Fourmile Creek. Floras Creek and Sixes River drain northern Curry County. Protection measures in those areas include the following:

- Curry County requires a 50-feet setback from all perennial streams. (Coos County did not report their

riparian protection ordinances.)
- Coos Bay is a deep draft development estuary; Coquille is a shallow draft development estuary, and the remainder are classified as natural.

Rogue Basin
The Rogue basin drains much of Jackson and Josephine counties. Protection measures in that basin include the following:

- A significant portion of Curry, Jackson, and Josephine counties have riparian setbacks of 50 feet from Class 1 streams, and 25 feet from Class 2 streams.
- The Rogue estuary is a shallow draft development estuary.

South Coast, South of Cape Blanco
Protection measures specific to this area include the following:

- The drainages of Curry County are protected from development by a 50-feet setback.
- The Chetco River is designated as shallow draft development estuaries, and the smaller estuaries are designated as natural estuaries.

Program Update Requirements

Section 6217 Requirements
Section 6217 of the Coastal Zone Act Reauthorization Amendments of 1990 (CZARA), Protecting Coastal Waters, requires states with federally-approved coastal management programs to adopt enforceable measures to protect coastal waters from nonpoint source pollution. State programs are to be jointly developed by the state's pollution control agency and the state's coastal zone management authority. Development of Oregon's Coastal Nonpoint Pollution Control Program (CNPCP) has been managed and coordinated by DEQ and the coastal program in DLCD.

Section 6217(g) requires states to implement nonpoint source pollution control management measures according to guidance published by EPA. EPA's guidance contains 56 nonpoint source pollution control management measures that address the water quality effects of virtually all land uses and resource management activities in coastal basins. The measures in a state program are required to be backed by the state's enforcement authority.

Oregon submitted its CNPCP to NOAA and EPA for their review in July 1995. Oregon's program submittal addressed all of the program requirements by 1) identifying state and local programs that already implement Section 6217 requirements; and 2) describing activities necessary to implement measures that are not already in place and identifying an anticipated timeframe for implementing such measures. Oregon anticipated having most of the CNPCP requirements implemented in three to five years from the time of program approval, although the program guidance allows a considerably longer time for full implementation.

In February of 1996, NOAA and EPA sent their draft findings on Oregon's program submittal for the state's review. As of August 1996, the findings on Oregon's program submittal have not been finalized. However, the draft findings indicate where existing programs may meet federal requirements under Section 6217, and where further work is needed.

Briefly, NOAA and EPA's findings indicate that:

- Many of the agricultural management measures are not implemented.
- Several measures to address the effects of urban development are not in place.
- Most of the measures to address activities in marinas are not in place.
- Some of the requirements related to channel maintenance are not implemented.
- Riparian area protections do not meet the CNPCP requirements.

In addition, the draft findings indicate that Oregon must address the need for the CNPCP in areas upstream of the coastal zone in the Rogue and Umpqua basins, and that the state must develop a process for identifying the need for additional pollution control management measures. NOAA and EPA's findings will eventually become a "conditional approval" of Oregon's program.

Based solely on the draft findings on Oregon's program submittal, the conditions for approval of Oregon's

CNPCP represent an extensive, complex, and comprehensive work program for implementing pollution control measures in the coastal zone. While each condition on its own is probably a manageable work task, the entire set of conditions will be too large for the available resources.

Ultimately, Oregon's continued implementation of the Coastal Nonpoint Pollution Control Program is contingent on continued federal funding for the program. In fact, work on the CNPCP in Oregon is in jeopardy due to lack of funding. Federal funding for development of state programs under Section 6217 ended on June 30, 1995. While some continued work on the CNPCP is possible based on funds carried forward from previous years, Oregon will not be able to fulfill all of the conditions of NOAA and EPA's approval without a solid source of funding.

At the most fundamental level, the CNPCP requires that people change the way they have been doing things for many years, in some cases for generations. Effecting such changes cannot be accomplished without direct support for the CNPCP from either state or federal sources.

Goal 5 Requirements

In July 1996, the Land Conservation and Development Commission amended the rules for local planning requirements under Statewide Planning Goal 5, Open Spaces, Scenic, Historic, and Natural Resources. The amended rules contain new requirements for the way wetlands and riparian corridors are addressed in local comprehensive plans. The most significant change is that local jurisdictions are now required to either inventory and protect riparian corridors, or adopt basic "safe harbor" riparian protection contained in the rule which have been deemed to meet the resource protection requirements of the Goal. These so-called "safe harbor" provisions establish basic riparian protection that must be applied to activities on non-resource lands. The new requirements do not apply to forest activities on forest lands.

The safe harbor provisions for protecting riparian areas require that local governments protect riparian corridors, as follows:

- 75 feet from the top of each bank of streams with an average annual flow of 1000 cfs.
- 50 feet from the top of each bank of lakes and all other fish-bearing streams.

Several coastal jurisdictions already implement riparian protection (see above). Setbacks of 50 feet are common for larger streams, but they are typically much less for smaller streams. Even though most coastal jurisdictions probably have some riparian protection for larger streams, their overall riparian provisions still may not meet the new requirements of Goal 5.

The new requirements for Goal 5 will be implemented either through a jurisdiction's next regularly scheduled Periodic Review, or through a Plan Amendment specifically intended to adopt the new requirements. Since most coastal jurisdictions have already completed the development of their multi-year Periodic Review work programs, changes will occur over the next five to seven years. Changes to local plans to incorporate the new riparian protection could occur as a result of a Plan Amendment.

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SECTION VI-E

LEADERSHIP AND INSTITUTIONAL CHANGES TO SUPPORT OREGON'S CSRI

Background

It is widely recognized that physical factors (such as dams, habitat alteration, hatchery programs, and harvest practices) have contributed, individually and collectively, to the decline of salmon populations throughout the Pacific Northwest. The population decline has led to local extinctions in some places and to severe reductions in many populations of anadromous salmonids in Oregon. While the physical contributing factors receive much focus in the salmon restoration effort, the institutional arrangements that allowed gradual erosion of the salmon resource share responsibility for this plight.

For over a century, humans have utilized natural resources under the guidance of social norms, management agencies, and political systems. This guidance has not served salmon well. A report by the National Research Council, Upstream: Salmon and Society in the Pacific Northwest (1995), describes the failure of traditional institutions to conserve resources that support salmon production. One conclusion is:

> *There must be a mechanism to ensure that the larger-scale environmental and anthropogenic forces behind and consequences of local actions are taken into account, i.e., the interests of the greater region should not be submerged in local interests.*

Leadership and Continuity

The essential mechanism in Oregon's CSRI Plan is the Governor's leadership, which has brought together all directors of the state's natural resource management agencies to focus attention on Plan development. The OCSRI recognizes that such leadership is needed to continue the process. While the institutional arrangements that allowed salmon to decline will not be resolved quickly, an effective, long-term leadership has the best opportunity of making real changes in integrating natural resource management.

An initial action to establish leadership for the OCSRI was to assemble a Salmon Strategy Team (SST), with membership being directors of the following state agencies:

- Agriculture
- Economic Development
- Environmental Quality
- Fish and Wildlife
- Forestry
- Land Conservation and Development
- State Lands
- Water Resources

Salmon Strategy Team

During development of Oregon's Coastal Salmon Restoration Initiative Plan, agency directors met bi-weekly with the Governor to report progress and resolve obstacles. As part of the refinement anticipated, some changes to the team's process are proposed, as follows:

- Expand Salmon Strategy Team representation to include representatives of NMFS and local governments.
- Schedule meetings quarterly after the Plan is completed, with the recognition that additional sessions or more frequent intervals may be needed to address imminent issues.
- Designate a key staff coordinator within the Oregon Progress Board to assist development of agency work plans for implementing OCSRI.
- Coordinate with federal agency partners through the established mechanisms of the "Pacific Salmon Coordinating Committee" (PSCC) which meets quarterly to address salmon issues.

- Designate a Science Team (including scientists and technical experts who are representatives of the NMFS and local, state and federal governments) to help track new developments and interpret monitoring. This Science Team will respond to requests for interpretation and analysis by the Salmon Strategy Team and the Governor.
- Expand scope of concern from focus entirely on coastal salmon issues to include natural resource issues related to salmon throughout the state.

Continuation of Governor's Leadership

Maintaining momentum in Oregon's Coastal Salmon Restoration Initiative Plan hinges on continued leadership of state agencies with potentially conflicting missions and competing constituencies. This essential leadership will be maintained through the Governor's role with the SST, to include an annual report card for reporting progress with the OCSRI and other salmon issues. The report will be called "The State of the Salmon Address to Oregonians."

Role of Supporting Entities

The Oregon Progress Board (OPB) will work with agencies and partners represented on the SST to develop regional and agency-specific salmon work plans complete with benchmarks and tracking interim indicators, in conjunction with monitoring programs. These work plans will be subject to an annual strategic review by OPB and the Governor's Watershed Enhancement Board (GWEB).

Federal Government Role

In conjunction with annual data summaries provided by Oregon's comprehensive monitoring program, the NMFS will evaluate Oregon's progress towards OCSRI goals to determine annually if coho or other species should be listed under Federal ESA. Besides assessing the status of the species, the NMFS will assess whether management measures proposed under Oregon's Coastal Salmon Restoration Initiative Plan are being accomplished as promised. Evidence that state partners are deficient in taking actions, or the status of salmon stocks has worsened, could be grounds for NMFS to implement a listing.

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SECTION VI-F

ROLE OF ENFORCEMENT
IN THE COASTAL SALMON RESTORATION INITIATIVE

Introduction

A goal of the OCSRI is to improve compliance with existing environmental laws, which is viewed as an essential element needed to conserve and restore salmon. The purpose of this section is to explain the importance of enforcement to protecting and enhancing natural resource values, and to describe how the various agencies enforce environmental laws to protect resources under their management.

Potential Contributions and Obstacles

Enforcement brings accountability to management measures and goals. Many of the natural resource agencies are attempting to gain compliance from their constituents with regulatory techniques and are reluctant to engage the services of a law enforcement agency to raise the level of accountability. The prospect of raising the level of accountability seems remote when people involved in habitat alteration do not face the possibility of significant sanctions for not complying with laws and regulations. Civil penalties are sometimes viewed as a cost of doing business.

Enforcement of Existing Laws, Rules and Regulations

Several reasons exist for enforcing existing laws, rules, and regulations in support of the efforts to restore coastal salmon stocks. Some are listed below:

- Enforcement of fishery harvest laws and rules is directed to conserve and protect fishery stocks. Fish populations that are depressed are the greatest beneficiaries of enforcement protection.
- There is great potential to protect and enhance the habitats critical to survival of coastal salmon stocks using the existing and various laws and regulations that give the agencies regulatory authority over the components of environmental conditions affecting anadromous fish at the different stages of their life cycle.
- Natural resource law enforcement is an essential component to management strategies. While education will produce compliance among most individuals, even in the absence of sanctions, some individuals would be more motivated by greed than good stewardship and acts of non-compliance would result.
- If current laws and regulations were enforced as they are written and compliance sought under authority of the current laws and regulations, many positive and wide ranging actions could be accomplished that would enhance the habitat conditions required by the fish stocks and provide needed protection to the fish and their habitat.

Prioritizing Enforcement Activities

With the limited resources available for enforcement, it is essential that the effort be focused to gain the most results in restoring salmon. Some needs recognized in respect to prioritizing enforcement are listed below:

- Consultation is needed among resource agency managers to prioritize the most critical and useful measures that can be applied to protect the most endangered stocks. Consultation will then select the most effective enforcement application to maximize results.
- The entire restoration process for coastal salmon will require a prioritization mechanism to identify those areas and fish stocks in need of immediate action to prevent their loss.
- Prioritization will also identify those measures that will produce the greatest results, and likewise, which of these enforcement measures can achieve the greatest result where the benefits are most needed.

Agency Positions Regarding the Role of Enforcement in Support of Oregon's CSRI

Background

Members of the Planning Team were asked to consider their agency's potential enforcement role of environmental laws in supporting achievement of OCSRI goals. Specifically, they were asked to prepare written responses indicating that their respective state agency had considered the possible role of enforcement of existing laws and also describing changes, if any, that might be warranted in their approach to compliance enforcement activities. Responses received to date are reproduced in this section.

Response on Enforcement Role From The Department of Agriculture

In general, the department prefers to handle enforcement issues internally to maintain credibility with stakeholders and peace of mind within the agricultural community. The Oregon Department of Agriculture does not, for the most part, seek law enforcement support from the Oregon State Police for fulfilling its mission and/or assisting with its normal enforcement efforts. ODA appreciates the availability of enforcement support from the OSP, and has utilized their assistance in a limited number of cases in the past where ODA staff were denied private property access when conducting investigation activities.

Oregon State Police support may likely by requested to give assistance during a difficulty ODA investigation, particularly where an uncooperative landowner has denied ODA access to their property. The OSP has always responded to requests for support when the safety of public officials (e.g., state employees) was in question. The ODA's most frequent use of Oregon State Police has been when we believed a hostile landowner was capable of posing a serious threat to department personnel.

ODA may also request OSP support in cases where an investigation has turned criminal (e.g., landowners falsifying records), or where flagrant water quality violations have caused imminent danger to public health and safety (e.g., certain pesticide application violations or field burning activities).

Response on Enforcement Role From The Department of Environmental Quality

The following program summary outlines the approach of the Department of Environmental Quality to enforcement of current statutory authorities.

Water quality permitting activities are based on regulations (Oregon Administrative Rules, Division 45) and constitute the major implementing element in the water quality program. Approximately 3,000 water quality permits are enforced in Oregon, including state (WPCF) and federal (NPDES) permits. NPDES permits are required for sources that discharge wastewater to surface waters of the state. Oregon has been delegated NPDES permit issuance authority by EPA. State WPCF permits are issued to sources that do not discharge to surface waters.

The process of issuing water quality permits and monitoring permit compliance is relatively straightforward. A permit application and applicable fee must be submitted to the program for new permits, permit renewals and permit modifications. A permit and public notice are drafted and mailed to the applicant. The applicant has two weeks to review and make comments on draft documents. After the applicant has reviewed the draft permits, a public notice is circulated by mail to a broad mailing list. A public hearing may be held at the discretion of the Director. A hearing is normally held only if the proposed new permit covers a major new discharge, or if there is considerable controversy surrounding the proposed permit. Then, 30 days following the public notice (or after a pubic hearing), the permit is finalized and issued. EPA reviews major source permits during the public participation period.

The permitting process involves other major elements of the water quality program. A field inspection may be conducted prior to permit issuance. Mixing zone surveys may be undertaken to provide input to establishing permit conditions. The effluent limits in the Statewide Water Quality Management Plan are utilized in the permit conditions for new and expanded sources. Discharge monitoring reports, sewer system evaluation surveys, sludge management and pretreatment programs, and other indications of source performance and compliance are evaluated. Comments from the applicant or the public may also be utilized. Permit requirements may vary but generally include: conditions, effluent limitations, monitoring, and reporting requirements (discharge monitoring reports and spill response).

Permit compliance assurance is an ongoing permit activity. Periodic inspections are made of all permitted sources with individual permits at least once each year. Additional inspections are made on sources found in noncompliance and sources experiencing operation problems. Priorities are based on:

- Toxicity of pollutant
- Quantity of pollutant
- Potential impact or location sensitivity
- Compliance history
- DEQ's best judgment

Where permit violations are found, the ODEQ does follow-up with appropriate enforcement action.

ODEQ rules contain an enforcement policy and civil penalty procedure, with violation classifications based on risk of harm to public health or the environment. The classification of the violation, its magnitude, and other factors are considered to arrive at an appropriate enforcement action against the violator, which may include a civil penalty. The enforcement policy uses a civil penalty matrix to establish penalty amounts.

While agreeing that the success of OCSRI hinges in part on all participating agencies having a full complement of regulatory and non-regulatory tools, ODEQ also sees need for the will and the dedicated resources to apply them.

From the regulatory standpoint, the ODEQ has both administrative civil penalty authority and criminal enforcement powers. Our records show that we have not been reluctant to use either of these tools, and further we are prepared to use them as part in support of the OCSRI. Although we have several hundred field staff across the state, we agree that this initiative will require all affected agencies to work more closely to not only share our eyes and ears but to share our respective (and diverse) areas of expertise. For example, where DEQ may detect stream contamination by water sampling, the department may not be able to immediately identify the source. By communicating with the local OSP Fish and Game officer or the local ODFW biologist (who may have more intimate knowledge of the stream), DEQ may be able to more quickly identify a contamination source.

