[v. 2]

Oregon Coastal Salmon Restoration Workplans for State Agencies

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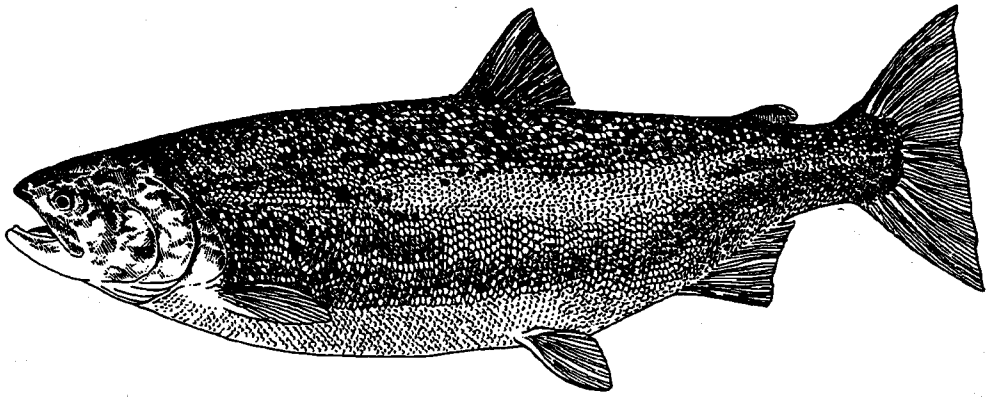

Department of Environmental Quality
Oregon Coastal Salmon Restoration Workplans

Department of Environmental Quality
OCSRI Workplan
(Phase 1 Measures)

DEQ1 - Coastal Nonpoint Pollution Control Program

Summary of Measure: Nonpoint sources of pollution will be minimized in coastal areas through comprehensive state and local programs. Full implementation of management measures designed by the Environmental Protection Agency (EPA) and National Oceanic Atmospheric Administration (NOAA) is expected by the year 2004 with benefits to coho continuing beyond full implementation. The Department of Environmental Quality (DEQ) will implement the Coastal Nonpoint Pollution Control Program by developing new programs to address the following issues:

- Erosion from construction sites disturbing less than 5 acres.
- Failing onsite sewage disposal systems resulting from inadequate maintenance of septic tanks and drainfields.
- Pollutant runoff from road and bridge construction, maintenance, and operation by local highway departments.

Background: Congress in 1990 directed coastal states to develop comprehensive nonpoint source pollution prevention and control programs to address pollution from forestry, agriculture, urban development, and marinas, and to protect and restore wetlands and riparian areas. In Oregon, the program is administered by the Department of Environmental Quality and the Department of Land Conservation and Development. The State conducted an inventory and determined that many of the program's requirements were met by existing natural resource programs, including the Forest Practices Act, the Removal-Fill program, and the 401 certification program.

Of the remaining requirements that the state must implement, three issues have been assigned to DEQ for further program development:

- Requirement to address erosion from construction sites where less than five acres of land is disturbed.
- Requirement for an inspection program for onsite sewage disposal systems.
- Requirement for local jurisdictions to implement measures relating to roads, highways and bridges.

Goal: To prevent nonpoint source pollution from small construction sites; existing onsite sewage disposal systems; and local roads, highways, and bridges.

Objective: Develop administrative rules requiring local jurisdictions to adopt and implement ordinances to control erosion from small construction sites; develop administrative rules establishing a requirement that onsite sewage disposal systems be inspected according to state standards at the time any property on which a system is located is transferred; and develop administrative rules requiring local jurisdictions to implement management measures for roads, highways, and bridges.

Assignments and Responsibility

Task 1: Construction Site Erosion Control Program.

Deliverables: Technical Advisory Committee report and rule language recommendation to Environmental Quality Commission.

Responsible Staff: Bobbi Lindberg
Completion Date: June 1996

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Task 2: Onsite Sewage Disposal Systems Inspection and Education Program.

Deliverables: Technical Advisory Committee report and rule language recommendation to Environmental Quality Commission.

Responsible Staff: Martin Loring
Completion Date: March 1998

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Task 3: Road and Bridge Construction, Maintenance, and Operation Program for Local Governments.

Deliverables: Technical Advisory Committee report and rule language recommendation to Environmental Quality Commission.

Responsible Staff: Bobbi Lindberg
Completion Date: March 1998

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Task 4: Develop Monitoring Program.

Deliverables: Monitoring program submittal to NOAA, EPA.
Responsible Staff: Bobbi Lindberg and Andy Schaedel
Completion Date: March 1998

DEQ2 - Implementation of Water Quality Standards

(Revised March 9, 1997)

Summary of Measure: Water quality standards for dissolved oxygen and temperature have been modified and a new standard developed for intergravel dissolved oxygen to improve protection of cold water aquatic species. Implementation plans will be developed for both point and nonpoint sources of pollution to reduce pollutant loads such that the new water quality standards can be achieved. Particular attention will be paid to coastal waterbodies as these parameters are critical limiting factors in every stage of salmonid fresh water life cycles.

Water Quality Standards Implementation Guidance

Background: The water quality standard for dissolved oxygen was modified to focus more directly on the criteria needed to protect aquatic resources. The criteria developed included two oxygen standards for the principal life stages of spawning and incubation through emergence from the gravels, and older life stages. An Intergravel dissolved oxygen criteria was developed to protect the early life stages. The temperature standard was revised to reflect the best scientific information available on temperatures needed to protect salmonids in each of their fresh water life stages, and to make the standard more implementable with respect to nonpoint effects on waterbody temperature.

Goal: Protect, enhance, or restore salmon habitat.
Objective: Achieve water quality standards for dissolved oxygen and temperature.

Assignments and Responsibility

Task 1: Develop Guidance Detailing Criteria for Standard Development Based on Natural Conditions.

Deliverables: Guidance document.
Responsible Staff: Lynne Kennedy

Completion Date: The guidance document detailing when natural conditions may be considered to preclude attainment of a standard has been completed and distributed to federal agencies (NMFS and EPA) for review. New information regarding the timing and process by which a replacement standard is formally adopted will be included after EPA has determined its national policy on this issue and final comments are received.

Task 2: Develop Guidance Related to Temperature Management Plans.

Deliverables: Temperature management plan guidance.
Responsible Staff: Debra Sturdevant
Completion Date: June 30, 1997

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***Task 3*: Prepare Guidance for Developing Nonpoint Source Total Maximum Daily Loads (TMDLs).**

Deliverables: Nonpoint source TMDL guidance document.
Responsible Staff: Roger Wood
Completion Date: February 1997

Task 4: Develop Implementation Guidance for New Dissolved Oxygen (IGDO) Standard.

Deliverables: Guidance documents that: explain how to monitor inter-gravel dissolved oxygen; detail when, where, and who will collect IGDO measurements; explain how DEQ will incorporate the new water-column dissolved oxygen standard into point source permits; and provide an appendix to the nonpoint source TMDL guidance that outlines any special requirements that pertain only to dissolved oxygen or to IGDO.

Responsible Staff and Completion Dates:

Intergravel Dissolved Oxygen Monitoring Guidance: Larry Marxer and Bob Baumgartner
Completion Date: February 1997

IGDO Monitoring Plan Guidance: Bob Baumgartner and Greg Pettit
Completion Date: June 1997

Point Source Dissolved Oxygen Guidance: Jim Sheetz, Bob Baumgartner, and Lynne Kennedy
Completion Date: June 1997

Nonpoint Source Appendix to TMDL Guidance: Debra Sturdevant
Completion Date: December 1997

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Task 5: Develop Guidance for Incorporating Temperature Standard into Point Source Permits.

Deliverable: Guidance document.
Responsible Staff: Raj Kapur
Completion Date: Completed

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Task 6: Implement IGDO for Point Source Permitting and in Coastal Stream Nonpoint Source Related Test Cases.

Deliverables: Effluent permit compliance with IGDO, permit reports, IGDO data development, modification to guidance as needed, and integration of IGDO results into coastal basin plans.

Responsible Staff: Larry Marxer, Marilyn Fonseca, and Mike Wiltsey
Completion Date: September 1997

Task 7: Assess Forestry, Agricultural, and Federal Plans Against DEQ's Nonpoint Source TMDL Guidance to Determine Which Plans Meet Criteria for Becoming a TMDL.

Deliverables: Management plans or other actions that will return waters impacted by nonpoint sources to water quality standards.

Responsible Staff: Russell Harding

Completion Date: Ongoing task, with complete review of at least two plans by May 1997. Such review has become a regular part of our function; we will continue to receive and review plans and to produce additional material as needed for ensuring TMDLs are developed.

Umpqua Basin

Background: DEQ has listed eight streams in the Umpqua Basin as not meeting water quality criteria for dissolved oxygen, and another 55 stream segments have been identified as water quality limited for stream temperature.

Goal: Eliminate water quality standards violations for dissolved oxygen and temperature through the implementation of point source pollution controls and nonpoint source pollution prevention programs.

Objective: Water quality-based permits, total maximum daily loads, and water quality management plans will be developed and implemented to achieve water quality standards.

Assignments and Responsibility

Task 1: Identify Point Sources of Domestic Waste Water Pollution That Are or May be Contributing to a Depression in Dissolved Oxygen as a Result of Inadequate Dilution.

Deliverables: A list of facilities eligible for state revolving funds that are likely to contribute to depressed dissolved oxygen concentrations in receiving streams. Facilities will be prioritized by several factors including magnitude of impact and effects on salmonids.

Responsible Staff: Bob Dicksa
Completion Date: April 30, 1997

***Task 2:* Revise National Pollution Discharge Elimination System (NPDES) Permits For Domestic Waste Facilities To Eliminate Fish Passage And Water Quality Impacts. Aggressively Market State Revolving Fund Program To State-Revolving-Fund (SRF) Eligible Communities/Facilities.**

Deliverables: Revised NPDES permits and SRF contracts.
Responsible Staff: Western Region managers
Completion Date: 2002 (by end of next permit cycle).

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***Task 3:* Develop Dissolved Oxygen TMDL For Calapooya Creek.**

Deliverables: Draft water quality-based permit for the City of Oakland.
Responsible Staff: Dick Nichols and Alan Bogner
Completion Date: June 30, 1997

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***Task 4:* Develop Dissolved Oxygen TMDL For South Umpqua River.**

Deliverables: Draft TMDL identifying waste load allocations.
Responsible Staff: Dennis Ades
Completion Date: June 30, 1997

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***Task 5:* Develop Final Dissolved Oxygen TMDL For South Umpqua River.**

Deliverables: Final TMDL identifying load and waste load allocations.
Responsible Staff: Andy Schaedel and Dennis Belsky
Completion Date: April 30, 1998

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***Task 6:* Develop Water Quality Management Plans For Stream Temperature.**

Deliverables: Propose nonpoint source water quality management plans in the Umpqua Basin.
Responsible Staff: Dennis Ades
Completion Date: June 30, 1997

Task 7: Finalize Temperature Nonpoint Source Water Quality Management Plans In The Umpqua Basin

Deliverables: NPS load allocations or best management prescriptions.
Responsible Staff: Dennis Ades
Completion Date: April 30, 1998.

Rogue and South Coast Basins

Background: Non-attainment of the dissolved oxygen and temperature standards has been documented in many areas throughout the coastal basins. Although interrelated, the temperature problems mainly stem from nonpoint source issues while low dissolved oxygen mainly stems from excessive nutrient loads. The source of nutrients has traditionally been associated with point sources, but recent monitoring indicates non-point contributions from agriculture and forestry activities can be significant.

The Bear Creek subbasin (Jackson County) had TMDL limits set in 1990 for both point and nonpoint sources. All point sources, except the Ashland wastewater treatment plant, have eliminated summer/fall discharges to Bear Creek. The city of Ashland is under a mutual agreement and order with DEQ to be in TMDL compliance by the end of year 2000. Local Designated Management Agencies (DMAs) are on track with a compliance schedule mandated by the Environmental Quality Commission (EQC) for reducing nonpoint source pollution in the Bear Creek valley.

The cities of Coquille and Myrtle Point are in the beginning stages of planning for required upgrades of their wastewater treatment plants to meet the TMDL set on the Coquille River.

The cities of Cave Junction, Rogue River, Grants Pass and the Redwood Sanitary Sewer Service District are each upgrading their collection systems and/or treatment facilities to meet population growth demands, eliminate sewage overflows and bypasses, and address deteriorating treatment facility performance. The improvements are not required by a Rogue River TMDL. Overall, these upgrades to sewage treatment facilities will increase treatment efficiency and reliability of effluent discharges. In some cases, additional quantities of pollutants may be discharged, but increases must satisfy required findings made by either the DEQ Director or Environmental Quality Commission.

Ongoing nonpoint source reduction projects are underway in the South Coast and Rogue Basins. Field staff in the Coos Bay and Medford offices have been active in funding and implementation of these projects by working cooperatively with watershed councils and state/federal funding agencies.

Goal: Attainment of new water quality standards for dissolved oxygen and in-stream temperature.

Objective: Ensure that setting TMDLs, issuing NPDES discharge permits, and conducting nonpoint source activities work in harmony to achieve water quality standards.

Assignments and Responsibility

Task 1: Form Teams (Rogue and Umpqua Basins) for Restoring and Protecting Water Quality. Fundamental to the approach is to meld traditional point and nonpoint activities into an integrated strategy for each system. Each team has expertise in engineering, permit writing, in-stream monitoring, and fish biology/stream ecology.

Deliverables: Team formation/Team activities.
Responsible Staff: Steve Greenwood and Dennis Belsky
Completion Date: Teams are formed and active.

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Task 2: Implement Current TMDLs (Bear Creek and Coquille)

Deliverables: Sources in compliance with TMDL limits.
Responsible Staff: Dennis Belsky

Completion Date: December 31, 2000 for Ashland; for Coquille and Myrtle Point schedules for plant upgrades will be part of permit renewal process. Some work has proceeded with sewer collection system rehabilitation in Coquille that was funded in part by SRF.

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Task 3: Share Information Between Point And Nonpoint Source Activities To Better Integrate Efforts. This is envisioned as a GIS type system to aid the renewal/drafting of permits, the calculating of mass loads from discharges, the review of in-stream monitoring data, and review of point source compliance data. This information sharing will greatly aid our capabilities of modeling and problem area identification.

Deliverables: Active information-sharing system in DEQ regional offices.
Responsible Staff: Gary Arnold
Completion Date: Fall of 1997.

DEQ3 - Development and Implementation of the 303(d) List for TMDL Development

(Revised March 9, 1997)

Summary of Measure: DEQ will prioritize its list of water quality limited waterbodies to address limiting factors for coastal Coho salmon recovery. Under Section 303(d) of the Clean Water Act, DEQ recently revised its list of water quality limited waterbodies and is developing a priority list for TMDL development. The presence of threatened or endangered species within a given waterbody and the Coastal Salmon Restoration Initiative priority waterbodies will be included in the criteria for ranking waterbodies for TMDL action.

Background: Section 303(d) of the 1972 Federal Clean Water Act requires each state to identify waters of the State that do not, or are not, expected to meet water quality standards or beneficial uses after the application of technology based controls. These waters are referred to as "Water Quality Limited." States are to identify these waters, develop a priority ranking, and establish Total Maximum Daily Loads in accordance with the priority ranking. The 303(d) list is a listing of these waters.

In other words, Section 303(d) requires States to develop a list of waterbodies that need additional work beyond existing controls to achieve or maintain water quality standards. States must submit Section 303(d) lists to the U.S. Environmental Protection Agency (EPA) on April 1 of even numbered years. Each state must prioritize waterbodies and target waterbodies for establishing Total Maximum Daily Loads in accordance with the priority ranking. In general, high priority waterbodies have been those for which TMDLs will be initiated within the next two years. The DEQ is currently revising its 303(d) list and modifying the criteria for establishing priorities to give highest priority to waters with the presence of threatened and endangered species or species that are proposed for listing.

Goal: To have all waters of the state achieve water quality standards within a reasonable time frame.

Objective: Identify waters that do not meet water quality standards, then prioritize and target waterbodies to address water quality concerns through the development and implementation of Total Maximum Daily Loads and Management Plans.

Assignments and Responsibility

Task 1: Maintain and Update the 303(d) List of Waters That Do Not Meet State Water Quality Standards by April 1, 1998.

Deliverables: Updated list for U.S. Environmental Protection Agency approval with a focus on priority coastal basins.

Responsible Staff: Andy Schaedel
Completion Date: April 1998

Task 2: Develop Process for Prioritizing and Targeting Waterbodies on the 303(d) List.

Deliverables: Document describing a process to prioritize and target waterbodies on the 303(d) list for TMDL development.

Responsible Staff: Carolyn Young
Completion Date: February 1997

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Task 3: Prioritize the List and Target Water Bodies for Development of TMDLs.

Deliverables: Prioritized waterbodies with a list of targeted waters for which TMDLs will be developed prior to the next listing cycle (April 2000).

Responsible Staff: Andy Schaedel
Completion Date: April 1998

DEQ4 - Watershed Council Support

(Revised March 9, 1997)

Summary of Measure: The Department will enhance and improve support of local watershed council efforts to improve water quality in the Coho salmon's range. DEQ will enhance its current watershed council technical assistance by providing additional monitoring support, and providing targeted support for both basin and project level sites in watersheds with mature programs. In areas where watershed council activity is beginning or is unfocused, additional technical assistance staff will be assigned to primarily provide program development, project guidance, and linkages to government programs and funding. Additional monitoring support will be provided as programs mature.

Rogue and South Coast Basins

Background: Regional staff have been working with local councils in the Rogue/South Coast since 1993. Much effort has been spent to promote trust between the agency and local councils and governments and a good working relationship has been developed. Ongoing basin multi-agency monitoring has identified instream summer temperatures as the chief limiter of coho populations in the Rogue basin. In addition, project implementation has begun utilizing 319 funding in partnership with other funding sources. Currently, these project efforts are focused in Bear Creek, lower Rogue, and in several of the smaller south coast tributaries.

Goal: To reduce summertime instream temperatures that currently limit juvenile coho survival. Priority will be given to improving and securing viable temperature regimes in core areas identified as part of the OCSRI.

Objective: Draft plans, which will qualify as nonpoint source TMDLs, with the eight Rogue watershed councils for reducing summer instream temperatures. These plans will provide a new focus and an improved technical approach to field monitoring; they will also provide an improved focus on priority implementation sites and components. These efforts will help prepare the participating councils to develop targeted implementation proposals for funding that may become available as a result of 1997 legislative actions.

Assignments and Responsibility

Task 1: Draft Plans With the Eight Rogue Watershed Councils That Will Reduce Summer Instream Temperature. The plans will include information identifying locations needing focus in each subbasin, the effective site-specific management practices for each site, and the kind and amount or level of monitoring that will be required to fill data gaps, fulfill detailed assessment needs and measure implementation effectiveness. The plans will incorporate the 10 items identified by DEQ's guidance on writing a nonpoint source management plan that qualifies as a TMDL. In addition, area watershed councils will require funding assistance to support and build local capabilities, allowing watershed councils to integrate, tailor, and adopt these plans within the watershed council structure.

A local capabilities support plan is currently being developed and will include such items as monitoring equipment, GIS support, workshop-based training and education, and technical writing assistance. Staff are working closely with other agencies such as the Department of Lands and Conservation Development (facilitating the Coastal Zone Management Act introduction and implementation) and Oregon Department of Agriculture (developing approaches to implement Senate Bill 1010 planning) to assure a coordinated approach. These actions are also well aligned with EPA efforts to facilitate the development of preliminary basin wide assessment tools and technical support. This type of coordinated approach is considered a cornerstone to the viability of the proposed project.

Deliverables: Water Quality Management Plans for temperature.

Responsible Staff: Gary Arnold and Pam Blake
Completion Date: Summer of 1997

Task 2: Develop a "How To" Manual That Watershed Councils Can Use in the Future for Writing Nonpoint Source TMDLs in Conjunction With State and Federal Agencies (e.g., Senate Bill 1010), as Appropriate. This pilot work within the South Coast/Rogue basins will facilitate water quality management plan development from guidance to reality. Tools and information modules will readily avail themselves to easy transfer and use throughout the state of Oregon.

Deliverables: Nonpoint Source TMDL Manual.
Responsible Staff: Gary Arnold and Pam Blake
Completion Date: August 1997

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Task 3: Seek Development of Technically Sound Implementation Proposals Through Watershed Councils. Assist in providing and facilitating coordinated funding from diverse sources (319 grants; other federal funding; and state, local, and private funding) to further the projects identified in the Watershed Council plans.

Deliverables: Grant proposals and project oversight.
Responsible Staff: Pam Blake
Completion Date: July 1, 1997

North Coast Basins

Background: DEQ will provide contact with and representation on several watershed councils along the North Coast. The DEQ will also continue its representation on scientific committees and at watershed councils. Existing watershed groups include the Nestucca (including Little Nestucca and Three Rivers), Lower Nehalem, Upper Nehalem, and Netarts Bay. The DEQ will continue to encourage the formation of watershed councils and is currently working with the City of Cannon Beach to form an Ecola Creek watershed council. The formation of the Nestucca River and Netarts Bay Watershed Council was supported by resources provided by DEQ's §319 money and staff. These councils are developing action plans through staff provided by the DEQ's §319 money. Water quality and nonpoint source pollution projects are being implemented by the watershed councils. Criteria for project selection includes water quality improvement directly associated with fish habitat protection and restoration on private lands. Several projects have been implemented, numerous projects are being developed, a monitoring program is being developed, and initial monitoring efforts have been implemented.

Goal: Develop and foster community involvement in pollution control and salmon restoration through the development and support of Watershed Councils.

Objective: Develop and implement specific projects through priorities and opportunities established in watershed action plans.

Assignments and Responsibility

Task 1: Develop a Watershed Action Plan to Guide Project Implementation.

Deliverables: Watershed Action Plan
Responsible Staff: Gary Sage and Robert Baumgartner
Completion Date: May 1997

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Task 2: Develop and Implement Volunteer Monitoring Program.

Deliverables: Monitoring plan Nestucca Watershed Council, Volunteer Monitoring Training, and Water quality (temperature) data.

Responsible Staff: Larry Caton, Robert Baumgartner, and Gary Sage.

Completion Date:

- Monitoring plan - May 1997
- Monitoring data - October 1997

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Task 3: Monitoring Plan and Implementation, Citizen Monitoring Training, and Lower Nehalem Watershed Council.

Deliverables: Citizen Training and Water Quality Data.
Responsible Staff: Robert Baumgartner and Larry Caton

Completion Date
Initial Plan March - 1997
Training - May 1997
Data collection initially by May 1997. Continuous implementation.

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Task 4: §319 Project Implementation.

Deliverables: Implement §319 funded projects in Nestucca and Upper Nehalem. Projects include stream restoration through vegetative shading and fencing; riparian management, wetland restoration, erosion prevention and control through bank stabilization by rock-willow planting; and weir placement that will also provide fish habitat and potentially develop thermal refugia in the lower river.

Responsible Staff: Gary Sage

Completion Date: July 1997

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Task 5: Develop New §319 Projects.

Deliverables: Development of a new series of site-specific nonpoint source pollution control projects designed to protect, enhance, or restore fish habitat. Projects will be developed and selected through the efforts of the watershed councils and the action plans developed above.

Responsible Staff: Gary Sage and Robert Baumgartner
Completion Date: July 1997

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Task 6: Develop and Encourage Volunteer Projects.

Deliverables: Description of volunteer projects implemented as part of the §319 funded student RARE Intern position for the Nestucca Watershed. Volunteer Projects include:

- Tree planting along Niagara Creek.
- Bank Stabilization and Tree Planting along the mainstem Nestucca.
- Salmon Carcass dispersal along several streams having Coho.
- Effectiveness monitoring of restoration projects.
- Tree planting along Nestucca River, Smith Creek, and Boulder Creek.
- Fish Screen Survey.
- Physical and biological habitat surveys on Clear and West Creek.
- Creation of side channel rearing habitat near Cloverdale.
- Tide gate surveys.
- Basin temperature monitoring.

Responsible Staff: Robert Baumgartner and Gary Sage.
Completion Date: July 1997

Umpqua Basin

Background: The Umpqua Basin Fisheries Restoration Initiative (UBFRI) was formed by the Douglas County Commission in December of 1992. UBFRI is a subcommittee of the Douglas Water Advisory Board and has an advisory role to Douglas County Commissioners. UBFRI also serves as a watershed council for the entire Umpqua basin and has initiated or facilitated many fisheries inventory and restoration activities. Recently, members have discussed the need to modify UBFRI's organization and membership to better represent all basin stakeholders.

Goal: UBFRI as an effective watershed council will develop a comprehensive strategy to identify, document, and address fisheries and water quality issues throughout the Umpqua Basin.

Objective: DEQ has committed staff resources to participate as a member of UBFRI; assist with the reorganization of the watershed council; participate in the technical advisory committee; and assist with assessment, prioritization, and implementation of watershed restoration efforts.

Assignments and Responsibility

Task 1: Participate in UBFRI Activities.

Deliverables: Active membership in UBFRI watershed council, UBFRI ad hoc committee for cutthroat recovery, and interim technical advisory team.

Responsible Staff: Bobbi Lindberg
Completion Date: March 1997

****

Task 2: Provide Technical Assistance to Watershed Council.

Deliverables: GIS-based assessment of fisheries and other beneficial uses in the basin, water quality affecting beneficial uses, and pollution sources.

Responsible Staff: Dennis Ades
Completion Date: June 30, 1997.

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Task 3: Assist With Watershed Restoration Efforts.

Deliverables: Contribute FY-96 and FY-97 funds to two watershed restoration projects in the South Umpqua Basin.

Responsible Staff: Bobbi Lindberg
Completion Date: June 30, 1997

DEQ5 - Enhanced 401 Certifications In Coastal Watersheds

(Revised March 9, 1997)

Summary of Measure: Section 401 of the Clean Water Act requires state certification that water quality standards will be met when certain federally permitted activities, such as dredge and fill operations, are conducted in waters of the state. DEQ will improve review and enforcement of 401 certification conditions for activities in coastal salmonid waters to ensure adequate protection of all salmonid life stages.

Background: Congress delegated authority directly to states under section 401 of the Clean Water Act, such that no federal permit or license to conduct work in navigable waters can be issued without the prior certification by the state that the work will not violate state water quality standards established under the federal Clean Water Act. Oregon administers this provision through the Water Quality Division of the Department of Environmental Quality. The Department currently has one FTE devoted to section 401 certifications with input from regional offices as appropriate.

The Department receives approximately 1,200 applications statewide for water quality certifications per year. The majority of these are issued custom-designed certifications based on the nature and location of the project. Others are within the Army Corps of Engineer's nationwide permits, which are certified by the state every five years.

Goal: To ensure that the water quality standards affecting salmonid spawning, rearing, and migration are met, and also that salmonids are fully protected during in-water activities requiring federal licenses or permits.

Objective: Identify critical and essential salmonid habitat and ensure that water quality certifications reflect conditions that are fully protective of the beneficial uses.

Assignments and Responsibility

Task 1*: *Identify those projects occurring in coastal streams that are in critical or essential salmonid habitat, and ensure that the beneficial uses are fully protected. Close interaction with federal and state fishery management agencies is already occurring to ensure that conditions are sufficiently protective. We envision this being a continuing activity so that we can adapt conditions in response to new scientific knowledge or to the state of the fishery.

Deliverables: Water quality certifications reflecting conditions for the protection of coastal salmon.

Responsible Staff: Thomas Rosetta
Completion Date: Already implemented and continuing.

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Task 2: Develop a database of projects to track cumulative impacts of projects in a subbasin.

Deliverables: Water quality certifications that reflect the cumulative impacts of other projects in the subbasin.

Responsible Staff: Thomas Rosetta
Completion Date: August 30, 1997

Task 3: Ensure that salmonid protection is incorporated into the state's review of the U.S. Army Corps of Engineer's nationwide permit review.

Deliverables: Certifications, certification with conditions or denials of certifications for the U.S. Army Corps of Engineers' nationwide 404 permits to ensure that salmon are adequately protected.

Responsible Staff: Thomas Rosetta
Completion Date: February 10, 1997

DEQ6 - Tillamook Bay NEP

(Revised March 9, 1997)

Summary of Measure: DEQ will 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 species are attained.

Background: The Tillamook Bay National Estuary Program (NEP) is tasked with developing a Coordinated Conservation Management Plan (CCMP). The NEP is funded through EPA, is managed locally, and will provide state and local agencies guidance on actions needed to protect, enhance, or restore the community and aquatic life values of the Tillamook Bay Watershed.

Goal: Develop a CCMP that, when implemented, achieves water quality standards and serves to protect, enhance, and restore habitat for aquatic life.

Objective: Develop and implement CCMP through TMDLs, Permit Actions, and interaction with Department of Agriculture on Senate Bill 1010 agricultural NPS pollution plans.

Assignments and Responsibility

Task 1: Serve on management and policy committees.

Deliverables: CCMP
Responsible Staff: Avis Newell and Robert Baumgartner
Completion Date: July 1998

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Task 2: Serve on Technical Advisory Committee

Deliverables: Development of monitoring strategy, CCMP
Responsible Staff: Marilyn Fonseca and Robert Baumgartner
Completion Date: July 1998

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Task 3: Water Quality Background Report

Deliverables: Historical review for problem assessment
Responsible Staff: Avis Newell and Mike Wiltsey
Completion Date: March 1997

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Task 4: Kilchis Watershed Assessment

Deliverables: Develop the water quality and nonpoint source components for a simple watershed assessment methodology transferable to other watersheds.

Responsible Staff: Marilyn Fonseca and Mike Wiltsey
Completion Date: May 1997

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Task 5: ***Develop TMDLs***

Deliverables: TMDL problem assessment and action plans
Responsible Staff: Marilyn Fonseca
Completion Date: February 1998

Task 6: ***Technical Guidance on basin modeling approaches, data collection, and analysis***

Deliverables: Guidance to NEP, monitoring protocol, and model development. Information will form the scientific basis for recommended actions in the CCMP and TMDLs.

Responsible Staff: Marilyn Fonseca and Robert Baumgartner
Completion Date: May 1997

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DEQ7-DEQ 14 (see list below).

DEQ is preparing workplans for the following Phase 1 and 2 measures and expects their delivery to the National Marine Fisheries Service by March 15, 1997:

Phase 1 Measures

DEQ7 - Revise Water Quality Standard for Sediment.

DEQ8 - Implement Anti-degradation Water Quality Standard.

DEQ9 - Apply For Instream Water Rights On Streams With TMDLs.

DEQ10 - Reviews And Revise Water Quality Standards During Triennial Review Process.

Phase 2 Measures

DEQ11 - Implementation Of Recently Revised Water Quality Standards For Temperature and Dissolved Oxygen.

DEQ12 - Watershed Council Support.

DEQ13 - Enhanced 401 Certification Program In Coastal Watersheds.

DEQ14 - Implement Water Quality Standards For Biological Criteria, Toxics, And pH.

Department of Geology and Mineral Industries
Oregon Coastal Salmon Restoration Initiative Workplans

Department of Geology and Mineral Industries
Coastal Salmon Restoration Initiative
1997 Phase 1 Workplans

DOGAMI1 - Mine Inspections

Summary of Measure: The Department of Geology and Mineral Industries (DOGAMI) will coordinate identification and correction of turbid runoff or other problems that have potential to harm salmon or other anadromous fish or their habitat. Steps will be taken to stop such incidents by working with mine operators to develop better mining or reclamation techniques.

Background: The Mined Land Reclamation Program has been in existence for 25 years and consists of a permitting process for upland surface mine sites in Oregon to ensure responsible development of mineral resources. A mining and reclamation plan must be submitted and approved before permits are issued. Financial security is required in the event a mine operator cannot reclaim a site. Field inspections and consultations with mine operators are performed. Purposes include environmental protection and subsequent beneficial use for forestry, farming or other purposes consistent with local land use planning. Through the careful reclamation of mined lands, the program prevents undesirable impacts on environment and facilitates the long-term usefulness of lands for other post-mining purposes.

Goal: Maintain field presence at coastal watershed mine sites to find and correct any incidents that may harm salmonid habitat or fish.

Objective: Use incentives that result in enhanced reclamation beyond the minimum legal standards that are mandated in statute and rules. Perform one field inspection per year at each mine site in a coastal watershed, which is a higher field presence than average for the state as a whole.

Results: Mining operators would be more aware of need to protect habitat for anadromous fish and would conduct activities in a manner that would avoid adverse effects.

Funding: This program is funded from fees required for permits and requires no Phase 2 funding.

DOGAMI2 - Volunteer Assistance To Watershed Councils

Summary of Measure: Locate and recruit volunteer staff and equipment from mining companies to be used by Watershed Councils for conducting projects that need heavy equipment or other services.

Goal: Locate mine operators willing to donate personnel and equipment to assist watershed councils with instream projects.

Background: This is a new initiative started in 1996 to support the Coastal Salmon Restoration Initiative.

Objective: Identify mine operators willing to donate services and Watershed Councils that need services. Put operator and Councils in contact with each other so they can coordinate mutual needs and services.

Results: Progress will be made on Council projects that benefit from mine operator involvement.

Funding: No funding at the state level is required.

DOGAMI3 - Mine Reclamation Awards For Fish-Friendly Reclamation

Summary of Measure: Mining reclamation that is beneficial for fish habitat (termed as fish friendly) would be recognized by issuing awards to operators who conduct outstanding work.

Goal: To encourage mine operators to perform reclamation that is fish friendly.

Background: One facet of the Mined Land Reclamation Program consists of annual awards for outstanding mine reclamation. These are given to mine operators by the Department of Geology and Mineral Industries. We have added fish-friendly reclamation as a criterion for an award, to encourage operators to conduct fish-friendly reclamation, where a mine lends itself to such reclamation.

Objective: Improve stream habitat by increasing the number of mines reclaimed using fish-friendly techniques.

Results: Mining reclamation would be conducted in a fish-friendly manner, with results documented by the number of awards given each year.

Funding: No state funding is required.

DOGAMI4 - Landslide Studies

Summary of Measure: Conduct erosion and landslide analyses, analyze pits in floodplains and rock sites in areas of landslide potential, and develop policy directions regarding mining in and near streams for the purpose of identifying erosion and landslide hazards. These actions would be conducted in both riparian areas and uplands.

Goal: Identify erosion and landslide hazards through geomorphic studies of aggregate and rock sites and potential sites to assist in future planning and policy direction.

Background: Aggregate mineral sites and potential sites exist in areas such as streams, streambanks, bars, and flood plains; rock sites can exist in landslide-prone upland areas. These areas have not been studied for their erosion or landslide hazards.

Objective: Establish a funding source, staff, policy development, and a program of geomorphology field work to identify slide-prone problem areas. Cooperate with other agencies and the mining industry; identify hazards, as well as spawning and fish passage effects.

Results: A policy-level discussion would occur. Also, a determination would be made about where to get future aggregate and rock resources, taking into account any hazards.

Funding: This measure would require new funding (Phase 2) to support one full-time equivalent (FTE) position to be responsible for addressing erosion and landslide field work and policy development.

Department of Land Conservation and Development

Oregon Coastal Salmon Restoration Initiative Workplans

Department of Land Conservation and Development
Coastal Salmon Recovery Initiative Workplans
(Revised February 12, 1997)

Phase 1 Actions

DLCD1 - Implement The Coastal Nonpoint Pollution Control Program (CNPCP)

Summary of Measure: With DEQ, continue to manage the overall development of the Coastal Nonpoint Pollution Control Program (CNPCP) as required under 1990 amendments to the Coastal Zone Management Act.

Background: The Coastal Nonpoint Pollution Control Program (CNPCP) is a federal requirement for the state to implement enforceable nonpoint source pollution controls for virtually all land use activities in the coastal zone. Development of the CNPCP is the joint responsibility of the Department of Environmental Quality (DEQ) and the Department of Land Conservation and Development (DLCD).

Within the first five years of implementing the CNPCP (essentially by the beginning of 2002), the state is required to ensure the implementation of a comprehensive set of 56 nonpoint source pollution control management measures described in a federal guidance document available from the Environmental Protection Agency (EPA), entitled *Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters*. Oregon's strategy and program for addressing the CNPCP requirements has been submitted for federal review, which is expected to be completed in early 1997.

The fundamental purpose of the CNPCP is to implement enforceable nonpoint source pollution controls to address virtually all land and resource uses in coastal watersheds. The responsibility for implementing such pollution control measures lies with several agencies. Thus, this task requires that DEQ and DLCD maintain partnerships with ODA, DSL, ODFW, WRD, ODOT, ODF, the Marine Board, and local jurisdictions for the purpose of providing technical assistance, financial support where possible, and strategies and guidance for implementing nonpoint source pollution control measures.

Many of the federally required CNPCP measures are already being implemented in Oregon through state and local programs. For example, Oregon's system for regulating commercial forest management activities implements the CNPCP measures for forestry activities. The state's Removal-Fill law implements important components of the CNPCP measures to protect wetlands. The CNPCP measures for agriculture will be implemented through the state's process for developing agricultural water quality management area plans under Senate Bill 1010.

The purpose of this CSRI Phase 1 action is to ensure implementation of several CNPCP measures through state and local programs, as appropriate. In addition, this measure includes the development of partnerships with local governments and state agencies to implement the CNPCP in areas outside the coastal zone in the Rogue and Umpqua basins, as necessary and appropriate. Finally, overall implementation of the CNPCP will include the designation of "Critical Coastal Areas" as necessary and appropriate.

(DLCD5, described under Phase 2 Actions below, is a component of the overall CNPCP. In addition, DEQ has described measures related to the implementation of the CNPCP.)

Goal: For virtually all land uses in the coastal basins, implement nonpoint source pollution control management measures in conformity with both federal guidance and the federal conditions for approval of the state's program.

Objectives:

- Continue to coordinate with DEQ to develop strategies to implement the CNPCP, to make policy clarifications, and to establish program priorities.
- Develop agreements with DEQ, ODA, ODF, OSMB, DSL, ODOT, and local jurisdictions, as appropriate and necessary, to implement management measures in conformity with the CNPCP guidance.
- Fulfill federal conditions for approval of Oregon's CNPCP program submittal.
- Determine the appropriate extent of the CNPCP in the Rogue and Umpqua basins.
- Determine the need for designation of "Critical Coastal Areas".

Responsibilities: In collaboration with DEQ, Oregon Coastal Management Program staff will continue to manage the implementation of the CNPCP.

Results:

- Agreements with state agencies and local governments to implement specific nonpoint source pollution controls for land uses and activities within their jurisdiction or authority.
- Decision and agreement with federal agencies on the extent of the CNPCP in the Rogue and Umpqua basins.
- Criteria for identification of critical coastal areas.

Funding: January through December 1997: Federal coastal zone management funds.

Schedule:

- Agreement with RVCOG to develop a process to engage local governments and watershed councils to assess the need for the CNPCP guidance management measures: March 1, 1997.
- Boundary decision in Rogue and Umpqua basins: June 30, 1997
- Process and criteria for identification of critical coastal areas under the CNPCP: September 30, 1997.
- With DEQ and the OSMB, convene a work group to develop a strategy for implementing the CNPCP marinas management measures: September 30, 1997.
- Draft MOUs between DLCD and DEQ and other state agencies implementing components of the CNPCP requirements: October 31, 1997.
- Identification of critical coastal areas: December 31, 1997.

DLCD2 - Riparian Area Technical Assistance

Summary of Measure: DLCD will contract to develop model ordinances and other interpretive materials, as necessary and appropriate, for use by local governments in amending local land use regulations to implement the riparian area protection and restoration provisions under Statewide Planning Goal 5, Open Spaces, Scenic and Historic Areas, and Natural Resources. As agency resources permit, DLCD will also contract to produce technical assistance materials for use by individuals in their management of riparian areas on private residential lands in both urban and rural areas.

Background: New administrative rules for Statewide Planning Goal 5 rules were adopted in August 1996. The new rules include improved protection for riparian areas and wetlands, which must be implemented through local comprehensive plans. Many local jurisdictions will rely on technical assistance, in the form of interpretations and model ordinances, provided by DLCD before they will be able to amend their comprehensive plans and land use and land development ordinances.

Goal: Increase protection for riparian areas; exclude uses and activities that impair riparian vegetation, structure, and function.

Objectives:

- To develop technical assistance materials for local governments to use in adopting new riparian area protections (see DLCD4).
- To develop technical assistance materials for use by individuals in managing their riparian areas.

Responsibilities: OCMP staff will select a local jurisdiction to develop a contract for producing technical assistance materials. OCMP staff will manage a grant agreement with the selected jurisdiction, specifying the requirements for developing the model ordinances.

Results:

- Model ordinances to implement the new Goal 5 rules for: (1) riparian area protection; and (2) riparian area restoration.
- Technical assistance informational brochure on managing riparian areas for water quality and salmon habitat objectives for use by urban and rural residential landowners (as resources permit).

Funding:

- DLCD Technical Assistance Grant funds: Expended by June 30, 1997.
- Federal coastal resource management funds: Expended by June 30, 1997.

Schedule:

- Model ordinances for riparian area protection and riparian area restoration: June 30, 1997.
- Informational brochure on managing riparian areas for urban and rural residential landowners: June 30, 1997.

DLCD3 - Identify Estuarine Restoration Opportunities

Summary of Measure: DLCD will provide consultation and assistance to local governments that want to amend the restoration site inventories in their estuary management plans.

Background: The initial effort will emphasize the identification of diked tidelands inside UGBs that may be zoned for development.

Goal: Identify areas appropriate for restoration to estuarine habitats.

Objectives: In consultation with local governments, and where assistance is requested, identify diked former tidelands inside UGBs that may be designated for future development.

Responsibilities: DLCD Coastal Division staff will consult with local governments to determine the extent of interest in revising buildable lands inventories to remove from those inventories any lands that are suitable for restoration to estuarine habitats.

Results: Identification of lands that are suitable for restoration to estuarine habitat.

Funding: Base coastal management program funding from NOAA/NOS Office of Coastal Resource Management.

Schedule: Survey of local planning officials to determine interest in assessing buildable lands inventories to identify lands suitable for restoration to estuarine habitat: December 30, 1997.

Phase 2 Actions

DLCD4 - Implement New Goal 5 Rules for Riparian Protection

Summary of Measure: DLCD will help to ensure coastal local governments integrate the new requirements into their comprehensive plans and development ordinances as soon as possible.

Background: Administrative Rules for the implementation of Statewide Planning Goal 5 were amended in June 1996. The new rules include improved provisions for protecting riparian areas and wetlands. The emphasis of this task is to implement the rules for protecting riparian areas and wetlands inside riparian buffers. Under Oregon's comprehensive planning program, local jurisdictions are required to address the new rules before or upon the next regularly-scheduled Periodic Review of their comprehensive plans, which means that some jurisdictions may not adopt new rules for up to seven years. Sufficient funding to pass through to local governments to make plan and ordinance changes would result in a greatly accelerated schedule, perhaps resulting in plans being amended within 2-3 years.

There are 65 local jurisdictions within the area encompassed by the CSRI. DLCD anticipates that this measure will enable 10 jurisdictions to complete a plan amendment process to implement the new riparian protection rules.

DLCD's strategy will be to: (1) emphasize the very high priority of implementing the new Goal 5 rules in new Periodic Reviews; (2) attempt to accelerate implementation of the new rules under existing Periodic Reviews; (3) consult with jurisdictions that are not now legally required to implement the new rules until after the year 2000 to attempt to get the rules implemented sooner, outside the framework of Periodic Review; and (4) consider adopting an accelerated implementation schedule if necessary to get the new rules implemented before 2001. This task will require that DLCD acquire resources to pass through to local governments, and then develop partnerships and workplans with those local governments. Given the area under their jurisdiction, DLCD will focus its initial efforts on counties.

Goal: Increase protection for riparian areas and wetlands in riparian buffers; exclude uses and activities that impair riparian and wetland vegetation, structure, and function.

Objectives: Adopt stronger provisions for protecting riparian areas and wetlands in riparian buffers in local comprehensive plans and implementing ordinances.

Responsibilities:

- OCMP staff will consult with local planning officials to develop work tasks for implementing the new Goal 5 rules for riparian area and wetland protection.
- DLCD field staff will manage grants and ongoing consultations through a local jurisdiction's process of adopting new riparian and wetland protection provisions.

Results:

- Agreements with local jurisdictions to adopt plan language and ordinance provisions for protecting riparian areas.
- Local comprehensive plan amendments.

Funding: Governor's Healthy Streams budget package, starting July 1, 1997.

Schedule:

- Draft local government grant application, criteria, and grant agreement for implementing riparian protection ordinances: September 30, 1997.
- Draft agreements with a local jurisdiction to adopt riparian area protection ordinances: Two each by December 30, 1997; March 30, 1998; June 30, 1998; September 30, 1998; and December 30, 1998.

DLCD5 - Implement CNPCP Urban Management Measures

Summary of Measure: Implement Urban Management Measures identified in the CNPCP (see DLCD1), some through local planning and development review processes and some by local public works officials in their management of road systems.

Background: Some of the necessary measures will involve implementing requirements developed under the authority of other state agencies, principally the Department of Environmental Quality.

Again in partnership with DEQ and local governments, DLCD will facilitate implementation of these measures by developing rules, technical assistance, or administering grants to local governments as necessary to implement specific CNPCP requirements to reduce the generation of nonpoint source pollution from urban activities. As with all of DLCD's measures, this task requires developing partnerships and workplans with coastal local governments.

Goal:

- Reduce the hydrographic effects and water quality degradation resulting from new land development.
- Reduce the generation of pollutants by various activities of local governments.

Objectives:

- Reduce peak runoff volumes from newly developing areas.
- Reduce impermeable surfaces in newly developing areas.
- Improve consideration of hydrographic and water quality effects of land use decisions.
- Implement road and highway operation and maintenance measures that protect water quality and aquatic habitat.

Responsibilities: OCMP staff will provide consultation to DEQ and ODOT in their development of administrative rules and technical assistance materials, respectively, to address the effects of urban development on surface water runoff. OCMP staff will consult with local planning officials to develop work tasks for implementing rules related to reducing the effects of stormwater runoff

Results: Local comprehensive plan provisions and ordinances to implement management measures for reducing the effects on water quality and peak flow runoff rates from newly-developing areas.

Funding: Governor's Healthy Streams budget package, starting July 1, 1997.

Schedule:

- Convene a work group of state and local officials to review Urban Management Measures under the CNPCP.
- In consultation with ODOT and DEQ, develop a strategy for working with local officials to implement management measures for road systems (see DEQ1): June 1998.
- In collaboration with DEQ, develop work programs with local jurisdictions to integrate measures for stormwater runoff and for managing road systems into local comprehensive plans: September 1998.

Division of State Lands

Oregon Coastal Salmon Restoration Workplans

The Division of State Lands
CSRI Implementation Workplans

Phase 1 Measures, Removal-Fill Program

DSL1 - Develop Standardized Permit Conditions Reflecting Best Management Practices For Removal-Fill Activities.

Summary of Measure: The Division of State Lands will work with ODFW, DEQ, the Corps, NMFS, and other agencies to update its standard permit conditions to reflect Best Management Practices (BMPs) for various types of removal-fill activities (e.g., commercial gravel removal and erosion control).

Background: DSL issues over 1,000 removal-fill permits annually, each with site-specific designs and both standard and unique permit and operating conditions, as required by ORS 196.825(5) to provide mitigation for the reasonably expected adverse impacts from project development. The existing standard permit and operating conditions were developed in cooperation with resource agencies and interest groups before the listing of the Umpqua cutthroat trout, CSRI, and DEQ's 303(d) list.

Objective: To develop BMPs for removal-fill activities that help achieve the CSRI habitat objectives for physical habitat, water quality, and water quantity.

Implementation: As a first step, DSL staff will review existing permit conditions and update them based on new information, science, and the need to protect salmonid habitat. Those conditions, which were developed in cooperation with ODFW, DEQ and other affected agencies, will be used in new and renewed permits while BMPs are being developed. DSL will also follow its standard practice of working with other resource agencies to develop additional conditions for particular permits when an agency requests and provides scientific justification for those conditions.

DSL will convene a series of working groups including representatives of ODFW, DEQ, the Corps, NMFS, and other interested parties to review the standard permit conditions and convert them into BMPs. Those BMPs will be reviewed periodically and updated as necessary to reflect new information about salmon habitat needs.

Results: BMPs should provide heightened protection for salmonid habitat, greater certainty for permit applicants, and simplified permit processing for DSL staff. Proposed removal-fill project designs that do not incorporate the BMPs will be subject to much higher scrutiny. It is anticipated that there will be some types of removal-fill activities and/or project locations for which no BMPs could be devised that would adequately address resource concerns; these will be identified as circumstances justifying permit denial.

Responsible Staff: DSL's Policy and Planning Section has the lead, with the cooperation of the Field Operations Section, as needed.

Funding: No new funding is required.

Schedule: This effort began in December 1996 with the Coastal Inwater Working Group, which is developing guidelines for commercial gravel removal, focusing initially on the Umpqua Basin. When that effort is complete (anticipated by June 1997), additional groups will be convened on other types of removal-fill activities.

Completion of all BMPs by June 1998, with regular review and updating thereafter.

DSL2 - Limit Commercial Gravel Removal From Individual Bars To Annual Recruitment.

Summary of Measure: The Division will, through permit conditions, limit commercial gravel removal from individual bars to annual recruitment.

Background: As required by ORS 196.825(5), the Division imposes operating conditions on all removal-fill permits. The conditions for commercial gravel bar mining traditionally have limited the amount removed from each bar through restrictions on the depth of removal. In 1995, the Division also began limiting gravel removal to annual recruitment, as demonstrated in Spring and Fall surveys and cross-sections. At the end of 1996, 45 of 48 active commercial gravel bar removal permits in coastal basins do not allow any removal unless the surveys demonstrate that gravel recruitment has occurred, and limit that removal to the amount of recruitment.

Objective: To ensure that gravel recruitment and accumulation rates are sufficient to support sustainable removal and avoid extended impacts on channel morphology and substrate conditions.

Implementation: Commercial gravel bar removal permits renewed in 1997 will include permit conditions requiring surveys and limiting removal to recruitment. It is anticipated that those conditions will be incorporated into and replaced by BMPs when DSL1 is complete.

Results: DSL anticipates fewer impacts from gravel bar mining on channel morphology and substrate conditions.

Responsible Staff: DSL's Field Operations Section has the lead.

Funding: No new funding is required.

Schedule: Complete by February 1998, as permits are renewed.

DSL3 - Define "Acceptable Adverse Impacts" In Essential Salmonid Rules.

Summary of Measure: The Division of State Lands will define "acceptable adverse impacts" as it is used in the administrative rules governing issuance of removal-fill permits in areas identified by ODFW as essential indigenous anadromous salmonid habitat.

Background: The 1993 Oregon legislature amended the Removal-Fill Law to require a permit for all removal-fill activities in essential indigenous anadromous salmonid habitat [ORS 196.810(b)]. DSL's administrative rules implementing that provision presume that uncontrolled filling or removal in essential habitat is detrimental to salmonids, and specify that permits will only be approved if the applicant shows that the proposed activity will have only acceptable adverse impacts on salmonids or their habitat, or will benefit the resident salmonids (OAR 141-102-050). DSL staff work with permit applicants to develop acceptable project designs and permit conditions that avoid or mitigate adverse impacts. However, the term "acceptable adverse impacts" was not defined in the administrative rule. It needs definition to provide a permitting standard and measure progress in protecting essential habitat.

Objective: To ensure that all removal-fill activities in essential indigenous anadromous salmonid habitat help achieve the CSRI objectives for physical habitat, water quality, and water quantity.

Implementation: In consultation with other affected agencies and interested parties, DSL staff will develop a definition of "acceptable adverse impacts" for incorporation in the administrative rules governing removal-fill activities in essential habitat.

Results: Increased protection of essential habitat areas.

Responsible Staff: DSL's Policy and Planning Section has the lead, in cooperation with the Field Operations Section.

Funding: No new funding is required.

Schedule: Rule adoption by December 1997.

DSL4: Strengthen Interagency Coordination In Removal-Fill Permitting.

Summary of Measure: The Division of State Lands will work with ODFW, DEQ, and OSP to develop new or revised Memoranda of Agreement (MOA) regarding each agency's role in reviewing removal-fill permit applications and providing monitoring and compliance checks for ongoing removal-fill projects, including emergency authorizations and exempt activities not currently requiring a state permit.

Background: DSL coordinates all removal-fill permitting, from issuance through compliance monitoring with ODFW, DEQ, and other potentially affected state agencies, as required in ORS 196.825(5). This coordination is intended to ensure that permit design and operating conditions are adequate to protect water resources of the state. It also provides other agencies an opportunity to request additional conditions, if necessary, and provide scientific justification for

doing so. The existing MOAs are several years old and need updating to reflect developments, such as endangered species listings and DEQ's 303(d) list of water quality limited streams.

Objectives

- Provide greater assurance that removal-fill activities will meet ODFW habitat requirements and DEQ water quality standards.
- Help achieve CSRI habitat objectives for physical habitat and water quality.

Implementation: Agency staff will review existing MOAs, identify any deficiencies, and prepare revisions. Also, MOAs will be developed for projects not having them. In addition, DSL will begin circulating permit applications to National Marine Fisheries Service for review and comment, under standard agency coordination procedure, where the project could affect sensitive, threatened, or endangered anadromous fish.

Results: Improved interagency coordination and cooperation on removal-fill permit issuance, monitoring, and enforcement. Greater assurance that removal-fill activities will not contribute to habitat or water quality degradation.

Responsible Staff: DSL's Field Operations Section has the lead. The Policy and Planning Section will provide assistance as needed.

Funding: No new funding is required.

Schedule: Circulation of permit applications to National Marine Fisheries Service will begin in February 1997. Revised Memorandums of Agreement will be complete in Spring 1998.

DSL5 - Revise The General Authorization (GA) For Road Construction To Enhance Habitat Protection.

Summary of Measure: In 1996, the Division of State Lands revised its General Authorization (GA) for road construction to reduce the potential impacts on salmonids and their habitat from authorized construction activities.

Background: The Removal-Fill Law allows DSL to issue GAs instead of individual permits for activities that are substantially similar in nature and would cause only minimal individual and cumulative environmental impacts and would not result in long-term harm to water resources of the state (ORS 196.850). Each GA must be reviewed and modified every 5 years. DSL first adopted a GA for certain types of road construction activities in 1992 and reviewed and revised it in 1996.

Objective: To ensure that road construction activities allowed under the GA will help achieve the CSRI objectives for physical habitat and water quality.

Implementation: The revised GA, OAR 141-89-015, was developed in consultation with ODFW, DEQ, other affected agencies, and interested parties. Notice and hearing were provided as required by the Administrative Procedures Act. It was adopted by the State Land Board in June 1996 and was effective July 1, 1996.

Results: The revised GA provides preferences for bridges over culverts, bioengineered methods of streambank stabilization over structural methods, and for the reuse in habitat restoration projects of any woody material removed during construction. It strengthens provisions related to waste disposal and to revegetation of disturbed areas with native species, including replanting with trees on streams listed by DEQ as water quality limited for temperature. It requires all culverts to meet ODFW fish passage criteria. It also includes road removal as an authorized activity.

Funding: No new funding was required.

Schedule: Final rule was effective July 1, 1996.

DSL6 - Revise The GA For Erosion Control To Enhance Habitat Protection.

Summary of Measure: In 1996, the Division of State Lands revised its GA for erosion control to reduce the adverse impacts on salmonids and their habitat from authorized erosion control activities.

Background: The Removal-Fill Law allows DSL to issue GAs instead of individual permits for activities that are substantially similar in nature and would cause only minimal individual and cumulative environmental impacts and would not result in long-term harm to water resources of the state (ORS 196.850). Each GA must be reviewed and modified every 5 years. DSL first adopted a GA for certain types of erosion control activities in 1992 and reviewed and revised it in 1996.

Objective: To ensure that erosion control activities allowed under the GA will help achieve the CSRI objectives for physical habitat and water quality.

Implementation: The revised GA, OAR 141-89-010, was developed in consultation with ODFW, DEQ, other affected agencies, and interested parties. Notice and hearing were provided as required by the Administrative Procedures Act. It was adopted by the State Land Board in June 1996 and was effective July 1, 1996.

Results: The revised GA provides preferences for bioengineered methods of streambank stabilization over structural methods, and for the reuse in habitat restoration projects of any large woody material removed during construction. It strengthens provisions related to waste disposal and to revegetation of disturbed areas with native species, including replanting with trees on streams listed by DEQ as water quality limited for temperature. It also allows multiple related projects within a watershed to be planned and conducted under one GA, facilitating an integrated approach to erosion control. Projects using gabions, jetties, and other major structures are no longer allowed under the GA and will be subject to the higher scrutiny of an individual removal-fill permit. The GA also no longer applies in estuarine areas.

Funding: No new funding was required.

Schedule: Final rule was effective July 1, 1996.

DSL7: Revise the GA for Fish Habitat Enhancement To Improve Habitat Values

Summary of Measure: In 1996, the Division of State Lands revised its GA for fish habitat enhancement to expand its applicability, improve habitat values, and streamline the process for enhancement projects.

Background: The Removal-Fill Law allows DSL to issue GAs instead of individual permits for activities that are substantially similar in nature and would cause only minimal individual and

cumulative environmental impacts and would not result in long-term harm to water resources of the state (ORS 196.850). Each GA must be reviewed and modified every 5 years. DSL first adopted a GA for certain types of fish habitat enhancement activities in 1987 and reviewed and modified it in 1992 and 1996.

Objective: To ensure that fish habitat enhancement projects allowed under the GA will help achieve the CSRI objectives for physical habitat and water quality and to streamline the process for authorizing such projects.

Implementation: The revised GA, OAR 141-89-005, was developed in consultation with ODFW, DEQ, other affected agencies, and interested parties. Notice and hearing were provided as required by the Administrative Procedures Act. It was adopted by the State Land Board in June 1996 and was effective July 1, 1996.

Results: The revised GA provides streamlined permitting for: boulder weirs up to 150 cubic yards, pools and hydrologically-connected off-channel ponds up to 350 cubic yards, back and side channel construction up to 350 cubic yards, and culvert replacement to facilitate fish passage. All culverts must meet ODFW fish passage criteria. The GA includes a preference for bioengineered methods of streambank stabilization over structural methods, and for instream placement of large woody material removed during construction. Provisions on revegetation of disturbed areas with native plant species were strengthened. Gabions are no longer allowed in GA authorized projects.

Funding: No new funding was required.

Schedule: Final rule was effective July 1, 1996.

DSL8 - Facilitate More Wetland Restoration And Enhancement Projects.

Summary of Measure: In 1996, the Division of State Lands revised its GA for wetland restoration and enhancement to streamline the process.

Background: The Removal-Fill Law allows DSL to issue GAs instead of individual permits for activities that are substantially similar in nature and would cause only minimal individual and cumulative environmental impacts and would not result in long-term harm to water resources of the state (ORS 196.850). Each GA must be reviewed and modified every 5 years. DSL first adopted a GA for certain types of wetland restoration and enhancement projects in 1992 and reviewed and modified it in 1996.

This GA applies to voluntary wetland restoration/enhancement projects. Projects conducted as mitigation for other removal-fill activities are covered in the mitigation plan for the applicable removal-fill permit.

Objective: To streamline the process for authorizing wetland restoration and enhancement projects, including those that increase or enhance salmonid habitat.

Implementation: The revised GA, OAR 141-89-020, was developed in consultation with ODFW, DEQ, other affected agencies, and interested parties. Notice and hearing were provided as required by the Administrative Procedures Act. It was adopted by the State Land Board in June 1996 and was effective July 1, 1996.

Results: The revised GA provides streamlined permitting for qualifying wetland enhancement and restoration projects. It includes preferences for bioengineered methods of streambank stabilization over structural methods and for instream placement of large woody material removed during construction. The provisions on waste disposal and revegetation with native species were strengthened.

Funding: No new funding was required.

Schedule: Final rule was effective July 1, 1996.

DSL9 - Develop Guidelines For Issuing Individual Permits Rather Than GAs.

Summary of Measure: The Division of State Lands will develop guidelines for determining when removal-fill activities that otherwise qualify for a GA may have potential individual or cumulative impacts that deserve the full scrutiny of an individual permit.

Background: DSL's GAs for road construction, erosion control, fish habitat enhancement, wetland restoration and enhancement, and recreational placer mining include clauses allowing the Division to not issue a GA and instead require an individual permit for projects that would have more than minimal individual or cumulative impacts [e.g., OAR 141-89-015(6)]. The circumstances under which this clause might be invoked need to be defined in guidance for staff.

Objective: To ensure that projects authorized under GAs meet the statutory requirement for causing only minimal individual and cumulative impacts, and that the removal-fill projects conducted under GAs help achieve the CSRI habitat objectives.

Implementation: In consultation with ODFW, DEQ, and other interested agencies, the Division will develop screening criteria and guidelines for staff to use to determine when a project that otherwise qualifies for a GA merits the higher level of scrutiny of an individual permit due to the potential impacts on physical habitat or water quality.

Results: More rigorous review for removal-fill projects that may have adverse impacts on salmon habitat or water quality.

Responsible Staff: DSL's Field Operations Section has the lead.

Funding: No new funding is required.

Schedule:
Draft guidelines prepared by May 1997.
Review during June-July 1997.
Final guidelines available in September 1997.

DSL10 - Develop Permanent Regulations On Recreational And Small-Scale Placer Mining In Essential Habitat.

Summary of Measure: In 1996-97, the Division of State Lands developed permanent administrative rules regarding recreational and small-scale placer mining affecting less than 25 cubic yards annually in areas designated as essential indigenous anadromous salmonid habitat under the Removal-Fill Law.

Background: The 1993 Legislature amended Oregon's Removal-Fill Law to require a permit for all removal-fill activities in areas designated as essential indigenous anadromous salmonid habitat, compared with the 50 cubic yards exemption in other waters of the state [ORS 196.810(b)]. With that amendment, small-scale placer mining came under the jurisdiction of the Removal-Fill Law for the first time.

The Division's administrative rules governing removal-fill activities in essential habitat were effective in January 1996. However, the Division had insufficient information about the extent or location of recreational and small-scale placer mining operations to establish an effective regulatory scheme. For the 1996 operating season, DSL developed and implemented a temporary (180-day) GA for placer mining affecting less than 25 cubic yards.

Operations affecting more than 25 cubic yards require an individual permit. That GA requested applicants to provide data about the timing, location, and other features of their operation. The Division also hired a temporary staff person who worked primarily in the field in essential habitat areas, educating placer miners about the new law, the need for a GA or permit from the Division, and the standard operating conditions imposed to protect salmon habitat and water quality. The Division used the information from the 1995 GA and field work to develop a permanent GA for recreational and small-scale placer mining in essential habitat.

Objectives

- Develop a regulatory scheme for small-scale placer mining affecting less than 25 cubic yards with operating conditions and reporting requirements that ensure the activity will cause minimal individual and cumulative environmental impacts.
- Help achieve the CSRI objectives for physical habitat and water quality.

Implementation: Early in 1996, the Division worked with other natural resource agencies, including ODFW, DEQ, the Corps of Engineers, and interest groups to develop a temporary GA, valid for 180 days. The State Land Board adopted that temporary GA in April 1996. During the 1996 operating season, the Division gathered information about the effectiveness of the GA's operating conditions and the scale and location of placer mining activities. DSL used that information to develop a permanent GA, which underwent public notice and hearings in late 1996.

The State Land Board adopted the permanent GA in February 1997. During 1997, the Division will work with other state and federal resource and land management agencies and interested parties to develop and implement a monitoring protocol for recreational and small-scale placer

mining. DSL also will again hire a temporary staff person for the 1997 operating season (DSL15).

Results: The GA incorporates a number of operating conditions that describe BMPs for placer mining affecting less than 25 cubic yards in areas designated as essential indigenous anadromous salmonid habitat. These conditions prohibit obstructions to fish passage; nozzling, sluicing or dredging outside the wet perimeter of the stream; excavation from the streambank (high-banking); and disturbance of rooted woody plants. The conditions also restrict movement of instream boulders and large woody debris, and require strict compliance with ODFW work windows.

Responsible Staff: DSL's Field Operations Section has the lead on developing a monitoring protocol and conducting compliance monitoring.

Funding: No new funding was required.

Schedule: The permanent GA will be effective March 1, 1997. Compliance monitoring will occur throughout the operating season.

DSL11 - Assist In The Replacement Of Push-Up Dams That Interfere With Fish Passage.

Summary of Measure: The Division of State Lands will work with ODFW, WRD, ODA, OSP, local watershed councils, and other affected agencies to clarify all agencies' jurisdiction over push-up dams, inventory existing dams, and work with property owners to identify alternatives to those push-up dams that interfere with fish passage. Funding sources for implementing those alternatives will also be identified and pursued.

Background: As movement of material on or within the bed of a stream, push-up dams over 50 cubic yards are classified as an alteration under Oregon's Removal-Fill Law. The ambiguous wording of some exemptions under that Law make its jurisdiction over push-up dams unclear. For example, "activities customarily associated with agriculture" are exempt from the zero cubic yard threshold in essential salmonid habitat, but are regulated if greater than 50 cubic yards.

Objectives

- Educate landowners about the effects of push-up dams on salmon passage and habitat to ensure that dams are in compliance with all water quality standards and permit requirements.
- Assist in replacing push-up dams with alternate diversion methods based on priorities established by local watershed councils.

Implementation: The affected agencies conducted a pilot project in the Illinois Basin during 1996, which resulted in a database that shows the location, size, type, and other features of all push-up dams; identifies ownership; and assesses compliance with state laws and regulations relating to water quality, removal-fill, fish passage, and water rights. The local SWCD and the Illinois Valley

Watershed Council contacted property owners with diversion structures to educate them about the effects of push-up dams on water quality and fish habitat, to obtain voluntary compliance with state laws and regulations, and to ask their participation in the replacement of dams with alternate diversion methods. This effort will continue in 1997 and beyond, until all structures are addressed.

Results: In 1996, there were 26 dams inventoried, and 3 of these 26 dams were replaced with infiltration galleries.

Responsible Staff: DSL's Field Operations Section has the lead.

Funding: No new funding is required for DSL staff work. Funding for implementing alternatives needs to be identified and pursued.

Schedule: Began in 1996; continuing in the Illinois Basin during 1997 and beyond.

DSL12 - Analyze A Payment-In-Lieu Of Mitigation Approach For Commercial Gravel Removal With The Revenue Dedicated To Habitat Restoration And Enhancement.

Summary of Measure: DSL will analyze a payment-in-lieu of compensatory mitigation approach to addressing the unavoidable impacts of commercial gravel removal on salmonid habitat, with the revenue dedicated to salmonid habitat restoration and enhancement.

Background: Oregon's Removal-Fill Law defines mitigation as the reduction of adverse effects of a proposed project by considering, in the following order: (a) avoiding the impact, (b) minimizing the impact, (c) rectifying the impact, (d) reducing or eliminating the impact over time, and (e) compensating for the impact be replacing or providing comparable substitute wetland or water resources [ORS 196.800(10)]. Permit conditions are used to minimize and mitigate the reasonably expected adverse impacts of removal-fill activities [ORS 196.825(5)]. "Compensatory" mitigation (including payment-in-lieu of mitigation) has historically only been required for fills and removals in wetlands.

Objective: Provide compensatory mitigation for gravel removal in coastal basins and increased funding for fish habitat restoration and enhancement projects.

Implementation: DSL will work with interest groups to analyze a payment-in-lieu of compensatory mitigation approach for addressing the unavoidable impacts of commercial gravel removal on salmonid habitat. If found acceptable and feasible, it will be offered as a compensatory mitigation option based on the amount of gravel removed. DSL also will require commercial gravel removal permittees to report the actual amount removed annually.

Results: Potentially increased funding for fish habitat restoration and enhancement projects in coastal basins. However, listings of cutthroat trout, coho salmon and steelhead as threatened or

endangered may require further restrictions on gravel removal in the affected streams, and thus reduce the revenue potential of this measure.

Responsible Staff: DSL's Field Operations Section has the lead.

Funding: No new funding is required for DSL staff work. An increased DSL expenditure limitation will be necessary to expend the payment-in-lieu revenue on habitat restoration and enhancement.

Schedule: Anticipated completion date: Late 1997 or early 1998, due to the need to analyze the effects of listings on gravel removal.

DSL13 - Target Compensatory Wetlands Mitigation To Salmon Habitat Projects.

Summary of Measure: The Division of State Lands will work with removal-fill permit applicants to target compensatory wetlands mitigation to riparian zones for off-channel ponds and other fish habitat enhancement projects.

Background: Oregon's Removal-Fill Law defines mitigation as the reduction of adverse effects of a proposed project by considering, in the following order: (a) avoiding the impact, (b) minimizing the impact, (c) rectifying the impact, (d) reducing or eliminating the impact over time, and (e) compensating for the impact be replacing or providing comparable substitute wetland or water resources (ORS 196.800(10)). Compensatory mitigation for removals and fills in wetlands consists of restoration, enhancement or creation of wetlands, typically onsite or nearby; protection of existing high quality wetlands in lieu of mitigation; payment in lieu of mitigation; or participation in a mitigation bank project.

Objective: To increase the use of compensatory mitigation for preserving, restoring, enhancing, or creating riparian wetlands that improve riparian function or provide other fish habitat benefits.

Implementation: DSL staff are responsible for approving permit applicant's mitigation plans. During pre-application planning, staff will consider the potential for targeting mitigation to riparian areas. DSL will inform consultants who often prepare mitigation plans, local governments, and other affected parties about this option through a memo or other public information measure to encourage such mitigation targeting.

Results: Improved riparian function and increased off-channel habitat.

Responsible Staff: DSL's Field Operations Section has the lead.

Funding: No new funding is required.

Schedule: Began in 1996. Will continue indefinitely.

DSL14 - Work With Other Agencies To Clarify Jurisdiction Over Removal Of Large Woody Debris.

Summary of Measure: The Division of State Lands will work with other state and federal agencies to clarify each agency's legal jurisdiction over the removal of large woody debris from streams and estuaries, and develop legislation or regulations to fill any gaps in jurisdiction.

Background: Under the Removal-Fill Law, regulation of removal is limited to inorganic material, such as sand and gravel. The Division considered legislation about expanding that definition to include organic material; staff discussion and analysis, however, determined that large woody debris does not appropriately apply under the removal regulatory process. The Division can use its license authority to control removal of large woody debris lodged in the bed or banks of navigable waterways owned by the state, but not when such debris is floating in the water. Other agencies, including ODF, ODFW, the Marine Board, the Corps of Engineers, and the U.S. Coast Guard, also have some form of legal authority over large woody debris.

Objective: Clarify state agencies' legal authority over the removal of large woody debris from streams.

Implementation: The respective agency authorities will be documented. The appropriate agencies may propose legislation or undertake rulemaking to fill jurisdictional gaps.

Results: Increased complex structure in streams and estuaries for improved rearing habitat.

Responsible Staff: DSL's Field Operations Section has the lead with assistance from the Director's Office and the Policy and Planning Section.

Funding: No new funding is required.

Schedule: Discussions began in 1996.

DSL15 - Increase Field Presence In Coastal Essential Salmonid Habitat.

Summary of Measure: In 1996, the Division of State Lands provided funds for two additional temporary staff who worked in coastal basins. DSL will hire one temporary staff person during 1997.

Background: DSL field staff handle all removal-fill activities (i.e., application processing, technical assistance, interagency coordination, compliance monitoring, and enforcement).

Objective: To increase public education, technical assistance, and compliance monitoring in coastal basins, especially in essential salmonid habitat.

Implementation: In 1996, DSL reprogrammed funding within its base budget to employ two temporary staff who worked in coastal basins, focusing initially on flood recovery and then on public education, technical assistance, and compliance, especially in essential salmonid habitat. DSL will employ one temporary staff person in 1997.

Results: Increased public awareness of the Removal-Fill Law requirements, especially among recreational and small-scale placer miners; fewer permit violations.

Responsible Staff: DSL's Field Operations Section has the lead.

Funding: No new funding was required for 1996 or 1997 due to base budget reprogramming; see DSL27, Phase 2, for continued funding requirements.

Schedule: Ongoing.

DSL16 - Develop Administrative Rules For Mitigation Banking And For Payment Or Protection In Lieu Of Mitigation.

Summary of Measure: In 1997, the Division of State Lands adopted administrative rules on wetland mitigation banking, protection of existing high quality wetlands in lieu of mitigation, and payment in lieu of compensatory mitigation.

Background: The Oregon Legislature enacted the Mitigation Bank Act in 1987 (ORS 196.600-196.665), and amended it in 1995 (SB 830) to include privately owned banks. Although several mitigation banks have been established in western Oregon, the Division had never adopted administrative rules governing the creation and operation of banks. Similarly, while the Division has occasionally accepted payment in lieu of mitigation, or protection of existing wetlands in lieu of mitigation, formal rules governing these options had never been adopted; instead, the Division treated each case individually.