With its current resources, ODEQ will have to develop a prioritization mechanism for focusing on those areas of immediate concern. We expect that the success we would have on a selected high priority stream would serve as a model to be applied in other areas; this approach would be the most efficient and effective use of our limited resources.

It is also our opinion that in building across-agency teams to implement the OCSRI, some training is necessary to educate the participants about the roles, responsibilities and authorities of the various agencies and, too, how to establish working relationships, set direction and make timely decisions. DEQ is prepared to participate and contribute to such training.

Response on Enforcement Role From Oregon Department of Fish and Wildlife

Enforcement is a key component of assuring compliance with laws and rules established to protect fish and wildlife and their habitats. Within the areas of authority for ODFW (primarily harvest regulation and distribution of animals), we rely on Oregon State Police to carry out the needed enforcement. Formal planning for coordinating enforcement is conducted annually, and a Coordinated Enforcement Plan is prepared. It is through this process that needs for additional enforcement effort are identified.

Since OSP is a cooperator with ODFW in the Coastal Salmon Restoration Initiative, and are already our partners for enforcement and familiar with our needs, we are relying on OSP to submit the enforcement needs relating to ODFW's areas of responsibility

While additional enforcement capability is needed, it is also important to note that a significant enforcement effort is already in place to address compliance with the laws and rules relating to controlling harvest and use of fish and wildlife. Coastal salmon would benefit from increased levels of enforcement on harvest, but greater impacts could be obtained by increasing the enforcement on rules where there presently is only a low level of enforcement, such as environmental and land use regulations. These, however, are outside the scope of ODFW responsibility.

Response on Enforcement Role from Department of Forestry

The ODF implements its programs through a balanced program of rules, education, technology transfer, and enforcement. Compliance is first achieved through education, pre-operation planning, and effective communication. For operations within 100 feet of most streams, or carrying a potential risk of material

entering a stream, written plans are used as one planning and communication tool. Approved written plans are enforceable documents.

Ongoing random inspections of forest operations are provided, using a priority system based on the potential for resource damage. Core areas identified in the OCSRI will become a new basis for setting inspection priorities.

Enforcement of the Oregon Forest Practices Act occurs through the efforts of 54 Forest Practices Foresters (FPFs). Requests for "Stewardship Foresters" and administrative support have been added to ODF's budget proposal to provide additional program response in both education and inspection programs. Between 15,000 and 20,000 onsite inspections of operations are made annually.

Violation complaints are given high priority, with inspection occurring within 48 hours. It is ODF's policy to undertake enforcement when there is noncompliance of a rule that has resulted in some type of damage. If damage has not yet occurred, the operator is given written direction to come into compliance. If the operator complies and avoids damage, a citation may be avoided.

Enforcement action always includes an enforceable order to cease further violation. Enforceable orders to repair damage are issued whenever damage can be reduced or prevented. When citations are issued, ODF can choose either civil penalties or criminal prosecution, with civil penalties being the primary mechanism. Failure to comply with an order to cease further violation or to repair damage results in a minimum civil penalty of $2,500; the order is still pursued as well. All penalties carry a potential maximum of $5,000 per violation.

The ODF cooperates with OSP in taking enforcement action when the situation requires their professional expertise. However, the department has been actively enforcing the Forest Practices Act for 25 years and has trained professionals to administer both the technical forestry and enforcement aspects of the program. Since ODF's relationship with landowners in administering the forestry program is successful, relying in part on the department's enforcement policies and attitudes, ODF does not anticipate directing enforcement towards OSP efforts. Both agencies will continue to cooperate on reporting activities of concern to each other and sharing appropriate training.

Response on Enforcement Role From The Department of Geology and Mineral Industries

Our program relating to the OCSRI is our Mined Land Reclamation Program (MLR). The enforcement hinge pin of the program is a strong field presence by expert staff to prevent violations before they occur. For the fiscal year 95-96 we completed 725 inspections. Violations identified during an inspection are noticed to the operator in an inspection report and notice of violation. Mine closure orders are issued if the site is not brought into compliance within 30 days. The program issued 78 closure orders for 95-96. Sites that don't comply with the conditions of the closure orders may be issued a notice of abandonment, and a demand may be put on the financial security for MLR to use to complete reclamation and close the site. Of the 725 sites inspected in FY 95-96, 23 sites were issued abandonment notices. The vast majority of these then complied with the conditions of the closure order. Additional methods at our disposal, although rarely used, are civil and criminal penalties.

The use of OSP for enforcement may be a negative for our program due to the lack of familiarity of OSP with mining, which could lead to confusion on the part of the enforcer and the enforcee. The strong authoritative presence of the OSP would be overkill for our program. Where a threat to personnel safety is a concern, we use the local sheriff's office to accompany staff.

Response on Enforcement Role From The Department of Land Conservation and Development

The DLCD's statutory responsibility and authority are to oversee the development and implementation of comprehensive land use plans by local governments. Every jurisdiction in the state has developed a comprehensive plan according to the requirements of Statewide Planning goals, which are spelled out in Oregon Administrative rules. The Land Conservation and Development Commission has acknowledged all of the plans as being in compliance with the goals. Once plans are acknowledged to comply with the goals, the Department monitors certain local government decisions to ensure that the plans continue to comply with the goals. The normal mechanism for monitoring implementation is 1) by reviewing amendments to local plans, and 2) by reviewing local permits to place dwellings on farm and forest lands. Local jurisdictions are

required to report all plan amendments and all farm/forest dwelling decisions to the Department.

The DLCD may institute enforcement action against a jurisdiction where it has evidence the jurisdiction routinely violates their plan. DLCD does not anticipate increased monitoring or enforcement of local government decisions as part of its work related to salmon recovery.

Response on Enforcement Role From Division of State Lands

Monitoring

The DSL does not have a formal monitoring program for removal-fill permits. Some permits include specific monitoring requirements (e.g., for water quality parameters) that the permittee is responsible for conducting. Projects that include wetland creation, restoration, or enhancement as compensatory mitigation must have a site-specific monitoring plan designed to track the success of mitigation.

DSL field staff conduct "spot-check" monitoring of removal-fill permits in the following circumstances:

- When a complaint is received about the way a project is being done, and after a telephone conversation with the permittee, we believe a site visit is warranted (see discussion of enforcement below).
- When staff travel plans provide coincidental opportunities for visits at recently issued permit sites.

In addition, monitoring of specific projects may also be conducted by ODFW District Biologists, Watermasters, DEQ field staff, soil and Water Conservation Districts, NRCS personnel, and others.

Enforcement

Enforcement of the Removal-Fill Law generally is based on complaints received. These may be from casual observers such as neighbors, or from agency personnel such as ODFW and OSP. When a complaint is logged, DSL calls the alleged violator to confirm the details and inform them of the law's requirements. Staff visit the site as soon as possible after receiving the complaint (sometimes the same day, usually within a day or two). Sometimes ODFW or DEQ staff will go along. If, based on the phone contact, we believe the violator will be uncooperative (or worse), we request OSP to accompany us on the site visit.

Program Measures

DSL has three OCSRI program measures that will improve our monitoring and enforcement capability:

- Strengthen interagency coordination in removal-fill permitting.
- Add field staff in coastal salmonid areas.
- Reclassify support staff to OS-2 to free up professional staff time for field work.

Response on Enforcement Role From Oregon Parks and Recreation Department

The Scenic Waterway Program was created to protect and enhance the scenic beauty, recreation, fish and wildlife, botanical, geologic, historic, archaeologic and scientific values of selected waterways in Oregon. Nineteen rivers and one lake (Waldo) have been designated as state scenic waterways. The rivers include all or parts of: Nestucca, Walker Creek, Elk, Sandy, Clackamas, Little North Santiam, McKenzie, North Fork of the Middle Fork Willamette, North Umpqua, Rogue, Illinois, Metolius, Deschutes, John Day, Minam, Wallowa, Grande Ronde, Owyhee and Klamath.

The Oregon Parks and Recreation Department is the primary administrator of the Scenic Waterway Program. However, the Department of Fish and Wildlife, Division of State Lands, and Water Resources Department have specific authority set forth in the Scenic Waterway Act. The Act explicitly directs OPRD to adopt rules regulating the management of related adjacent lands. Related adjacent lands are defined as those lands within 0.25 miles of either bank of the scenic waterway.

The law requires owners of related adjacent lands to "notify" OPRD prior to making improvements or developing lands within designated scenic waterways. OPRD has one year in which to approve, deny, or negotiate an acceptable resolution to a landowner's proposal. Any change in the use of the land requires the landowner to go through the "notification" process. Common improvements and developments include such things as: timber harvest, mining, road building, houses, garages, and other structures. Some activities (e.g., firewood cutting, hazard tree removal, fence building, and crop changes) are exempt from notification.

Failure to go through the notification process before changing the use of related adjacent lands is a violation

of the Scenic Waterways Act. ORS 390.925 vests OPRD with the power to obtain injunctions and other appropriate relief against violations of any scenic waterway statute, rule, or agreement made under the Scenic Waterway Act. ORS 390.990 (5) declares a violation of any of OPRD's scenic waterway land management rules as a Class A park and recreation infraction.

Prosecution of scenic waterway violations is rarely done, largely because the bail for a Class A park and recreation infraction is minimal, while the legal costs to OPRD for obtaining an injunction or an order for restitution are high. It is not uncommon for OPRD's legal costs to substantially exceed the cost of restitution by the violating party.

Response on Enforcement Role From Marine Board

The following information from the Marine Board is divided into three separate program parts:

- Registration of Outfitters and Guides
- Marine Law Enforcement
- Submersible Polystyrene Regulation

State Marine Board: Program on Registration of Outfitters and Guides

Description: Over 1,200 guides and outfitters are registered with the Marine Board, ranging from horse packers to whitewater rafting companies. Fishing guides are one of the most numerous types of registrations. To be registered with the Marine Board, a guide must have proof of insurance, a current first-aid card, pay a $50 fee, and sign an affidavit relating to convictions or sanctions under federal or state laws.

Authority: ORS Chapter 704; amended 1995 by HB 2093 B-Engrossed.

Status: The 1995 amendments added significant sanctions authority to this program. The law now requires all guides operating on federally navigable waterways to possess a valid Coast Guard operator's license; requires all guided boats to display a valid decal; makes violation of state or federal wildlife, hunting, angling or commercial fishing laws grounds to deny state registration; makes revocation of a permit or denial to issue a permit by a federal agency grounds to deny state registration; and provides for reprimands, suspensions, and revocations of guide/outfitter registration for serious repeated violations of certain state or federal laws including fishing violations. Administrative Rules to implement these changes were adopted by the Board in early April of 1996.

Proposed Program Enhancements

- Coordinate with OSP and county marine patrols to concentrate early education/enforcement efforts on coastal streams, particularly in source and recovery areas.

Cooperate with federal agencies to share current information.

Habitat Impacts: None
Harvest Impacts: No significant impact.

State Marine Board: Marine Law Enforcement Program

Description: The Marine Board contracts with Oregon State Police and county sheriffs to enforce boating laws and regulations statewide. Marine patrol officers are trained and certified through an instructional course operated by Board staff and certified instructors. Contracts pay for personnel costs, boats and other equipment, supplies, fuel, and maintenance and repair necessary to operate a basic program. Counties provide varying degrees of matching funds or in-kind services to complement the contract dollars. Marine programs typically have a core of full-time officers and add seasonal deputies during the busy summer months. During the off-season, deputies are encouraged to conduct in-school water safety education classes in elementary schools. At present, nearly half of all counties are providing in-school education.

Authority: The Board contracts with OSP and 31 counties. There are approximately 29 full-time officers assigned year-round to marine patrol duties. Another 100 are employed throughout the state during the summer. Besides conducting boat inspections, officers issue warnings and citations for violations of equipment

requirements or operating restrictions (e.g., speed limits, no-wake zones, reckless operation, and operating under the influence of intoxicants). Marine patrol officers also do extensive education of the water with boaters, stressing courtesy, safe operation, and proper boat handling.

Proposed Program Enhancements

- Provide for cooperation State Police, ODFW, county marine patrol, and program to adjust patrol locations and timing where beneficial to fish recovery, particularly in source managers to review incidence of boating law violations and current patrol schedules, and recovery streams.
- Review marine patrol programs in the study area to assess manpower commitments and equipment adequacy and adjust contracts if possible.
- If necessary, seek additional state funding for boating law enforcement efforts to replace dwindling and unsteady federal funds.

Habitat Impacts: None anticipated.
Harvest Impacts: Law enforcement presence on waters at certain times of year may reduce illegal harvest.

State Marine Board Program: Submersible Polystyrene Regulation

Description: Prohibits the installation of a submersible polystyrene (foam) device on a dock, buoy, or float unless fully encapsulated by a protective covering. In accordance with Administrative Rules, the Board issues permits for encapsulated foam flotation in new docks and significant expansions or renovations of older docks or floats built before January 1, 1992.

Authority: ORS 830.950 enacted by 1991 Laws, Chapter 759, Sections 3,4, and 5.

Status: Since its passage in 1991, permits have been issued for legal foam flotation.

Proposed Program Enhancements

- Task marine patrol officers to report new construction utilizing unencapsulated polystyrene on coastal streams.
- Provide for agency follow-up to seek compliance and issuance of a valid permit.

Habitat Impacts: Unencapsulated submersible polystyrene can break down to the foam cell level and pose a risk to fish and wildlife through unintentional ingestion. Properly encapsulated foam leads to an overall improvement in water quality.

Harvest Impacts: None

Response on Enforcement Role from Oregon State Police

Harvest Law Enforcement

The traditional role of fish and wildlife enforcement has been to ensure compliance of harvest measures. Harvest measures were recognized in the early years as the most appropriate method of managing fish and wildlife populations. Therefore, the role of game warden was tied to harvest laws, rules and regulations. This is still a vital part of the role of the fish and wildlife officer but not the total role.

The Oregon State Police Fish and Wildlife Division is involved in gaining compliance with the following harvest measures:

Ocean - Commercial Fisheries: The officers conduct at-sea boardings and dockside inspections of commercial fishing vessels to monitor species, catch limits, licensing and permit compliance. They ensure that seasons are observed and legal gear is used. They also monitor fish dealers and processors for licensing, species, and records compliance. It is often necessary to conduct investigations to assure compliance with the regulations. Document and record investigations are common in this facet of fish and wildlife law enforcement. Parties involved in a commercial industry will forge records to conceal unlawful harvest of regulated and protected stocks.

Monitoring of these resource users is also conducted at-sea and dockside to check for license and tag compliance, as well as to ensure that the appropriate species, sizes, and catch limits only are taken. Monitoring for compliance may also include conducting investigations.

Inland - Commercial Fisheries: Officers monitor commercial harvest of fish in the Lower Columbia River in much the same way as the ocean commercial fishery. They ensure that the seasons are observed, legal gear is used, and the correct species and sizes are retained. Compliance of licensing and permit regulations is also checked. This effort also requires the monitoring of fish dealers and processors.

Inland - Recreational Fisheries: Recreational (sport) fisheries conducted on the coastal streams are monitored by officers for season, species, size, and catch limit compliance. Appropriate licenses and tags for the activity are also checked.

Environment and Habitat Law Enforcement

As anadromous fish populations began to decline in the face of more restrictive harvest regulations, it soon was recognized that suitable habitat is the key to preserving and sustaining viable fish and wildlife populations. This increased the importance of protecting and enhancing habitat required for fish and wildlife to thrive. As the importance of habitat protection and ecosystem management were recognized as the key issues that would protect, sustain and enhance fish and wildlife populations, the enforcement component of fish and wildlife management began to expand its efforts into the arena of habitat and environmental protection. Law enforcement identified habitat and environmental protection as the area in which it could exert the greatest influence for maximum results in protecting and, more importantly, enhancing fish and wildlife populations. In contemporary times, this area of enforcement presents the most potential for law enforcement to achieve maximum results.

In accordance with the needs of fish and wildlife management, the Oregon State Police Fish and Wildlife Division has shifted away from the traditional role of harvest enforcement to include enforcement of habitat and environmental law. The Oregon State Police Fish and Wildlife Division is a contemporary contributor to restoration of coastal anadromous fish.

Program Enhancements
OSP's enforcement contributions will be enhanced when the following actions are endorsed by all natural resource agencies:

- Interagency Cooperation with State Natural Resource Agencies: By establishing interagency cooperation with local state natural resource agencies, officers will be able to determine priorities and coordinate their efforts with the agencies to create a unified front in gaining compliance. Cooperating state agencies would include Department of Fish and Wildlife, Department of Environmental Quality, Department of Forestry, Department of Water Resources, Department of Agriculture and Division of State Lands. As this initiative evolves, other agencies and their respective responsibilities may be identified that can benefit from a partnership with law enforcement.
- Interagency Cooperation with Federal Natural Resource Agencies: By establishing interagency cooperation with local federal natural resource agencies, officers will expand the opportunity to positively influence habitat and environmental protection by including the arena of federal regulations in seeking solutions for depleted fish stocks and degraded habitat. Cooperating federal agencies would include: National Marine Fisheries Service, Environmental Protection Agency, U. S. Forest Service, Bureau of Land Management, U. S. Fish and Wildlife Service, Bureau of Reclamation, and Army Corps of Engineers.
- Enforcement of Applicable Habitat Regulations: In cooperation with the appropriate state and federal agencies, officers will seek to gain compliance with laws and regulations pertaining to water quality, water diversion, fill and removal, forest practices, and land use.
- Investigation of Environmental Violations: In cooperation with the appropriate state and federal agencies, officers will investigate incidents of waterway pollution, hazardous materials violations, industrial waste violations, pesticide use violations, and point source and non-point source pollution.

Enhancement of proactive enforcement to protect depleted fish stocks and the critical habitat upon which they depend can be achieved through analysis of various databases and use of Geographical Information System (GIS) technology to identify the potential threats and vulnerability. Use of this technology will enable

proactive measures to be taken before resources suffer damage or loss. It is essential that cooperating agencies possessing the databases and GIS capability share these resources with law enforcement to accelerate the restoration of coastal salmon.

Concluding Remarks

Natural resource management has long been aware that management of people is the key to managing natural resources. Harvest regulations, season regulations, land use regulations, forest practices laws, water quality regulations, and environmental laws set by legislature and Oregon's natural resource commissions are all devised to manage the behavior of people. Enforcement of these laws and rules is a police function. In this respect, with natural resource enforcement being a police function and knowing that policing has a direct effect on people's behavior, the Fish and Wildlife Division of the Oregon State Police plays a vital role in supporting natural resource management by effecting voluntary compliance with Oregon's natural resource laws.

The future of natural resources in Oregon will be largely dependent upon enforcement of habitat and environmental laws and regulations and enforcement of protection laws over those species which are classified as sensitive, threatened, or endangered.

The Oregon State Police Fish and Wildlife Division has shifted from its traditional role and has moved away from doing the same thing and expecting different results. Endorsement of this role by the natural resource agencies, forming partnerships, and strengthening cooperation will serve to raise accountability and create voluntary compliance.

It is important for natural resource agencies to identify the law enforcement support needed for their agency missions to be attained. The Oregon Department of Fish and Wildlife has identified the role of enforcement through the Cooperative Enforcement Plan (CEP), which is a process of prioritizing enforcement efforts directed towards conservation and resource issues. It would be a simple task to incorporate the other natural resource agencies into the same process.

Response on Enforcement Role From Water Resources Department

Watermasters and assistant watermasters are the primary enforcement personnel for the Water Resources Department. The Oregon State Police (OSP) provides backup assistance as needed, and they also report violations to the department.

In response to the coastal salmon situation, the WRD has increased its enforcement presence. New watermaster offices were established this summer in Newport and Florence, and the presence in the Tillamook office was significantly increased. The offices also increased public service on water right and water management assistance. An additional 15 person-days/month of monitoring and enforcement activities has been occurring in the north and mid-coast region. Thirteen stream-walkers were hired for summer 1996 to locate points of diversions on priority streams, and WRD is seeking funding to hire 10 stream-walkers during the 1997-1999 biennium. While these stream-walkers are not involved in enforcement activities, their work can significantly improve the ability for watermasters to efficiently monitor and enforce water use.

Program Enhancements

- To continue improvements in compliance monitoring and enforcement, the Water Resources Department is seeking to establish two new watermaster districts on the north and central coasts.
- As part of its budget request for the 1997-1999 biennium, WRD is also seeking up to 15 additional field staff to monitor instream flows and water diversions to prevent illegal use.
- Additionally, funds are being sought for the OSP Fish and Wildlife Division to increase overall enforcement capabilities. Lack of field staff, not authority, is the biggest enforcement difficulty faced by the Water Resources Department.

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SECTION VI-G

MONITORING, BENCHMARKS, AND INTERIM INDICATORS

MONITORING

Introduction

Development and implementation of a monitoring program is a crucial component of the OCSRI. The Science Team has developed a proposal for a monitoring program sufficient to support and facilitate implementation of the OCSRI. Details of the proposal are contained in the Science Attachment to the Plan. The objectives of the monitoring effort include developing accurate information on the status of salmon populations and their habitats, detecting declines or increases in abundance, determining the effectiveness of measures designed to improve conditions for salmon, and providing analysis needed to help develop adaptive management strategies for agencies, private landowners, and individuals with interests in this resource.

The proposed Monitoring Plan:

- Outlines a spatial, biologic, and temporal framework for collecting and analyzing information and develops a focus of investigation at the level of the coho Gene Conservation Group.
- Proposes an expansion of existing programs and establishment of new projects that address the most fundamental monitoring issues: reliable detection and documentation of future declines or increases in coho populations; and a comprehensive evaluation of the quality of their supporting habitats.
- Describes 15 major elements--tasks that work together to create a comprehensive monitoring program (see following page for list of elements).
- Identifies areas where additional input is necessary, and where additional coordination between state and federal efforts must take place.
- Recommends an interdisciplinary, interagency approach that establishes opportunities for collaboration with watershed councils, landowner associations, and for interested groups or individuals.
- Proposes an open organizational structure that will incorporate peer review of the approach and sampling protocol, and of the results and interpretation of the data. Ongoing reporting of the information will be used to support adaptive management approaches.

As a crucial part of Oregon's Coastal Salmon Restoration Initiative, it is essential that a commitment to the development and support of this monitoring program be established and maintained. The monitoring program proposed to meet these objectives has four primary components:

- Currently funded monitoring programs and activities.
- Established monitoring efforts that require expanded and intensified sampling effort.
- New efforts to fill gaps in information and analysis.
- An integrated program structure to coordinate projects, synthesize data and provide timely reports.

Elements of Proposed Monitoring Program

The monitoring program, as currently proposed, consists of the 15 elements or tasks listed below. These elements/tasks are needed to have a comprehensive system capable of detecting changes at the spatial and temporal scales necessary to adequately track the progress of the OCSRI Plan. Additional information on these tasks is included in the Science Team Attachment to the Plan.

Task	Status	Funding
1. Stratified Probability Sampling Design Work-Group	New. In development.	Existing. Proposed for some participants.
2. Stream Biotic Condition and Ambient Water Quality Assessment	Ongoing. Expanding.	Stable. Proposed.
3. Summer Juvenile Abundance Assessments	Ongoing. Expanding.	Existing. Proposed.
4. Stream Channel and Habitat Assessments	Ongoing.	Existing. Proposed for field staff.
5. Spawner Abundance Surveys	Ongoing. Expanding	Existing. Proposed for added field personnel and supervision.
6. Genetic and Life History Monitoring	Expanding.	Needs development.
7. Fish Propagation Monitoring	Ongoing.	Existing.
8. Harvest Monitoring	Ongoing with expansion.	Existing; some new.
9. Index Monitoring	New program.	Proposed.
10. Salmon Core Area Monitoring	New program.	Proposed.
11. Estuary Populations and Habitats Assessment	New program.	Proposed.
12. Forest PracticesFederal Watershed Assessments	Ongoing.Some expansion.	Existing.
13. Watershed Assessment for Mixed Ownerships	New program; coordinates with existing structures.	Proposed.
14. Coordinate and Facilitate Distributed Monitoring	New program.	Proposed.
15. Information Collection and Sharing	Expanded; proposes changes in structure.	Proposed.

New and Expanded Monitoring Activities

Currently funded programs, such as surveys of adult coho spawner abundance, provide established and tested protocols for data collection and reporting. Analysis of the spawner survey data, however, also reveals the need to expand programs to provide resolution at meaningful regional and biologic scales. Existing monitoring programs within both state and federal agencies provide a starting point for more comprehensive efforts. Both new and expanded programs are needed to provide resolution at appropriate scales of time and location, applying sufficient sampling effort to support confidence in the results.

Need for Leadership

Traditionally, "comprehensive" monitoring programs have been slow to initiate and difficult to sustain. No integrated monitoring program of the type proposed by the Science Team has ever been established on a scale such as is proposed here. The ability to initiate and sustain successful monitoring of populations and habitat quality does not exist within any single entity. Success of the OCSRI monitoring effort will require focused

leadership and a commitment from participants in many scientific and management disciplines representing multiple interests.

The OCSRI monitoring effort must also provide leadership and program integration sufficient to ensure the quality and availability of information, reduce effort and cost, and integrate various monitoring elements. The proposal is to develop an open, science based, flexible process through which state and federal agencies, private and industrial landowners, and watershed associations or local initiative groups can coordinate conservation and restoration activities. Integration of these programs will require establishment of an overall structure to manage dispersed monitoring elements and report information in a useful fashion. As a whole, the program is central to the development of an adaptive management work group.

Commitment of Resources

An effective monitoring program for coastal salmon will require a long-term commitment of resources. Funds will be needed to support both established and new work; funding must be sustained long enough to allow evaluation in the context of changing climatic, oceanic, ecological, and social conditions. All of the monitoring elements that comprise this effort have high priority. Their primary differences between elements are the intensity of sampling effort and the timing for initiation and duration of sampling. Also, because of the integrated nature of the monitoring effort, all of the major tasks and activities are essential as they work together to create scientifically credible assessments.

Adaptive Management

Monitoring is more than the systematic and periodic collection of data; it is the basis for effective adaptive management. The OCSRI monitoring program provides an opportunity to develop an unbiased data set for determining baseline conditions, cause and effect relationships, and trends in conditions over time. Data may also be used to assess water quality standards and management practices, to determine the effectiveness of restoration activities, and suggest new actions. The monitoring program is an essential component of an overall strategy to improve our management of resources and to restore coastal salmon populations.

Species Focus

The emphasis of the proposed monitoring program is on coho salmon populations, but the approach has application to all of Oregon's salmon species, including steelhead and cutthroat trout. The proposed program will be established and gradually expanded to provide higher resolution for other species as the need arises. The bottom line of any monitoring program must be a reliable assessment of population numbers and an adequate determination of trends in abundance based on time series information. Equally important, however, is a broad assessment of habitat factors--from the abundance of large woody debris within a stream reach, to the cycles of ocean productivity that influence salmon populations.

Obstacles and Opportunities

There are several obstacles to continued development and implementation of this monitoring program:

- There is no formal agreement among state agencies to commit personnel or to share data. Such an agreement is expected but needs to be made explicit.
- Cooperation between state and federal agencies needs improvement; it has too often been more of a concept than a reality. Typically, groups meet, express willingness to work together, then return to their agencies and normal workloads. The factors that impede cooperation (e.g., lack of program commitment, adjustment of work assignment, etc.) need to be addressed. Regular exchanges need to be scheduled between participants in the OCSRI monitoring effort, with development of well defined assignments, and reporting of products.
- Finally, in addition to funding each of the primary monitoring tasks, funding for program leadership is crucial to the success of the program. The position of overall monitoring coordinator (someone with the responsibility and authority to run the program) needs to be created.
- An active adaptive management program requires commitment to changing policy and actions based on the results of the monitoring program and hypothesis testing. Alternatively, support for policy changes based on adaptive management and monitoring represents the best chance for restoration and rehabilitation of salmon populations and their habitat.

BENCHMARKS AND INTERIM INDICATORS

Introduction

The Coastal Coho Salmon Restoration Initiative continues Oregon's long-term commitment to maintaining a healthy natural environment. Oregon has been tracking the state's environmental conditions since 1991 as part of a set of indicators called Oregon Benchmarks.

The Oregon Benchmarks are used to assess the state's progress toward broad strategic goals. Oregon wants to be a state of well-educated and wholesome people living in thriving communities, working in a dynamic and competitive economy, and enjoying a healthy natural environment. Just as blood pressure, cholesterol levels, and other such indicators serve as signs of a person's health, benchmarks serve as signs of Oregon's social, economic and environmental well-being. Benchmarks measure progress toward Oregon's vision of well-being in such terms as personal welfare, air and water quality, fish and wildlife health, crime, and per capita income.

Benchmarks keep Oregon's leaders, state and local government agencies, service institutions, and citizens focused on achieving results. By staying focused on outcomes, and by keeping track of results, Oregonians can reset priorities and adapt programs as they learn what works.

Coastal Salmon Restoration Initiative Benchmarks

Oregon has many environmental benchmarks including several related to the health of our fish and wildlife. As described below, the environmental benchmarks begin at the broadest level with animal biodiversity, narrow in scope to salmon, and then narrow even further to coastal coho salmon. The success of this initiative will be judged in part by Oregon's progress on the coastal coho salmon benchmark. (The other benchmarks are listed to provide a broader statewide context for this effort.)

Animal Biodiversity Benchmark. Percentage of native fish and wildlife that are: a) Threatened or endangered, b) Sensitive, c) Uncertain status, d) Healthy

Salmon Sub-Benchmark. Percentage of wild salmon and steelhead populations, in key subbasins, that are: a) at target levels or above, b) below target levels but that have an increasing population trend (5-year trend). Key subbasins are defined as:

- Willamette (including the McKenzie)
- Clackamas
- Deschutes
- John Day
- Grande Ronde
- Salmon
- Four gene conservation groups on the coast.

Target levels will be based on subbasin plans.

Coastal Coho Salmon Sub-Benchmark. Percentage of wild coho populations in coastal gene conservation groups which are: a) at target levels or above, b) below target levels but that have an increasing population trend (5-year trend). Target levels could be based on either the listing and delisting criteria identified by the Science Team and approved by National Marine Fisheries Service, or the "coastal coho goalposts" that will describe population conditions under which Oregon shall consider coastal coho to have achieved "healthy" levels.

Interim Indicators for OCSRI

Benchmarks provide overall goals for the state and specific regions of the state (e.g., Oregon Coast). However, our ability to achieve the benchmarks depends on effective evaluation of the strategies we put in place to meet our goals. To track the impact that the management measures are having on coho restoration, a comprehensive monitoring program has been proposed (see Science Team Attachment). The monitoring system will have a set of interim indicators to be tracked and reported on an annual basis.

The following preliminary list of interim indicators may be useful in tracking progress of the OCSRI. The indicators are listed under the state agency having primary data collection responsibility, or the agency having

the most significant impact on the indicator. Since the list is preliminary, it will require review before final selection of interim indicators.

Department of Agriculture

- Number of stream miles with adequate vegetative buffers along agricultural lands.
- Number of stream miles with exposed streambanks along agricultural lands.
- Number of stream miles with restored vegetative buffers along agricultural lands.

Department of Environmental Quality

- Percentage of monitored stream sites on the coast with significantly increasing trends in water quality.
- Percentage of monitored stream sites on the coast with significantly decreasing trends in water quality.
- Number of stream miles in compliance with state water quality standards.

Department of Fish and Wildlife

- Number of recreational fishing days expended for salmonids.
- Number of steelhead/salmon punchcards sold.
- Percentage of diversions randomly surveyed that are found to be unscreened.
- Percent of random spawning count surveys that find adult spawners at or above target levels.
- Cumulative miles of stream for which stream habitat surveys have been completed.
- Percentage of streams resurveyed for which riparian or instream conditions had improved.

Department of Forestry

- Miles of riparian vegetation in properly functioning condition (using BLM criteria).
- Percentage of forest operations inspected that were found to be in compliance with the forest practice rules.
- Number of ODF culverts modified to allow fish passage.
- Number of ODF owned highway miles within the OCSRI area that have critical/core areas assessed, and maintenance and construction contingency/action plans developed for those areas.

Department of Geology and Mineral Industries

- Number of stream miles with reduced turbidity.
- Percentage of basin miles that have reduced turbidity.
- Number/Percentage of mine sites reclaimed.
- Percentage of mining operations in coastal watersheds that are in compliance with water quality standards.