Objectives: The objectives of mitigation banking are to increase the environmental benefits, functions and values, and the economic efficiency of wetlands mitigation by consolidating mitigation projects. Banks that restore or maintain riparian function and provide wildlife and fisheries habitat are encouraged. The objective of protection/payment in lieu is to provide alternative methods of conducting compensatory mitigation when on- or offsite mitigation is not appropriate or practicable.

Implementation: The Division developed administrative rules on mitigation banking and protection/payment in lieu with the assistance of a 22-member technical advisory committee composed of environmental consultants, state and federal agency staff, city and county planners, business people, attorneys with private sector experience, and a public representative. Notice and hearings were provided on the draft rules in accordance with the Administrative Procedures Act. The final rules were adopted by the State Land Board in February 1997.

Results: Most on- and offsite compensatory wetland mitigation projects are small, less than one acre in size, and their environmental benefits are limited in scope. Increased mitigation banking promoted by these rules will consolidate projects, allowing expanded and more comprehensive environmental benefits with improved long-term viability.

Responsible Staff: DSL's Field Operations Section will implement the mitigation programs.

Funding: No new agency funding is required for implementation of the rules.

Schedule: Final rule adoption in February 1997; implementation is underway.

Phase 1 Measures, Wetlands Program

DSL17 - Inventory Coastal Wetlands.

Summary of Measure: The Division of State Lands will target grants to local communities in coastal basins to inventory wetlands.

Background: DSL's Wetlands Program annually receives federal funding from EPA for local wetland inventories to meet both DSL program and Goal 5 land use planning objectives. Those funds are distributed to cities through a grant program, normally in equal distribution among communities throughout the state. DSL staff also provide technical assistance for the inventory. Local wetland inventories have been completed in 10 coastal basin cities, with an additional 5 underway. Implementation of DLCD's new rules on Goal 5 inventories may accelerate the rate of inventories.

Objective: To assist local governments in identifying wetlands, their functions, and significance.

Implementation: DSL's Wetlands Program administers the grants and provides technical assistance. Some of those grant funds will be targeted to coastal communities.

Results: Increased knowledge of coastal wetlands and their role in riparian function and salmonid habitat. Protection of significant wetlands.

Responsible Staff: DSL's Wetlands Team, within the Policy and Planning Section, will have the lead.

Funding: Pass-through grant funding provided by EPA on a competitive basis.

Schedule: Ongoing.

DSL18 - Develop Administrative Rules On Locally Significant And Outstanding State Wetlands.

Summary of Measure: In 1996, the Division of State Lands developed administrative rules that provide guidance to local governments conducting wetland inventories on determining which wetlands are significant and deserving of protection.

Background: The 1995 Oregon Legislature directed the Division to establish criteria and procedures for the identification of significant wetlands to meet state land use planning requirements. Communities must complete a Local Wetland Inventory (LWI) and develop a wetland protection program that places restrictions on "locally significant wetlands." Note that, even if a wetland is not considered locally significant for land use planning purposes, it is still subject to the permit and mitigation requirements of the Removal-Fill Law.

Objective: To provide technical guidance to communities conducting wetland planning under Goal 5, and to promote consistency among various communities' designation of significant wetlands.

Implementation: The Division distinguished, in its rulemaking, between locally significant wetlands within urban (incorporated and unincorporated) areas and outstanding wetlands statewide. Division staff developed draft administrative rules with the assistance of two technical advisory committees, one for each group of wetlands. Public notice and hearings were provided on the draft rules in accordance with the Administrative Procedures Act. The rules on locally significant wetlands in urban areas were adopted by the State Land Board in December 1996 and became effective in January 1997. The rules on outstanding state wetlands are near completion.

Results: Using these rules, urban communities will be able to concentrate planning and protection efforts on those wetlands that serve the most important functions in the community (e.g., flood control, fish habitat, water quality). Outside urban areas, the Division will take the lead in identifying the wetlands of highest statewide significance, and counties will then include those wetlands in their planning inventory.

Responsible Staff: DSL's Wetlands Team, within the Policy and Planning Section, has the lead.

Funding: No new funding is required.

Schedule: The rules on locally significant wetlands in urban areas were effective January 1997. The rules on outstanding state wetlands will be completed during 1997.

DSL19 - Continue Implementation of Oregon's Wetland Conservation Strategy.

Summary of Measure: The Division of State Lands will continue to implement Oregon's Wetland Conservation Strategy, which establishes priorities for an integrated state wetlands program.

Background: Approximately 38 percent of Oregon's historic wetlands have been converted to agricultural, commercial and other uses. Changes in public policy in the last two decades have attempted to reverse the trend of wetland conversion. These policy changes are reflected in state laws and regulations related to removal-fill activities and land use planning. For example, Oregon's land use planning law, first adopted in 1973, requires local governments to inventory urban wetlands and identify those that are locally significant (see DSL18). In addition, fills and removals in wetlands came under the purview of the Removal-Fill Law in 1979; the 1989 Legislature adopted a statewide wetland program.

The statewide land use planning process now provides substantial protection for more than 99 percent of Oregon's remaining estuarine wetlands. However, freshwater wetlands have posed a significantly greater conservation challenge. The Division developed a Wetland Conservation Strategy to address the issues posed by the number of wetlands on private land and the motivations for draining or filling wetlands. In 1995, the State Land Board adopted Oregon's

Wetland Conservation Strategy, which is an integrated incentive-based program to conserve, protect, and manage the state's wetland resources.

The Division served as facilitator, mediator, and integrator during development of this Strategy. Literature review, as well as interviews with representatives from government agencies and interest groups, and topical wetland strategy workgroups helped to identify issues and develop recommendations. In addition, nine Advisory Committees representing all affected government agencies and interest groups met over an 18-month period to guide Strategy development.

Objective: The objectives of this strategy are to:

- Ensure the long-term protection and management of the state's wetland resources through both regulatory and non-regulatory measures by:
  - Providing protection of wetlands and restoration sites.
  - Conserving and managing functions, values and acreage of wetlands.
  - Encouraging restoration of wetlands for watershed, water quality, and/or wildlife objectives, while accommodating necessary economic activities.

- Manage Oregon's wetlands through partnerships that improve education, communication, cooperation, and consistency among agencies, organizations and the public.

Implementation of this strategy will assist in attaining the Oregon Progress Board's Benchmark of "no net loss" of wetland acreage, functions and values over the 1990 baseline.

Implementation: Oregon's Wetland Conservation Strategy was adopted by the State Land Board in 1995. It includes recommendations related to: regulation, planning, protection, restoration, public information, BMPs, public lands management, inventories, and research needs. The Division will work with other agencies and interest groups to implement the Strategy, including obtaining financial and program support from the executive branch and the Legislature, developing educational materials, and providing technical assistance and guidance.

The Division will monitor the Strategy's progress, measure it against the goals and the Oregon Benchmark for Wetlands, and report the results annually to the State Land Board and the Oregon Progress Board.

Results: Conservation, protection, restoration, effective mitigation, and best use of Oregon's wetland resources.

Responsible Staff: DSL's Wetlands Team within the Policy and Planning Section, has the lead.

Funding: No new funding is required for DSL staff work on implementation of the Strategy. New funding mechanisms are needed to provide stable, long-term financing to achieve various Strategy goals and priorities.

Schedule: Ongoing.

Phase 1 Measures, Proprietary

DSL20 - Reduce Water Pollution From Waterway Lessees.

Summary of Measure: In 1996, the Division of State Lands revised its standard waterway lease to require lessees to meet applicable DEQ and OMB requirements for sewer hookups, disposal stations, etc.

Background: The Division administers state-owned submerged and submersible lands, including leasing those lands for purposes such as houseboats and marinas, under ORS 274.040. In the coastal basins, state-owned areas are mostly limited to the tidally influenced portions of each river; exceptions include the Chetco (to at least River Mile 11), the Umpqua (to River Mile 111.5, the confluence of the North and South Forks) and the Rogue (to Grave Creek).

Objective: To reduce pollution from houseboats and marinas.

Implementation: In 1996, after consultation with DEQ and OMB, the Division revised its standard waterway lease language to require lessees to meet applicable water quality standards, including DEQ and OMB requirements for sewer hookups, disposal stations, etc. The lease stipulations are enforceable through action, up to and including lease cancellation.

Results: Assurance that state waterway lessees will meet water quality requirements.

Responsible Staff: DSL's Field Operations Section has the lead.

Funding: No new funding was required for lease revision, nor will any be required for compliance monitoring.

Schedule: Lease revision complete in 1996; compliance monitoring is ongoing.

DSL21 - Evaluate The Habitat Potential Of Scattered Coastal Tracts.

Summary of Measure: The Division of State Lands will inventory the Common School Fund Lands in western Oregon for their salmon habitat value and develop appropriate conservation strategies for parcels having high value habitat.

Background: The State Land Board owns, and the Division administers, around 25,000 acres of Common School Fund trust land scattered throughout Western Oregon (excluding 89,000 acres in the Elliott State Forest, which is already included in an active multi-species Habitat Conservation Plan). In 1995, the Board adopted an Asset Management Plan (AMP) to guide management of the land, waterways, and minerals under their jurisdiction. Under the AMP, Special Interest Lands (those with sensitive or unique natural cultural or recreational resources) will be identified and receive special management attention.

Objective: To identify Common School Fund Lands in coastal basins with high value salmonid habitat, especially those parcels around or adjacent to Core Areas, and develop appropriate conservation strategies for the resource values present.

Implementation: Most of the Common School Land in coastal basins is managed by ODF, which will identify lands appropriate to designate for habitat conservation; a few scattered tracts lie outside state forest boundaries. DSL will work with ODF to inventory Common School Lands in coastal basins, especially those in or adjacent to Core Areas, to identify their salmonid habitat potential and develop appropriate conservation or management strategies.

Results: State land administered by DSL with high quality salmonid habitat will be managed to conserve resource values.

Responsible Staff: DSL's Policy and Planning Section has the lead.

Funding: No new funding is required.

Schedule: Identify Common School Fund land ownership in coastal basins and assess its habitat potential by September 1997. Develop and implement conservation strategy by September 1998.

DSL22 - Work With ODF to Improve Fish Habitat on the Elliott State Forest.

Summary of Measure: The Division of State Lands will work with the Oregon Department of Forestry (ODF) to identify habitat restoration projects that could be performed on the Elliott State Forest consistent with its Habitat Conservation Plan and its Management Plan.

Background: Most (91 percent) of the Elliott State Forest (Coos and Douglas Counties) is Common School Trust Land, administered by the State Land Board and managed under contract by ODF. Common School Lands are held in trust for the K-12 schools and managed to maximize their value and revenue over the long term. In 1994, the Land Board adopted the R2 Riparian Management Strategy for the Elliott. In 1995, the U.S. Department of the Interior approved a Habitat Conservation Plan (HCP) for the Elliott that specifically addresses the northern spotted owl and marbled murrelet, but also incorporates the R2 strategy for fish. ODF already has undertaken a number of habitat enhancement projects on the Elliott.

Objective: To identify potential actions to improved fish habitat and related conditions on the Elliott State Forest.

Implementation: DSL will work with the Oregon Department of Forestry to identify additional measures such as road removal, culvert replacement, and fish habitat enhancement that are consistent with the Elliott Forest's Habitat Conservation Plan and its Management Plan.

Results: Improved physical and biological habitat conditions on the Elliott State Forest.

Responsible Staff: DSL's Policy and Planning Section has the lead.

Funding: Project costs are unknown at this time; funding will be via timber revenues.

Schedule: Completion of analysis in 1998. On-the-ground work would begin in the 1999-2001 biennium.

Phase 1 Measures, Outreach and Education

DSL23 - Update Public Education Materials On Removal-Fill Projects.

Summary of Measure: The Division of State Lands will update its public education tools (e.g., brochures and fact-sheets) on removal-fill activities.

Background: DSL's Field Operations staff spend a significant amount of time on public education and technical assistance on Oregon's Removal-Fill Law. Compliance problems still arise, however, due to lack of public understanding of permit requirements and processes.

Objective: To improve public understanding of, and compliance with, the Removal-Fill Law.

Implementation: DSL will update its public education tools (e.g., brochures and fact sheets) to help reduce the number of violations, facilitate project approval, and provide information on fish-friendly project design and construction. In 1996, DSL began enclosing a copy of the CSRI brochure on "What you can do to help salmon where you live and work" with all removal-fill permit applications, waterway leases, and wetland land use notifications. Updated drawings on project designs were included with the revised GAs for erosion control, fish habitat enhancement and wetland restoration enhancement (DSL5 through DSL8). These covered such topics as pool and off-channel pond construction, bioengineering, and placement of large woody debris. In late 1996, DSL also issued a revised edition of the public information brochure "Placer Mining in the State of Oregon."

Results: Fewer removal-fill violations; project design and construction that is more fish-friendly.

Responsible Staff: DSL's Policy and Planning Section has the lead, in cooperation with the Field Operations Section.

Funding: No new funding is required.

Schedule: Ongoing.

DSL24 - Develop Information Packets For Watershed Councils.

Summary of Measure: The Division of State Lands will develop a fact sheet and standard technical assistance package for watershed councils.

Background: DSL Western Region field staff have territories covering two to four counties. They are unable to attend all watershed council meetings without either neglecting their other field responsibilities (e.g., removal-fill permit issuance and monitoring, and waterway leasing) or incurring significant overtime. Improved coordination with watershed councils and facilitation of their projects, many of which require removal-fill permits, is a goal of CSRI. The challenge is to improve such coordination within limited staff resources.

Objective: Better coordination with watershed councils.

Implementation: The Division will develop a fact sheet and standard technical assistance package for watershed councils to better facilitate activities requiring removal-fill permits, such as fish habitat enhancement, streambank stabilization, and wetland restoration and enhancement. Staff will also attend watershed council meetings when practicable and coordinate with councils on specific projects.

Results:

- Better understanding of Removal-Fill Law requirements on the part of watershed councils, resulting in fewer permitting delays.
- Better DSL staff awareness and utilization of watershed council expertise and input.

Responsible Staff: DSL's Policy and Planning Section will have the lead on information packets. DSL's Field Operations Section has the lead on field coordination.

Funding: No new funding is required.

Schedule: Completion and distribution of standard information packet by April 1997. Coordination is ongoing.

DSL25 - Help Develop Removal-Fill Education Materials For Contractors.

Summary of Measure: The Division of State Lands will work with the state boards that license contractors to help develop education materials on the environmental impacts of removal-fill activities.

Background: Various state boards license construction and landscape contractors and heavy equipment operators. The license requirements include continuing education requirements.

Objective: To help educate construction and landscape contractors and heavy equipment operators about advances in removal-fill project design and construction techniques that minimize adverse environmental impacts (e.g., bioengineering and fish passage needs).

Implementation: Division staff will meet with the appropriate licensing boards to inform them about CSRI and the need to educate licensees about recent innovations in removal-fill project design and construction techniques. DSL will then work with those boards to help identify appropriate continuing education curricula and suggest instructors.

Results: Improved removal-fill project design and construction, resulting in faster permit processing and fewer compliance monitoring issues.

Responsible Staff: DSL's Field Operations Section has the lead with assistance from the Policy and Planning Section.

Funding: No new funding is required for DSL staff activities.

Schedule: Initiate contact with various licensing boards in Spring 1997. Determine curriculum or information needs by Fall 1997.

Phase 2 Measures, Removal-Fill Program

DSL26 - Analyze And Implement Regulatory Streamlining Options.

Summary of Measure: The Division of State Lands will continue to analyze and implement regulatory streamlining options, including state assumption of the Clean Water Act Sec. 404 dredge/fill permit program currently administered by the Corps of Engineers, a State Programmatic General Permit, and/or General Authorizations.

Background: Oregon's Removal-Fill Law and the Clean Water Act Section 404 permitting program administered by the Corps regulate similar instream and wetland activities, including erosion control, gravel mining, and wetland fills. The state and federal programs have historically been coordinated closely, with DSL and the Corps using a joint permit application. DSL circulates permit applications to state and local agencies and interested parties for review and comment, while the Corps circulates to federal agencies. DSL develops permit and operating conditions in consultation with the Corps, based on comments received by both agencies. The state and the Corps also coordinate monitoring and enforcement activities.

Objective: Reduce duplication between the federal and state programs. Streamline state permitting processes to make more staff time available for on-the-ground technical assistance and compliance monitoring.

Implementation: The 1995 Legislature authorized the Division to apply to EPA by January 1996 to assume the 404 program, and specified that if assumption does not occur by July 1997, the state could not exercise its removal-fill permitting authority whenever the Corps issued an individual permit. DSL submitted a placeholder application to EPA in December 1995 to meet the statutory deadline and to solicit EPA's review of the adequacy of the state removal-fill program.

Upon receipt of EPA's response, DSL convened a stakeholder group composed of state and federal agencies and interest group representatives to provide continuing review and advice on the issues surrounding 404 program assumption. The Division will continue to analyze 404 assumption during the 1997-99 biennium, in light of recent and proposed changes in the federal program, court decisions, and other developments. SB 207, introduced in the 1997 Oregon Legislature, would revise the deadline for state assumption.

At the same time, the Division will analyze other options, both internally and externally, for streamlining its regulatory procedures, including a State Programmatic General Permit and General Authorizations. Those options will be implemented to the extent they also provide adequate or improved protection for salmon habitat, water quality, and other resources.

Results: Streamlined permitting paperwork and procedures will allow DSL's Field Operations staff to spend more time in the field conducting public education, technical assistance, and compliance monitoring.

Responsible Staff: DSL's Policy and Planning Section has the lead on analyzing regulatory streamlining options.

Funding: $105,089 in Other Funds (Common School Fund) and $105,089 in Federal Funds requested for the 1997-99 biennium to continue analysis of regulatory streamlining options.

Schedule: DSL budget approved by the Governor's Office in December 1996.
Legislative hearings scheduled for February 1997.
Effective date, if approved by the Legislature, is July 1, 1997.

DSL27 - Add Permanent Field Staff In Coastal Basins.

Summary of Measure: The Division of State Lands has asked the Oregon Legislature for authority to add two permanent positions to be devoted to removal-fill project technical assistance, outreach, monitoring, and compliance in essential indigenous anadromous salmonid habitat and field activities related to CSRI program measures.

Background: DSL field staff handle all removal-fill activities (i.e., application processing, technical assistance, interagency coordination, and compliance monitoring). In 1993, the Oregon Legislature amended the Removal-Fill Law to include all activities in areas designated as essential indigenous anadromous salmonid habitat, as compared with the 50 cubic yard regulatory threshold in most other areas. Administrative rules implementing the essential habitat requirements were effective in January 1996. The new program increased DSL staff workload significantly.

During 1996, DSL reprogrammed its base budget to provide funds for two temporary staff whose assigned territory was coastal basins; these employees focused initially on flood recovery and then on public education, technical assistance, and compliance monitoring in essential habitat areas (DSL15). During the 1997 operating season, DSL will again reprogram its base budget to hire one temporary field person to focus on essential habitat activities (DSL15).

Objective: Increased public education, technical assistance, and compliance monitoring in coastal basins, resulting in fewer adverse impacts to salmonid habitat from removal-fill activities.

Implementation: The Division submitted a Program Option Package in its 1997-99 budget request to add two permanent positions (one field staff and one support staff) to address the increased workload associated with removal-fill activities in essential salmonid habitat and implementation of CSRI program measures.

Results: Fewer adverse effects from removal-fill activities in coastal basins on salmonid habitat.

Responsible Staff: DSL's Field Operations Section has the lead.

Funding: $194,327 in Other Funds (Common School Fund), and 2.0 FTE requested for 1997-99 biennium and beyond.

Schedule: DSL budget approved by the Governor's Office in December 1996.
Legislative hearings scheduled for February 1997. Effective date, if approved by the Legislature, is July 1, 1997.

DSL28 - Reclassify Field Operations Administrative Staff.

Summary of Measure: The Division of State Lands has asked the Oregon Legislature for authority to reclassify the Field Operations administrative staff to provide more time for the Resource Coordinator to do field work.

Background: DSL's Field Operations' administrative staff currently are classed OS-1. This classification incorporates routine clerical operations such as typing and filing, as well as review of the completeness of removal-fill permit applications and mailing of applications to the appropriate parties for review.

Objective: Transfer some duties from Resource Coordinators to administrative staff, giving the Resource Coordinators more time in the field.

Implementation: The Division included a Program Option Package in its 1997-99 budget request to reclassify the Field Operations support staff as OS-2. This would allow them to assume more of the administrative duties associated with permitting, such as responding to telephone requests for information about a permit, and thus free up the Resource Coordinators' time for more field work.

Results: Better public education, technical assistance, and compliance monitoring of removal-fill permits through better trained administrative staff and more on-the-ground field work.

Responsible Staff: DSL's Field Operations Section has the lead.

Funding: $12,328 in Other Funds (Common School Fund) requested for 1997-99 and beyond.

Schedule: DSL budget approved by the Governor's Office in December 1996.
Legislative hearings scheduled for February 1997. Effective date, if approved by the Legislature, is July 1, 1997.

DSL29: Implement Information Resource Management Plan To Enable Tracking Of Cumulative Impacts.

Summary of Measure: The Division of State Lands will implement its Information Resource Management Plan to provide a systems environment that will enable the tracking of cumulative impacts.

Background: The 1995 Legislature authorized DSL to migrate from a Wang computer system to an open architecture LAN system that will be integrated with the existing GIS station. DSL has a custom removal-fill permit database on the Wang that tracks simple number of permits issued by type and waterway, permits renewed and denied, violations reported/resolved, and enforcement actions. The Wang system is not linked to the GIS station and cannot produce reports that enable DSL to track cumulative number and type of permits issued over time on a waterway.

Objective: Provide the ability to track cumulative numbers and types of removal-fill permits issued on particular waterways, over time, and map them on GIS.

Implementation: The Division is nearing the end of Phase 1 of a 3-phase migration from the Wang to an open architecture system that will allow communication with other state agencies via the state LAN and with the public through Internet E-Mail. Concurrently, DSL is implementing Phase 2, which will establish system requirements for translating the removal-fill permit and other Field Operations databases (e.g., sand and gravel royalty leases), linking them to DSL's GIS system and defining the desired level of public access. DSL expects to begin Phase 3, which will implement Phase 2, during 1997.

DSL does not yet have an estimate of the timeframe needed to fully translate the Field Operations databases to the new computer system and integrate them with GIS. This schedule will be refined further in Spring 1997 following completion of Phase 1 and Legislative approval of the DSL budget.

Results: Better DSL staff understanding of the cumulative numbers of permits issued in particular areas and the ability to map permit locations on GIS.

Responsible Staff: DSL's Information Services Team, within the Finance and Administration Section, has the lead.

Funding: $118,600 in Other Funds (Common School Fund) requested for 1997-99 biennium. Anticipate requesting additional operating funds when the Phase 2 requirements plan is complete.

Schedule: DSL budget approved by the Governor's Office in December 1996. Legislative hearings scheduled for February 1997. Implementation is ongoing.

South Slough National Estuarine Research Reserve
CSRI Implementation Plan

Phase 1 Measures

SSNERR1 - Restore Estuarine Habitat In The South Slough Estuary.

Summary of Measure: In 1996, the South Slough National Estuarine Research Reserve (SSNERR) restored estuarine habitat.

Background: The South Slough National Estuarine Research Reserve (SSNERR) in Charleston, Oregon is a 4,800-acre research natural area encompassing a portion of the Coos estuary in Southern Oregon. SSNERR is part of the National Estuarine Research Reserve System administered in partnership with the National Oceanic and Atmospheric Administration. The mission of SSNERR's conservation strategy is to:

> Conduct long-term conservation, restoration, and management activities within the South Slough coastal wetland ecosystem that are designed to re-establish natural estuarine processes and improve habitat values for fish and wildlife.

Objective: To restore tidal circulation, eelgrass beds, and native salt marsh vegetation to approximately 75 acres of degraded agricultural land.

Implementation: In 1996, the SSNERR completed Phase 1 of the Winchester Tidelands Restoration Project, which involved:

- Restoring the natural sinuosity of tidal channels in Cox Canyon.
- Re-establishing forested wetlands within a 15-acre parcel in the Hidden Creek watershed.
- Restoring about 2 acres of eelgrass to a site in Brown's Cove previously damaged by oyster cultivation.
- Restoring tidal circulation and native vegetation to 7 acres of previously diked and drained areas in Kunz Marsh.

Results: Restoration of estuarine habitat and adjacent wetlands.

Responsible Staff: SSNERR's Director has the lead, with the assistance of the Research Coordinator and Land Steward.

Funding: No additional funding was required for work in 1996-97; see SSNERR4 for Phase 2.

Schedule: Ongoing.

SSNERR2 - Develop Partnerships For Improved Estuarine Habitat Management.

Summary of Measure: SSNERR will work with federal and state agencies and private organizations to develop agreements for cooperative management and habitat monitoring and enhancement for coastal wetlands within the South Slough estuary.

Background: A primary goal of the SSNERR Conservation Strategy is to take a more active role in cooperative management of coastal wetlands located within the South Slough estuary.

Objective: Conservation and enhancement of estuarine habitats and associated wetlands in the South Slough estuary.

Implementation: SSNERR is working to develop Memoranda of Understanding and Interagency Agreements with various state and federal agencies and private entities to:

- Re-establish functional salt marsh at a former coastal wetland site used for dredge spoils disposal.
- Protect 80 acres of wetland habitat within Brown's Cove.
- Conserve 35 acres of wetland habitat and 93 acres of adjacent tidelands at Metcalf Marsh.
- Enhance coastal wetland habitats within 21 acres of Barview Wayside.

Those agreements will provide the framework for an integrated coastal wetlands program to improve resource stewardship, conduct onsite research and monitoring of critical habitats, and provide opportunities for public education and interpretation.

Results: Cooperative management including enhancement, protection, and monitoring of estuarine habitat and coastal wetlands within the South Slough estuary.

Responsible Staff: SSNERR's Director has the lead, with the assistance of the Research Coordinator and Land Steward.

Funding: No new funding required.

Schedule: Anticipate completion by June 1997.

SSNERR3: Conduct Research On Estuarine Habitat.

Summary of Measure: SSNERR recently conducted research on estuarine salmonid habitat conditions, uses, and needs.

Background: An important part of SSNERR's mission is to gather scientific information essential to coastal zone decisionmaking and to provide reliable information about the importance of estuaries to policy makers and the public.

Objective: To increase knowledge and public awareness about the importance of estuarine habitat.

Implementation: SSNERR staff recently conducted research on:

- Estuarine water quality parameters.
- Effects of oyster cultivation on eelgrass habitat.
- Seine studies of fish populations in the slough.
- Evaluation of larval populations of dungeness crab and ghost shrimp as biological indicators of estuarine health.

SSNERR staff also cooperate with scientists at the University of Oregon's Institute of Marine Biology on various research projects. SSNERR4 includes a major research component related to experimental assessment of techniques to accelerate the restoration of estuarine functions to diked tidal wetlands.

Results: Better understanding of salmon life history in estuarine habitats and the effects of human activity on habitat.

Responsible Staff: SSNERR's Director has the lead.

Funding: All research projects are funded through grants.

Schedule: Ongoing.

Phase 2 Measures

SSNERR4: Continue to Implement the SSNERR Conservation Strategy

Summary of Measure: SSNERR will continue to implement its conservation strategy, including estuarine habitat restoration, research and monitoring, conservation of coastal wetlands, acquisition of land within the South Slough watershed, and public education and interpretation regarding estuarine environments.

Background: SSNERR is managed to conserve the natural resources of the Sough Slough estuary, while accommodating research, education, and recreation uses. The SSNERR estuary conservation strategy is to:

- Restore estuarine habitat.
- Develop interagency agreements and other management mechanisms to conserve coastal wetlands.
- Acquire additional land to further protect the South Slough watershed.
- Conduct research and monitoring of critical coastal habitats.
- Provide opportunities for public education and interpretation regarding estuarine environments.

SSNERR is also an active member of the Coos Watershed Association.

Objectives

- Improve both the understanding and physical condition of estuarine habitats.
- Help meet the CSRI goals and objectives for physical habitat.

Implementation: The implementation of SSNERR's Conservation Strategy is ongoing, but some projects (such as research and restoration) are dependent on federal and matching grant funds beyond September 1997. Important ongoing activities that will continue into 1997-99 include improved management of coastal wetland habitats (SSNERR2) and experimental assessment of techniques to accelerate the restoration of estuarine functions at diked tidal wetlands. A major component is continued research and monitoring of the Kunz Marsh restoration site. In addition, SSNERR will seek opportunities to acquire additional land within its watershed using dedicated funds.

Results:

- Improved habitat conditions within South Slough.
- Better understanding of estuarine habitat and coastal wetlands in general.

Responsible Staff: SSNERR's Director has the lead.

Funding: $1.4 million requested for the 1997-99 biennium ($1 million Current Service Level and $400,000 in Program Option Packages).

Schedule: SSNERR budget request approved by the Governor's Office in December 1996. Legislative hearings scheduled for February 1997. Effective date, if approved by the Legislature, is July 1, 1997.

Oregon Natural Heritage Program
CSRI Program Measures

Phase 2 Measures

ONHP1 - Add Fisheries Information to the Natural Heritage Data Bank.

Summary of Measure: The Oregon Natural Heritage Program (ONHP) will develop and maintain a database for coastal coho, steelhead, and Umpqua cutthroat trout.

Background: The ONHP is a public-private partnership whose staff work with the Division of State Lands to provide administrative support to the BLM, USFS, USFWS, and The Nature Conservancy. The Oregon Natural Heritage Act (ORS 272.561-272.591) creates a Natural Heritage Data Bank to serve as a central repository of information on rare, threatened, and endangered species in Oregon. ONHP has worked cooperatively with state and federal agencies to compile this centralized and uniform database, which currently contains locations of all these species in a relational data file. ONHP is in the process of digitizing the data to link with a GIS file in ARCINFO at a scale of 1:24,000.

Objectives

- Gather data on the spawning and rearing locations for coastal coho, steelhead, and Umpqua cutthroat trout from state and federal agencies.
- Standardize the information in the Natural Heritage Data Bank, for more efficient data management.

Implementation: ONHP has a fisheries biologist who has worked with all agencies, including the BLM, USFS, ODFW, NMFS, and PMFC to gather spawning and rearing data. BPA and BLM provided $9,000 in funding to fund this effort in the 1995-97 biennium.

Results: The fisheries information can be provided to state and federal agencies, watershed councils, and working groups to help implement the CSRI plan by setting priorities for habitat management, restoration, and acquisition.

Responsible Staff: The ONHP Staff Director has the lead.

Funding: A total of $35,000 is needed to complete the database during the 1997-99 biennium. $9,000 is available for FY 1998. Continued funding is needed for database maintenance.

Schedule: Began in 1996; will continue as funding becomes available.

ONHP2 - Complete the Biodiversity Data Layer.

Summary of Measure: ONHP will complete and maintain the GIS layer showing the contribution of designated lands to the maintenance of fish, wildlife, and other components of biodiversity.

Background: The Oregon Natural Heritage Act (ORS 272.561-272.591) creates a Natural Heritage Data Bank to serve as a central repository of information on rare, threatened, and endangered species in Oregon. ONHP has worked cooperatively with state and federal agencies to compile this centralized and uniform database, which currently contains locations of all these species in a relational data file. As part of a cooperative effort with Defenders of Wildlife that began in 1996, ONHP helped compile a GIS layer that shows all of Oregon's land management status and evaluates designated land areas to assess their current contribution to the maintenance of fish, wildlife and other components of biodiversity. The GIS layer is available through the State GIS Service Center.

Goal: To provide land management data for state and federal agencies, watershed councils, and working groups to use in implementing the CSRI plan.

Implementation: In Spring 1996, ONHP and the Defenders of Wildlife developed a managed areas data layer by compiling information from all sources. The file is available through the State GIS Service Center. It lacks quality control assessments and needs annual updating and maintenance. This work would be performed by a GIS data analyst at the ONHP office.

Results: A compiled, high quality statewide data layer showing land management designations for use in state, local, and watershed planning efforts.

Responsible Staff: The ONHP Staff Director has the lead.

Funding: $6,500 is needed to perform quality control on the existing statewide data layer. $1,800 is needed annually for database maintenance.

Schedule: Began in 1996 and continues as funding allows.

Oregon Department of Agriculture

Oregon Coastal Salmon Restoration Workplans

Oregon Department of Agriculture
1997 Coastal Salmon Recovery Workplans

Introduction

The Governor has directed Oregon's Natural Resource Agencies to develop programs in partnership with coastal communities, local governments and others to preserve and restore native coastal salmon populations. In Coastal Coho areas, from 2 to 25 percent of the basins are zoned as agriculture. Within the Coastal Coho basins there are approximately 2,600 miles of streams associated with the lands zoned as agricultural. This represents approximately 13 percent of the total stream miles in these systems. Because of the opportunities for agriculture to affect resource management, the Oregon Department of Agriculture has been working with the agricultural community to develop regulatory and assistance programs that improve resource management where needed. Authority for several of the programs was established in the 1993 and 1995 legislatures, and implementation of the programs has been initiated this biennium. Following is a summary of the programs and the their contributions to coastal salmon recovery efforts.

ODA1 - SB 1010 Planning Program

Summary of Measure: Develop, implement, and enforce agricultural water quality management programs in the coastal zone management area. Identify and implement actions that address nonpoint source pollution, such as basin and/or subbasin plans.

Background: 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. SB1010, 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, which gave 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.

Goals and Objectives: SB1010 provides a structure through which a local water quality management plan can be developed and implemented to prevent and control water pollution resulting from agricultural activities and soil erosion. ODA's authority is 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). SB1010 directs ODA to work with farmers and ranchers by developing *Agricultural Water Quality Management Area Plans* for listed watersheds. The plans identify problems in the watershed that need to be addressed and outline ways to correct those problems.

The intent of SB1010 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.

Funding and Results: ODA's budget proposal for 1997-99 requests sufficient resources to develop six basin and/or subbasin plans in the coastal zone management area. The basin plans will address specific agricultural nonpoint source pollution concerns in the individual basins. This program will be developed and carried out in close coordination with CSRI priorities and objectives.

Implementation: As the SB1010 planning process gets underway in the coastal zone, ODA will target the Rogue, Umpqua, and Tillamook Basins as high priority for water quality planning and implementation efforts. In the Tillamook Basin, which has a large number of dairy operations, the ODA's Confined Animal Feeding Operations program will also be heavily relied upon as a means to address water quality problems.

ODA has also received a request by the local Soil and Water Conservation District to initiate the SB1010 planning process in the Tillamook Basin. Another important catalyst for agricultural water quality management planning in Oregon's coastal zone is Section 6217 of the Coastal Zone Management Act, and the associated agricultural management measures identified in Oregon's Coastal Nonpoint Pollution Control Program (CNPCP).

ODA also recognizes that the Coos and Coquille Basins and several additional coastal subbasins have significant agricultural activity that could impact salmonids. The best implementation approach for the SB1010 planning process in Oregon's coastal zone appears to be having regional ODA employees work in these specific areas to initiate, participate, and coordinate effectively with the local community.

Based on Phase 1 funding of the Coastal Salmon Recovery Initiative, ODA has funds from an EPA 319 grant to hire and locate one regional employee. This individual will be initiating the SB1010 planning process in the Rogue and Umpqua Basins, and to a lesser extent in the Tillamook Basin. The regional coordinator, assisted by ODA senior water quality staff, will identify critical sub-areas of the Rogue, Umpqua, and Tillamook Basins for agricultural water quality management area plan development; they will also estimate the need for technical assistance, administrative action, and landowner involvement and costs for the development and implementation of the agricultural water quality management area plans.

In addition, the regional coordinator will conduct education and outreach activities to familiarize agricultural and rural landowners and land managers with the SB1010 planning process, as well as the other federal and state mandates/priorities that would be covered under an agricultural water quality management plan (e.g., Coastal Nonpoint Pollution Control Program, 303(d) list/TMDL priorities, CSRI). Finally, the development of a draft Agricultural Water Quality Management Area (1010) Plan for the coastal area identified as the highest priority for plan development will be completed.

Schedule: The timeline for AWQMAP development based on Phase I funding is:

Jan 1997	EPA 319 grant position advertised and filled.
Jan-March 1997	Conduct agricultural land use inventories.
Feb.-April 1997	Identify source contribution and geographic priorities.
March-July 1997	Estimate implementation costs.
April-May 1997	Identify critical sub-areas for initial area plan development.
Aug.-June 1998	Develop a draft Agricultural Water Quality Management Area Plan.

Voluntary implementation of plan components can begin as early as January 1997, as landowners become more aware of the needs and opportunities available. Timeframes for implementing new regulatory components identified in the plan would be identified in the plan and formalized in Oregon Administrative Rules.

Future Outlook: If Phase 2 funding of the CSRI is secured, ODA will establish regional employees (planning coordinators) in each of the following areas:

- Inland Rogue Valley - will also provide assistance to the lower South Coast.
- Inland Umpqua - will also provide assistance to the upper South Coast (Coos/Coquille) and the lower Umpqua.
- Mid and North Coast.

Responsible Staff

Chuck Craig	(503/986-4704)
Mike Wolf	(503/986-4711)
Marc Peters	(503/986-4714)
Ray Jaindl	(503/986-4713)

ODA2 - Confined Animal Feeding Operations (CAFO) Program

Summary of Measure: Conduct inspections, educational outreach, technical assistance, and timely and effective enforcement, as needed, to ensure water quality is protected as much as possible.

Background: The Department's CAFO Program ensures compliance with existing clean water laws of nonpoint pollution sources related to animal feeding operations (regulatory program under ORS 468B.200-230).

Goals and Objectives: The main objective of the CAFO program is to improve water quality by increasing the level of compliance of CAFOs with water quality regulations.

Funding and Results: A rapid screening aerial assessment has been completed of all the permitted CAFOs in the coastal zone, and a followup with preliminary "courtesy" inspections is in process.

In this followup, subsequent inspections are being done to evaluate compliance with permit conditions and, as needed, aggressive civil penalty enforcement actions are being taken..

The Department of Agriculture is in its third year of a joint EPA/ODA CAFO compliance initiative in the Tillamook Basin and surrounding North Coast region and will continue to focus its efforts in that area in 1997. This aggressive compliance inspection program involves formally inspecting those CAFOs likely to be in violation of water quality standards. Those found to have water quality problems are directed to take corrective action or face enforcement procedures such as civil penalty action. A "courtesy" compliance inspection program has recently been initiated in the Coos/Coquille Basins, with over 80 percent of the dairies enrolled in the program. A regulatory compliance strategy will be initiated at the conclusion of the courtesy compliance program (1997-98).

Schedule: The timeframe for CAFO Program implementation based on Phase 1 funding is:

Fall 1996: Compliance inspection training/coordination with OSUES and NRCS.

Nov. 1996-Oct. 1997

- Complete courtesy compliance inspections with CAFO operators on the South Coast (Coos/Coquille Basins) Jan-May 1997. (The 1996 winter flooding delayed completion of the courtesy inspections to the fall of 1997.)
- Formal *on-farm* compliance inspections of CAFOs in the Tillamook Basin (EPA/ODA Compliance Initiative).

June-Dec. 1997: Compliance schedule development; report writing, data analysis, etc.

June-Dec. 1997: Followup on corrective actions required by CAFO operators.

June-Dec. 1997: Administration of enforcement actions.

Future Outlook: If Phase 2 funding of the CSRI is secured, ODA will hire three new employees for the CAFO program. One of the new employees will be permanently assigned to the Tillamook Basin. ODA is also awaiting a decision from the EPA 104 b (3) grant program on continued funding of the CAFO program. Additional funding would allow for:

- An update of the rapid screening aerial assessments to re-evaluate priorities.
- Continued development and maintenance of the CAFO database.

Responsible Staff:

Chuck Craig (503) 986-4704
Dave Wilkinson (503) 986-4712

ODA3 - Oregon's Habitat Restoration Jobs Program (aka "Hire the Fisher")

Summary of Measure: Eligible fishers will be employed to perform work on private lands of a beneficial nature to salmon habitat.

Background: In September 1994, the Oregon Department of Agriculture was authorized to receive up to $2.2 million in Northwest Emergency Assistance Program funds from the U.S. Department of Commerce to help mitigate the West Coast salmon fishery disaster. These funds were targeted for hiring eligible fishers who have been affected by the fishery resource disaster and to perform work on private lands which has a beneficial impact on salmon habitat.

Goals and Objectives: The main objectives of all habitat restoration projects are to:

- Support critical or essential habitat needs and enhance the biological sustainability of west coast salmon resources.
- Be labor intensive, require little formal training, and provide the greatest number of jobs in the short term to eligible fishers.

Funding and Results

- Phase 1 (1995-96): $2.2 million was available to fund 13 projects through 12/31/96.
- Phase 2 (1996-97): $2.5 million was available to fund 13 projects through 5/31/98.

Soil and Water Conservation Districts that were awarded grants are collaborating with watershed councils, ODFW Fish District staff, and numerous other natural resource partners to implement habitat restoration and enhancement projects. To the greatest extent possible, the districts are coordinating their activities with similar restoration efforts undertaken in the watersheds to ensure that priority projects get implemented.

Future Outlook: Future funding for the Habitat Restoration Jobs Program (Phase 3 in 1997-98) is unknown at this time.

Responsible Parties

Soil and Water Conservation Districts in: Clatsop, Columbia, Coos, Curry, Douglas, Illinois Valley, Lincoln, Siuslaw, Tillamook, and Washington counties.

ODA Contact: Marc Peters (503) 986-4714

Governor's Watershed Enhancement Board
and
Soil and Water Conservation District Programs

GWEB/SWCD1 - District Grant Program

Summary of Measure: Provide support to grant program providing funding assistance to individuals or groups to implement actions involving resource management, restoration and enhancement, monitoring, and assessment.

Background: Since 1987, GWEB has allocated funds to support a Soil and Water Conservation District (SWCD) Small Grant Program. For the 1995-97 biennium, GWEB has allocated $90,000 to the Soil and Water Conservation Districts Small Grant Program. The program provides $2,000 to each Soil and Water Conservation District for projects consistent with GWEB guidelines.

Goals and Objectives: This program is viewed as providing seed money to individuals or groups in a SWCD to initiate actions that may not have occurred otherwise. Over the past eight years this has included both technical and educational projects.

Funding and Results: A total of $22,000 for GWEB/SWCD small grant projects in the coastal (coho) zone is available in the 1995-97 biennium. Records on projects funded during past bienniums can be obtained from the GWEB office.

Future Outlook: Funding for this program is dependent on GWEB approval each biennium. Funding has been allocated each biennium since 1988.

Responsible Parties: Coastal Soil and Water Conservation Districts (Clatsop, Tillamook, Lincoln, Siuslaw, Umpqua, Douglas, Curry County, Josephine, Illinois Valley, and Jackson SWCDs).

ODA Contact: Ray Jaindl (503) 986-4713

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GWEB/SWCD2 - Landowner Workshops

Summary of Measure: Workshops will be conducted for the purpose of educating landowners about issues and concerns that affect watersheds, including riparian management, watershed council development, CAFO management, and farming practices.

Background: Since 1993, the Governor's Watershed Enhancement Board has authorized funding of Soil and Water Conservation District sponsored landowner workshops.

Goals and Objectives: The landowner workshops are viewed as effective educational tools for addressing landowner issues and concerns that affect watersheds. During the last biennium, workshop topics included riparian management, watershed council development, CAFO management, and farming practices. While this program is available statewide, at least two workshops are designated for the coastal zone each biennium.

Funding and Results: While this program is available statewide, at least two workshops were designated for the coastal zone in the 1995-97 biennium. Grants were awarded to the Clatsop and Siuslaw SWCDs.

Future Outlook: Funding for this program is dependent on GWEB approval each biennium. Funding has been allocated each biennium since 1991.

Responsible Staff: ODA - Ray Jaindl (503) 986-4713

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GWEB/SWCD3 - Watershed Council Coordinator Program

Summary of Measure: Provide support for Watershed Councils to enable the local watershed-based approach to conducting analysis and implementing actions.

Background and Objectives: In the 1995-97 biennium, $350,000 of GWEB funds were targeted to provide funding through Soil and Water Conservation Districts for support of the human resources needed to contribute technical assistance to watershed council formation and development.

Funding and Results: Nine proposals were partially or completely funded (the SWCD established a cap of $46,000 per any single grant to maximize number of districts assisted). Districts who have been awarded grants worked with the watershed councils to develop position descriptions, and to advertise, interview, and fill the positions. Of the grants awarded, two were to SWCDs in the coastal (coho) zone: Tillamook County and Siuslaw.

Future Outlook: At this time, funding for this program is uncertain after the 1995-97 biennium.

Responsible Staff: ODA- Ray Jaindl (503) 986-4713

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Note: ODA will continue to consult with the Governor's Natural Resources Office, the Department of Environmental Quality (DEQ), the National Marine Fisheries Service (NMFS), and others to help identify and prioritize critical coastal areas for ODA program implementation. Attempts will be made to identify where federal and state programs interface, such as the CNPCP/DEQ's 303(d) list-TMDL priorities/CSRI, and to reach consensus on the selection of high priority areas for early implementation efforts.

Oregon Department of Forestry

Oregon Coastal Salmon Restoration Workplans

Oregon Department of Forestry
OCSRI Workplans
February 19, 1997

Phase I Implementation Plan

ODF 1 - Road Erosion And Risk Project

Background: Many forest roads built prior to the development of the Oregon Forest Practices Act, or prior to establishment of the current Best Management Practices (BMPs), pose increased sediment risk to fish habitat. Industrial forest landowners have agreed to implement a voluntary program to identify risks from roads and to address those risks.

Goal: The goals of this project are to:

- Implement a systematic process to identify road related risks to coastal salmon recovery.
- Establish priorities for problem solution.
- 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 1972, regardless of their construction date. Emphasis will be given to road systems constructed prior to current forest practice standards and road systems in core areas.

Objective: This action will make improvements to road elements such as road fills, stream crossings, and drainage and surface problems to improve fish passage and habitat.

These improvements will also reduce the risks of adverse watershed effects associated with "legacy" roads and major storm events, such as the storm that occurred in February 1996.

The following priorities (highest priority listed first) will be used to implement this project:

- Core area watersheds containing 70 percent slopes over 50 percent or more of the watershed area.
- Other core area watersheds.
- Other watersheds (with anadromy) in the Umpqua, Rogue, and Tillamook Bay watersheds.
- All other watersheds.

Action Items:

- Protocol has been developed (Appendix A) in a joint effort among ODFW, OSU, ODF, and OFIC. This protocol addresses risks from road surface, fill and cut slopes, and stream crossing structures. The protocol has been developed in two test basins (Scoggins Creek and

Kilchis River). Transfer of protocol will be accomplished through training sessions.

- An assessment plan will be developed among the cooperators. ODFW will assist in this effort to help set priorities. An annual meeting will be held to update the plan and determine progress toward the project objectives.

- A data base by landowner will be developed to retain the assessment information and monitor progress and effectiveness of the efforts.

- A road management guidebook will be developed that will include alternatives for solving identified problems. A project team has been assembled. This team will meet during 1997 to develop the guidebook by June 1998.

Funding: The funding commitment for implementation of this project by OFIC landowners over the next ten years is estimated to be approximately $130 million, or $13 million per year on average. Technical support funding will be provided by ODF and DEQ.

Work Schedule:

- Road inventory protocol completed (Keith Mills, ODF).

- Assessment plan based upon priorities will be completed March 30, 1997 (OFIC).

- Road Management Guidebook will be completed June 30, 1998 (Keith Mills, ODF).

- Assessment work will be completed by January 1, 2002 (OFIC landowners).

- The target for completing necessary remediation actions on culvert and road problems in core areas is January 1, 2007 (OFIC landowners).

- The target for completing necessary remediation actions on culvert and road problems outside of core areas is January 1, 2012 (OFIC landowners).

Monitoring: This is a voluntary effort that will be monitored by ODF in cooperation with OFIC and ODFW. An annual accomplishment report by OFIC landowners and annual meetings will be used to measure progress. At the end of ten years, landowners will be evaluated on their substantive progress. For landowners who have not made substantive progress, more aggressive application of regulatory options will be considered.

ODF 2 - State Forest Lands Road Erosion And Risk Project.

Background: State forest landowners have agreed to implement a voluntary program (to include 1996 storm damage) on state-owned lands to identify risks from roads and to address those risks. This proposed effort will upgrade at least 130 miles of road in each of the next three biennium. Many of the road systems were built prior to the Oregon Forest Practices Act to salvage Tillamook burn timber in the 1950s. The state forestland was in private ownership at that time.

Goal: To restore, upgrade, and in some cases close state forest roads and stream crossing structures to meet current Forest Practices Act requirements.

Objective: The project will upgrade at least 130 miles of forest road in each of the next three biennium. This effort will reduce the risk of erosion and sedimentation that could severely impact fisheries resources.

Action Items: Roads will be inventoried using new road inventory protocol developed by ODF and OFIC to identify high priority road repair/improvement projects. Roads will be reconstructed, improved, or put to bed. All repairs and improvements will meet or exceed requirements of the revised Oregon Forest Practices Act rules.

Funding: Storm damage portion (FEMA and District storm-related costs): Current biennium $3 to $4 million anticipated.

For the Phase 2 portion of this measure $3 million dollars is available for the 97-99 biennium pending approval.

Road improvement program (Phase 2):
The Department is requesting authorization to spend an additional $3 million dollars and add 6.5 full-time equivalent (FTE) personnel as part of a program option package for the 97-99 biennium to support this portion of the program. The revenue to implement this project is available awaiting authorization.

Work Schedule: July 1996 through 2002

Monitoring: Reconstruction, road closures, and repair work will be monitored by ODF road engineers using GIS data collection techniques.

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ODF 3 - Technical And Policy Review Of Rules And Administrative Processes Related To Slope Stability

Background: To analyze the effects of the February 1996 and November 1996 storms, the Department is in the process of collecting and analyzing landslide information from study zones within the storm areas (reference ODF 13). As a followup of the monitoring effort, the Board of Forestry will review the existing forest practice rules and program in relation to slope stability to determine if changes in rules or administration procedures are needed.

The review process will be two-fold, focusing on public safety and impacts on fish habitat and water quality.

Goal: Review forest practice rules related to slope stability.

Objectives:

- Review public safety in relation to forest landslides in conjunction with harvest operations.
- Assess impacts on fish habitat.
- Assess impacts on water quality.

Action Items: Water Quality/Habitat Issues

Adaptive Management

1. Board of Forestry directs ODF to implement a technical/policy review of rules and administrative processes related to slope stability.
   * Complete data collection of two additional study sites under the Storms of 1996 Monitoring Project (ODF 13).
   * Vigorously pursue analysis of study data to determine frequency occurrence of landslides and potential water quality/habitat effects under different management scenarios.
   * Establish a technical group to assist ODF's review of rules and administrative processes.
   * Utilize existing scientific/technical literature related to landslides.

Regulatory Program

1. Continue to apply high risk site rules/written plans.
2. Increase compliance monitoring on road and harvesting practices on high risk sites.

Implement Voluntary Program

1. Road erosion and risk project (ODF 1).
2. State Forest Land Road Project (ODF 2).
3. Retain In-unit trees along small Type N streams.
4. Return all snags/downed wood within 20-foot RMAs along small Type N streams.
5. Analyze effects of "rack" concept (ODF 61).

Public Safety/Property Issues

1. Convene interim legislative committee to examine issues and make recommendations for addressing public safety/property damage issues by 1999 session.
2. Board of Forestry requests voluntary deferral of forest practices on high risk sites meeting certain parameters for two years until legislative committee makes recommendations.
3. Immediately implement project by ODF and state climatologist to develop reliable maps identifying public safety/property risks.
4. Request Legislature to fund OEM, National Weather Service, and local public safety agencies to develop early warning system.
5. ODF to provide notification of operation to residents that have homes in historic forest tracts below operations.

6. Create hazard/risk notification protocol that can be used through local public safety agencies.

Funding: Funding of hazard mapping portion of this project will be contained within ODF's forest practices budget.

Work Schedule:

- March 1997 Board of Forestry provide direction to Department to implement review.
- Spring 1997 legislative proposal.
- Technical group review of FPA road rules and guidance.
- Late summer 1997: Complete storm monitoring study.
- Develop and implement compliance audit program (ODF 23).
- Implement legislative changes (rule development).

Monitoring: Annual reporting.

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ODF 4 - Stream Habitat Assessments.

Background: For the last three years, industrial forest landowners and state forest lands have contracted with ODFW to complete stream habitat surveys following modified Hankin and Reeves protocol (ODFW protocol).

Assessments, to date, have included approximately 3,000 miles of stream. Landowners plan to continue to provide funding for, or conduct, additional assessments during the next several years. The focus of these assessments will be completing all coho streams.

Goal: Assess the condition of salmonid habitat in all coastal watersheds, at a target of approximately 1,000 miles per year.

Objective: See ODFW measure I.B.2.

Action Items: See ODFW measure I.B.2. (Responsibilities).

Funding: See ODFW measure I.B.2.

Work Schedule: See ODFW measure I.B.2.

Monitoring: Annual reporting.

ODF 5 - North Coast Salmonid Habitat Restoration Project

Background:

The North Coast Salmonid Habitat Restoration Project is an existing program that has been in place for two years. Membership is open to all landowners who share a commitment to stream habitat conservation, restoration, and enhancement through cooperative means and who can contribute valuable resources (time, equipment, and funding) to support the Project's objectives.

A steering committee oversees the project. Representatives on the steering committee include a representative of each landowner; a representative from each of the Oregon Department of Fish and Wildlife, Oregon Forest Industries Council, Oregon Small Woodlands Association, and the Associated Oregon Loggers; and two representatives from the Oregon Wildlife Heritage Foundation.

The geographic area this project encompasses includes all river basins from Neskowin Creek near Lincoln City north to the mouth of the Columbia River. The area is divided into three regions: the Nehalem, the Tillamook and the Nestucca. Approximately 64 original potential restoration sites were located within the project area during the first two years. An additional 92 potential project sites have recently been identified on state forestland by ODFW through a three-month contract funded by ODF. Work will also begin during 1997 to identify additional habitat improvement projects on private lands.

Goal:

To conserve, restore, and enhance salmonid habitat of the North Coast through voluntary participation of area landowners in cooperation with the Oregon Wildlife Heritage Foundation and the Oregon Department of Fish and Wildlife.

Objective:

The development and implementation of detailed habitat restoration plans for individual stream reaches identified in the Tillamook/North Coast and Lower Columbia Project Selection Guide developed by ODFW on private and state lands.

Action Items:

Of the 64 total identified project areas for the Tillamook/North coast, 38 have been completed to date, 17 are scheduled to be completed in 1997, and 9 currently do not have scheduled completion dates. Contracts are being written to begin addressing the 92 projects on state forestland that are part of this Initiative.

Funding:

Periodically, members of the Project may contribute money or something of value to the Foundation for the purpose of habitat restoration. The Foundation seeks contributions from other interested parties including federal agencies and private foundations. This money is used in part to fund an ODFW habitat biologist, to leverage additional federal funds, and to provide cost share dollars to small landowners who might otherwise not be able to afford projects on their lands.

Work Schedule: Current projects funded for completion (17 of which are currently in progress):

- Six projects: Oregon Department of Forestry scheduled to be completed summer of 1997. (See ODF 24 for additional projects that may be included with this measure.)
- One project: Private (Longview Fibre) scheduled to be completed summer 1997.
- Seven projects: SWCD and private agriculture (Tillamook County and Hawk Creek Golf Course) scheduled to be completed summer/fall 1997.
- In addition, Tillamook County SWCD has five projects that entail fencing and/or planting, which need funding for completion. A proposal has been submitted to OWHF for $25,000 .
- Also, the Nestucca Watershed Group has four projects in need of funding for completion.

Monitoring: Completion of identified restoration projects. Monitoring of all the North Coast Initiative projects will occur using established protocol established by ODFW.

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ODF 6 - Mid-Coast Restoration Project

Background: The Mid-Coast Restoration Project has been modeled after the North Coast Restoration Project. Membership is open to all landowners who share a commitment to stream habitat conservation, restoration, and enhancement through cooperative means and who can contribute valuable resources (time, equipment, funding) to support the Project's objectives.

In 1996, the Mid-Coast Habitat Restoration Project completed 24 projects, including the placing of over 280 structures affecting approximately 21 miles of stream. Landowner participation included several industrial forest landowners (Boise Cascade, Georgia Pacific, Starker, Willamette, Simpson, Weyerhauser, Stimpson, Hampton, and Hancock), small private landowners, and Oregon Department of Forestry.

Goal: Conserve, restore, and enhance salmonid habitat (particularly Coho) of the Mid-Coast through voluntary participation of area landowners in cooperation with the Oregon Wildlife Heritage Foundation and the Oregon Department of Fish and Wildlife.

Objective: The development and implementation of detailed habitat restoration plans for individual stream reaches identified by ODFW.

Action Items: For 1997, a total of 26 potential projects have been identified within the Salmon, Siletz, Yaquina, Alsea, and Siuslaw basins. These potential projects include instream work, fencing, riparian planting, fish weir repair, maintenance, dike repair, and bridge installation. The potential projects could affect approximately 25 miles of stream reach. Five of the 26 potential projects are continuation of 1996 projects.

Funding: For 1996-97 and 1997-98, estimated funding is $850,000. Periodically, members of the Project may contribute money or something of value to the Foundation for the purpose of habitat restoration. This money is used to fund a habitat biologist hired by ODFW to implement projects and to leverage additional federal funds. The Foundation may also receive contributions from other interested parties.

Work Schedule: February 11, 1997 steering committee meets to determine 1997 project priorities.

Monitoring: Completion of identified restoration projects.

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ODF 7 - Fund Seven New Fish Biologists To Provide Technical Assistance For Salmonid Habitat Restoration

Background: This voluntary measure by the Oregon Forest Industries Council (OFIC) landowners will function to provide technical assistance in western Oregon to forest landowners conducting salmonid habitat restoration projects. Current in-place grassroots efforts, such as the North and Mid-coast initiatives (ODF 5 and 6) lack stable funding; this action will absorb these and create five additional areas covering all of western Oregon providing long-term stable funding. This project area will include the western slopes of the Cascades to the Pacific Ocean.

Goal: To conserve, restore, and enhance salmonid habitat in western Oregon through voluntary participation of area landowners in cooperation with the Oregon Wildlife Heritage Foundation, Oregon Department of Forestry, and the Oregon Department of Fish and Wildlife.

Objective: Provide technical support for the development and implementation of detailed habitat restoration plans and projects for individual stream reaches identified by ODFW.

Action Items: This program is in the initial phase of development.

Funding: OFIC forest landowners will voluntarily contribute up to $500,000 annually to fund seven biologists hired by ODFW. Additionally, in conjunction with the Oregon Wildlife Heritage Foundation, additional dollars will be leveraged to fund restoration projects on non-industrial forestland. On forest industry lands, restoration projects will be funded by the landowners.

Work Schedule: This program is in the initial phase of development; funding will be available spring of 1997. Restoration projects will be identified after biologists are on board and then prioritized for completion.

Monitoring: Completion of identified projects documented through annual reporting.

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ODF 8 - Riparian Hardwood Conversions.

Background: Forest practice rules adopted in the fall of 1994 affecting vegetation retention requirements have been changed to allow the conversion of conifer sites currently dominated by brush and hardwoods back to conifers.

This measure can only be implemented on conifer sites and only on sites where current RMA conifer basal area is half of that required by stream size and stream type under the general water protection rules. No more than half of the total stream length within the harvest unit can be converted, and the conversion blocks cannot exceed 500 feet in width. The conversion blocks must be separated from each other by a minimum of a 200-foot retention block where the general vegetation retention prescription is applied.

This management measure includes modifications of applications within initiative identified core areas. In lieu of the standard procedures within the rules, hardwood conversions within core areas will be subject to additional review and will require a site-specific plan to be submitted and reviewed.

Goal: To restore riparian conifers on conifer sites, while assuring potentially adverse effects are fully considered.

Objective: On sites where the native tree community would be conifer dominated, but due to historical events the stand has become dominated by hardwoods, in particular, red alder, the rules allow disturbance to produce conditions suitable for the re-establishment of conifer. In this and other situations where the existing streamside vegetation is incapable of developing characteristics of a mature streamside stand in a "timely manner," the desired action will provide functional stream shade, some woody debris, and bank stability in the short term while creating conditions in the streamside area to attain desired future conditions more quickly than would otherwise be achievable under natural succession.

Action Items:

- RMA hardwood conversions have been implemented since January 1995.
- Proposed conversions within "core areas" will be subject to additional review and will require a site-specific plan to be submitted by the operator. Plans will be reviewed by FPFs in consultation with ODFW Biologists.

- Supplement written technical and administrative guidelines for hardwood conversions proposed within "core areas" will be developed. Guidance will provide direction for review of site-specific plans to make assessments of potential impacts to the affected streams (guidance is located in Appendix B). Approval of site-specific plans will be dependent upon how the operational elements of the plan will provide protection to the identified limitations of core area streams, particularly temperature. In the event the plan is inadequate to assure acceptable impacts, it will be modified.

Funding: Funding is within ODF Forest Practices budget.

Work Schedule:

- ODF forest practices inspection program is responsible for determining compliance by operators.
- Core area review will become effective April 1997.
- Written technical and administrative guidelines for RMA hardwood conversions have been developed for consistent implementation and are contained in the *Forest Practices Rule & Statute Guidance Manual*.
- Supplement written technical and administrative guidelines for hardwood conversions proposed within "core areas" will be developed by January 31, 1997 (Rod Krahmer, ODF).

Monitoring: Both validation and effectiveness monitoring have been initiated. Effectiveness monitoring will include analysis of riparian vegetation structure both pre- and post-operation and effectiveness of riparian reforestation efforts.

Implementation monitoring will analyze the frequency of hardwood conversions.

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ODF 9 - Northwest State Forest Lands Management Plan

Background: Oregon Department of Forestry is preparing a Northwest Oregon State Forest management Plan. A draft plan is expected to be completed by the summer of 1997. The plan will cover over 600,000 acres of state forest land and will address the full array of statutory mandates and Board and department policies. ODF is working closely with ODFW in developing the plan and has solicited input from stakeholders through a variety of forums.

Goal:

To produce a forest plan that:

- Meets the Department's statutory obligations on Board of Forestry land and its contractual obligation to the State Land Board on Common School Land.
- Is a comprehensive and integrated plan, taking into account a wide range of forest values.
- Uses the technical information that can be reasonably obtained within the constraints of timelines and budgets.

The plan will be used to develop a Habitat Conservation Plan, if possible, that serves as a means of complying with the federal ESA, and also achieves the purposes of the state ESA.

Objective:

Plans are now in development and are not expected to be approved until late 1997. Riparian management practices focus on developing mature streamside stands to provide for the needs of multiple species. Watershed assessment will be implemented to provide the information basis for management actions, such as effective placement of habitat enhancement projects. Investments in road and culvert surveys, as part of watershed assessments, will provide for more effective maintenance and upgrading of the road systems and will result in improved fish passage.

Focus will be on:

- Upgrading or stabilizing "legacy" roads.
- Improving fish passage, placing large woody debris, and improving riparian conditions.
- Reducing the risk of debris flows and sediment from roads constructed during the 1950s and early 1960s.
- Providing riparian area habitat that complements and links to upslope habitats.

Action Items:

The Forest Management plan is being developed through a public process and requires approval by the state Board of Forestry and the State Land Board. The Habitat Conservation Plans will also require approval by these state boards, as well as by the U.S. Fish and Wildlife Service and the National Marine Fisheries Service. This high level of approval acts to assure implementation of the plans.

Some provisions under discussion and development in the planning process include:

- Maintaining and developing mature streamside stands.
- Employing site-specific measures to maintain and improve salmon habitat, including the consideration of source/recovery areas.
- Implementing upland management strategies so that they complement salmon habitat enhancement strategies.
- Conducting fish population and habitat surveys and road assessments as a means of prioritizing areas for management actions.
- Continuing active participation in the North Coast and Mid-Coast Salmonid Restoration Initiatives, and the Tillamook Bay National Estuary Program.

Funding:

Funding for plan development is in the ODF budget. An initial request for additional resources that will be used for plan implementation is included in

a program option package as part of the proposed 1997-99 program and agency budget.

Work Schedule:

- Draft strategies refined (early 1997).
- Public review and input (early 1997).
- Development of district-level plans (spring/summer 1997).
- Write Draft Management Plan (spring/summer 1997).
- Public Input (summer 1997).
- Write final plan (fall 1997).
- Review and seek approval from Board of Forestry and State Land Board.

Monitoring: A monitoring plan will be developed as a component of the Northwest Plan and Habitat Conservation Plan. The monitoring plan will likely identify potential monitoring questions to explore and indicators to track.

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ODF 10 - Forest Practices Monitoring Program

Background: Oregon Department of Forestry has developed and implemented a program to monitor the implementation and effectiveness of the forest practice rules. The forest practices monitoring program has been substantially enhanced over the past four years. The program is guided by a strategic plan that was developed through involvement of many interests. The strategic plan identifies the monitoring questions, priorities, and established process for developing methodologies and improving coordination. The plan is updated periodically with public involvement.

Goal: To provide information to the Board of Forestry in a timely manner regarding Forest Practice rule effectiveness and implementation. Recommendations for rule revisions are made based on study results that indicate inadequacy of the rule. If rules are shown to be effective and properly implemented, then revision is not recommended.

Objective: The objectives of the forest practices monitoring program are to:

- Evaluate the implementation of forest practice BMPs (implementation monitoring).
- Determine if the BMPs are meeting their intended purpose (effectiveness monitoring).
- Validate assumptions on which rules may have been developed.
- Encourage coordinated monitoring.

Action Items: Project is in place.

Funding: Contained within the forest practices budget.

Work Schedule:

- For 1994: Road sediment and stream temperature.
- For 1995: Road sediment and stream temperature.
- For 1996: Road sediment, stream temperature, riparian conditions, and storm impacts.
- For 1997: Road sediment, stream temperature, riparian conditions, storm impacts, and chemical application.
- For 1998: Road sediment, stream temperature, chemical application, and fish passage implementation.

Monitoring: An annual monitoring report is required by rule to be presented to the Board of Forestry.

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ODF 11 - Monitoring Of Riparian Management Areas Under The Forest Practice Act.

Background: In the fall of 1994, the Oregon Department of Forestry adopted new water protection rules. The rules require specific riparian management leave areas (RMAs) with some flexibility for active management under certain stand conditions. Large woody debris recruitment is a primary focus of the new rules.

Goal: The riparian monitoring project will look at the effectiveness of the 1994 water protection rules in maintaining and creating sources of current and potential LWD and in maintaining effective riparian stand structure in terms of stream protection and wildlife habitat.

This project will provide an on-the-ground understanding of future recruitment of LWD from riparian stands prior to harvest operations, and after harvest operations. The project will also evaluate the effectiveness of the riparian rules in maintaining shade and wildlife habitat components. Therefore, RMAs will be evaluated based on their effectiveness to supply these functions to the stream system both pre- and post-operation.

Objectives:

- Determine the effectiveness of the 1994 forest practices rules in providing for short- and long-term sources of LWD.
- Evaluate the implementation of the 1994 stream protection rules in maintaining conifer and hardwood basal area requirements.
- Evaluate the effectiveness of the 1994 stream protection rules in maintaining stream shade.

- Evaluate the effectiveness of the 1994 stream protection rules in maintaining wildlife habitat components of the riparian area.

To accomplish these four larger objectives, the Department will specifically:

- Determine the short-term changes in quantity and composition of in-stream LWD from pre-managed stands to post-managed stands, including diameter, length, zone of influence, orientation to streamflow, decay class, and species.

- Determine the number, basal area, height, diameter, species, lean, distance from the stream, and topographic position (e.g., slope, terrace, etc.) of 100 percent of the trees within the first 20 feet of the RMA and of systematically randomly chosen trees in the last 80 feet in pre- and post-managed stands. Average age by diameter classes will be measured post-operation by counting rings on stumps.

- Determine the submerchantable conifer (1" - 7" dbh) abundance (number) and species in pre- and post-managed stands within the first 20 feet of the RMA and along line transects in the remaining area.

- Evaluate potential post-operation short-term contributions to LWD by collecting aerial photographs on a large sample of streams boarding RMAs and linking photo records to ground data by stand type and georegion. Number of pieces, species, orientation, and contributing factor (e.g., blowdown) will be recorded.

- Determine if the conifer/hardwood basal area in post-managed stands meets the standards established in the 1994 stream rules and to analyze differences between basal area in stands managed under the 1994 and 1987 stream rules.

- Determine stream shading and its composition in pre- and post-operation stands and compare stream shading levels between 1994 and 1987 stream management rules.

- Identify and measure stand structures potentially used for wildlife habitat including snags, down logs greater than 6 inches DBH, and understory dominant and subdominant cover to determine if amounts, sizes, decay classes, and understory vegetation differ in pre- and post-managed stands.

Action Items: Oregon Department of Forestry forest practices monitoring program.

Funding: Oregon Department of Forestry budget.

Work Schedule:

- May 1996 - Hire seasonals, develop test protocol, design datasheets, contact forest practice foresters, obtain vehicles, and field test protocol.
- June 1996 - Begin intensive pre-harvest inventory on a few streams to determine variability and design function for extensive sampling in 1998.
- September 1996 - End inventory, organize, and analyze first year data; then evaluate design and field protocol for 1998.
- June 1997 - Begin post-operation inventory.
- September 1997 - End post-harvest inventory.
- September - December 1997 - Query FACTs database for statewide stream and harvest information; analyze data.
- June 1998 - Begin extensive pre/post-harvest inventory.
- September 1998 - December 1998 - Finish extensive study, analyze data, and publish report by spring 1999.

Monitoring:

The first year (1996) will intensively focus on a few sites set to be harvested in each georegion on both non-industrial and industrial lands and on small, medium, and large streams. Post-operation monitoring will occur during the summer of 1997. From this data set, the monitoring process will be streamlined and the department will significantly increase the number of sites in 1998, the final year of the study. The data from streams harvested under the 1994 rules will also be compared to data collected in 1990-91 during the analysis of the effectiveness of the 1987 rules. The Department plans to compare the 1987 and 1994 rules through the stand characteristics both sets of rules created and are creating.

If this monitoring effort identifies that the Water Protection Rules are not achieving the protection or LWD recruitment goals, the Department will recommend rule changes.

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ODF 12 - Monitoring Effectiveness Of BMPs In Protecting Water Quality During Aerial Applications Of Forest Pesticides

Background:

The Board of Forestry recently reviewed and revised the state's forestry chemical application rules. As part of the chemical rule revisions, the Board adopted OAR 629-620-700, committing Oregon Department of Forestry to monitoring compliance with, and the effectiveness of the, chemical and other petroleum rules.

The Department will implement an overall monitoring program on a representative sample of operations across the state. The program will

consist of observation, vegetation surveys, water quality sampling, and aquatic insect sampling.

Goal: Monitor effectiveness and compliance of Best Management Practices in protecting water quality during aerial applications of forest pesticides on 25 operations.

Objective: Previous water quality studies indicate that concentrations of chemicals greater than one parts per billion (ppb) are relatively rare as a result of forest operations. Monitoring will focus on chemicals that have a more sensitive toxicity rating. The objectives of the project will be to:

- Monitor water quality and aquatic insects on 25 aerial application sites.
- Link with water quality monitoring projects already in-place to share data.
- Assess if chemicals were applied to protected riparian areas in quantities sufficient to impair the vegetation's ability to provide the attributes required (25 operations).

Action Items: The Department is committed to implementing this project to test the effectiveness and implementation of the forest practice rules in protecting riparian function and water quality during aerial application of pesticides. The program will prioritize monitoring efforts based on past findings, toxicity criteria, chemical use, and regional distribution of chemical applications over the past two years. The program will coordinate with private landowners in situations where the landowner has existing plans to monitor.

Funding: Currently $90,000 has been budgeted: $50,000 from ODF's forest practices budget, $30,000 from GWEB (application in progress), and $10,000 from Oregon State University (application in progress).

Work Schedule:

For 1996: Develop monitoring protocol (Appendix C)

Fall 1997: Monitor 13 operations and spring 1998 monitor 12 (2.5 percent of the annual average number of operations). Monitoring will focus on herbicide and insecticide applications.

Water Samples
Samples will be collected before the operation, and 15 minute, 2 hour, 4 hour, and 24 hours after the first swath has been sprayed near the buffer strip. Runoff sampling will be conducted after the first runoff-producing rainfall event on a subset of samples.