Department of Land Conservation and Development

- Number of local jurisdictions with riparian protection ordinances that meet the standards in Statewide Planning Goal 5 - Open Spaces, Scenic and Historic Areas, and Natural Resources.
- Number of local jurisdictions that have adopted erosion control measures for small construction sites.

Department of Transportation

- Number of ODOT culverts that have been modified to allow fish passage.
- Number of ODOT owned highway miles within the OCSRI area that have critical/core areas assessed, and maintenance and construction contingency/action plans developed for those areas.
- Number of biological assessments developed during ODOT project development where the determination, as described by ODOT, accepted by NMFS as being accurate.
- Miles of stream opened up by culvert replacement or fish passage barriers fixed.

Division of State Lands

- Percent of removal-fill violations resolved.
- Number of coastal community wetland inventories completed.

- Number of fish habitat restoration/enhancement permits and General Authorizations issued.
- Amount of stream (miles) and wetland (acres) habitat created, enhanced or restored.

Economic Development Department

- Personal income generated by commercial/recreational salmon fishing.
- Percent contribution (personal income) of commercial/recreational salmon fishing to total commercial fishing personal income.
- Water Resources Department
- Increased institutional commitment to meeting the instream flow needs of Oregon streams every year.

@. Number of transfers and conservation projects benefiting instream flows.
a. Number of streams with leases, conservation projects, and transfers benefiting instream flows.
b. Number of water rights released to instream use.
c. Amount of flow secured from leases, conservation projects, and transfers in cubic feet per second.

Governor's Watershed Enhancement Board

- Percentage of major basins represented by a watershed council.
- Percentage of major basins where a watershed assessment/action plans has been developed.
- Number of cooperative watershed restoration projects.
- Number of public meetings held.
- Number of volunteer hours.
- Number of instream restoration projects and miles affected.
- Number of riparian restoration projects and miles of stream affected.
- Percentage of restoration projects that have been critically reviewed.
- Percentage of restoration projects found to be effective (by monitoring).
- Number of miles of stream that have had access by anadromous fish restored.

Benchmarks and the State Budget

The Governor intends to identify benchmarks for his 1997-99 budget priorities. The OCSRI benchmarks listed above will be submitted to the Governor for consideration in the budget process.

Required Next Steps

1. Review by Science Team and others (including NMFS).
2. Agreement on interim indicators by Science Team.
3. Commitment from responsible parties to gather and report appropriate data in the context of the comprehensive monitoring program.
4. Establishment of baseline data.
5. Establishment of reporting mechanism (e.g., "Salmon Report Card").

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SECTION VI-H

CORE AREA MAPS

Introduction

One product of the OCSRI Science Team is a set of maps that identify Core Areas for coho, chinook, chum and steelhead. Core Areas are reaches or watersheds within individual coastal basins that are judged to be of critical importance to the sustenance of salmon populations that inhabit those basins. Core Areas contain habitat needed to sustain populations. Furthermore, Core Areas provide a source for repopulating habitats as restoration programs are implemented. Identification of Core Areas is needed to enable resource managers to better prioritize protection and restoration efforts. Core Areas are also fundamental to the design of the monitoring that is planned to track progress of OCSRI.

Technical details of the methods used to identify Core Areas are presented in the Science Attachment to the Plan. Maps of Core Areas have been sent to a variety of scientists and interest group representatives for review. Based on this review process, maps will be revised and made available to state and federal agencies, watershed councils, and other interested groups and individuals. Routine, periodic revision of these maps is planned to occur at least every two years.

Description of a Core Area

Under natural conditions, salmon (including coho, chum, and chinook salmon; steelhead; and cutthroat trout) are not evenly distributed throughout river basins. Instead, they tend to concentrate in local reaches of river basins to spawn and rear. Areas where salmon or steelhead are concentrated reflect local differences in the character of the stream environment and also preferences of each species for certain habitat features. These areas are defined as Core Areas. Many factors explain why certain stream reaches support higher concentrations of spawning or rearing salmon than other streams. For example, some stream reaches may have better spawning gravel, better winter rearing areas, and more optimal water temperatures.

Core areas for coho salmon and steelhead are thought to include habitat suitable to support spawning, summer rearing, and winter rearing for the species. Core areas for chinook and chum salmon only represent areas where high density spawning occurs. For these species, therefore, rearing areas are defined as the entire stream and estuary downstream of the spawning areas.

Core Areas Differ by Species

Each species of salmon has a somewhat distinct life history and exhibits different habitat preferences throughout its life. However, because considerable overlap exists in the habitats used by different species, they are only occasionally completely isolated, either in space or in time within a river basin. These differences in habitat preferences make it common for certain stream reaches to be coho domain, and others to be mostly the domain of chinook, steelhead, etc.

This general segregation within habitat types in a river basin is noticeable at both the adult spawning and juvenile rearing life-stages. At spawning, for example, it is common to find chinook, coho, and steelhead segregated in rather distinct stream reaches. It is also common to observe somewhat different distributions of rearing juvenile chinook, coho, and steelhead, although some stream reaches may contain rearing juveniles of all species. Where juveniles coexist in the same stream reach, habitat preferences often are exhibited at the micro-habitat scale.

Need for Mapping Core Areas

The concept of identifying, on maps, the portions of river basins particularly important to salmon is appealing. Foremost reasoning is that knowledge of areas currently supporting the highest concentrations of spawning and rearing salmon is essential in any efforts to stabilize and improve the health of salmon populations. In addition, the mapping information would help state and federal agencies and private landowners in deciding where to focus their limited budgets on management actions that will conserve and

improve the status of salmon populations in these areas.

The following are examples of how Core Area maps may be used to assist efforts to conserve and restore coastal salmon and steelhead populations:

- Federal agencies - Consider adoption of special protection measures for these areas. Also dedicate allocation of limited federal funds available for salmon habitat restoration to Core Areas.
- Oregon Water Resources Department - Consider needs of fish when reviewing applications for withdrawal of water from streams.
- Oregon Department of Transportation - Prioritize allocation of limited funding on culvert repairs.
- Oregon Department of Agriculture - Determine if fencing of agricultural lands is needed to help protect Core Areas and, if so, how many miles of stream needs fenced.
- Oregon Division of State Lands - Consider needs of fish when reviewing permit applications to alter stream channels.
- Oregon Department of Forestry - Determine if special actions are needed to conserve the productivity of Core Areas during the conduct of forestry related activities.
- Oregon Department of Fish and Wildlife. - Focus efforts to screen water diversions. Also focus on certain elements of habitat and population in the monitoring program.
- Oregon State Police - Focus priority on improving compliance with existing environmental laws.
- Oregon Department of Environmental Quality - Focus water quality monitoring, consistent with overall monitoring program.
- Conservation organizations - Assist identification of specific sub-basins or stream reaches that may be nominated as conservation refugia; develop funding for incentives to foster conservation and restoration activities; and develop proposals for land exchanges or conservation easements.
- Watershed Councils - Provide a basis for limiting factor analysis and design of actions contributed by landowners for conservation and restoration of core salmon areas.

Building from Previous Mapping Efforts

Other designations have been used to identify areas considered important to salmon and other aquatic species, including:

- FEMAT Key Watersheds (selected by federal biologists as part of the President's Forest Plan; all located on federal lands)
- AFS Aquatic Diversity Areas (selected by committee of members from the Oregon Chapter of the American Fisheries Society)
- DSL Essential Salmonid Habitat; and ODFW Source Watersheds (both selected by Oregon Department of Fish and Wildlife)

These efforts did not attempt to identify critical salmon habitat for all species throughout all coastal basins. Each previous approach has limitations that the Core Area mapping process attempted to improve upon. For example:

- The rationale supporting each Core Area selection is documented and is therefore subject to technical review.
- Land ownership or use was not considered in selecting Core Areas.
- The species associated with each Core Areas is identified.

Appropriate Use of Core Area Maps

Mapping, or otherwise identifying, core salmon areas has strong overall support. Already several conservation-oriented uses of these maps have been presented, in large part due to recognition of their importance in providing guidance to resource managers. Providing knowledge of salmon and rearing salmon areas does carry some risk of being misunderstood or misrepresented. However, given the declines in numerous salmon populations, there is great risk associated with not mapping Core Areas.

To address concerns of landowners and other people interested in continued utilization of natural resources, as well as people interested in conserving and restoring salmon populations, it should be emphasized that the maps are intended to allow managers of the coastal landscape to make informed decisions regarding the effects of human activity on salmon. They are not part of a plan to prohibit any human activity near Core Areas, nor by default to indicate that non-Core Areas of streams can be discarded or exempted from basic

environmental protection rules. As noted earlier, almost every part of a river basin is crucial to the survival of some species of salmon at one time of the year or another. Therefore, stream reaches not identified as Core Areas for salmon should not be thought of as unimportant. In fact, many non-Core Areas provide critical migration corridors for fish traveling between the Core Areas and the ocean.

Maps of Core Areas for salmon are not intended to cause economic penalties to private landowners if salmon currently concentrate for spawning or rearing in stream reaches on their property. The maps are not intended to endorse relaxation of existing environmental protection rules in areas presently outside of Core Areas. Such actions would serve to perpetuate existing geographic patterns of salmon production within river basins and would inhibit the restoration process.

Technical Obstacles to Mapping Core Areas

Mapping Core Areas is a challenging task. Part of the challenge is determining a map scale that allows for effective display of Core Area designation. Another challenge is meeting people's expectations that the areas will:

- Represent some relatively small subset of the overall watershed.
- Be similarly important to all salmonid species or races.
- Be clearly definable by unambiguous data that are currently available.

Few situations exist where a particular species of salmon depends on only a specific portion of a river basin. Usually, species are best adapted to certain types of habitat within a river basin. These species-specific adaptations result in different habitats being used as the fish grow and seasons change.

Essentially all reaches of a river serve critical function in the life cycle of anadromous fish at some time throughout the year. Also, protection of discrete, disjunct stream reaches will not secure salmon populations because these stream reaches are functionally interacting with adjacent stream reaches and with the riparian and upslope areas of the watershed.

However, there are differences in aspects of anadromous salmonid life history among species that can be associated with certain portions of coastal basins and thus lend themselves to be identified through Core Area mapping. Coho, for example, tend to spawn, rear during the summer, and over-winter in a small tributaries. Alternatively, chinook generally concentrate in several portions of the mainstem or larger tributaries of a river when they spawn during November, but the young fish distribute throughout the entire basin below these spawning areas as they rear and migrate downstream through the estuary from April through October.

Another obstacle associated with producing Core Area maps is the adequacy of appropriate data. Data suitable to identify important salmon areas are not equally available for all species. Relatively more data are available for coho than for chum or chinook, for example, and very little data exist for steelhead and cutthroat. Preparing maps of Core Areas for salmon does not imply that all areas of the basins have been surveyed for all species. For example, while there is a reasonably good "feel" for identifying locations having high densities of spawning chinook, chum, and coho, there is not a similar basis for identifying stream reaches of highest steelhead and sea-run cutthroat spawning density. Data identifying stream reaches that support especially high densities of rearing juveniles are also scant. As a consequence of inadequate surveying, maps of Core Areas for salmon will not identify some stream reaches that are especially important to salmon production.

Considerations for Determining Core Areas

The key considerations used in developing the selection procedure for Core Areas are listed below:

- The process needed to be conducted separately for each major coastal basin and to the degree possible, separately for each species.
- The procedure to identify and screen candidates for Core Areas should be sufficiently defined to allow it to be as repeatable as possible. Although because of information gaps, it will not be possible to maintain complete consistency across all species or basins, the procedure should be defined in enough detail to specify what criteria were used for identifying candidate Core Areas for each species, in each basin.
- To the largest extent possible, the process for identifying Core Areas candidates should be "data driven." Selection of candidates should be based on data that identify these areas as having above-

average population densities and/or habitat quality.
- The rationale for selecting each Core Area needs to be well documented to facilitate review and revision of this exercise.

Core Areas Mapped

Core Areas for each Coastal HUC have been produced and have been circulated for technical review. Overall, we designated about 2,900 miles of coastal streams as Core Areas. These areas represent about 15 percent of the stream mileage in coastal basins.

Core Areas for coho composed the highest number of miles for the following reasons:

- Coho tend to be widely distributed throughout coastal basins and therefore inhabit a fairly large proportion of available habitat.
- A greater volume of inventory data on population abundance and habitat availability exists for coho than for other species, providing a more direct means of identifying Core Areas for this species than for some other species.
- Coho Core Areas represent spawning and rearing.

Core Areas for chum salmon compromised the lowest number of miles for the following reasons:

- Chum salmon only occur in a small proportion of coastal basins.
- Chum salmon tend to aggregate in spawning areas.
- Core Areas for chum salmon represent only high density spawning areas; rearing areas have not been mapped for this species. This is in reflection to the limited distribution of chum salmon in coastal basins.

Core Areas for fall chinook salmon were identified for all HUC's except the Necanicum, Siltcoos, North Umpqua and Upper Rogue. Only 9 of the 19 coastal HUC's support populations of spring chinook salmon. These Core Areas constitute the primary holding and spawning areas for this species.

The Core Areas designated for winter steelhead are much more preliminary than those mapped for other species. Except for a few locations where detailed studies have occurred, data are very weak for this species. Native populations of summer steelhead occur only in the Siletz, North Umpqua and Rogue Basins. Core Areas for this species represent locations in these basins that are known to be important for spawning and rearing of summer steelhead.

Review Process

Core Areas presented in this document are preliminary until revisions can be made based on technical review. Given the limitations of available data, designations of Core Areas should be viewed as a dynamic process that is regularly updated as new information becomes available. A biennial review and revision of Core Area maps has been proposed. Such review could be conducted in conjunction with ODFW's Wild Fish Status review.

Core Areas identified for all anadromous salmonids for each hydrological unit.		
Hydrologic Unit	**Core Area Miles**	**Percent of total stream miles**
Necanicum	24.9	14
Nehalem	213.3	23
Tillamook	252.0	22
Siletz	182.8	15
Alsea	148.1	18
Siuslaw	281.2	31
Siltcoos	59.4	45
Lower Umpqua	200.1	12
North Umpqua	185.2	13
South Umpqua	428.3	22
Coos	185.8	20
Coquille	211.5	17
Sixes	100.5	21
Lower Rogue	45.0	5
Middle Rogue	78.0	9
Upper Rogue	87.8	5
Illinois	54.8	5
Applegate	43.0	5
Chetco	92.5	15
Total	**2,874.2**	**15**

Total mileage of Core Areas for each species or race of anadromous salmonids for all coastal hydrological units.			
Species or Race	**Core Area Miles**	**Percent of total stream miles**	**Number of Core Areas**
Coho Salmon	1,490.1	8	105
Chum Salmon	63.9	<1	26
Fall Chinook Salmon	705.1	4	101
Spring Chinook Salmon	248.7	1	14
Winter Steelhead	795.4	4	28
Summer Steelhead	175.4	1	5

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SECTION VI-I

COASTAL SALMON RESTORATION INITIATIVE
OUTREACH AND EDUCATION

Introduction

The Governor's Coastal Salmon Restoration Initiative (CSRI) and its participants recognize the important role that outreach and education plays in the effort to successfully complete our mission. While outreach and education is difficult to measure and may not have an immediate and direct effect on salmon, it has been an integral part of both the state's short-term and long-term restoration strategy.

Implementation of the initiative requires consistent educational efforts to change the views of Oregonians on what reasonably can be expected in the future with the state's natural resource base, which includes salmon. All Oregonians, especially those who live within the habitat of coho salmon, need to know the extent and urgency of the problem with coho populations and what role they might play in offering a solution. Only through a proactive outreach effort utilizing the best educational tools available can an entire societal attitude on natural resource issues be changed. Our outreach and education efforts are designed to ensure that the welfare of fish is part of the equation as people address natural resource issues and, in fact, as people live their daily lives.

Among the initiative's principal goals are several that require direct involvement of local Oregonians; many of the practical solutions and actions/measures are grass roots in nature. To foster that involvement, it has been and continues to be critical that the state reach out to these populations and bring them into the process to give them ownership in the initiative.

Without the involvement of the public, the salmon most likely will not return. The state cannot succeed in the restoration effort alone. It needs the support of the public. Outreach efforts are important and effective ways of including the public.

This section will describe earlier efforts at outreach and education, current efforts, and future plans for both the short term and long term. Recognizing that restoration efforts will be part of a long process, it is important to note that one intent of the initiative is for outreach and education to continue long after a plan is submitted to the National Marine Fisheries Service.

Other Groups Support Outreach

Other groups are helping to increase the public's awareness of fisheries-related conservation issues as well.

- The Oregon Forest Resources Institute, for example, has recently published an issue of Evergreen magazine that focuses on fish habitat restoration. This publication showcases a variety of recent efforts to improve fish production habitat in streams on private and industrial timberland, based strongly on voluntary contributions. A copy of this publication is included in Attachment III.
- Oregon Trout, a conservation oriented organization, has developed two programs that have significant impact on public awareness of salmon and conservation issues: The Oregon Heritage Stocks Program and The Salmon Watch Program. Details of these two programs are included in the Education and Outreach Attachment (Attachment VI).

Outreach Team

To accomplish both short-term and long-term goals, an Outreach Team has been established consisting of public affairs representatives from the following agencies:

- Governor's Natural Resources Office
- Oregon Coastal Zone Management Association
- Oregon Department of Agriculture
- Oregon Department of Environmental Quality
- Oregon Department of Fish and Wildlife
- Oregon Department of Forestry
- Oregon Economic Development Department
- Oregon Forest Resources Institute

- Oregon State Parks and Recreation
- Oregon State Marine Board
- Oregon State University Extension and Sea Grant
- Oregon Water Resources Department
- Rogue Council of Governments

The Outreach Team has enlisted various federal partners on an ad hoc basis, including U.S. Fish and Wildlife, Bureau of Land Management, U.S. Forest Service, and Environmental Protection Agency.

The Outreach Team has been meeting bi-weekly since January 1996 and will continue to meet on that basis in the foreseeable future. The team has broken into small working groups to better facilitate completion of specific projects. Those groups include:

- Public Meetings and Media Strategy
- Identification of Opinion Leaders in Local Communities
- Newsletters and Initiative Updates
- Special Events
- Executive Summary Development of CSRI Plan
- Involvement of Governor and State Agency Directors

Other small working groups will form and disband as needs are identified during bi-weekly Outreach Team meetings and their work is accomplished.

While individual agencies have adopted their own outreach measures consistent with CSRI, the Outreach Team is tackling those issues and efforts common to all agencies.

Identification of Stakeholders

One of the immediate needs and first accomplishments of the Outreach Team was to identify those stakeholders (organizations and various publics) who are most critical for involvement in CSRI efforts. The matrix developed by participating state agencies has identified more than 170 organizations of varied interests that required initial contact and explanation of the restoration effort, as well as continued communication as the process evolves. The matrix outlines the appropriate lead state agency in those outreach and communication efforts.

This matrix will serve as a good database of interested parties that should continue to be informed. In addition, the matrix could also assist state efforts to outreach and educate by passing along information to its own affiliated members. Additional groups and organizations are expected to be added as restoration efforts continue.

Agency Sharing of Resources

Because the Outreach Team brings together several varied state and federal agencies, the opportunity to share and combine resources is a strong benefit to education efforts. To date, the Outreach Team has compiled a list of publications and/or other educational materials available to all interested parties. Those materials range from information specific to landowners, to educational brochures that can be used for schools. The Outreach Team is committed to maintaining and updating the resource list as appropriate.

Educational displays to be used at fairs and other public events are also utilizing the combined resources of participating agencies.

Individual Outreach Efforts of State Agencies

All participating state agencies have developed and implemented outreach and education efforts of their own as part of each agency's individual action plan targeting specific constituents. The following gives a brief summary and examples of individual agency outreach efforts:

Oregon Department of Agriculture

- Briefed reporters from Capital Press (Statewide agricultural weekly) and Oregonian newspapers on CSRI effort and specific aspects relating to the agriculture industry.
- Published and distributed brochure on Senate Bill 1010, one of ODA's key measures for improving habitat in water quality limited areas.
- Provided individual briefings with key agriculture groups including State Board of Agriculture.
- Published various news releases relating to CSRI efforts (including Hire the Fisher Program), which resulted

in media coverage of specific habitat restoration projects.

Oregon Department of Geology and Mineral Industries

- Alerted all mine operators in coastal watersheds of CSRI and discussed fish-friendly reclamation methods among other items.
- Briefed and notified a variety of interests about DOGAMI efforts with CSRI.

Oregon Division of State Lands

- Provided specific briefings on CSRI to various boards, commissions, related partner agencies, and DSL stakeholders
- Is developing information packets for watershed councils.
- Is developing better public education materials on removal-fill projects.

Oregon Forest Resources Institute

- Through an interagency agreement with ODFW, inventoried fish habitat enhancement projects on private industrial forest land.
- Sponsored media tour of various fish habitat projects.
- Published a special edition of Evergreen magazine featuring forest stream fish habitat enhancement projects around the state.
- Aired an educational TV spot on forest stream fish habitat statewide for three weeks.
- Is co-sponsoring several forums and conferences on salmon survival and habitat.

Oregon Department of Transportation

- Published two articles describing the initiative and ODOT's role in Transcript, the agency newsletter; also has plans to publish additional articles describing the agency action items.
- Held two rounds of stakeholder and public meetings. (Held a total of 17 meetings to garner input on transportation authority impacts and solutions.)
- Developed and distributed a video about transportation authority impacts on watershed health to all coastal county roadmasters, ODOT district and construction offices, regional offices, and environmental staff.
- Conducted an eight-session training program (introducing the standard culvert design guidelines) for ODOT designers, maintenance, construction, and project development staff.

Oregon Water Resources Department

- Sent Water Resource Commission letters to water users, interest groups, project coordinators, local officials, and business owners informing them, and asking for their support, of CSRI.
- Prepared and distributed two-page leaflet on CSRI and the role WRD is playing to ensure its success.
- Prepared habitat restoration brochure.
- Prepared brochures for livestock management about riparian areas and "fish friendly" development.
- Opened three new offices in coastal locations to enhance local service, including CSRI efforts.

Materials Already Developed

As mentioned above, individual agencies have developed and created various outreach materials specific to their own constituents. Meanwhile, the Outreach Team collectively has developed materials that have been distributed to local outlets. They include:

- Coastal Salmon Restoration Initiative Informational Flyer (outlining the background, mission, and goals of CSRI).
- Fish Friendly Flood Recovery Flyer (outlining ways landowners can recover from this year's flood damage that are beneficial, or at least not harmful, to fish).
- A "how-to" flyer for landowners that offers specific tips on what they can do on their own property to assist in the salmon habitat restoration.
- A periodic newsletter summarizing CSRI developments for distribution to all interested parties.

The above publications have enhanced our early efforts to acquaint the public with the problem and some practical solutions on a short-term basis. It is the intent of the Outreach Team to continue developing materials as issues and priorities are identified.

Outreach and Education Displays

The Outreach Team has contracted the services of an exhibit coordinator to design and implement a portable, self-contained salmon education display for use at county fairs, festivals, and other public events. This display offers easy-to-understand principles of the restoration effort and features some practical solutions for affected parties through an interactive process. The display is an example of interagency cooperation as many of its contents are the result of a pooling of resources from various agencies.

To date, the display has appeared at Lincoln, Curry, Clatsop, Tillamook, and Lane counties. The booth has been well attended and has alerted the Outreach Team as to the lack of understanding and awareness along the coast. Many visitors attribute the coastal salmon decline solely to marine mammals. The feedback received at the county fair display has been valuable to the Outreach Team in determining what types of information and which groups should receive a high priority.

While immediate plans call for use of this display through 1996, it is hoped the display will be a permanent outreach and education tool in future years.

Public Meetings and Technical Assistance

The Outreach Team planned and organized a series of six public informational meetings for September 1996 targeting key groups and interested individuals in the following locations: Tillamook, Newport, Bandon (Coos Bay), Medford, Roseburg, and Portland. With the assistance of the Outreach Team, the meeting includes a presentation of the draft CSRI Plan and allows time for public comment. A pre-meeting strategy has also been developed including special briefings to county commissions where the public meetings are to be held (county commissions are being asked to sponsor the public meetings). Also, an executive summary of the plan is planned for distribution to interested parties two weeks prior to the meetings. In addition, there will be visits with local newspaper editorial boards to heighten interest in the public meetings.

The Outreach Team is organizing follow-up efforts by offering technical workshops, staffed by qualified instructors, to provide practical suggestions and/or project ideas for fish-friendly management to landowners and other interested people. Besides helping to maintain momentum for the CSRI Plan, we believe these followup technical workshops will indicate the initiative's sincerity in continuing educational efforts well after a plan is submitted to NMFS.

Bringing in New Partners

The Outreach Team is organized in a fashion to bring in new partners as the need arises. Utilizing the skills and experience of federal and local agencies/organizations allows the team to expand its views and capabilities. As an example, early discussions with the Oregon Department of Education (a representative of the agency has attended Outreach Team meetings) have taken place with the goal of working salmon restoration into K-12 curricula in Oregon. It is hoped that the Outreach Team can align educational opportunities for students with appropriate activities and venues that will teach long-term lessons of the value of salmon restoration.

On a more grass roots level, most of the existing watershed councils have already employed various outreach projects of their own including publications, tours of restoration projects, and conservation presentations to classrooms. Watershed councils will continue to identify education/outreach opportunities as they arise.

The comprehensive and inclusive outreach and education effort extends to private groups. The Salmon Watch Program and the proposed Oregon Heritage Stocks Program are examples of conservation organizations getting involved. Descriptions of these programs are provided in the Education and Outreach Attachment.

Media Strategies and Opportunities

The Outreach Team has and will continue to utilize media as a tool in providing information and gaining attention of salmon restoration efforts. To date, print and electronic media have been kept closely informed of early CSRI efforts and have been invited to attend identified demonstration projects. The publicity gained by media attention has been integral. It is our intention to continue putting a spotlight on salmon restoration and to highlight successes as they occur with the aid of the media.

Budgets for Outreach

To accomplish effective outreach and education, an appropriate budget must be developed on either an agency-by-agency basis or a comprehensive basis through a single source (possibly through the Governor's Office). Several

state agencies have built-in budget requests for outreach and education, and specific requests for funding are expected to be made to federal and perhaps private entities.

Highlight Success and Track Progress

Outreach efforts must include publicizing actions and measures (i.e., on-the-ground projects implemented by local landowners) that are deemed successful and can be used as an example to others. This can be accomplished by dedicating a day each year to celebrate accomplishments in the salmon restoration effort, as well as observing the status of the restoration effort in terms of fish populations--in essence, an annual report card of our efforts. This dedicated day will publicly keep the initiative alive and serve as a mechanism for encouraging progress and diligence. The annual "Salmon Restoration Day" could include a State of the Salmon speech by the Governor and the publication of an annual report. The Outreach Team will take an active role in planning and implementing this effort.

Summary of Specifically Identified Actions and Measures

The following list of measures have been identified by the Outreach Team as establishing the framework for long-term outreach and education efforts: Make CSRI a standing agenda item for the State Natural Resource Public Affairs Group (NRPAG) quarterly meetings. Most members of NRPAG are also members of CSRI Outreach. Since they meet on a quarterly basis already, this will give members the opportunity to address CSRI issues on a regular basis in the future.

- Plan for Outreach Team to assist with periodic publications, as needed, and to possibly include: status reports, wise water use guidelines, a salmon life cycle poster, and various inserts that could be used in regular agency mailings.
- Deliver information electronically through agency web pages, and consider developing a CSRI web page.
- Maintain educational/informational products and events inventory, and make the inventory available to all interested parties.
- Network with federal outreach counterparts to identify joint venture opportunities.
- Develop and maintain a pre-produced CSRI presentation, possibly video/slides, that can be used by all interested parties.
- Offer Watershed Council support in the form of identifying designated agency outreach liaisons and involve councils in CISPUS training.
- Organize or become involved in an educator's fair which could offer demonstrations and/or information regarding CSRI on an annual basis.

The above measures will be modified as the Outreach Team continues to meet in the future.

Conclusion

Through the efforts of the CSRI Outreach Team, a framework has been established to continually address the needs and strategies of outreach and education. The Outreach Team is committed to a long-term involvement with local and federal partnerships. It is expected that actions and measures will be added, deleted, and/or modified as the Outreach Team continues to meet. While our framework allows for flexibility, there is assurance that outreach and education will be a permanent and integral component of the state's plan for coho salmon restoration.

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SECTION VI-J

FUNDING OPTIONS AND PROPOSALS FOR ECONOMIC INCENTIVES

Introduction

The OCSRI Plan represents a comprehensive effort to conserve and restore coastal populations of salmon, steelhead, and trout to levels that are considered healthy and capable of supporting fisheries. Many of the actions proposed to accomplish this goal have already been implemented and will be maintained under existing state and federal agency budgets. Funding some activities has already required reprogramming of agency budgets. Many actions initiated or proposed to restore the productive capacity of habitats that support salmon production represent voluntary contributions by private landowners. Many other elements of the OCSRI Plan will require new funding sources.

The purpose of this section is to describe a number of opportunities that will be pursued to provide needed funding for implementation of Oregon's conservation plan. Many aspects of future funding are not clear at this time. Additional information will be provided to NMFS, cooperating agencies, and stakeholders as soon as it is available. The following information is provided in this section:

- Needs and options for state funding
- Needs and options for federal funding
- Proposals for economic incentives

State Funding

Introduction

This section describes the timeline and process related to the development of state agency budgets needed to implement the Oregon Coastal Salmon Restoration Initiative (OCSRI). Because the state agencies are currently preparing budget requests for the 1997-1999 biennium, this section is not complete at this time. As detailed below, additional information on state funding will be submitted to NMFS in mid-September. Oregon clearly understands the importance of adequate funding to implement the OCSRI and is working diligently to ensure both the appropriate allocation of existing funding and the securing of new funding to support this effort.

State Agency Budget Preparation

State agency budgets cover a two-year period. The current budget period expires on June 30, 1997. For the 1997-1999 biennium, state agency budget preparation involves three steps. First, each agency prepares a "request" budget which must be submitted to the state Budget and Management Division no later than September 1, 1996. Next, the Governor's recommended budget will be prepared and delivered to the Legislative Assembly in early January, 1997. Finally, the legislatively-adopted budget will be finalized late in the legislative session, likely in June, 1997.

At this time (August, 1996), most agencies are in the final stages of preparing their request budgets. These budgets include "policy option packages" (POPs) that represent new funding requests above current service levels. In addition to individual agency POPs, most participating OCSRI agencies are also working collaboratively to develop a Governor's Office POP.

Timeline for State Agency Budget Preparation	
September 1, 1996	Agency request budgets submitted to Department of Administrative Services
January 1997	Governor's recommended budget submitted to Legislative Assembly
June/July 1997	Legislatively-adopted budget finalized

Current Service Level Budgets

The brief descriptions of proposed agency measures are divided into Phase I and Phase II categories. Phase I includes measures that can be implemented with current service level agency budgets. Phase II includes measures that will require enhanced funding levels. This information will be substantially augmented in mid-September to include more information on specific agency funding sufficiency/needs for each proposed measure.

The Department of Transportation (ODOT) and Division of State Lands provide examples of the type of funding information that will be submitted in mid-September. In the "implementation assurance" column of the matrices, the agencies have noted whether funding is secured or necessary for each measure. For those measures without a secured funding source, the next submittal will also indicate what actions are being taken to secure funding (e.g., POP submittal, federal agency budget request, etc.). This information will also include a description of the potential effects of a possible 10 percent budget reduction on each of the agencies' proposed measures.

Governor's Proposed Budget Package for Salmon/Clean Water

As noted above, the proposed Phase I measures can be implemented with current service level agency budgets. To address the additional funding that will be required for Phase II OCSRI measures, the Governor is working with the agencies to prepare a proposed budget package for salmon/clean water. This budget will include funds to address water quality issues on streams recently listed under section 303(d) of the federal Clean Water Act.

The budget will have three main components:

- Technical assistance/public outreach
- Landowner and community cost-share grants
- Effectiveness and compliance monitoring

The technical assistance/public outreach component of the Governor's budget package for salmon/clean water will focus on increasing field staff to provide technical assistance by the departments of Agriculture, Environmental Quality, Fish and Wildlife, and Water Resources. To address salmon issues.