Vegetation Surveys
Vegetation inspection surveys will be conducted in riparian areas on high priority operations and by Forest Practice Foresters in response to

complaints. In addition, the surveys will be conducted on the 25 operations selected for the department's monitoring program.

Monitoring: Annual reporting.

ODF 13 - Storms Of 1996 Monitoring Project

Background: The storm of February 5 to 8, 1996 resulted in many landslides, channel changes, and other effects to natural resources, public, and private resources. Initial assessment indicates there are several thousand landslides in the storm area. Many locations had over 20 inches of combined rainfall-snowmelt over four days, with a few over 30 inches. This is an extreme amount of water, and without the flood control dams, it would have caused very severe damage to all towns and cities adjacent to the Willamette and Columbia Rivers, regardless of land use. Evidence of channel impacts includes hundreds of washed-out stream crossing fills and hundreds of miles of scoured channels, which resulted from the landslides and washed-out stream crossings.

Goal: Determine which forest practices and designs successfully minimized or contributed to impacts. The project includes intensive on-the-ground data collection regarding landslides, debris torrents, roads, channel impacts, and fish habitat.

Objective:

- Collect sound information on the specific forest practices applied at the sites of landslides, flood altered streams, and riparian areas.
- Link hillslope processes and forest practices to channel responses or lack of responses.
- Identify specific forest practices applied in the sample areas and determine if practices were appropriate for the times of the operations.
- Develop a comprehensive relational database for detailed ODF monitoring analysis and for subsequent (non-ODF) cause and effect type research.
- Prepare for future major storms by identifying forestry-related situations that may have contributed to impacts and also determine which forest practices and designs successfully minimized storm effects. Use this information to develop and/or communicate those cost effective tools which minimize storm impacts.

Action Items:

This measure has been developed with the involvement of a coordination team, a team of four experts representing four different disciplines, the Oregon Department of Forestry State Lands Program, Oregon State University Forest Engineering Department, and Oregon Department of Fish and Wildlife.

The coordination team is composed of corporate and small private landowners, USFS, BLM, ODFW, and ODF.

The USFS and the BLM have provided ODF with a report of the initial Phase 1 findings of their study. Phase 1 consisted of an assessment of the storm boundaries and a windshield survey of locations of landslides. They are currently embarking on Phase 2. Phase 2 is a region-wide project and consists of a synoptic view of patterns of disturbance using GIS referenced information; detailed stream crossing survey to determine causal mechanisms of failures; watershed performance studies; and an assessment of fish structure durability under these flood conditions. Individual forests are coordinating with ODF on forest-specific projects which may couple with the ODF project.

OSU, through the Forest Engineering Department, has incorporated a graduate student and research assistant into the flood project. Their portion will focus on road-related landslides and washouts within the ODF study sites.

Immediately following the flood, ODF completed an aerial reconnaissance of the storm-impacted areas. The storm boundaries and areas with particularly high rates of landslide and debris torrent impacts (referred to as "red zones") were delineated. Six landslide study sites were then selected. Each of the sites is 10 square miles in area. Three were intentionally selected to represent the red zones and three were randomly selected. The purpose of this design is two-fold. First by selecting red zone sites, documentation of forest practice effectiveness in areas known to be impacted by the storm is possible. The randomly selected sites provide a broader perspective of storm effects. Secondly, the 10 square mile areas were designed to encompass multiple land ownerships (federal, state, industrial private, small private) providing a range of management history. The sites are referred to as Mapleton, Tillamook, and Vida. The three randomly selected sites are Vernonia, Dallas, and Estacada.

Land management history for all six study sites will be gathered by ODF. This will include harvest and regeneration schedules, as well as road construction history and specifications.

Six protocols have been developed to address the different components of the study. These protocols address:

- Road drainage (OSU).
- Road-related landslides (OSU)
- Non-road related landslides (ODF).
- Channel impacts (ODF).
- Torrent jams (ODF).
- Fish habitat (ODFW).

The OSU and ODFW protocols will be implemented on all six sites.

(Reference: Dent, Liz; Robison, George; and Mills, Keith. July 1996. *Oregon Department of Forestry 1996 Storm Impacts Monitoring Project.*)

Funding: Funding is within ODF budget.

Work Schedule:

- Finalize protocols: June 1996
- Data collection: July to September (ODF and OSU)
- NCASI meeting presentation: September 1996
- Water Resources Conference: October 1996
- Data analysis: Beginning September, 1996
- Road protocol field sessions: November-December 1996
- Summary report Board of Forestry: January 1997
- Draft report Board of Forestry: March 1997
- Final report Board of Forestry: Fall 1997

Monitoring: Data collection was completed during the summer of 1996 on six study sites. This project represents the most extensive ground-based study ever implemented to assess landslide frequency. In addition, it is unique in that extensive channel impacts data was collected simultaneously with landslide data. Data analysis and synthesis occurred during the winter of 1996-1997. Conclusions on the effects of forest practices on storm-initiated landslide frequency and channel impacts will be available in Winter of 1997.

This project will be repeated in areas affected by the November 1996 storm in Coos and Douglas counties. The November storm project will be implemented during the summer of 1997. The combination of data from the six 1996 study sites and the two 1997 sites will broaden the Department's understanding of the link between forest practices and landslide frequency, and how varying storm characteristics affect that link. Findings and rule revision recommendations, if necessary, will be presented to the Board of Forestry in 1997 and again in 1998.

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ODF 14 - Monitoring Water Temperature Protection BMPs

Background: 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 under various silvicultural activities allowed under the water protection rules.

Goal: Collect information that supports the development of the BMP program.

Objective: Determine the effectiveness of the forest practice rules in maintaining stream temperature at the site and watershed scales.

Action Items: Annual monitoring, expansion of the data set, and preparation of annual reports.

Funding: Funding is provided partially by an EPA grant and under a cooperative contract among DEQ, OSU and ODF.

Work Schedule: Annual data collection, analysis and reporting to the Board of Forestry.

Monitoring: Annual report.

ODF 15 - Evaluation Of Road And Timber Harvest BMPs To Minimize Sediment Impacts

Background: Roads are recognized as the largest source of sediment associated with forest management. This four-year monitoring project was originally intended as an evaluation of whether Oregon's forest practices for roads were minimizing the delivery of sediment by means of surface erosion to waters of the state.

A random sample of road segments was selected from non-federal lands in western Oregon for monitoring. The sample is representative of the ODF georegions, ownership patterns (state, large industrial, and small non-industrial), and road characteristics (age, use, gradient, etc.).

The project applied the road drainage protocol that was developed, tested and refined during the first year of the project (FY94). This protocol provides information on the locations of drainage systems, road characteristics, runoff routing, and whether there is evidence of sediment delivery.

The major winter storm of February 1996 resulted in many landslides, channel changes, and other effects to natural resources and to public and private resources in northern Oregon. This was an unusual but extremely important storm event, the type which shapes the long-term water quality and watershed characteristics. The storm has provided an unique opportunity to test forest practices developed over the last couple of decades for landslide prevention (acute sedimentation). At the same time, the storm reduced both the short-term importance of chronic surface erosion and also the ability to accurately measure chronic surface erosion.

The Department of Forestry recommended slight modifications to the study methods, in response to storm-related changes to roads and watersheds. Roads in the survey area and in the storm area will be examined to identify and determine factors associated with new landslides, washouts, and gullies related to the drainage system. This monitoring will use the protocol used during previous data collection, with some modification for collection of landslide data.

Forest Practices staff initiated a process to scope potential approaches for monitoring forest road sediment best management practices. Forest Practices staff worked closely with the Forest Engineering Department staff at Oregon State University to develop monitoring concepts. With input from forest landowners, agency personnel and other interested

landowners, the methods were further refined. The methods were field tested on 18 miles of forest roads in northwest Oregon.

Goal: The purpose of this project is to provide land managers and appropriate agencies with specific information on road drainage practices that minimize sediment entry into streams and how these practices are implemented in western Oregon.

Objective: The objectives of this project are:

- Develop relatively simple field methods for determination of sediment delivery potential from roads as these roads are currently maintained.
- Survey erosion hazard, discharge structures, and potential for sediment delivery to waters of the state at randomly selected forest roads in each of the five western Oregon georegions.
- Investigate road-related landslides and washouts that occurred during the storm of February 1996 and their relationship to forest practice rules.
- Develop a comprehensive road erosion hazard inventory protocol for landowners.
- Provide outreach and training to facilitate the use of the protocol.
- Develop a comprehensive road management guidebook.
- Develop a technical issue paper for the Board of Forestry.

Action Items: Planned work for completion of this project includes:

- Conduct field training sessions on use of the comprehensive road inventory protocol (FY96).
- Finish and summarize landslide data analysis (FY96).
- Write and present a comprehensive report for the Oregon Board of Forestry (FY97).
- Develop and publish a BMP guidebook (FY97).

Funding: This project is funded primarily through DEQ and ODF. The Tillamook Bay National Estuary project and the Tillamook State Forest are cooperating to partially fund and utilize this work.

Work Schedule: See action items above.

ODF 16 - Evaluation Of The Adequacy Of Fish Passage Criteria

Background: Technical criteria and guidelines for fish passage have been recently established. These criteria and guidelines will be followed by all state agencies when designing or approving projects. However, the criteria and guidelines, while developed using the best available science, have not been validated by monitoring.

Goal: Ensure that all instream structures pass both juvenile and adult fish, upstream and downstream, whenever such movement would normally take place.

Objective: Establish that the criteria and guidelines used for the design of stream crossing structures pass fish as intended under the goal.

Action Items: Monitor velocities and other hydraulic conditions inside culverts that are sunk into streambeds or that use various baffle designs. Evaluate sediment retention inside sunken culverts. Evaluate performance and survival of existing culverts through monitoring.

Funding: Funded through existing ODF Forest Practices monitoring at 0.2 FTE.

Work Schedule:

- Develop interim fish passage guidance (completed).
- Complete Technical Note on hydraulic conditions inside fish passage culverts - summer 1997.
- Prepare technical report on hydraulic conditions for various culvert designs based on theoretical calculations and monitoring results - spring 1998 (draft).
- Final fish Passage Guidance spring 1998 (draft).

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ODF 17 - Site-Specific Plans For Vegetation Retention Within RMAs On Northwest And Southwest (Grants Pass) Oregon State Forest Lands

Background: As described in ODF9, a long-range management plan (LRP) and a Habitat Conservation Plan (HCP) are being developed for Northwest Oregon state forest lands. These plans, which will meet program and agency mandates, take an integrated comprehensive approach and address a wide range of forest resources, including riparian resources. These plans are progressing well, but due to more technical work that needs to be done and the public input process, they are likely not to be completed until late 1997. The riparian strategies now in the draft plan address links to upslope habitats, consideration of salmonid core and recovery areas, and other important riparian management considerations.

In the interim, this measure will be applied so that the desired future condition of RMAs is achieved to the maximum extent practicable, and in the most timely manner. This is similar to measure ODF 19 described elsewhere in the plan that are being applied by other nonfederal landowners. This measure will also be implemented on Southwest (Grants Pass) state forest lands.

Goal: The goal of this action is to achieve mature forest stands within RMAs in the most timely manner and to the maximum extent practicable.

Objective: To maximize the potential of achieving mature streamside stands by retaining conifer trees based upon site-specific information, rather than standard targets in the Forest Practice rules.

Action Items: For sales on Northwest and Southwest (Grants Pass) state forest lands with contracts prepared and sent to Salem after May 1, 1997, and until the Northwest and Southwest state forest plans are adopted, the following standards will be used:

- Use actual site-specific stocking to calculate basal area targets, following the procedure used in developing the standard target.

OR

- Retain conifer basal area in RMAs so that no more than 25 percent of the excess conifer basal area above the standard target is harvested.

OR

- Retain all conifer basal area in RMAs.

Funding: All resources necessary to implement this project are currently funded and in place.

Work Schedule: Develop internal guidance for implementation of site-specific plans for RMAs on Northwest and Southwest state forest lands (April 15, 1997).

Implement guidance for all sales with contracts prepared and sent to Salem after May 1, 1997. (May 1, 1997)

Monitoring: Monitoring is not necessary for this specific action. Riparian monitoring will be addressed in the plans.

ODF 18 - Wildlife Tree Placement On State Forest Lands

Background: The forest practices act requires retaining at least two trees or snags per acre on "clear-cut" harvest units. This is separate from, and in addition to, the tree retention required by the water protection rules. The forest practice rules require that these trees and snags (referred to as in-unit trees), be left on all units exceeding 25 acres in size. The purpose of leaving these trees is to contribute to the overall maintenance of wildlife, nutrient cycling, moisture retention, and other benefits associated with retained wood.

In addition to the in-unit trees required by the forest practices rules, state land managers generally leave additional wildlife trees on a site-specific basis. This measure directs that trees and snags required by the forest practices rules be placed along Type N streams to assist salmon recovery. This is similar to measure ODF 22 described elsewhere in the plan that is being applied by other nonfederal landowners.

Goal: Use required leave trees to provide maximum benefit to salmon recovery.

Objective: Where operationally possible, concentrate the retention of the required in-unit trees along Type N streams on all Northwest and Southwest (Grants Pass) state forest lands. State forest managers will consult with ODFW biologists to identify circumstances where it would not be desirable to retain in-unit trees in this manner.

Action Items: When operationally possible, required leave trees will be concentrated along Type N streams for sales on Northwest and Southwest (Grants Pass) state forest lands with contracts prepared and sent to Salem after May 1, 1997. This will be in effect until the Northwest and Southwest state forests plans are adopted.

Funding: Funding for on-the-ground administration and tracking of this measure is contained within the state forest lands budget.

Work Schedule: This action will be applied to sale contracts prepared and sent to Salem by the districts after May 1, 1997.

Monitoring: This is an interim measure that will be in place until the Northwest and Southwest plans are approved. Monitoring of riparian areas will be based on the plans.

ODF 19 - Additional Conifer Retention Along Fish-Bearing Streams In Core Areas

Background: Under the Forest Practices Act, meeting the "desired future condition" of mature forest conditions for riparian management areas is based upon basal area targets. The basal area targets are designed to achieve a stand with the characteristics of a mature forest within the RMA. The "standard" basal area targets were developed based upon some assumptions. To the extent that the assumptions are invalid, the target may under-represent the actual stand within the RMA and the potential for achieving the desired future condition and the corresponding LWD delivery is reduced.

Goal: To ensure that in Core Areas the actual conifer BA retained in an RMA will to the maximum extent practicable and in the most timely manner meet the "desired future condition" established under the Water Protection Rules.

Objective: To maximize in Core Areas the potential of meeting the desired future condition established under the Water Protection Rules by retaining additional conifer trees along fish bearing streams when the actual stocking exceeds that stocking assumed under the standard target.

Action Items:

OFIC members:
For fish-bearing streams within Core Areas, when requested (based upon guidance developed by ODF/ODFW) OFIC members will voluntarily retain conifer BA in RMAs so that no more than 25 percent of the excess conifer basal area above the standard target is harvested.

OSWA members:

Following ODF/ODFW guidance, for Core Area streams forest practices foresters will make requests of individual members to retain conifer BA in RMAs so that no more than 25 percent of the excess conifer basal area above the standard target is harvested. The decision to meet the request is an individual decision of each OSWA member.

ODF and ODFW will develop guidance for application of this measure within core areas.

Funding: All resources necessary to implement this project are currently funded and in place.

Work Schedule: ODF and ODFW develop guidance - May 1997.

ODF 20 - Limited RMA For Small Type N Streams In Core Areas

Background: Establishes limited RMAs of 20 feet for small type N streams for the purpose of retaining snags and downed wood.

Goal: Increase the potential availability of LWD to streams.

Objective: Provide LWD for potential fish habitat and sediment storage.

Action Items: OFIC member landowners will voluntarily establish 20-foot RMAs along Type N streams. Within these RMAs, in addition to the retention requirements of the Forest Practices Act rules, all snags and downed wood (with the exception merchantable blowdown) will be retained where operationally possible.

Funding: Funding to implement this measure is contained within existing budgets.

Work Schedule: Implementation will occur May 1997.

Monitoring: These projects will be monitored as part of the forest practices monitoring project.

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ODF 21 - Active Placement Of LWD During Forest Operations

Background: This action provides a more aggressive and comprehensive program for placing LWD in streams currently deficient of this material. Placement will be accomplished following ODF/ODFW placement guidelines (ODF 31) currently in place.

Goal: To provide large woody debris to streams currently deficient of material in a more timely manner.

objectives: The objectives of this measure are to provide a system that will provide for a more comprehensive and aggressive program for the recruitment of LWD.

Action Items: ODF and ODFW jointly develop recommended placement targets involving the number and size of pieces to be placed by stream size.

OFIC landowners complete placement targets as active operations occur along LWD limited streams.

Funding: Funding for development of placement targets contained within current agency budgets. Funding of LWD enhancements will be provided by landowners completing them.

Work Schedule: ODF/ODFW develop placement targets June 1997.

Monitoring: These projects will be monitored as part of the forest practices monitoring project.

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ODF 22 - 25 Percent In-Unit Leave Tree Placement And Additional Voluntary Retention

Background: The forest practices act requires retaining two trees per acre on "clear-cut" harvest types. This is a separate requirement than required by the water protection rules. These trees referred to as in unit trees must be left on all units exceeding 25 acres in size. The purpose of these trees is to contribute to the overall maintenance of wildlife, nutrient cycling, moisture retention and any other resource benefits of retained wood.

The State Forester can by statute direct that 25 percent of these in-unit trees be placed in or adjacent to riparian management areas (RMAs) or Type F and D streams. Landowners can voluntarily choose to retain additional in-unit trees along Type N, D or F streams.

Goal: To retain up to 100 percent of the in-unit trees along Type N or F streams in "core areas" and other special areas along specific stream reaches when ODF in consultation with ODFW determine additional retention along streams is beneficial to coho salmon recovery.

Objective: To retain additional trees in and along streams within salmon core areas. Forest Practices Foresters can consult with ODFW biologists to identify circumstances where it would be desirable to leave additional trees. These trees will be an additional source for large woody debris recruitment and shade as well as providing other wildlife attributes.

Action Items: ODF in consultation with ODFW will develop protocol and guidance for operational implementation of this management measure. In addition ODF will provide documentation and tracking of projects completed.

ODF forest practices foresters in consultation with ODFW biologists will implement on operations starting April 1997. ODF Forest Practices inspection program will be used for administration. Technical and administrative guidelines are contained in appendix C.

OFIC industrial forest landowners have voluntarily agreed to retain in-unit trees in "core" and other special areas along specific stream reaches when requested by ODF or ODFW. In addition OFIC members will voluntarily change the ratio of 50 percent conifer and 50 percent hardwood to 75 percent conifer and 25 percent hardwood when requested on a site-specific basis.

Funding: Funding for on-the-ground administration and tracking of this measure is contained within the ODF Forest Practice budget.

Work Schedule: 25 percent in-unit leave tree placement currently in place administered by ODF forest practices inspection program.

Guidance development by Rod Krahmer (ODF) and Jeff Boechler (ODFW) will be completed by January 31, 1997.

Additional in-unit tree placement targeted to be implemented April 1997.

Monitoring: Implementation and effectiveness monitoring will be scheduled over the next five years. Monitoring will evaluate the number of request complied with and the number of in-unit trees retained in core areas.

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ODF 23 - BMP Compliance Audit Program

Background: The Department of Forestry achieves FPA rule compliance through a balanced program of rule education, technology transfer and enforcement. However, to ensure that its compliance program is producing desired results and to identify methods to improve compliance, a statistically reliable sample of BMP compliance is needed.

Within this measure ODF will develop and implement a compliance auditing program within the next two years. The compliance auditing program will provide a statistically valid sample of the level of compliance and help establish how identified compliance problems are best resolved.

Goal: By 1999, identify level of overall forest operations in compliance with the forest practice rules and determine if adjustments to compliance program or program administration are needed.

Objective: The objectives of this program are:

1. Determine through statistically valid sampling the level of operator/landowner compliance with the best management practices.
2. Determine the accuracy, consistency and efficiency of agency program administration.
3. Identify opportunities to improve program administration, operator education, technology transfer or rule clarity.

Action Items: In addition to normal inspection programs:

- Develop methods to sample and evaluate forest operation compliance levels with BMPs.
- Implement program.
- Report results to Board of Forestry and interests.
- Identify and implement opportunities to enhance compliance if necessary.

Funding: Funding for Department compliance audit program is contained within ODF's existing budget.

Work Schedule: In addition to ongoing compliance activities the Department will develop and implement a compliance audit program within the next two years.

Monitoring: An annual compliance audit report will be presented to Board of Forestry in 1999.

ODF 24 -State Forestlands Stream Habitat Assessment And Instream Projects

Background: During 1994 and 1995, 305 miles of stream were surveyed for habitat on state forest lands by ODFW biologists. Fish distribution surveys have been done on 260 streams and stored on GIS. Contracts with ODFW are planned to complete assessments for the remaining streams and adjacent riparian areas. In stream projects will be used to create or enhance stream structure and habitat. Alder dominated riparian areas will be manipulated to reestablish conifers. The Department has spent over $.5 million on stream enhancement projects annually. Specific examples of this work are the Miami river in Tillamook County and the South Fork Wilson river in Washington County.

Most of these projects have been and where possible will continue to be done in conjunction with the North Coast Salmonid Restoration Project and watershed assessments as part of the Northwest Oregon Forest Management Plan.

Goal: To improve Salmon habitat (in stream and riparian) on state forest lands.

Objective: To identify habitat restoration opportunities and with the assistance of local biologists design and construct instream structures and reestablish conifer in alder dominated riparian areas.

Action Items: Complete assessments for the remaining streams and conduct identified instream projects and riparian work. Currently an additional 92 enhancement projects have been identified on the Tillamook State forest using this assessment process. Significantly more projects will be identified when the remaining assessments are completed.

Funding: The Department has been spending over $0.5 million on stream enhancement projects annually.

As a Phase 2 measure, the Department is requesting authorization to spend an additional $1.15 million (from state lands revenues) during each of the next three biennia in support of these projects. Of this the Northwest Oregon Area has requested $0.75 million, part of which will provide funding for an ODFW fisheries habitat biologist to assist with the

implementation of habitat improvement contracts and a wildlife biologist to assist with implementation of the forest plan.

Work Schedule: Complete assessments and projects by the close of the 2001/2003 biennia.

Monitoring: Monitoring of the projects will be conducted by ODFW to insure the effectiveness of the projects and to apply lessons learned to other projects.

ODF 25 - Fish Presence/Absence Surveys And Fish Population Surveys

Background: This is a voluntary program in which industrial forest landowners and state lands conduct or have contracted with ODFW to survey for absence and presence of salmonid fish.

The fish population surveys have focused on potential coho streams. These surveys have helped to identify the upper limits of fish distribution on some of the smaller streams, as well as population densities. This data has supported the prioritization of enhancement priorities.

Goal: To identify fish use streams and fish populations.

Objective: To support the implementation of the Oregon Forest Practices Act. Fish presence/absence data ensures that protection measures for waters of the state derived from the forest practices rules is applied appropriately.

Also, to create a baseline to analyze how management activities or natural events (such as debris flows or droughts) affect fish distribution.

Action Items: Continued surveys through 1997.

Funding: This is a voluntary program with funding generated through participants.

Work Schedule: Surveying to be conducted from 1995 through 1997.

ODF 26 - Elliott State Forest Habitat Conservation Plan

Background: The northern spotted owl was listed as a federal threatened species in Washington, Oregon and California in July 1990; the Marbled Murrelet was listed September 1992. The federal ESA includes provisions for the issuance of special permits for take that is incidental to but not the purpose of otherwise lawful activities.

To qualify for an incidental take permit, the applicant must prepare a habitat conservation plan (HCP) that specifies the impact that will likely result from such taking; what steps the applicant will take to minimize and

mitigate such impacts, and the funding that will be available to implement such steps; what alternative actions to such taking the applicant considered and the reasons why such alternatives are not being selected; and other such measures that may be required as necessary or appropriate for purposes of the plan.

The incidental take permit for owls and murrelets was signed in October 1995. As part of the requirement for the permit monitoring and annual reporting to the USFWS is required.

The plan is based on a strategic framework that includes management basins with varying harvest rotations from 80 to 240 years, and establishment of habitat conservancy areas, riparian reserves, and other reserve areas across the 93,000-acre forest. These riparian and other reserves as well as long rotation management of adjacent management basins, will provide protection for cutthroat trout and other fish species of concern.

The forest has been divided into 17 management basins approximately 5500 acres each in size. The basins will serve as the basis to implement and monitor the strategy of the conservation plan. Habitat Conservancy Areas (HCAs) are established in each of the management basins to protect some T&E species sites and fisheries areas. Of the 93,000 acres of the forest HCAs, riparian reserves, and other reserves (such as scenic areas) total 18,060 acres, or 19 percent of the Elliott State Forest.

The basins use a mix of 240, 200, 160, 135 and 80 year rotations, varying by basin. Over time, from 13 to 66 percent of each basin will be managed in NRF habitat for the spotted owl and protect occupied murrelet sites. Important to note is that late successional forests (stands 156 plus years old) show a dramatic increase over the next 100 years. Late successional forest will increase from the current level of less than 1 percent to 29 percent (26,678 acres) by the year 2063 and then be maintained at that level.

The riparian strategy of the habitat conservation plan will retain late successional forest between 50 and 100 feet in width along both sides of fish-bearing and perennial non-fish-bearing streams. Where fires, storms, road building, and past practices have reduced the numbers of large conifers in riparian zones, specific habitat enhancement projects maybe undertaken, in consultation with ODFW, to restore conifers. In the long term, the creation of large woody debris in the streams from fallen conifers will enhance fish habitat by creating pools, slowing the flow of the stream, trapping sediment, and increasing macroinvertebrate populations. In addition to other protective measures put in place by the plan, the plan includes Conservancy Lands.

Within Conservancy Lands, no timber harvest is likely to occur except in the event of emergency conditions. Conservancy Lands are divided into two categories, they include Scenic conservancy lands and Protective conservancy lands. Scenic conservancy lands include areas that hold scenic values such as park buffers, highway corridors, river corridor-lakeshore, and scenic attractions. The river corridor-lakeshore lands will be

maintained as natural, untouched areas due to their scenic value. Protective conservancy lands are classified as damageable lands, special game habitat, and special fish habitat. These areas are associated with the steep, rocky slopes on either side of major rivers or streams, including the Umpqua River, Mill Creek and the West Fork Millicoma River.

Goal: Develop a management plan to address the entire forest ecosystem in lieu of the circle management guidelines for spotted owls.

The Elliott State Forest (ESF) Habitat Conservation Plan developed for Northern Spotted Owls and Marbled Murrelets also enhances riparian areas. The forest covers approximately 93, 000 acres in the Oregon coast range.

Objective: Protect owl and murrelet habitat while allowing harvest to meet constituent responsibilities. The plan provides security for management operations while providing increased levels of protection to all resources.

Action Items: Implementation of the plan, the incidental take permit was signed in October 1995.

Funding: Contained within the state lands budget.

Work Schedule:
- Annual monitoring report.
- Five year comprehensive review.

Monitoring: Each year the Department will prepare an annual monitoring report and submit it to U.S. Fish and Wildlife for review. In addition, the Department has proposed that a comprehensive review of the HCP be conducted at the end of the first five years.

ODF 27 - Increased Riparian Protection

Background: Vegetation retention requirement rules along streams have been changed to reflect stream type and size. Previous retention requirements only applied a standard of vegetation retention to streams with "significant" fish use. Rather than using a distinct "shade" standard as the past rules did, these rules are designed to achieve and maintain a desired future condition similar to mature forests with an emphasis towards conifer species along most fish-bearing streams. The new standard uses live conifer basal area instead of number of trees as the vegetation-retention measures.

Generally, no tree harvesting is allowed within 20 feet of all fish-bearing, all domestic-use and all other medium and large streams unless stand restoration is needed. In addition, all snags and downed wood must be retained in every riparian management area (with exceptions related to safety). Provisions governing vegetation retention are designed to encourage conifer restoration on riparian forest land that is not currently in

the desired condition. Future supplies of conifer on these sites are necessary to support stream functions and to provide fish and wildlife habitat.

These changes have resulted in an increase in the number of conifer trees, snags and downed woody debris required to be left along fish-bearing streams and medium and large non-fish bearing streams, the changes also increase tree density and RMA width.

Goal: The purpose of the water protection rules is to protect, maintain and, where appropriate, improve the functions and values of streams, lakes, wetlands, and riparian management areas. These functions and values include water quality, hydrologic functions, the growing and harvesting of trees, and fish and wildlife resources

Objective: Establishing and maintaining a desired future condition similar to mature forests with an emphasis towards conifer species along most fish-bearing and many non-fish bearing streams. And to provide good instream habitat improvement over time across forested lands.

Action Items: This management measure is currently implemented.

Funding: Current Oregon Department of Forestry Forest Practices budget.

Work Schedule: This management measure is in place. It is administered through the ODF Forest Practices inspection program. Written technical and administrative guidelines have been developed for consistent implementation (contained in *Forest Practices Rule & Statute Guidance Manual*, OAR 629-24-635).

Monitoring: Both validation and effectiveness monitoring began in 1996. The vegetation retention targets have been based upon a number of assumptions. Validation monitoring will test some of these assumptions.

Effectiveness monitoring will include analysis of riparian vegetation structure pre- and post-operation. Effectiveness of riparian reforestation efforts and success in hardwood conversion stands will also be analyzed.

ODF 28 - Protection Of Significant Wetlands, Including Estuaries

Background: Significant wetlands on forestlands provide a wide range of functions and values, including those related to water quality, hydrologic function, fish and other aquatic organisms, and wildlife.

Forest practice rules requiring protection of riparian management areas around significant wetlands, including all estuaries were implemented in late 1991. While all wetlands are protected under the forest practice rules, this change requires the retention of riparian vegetation around the wetland in addition to retention of vegetation within the wetland.

Significant wetlands include all estuaries, any wetland larger than 8 acres, bogs, and important springs in eastern Oregon.

Goal: The goals of significant wetlands protection are to maintain the functions and values of significant wetlands on forestlands over time, and to ensure that forest practices do not lead to site destruction or reduced productivity, while at the same time ensuring the continuous growth and harvest of forest tree species. In order to accomplish these goals, the rules focus on the protection of soil, hydrologic functions, and specified levels of vegetation retention.

Objective: Provide riparian management areas 100 feet in width for any wetland larger than 8 acres, 100 to 200 feet for an estuary, and 50 to 100 feet from a bog.. The actual location and width of the selected RMA is based upon site-specific factors.

For all significant wetlands, operators shall provide the following to the wetlands and riparian management areas: 1) live tree retention (OAR 629-645-010); 2) soil and hydrologic function protection (OAR 629-645-030); 3) understory vegetation retention (OAR 629-645-040); and 4) snag and down wood retention (OAR 629-645-050).

Action Items: This management measure is currently implemented.

Funding: Oregon Department of Forestry Forest Practices budget.

Work Schedule: This management measure is in place. It is administered through the ODF Forest Practices inspection program. Written technical and administrative guidelines have been developed for consistent implementation (contained in *Forest Practices Rule & Statute Guidance Manual*, OAR 629-645-000 - 050).

Compliance is assured through prior approval of written plans. Operators are required to submit written plans for Forest Practices Forester approval before the commencement of any operation within 300 feet of significant wetlands.

Monitoring: Periodic implementation and effectiveness monitoring is planned within the next five years.

ODF 29 - Forest Practice Chemical Protection Rules Increased Buffers

Background: The Board of Forestry has recently reviewed and revised the state's forestry chemical application rules. The changes include providing protection to vegetation required to be protected by the water protection rules, increasing distances for the exclusion of direct aerial application of fungicides and non-biological insecticides from 60 to 300 feet from the aquatic areas of Type F and Type D streams, large lakes and any lakes with

fish use, any areas of standing open water larger than one-quarter acre, and significant wetlands.

The rule revisions follow 1994 changes in the water protection rules that resulted in a 20 to 30 percent increase in the number of miles of streams receiving the highest level of protection when chemicals are applied.

Goal: The purpose of the forest practice chemical and other petroleum product rules is to establish requirements that will ensure:

- Chemicals and other petroleum products used on forest land do not occur in the soil, air, or waters of the state in quantities that would be injurious to water quality or to the overall maintenance of terrestrial wildlife or aquatic life; and

- The vegetative components of riparian management areas and sensitive resource sites receive protection on herbicide operations consistent with the purposes of the reforestation rules, the requirements of the sensitive resource site rules, and the vegetation retention goals of the water protection rules.

Objective: Increase buffer strips to 300 feet in width from the aquatic areas of the water types listed above for the exclusion of direct aerial application of fungicides and non-biological insecticides. Monitoring data indicate that past BMPs may not have adequately protected water quality and fish and aquatic invertebrate populations. The larger buffer distance will provide a much higher level of protection to fish and aquatic invertebrates in regard to these chemical operations.

In addition, the potential for chemical to enter fish bearing waters during mixing and loading operations of all chemicals for forest operations is reduced.

Action Items: The new chemical rules were adopted by the Board of Forestry September 1996. The new rules were implemented January 1997. Training and written guidance has been developed for the administration of the new rules by department forest practices foresters.

The new rules commit the department to conduct effectiveness monitoring and evaluation of the chemical and other petroleum product rules.

Funding: Current Oregon Department of Forestry Forest Practices budget.

Work Schedule: Administration will be through the ODF forest practices inspection program, written technical and administrative guidelines are in the process of being developed for consistent implementation (they will be contained in *Forest Practices Rule & Statute Guidance Manual*, under Division 620 Chemicals and Other Petroleum Products)

- Board of Forestry Adoption: September 4, 1996
- Implementation Date: January 1, 1997
- Guidance Development Complete: January 1, 1997

- Forest Practice Forester Training: Jan. 17, 22, Feb. 1997
- Monitoring Protocols Developed: June 1996 (draft)
- Monitoring will be implemented: fall 1997 spray season

Monitoring: The benchmark is to prevent forest chemical from entering the waters of the state levels injurious to fish, wildlife or water quality. Thresholds have been developed for each specific chemical labeled for use on forestlands. Monitoring is conducted to confirm that BMP compliance will result in these thresholds not being exceeded.

OAR 629-620-700 of the adopted rules commits the department, in cooperation with other state agencies, landowners, and other interested parties to conduct effectiveness monitoring and evaluation of the chemical and other petroleum product rules (ODF 12). The monitoring will be designed to determine the effectiveness of the rules to meet the goals of the Forest Practices Act and the purposes stated in the rules, as well as their workability and operability.

ODF 30 - Large Woody Debris Recruitment Incentives

Background: Large woody debris placement incentives were included in the September 1994 Forest Practice Water Protection Rules. 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.

Woody debris diverts water flow, creating pools and providing cover. In the past, large wood's role in forming stream habitat was not understood or was ignored. In some smaller streams, splash dams were built to drive logs down to larger bodies of water, often scouring the streams and removing all woody debris. Also, logging operations in the past typically cut right to the edge of the stream, depriving the stream of wood input from the adjacent riparian area. Over time, this lack of input can cause a depletion of wood in the stream. Streams also were cleared of large wood for navigation and to improve fish migration.

There have been many attempts to add large woody debris to streams, beginning in the 1930's with the help of Civilian Conservation Corps work crews. In the Midwest, many of these efforts have led to documented increases in fish production. However, many of the past efforts in the Pacific Northwest have not increased fish production because the structures were not designed to handle the variation in flows and the greater stream slopes that occur in this region.

Goal: Many fish-bearing streams currently need improvement of fish habitat because they lack adequate amounts of large woody debris. The goal of this action is to provide incentives to operators to conduct approved stream improvement projects.

Objective: Provide a short-term supply of large woody debris to fish bearing streams while riparian management areas mature to provide these components.

Action Items: This management measure is currently implemented.

Funding: Placement projects are funded by the companies completing them. ODF inspection funding is contained within ODF's forest practice budget.

Work Schedule: This action is voluntary with regulatory guidelines. Administration of this measure is accomplished by the ODF forest practice inspection program. Once a forest operator chooses to accomplish a habitat improvement project, they must obtain prior approval from the Department through a written plan.

To support this effort, a publication (ODF 31), *Large Woody Debris Placement Guidelines* has been developed jointly by ODF and ODFW to guide landowners during woody-debris placement projects. Projects must comply with these guidelines or the operator must get site-specific approval of a detailed plan for the enhancement work. These projects are high priority inspection item for ODF Forest Practices Foresters.

Monitoring: Both validation and effectiveness monitoring began the summer of 1996. In addition, some monitoring has been conducted by ODFW to determine how some of the previous projects withstood the February 1996 storm.

ODF 31 - Large Woody Debris Placement Guidelines

Background: ODF and ODFW have developed a guidelines publication for operators to use in the placement of large woody debris in streams. The forest practices rules adopted in the fall of 1994 provide landowner incentives to place large woody debris in streams. If a proposed woody debris placement project meets the ODF guidelines contained in the publication the process for acquiring approval is streamlined. The landowner or operator still must obtain prior approval of a written plan before proceeding with the project.

Goal: Provide guidelines for forest operators to follow in the placement of large woody debris.

Objective: Assure correct placement of large woody debris by operators and to reduce operator liability.

Action Items: This management measure is currently implemented. However, debris placement monitoring is ongoing, as our knowledge of wood placement techniques improves, information in the current publication will become outdated leading to updated publications

Funding: Department of Forestry Forest Practice budget.

ODF 32 - Fish Presence Survey (OAR 629-635-200(11))

Background: This measure will fund and complete an interagency "fish" (salmonids, game fish, and T&E fish) presence survey to improve efficiency of program deliveries and to ensure that protection is delivered as was intended by the forest practice rules and other programs. This survey also identifies barriers to fish passage.

OAR 629-635-200(11) adopted in 1994, directs the Department of Forestry in cooperation with ODFW to conduct a comprehensive field survey to identify fish use on non-federal forest land in Oregon.

When direction was provided, it was understood that the survey work was unfunded. The agencies were directed to seek grants and other sources of funds to complete the work. The survey work to date has been accomplished using existing resources of the Department of Forestry and Department of Fish and Wildlife.

As funding becomes available survey priority is given to streams that operators have identified as having pending sales.

Goal: Complete a comprehensive fish presence survey to identify fish use on non-federal forestland waters in Oregon.

Objective: Improve efficiency of program deliveries and to ensure that protection is delivered as was intended by the forest practice rules and other programs. Also, to identify barriers to fish passage.

Action Items: Develop contracts for supervision and survey work to carry out the project.

Funding: Estimated cost of completing this project work is $1.5+ million over three biennia. Currently, ODF and ODFW budgets supply funding for this project as money is available. This has enabled an approximate annual accomplishment of 3 percent per year for three years.

Phase 2 of this measure included as a part of the Governor's budget includes $503,965 dollars and 0.5 FTE for the 1997-99 biennium.

Work Schedule: For FY-97, complete 600 miles of survey (statewide). Work to secure additional funding.

Monitoring: Survey results are mapped on official water classification maps.

ODF 33 - Increase Number Of Streams And Stream Miles Protected

Background: The water protection rules implemented in the fall of 1994 effectively increased the number of streams and stream miles receiving increased

protection from harvesting practices as compared to past forest practices rules.

Vegetation retention requirement rules along streams have been changed to reflect stream type and size. Past rule standards provided riparian protection standards based on a two-class system. The new system identifies seven geographic regions; distinguishes among streams, lakes, and wetlands and further distinguishes each by size; distinguishes among those streams that have fish or domestic use, or neither, and in each case describes the stream as large, medium, or small based on average annual flow.

All fish-bearing streams have a riparian management area (RMA) that includes a vegetation retention standard. Previously, a standard of vegetation retention applied only to those streams with "significant" fish use. Based on surveys completed before the rules were adopted these rules could increase by as much as 30 percent the miles of forest streams that receive protection consistent with fish use.

Goal: The goal of this measure is to increase the number of miles of protected stream by 25 to 30 percent. The purpose of the water protection rules is to protect, maintain and where appropriate, improve the functions and values of streams, lakes, wetlands and riparian management areas. These functions and values include water quality, hydrologic functions, the growing and harvesting of trees, and fish and wildlife resources.

Objective: Establishing and maintaining a desired future condition similar to mature forests with an emphasis towards conifer species along most fish-bearing and many non-fish bearing streams. And to provide good instream habitat improvement over time across forested lands.

Action Items: This management measure is currently implemented. Rule (OAR 629-635-200(11) directs the Department of Forestry in cooperation with ODFW to conduct a comprehensive field survey to identify fish use on non-federal forest land (see measure ODF 32).

Funding: Current Oregon Department of Forestry Forest Practices budget.

Work Schedule: This management measure is in place. It is administered through the ODF Forest Practices inspection program. Written technical and administrative guidelines have been developed for consistent implementation (contained in *Forest Practices Rule & Statute Guidance Manual*, Divisions 635, 640, 645, 650 and 655)

Monitoring: Both validation and effectiveness monitoring began in 1996. The vegetation retention targets have been based upon a number of assumptions. Validation monitoring will test some of these assumptions.

ODF 34 - Improve Fish Passage BMPs On Stream Crossing Structures

Background: Forest practice rules adopted in the fall of 1994 require stream crossing structures to pass both adult and juvenile fish upstream and down stream. The new standard applies to all stream crossing structures installed after September 1, 1994. The February 1996 storm event has likely increased the process to replace older culverts and crossing structures with structures that meet the new standard.

Goal: Ensure that all new stream crossing structures on forestland installed or replaced after the fall of 1994 will pass both adult and juvenile fish upstream and down stream.

Objective: Upstream and downstream fish passage of both adult and juvenile fish.

Action Items: The rule standards are currently applied through "interim" technical guidance. The guidance includes detailed criteria about which structures will pass fish based upon stream gradient. FPF approval of written plans is based on this written guidance and in some cases consultation with ODFW. Additional refined guidance is being developed through a region wide partnership of natural resource agencies throughout the northwest.

Funding: Oregon Department of Forestry Forest Practices budget.

Work Schedule: This management measure is currently implemented. It is administered through the ODF Forest Practices inspection program. Written technical and administrative guidelines have been developed for consistent implementation (contained in *Forest Practices Rule & Statute Guidance Manual*, OAR 629-24-622(5)(b)).

Monitoring: Implementation and effectiveness monitoring will be scheduled over the next five years.

ODF 35 - Increase Design For Larger Flows

Background: Water protection rules adopted in the fall of 1994 increased the BMP design standard for stream crossing structures to pass a fifty year storm event. The past design standard required stream crossing structures to pass twenty five year events.

Goal: For stream crossings (culverts, bridges and fords) to pass peak flows that at least correspond to a 50-year return interval.

Objective: To prevent damage to aquatic habitat and water quality caused by stream crossing failures.

Action Items: This management measure is currently implemented.

Funding: Current Oregon Department of Forestry Forest Practices budget.

Work Schedule: This management measure is in place. It is administered through the ODF Forest Practices inspection program. Written technical and administrative guidelines have been developed for consistent implementation (contained in *Forest Practices Rule & Statute Guidance Manual*, OAR 629-24-622(5)(a)).

Monitoring: Implementation and effectiveness monitoring will be scheduled over the next five years.

ODF 36 - Upgraded Road Construction & Fill Requirements

Background: In the fall of 1994, road construction BMPs were changed to specifically require that excavation and amount of road fill be minimized at stream crossings, and that any road fill greater than 15 feet deep require prior approval. Previous road construction BMPs were not as specific, nor did they require prior approval for fills greater than 15 feet deep.

Goal: To minimize the volume of material in fills.

Objective: Requiring fill depths and widths installed after the fall of 1994 to be minimized, in combination with the new stream crossing design criteria of the 50-year storm event should significantly reduce the likelihood of dam break floods from stream crossing failures and minimize the potential adverse effects of such events if they should occur.

Action Items: This management measure is currently implemented.

Funding: Current Oregon Department of Forestry Forest Practices budget.

Work Schedule: This management measure is in place. It is administered through the ODF Forest Practices inspection program. Written technical and administrative guidelines have been developed for consistent implementation (contained in *Forest Practices Rule & Statute Guidance Manual*, OAR 629-24-622(4)).

Monitoring: Implementation and effectiveness monitoring will be scheduled over the next five years.

ODF 37 - Upgraded Skid Trail Construction And Fill Requirement

Background: For ground based yarding equipment, BMPs were changed to specifically require that excavation and amount of fill for skid trails be minimized at stream crossings, and that for fills over eight feet deep prior approval is required.

Goal: Minimize excavations and the volume of material in fills at stream crossings.

Objective: Reduce the likelihood of dam break floods from crossing failures and to minimize potential adverse effects if they should occur.

Action Items: This management measure is currently implemented.

Funding: Current Oregon Department of Forestry Forest Practices budget.

Work Schedule: This management measure is in place. It is administered through the ODF Forest Practices inspection program. Written technical and administrative guidelines have been developed for consistent implementation (contained in *Forest Practices Rule & Statute Guidance Manual*, OAR 629-660-020(4)).

Monitoring: Implementation and effectiveness monitoring will be scheduled over the next five years.

ODF 38 - Clearcut Limitations

Background: ORS 527.740 restricts clearcuts to 120 acres in size. Clearcut harvesting units that total a combined acreage greater than 120 acres must be separated by 300 feet until any adjacent areas are reforested and free to grow (generally at least four years).

Within the forest practice rules clearcuts are defined as "harvest type 3" units. Harvest type 3 units are any harvest unit that requires reforestation after completion of harvest. Harvest type 3 units also require wildlife leave trees (two per acre) and downed log retention.

Goal: Limit clearcuts exceeding 120 acres.

Objective: In relation to impacts on riparian management areas assure that waters of the state protected under the FPA have a minimum of 300 feet of non-harvest area between large harvested acreage's.

Action Items: Provide inspections for compliance. The Department provides ongoing random inspections of forest operations based on priority and the potential for resource damage. In the event of non-compliance with this rule operators are subject to enforcement action. When non-compliance of the rules is documented enforcement action can be taken in the form of civil penalties, criminal action and repair orders.

Funding: This action is funded through the Departments forest practices budget.

Work Schedule: This management measure is in place. It is administered through the ODF Forest Practices inspection program. Written technical and administrative

guidelines have been developed for consistent implementation (contained in *Forest Practices Rule & Statute Guidance Manual*, ORS 527.740)

Monitoring: Forest Practices inspection program.

ODF 39 - Lobster Creek Whole-Basin Coordination Restoration Project

Background: A whole basin restoration project to restore native salmonid populations, modeled after Hancock Timber Resource Group's (HTRG) strategy used in the Knowles Creek efforts in the Siuslaw basin. Partners in this project include HTRG, Oregon Department of Fish and Wildlife, the USDA Forest Service, and the Pacific Rivers Council.

Goal: To restore remnant native salmonid populations (fall Chinook salmon, Coho salmon, winter steelhead).

Objective: To coordinate Hancock Timber Resource Group's approach to salmon restoration (a whole basin strategy) with a watershed analysis by the USDA Forest Service in the upper basin (scheduled to begin later this year).

Action Items:

1. Conduct whole basin dive counts to determine juvenile rearing areas (aka "hot spots").
2. Identify threats to hot spots by conducting road and culvert surveys.
3. Review timber management strategies to explore design, timing, and layout options that best protect hot spots.
4. Identify long-term restoration opportunities.
5. Monitor success in terms of trends in salmonid populations and habitat use.

Funding: Funding is provided by HTRG, ODFW, USFS, and a grant from the World Wildlife Fund's Rogue River Walter A. Haas, Jr. Conservation Award ($25,000).

Work Schedule:

Monitoring: Action item 5 above contains a monitoring component.

ODF 40 - Upper Siuslaw Enhancement

Background: This is a voluntary action coordinated through Weyerhaeuser, the Oregon Wildlife Heritage Foundation and Oregon Department of Fish and Wildlife (Mid-Coast Habitat Restoration Project).

Goal: Fish habitat improvement on tributaries of the upper Siuslaw river.

Objective: Install structures as designed by ODFW biologists.

Action Items: Identification of sites through the mid-coast habitat survey work done by the Oregon Wildlife Heritage Foundation and ODFW. Four potential sites were identified for the 1996 season. Additional sites may be determined as the watershed analysis continues.

Funding: Funding for instream project work provided by Weyerhaeuser.

Work Schedule: Installation of structures on three sites completed in 1996 (34 structures), fourth site plus an additional site scheduled for 1997, and continuing analysis for future projects.

Monitoring: Pictures of completed projects are taken. Photos are taken of the same site after every spring to track how structures are physically functioning.

ODF 41 - South Siletz Monitoring

Background: This is a voluntary action by Boise Cascade.

Goal: To quantify any changes in stream health after implementation of road enhancement projects.

Objective: To monitor channel morphology, turbidity, sedimentation, pH, temperature, bed load movement, and flows (all critical factors concerning salmonid production) on the S. fork Siletz River.

Action Items: Turbidity will be related to total suspended solids and flows will be related to turbidity, to allow monitoring of sediment movement during various flows.

Temperature will be measured above, below, and within the old Valsetz lake site to monitor whether critical temperatures are being reached.

Channel morphology is being monitored using scour chains and ODFW cross section methodology. Scour chains are also being used to monitor bed load movement around summer steelhead spawning areas.

Funding: This is a voluntary project by a private landowner.

Work Schedule: Monitor during 1996 through 1998.

ODF 42 - North Fork Coquille Monitoring Assessment

Background: Menasha is conducting several long term monitoring projects in the North Fork basin of the Coquille River. These projects include fish presence / extent surveys, aquatic habitat surveys, salmon spawning surveys and some temperature monitoring. This work was started in the summer of 1993.

Goal: Determine and map the presence and extent of fish use within Menasha ownership.

Objective: Using ODFW protocol, conduct aquatic habitat surveys within the north fork area.

Action Items:

Spawning Surveys:
Conduct spawning surveys on four tributaries Giles, Wapati, 15B, and Little North Fork. Two streams were first surveyed in 1994-95, the other two were began in 1995 - 96. In addition, spawning surveys are being conducted on the Middle Creek sub-basin of the North Fork. The surveys will continue for a minimum of two coho life cycles.

Temperature Monitoring:
Placement of three water temperature monitors and one air temperature monitor along the North Fork. These devices are deployed in June and are recovered in September. This monitoring will continue for a minimum of two more years.

Funding: This is a voluntary measure funded by Menasha.

Work Schedule:

Monitoring: Complete mapping of the presence and extent of fish use within Menasha ownership will be completed within the next two years. The upper north fork area within Menasha ownership is approximately 50 percent mapped.

ODF 43 - South Fork Coos River Monitoring Assessment

Background: Several fish presence/extent surveys have been completed on this river. A complete extent survey was done on both Salmon, and Burma Creeks. A partial extent survey was completed on mink Creek. Each of these creeks has a complete aquatic habitat survey completed on the mainstems.

Goal: Identify fish presence and the extent of fish use for this basin.

Objective: Conduct fish presence and salmon spawning surveys (spawning surveys monitored for two coho lifecycles).

Action Items: Complete surveys.

Funding: Private funding.

Work Schedule: Completion scheduled for 1997.

ODF 44 - Coos River Mainstem Monitoring Assessment

Background: This is a voluntary action conducted by Menasha. Areas of fish presence and the extent of fish use for portions of this basin will be identified. Scheduled habitat surveys will provide information on the adequacy of habitat in these streams.

Goal: To monitor and protect these watersheds.

Objective: To have a positive impact on stream restoration and salmon recovery.

Action Items: Goat Creek - Fish use has been mapped, an aquatic habitat survey is scheduled for the summer of 1996. In addition a salmon spawning survey that began in 1994 will continue for a minimum of two coho lifecycles.

Davis Slough Area - Six fish presence and extent surveys have been completed in this area, all on unnamed tributaries to the slough. Four additional creeks are scheduled to have extent surveys completed during the summer of 1996.

Coalbank Slough Area - Coalbank creek is scheduled for a fish presence and extent survey, and an aquatic habitat survey during the summer of 1996.

Funding: Private funding.

Work Schedule:

ODF 45 - Coquille, Siletz And Sixes Watershed Monitoring

Background: This is a voluntary long-term monitoring project implemented by Georgia Pacific in the Coquille, Siletz and Sixes basins to determine current conditions and to ascertain trends over time. The project began in 1994 and will continue indefinitely.

The monitoring plans were reviewed by multiple state and federal agencies prior to implementation. In addition local watershed councils and associations were given the opportunity to review and comment on them.

Goal: It is the design and purpose of the general monitoring plan to evaluate the current conditions of the aquatic habitat, develop baseline data, ascertain trends over time and work with state and federal agency officials to improve and enhance the fish populations and recreational opportunities in these watersheds

Objective: Nine in-stream parameters will be measured to quantify current cold water fish habitat:

- Temperature
- Instream substrate composition
- Habitat (stream surveys)
- Cold water fish populations
- Dissolved oxygen levels
- pH levels
- Flow
- Culvert inventory
- Aquatic insect populations.

The data collected through this effort will be used to prioritize sub-basins where stream enhancement activities will be useful.

Action Items: Stream temperature monitoring will be conducted within the watershed as well as some air temperatures. McNeil sediment samples will be utilized to indicate fine sediment levels in stream systems

Funding: This project is being conducted and funded by Georgia Pacific.

Work Schedule: The project began in 1994 and will continue indefinitely.

Monitoring: All data is being shared with ODFW.

ODF 46 - Fish Passage Surveys (Weyerhaeuser)

Background: The Coos Watershed Association and Weyerhaeuser have completed analysis of all "major" anadromous fish culverts in the Coos River Watershed for problems with passage

Goal: Improve anadromous fish passage within the Coos River Watershed.

Objective: This project has two objectives:

- Complete analysis of all "major" anadromous fish culverts within the watershed.
- Evaluate stream conditions above culverts that are fish passage limiting to establish priority for enhancement.

Action Items: Through the combination of the two objectives, culverts that have the greatest negative impact to fish passage will be prioritized for enhancement work.

Funding: This is a voluntary action with funding provided by private landowner.

Work Schedule: Culvert survey completed, stream conditions to be completed in 1996, begin enhancement work.

ODF 47 - Coos, Millicoma And Upper Siuslaw Rivers Watershed Analysis

Background: Weyerhaeuser is completing watershed analysis for all of its ownership in Oregon. This analysis follows modified protocol used by the State of Washington under Washington's Forest Practice Act.

Goal: Complete watershed analysis of all Weyerhaeuser ownership.

Objective:

- To identify all roads within Weyerhaeuser ownership which may have conditions that adversely affect water quality.
- To identify other up-slope conditions that may pose a risk to aquatic habitat.
- Analyze riparian and stream conditions.

Action Items: Analysis is completed for the East Fork Millicoma River, and several basins in the McKenzie and upper Willamette systems. Analysis is underway on the William's River watershed, and the upper Siuslaw River. And analysis is planned for the remainder to the Millicoma Tree Farm over the next three years.

Funding: Private

Work Schedule: Complete watershed analysis by the year 2000.

Monitoring: The action plans include monitoring actions to determine both implementation and effectiveness of prescriptions.

ODF 48 - South Fork Siletz Watershed Analysis

Background: This is a voluntary action by Boise Cascade Corp.

Goal: Assess the geomorphic vulnerabilities of the system, determine stream health and assess any road concerns.

Objective: Survey all roads within Boise ownership to identify any conditions that may adversely affect water quality.

Action Items: For problems identified through the analysis complete sidecast removal and culvert replacement on all identified problems.

Funding: Funding for project provide by private landowner. ODFW provides technical assistance and some data analysis.

Work Schedule: Analysis has been completed. Side-cast removal and culvert replacement on all identified problems scheduled for 1996 to 2000.

Monitoring: See ODF 42.

ODF 49 -Ecola Creek Watershed Analysis

Background: Cavenham Forest Industries (now Willamette Ind.) owns approximately 12,000 acres of forest land in Ecola Creek watershed, east of Cannon Beach, Oregon. Ecola Creek is a source of domestic water for Cannon Beach and provides habitat for native salmon. Until recently there had been little operational activity on these lands, but much of the timber is now approaching harvest age. Cavenham has been meeting with a citizens committee appointed by the City of Cannon Beach to facilitate on going communication regarding community concerns and company plans. In conjunction with this process Cavenham initiated a watershed analysis of Ecola Creek.

Goal: Conduct watershed analysis of Ecola Creek.

Objective: Identification of sensitive or high risk areas, requiring special care in management decisions and operations, and the collection of benchmark data so that impacts of future operations can be accurately determined.

Action Items: Riparian function (i.e., the capability of riparian vegetation to provide shading and large woody debris) was examined, as were the condition of the existing road system, risk of flooding and risk of up-slope mass soil movement.

As a result of its studies and planning at Ecola Creek, Cavenham has began to implement changes on the ground. The company is pursuing the replacement of large culverts, engineering to accommodate a 100-year flood event as the standard for road and drainage construction and reconstruction projects.

In addition, in cooperation with ODFW, stream habitat enhancement work has begun at Ecola Creek, with the placement of large spruce in the main channel. The company has also begun trial planting of conifer under the canopy of hardwood dominated riparian areas to improve the long term potential for large woody debris in the stream.

Funding: Private.

Work Schedule:

ODF 50 - Kilchis Watershed Analysis

Background: This project is currently in development; it will build upon information developed from other projects within this basin.

Goal: Develop a template for watershed analyses in Oregon.

Objective: The objectives of the assessment include the following factors: sediment input (surface erosion and slides) processing, flow, and bay sedimentation.

Action Items: Coordination and development of an action plan.

Funding: Funding is currently under development for this project. Funding will come from NEP and ODF.

Work Schedule: The assessment is scheduled to begin during late 1996 or 1997.

ODF 51 - Palmer Creek Acclimation Ponds

Background: A voluntary project by Georgia Pacific at the request of ODFW

Goal: Design, develop, and construct acclimation ponds for the hatchery Siletz River winter steelhead and potential hatchery coho near Palmer Creek.

Objective: Create a terminal hatchery fishery in the Siletz River that will give greater access to hatchery fish, while at the same time allow for wild fish to spawn in the upper drainage with less disturbance.

Action Items: Construction began in 1995 and is scheduled to be completed in 1996.

Funding: Private

Work Schedule: Construction began in 1995 and is scheduled to be completed in 1996.

Monitoring: Successful acclimation of steelhead and coho smolts and a successful terminal hatchery fisher on the Siletz.

ODF 52 - South Coast Technical Advisory Team

Background: This is a coordinating group of agencies and landowners in the south coast area that identifies and prioritizes habitat restorations within the area.

Goal:

Objective:

Action Items:

Funding:

Work Schedule:

Monitoring:

ODF 53 - Oregon Professional Logger Program

Background: The American Forests and Paper Association has adopted a national program designed to promote sound forestry practices on member company lands as well as assist in the same effort on non-industry lands. The Sustainable Forestry Initiative also contains an element dealing with logger education and training. This element of the Initiative envisions logger training and education programs within each state. In Oregon the training program is offered by the Associated Oregon Loggers, Inc. (AOL).

In January 1994, the AOL Board of Directors established a standing committee of members to formalize and expand upon past training efforts. Meetings were held with cooperators such as the Oregon Department of Forestry in developing the program. At the Spring 1995 meeting of the Board of Directors of AOL, the Professional Oregon Logger Program was approved for implementation.

Highlights of the first 15 months of the program include:

- Sixteen percent (122 of 750) logging companies have completed the program.
- Forty-nine percent (365 of 750) logging companies have enrolled in the program.
- To date, at least three large Oregon industrial forest owners have requested their logging contractors enroll and complete the program,
- The program is endorsed by the American Forest and Paper Association as fulfilling the logger training and education requirements for AF&PA's Sustainable Forestry Initiative (SFI),
- AF&PA member companies require participation in SFI and logger training and education programs, and
- Participation in the program is growing dramatically.

Goal: Encourage professional growth and knowledge to advance forest stewardship in timber harvesting.

Objective: Support practices that meet present needs without compromising healthy forests for future generations. This means reforesting, growing and harvesting trees for useful products with the conservation of soil, water, wildlife and other resources.

Action Items: To earn Professional Logger status, a company must accumulate 32 credits within a 12-month period. Completion of seminars in any of the pre-approved subject areas by any owner or key supervisor qualifies for

program credit. Thereafter, 16 credits every 24 months maintains the company's status.

Funding: Privately funded.

Work Schedule: This measure is in place.

Monitoring: AOL monitors the training, issues acknowledgments, stickers, letters, and maintains training records. AOL tracks participants to award certification.

ODF 54 - Forest Resource Trust

Background: A loan or capitol venture investment program to convert underproducing and non-stocked non-industrial forest land into healthy forests. Provides up to 100 percent of the cost of establishing a new stand of trees. Once a landowner accepts the terms of the Forest Resource Trust 200 year contract funds are made available to start afforestation and reforestation. The trust is repaid when the landowner harvests. Landowners who choose not to harvest for 200 years are not required to pay anything back.

Goal: The mission of the Forest Resource Trust is to expand the forest land base by helping people who own nonstocked and underproducing forest land convert those tracts into productive healthy forests.

Objective: The program has five key objectives:

- Reforest nonstocked private lands.
- Substantially increase harvest on underproducing forest lands.
- Protect and restore forest resources, including fish and wildlife habitat.
- Create jobs today, and for decades to come.
- Make a long-term investment in Oregon's economic and environmental future.

Action Items: This program is currently in place and is administered by the Oregon Department of Forestry Assistance Program. Staff is working to develop additional funding to fund a back log of approved projects.

Funding: Funds come from the state legislature and private investments and donations to form a public-private partnership to address the afforestation and reforestation of underproducing small woodlands.

Work Schedule: Established in 1993; first projects approved in 1995.

Monitoring: Funded projects are inspected and monitored by the Oregon Department of Forestry Service Foresters for compliance for 200 years or the trees are harvested and replanted.

ODF 55 - Stewardship Incentive Program (SIP)

Background: Federal cost share program that reimburses non-industrial private forest landowners up to 75 percent of the cost of resource protection and enhancement projects.

Goal: Assist individual landowners develop and implement integrated resource management strategies on their forest lands.

Objectives: Objectives of SIP are to assist non-industrial private forest landowners:

- Develop Stewardship Plans
- Conduct reforestation and afforestation.
- Improve forest stand vigor and health.
- Provide soil and water protection improvements.
- Provide riparian and wetland protection and improvement.
- Provide fisheries and habitat enhancement.
- Provide wildlife habitat enhancement.

Action Items: The program is administered on the state level by ODF and on the national level by the USDA-FS. Landowners must have an ODF-approved stewardship plan in place before being approved for other SIP practices. All SIP projects must be maintained for 10 years.

Funding: SIP was authorized by Congress in the 1990 and 1996 Farm Bills. The amount of funding available is authorized by congress annually.

Work Schedule: Individual landowner projects are approved monthly based on program priorities and available funds. Landowner sign-up is continuous at county USDA- Farm Services Agency (FSA) offices. Stewardship plans are developed by private or public resource professionals working with landowners. Other projects are develop jointly by landowners and ODF service foresters. Projects are inspected upon completion by service foresters to assure compliance with the project specifications.

Monitoring: SIP projects are monitored by service foresters during and after completion, and a random five percent of completed projects are monitored annually for program compliance and required landowner maintenance by an ODF staff coordinator.

ODF 56 - Landowner Stewardship Award

Background: The Landowner Stewardship Award is a cooperative recognition by ODF and ODFW to forest landowners to recognize the values and contributions made by them to the stewardship of fish and wildlife.

Goal: To provide recognition and incentive to landowners who voluntarily want to improve salmon habitat.

Objective: To provide a public demonstration by ODF and ODFW that the agencies recognize and value contributions made by landowners to stewardship of fish and wildlife.

Action Items: Program is in place.

Funding: ODF and ODFW department budgets.

Work Schedule: Present awards in the fall of the year.

Monitoring: Annual presentation of awards.

ODF 61 - Analysis Of Rack Concept For Debris Flows

Background: LWD delivered by debris flows can be important for fish habitat. However, information that clearly defines a prescription to address this issue is still lacking. The probability of any given area of steep forest land failing is extremely low, the probability of a debris torrent, flow or flood to pass through and recruit wood from riparian areas of certain small Type N streams is relatively high. The wood recruited from such areas may be significant.

Thus, by identifying certain small Type N streams that are collectors for multiple debris slides/flows one can reasonably retain vegetation near the confluence of the Type N and Type F in anticipation of retained trees providing LWD delivery. For example, a small Type N that drains mostly steep forest land (> 70% slope) with a basin size of 100 acres or larger has a much higher likelihood of hosting the passage of an event than a stream draining a 40-acre basin.

Goal: Study the feasibility of identifying Type N streams that are very likely to carry debris flows to Type F streams, and evaluate the best prescription for retaining trees with the highest probability for delivery.

Objective: Identify the specifications of small Type N streams that are very likely to carry debris flows to Type F streams, and determine where the best site for tree retention might be along such streams.

Action Items: Develop a committee to review the results of the Storms of 1996 Monitoring project (ODF 13). Using this information and any other appropriate information the committee will asses the feasibility of identifying Type N streams that are likely to carry debris flows to Type F streams. And through this analysis make recommendations for developing prescriptions for retaining trees with the highest probability for delivery.

Funding: All resources necessary to implement this project are currently funded and in place.

Work Schedule: Implement committee review fall of 1997.

Phase 2 Implementation Plan

ODF 2(B) - State Forest Lands Road Assessment And Expedited Remediation In The Tillamook State Forest

Background: Refer to phase 1.

Goal: Refer to phase 1.

Objective: Refer to phase 1.

Action Items: Refer to phase 1.

Funding: Storm damage portion (FEMA and District storm-related costs):
For the Phase 2 portion of this measure $3 million dollars is available for the 97-99 biennium pending approval.

Road improvement program (Phase 2):
The Department is requesting authorization to spend an additional $3 million dollars and add 6.5 FTEs as part of a program option package for the 97-99 biennium to support this portion of the program. The revenue to implement this project is available awaiting authorization.

Work Schedule: Refer to phase 1

Monitoring: Refer to phase 1

ODF 24(B) - State Forest Lands Road Stream Habitat Assessment And Instream Projects

Background: Refer to phase 1

Goal: Refer to phase 1

Objective: Refer to phase 1

Action Items: Refer to phase 1

Funding: The Department is requesting authorization to spend an additional $1.15 million (from state lands revenues) during each of the next three biennia in support of these projects. Of this the Northwest Oregon Area has requested $.75 million part of which will provide funding for an ODFW fisheries habitat biologist to assist with the implementation of habitat improvement contracts and a wildlife biologist to assist with implementation of the forest plan.

Work Schedule: Refer to Phase 1.

Monitoring: Refer to Phase 1.

ODF 32(B) - Fish Presence Survey (OAR 629-635-200(11))

Background: Refer to phase 1.

Goal: Refer to phase 1.

Objective: Refer to phase 1.

Action Items: Refer to phase 1.

Funding: Phase 2 of this measure included as a part of the Governor's budget includes $503,965 dollars and 0.5 FTE for the 1997-99 biennium. The estimated cost of completing this project work is an additional $1+ million.

Work Schedule: Refer to phase 1.

Monitoring: Refer to phase 1.

ODF 57 - Enhancement Of ODF Monitoring Program

Background: Monitoring of the current forest practices rule assumptions and on-the-ground results of the rules has been a key concern of the National Marine Fisheries Service (NMFS). This enhancement of the monitoring program will use additional resources to focus on these concerns.

Goal: Reduce the timeframe to evaluate key questions related to the water protection rules.

Objective: Assess the effectiveness of the forest practice BMPs in relation to small stream protection, mass wasting, changes in hydrologic conditions, and cumulative effects.

Action Items: ODF currently has several monitoring programs in place this measure will evaluate where additional resources can expedite results within the appropriate current programs to achieve the goal.

Funding: The forest practice program has been relatively successful in attracting grant moneys for cooperative monitoring projects over the past 3 - 5 years. This proposal would increase the other funds authorization to pursue additional grants in the amount of $200,000.

Work Schedule: 1997 secure additional funding.

Monitoring: An annual monitoring report is required by rule to be presented to the Board of Forestry.

ODF 58 - Liability Limits For Fish And Wildlife Enhancement Projects

Background: Two perceived concerns about legal liability have prevented willing landowners from improving fish and wildlife habitat on their property. One concern is about the potential liability for property damage (of others) that might result from habitat improvement projects. A second concern is about tort liability that may result from the use of the land by volunteers or others that may be doing habitat improvement projects. This action is to secure legislation that limits property damage liability for landowners completing habitat enhancement projects following guidelines established by ODFW, GWEB and/or ODF and that limits tort liability for landowners that allow volunteers or others to use their property for habitat improvement efforts.

Goal: Provide incentives for landowner/operators to allow fish and wildlife enhancement projects to be developed on their lands..

Objective: Increase the number of fish and wildlife enhancement projects.

Action Items: Propose Senate Bill 108 to the 1997 Legislature and secure its passage.

Funding: No funding necessary.

Work Schedule: Introduce legislation to legislature in the 1997 session as Senate Bill 108.

Work to secure passage before end of session.

ODF 59 - Integrated Forest Assessment

Background: To meet the objectives of the Governor's salmon recovery plan, additional information will be included in the Departments Forest Assessment Project (described below) to better understand the tradeoffs between salmon habitat and other resource uses of Oregon's forests. This work will answer questions about the implications of current and alternative policies and forest management activities for sustainability of long-term productivity of Oregon's salmon runs.

The purpose of the Forest Assessment Project will be to provide a basis for considering forest policy actions within the purview of the Board of Forestry (BOF). The Assessment will provide both factual background about conditions and trends of Oregon's forests and analytical tools with which to examine scenarios of the future development of the state's forests under alternative forestry policies. The Assessment will use the criteria and indicators from the Santiago Declaration as the basis to describe forest conditions.

The assessment report will examine a specific set of policy questions reflective of current and anticipated resource issues. It will include an explicit analysis of the implications of a continuation of current BOF policies. Alternative policy scenarios will be examined at the request of the

BOF. This information will support deliberations of the Board of Forestry in developing action plans for the next *Forestry Program for Oregon.*

Goal: Answer questions about the implications of current and alternative policies and forest management activities for sustainability of long-term productivity of Oregon's salmon runs.

Objectives: Tentative objectives for this portion of the Forest Assessment will be:

1. Determine the current state and trend in riparian condition, and to correlate forest management practices with riparian conditions.
2. Determine and prioritize riparian restoration opportunities.
3. Better utilize GIS capabilities for analysis of riparian habitat.
4. Locate and correlate forest management activities and riparian area conditions by geographical location.
5. Provide quantitative stream habitat information to evaluate habitat quality and to correlate fish abundance with habitat conditions.
6. Integrate fish habitat modeling efforts needed for Governor's salmon recovery plan with ongoing efforts at Oregon State University College of forestry.
7. Better understand the effects of forest management, agriculture and land use development on salmon habitat location, size, extent, quantity, and quality.

Action Items: Integration of CSRI into the forest assessment project will be a collaborative effort. Staff will interact with researchers and other monitoring and research questions, and analyze collected information.

This effort will include gathering and analyzing information about riparian habitat over relatively large areas. Analysis necessary to provide information for improvement of salmon habitat and to integrate with other elements of the Forest Assessment will be undertaken.

Funding: Funding of $275,000 has been approved in the Governor's budget for this portion of the Forest Assessment Project. These dollars will be used to fund one FTE, hardware/software and additional data gathering for streams.

Work Schedule: Implement in 1997.

Monitoring: Completion of *Forestry Program for Oregon*, July 2001.

ODF 60 - Elimination Of The 25,000 BF Exemption On Harvest Tax

Background: Currently, timber harvest taxes are not paid on the first 25,000 bd. ft. of timber harvested on an annual basis. This proposal would eliminate this exemption and use the increased revenue to help fund the Department's Forestry Assistance program.

The Forestry Assistance program administers non-industrial forest landowner incentive programs, such as the Stewardship Incentive Program (SIP) and the Forest Resource Trust program, which are described in separate management measures. The Forestry Assistance program is administered on-the-ground by Department Service Foresters; revenue generated from this proposal will be used to fund these positions.

Goal: To provide technical assistance to non-industrial private forest landowners.

Objective: To provide technical assistance to non-industrial private forest landowners through current cost share and Trust programs.

Action Items: Propose legislative concept.

Funding: Funding of $489,242 has been approved in the Governor's budget. From this, four service foresters would be funded and 0.25 FTE for clerical support would be provided.

Work Schedule: Implement 1997-99 biennium.

Monitoring: Annual reporting of accomplishments.

Appendix A - OCSRI Road Inventory Protocol

Final Draft (12-30-96)

Introduction

Timely inspection and subsequent maintenance or repair activity on forest roads can greatly reduce the potential for sediment to enter streams. The Department of Forestry is committed to working cooperatively with forest landowners to reduce erosion from forest roads. This will first require an assessment of forest roads for erosion and possible sediment delivery to streams. Analysis of erosion risk by landowners and setting priorities for repair are the next step, followed by maintenance or repair activity. A suggested database format for data collection is nearing completion.

This publication describes a protocol that land managers can use to provide information needed for prioritizing road management decisions, especially maintenance and repair activities. This protocol has been redesigned to be the first part of the Oregon Coastal Salmon Restoration Initiative (OCSRI) Road Erosion and Risk Reduction Project. Road inventories should first be conducted in areas where roads pose higher risk to anadromous fish and their habitats. A road management guidebook that will provide cost-effective technical options for reduction of road erosion hazard should be completed in about one year. This inventory is designed as a means to identify roads of concern and to prioritize repair activity, but is not meant to collect all information necessary for those repairs.

Three major areas of concern

- Washouts of stream crossings/fish passage
- Sidecast related landslides entering channels
- Muddy drainage waters delivered to streams

Three major elements of inventory

- Stream crossing structures
- Sidecast (where risk of failure is high)
- Surface drainage

Background

The Department of Forestry, with the Forest Engineering Department at Oregon State University, developed a road sediment monitoring protocol. The monitoring procedures were further refined using input from forest landowners, agency personnel, and other interested parties. Monitoring surveys of drainage systems on over 200 miles of forest roads on industrial, non-industrial, and state lands in western Oregon were completed in 1995. This monitoring found that most surface drainage systems on roads are performing well, with two areas of possible concern:

- Excess spacing of cross drainage on steep gradient roads.
- Ditches routed over long distances to channels with no cross drain installed before the stream crossing.

Another road hazard assessment project, conducted cooperatively by ODF and several private landowners looked at landslide and washout hazard. Road-related landslides and washouts are the focus of ongoing ODF monitoring. Past ODF monitoring has shown most road landslides related to steep sidecast, though road drainage may also be an important factor. All of this monitoring and assessment information was used in development of this protocol.

Methods

Useful information requires inspection of entire road systems on-the-ground. This protocol requires a minimum level of training. Information is collected through direct measurements, combined measurement/estimations, and direct observations. Road junctions and ownership boundaries provide the starting points for these surveys. Information is either directly entered into a computer or data logger, or recorded on forms for subsequent entry into a relational database.

Tools and Measurements

A vehicle (truck or utility rig) is preferred for road access, though a mountain bike can also be used. A single person can collect the necessary data. Distance measurements are made by traveling along the road. We recommend using a distance measuring instrument (DMI) or other device that records vehicle travel in feet (a normal vehicle odometer alone is not very inaccurate). Impassable roads are measured with a hip chain (string box). A clinometer is used to measure road gradient, culvert gradient, and other slopes. Short distance measurement require a scaled rod of staff and a measuring (loggers) tape. Much of the data collected is determined by direct observation. An ODF stream classification map (on USGS 15 minute quad maps) and/or other maps showing roads and streams is also needed.

Information Needed

Priority information needed includes:

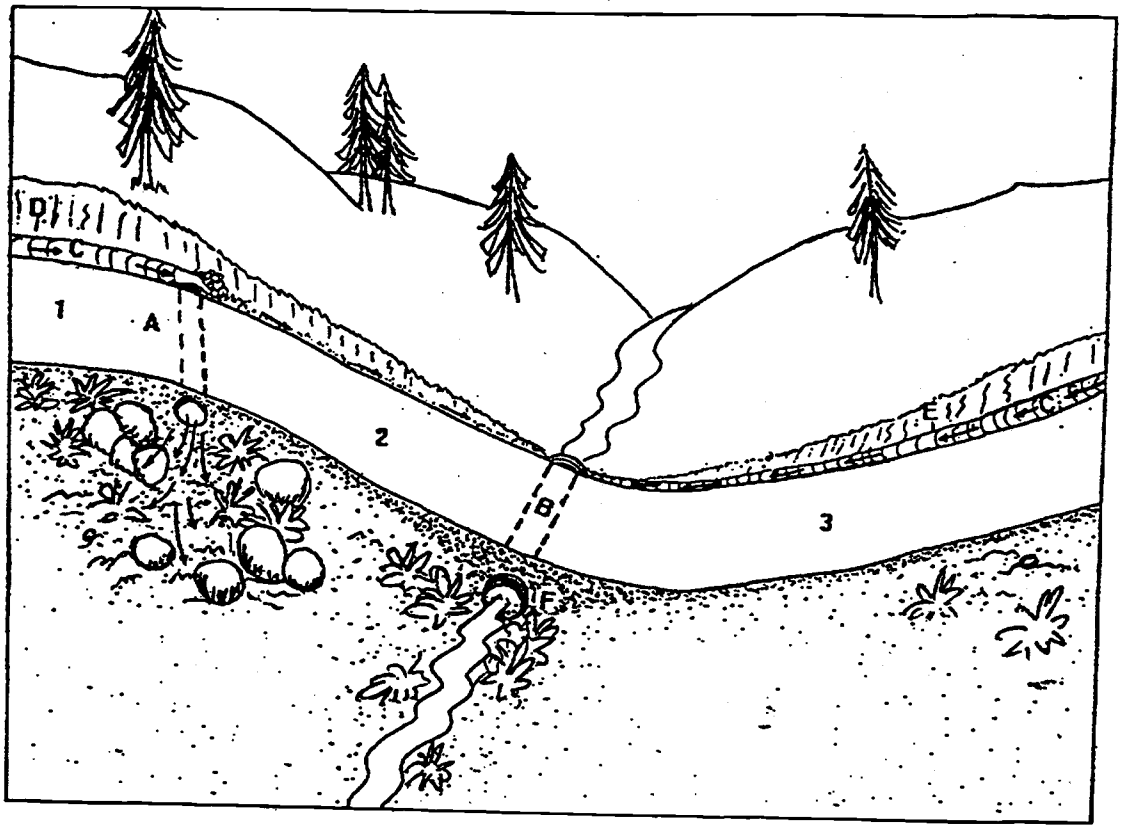
- A general road description.
- Condition of each stream crossing structure.
- Symptoms of erosion along the road.
- Potential for sediment delivery to a stream.
- Risk of landslides entering streams.

General Road Characteristics

Each road should be identified by name or number, according to the system normally used by the landowner, generally classified as follows:

- *Road identification* by name, numbering system, or other means,
- *Road use* by management activity (active roads have been used for timber haul in the past year; inactive roads include all other roads used for management since 1972; and legacy roads are abandoned, overgrown, and not used since 1972. Legacy roads include rail road grades.)
- *Surfacing material* is described as clean rock (new quarry rock), old rock (more common), or dirt.
- *Slope position* is described as ridge, midslope, or valley as the location of most of the road.
- Average road *width* in feet for the entire road is estimated (from the outside edge to the base of the cutslope).
- Also document those ownerships where *georegion, geology or soils* are variable and have a great influence on erosion.

Figure 1. Typical Road Inventory Features



A: XRD Cross road drainage (possible delivery due to proximity and channeling at outlet)
B: XRD Cross road drainage (yes delivery)
C: CSX Culvert @ live stream crossing
D: Grade break
E: XRD Cross road drainage (no delivery)
F: Grade break
G: Cut bank Cut_hgt 10-20
H: Road fill at culvert-medium
I: Gullied channel at XRD (B) delivers to CSX (C)

Road segments:

1: Drains to XRD (A)
2: Drains to XRD (B)
3: Drains to CSX (C)
4: Drains to CSX (C)
5: Drains to XRD (E)
6: Drains to XRD (E)
7: Drains off sample plot, due to change in grade

Stream Crossings

Stream crossings are an extremely important part of the road system. Improperly functioning stream crossings can result in loss of the roadway through washouts and channel diversions and can also be a barrier to fish movement. At each crossing structure, information should be collected by getting out of the vehicle and taking measurements, usually at the inlet end, and by observations from the road surface of the outlet end of the structure.

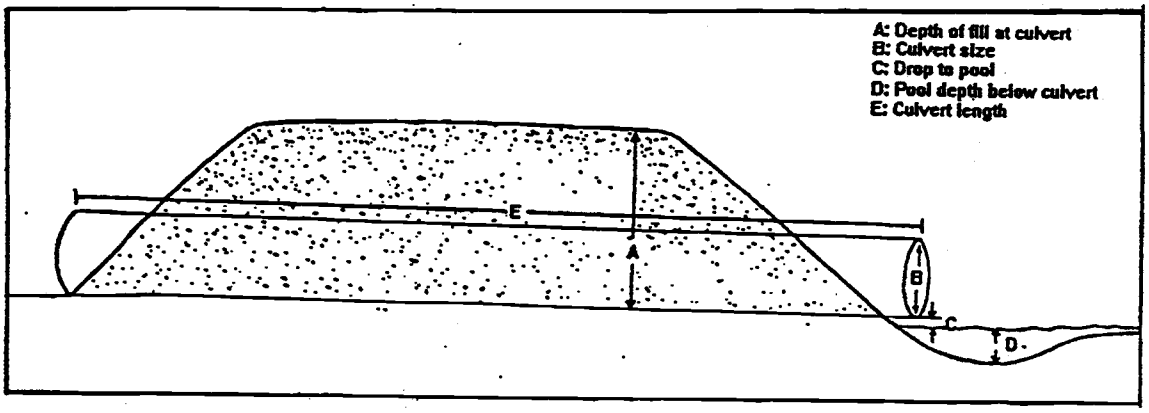
The following information should be collected at each stream crossing (figure 2):

- *Fish presence* (species, if known, from ODF classification maps or other sources).
- *Type* of structure (bridge, round culvert, arch culvert, log puncheon, or ford).
- *Size* or diameter of the culvert (diameter for round, rise and span for arch) or length (for bridge).
- *Length* of the culvert is estimated to the nearest 10 feet.
- Structure *condition* whether there is age related deterioration (good, rusted, bottom out, partial collapse, or total collapse).
- Inlet *blockage* described as due to beavers, sediment, damage, mechanical, or vegetation.
- Percent *opening* estimated as a percent or original (design) opening.
- *Fill height* is estimated from the channel bottom to the road surface at the downstream end.
- *Outlet drop* is the distance (in feet) from the bottom of the pipe to the elevation of the pool.
- Sediment *filtering* opportunities around the crossing are noted as utilized, not utilized, or not available.

Additional measurements are needed for Type F stream crossings, especially for crossings where fish use changes from Type F to Type N, and other structures where fish use is expected,
as follows:

- *Culvert slope* can be measured with a clinometer, to the closest percent (clinometer calibration is very important).
- *Resting Pool* below the pipe is categorized as good (at least 2 feet deep and 6 feet long), fair (at least 1 foot deep and 4 feet long), or absent.

Figure 2. Stream crossing culvert with key dimensions.



Surface drainage

The source area, referred to as a "segment," is the length of road draining to any one surface drainage location. The information collected along each segment is designed to identify potential for severe erosion. A "relief" is any location where a collected water leaves the roadway. Properly functioning outsloped roads have no reliefs. Of special concern are the lengths of road segments draining directly to streams.

Source Area

The following observations/measurements are made to identify symptoms of high erosion on road segments. As best, describe the condition of the entire segment:

- *Length* in feet as measured as accurately as possible by driving or walking the segment.
- Average *gradient* (slope in percent, with an estimated average when the slope changes).
- Road *surface* drainage is described as good, rutted, bermed, or gullied.
- *Ditch* function is described as good, downcutting, stream diverted, near full, or blocked.
- *Cutslope* condition is described by stable rock, vegetated, bare, ravel/erosion, or slides.

Relief

Locations where concentrated water leaves the road surface can include cross drainage culverts; live stream crossings; waterbars; rolling dips; grade reversals (drainage divides); natural saddles and ditch-outs. The survey will collect the following information on drainage characteristics and potential sediment delivery at all structured relief (culvert) locations, and at other locations only where there are problems:

- Type of *structure* as stream crossing (see additional information needed on page 1) or cross drain culvert (waterbar, ditch-out, dip, etc. only if there a problems with these structures).
- Type of *problem* described as none, mechanical crushing, filling by debris, bypassed; or outlet erosion.
- *Evidence of flow (delivery)* to a waterbody as yes, possible, or no.

Sidecast/landslides (only for high risk segments)

High risk segments include sidecast constructed roads where sidecast related landslides are reasonably expected. Depending on georegion, geology, and soil, and drainage, the natural slopes for high risk segments be as gentle as 50 percent (in wet areas with weak sidecast and drainage problems. In areas with well drained materials with uniform slopes and no or very limited signs of old slides high risk segments exist when natural slopes exceed 65 or 70 percent. High risk segments are also those which have experienced past sidecast related landslides. For the high risk segments only, the following information should be collected:

- Average *natural slope steepness* under the sidecast.
- *Evidence* of active failure as outside cracking, or prism dropping.
- *Proximity to waters* described as qualitative rating of slope to nearest stream channel low, moderate or high based on the presence and size of bench terrain between the site and the nearest channel.
- *History of slides* along road (are there old scars visible, and if so, how many).
- Sidecast *depth* an estimated average, to the nearest foot.
- Road *alignment* (straight or winding).
- *Vegetation* on sidecast as bare, brush, reproduction, or forest.

Options

Landowners are encouraged to use this protocol for road management purposes other than erosion hazard reduction. Possible uses include routine maintenance and surfacing decisions, which require additional information on surface condition. Global positioning systems may be used to help map information from the survey, though can result in a significant reduction in productivity for steep areas with canopy cover, especially when the canopy is wet. Direct data entry into a field data-logger as it is being collected can be very efficient. The inventory person or crew can also be used to mark culverts and to flag locations needing immediate maintenance attention.

Decision Making

Immediate action should be taken on forest practices compliance related issues. These may include: failing stream crossing pipes; non-functional cross drainage; active gullies down the road; and sidecast beginning to slide downslope.

Inventory information should be entered into relational databases. An example database is attached. To help landowners make risk reduction priority decisions, a road management guidebook is being developed in cooperation with practicing road engineers and the Forest Engineering Department at Oregon State University.

Database for Road Inventory Protocol

Road:

ID: (Road name or number)
Use: (Active) (Inactive) (Vacated) (Abandoned)
Location: (Ridge) (Midslope) (Valley)
Surfacing: (Dirt) (Rock) (Clean rock)
Width: In feet
Option: geology/georegion: (Landowner choice)

Stream X:

Type: (Round culvert) (Arch culvert) (Bridge)
Fish: (Anad) (F) (N)
Size: Diameter of span in feet
Length: of pipe in feet
Condition: (Good) (Rusted) (Bottom out) (Collapse)
Blockage: (Beaver) (Sediment) (Damage) (Mech) (Veg)
% Open: Percent of original area
Drop: in feet

For Fish Only:

Pool: (Good) (Fair) (Poor)
Slope: in percent

Source Area:

Length: in feet
Gradient: in percent
Surface: (Good) (Rutted) (Berms) (Gullies)
Ditch: (Good) (Cutting) (Diverted) (Full) (None)
Cutslope: (Stable) (Ravel) (Slides)

Relief:

Type: (CMP) (Wbar) (Other)
Problems: (None) (Blocked) (ByPassed) (Crushed) (Outlet Erosion)
Delivery: (Y) (N) (P)

Sidecast (high risk segments only):

Slope: in percent
Evidence: (Cracks) (Drop)
Proximity: (Low) (Moderate) (High)
History: Number of old slides
Alignment: (Straight) (Winding)
Vegetation: (Bare) (Brush) (Reprod) (Forest)

Appendix B - Guidance For OCSRI Measure ODF8 Riparian Hardwood Conversions Within Coastal Salmon Core Areas

No single action by a government agency or individual will restore declining salmon and trout populations, but a cooperative effort, sustained over time, can succeed. Oregon's Coastal Salmon Restoration Initiative (OCSRI) is an effort focused on preserving and restoring native coastal salmon populations and preventing the need for a federal threatened or endangered listing of coho salmon under the federal Endangered Species Act.

The Forest Practices water protection rules stipulate that streams that have adequate conifer stocking require that the standard target or active management target be retained within the riparian management area (RMA). However, where the existing streamside stand is too sparse or contains too few live conifers to maintain fish, wildlife, and water quality resources over time, operators conducting forest management on streamside sites that are hardwood dominated may apply alternative vegetation retention prescription #2 (OAR 629-640-300).

The standard riparian hardwood conversion guidelines as specified by OAR 629-640-300(4) are as follows:

> ***Evaluate the stand within the RMA and, where they exist, segregate segments (200 feet or more in length) that are well-stocked with conifer, as identified from an aerial photograph, from the ground or through other appropriate means. The general vegetation retention prescription for vegetation retention shall be applied to these segments.***
>
> ***For the remaining portion of the RMA that generally does not have adequate conifer stocking, the RMA shall be divided into conversion blocks and retention blocks.***
>
> - ***No more than half of the total stream length in the harvest unit can be included within conversion blocks.***
> - ***Conversion blocks can be no more than 500 feet long, and***
> - ***Conversion blocks must be separated from each other by at least 200 feet of retention block or by at least a 200 foot segment where the general vegetation retention prescription is applied.***
>
> ***Within conversion blocks the operator shall retain:***
>
> - ***All trees growing in the stream or within 10 feet of the high water level of the stream.***
> - ***All trees leaning over the channel within 20 feet of the high water level of large streams.***
>
> ***Within retention blocks the operator shall retain:***
>
> - ***For large streams, all conifer trees within 50 feet of the high water level of the stream and all hardwood trees within 30 feet of the high water level of the stream.***
> - ***For medium streams, all conifer trees within 30 feet of the high water level of the stream and all hardwood trees within 20 feet of the high water level of the stream.***
> - ***For small streams, all trees within 20 feet of the high water level of the stream.***

Riparian hardwood conversions (alternative prescription #2) may apply to streamside stands that are capable of growing conifers but where conifer stocking is currently low and unlikely to improve because of competition from

brush or hardwoods. The intent of the alternative prescription is to provide adequate stream shade, woody debris, and bank stability in the for the future while creating conditions in the streamside area that will result in quick establishment of a new and healthy stand.

Purpose

Under this measure, OFIC forest landowners have voluntarily agreed to additional review of proposed hardwood conversions through site specific plans within CSRI Salmon Core Areas. The purpose of the additional voluntary review associated with the site-specific plan process is to encourage the design and implementation of riparian hardwood conversion projects that minimize the potential short-term risks to depressed salmonid populations. This guidance provides specific details for the administration and implementation of this voluntary effort.

Administration And Implementation

Pursuant to the Forest Practices Act, a riparian hardwood conversion may be applied only if **all** of the following criteria are met:

- RMA live conifer basal area levels are below one-half the standard target of the water protection rules.
- **The site is capable of growing conifers.**
- The RMA is dominated by hardwoods.
- The stream is in a western Oregon georegion.

The assumption for this prescription is that many streamside areas have been impacted by previous management resulting in hardwood or brush conditions, though the site would naturally have been a conifer site. For the prescription to be implemented correctly, it is important that such sites be properly identified, and evidence exists that future large woody debris supplies within the watershed are limited. Successful application of the strategy requires the landowner to accurately identify conifer sites in preparing for this prescription. Thus, in the written plan the operator must explain how the determination of a site as a conifer site was made. Such evidence can include topographic and soil features (steep bank with well drained soil); substantial evidence that conifer occupied the site based upon the presence of conifer stumps and/or snags; or other vegetation information. This prescription should not be used at sites where:

- Future large woody debris supplies within the watershed are limited.
- Conifer regeneration is not likely or would require extraordinary efforts (such as areas with many beavers).
- Topography and soil conditions indicate that hardwood trees are normally dominant, such as naturally occurring cottonwood and Oregon ash dominated riparian areas and floodplain terraces associated with large streams.
- Portions of streams experience peak flows of frequency and intensity which result in disturbance regimes that prevent achievement of mature conifer conditions (often indicated by riparian areas with scattered big leaf maple and brush.

Proposed riparian hardwood conversions by OFIC forest landowners that occur within Salmon Core Areas will be subject to additional review through a site-specific plan to be submitted by the operator. Other forest landowners, such as small woodland owners, will be encouraged to voluntarily develop site-specific plans for riparian hardwood conversion projects proposed within Salmon Core Areas.

The State Forester will review plans in consultation with the Oregon Department of Fish and Wildlife (ODFW), and will approve the voluntary plan if:

- The department (ODF) determines that no significant or permanent adverse environmental effects would occur, and

- The prescription would meet or exceed the vegetation goals in a more timely manner than if the plan were not implemented.

OR

- The long-term benefits of the proposed restoration practice are greater than the short-term detrimental effects, and

- A high probability of success exists to achieve the desired future condition for multiple resource benefits.

Factors that may need to be considered in the plan include, but are not limited to:

- Existing water temperature limitations as evidenced by available water temperature data, or as identified in the Department of Environmental Quality (DEQ) 1994/1996 303(d) List of Water Quality Limited Waterbodies.

- The sensitivity of changes to the water quality parameter(s) likely to occur because of the proposed practices, and how the activity will be designed to minimize water quality changes.

- The long-term supply of woody debris within the watershed.

- The potential of the existing streamside to achieve mature conifer forest characteristics.

- The species and expected survival of planted conifers in the RMA.

- Monitoring efforts to evaluate the direct effects of the proposed practices.

If water quality limitations exist, the site-specific voluntary plan must describe how the prescription will prevent additional impairment to identified water quality limited parameters. The site-specific voluntary plan must contain protection measures that exceed the standards established within the alternative prescription contained within the forest practice rules (OAR 629-640-300 (4). For example, modifications to the alternative prescription contained within the forest practice rules that may be necessary to minimize potential short-term risks could include, but are not limited to:

- Less than 35 percent of the total stream length in the harvest unit can be included within conversion blocks.

- Conversion blocks less than 250 feet long separated from each other by at least 250 feet of retention blocks.

- Within conversion blocks, the retention of all trees growing in the stream and within 20 feet of the high water level of the stream.

Coordination

The ODF Forest Practices inspection program will be used for the administration and implementation of this voluntary measure. When a notification is received proposing a riparian hardwood conversion, the State Forester must determine if it is located within a Salmon Core Area. Maps (1:100,000 USGS Hydrologic Units for coastal basins) of contemporary core areas of the spawning and rearing distributions of salmon and steelhead in Oregon coastal river basins will be available for this purpose at all ODF western Oregon district offices. Salmon Core Areas are defined as 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.

The DEQ's 1994/1996 303(d) list of Water Quality Limited Waterbodies will be available to all ODF western Oregon district offices to be used in identifying temperature limited streams within Salmon Core Areas.

Consultations with ODFW will be necessary for proposed riparian hardwood conversions within salmon core areas. Additionally, the State Forester will inspect the site with the operator, ODFW biologist, and any other individual(s) who may have information necessary or beneficial to the decision-making process. The purpose of the on-site inspection is to develop a thorough understanding of the proposed operation, discuss how wildlife and aquatic habitat and water quality parameters may be affected by the proposed operation, and to discuss protection requirements or alternate practices that could be applied at the site to best meet the intent of this action.

The State Forester will inform the operator of the factors that will need to be addressed in the written plan. In general, written plans for site-specific prescriptions should include:

- Objectives of the operation. Describe the stand management objectives and the short and long range objectives for water quality, aquatic habitat, and fish and wildlife.

- A description of the existing stream conditions and vegetative conditions present in riparian management areas. This may include an assessment of stream conditions above and below the operation site if relevant. Also, a description of the factors which indicate that future large woody debris supplies within the watershed are limited and that the site is a conifer site will be required.

- A detailed description of the proposed operation, including a description of actions that will be implemented to minimize or prevent potential short-term impacts to fish and aquatic habitat.

- An evaluation of the potential short and long term impacts from the operation to water quality, and fish and wildlife resources. This should include enough information to demonstrate that any changes to the vegetation retention standards will be offset by the positive consequences of the modification.

- If practices are proposed which are experimental or for other reasons may result in uncertain effects, short or long term monitoring of affected resources may be required.

Compliance

All riparian hardwood conversions shall be conducted in compliance with existing forest practice rules; nothing within this measure exempts operators from meeting the requirements of the statutes and rules stipulated within the Forest Practices Act. Compliance exists when an operator conducts an operation and follows the provisions in the approved written plan. Non-compliance exists when the operator fails to follow the written plan. Enforcement action for failure to follow the written plan will be taken under OAR 629-24-113(5). The State Forester will determine compliance with this guidance during routine inspections both, while the operation is being conducted and upon completion of the operation.

An unsatisfactory condition exists any time the provisions of a written plan are not or have not been followed. The FPF should provide a written statement if an unsatisfactory condition exists, but damage has not yet occurred and there is still an opportunity for the operator to comply with the written plan. A violation exists any time there is an unsatisfactory condition and damage has occurred or there is no longer an opportunity to comply with the provisions of the written plan.

Monitoring

Implementation and effectiveness of riparian hardwood conversions will be assessed as part of the Forest Practices Monitoring Program (management measure ODF 10), Monitoring of Riparian Management Areas (management

measure ODF11), and Monitoring Water Temperature Protection BMPs (management measure ODF14). These monitoring management measures will be scheduled over the next five years.

Specifically, the department shall report on the number and type of riparian hardwood conversions, an evaluation of the success of the applied protection levels, recommended changes to protection levels, and research needed to further evaluate the protection levels.

Appendix C - Oregon Department of Forestry Chemical Monitoring Protocol

June 1996 Draft

The attached protocol has been developed to test compliance and effectiveness of Best Management Practices (BMPs) in protecting water quality during aerial applications of forest pesticides. This document describes the Oregon Department of Forestry's (ODF) approach and provides protocols that can be utilized in other monitoring programs. ODF has coordinated with private landowners and community water managers in developing the protocol.

Effectiveness and Implementation Questions

- *Are Best Management Practices adequately protecting riparian vegetation and water quality?*
- *Are best management practices being complied with?*

Need: Forest pesticides are commonly used to aid in the re-establishment, growth and harvest of conifer species through out Oregon. The Oregon Department of Forestry is revising forest practice rules regarding chemical application. Effectiveness of these rules in protecting water quality and riparian vegetation needs to be tested.

Monitoring Strategy

The program is composed of effectiveness and compliance monitoring (Table 1). Effectiveness monitoring will consist of a water quality sampling program and community water manager cooperation. Compliance monitoring will consist of visual observation during the operation and a follow-up vegetation survey, investigation of public complaints, and Pesticide Analytical and Response Center (PARC) interagency investigations.

The Oregon Department of Forestry will implement an overall monitoring program on a representative sample of operations across the state after the new rules have been adopted. The program will consist of observation, vegetation surveys and water quality sampling. Use of the water quality monitoring protocol by other parties will be promoted by ODF.

Monitoring Focus

The Oregon Department of Forestry is committed to implementing a project to test the effectiveness and implementation of the forest practice rules in protecting riparian function and water quality during aerial application of pesticides. The program will prioritize monitoring efforts based on past findings, toxicity criteria, chemical use, and regional distribution of chemical applications over the past two years. The program will coordinate with private landowners in situations where the landowner has existing plans to monitor. The ODF will seek additional funding for effectiveness monitoring to augment the current monitoring budget.

Table 1. Forest Chemical Monitoring Strategy

Why	What	Who	Where	When	How	Reports
BMP Effectiveness	Cooperative operator/ community water system manager monitoring.	Landowner, applicator, and/or water system manager.	Domestic use surface water downstream from application.	Timing agreed to by operator and water system manager.	Standardized water sampling protocol to be developed by ODF.	Results reported to ODF.
Same	Operator/ODF water sampling.	ODF collects and analyzes unless landowner is already sampling.	Type F or D streams immediately downstream from application.	When required by ODF through predetermined criteria.	Standardized water sampling protocol to be developed by ODF.	Annual reports by ODF.
BMP Compliance Monitoring	Inspections on high priority operations.	FPFs	In or near high spray units.	During application.	Visual observation of application and spray deposition, checking of application records and vegetation surveys.	Case Brief, if violation found, summary in program final report.
Same	Public complaint investigations.	FPFs	Depends on nature of complaint.	Begin investigation within 24 hours.	Interviews, application records, visible vegetation effects (herbicides), possibly water or foliage samples.	Complaint investigation form.
Same	PARC interagency investigations.	ODF, ODA, DEQ, OHD, OR-OSHA	Depends on nature of complaint.	ODF will notify PARC within 24 hours of report and begin investigation if forest practice rules involved.	Interviews, application records, visible vegetation effects (herbicides), possibly water or foliage samples.	PARC annual reports.

Past Findings

Water Sampling Results: Forest chemical monitoring has taken place in Washington and Oregon over the past 16 years. Results from three different studies indicate that the majority of the 24-hour-average composite samples contained either no detectable residue or less than 1.0 parts per billion (ppb) of the applied chemical (Figure 1). From 1980 to 1987, the ODF implemented a water sampling program to assess the effectiveness of the forest practice rules in protecting the waters of the state (Oregon Department of Forestry, Forest Practices Monitoring Program, 1992). A representative subset of total chemical applications was monitored totaling 153 water samples. Of 153 samples analyzed, 86 percent (132 samples) resulted in no detectable chemical residue. A subsequent study was carried out from 1989 to 1990 by the ODF to assess herbicide applications again. Of 52 samples analyzed, 83 percent (43 samples) resulted in no detectable herbicide.

The Washington Timber Fish and Wildlife Program (TFW) intensively studied six monitoring operations during 1991 (Rashin and Graver 1993). Of six samples analyzed, 83 percent (5 samples) contained 0.13 to 0.56 ppb of the applied herbicide. Results of these three studies indicate that under most conditions, chemical concentrations greater than 1 ppb are relatively rare as a result of forest operations.

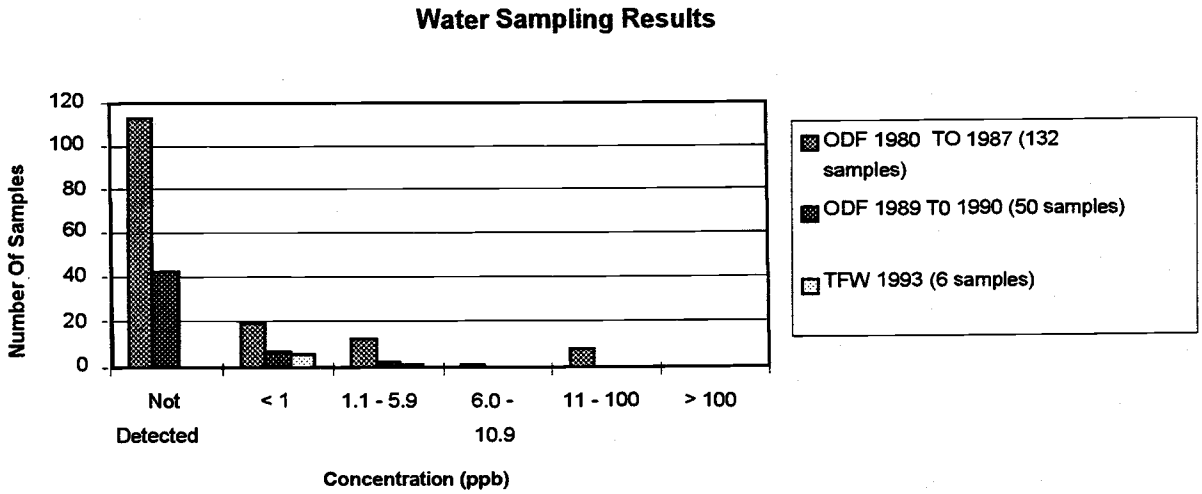


Figure 1. Chemical monitoring results from three studies in Washington and Oregon.

Peak Concentrations Generated by Precipitation: Additional peaks in pesticide concentrations may occur after the first rainfall and subsequent runoff. If streamflow increases, such that the active channel width increases, then the water may come in contact with pesticide deposits (Ice 1994, Norris 1980). The potential for subsequent peaks depends on the elapsed time between the pesticide application and the first runoff event, the expansion of the channel, the decay rate of the pesticide and the antecedent storm conditions. In the TFW study, the authors determined that rainfall events which occurred within the first 72 hours of the operation were the most important. They recommended sampling within the initial 12 hours after runoff begins. Professional judgment must be used to determine when there is sufficient rainfall to produce runoff.

Table 2. Proposed best management practices target criteria for forest chemicals operations. (Provided by Dr. N. I. Kerkvliet, OSU Extension Toxicology Specialist). Target criteria expressed as an average 24-hour concentration in surface water in significant wetlands, Type F or Type D streams, large lakes, other lakes with fish use, or other areas of standing open water larger than 0.25 acre at the time of the application.

All values in parts per billion (ppb)

CHEMICAL	HUMAN HEALTH (10 day HA[a])	FISH 48- or 96-hr LC_{50} (100-fold safety factor)	INVERTEBRATES 48- or 96 hr LC_{50}
MOST COMMONLY APPLIED FOREST HERBICIDES			
2,4-D amine	300	salmon 3500	daphnia 4000
2,4-D ester	300	bluegill 7	daphnia 100
Atrazine	100	trout 45	midge 720
Clopyralid	500[aa]	trout 1030	daphnia 2.25×10^5
Glyphosate (w/o surfactant)	17500	salmon 6800	daphnia 9.3×10^5
Glyphosate (w/surfactant)	17500	trout 13	daphnia 300
Hexazinone	2500[b]	trout 3200	daphnia 52000
Imazapyr	10000[bb]	trout 1100	daphnia 3.5×10^5
Metsulfuron methyl	2500[c]	trout 1500[d]	daphnia 1.5×10^5[d]
Sulfometuron methyl	1000[e]	trout 125[f]	daphnia 12500[f]
Triclopyr amine	50[g]	trout 1170	daphnia 1.2×10^5[h]
Triclopyr ester	50	trout 7.4	no data found
MOST COMMONLY APPLIED FOREST INSECTICIDES			
Bacillus thuringiensis	exempt	trout>12×10^9spores/L	N/A
Carbaryl	1000	brook trout 6.9	stonefly 1.7 to 29 daphnia 5.6
Diflubenzuron	200[i]	trout 1350	stonefly 2.0 daphnia 0.015
MOST COMMONLY APPLIED FOREST FUNGICIDE			
Chlorothalonil	200	trout 0.5	daphnia 70
FERTILIZERS			
Free Ammonia	no data	salmon 83	general 53 to 22,800
Nitrate -N	10,000[j]	no data	no data
Ammonia-N	500	no data	no data
Ammonium sulfamate	30,000[k]	carp 10,000	no data
DIESEL (used as a carrier)	no data	fish 1.9	no data

Footnotes to Table 2:

a) unless otherwise indicated
aa) based on RFD of 0.5 mg/kg/day
b) 90-day HA
bb) based on rabbit NOEL of 400 mg/kg/day and a 400-fold safety factor
c) based on RFD of 0.25 mg/kg
d) based on LC_{50} > 150 mg/L

e) based on RFD of 0.1 mg/kg
f) based on LC_{50} > 12.5 mg/L
g) based on 1-yr dog NOEL of 0.5 mg/kg/day
h) based on 21-day EC50
i) based on 1-yr dog NOEL of 2 mg/kg/day
j) MCL
k) lifetime HA

Toxicity Criteria

The forest practices staff, with input from Dr. Nancy Kerkvliet (Oregon State University) and Dr. Robert Pratt (Portland State University), developed a Best Management Practices Target Criteria for Forest Chemical Operations (Table 2). These criteria, expressed as the 24-hour average concentration were developed to evaluate pesticide water sampling results of monitoring studies. Based on previous findings and these toxicity criteria, there is sufficient rationale to focus monitoring resources on chemicals with low criteria. Therefore, the ODF will focus monitoring efforts on chemicals with a criteria less than 10 ppb, unless future information indicates a need to do otherwise.

Chemical Use

During the time of project implementation, the ODF will assess which chemicals are being used most frequently. The operation selection will be weighted towards these chemicals. If it is evident that a particular chemical is lacking in background information, but it is not commonly used, the ODF will consider sampling for that chemical. Insecticide application is highly variable from year to year and fungicide applications are rare. In Oregon during 1993 and 1994, there were one and no insecticide applications, respectively. The initial goal of the ODF is to monitor all non-biological insecticides (carbaryl) and fungicide applications.

Regional Distribution

During 1993 and 1994, respectively, there were 1,478 and 1,168 operations involving aerial application of pesticides. Numbers of operations and regional patterns were similar for both years. Herbicide applications were generally concentrated in the same 10 counties in 1994 and 1993 (Table 3). There were fewer fertilizer applications, and they varied geographically from year to year.

Future monitoring efforts will be weighted to the counties with historically greater numbers of operations. The ODF is not currently committed to monitoring fertilizer operations due to difficulties in establishing background variability of naturally occurring nitrogen. The ODF will continue to investigate fertilizer monitoring.

Table 3. Herbicide and fertilizer operations in 1993 and 1994.

County	1993 Number of Herbicide Operations	1994 Number of Herbicide Operations	1993 Count of Fertilizer Operations	1994 Count of Fertilizer Operations
Baker	0	1		
Benton	30	59 *	0	3
Clackamas	68 *	46	7 *	9 *
Clatsop	35	39		
Columbia	44 *	63 *	3	6
Coos	58 *	123 *	2	2
Curry	21	32	1	9 *
Douglas	310 *	313 *	36 *	35 *
Hood River	12	8	18 *	2
Jackson	7	8		
Klamath	2	10		
Lake	95 *	2		
Lane	101 *	143 *	3	12 *
Lincoln	47 *	159 *	4	2
Linn	38	74 *	1	2
Marion	4	43		
Multnomah	45 *	9		
Polk	3	60 *		
Tillamook	3	7		
Washington	78 *	101 *	6	17 *
Yamhill	79 *	77 *	3	1

* = greatest number of operations

Water Quality Monitoring Protocol

The goal of the Oregon Department of Forestry is to monitor 25 operations (2.5 percent of the annual average number of operations). Potential sites will have safe access for sampling after nightfall and be near a Small, Medium or Large type F or D stream. The program will focus on herbicide and insecticide applications. Samples will be collected before the operation (control), and 15 minute 2 hour, 4 hour, 8 hour, and 24 hours after the first swath has been sprayed near the buffer strip. Actual timing of collection depends on the stream water velocity. Sampling begins 15 minutes after water which flowed through the unit, reaches the sample site. Runoff sampling will be conducted after the first runoff-producing rainfall event. Numbers of runoff samples analyzed will depend on available funding.

Sample Location

Samples will be collected approximately 200 feet downstream of the treatment unit boundary. Access to the sampling site should be done without walking or driving through the treatment unit. The site should be protected from drift, have a uniform cross-section (no backwater or eddies), and have adequate flow to facilitate sample collection.

Operator Questionnaire

The operators/landowners will fill out the operator questionnaire (Figure 2) for the monitoring sites selected as parts of the ODF's monitoring program.

Sample Timing

A control sample will be collected within 24 hours prior to application. Five more samples will be collected 15 minutes, and 2, 4, 8, and 24 hours after the first swath has been sprayed near the buffer strip. The time of collection is based on the travel time of the water moving through the treatment unit. The time of collection is calculated as follows.

$$\frac{[A + B / 2] / C}{60 \text{ seconds}} + 15 \text{ minutes} = 15 \text{ minute sample time}$$

A = length of stream between top of treatment unit and sample point (ft)

B = length of stream between bottom of treatment unit and sample point (ft)

C = average velocity of stream (ft / sec)

Figure 2. Operator Questionnaire: Forest Chemicals Monitoring Project

Landowner:_____
Person's (name) completing questionnaire: _____
Unit Name:_____
Date of Application:_____

Weather Conditions:
Please fill in measurements of:

	Time Time	Time Time	Time Time	Time Time
Windspeed:		____	____	____
	____	____	____	____
	____			
Wind Direction	____	____	____	____
	____	____	____	____
Relative Humidity	____	____	____	____
	____	____	____	____
Temperature		____	____	____
	____	____	____	____
	____			

****

Chemical Application
Start time _____
End time _____
Was chemical directly applied within 60 ft of the stream?_____

Target vegetation/pest:_____
Active ingredient pesticide:_____ lbs/acre applied_____
Additional pesticide used: _____ lbs/acre applied_____
Surfactant added:_____
amount/acre_____
Other additives:_____
amount/acre_____
Application rate for final spray mixture_____amount/acre_____
Carriers used:_____
EPA Registration number_____Trade Name_____

****

Operation
Helicopter model:_____
Flight altitude:_____
Air speed:_____
Boom length:_____ Boom Pressure_____
Flight centerline offset from edge of buffer: _____ Half Boom used ____ Yes ____ No
Nozzle type, size, angle, orientation: _____
Number of nozzles: _____

Runoff Sampling

The goal of the ODF is to implement runoff sampling at all sites where a runoff event occurs within the first 72 hours of the chemical operation. Samples will be collected on a subset of the remaining sites within the first 12 hours after the first runoff event.

Collection Procedures

The Oregon Department of Agriculture (ODA) Laboratory has defined specific container and storage temperature requirements for given chemicals (Appendix A). These procedures will be followed for the ODF's sampling program. (Note: If this protocol is implemented for other programs, but samples are to be analyzed at a lab other than the ODA LAB, ask the lab for and comply with its recommended collection-to-analysis holding procedures and times.)

Monitoring personnel will access the sampling site without physical contact with vehicles or personnel from the spray operation and comply with the following procedure :

1) For each sample, put on a new pair of surgical-type sanitary gloves and pick up container.
2) Fill out label and place on bottle (Figure 3).
3) Stand downstream of the sample location. Do not let clothing make contact with the water.
4) Triple-rinse sample container (unless a preservative is used) at the sample site, emptying rinse water downstream.
5) Facing upstream, slowly sink container into the mainflow of the water column until the lip is just below the surface.
6) Fill out ODF Water Quality Sampling form (Figure 4).

Once all 5 (15 min, 2-, 4-, 8-, and 24-hr) post- treatment samples are collected create a composite sample using equal portions of each sample. Preparations of composite samples will be done under controlled conditions to avoid contamination. Funnels and other equipment will be clean and free of chemical residues. (**Exception**: Carbaryl water samples will be submitted for analysis within 24 hours of collection.) The Department of Agriculture will form the composite in the laboratory.

Figure 3. Water quality monitoring label for sample bottles.

Oregon State Department of Forestry
Forest Practices Monitoring Water Sample

Sample # (not .# + ext)
Date_____Time
Name of Stream or water body
Chemical Applied
Date/time of applicant_____
Name of sampler
Type of Sample (circle one) control 15 min 4hr 8hr 24hr composite runoff

Figure 4. Water Quality Chemical Sampling Form

Draw schematic map of unit, streams, buffers, and flight patterns.

Notification number_____
Applied pesticide:_____
Stream name:_____
Monitoring personnel name(s):_____
Spray start time:_____
Average stream velocity:_____
Sampling start time:_____
Date:_____

SAMPLE DESCRIPTION	SAMPLE COLLECTION DATE: TIME:	SAMPLE ID NUMBER
Control Sample		
15 minute		
2 hour		
4 hour		
8 hour		
24 hour		
Runoff Sample #1 (optional)		
Runoff Sample #2 (optional)		
Runoff Sample #3 (optional)		

The sample number is the operation number plus the following extensions:

xx-xxx-xxxx-A for control sample
xx-xxx-xxxx-B for 15-minute sample
xx-xxx-xxxx-C for 2-hour sample
xx-xxx-xxxx-D for 4-hour sample
xx-xxx-xxxx-E for 8-hour sample
xx-xxx-xxxx-F for 24-hour sample

When using a plastic container, the sample number should be written directly on the bottle, as well as on the label. When using glass, the number should be written on a tape strip on the jar itself and label filled in on the lid.

Upon submission of the water samples, a Universal Sample Collection and Laboratory Report (USCLR) form must be completed and turned in to the ODA Laboratory.

Sample Storage and Delivery to ODA Laboratory

Samples will immediately be put in water-tight cold storage and remain so until analyzed. Glyphosate samples should immediately be packed in ice. Samples will be transported to the laboratory as soon as possible. At no time will the sample be in contact with personnel directly involved with the chemical operation.

Samples will be transported in a water-tight ice chest, with a leak-proof cooling device (blue-ice, frozen water jugs, double-bagged ice cubes). Each sample will be accompanied with a USCLR. The lab should be pre-notified of delivery.

Sample Analysis

The Oregon Department of Forestry will consider two alternatives for analysis. In both options, the ODF will use the 24-hour average as a water quality indicator. Samples will be delivered to the lab and analyzed as soon as possible. Control and post-treatment samples will be stored at field offices or in Salem. One alternative is to analyze the composite sample first. If chemical is detected in the composite sample at levels greater than the adopted Toxicity Criteria, then the individual samples will be submitted for analysis.

The other alternative is to analyze each of the five post spray samples individually and use a weighting formula to approximate the 24-hour average. This formula applies a time-proportionate weighting factor to each grab result:

24-hour avg. conc. = 15-min (0.02) + 2-hr (0.08) + 4-hr (0.10) + 8-hr (0.30) + 24-hr (0.50)

Operator/Community Water System Manager Coordination

The goal of the Oregon Department of Forestry will be to develop partnerships between the ODF, landowners, and community water users. The objectives of the partnership would include increasing awareness of monitoring efforts and results, information sharing, and public education.

The ODF will coordinate with existing programs between community water users and landowners/operators. When appropriate, the ODF will promote use of the preceding water quality monitoring protocol. Data collected for community water system purposes may be available as additional data for the ODF's program.

Compliance Monitoring

Public Complaints and Pesticide Analytical Response Center

Investigation of public complaints is a high priority for the ODF. Upon receipt of a complaint the ODF will assess the need for water quality sampling. The ODF will coordinate with the State of Oregon's PARC. The ODF is a participant in PARC, as are five other state agencies, as well as OSU. PARC's primary responsibilities are to:

- Centralize and receive information relating to actual or alleged health and environmental incidents involving pesticides.
- Mobilize the expertise necessary for timely and accurate investigations of pesticide incidents and analysis of associated samples.
- Report in a standardized format the results of investigations of pesticide incidents.

PARC investigations are warranted when:

- ODF determines that a chemical incident may create the potential for adverse human health effects and/or significant environmental damage.
- Citizen complaints are received and it is evident to ODF that a multi-agency investigation is necessary to resolve the complaint.

The Oregon Department of Forestry will annually summarize and make public the results of forestry-related PARC investigations.

Vegetation Surveys

This portion of the monitoring program is still in the early planning phase. The following protocol is a rough idea of the direction ODF is taking.

Vegetation inspection surveys will be conducted in riparian areas on high priority operations and by Forest Practice Foresters in response to complaints. In addition, the surveys will be conducted on the 25 operations selected for ODF's monitoring program. At an appropriate time interval after application (depending on the chemical), monitoring personnel will implement the following procedure and fill out the Compliance Form (Figure 5).

1) Assess if chemicals were directly applied to the buffer.

2) Traverse the three lines parallel to the stream. Line #1: 10 feet from the spray boundary. Line #2: 30 feet from the spray boundary. Line #3: 5 feet from the stream channel.

3) Along each traverse, note the percentage of the vegetation which has been killed or damaged by herbicide. Effects will depend on the particular chemical (i.e. glyphosate will result in tiny leaves which will not elongate on elderberry and salmonberry). Photodocument vegetation damage.

4) Repeat Steps 2 and 3 along a control reach upstream or downstream of the spray unit.

Figure 5. BMP COMPLIANCE Monitoring

Stream name:
Notification number _____:
Stream type:
Date of Application:

Day of Application Observation

Was chemical directly applied to streamside vegetation?
Rate difficulty in avoiding streamside vegetation (1-4).
Based on the terrain, height of vegetative buffer, layout of unit, etc. rate the difficulty as:

1 = easily avoidable
2 = avoidable
3 = difficult to avoid
4 = extremely difficult to avoid

Vegetation Inspection

Date of inventory:_____
Streamside rules applied/prescription:
(new versus old rules, width of no-cut buffer, alternative prescriptions)

Transect information to assess drift impacts:
Predominant overstory species _____
Predominant understory species _____
Ground Cover species_____

For each transect, estimate the percent of vegetation damaged or killed by herbicide. Draw transects on map. Photograph damage for each species.

	Overstory	*Understory*
Transect A (10 feet from unit/buffer boundary)	_____	_____
Transect B (30 feet from unit/buffer boundary)	_____	_____
Transect C (5 feet from stream edge)	_____	_____
Total	_____	_____

Summary

The combined information from the chemical application, operation and vegetation surveys will be analyzed and summarized in a final report one year after completion of the program. At that time the ODF will assess the need for future monitoring. Possibilities may include implementing the project for a second year and another 25 sites, monitoring type N streams, testing sediment samples, monitoring ground applications, or coordination with the research community to study the effects on aquatic life.

Any questions or comments regarding this document can be directed to:

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Oregon Department of Forestry
2600 State Street
Salem, OR 97310
(503) 945-7493

Appendix D - Guidance For OCSRI Measure ODF 22
25 Percent In-Unit Leave Tree Placement
And
Additional Voluntary Retention

Introduction

No single action by a government agency or individual will restore declining salmon and trout populations, but a cooperative effort, sustained over time, can succeed. Oregon's Coastal Salmon Restoration Initiative is an effort focused on preserving and restoring native coastal salmon populations and preventing the need for a federal threatened or endangered listing of coho salmon under the federal Endangered Species Act.

Due to rising concerns over the status of depressed salmonid populations, and as specified in the Oregon Coastal Salmon Restoration Initiative (OCSRI) management measure ODF 22, the State Forester, will implement section 3(c) of Section 9, Chapter 9, Oregon Laws special session (Leaving Snags and Downed Logs in Harvest Type 2 or Type 3 Units; Green Trees to be Left Near Certain Streams):

> *"For harvest type 2 or type 3 operations adjacent to fish-bearing or domestic use streams, the State Forester may require up to 25 percent of the green trees required to be left pursuant to this section to be left in or adjacent to the riparian management area of the fish-bearing or domestic use stream if such requirement would provide increased benefits to wildlife. Such trees shall be in addition to trees otherwise required by rule to be left in riparian management areas. The operator shall have sole discretion to determine which trees to leave, either in or adjacent to a riparian management area, pursuant to this paragraph."*

Also, as part of OCSRI management measure ODF 22, members of the Oregon Forest Industry Council (OFIC) will voluntarily implement placement of the remaining 75 percent of in-unit trees following these guidelines. These additional trees will be another source for large woody debris recruitment and shade. The specific details concerning where these actions will occur, and how this provision will be implemented will be established by this guidance.

Administration And Implementation

The State Forester will implement section 3(c) Section 9, Chapter 9, Oregon Laws, 1996 special session, and specify opportunities for additional voluntary tree retention within Salmon Core Areas as identified by the ODFW. Core Areas comprise the habitats necessary for the persistence of salmon populations, and are a major source for "seeding" new habitats as restoration programs are implemented. The concept of identifying, on maps, the portions of river basins particularly important to salmon will aid State and Federal agencies and private landowners in deciding where to focus limited resources on management actions that will provide the greatest benefits to conserving and improving the status of salmon. Overall, approximately 2900 miles of coastal streams have been identified as Core Areas. This comprises about 40 percent of the overall anadromous salmonid habitat and 15 percent of the overall stream mileage.

The State Forester will require that 25 percent of the green trees required to be retained within harvest type 2 or 3 units will be left within or adjacent to the RMA of all fish-bearing (Type F) streams, unless placement along other streams or in other locations will produce better protection. In addition, OFIC landowners located within Salmon Core Areas have agreed to placing remaining (additional 75 percent) in-unit trees where directed by ODF and ODFW. Other forest

landowners, such as small woodland owners, will be encouraged to voluntarily leave additional in-unit leave tree requirements as recommended by ODF and ODFW. Such trees will be in addition to trees otherwise required by the water protection rules to be retained in riparian management areas.

Voluntary placement of in-unit leave trees will be directed, in order of priority, in the following areas:

1. Non-fish bearing streams (Type D or Type N), especially small low-order headwater stream channels, that may affect downstream water temperatures and woody debris supply of Salmon Core Area streams.

2. Streams identified as having water temperature problems in the Department of Environmental Quality (DEQ) 1994/1996 303(d) List of Water Quality Limited Waterbodies, or as evidenced by other available water temperature data; especially reaches where the additional trees would increase the level of aquatic shade.

3. Small and medium Type F streams.

4. Potentially unstable slopes where slope failure could deliver large wood to Salmon Core Area streams.

5. Large Type F streams, especially where low gradient, wide floodplains exist with multiple, braided, meandering channels.

6. Significant wetlands and stream-associated wetlands, especially estuaries and beaver pond complexes, associated with a Salmon Core Area stream.

While it is possible that some trees growing beyond 100 feet from a stream (e.g., unstable upslope areas) may contribute large woody debris (and other inputs) to the stream, the majority of trees that contribute large woody debris to the stream grow within 100 feet of the stream. Consequently, with the exception of potentially unstable slopes, the placement of in-unit leave tree requirements should occur within 100 feet of the active stream channel. High risk sites as determined by the State Forester will be used to identify potentially unstable slopes where slope failures could deliver large wood to Salmon Core Area streams. A high risk site may include but is not limited to: slopes greater than 65 percent, steep headwalls, highly dissected land formations, areas exhibiting frequent high intensity rainfall periods, faulting, slumps, slides, or debris avalanches.

The State Forester may also approve alternate plans to waive, in whole or in part, the requirements pursuant to this guidance for a harvest type 2 or type 3 operation if the plan provides for an equal or greater number of trees or snags to be left in another harvest type 2 or type 3 operation, which in the opinion of the State Forester, would, in the aggregate, achieve better overall benefits for wildlife, including fish. For example, a forest operation may be planned within a Salmon Core Area watershed, but may not be located near a stream or high-risk site that can affect a stream. Providing an equal or greater number of trees or snags to be left in a different harvest Type 2 or Type 3 operation near a more suitable stream pursuant to this guidance may achieve better overall benefits to fish.

This management measure is designed to achieve enhanced riparian and in-stream habitat for salmon. However, a holistic approach is desirable. Focusing on only one resource benefit associated with leave trees may have unexpected consequences to other resource benefits over time. Therefore, undesirable "trade-offs" in resource benefits associated with implementation of this action shall be minimized. The State Forester shall direct the retention of the in-unit leave

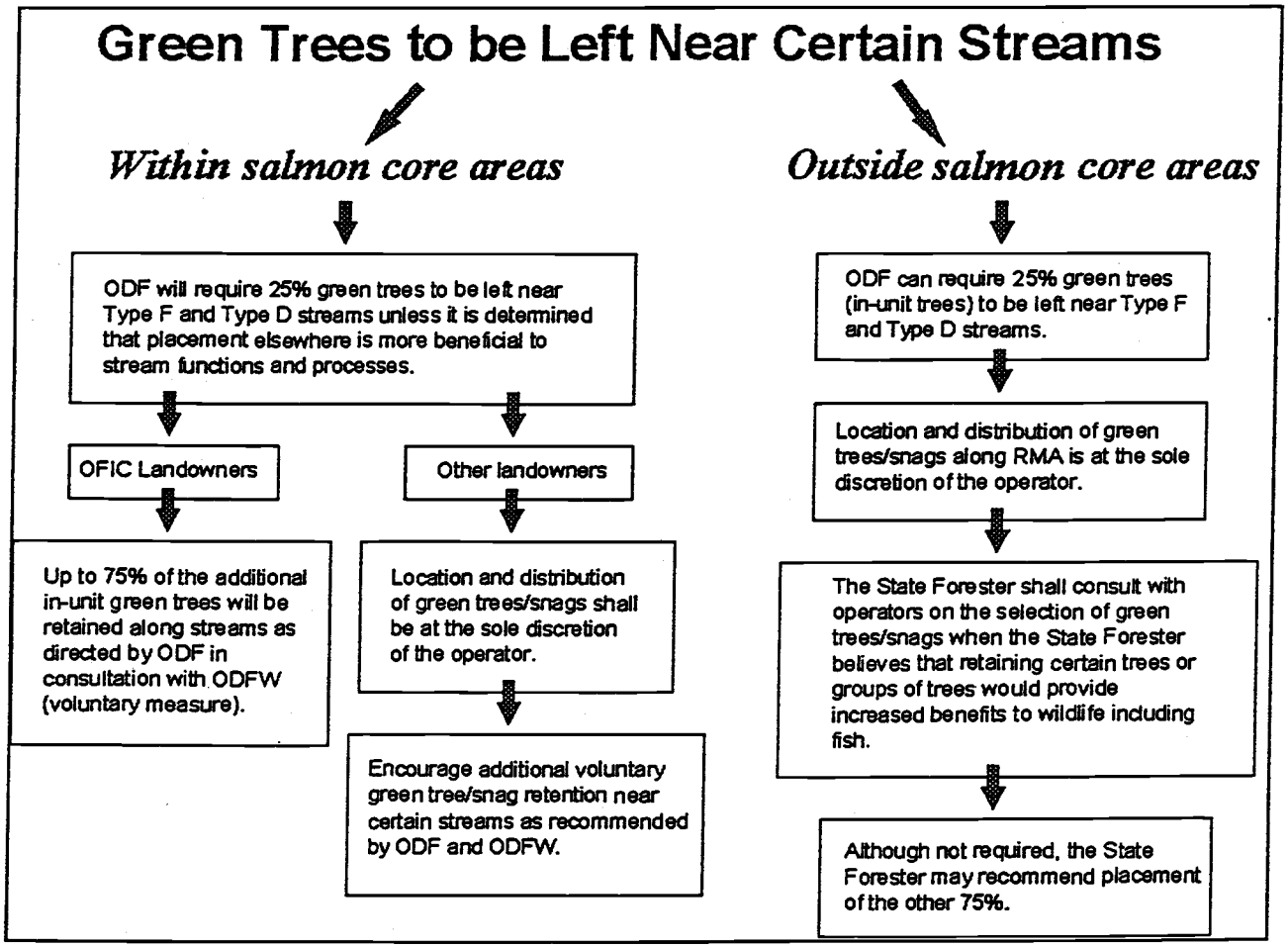
tree requirements within or adjacent to the RMAs stipulated in this guidance unless the additional trees will not contribute to the desired stream functions and processes. Additionally, operators will not be directed or encouraged to fell existing snags in upland areas and to replace these with green trees along the RMA. Existing snags are very important for providing immediate habitat requirements for many wildlife species.

Similarly, management decisions must also consider operational constraints that may affect stream habitat and salmonid populations. For example, it should be recognized that only rarely can roads be built that have no negative effects on streams. The retention of green trees near streams pursuant to this statute/guidance should not result in the construction of additional road networks, especially on steep slopes and unstable soils, to accomplish timber harvesting objectives.

All leave trees must meet the minimum criteria for acceptable snags and green trees specified in Section 9, Chapter 9, Oregon Laws, special session, which is at least 30 feet in height and 11 inches diameter at breast height (DBH), and at least 50 percent must be conifers. Although operators shall have sole discretion in determining which trees beyond minimum diameter and height requirements to leave, larger diameter trees are preferred because they provide greater benefits, for longer time periods, than do smaller diameters. Conifers are also preferable to hardwoods because they generally decay slower.

Coordination

The ODF Forest Practices inspection program will be used for the administration and implementation of this statute/guidance. When a notification is received for an operation, the State Forester must determine if it is located within a Salmon Core Area. Maps (1:100,000 USGS Hydrologic Units for coastal basins) of contemporary core areas of the spawning and rearing distributions of salmon and steelhead in Oregon coastal river basins will be available for this purpose at all ODF western Oregon district offices. For all notifications of Type 2 and Type 3 harvest units, the State Forester will collaborate with operators pertaining to green trees to be left near certain streams as described in the following flowchart:



Consultations with ODFW will be necessary, but should be considered an exception rather than the rule. The intent of this management measure item is to provide specific guidance to minimize the need for such consultations to most effectively utilize field staff time. An example where consultation with ODFW would be required would be to evaluate site-specific alternatives, opportunities, and constraints not addressed herein.

Statute Compliance: [Paragraph 3(c) of section 9, chapter 9, Oregon Laws, 1996]

Paragraph 3(c) of section 9, chapter 9, Oregon Laws, 1996 special session, is subject to enforcement action in the event of noncompliance. Noncompliance occurs if operators fail to retain the additional 25 percent in-unit trees within the area or areas designated by the Forest Practices Forester.

The State Forester will determine compliance with this statute by visually inspecting (i.e., counting green trees and snags) approximately 5 percent of all operations. Failure to leave the required number and size of green trees and snags within a Type 2 or Type 3 harvest unit pursuant to Section 9, Chapter 9, Oregon Laws, 1996 special session, is a violation, unless an alternate plan has been approved.

Voluntary Compliance: Voluntary placement of in-unit trees above the 25 percent requirement.

Placement of additional in-unit trees above the 25 percent requirement within areas designated by the Forest Practices Forester is a voluntary measure and is not subject to enforcement action. However, failure to maintain the required in-unit trees within the operation area (with the exception of an alternative plan) is noncompliance and subject to enforcement action. Landowners complying with the voluntary portion of this management measure (i.e. placing all in-unit trees in recommended ODF/ODFW locations) are encouraged to document the location and maintain the information on file.

The State Forester will determine compliance with this statute by visually inspecting (i.e., counting green trees and snags) approximately 5 percent of all operations. Failure to leave the required number and size of green trees and snags within a Type 2 or Type 3 harvest unit pursuant to Section 9, Chapter 9, Oregon Laws, 1996 special session, is a violation, unless an alternate plan has been approved. If the unit does not appear to comply with the additional voluntary guidance presented herein, the State Forester will document non-compliance, and emphasize education and coordination in collaborating with the landowner to obtain the desired results.

Monitoring

Implementation and effectiveness of the 25 percent in-unit leave tree placement and additional voluntary retention will be assessed as part of the Forest Practices Monitoring Program (management measure ODF 10), Monitoring of Riparian Management Areas (management measure ODF 11), and Monitoring Water Temperature Protection BMPs (management measure ODF 14). These monitoring management measures will be scheduled over the next five years.

Specifically, ODF shall report on the number and type of operations by landowner (e.g., OFIC), the number of requests complied with, the number and type of in-unit trees retained and their placement within Salmon Core Areas, an evaluation of the success of the applied protection levels, recommended changes to protection levels, and research needed to further evaluate the protection levels.

The State Forester will determine compliance with this statute by visually inspecting (i.e., counting green trees and snags) approximately 5 percent of all operations. Failure to leave the required number and size of green trees and snags within a Type 2 or Type 3 harvest unit pursuant to Section 9, Chapter 9, Oregon Laws, 1996 special session, is a violation, unless an alternate plan has been approved.

Voluntary Compliance: Voluntary placement of in-unit trees above the 25 percent requirement.

Placement of additional in-unit trees above the 25 percent requirement within areas designated by the Forest Practices Forester is a voluntary measure and is not subject to enforcement action. However, failure to maintain the required in-unit trees within the operation area (with the exception of an alternative plan) is noncompliance and subject to enforcement action. Landowners complying with the voluntary portion of this management measure (i.e. placing all in-unit trees in recommended ODF/ODFW locations) are encouraged to document the location and maintain the information on file.

The State Forester will determine compliance with this statute by visually inspecting (i.e., counting green trees and snags) approximately 5 percent of all operations. Failure to leave the required number and size of green trees and snags within a Type 2 or Type 3 harvest unit pursuant to Section 9, Chapter 9, Oregon Laws, 1996 special session, is a violation, unless an alternate plan has been approved. If the unit does not appear to comply with the additional voluntary guidance presented herein, the State Forester will document non-compliance, and emphasize education and coordination in collaborating with the landowner to obtain the desired results.

Monitoring

Implementation and effectiveness of the 25 percent in-unit leave tree placement and additional voluntary retention will be assessed as part of the Forest Practices Monitoring Program (management measure ODF 10), Monitoring of Riparian Management Areas (management measure ODF 11), and Monitoring Water Temperature Protection BMPs (management measure ODF 14). These monitoring management measures will be scheduled over the next five years.

Specifically, ODF shall report on the number and type of operations by landowner (e.g., OFIC), the number of requests complied with, the number and type of in-unit trees retained and their placement within Salmon Core Areas, an evaluation of the success of the applied protection levels, recommended changes to protection levels, and research needed to further evaluate the protection levels.

Oregon Department of Fish and Wildlife

Oregon Coastal Salmon Restoration Workplans

Oregon Department of Fish and Wildlife
Coastal Salmon Restoration Initiative
1997 Phase 1 Workplan

This plan describes the activities that will be undertaken by Oregon Department of Fish and Wildlife (ODFW) staff during 1997 to implement the measures in the Coastal Salmon Restoration Initiative (CSRI). Activities identified as Phase 2 require additional funding or staff before the activity can be accomplished. The main body of this plan describes general activities; more detailed actions to be taken by field staff in the coastal fish districts are provided in appendices. Activities are numbered to correspond to the measures in the CSRI plan.

ODFW-I.A.1 - Establish New Escapement Goals.

Summary of Measure: Establish new interim wild coho adult spawner escapement goals for each of four new disaggregated subunits encompassing Oregon coastal river basins and lakes.

Background: In recent years, coho salmon escapement was estimated on the basis of total returns to all coastal drainages as a single aggregate known as the Oregon Coastal Natural (OCN). Escapement targets for the purpose of managing ocean fisheries were defined as 42 fish per mile in standard index sites within the entire OCN aggregate. The description of four separate Gene Conservation Groups (GCG) within coastal coho salmon, a shift in escapement estimation approach to stratified random surveys to estimate actual numbers rather than indices, and concern over continued depressed status of many coastal runs has led to the disaggregation of the OCN into four sub-aggregates. This approach is intended to lead to more precise assessment of run strength in smaller areas more closely similar (not identical) to the GCGs, yet still large enough to allow effective management of the mixed stock ocean fisheries.

There is also reason to define escapement targets for individual river basins and to define specific thresholds for particular purposes (e.g. , to define critical conservation levels, populations suitable for reinitiating fisheries, and levels equivalent to fully recovered or fully seeded). At this time, the Spawner Rebuilding Criteria establish escapement levels suitable for adjusting fisheries. Additional efforts will be required to define other important levels and to apply targets to individual basins.

Goal: Establish meaningful goals for spawner escapement to facilitate managing fisheries and to assure population recovery.

Objectives

- Disaggregate the old Oregon Coastal Natural (OCN) aggregate into four sub-aggregates.
- Establish escapement targets for each sub-aggregate to serve as fishery adjustment criteria and achieve Pacific Fishery Management Council (PFMC) approval of the new approach.

- Establish escapement target levels describing full production levels in individual basins.

Responsible Staff: Don McIsaac, Interjurisdictional (IJ) Team Leader, is responsible for establishing the new sub-aggregates and fishery adjustment criteria.

District Biologists are responsible for establishing basin-specific escapement targets and monitoring plans.

Results: The OCN aggregate has been separated into four components, and separate escapement targets (Spawner Rebuilding Criteria) have been proposed for each. This approach was included in the first draft of the CSRI plan, and has been revised to relate directly to the habitat based coho production model. The Mid-coast districts are presently working on establishing individual population targets for each mid-coast basin.

Future: We anticipate that this approach to estimating run strength targets for the purpose of regulating ocean fisheries will be the basic approach used into the foreseeable future. Any future adjustments to the geographic scope of the sub-aggregates or to escapement targets will be made with input from our management partners. Individual escapement targets for each coastal basin will be made over the next few years.

Funding: This has been accomplished with existing ODFW funding.

1997 Work Schedule

Job:	Define new sub-aggregates and develop escapement targets.
Complete:	Completed
Job:	Finalize recommendations following public and peer review of CSRI plan.
Start Date:	Underway
Complete:	With completion of final draft of CSRI plan by end of February 1997.
Job:	Establish basin-specific objectives in Mid-Coast districts and develop monitoring plan.
Start Date:	Underway
Complete:	December 1997

ODFW-1.B.1 - Adult Escapement And Juvenile Coho Salmon Production Assessment.

Summary of Measure: 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.

Background: Accurate estimates of adult coho escapement and production are necessary for determining population size and trend, regulating allowable fishery harvest, determining the response of populations to restoration efforts, and measuring attainment of population targets.

Goal: Annually estimate adult coho escapement individually for the major river basins, the sub-aggregate areas, and for the entire Oregon coast; also, annually determine the abundance of juvenile coho salmon in representative stream reaches.

Objectives

- Conduct annual coho escapement surveys utilizing stratified random sampling (SRS) approach to estimate total coho return to the Oregon coast drainages, as an aggregate.
- Expand the number of SRS surveys of coho escapement to allow estimation of coho returns to the four sub-aggregate areas and to individual river basins (Phase 2).
- Conduct escapement surveys in the standard index areas to continue the long-term escapement trend information until a total of 10 years of dual surveys have been completed.
- Collect locally important juvenile coho abundance data in some districts.
- Develop and conduct a sampling program to estimate juvenile coho abundance in selected representative sites coast wide (Phase 2).
- Maintain population data in a geographically based format.

Responsible Staff

- Steve Jacobs, Coastal Salmon Inventory Project Leader, will supervise the conduct of the 1997 coho spawning ground surveys, including both the SRS and index area surveys, except in the North West Region, where District Biologists supervise survey crews. The project is responsible for data collection, analysis and storage. Steve will continue work with the Portland GIS staff to present data geographically. Project data bases are already GIS compatible, with survey locations and distribution of spawning habitat already available in GIS format. Spawner abundance data will be presented in GIS soon.

- Coastal fish district staff support the project by providing space for field crews, giving technical and logistical advice and assistance, and in the Northwest Region, to supervise crews.

- Milt Hill and the GIS staff assist the project with GIS database development and production of maps detailing survey locations and distribution of coho spawning habitat. In 1997, they will assist in presenting spawner abundance data in map format.

Results: Spawner abundance data are maintained in an electronic data base (MS-Access) and are used to estimate the population size of adult coho salmon, follow population trends of the coastal population, and contribute a primary component in determining the allowable fishery related impact in establishing fishing seasons and regulations. An annual report is prepared, although recent reports have been delayed.

Future: If new funding can be obtained, survey intensity will be at least doubled (Phase 2). An expanded number of surveys would allow adult abundance to be estimated for the individual OCN sub-aggregates and for individual basins, which are presently not possible because of inadequate sample size. The improved accuracy of coho escapement will lead to improved management of the ocean fishery to assure meeting spawning needs.

Funding: Funding from state revenue, Anadromous Fish, Oregon Wildlife Heritage Foundation, and Sport Fish Restoration funds is secure for the current survey effort, which was increased from approximately 300 to 400 miles in 1996.

When new funding is obtained (Phase 2), a project to conduct annual surveys of juvenile coho abundance in representative stream reaches will be developed and initiated.

1997 Work Schedule

Job:	Conduct SRS and standard index site surveys of coho spawner abundance.
Start Date:	October 15, 1996
Complete:	February 15, 1997
Job:	Summarize data.
Complete:	April 15, 1997
Job:	Provide data to PFMC for fishery regulation process.
Complete:	March 15, 1997
Job:	Prepare annual report
Complete:	December 31, 1997

ODFW-I.B.2 - Information Base for Habitat Restoration.

Summary of Measure: Provide information base for restoration of salmon spawning and rearing habitat through inventory of salmon habitat quality and distribution and juvenile salmon population distribution, and through determination of salmon production capacity based on habitat.

Background: Because of the critical role habitat quality plays in determining the production of juvenile salmon, it is imperative that we obtain accurate assessments of habitat quality, both to identify areas of good quality that need to be protected and to identify areas that have been degraded and need to be restored.

Goal: Assess the condition of salmonid habitat in all coastal watersheds, determine the distribution and abundance of juvenile salmonids, and estimate salmonid production capacity based on habitat quality and quantity.

Objectives

- Inventory the habitat condition and record fish species presence in coastal streams, and accumulate the data over time until all watersheds have been surveyed.
- Identify specific stream reaches where habitat quality has been degraded and restoration is needed.
- Maintain records of habitat condition from surveys and watershed assessments carried out by watershed councils and other CSRI partners.
- Provide habitat information on surveyed streams to landowners and CSRI cooperators, utilizing GIS and other appropriate data formats.
- Recommend specific restoration approaches for areas in degraded condition.
- Maintain records of all habitat restoration activities carried out in coastal watersheds
- Update estimates of maximum potential coho production for each major coastal basin based on estimates of habitat quantity and quality.
- Monitor abundance of juvenile salmonids in representative stream reaches in all coastal drainages (Phase 2).
- Initiate habitat assessment and monitoring in specific identified coho core areas in conjunction with monitoring of coho production, as funding becomes available (Phase 2).

Responsible Staff

- Kim Jones, Aquatic Inventory Project Leader, will be responsible for conduct of habitat assessments. The project will be responsible for collecting habitat and population inventory data on coastal streams based on contracts developed with various partners, maintaining data in an electronic data base, and making habitat information available in GIS and other formats to landowners and cooperators.

- Kelly Moore/Andy Talabere, Habitat Analysis and Application Project, will be responsible for recommending specific restoration approaches for degraded areas and maintaining records of all habitat restoration activities.