The proposed budget package will also include significant funding to provide cost-share grants to landowners and communities. These funds will be available statewide and will be administered by the Governor's Watershed Enhancement Board. Funding criteria will include progress toward recovery objectives, strength of proposed monitoring strategy, extent of local government and private landowner contribution, and ability to leverage additional funds (including federal).

The final component of the Governor's budget package for salmon/clean water is designed to significantly improve the state's ability to monitor both the effectiveness of recovery actions and compliance with existing state laws and regulations.

The budget package is still under preparation. Additional information will be included in the material submitted to NMFS in mid-September; however, the final budget proposal will not be available until later this year.

Additional Funding Information

To gather additional information on the funding situation for each of the proposed actions, each agency will be asked to submit the information requested on the following form on or before September 4, 1996. This information will be compiled and submitted to NMFS in mid-September. To summarize, the next submittal will specifically identify existing or proposed funding sources for each action and will provide additional detail and a more specific timeline for the Governor's proposed budget package.

Agency Funding Analysis Form

Coastal Salmon Restoration Initiative
Proposed Actions: Funding Analysis

Please provide the following information for each proposed OCSRI action:

1. Action number (ex., DSL1): ☐

2. Identify proposed funding for this action (check one or more of the following):
   @. Funding currently authorized: ☐

   a. 1997-1999 current service level request budget: ☐

   b. Agency policy option package: ☐

   c. Salmon/Clean Streams budget package: ☐

   d. Federal funding: ☐

3. If "new" funding is required to implement the action (i.e., you did not check (a) or (b) above), identify the funding necessary to implement the action. If applicable, and not already included in the "action description" in the agency matrix, also describe the implementation level associated with this funding. (For example, "$1 would support the establishment and maintenance of five gauging stations for 2 years.")
4. Describe the effect of a 10 percent budget reduction on implementation of the proposed action.
5. If federal funding is proposed, identify potential funding source(s) and any other relevant information.
6. Other information on proposed funding to implement this action?

Federal Funding Needs for Oregon's Coastal Salmon Recovery Initiative

Introduction

This section presents the important federal contribution needed for the coastal salmon restoration effort. Some of the programs listed are existing programs that support activities important to salmon recovery goals. Others are new programs and funding needs.

There are multiple and interconnected components presented addressing needs for: coordination and partnerships around project efforts; improved habitat; monitoring for long-term management; economic adjustment; incentives; education; and enforcement of certain protection strategies. Many of these are supported partially by state resources; others require ongoing viable partnerships with federal agencies, local and tribal governments, and private entities and individuals. What follows is the rationale, federal activities (delivered through both federal and state agencies), and associated funds that need to be supported from the federal government to make this collective effort successful.

Federal Programs and Associated Funding

Mechanisms to Enhance Watershed Health

Watershed Coordinators
Watershed coordinators work at the local watershed level with private landowners, community leaders, and the state and federal agencies to design and implement salmon habitat and watershed health improvement projects. They are a critical link to getting local support and innovation for on-the-ground watershed enhancement projects, and therefore are critical to the salmon recovery effort. They do this by providing coordination for and creating partnerships around project efforts; enhancing the link between the state and federal agencies with the community and private landowners; coordinating projects to improve habitat; identifying incentives; and providing education.

Currently, there are approximately 20 watershed coordinators in the range of the coastal coho. Federal funding assistance of $2.2 million for each of five years would be used as grants to expand the number of watershed coordinators and support some existing watershed coordinators in Oregon, Washington, and California where funding does not exist. Expanding the number of watershed coordinators provides a significant opportunity in these states to broaden the on-the-ground locally sponsored salmon recovery efforts and to support the capacity of watershed groups in enough locations to have a significant impact regionally.

The organization "For the Sake of the Salmon" would be the most appropriate body to administer the funds. (For the Sake of the Salmon is a recently formed regional entity that is supported by the coastal states, tribal leaders, federal resource agency regional directors, local governments, environmental groups, and private sector representatives.)

Rationale for Funding Level: Oregon's Watershed Health Program has determined that a watershed group needs about $50,000 per year to support a locally hired coordinator to help the local group do watershed planning, develop positive partnerships, and identify possible existing funding sources for implementation of restoration projects. Money provided to local watershed groups should come as a cost-share basis to ensure that there is local support for the watershed effort. A three-to-one match provides this incentive and expands the number of viable watershed efforts that can be supported. There are currently about 140 watersheds from Monterey Bay to the Canadian border in the broader coastal zone. While there are a number of watershed efforts underway, this funding would provide support to 50 locally hired watershed coordinators and a 15 percent administrative fee to For the Sake of the Salmon in the first year.

Salmon Stewardship Program
A fund of $15 million over 5 years would provide critical, basic support for salmon restoration, particularly significant for implementing proactive measures to avoid an Endangered Species Act listing.

This would be a new program. The program would be delivered through Oregon Department of Fish and Wildlife and the Governor's Watershed Enhancement Board. The most appropriate channel for these funds would be through the U.S. Fish and Wildlife Service, or the National Oceanic and Atmospheric Administration to the Oregon Department of Fish and Wildlife and to the Governor's Watershed Enhancement Board.

Specifically, this program would fund several initiatives:

Propagation: Develop artificial propagation programs to conserve wild stocks by basing brood stock on wild fish; modify hatcheries and shift production to allow for conservation rearing; and mass mark and change juvenile release locations to allow for selective harvest of all hatchery coho.

Natural Production: Enhance natural production programs; clearly define habitat conditions necessary to improve stock status; and identify main predators and best control measures.

Harvest: Implement harvest management strategies to allow fisheries as stocks to rebuild; selectively allow harvest of hatchery coho; and use computer based models to predict selective fishery outcomes. These measures will require extensive reprogramming of port sampling methods, at-sea monitoring of salmon fleet and a substantial public information and education campaign.

Habitat: Increase habitat productivity by providing clear technical guidance to all user groups (farmers, foresters, developers); restructure and expand field staff to allow increased technical assistance and intensify enforcement of statutes promoting fish passage and screening of diversions.

Enforcement

With the large number of federally petitioned species along the coast and within the state, there is a greater need for education and enforcement of species protection. Oregon State Police's Fish and Wildlife Enforcement Division provides this education and enforcement, for example, in severely restricted fisheries and against illegal water diversion, pollution, and habitat alterations.

Currently, the State Police has an active program to obtain compliance with Columbia River salmon rules within the Columbia basin. It has been effective to the extent of their funding. On the Columbia, the program is paid for by BPA funds (ratepayers).

The legal and administrative rules framework is in place in Oregon to have an effective educational and enforcement program on the coast, but the funding is not there because of budget constraints. For coverage along the coast, $1.2 million over three years is needed to support additional troopers to provide education and enforcement, and to partner with watershed councils, sportsmen's groups, volunteers, and resource agencies to further enhance their education efforts.

Environmental Health

Nonpoint Source Pollution

Reducing nonpoint source pollution from various sources on the land is an important piece of the solution to salmon restoration. This year, 870 stream segments were identified as not meeting water quality standards in Oregon under the Clean Water Act, many of which were in the range of the coastal coho. The Oregon Department of Agriculture will work with Oregon Department of Environmental Quality and local citizens to design the appropriate responses associated with agricultural and other land use activities in the watersheds where the stream segments were identified. The most likely existing federal program to target nonpoint source pollution is EPA's 319 grant program under the Clean Water Act.

The most significant feature of federal funding assistance for such measures is for it to be consistent. The state is currently determining its budget to support such measures that could be used as match for federal dollars. Funding under Section 319 of the Clean Water Act requires a 40 percent state match, to a 60 percent federal contribution. Local funds might be able to leverage further dollars.

Depending on the amount of state funding and cost-share requirements, $5 million to 20 million over three to five years would be used for an incentive program to design and implement habitat restoration and protection, as well as fencing, off-stream watering devises, and other alternative devises to assist with meeting water quality goals.

Eliminating Barriers to Fish Passage

Two specific areas (Savage Rapids Dam and Elk Creek Dam) are known obstructions to fish passage, and other potential barriers are likely to be identified.

Savage Rapids Dam

Currently, Savage Rapids Dam is a major obstruction to fish passage. There is a consensus process currently underway to determine how to remedy this problem. The two options being explored are 1) a major upgrade, including salmon passage, or 2) removal of the dam and construction of a pumping system to provide water to irrigators.

This is clearly one of the most significant pieces to aiding salmon recovery. However, the consensus-building process has not yet produced its recommendation. The cost will range from $11.7 million for removal of the dam and installing irrigation pumps, to $17.6 million to upgrade the dam for fish passage.

Elk Creek Dam

Elk Creek Dam on the Rogue River currently has no fish passage. Instead, fish are barged around this dam. The dam was never completed as originally planned and is unlikely to ever be. Because the Rogue hosts critical runs of coho, breaching the spillway for fish passage would have significant benefits. The cost of creating fish passage is dependent on how this would be done and what current uses need some type of compensation or mitigating action.

Other Barriers to Passage

Water resource development throughout the range of Pacific salmon has created barriers to fish passage. These barriers reduce both adult spawning success and juvenile survival. Successful development of alternatives and cost-sharing opportunities has proven successful in eliminating these barriers. Funding for alternatives to "push up" dams and other obstructions to fish passage can be administered through either Natural Resources Conservation Service or Bureau of Reclamation as grants to local groups (e.g. soil and water conservation districts, watershed councils, etc.). $1 million per year for each of three years would eliminate a significant number of the fish passage barriers in Oregon. An additional $250,000 to be passed through to the Oregon Water Resources Department would allow the development of a data base, public information on alternative designs, and a prioritization system for eliminating fish passage barriers.

Protection and Acquisition of Significant Salmon Habitat

Estuaries/Coastal Habitat

Federal agencies and programs play a key role in cooperative efforts to protect and improve crucial wetland habitats through non-regulatory conservation strategies. Some of these wetland areas are significant to salmon and steelhead restoration. Many of these programs provide important incentives and assistance for private land owners who wish to protect or restore wetlands and help catalyze state and private financial support for wetlands projects. Specific programs that provide significant benefits include the Wetlands Reserve Program under the Natural Resource Conservation Service, and Oregon Coastal Refuges under the Fish and Wildlife Service.

$1.5 million for the Oregon Coastal Refuges which include the Siletz Bay National Wildlife Refuge, Bandon Marsh and Nestucca Bay would address acquisition priorities in one of the most rapidly developing parts of the Oregon coast. Much of the area proposed for acquisition has high potential for restoration to tidal wetlands -- critical for juvenile salmon -- in an area that has historically been one of the state's top producers of salmon and steelhead.

The National Estuary Program

The National Estuary Program was established in 1987 by Congress to identify nationally significant estuaries that are threatened by overuse, development and pollution. The goal of the program is to facilitate the development of local management plans that will improve and protect the water quality of these resources. The program requires that priority problems be identified through research and scientific study, and that estuary stakeholders use that data to develop a plan of action to best manage the estuary.

The Tillamook Bay National Estuary Program is a joint local/state/federal effort to evaluate environmental problems in the Tillamook Bay watershed and to test possible solutions to the problems of the Bay. This program has identified a number of projects that could lead to the development of tools for use by resource managers such as models, wetland and riparian mapping, demonstrating a constructed wetland, and other assessment tools. This program could use an additional $240,000 to develop these tools that would benefit other efforts as well.

Inventories and Monitoring

One of the major data gaps Oregon has concerning natural resources is good geographic data on wetlands and riparian conditions for the range of the coastal coho. This is important both at the current stage of planning to restore the species as well as to guide and refine activities in an ongoing adaptive manner into the future.

Working through the Department of Interior's National Wetlands Inventory, $650,000 would provide Oregon with digitized mapping of wetlands and riparian areas throughout the coho range including the Umpqua and Rogue Basins.

To further support robust inventory and monitoring efforts, $1 million per year for three years passed through EPA could be use for detailed wetlands and riparian inventories with special emphasis on coastal wetlands in local communities to aid salmon recovery. Oregon has developed a planning program to protect riparian corridors and wetlands. The program is implemented by local governments with state oversight. Funding for planning grants to local communities would speed implementation of this new program. Funding for these inventories would also pay for revisions to coastal city and county comprehensive plans to protect the inventoried corridors and wetlands. Passed through EPA, to Oregon's Department of Land Conservation and Development and Division of State Lands, then to local communities, these funds would provide grant money for inventories and comprehensive plan revisions in communities within the range of coastal coho.

Habitat Restoration and Economic Development

The following programs could help accomplish habitat restoration and economic development:

- Oregon Fisheries Fund/Hire the Fishers
- Coastal Fishing Communities Assistance Program
- Northwest Economic Adjustment Initiative
- Forest Resource Trust
- Forest Stewardship Incentives Program

Oregon Fisheries Fund/Hire the Fishers: The Hire the Fishers Program is an existing program that has had good results. It provides work for fishers and other fisheries reduction-impacted workers to restore streams and improve salmon habitat. Specifically, funding has supported habitat restoration, at-sea data collection, on-the-ground outreach assistance, and program administration.

At-sea data collection (at a funding level of $2.2 million in fiscal year 1996) comes through the Department of Commerce to NOAA to the National Marine Fisheries Service (NMFS) to the Pacific States Marine Fisheries Commission (PSMFC), then to project contractors to the fishers. The PSMFC is well situated to maintain the program and the current funding route should be kept, unless funds could be passed through from NMFS to the PSMFC.

Funding for other components of the program could come more directly through the USDA/NRCS to the Oregon Department of Agriculture. A continuing commitment to this program at $4 million for each of the next three years would allow Oregon to continue these activities.

Coastal Fishing Communities Assistance Program: Coastal communities, workers, businesses and families are also impacted by the reduction in commercial and sport salmon fishing. Economic diversification (and reduction of harvest pressures) of these communities is being encouraged. This could include business grants to fishers who want to diversify their catch (for programs such as Developmental Fisheries), communities that could create revolving loan funds for small businesses, or non-profits that provide opportunities (tourism development, job training, counseling, etc.) other than fishing. Developing alternative fisheries through funding niche marketing strategies and value-added processing will help those fishers who want to move away from traditional dependence on salmon fishing.

This would be a new program and would need flexible funds. Funding at the level of $5 million for each of three years is the estimated need to deliver this program quickly to make alternatives available and redirect the economic activities of the impacted coastal communities. This could be passed through the Department of Commerce's Economic Development Administration, which could then be passed through as a grant to the Oregon Economic Development Department for administering.

Northwest Economic Adjustment Initiative: The "Jobs in the Woods" program that came from the President's Northwest Forest Initiative has provided jobs for dislocated forest industry workers to perform habitat restoration and other forest-related activities. This program could be expanded to further support habitat restoration efforts, pursuing opportunities which would partner with state, local and non-governmental organizations, perhaps using "end-results or stewardship" contracting.

Forest Resource Trust: The Forest Resource Trust in the Oregon Department of Forestry is a new program that would use an initial federal investment of $10 million to provide critical funds to leverage other state and private funds to improve the health and productivity of non-industrial private forest lands. Watershed health benefits are expected to come in the form of stabilized forest soils, and stabilized water flow which in turn improves water temperature, water quality, fishery habitat, and provides a better distribution of quantity over a 12-month period.

Forest Stewardship Incentives Program: This existing program provides cost-share funds to non-industrial forest landowners for road design, fish habitat improvement, riparian area improvement, wetland improvement, reforestation, timber stand improvement, and wildlife habitat improvement. Funds for this U.S. Forest Service program are competitive nationwide. Because Oregon law requires reforestation after timber harvest and other states do not, Oregon has received only a small share of these cost-share funds because of a perception of less need. Further, the federal funds appropriated for this program have been declining.

As funds at the national level have decreased, Oregon's needs have increased, because of needs to improve salmon habitat and also because of the shift from federal to private lands for timber supply as a result of the President's Forest Plan. Funding at $2 million for landowner cost-share, and $400,000 for the Oregon Department of Forestry to provide technical assistance would provide important benefits to the health of coho habitat.

Research Needs

Some areas of research would help target management efforts and would translate directly to improvements. These include:

- Researching the impacts of marine mammal predation (immediate priority), avian predation (immediate priority), and exotic predatory fish on salmon (secondary priority) (the cost of these being approximately $750,000).
- Effectiveness of specific habitat restoration techniques (ongoing priority expecting to cost $350,000, or incorporated into other restoration efforts).
- Hook and release mortality in sport and commercial fisheries including mortality of specific gear types in catch and release fisheries (immediate priority - $120,000).
- Marking techniques for juvenile salmon (secondary priority - $200,000).
- Environmental requirements for sustaining viable beaver populations (secondary priority - $400,000).