- Jeff Rodgers, Salmonid Habitat Studies, will coordinate consolidation and storage of juvenile salmonid abundance data collected by district biologists.

- Tom Nickelson, Northwest Research Program Leader, will update estimates of maximum potential coho production based on habitat.

- Barry McPherson, Habitat Restoration Coordinator, will assist in seeking and securing funds from various agencies and non-governmental sources, maintaining quality control of approaches and products, and facilitating information transfer to those who need it.

Results: Results will include a growing inventory of habitat condition and distribution as new areas are surveyed and entered into the data base. The growing data base will provide increasing guidance to watershed councils, landowners, and other CSRI partners regarding specific needs for habitat protection and restoration, leading to increased and more effective habitat restoration. Inventory data will serve as the baseline against which to measure changes in habitat and coho production potential over time related to restoration activities, climatic events, and land use within the watersheds.

Future: As the CSRI plan is implemented, we expect increasing emphasis on habitat assessment, monitoring, and restoration. We will request additional funding to increase the rapidity of conducting habitat surveys, and also anticipate various partners will increase the number of habitat inventory surveys contracted for each year. As the data base builds, we anticipate being able to increase the number of re-surveys designed to measure the habitat changes that have occurred as the result of natural events and of habitat restoration efforts. New funding (Phase 2) will also be required to establish a more comprehensive assessment and monitoring program for juvenile abundance. Habitat data and juvenile abundance data will be integrated with the habitat based production model in Phase 2 to update estimates of coho salmon production capacity.

Funding: The project leaders of the Aquatic Inventory and the Habitat Analysis and Application projects are supported by ODFW state funding. The Salmonid Habitat Studies project is funded by Sport Fish Restoration and a contract with BLM. Funds for individual habitat surveys are obtained from contracts with landowners, agency partners, and other ODFW units that need fish habitat information. Limited surveys of juvenile salmonid abundance are conducted on ODFW

funds as a portion of district biologists' workloads. Estimation of coho production potential in the freshwater production studies program is supported by Sport Fish Restoration and state funding.

1997 Work Schedule

Job: Conduct Field Inventories - Fish Presence.
Start Date: April 1997
Complete: June 1997

Job: Conduct Field Inventories - Habitat.
Start Date: June 1997
Complete: October 1997

Job: Stream Analysis.
Start Date: September 1997
Complete: March 1998

Job: Add Data to Database.
Start Date: October 1997
Complete: June 1998

Job: Prepare Watershed Summaries.
Start Date: October 1997
Complete: June 1998

Job: Final Report (by individual watershed).
Complete: Ongoing, as each watershed is completed

Job: Create GIS Layers (from prior year's data).
Start Date: January 1997
Complete: September 1997

Job: Update habitat based estimates of coho production potential.
Start Date: Ongoing

ODFW-I.B.3 - Habitat Restoration Evaluation.

Summary of Measure: Provide information base for restoration of salmon spawning and rearing habitat by evaluating representative restoration projects to quantify the effectiveness of techniques used and determine appropriate restoration strategies for use in specific situations.

Background: One major goal of CSRI is restoration of the salmonid production capacity of coastal watersheds. While long-term goals include natural redevelopment of habitat quality and function, short-term expedience requires artificial restoration in many areas of degraded habitat. To obtain the greatest benefit from limited restoration resources, it is essential to understand which specific restoration techniques are most effective and appropriate for addressing specific habitat deficiencies, and to monitor the resultant effects of restoration activities.

Goal: Monitor the effectiveness of habitat restoration projects conducted under CSRI and conduct research to determine the effectiveness of habitat restoration techniques.

Objectives

- Maintain an inventory of habitat restoration projects.
- Determine the production capacity of various habitat features and effectiveness of habitat restoration techniques through research.
- Monitor results of restoration projects through pre/post photo monitoring, spawner counts, and on-site evaluation by district staff.
- Evaluate effectiveness of a sub-sample of habitat restoration projects to document the resultant response of salmonid populations (Phase 2).

Responsible Staff

- Sussanne Maleki, Habitat Analysis and Application Project, is responsible for maintaining the inventory of projects, based on information provided by district biologists.
- Biologists in the fish districts are responsible for providing project information for each habitat restoration project initiated by ODFW in their districts. The lead group or agency for projects not initiated or supervised by ODFW will be responsible for providing project information to the ODFW data base.
- Mario Solazzi, Leader of the Salmonid Habitat Studies project, is responsible for continuing determination of habitat production capacity and evaluation of the effectiveness of specific habitat restoration techniques on coastal streams.

Results: For the second year, requests for inventory information on habitat restoration projects have been distributed to district biologists, and the returned information is being added to the inventory data base. This data base is used to maintain records of all restoration projects undertaken as the first basic step in evaluating the results of the project. Research into development of overwinter habitat for juvenile coho has demonstrated increased smolt production from restoration projects, with off-channel alcoves and deep dammed pools providing the greatest increase in over winter survival. Natural habitat created by beavers has also been documented to be beneficial to juvenile salmonids. Studies are continuing.

Future: Funding is considered secure for the foreseeable future at the current Phase 1 level. Funding is being requested for Phase 2 to initiate evaluations of representative restoration projects. Under Phase 2, sub-samples of the projects implemented and listed in the data base will be evaluated to determine project effectiveness. We anticipate an increased number of restoration projects as CSRI partners begin implementing plans. We would suggest that funding for evaluation be built into project plans.

Funding: The Salmonid Habitat Studies project is funded with Sport Fish Restoration Project (Wallop-Breaux) and a contract with BLM. Sussanne Maleki's position is funded by the Habitat Analysis and Application Project.

1997 Work Schedule

Job: Habitat restoration project inventor.
Complete: Ongoing

Salmonid Habitat Studies
Job: Construction of habitat restoration/improvement structures.
Start Date: September 1996
Complete: October 1996

Job: Smolt outmigration monitoring - annually until 2002.
Start Date: March
Complete: August

Job: Annual data analysis.
Start Date: March 1997
Complete: December 1997

Job: Annual progress report.
Complete: December 1997

ODFW-I.B.4 - Inventory of Artificial Barriers.

Summary of Measure: Complete an inventory of artificial barriers to fish passage.

Background: No comprehensive inventory of structures blocking fish passage currently exists. However, significant amounts of spawning and rearing habitat for salmonids are presently not available due to the effects of a variety of artificial structures that block passage of adult or juvenile salmonids. These structures include, but are not limited to, road culverts, diversion dams, temporary in-channel or "push up" dams, hydroelectric dams, and tide gates. Restoration of salmonid production blocked by these structures cannot be initiated until the specific locations of blockages are identified. This information is also needed to establish priorities for restoration activities.

Goal: Develop an inventory of all artificial structures that impede fish passage.

Objectives

- Conduct an inventory of highway (state and county) culverts in coastal drainages that impede fish passage.

- Coordinate with forest management agencies, landowners, and forest industry groups who conduct assessments of road culverts on forest roads in coastal drainages for fish passage, and to maintain a database on these culverts.

- In future years, to complete a database of other structures that impede fish passage on coastal salmonid streams.

- In future years, to expand the inventory of structures impeding fish passage to interior drainages.

Responsible Staff

- Al Mirati will coordinate the inventory of structures blocking fish passage and also construct and maintain the data base.

- District biologists will conduct some of the assessments of culverts, and seasonal employees supervised by Al Mirati will assess others.

- District biologists will coordinate with other agencies such as ODF and NRCS, county road shops, and industry, on identifying passage obstructions and providing information to landowners and other responsible parties to encourage and assist correction of problems.

Results: Development of the data base of structures blocking fish passage has been initiated, with inventory of in-channel dams completed and inventories of state and county road culverts underway on coastal drainages. The data base will provide information to watershed councils, road maintenance crews, water users, and those involved in habitat restoration about locations

where salmonid habitat is not being produced due to obstructed passage. The effort has already led to replacement of some problem culverts and will allow initiation of additional projects to rectify passage problems and restore production. The information will also identify situations where passage is being blocked illegally and enforcement efforts should be initiated.

Future: The data base of impediments to fish passage will serve as a primary resource for landowners, agencies, cooperative groups, and watershed councils involved in habitat restoration efforts. Removal of artificial barriers is a straightforward and effective means to immediately increase the amount of available salmonid habitat; this information will greatly facilitate those efforts.

Funding

- Inventory of highway (state and county roads) culverts in coastal drainages is being conducted under a contract with ODOT, effective through June 1997.

- Oregon Forest Industry Council is conducting an inventory and assessment of culverts on forestlands controlled by their members funded by the council and member companies.

- Negotiations are underway to develop cooperative funding through ODOT for culvert assessments in steelhead habitat not already covered by the coastal assessment.

- District biologists have located local grants to assist in surveys.

1997 Work Schedule

Job: Maintenance of the fish passage data base.
Start Date: Ongoing

ODFW/ODOT Culvert Assessment Project for coastal basins
Job: Field surveys.
Start Date: July 1996 (Underway)
Complete: May 1997

Job: Plot problem culvert locations on quad maps.
Start Date: July 1996
Complete: May 1997

Job: Enter information into database.
Start Date: August 1996
Complete: May 1997

Job: Create GIS layers of problem culvert locations.
Start Date: March 1997
Complete: May 1997

Job: Prepare project completion report.
Start Date: April 1997
Complete: June 1997

Proposed ODFW/ODOT Culvert Assessment Project for steelhead habitat
Job: Conduct assessments in steelhead areas not already surveyed for coho.
Start Date: April 1997
Complete: March 1998

ODFW-I.C.1 - Policy on Management of Salmonid Predators.

Summary of Measure: Develop Oregon policy on management of salmonid predators within framework of federal responsibility for many predatory species.

Background: The effects of predation, particularly by marine mammals (seals and sea lions) and migratory birds (cormorants), has become a significant concern due to the depressed status of many coastal salmonid stocks. Populations of some of these predators are steadily increasing, while populations of several salmonids remain quite low. Many people along the coast place much of the blame for the low salmonid populations on these predators. No objective data exists that establishes the actual predatory impacts, but the high and growing predator numbers, known piscivorous food habits, and observations of extensive feeding on salmonids in certain locations suggest that these predators could potentially impact the recovery of populations of salmonids in specific locations.

Goal: Develop an agency policy that is consistent on a regional basis for addressing the issues and the approach for dealing with salmonid predators, in conjunction with the federal agencies that have legislative authority over these species and with the other states in the Pacific Northwest.

Objectives

- Develop an ODFW policy on marine mammal predation, in conjunction with the National Marine Fisheries Service and the states of California and Washington.

- Develop an ODFW policy on cormorant and other avian predation, in conjunction with the U.S. Fish and Wildlife Service and the other Pacific Northwest states.

- Develop an assessment report on the potential impacts from other predator species, particularly introduced fishes.

Responsible Staff

- Robin Brown, ODFW marine mammal specialist, will take the lead in developing the marine mammal policy in conjunction with members of the Fish and Wildlife divisions of ODFW. Input from the NMFS, states, and other interested parties will be incorporated into the policy, as appropriate.

- Robin Brown will also coordinate the development of an avian predator policy in conjunction with members of the Fish and Wildlife divisions of ODFW. Input from the U.S. Fish and Wildlife Service, the states, and other interested parties will be incorporated into the policy statement as appropriate.

- Ray Temple, Fish Division, is leading development of a report assessing the interactions of introduced fish and native salmonids and the potential management approaches available.

Results: Development of these policies will allow for coordinated and consistent responses to incidences of marine mammal and avian predation. Statutory authority for management of these species rests with the federal agencies, while responsibility for salmonid populations resides with the states, unless they are listed under the ESA. Clearly articulated policies are needed to establish a common understanding of the magnitude of any problems, establish the parameters under which management activities will take place, assign specific responsibilities, and ensure consistent approaches. The policies will also allow for the incorporation of new information on predatory effects as data is gathered.

Future: The draft policy developed under this action will be reviewed internally by the Fish and Wildlife divisions, the Director, and staff at NMFS and USFWS. Having a consistent and well designed approach to dealing with predators is expected to improve effectiveness and reduce some of the controversy surrounding the predation issue.

Funding: Policy development will be done by existing staff on existing funding.

1997 Work Schedule

Job:	Marine Mammal Policy development.
Start Date:	April 1997
Complete:	September 1997

Job: Avian Predator Policy development.
Start Date: April 1997
Complete: September 1997

Job: Internal review of draft policies.
Start Date: September 1997
Complete: Executive Management Team and Commission meetings, December 1997

Job: Assessment report on introduced fish issues.
Start Date: Underway
Complete: January 31, 1997

ODFW-I.C.2 - Determine Predator Impacts.

Summary of Measure: Evaluate potential for impacts of predation by:

- Migratory avian predators
- Marine mammals
- Introduced fishes to salmon restoration

Background: The issue of predatory impacts to weak salmonid stocks has become controversial, with some taking the position that predators are the primary cause of salmon declines; others believe that, as natural components of the ecosystem, predators cannot be a significant factor in the declines. The lack of objectively obtained data in recent years has made it difficult to ascertain the appropriate level of concern to ascribe to the predation issue. Because there is potential for locally abundant predators to seriously impact already weakened stocks, and also to resolve the controversies and to guide appropriate management actions, it is essential that objective research be conducted to estimate the actual magnitude of impacts occurring as a result of predation.

Goal: Determine the magnitude of predatory impacts to coho salmon populations.

Objectives

- Initiate research proposals into predation effects on coho salmon and locate funding to conduct the research.

- Determine the magnitude of impacts to depressed coho salmon populations from avian predators, primarily cormorants (Phase 2).

- Determine the magnitude of impacts to depressed coho salmon populations from marine mammals (Phase 2).

- Determine the magnitude of impacts to depressed coho salmon populations from predation by introduced fishes (Phase 2).

Responsible Staff

- Bruce Schmidt (ODFW Research Supervisor) and Robin Brown (Marine Mammal Specialist) will work with research institutions, federal agencies, other interested entities, and the Oregon Legislature (with Kay Brown) to secure funding and initiate research into the magnitude and effects of predation on coho salmon.

- District Biologists are responsible for monitoring the cormorant hazing efforts and conducting some local assessments of predator abundance and activity.

Results: While no specific research has been conducted into impacts of predators to coho salmon, there is some indication of potential for effects in specific situations. This is based on such observations as biologists observing large numbers of cormorants feeding on coho smolts in localized areas and sea lions taking up residence at fishways and feeding on weak salmon runs. After funding is secured, research will be initiated in Phase 2 to determine whether the amounts of predation occurring are actually detrimental to the salmon runs.

Future: This research is expected to continue over several years and for various species. After objective information is obtained, any resultant suggestion of a need for management of predators can be discussed more effectively. Study results will also be helpful in developing management strategies and updating predator management policies.

Funding: Funding does not presently exist for these research efforts, and conduct of these studies is considered a Phase 2 activity. Funding to support the efforts to determine the research needs and secure funding will come from existing budgets.

1997 Work Schedule

Job:	Describe study needs and secure funding for research.
Start Date:	Ongoing
Complete:	As funding contracts are completed.

ODFW-I.C.3 - Predator Management.

Summary of Measure: Manage predators in specific problem areas given current levels of understanding of the problem and existing methods for resolution.

Background: Even though detailed information on the impact of predation on salmon stocks is not currently available, it may be necessary to implement management actions to respond to specific instances of obvious predatory activity. These situations are most likely to occur in locations where predators and salmonids are concentrated and the potential for a significant negative impact appears high. Management actions will be based on current levels of knowledge and will take advantage of currently available, non-lethal approaches.

Goal: Apply appropriate management approaches to respond to obvious incidences of intense predation on salmonid stocks.

Objectives

- Reduce marine mammal predation on salmonids where seals and sea lions take advantage of concentrations of salmonids at specific locations, using non-lethal approaches such as exclusion devices, hazing, relocation, etc.

- Continue the experimental hazing of cormorants feeding on coho smolts in three estuaries on the North Coast, as authorized by the Oregon Legislature.

- Identify and respond appropriately to incidences of predation in specific areas of concentration.

Responsible Staff

- Robin Brown, ODFW Marine Mammals Specialist, will be responsible for coordinating with the federal managers and initiating management actions for specific areas where intensive predation by marine mammals is detected and impacts to salmon populations appear significant (for example, as at Willamette Falls fishway). Robin will also serve as a contact point and coordinator as problems with avian predation are identified.

- Rick Klumph and Walt Weber, District Biologists, will coordinate with the individuals selected to conduct the legislatively approved cormorant hazing program. Kay Brown will be responsible for managing the hazing contracts.

- Bruce Schmidt and Kay Brown will work with interested publics and the Oregon Legislature to develop legislation for support of future cormorant hazing efforts and research into the effectiveness of the hazing.

Results: If obvious incidences of predator impacts to salmonid populations are identified, reasonable management actions will be proposed and implemented as possible to reduce the level of impact and respond to public concerns.

Future: Management of predatory situations will continue on an "as needed" basis as staff and funds are available until additional information on the impacts of predators to depressed salmonid populations is obtained from research activities. Any changes to this low level approach will be considered through revisions to the predator management policies developed under Action I.C.1. in conjunction with the federal management agencies and neighboring states.

Funding: Any management activities to reduce predation impacts will be done with existing ODFW funding and/or with federal contract funds (e.g., from NMFS or USFWS).

1997 Work Schedule

Job: React to specific predation "hot spots."
Start Date: As needed

Job: Develop 1997 contracts for cormorant hazing project.
Start Date: December 1997 (underway)
Complete: Signed contracts by March 1997

Job: Conduct cormorant hazing in three North Coast estuaries.
Start Date: April 1997
Complete: June 1997

Job: Work with the Legislature to determine program for the 1997-99 biennium.
Start Date: Underway
Complete: June 1997

ODFW-LD.1 - Use of Volunteers.

Summary of Measure: Emphasize use of volunteers to help implement CSRI coho restoration actions.

Background: Volunteers have proven to be an effective means to bring considerable additional capability to ODFW programs. Formally organized programs, such as the Salmon and Trout Enhancement Program (STEP), have contributed significantly to fish propagation programs and habitat restoration projects. Efforts by other volunteers, both individuals and groups, have also proven effective. Given the limitations in ODFW staff, the use of volunteers is one means to increase the amount of department-directed effort in accomplishing CSRI objectives.

Goal: Expand the implementation of CSRI coho restoration actions through expansion and refocusing of volunteer efforts.

Objectives

- Request assistance from formal volunteer programs (such as STEP) where appropriate to conduct specific actions from the CSRI plan. Such actions might include collection of wild broodstock, hatching and release of wild origin fry to re-establish wild native runs in depleted streams, habitat restoration projects, and data collection projects.

- Recruit new volunteers and form new volunteer groups.

- Refocus existing volunteer efforts toward priority CSRI measures, where feasible.

- Investigate and develop other means of obtaining low cost work crews to support CSRI actions.

Responsible Staff

- Charlie Corrarino, STEP Coordinator, will work with the STEP Advisory Committee to increase emphasis on CSRI-related actions and will coordinate with STEP Biologists, District Biologists, and other program managers to identify activities suitable for the volunteer groups.

- Charlie Corrarino and STEP Biologists will encourage and support recruitment of volunteers specifically for work on CSRI measures. An additional source of manpower could be development of specialized habitat restoration work crews made up of inmates.

- District and STEP biologists will work with STEP groups to increase the emphasis on CSRI measures and refocus activities where needed and as supported by the interests of the volunteers.

Results: Over the past decade, STEP and other volunteers have provided ODFW with significant amounts of assistance in assessing stream conditions, building and maintaining facilities, rearing and releasing fish, conducting surveys and collecting data, and conducting habitat restoration projects. In these days of low funding for public agencies, this kind of assistance has become even more valuable. The significant increase in activities to restore coho and other salmonid populations under CSRI will require increased amounts of manpower and volunteers interested in Oregon's fish resources can provide much needed assistance.

Future: We expect to see an increasing number of STEP and other volunteer groups participating in CSRI actions, or existing volunteer efforts refocused to the highest priority CSRI actions. Volunteers bring their own desires and priorities to their voluntary efforts, and ODFW will encourage volunteers to support activities contained in the CSRI plan. Existing volunteer efforts, such as STEP activities related to rearing and stocking fish, are considered an integral part of ODFW's fish propagation program. These efforts could easily support conservation priorities, such as reintroducing wild origin fish or supporting depressed wild populations. Other activities that might benefit from volunteer assistance include assistance with collecting wild broodstock, habitat restoration projects, fish carcass distribution, and spawning ground counts.

Funding: Funding for ODFW staff to guide and support volunteer efforts (STEP Coordinator and STEP Biologists in the districts) is provided through existing ODFW budgets. Because of the voluntary nature of this approach, the labor and, sometimes, the cost of materials or equipment, are provided without charge to the department.

1997 Work Schedule

Job:	Use volunteers through the STEP program to implement hatchery programs (including facility maintenance, rearing, and release), habitat restoration , and other activities in support of CSRI objectives.
Start Date:	Ongoing

Job: Recruit new volunteers and form new volunteer groups.
Start Date: Ongoing

Job: Support and guide on-the-ground volunteer efforts.
Start Date: Ongoing

ODFW-II.A.1 - Implement Coho Wild Fish Management Policy Strategies.

Summary of Measure: Implement the Wild Fish Management Policy strategies for coastal coho salmon as approved by the Oregon Fish and Wildlife Commission in 1994.

Background: In 1994, the Oregon Fish and Wildlife Commission adopted the Wild Fish Management Policy (WFMP) implementation strategies for coastal populations of wild coho salmon. Adoption of the WFMP strategies has led to changes in the coho hatchery program intended to reduce the potential for hatchery fish to interbreed with wild populations and potentially causing genetic risk and losses in productivity. Coastal coho broodstocks used now are developed from local wild sources, and these stocks are returned only to the appropriate drainages, regardless of rearing location. The numbers of coho stocked have been reduced to lessen the potential for straying and interbreeding with wild fish, and further stocking reductions are being done for economic reasons. Only 5 of over 100 populations were determined to pose a genetic risk in 1994. Full implementation of the WFMP is expected to significantly reduce the remaining risk.

Goal: To fully implement the Wild Fish Management policy for all wild coastal coho populations to remove any significant genetic risks.

Objective: To minimize the potential of hatchery fish escaping to spawning grounds by:

- Reducing releases of hatchery smolts.
- Removing hatchery origin fish as much as possible from natural spawning areas with traps at hatcheries or fish ladders.
- Implementing other WFMP strategies.

Responsible Staff

- Mark Chilcote, Natural Production Program Coordinator, will be responsible for oversight of WFMP implementation.

- District Biologists are responsible for implementation of WFMP in each district.

- Rich Berry (Freshwater Program Director), Hatchery Managers, and District Biologists will be responsible for planning the reduction in numbers stocked. They will also ensure that all hatchery produced coho will be externally marked to allow accurate assessment of hatchery/wild ratios on spawning grounds.

Results: To date, WFMP implementation has led to reduced coho stocking, elimination of coho stocking in all but 11 drainages, and reduction in the potential for hatchery fish to interbreed with wild fish. Activities taken in the actions in Section II of the CSRI plan will further reduce any risks to wild stocks.

Future: Future activities will include further refinement of hatchery programs to achieve WFMP compliance (II.A.2, II.A.3), investigation into new ways to utilize hatcheries specifically to restore wild populations (II.B.1.), construction of facilities to increase the number of returning hatchery fish that are captured and removed, and development of acclimation facilities and stocking procedures designed to maximize the removal of hatchery fish and minimize straying on to wild spawning grounds.

Funding: The Wild Fish Management Policy has been adopted by the Commission and is already being implemented. No further funding is needed for policy development. Funding for specific activities is presented individually for the actions in Section II of ODFW's actions in the CSRI plan. Funding has not yet been secured for Phase 2 actions, such as construction of additional hatchery fish collection facilities or acclimation facilities.

1997 Work Schedule

Job:	Confine hatchery fish that return to hatcheries to prevent them from spawning in the wild.
Start Date:	October 1997
Complete:	Ongoing

Job:	Monitor the proportion of hatchery strays on spawning grounds.
Start Date:	November 1997
Complete:	Ongoing

ODFW-II.A.2 - Reduce Coastal Hatchery Coho Smolt Releases.

Summary of Measure: Reduce coastal hatchery coho smolt releases from 6.4 million in 1990 and 3.4 million in 1997, to 2.3 million by 1998.

Background: Because of declining revenue to support hatchery programs and restrictions on fisheries, coho stocking has been declining since 1990. This declining trend will continue, with egg taking quotas for the 1996 brood year for release in 1998 being reduced to produce only 2.3 million smolts.

Goal: Reduce 1998 coho salmon smolt releases to 2.3 million.

Objective: To release 2.3 million hatchery coho smolts in 1998.

Responsible Staff: Rich Berry (Freshwater Program Director), Hatchery Managers, and District Biologists will work together to manage the 1996 brood year egg takes to assure production of 2.3 million smolts to be released in 1998.

Results: These efforts will result in fewer excess hatchery coho returning to coastal streams.

Future: Production of coho salmon in Oregon hatcheries will remain at a low level as long as survival conditions remain poor, the depressed state of wild coho stocks persists, and fishery restrictions prevent access to hatchery fish. Any future adjustments to coho production would be made only in conjunction with hatchery program plans developed under action II.A.3. and through consultation with interested partners. Future increase in stocking would not exceed recent historic highs and would be conducted only in a manner specifically designed to maximize fishery interception and removal (actions III.B.2 and III.B.3) and to minimize interactions with wild fish.

Funding: The reduction in numbers of coho produced will not require additional funds. Reductions in federal funding for hatcheries under the Mitchell Act may necessitate the closure of several Columbia River hatcheries operated by Oregon.

1997 Work Schedule

Job:	Release coho salmon smolts from the 1996 brood year.
Start Date:	April 1998
Complete:	June 1998

Job:	Collect coho eggs from the 1997 brood year.
Start Date:	October 1997
Complete:	December 1997

Job:	Rear coho salmon from the 1996 brood year.
Start Date:	January 1997
Complete:	April 1998

Job: Hold production meetings to establish egg needs for the 1997 brood year.
Start Date: August 1997
Complete: October 1997

ODFW-II.A.3 - Develop Management Objectives, Including Genetic Guidelines.

Summary of Measure: Develop specific management objectives, including genetic guidelines, for each coastal coho hatchery program as required by the Hatchery Fish Gene Resources Management Policy (HFMP).

Background: Although coho hatchery programs are already nearly in compliance with the Wild Fish Management Policy guidelines, it has become apparent that many outside ODFW are not familiar with the specific objectives of the various coho propagation programs. Therefore, it will be helpful to clearly describe the objectives for each program, both for current and planned future operations. This will provide readily available information on purpose, scope, and conduct of the program at each hatchery for external parties, as well as to guide hatchery operations.

Goal: Develop hatchery management objectives and genetic guidelines for each coastal coho hatchery by the end of 1997.

Objective: To develop written program management objectives and operation guidelines to conserve genetic resources for each hatchery producing coho salmon for coastal drainages. These will include information on purpose of program, genetic makeup of stocks produced, production targets, distribution of fish produced, genetic protections to be employed, and confirmation of consistency with WFMP.

Responsible Staff

- Rich Berry, Freshwater Program Director, will be responsible for the ultimate completion of this action.

- Mark Lewis and Leslie Schaeffer will be responsible for compiling hatchery objectives and guidelines with input from the Hatchery Managers and District Biologists.

- Mark Chilcote, Wild Fish Management Policy Coordinator, will be responsible for providing input regarding genetic issues and WFMP compliance.

Results: Approval of the HFMP by the Commission directs ODFW to provide objectives and genetic guidelines for each hatchery program. A brief description of current programs is underway now to provide more information on current objectives to CSRI partners, with more detailed information and genetic guidelines to be provided in these program plans.

Future: Future hatchery programs will be consistent with HFMP implementation plans. Changes and adjustments in coastal coho propagation programs will be made in conjunction with revisions to the plans.

Funding: Development of the hatchery program plans will be done with existing ODFW funding and staff.

1997 Work Schedule

Job:	Draft management objectives and genetic operational guidelines for each coastal hatchery program.
Start Date:	July 1997
Complete:	September 1997
Job:	Staff review of draft objectives and guidelines.
Start Date:	September 1, 1997
Complete:	September 20, 1997
Job:	Objectives and guidelines finalized.
Start Date:	September 20, 1997
Complete:	October 1, 1997

ODFW-II.A.4 - Mark All Hatchery Coho.

Summary of Measure: Externally mark all Oregon hatchery coho prior to release as smolts, beginning with the 1995 brood.

Background: Accomplishment of a variety of coho management and conservation actions, including selective fisheries and assessment of hatchery fish straying onto spawning grounds, requires that hatchery fish be readily distinguished from wild fish. The simplest approach is to externally mark all hatchery produced fish by removing the adipose fin. This approach to producing hatchery coho was initiated in all Oregon hatcheries for the 1995 brood year. This is now a continuing part of the propagation program.

Goal: Mark all hatchery produced coho smolts and fed fry.

Objective: To externally mark all coho smolts, and fed fry as possible, produced in Oregon, including federal hatcheries, by removal of the adipose or other fin, or by some other tagging method.

Responsible Staff: Rich Berry, Freshwater Program Director, will be responsible to assure that all coho smolts produced in Oregon are externally marked.

Results: All coho smolts, beginning with the 1997 releases, will be externally marked. This offers the opportunity to focus any remaining or future harvest towards hatchery fish only and requiring the release of unmarked wild fish. This will also facilitate the gathering of information from

spawning surveys on the percentage of hatchery fish found on wild spawning grounds, thereby allowing a much clearer estimate of hatchery fish straying and its potential significance.

Future: All future coho smolts will be marked prior to release.

Funding: Funds have been allocated within the ODFW budget to continue this program on an annual basis.

1997 Work Schedule

Job: Fin clip hatchery production.
Start Date: April 1997
Complete: December 1997

ODFW-II.B.1 - Assess the Effectiveness of Using Hatchery Production to Reintroduce or Rebuild Depressed Wild Coho Populations.

Summary of Measure: Evaluate the potential and effectiveness of using hatchery production to rebuild or restore depressed wild populations of coastal coho salmon.

Background: In the past, coho hatchery programs were primarily conducted with the purpose of providing additional fish for harvest. Although harvest augmentation will still occur, the current depressed condition of coastal coho runs raises the need to develop programs designed to supplement depressed wild runs. The intent of this action is to determine the effectiveness of such programs following the active principles of adaptive management (i.e., learn by doing and evaluating results). The initial phase of this action is to develop plans for how such wild fish supplementation can and should be conducted. Ultimately, this approach is seen as a temporary approach to reintroduce extirpated local populations or boost wild populations toward recovery, rather than as a continuing management approach.

Goal: Assess the effectiveness of using hatchery produced coho salmon from wild broodstock to temporarily supplement depressed or extirpated wild populations.

Objective: To determine the effectiveness of using hatchery fish of wild origin to supplement depleted populations or to reintroduce wild fish into extirpated areas.

Responsible Staff

- Rich Berry, Freshwater Program Director, will be responsible for accomplishment of these objectives.

- Mark Chilcote and Mark Lewis will lead the development of this concept.

Results: Hatcheries have proven to be an effective tool to augment fisheries. Development of approaches designed to utilize hatchery capabilities to supplement wild populations is an unproven but potentially powerful tool for salmon restoration.

Future: Development of this approach will provide a significant new tool that may offer significant potential to temporarily boost or reintroduce wild coho salmon in certain specific situations. This is not viewed as a "cure all" approach, but as another tool that can be temporarily used in certain situations. Widespread utilization of this approach will not occur until its effectiveness can be demonstrated.

Funding: Development of the implementation design for utilizing hatchery fish for conservation purposes will be done by existing staff using existing funding. Initiating the fish production phase of this project will depend on the availability of federal and state funding.

1997 Work Schedule

Job:	Develop the conceptual framework for the use of hatchery production to supplement depressed wild populations. Design a program plan for conducting experimental application of the approach on a test case basis.
Start Date:	June 1997
Complete:	September 1997

ODFW-III. A.1 - Develop Management Strategies that Minimize Ocean Fishery Related Impacts on OCN Coho Stocks and Provide for Future Harvest Opportunities.

Summary of Measure: Manage PFMC ocean area OCN coho harvest impacts under the CSRI plan's fishery management regime to meet Oregon OCN sub-aggregate adult spawner escapement criteria defined in Action I.A.1. and the Fishery Rebuilding Matrix.

Background: Concern over the depleted condition of Oregon's OCN coho salmon stocks in recent years has led regional fishery managers to set historically low levels of allowable harvest and overall exploitation rates on these stocks. Directed PFMC ocean coho fisheries have been almost entirely prohibited beginning in 1994. Only limited West Coast ocean and Oregon terminal area coho fisheries have been allowed on available regional hatchery stocks. Mortality on OCN coho occurring in these fisheries and from incidental impacts in other fisheries has been tightly managed at levels less than 15 percent since 1994. The PFMC and Oregon will continue these low harvest impacts until there is a change in ocean survival and a concurrent significant improvement in OCN coho adult spawning populations within all the CSRI plan OCN sub-aggregate stock groups as described in I.B.1.

Goal: Maintain restrictions on PFMC ocean coho salmon fishing until OCN coho populations show substantial rebuilding and ocean survival conditions improve, as defined in the CSRI fishery adjustment criteria.

Objectives

- Obtain formal recognition and adoption of the CSRI plan and its fishery management plan by PFMC.

- Work within the PFMC management framework to continue limiting fishing impacts on OCN coho salmon until the OCN adult spawning rebuilding criteria and proposed fishery management regime is adopted by the PFMC.

Responsible Staff: ODFW harvest managers, led by Burnie Bohn and Don McIsaac of IJ Management, will be responsible for submitting the fishery adjustment criteria to PFMC for formal review and adoption. The ODFW will be responsible for maintaining restrictions on coho fishing necessary to achieve restoration of the wild population and assuring that total fishing impacts meet the criteria.

Results: ODFW efforts to place restrictions on wild coho impacts through the PFMC process have been successful. Total fishery related impacts on OCN coho salmon are now estimated (post-season) to be only 7-12 percent for the most recent three years, 1994 -1996. With elimination of most directed coho harvest for the past three years, benefits to spawning wild spawners should begin to be realized. Development of the fishery adjustment criteria provides assurance that any resumption in fishing will occur only in a controlled manner in conjunction with defined recovery of wild coho populations and improved ocean survival conditions, with maximum potential impacts well below historic highs.

Future: Total fishery impacts will remain low (at or below 15%) until there is significant improvement in both ocean survival and wild OCN coho populations begin rebuilding under established spawning rebuilding criteria proposed in the CSRI plan. Changes in fishery harvest impacts will only be considered in compliance with the fishery rebuilding criteria, which has been established to prevent the possibility of suddenly resuming high exploitation rates as stocks begin to rebound. Controlling resumption of fisheries will remove the possibility that harvest impacts could reverse the improving population trends. Fishery management criteria are specifically designed to allow only marginal increases in OCN exploitation rates upon identifiable increases in OCN population levels. By definition, any increase in harvest-related impacts will not exceed levels which will allow continued expansion of OCN populations.

Funding: Establishing fishery regulations through the PFMC process and Oregon Fish and Wildlife Commission is a routine ODFW activity conducted with existing funding.

1997 Work Schedule

Job:	Adopt 1997 PFMC ocean and Oregon terminal area (state waters) fisheries that maintain OCN coho restrictions and low exploitation rate under the PFMCs, Salmon Fishery Management Plan, and its Amendment 11.
Start Date:	January 1997; beginning of 1997 pre-season PFMC fishery planning process.
Complete:	April 1997, with adoption of PFMC's 1997 ocean salmon harvest regulations

Job:	Finalize recommendations a proposal to PFMC for Oregon's CSRI OCN coho rebuilding plan and fishery adjustment criteria for 1998 seasons and to Oregon Fish and Wildlife Commission.
Start Date:	Underway
Complete:	PFMC - Fall 1997 Oregon Fish & Wildlife Commission - Fall 1997.

ODFW-III.A.2. Manage Terminal Estuary and River Salmon Fisheries to Minimize Impact

Summary of Measure: Manage Oregon estuary and river salmon fisheries to minimize impacts on OCN coho populations.

Background: Because of depressed coho runs, increasing restrictions have been placed on Oregon coastal estuary and river fisheries to protect returning wild coho salmon since the early 1990s, with near total prohibition on directed harvest since 1994. Only a few fisheries for strong runs of marked hatchery coho in specific streams remain. These restrictions will be maintained until the OCN adult spawner rebuilding criteria described in action I.A.1 are met, and any future relaxing of fishing restrictions will adhere to the fishery adjustment matrix in action III.A.1.

Goal: Manage impacts on OCN coho in Oregon coastal estuary and river salmon and trout fisheries as part of the overall OCN exploitation rate to ensure attainment of the OCN spawner escapement rebuilding criteria defined under action I.A.1.

Objective: To continue protection of wild coho through restrictions on salmon and trout fishery impacts in Oregon's coastal estuaries and rivers.

Responsible Staff: Steve King, IJ Program Salmon Manager, is responsible for salmon harvest regulations in coastal estuaries and rivers.

Results: Oregon coastal estuary and in-river recreational coho fisheries have been severely restricted since the early 1990s, with a corresponding drop in OCN impacts. Direct harvest has been prohibited in most system since 1994. Only a few specific localized area coho fisheries exist that target healthy runs of marked hatchery fish, with minimal interception of wild stocks and release of all unmarked fish required.

Future: Existing fishing restrictions for wild coho in coastal estuaries and rivers will be maintained into the foreseeable future. Any increase in fishing opportunity will be predicated on meeting the spawning and fishery rebuilding criteria described for the CSRI. New fishing opportunity will focus primarily on marked hatchery stocks, with some potential for wild stock harvest once stocks are restored.

Funding: Regulation setting to manage Oregon's coastal estuary and river recreational fisheries is a routine and ongoing process that is conducted with existing funding.

1997 Work Schedule

Job:	Set 1998 Oregon coastal salmon regulations for Oregon coastal estuaries and freshwater.
Start Date:	April 1997
Complete:	September 1997 through Oregon Fish and Wildlife Commission action.

ODFW-III.A.3 - Manage Trout Fisheries to Reduce Ecological Interactions and Mortality on Juvenile Salmonids.

Summary of Measure: Manage trout fisheries in coastal basins to reduce ecological interactions and harvest related mortality on juvenile salmonids through angling restrictions and shifting trout stocking from anadromous salmonid streams to standing water bodies.

Background: Oregon's coastal rivers and streams are managed for a variety of fisheries in addition to coho salmon. Among these are popular fisheries for rainbow trout and coastal cutthroat trout, many of which have been supported by hatchery stocking. Concerns over depleted runs of sea run cutthroat, and drastic declines in return of stocked trout, resulted in eliminating trout stocking in nearly all streams with anadromous runs and closing or restricting trout fishing. Expected benefits include elimination of interbreeding of hatchery and wild trout and a significant reduction in trout fishing, which would reduce the incidental catch of juvenile salmonids (although this is not a significant factor for coho, some benefit might result). Cessation of stocking will also result in elimination of any competition from hatchery trout for available food resources and suitable rearing space.

Goal: Reduce the possibility of impacts to juvenile wild coho salmon from ecological interactions and hatchery supported trout fisheries in streams with anadromous salmonid populations.

Objectives

- Complete the elimination of trout stocking from coastal streams with anadromous salmonid populations by the end of 1997.
- Maintain recent changes in fishing regulations to reduce the incidental catch of coho salmon smolts and other juvenile salmonids
- Inform the public of the recent changes in trout stocking and fishing regulations.
- Complete the transfer of hatchery trout production from coastal streams with anadromous salmonid populations to standing waters.

Responsible Staff

- Bob Hooton, Trout Program Coordinator, Assistant Regional Supervisors and District Biologists will be responsible for completing the adjustment of the trout management

program to transfer trout stocking to standing waters without anadromous salmonid populations from coastal anadromous streams, and recommending trout regulation changes.

- Coastal District Biologists will be responsible for recommending alternate stocking sites and making recommendations for specific regulation adjustments. They will also be responsible for explaining these changes to local constituents and working to build public support, with assistance from the I&E Section.

Results: Hatchery trout programs have been evaluated, and based on concerns that trout stocking could cause interbreeding with wild trout, trout fishing may lead to incidental catch of wild juvenile salmonids and stocked trout may compete with wild salmonids, trout stocking programs in coastal anadromous streams are being transferred to standing waters. In addition, regulations have been changed to restrict or close trout fishing and remove the risk of incidental catch. In 1997, the remaining trout stocking programs will be transferred.

Future: Restrictions on trout stocking and angling will be maintained into the future for anadromous coastal streams.

Funding: Trout propagation and stocking, and trout fishery management, are routine parts of the ODFW fish management program and are conducted on existing funding.

1997 Work Schedule

Job:	Conduct stocking for the 1997 quotas of trout into standing waters.
Start Date:	Late Winter 1997
Complete:	Summer 1997

Job:	Finalize stocking plans for 1998 to complete transfer to standing waters.
Start Date:	Spring 1997
Complete:	Summer 1997

ODFW-III.B.1 - Develop Selective Ocean Coho Harvest Opportunities.

Summary of Measure: Implement selective ocean coho salmon fisheries targeting regional "marked" (fin-clipped) hatchery stocks while meeting Oregon Coastal Natural (OCN) spawner escapement rebuilding criteria established under CSRI measure ODFW-III.A.1.

Background: Oregon Coastal Natural (OCN) coho are severely depressed. Oregon has proposed historic harvest and exploitation rate restrictions within a new fishery management regime described under the Oregon Coastal Salmonid Restoration Initiative (CSRI). The basis of this management strategy relies on meeting new OCN spawner rebuilding criteria for sub-aggregate stock groups on the Oregon Coast, increased ocean survival, and the mass marking of public hatchery coho stocks to provide fish for selective ocean fisheries. Mass marking has been

initiated by both Oregon and Washington beginning with the 1995 brood coho. The 1998 season would be the earliest year of possible ocean fishing opportunity under this plan if certain criteria are met under the plan. The basis of future directed Oregon ocean coho harvest will rely on the rebuilding status of OCN coho stocks and the continuation of a mass marking strategy.

Goal: Develop future ocean harvest opportunity that applies a "selective harvest" strategy for marked hatchery coho.

Objectives

- Utilize the availability of hatchery marked (fin-clipped) coho as a targeted catch in ocean fisheries.
- Establish ocean selective fisheries based on meeting the OCN coho spawning escapement rebuilding criteria under the CSRI plan.
- Provide ocean fishing opportunity on hatchery marked (fin-clipped) coho as allowed under Oregon's new fishery management regime and harvest criteria.
- Initiate field studies to test the potential and feasibility of selective coho fisheries as they are implemented.

Responsible Staff: Don McIsaac (ODFW IJ Fisheries Program Manager), the IJ staff, and Marine Resource salmon field data collection programs will jointly be responsible to collect and assess data from ocean selective fisheries to ensure such information meets OCN escapement and fishery management criteria established under Oregon's CSRI rebuilding plan for OCN coho. The IJ program will be responsible to synthesize collected information and technical analyses to support the appropriate management strategies in PFMC and Pacific Salmon Commission (PSC) management forums.

Results: Results of ocean selective (fin-clipped) hatchery coho fisheries will include several field (port sampling and at-sea studies) and technical evaluations to test the impacts on OCN wild stocks under a new selective fishery status. These results will continuously be evaluated to revise harvest strategies as needed to ensure meeting OCN rebuilding criteria.

Future: The application of ocean selective fisheries for fin-clipped hatchery coho in conjunction with the new spawner rebuilding criteria is expected to be the primary ocean and terminal area harvest strategy for the foreseeable future. The application of this harvest approach will be evaluated in the year 2000 as part of the comprehensive, adaptive review on the status of OCN coho.

Funding: Funding to implement an ocean selective coho fisheries management plan does not now exist. The only portion of the program that is currently funded is the initial 1995 brood marking of Oregon and Washington hatchery coho and the commitment of Oregon to ensure its hatchery fish are marked for the initial 5-year experimental period.

Successful implementation of this Phase 2 strategy to manage selective ocean coho fisheries will require participation from both federal and state funding sources. It will need to include:

- Funding for technical assessment and fishery modeling of OCN coho impacts, both pre- and post-season.
- Changes in current field port sampling programs to incorporate the use of electron "wands" to detect coded wire tagged coho in landed catch.
- Funding for at-sea encounter rate studies on the percentage of marked/unmarked coho by time and area so that future harvest strategies can better target marked stocks.

1997 Work Schedule

Job:	Prepare a technical modeling assessment on OCN coho for potential 1998 ocean selective (test) fishery harvest options to be discussed by PFMC and Oregon.
Start Date:	Early 1997 (pending funding support)
Complete:	Early 1998 to meet PFMC pre-season regulation process
Job:	Purchase electronic detection equipment for detection of coded wire tagged coho in landed catch.
Start Date:	July 1997, beginning of the new 1997-99 biennium.
Job:	Develop revised sampling design and protocol for field port sampling under a coho selective fishery.
Start Date:	1997
Complete:	January 1998
Job:	Prepare an at-sea study to evaluate the encounter rates over time and fishery areas of marked hatchery and wild (OCN) coho stocks.
Start Date:	1997
Complete:	January 1998

ODFW-III.B.2 - Develop Opportunities for Terminal Area Recreational Coho Fisheries.

(Phase 2)

Summary of Measure: Develop opportunities for Oregon coastal terminal estuary and river recreational coho salmon fisheries that target marked hatchery production and meet OCN coho spawner rebuilding criteria.

Background: Oregon has developed specific criteria relating to OCN coho spawning escapement rebuilding and future exploitation rates allowed during the rebuilding process under the CSRI plan (ODFW-III.A.1). Present terminal area coastal estuary and river recreational fisheries are already included in overall ocean and freshwater total exploitation allowed on OCN coho. Any future terminal fisheries will also be included.

Goal: To create recreational fishing opportunities in coastal estuaries and rivers as spawner rebuilding criteria are met.

Objectives

- Develop coho recreational angling opportunities that focus on marked hatchery coho.
- Implement a terminal area coho harvest strategy encompassing the OCN coho spawning escapement rebuilding and overall harvest exploitation rate criteria established in the CSRI plan.
- Evaluate the potential for non-selective terminal area recreational coho fisheries when OCN coho stocks are restored.
- Evaluate terminal marked hatchery coho fisheries for actual impacts on OCN coho stocks

Responsible Staff: ODFW IJ Fisheries Program will work with district biologists to identify potential sites for developing terminal fishing opportunities, evaluate feasibility and develop program plans.

Results: Current ODFW efforts to restrict or eliminate terminal area recreational coho fisheries impacts on OCN stocks has been largely successful. The results of any future fisheries will be evaluated to ensure they allow for OCN spawner escapement rebuilding criteria and exploitation rates allowed under the new fishery management regime described in the CSRI.

Future: Future Oregon coastal terminal area recreational fisheries are expected to be focused on returning adult marked public hatchery stocks. A potential may exist in the future, once stocks have been restored, for some harvest impact on healthy local wild stocks.

Funding: Yearly evaluation for establishing terminal area fisheries is currently part of ODFW's routine funding. Any future fisheries, however, would necessitate funding for angler creel studies and other investigations to evaluate impacts on OCN stocks and actual harvest rates.

1997 Work Schedule

Job:	Evaluate the potential for 1998 terminal area recreational fisheries on marked hatchery coho.
Start Date:	January-April 1997.
Complete:	April 1997 with Oregon Fish and Wildlife Commission action on terminal area fishery proposals.

ODFW-III.C.1 - Develop an Improved Adult Oregon Coastal Natural (OCN) Abundance Predictor.

Summary of Measure: Develop an improved adult pre-season abundance predictor (forecast) for OCN coho.

Background: Oregon has evaluated several approaches and models to forecast OCN stock abundance pre-season for management purposes, since 1983. Specific models have met with only limited success. Various statistical predictive techniques have predicted the number of adult OCN coho for harvest and escapement goal purposes. Accuracy of these models has not yet attained the level of needed accuracy and precision to assure attainment OCN rebuilding goals and harvest impacts of adopted management strategies. As a result, efforts need to continue to refine these models or develop new approaches which more accurately reflect the actual stock abundance of OCN coho.

Goal: Develop a predictive model that accurately forecasts the size of each year's returning adult coho salmon population for the Oregon Coast and new approaches for predicting its four sub-aggregate stock grouping established under the CSRI plan.

Objective: To develop an accurate pre-season OCN abundance prediction with a level of accuracy necessary to be effective in setting harvest management strategies and attaining the OCN spawning rebuilding goals.

Responsible Staff: Dr. Peter Lawson (ODFW IJ Fisheries Program) and Marine Resource Program-Ocean Salmon Program will be responsible for model development.

Results: To date, results have not achieved the levels of accuracy desired, although recent modeling approaches utilizing added environmental factors that affect OCN abundance have shown promise, compared to historic spawner/recruit type models.

Future: Continued improvement is anticipated in the pre-season predictive modeling for OCN coho, particularly at the coastwide level. The CSRI plan, however, calls for additional predictive capability at a sub-aggregate level for each of four coastal OCN coho aggregates.

Funding: Funding and staff to pursue full time development of an OCN coho predictor for coastwide and sub-aggregate OCN grouping application is limited at this time. The ODFW should have at least one full-time technical specialist addressing this task given its central importance to the success of OCN stock rebuilding efforts.

1997 Work Schedule

Job: Continue improvement for the 1997 pre-season prediction of OCN coho.
Start Date: January-April 1997.

Complete:	February 1997, for inclusion in PFMC pre-season process for setting 1997 ocean salmon impacts and regulations.
Job:	Prepare a study overview to develop a working technical approach to model OCN coho sub-aggregates as specified in the CSRI plan for possible implementation in 1998.
Start:	1997
Complete:	January 1998

ODFW-III.C.2. Evaluate Coho Hook and Release Mortality Factors in Ocean Non-Coho Fisheries

Summary of Measure: Conduct ocean studies to evaluate coho hook-and-release mortality rates in Ocean commercial troll and recreational non-coho fisheries off Oregon.

Background: West Coast ocean salmon fisheries have developed extensive single species or species-selective fisheries to protect various regional critical stocks. Both chinook-only and coho-only fisheries have been utilized to provide some fishing opportunity while prohibiting harvest (or impacts) on the other. As part of the federal Northwest Salmon Disaster Relief Program, funds have been made available to complete at-sea research to evaluate "hook and release" mortality factors using salmon fishers and their vessels under charter during 1995 and 1996. Further work is expected in 1997, the final year of available federal funding. Work off Oregon has been conducted through federal contracts with a private consultant, Natural Resource Consultants of Seattle, Washington, in consultation with ODFW.

Goal: Provide additional information on the actual mortality rates and impacts on coho salmon resulting from Chinook-only ocean fisheries.

Objective: To further study the impact on caught and released coho in ocean chinook-only fisheries, both commercial troll and recreational. Such information can be an important element in more accurately assessing harvest mortality factors for OCN coho and in meeting their stock rebuilding goals.

Responsible Staff: Study results from the Oregon ocean hooking mortality studies will be evaluated by the ODFW IJ Fisheries and Ocean Salmon Management Programs and used as appropriate in the PFMC and PSC management forums along with other regional study results.

Results: Technical committees from both the PSC and PFMC have evaluated recent historical hook and release mortality data from West Coast ocean salmon fisheries. These evaluations include the 1995-96 NRC work off Oregon. Their conclusions and recommendations have been submitted to the PFMC and PSC management forums for consideration. It is expected that the ODFW, through the PFMC process, will directly consider existing catch and release mortality information for both chinook and coho prior to developing harvest management options and regulations for 1997 fisheries.

Future: It is important to evaluate mortality factors resulting from catch and release of coho salmon as it will be a direct consideration in assessing projected harvest impacts on OCN coho in future ocean selective fisheries targeting marked hatchery coho that could begin as early as 1998.

Funding: For 1997, the evaluation of existing coho hooking and mortality information is funded through the yearly regulation-setting process at PFMC and PSC. The implementation of future studies, however, is not funded at this time.

1997 Work Schedule

Job:	Evaluate collected Oregon 1995 and 1996 ocean catch and release data for coho, and other regional collected information for possible adjustment in setting PFMC 1997 management strategies.
Start Date:	January 1997
Complete:	April 1997
Job:	Consult with Natural Resource Consultants in preparation for conducting 1997 ocean salmon catch and release mortality studies off Oregon.
Start Date:	Ongoing

ODFW-III.C.3. Monitor Marine Survival of OCN Coho Salmon

Summary of Measure: Monitor marine survival of OCN coho salmon produced in selected Oregon coastal streams.

Background: Marine survival rates are largely unknown for Oregon coastal wild coho stocks. Important data elements are missing from the current stocks assessments, primarily adult spawner escapement. Recent year technical evaluations of ocean environmental conditions have provided important information on potential factors that impact OCN coho smolt to adult survival. This information; however; has provided only general trend data and associations between certain regional ocean environmental conditions and status of OCN coho.

Goal: To develop data to directly assess Oregon coastal coho smolt to adult (marine) survival for use by regional fishery managers to better manage OCN coho and to provide information useful for assessing the relationship between freshwater and ocean survival to coho population strength.

Objectives

- Evaluate a study plan, potential study sites, site preparation costs, equipment needs, and personnel requirements for establishing an OCN coho smolt outmigration and adult escapement evaluation at selected sites along the Oregon Coast.
- Establish and operate the initial study sites in 1997.
- Apply ocean survival factors to future OCN coho abundance predictors.

Responsible Staff: ODFW regions and district staffs, Marine Resources Ocean Salmon Management Program will work together to establish the initial study sites in 1997 with existing resources.

Results: For 1997, we expect to complete a study plan and to activate the first such "smolt outmigration" evaluation sites along the Oregon Coast .

Future: Establishment of a network of OCN coho smolt outmigration and adult escapement assessment sites at the same locations will provide the basic monitoring technique for long-term assessment of OCN marine survival. Information collected through this study will be directly used to more accurately manage OCN stocks.

Funding: Initial site selection, preparation, and implementation for smolt outmigration assessment at three study sites is currently funded with existing resources. Full implementation of multiple long-term sites will require Phase 2 funding.

1997 Work Schedule

Job:	Select and develop initial trial sites for evaluating coho smolt outmigration in 1997.
Start Date:	Underway
Complete:	Summer 1997
Job:	Develop a complete monitoring plan for ocean survival estimation for wild (OCN) coho salmon in preparation for implementation under Phase 2.
Start Date:	Underway
Complete:	Fall 1997
Job:	Consult with Natural Resource consultants in preparation for conducting 1997 ocean salmon catch and release mortality studies off Oregon.
Start Date:	Ongoing

ODFW-IV.A.1. Provide Technical Assistance to Regulatory Agencies for Habitat Protection.

Summary of Measure: Promote increased habitat protection by cooperating and sharing data with, and assisting federal agencies, other state agencies, and local governments that have regulatory authority over activities that occur in salmon habitat.

Background: While ODFW has an interest in, and a legislatively mandated responsibility for, protection of fish and wildlife habitat, it has no statutory authority over habitat on private land or land administered by other agencies. ODFW 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. In Phase 1, we will continue cooperative efforts with available staff following agency downsizing. With increased funding in Phase 2, heightened interest by other CSRI participating agencies will increase the need for technical assistance from ODFW. Funds are being requested to increase our capacity to respond to these requests. We see this as a key component of our involvement in protecting salmon habitat under CSRI.

Goal: Encourage and support other agencies in protection of salmon habitat through cooperation, sharing of data, and providing technical assistance.

Objectives

- Provide information and guidance to other agencies in their decisions that affect fish habitat which will either avoid or minimize adverse effects.

- Conduct subwatershed landowner seminars providing information on habitat protection.

Responsible Staff

- HCD staff are responsible for participating with federal and state agencies in policy-level decisions, statutory law changes, rule making proceedings, and development of guidance, project standards and protocols that have regional or state wide significance.

- Regional and district biologists are responsible for providing technical assistance to local government and agency representatives, landowners and cooperating groups, with assistance from HCD as requested.

Results: ODFW staff are spending considerable staff time in providing technical information, assistance in rule making and guideline development, permit and project reviews, etc. to other agencies that have statutory authority over various programs that may affect fish and wildlife habitat. This allows for meaningful input to decisions affecting habitat, but takes staff time beyond the amount authorized in the legislatively approved budget (LAB). This activity offers the greatest input into protecting valued habitat over broad areas (regional and state wide scope), however, and we will strive for maximal effectiveness within the resources available.

Future: ODFW will provide input regarding impact avoidance to other agencies in their rule making, planning and permit decision process to the maximum extent practicable within staffing constraints. ODFW will provide copies of its In-Water Work Timing Guidelines and its Waterway Habitat Alteration Policies to all Oregon regulatory and planning agencies.

The amount of information and advice ODFW can provide toward decisions affecting habitat protection will be dependent on funding. If the legislative request for funding for the CSRI / Healthy Streams budget package is approved, we will be able to move into Phase 2 of this action. The heavy involvement of state agencies in the CSRI suggests that requests for ODFW technical input on habitat protection issues are only going to increase. Recent staff reductions in ODFW, however, have decreased the ability to respond to the full workload.

Funding: Funding within the ODFW budget is available, but has been decreasing. Furthermore, the amount authorized for this activity in the LAB is sufficient to cover only HCD staff, while district activities are carried out on other sources of funding, so that the total amount of effort is in excess of funding identified. Additional funding will be required to maintain existing efforts or to increase efforts in Phase 2 of the CSRI plan.

1997 Work Schedule

Job:	Distribute revised In-Water Work Timing Guidelines to all interested parties..
Complete:	February 1997
Job:	Distribute ODFW's Draft Waterway Habitat Alteration Policies to all interested parties.
Complete:	February 1997
Job:	Revise and update ODFW's Draft Waterway Alteration Policies.
Start Date:	February 1997
Complete:	July 1997
Job:	Provide comments on other agencies' permits and rules that affect fish habitat.
Start Date:	Ongoing

ODFW-IV.A.3. Protect Instream Flow

Summary of Measure: Identify and pursue opportunities to protect instream flow.

Background: The primary component of fish habitat is water. The value of water for purposes other than fish has led to the diversion of water from streams to satisfy other beneficial uses. Reductions of flow in streams, however, can significantly decrease productive capacity for fish, particularly during naturally low flow periods, e.g., late summer. This action is intended to identify streams where currently available flows are limiting coho production during at least part of the year or where future diversions would be detrimental. This would be followed by filing for instream water rights to protect flows remaining in high priority streams.

Goal: Identify all streams where water diversions have decreased flows, resulting in reduced coho production, and initiate flow protection measures.

Objectives

- Identify streams with reduced flows that are limiting coho salmon production.
- File for instream water right protection on streams where salmon production is being impacted or that are vulnerable to such decreased production.
- Work with WRD to support protection of instream flows.

Responsible Staff

- District Biologists will be responsible for identifying streams in their districts which are being impacted by excessive water diversion. They will also work with WRD and water developers to identify feasible alternatives which protect flows critical to salmon.

- Rick Kruger is responsible for filing applications for needed instream water rights.

Results: Oregon law allows ODFW to file for unappropriated water for instream use in supporting fish production. So far, 809 filings have been granted and there are presently 151 applications pending. Of those, 108 are under protest. Instream water rights do not create additional salmonid habitat, but they do protect streams from further water depletion and thus can be an important protection for salmon rearing capacity in critical areas that may be impacted by water withdrawal. Needs for flow protection in critical areas will continue to be identified and filing initiated as part of the regular district workload. If new funding becomes available in Phase 2, efforts on this action would increase.

Future: Filing for instream water rights protects flows from further appropriation, and thus can provide significant protection in the future. This is a long-term program that will pay dividends indefinitely once rights are approved. Since water rights are based on seniority, these filings will not correct prior diversion, but will have precedence over new filings for out of stream uses made after the instream filings.

Funding: Identifying needs for instream flow protection in critical salmon rearing habitat and filing for instream water rights will be done as part of the regular ODFW workload with existing funding.

1997 Work Schedule

Job:	Work with WRD to protect critical flows for salmon.
Start Date:	Ongoing
Job:	Identify streams or reaches where salmon production is limited by flow depletion or resulting temperature effects.
Start Date:	Ongoing
Job:	File for instream water rights where protection of flows is necessary to protect critical salmon rearing areas. Continue process for applications already filed.
Start Date:	Ongoing

ODFW-IV.A.4. Request that Water Resources Department Administratively Close Fill and Removal Areas.

Summary of Measure: Protect important salmon spawning and rearing areas by requesting WRD to administratively close sensitive resource waters to fill and removal activities.

Background: Gravel removal and placement of fill material can significantly alter salmonid habitat. If this activity occurs in areas of particular value for spawning or rearing of salmonids, the productive capacity of the stream can be altered, with significant impacts to the population. As a response to a threat to specific critically important salmon habitat areas (and only if other management approaches prove insufficient), we propose to protect important salmon spawning

and rearing areas by consulting with DSL and WRD and request that WRD administratively close them to fill and removal activities, based on statute authority (ORS 196.840). This CSRI measure is being re-written as a joint measure among ODFW, DSL and WRD.

Goal: Protect critically important specific areas of coho salmon spawning and rearing habitat from threat by fill and removal activities.

Objectives

- Identify specific critically high value situations where fill and removal activities are threatening coho habitat.

- Request WRD to administratively close specifically identified areas to fill and removal activities if they are of critically high value to coho production, they are threatened by fill and removal plans, and other means of providing protection appear inadequate.

Responsible Staff

- District Biologists are responsible for identifying specific locations where additional protection is needed for critical salmon spawning and rearing areas. Patty Snow, HCD, will be responsible for initiating requests to WRD for closure.

- Patty Snow, HCD, will be responsible for working with WRD and DSL to determine the feasibility of taking this approach to closing specific critical areas.

Results: The potential of this approach has been pointed out to WRD, but no specific areas have been identified yet.

Future: The use of this statute offers an opportunity that could be used in limited circumstances to further protect critical spawning and rearing habitats from damage from fill and removal activities.

Funding: This approach can be taken with existing staff and existing funding.

1997 Work Schedule

Job:	District Biologists identify critical spawning or rearing areas in need of additional protection from fill and removal activities.
Start Date:	Ongoing
Job:	District Biologists request application of this approach through HCD.
Start Date:	As critical areas and situations dictate
Job:	Reach agreement with WRD and DSL on use of this approach.
Start Date:	Underway
Complete:	Summer 1997

ODFW-IV.A.5. Prevent Large Wood Removal

Summary of Measure: Join other agencies (DSL, ODF, WRD, DOA, DLCD, DEQ, etc.) in the CSRI to develop and promote concepts to protect from unauthorized removal of large wood that is providing salmonid habitat value.

Background: Large wood, mostly downed trees fallen into streams, provides significant amounts of cover and complexity necessary for creation of quality rearing salmonid habitat, particularly for over winter survival of coho. However, in most coastal streams large wood is notably lacking. As a result of that value, wood that falls or is deposited in streams is often removed quite rapidly. Current regulations do not adequately protect wood deposited in streams or prevent its removal. Rules or laws are needed to protect large wood once it is delivered into streams.

Goal: Develop adequate statutes or rules requiring that large wood, which falls into or is delivered into streams, be left in place unless posing a threat to important structures.

Objectives

- Work with other CSRI partner agencies to draft legislation and rules which protect large wood in streams.

- Work locally with landowners, watershed councils, and other cooperative groups, and ODF to promote leaving large wood in streams.

Responsible Staff: DSL will be responsible for coordinating the development of draft statute or rule language with the other state agencies (ODFW, ODF, WRD, DOA, DEQ, etc.). Jeff Boechler and Patty Snow will represent ODFW in developing draft language. District biologists will work with landowners and local cooperators to promote leaving wood in streams.

Results: While no legal changes have occurred as a result of CSRI in this area, the value of large wood to salmonid populations has been conveyed to other agencies, with a heightened degree of awareness of the problem. Some protections are contained in the Forest Practices Act which apply to commercial forest operations, but rules applying to other land use groups or the general public are still lacking.

Future: We anticipate that this problem can be remedied over the next biennium, with draft language to be available for consideration in the 1999 Legislature. Development of adequate protective legislation will lead to more large wood being retained in streams to function as fish habitat, with long-term benefits to the stream structure and to salmonid populations. Educational material will be developed to inform landowners that wood left in place does not impact bank erosion and flooding.

Funding: This will be done with existing staff and funding.

1997 Work Schedule

Job:	Work with DSL and other CSRI partner agencies to draft statutory or rule language protecting wood.
Start Date:	Ongoing
Complete:	December 1997
Job:	Work with other agencies to develop public support for protection of large wood in streams.
Start Date:	During development of language and after language is proposed
Complete:	At rule or legislative passage
Job:	Continue local efforts to promote leaving wood and other habitat materials in streams.
Start Date:	Ongoing

ODFW-IV.A.6. Provide Technical Assistance to Landowners to Support Habitat Protection

Summary of Measure: Provide technical assistance to private landowners, watershed councils, and other cooperators to promote and guide protection of high priority salmon habitat areas on forest, agricultural and other lands.

Background: Without specific authority for habitat protection, ODFW's role is one of encouragement through cooperative efforts and technical assistance. As the primary agency with expertise in this area, we consider this one of our primary roles in the CSRI. ODFW will provide technical assistance to help guide land use activities to minimize impacts to salmon habitat and will encourage projects and programs, such as riparian fencing, Riparian Tax Credits, Fish Habitat Improvement Tax Credits and others that protect and improve the condition of habitat. We have also requested increased staff to improve our ability to provide technical assistance on habitat protection in Phase 2. We expect overall demand from CSRI cooperators to increase, and the existing level of requests already exceeds our capacity.

Goal: Provide technical advice and assistance to all landowners, watershed councils and other cooperators on measures to protect salmonid habitat.

Objectives

- Provide as much technical assistance as possible with available staff.
- Adequately respond to all requests for assistance by private landowners, watershed councils and other cooperators (Phase 2)
- Increase the amount of technical assistance ODFW is able to provide for habitat protection activities (Phase 2).

Responsible Staff: District Biologists will work with landowners, watershed councils, and other cooperators to offer technical advice and assistance in habitat protection.

Results: Providing technical assistance for habitat protection has been a long standing ODFW program which has succeeded in helping many landowners. Consultation activities have resulted in better protection of salmonid habitat along with proposed activities, and improved habitat conditions through fencing projects, instream enhancement work, and other approaches. With heightened interest in protecting salmon habitat and increased growth of watershed councils and other groups, requests for this kind of assistance are increasing. ODFW attempts to respond to all of these requests, but the limit of our capabilities with existing staff has been reached. ODFW has requested additional funding to increase our abilities in this action for CSRI Phase 2.

Future: The growing emphasis on habitat protection resulting from CSRI activities by agencies, landowners, watershed councils and cooperative projects is expected to accelerate the number of requests for technical assistance. Responding to requests will continue to be a high priority, but our capability will depend on receiving increased resources for Phase 2.

Funding: Existing levels of assistance will continue with existing ODFW funding.

1997 Work Schedule

Job:	Respond to requests for technical assistance for habitat protection within existing staff resources.
Start Date:	Ongoing
Job:	Participate in cooperative technical advisory teams, watershed councils and in other cooperative initiatives to provide technical assistance for habitat protection within existing staff resources.
Start Date:	Ongoing
Job:	Update rules for the Fish Habitat Tax Credit and Riparian Tax Incentive programs if they are extended by the legislature.
Start Date:	June 1997
Complete:	September 1997

ODFW-IV.A.7. Landowner Stewardship Award

Summary of Measure: Implement the Fish and Wildlife Steward Award for Forest Lands program to provide recognition and incentives to forest landowners who improve fish and wildlife habitat.

Background: ODFW and ODF have cooperatively developed an award program intended to recognize landowners who have done a particularly good job of forest stewardship of fish and wildlife resources. This program is intended to recognize and thank landowners for their efforts,

to increase public recognition of good land stewardship, and to encourage other forest landowners to increase their fish and wildlife stewardship efforts. This means of encouraging habitat protection should lead to improved riparian and salmonid habitat conditions over time.

Goal: Annually present awards to landowners whose forest management activities demonstrate an exceptional job of stewardship of their forests and fish and wildlife resources.

Objectives

- Develop and implement a forest stewardship award.
- Select recipients and present awards annually.

Responsible Staff: Jeff Boechler, Habitat Conservation Division, is responsible for coordinating with ODF on the development and implementation of the award program.

Results: The recognition program has been developed and the first of these annual awards were presented on January 23, 1997.

Future: These awards will be presented annually and we expect that the program it will grow in prestige and exposure over time. The intent is for the program to evolve into a recognition that landowners desire and strive to obtain.

Funding: The award program is being funded out of existing ODFW and ODF budgets.

1997 Work Schedule

Job:	Solicit nominations for the award, apply criteria and make selections, and present the awards at a Fish and Wildlife Commission meeting.
Start Date:	June 1997
Complete:	January Fish and Wildlife Commission meeting, 1998

ODFW-IV.B.2. Habitat Restoration.

(Includes IV.B.1. from the first draft)

Summary of Measure: Promote, support, and conduct habitat restoration and guide efforts to achieve maximal efficiency and effectiveness with the resources available.

Background: Habitat-related actions in the CSRI plan include both long- and short-term approaches. Regulatory agencies are addressing long-term protections designed to restore natural watershed functions which will lead to natural redevelopment of quality salmon habitat. Because nature will take a long time, significant need exists to improve habitat quality over the short term for the improvement of salmon production as rapidly as possible. ODFW's extensive experience with, and expertise in, habitat requirements for salmon puts ODFW in the best position to promote and guide restoration activities. Restoration will be accomplished by providing technical

advisors to watershed councils, cooperative restoration groups, landowners, and other involved partners. Emphasis will be placed on promoting only those projects that address the priority problems in a given area to avoid volunteers rushing off on "pet" approaches or projects which address habitat factors which are not limiting in specific areas. ODFW will also directly fund and/or carry out restoration projects independently and in conjunction with various partners.

Goal: Increase the amount of productive coho salmon habitat in coastal watersheds through increased habitat restoration activities.

Objectives

- Promote the need for increased habitat restoration among CSRI partners and cooperators.

- Support habitat restoration through technical assistance to cooperators.

- Guide restoration efforts to assure that they address the critical factors limiting salmon production in each given location through preparation of restoration guides and through direct technical advice.

- Conduct and support development of habitat restoration projects through direct participation and financial support, when possible (e.g., through R&E funds and Sport Fish Restoration).

Responsible Staff

- Regional and district biologists will be responsible for providing technical assistance to watershed councils, cooperative restoration groups, landowners and other cooperators interested in habitat restoration, and by serving on technical advisory groups. They will also be responsible for initiating funding requests through various department programs, as appropriate, for conducting or assisting specific restoration projects.

- Barry McPherson, Habitat Restoration Coordinator, will be responsible for oversight of ODFW habitat restoration activities and will provide advice and guidance to district staff. He will also assist in seeking landowner and agency cooperation, securing funds from various sources, and maintaining quality control of projects and approaches.

- Kelly Moore, Habitat Analysis and Application Project, will provide technical guidance for habitat restoration activities. This project will also be responsible for maintaining records of projects implemented and evaluating success (see I.B.2.)

Results: ODFW has been successful at developing and participating in many habitat restoration efforts coast-wide. Involvement in watershed councils and other restoration groups has been increasing and is expected to continue increasing under CSRI. ODFW will continue to provide as much technical assistance and guidance as possible with existing staff and funding, and additional resources have been requested for Phase 2 to increase these support capabilities. As ODFW's involvement and influence with restoration groups has grown, there has been an increasing level of ability to advise groups on the most effective and efficient use of restoration approaches.

Future: Responding to a growing number of requests for technical assistance in habitat restoration will require additional staff and funding. ODFW will continue to attempt to develop that support. In addition, CSRI has significantly increased the interest in habitat restoration, and with continued encouragement from ODFW and other CSRI partners, increasing restoration activities are highly likely.

Funding: Funding for ODFW actions to promote and support habitat restoration activities at current levels will come from existing ODFW funding and Sport Fish Restoration. Additional funding to increase our capability in Phase 2 is being requested.

Funding for conduct of habitat restoration projects will be on a project by project basis, with cooperators responsible for developing funding sources. ODFW will contribute limited funding for some specific projects from its few available sources, such as the R&E Board or Sport Fish Restoration.

1997 Work Schedule

Job:	Promote habitat restoration and provide technical assistance (e.g. assistance to North Coast and Mid Coast Salmonid Habitat Restoration programs, Umpqua Basin Initiative, and the many watershed council projects.
Start Date:	Ongoing
Job:	Guide restoration efforts to the highest priority limiting factors.
Start Date:	Ongoing
Job:	Completion and updating of restoration guide books for six sections of the coast.
Start Date:	Underway
Job:	Many specific activities by District Biologists. See appendix of district work plans for 1997.

ODFW-IV.B.3. Promote Beavers

Summary of Measure: Promote the use of beaver to restore coho habitat through providing technical assistance and information to landowners and local agencies.

Background: Recent ODFW research into the effects of habitat quality on salmon survival has determined that beaver dams provide ideal habitat for overwinter survival of juvenile coho. Beavers are a natural component of the ecosystem and naturally provide quality salmon habitat, often quite rapidly. Encouraging landowners to tolerate beavers unless they are causing damage is one simple, cost effective approach to promoting widespread habitat improvement. Beavers instinctively choose locations suitable for dam construction and provide construction and maintenance functions free of charge, making this a low cost approach.

Goal: Increase the occurrence of beaver dams in coastal coho production streams while minimizing or decreasing beaver damage to culverts, crops and other investments.

Objectives

- Develop outreach materials explaining the value of beavers to coho habitat and describe appropriate beaver management approaches to control beaver damage while encouraging increased beaver populations.

- Actively promote beavers through media contacts, coordination with watershed councils and cooperative habitat restoration groups, and interaction with landowners and agricultural and timber industry groups.

- Coordinate with Wildlife Division regarding trapping in relation to desired abundance and distribution of beaver populations.

- Disseminate information on beaver management and the value to salmon habitat through existing industry support programs and educational channels, such as ODF, NRCS and the Soil and Water Conservation Districts and the Agriculture Extension Service.

Responsible Staff

- Barry McPherson, Habitat Restoration Coordinator, with assistance from I&E Section, is responsible for development of the outreach materials

- Fish and wildlife biologists in the regions and districts will contact trappers, landowners, local industry and habitat restoration groups to explain the value of beavers, explain methods of limiting damage, and request cooperation.

- Barry McPherson, Habitat Restoration Coordinator, will be responsible for program guidance, coordination with Wildlife Division, and coordination of information development regarding approaches to managing for beavers while avoiding the potential damage problems. He will coordinate with NRCS, Agriculture Extension, and others for information dissemination.

Results: Discussions are underway with Wildlife Division and some landowners and timber industry representatives regarding the value of beavers to salmon habitat. There is understandable reluctance to promote expansion of beaver populations due to the potential for damage, but there is still a willingness to consider this approach to increasing salmon habitat if there are effective management approaches to minimizing beaver damage.

Future: It is presently uncertain how much support for this approach can be obtained among landowners. The approach holds great promise, and could grow over time as successful programs are developed. Successful demonstration of approaches that minimize beaver damage would help greatly. If support can be obtained from cooperators such as ODF, NRCS, SWCDs and Agriculture Extension, progress could be made rapidly coast wide.

Funding: This low-cost program will be done with existing staff and funding.

1997 Work Schedule

Job:	Coordinate with Wildlife Division on managing beavers to increase salmon habitat.
Start Date:	Ongoing
Job:	Inform affected entities of techniques to control beaver damage without beaver elimination.
Start Date:	Ongoing
Job:	Develop a beaver education packet suitable for distribution to landowners directly and through avenues such as NRCS and Agriculture Extension.
Start Date:	March 1997
Complete:	June 1997
Job:	Brief all coastal fish and wildlife district biologists on the purpose of this program and distribute education packets for their use with landowners.
Start Date:	Summer 1997
Complete:	Fall 1997
Job:	Promote use of beavers to develop coho habitat with landowners, watershed councils, and other cooperators.
Start Date:	Ongoing

ODFW-IV.B.4. Use Hatchery Carcasses to Increase Stream Productivity

Summary of Measure: Pursue landowner cooperation, DEQ permits, and labor to restore benefits to juvenile salmonid production through placement of hatchery salmon carcasses in priority stream reaches.

Background: Recent research in Washington has demonstrated that the carcasses of salmon returning from the ocean contribute a significant amount of the nutrients that support salmon production. The effect was based on direct ingestion of flesh in addition to stream nutrient enhancement, and live spawners contributed more than carcasses alone, since juveniles consumed insects and salmon eggs dislodged from spawning gravel. Since natural deposition of carcasses is presently low as a result of diminished coho populations, fertility, and presumably production of juvenile salmon, might be enhanced by placing surplus carcasses of returning hatchery fish in wild spawning areas.

Initial efforts will be done on an experimental basis, with subsequent returns to streams with carcasses compared with returns to control streams to establish the effectiveness of this approach. Since this management approach simply mimics nature, and given the Washington research results, there is reason to assume a beneficial effect. However, only a fraction of coho habitat can

be treated with hatchery carcasses at densities expected to make a significant difference in production because of the number of carcasses likely to be available (10,000 - 20,000 per year). Carcass placement and limited monitoring was initiated in less than a dozen streams in 1996.

Goal: Increase wild coho salmon production by placing surplus salmon carcasses in spawning and rearing areas as a nutrient and food supplement.

Objectives

- Develop an expanded carcass placement and monitoring plan for experimental placement of carcasses beginning Fall of 1997.

- Obtain DEQ approval for placement of surplus carcasses in selected streams and request their commitment to water quality monitoring.

- Obtain and distribute carcasses in selected reaches of coastal coho streams.

- Conduct follow up evaluations, including carcass distribution and retention, and production changes in test and control streams.

Responsible Staff

- District Biologists will be responsible for consultations with Fish Pathology on which batches of carcasses are useable, acquisition of carcasses, distribution of carcasses (possibly with assistance of volunteers), maintaining records, and follow up observations on the fate of carcasses.

- Barry McPherson, Habitat Restoration Coordinator, will be responsible for obtaining DEQ permits for carcass placement. He will also develop the overall implementation and monitoring plan for this action with assistance from Tom Nickelson, Freshwater Production Studies Leader, and district biologists.

Results: This action has already been initiated in limited areas. DEQ permits for the 1996-97 season were obtained, and about a dozen streams along the coast have received carcasses at low densities (under 20 carcasses/mi.). Tillamook district has prepared a brief report on the distribution and fate of carcasses in the Miami River.

Future: Use of this approach on an experimental basis will continue for the next few years until benefits can be determined. Because of the three-year life cycle of coho salmon, at least five or six years will be required to be able to draw conclusions on effectiveness for increasing production relative to control streams. If successful, this could become a technique used in a significant portion of coastal coho streams (limited by carcass availability) until wild runs improve and begin providing sufficient carcasses naturally.

Funding: This action is being conducted on existing ODFW funds. Carcasses are obtained without cost from department hatcheries. We will explore the use of volunteers to assist with carcass placement in the future.

1997 Work Schedule

Job:	Obtain multi-year DEQ permits for 1997 and beyond.
Start Date:	February 1997
Complete:	July 1997

Job:	Obtain and place carcasses in streams.
Start Date:	October 1997
Complete:	December 1997

Job:	Survey distribution and fate of carcasses.
Start Date:	October 1997
Complete:	February 1998

Job:	Develop monitoring and evaluation plan for assessment of benefits from carcass placement to production of adult and/or juvenile coho, and coordinate with DEQ plans to monitor water quality effects.
Start Date:	February 1997
Complete:	May 1997

ODFW-IV.B.5. Restore Instream Flow.

Summary of Measure: Pursue opportunities to restore instream flow to provide needed water and reduce stream temperatures through purchase, lease, or donation of existing out-of-stream water rights.

Background: This is a companion action to IV.A.3., which involved identification of streams where water withdrawal is limiting salmonid production and filing for instream water rights to protect remaining flows. This restoration action is intended to serve as the means of improving conditions in streams where flows are limiting production, since new filings can only protect what is currently available, not restore what has already been lost. By acquiring (through purchase, lease, gift or bequest) existing out-of-stream water rights and then converting them to instream rights, the actual amount of water available in the stream can be increased, and the original priority date can be retained. This approach will be pursued in streams identified as being the most severely limited by water quantity, both directly and by working with CSRI partners and cooperators.

Goal: Restore flows to critical salmonid producing streams impacted by water withdrawal through acquisition of out of stream water rights and converting them to instream rights.

Objectives

- Identify high priority coastal streams where salmonid production has been severely impacted by water withdrawals.

- Identify opportunities to acquire existing out-of-stream water rights on the priority streams.

- Work with potential donors and CSRI partners and cooperators to secure funds for purchase or lease of out-of-stream water rights on priority streams.

Responsible Staff

- District Biologists will be responsible identifying those important coho streams which have been severely impacted by reduced flows due to water diversions.

- Rick Kruger, HCD, will coordinate acquisition of water rights and will work with partners and cooperators to identify possible funding sources for acquisition of water rights.

Results: Few out-of-stream water rights have been acquired, to date. Investigation into the potential of this approach has determined that the cost of water rights is high. This approach still offers the only means of restoring flows to streams which have been impacted by water withdrawals.

Future: This will be a program of long duration. Success at acquiring existing water rights will take considerable time and will require significant amounts of funding. As individual rights are

acquired, however, the cumulative effect will be the permanent restoration and protection of flows in critically important coho producing streams.

Funding: Funding for efforts to identify streams impacted by water withdrawal will come from existing ODFW budgets. Funding for acquisition of water rights will be on a case by case basis, with funds coming from donations, cooperative fund raising activities, or in some cases from ODFW budgets. Acquisition of water rights through gifts or bequests will not require ODFW funding, but will require considerable staff time to arrange.

1997 Work Schedule

Job:	Identify high priority coastal streams where salmonid production has been severely impacted by water withdrawals.
Start Date:	Ongoing
Complete:	

Job:	Identify opportunities to acquire existing out-of-stream water rights on the priority streams.
Start Date:	Ongoing
Complete:	

Job:	Acquire water rights and file for change of use to instream.
Start Date:	Opportunistically, as possible.
Complete:	

ODFW-IV.B.6. Fish Habitat Improvement Tax Credit Program.

Summary of Measure: Provide effective incentive for developers, cities and private landowners to protect and restore salmon habitat by re-authorizing ODFW's Fish Habitat Improvement Tax Credit Program.

Background: The Fish Habitat Improvement Tax Credit Program provides a financial incentive for actions by landowners who improve habitat for fish. The program sunsets in January, 1997, unless reauthorized in the 1997 Legislature. We will promote reauthorization of the program. As additional funding becomes available, we expect to work with an increasing number of applicants and realize a growing number of qualifying projects.

Goal: Promote restoration of fish habitat on private land through reauthorization of the Fish Habitat Improvement Tax Credit Program.

Objectives

- Support reauthorization of the Fish Habitat Improvement Tax Credit Program.

- Promote the Fish Habitat Improvement Tax Credit Program with landowners and encourage increased participation.

Responsible Staff

- ODFW's legislative staff and HCD will take the lead in the effort to reauthorize the program

- Biologists in the districts, regions, and HCD will promote participation with landowners.

Results: 1996 was the first year the program came close to exceeding the $100,000 limitation on preliminary certifications. Private forest companies are realizing the benefits of the program and have been applying in record numbers. Both the number of participants and dollar amount of projects doubled in 1996 alone.

Future: While this program has helped some landowners undertake habitat restoration activities on their lands, the program is hampered by the relatively low annual limit on total tax credits, and the fact that tax incentives are of significant value only for those people subject to high tax burdens. Total amounts of habitat improved because of this program will likely remain modest until we are successful at expanding the program and making it more attractive. The high visibility of the CSRI may offer us an opportunity to highlight the need for improving the program, either during discussions over reauthorization in the 1997 Legislature or in the 1999 Legislature. We will continue to push for improvements.

Funding: Efforts to reauthorize and improve the program will be made by existing staff on existing ODFW funding. Conduct of the program relies on the willingness of the Legislature to grant tax incentives rather than providing a direct outlay of funds.

1997 Work Schedule

Job:	Support reauthorization of the Fish Habitat Improvement Tax Credit Program in the 1997 Legislature.
Start Date:	January 1997
Complete:	June 1997

Job:	Promote participation in the Fish Habitat Improvement Tax Credit Program.
Start Date:	Ongoing.

ODFW-IV.B.7. ODFW Job Rotations.

Summary of Measure: Pursue job rotation opportunities for ODFW fishery biologists in other state agencies through temporary assignments to provide technical assistance in restoring coho habitat.

Background: CSRI has led to a heightened level of interest and involvement of other state agencies with protection and restoration of salmon habitat. Many of those agencies do not have salmon habitat specialists on staff and in stead rely on outside assistance. Since at any given time agencies may have vacant positions, it may be possible to create temporary job rotation assignments for ODFW staff specialists into partner agencies to assist them with their programs related to protecting and restoring habitat. That will provide focused guidance to help the agency accomplish its salmon habitat measures under CSRI and also begin training the agencies' personnel in fish habitat issues. This might also provide job opportunities for ODFW staff presently dealing with the department down sizing.

Goal: Assist state agencies achieve salmon habitat objectives by developing job rotations from ODFW.

Objectives

- Explore the interest in and opportunities for job rotations into other state agencies.

- Initiate job rotations.

Responsible Staff

- Bruce Schmidt will prepare a letter making a formal offer to other agencies to develop a job rotation program.

- ODFW field staff will be responsible for identifying job rotation possibilities in their local districts.

Results: At least one specific recommendation for a possible rotation to the Department of Forestry to assist with flood damage repairs has been received from a District Biologist. While the idea was forwarded to ODF, we did not follow up, so we did not take advantage of the opportunity. Similar opportunities will become available, however, and once the agencies are done with the crush of work surrounding development of the CSRI plan, implementing this action should become easier.

Future: ODF is not presently sure of the level of interest or number of opportunities for this approach. If the first attempt at applying this concept is successful, however, it would likely spur additional interest.

Funding: Job rotations would be funded using the funding associated with the vacant position used to create the rotation opportunity, so no new funding will be required.

1997 Work Schedule

Job:	Contact all state CSRI agencies on the possibility for creating job rotation opportunities.
Start Date:	March 1997
Complete:	March 1997

Job: Assign ODFW staff to job rotations in other agencies to assist accomplishment of salmon habitat measures.
Start Date: As positions become available

ODFW-IV.C.1. Cooperative Removal of Barriers to Fish Passage

Summary of Measure: Pursue opportunities to remove artificial barriers to fish passage.

Background: Many structures have the potential to block the passage of anadromous salmonid adults or juveniles. These may include road culverts, irrigation diversions, push up dams, municipal or industrial water diversions, tide gates and hydroelectric dams. An inventory of structures that do not allow for fish passage is underway in action I.B.4. Oregon laws (ORS 498.351 and ORS 509.605) require that all such structures must provide fish passage, but unfortunately, not all do. ODFW intends to work with the owners or operators of those structures to make modifications to comply with the legal requirements. The approach will be cooperative; assistance will be given to the owners with suggestions and preliminary design for the best approach for each structure. Because this is a legal requirement, however, ODFW will also request Oregon State Police assistance in cases where cooperative approaches are insufficient.

Goal: Ensure that all artificial structures obstructing passage in coastal salmonid streams meet the legal requirements for fish passage or comply with required mitigation.

Objectives

- Work cooperatively with the owners or operators of structures which do not pass fish to make modifications necessary for them to comply with legal fish passage requirements.

- Hire an engineer specializing in fish passage and screening to assist owners and operators with design of modifications to provide fish passage (Phase 2).

- Request OSP assistance to initiate legal enforcement of the passage laws where cooperative approaches are insufficient to accomplish the provision of passage.

Responsible Staff

- Al Mirati, Fish Division, will make the information in the passage data base available to HCD and fish district biologists to assist them in identifying and contacting owners / operators of structures which block passage.

- District Biologists will be responsible for contacting owners/operators of structures not passing fish to initiate discussions on bringing the structures into compliance.

- Al Mirati will be responsible for providing technical advice to District Biologists and owners/operators on appropriate approaches for rectifying passage problems.

Results: The ODOT-funded project is making consistent progress toward identifying all state and county road culverts blocking passage, and ODOT has begun correcting culvert passage problems. An initial listing of problem culverts on forest roads has been provided to OFIC as cooperative support of their culvert inventory and assessment effort. A coordinated plan for addressing push up dams in the Illinois Valley has been developed. Numerous projects to restore fish passage are now underway (See the appendix containing district work plans for 1997).

Future: Correction of passage problems will occur one at a time. However, the cumulative effect will be a gradually increasing number of locations where passage is restored, leading to re-establishment of salmon spawning and rearing in areas formerly blocked. The speed of correction will likely vary based on the type of structure and the person or agency involved. For example, ODOT has taken a rapid approach to correcting state road culverts which impede passage, but some entities may delay due to the cost of making modifications. Assistance from OSP should increase the desire to cooperate, however, and help speed compliance.

Funding: Completing and managing the passage data base is being done with existing staff on existing funding. Contacting people responsible for passage problems will be done with existing district staff and existing funding, but the rate will continue to be slow due to the total field work load.

Additional funding has been requested for Phase 2 to create additional habitat biologist positions that could spend time on passage and an engineer who could participate in designing solutions to passage problems cooperatively with the owners. This would greatly speed up the process.

Under current statutes, funding for correction of passage problems is the responsibility of the owner/operator.

1997 Work Schedule

Job:	Distribute information from the culvert data base to district biologists.
Start Date:	Preliminary data provided on request
Complete:	June 1997, when data base is completed
Job:	Coordinate with ODOT and county road crews within each fish district to support their culvert improvement activities.
Start Date:	Ongoing
Job:	Contact individuals responsible for structures impeding passage and work to enlist their cooperation in correcting passage problems.
Start Date:	Ongoing
Job:	Contact OSP regarding structures impeding passage where cooperative approaches have not generated reasonable action to achieve compliance.
Start Date:	As necessary

ODFW-IV.C.2. Screen Diversions Less Than 30 cfs.

Summary of Measure: Utilize Oregon's Fish Screening Cost Share Program to screen diversions less than 30 cfs to prevent entrainment of salmonids.

Background: Diversion of water for beneficial uses out of stream carries a significant risk of also diverting migrating salmonid smolts in roughly the same proportion as the percentage of water diverted. Oregon state law (ORS 549.306) provides that diversions should be screened to prevent fish from being removed with the water. There has been little enforcement of this provision, however, in favor of working cooperatively with water users to develop screening. Since 1990 ODFW has conducted a program to share the costs of screening with cooperating water users with diversions of less than 30 cfs, with 192 cost share screens installed state wide to date. This program has been increasing the installation speed of screens, and ODFW intends to continue it until all diversions are screened.

Goal: Have all water diversions in anadromous salmonid streams screened to prevent diversion of fish.

Objective: In coastal drainages, to apply the cooperative cost share screening program to the top priority coho streams.

Responsible Staff: Roy Elicker, Fish Screening Coordinator, is responsible for the Fish Screening Program and for maintaining the pace of screen installation. Bernie Kepshire is responsible for enrolling water users into the program for western Oregon.

Results: To date, 64 screens have been installed in coastal drainages to protect salmonids, with 32 installed during the current 1995-97 biennium.

Future: Eighteen more fish screens are planned for installation in the remainder of the current biennium, with most slated for the South Coast basins. Pending available funds, ODFW will endeavor to install more than 12 additional screens in coastal drainages in the second half of 1997. Interest in this program has been growing, and with the emphasis on restoring salmon through CSRI, we expect accelerating interest from water users.

Funding: The cost-share screening program is based on a 60:40 split of costs for screening diversions less than 30 cfs. Water users contribute their 40 percent of the cost either in cash or, more often, with in-kind services. The program is firmly budgeted through the end of the current fiscal year and will cover the $47,075 cost ($28,245 ODFW share) of the 18 planned screens. Funding for the 1997-99 biennium is not established yet, but is likely to be at least equal to the current biennium.

1997 Work Schedule

Job: Identify diversions which need screens, contact water users, enroll water users who wish to participate in the screening program, and install screens

Start Date: Ongoing

ODFW-IV.C.3. Employ Watershed Health Funds to Meet Fish Screening Needs

Summary of Measure: Utilize Watershed Health funds ($200,000) to meet fish screening needs for diversions less than 30 cfs in the Rogue and South Coast Basins to prevent entrainment of salmonids.

Background: ODFW's Fish Screening Program received $200,000 in carry-over funds to install screens during the 1995-97 biennium in South Coast basins. Most of these funds ($190,000) were available for screens, since five percent of the total amount was expended for tools and supplies. ODFW, after consultation with the Governor's office and local watershed councils, decided to pay the total costs of screen construction and installation. During September 1996, screen sites were selected based on the presence and condition of coho and steelhead runs, and type and condition of stream habitat. Ditches were generally considered a higher priority for screening than pumps. This program is in effect during the first half of 1997, ending with the end of the biennium.

Goal: Screen diversions in critical coho and steelhead streams in the South Coast drainages.

Objective: Provide maximal salmon protection from entrainment with available funds.

Responsible Staff: Roy Elicker, Fish Screening Coordinator, is responsible for the Fish Screening Program and for maintaining the pace of screen installation. Bernie Kepshire is responsible for enrolling water users into the program for western Oregon.

Results: To date, 33 screens have been installed, 32 in the Rogue Basin and 1 in the Coquille Basin.

Future: Until the end of the current biennium (end of June 1997), 62 more fish screens are planned, with 34 in the Rogue Basin and 28 in the Coquille Basin. This particular program is currently not scheduled to continue past the current biennium.

Funding: Total available funding for this program was $190,000. The full amount will be expended by the end of the current biennium.

1997 Work Schedule

Job: Install 62 screens in the Rogue and Coquille basins in the first half of 1997.
Start Date: Underway
Complete: June 30, 1997

ODFW-IV.C.4. Screening of Water Diversions Greater Than 30 cfs.

Summary of Measure: Promote screening of water diversions greater than 30 cfs.

Background: Diversion of water for beneficial uses out of stream carries a significant risk of also diverting migrating salmonid smolts in roughly the same proportion as the percentage of water diverted. Oregon state law (ORS 498.311) provides that large diversions should be screened to prevent fish from being removed with the water. Despite the legal requirement, there are a number of large (over 30 cfs) diversions not adequately screened to prevent diversion of fish. ODFW prefers to work cooperatively with water users to encourage installation of proper screening. ODFW intends to discuss the need for screening with water users and will offer suggestions on suitable screen designs. If Phase 2 funding is obtained, an engineer will be added to the ODFW staff to provide technical assistance with design of screens. Also, the Department will work with OSP in cases where cooperative approaches are not sufficient to accomplish the legally required screening.

Goal: Ensure that all large diversions (over 30 cfs) are properly screened to prevent diversion of migrating salmonids.

Objectives

- Site inventory large water diversions and notify water users of legal requirements and current fish screening criteria.

- Provide specific technical assistance to water users for screening large diversions (Phase 2)

Responsible Staff: Roy Elicker, Fish Screening Coordinator, is responsible for the Fish Screening Program and for maintaining the pace of screen installation. Bernie Kepshire is responsible for enrolling water users into the program for western Oregon. District Biologists will assist through identification of large diversions which are unscreened, and will also assist with development of cooperative programs with individual water users.

Results: Site inventory of large coastal diversions are scheduled for February through April, 1997. ODFW will coordinate with OSP for educational purposes in explaining legal requirements to water users.

Future: Once the site inventory is completed, we expect an increase in the speed with which large diversions are screened. When funding is acquired for Phase 2 we will hire an engineer to assist

water users with design of appropriate screens. This additional assistance should help speed up the rate of screening. Once we are able to provide that level of assistance we will work with OSP to initiate enforcement actions in situations where the cooperative approach has been insufficient.

Funding: Contacts with water users will be done with existing staff and existing funding. New funding is needed to hire an engineer to work on fish passage and screening (Phase 2). Costs for screening of large diversions are the responsibility of the water user.

1997 Work Schedule

Job:	Design the site inventory format and make preliminary contacts with water users.
Start Date:	Underway
Complete:	February 1997

Job:	Conduct a site inventory of large diversions to determine adequacy of screening.
Start Date:	February 1997
Complete:	April 1997

Job:	Contact water users and explain the legal requirements for screening and offer advice on appropriate approaches to screening.
Start Date:	February 1997
Complete:	Ongoing

ODFW-V.A.1. Conduct CSRI Outreach Program

Summary of Measure: Develop a coordinated ODFW/CSRI Outreach Plan to support the Department's actions and overall CSRI goals.

Background: Since the CSRI is intended to involve a large segment of the public, including landowners, constituent groups, local communities and the public in general, in a broadly based range of cooperative actions to restore salmon populations, it is essential to develop and conduct an effective outreach program in support of that intent. The outreach program needs to include several components, including: Publicity about the CSRI and what ODFW and the other agencies are doing; Information on how landowners and other interested people can become involved; and, Materials giving technical advice on how to improve salmon habitat. Development of the outreach program will necessitate a coordinated approach between the Information and Education program, the Fish Division and HCD.

Goal: To educate and involve the public in watershed and salmon restoration programs and activities, and to strengthen the ethic of natural resource stewardship at the local level.

Objectives

- Support CSRI goals and activities, including working cooperatively with other CSRI partners to prevent duplication and deliver efficient services.

- Integrate the department's Strategic Operations Plan to guide the investment of staff time and resources. This will include an emphasis on partnering with watershed councils and landowners, and will also include increasing outreach to schools, new residents in growing urban areas and civic / local organizations.

Responsible Staff: Kyle Walker, Information and Education Director, will take the lead in developing the outreach plan in conjunction with Fish Division staff.

Results: The ODFW Outreach Plan will educate, inform and advise the public to accomplish CSRI goals. This will be developed by an interdisciplinary team managed by the Information and education Division, including staff involved in fish, habitat, information, education and wildlife related activities and members of the STEP Advisory Committee and the R&E Board.

The plan will be designed around existing staff, resources and unit work plans. Elements will include:

- *Education* - Development and delivery of education workshops, teaching aids, volunteer coordination, outdoor schools and special events.
- *Information* - Develop and distribute communication tools, establish a resource center for information and utilize media outlets to inform the public about CSRI.
- *Technical* - Develop and distribute written technical advise, provide technical expertise to local efforts, and establish a speaker's bureau.

Outreach efforts so far have been successful at informing the general public about the CSRI in general. Outreach in support of ODFW actions is still under development and has relied on individual efforts. Development of an outreach plan will increase the amount of activity by providing a coordinated approach involving more people and more materials.

Future: The ultimate success of CSRI in restoring salmon populations will depend on extensive support and involvement of private citizens. Many of the habitat restoration activities will require voluntary involvement from landowners, local governments and watershed councils and other cooperative restoration groups. This kind of broad based cooperation will require continual encouragement and useful technical information. The success of the outreach effort will have a lot to do with the success of CSRI.

Funding: The ODFW/CSRI Outreach Plan will be designed to provide a level of service utilizing existing staff and funding. Development of new efforts or enhancement of existing activities will require additional funding. New funding packages have been introduced and are being considered as part of the 1997 Legislature.

1997 Work Schedule

Job: Continue outreach services currently underway, including education workshops, resource materials and providing technical advice.

Start Date:	Ongoing

Job:	Convene an ODFW team to develop a formal work plan
Start Date:	Late Winter 1997
Complete:	Spring 1997

Job:	Evaluate the work plan based on the outcome of the 1997 Legislature.
Start Date:	June 1997
Complete:	July 1997

Job:	Fully implement the outreach plan.
Start Date:	July 1997

Oregon Department of Fish and Wildfire
Coastal Salmon Restoration Initiative
1997 Phase 1 Implementation Plan

Appendix 1

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Fish District Workplans from the Southwest Region

(Includes Umpqua, Coos-Coquille, Upper Rogue, and Lower Rogue-South Coast Districts)

I.B.1 - *Adult Escapement and Juvenile Coho Salmon Production Information*

Objective

To conduct annual coho escapement surveys utilizing peak count surveys in the Tenmile system and stratified sampling in other drainages to estimate total escapement of coho to the Tenmile Lakes system, Palouse Creek, and other drainages as time permits.

To conduct a sampling program for juvenile coho to estimate summer seeding levels in selected segments of Palouse Creek

Responsibilities

Coos-Coquille Fish District. ODFW district staff will conduct spawning surveys in the Tenmile Lakes system to obtain peak counts of spawning coho and will conduct stratified surveys in Palouse Creek to obtain information for total escapement estimates using the Area Under the Curve estimation technique.

District staff will coordinate on a daily basis with the spawning survey crew leader (under Steve Jacobs supervision) to ensure that all district surveys are completed in a timely manner and to avoid duplication of effort.

District staff will record all survey data on standard forms and forward to Donna Lamb in Newport for processing.

District staff will conduct summer seeding level surveys in Palouse Creek using the pass/removal technique. Estimates of juvenile coho density will be computed to determine seeding levels.

Results

Spawner abundance data are maintained in an electronic database (MS-Access) and are used in the decision making process for coastwide management of coho salmon.

The accumulation of seeding level information is part of an evaluation of habitat enhancement efforts in Palouse Creek. Seeding level information serves as a reference to guide restoration efforts in areas needing work and as a baseline against which to compare with the improvements from restoration activities in Palouse Creek.

Funding

This work will be done with existing district staff and funding.

Work Schedule

Job: Conduct spawning fish surveys and coordinate surveys with the spawning survey crew leader. Conduct summer seeding level surveys and estimate density of juvenile coho.

Start Date: January 1, 1997

Complete: December 31, 1997

******

Objective

To conduct annual sampling programs to estimate juvenile coho abundance in selected watersheds using rotary screw traps.

To continue to monitor stream reaches with improvement projects and their effect on juvenile coho populations.

To conduct annual coho escapement surveys using stratified random sampling (SRS) approach to estimate total coho return to the Umpqua basin.

To conduct volunteer coho spawning ground surveys, using ODFW SRS protocol methodology to gain more information of coho escapement in the basin than the SRS provides to better understand their distribution and abundance annually.

Responsibilities

Umpqua Fish District. Umpqua District staff will coordinate trap monitoring with federal fishery biologist, and private landowners.

Umpqua District staff will continue to monitor past stream improvement programs, and all future habitat enhancement projects.

District staff will supervise the Volunteer Coho Spawning Ground Surveys using a Student Conservation Association (SCA) person to coordinate the project and provide a project report.

District staff will conduct P/A surveys in cooperation with DOF and BLM.

Results

Data from smolt traps will be analyzed to obtain a coho juvenile population estimate.

Stream reaches with instream structures will be mapped and evaluated using mask and snorkel, and electrofishing.

Annual reports will be prepared for the SRS surveys., Volunteer Coho Spawning Ground Surveys, and the juvenile sampling projects.

Funding

District, DOF, BLM and Douglas County sources.

Future

If available funds are obtained, more extensive surveys will be competed throughout the Umpqua basin.

Work Schedule

Job: Conduct juvenile coho surveys
Start Date: Ongoing
Complete: Ongoing

Job: SRS Surveys
Start Date: Oct. 15, 1997
Complete: January 1998

Job: Juvenile Trapping
Start Date: June 1997
Complete: Spring 1997

*****

Objective To conduct video counts of fish species that migrate past the counting station at Gold Ray Dam.

Responsibilities ***Rogue Fish District.*** Rogue District staff will conduct, tabulate data and report results of fish counting activities at Gold Ray Dam.

Results Gold Ray Dam fish count data is used to assess the overall health of wild anadromous fish populations, evaluate hatchery programs and provide a basis and evaluation for management decisions concerning sport angling regulation.

Count data are reported in annual progress reports prepared for the "Rogue and Umpqua Fish Counts" project under the Federal Aid in Sport Fish Restoration Program.

No direct increase in coho abundance and productivity of habitat will result from this activity, but fish counts will provide information needed for planning and implementing actions that will have more direct impacts.

Funding Gold Ray Dam fish counts are funded through the Federal Aid in Sport Fish Restoration Program.

Future Fish counting activities at Gold Ray Dam began in 1942 and are expected to continue through the foreseeable future.

Work Schedule Job: Gold Ray Dam fish counts and annual report
Start Date: Ongoing
Complete: December 31, 1997

Objective

To conduct spawning surveys to establish standard survey areas for stratified random survey (SRS) methodology on coho producing streams throughout the Rogue River basin.

Juvenile Coho Salmon Production Information .

Responsibilities

Upper Rogue Fish District. Steve Jacobs, Coastal Salmon Inventory Project Leader, will supervise 1997 coho spawning surveys, compile and summarize the data and assess trends and status of coho.

Rogue District Staff will support the project by providing space for field crews, assist with coordinating surveys and provide technical and logistical advice and support.

Results

Data from coho spawning surveys conducted in 1996 will be used to establish standard survey areas for SRS methodology.

Funding

Funding sources include state revenue, Anadromous Fish, Oregon Wildlife Heritage Foundation, and federal (Sport Fish Restoration) funds and is secure for the current 1996-97 surveys.

Future

Coho spawning surveys were funded beginning in 1996 and will continue as funding allows.

Additional funding is needed to conduct annual surveys of juvenile coho abundance in selected stream reaches.

Work Schedule

Job: Conduct coho spawning surveys on selected stream

Start Date: October 15, 1996

Complete: January 31, 1997

*****

Objective To operate the trap located downstream of Elk Creek Dam to capture and transport upstream migrating salmonids above the dam.

Responsibilities ***Upper Rogue Fish District.*** Tom Satterthwaite, SW region research biologist, will supervise operation of the weir and trap at Elk Creek Dam, direct coho spawning surveys in the Elk Creek watershed, compile and analyze data, and prepare reports.

Results Data from the Elk Creek trapping operation will be used to determine spawning escapement of coho salmon and other species into the Elk Creek watershed, evaluate recovery of Elk Creek coho salmon and steelhead populations, evaluate the success of the trap and haul method of providing fish passage at the dam site, and assess straying rates of hatchery fish released from Cole Rivers Hatchery.

Data is reported in annual progress reports published by the U. S. Army Corps of Engineers.

Funding Trap and haul operations at Elk Creek Dam are funded by the COE. Funding for this activity is expected to continue until a portion of dam is removed (schedule for fall of 1998).

Future This activity is expected to continue until the COE completes a project to remove a portion of the dam to provide unobstructed fish passage at the site (scheduled for completion in the fall of 1998).

Work Schedule Job: Operation of trap at Elk Creek Dam
Start Date: October 1, 1996
Complete: May 31, 1997

*****

Objective

To conduct juvenile and adult spawning surveys on habitat improvement project areas on South Fork Little Butte Creek, West Fork Evans Creek and West Fork Trail Creek.

Responsibilities

Upper Rogue Fish District. Adult surveys in 1996 were conducted by the Coastal Salmon Inventory Project, supervised by Steve Jacobs. Continuation of these surveys in 1997 by this project is uncertain.

Upper Rogue District staff (J. Vogt) will conduct juvenile surveys and possibly adult coho spawning surveys in 1997.

Results

Data from surveys provides qualitative information on the general effectiveness of habitat restoration projects and assists in designing future projects.

Survey records will be maintained and file at the ODFW Rogue District office.

Funding

These surveys are conducted using state revenue and federal (Sport Fish Restoration) funds, which are secure.

If conducted by the Coastal Salmon Inventory Project, additional funding sources include Anadromous Fish and Oregon Wildlife Heritage Foundation

Future

The present level of survey activities have been supported with existing resources. Effects of ODFW downsizing and transfer of responsibilities to field offices may impact the Upper Rogue District's ability to maintain the current level of surveys without additional funding.

Work Schedule

Job: Conduct juvenile and adult spawning surveys on habitat improvement project areas

Start Date: September 30, 1997

Complete: October 15, 1996

*****

Objective To conduct juvenile fish distribution surveys for coho salmon in the Rogue Basin.

Responsibilities ***Upper Rogue Fish District***. Upper Rogue District staff will direct volunteer surveys of juveniles and summarize findings.

Results Data from juvenile surveys will improve knowledge of coho salmon distribution within the Rogue River Basin and provide basic information to evaluate changes in historical distribution of coho salmon within the basin.

Data will be summarized and filed at the Upper Rogue District office and made available for entering into the GIS information database.

Funding Juvenile surveys will be funded with existing resources (state revenue and Federal Aid in Sport Fish Restoration Program), which are secure.

Future Effects of ODFW downsizing and transfer of responsibilities to field offices may impact the rate at which the Upper Rogue District can conduct these surveys without additional funding

Work Schedule Job: Conduct juvenile fish distribution surveys for coho salmon
Start Date: July 1, 1997
Complete: October 31, 1997

****

Objective

To monitor adult escapement of wild coho salmon in the New River Basin.

To monitor production of juvenile wild coho salmon from USFS lands in Elk River Basin.

Responsibilities

South Coast Fish District. South Coast District will be responsible the collection and summarization of both the adult and juvenile coho inventories. The district is responsible for the area under the curve (AUC) estimate of adult coho escapement in the New River Basin. The South Coast District will coordinate with the U.S. Forest Service in monitoring the production of juvenile wild coho salmon from USFS lands in Elk River.

Results

Results will consist of an annual estimate of wild adult coho escapement for the New River Basin, expressed in both total adult escapement and number of spawners per mile. Results will also include an annual estimate of the number of coho smolts emigrating from that portion of the Elk River Basin on USFS lands (approximately 80%).

Funding

Monitoring of adult coho escapement in New River Basin is conducted as standard district inventory and is on district funding that is currently secure.

Monitoring of juvenile coho production in Elk River Basin is dependent on seasonal funding that is secure for 1997. After 1997 we will attempt to fund it with USFS Challenge Cost Share funding on a year to year basis.

Future

Increased reliance on monitoring of both adults and juveniles as other CSRI strategies are implemented.

Long-term escapement and production databases will be critical for evaluation

Work Schedule

Job: Monitoring Adult Escapement, New River Basin

Start Date: November 1 - January 31

Complete: Conducted Annually

I.B.2 - *Information Base for Habitat Restoration*

Objective

To provide an information base for habitat restoration of salmon spawning and rearing habitat.

To conduct inventories of salmon habitat quality and quantity within coastal watersheds.

To provide baseline information on salmon population distribution and production capacity.

Responsibilities

Coos-Coquille Fish District. ODFW district staff are not currently collecting this information, however, we are and will continue to coordinate all survey and inventory efforts with Kim Jones in R and D for those surveys which are being conducted by Elliott State Forest, timber companies such as Weyerhaeuser, Menasha, and Georgia Pacific West, and local watershed associations in the Tenmile, Coos and Coquille basins

Results

The accumulation of this data will serve as a reference to guide restoration efforts in areas needing work and as a baseline against which to compare with the improvements from restoration activities.

Funding

Current grant funding through a DEQ contract for the District Habitat Biologist and Inmate Work-Crew Leader will end June 30, 1997 which will severely curtail or eliminate the opportunity for the District to provide essential coordination and data collection with other cooperators.

Future

New funding must be obtained in Phase 2 for salaries to keep current staffing of the Habitat Biologist and Inmate Work-Crew Leader. Coordination and oversight of survey efforts will be critical in order to have an accurate and well planned base for future habitat-restoration activities.

Funding will also need to be obtained for services and supplies to implement projects arising from the information base.

Work Schedule

Job: Coordinate survey and inventory efforts with other state agencies, timber companies, and watershed associations.

Start Date: January 1, 1997

Complete: December 31, 1997

****

Objective	Conduct aquatic inventories of all of the basins streams.
Responsibilities	***Umpqua Fish District***. The district will coordinate the activity.
Results	Approx. 1,600 miles of basin streams have been done.
Funding	District, federal, and private
Future	Complete work on remaining streams; most are done.
Work Schedule	Job: Aquatic inventories Start Date: 1990 Complete: 1997

I.B.3 - *Habitat Restoration Evaluation*

Objective

To evaluate representative restoration projects to quantify the effectiveness of techniques used.

To determine appropriate restoration strategies for use in specific situations.

To provide this information for use in restoring salmon spawning and rearing habitat.

Responsibilities

Coos-Coquille Fish District. Current ODFW evaluation and monitoring efforts are associated with grant funded projects. Present monitoring consists of pre and post project photo documentation, adult coho salmon spawning surveys conducted by Steve Jacobs (SRS surveys), local watershed councils, or private landowners, and summer/winter juvenile seeding levels.

Results

Evaluation of representative restoration projects will be used to assess effectiveness and to guide methods useful for future restoration efforts.

Funding

Current grant funding through a DEQ contract for the District Habitat Biologist and Inmate Work-Crew Leader will end June 30, 1997 which will severely curtail or eliminate the opportunity for the District to evaluate restoration projects and to determine effectiveness.

Future

New funding must be obtained in Phase 2 for salaries to keep current staffing of the Habitat Biologist and Inmate Work-Crew Leader. Evaluation of effectiveness of restoration projects will be critical in order to have an accurate and well planned base for future habitat-restoration activities.

Funding will also need to be obtained for services and supplies to implement projects arising from the information base.

Work Schedule

Job: Evaluation of restoration projects to quantify effectiveness of techniques and determine appropriate restoration strategies

Start Date: January 1, 1997

Complete: December 31, 1997

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Objective	To inventory past habitat restoration projects as to the intended objective. To recommended specific changes in techniques or design. To maintain a mapped record of habitat enhancement projects. To aid federal and private landowners in habitat restoration evaluation
Responsibilities	***Umpqua Fish District***. District staff will be responsible to evaluate ODFW designed project on both private and Federal lands. As time allows, district staff will aid in the evaluation of federally designed projects.
Results	Continued improvement in the quality of habitat improvement projects based on collected information of past sites. Continued relationships with both private and federal individuals involved in habitat improvement. Improved instream habitat for juvenile coho.
Funding	District fish management budget.
Future	Habitat restoration evaluation will continue based on district funding and workload.
Work Schedule	Job: Habitat Restoration Evaluation Start Date: Ongoing Complete: Ongoing

I.B.4 - *Inventory of Artificial Barriers*

Objective

To complete an inventory of artificial barriers to upstream and downstream migration of adult and juvenile salmonids.

Responsibilities

Coos-Coquille Fish District. ODFW district staff are not currently conducting culvert inventories. Survey teams funded by grant dollars were provided by the Coos and Coquille watershed associations. They utilized ODFW culvert evaluation forms and have surveyed a majority of culverts in both basins.

Results

Completed evaluation forms have been sent to Al Mirati in Portland HCD for incorporation into a database format. Several culverts have already been repaired based on these survey efforts.

Funding

Grant dollars for survey efforts have been expended

Future

Local watershed associations are planning to survey remaining culverts if grant dollars become available.

New funding will need to be obtained for services and supplies to implement culvert repair or replacement projects arising from inventory efforts.

Work Schedule

Job: Funnel culvert survey information to Portland HCD as necessary.
Start Date: January 1, 1997
Complete: December 31, 1997

Objective	Query the aquatic inventory data set for barriers.
Responsibilities	***Umpqua Fish District***. Umpqua district staff will develop this inventory.
Results	Done, all barriers above 1.5 meters.
Funding	District funds
Future	As needed, the data base will receive additions.
Work Schedule	Job: Inventory of Artificial Barriers Start Date: 1990 Complete: Jan. 1997

Objective

To gather and compile information on artificial barriers to upstream and downstream fish passage in the Rogue Basin.

To conduct an inventory of state and county-owned culverts in the Rogue Basin.

Responsibilities

Upper Rogue Fish District. Rogue District staff will gather inventory information on artificial fish passage barriers in the Rogue Basin that are identified incidental to conducting fish presence surveys and other activities.

Al Mirati of the fish division staff will work with ODOT to acquire funding for conducting an inventory of culverts on state and possibly some county roads in Jackson and Josephine counties.

Results

No direct increase in coho abundance and productivity of habitat will result from these activities, but they will provide information needed for planning and implementing actions that will have more direct impacts.

Corrected passage problems should result in recolonization and resumption of salmon production in habitats where currently excluded.

Prioritized inventory of fish passage problems will serve to guide restoration actions.

Funding

Information gathered incidental to conducting fish presence surveys and other activities will be supported with existing resources (state revenue and Federal Aid in Sport Fish Restoration Program), which are secure.

An inventory of state and county-owned culverts is dependent on funding from ODOT.

Future

Most ODFW habitat improvement projects in the Rogue basin have targeted fish passage and screening problems. A comprehensive inventory of fish passage barriers for the basin will improve guidance for future habitat restoration activities.

ODOT is committed to remediating fish barrier problems as funding is available.

Stability of future funding is primary obstacle for completing a thorough inventory of barriers.

Work Schedule

Job: Gather and compile information on artificial barriers.
Start Date: Ongoing
Complete:

Job: Conduct an inventory of state and county-owned culverts.
Start Date: Uncertain

Complete: Uncertain

****

Objective

To inventory artificial barriers to passage of both adult and juvenile fish.

To provide information for prioritizing removal of artificial barriers (amount of upstream habitat, etc.)

Responsibilities

South Coast Fish District. South Coast District will be responsible for the collection and summarization of information for the South Coast District. The district will collect this information in cooperation with private timber and agriculture landowners, and with local watershed councils

Results

The district has completed an inventory of artificial barriers to upstream passage of adult salmonids. This inventory has been listed in the Guide to Project Selection that ODFW developed for the South Coast in cooperation with the Oregon Wildlife Heritage Foundation and with local private timber companies. Further cooperation with local watershed councils will provide a list of artificial barriers to juvenile fish migration.

Funding

Funding of the completed artificial barrier inventory was through the Oregon Wildlife Heritage Foundation. The culvert inventory being conducted by the watershed councils was funded by Northwest Economic Adjustment Program money. Staff time to coordinate with the watershed councils is from secure district funding.

Future

Better identification of passage problems for juvenile salmonids and cutthroat trout on coastal streams.

Increased cooperation with private timber as OFIC gets involved

Work Schedule

Job: Inventory of artificial barriers to adult salmonids

Start Date: June 1, 1995

Complete: November 1995

Job: Inventory of culverts for juvenile passage problems

Start Date: June 1996

Complete: June 1997

I.D.1 - *Use of Volunteers*

Objective Use volunteers to create fish passage over a approved natural barrier on Fall Creek.

Responsibilities ***Coos-Coquille Fish District***. ODFW District staff will coordinate with volunteers to construct a concrete fishway. Volunteers primarily with the Northwest Steelheaders will be the work force for the project.

Results By creating fish passage at this barrier, 7 miles of prime stream habitat would be available to coho and steelhead. The 7 miles of available stream habitat would allow a significant amount of wild coho and steelhead production annually with little maintenance

Funding The construction project would be funded through donations primarily from Weyerhaeuser and the Bay Area Sportsman Association:

Future Only periodic checks would be needed to ensure that the fishway is not blocked with debris only maintenance of the project will need into the future.

Work Schedule Job: Permits have been received from the Corps of Engineers and the Division of State Lands. The fishway has been designed.

Start Date: July 1, 1997

Complete: September 15, 1997

Objective

To train volunteers as needed to conduct CSRI activities such as habitat surveys, culvert surveys, and spawning surveys.

To coordinate and direct volunteers on salmon restoration projects and activities.

Responsibilities

Upper Rogue Fish District. Upper Rogue fish district staff will provide necessary training and organization of STEP and watershed council volunteers for conducting CSRI activities.

Upper Rogue fish district staff will direct use of volunteers on projects such as salvage work needed to recovery fish screens lost in the New Years Day flood event, fish screen installations, fish presence surveys and habitat improvement projects.

Results

The effectiveness of using volunteers depends on the extent that CSRI actions are implemented.

The benefits from many actions that use volunteers such as riparian restoration projects will probably be 5 to 15 years in the future.

Results will be measured by the number of projects conducted by STEP and other volunteers in support of CSRI actions and the number of volunteer hours spent annually on CSRI actions.

Funding

A STEP biologist is on staff in the Upper Rogue fish district funded by Federal Aid in Sport Fish Restoration Program. Funding of this position is expected to continue into the foreseeable future.

Future

Volunteers presently conduct and assist with a wide range of activities in support of ODFW fishery programs. Additional staff time and better coordination with volunteers will be necessary to optimize the use of volunteers for CSRI activities.

If volunteers are not utilized, the recovery of wild coho will be slower because many of the proposed actions need volunteer help to be carried out.

Effects of ODFW downsizing and transfer of responsibilities to field offices may impact the Upper Rogue District's ability to maintain the current level of volunteer related activities.

Work Schedule

Job: To train volunteers as needed to conduct CSRI activities.
Start Date: Ongoing
Complete:

Job: To coordinate and direct volunteers on salmon restoration projects and activities.
Start Date: Ongoing

Complete:

****

Objective Involve volunteers in CSRI restoration activities in New River, Sixes River, and Elk River basins.

Responsibilities ***South Coast Fish District***. South Coast District will be responsible for working with landowners and interested individuals. Activities will include instream habitat restoration, fixing passage problems, and re-introduction of native coho into areas with unseeded habitat (primarily upstream of artificial barriers once the barriers have been fixed). Many of these projects are identified in the Guide to Project Selection for the South Coast Management District. Many of these will be done in cooperation with local watershed councils.

Results Fencing of degraded riparian areas in agriculture lands.

Instream habitat enhancement projects in selected tributaries of Sixes and Elk rivers.

Re-introduction of coho into Boulder Creek upstream of Floras Lake.

Funding These tasks will be funded under the general South Coast District STEP funding.

Future As CSRI is implemented and as our efforts with private timber and Oregon Wildlife Heritage Foundation are expanded to include small woodlot owners and agricultural landowners we will be identifying more coho restoration projects and involving volunteers in implementation.

Work Schedule Job: Fencing riparian areas in the New River Basin

Start Date: June 1996

Complete: Ongoing

Job: Instream Habitat Restoration

Start Date: June 1996

Complete: Bagley Creek completed summer 1996; other projects to be completed in summer of 1997.

Job: Re-introduction of coho into Boulder Creek

Start Date: Passage scheduled to be fixed summer of 1997; re-introduction, contingent upon passage, in winter 1997-1998.

Complete: 3-yr. life cycle, last fry release in winter of 2000-2001

II.A.1 - *Implement Gene Conservation Strategies*

Objective

Use a high percentage of wild coho to develop hatchery broodstocks. Seine at LaVern Park on the North Fork Coquille River. Use portable traps where and whenever possible. Develop an acclimation site for coho on Sevenmile Creek in the lower Coquille River to obtain a spatial separation between hatchery and wild coho spawners.

Responsibilities

Coos-Coquille Fish District. ODFW District staff will coordinate with volunteers to capture wild coho in netting and trapping operations so their progeny can be used in hatchery programs. Bandon Hatchery staff will operate the acclimation pond. Volunteers primarily with the Coquille STEP Association will be the work force for the project

Results

By incorporating wild coho broodstock into the hatchery population, the entire health and survival of the population will be enhanced. Acclimation of coho in a large stream that enters the main Coquille River near its confluence will provide a considerable distance between the hatchery coho and wild spawners in the basin.

Funding

The project will be joint funded between ODFW and members of the Coquille STEP Association.

Future

The project will need to be continued each generation to ensure genetic health of the hatchery population.

Work Schedule

Job: Incorporate wild broodstock into hatchery programs

Start Date: April 1, 1997 - acclimation

Complete: November 1 - December 15, 1997 - broodstock collection

****

Objective	To reduce risk of genetic degradation through hatchery fish stocking programs. To release hatchery smolts in management programs that allow maximum harvest of hatchery fish and hatchery fry in restoration projects that enhance wild fish natural production.
Responsibilities	***Umpqua Fish District***. Umpqua District biologists will request hatchery production allocations in coordination with Fish Division. Umpqua District will coordinate STEP hatchbox releases to provide specific fry stocking sites for restoration projects. Umpqua District will continue to collect broodstock for Umpqua basin hatchery programs. Acclimation projects will continued at Galesville with the assistance of volunteers .
Results	Reports of stocking numbers and locations will be provided to Region and Fish Division. Marked to unmarked ratios for returning fish will be monitored and reported at Winchester dam, creel surveys, and broodstock collection sites
Funding	District management funding, Volunteer contributions
Future	If new funding is obtained, the South Umpqua coho and winter steelhead broodstock collection will be improved to include a higher percentage of wild fish. New acclimation sites have been proposed for the South Umpqua at Canyonville, Myrtle Creek, Winston, and Roseburg. Additional funds are needed to complete facilities
Work Schedule	Job: Collect broodstock and coordinate hatchery fish rearing and release locations. Start Date: Ongoing Complete: Ongoing

II.A.3 - *Develop Management Objectives, Including Genetic Guideline*

Objective	To review existing management plans for hatchery releases. To provide accurate and timely information of Umpqua basin hatchery programs for coastwide review.
Responsibilities	***Umpqua Fish District***. Umpqua District staff will review broodstock collection guidelines for each hatchery program in basin with Region and Fish Division staff. District biologist will provide guidelines to each project coordinator, as needed.
Results	District staff will summarize broodstock collection activities on an annual basis. Annual review will include recommendations for meeting genetic guidelines.
Funding	District management funds, Rock Creek hatchery funds, fish liberation funds, and volunteer contributions.
Future	If new funding is obtained, fisheries management plan for Umpqua basin will be finalized.
Work Schedule	Job: Complete genetic guidelines for each program. Start Date: October 1996 Complete: June 1997

II.A.4 - *Mark All Hatchery Coho*

Objective Fin-mark all hatchery coho that are produced by volunteers at the Morgan Creek STEP Hatchery.

Responsibilities ***Coos-Coquille Fish District.*** ODFW District staff will coordinate with volunteers to mark wild coho that are reared at the STEP facility.

Results By marking the coho smolts that will be released from the facility the monitoring of strays will be enhanced and a potential to harvest these resulting hatchery coho in Coos Bay in the future.

Funding The project will be joint funded between ODFW and members of the Northwest Steelheaders Association.

Future The project will need to be continued each generation to ensure that the fish are marked with a distinguishable fin clip.

Work Schedule Job: Fin-mark hatchery coho salmon
Start Date: October 1, 1997
Complete: October 31, 1997

Objective To finmark all hatchery smolts released in Umpqua basin.

Responsibilities ***Umpqua Fish District.*** District coordinate finmarking schedule and funding sources with Region, hatchery facilities, and Fish Division.

Results All hatchery fish are identified during broodstock collection projects and ocean/inland fisheries.

Funding Fish Division, Region, Douglas County

Future If additional funds are available, a higher percentage of hatchery fish will be adipose finmarked to reduce finmark mortality. Also, additional research could be conducted to evaluate differential mortalities from various marking or tagging methods.

Work Schedule Job: Coordinate finmarking coho at various facilities in basin.
Start Date: September 1996
Complete: May 1997

Objective All hatchery coho released into the Rogue River will be marked with either a fin mark or some other external mark.

Responsibilities ***Upper Rogue Fish District***. Upper Rogue District staff will submit marking requests. Cole Rivers Hatchery, fish culture and technical services staff will coordinate and conduct marking.

Results This action allows all hatchery adult coho to be identified in Huntley Park adult seining catches and Gold Ray Dam counts; providing a high level of precision in estimating escapement of both wild and hatchery fish and measurement of straying rates on spawning ground counts.

In addition, this action supports angling regulations that allow a river fishery targeted at hatchery fish only; and allows wild fish to easily be identified for incorporation into hatchery brood stock to achieve genetic objectives.

This action is written into the annual production plan for Rogue coho that are propagated at Cole Rivers Hatchery.

Hatchery release records document mark information for all hatchery fish release groups.

Funding This action is supported by COE mitigation funding for the operation of Cole Rivers Hatchery and is secure through 1996-97 fiscal year.

Future Marking of all hatchery coho salmon is expected to continue into the foreseeable future.

If funding is cut, fin marking costs will need to be funded by reducing other programs

Work Schedule Job: To mark all hatchery coho released into the Rogue River (1996 brood).
Start Date: To be scheduled
Complete: September 30, 1997

II.B.1 - *Utilize Hatcheries To Rebuild Wild Runs*

Objective Capture wild broodstock and utilize their progeny to seed vacant rearing habitat above an impassable falls on Fall Creek on South Fork Coos River. Once a juvenile coho population is established the barrier will be corrected and a self-sustaining coho population will be created.

Responsibilities ***Coos-Coquille Fish District***. Coos-Coquille Fish District. ODFW District staff will coordinate with volunteers to capture wild coho broodstock and spawn and incubate eggs and fry. Volunteers will haul and release the fry in Fall Creek.

Results By the establishment of a new self-sustaining coho population the number of wild coho produce annually in the drainage will be increased by a minimum of 100 individuals.

Funding The project will be joint funded between ODFW and members of the Northwest Steelheaders Association.

Future The project will need to be continued through the 1996 brood year to ensure full seeding of the habitat.

Work Schedule Job: Utilize hatcheries to rebuild wild runs.
Start Date: January 1,1997 - incubate eggs
Complete: March 30, 1997 - release fry

III.A.2 - *Manage Estuary and River Salmon Fisheries to Minimize Impact*

Objective

To reduce number of wild coho harvested during inriver fisheries.

Responsibilities

Umpqua Fish District. District staff will recommend inriver regulation proposals to Region and Fish Division staff.

District will provide information materials and conduct specific educational activities to anglers in higher risk fisheries.

District will coordinate CEP projects with local OSP.

Results

Appropriate regulations will be enacted by Commission.

Reduced incidental harvest of wild coho by anglers.

Reduced overall mortality of wild coho during salmon fisheries.

District Creel survey information and OSP compliance reports will be summarized and reported annually.

Funding

District and Region seasonal EBA funds

Future

If more funding is made available, a higher percentage of angler surveys would be conducted on a regular bases. This direct contact, in addition to more informational brochures and educational activities by District staff, would further reduce the risk of incidental mortality of wild coho.

Work Schedule

Job: Complete creel surveys
Start Date: October 1996
Complete: September 1997

Job: Coordinate and complete CEP plans with OSP.
Start Date: December 1996
Complete: September 1997

Job: Regulation Proposals
Start Date: Ongoing
Complete: Ongoing

Job: Provide information materials and education activities
Start Date: Ongoing
Complete: Ongoing

****

Objective	To provide a fishery on fin-marked hatchery coho in the lower Rogue River and estuary with minimal impact to the wild population.
Responsibilities	***South Coast Fish District.*** South Coast District will be responsible for monitoring trend in unmarked coho interception. South Coast Oregon State Police game officers will be responsible for enforcing violations (only fin-marked coho may be kept, all coho releases fin-marked since 1993).
Results	Provides a popular and viable hatchery coho fishery important to the local economy. Fishery monitored with creel checks and guide log-books. High priority for OSP enforcement as established under CEP
Funding	Monitoring the fishery will be done by local district staff on secure district funding.
Future	This fishery was open Oct. 1-Oct. 15 in 1995. Because impact to wild population was thought to be minor it has been opened from Sept. 1-Dec. 31 beginning in 1996.
Work Schedule	Job: Monitor fishery with creel checks and log-books. Start Date: Sept. 1997 Complete: Fishery ends late Oct., conducted annually

III.A.3 - *Manage Trout Fisheries to Reduce Ecological Interactions and Mortality on Juvenile Salmonids*

Objective	To relocate trout stocking programs from rivers and streams.
Responsibilities	***Umpqua Fish District***. Umpqua District staff will make proposals to modify trout stocking programs to Region and Fish Division. Umpqua District will provide information to local areas to encourage trout angling in stocked lakes and reservoirs.
Results	Trout angling will be closed in all basin streams and rivers. All fishing will be eliminated in 92% of Umpqua basin streams with anadromous salmonids present.
Funding	ODFW
Future	If more funding was available, decreased trout fishing opportunities would be minimized through more frequent stocking times, improved condition of trout stocked in lakes and reservoirs, and increased educational materials.
Work Schedule	Job: Relocate hatchery trout releases. Start Date: March 1997 Complete: July 1997

****

Objective	Implement angling regulations approved for 1997 that provide continued and additional protection of wild coho salmon juveniles from harvest-related mortality in the Rogue Basin.
Responsibilities	***Upper Rogue Fish District.*** The Fish and Wildlife Commission approved 1997 regulations recommended by ODFW staff that will provide continued and additional protection (spring closures of Rogue and Illinois rivers to trout angling) of wild coho salmon juveniles from harvest related mortality in the Rogue Basin.
Results	Benefits of angling restrictions may be small to juvenile coho. Angling regulations are public documents that anyone can examine and hold the agency accountable.
Funding	The actions require no additional funding.
Future	Continuation of restrictive regulations that protect juvenile coho salmon from harvest mortality are expected to continue into the foreseeable future.
Work Schedule	Job: Implementation of angling regulations that protect juvenile coho salmon. Start Date: Continued beginning January 1, 1997 Complete:

****

Objective Continue stocking catchable trout in areas of the Rogue Basin not used by coho or other anadromous salmonids.

Responsibilities ***Upper Rogue Fish District.*** The Upper Rogue District and fish division staff will continue to direct stocking of catchable trout in areas of the Rogue Basin not used by coho or other anadromous salmonids

Results Before 1994, large numbers of hatchery trout were stocked in much of the mainstem Rogue River used by anadromous salmonids.

Coho and steelhead may benefit from shifting trout stocking from anadromous production areas to standing water bodies, reducing potential for incidental harvest-related mortality, predation, competition, and disease risks.

All stocking of hatchery trout is recorded by date and location and filed by ODFW, and available for examination to hold the agency accountable.

Funding This action is supported by existing funding (state revenue and Federal Aid in Sport Fish Restoration Program), which is secure..

Future Stocking of catchable trout into areas not used by anadromous fish is expected to continue into the foreseeable future.

Work Schedule Job: Stocking of catchable trout into areas not used by anadromous fish.
Start Date: Continuing since 1994
Complete:

III.B.2 - *Develop Opportunities for Terminal Coho Fisheries*

Objective

Consider expanding the number of coho smolts that are released into Noble Creek on Isthmus Slough were there already exists a good terminal fishery for hatchery coho returning to a STEP hatchery.

Responsibilities

Coos-Coquille Fish District. ODFW staff will make an investigation to determine if additional coho smolts could be reared at other hatcheries around the state using the Coos River coho stock. The current allocation of 55,000 coho smolts is paid for by ODFW. Volunteers working in the Department's STEP program would capture and spawn the adult coho. ODFW hatchery personnel would take care of the coho from incubation to release.

Results

By expanding the number of coho smolts that were released into Isthmus Slough the number of angler days expended in the area would increase proportionately.

Funding

The project will be joint funded between ODFW and STEP volunteers.

Future

The project will need to be continued as long as hatchery coho are needed to augment wild coho production.

Work Schedule

Job: Develop opportunities for terminal coho fisheries.

Start Date: January 1,1997 - investigate additional rearing

Complete: March 30, 1998 - release smolts

IV.A.1 - *Provide Technical Assistance*

Objective

To promote increased habitat protection and restoration by sharing data and providing technical assistance to federal agencies, state agencies, and other local government that have regulatory authority over activities that occur in salmon habitat.

Responsibilities

Coos-Coquille Fish District. ODFW district staff will review incoming fill/removal permit applications from the Division of State Lands and provide data necessary about fish and wildlife impacts from the project. We have also provided "Essential Spawning and Rearing Maps" to the DSL for data sharing needs, and we will update this map as new information arises. Our district will also review incoming water right applications and provide fish resources information about the stream water is being requested. We will also provide necessary fish resource information to ODF when stream crossings, yarding corridors, or riparian cutting may occur.

Results

The data provided to regulatory agencies will provide guidance about the potential impact from a project. The regulatory agencies can then make educated decisions about project management that can then protect the fisheries resource.

Funding

Currently our staff has two assistant fisheries biologist. Both assistant district biologist have been assigned to habitat protection especially reviewing DSL, ODF, and the Water Resources Department permit applications. These staff are funded by Wallop-Breaux.

Future

New funding for Phase 2 would provide additional moneys for a salaried position to keep-up with continued demands for data sharing with regulatory agencies. Additional funded personnel would also assist with coordination with federal reviews such as NEPA and BLM timber sales.

Work Schedule

Job: Provide technical assistance to federal agencies, state agencies, and other local government.

Start Date: January 1, 1997

Complete: December 31, 1997

****

Objective	To work closely with DSL, WRD, DOF, and federal agencies by conducting onsite inspections of activities affecting salmonid habitat. To comment on permit renewals, and newly proposed projects that affect salmonid habitat. To conduct sub-watershed landowner seminars providing information on habitat protection.
Responsibilities	***Umpqua Fish District***. District staff will continue to act as on ground leads for all local agencies.
Results	Improved communication with landowners, state and federal agencies, and local governments. Increased protection by ODFW presence and recommendations.
Funding	District fish management funding.
Future	Habitat protection will continue as long as district funding and workload allow
Work Schedule	Job: Provide technical assistance for habitat protection Start Date: Ongoing Complete: Ongoing

****

Objective

To consult with landowners, developers, contractors; and federal, state and local regulating agencies on land-use activities, natural resource related issues and projects including, logging operations, water right applications, water quality issues, fill/removal projects, mining, state lands leasing, road construction/maintenance, etc.; and consult with local county and city planning departments in the Rogue River Basin on land-use issues and projects that may impact fish habitat, including assisting county and city planning agencies with preparation of riparian protection and setback ordinances through the periodic review process

Responsibilities

Upper Rogue Fish District. Upper Rogue District staff will provide technical assistance including review and comments on permit applications, plans and NEPA documents and participate in interagency planning efforts.

Results

ODFW and the Upper Rogue District places a high priority on habitat protection activities at both the staff and field levels.

These are ongoing activities that must be maintained or increased to assure sufficient protection of coho salmon habitat and success of other CSRI actions.

The level of participation by regulating agencies will affect the success of ODFW habitat protection efforts.

Results may be measured by the number of miles of stream affected by rules, standards or guidelines that protect, enhance, restore or maintain salmon habitat; and the number of applications reviewed and comments submitted to regulating agencies.

Funding

Maintaining the current level of consultation will require additional staff and funding to compensate for proposed 97-99 reductions that are expected to shift additional responsibilities to District staffs.
Without additional resources the Upper Rogue District cannot assure a sufficient level of cooperation and technical assistance to protect salmonid habitat at the desired level and prevent further degradation of salmon habitat.

Future

If additional resources are obtained for implementation of CSRI actions increased emphasis will be given to habitat protection activities.

Work Schedule

Job: Consult and provide technical assistance to agencies and others on fish habitat protection issues.

Start Date: Ongoing

Complete:

Objective Provide information on habitat and fish populations to agencies involved in permitting or planning land management activities.

Provide recommendations on work timing, strategies, and priorities.

Responsibilities *South Coast Fish District.* South Coast District will be responsible for cooperating with other agencies in the review of permit applications, inventory and data collection, and planning efforts.

Results The district subscribes to all permit applications (Fill & Removal, Timber Operation, Water Right, etc.) potentially affecting fish habitat and reviews those permit applications. Where appropriate the district provides comment to the regulatory agency. The district coordinates with all local land use planning efforts (County, Municipal, State, Federal), sharing data and making recommendations when appropriate. The district cooperates with biologists from other agencies in data collection and project design.

Funding These activities are done as part of routine district work with currently secure district funding.

Future This type of cooperation will be increasingly important and we will continue to do it.

Work Schedule Job: This is an ongoing effort with no start or completion date.
Start Date:
Complete:

IV.A.3 - *Protect Instream Flows*

Objective	To continue surveys to identify streams with insufficient flows which may be affecting coho survival. Apply for instream flow protection in source area coho streams if needed.
Responsibilities	***Umpqua Fish District***. Umpqua district staff will continue to survey streams in the basin for water flows. Work with HCD on applying for possible instream flow protection.
Results	Increased instream water rights for protection of coho habitat that will result in increased survival.
Funding	District fish management funding.
Future	Protection of instream water rights will depend on district budgets, workload, and priorities.
Work Schedule	Job: Protect instream flows. Start Date: Ongoing Complete: Ongoing

****

Objective To identify streams where coho salmon production will benefit by acquiring instream water rights.

Responsibilities ***Upper Rogue Fish District***. Upper Rogue District staff will develop a list of coho salmon streams that do not have instream water rights and prioritize needs for conducting instream flow studies.

Results Applications for instream water rights on over 130 Rogue Basin streams were submitted in 1991 and have completed or are nearing completion of certification. Instream flow protection on most coho salmon producing streams in the Rogue River Basin will be covered by these instream water rights.

Results may be measured by the number of certified water rights by stream, reach, fish species benefited, and flow rate that are secured for the Rogue Basin, and the number of applications submitted for new instream water rights for the Rogue Basin.

Funding Existing resources are adequate to identify any additional coho producing streams that would benefit from securing instream water rights and prioritizing their importance.

Funding would need to be identified to conduct instream flow studies needed to apply for additional instream water rights.

Future Fish production in many Rogue Basin streams is limited by low streamflows and high water temperature in the summer. Acquiring instream water rights is important to improving both conditions in the future.

Identification of resources for WRD monitoring and enforcement of instream flows is essential to realizing fishery benefits from instream water rights.

Work Schedule Job: Identify streams where coho salmon that need instream water rights.
Start Date: February 1, 1997
Complete: December 31, 1997

IV.A.4 - *Administratively Close Fill and Removal Areas*

Objective

Protect important spawning and rearing areas by consulting with DSL and WRD to close fill and removal activities in these areas.

Responsibilities

Coos-Coquille Fish District. District staff has provide a "Essential Spawning and Rearing Map" for salmonid species in the district. We will continue to up-date this map as necessary and make recommendation to DSL and WRD for protection standards.

Results

ODFW does not have the regulatory power to close spawning and rearing areas to fill and removal activities. Data sharing with agencies who do such as DSL and WRD will at least provide better protection standards.

Funding

Currently our staff has two assistant fisheries biologist. Both assistant district biologist have been assigned to habitat protection especially reviewing DSL, ODF, and the Water Resources Department permit applications. These staff are funded by Wallop-Breaux.

Future

New funding for Phase 2 would provide additional moneys for a salaried position to keep-up with continued demands for data sharing with regulatory agencies

Work Schedule

Job: Protect important spawning and rearing areas by consulting with DSL and WRD to close fill and removal activities in these areas.

Start Date: January 1, 1997

Complete: December 31, 1997

Objective To continue close working relationships with DSL and WRD by reviewing renewal permits, and proposed projects.

To actively visit removal operations during project work periods.

To actively pursue reported violations by conducting onsite inspections.

Responsibilities ***Umpqua Fish District***. District staff will continue to work on local issues.

Results Reduction of fill and removal violations by onsite visits, which provides protection of existing salmonid habitat.

Reduce the number of fill and removal permits in the watershed.

Funding District fish management funding.

Future All fill and removal activities will be examined as long as district budgets are available, workload dictates review, and priorities on issues.

Work Schedule Job: Administratively close fill and removal areas.

Start Date: Ongoing

Complete: Ongoing

IV.A.5 - *Prevent Large Wood Removal*

Objective Prevent the removal of large wood from streams.

Responsibilities ***Coos-Coquille Fish District***. District staff will work with ODF, DSL, and county government to protect wood in the streams. We have been very active in past projects such as Saunders Lake, Coquille River, and the West Fork of the Millicoma River to prevent wood removal. Currently ODF has now adopted a rule change to protect wood in their forest practice laws. Our district will continue to work with ODF and DSL to further define rules to protect downed wood in streams.

Results As mentioned above, ODF has now developed a rule change in the forest practice laws to protect downed wood in forested areas. Large wood will be further protected as DSL develops further rule changes of the Fill and Removal laws. Already DSL is beginning to protect logs by not provided leasing agreements in waters of the state.

Funding Currently our staff has two assistant fisheries biologist. Both assistant district biologist have been assigned to habitat protection especially reviewing DSL, ODF, and the Water Resources Department permit applications. These staff are funded by Wallop-Breaux.

Future New funding for Phase 2 would provide additional moneys for a salaried position to keep-up with continued demands for data sharing with regulatory agencies.

Work Schedule Job: Work with ODF, DSL, and county government to protect wood in the streams.

Start Date: January 1, 1997

Complete: December 31, 1997

****

Objective	To maintain current levels of large wood and boulders in Umpqua watershed streams. To develop handouts describing the importance of large wood to coho salmon.
Responsibilities	***Umpqua Fish District***. District staff will continue to work with local private landowners, DOF, DSL, and federal agencies to protect instream materials.
Results	Protect the current amounts of large wood and boulders in streams from removal.
Funding	District fish management funding.
Future	Protection of instream materials will continue based on district budgets, workloads, and district priority issues.
Work Schedule	Job: Prevent large wood removal. Start Date: Ongoing Complete: Ongoing

IV.A.6 - *Provide Technical Assistance*

Objective

To 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.

Responsibilities

oos-Coquille Fish District. ODFW staff are currently providing technical assistance o several watershed councils, timber companies, and private landowners as work load ermits. Present level of assistance will continue to be given for as long as the District abitat Biologist position is funded.

Results

Technical assistance is critical for giving landowners, watershed councils, and other cooperators direction on projects that will provide the highest benefits for salmonids.

Funding

Current grant funding through a DEQ contract for the District Habitat Biologist and Inmate Work-Crew Leader will end June 30, 1997 which will severely curtail or eliminate the opportunity for the District to provide essential technical assistance.

Future

New funding must be obtained in Phase 2 for salaries to keep current staffing of the Habitat Biologist and Inmate Work-Crew Leader. ODFW sees it's role as important to provide encouragement through cooperative efforts and technical assistance.