Intergovernmental Coordination

Many of the federal natural resource management and environmental protection agencies have had their funding decreased in recent years because of deficit reduction measures and changing political priorities. New programs and federal funds for new efforts are particularly difficult to get authorized and appropriated. Significant, too, is that Oregon will lose its senior member on the Senate Appropriations Committee in 1997.

These factors all indicate that it will be difficult to obtain the funds outlined in this section for the range of salmon recovery activities. To the extent that funds are provided for salmon recovery efforts, existing programs and mechanisms for delivering these programs to the ground will be quicker and more efficient.

Nevertheless, Oregon and its federal and local partners will need to pursue ways to bring together authorities and resources, and to conduct programs and activities with salmon and riparian health as top priorities to achieve salmon recovery goals. This may mean:

- Developing Memoranda of Understanding to give direction to how agencies work together and coordinate their authorities and resources.
- Working through geographic-based forums such as watershed councils.
- Taking informal steps to enhance interagency and intergovernmental coordination.

This intergovernmental coordination will be critical in the face of decreasing resources but increasing needs to provide the education, incentives, enforcement, watershed coordination, habitat improvement, fish passage, economic assistance, salmon protection, research, and monitoring that are all needed to restore the coastal coho.

Preliminary Recommendations for OCSRI Incentives Programs

Introduction

Five proposals have been developed in response to the Governor's Oregon Coastal Salmon Restoration Initiative to provide incentives for measures that will impact coastal salmon restoration in Oregon. The proposals represent, in no particular priority, the best recommendations for the OCSRI from dozens of currently proposed ideas for biodiversity in the Northwest. While the first incentive recommendation is easy and inexpensive to implement, the other four pose tougher policy and fiscal choices. If fully implemented, however, the proposals would have a significant short and long-term impact for salmon and land stewardship in general.

These proposals are based upon an extensive search of current reports and other materials regarding incentives for biological diversity, environmental restoration, and endangered species protection, in addition to consultations with individuals and organizations working on similar projects across the United States. The proposals in this report are provided to the OCSRI as recommendations for action by the Governor. A

timetable for making decisions regarding these possible incentive programs has not yet been established. At the present time, For The Sake Of Salmon (FSOS) is also working on a parallel track to prepare a series of recommendations for incentive programs that will be endorsed by the Executive Committee for local, state, regional and federal action in late 1996.

Proposal 1 - Design and Implement a Governor's Watershed Stewardship Award Program

The simplest and least expensive incentive for private landowners is official recognition and praise for their efforts to do the right thing in management of their land for salmon protection and restoration. Giving praise plentifully and strategically is a powerful tool. People everywhere want to be appreciated.

Recommendations for Proposal 1

1. The Governor's office should immediately design and implement an awards program recognizing individual landowners for outstanding projects to restore private lands for salmon restoration. Awards would be made on an occasional basis year round with the Governor personally presenting appropriate plaques and recognition in public ceremonies at county fairs, Chamber of Commerce luncheons. and other events or meetings. The awards should be dated and specific, relating the award to projects done in a certain time frame.
2. An additional "Stewardship Master" award could be given annually to an individual or family that has demonstrated an outstanding long-term commitment to land management for biodiversity. The award could be named for a state or community leader, and possibly be called "Governor's Steward of the Land Award" or some other "in honor of" designation.
3. Nominations could come from various sources including individuals, organizations, and state agencies. To give the awards some weight, an advisory panel could be appointed to evaluate and recommend nominations to the Governor two or three times a year.
4. A separate category of equivalent awards should be implemented to recognize business and nonprofit organizational leadership in these areas.
5. All departments represented in the OCSRI should also implement similar award programs within their agencies.

Proposal 2 - Significantly Modify and Expand the Riparian Tax Incentive Program

A consensus exists among many constituencies that the existing riparian tax credit incentive program, due to end in January 1997, is a good idea but is (as currently funded and implemented) of marginal practical value for most eligible landowners. For current use of agricultural lands, the property tax credit amounts to an insignificant benefit relative to the paperwork involved.

Recommendations for Proposal 2

1. In addition to its existing applicability, make the Riparian Tax Incentive Program available within urban growth boundaries. Urban streams have, and can provide, significant salmon habitat; many still have some useful habitat in place. Examples, such as Johnson Creek in the Portland area and many others around the state, would show major benefits with a significantly expanded program. Keep the credit applicable to property tax within the urban growth boundaries.
2. For lands outside the urban growth boundary, make the tax credit applicable to the income tax. This would likely carry a heavier incentive for many exclusive farm and forest landowners, and also would be much easier to quantify and measure.
3. Significantly expand the number of field habitat restoration biologists within ODFW to support landowners in restoration design and implementation.

Proposal 3 - Provide a Bonus to Local Governments That Meet or Exceed Salmon Restoration Performance Standards in Road Operation and Maintenance

Local transportation departments have reduced budgets, so any incentive that would generate additional funds for their departments would attract great efforts.

Recommendations for Proposal 3

1. Provide a 10 percent bonus to local transportation block grants for local governments that meet design and operation standards for salmon passage and habitat restoration projects on local highways.

Proposal 4 - Federal Estate Tax Reform

Federal estate tax requirements are a major obstacle for private landowners who have been sensitive of their lands' environmental value and would like to pass their land to their heirs without destroying that value. The imposition of federal estate taxes, however, often forces large parcels of environmentally valuable land to be divided into smaller, less environmentally valuable parcels. Some of the best remaining habitat for endangered species is put at risk in this manner.

Federal law imposes a tax on the amount of a decedent's estate in excess of $600,000. The tax begins at a rate of 37 percent and climbs to 55 percent for estates in excess of $3 million. For estates in which undeveloped land represents a significant portion of the estate's total value, the need to pay the federal tax creates powerful pressure to develop or sell part or all of the land, or to liquidate the timber or other resources of the land.

Because land is appraised by the Internal Revenue Service according to its "highest and best use" and such use is usually deemed to be its fully built-out value, the effect of the tax is to make retention of undeveloped land in forest or other undeveloped condition difficult at best. For farmers, ranchers, forest landowners, and others who are "land rich and cash poor," the federal estate tax is a widely perceived threat to the ability to pass on the family's property to the next generation, or to allow that generation to permanently preserve its natural resource values.

Efforts to reform estate tax law pertinent to protecting endangered species and managing for biodiversity should have two goals: (1) keep large parcels of environmentally sensitive land intact, and (2) ensure this land is managed for biological diversity and species protection. To address this problem, the Governor should add the full weight of his powers of persuasion behind several provisions of estate tax reform currently seeing a fair amount of support in Congress and with a good prognosis for action in the next session.

Recommendations for Proposal 4

1. To bolster donation incentives, the estate tax law should be changed to explicitly allow the estate or heirs to do what the decedent could have done before death, namely allow the estate to make a tax-deductible gift of land or an interest in land to a qualified organization. This change would not only allow the estate to reduce the value of the taxable estate and thereby decrease the amount of taxes payable by the estate, but would also ensure that the land ended up in conservation ownership or with conservation restrictions.
2. A second, more attractive proposal, would be to go one step further by providing that any gifts of land, or interest therein, with endangered species habitat from an estate to a qualified conservation organization would give the estate a tax credit rather than a simple deduction. Not only would this provision reduce the amount of taxable estate, it would also provide a credit against any tax owed.
3. Landowners could also be given the opportunity to reduce their estate tax burden in return for voluntarily entering into revocable agreements to mange their lands in ways that benefit endangered species. To qualify, the owner or executor would need to enter into a written agreement with the Secretary of Interior (or a state fish and game agency if a suitable agreement existed between the Secretary and the state agency) to manage an identifiable parcel of land in a way that provided significant benefits to endangered species. Such management could include measures not otherwise required by law, or an agreement to refrain from activities not prohibited by law.
4. Landowners already practicing beneficial habitat management may need only agree to continue existing uses and to forgo other legally permissible uses. The heirs would, however, be liable for any tax originally due with respect to the property aside from the agreement if the heirs subsequently ceased to honor the conservation agreement, or if they disposed of the property without securing the agreement of the new owners to continue the conservation agreement and assume the tax liability in the event of a breach. The amount of any tax then due should be adjusted to reflect any intervening changes in the land's value not relative to improvements thereon. In this manner, heirs can (for as long as they wish) effectively defer estate tax due on a parcel of land at the time of death of the person from whom the property was inherited. By maintaining the conservation agreement indefinitely, they escape the estate tax on property altogether.

Proposal 5 - Incentives for Decommissioning Roads and Conducting Concurrent Habitat Restoration on State Lands

The construction and use of highways and forest roads carries the potential to degrade and pollute natural

systems, including nearby streams. While the Northwest's network of highways (which covered 220,000 miles in 1994) has expanded relatively little since 1960, forest roads have proliferated. In Oregon alone the number of forest roads has more than tripled since 1960; and in both Idaho and Washington, it has more than doubled.

According to the Department of Forestry, state forest lands will be spending over $5 million during the next two years for restoration of roads, replacement of culverts, and repair of other stream crossing structures damaged by the February 1996 storm and floods. State forest lands are also proposing to spend an additional $15 million over the next six years to improve roads including stream crossing structures. This effort will upgrade approximately 130 miles of road in each biennium. The majority of these roads are in the Tillamook Bay watershed.

Recommendations for Proposal 5

1. Rather than limit mitigation of damage on salmon (caused by roads), to improved passage and improvements, Oregon (given its much higher density of forest roads than the rest of the region) should set an example to the federal and private land mangers by providing incentives for decommissioning roads on state lands and restoring the habitat in the process. One possible incentive could be an increase for a specific period of time in the operating budget of a state forest per every 10 miles of decommissioned roads with concurrent habitat restoration.
2. The OCSRI should also consider designing federal incentives for decommissioning of national forest roads.

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SECTION VII-A

MAJOR CHANGES IN MANAGEMENT RELATED TO RISK FACTORS

HARVEST MANAGEMENT

The purpose of this section is to give a broad overview of the recent and substantial decline in fishery related mortality of wild coastal coho, and to describe exploitation rates that are expected to be associated with future fishery management measures. Additional technical information are contained in ODFWs management measures and in previous status reviews.

OCN coho have been harvested in Oregon since the mid-1800s. Prior to the 1920s, most harvest occurred in terminal gill-net fisheries located at the mouths of most coastal river basins. These fisheries were almost entirely eliminated by the mid-1950s, and none occur presently. Ocean commercial troll fisheries were initiated in the mid-1920s and quickly grew to become the primary fishery on OCN stocks. Ocean recreational fisheries for OCN coho increased in the 1950s and peaked from about the mid-1970s to mid-1980s. The exploitation rate of ocean fisheries on OCN coho generally increased in concert with growing commercial and recreational fleets and peaked near an estimated 90 percent in the mid-1970s. Since then, fishery restrictions based on conservation concerns have gradually reduced exploitation rates to levels less than 15 percent. The prognosis is for OCN fishery exploitation rates to remain below 15 percent until substantial stock recovery occurs.

A summary of the chronology of fishery exploitation of Oregon OCN coho is shown on the following page. Estimates since 1970 are generally better than prior estimates. Oregon's proposed regime for managing future ocean salmon fisheries that affect OCN coho is designed to obtain measurable and substantial recovery of depressed populations prior to allowing the possibility to increase ocean salmon fishery opportunities. This is achieved by requiring attainment of spawner escapement goals in four discrete geographical groupings of OCN stocks in the parent generation, before modest increases in harvest opportunities on their progeny are allowed.

The proposed fishery management regime limits impacts (total fishery exploitation rate) to recent levels until stocks rebuild to interim escapement goals, and allows increases only when significant inter-generation improvements in spawners are expected. Since 1993, total fishery impacts were 10-15 percent. It is proposed to limit total fishery impacts on OCN coho to less than or equal to 15 percent until escapements improve to the point where interim goals have been achieved. An increase of up to 20 percent is proposed when parent year escapements have achieved the interim escapement goal, and year-in-question spawner abundance will achieve 150 percent of the escapement goal after predictions of marine survival, the effects of fisheries and other sources of mortality are taken into consideration. A final tier of harvest is proposed when a multi-generational pattern of achieving increasing spawning escapement goals is predicted: Under the most favorable conditions of escapement history and ocean survival, up to 35 percent fishery impacts may be permitted on OCN coho. An illustration of the acceptable fishery exploitation zones accompanies this section.

Chronology of Changes in Exploitation Rates Associated with Commercial and Recreational Fisheries for Oregon Coastal Coho Salmon			
Fishery	**Time Period**	**Exploitation Rate**	**Comments**
Oregon coastal river and estuary Gillnet	1890's-1920's	40%	ODFW estimate.
Combined coastal river net and ocean troll	1930's-1940's	40-60%	Estimated range only.
Ocean troll/ sport	1950's	60-80%	River gillnet fisheries mostly eliminated by this period.
Ocean troll/ sport	1960's	60-80%	
Ocean troll/ sport	1970-1983	60-90%	Peak period of ocean harvest and exploitation, and prior to comprehensive PFMC management.
Ocean troll/ sport	1984-1986	30-40%	PFMC response to 1983 El Nino; creates OCN spawning escapement goal via salmon Fishery management plan (FMP).
Ocean troll/ sport	1987-1992	45-65%	PFMC amends FMP; less restrictive OCN escapement goal; higher ocean harvest on surpluses during this period.
Ocean troll/ sport	1993	35%	PFMC responds to current El Nino and uses new ODFW OCN spawning study data for first time in pre-season evaluation of management strategies.
Ocean troll/ sport	1994-1996	7-12%	PFMC prohibits ocean coho fisheries off OR/CA (all WA/OR/CA in 1994). Coho exploitation rate reflects harvest impacts mostly in chinook targeted fisheries. PFMC acts on data from ODFW coho study and ESA concern, and sets higher OCN escapement goal; caps OCN coho HR at < or = 20% until OCN escapement is 150% of goal. ODFW closes most bays and rivers to sport fishing.

Proposed Allowable Total Exploitation from Fisheries			
The table below illustrates the harvest regime proposal, with past escapement and marine survival as the categorical determinants of allowable fishery exploitation rate.			
Parent Spawning Escapement	**Marine Survival**		
	Low (like 1994-96)	**Medium** (like 1978-85)	**High** (like 1972-74, 1976 and 1986)
High (Interim goal spawners in F_{-1} generation and 150% of interim goal spawners in F_0 generation spawners)	< or = 15%	< or = 30%	< or = 35%
Medium (Interim goal F_0 generation spawners)	< or = 15%	< or = 20%	< or = 25%
Low (Less than interim goal F_0 generation spawners)	< or = 15%	< or = 15%	< or = 15%

HATCHERY MANAGEMENT

Introduction

The purpose of this section is to summarize significant changes that have occurred in relation to hatchery fish management in the last two decades. Overall, there have been significant changes:

- The number of coho released each year has declined significantly. During the 1980s, ODFW hatcheries often released about 6 million coho, and private hatcheries released about 10 million coho annually. Projected releases now are about 2 million annually.
- Transfers of stocks between basins (including from out of state) were fairly common, but are now rare.
- Off-station releases of juveniles have been almost eliminated.
- Off-station releases of surplus hatchery adults are rare.
- All hatchery coho are now being marked with an adiposefin clip.

All of the above changes are consistent with the Wild Fish Management Policy and the desire to manage hatchery coho in ways that are compatible with wild coho populations.

Three programs (discussed in more detail following the table) have released hatchery coho into Oregon Coastal basins: Oregon Department of Fish & Wildlife (ODFW) hatcheries; ODFW Salmon and Trout Enhancement Program (STEP) projects; and private hatcheries. The table below compares numbers of coho salmon released from the three types of hatchery programs (1981, 1989, and 1993 which is most recent complete data). Preliminary 1994 data shows ODFW with a continued decline in fingerling/fry (0.03 million) and smolt (2.58 million on-site and 0.81 million off-site); private hatcheries with no releases; and STEP with incomplete data but similar releases.

	Release Stage	Release Location	Number of Fish Released (in millions)		
			ODFW Hatcheries	STEP	Private Hatcheries
1993 Brood Year	Smolt	On-Site	2.81	0.06	None
		Off-Site	0.90	0.01	None
	Fingerling/Fry	On-Site	None	None	None
		Off-Site	0.23	0.08	None
	Hatch Box Eggs		None	1.16	None
1989 Brood Year	Smolt	On-Site	3.12	0.06	None
		Off-Site	2.15	0.01	None
	Fingerling/Fry	On-Site	0.26	<0.01	2.83
		Off-Site	1.05	0.06	None
	Hatch Box Eggs		None	2.93	None
1989 Brood Year	Smolt	On-Site	2.14	None	1.27
		Off-Site	0.89	0.03	None
	Fingerling/Fry	On-Site	0.04	None	19.84
		Off-Site	3.60	0.12	0.06
	Hatch Box Eggs		None	0.14	None

Oregon Department of Fish and Wildlife Hatcheries

The Oregon Department of Fish and Wildlife operates seven hatcheries that produce coho salmon for release in Oregon coastal basins. Four of these hatcheries are involved in rearing coho stocks from other coastal basins for transfer and release in their native basins. With one exception (Cole Rivers Hatchery), the main purpose for the coho programs has been supplementing ocean coho harvest. Cole Rivers Hatchery, located on the Rogue River, was built as mitigation for Lost Creek Dam.

There has been a gradual shift in the intent of ODFW's coastal coho programs over the last decade due to several factors, including:

- Concerns over impacts and attempts to reduce impacts of hatchery fish on wild populations.
- Implementation of genetic protection strategies of the Wild Fish Management Policy.
- Implementation of results of research and hatchery monitoring.
- Attempts to improve the harvest of hatchery fish.

Generally, these changes have begun a shift from an emphasis on ocean fishery supplementation to providing harvest opportunities for hatchery fish while minimizing impacts on wild coho populations. Specific changes include:

- Forty percent reduction in the total number of coho released by ODFW hatcheries (1981 versus 1993 brood years).

- Near elimination of fingerling/fry releases.
- Substantial reduction in off-site releases.
- Use of acclimation facilities for many of the remaining off-site release programs.
- Significant reduction of releases of hatchery coho into basins other than that from which the stock was developed.
- Additional reductions in release numbers and a shift to native or wild type broodstocks are proposed for initiation with the 1996 brood.

Information on the ODFW's hatchery program are in the Management Measures Attachment of this Plan.

ODFW Salmon and Trout Enhancement Program

The STEP program began in 1982 with four main goals:

1. Citizen volunteer participation in ODFW management objectives
2. Rehabilitation and enhancement of natural habitat for salmon and trout
3. Rehabilitation and enhancement of populations of salmon and trout
4. Public education.

As part of actions to achieve these goals, some STEP projects have involved releasing coho salmon. The projects, which have included work to restore wild populations and to enhance fisheries, have released coho at all life history stages. The vast majority of projects releasing coho salmon have involved the use of hatchboxes and release of unfed fry. The numbers of unfed fry released have increased rapidly with program development, but have declined in recent years.

The smolt releases of the last few years are mostly in the Coos Basin at the Noble Creek site. This is a STEP hatchery that does final rearing and release of Coos stock coho smolts reared mostly at Cole Rivers hatchery. The site is low in the basin (tributary of Isthmus Slough) and allows for segregation, harvest, and recovery of returning hatchery coho away from wild coho populations.

Private Hatcheries

Three private hatcheries have released coho salmon in Oregon's Coastal basins:

- Oregon Aqua-Foods Inc. (Yaquina Bay and Coos Bay)
  Began operations with 1973 brood year.
  Had last major releases with 1989 brood year.
  Release of 66,000 coho during 1991 brood year at Yaquina Bay site.
- Anadromous Inc. (Coos Bay)
  Began operations with 1975 brood year.
  Last releases with 1987 brood year.
- Domsea Farms (Siuslaw Bay)
  Released coho from 1981-1986 brood years.

The hatcheries mostly released foreign stock coho, as well as both yearling and zero-age smolts. Releases peaked in the early 1980s at over 23 million coho. Some hatcheries also experimented with ocean releases (up to 1 million coho released at sea in a given year). However, there have been no private hatchery coho releases since the 1991 brood year, and none are anticipated. Any future releases of coho from a private hatchery would be managed under a plan of operations subject to approval by the Oregon Fish and Wildlife Commission.

HABITAT MANAGEMENT

Introduction

The purpose of this section is to give a broad overview of the changes in habitat management that are expected as a result of the measures in support of the OCSRI Plan submitted by agencies, watershed councils, and industrial and private landowners. The vast majority of management measures that have been implemented and are proposed for implementation in the near future are related to habitat management. Emphasis in development of the OCSRI Plan has been focused on identifying changes that can be accomplished to assist conservation and restoration of coastal salmon. The Plan recognizes that human

population growth and related issues such as demand for water and other natural resources, construction of new roads, plus natural occurrences (e.g., severe winter floods and drought) may affect the habitat that supports coastal coho, steelhead and cutthroat.

Science Team Assignment
A subcommittee of the Science Team was asked to assess management measures submitted by state agencies and watershed councils. A description of Federal measures was not available for review. This was an extremely challenging task. Evaluation of habitat management measures is far more complicated than evaluating changes in harvest regulations or hatchery management programs. The following points illustrate some of the difficulties involved in evaluating habitat measures.

Evaluation of harvest and hatchery measures Evaluation of habitat measures

- Harvest rates are estimated on a routine basis; any changes in harvest rates can be compared to historic data to estimate relative benefits to populations or groups of populations.
- Releases of hatchery fish of various sizes and stock origins are routinely recorded; proposed hatchery programs can be compared to historic data to evaluate relative impacts of the change.
- When changes are made to harvest or hatchery management programs, the effects of the change take place immediately, and the geographic area affected by the change is clearly defined.
- Changes in habitat management programs, in contrast, may take years or decades to result in improved habitat conditions.
- Baseline data to compare future conditions to are often weak.
- It is often difficult to predict how general changes to habitat management practices will affect specific populations because limiting habitat factors often vary among basins.
- Habitat restoration projects that have been done in the past usually have not been described well enough to assess their effect, short of making a field inspection of each site.
- Habitat projects that have been proposed for completion in the near future, similarly, have not been described sufficiently to predict how much benefit may occur from the work.

Science Team Findings
The Science Team was not able to predict the effect of the numerous management measures and restoration projects, especially in relation to the future prospect of more people putting more demands on natural resources that support salmon. The inability to quantitatively assess habitat measures in terms of fish production potential and habitat condition is due in part to lack of a basin-by-basin limiting factors analysis, and in part to uncertainty regarding the long-term effectiveness of contemporary habitat restoration techniques. Many of the management measures submitted by state agencies were described only in general terms, and did not provide detailed information on techniques to be used, quantitative objectives, timetables for implementation, funding requirements, or expected degree of participation in voluntary programs. There was disagreement among Science Team members about the probable benefit that might accrue from some proposed habitat management measures, including measures related to agriculture, water use, fill and removal, forestry, and enforcement of water quality standards. issues were concerned. Descriptions of measures submitted by agencies usually did not provide sufficient information to determine the magnitude of change in habitat features that could be expected, specific locations and time frame within which change would occur, or what biological or habitat features could be monitored as interim indicators of success.

Many of the management measures related to habitat management promote a sense of optimism. However, proposed changes must be implemented and evaluated on a watershed basis to determine if the productive capacity of aquatic habitats and riparian areas actually improves over current conditions. It is impossible to predict with certainty what the habitat management measures, collectively, will achieve, or how these measures will interact with proposed harvest and hatchery management measures to affect production of coho or other anadromous salmonids over a coastwide or ESU-wide scale.

Positive Changes Related to Habitat Management
Compared to a few years ago, however, there have been many significant improvements that relate to habitat management and restoration in the Oregon coastal region. The President's Forest Plan, for example, represents a recent landmark change in the conservation emphasis that is placed on federal forest lands, many of which include important productive areas for coastal salmonids. The Oregon Forest Practices Act Rules also are a marked improvement in the level of protection that will be provided on both private and state forest lands. Watershed Councils that were established in the south-coastal region several years ago have developed science-based analyses to identify limiting factors and are in the process of implementing action plans to address habitat problems. New Watershed Councils are being formed in the mid- and north-coast region. Special protocols are being developed to protect sensitive aquatic habitats in the Elliott and Tillamook State

Forests. Finally, the Department of Agriculture is placing emphasis on efforts to implement Senate Bill 1010 in priority areas of the Tillamook, Umpqua, and Rogue basins, and expects to achieve material improvement in riparian and aquatic habitats in agricultural areas of these basins.

A summary of significant efforts that have occurred or are proposed relative to conservation of productive salmon, steelhead, and cutthroat habitat includes the following examples:

- Many fish passage problems associated with state highways and forest roads will be assessed and remediated within the next ten years, and revised maintenance and construction standards will continue to reduce fish passage impacts in the future.
- Fish passage problems related to diversion and push-up dams will be greatly reduced through multi-agency coordination and action to address enforcement of existing laws, speed implementation of screening, and development of alternatives to traditional water diversion methods.
- Riparian zone health and related stream functions (e.g., shade, large woody debris [LWD], bank stability, and nutrient cycle) will be greatly improved through a combination of improved forest practice rules, implementation of new Goal 5 standards, implementation of SB 1010 on agricultural lands, improved state highway construction and maintenance measures, and voluntary efforts of landowners.
- Instream habitat projects in areas most likely to benefit species of concern are being planned and implemented. Many of these projects attempt to improve habitat by placing large woody debris, creating backwater alcoves, and improve connectivity to wetlands and side channels. Habitat projects will remain a major component of salmonid restoration efforts for years to come. Specific incentives to encourage such actions are provided and may be strengthened, existing economic and regulatory obstacles to conducting such projects and barriers to these actions will be reduced.
- Instream habitat will be improved by "protecting" and encouraging beavers on key sites. This work will involve adaptive management and cooperative working arrangements that include land management agencies, ODFW, and many private landowners.
- Instream flows, especially in Core Production Areas that are critical to conservation of salmonids, will be improved through: a) the purchase, lease, or donation of water rights; b)improved administration and enforcement of water rights laws; c) monitoring; and d) voluntary efforts.
- Sediment delivery (including debris flows) will be reduced through implementation of new forest practices BMPs and a forest road erosion and risk reduction project on forest lands; improved fill-removal administration; improved state highway maintenance efforts; and implementation of SB 1010 on agricultural lands.
- Adverse effects of gravel mining will be reduced by limiting removal to recruitment, considering time or area restrictions to be applied in Core Production Areas, and improved monitoring and enforcement.
- Habitat condition will be assessed and restoration efforts will be effectively prioritized and implemented. Core areas will be identified and given special emphasis under all key measures.
- The Northwest Forest Plan will provide significant strong measures to conserve productive salmonid habitat on federal lands.
- Many new watershed councils have been organized and efforts are underway to establish councils in every coastal river basin. These watershed councils are conducting watershed assessment and developing action plans to correct limiting factors.

Based on extensive discussions, the Science Team was convinced that many new and proposed management measures have the potential to materially improve the productive capacity of coastal basin habitats that support salmonids. Roughly 200 habitat management measures that are relevant to coho salmon have either been implemented, or are proposed. Hundreds of focused habitat restoration projects have been conducted during the past few years under the guidance of watershed councils and ODFW, and with financial support of private and industrial landowners.

Hundreds of similar projects are being planned for action in the next few years. A progressive evolution has been occurring in the quality of recent restoration work, and continued improvement in the quality of focused restoration work is expected with the results of current monitoring work. An inventory of habitat restoration projects on private industrial lands conducted by ODFW for the Oregon Forest Resources Institute (contained in Attachment III) provides an overview of the magnitude of effort, type of work, and the basis for design of restoration projects. Also, detailed monitoring of a number of habitat restoration projects conducted in the north coast area in 1995 is expected to contribute to improved design of future similar projects.

The Crucial Role of Monitoring

A comprehensive monitoring program is an essential part of the OCSRI Plan. Clearly, many management measures and restoration projects have been implemented recently, or are proposed for implementation in the

near future. These measures, when evaluated individually, tend to indicate that certain habitat features should improve (in relation to the habitat needs of anadromous salmonids) over what they have been in the past. For many habitat features, it was not possible to quantitatively predict whether the conditions will actually improve coastwide, or if the historic rate of decline in habitat condition will only be moderated. The answer to this question on a coastwide, or ESU wide basis, is probably not determinable through science. Only a well designed monitoring program that tracks indicators of biological communities and their supporting habitats will establish whether conditions decline, stay the same, or get better. In addition, a properly designed and integrated monitoring and analysis program is essential to active adaptive management: the process of testing alternative hypotheses through management action, learning from experience, and making appropriate change to policy and management practice.

OCEANIC CONDITIONS

Natural cyclic changes in the ocean environment have been identified as an extremely important determinant of survival, and therefore production, of Oregon coho salmon. the ocean environment has been generally unfavorable for survival of coho off Oregon since the late 1970s. There is no indication that these unfavorable conditions will remain constant: A return to more favorable survival conditions is expected, based on the historic record. However, the timing of return to a more favorable survival scenario, and the magnitude of improvement that may occur, is unknown.

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SECTION VII-B

APPRAISAL OF THE OCSRI PLAN

The following approach will be used to assess the adequacy of the OCSRI Plan. The intent of the review process is two-fold:

- First to invite constructive suggestions for specific improvements that may be made to any element of the Plan; and
- Second, to ask reviewers to judge the overall likelihood that the elements contained in the Plan, collectively, will be sufficient to achieve conservation and restoration of anadromous salmon and trout in coastal river basins.

When a complete draft of Oregon's Coastal Salmon Restoration Initiative Plan is compiled, a number of individuals will be invited to work together and provide their assessment of the Plan. Individual technical elements are being distributed for review by NMFS, other scientists, and interested parties. Comments received in these reviews will be shared with NMFS and will provide a basis for improving the technical elements of the Plan.

Assessing the overall Plan, however, is a difficult task. The OCSRI Plan includes elements of science, new management measures, proposals for management measures, policy, public education, enforcement of environmental laws, interagency cooperation, monitoring, and adaptive management. Evaluations of the adequacy of individual elements of the OCSRI Plan, as well as the entire Plan, should theoretically be done on a watershed-by-watershed, basin-by-basin, and ESU-by-ESU basis.

The premise of the OCSRI is that limiting factors will be identified in a basin context and that solutions to addressing those limiting factors will be implemented through a Watershed Council context involving all management entities and stakeholders. No scientific protocol exists that clearly defines how one might weigh all the elements of the OCSRI Plan and judge its adequacy. Since a basin-by basin limiting factor analysis and action plan is not yet available, evaluation of the adequacy of the OCSRI Plan as it stands must rely to a large extent on the professional judgment of the reviewers.

A strong, comprehensive monitoring program is an extremely critical element of this or any other conservation plan. The monitoring program proposed in the OCSRI Plan, if implemented, will inform resource managers and the public whether the presumed benefits of individual and collective elements of the Plan are having the desired effect: Restoring coastal salmon, steelhead, and cutthroat populations to healthy conditions.

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CHAPTER VII

APPRAISAL OF MEASURES

The OCSRI Plan represents an effort to conduct natural resource management in a new way. The Plan proposes many new management measures for institutional support; participation in grassroots restoration efforts; education and outreach programs; and funding options. All of the measures are designed to achieve conservation and restoration of Oregon's coastal salmon, steelhead, and cutthroat trout populations. Simultaneous with development of the OCSRI Plan, NMFS is considering whether to list two ESUs of Oregon coho salmon as threatened, and is beginning a review to consider whether to list several Oregon ESUs of steelhead as threatened under the Federal ESA. The question that must be answered by those who review this Plan is:

> *Will the elements of the plan, collectively, be sufficient to achieve conservation and restoration of Oregon's anadromous salmonids in coastal river basins?*

This is not a trivial nor easily answered question. Nevertheless, people who review this Plan, including NMFS, will judge its adequacy. The Plan is presented as a strong foundation for conservation and restoration efforts. It is a foundation that will require improvement because it really represents a new way of doing business, and refinement because new information and new interpretations of old information will, over time, suggest some different approaches than have been presented in the first draft of the plan.

The purpose of this section is to present a brief overview of some of the aspects of the OCSRI Plan that represent major changes from previous management practices. This overview will concentrate on four major risk areas:

- Harvest management,
- Hatchery management,
- Habitat management, and
- Oceanic conditions.

A proposal for obtaining critical review of the OCSRI Plan is located in section B of this chapter.

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