Work Schedule

Job: Continue to provide technical assistance to private landowners, watershed councils, and other cooperators as funding permits

Start Date: January 1, 1997

Complete: December 31, 1997

****

Objective	To expand habitat protection actions in the Umpqua basin. To expand current levels of participation with landowners, local governments, state and federal agencies.
Responsibilities	***Umpqua Fish District***. District staff will promote habitat protection in the Umpqua basin.
Results	Improved habitat protection measures regarding salmonid habitat. Increased knowledge by private landowners on habitat protection guidelines and improvement techniques.
Funding	District fish management funding.
Future	Habitat protection actions will continue based on district funding and personnel, workload, and priorities.
Work Schedule	Job: Promote and assist habitat protection actions. Start Date: Ongoing Complete: Ongoing

****

Objective Provide technical assistance to landowners, agencies, watershed councils and others on habitat protection programs and projects

Responsibilities ***Upper Rogue Fish District.*** Upper Rogue District staff will provide technical assistance including review and comments on permit applications, plans and NEPA documents and participate in interagency planning efforts.

Results ODFW and the Upper Rogue District places a high priority on habitat protection activities at both the staff and field levels.

These are ongoing activities that must be maintained or increased to assure sufficient protection of coho salmon habitat and success of other CSRI actions.

The level of participation by regulating agencies and others will affect the success of ODFW habitat protection efforts.

Results may be measured by the number of consultations and project reviewed, and comments submitted to regulating agencies.

Funding Maintaining the current level of consultation will require additional staff and funding to compensate for proposed 97-99 reductions that are expected to shift additional responsibilities to District staffs.

Future If additional resources are obtained for implementation of CSRI actions increased emphasis will be given to promoting habitat protection.

Work Schedule Job: Consult and provide technical assistance to agencies and others on fish habitat protection issues.

Start Date: Ongoing

Complete:

****

Objective Provide technical assistance to local, non-agency stakeholders.

Responsibilities ***South Coast Fish District.*** Russ Stauff, South Coast District Fish Biologist, is responsible for the district's involvement with local stakeholders. Specific responsibilities are: Todd Confer, Assistant District Fish Biologist, ODFW representative on the South Coast Coordinating Watershed Council; Clayton Barber, South Coast STEP Biologist, responsible for working with volunteers, watershed councils and landowners; and Gary Susac, Elk River Project Leader, responsible for working with the Elk River Watershed Council and Elk River landowners.

Results The district is in the process of developing an effective network of local stakeholders and appropriate forums to work within.

Effective working relationship with local watershed councils

OR Wildlife Heritage Foundation funded forum with local private timber

Cooperative project with the City of Brookings on Jack Creek

Funding These current efforts are conducted as routine district activities under secure district funding. However, with the loss of Gary Susac's position district effort will decrease in this area. We are in the process of developing a cost-share budget based on grant money obtained by OWHF for work on private timber lands, similar to the effort on the North Coast. If successful, this may fund part-time technical assistance.

Future We will be faced with a need to increase our efforts in this area as more people become involved. Hopefully, the private timber forum will be successful and will be expanded to include small woodlot owners and agricultural landowners.

Work Schedule Job: Cooperation with Watershed Councils.
Start Date: 1993
Complete: Ongoing

Job: OWHF/Private Timber Stream Restoration
Start Date: 1995
Complete: Projects in current guide completed by summer 1998

Job: City of Brookings/Jack Cr. Project
Start Date: 1996
Complete: Ongoing, contingent upon development of golf course

IV.A.7 - *Landowner Stewardship Award*

Objective	Provide incentive to landowners through an awards program to restore fish habitat.
Responsibilities	***Coos-Coquille Fish District***. District staff will nominate a landowner each year who has demonstrated good stewardship skills on their land.
Results	These will provide further incentive for landowners to cooperate in salmon restoration.
Funding	Current staff are funded by Wallop-Breaux.
Future	Continue current levels of staff.
Work Schedule	Job: Nominate a landowner each year who has demonstrated good stewardship skills. Start Date: January 1, 1997 Complete: December 31, 1997

****

Objective	To identify landowners in the Umpqua Basin who have voluntarily improved salmon habitat.
Responsibilities	***Umpqua Fish District***. District staff will select landowners for stewardship award.
Results	Each year Umpqua Basin landowners will be recognized for their participation in the restoration of salmon habitat.
Funding	Umpqua district fish management budget.
Future	Landowner Stewardship Awards will continue based on district funding and workload priorities.
Work Schedule	Job: Landowner Stewardship Award Start Date: Ongoing Complete: Ongoing

IV.B.1 - *Direct Habitat Restoration to Where It Will Do the Most Good*

Objective

Direct habitat projects where the investment will do the most good for salmon recovery.

Prioritize projects for maximum effectiveness based on specific limiting factors, potential for success or recovery status, projects based on proven approaches and techniques, and magnitude of gains expected.

Responsibilities

Coos-Coquille Fish District. District staff are presently working on a habitat restoration guide for coho salmon. This will provide the technical assistance to watershed councils for project prioritization. We have also worked on watershed analysis in the Williams and East Fork of the Millicoma Rivers. We will be advising ODF for watershed analysis on the Elliott State Forest in the coming year. These watershed analysis have all developed restoration strategies with prescription documents. Our staff will also attend the technical advisory team meetings for Coos County and make recommendations on future habitat restoration projects proposed by watershed councils.

Results

Maximum benefits for investments made should be realized for habitat restoration projects.

Funding

Permanent staff are funded by Wallop-Breaux. Current grant funding through a DEQ contract for the District Habitat Biologist and Inmate Work-Crew Leader will end June 30, 1997 which will severely curtail or eliminate the opportunity for the District to direct habitat restoration activities where they will do the most good.

Future

Demands from developing watershed councils are overloading district staff. New funding must be obtained in Phase 2 for salaries to keep current staffing of the Habitat Biologist and Inmate Work-Crew Leader in order to meet these demands.

Work Schedule

Job: Direct habitat projects where the investment will do the most good for salmon recovery.

Start Date: January 1, 1997

Complete: December 31, 1997

****

Objective	To use Umpqua Habitat Restoration Guide for direction on protection and improvement activities. To use the Umpqua District Habitat Matrix to further fine tune areas for habitat protection and improvement.
Responsibilities	***Umpqua Fish District***. Umpqua distinct staff will continue to direct projects to areas that will do the most good.
Results	By using the guide and matrix together, habitat protection and improvement projects will be directed to stream reaches in the Umpqua basin that will produce increases in salmonid spawning, holding, and rearing habitat.
Funding	District fish management funding.
Future	Direction of habitat restoration projects will continue based on district funding, personnel, and priorities.
Work Schedule	Job: Direct habitat restoration to where it will do the most good. Start Date: Ongoing Complete: Ongoing

****

Objective

To complete a habitat restoration guide for non-federal lands in the Rogue River Basin.

To coordinate with watershed councils and others in the Rogue Basin using restoration guides and some form of watershed analysis to set priorities for restoration.

Responsibilities

Upper Rogue Fish District. ODFW has secured funding to complete a restoration guide for the upper Rogue River Basin.

Upper Rogue District Staff will provide technical assistance to watershed councils and other entities developing recommendations for restoration actions in the Rogue River Basin.

Results

Habitat restoration guides and ODFW technical support will ensure that habitat restoration activities are focused to address factors that limit production of anadromous salmonids, particularly coho salmon.

Based on guides developed for other areas to date, they will serve to inform and focus landowners and other interested parties on the best approach to habitat restoration in the short term and in context of long-term needs and habitat needs of other indigenous species.

Guides will serve as a vehicle to generate funds and other resources for habitat restoration projects because stream reaches for projects are selected based on best available information and clearly identified to interested parties.

Results may be measured by the number of habitat restoration projects completed, the number of stream miles in the Rogue Basin that are improved by restoration activities, and changes in specific habitat characteristics.

Previous habitat surveys completed or coordinated by ODFW will be used as baseline conditions to evaluate project impacts on habitat characteristics.

Information on restoration projects implemented in the upper Rogue Basin will be recorded and filed at the Upper Rogue District office.

Funding

Funding for completion of a habitat restoration guide for the upper Rogue River Basin has been identified.

The level of technical support from ODFW for habitat restoration activities will continue using existing resources but cannot be increased to the desired level without additional funding.

Future

The restoration guides should be amended and updated at least every three years to add stream reaches appropriate for restoration work as information becomes available to identify and set priorities.

Restoration guides and watershed analysis documents will continue to provide primary direction to watershed councils and others for prioritizing habitat restoration projects.

Additional funding is needed to provide future technical support to Watershed Councils, and other agencies and groups involved in habitat restoration activities.

Completion of more comprehensive watershed analyses and restoration plans is dependent upon the seven watershed councils in the middle and upper Rogue Basin and funding to do the analysis and planning.

Work Schedule

Job: Complete a habitat restoration guide.
Start Date: 1997 ?
Complete: 1997 ?

Job: Coordinate with watershed councils and others on habitat restoration project priorities.
Start Date: Ongoing
Complete:

****

Objective To provide prioritization of protection and enhancement/restoration efforts from a watershed perspective for coho recovery.

Responsibilities ***South Coast Fish District***. South Coast District staff are responsible for providing guidance and direction in the prioritization of protection and enhancement activities.

Results Prioritization is inherent in both ODFW-IV.A.1 and in ODFW-IV.A.6. In addition:

Technical assistance to watershed councils on watershed reports.

Technical assistance to USFS and BLM on watershed analysis.

Development of a Guide to Project Selection for South Coast Streams for private timber lands.

Funding The Guide to Project Selection for South Coast Streams was funded by the Oregon Wildlife Heritage Foundation. Other activities are conducted as part of routine district activities on secure district funding.

Future The district is currently working with the OWHF and local private timber companies to develop a stream habitat restoration forum similar to what was done on the North Coast. Ultimately, there will be cooperation with the Watershed Councils and other specific landowner groups (like private timber, agriculture, etc.) maximizing the restoration efforts.

Work Schedule Job: Technical assistance to councils on watershed reports.
Start Date: Summer 1995
Complete: Completed

Job: Technical assistance to federal agencies on watershed analysis.
Start Date: Ongoing
Complete:

Job: Development of "Guide to Stream Restoration on the South Coast"
Start Date: Summer 1995
Complete: November 1995

IV.B.2 - *Promote Habitat Restoration*

Objective

To promote and support salmon habitat restoration activities.

To obtain as much positive publicity as feasible about restoration efforts.

Responsibilities

Coos-Coquille Fish District. ODFW staff currently promotes restoration activities primarily through participation in local watershed councils. Activities not only include benefits to salmon habitat but also promote restoration of healthy watershed functions.

Results

The promotion of restoration activities in the district has taken form in specific articles in The World and Oregonian newspapers, Evergreen magazine, and at watershed conferences.

Funding

Current grant funding through a DEQ contract for the District Habitat Biologist and Inmate Work-Crew Leader will end June 30, 1997 which will severely curtail or eliminate the opportunity for the District to promote and support salmon restoration activities.

Future

New funding must be obtained in Phase 2 for salaries to keep current staffing of the Habitat Biologist and Inmate Work-Crew Leader. ODFW sees it's role as important to promote and support salmon restoration activities through media contacts and providing technical advice

Work Schedule

Job: Work with landowners and agencies to promote habitat restoration activities for salmon and restore watershed functions.

Start Date: January 1, 1997

Complete: December 31, 1997

****

Objective

To maintain current level of district habitat restoration projects on both private and federal lands.

To increase involvement with private landowners who are interested in habitat restoration.

Use existing Umpqua Habitat Restoration Guide and Umpqua Habitat Matrix to promote restoration.

Responsibilities

Umpqua Fish District. Umpqua district staff will continue to aid landowners and federal agencies in proposing, and installation of habitat projects.

The district staff will continue to develop habitat projects based on recent aquatic survey data.

Results

Maintain or increase the number of habitat restoration projects in the Umpqua watershed.

Increase landowner contacts regarding habitat restoration.

Funding

District fish management funding.

Future

The promotion of habitat restoration will continue based on district funding and personnel, workload, and priorities.

Work Schedule

Job: Promote habitat restoration

Start Date: Ongoing

Complete: Ongoing

Objective To provide technical guidance and review of habitat restoration projects proposed by Watershed Councils, Soil and Water Conservation Districts, private timber companies, federal agencies and other local interest groups and individuals

Responsibilities ***Upper Rogue Fish District***. Upper Rogue District staff will coordinate and provide technical assistance and review of habitat restoration projects proposed by Watershed Councils, Soil and Water Conservation Districts, private timber companies, the Salmon Trout Enhancement Program, federal agencies and other local interest groups and individuals.

Results Habitat restoration activities will improve and increase spawning and rearing habitat for coho salmon and contribute to recovery of coho populations by increasing production of smolts.

Results may be measured by the number of habitat restoration projects completed and the number of stream miles in the Rogue Basin that are improved by restoration activities.

Previous habitat surveys completed or coordinated by ODFW will be used as baseline conditions to evaluate projects to increase pools, habitat complexity, increase gravel and address other habitat characteristics.

Information on restoration projects implemented in the upper Rogue Basin will be recorded and filed at the Upper Rogue District office.

Funding Spawning habitat restoration projects that are designed to increase instream structure and reduce erosion are expensive.

Progress toward restoring coho habitat depends on the level of funding available for planning and implementation of habitat restoration projects.

Restoration projects are expected to continue to be funded largely by USFS, BLM, STEP, R&E, private timber companies and by private donations from sportsman's groups.

Funding has been identified to complete a restoration guide (see ODFW-IV.B.1) for non-federal lands in the Rogue River Basin which will serve as a vehicle to generate funds and other resources for habitat restoration projects.

Future The level of future restoration activity depends on the level of future funding available through various sources. Watershed Councils are expected to serve a primary role in pursuing and implementing restoration projects on private lands.

The level of support from ODFW for habitat restoration activities will continue but cannot be increased to desired level without additional funding.

Coho production in a representative sample of stream reaches will be monitored with juvenile seeding surveys conducted in both winter and summer, and through spawning surveys to measure qualitative increases in use by coho salmon.

Monitoring will be conducted primarily by Upper Rogue District staff with possible assistance provided by Rogue Basin watershed councils and volunteers.

Work Schedule

Job: Provide technical guidance and review of habitat restoration projects.

Start Date: Ongoing

Complete:

IV.B.3 - *Promote Beavers*

Objective	To develop a map of current beaver activity in the Umpqua watershed. To conduct a research project by radio tagging and relocating beaver in suitable habitat and monitoring movement. To encourage wildlife district to protect beaver in coho source areas.
Responsibilities	***Umpqua Fish District***. Beaver promotion will continue using both district fish and wildlife staff.
Results	The protection of beaver in coho source areas, and the relocation of nuisance beaver to suitable habitat for enhancement of stream function.
Funding	District fish management funding, district wildlife funding, local volunteer groups, and Oregon Hunters Association.
Future	Protection of existing beaver populations in coho source areas, along with an increased amount of habitat by relocating beavers into suitable habitat. Research is proposed for one year but could be extended if funding was available.
Work Schedule	Job: Promote beaver Start Date: Ongoing Complete: Ongoing

IV.B.4 - *Use Hatchery Carcasses*

Objective

To increase nutrients in streams similar to what probably occurred when natural spawning runs were historically higher.

Responsibilities

Coos-Coquille Fish District. ODFW staff and STEP volunteers will collect carcasses of fall chinook salmon on the Coos River at Noble Creek and Morgan Creek STEP hatcheries and distribute them to areas where coho production might benefit from a boost in production.

Results

If DEQ permits the process in 1997, we propose to place up to 500 carcasses in Elk Creek, Cougar Creek, Tioga Creek, Beaver Slide Creek, Fall Creek, and other suitable streams, depending on the density approved in the DEQ permit.

Funding

Current staff and STEP volunteers will conduct the 1997 work within existing budgets.

Future

Expanding the program into more streams with larger numbers of carcasses in future years in Phase 2 may require additional funding.

Work Schedule

Job: Use carcasses to increase nutrients in streams.

Start Date: January 1, 1997

Complete: December 31, 1997

****

Objective

Evaluate the use of hatchery salmon carcasses in streams.

Place hatchery carcasses in streams where they may benefit the system.

Responsibilities

South Coast Fish District. South Coast District will be responsible for evaluating the retention and movement of radio-tagged salmon carcasses in the Chetco River.

The Elk River Hatchery and the South Coast District will place consider placing surplus hatchery salmon carcasses at specific locations in the Elk River Basin.

Results

The district will summarize the movement of radio-tagged chinook carcasses for two years in the Chetco River to assess carcass retention.

The hatchery and the district will systematically place carcasses in areas of the Elk River Basin that will potentially benefit coho salmon.

Funding

The Chetco River project was a study on fall chinook that was funded through the Northwest Economic Adjustment Program (hire the fishermen). Monitoring of carcass retention and movement is an offshoot of that study that will be conducted with existing district resources. Placement of hatchery carcasses in Elk River will be conducted with existing hatchery and district resources.

Future

The evaluation of carcass retention is a two year project that will conclude in spring 1997. The placement of hatchery carcasses in the Elk River can go on as long as there is a hatchery program, and since the program is an indicator for the U.S./Canada Treaty it is likely to be persistent.

Work Schedule

Job: Chetco River carcass retention and movement

Start Date: January 1996

Complete: May 1997

Job: Elk River hatchery carcass placement

Start Date: Fall 1997

Complete: January, annually

IV.B.5 - *Restore Instream Flow*

Objective	To expand the number of instream water rights by purchasing, leasing, or donation.
Responsibilities	***Umpqua Fish District.*** District staff will act as direct contacts to local landowners who wish to give water rights.
Results	Increased water rights and improved water flow within the Umpqua basin.
Funding	District fish management funding.
Future	Restoration of instream flows will depend on the amount of district funding and personnel available to pursue them, workload, and priorities.
Work Schedule	Job: Restore instream flows Start Date: Ongoing Complete: Ongoing

****

Objective

To support and cooperate with Oregon Water Trust efforts to increase streamflows in key anadromous fish producing streams of the Rogue Basin through purchase, lease, or donations of existing out-of-stream water rights.

Responsibilities

Upper Rogue Fish District. . Oregon Water Trust (OWT) will pursue opportunities with water right holders. Upper Rogue District staff will consult with OWT with identifying priority streams.

ODFW consulted in 1996 with OWT to establish priorities streams to focus purchase lease efforts in 1997.

Results

Fish production in many Rogue Basin streams is limited by low streamflows and high water temperature in the summer.

Increased streamflows resulting for water right acquisitions will improve fish habitat by reducing water temperatures resulting in increased smolt production.

Results may be measured by the number of water right leases, purchases and donations by stream, reach, fish species benefited, and flow rate secured for the Rogue Basin.

WRD annual report will document enforcement actions to protect transferred water rights. Records can be monitored where instream flow gauges are stationed.

Funding

OWT has limited funds available to purchase and lease water rights. Substantial strategic purchase or lease arrangements will require large amounts of money.

Future

OWT has acquired several small water right leases in the Rogue Basin since 1993. Water right acquisition depends mainly on voluntary cooperation by water right holders and availability of funds for purchase and lease of water rights.

Identification of resources for WRD monitoring and enforcement of instream flows is essential to realizing fishery benefits from acquired water rights.

Voluntary transfers (especially gifts) may provide tactical protection of small but essential flows, with added advantage of older priority date.

Work Schedule

Job: Support and cooperate with OWT to acquire water rights in the Rogue Basin through lease, purchase and donation.

Start Date: Ongoing

Complete:

IV.C.1 - *Cooperative Removal of Barriers*

Objective Pursue opportunities to remove barriers to fish passage.

Responsibilities ***Coos-Coquille Fish District***. ODFW staff will work with the regulatory agencies such as DSL and ACOE to get a cooperative agreement with the City of Powers to remove the barrier at their water intake facility. ODFW staff have already agreed to screen their intake to prevent juvenile fish from certain death, and are negotiating with the City of Power for a long-term intake site without a dam.

Results ODFW staff expects the fish passage dam to be removed by the year 2000.

Funding Will be completed with existing staff.

Future Additional sites for cooperative removal of barriers will be identified for specific action in future years.

Work Schedule Job: Pursue opportunities to remove barriers to fish passage.
Start Date: January 1, 1997
Complete: December 31, 1997 with final results by the year 2000.

****

Objective To use aquatic habitat inventory data on over 1700 miles of Umpqua Basin streams to identify fish passage problems.
To assist landowners with identified passage problems with criteria, and on site recommendations.

Responsibilities ***Umpqua Fish District***. District staff will act as direct contacts to local landowners who have identified fish passage problems, and query information from survey data as requested.

Results Identify existing fish passage problems from aquatic survey data.

Repair current fish passage barriers in the Umpqua Basin.

Funding District fish management funding.

Future Restoration of fish passage problems will depend on the amount of district funding and personnel available to pursue them, workload, and priorities.

Work Schedule Job: Cooperative Removal of Barriers
Start Date: Ongoing
Complete: Ongoing

****

Objective

To coordinate with the COE and other agencies to complete planning and design efforts needed to remove a portion of Elk Creek Dam. Partial dam removal is expected to resolve the fish passage issues associated with this barrier.

Responsibilities

Upper Rogue Fish District. The COE is presently coordinating with ODFW, NMFS and other agencies on planning and design efforts to remove a portion of Elk Creek Dam.

Southwest Region (Tom Satterthwaite), HCD (Nancy MacHugh) and Upper Rogue District staff (Mike Evenson are assisting with consultation and review of proposals..

Results

Removal of a portion of Elk Creek Dam will improve upstream fish passage for adult and juvenile salmonids in Elk Creek resulting in less delay and associated prespawning mortality, improved access of adults to preferred spawning areas and increased smolt production.

Effects of specific projects on the coho salmon populations are quantifiable but will require additional resources to evaluate.

Funding

The COE has committed resources to complete planning and design work on this project.

Removal of a portion of Elk Creek Dam is dependent on appropriation by congress of adequate funding, which could be affected by political considerations.

Future

USACE has indicated a solid commitment to remove a portion to Elk Creek Dam by the 1998-99 passage season to facilitate unrestricted fish passage.

This is a controversial issue locally. Funding, legal and political factors could delay action on this project.

Work Schedule

Job: Planning and design to remove of a portion of Elk Creek Dam

Start Date: Ongoing

Complete: December 1997

****

Objective

To coordinate with BOR, and other agencies and organizations to make needed fish passage improvements on four major water diversions on Antelope Creek, South and North forks of Little Butte Creek, and Bear Creek.

Coordinate with BOR and other agencies and organizations to complete construction of a new fishway at the Rogue River Valley Irrigation District diversion on Antelope Creek.

Complete modification of the Rogue River Valley Irrigation District diversion (Jackson Street Dam) on Bear Creek.

Responsibilities

Upper Rogue Fish District. John Johnson, ODFW Fish Division staff, and Upper Rogue Fish District staff will attend coordination meetings, and review and provide comments on plans and proposals.

Results

Completion of these projects will significantly improve upstream fish passage for adult and juvenile salmonids in Little Butte Creek and Bear Creek systems resulting in less delay and associated prespawning mortality, improved access of adults to preferred spawning areas and increased smolt production.

Effects of specific projects on the coho salmon populations are quantifiable but will require additional resources to evaluate.

Funding

The new ladder installation on Antelope Creek will be funded by BOR, which has identified funding for that project.

The Jackson Street Dam project has been partially completed and funding is identified to complete modification of the old diversion dam in 1997.

Fish passage improvement on the North and South forks of Little Butte Creek, and the other Bear Creek diversions are expected to be funded by BOR and will depend on future congressional appropriations.

ODFW fish passage program staff will assist through consultation.

Future

Completion of these projects on North and South forks of Little Butte creeks and other diversions on Bear Creek are scheduled for completion b y 1999 but could be affected by the availability of funding.

Work Schedule

Job: Coordination with BOR and other agencies and review of proposals
Start Date: Ongoing
Complete: Through 1997

Job: Construction of new fishway at Antelope Creek diversion
Start Date: June 15, 1997

Complete: October 31, 1997

Job: Modification of Jackson Street Dam on Bear Creek
Start Date: June 15, 1997
Complete: September 15, 1997

****

Objective

To work with the existing interagency group to develop and implement an action plan for 1997 to address push-up dams in the Illinois Valley.

Work with the Little Butte Creek Watershed Council to expand assessment and outreach activities that were initiated in 1996 in the Illinois Valley.

Responsibilities

Upper Rogue Fish District. An interagency group comprised of representatives from OSP, DSL, ODFW (Mike Evenson), WRD, DEQ, GWEB, BOR, NRCS, the Illinois River Watershed Council and other agencies will develop an action plan for 1997 to continue work that began in 1996.

OSP (Larry Belcher) and DSL (Bob Brown) GWEB (Mark Grenbemer) and WRD (Al Cook) will lead coordination efforts related to development the an action plan for 1997.

The Illinois River Watershed Council will provide primary assistance to landowners with planning and implementation of alternatives to push-up dams.

Upper Rogue District staff (Mike Evenson and Jerry Budziak) will assist with inventory activities, identifying compliance problems, reviewing permit applications, recommending conditions for operation of existing push-up dams and coordinating with DSL, WRD and OSP on use of enforcement where cooperative efforts fail.

Major elements of the plan include inventory, education, compliance with DSL permitting rules.

The 1996 action plan focused on completing on inventory of push-up dams in the Illinois Valley; and an outreach program to provide information to irrigators on permit requirements, ways of minimizing impacts of push-up dams on fish habitat alternatives to push-up dams, and available resources for assisting irrigators to implement alternatives.

The 1997 plan is expected to emphasize compliance with permitting requirements; consulting with landowners on ways of minimizing impacts of push-up dams on fish habitat, identifying alternatives and assisting irrigators in identifying funding for implementing alternatives; and enforcement where cooperative efforts fail.

Upper Rogue District staff (Jerry Vogt) will coordinate with the Little Butte Creek Watershed Council to expand assessment and outreach activities..

Results

Conversion to alternatives for push-up dams, such as infiltration galleries or concrete diversions with removable stoplogs, will improve fish passage for adult and juvenile salmonids resulting in less migration delay and associated mortality, improved access of adults to preferred spawning areas, and increased smolt production.

Alternatives will also avoid gravel disturbance and associated mortality to incubating eggs and fry during push-up dam installation.

Effects of specific projects on the coho salmon populations are quantifiable but will require additional resources to evaluate.

Results will be measured by the number and percentage of push-up dams in the Illinois Valley and other portions of the Rogue Basin that are converted to other methods of water withdrawal; or acquire DSL permits to operate.

Funding

The present coordination, inventory, outreach and enforcement efforts will be supported with existing resources. Assistance for irrigator to assess the feasibility and implement alternatives is funded through the Illinois Valley Soil and Water Conservation District.

NRCS provides assistance to irrigators with designing push-up dam alternatives. BOR may provide additional assistance by assigning an engineer to the Rogue Basin.

Availability of future funding to assist irrigators with implementing alternatives is a key factor to that will affect the interest to irrigators to pursue alternative methods for withdrawing irrigation water.

Future

In 1996, three of 26 identified push-up dams in the Illinois Valley were converted to alternatives (infiltration galleries).

Continued interagency involvement, including enforcement actions where cooperative efforts fail, and availability of future funding to assist irrigators with implementing alternatives are key factors that will determine the effectiveness of present efforts, and motivate irrigators to comply with regulatory requirements and pursue alternative methods for withdrawing irrigation water.

Work Schedule

Job: Develop and implement 1997 interagency action plan on push-up dams in the Illinois Valley.
Start Date: Ongoing
Complete: December 31, 1997

Job: Implement outreach program on push up dams to the Little Butte Creek.
Start Date: January 1, 1997
Complete: December 31, 1997

Objective To work with agencies, landowners, timber companies and others to improve fish passage at culverts and other artificial barriers.

Responsibilities ***Upper Rogue Fish District.*** Rogue District staff will work with landowners and DSL to correct or improve fish passage at sites where culvert blow outs occurred due to the New Years Day flood.

Results Improvements of fish passage for adult and juvenile salmonids are expected to result in less migration delay and associated mortality, improved access of adults to preferred spawning areas, and increased smolt production.

Results will be measured by the number of culverts where fish passage provisions comply with ODFW standards.

Funding This action will occur in conjunction with habitat protection activities (see ODFW-IV.A.6) which are supported by state and federal funding sources.

Future The present emphasis on this action is for the purpose of taking advantage of a limited opportunity brought about by the New Year's Day flood events, which washed out several culverts.

On-going future activity is expected to emphasize correcting fish passage problems related to culverts located on public roads and private timber lands

Work Schedule Job: Work with agencies, landowners, timber companies and others to improve fish passage at culverts and other artificial barriers.

Start Date: Ongoing

Complete:

****

Objective Remove artificial barriers to fish passage through cooperation with landowners and other regulatory agencies.

Responsibilities ***South Coast Fish District.*** South Coast District staff will be responsible for working with landowners, watershed councils, and other agencies to remove artificial barriers.

Results Artificial barriers to coho migration have recently been removed on Fourmile Cr. in the New River Basin and on Bagley Cr. in the Elk River Basin, through cooperation with landowners and watershed councils. We have reached cooperative agreements for the removal of other artificial barriers to coho migration on several other tributaries in the New River Basin with ODOT, private landowners, and watershed councils.

Funding Funding has been provided by grants obtained by watershed councils, by the landowners, and by ODOT. Technical assistance is provide by the district staff as part of our routine duties.

Future The removal of all artificial barriers to fish passage.

Work Schedule

Job: Fourmile Creek Culvert
Start Date: Summer 1996
Complete: Summer 1996

Job: Bagley Creek Ladder
Start Date: Summer 1996
Complete: Summer 1996

Job: Boulder Creek Fish Ladder
Start Date: Summer 1996
Complete: Summer 1997

Job: ODOT Culverts in New River Basin
Start Date: Summer 1995
Complete: Fall 1998

IV.C.2 - *Screen Diversions Less Than 30 CFS*

Objective	To continue to conduct site visits with landowners requesting assistance with screening water intake systems.
Responsibilities	***Umpqua Fish District.*** District staff will continue to make onsite visits, and will direct the landowner to contact staff screening coordinator in Corvallis.
Results	Increase the number of screen diversions in the district that will improve the survival of salmonid juveniles
Funding	District fish management funding.
Future	On-site visits of screen diversion less than 30 cfs. will continue based on district funding and personnel, workload, and priorities.
Work Schedule	Job: Screen diversions less than 30 cfs. Start Date: Ongoing Complete: Ongoing

****

Objective Use existing cost share program to fund screening projects that exceed the resources available through the 100% funded program from carry forward Watershed Health funds (see ODFW-IV.C.4).

Responsibilities ***Upper Rogue Fish District***: Roy Elicker of the Fish Division will provide primary direction, coordination and oversight of the screening program. The upper Rogue District will provide local supervision, coordination and necessary support for the screens technician stationed in Central Point that is assigned to coordinate and oversee installation of screens on south coast streams.

Results Screen installations will result in reduced mortality of juvenile salmon and steelhead at water diversions and increased survival to adulthood.

Results will be measured by the number and percentage of small (<30 cfs) water diversions in the Rogue River Basin that are adequately screened to prevent entrainment of salmonids.

Effects of specific projects on the coho salmon populations are quantifiable but will require additional resources to evaluate.

Past emphasis has been directed primarily at screening of ditch type diversions. The present program includes additional emphasis for screening of pump diversions.

Funding Funding is secure for the cost share program through the 1995-1997 biennium.

Reaction of diverters to the fully funded program using carryover watershed health funds has been excellent. Increased incentives to the cost share program would increase participation and accelerated the rate of progress toward completing screening goals.

Personnel are presently assigned to assist with new screen installations through June 1997. Continuation of the present effort beyond June 1997 will depend on future funding appropriations.

Funding for periodic monitoring of proper maintenance and operation of screens is presently done by Upper Rogue District screening staff with existing resources. Future monitoring workload is expected to increase. Funding needs to be identified to meet this increased demand.

Future The cost share screening program for diversions under 30 cfs is voluntary, and while it provides a significant monetary incentive, many diverters choose not to participate because they cannot take advantage of the tax credit and must absorb significant out-of-pocket expenses.

Additional incentives are needed to attract the level of voluntary participation stimulated through the 100% funded program using carryover Watershed Health

funds (see ODFW-IV.C.4).

Screen maintenance on new screen installation will be the responsibility of irrigators. Maintenance and operation will need to be monitored periodically throughout each irrigation season by the Upper Rogue District screening crew to ensure that fish protection benefits are achieved.

Work Schedule

Job: Complete installation of fish screens funded with carry-over Watershed Health funds.

Start Date: Ongoing

Complete: Expected to continue through 1997

IV.C.3 - *Watershed Health Funds ($200,000) To Meet Fish Screening Needs*

Objective	To utilize Watershed Health Funds ($200,000) to fund fish screens on the South Fork Coquille River, East Fork Coquille River, and Bear and Bill creeks (Coquille).
Responsibilities	***Coos-Coquille Fish District***. ODFW district staff will work with Bernie Kepshire, the statewide Fish Screening Coordinator, to prioritize and obtain water users who are willing to screen their diversions.
Results	An increasing number of water diversions will be screened to protect juvenile coho.
Funding	This work is being funded by Watershed Health ($200,000).
Future	New funding will be required to expand this program beyond the initial funding level. The $200,000 may be fully expended soon.
Work Schedule	Job: Work with Bernie Kepshire, statewide Screening Coordinator, to continue to increase the number of diversions that are screened in the Tenmile/Coos/Coquille District. Start Date: January 1, 1997 Complete: December 31, 1997

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Objective

Complete installation of fish screens funded under a special 100% funded fish screening project using the carry forward WSH funds targeted for the South Coast.

Prioritize water diversions to be screened in the Rogue and South Coast basins, first in "critical" areas and then in the entire basins.

Coordinate this effort with the Governor's Office, watershed councils and local agricultural and other water users.

Responsibilities

Upper Rogue Fish District. Roy Elicker of the Fish Division will provide primary direction, coordination and oversight of the screening program. The upper Rogue District will provide local supervision, coordination and necessary support for the screens technician stationed in Central Point that is assigned to coordinate and oversee installation of screens on south coast streams.

Results

Screen installation will result in reduced mortality of juvenile salmon and steelhead at water diversions and increased survival to adulthood.

Results will be measured by the number and percentage of small (<30 cfs) water diversions in the Rogue River Basin that are adequately screened to prevent entrainment of salmonids.

Effects of specific projects on the coho salmon populations are quantifiable but will require additional resources to evaluate.

Past emphasis has been directed primarily at screening of ditch type diversions. The present program includes additional emphasis for screening of pump diversions.

Funding

Funding is secure for the WSH effort through the 1995-1997 biennium. Initial reaction of diverters to this fully funded program has been excellent.

Personnel have already been temporarily reassigned to assist with this special project and new screen installations are progressing.

Additional funding would accelerate the pace of completing screening projects.

Funding for periodic monitoring of proper maintenance and operation of screens is presently done by Upper Rogue District screening staff with existing resources. Future monitoring workload is expected to increase. Funding needs to be identified to meet this increased demand.

Future

Actions to address fish screening issues are ongoing. The present program provides additional resources and greater incentives for landowners to participate.

Installation of new screens funded with existing resources will be completed in 1997. Existing funding is inadequate to meet the response for participation. Funding needs to be identified for continuing the program beyond June 1997.

Screen maintenance on new screen installation will be the responsibility of irrigators. Maintenance and operation will need to be monitored periodically throughout each irrigation season by the Upper Rogue District screening crew to ensure that fish protection benefits are achieved

Work Schedule

Job: Complete installation of fish screens funded with carry-over Watershed Health funds.

Start Date: In progress

Complete: June 30, 1997

IV.C.4 - *Screening of Water Diversions Greater Than 30 CFS*

Objective	To continue to conduct site visits with landowners requesting assistance with screening water intake systems.
Responsibilities	***Umpqua Fish District***. District staff will continue to make onsite visits, and will direct the landowner to contact staff screening coordinator in Corvallis.
Results	Increase the number of screen diversions in the district that will improve the survival of salmonid juveniles.
Funding	District fish management funding.
Future	On-site visits of screen diversion greater than 30 cfs. will continues based on district funding and personnel, workload, and priorities.
Work Schedule	Job: Screen diversions greater than 30cfs. Start Date: Ongoing Complete: Ongoing

****

Objective

Work cooperatively with irrigation districts on the Little Butte and Bear creek watersheds, BOR, WRD, and other agencies and organizations to complete screen upgrades at the Rogue River Valley Irrigation District diversion on Antelope Creek and the Talent Irrigation District Oak Street diversion on Bear Creek.

Responsibilities

Upper Rogue Fish District. John Johnson, ODFW Fish Division staff, and Upper Rogue Fish District staff will attend coordination meetings, and review and provide comments on BOR plans and proposals.

Results

Coordination and planning efforts to improve fish screening facilities on the Little Butte Creek and Bear Creek watersheds is presently in progress.

Screen upgrades will conform to existing federal and state screening standards and result in reduced mortality of juvenile salmon and steelhead and increased survival to adulthood.

Effects of these projects on coho salmon populations are quantifiable but will require additional resources to evaluate.

Funding

BOR has identified funding to complete improvements at the Antelope Creek and Oak Street diversions in 1997.

Screening program and Upper Rogue District staff will assist through consultation.

Funding for periodic monitoring of proper maintenance and operation of screens is presently done by Upper Rogue District screening staff with existing resources. Future monitoring workload is expected to increase. Funding needs to be identified to meet this increased demand.

Future

The present commitment of the key agencies and organizations (BOR, the irrigation districts, etc.) indicates that new screens will be installed in 1997 at these diversions.

Screen maintenance will be the responsibility of irrigation districts. Maintenance and operation will need to be monitored periodically throughout each irrigation season by the Upper Rogue District screening crew to ensure that fish protection benefits are achieved.

Work Schedule

Job: Complete installation of screen upgrades on Antelope and Oak Street.
Start Date: Planning began in 1996; start of construction - 7/1/
Complete: 11/30/

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Objective Work cooperatively with irrigation districts on the Little Butte and Bear creek watersheds, BOR, WRD, and other agencies and organizations to plan screen upgrades for the South and North forks of Little Butte Creek diversions.

Responsibilities ***Upper Rogue Fish District.*** John Johnson, ODFW Fish Division staff, and Upper Rogue Fish District staff will attend coordination meetings, and review and provide comments on BOR plans and proposals.

Results With completion of these projects, all >30 cfs irrigation diversions on Little Butte Creek and Bear Creek systems will conform with existing federal and state screening standards with the completion of these projects resulting in reduced mortality of juvenile salmon and steelhead and increased survival to adulthood.

Effects of specific projects on the coho salmon populations are quantifiable but will require additional resources to evaluate.

Funding All screening upgrade projects on Little Butte Creek and Bear Creek diversions are expected to be funded by BOR. The completion schedules for North and South fork Little Butte Creek diversions will depend on future BOR funding appropriations.

Screening program staff will assist through consultation.

Funding for periodic monitoring of proper maintenance and operation of screens is presently done by Upper Rogue District screening staff with existing resources. Future monitoring workload is expected to increase. Funding needs to be identified to meet this increased demand.

Future The present commitment of the key agencies and organizations (BOR, the irrigation districts, etc.) indicates that new screens will be installed at these diversions within 5-7 years; sooner if funding is identified.

Screen maintenance will be the responsibility of irrigation districts. Maintenance and operation will need to be monitored periodically throughout each irrigation season by the Upper Rogue District screening crew to ensure that fish protection benefits are achieved.

Work Schedule Job: Planning of upgraded screen installations on North and South forks of Little Butte Creek diversions.

Start Date: Began in 1996

Complete: Through 1997

Oregon Department of Fish and Wildfire
Coastal Salmon Restoration Initiative
1997 Phase 1 Implementation Plan

APPENDIX 2

Fish District Work Plans
from the
Columbia Region

(Includes the North Coast and Tillamook Districts)

ODFW-I.B.1: Adult Escapement & Juvenile Coho Salmon Production Assessment

Tillamook

- District has two downstream migrant traps operated by volunteers (Jacoby and Patterson Creeks). Will continue to explore potential expansion of these type projects with volunteers.
- Continue coordination of adult escapement monitoring (spawning ground surveys) with responsible staff personnel.

North Coast

- District staff will continue to assist the spawning survey program by facilitating access to survey areas (providing gate keys, landowners to contact, etc.), by reviewing random survey selection list for validity and reviewing survey results for accuracy.

ODFW-I.B.4: Inventory of Artificial Barriers

Tillamook:

- District is working with NRCS personnel to begin a program of culvert inventory on agricultural lands.
- District has worked with Department of Forestry to identify known, or suspected, culvert passage problems on private timberlands; and will continue to do so in the future.
- District will coordinate with Oregon Department of Forestry on state land's culvert inventory and repairs.

North Coast:

- The District Biologist will complete a prioritized list of culvert, tide gates, other artificial barriers and provide this information to ODFW's Fish Passage Coordinator. District staff will provide information to appropriate landowners, agencies (ODOT, County Roads Departments) and work with these parties to support or assist them with support and technical expertise to resolve these passage problems.

ODFW-I.C.1, 2, & 3: Predation Issues

Tillamook

- District will continue involvement in the smolt protection programs on Tillamook and Nestucca Bays.
- District will coordinate with Trask and Cedar Creek Hatcheries to continue monitoring adult returns for predator scars.
- District will review data received from the smolt protection program to attempt to identify areas of special concern for frequent predation.

North Coast

- The District Biologist will continue to act as a liaison between Fish Division and the Nehalem Estuary Cormorant hazing contractors to ensure that the proper information is being collected. Without additional staff we will not be able to ensure that the contractor is performing up to contract requirements. District staff will respond to media and public information requests on this program.
- District staff will be sensitive to development and/or documentation of other areas where predation may be leaving a serious impact.
- District staff will work with North Nehalem Hatchery staff to ensure that smolt quality and release strategies are consistent with minimizing predation on "conservation hatchery" stocks.
- District staff will work with Habitat Biologist and volunteers to ensure that both natural and restored backwater areas provide protection from avian predators.
- ODFW-I.C.3 - Once a serious predation problem has been identified, the District Biologist will work through appropriate channels to resolve the problem. District staff will respond to media and public inquiries on this issue.

Hatcheries

- Collecting predator scar data on steelhead returning to Nehalem, Big Creek, Cedar Creek and Trask.

ODFW-I.D.1: Use of Volunteers

Tillamook

- District will hold a public meeting to inform and recruit volunteers for district activities.
- District will continue working as technical advisors to local watershed councils. Councils active include Nestucca and Netarts; Tillamook NEP will evolve into a council at the conclusion of the project.

North Coast

- District staff will continue to coordinate with STEP and the North Coast Fish Habitat Biologist to use volunteers to provide brush cover for alcove areas and plant trees in riparian areas. Anticipated future additional use of volunteers include carcass distribution, assistance in hatchery coho removal at North Fork Nehalem trap, collection of wild coho adults and/or

juveniles to develop a conservation brood stock at North Nehalem Hatchery. We will work with the Oregon National Guard and the North Coast Habitat Biologist, if appropriate, to develop a pilot project using explosives to create alcoves and large instream wood with root wads attached. As the North Coast District shares a STEP Biologist and a Habitat Biologist with another district, additional staffing is necessary to accomplish more in this activity area.

Hatcheries

- Trask, Cedar Creek, Nehalem, and Big Creek all participating in wild broodstock collection and/or out planting of wild origin fry.

ODFW-II.A.1: Implement Gene Conservation Strategies

Tillamook

- Coho are in compliance of WFMP in the District.
- District is presently undertaking a wild winter steelhead broodstock project.
- Acclimation projects for winter steelhead, summer steelhead, and spring chinook are being operated using one pond, (a second pond is under repair), two net pens; and using hatchery facilities to acclimate as identified in WFMP.
- Hatchery coho released (200 K) are now direct hatchery releases.

Excess hatchery steelhead are released into District lakes.

North Coast

- The District Biologist will develop the technique to trap and remove marked hatchery coho from the North Fork Nehalem River at the North Fork Fall trap. The program could be initialed when appropriate wild type brood stock is developed as it appears that wild North Fork. Nehalem coho have been extirpated. The trap and removal process will provide over 25 miles of good spawning and rearing habitat, free from hatchery influence. The District Biologist will request hiring two EBAs from September 1 to December 15, to operate the trap. The removal system is estimated to cost approximately $5,000 if hatchery production is expended beyond the 200,000 smolt level. If smolt release levels are 200,000 or less and/or if returning adults are wild type stock, the present manual removal system will be adequate.

Hatcheries

- Review and improve release strategies if possible.
- Extra effort to collect adults.
- Follow adult collection guide lines.

ODFW-II.B.1: Utilize Hatcheries to Rebuild Wild Runs

North Coast

- At North Nehalem Hatchery adult coho returning every third year beginning 1996 are Fishhawk stock. This stock was obtained by trapping a middle Nehalem River tributary for wild brood in the early 1980s. The stock still retains a run timing similar to wild coho and is thought to be suitable to develop a self-sustaining wild type population. The 1996 spawning took eggs from all segments of the run for a 200,000 smolt production level. In 1997 and 1998, it will be necessary to trap adult wild coho to provide a suitable stock. There are very few wild coho returning to the North Fork Nehalem, so Fishhawk Lake fishway trapping appears to offer the most realistic opportunity to incorporate a wild stock into hatchery production. It is unlikely that the total runs into Fishhawk Creek exceed 100 fish today, so wild production will be slow to develop. The seasonal discussed in the previous action, with assistance from hatchery personnel and volunteers, could implement wild brook stock adult trapping at both North Fork Falls and Fishhawk Lake. If it was desirable to accelerate this program by trapping additional wild adult populations or initiating juvenile captive program, the district would have to hire 2-4 additional seasonals.

Hatcheries

- Determine what wild stock, if any. Reduced production (See II.A.2.)

ODFW-II.B.2: Evaluate Effectiveness of Using Hatchery Reared Fish to Restore Wild Runs

Hatcheries

- Provided marked fish, which includes double index, to allow for this evaluation.

ODFW-I.A.4: Mark All Hatchery Coho

Tillamook

- District has had 100% marked coho beginning with 1994 smolt releases (By 1993).

Hatcheries

- All coho are now being marked.

ODFW-III.A.2: Manage Estuary and River Salmon Fisheries to Minimize Impact

Tillamook

- Tillamook Bay angling regulations (areas and timing) have been modified to emphasize protection of coho during the fall chinook fishery.
- Fall chinook bag limits have been modified; spring chinook bag limit and season length have been modified.

North Coast

- The district will recommend that all river and estuary fisheries be closed to the taking of coho except for the North Fork Nehalem in 1997 and 1998 and the Nehalem River estuary in 1998, when the first 100% marked adult coho return from a 600,000 smolt release. 1998 will present an opportunity to investigate the estuary fishery impacts on wild coho as well as obtain an estimate of estuary fall chinook catch. A statistical creel program should be designed to look at both of these issues. The district would have considerable input into study design. It is unclear whether the district or harvest management would be responsible for initiating and implementing the study. The creel survey could be done by a single surveyor working from July 1 through November 15.
- If North Nehalem Hatchery is operated as a conservation hatchery, it is unlikely that there would be any harvestable surpluses in the North Fork Nehalem River or the Nehalem estuary after 1998.

ODFW-III.A.3: Manage Trout Fisheries to Reduce Ecological Interactions and Mortality on Juvenile Salmonids

Tillamook

- Trout angling is restricted to catch and release only in waters open to trout angling; all unnamed tributaries are closed to angling.
- All trout stocking was restricted to standing waters beginning in 1994.

North Coast

- The district will not release catchable trout into streams and will continue to recommend reduced trout bag limits and a ban on use of bait. The district will issue an annual news release in mid-April that will encourage against the use of bait in district streams.

ODFW-III.B.2: Develop Opportunities for Terminal Coho Fisheries

Tillamook

- Trask River was opened to coho (finclipped only) fishery in 1996.

ODFW-IV.A.1: Provide Technical Assistance for Habitat Protection

Tillamook

- District will continue cooperative efforts with available staff following agency downsizing.
- District will continue to provide technical advisory support to local watershed councils.

North Coast

- The district will continue to provide technical assistance to landowners and other agencies that strike a balance between fish and fish habitat protection, society's needs and political reality. We anticipate an increase demand for these services with T/E listings, the OCSRI, and the development of numerous watershed councils within the district. Participation in watershed councils may reduce and/or mitigate damages from projects that impact fish habitat. Without additional help, these duties will take inreasingly more of the Assistant District Biologist's time.

ODFW-IV.A.3: Protect Instream Flows

Tillamook

- District will continue to work with Water Resource District to ensure IWRs are being met.
- District will continue to watch for opportunities to convert, or purchase, surface water rights for IWRs.

North Coast

- The Assistant District Biologist will continue to work with Water Resources District to minimize legally permitted water withdrawals (domestic and livestock use). District staff will continue to follow-up, document and report on illegal water withdrawals. District staff will work with Water Resources District and water users to develop diversion plans that protect flows and accommodates the user's needs. The District Biologist will submit a written proposal to the City of Seaside that advocates maximum use from storage and lower river pumping to provide increased summer flows in about nine miles of the Nehalem River watershed. The city has recently developed the capability of implementing this concept.

ODFW-IV.A.5: Prevent Large Wood Removal

Tillamook

- District will pursue acquisition of a log brand to be placed on all logs used in habitat projects.

North Coast

- District staff will continue to document the removal of large wood from streams and advocate for specific O.R.S. protection. We will continue to try to convince landowners not to remove wood from streams. Participation in watershed councils will provide a forum to promote the benefits of instream wood.

ODFW-IV.A.6: Promote and Assist Habitat Actions

Tillamook

- District will continue to provide technical assistance to private landowners, watershed councils, and other cooperators as feasible with available staff following agency downsizing.

North Coast

- See discussion under IV.A.1. District staff will increase written acknowledgment and recognition of habitat protection efforts. This will include media contacts. Participation in watershed councils provides an excellent forum for this activity.

ODFW-IV.A.7: Landowner Stewardship Award

Tillamook

- District will participate in the Landowner Stewardship Award program.

North Coast

- The District Biologist and Assistant District Biologist will be alert to document landowners' activities that warrant consideration for the "Landowner Stewardship Award."

ODFW-IV.B.1: Direct Habitat Restoration To Where It Will Do The Most Good

Tillamook

- Habitat restoration activities identified in the Coho Stock Status Report are being undertaken as funding allows.
- The North Coast Habitat Restoration Site Guide was completed, is being implemented, and nearing completion for projects identified.
- Tillamook State Forest Fish Enhancement Restoration Guide is nearing completion and implementation scheduled to begin in 1997.

North Coast

- The district has worked with timber landowners, OWHF, Fish Division and Fish Research to develop habitat restoration guides for the entire district. The District Biologist will continue to make changes to these guides as more information becomes available. The District Biologist will work with salmon survey crews to specifically identify potential sites for alcove construction and big instream wood potential. The District Biologist will draft a letter to the ODFW Fish Habitat Survey program to encourage this program to specifically identify sites with outstanding habitat enhancement/ restoration potential. District staff participation in watershed councils should provide an excellent forum for exchange of information or habitat restoration potential.

ODFW-IV.B.2: Promote Habitat Restoration

Tillamook

- District will continue to provide technical assistance to private landowners, watershed councils, and other cooperators as feasible with available staff following agency downsizing.

North Coast

- The Assistant District Biologist works closely with Astoria, Tillamook and Forest Grove Oregon Department of Forestry districts to review timber sales for habitat restoration opportunities. The opportunities are "ground truthed" as the sale date approaches. We have worked closely with DSL to implement "bio-engineering bank protection." Will continue to work with DSL on implementation of this program.
- District staff will be alert to opportunities that are outside the scope of the current OWHF/Timber Industry sponsored restoration program and actively pursue landowner's cooperation.
- The District Biologist will work with the Oregon National Guard to use their equipment and skills (blasting) to accomplish habitat restoration work. The district will encourage and participate in habitat restoration project tours with media representatives, educators, landowner groups and the Governor's salmon team.
- The district will participate in watershed councils. This is necessary to promote productive habitat restoration activities with SWCDs and landowners.
- The district will work with ODOT and County Road Departments to encourage mitigative and/or restoration activities when their equipment is working adjacent to coho production areas. The District Biologist will work with the Clatsop County Road Department to best utilize the existing "Monetary Credit" for effective fish habitat restoration programs.

ODFW-IV.B.3: Promote Beavers

Tillamook

- District will coordinate with wildlife personnel to trap and transplant damage beavers, as feasible, into suitable habitat areas identified in aquatic habitat inventory (AQI) surveys.

North Coast

- The district recognizes the paradox of promoting beavers while ODFW permits essentially unregulated harvest of these animals. The district will promote the value of beavers to the media, to forest landowners, to educators, to SWCSs, to ODOT, to County Road Departments, and to the Watershed Councils. The district is awaiting a position paper that we understand is being prepared by Fish Research. If this is not forthcoming soon, the District Biologist will prepare a short paper on the merit of beaver while recognizing the need to control "problem beavers." The District Biologist is preparing a packet of beaver information for the use of a Clatsop County educational and environmental consultant.

ODFW-IV.B.4: Use Hatchery Carcasses

Tillamook

- District is, and will continue, using volunteers to complete carcass dispersal activities for selected sites in the District.

North Coast

- The district prepared a proposal to distribute carcasses from North Nehalem Hatchery in 1996. This will be acted on in 1997. Cutbacks in production at this hatchery will reduce the scope of carcass distribution beginning in 1999. The District Biologist and STEP Biologist will or have made presentations on this issue while soliciting volunteer distribution help from the Rainland Flycasters. The district will promote this program at Watershed Council forums and to the media when the opportunity presents itself.

Hatcheries

- Will provide carcasses to approved programs and will coordinate with pathology to avoid any potential for disease transfer.

ODFW-IV.B.5: Restore Instream Flow

North Coast

- Most water diversions in the district are very small (domestic use) or municipal uses. There is little opportunity for significant water right conversion.

ODFW-IV.B.6: Fish Habitat Improvement Tax Credit Program

North Coast

- The District Biologist will contact two landowners and recommend completion of appropriate forms for already completed projects. We will also submit a completed form from a 1996 project. Because of the $100,000 cap and increased interest in the program, we will be very careful of advocating this program to landowners considering future projects.

ODFW-IV.C.1: Cooperative Removal of Barriers

Tillamook

- District is cooperating with other agencies and landowners to identify and remedy fish passage problems in the district.

North Coast

- ODFW will forward a list of state highway culvert passage problems to ODOT. Willamette Industries and OFIC have also asked for problem culvert lists. District staff will continue to work with Oregon Department of Forestry, other forest landowners, diking districts, ODOT, County Road Departments, and agricultural landowners to improve fish passage at culverts,

tide gates and dams. Watershed councils may provide a forum that facilities fish passage improvement at man-made structures.

- ODFW has identified two landowners where impoundment dams create fish passage problems. One of these landowners appears to be very cooperative and is awaiting some design criteria.

ODFW-IV.C.2: Screen Diversions Less than 30 cfs

Tillamook

- District has screened four diversions and will continue to seek additional screening opportunities.

North Coast

- The district has issued a news release to local media and made announcements at appropriate local meetings. Only one cooperator has been located in two years and that was a municipality (Seaside Water Department). Water Resources District's records do not facilitate a search for unscreened diversions and such diversions are not a major concern in this district. The district will remain alert for screening opportunities but will not expend additional time searching out potential cooperators.

ODFW-IV.C.4: Screening of Water Diversions Greater than 30 cfs.

North Coast

- There are no such diversions in the North Coast District.

ODFW-V.A.1: Conduct An Outreach Program

Tillamook

- District has developed a video lending library for use by schools, organizations, and other groups.
- A map and stocking schedule for District lakes have been developed to direct anglers to fisheries that have been recently changed, (i.e., converting river stocking to lakes).
- District personnel attend career days, and similar activities, at local schools.
- District personnel attend, or provide programs to sportsmen's clubs, service organizations, county fairs, and other events as requested or time permits.
- District develops informational flyers on resource issues as they arise, and distribute them to pertinent parties.

North Coast

- District staff will be alert for opportunities of media interest such as spawning surveys, adult and juvenile trapping, restoration projects, etc.. The Daily Astorian had attempted to do a story on coho spawning surveys but weather and their limited available time prevented this from happening. The writer is still interested in doing this next year. Many of the activities discussed above involve outreach efforts. Stock assessment reports to watershed councils

provide an excellent opportunity to discuss coho issues with stakeholders and the general public.

- These action items will likely be, at the best, only partially completed without additional permanent staffing. This district has previously recommended that a habitat Protection/Restoration Biologist be added to district staff. This position is even more critical today with the increased workload brought on by the GCSRI, the establishment of a number of Watershed Councils, responses on threatened/endangered listing proposals, and the likely increased workload resulting from threatened/endangered listings. There has been essentially no reduction in work activities to compensate for the additional workload.

Oregon Department of Fish and Wildfire
Coastal Salmon Restoration Initiative
1997 Phase 1 Implementation Plan

Appendix 3

Fish District Workplans
from the
Northwest Region

(Includes the Siuslaw and Lincoln districts)

Northwest Region's Specific Action Items

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Note: *The Northwest region is losing one coastal district biologist due to budget shortfalls. It is imperative to note in the implementation plan that we have not yet decided what will be cut from the work plan of the new merged district. Some items discussed below may not be accomplished.*

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District Biologists for Lincoln and Siuslaw Districts are accountable through their immediate supervisor for completing actions defined in this plan. They will complete appropriate project completion plans needed for proper implementation of actions in this document. District Biologists will monitor projects to ensure best scientific principles are used. They are responsible for using adaptive management techniques when implementing their projects and plans.

If a specific district is not identified as accountable in this plan, both will complete the action. Most action items will be consistent between the two Northwest Region Fish Districts. Actions that are already identified in the Implementation Plan for statewide implementation are not included again in this implementation plan for the Northwest Region. Actions identified in this plan will fit into the Implementation Plan format so they will not be duplicated.

The Mid-Coast is defined as Salmon River, Siletz River, Yaquina River, Alsea River, Yachats River, Siuslaw River, and small ocean tributaries between Salmon River and the Siuslaw River.

1. Establish New Escapement Goals (I. A. 1)

Basin specific objectives will be established for mid-coast streams. A monitoring plan will be prepared and implemented to monitor achievement of those objectives.

2. Adult Escapement and Juvenile Coho Salmon Production Assessment (I.B.1.)

The standard index will be expanded in the Siuslaw Basin and in Rock Creek (Siletz).

3. All Habitat Enhancement And Protection Measures.

Mid-Coast districts will:

- Survey potential coho habitats.
- Comment on land use activities.
- Develop and seek funding for restoration activities.
- Recommend forest landowners improve stream habitats through the Oregon Streams Initiative.
- Conduct aquatic habitat surveys in coho streams.
- Emphasize protection of coho habitat in comments on permits, Forest Practices Act and voluntary efforts.

- Place woody material in coho streams during logging.
- Measure water temperature.
- Encourage riparian shade on forestlands.
- Work with the agriculture community to cooperatively provide stream shade.
- Work on County setbacks.
- Provide methods to standardize sediment monitoring.
- Monitor sedimentation rates in stream channels.
- Report all mass failures to ODF.
- Comment on ODOT, County, BLM, USFS, Private road systems.
- Follow up on anomalous turbidity.
- Encourage water quality measurements in key areas.
- Act as consultants to DEQ.
- Evaluate effects of filling, diking, channelization.
- Recommend to prevent filling, channelization on DSL and Corps permits.
- Recommend restoration of diked or channelized reaches.
- Increase instream channel complexity.
- Measure levels of channel complexity .
- Identify areas that would benefit from input of LWD.
- Inform landowners of the benefits of leaving LWD.

Habitat Restoration

The Mid-Coast Habitat Project is scheduled to encompass a two year period from 3/1/96 through 3/1/98. During the initial year, 24 habitat enhancement projects were completed covering 21 miles of coho habitat at a cost of $300,000. A similar monetary commitment from the private companies is anticipated for the second year. Planning for implementation of 1997 projects is occurring now.

Project planning is occurring for habitat enhancement projects in the Siuslaw District. Review is occurring on the numerous 1996 projects as the first step in planning for 1997. It is anticipated that habitat enhancement projects will occur in Wildcat Creek, North Fork Siuslaw, Deadwood Creek, Wolf Creek, Misery Creek, Fiddle Creek, North Fork Yachats River, Wolfe Creek, Whittaker Creek, Tenmile Creek, Hadsall Creek and Chickahominy Creek.

4. **Habitat Restoration Evaluation (I.B.3)**

An evaluation plan is being implemented through the mid-coast habitat initiative. Habitat improvement projects will be evaluated for temperature, adult and juvenile coho abundance, and substrate changes. Pre and post habitat surveys will be accomplished.

5. Inventory of Artificial Barriers (I.B.4)

The Siuslaw District has inventoried 80 culverts with passage problems and will continue the process.

The Lincoln District is coordinating information that has been collected by timber companies, ODOT, and hire the fisher crews.

6. Determine Predator Impacts (I.C.2)

The Lincoln District is sampling smolts in tidewater in the Siletz, Yaquina and Alsea Rivers, during outmigration periods. They will note locations of co-occurrence of predators and smolts.

7. Predator Management (I.C.3)

The Lincoln District has reduced numbers of hatchery fish released to avoid potential predator problems (and other reasons.)

8. Use of Volunteers

Both mid-coast districts rely heavily on volunteers to conduct inventories, conduct instream habitat restoration projects, education and small coho fish culture projects in the Siuslaw. Both districts will attempt to focus volunteer activities on CSRI actions.

9. Implement Gene Conservation Strategies (II.A.1.)

All Wild Fish Management Policy actions have been implemented for mid-coast streams except the Salmon River.

A small hatchery program will be developed on the Siuslaw River consisting of Siuslaw brood and held to no more than 100,000 smolts annually to provide an in-river harvest opportunity. The program will be implemented at a site that will allow for removal of hatchery adults to comply with gene conservation strategies.

10. Reduce Coastal Hatchery Coho Smolt Releases (II.A.2)

Salmon River hatchery releases have been reduced from 300,000 to 100,000.
Siletz River hatchery releases have been reduced from 800,000 to 50,000.
Alsea River Hatchery releases have been reduced from 1 million to 200,000.

11. Develop Management Objectives, Including Genetic Guidelines (III.A.3)

Guidelines will be developed for genetic guidelines for all streams and hatchery programs in the mid-coast. Plans will be developed to refine programs next year.

A monitoring program for strays relative to the Yaquina terminal fisheries operation will be implemented in 1997. Plans for wild broodstocks will be developed.

12. Mark All Hatchery Coho

All hatchery coho have been marked beginning with the 1995 brood.

13. Utilize Hatcheries to Rebuild Wild Runs (II.B.1)

Are developing plans for transferring wild juveniles to rebuild or re-establish coho populations where they are currently absent or under utilized.

14. Minimize Fishery Related Impacts (III. A. 1)

OSP actions have received a high priority through the CEP process for enforcing coho regulations. Anglers are being educated on the importance of protecting coho.
All in river angling for coho has been eliminated by rule.

15. Manage Estuary and River Salmon Fisheries to Minimize Impact (III.A.2)

Discussed under 14.

16. Manage Trout Fisheries to Reduce Ecological Interactions and Mortality on Juvenile Salmonids (III.A.3)

No hatchery trout will be stocked in streams beginning in 1997

17. Develop Opportunities for Terminal Coho Fisheries (III.B.2)

We will develop a process and criteria to use to resume harvest on stronger coho runs when appropriate.

18. Develop Improved Adult Abundance Predictor (III.C.1)

Districts will participate in the process with advice on specific basins.

19. Evaluate Coho Hook and Release Mortality (III.C.2)

The Lincoln District is monitoring wild fish encounter rates in estuary fisheries.

20. Monitor Marine Survival (III.C.3)

The Lincoln District is providing assistance to Research and Development in monitoring smolts and ultimately adults in Mill Creek on the Siletz, Mill Creek on the Yaquina, and Lobster Creek (Alsea.)

21. Provide Technical Assistance to Regulatory Agencies for Habitat Protection (IV.A.1)

Identified under habitat above.

22. Protect Instream Flow and Restore Instream Flow (IV.A.3 and IV.B.4)

Districts will:

- Identify areas to acquire abandoned water rights.
- Encourage WRD to enforce instream water rights.
- Encourage WRD to monitor diversions.
- Oppose new water rights below instream flows.
- Support reservoir storage.
- Apply for instream water rights.
- Track cumulative withdrawals by basin.
- Work with Lincoln City to plan their municipal water supply to minimize impacts on coho.

23. Provide Technical Assistance to Landowners on Habitat Protection (IV.A.6)

Both districts will work with watershed councils The Lincoln district is a voting member from the technical team on the Mid-Coast Watershed Council.

24. Promote Beavers

Both districts will advise landowners on areas where we think beavers are beneficial and provide advice on land management methods to encourage beaver benefits. The districts have initiated a formal series of meetings with individual forest landowners to discuss beaver management for the benefit of coho salmon. Stream surveys will be conducted to evaluate where beavers are providing benefits.

25. Cooperative Removal of Barriers to Fish Passage (IV.C.1)

Habitat improvement projects conducted on the Mid-Coast will address artificial barriers to coho passage and attempt to remove all during the course of the project.

Department of Transportation
Oregon Coastal Salmon Restoration Workplans

Oregon Department of Transportation
1997 CSRI Implementation Workplans

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Oregon Department of Transportation
1997 CSRI Implementation Workplans

Ongoing Programs

National Pollutant Discharge Elimination System (NPDES)
(OAR 340-45-005 through 065)

The NPDES permit program, enacted in 1987 under Section 402(p) of the Clean Water Act (CWA), establishes permit requirements for certain municipal and industrial storm water discharges to regulate point sources of water pollution. Oregon Department of Environmental Quality (DEQ) administers and regulates the NPDES program. This program mandates erosion and sediment control, prohibits non-storm water discharges, prohibits releases in excess of provisions in 40 CFR 117 & 302, requires implementation of a stormwater pollution plan, requires effluent limitations, prescribes monitoring and reporting, and establishes standard permit conditions and records retention.

NPDES permits must be obtained for construction activities that disturb 5 or more acres of land; operation and maintenance activities are not subject to the permit requirements. The Oregon Department of Transportation (ODOT) receives a variety of permits including industrial wastewater permits for maintenance facilities, industrial construction permits, industrial aggregate permits, and Municipal Separated Storm Sewer System permits. ODOT voluntarily applies NPDES guidelines to operation and maintenance activities as deemed necessary, and also to construction projects outside the urban service boundary and to construction projects impacting less than 5 acres of land. The Erosion and Sediment Control Plan required for construction projects is not applicable to ODOT maintenance and operation activities; however, erosion control measures are implemented on operation and maintenance activities as needed.

ODOT reviewed current operation and maintenance practices and developed a manual of recommendations for improvements to practices to reduce pollutants associated with stormwater [ODOT's Maintenance Management Service (MMS) Water Quality Review 1995]. An erosion control team located in the Hydraulics Unit of ODOT has been developed.

The 1997 actions under this program that will benefit fish include:

- The implementation of erosion control measures will reduce sediment input into nearby streams. Coho spawning, rearing and migratory habitat would indirectly benefit from the protection of water quality. Awareness of the importance of adequate erosion control has increased and monitoring of erosion control structures has improved.
- The 1995 MMS Guidelines for Water Quality are currently under review. The review considers the life cycle needs of juvenile cutthroat trout. The new standards and Best Management Practices (BMPs) will be designed to be sensitive to juvenile cutthroat. Upon completion of the review, the new standards and BMPs will be implemented.

- An illicit discharge program has been implemented to identify and remove unauthorized connections to ODOT discharge systems.

Responsible Staff: NPDES Coordinator (currently vacant).

Proposed Benchmarks/Monitoring: NPDES permits are administered and regulated by DEQ. New specs and specials, new design standards and the illicit discharge program documentation are available for National Marine Fisheries Service (NMFS) review. The NPDES Coordinator will monitor this program.

Endangered Species Act of 1973
(As amended by 50 CFR 17; 50 CFR 81; 50 CFR 424; 50 CFR 451-2)

The Endangered Species Act (ESA) was established to conserve species of fish, wildlife, and plants facing extinction. The Act applies to any action that is likely to jeopardize the continued existence of endangered or threatened species, or result in destruction or adverse modification of critical habitat. It establishes criteria for the protection of endangered and threatened species and their habitat. Section 7 of the Act requires federal agencies to consult with the U. S. Fish and Wildlife Service (USFWS - for wildlife and resident fish) and the NMFS (for anadromous fish and marine mammals) on any action that may affect endangered or threatened fish, wildlife or plant species, or any action that might result in destruction or modification of critical habitat. The consultation process for interagency cooperation under Section 7 of the Act may include preparation of a Biological Assessment to determine the effect of the proposed action to listed and proposed threatened and endangered species.

As a state agency, ODOT is not required to comply with Section 7 of the Federal ESA unless there is a federal connection. However, on many construction projects, ODOT often acts as an agent for the Federal Highway Administration (FHWA) and must comply with the federal ESA through Section 7 consultation. ODOT must comply with the ESA if any federal permits (e.g., federal Clean Water Act Section 404 removal/fill permit) or federal funding are required for a project. Unless a federal 404 permit is required, compliance with Section 7 of the ESA is generally not necessary for ODOT maintenance and operation activities. As an applicant for a 404 permit or as representative of FHWA, ODOT assures its actions do not jeopardize threatened or endangered species and implements conservation measures, or reasonable and prudent measures identified by the USFWS or NMFS to avoid and minimize potential adverse effects to such species.

Within the last three years, a number of fish species have been proposed for listing (e.g., coastal coho salmon, Umpqua sea-run cutthroat trout, west coast steelhead). ODOT has prepared Biological Assessments on some 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 in-water work required, appropriate in-water work timing restrictions, less removal of riparian vegetation, and a reduced likelihood of hazardous spills.

The 1997 actions under this program that will benefit fish include:

- Programmatic biological assessments (BA) will be prepared to address impacts to coastal coho and west coast steelhead resulting from ODOT activities. Programmatic BA's consider the effects of individual actions (projects) at the watershed scale, and the grouped effect of numerous actions for a basin. Three BA's will consider impacts from 1997 construction activities in the south coast, mid coast, and north coast. BA's will also be prepared for proposed west coast steelhead trout. In addition, a BA was prepared to address effects of all ODOT actions in the Umpqua River basin on Umpqua cutthroat trout, coastal coho, and coastal steelhead for April 1996 to April 1997; a new BA will be prepared for actions in the Umpqua River basin through 1997.
- A programmatic BA will be prepared to evaluate the impacts from all 1997 ODOT maintenance activities in the coastal area. The new BMPs and standards derived from MMS review for water quality will be included the this BA.
- Programmatic BA's are one tool for educating ODOT construction and maintenance staff and counties about the effects of individual projects, and the cumulative affects of all projects in a basin. Through this process, ODOT biologists will educate counties about their responsibilities under the Endangered Species Act.

Responsible Staff: Rose Owens, Senior Biologist (503) 986-3510

Proposed Benchmarks/Monitoring: Programmatic biological assessments for proposed species are submitted to NMFS for review and comment. NMFS is usually contacted during the preparation of environmental documents for input. The senior biologist will monitor this program.

Integrated Pest Management (IPM) Program

The 1991 Oregon Legislature passed legislation (ORS 634.122) which states that all state agencies with pest control responsibilities will practice Integrated Pest Management principles. ODOT is required to control vegetation on the roadsides to provide safety to the public for sight distance, provide rapid drainage of water from the road surface, provide subsurface road bed drainage to maintain the integrity of the road structure, etc. ODOT uses a variety of integrated pest management methods including: chemical (herbicides), mechanical (mowing), cultural (seeding), physical (pulling), and biological (insects and other biological agents). Action thresholds are developed for road shoulder activities adjacent to streams and/or ditches that may affect fish or fish habitat. ODOT is a participating member of the Interagency Integrated Pest Management Coordinating Committee. In the last several years, Special Management Areas have been signed in ODOT rights-of-way where certain threatened or endangered plant species are located.

District IPM teams are currently updated, through a newly developed newsletter or informational pamphlet called "Solid Green", on vegetation management activities that will protect and enhance salmon and their habitat. Team members will develop 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.

The 1997 actions under this program that will benefit fish include:

- A regional interagency stakeholders meeting will be held during the second quarter in 1997 to review the 16 Maintenance District IPM Plans. These plans include aspects of cultural/mechanical activities in use (mowing, cleaning ditches, seeding, etc.), rights of way inventory, activity schedules, and a listing of chemical herbicides for potential use. In addition, these plans may place emphasis on: normal vegetation management, critical habitat areas, sensitive habitat areas, BLM roadsides, and/or USFS roadsides. Any new or revised policies/guidelines will be fully implemented by the third quarter in 1997. Personnel training and implementation of current guidelines is on-going.
- An integrated vegetation management program prototype will be developed for the Upper Rogue Valley during 1997-98. This program will place emphasis on riparian vegetation management in relation to adjacent waterways. Although the program is not scheduled to begin implementation until 1999, tasks will be identified by a committee, comprised of ODOT, Jackson County, Federal Highway, and other personnel, which will begin implementation during 1997.
- Examples of specific prescriptions within IPM plans could include (all of these may not be implemented in 1997):
  - Reduce residual chemical use.
  - No spraying in water courses.
  - More selective spraying.
  - No spray zone near water crossings, size of zone will be appropriate to each location as identified in District IPM.
  - Use of alternate means of brush control (mow more).
  - Use of the new selective spray truck to its maximum; obtain new spray rig; replace obsolete trucks with dual purpose spray trucks.
  - Increased vegetation management.
  - Incorporation of vegetation zones for filtration.
  - Modify timing of spraying to avoid sensitive eggs and juveniles, with input from ODFW.
  - Evaluate application of chemical for minimum control.
  - Evaluate use of low-growing grasses that require low maintenance.

Responsible Staff: David Humphrey, ODOT Operations (503) 986-3032

Proposed Benchmarks/Monitoring: The "Solid Green" newsletter produced by the ODOT IPM team is available for review; the newsletter educates and updates District team members. Internal annual training materials are available for review.

Hazardous Materials Program

ODOT is not significantly affected by guidelines to prevent the releases of oil and other hazardous materials into the environment since ODOT generally does not handle large quantities of hazardous materials other than fuel. Regulations are more applicable to ODOT's contractors who perform certain operation and maintenance activities (e.g., the cleanup of contaminated ODOT-owned sites). ODOT and their contractors are not required to prepare a Spill Prevention Control and Countermeasures Plan (SPCC Plan) except when above-ground fuel or oil tanks over 660 gallons are present and could be a threat to surface waters. ODOT has developed informal spill prevention measures to prevent the release of hazardous materials into the environment during routine activities.

Another pollution control issue during construction and sometimes during maintenance operations is spills of hazardous materials. The contractor or maintenance crew must be prepared to contain any small spills of hazardous materials or call the appropriate response people. Any hazardous material must be stored in areas where potential spills can be contained and will not ultimately end up in water. Every effort should be made to assure that no green concrete or petroleum products be allowed to enter a fish-bearing stream.

The 1997 actions under this program that will benefit fish include:

- New pollutant loading values are being derived for Average Daily Traffic (ADT) rates on a statewide basis. These new loading values will be used to set waste disposal guidelines for street debris collection.
- Statewide maintenance activities are currently under review. This review will result in establishment of new BMPs for all districts.

Responsible Staff: Hector Morales, ODOT HAZMAT Coordinator (503) 986-3064

Proposed Benchmarks/Monitoring: The HAZMAT Coordinator will monitor this program.

Clean Water Act - 401 Certification

ODOT provides required information for the 401 Certification program for projects requiring 404 permits. The Oregon Department of Environmental Quality regulates this program and will be reviewing 404 Removal-Fill permits for highway construction projects to assure that water quality impacts are minimized through such measures as sediment basins, adequate runoff filtration in ditches, etc. The Oregon Department of Environmental Quality is currently staffing for and determining how this program will be coordinated.

The 1997 actions under this program that will benefit fish include:

- All 404 permit applications will be reviewed by a water quality specialist (e.g., William Fletcher) to ensure adequate protection of water quality. Conditions will require better water quality protection for streams on the 303(d) list.
- ODOT NPDES staff and ODOT Environmental will work together to monitor runoff and effectiveness of treatment such as grassy swales, etc.

Responsible Staff: William Fletcher, ODOT Water Quality Specialist (503) 986-3509

Proposed Benchmarks/Monitoring: The water quality specialist will monitor this program.

Proposed Enhancement Actions With Implementation In 1997

DOT1 - Salmon Restoration Initiative Program Manager Position

Summary of Measure: Sue Chase was hired in December 1996 to provide overall coordination and assurance of implementation for ODOT's CSRI. This person provides:

- Regular briefings to the ODOT director and governor's office on action item implementation progress.
- Coordination for watershed council activities.
- Coordination with counties.
- Communication with other agencies.
- Coordination internally and externally (e.g., contractors) for education/communication on fish issues, monitoring and reporting on implementation and effectiveness.

Goal: To ensure accountability and overall coordination.

Responsible Staff: Sue Chase (Operations Support - 503-731-8309)

Phase 1 Actions (1997):

- Develop a documentation plan for all action items listed in ODOT's OCSRI.
- Develop training and monitoring for each of the proposed action items, as appropriate.
- Coordinate implementation of action items.
- Work with the Oregon Coastal Zone Management Association to develop and distribute resource maps and a management plan for Highway 38 (see ODOT3).
- Continue education of staff to increase understanding of fish needs. The program manager or her representative will attend a communication training workshop on salmon and trout issues at the University of Washington in February 1997 and plans to work with program organizers to adapt the workshop for road issues for presentation to ODOT staff in the fall of 1997.

Cost: 1 full-time equivalent (FTE) employee

Proposed Benchmarks/Monitoring: The Salmon Program Manager coordinate monitoring of implementation of action items. This person will be responsible for internal and external communication of monitoring results of the Initiative.

ODOT2 - Culvert Inventory, Assessment and Remediation

Summary of Measure: All ODOT and county coastal culverts will be inventoried and evaluated for potential fish passage problems through an Interagency Agreement with Oregon Department of Fish and Wildlife (ODFW). ODOT will replace or modify problem culverts as appropriate and based on ODFW's recommended priorities and ODOT's authorized funding. ODOT will replace or modify ODOT culverts only.

Goal: Remove or correct ODOT-owned barriers to adult and juvenile fish passage caused by transportation authorities' activities and structures, and based on ODFW's recommended priorities.

Responsible Staff: ODOT, in conjunction with Oregon Department of Fish and Wildlife and watershed councils.

Implementation

- ODOT and ODFW have entered into a cooperative improvement agreement with the goal to locate, evaluate, and prioritize the need for remediation of ODOT and county culverts in coastal basins.
- With ODOT's funding, ODFW will continue to collect and evaluate available information on ODOT and county culverts, and hire, train, and supervise a lead worker and assistants.
- ODFW has established a survey plan and developed inventory and assessment protocols.
- Data is being collected to be input into a database compatible with ODFW's Geographic Information System (GIS), and the information will be distributed to ODOT and the watershed councils.
- ODFW will provide ODOT with recommended priorities for remediation, based on status and number of fish species and populations affected and on the quantity and quality of habitat blocked.
- ODOT will remediate culverts based on ODFW's recommended prioritization and as funds are authorized. State law requires that culverts provide passage for fish (ORS 498.268 and 590.605).

Phase 1 Actions (1997)

- The inventory prioritization of sites will be completed by June 1997 for coastal coho only.
- Culvert remediation will begin immediately based on ODFW's recommendations, and will proceed according to recommended priorities when the inventory results are available. Remediation will occur during in-water work periods, or where exceptions have been granted from ODFW.

  The following culvert repairs or replacements have been identified. The list includes culverts in need of repair; the timing will depend on placement on the prioritization list, funding, weather (e.g., catastrophic flooding could delay projects), and ongoing

construction projects. ODOT culvert remediations will be done on a first-come-first-serve basis to a set limit per year.

- District 1 (located within Clatsop and Tillamook Counties) has recently replaced the steel tide gates at the Mill Creek - Seaside Bridge site on Highway 101 at Milepost 19.58 with plywood gates. The plywood gates open wider than the steel gates which may allow for better fish passage. The gates have remained open since mid-October with only minor flooding at the Seaside Airport. The gates will remain open as long as no significant flooding occurs. The plywood gates will continue to be monitored during 1997 to assess flood control and the possible benefits for fish passage.

  Five sites are planned for replacement or repairs in District 1 including:

  * Neahkahnie Creek on Highway 101 at Milepost 43.81
  * Asbury Creek on Highway 101 at Milepost 34.76 - need fish ladder design for ODFW
  * Williamson Creek on Highway 101 at Milepost 23.35
  * Dog Creek on Highway 6 at Milepost 26.23
  * Bergsvik Creek on Highway 53 at Milepost 2.24

- District 4 (located within Lincoln, Polk, Benton and Linn Counties) has identified three culverts in need of repairs:

  * Hill Creek on Highway 101 at Milepost 150.1 - will have jump pools built
  * Schoolhouse Creek on Highway 229 at Milepost 37.2 - will have jump pools built
  * Reed Creek on Highway 181 at Milepost 18.2 - will be entirely replaced. These will be repaired after the priority list is developed.

- District 5 (located within Lane County) has identified four culverts in need of repairs:

  * Montgomery Creek on McKenzie Highway at Milepost 22.79 - will have a 36-inch culvert replaced with a 36 foot slab span bridge.
  * Squaw Creek on Highway 101 at Milepost 172.6 - will get a liner for culvert and working with ODFW on baffle design.
  * Berry Creek on Highway 101 at Milepost 181.4 - clean and repair baffles

* Gwynn Creek on Highway 101 at Milepost 168 - construct baffles and jump pool, need ODFW design. Two additional sites (on Highways 62 and 229) will have jump pools created at their culvert outlets to allow fish passage per ODFW's recommendations.

- District 6 (located within Douglas County and a small portion of Lane County) together with ODFW has prioritized culverts requiring remediation within each of four Source Areas.

North Umpqua River Drainage Source Area:

* Haney Creek crossing of Highway 138 (box culvert with baffles in need of repair).

* Fairview Creek Crossing of Highway 138 (steep culvert providing fish passage from the North Umpqua which plugs on a yearly basis).

* Williams Creek crossing of Highway 138 (box culvert with baffles on one side in need of repair).

* Susan Creek crossing of Highway 138 (Check for baffles in box culvert and repair, if necessary).

Elk Creek Drainage Source Area:

* Hancock Creek crossing of Highway 38 (to be checked by ODFW for fish passage).

* Jack Creek crossing of Highway 38 (check).

* Parker Creek crossing of Highway 38 (to be checked by ODFW for fish passage).

Cow Creek Drainage Source Area:

* Woodford Creek crossing of Interstate 5 (Check baffles in box culvert and repair, if required).

* McCollum Creek crossing of Interstate 5 (check).

Interstate 5/South Umpqua River Source Area: No culverts were identified for repair, however, the following crossings on Interstate 5 will be surveyed by ODFW and the results may change prioritization of some of the other creeks:

* I-5 Curtin to Sutherlin: Bear Creek, Buck Creek, Wilson Creek, Cabin Creek, Marsh Creek, and Wheeler Canyon Creek;

* I-5 Roseburg to Myrtle Creek: Clark Branch Creek and Van Dine Creek. In addition to these four source areas, drainage crossings on Highway 42 (Shields Creek and Porter Creek) will be checked by ODFW, and the results may change prioritization of some of the other creeks.

- District 7 (within Coos and Curry Counties) has identified five culverts that require repairs or replacement:
  * King Creek on Highway 42 (Milepost 29.17), near the community of Bridge/Baffle retrofit.
  * Brush Creek on Highway 101 (Milepost 309.55) for trash rack and for water dam and culvert replacement for flood control.
  * Davis Creek on Highway 101 (Milepost 284.11) retrofit for fish passage.
  * China Creek on Highway 101 (Milepost 277.86) for culvert replacement.

Culverts will continue to be modified, where needed, as part of each construction job within 0.25 miles of the project regardless of priority. In addition, ODOT is working with the city of Coquille, the Coquille Watershed Association, and the Division of State Lands (DSL) to reopen approximately 700 feet of Dutch John Creek. ODOT will replace a 24-inch culvert under the highway (should be done by June 1997), and the city plans to daylight the creek under the old mill site and pay for replacing the culvert under the railroad. The Salmon Trout Enhancement Program (STEP) is planning to release coho upstream in 1997 in anticipation of this project being completed by the time the fish need to migrate downstream next year.

- District 8 (within Josephine and Jackson Counties) will coordinate with ODFW and the watershed councils on prioritization of culverts for remediation and/or repairs. Identified culverts to date include:
  * Clay Creek on Siskiyou Blvd. (99) in Ashland. Replace 38-inch culvert with 48-inch culvert.
  * Ward's Creek on I-5. Clean debris from box culvert. Upon completion of culvert prioritization, District 8 is prepared to modify and/or replace culverts.
- Districts are responding to flood repairs and sediment input to streams as a result of recent storms. For example, District 8 is re-establishing the creek channel on Dale's Bluff Creek that has failed and deposited a large amount of silt into the stream.

Cost:

- Inventory cost (one time, already appropriated): $42,000 (coastal only).
- Culvert replacement or modification (site-specific for cost and cannot be accurately predicted): $500,000 has been authorized for Biennium 97-98 for the OCSRI Program, including culverts.

Note: The above costs are for culvert remediation that are not already a part of a currently planned or future construction project.

Proposed Benchmarks/Monitoring: Survey information will be available for review by NMFS. ODOT will document culvert modifications as they occur; the Salmon Program Manager will be responsible for compiling the documentation.

ODOT3 - Maintenance Management Plan

Summary of Measure: Develop Maintenance Management Plans describing ODOT's maintenance actions for roads in coastal areas. The plans will describe response to landslides, locations for disposal of materials, and potential use of surplus and excess property; the plans will also become an integral component of corridor planning and project development. After resource areas are identified, maintenance activities will be reviewed and modified to protect resources. The plans will include the following:

- Inventory and prioritization for action, based on proximity to ODFW high fishery resource value areas as well as other resources, locations with visible erosion along ODOT rights-of-way.

- Development of contingency plans for placement of materials (e.g., soil, trees) as a result of mass wasting (slides, pop-outs), and erosion. Develop Best Management Practices (BMPs) for reacting to these sediment sources located near water (e.g., directions for placement of erosion control structures).

- A systematic assessment of all ODOT-owned properties including surplus properties for future environmental mitigation and maintenance disposal site usage will be undertaken.

Goal: To develop plans that described ODOT's maintenance actions for ODOT roads and provide direction for maintenance where resource issues are present in the coastal area.

Responsible Staff: ODOT staff and Oregon Coastal Zone Management Association with the Salmon Program Manger (Sue Chase) as the team leader.

Phase 1 Actions (1997)

- The Oregon Coastal Zone Management Association will develop a prototype of Resource Maps and Maintenance Management Plan for Highway 38. These maps and plan will include all resource data available surrounding waterways such as Wild and Scenic designation, ODFW identified redd locations, wetland locations, right-of-way, disposal sites, and historic maintenance problem sites, etc. Once compiled, these data will be mapped, and checked by field personnel. After the resources are compiled and verified, maintenance activities will be reviewed in each resource area. Once the prototype is completed and proved successful, Maintenance Management Plans will be completed for other coastal highways (in the future).

Cost: The cost of long-term repairs is unknown at this time. The Salmon Program has undertaken the cost of development of the prototype.

Proposed Benchmarks/Monitoring: The inventory will be available for review by interested agencies.

(Includes ODOT3-Responding to Sources of Sediment and ODOT5-Master Plan for Surplus Properties)

ODOT4 - Participation in Watershed Councils

Summary of Measure: ODOT District Managers will participate in watershed councils and watershed planning. ODOT will provide information and participate in activities germane to ODOT.

Goal: Participate in watershed planning and on-the-ground actions to enhance fish habitat and to improve riparian condition and water quality.

Responsible Staff: ODOT District Managers or their representatives are participating in watershed councils or coordinating councils. The Salmon Program Manager will be a technical or administrative resource person for district representatives participating in watershed councils. The Salmon Program Manager will also be responsible for overall coordination of ODOT's salmon restoration plan and will provide communication to the districts and areas regarding information from the Governor's Watershed Enhancement Board.

Phase 1 Actions (1997)

- ODOT District Managers (DM) or their representatives will work with each watershed council or coordinating council to develop a list of prioritized enhancement activities pertinent to ODOT.
    - District 5 (located within Lane County) coordinators or Area Maintenance Manager will regularly attend watershed council meetings.
    - District 6 (located within Douglas County and a small portion of Lane County) continues to participate in the Umpqua Basin Fisheries Restoration Initiative group which meets once a month.
    - District 7 (located within Coos and Curry Counties) Operations Coordinator has been attending watershed council meetings, as well as working with Coos watershed concerning the flooding on the west fork of the Millicoma and removal of drift in the stream. The Maintenance Specialist attends Coquille watershed council meetings and is a member of the technical advisory team. Improvements to Eel Creek culvert are being worked-out with Tenmile watershed, ODFW, and ODOT. Working with each

watershed, District 7 hopes to have the information and maps created by Summer of 1997 for an inventory of threatened and endangered Species sites within the district.

- District 8 (located within Josephine and Jackson Counties). The District Manager (DM) or a representative will attend watershed council meetings for Central Point, Prospect, and Bear Creek. In addition to DM participation, Area Maintenance Managers (AMMs) will attend local watershed council meetings semi-annually. Watershed councils and ODFW have been given copies of the straight line maps for this District for help in identifying culverts on ODOT rights-of-way. Watershed councils have been told that ODOT is interested in partnering regarding woody debris storage and culvert remediation. In addition, AMMs and the DM will rotate attending Rogue Basin Steering Committee meetings.

Cost: Participation in watershed councils is part of a District Manager's job. The cost of implementing action items is unknown and will be action dependent.

Proposed Benchmarks/Monitoring: The Salmon Program Manager will communicate with the GWEB concerning the OCSRI and will provide coordination for watershed council activities. If requested, the Program Manager will provide documentation to regulators of ODOT activities with watershed councils.

ODOT6 - Environmentally Sensitive Design

Summary of Measure: Integrate environmentally sensitive components into design.

Goal: Develop a knowledgeable design staff that integrate environmentally sensitive designs into project plans. This includes understanding what types of designs to use, and appropriate locations to use them.

Responsible Staff: Project Team Leaders and all technical services staff.

Implementation

Examples of environmentally sensitive design include:

- Redesign bridge drainage on new and upgraded bridges to avoid runoff discharge directly into the water.
- Add geometric changes to road design to reduce or redirect runoff.
- Allow more right-of-way for ditches to allow growth of filtering vegetation while maintaining hydraulic capacity.
- Reduce road widths when designing new projects near streams or wetlands, contingent on consultation with road safety experts and congestion/capacity managers.
- Evaluate and modify structure and ditch designs, as appropriate.
- Evaluate road improvements to include fish needs.
- Realign roads away from streams and wetlands when new roads are being planned or designed.
- Design culverts to assure adult and juvenile fish passage.
- Work with regulators on developing design standards acceptable to both parties.
- Coordinate with the Association of General Contractors, as appropriate.
- Use trapezoidal instead of "v" cross sections to minimize ditch bottom erosion and to have an opportunity to create artificial wetlands.
- Use bioengineering practices preferentially over riprap, where appropriate.

Note: Consider the long-term maintenance component of these different designs..

The Salmon Program Manager will work with ODOT staff to train or organize training for assuring environmentally sensitive designs. Future steps describing implementation and future monitoring are as follows:

- Assure environmentally sensitive designs are in place.
- Develop benchmarks to evaluate success over time.
- Review/monitor as-built plans and construction project sites and compare them to benchmarks to assure effective environmentally sensitive designs.

Phase 1 Actions (1997):

- Research and compile environmentally sensitive design standards.

- The Salmon Program Manager or her representative will attend a 3-day training workshop held by the University of Washington in February. This workshop will address Integrated Pest Management, riparian zones, project design. and culverts for salmon and trout issues. The Salmon Program Manager will work with workshop organizers to adapt the contents to ODOT needs (i.e., fish friendly roadway designs). If appropriate, the revised workshop will be presented to ODOT staff in the fall of 1997.

Cost: Project dependent.

Proposed Benchmarks/Monitoring: The Project Team Leaders and environmental project managers will compile and make available documentation of this action. Benchmarks will be developed to assure environmental compliance and evaluate success over time. These will be available for review by National Marine Fisheries Service.

ODOT7 - Storage and Disposal Plan for Woody Debris

Summary of Measure: Develop a storage and disposal plan for woody debris materials collected following storm events and during project construction.

Goal: To provide a storage site for woody debris for Oregon Department of Fish and Wildlife and Watershed Councils to use to enhance stream habitat.

Responsible Staff: ODOT, in conjunction with Oregon Department of Fish and Wildlife, Oregon Department of Forestry, Counties, Municipalities, Oregon Coastal Zone Management association. ODOT District Managers will develop storage and disposal plans.

Implementation: Temporary storage sites for woody debris will be developed within each ODOT District. 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. Because of constitutional restrictions, ODOT cannot legally haul materials if the hauling to a specific location results in increased costs. A challenge of this action will be to implement within this restriction. This action will need to be closely coordinated with Oregon Department of Fish and Wildlife and the Watershed Councils to be effective.

Phase 1 Actions (1997)

- District 1 (located within Clatsop and Tillamook Counties) is currently storing large stumps at the Seaside stockpile site.

- District 4 (located within Lincoln, Polk, Benton and Linn Counties) will continue to use three previously identified woody debris storage sites:
  * Highway 34 at Milepost 15.5
  * Highway 20 at Milepost 23.0 (Eddyville site)
  * Highway 229 at Milepost 23.0 (Siletz site)

- District 5 (located within Lane County) has a large supply of woody debris at the storage site on Highway 36 at Milepost 9. This site will continue to be used in 1997.

  District 6 (located within Douglas County and a small portion of Lane County) has two debris storage sites near Scottsburg on Highway 38 where woody debris (specifically stumps) from the landslides will continue to be stored.

- District 7 (located within Coos and Curry County) has several woody debris storage sites for use in 1997 including:
  * Hunter Creek, Sperols (Highway 101 at Milepost 311)
  * Cape Blanco
  * McMullen pit on Highway 42
  * Powers Highway at Milepost 5.39

  A stockpile site east of Myrtle Point is currently being used to stockpile bales and fencing.

Cost: Cost of site identification is minimal; haul costs cannot increase due to this action.

Proposed Benchmarks/Monitoring: District Managers will be responsible for monitoring this action item and documentation of storage sites.

ODOT8 - Statewide Erosion Control Handbook

Summary of Measure: Develop a statewide erosion control handbook.

Goal: Provide an educational tool to ODOT employees and contractors for understanding methods for improving water quality and protecting fish habitat.

Responsible Staff: ODOT Erosion Control Team (currently vacant)

Implementation: A 4-part handbook entitled "Construction Project Pollution Control: Guidelines for Developing, Implementing and Inspecting Pollution Control" has been completed. Enclosed in the document is a consistent list of erosion control best management practices (BMPs) for the entire state.

Phase 1 Actions (1997)

- Two copies of the handbook were distributed in November 1996 to each region for use and review for one year. (Distribution of the handbook to contractors will occur after the review has been completed and modifications, if any, have been made.)
- A training program will be developed upon final distribution of this handbook.

Cost: Production of handbook following review is unknown and will be determined in 1998.

Proposed Benchmarks/Monitoring: Regional environmentalists and project inspectors will be involved in implementation of the guidelines. The handbook will be available for review by National Marine Fisheries Service, if requested.

ODOT9 - Review And Development of a Geographically-Appropriate Program for Winter Maintenance Activities and Sidecast Sweeping

Summary of Measure: Review sanding practices, winter maintenance activities, and sidecast sweeping activities for western Oregon and develop a geographically-appropriate program for these activities.

ODOT9a - *Implement the recommendations of the developed program, as appropriate.*

Goal: Identify and minimize transportation impacts of these activities on fisheries habitat and water quality. Reduce the input of sediment and contaminants into streams.

Responsible Staff: Team of ODOT environmental staff, District Managers, and local governments.

Implementation: Winter maintenance activities were reviewed by a team of ODOT environmental staff, District Managers, and maintenance personnel. The effect of activities on salmonids and their habitat (e.g., spawning gravel) were evaluated. ODOT has developed new BMPs that will minimize the effects of sidecast sweeping and plowing in sensitive areas (as determined by ODFW). These were adopted by District Managers in September 1996.

Phase 1 Actions (1997)

- Implementation of the BMPs developed for critical habitat areas (as determined by local ODFW District Biologists) can be found in the White Paper "Sidecast Sweeping and Plowing Best Management Plans and Recommendations: September 1996" and include the following Best Management Practices (all are "quick hits"):
  - Use calcium magnesium acetate (CMA) on bridges and during freezing fog in lieu of sanding, when optimal conditions exist.
  - Pre-wet sand with CMA, when optimal conditions prevail.
  - Place barriers in site-specific locations, where appropriate and practical, along streams to route materials away form watercourses.
  - Do no sidecast sweep within 50 feet of structures over water.
  - When sidecast sweeping next to a body of water, adjust speed to keep material out of waterway.
  - Reduce quantity of sand applied, where appropriate.
  - Clean inlets prior to first rain, as appropriate.
  - When plowing next to a body of water, or on a structure that spans water, adjust speed to keep material out of waterway.
  - Distribute and discuss annual winter maintenance level of service plans with local jurisdictions, police, fire, schools, bus companies, etc., as appropriate.
  - Identify sensitive areas and educate crews on winter maintenance activity expectation.
  - Develop winter maintenance plans for specifically sensitive areas.

Cost: Implementation cost would vary depending on recommendations resulting from the review. CMA use will require new equipment (expensive). For sidecast BMPs, implementation cost is dependent upon BMPs developed. Federal Highways has verbally authorized additional research on CMA.

Proposed Benchmarks/Monitoring: ODOT District Managers will be responsible for implementation of program recommendations and best management practices.

ODOT11 - Integrated Pest Management Program

(Refer to ongoing programs.)

ODOT12 - Education

Summary of Measure: Increased awareness of fish issues through the creation of a training video, participation in public outreach meetings concerning the salmon initiative, and involvement in watershed councils and internal and external training information sessions and meetings.

Goal: Increase knowledge of ODOT employees about how their activities effect water quality and fish habitat, and their role in the salmon recovery effort.

Responsible Staff: ODOT staff

Phase 1 Actions (1997)

- A training and awareness video developed by ODOT photographer Ted Birney has been distributed to ODOT employees through the Pacific States Marine Fisheries Commission. The video has also been distributed to County roadmasters. Copies of ODOT's Coastal Salmon Restoration Initiative will be distributed to work groups within ODOT.

- The Salmon Program Manager or a representative will attend a 3-day training workshop held by the University of Washington in February 1997. This workshop will be addressing Integrated Pest Management, riparian zones, and project design and culverts specific to salmon and trout issues. If appropriate, a similar workshop funded by Technology Transfer will be conducted in the fall for ODOT staff; the workshop will be modified to focus on fish friendly roadways.

- The Salmon Program Manager attended the Transportation Research National Board meeting in January 1997 to talk about the CSRI.

- ODOT Project Leaders will educate ODOT employees (designers, maintenance, etc.) on fish friendly road design, encourage implementation of new practices, and communicate to maintenance and construction staff the requirements stipulated in the programmatic biological assessments. District Managers will educate watershed councils about ODOT activities, and employees will be educated about watershed council needs.

- Training will be presented on calcium magnesium acetate (CMA) application for winter maintenance activities and on the proper installation and troubleshooting for erosion controls.

- There will be ODOT participation in the annual Northwest Transportation Conference for counties and other transportation authorities in February 1997.

- A variety of meetings and courses will be held throughout 1997 that discuss the OCSRI and action item implementation. For example:
  * Construction Project Managers attend an informational meeting in March 1997; this meeting will include local governments.
  * IPM District Team meeting in February 1997.
  * Non-crop vegetation short course.

Cost: There will be various funding sources, including Technology Transfer (T2), ODOT Operations, and Districts.

Proposed Benchmarks/Monitoring: Increased awareness of environmental concerns (including fish and water quality) is difficult to quantity. Benchmarks are included in other action items.

ODOT13 - Preferential Use of Bioengineering Solutions

(Included in ODOT6 - Environmentally Sensitive Design)

ODOT15 - Habitat for Fish in Wetland Mitigation

Summary of Measure: Include habitat for fish in wetland mitigation in project design as appropriate.

Goal: Enhance fish habitat where and when feasible.

Responsible Staff: ODOT Enhancement Wetland Team within Environmental Services.

Implementation: Wetland mitigation has focused on in-kind replacement of impacted wetland types and functions, which has often resulted in neglecting opportunities for fish habitat. In the future, wetland mitigation efforts will incorporate more measures with 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 STEP for stream enhancement efforts.

Also, features of wetland mitigation will be included in conservation measures for threatened and endangered aquatic species.

Phase 1 Actions (1997)

- A wetland mitigation bank site is currently under construction at ODOT's Dalton Lake site located adjacent to the lower Columbia River outside of St. Helens. This site is comprised of riparian and forested slopes surrounding an interior lake within a 70-acre area. Habitat enhancement has involved excavation of the lake to provide more suitable fisheries habitat and for removal of reed canary grass.

- Seven new projects including fish friendly designs will initiate construction in 1997.

- Stream-side planting, creation of off-channel meanders for fish shelter, and placement of instream woody debris have all been designed for the Eddyville to Cline Hill ODOT project. These designs will go to contract in September 1997.

- The Chrome Plant to Cedar Point ODOT project on the Coquille River will be in the design phase during 1997. This project will involve the local watershed committee in creation of over-wintering habitat and expansion of a small upstream channel for spawning habitat.

Cost: Project dependent.

Proposed Benchmarks/Monitoring: ODOT wetland specialists and biologists will provide documentation to the Salmon Program Manager.

ODOT16 - Minimize Potential Impacts of Accident Spills

(Included in ODOT3 - Maintenance Management Plan)

ODOT19 - Mitigation Banking

Summary of Measure: A credit/debit banking system for wetland mitigation/fish enhancement will be developed in conjunction with the wetland regulators, Oregon Department of Fish and Wildlife, U.S. Fish and Wildlife Service, and National Marine Fisheries Service. This system will help offset negative impacts that construction projects may have in any particular watershed. ODOT will get credit from a fish enhancement mitigation bank for fish mitigation. This mitigation banking will be especially helpful when a construction project or group of projects are located in a particularly sensitive watershed where acceptance of the projects would otherwise be difficult to obtain.

Goal: Enhance fish habitat where and when feasible. Provide mitigation in high priority areas where construction projects are known to be necessary in the future.

Responsible Staff: ODOT team, planners, and biologists in conjunction with Corps of Engineers, DSL, ODFW, NMFS and USFWS. Mike Shippy will be the team leader.

Phase 1 Actions (1997)

- Development of actions and work planning will progress in 1997. Actions to be addressed include:
  - * Creation of a policy for funding banks.
  - * Strategy for bank development on a watershed level
  - * Database of suitable mitigation banking sites (possibly from surplus properties).

- A draft of the policy and a Memorandum of Agreement (MOA) with state and federal agencies will be distributed in 1997. The ODOT wetland team will act as the initial steering committee for this new policy.

Cost: Approximately $90,000 in Wetland Team budget.

Proposed Benchmarks/Monitoring: None at this time.

Future Action Items (After 1998)

The action described below would provide benefit to fish or fish habitat, but cannot be implemented at this time. Implementation would require a legislative change.

ODOT18 - Retention of Surplus Properties
(Phase 2- Legislative Change)

Summary of Measure: Allow ODOT to retain ownership of surplus lands that have natural resource value, for the purpose of conserving the resources, rather than sell 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.

Goal: Protect valuable fish and wetland habitat located on ODOT surplus property that very likely will be threatened with development if sold through the surplus property program.

Responsible Staff: ODOT planners, environmental staff, and design engineers.

Implementation: ODOT would retain properties that have high resource value rather than sell these properties as they are surplused. This includes land that has no immediate or foreseeable use as a mitigation site but does provide high resource value to fish and their habitat.

Schedule: Long-term, because this action would require a constitutional amendment and a change in legislative direction. Some possible short-term implementation may be possible under a Memorandum of Agreement with the Corps of Engineers and the Division of State Lands.

Cost: Not considered an issue at this time.

Proposed Benchmarks/Monitoring: None at this time.

Benefit to Fish for All Action Items

The following tables describe the benefit to fish and fish habitat as a result of ODOT programs and action items, even those without implementation in 1997. Benefit to fish is described qualitatively. Benefit is difficult to quantitatively assess for ODOT programs because both impacts and remediations are frequently indirect. For those actions that can be quantitatively measured (e.g., culvert remediations), amount of benefit will be quantified at the end of 1997.

Benefit to Fish

Factor for Decline / Concern	NPDES PROGRAM
1. Channel morphology	
2. Substrate changes in streams	This program implements erosion control measures that reduce sediment input into streams. The program train ODOT staff on the appropriate use of erosion control devices. As a result, there is an increased awareness within ODOT of the importance of sediment control. Results in less turbidity and fewer fine sediments being deposited in spawning and rearing areas. Also, the program likely results in decreased potential impacts to macroinvertebrates, an important food resource.
3. Loss of instream roughness	
4. Loss of estuarine rearing habitat	ODOT builds bridges over and roads along estuaries. The NPDES program prevents sediment from entering estuaries and disturbing rearing and migratory habitat. The Maintenance Management Service Review for Water Quality is currently reviewing current standards and BMPs to be sensitive to the needs of juvenile salmonids.
5. Loss of wetlands	
6. Loss/degradation of riparian areas	
7. Water quality degradation / Sedimentation	The NPDES program mandates erosion and sediment control, prohibits non-storm water discharges, and requires implementation of a stormwater pollution plan. ODOT applies NPDES guidelines to construction projects, and to operation and maintenance activities as needed. The implementation of erosion control measures reduces sediment input into streams, with improved water quality. ODOT NPDES staff and ODOT Environmental staff will work together to monitor runoff from low ADT roads and effectiveness of treatment of measures such as grassy swales.
8. Changes in flow	
9. Passage impediments	
10. Elimination of habitat	
11. Direct take of salmonids	
12. Education/ Public outreach / Training	Training of ODOT staff is an important part of this program.
13. Coordination	This program improves coordination within ODOT through the standardization of erosion control measures.

Benefit to Fish

Factor for Decline / Concern	ENDANGERED SPECIES ACT PROGRAM
1. Channel morphology	Environmental staff within ODOT review projects to ensure compliance with the Endangered Species Act (ESA). They work with designers to ensure designs do not alter stream morphology, whenever possible. When mitigation is necessary, opportunities to repair interconnections to the floodplain are incorporated. This could improve habitat for salmonids, in particular, increase the amount of off-channel habitat available for juvenile fish.
2. Substrate changes in streams	During ESA review, potential impacts to stream substrate including spawning gravels are evaluated; if impacts are unavoidable, mitigation is provided. Conservation measures in ESA documents provide erosion control measures to prevent/minimize the input of fine sediment, and possible impacts to stream substrates.
3. Loss of instream roughness	Mitigation measures may require the placement of rocks or wood in the stream. Whenever riprap is necessary for a project (e.g., support to bridge piers), placement in the water is done after consultation with ODFW biologists.
4. Loss of estuarine rearing habitat	
5. Loss of wetlands	The ESA provides protection of wetlands that provide critical habitat for listed fish species. Unavoidable impacts are mitigated. Future mitigation for impacts to listed fish could include the creation of off-channel wetland areas.
6. Loss/degradation of riparian areas	During ESA review of construction and maintenance projects, potential impacts to riparian areas are evaluated. Mitigation is provided for any unavoidable impacts. Within many projects, riparian areas are improved through the planting of native vegetation, and stabilization of erodible areas.
7. Water quality degradation / Sedimentation	ESA program reviews the potential for water quality degradation and sediment inputs. These impacts are minimized. As a result of the program, impacts to migratory, rearing, and spawning habitats are minimized or avoided.
8. Changes in flow	
9. Passage impediments	The ESA review ensures that there are no impediments to passage as a result of ODOT activities or structures.
10. Elimination of habitat	
11. Direct take of salmonids	
12. Education/ Public outreach / Training	During ESA documentation, ODOT biologists talk to ODOT designers and project managers about details of the projects. During this time, biologists relay concerns about projects and educate other ODOT staff on the needs of fish.
13. Coordination	The program facilitates communication within ODOT, and with NMFS and ODFW.

Benefit to Fish

Factor for Decline	INTEGRATED PEST MANAGEMENT PROGRAM
1. Channel morphology	
2. Substrate changes in streams	
3. Loss of instream roughness	
4. Loss of estuarine rearing habitat	
5. Loss of wetlands	
6. Loss/degradation of riparian areas	This program results in improved riparian areas though increased awareness of how roadside vegetation is managed.
7. Water quality degradation / Sedimentation	This program improves water quality through reduced chemical use, and less migration of chemicals into streams and wetlands.
8. Changes in flow	
9. Passage impediments	
10. Elimination of habitat	
11. Direct take of salmonids	
12. Education/ Public outreach / Training	An ODOT representative will attend a workshop that will discuss, among other things, Integrated Pest Management, as it related to salmon and trout issues.
13. Coordination	

Benefit to Fish

Factor for Decline	HAZARDOUS MATERIALS PROGRAM
1. Channel morphology	
2. Substrate changes in streams	
3. Loss of instream roughness	
4. Loss of estuarine rearing habitat	
5. Loss of wetlands	
6. Loss/degradation of riparian areas	
7. Water quality degradation / Sedimentation	The contractor or maintenance crew must be prepared to contain any small spills of hazardous materials or call the appropriate response people. Any hazardous material must be stored in areas where potential spills can be contained and will not ultimately end up in water. Drainage from a construction, maintenance, staging or storage site must be designed so that run-off would to deposit materials into water. Statewide maintenance activities are currently under review. This review will result in establishment of new BMPs. Increased awareness and education has resulted in decreased inputs of hazardous materials into streams and decreased potential for water quality degradation.
8. Changes in flow	
9. Passage impediments	
10. Elimination of habitat	
11. Direct take of salmonids	
12. Education/ Public outreach / Training	
13. Coordination	

Benefit to Fish

Factor for Decline	CLEAN WATER ACT - 401 CERTIFICATION
1. Channel morphology	
2. Substrate changes in streams	
3. Loss of instream roughness	
4. Loss of estuarine rearing habitat	
5. Loss of wetlands	All ODOT removal/fill permit applications will be reviewed by a water quality and wetland specialist to ensure adequate protection of wetlands and adequate compensatory mitigation for any loss or alteration of wetlands.
6. Loss/degradation of riparian areas	
7. Water quality degradation / Sedimentation	All 401 permit application will be reviewed by a water quality specialist to ensure adequate protection of water quality. Conditions will require better water quality protection for streams on the 303(d) list. ODOT is required to protect water quality and temperature.
8. Changes in flow	
9. Passage impediments	
10. Elimination of habitat	
11. Direct take of salmonids	
12. Education/ Public outreach / Training	
13. Coordination	

Benefit to Fish

Factor for Decline	ODOT Action Item #1 SALMON PROGRAM MANAGER
1. Channel morphology	
2. Substrate changes in streams	
3. Loss of instream roughness	
4. Loss of estuarine rearing habitat	
5. Loss of wetlands	
6. Loss/degradation of riparian areas	
7. Water quality degradation / Sedimentation	
8. Changes in flow	
9. Passage impediments	
10. Elimination of habitat	
11. Direct take of salmonids	
12. Education/ Public outreach / Training	Sue Chase was hired in December 1996 to provide overall coordination and assurance of implementation for ODOT's CSRI. This includes development of training and monitoring for action items, as appropriate, and the continuing education of staff to increase understanding of fish needs. This will indirectly to improved habitat and water quality as ODOT staff become more aware during project design and implementation.
13. Coordination	Sue Chase was hired in December 1996 to provide overall coordination and assurance of implementation for ODOT's CSRI. Sue provides regular briefings to the ODOT director and governor's office, coordination for watershed council activities, communication with other agencies, and improved internal and external education.

Benefit to Fish

Factor for Decline / Concerns	ODOT Action Item #2 CULVERT INVENTORY, ASSESSMENT AND REMEDIATION
1. Channel morphology	
2. Substrate changes in streams	
3. Loss of instream roughness	
4. Loss of estuarine rearing habitat	
5. Loss of wetlands	
6. Loss/degradation of riparian areas	
7. Water quality degradation / Sedimentation	
8. Changes in flow	It is likely that some malfunctioning culverts alter flow. This will be evaluated during the culvert inventory described below. Improvements in flow would likely improve accessibility to habitat, and reduce vulnerability to predators and competition.
9. Passage impediments	All ODOT and county coastal culverts are being inventoried and evaluated for potential fish passage problems through an Interagency Agreement with ODFW. ODOT will replace or modify ODOT culverts based on ODFW's recommended priorities (including review by ODOT biologists) and ODOT's authorized funding. Repairs may also take place when a problem culverts is located within a planned construction project. This will result in increased habitat available for fish to use, and less stress on fish during migration.
10. Elimination of habitat	Improved culverts will restore salmon access to habitat that has previously been available.
11. Direct take of salmonids	
12. Education/ Public outreach / Training	As a result of this action item, ODOT staff will learn about appropriate culvert design and installation for fish.
13. Coordination	Improved communication and coordination with ODFW results from this action item.

Benefit to Fish

Factor for Decline	ODOT Action Item #3 RESPONDING TO SOURCES OF SEDIMENT
1. Channel morphology	
2. Substrate changes in streams	This action will improve response to landslides, improve BMPs, and increase prevention of landslides, with overall less sediment reaching streams. This will result in less fine sediment in spawning beds. Flood repairs will be done with an increased awareness of fish, and increased knowledge of inwater fish needs.,
3. Loss of instream roughness	
4. Loss of estuarine rearing habitat	
5. Loss of wetlands	
6. Loss/degradation of riparian areas	
7. Water quality degradation / Sedimentation	Water quality will improve because less sediment will enter streams. Active avoidance behaviors will decline, resulting in less stress on fish. Spawning and rearing habitats will improve.
8. Changes in flow	
9. Passage impediments	
10. Elimination of habitat	
11. Direct take of salmonids	
12. Education/ Public outreach / Training	
13. Coordination	Coordination will improve because each district will identify locations for placement of materials, and contingency plans and BMPs will be established.

Benefit to Fish

Factor for Decline	ODOT Action Item #4 PARTICIPATION IN WATERSHED COUNCILS
1. Channel morphology	
2. Substrate changes in streams	
3. Loss of instream roughness	ODOT is working with watershed councils to increase woody debris in streams. ODOT can identify sites for temporary storage of woody debris, which council members can place in streams.
4. Loss of estuarine rearing habitat	
5. Loss of wetlands	
6. Loss/degradation of riparian areas	
7. Water quality degradation / Sedimentation	
8. Changes in flow	
9. Passage impediments	Information about culvert problems can be relayed from watershed councils, because of the councils familiarity with the watershed.
10. Elimination of habitat	
11. Direct take of salmonids	
12. Education/ Public outreach / Training	As district managers participate in watershed councils, they learn about fish concerns within the watershed. Remediation will be done as funds are available.
13. Coordination	Participation in watershed councils facilitates communication with other agencies and other stakeholders within the watersheds. This will likely lead to improved habitat and water quality for fish, as awareness of site specific concerns increases.

Benefit to Fish

Factor for Decline	ODOT Action Item #5 MASTER PLAN FOR SURPLUS PROPERTIES (PART 1)
1. Channel morphology	
2. Substrate changes in streams	Surplus property may be used as sites of maintenance disposal, and prevent sediment from being place in streams.
3. Loss of instream roughness	
4. Loss of estuarine rearing habitat	
5. Loss of wetlands	Surplus property may provide future sites of off-channel or near-channel wetland mitigation, which could provide off-channel rearing areas for juvenile fish.
6. Loss/degradation of riparian areas	
7. Water quality degradation / Sedimentation	
8. Changes in flow	
9. Passage impediments	
10. Elimination of habitat	
11. Direct take of salmonids	
12. Education/ Public outreach / Training	
13. Coordination	The assessment will improve coordination within ODOT, and facilitate communication about where environmentally sound mitigation sites or disposal sites could be located within a watershed.

Benefit to Fish

Factor for Decline	ODOT Action Item #6 ENVIRONMENTALLY SENSITIVE DESIGN
1. Channel morphology	ODOT will evaluate and modify road and bridge designs in future projects to ensure the existing channel morphology is maintained or improved, as feasible.
2. Substrate changes in streams	
3. Loss of instream roughness	During project design, fish needs will be evaluated and incorporated into design, where feasible. Stream substrate will not be altered unless necessary; when loss is unavoidable, mitigation will occur.
4. Loss of estuarine rearing habitat	Road and bridge projects will be designed to minimize impacts to estuaries. This includes minimizing inwater work and instream structures, loss of wetland habitat in estuarine areas, and minimizing input of sediments and pollutants.
5. Loss of wetlands	
6. Loss/degradation of riparian areas	Environmentally sensitive design will be integrated into projects including the reduction of road widths when designing new projects near streams or wetlands (within safety constraints), and minimizing loss of riparian vegetation.
7. Water quality degradation / Sedimentation	Designs incorporate protection of water quality and aquatic habitat. For example, scuppers will not be designed to drain directly into the water, but the runoff will be directed into vegetated areas first.
8. Changes in flow	
9. Passage impediments	New culverts and bridges will be designed to accommodate fish needs. From a fish perspective, a bridge is better than culvert, and culverts should not slow fish passage. ODOT is working with ODFW to ensure culvert design and installation meets the needs of both adult and juvenile fish.
10. Elimination of habitat	
11. Direct take of salmonids	
12. Education/ Public outreach / Training	ODOT designers will be educated on how to design transportation systems that minimally impact fish.
13. Coordination	ODOT Environmental staff and biologists from other agencies are coordinating with designers to incorporate fish concerns.

Benefit to Fish

Factor for Decline	ODOT Action Item #7 STORAGE AND DISPOSAL PLAN FOR WOODY DEBRIS
1. Channel morphology	
2. Substrate changes in streams	
3. Loss of instream roughness	Temporary storage sites for woody debris will be developed within each ODOT district. The woody debris from these sites will be place in or adjacent to stream/wetlands by ODFW biologists or watershed council representatives. This will improve rearing habitat, and likely improve the food supply.
4. Loss of estuarine rearing habitat	
5. Loss of wetlands	
6. Loss/degradation of riparian areas	
7. Water quality degradation / Sedimentation	
8. Changes in flow	
9. Passage impediments	
10. Elimination of habitat	
11. Direct take of salmonids	
12. Education/ Public outreach / Training	
13. Coordination	ODOT maintenance staff will coordinate this action item with ODFW and watershed councils.

Benefit to Fish

Factor for Decline	ODOT Action Item #8 STATEWIDE EROSION CONTROL HANDBOOK
1. Channel morphology	
2. Substrate changes in streams	In 1996, ODOT produced a draft erosion control handbook. The draft handbook is being used and reviewed by each ODOT region. The handbook describes guidelines for developing, implementing and inspecting erosion and pollution control measures. These improved BMPs and the associated training will result in less sediment input into streams, and less impact on stream substrate.
3. Loss of instream roughness	
4. Loss of estuarine rearing habitat	
5. Loss of wetlands	
6. Loss/degradation of riparian areas	
7. Water quality degradation / Sedimentation	The handbook outlines measures to be used to prevent and minimize sediment input into streams. The handbook describes correct implementation of each measure. The result will be less sediment and pollutant input into streams.
8. Changes in flow	
9. Passage impediments	
10. Elimination of habitat	
11. Direct take of salmonids	
12. Education/ Public outreach / Training	ODOT staff will continue to be educated about appropriate use of erosion and pollutant control BMPs.
13. Coordination	

Benefit to Fish

Factor for Decline	ODOT Action Item #9 REVIEW & DEVELOPMENT OF A GEOGRAPHICALLY-APPROPRIATE PROGRAM FOR WINTER MAINTENANCE ACTIVITIES & SIDECAST SWEEPING
1. Channel morphology	
2. Substrate changes in streams	Sidecast sweeping can result in increased sedimentation. The review was recently completed and guidelines produced to minimize sediment input as a result of winter sanding and sidecast sweeping activities. In some districts, sidecast sweeping will be eliminated. Less impact to spawning areas will result.
3. Loss of instream roughness	
4. Loss of estuarine rearing habitat	
5. Loss of wetlands	
6. Loss/degradation of riparian areas	
7. Water quality degradation / Sedimentation	Less water quality and degradation and sedimentation will occur. Increased use of CMA and decreased reliance on sand to improve winter traction.
8. Changes in flow	
9. Passage impediments	
10. Elimination of habitat	
11. Direct take of salmonids	
12. Education/ Public outreach / Training	The results of the review and new BMPs has been communicated to ODOT staff. Federal Highway has verbally authorized a study to quantify the environmental impacts of CMA. Training will occur for CMA application for winter maintenance activities.
13. Coordination	

Benefit to Fish

Factor for Decline	ODOT Action Item #10 AGGREGATE PERMIT REVIEW
1. Channel morphology	
2. Substrate changes in streams	Instream or near-stream aggregate material sources will be evaluated for potential shut-down due to their disturbance to salmonid habitat. The need for possible mitigation at shut-down will also be evaluated. This will result in improved spawning habitat.
3. Loss of instream roughness	
4. Loss of estuarine rearing habitat	
5. Loss of wetlands	
6. Loss/degradation of riparian areas	
7. Water quality degradation / Sedimentation	
8. Changes in flow	
9. Passage impediments	
10. Elimination of habitat	
11. Direct take of salmonids	
12. Education/ Public outreach / Training	
13. Coordination	

Benefit to Fish

Factor for Decline	ODOT Action Item #11 INTEGRATED PEST MANAGEMENT PROGRAM
1. Channel morphology	
2. Substrate changes in streams	REFER TO PAGE 3, INTEGRATED PEST MANAGEMENT PROGRAM
3. Loss of instream roughness	
4. Loss of estuarine rearing habitat	
5. Loss of wetlands	
6. Loss/degradation of riparian areas	
7. Water quality degradation / Sedimentation	
8. Changes in flow	
9. Passage Impediments	
10. Elimination of habitat	
11. Direct take of salmonids	
12. Education/ Public outreach / Training	
13. Coordination	

Benefit to Fish

Factor for Decline	ODOT Action Item #12 EDUCATION
1. Channel morphology	
2. Substrate changes in streams	
3. Loss of instream roughness	
4. Loss of estuarine rearing habitat	
5. Loss of wetlands	
6. Loss/degradation of riparian areas	
7. Water quality degradation / Sedimentation	
8. Changes in flow	
9. Passage impediments	
10. Elimination of habitat	
11. Direct take of salmonids	
12. Education/ Public outreach / Training	This action item has been discussed in each of the other action items. In addition, a training video has produced and distributed within ODOT, to county roadmasters and other interested people. A representative of ODOT will attend a workshop that will address
13. Coordination	

Benefit to Fish

Factor for Decline	ODOT Action Item #13 PREFERENTIAL USE OF BIOENGINEERING SOLUTIONS
1. Channel morphology	
2. Substrate changes in streams	
3. Loss of instream roughness	
4. Loss of estuarine rearing habitat	
5. Loss of wetlands	
6. Loss/degradation of riparian areas	During design, bioengineering (incorporating vegetative plantings and stream sensitive design) options will be used preferentially over riprap where appropriate. This will make more biologically intact riparian areas, that could support macroinvertebrates, contribute to large woody debris recruitment in the future, increase streambank stability, and improve stormwater filtration.
7. Water quality degradation / Sedimentation	Water quality and biological condition would improve with increased filtration of runoff, and more biologically intact riparian area.
8. Changes in flow	
9. Passage impediments	
10. Elimination of habitat	
11. Direct take of salmonids	
12. Education/ Public outreach / Training	
13. Coordination	

Benefit to Fish

Factor for Decline	ODOT Action Item #14 BURNING IN RIPARIAN AREAS
1. Channel morphology	
2. Substrate changes in streams	
3. Loss of instream roughness	
4. Loss of estuarine rearing habitat	
5. Loss of wetlands	
6. Loss/degradation of riparian areas	THIS ACTION ITEM HAS BEEN COMPLETED. Burning is riparian areas has been prohibited. The result will be more intact riparian areas that could support macroinvertebrates, have increase rooting for bank stability, buffering for high flows and stormwater filtration.
7. Water quality degradation / Sedimentation	Intact riparian areas will result in improved water quality because of improved stormwater filtration.
8. Changes in flow	
9. Passage impediments	
10. Elimination of habitat	
11. Direct take of salmonids	
12. Education/ Public outreach / Training	
13. Coordination	

Benefit to Fish

Factor for Decline	ODOT Action Item #15 HABITAT FOR FISH IN WETLAND MITIGATION
1. Channel morphology	In the future, wetland mitigation will incorporate more measures with benefits for fish including the creation of in-channel or off-channel wetlands which is required habitat for juvenile fish.
2. Substrate changes in streams	
3. Loss of instream roughness	Wetland mitigation will incorporate more measures with benefits for fish such as inclusion of large woody debris.
4. Loss of estuarine rearing habitat	Mitigation could include the restoration of estuarine wetlands.
5. Loss of wetlands	Mitigation will be designed to incorporate fish needs, where available.
6. Loss/degradation of riparian areas	
7. Water quality degradation / Sedimentation	Mitigation could include vegetation that could provide shade to streams and wetlands, thus providing a buffer for water temperatures.
8. Changes in flow	
9. Passage impediments	
10. Elimination of habitat	Wetland mitigation efforts will incorporate more measures with benefit for fish, thus restoring degraded habitats for salmonids.
11. Direct take of salmonids	
12. Education/ Public outreach / Training	
13. Coordination	

Benefit to Fish

Factor for Decline	ODOT Action Item #16 MINIMIZE POTENTIAL IMPACTS OF ACCIDENTAL SPILLS
1. Channel morphology	
2. Substrate changes in streams	
3. Loss of instream roughness	
4. Loss of estuarine rearing habitat	
5. Loss of wetlands	
6. Loss/degradation of riparian areas	
7. Water quality degradation / Sedimentation	ODOT will minimize the future risk of accidents spilling material into waterways through the development of map of sensitive areas, site review and prioritization of sites. ODOT will look at incorporating BMPs that could reduce the likelihood of accidental spills.
8. Changes in flow	
9. Passage impediments	
10. Elimination of habitat	
11. Direct take of salmonids	
12. Education/ Public outreach / Training	
13. Coordination	

Benefit to Fish

Factor for Decline	ODOT Action Item #17 AQUATIC PEST PLANT MANAGEMENT PLAN
1. Channel morphology	
2. Substrate changes in streams	
3. Loss of instream roughness	
4. Loss of estuarine rearing habitat	
5. Loss of wetlands	ODOT will participate with the Aquatic Plant Management Council to prevent the colonization of aquatic pest species within ODOT jurisdiction.
6. Loss/degradation of riparian areas	
7. Water quality degradation / Sedimentation	
8. Changes in flow	
9. Passage impediments	
10. Elimination of habitat	
11. Direct take of salmonids	
12. Education/ Public outreach / Training	ODOT will train maintenance staff to recognize pest plant species on ODOT property.
13. Coordination	ODOT will coordinate with other agencies on the Aquatic Plant Management Council.

Benefit to Fish

Factor for Decline	ODOT Action Item #18 RETENTION OF SURPLUS PROPERTIES (PART II- LEGISLATIVE CHANGE)
1. Channel morphology	THIS ACTION ITEM REQUIRES LEGISLATIVE ACTION AND COULD NOT BE
2. Substrate changes in streams	IMPLEMENTED UNTIL SOMETIME AFTER 1998.
3. Loss of instream roughness	
4. Loss of estuarine rearing habitat	
5. Loss of wetlands	
6. Loss/degradation of riparian areas	
7. Water quality degradation / Sedimentation	
8. Changes in flow	
9. Passage impediments	
10. Elimination of habitat	
11. Direct take of salmonids	
12. Education/ Public outreach / Training	
13. Coordination	

Benefit to Fish

Factor for Decline	ODOT Action Item #19 MITIGATION BANKING
1. Channel morphology	A credit/debit type of banking system for wetland mitigation / fish enhancement will be developed in conjunction with ODFW. The mitigation could help offset negative impacts that construction projects may have in any particular watershed. The mitigation could include restoration of channel complexity, thus increasing the quantity and quality of fish habitat.
2. Substrate changes in streams	The mitigation could involve improving instream habitat. The mitigation could take place at locations where improvements are most needed, not just within active project areas.
3. Loss of instream roughness	see above
4. Loss of estuarine rearing habitat	The mitigation could restore estuarine rearing habitat.
5. Loss of wetlands	The mitigation could restore wetlands that have potential to provide life requisites for salmonids.
6. Loss/degradation of riparian areas	The mitigation could restore vegetation, large woody debris, and general bank stability.
7. Water quality degradation / Sedimentation	
8. Changes in flow	
9. Passage impediments	
10. Elimination of habitat	
11. Direct take of salmonids	
12. Education/ Public outreach / Training	
13. Coordination	

Oregon Economic Development Department

Oregon Coastal Salmon Restoration Initiative Workplans

Oregon Economic Development Department
OCSRI Workplan

OEDD1 - Regional Strategy Board Review Of Projects To Avoid Adverse Impacts On Salmon.

Summary of Measure: Regional Strategies boards will review project applications to ensure those funded have no adverse effects on fish habitat or populations.

Background: The Oregon Economic Development Department (OEDD) allocates lottery funds each biennium to local Regional Strategy boards, with which the boards fund projects that support specific industries. Economic Development does not have policy or decision-making authority over the boards, but the Department is able to encourage boards to consider the needs of salmon. The Department has educated the boards about salmon and will provide them with a checklist of potential impacts on salmon habitat to which boards and project applicants can refer when they review projects. Economic Development has developed the checklist in partnership with the Oregon Department of Fish and Wildlife and the National Marine Fisheries Service.

Objective: Ensure that Regional Strategies projects do no harm to salmon habitat.

Implementation

- Regional Strategy boards will be able to use the checklist to identify and avoid potential environmental impacts on Coho.
- No legal authority is required.
- No policy citation is applicable.
- The use of the checklist will occur in the 1997-99 biennium. 1995-97 funds were committed prior to development of checklist.

Results

- The effect of this action will be across the whole of the coastal watersheds.
- The scope of the impact will be limited at first, as boards become familiar with the needs of fish. As they become more familiar, the impact should increase. Eventually, it is conceivable that boards will favor projects that in some way improve fish habitat or increase populations.
- The action depends on cooperation with, and assistance from, the Oregon Department of Fish and Wildlife, the National Marine Fisheries Service, and boards and their customers.
- The effect is not expected to be a major improvement, but will add to general awareness of and responsiveness of the needs of fish. This prediction is based on a qualitative assessment.

Funding: No new funding is required for this action.

Schedule: The action is underway and will be fully implemented in the 1997 round of regional strategies awards.

Responsible Staff: Bill Campbell (Rural Development Manager) and Joan Rutledge (Regional Strategies Program Manager).

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OEDD2 - Reviewing Water And Wastewater Project Applications To Ensure Those Funded Have No Adverse Effect On Fish Habitat Or Populations.

Summary of Measure: Applicants for water or wastewater project funding are filling out a form that indicates whether a proposed project could have an adverse impact on fish habitat or populations. The Oregon Department of Fish and Wildlife will review projects that look potentially harmful. To date, there have been no projects that look potentially harmful.

Background: Economic Development applicants have not been required to review projects for impact on fish in the past, so the action is a revision of a process that is currently taking place.

Objective: Ensure that infrastructure projects funded by the Department do no harm to coastal salmon habitat.

Implementation

- The action is being implemented.
- Applicants are required to complete additional paperwork.
- Applications submitted without fish impact forms are being returned to the applicants as incomplete, effecting enforcement of the action.
- The action requires no legal authority.
- No policy citation is applicable.

Results: This action has two predicted effects. First, the action should decrease the incidence of water and wastewater projects harmful to fish habitat or populations getting funded. Second, the action should increase water and wastewater applicant knowledge of the needs of fish and how local activities impact fish habitat.

Other results are:

- The effect of this action will be across the whole of the coastal watersheds.
- The time scope of the impact will be continuous.
- This action depends on the ability of the Department of Fish and Wildlife to review flagged projects in a timely manner.
- This prediction is based on a qualitative assessment.

Funding: No new funding is required for this action.

Schedule: The action has been implemented.

Responsible Staff: Yvonne Addington, Regional Division Manager

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OEDD3 - Use Of Hazard Mitigation Funding In Restoring Salmon Habitat.

Summary of Measure: Secure Hazard Mitigation funding of $343,685 from FEMA for habitat restoration projects as follow up to the Federal Salmon Disaster Declaration on the Oregon Coast.

Background: The Oregon Economic Development Department has applied for and is in the final stages of receiving funds for projects that promote salmon habitat restoration.

Objective: Fund habitat restoration projects with use of hazard mitigation funding.

Implementation

- The funds are available and pending final plan approval and selected project approval by FEMA staff.
- EIS statements are currently being prepared by FEMA staff.
- The project will be administered by the Oregon Wildlife Heritage Foundation to provide project oversight and reporting requirements.
- GWEB is aware of this funding approach and has supported the effort to get additional funds to the watershed councils.
- This action requires FEMA approval of projects. However, this is a one-time action and the watershed councils are expected to find funding from other sources in future years.

Results

- The predicted effect of this action depends on the ability of the watershed coordinators to implement work on the watersheds, but the funding at least gives them a start.
- Geographic scope of the impact will be Oregon Coastal Counties.
- Time scope of the impact is approximately six months with this funding, but presumably the councils will find alternate funding to continue the work thereafter.
- This action is dependent on GWEB redirecting funds to the watershed councils upon receipt of FEMA funds.
- GWEB will determine the funding for watershed councils.

Funding: The funding will be appropriated as follows: $201,950 of FEMA funds will be directed to pre-approved Governor's Watershed Enhancement Board (GWEB) Projects. GWEB will then redirect $201,950 to watershed coordinators funding. The remaining funds will go toward selected ODFW projects on the Oregon Coast.

Schedule: Habitat restoration projects will be conducted during the first 6-8 months of 1997.

Responsible Staff: Bill Campbell (Rural Development Manager) and Gerald Baugh (Regional Strategies Coordinator).

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OEDD4 - Create Pilot Project Revolving Loan Fund For Use By Watershed Restoration Workers In The Tillamook Area.

Summary of Measure: The Tillamook Revolving Loan Fund is established. All contracts have been signed. One loan has been made as of this date

Background: The fund was to provide start-up capital for watershed restoration contractors in Tillamook County and the Northwest Region. The project is an extension of the Woods demonstration in Tillamook County that put 13 dislocated timber workers into year-long, full-time, watershed restoration training positions. Program graduates are ready to begin their own contracting companies, but need start-up capital to do it. The revolving loan fund will supply that capital.

The contractors funded will provide the Oregon Department of Forestry, U.S. Forest Service, Bureau of Land Management, and local private landowners with a workforce capable of designing and performing restoration jobs.

This is the first revolving loan fund Economic Development has helped start for the purpose of conducting watershed restoration work.

Objective: Restore salmon habitat in the Tillamook area and provide employment for local people.

Implementation

- The fund is available for use.
- The action is in process; contracts have been signed.
- No new legal authority is required.
- There are no relevant policy citations.
- There are no known obstacles to implementation of this action.

Results:

- The predicted effect of this action is an increase in the ability of local displaced timber workers, and others with experience through jobs in the woods, to meet the increasing restoration requirements of federal, state, and private contracts and to encourage habitat restoration. Continued partnership among the agencies involved in the steering committee will result in ongoing habitat improvements.
- Geographic scope of the impact is the Tillamook basin and Northwest Region.
- Expected timeframe of the impact is immediate and continuing.
- The effect is expected to be major in terms of coordinating activities in watershed enhancement projects through involvement of all landowners and communities.

Funding: The capitalization of the fund is $100,000 from the U.S. Department of Agriculture's Rural Development, Northwest Oregon Economic Alliance Rural Investment Fund, and Old Growth total funding of $300,000.

Schedule: The fund has been created and is issuing loans. The schedule is indeterminate and the fund should continue as long as funds continue to revolve.

Responsible Staff: Bill Campbell, Rural Development Manager.

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OEDD5 - Fund Watershed Restoration Work With U.S. Fish And Wildlife Service Funding.

Summary of Measure: Administer U.S. Fish and Wildlife Service funds for watershed restoration work on public and private lands.

Background: The Oregon Economic Development Department is responsible for this action in partnership with the U.S. Fish and Wildlife Service (USFWS). The action is a continuing process. The funds support restoration work ranging from instream enhancement to habitat restoration and diversion structures. The USFWS has attached monitoring requirements to its funding; all projects will be monitored and the impact measured according to standard USFWS practices. The National Marine Fisheries Service could track results through this monitoring.

Objective: Restore degraded fish habitat on private lands.

Implementation

- The action has been ongoing since March 1995.
- The action involves agency guidelines and memoranda of understanding.
- No legal authority required.
- No policy citations applicable.

Results

- The predicted effect of the action is to enable 42 watershed restoration projects on private lands to proceed. The action provides a framework for the delivery of U.S. Fish and Wildlife funding through the Economic Development Department. These funds are expected to be available through federal fiscal year 1998.
- Geographic scope of the action covers all coastal watersheds.
- The predicted effect is based on a qualitative assessment for each year of funding.
- Projects funded are monitored for five years to fully evaluate each funded project.

Funding: Economic Development has contracted to deliver $1,028,975 in federal fiscal year 1995 funds to support 24 local restoration projects. No new state funding is required for this action.

Schedule: The 1995 projects are now under contract with the exception of five projects proposed by ODFW. Five projects are awaiting ODFW approval on our response to their requested contract modifications. The 1996 projects will be under contract in Spring of 1997 to facilitate the instream window for work from July - September. The 1997 projects are under review by the U.S. Fish and Wildlife Service at this time. Economic Development expects to continue administering these funds through federal fiscal year 1998, and is working with the Governor's Watershed Enhancement Board and U.S. Fish and Wildlife to improve the delivery process.

Responsible Staff: Bill Campbell, Rural Development Manager.

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OEDD6 - Fund Water And Wastewater Projects Which Improve Water Quality And Storm Drainage.

Summary of Measure: The Department will continue to fund projects that improve water quality, along with having beneficial secondary impacts on fish habitat.

Background: The Oregon Economic Development Department is responsible for this action. The Department regularly funds projects to build water and wastewater facilities to improve water quality throughout the state. Communities that need to expand capacity, have systems that do not meet water quality standards, and have water quality emergencies seek funding assistance for improvements from the Economic Development Department. The Department funds the projects on a first-come, first-serve basis and reserves grant funding for financially needy communities.

The need for improvements far exceeds available funding, but without exception these projects improve the quality of Oregon's waterways. This action is a continuation of several programs already in place. The Oregon Economic Development Department has funded projects of this type since the 1980s through the Community Development Block Grant, Special Public Works Fund, and Water/Wastewater programs.

Objective: Improve water quality.

Implementation

- The action is currently in place.
- The action is regulatory in some cases, with the Department of Environmental Quality enforcing regulations. In other cases the action is voluntary.
- The law is likely to be enforced by the Department of Environmental Quality.
- No new legal authority needed.
- No policy citation applies.
- There are no obstacles to implementation of this action.

Results

- The geographic scope of the impact is statewide.

- The time scope of the impact is continuous, from immediate where projects are complete, to long-term where projects will be completed in the future.
- This action does not depend on other actions.
- Effect is expected to be a major improvement. Without these projects, severe degradation of water quality could occur.
- The impact prediction is based on a qualitative assessment.

Funding: Current funding is in place for this biennium. Demand far exceeds available funding, but the action will proceed with the funding currently available and if future funding is approved by the state legislature.

Schedule: The action is ongoing and will continue as long as funding is available.

Responsible Staff: Yvonne Addington, Regional Development Division Manager.

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OEDD7 - Assist Dairy Industry To Reduce Non-Point Source Pollution.

Summary of Measure: Provide 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.

Background: The project is now working to attract a consortium of companies to build and operate a large anaerobic digestion facility that would process manure into methane gas. The Oregon Economic Development Department is helping the project staff develop a request for proposal to design, build, and operate the facility. The departments of Agriculture and Energy are supporting other aspects of the project.

Objective: Reduce pollution caused by dairy industry.

Implementation

- The action is a continuation of an ongoing action.
- The action is ongoing.
- The action is voluntary.
- The action requires no legal authority.
- No policy citation applies.
- There are no known obstacles to implementation of the action.

Results:

- The predicted effect of the assistance provided by the Oregon Economic Development Department is attraction of an investor who will build and operate the methane gas facility. With that component of the effort in place, water quality can be considerably improved.

- Geographic scope of the impact is all of Tillamook County.
- Time scope of the impact is long term.
- The prediction is based on a qualitative assessment.

Funding: The U.S. Environmental Protection Agency has provided $1 million in funds since 1990 for parts of the effort to reduce non-point source pollution. No new state funding is required.

Schedule: The project is ongoing and will continue as long as funding is available.

Responsible Staff: Bill Campbell, Rural Development Manager.

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OEDD8 - Create An Alternative Terminal Fishery To Relieve Pressure On Native Stocks Of Salmon.

Summary of Measure: Assist the Port of Newport in rejuvenating a polyculture project in Lincoln County if it is deemed good for salmon.

Background: The project would put a new investor in the old Ore-Aqua facility. The project was originally intended to raise marine species for commercial production and thereby subsidize a salmon release operation. The salmon release is intended to create an alternate terminal fishery to reduce pressure on native coho runs in the central coast.

The Oregon Economic Development Department is facilitating discussions; The Port of Newport is negotiating with investors; and the Oregon Department of Fish and Wildlife is providing consultation on developing the project in a way that benefits salmon. Also, the Economic Development Department has discussed the project with the National Marine Fisheries Service.

Economic Development has been without a contract on this project since April 1992. Without rejuvenating the project or redirecting the funds locally, the funds would have been returned to the Economic Development Department for a future round of Regional Strategies projects. Economic Development has been pursuing rejuvenation of the project since February 1996.

Objective: Relieve pressure on native salmon runs.

Implementation

- Discussions on the action are proceeding, but Economic Development has not yet determined whether to support the project.
- The action is voluntary. To proceed, the project would have to be amended based on input from Fish and Wildlife and the National Marine Fisheries Service. Additionally, the contract would have to be extended.
- The amendments would be made with administrative authority.
- No policy citation is applicable.

This action has two obstacles to implementation, one being a question about the capacity of the proponents to financially support the project. Secondly, Ore-Aqua was a money loser for Weyerhaeuser and the proponents will be subsidizing a salmon release.

Results: The project is intended to create an alternate terminal fishery to take pressure off native runs. Discussions between the departments of Economic Development and U.S. Fish and Wildlife, local representatives, and the National Marine Fisheries Service will continue to focus on validating the predicted effect.

Funding: No new funding is required for this action. Economic Development awarded Lincoln County $246,500 for the project in the 1991-93 biennium. Of that amount, $177,500 remains available for the project.

Schedule: Decision on whether or not to pursue the project should be completed by mid-1997.

Responsible Staff: Michael Burton (Regional Development Officer) and Bob Warren (Regional Strategies Coordinator).

Oregon Parks and Recreation Department

Oregon Coastal Salmon Restoration Workplans

Oregon State Parks And Recreation Department (OPRD)
OCSRI Workplan

Phase 1 Actions

Action	Status
OPRD1- Disposition of Hazard and Blowdown Trees.	Ongoing.
OPRD2 - Improvement of Fish Habitat and Riparian Zones.	Ongoing; 50 percent completed.
OPRD3 - Improve Spawning Habitat in Clear Creek .	Completed July 1996.
OPRD4 - Riparian Restoration at Sixes River.	Ongoing.
OPRD5 - Spencer Creek Fish Habitat Project Involving Placement of Large Woody Debris (LWD).	Completed August 1996.
OPRD6 - Fish Habitat Project in Salmon River and Little Salmon River.	Completed December 1996.
OPRD7 - Fish Habitat Project in North Fork Wolf Creek.	Completed August 1996.
OPRD8 - Fish Habitat Project in Jackson Creek.	Completed August 1995.

Responsible staff for all eight Phase 1 OPRD actions: Natural Resources

Phase 2 Actions

Note: These actions require funding over and above OPRD's current budget. The Oregon Parks and Recreation Department is currently seeking grants and other funding sources to complete Phase 2 projects, trails, and interpretive signs and kiosks.

Action	Responsible Staff	Status
OPRD1 - Creek Fish Habitat Project.	Natural Resources	1997-99 biennium
OPRD2 - Fogerty Creek Fish Habitat Project.	Natural Resources	1997-99 biennium
OPRD3 - Beaver Creek Fish Habitat Project.	Natural Resources	1997-99 biennium
OPRD4- Spencer Creek Spring Feed Alcoves.	Natural Resources	1997-99 biennium
OPRD5 - Evening Interpretive Programs at Coastal Parks.	Public Services and/or Field Staff	Ongoing during summer camping season.
OPRD6 - Informational Interpretive Signs and Kiosks at High Visibility Projects Sites.	Public Services	1997-99 biennium
OPRD7 - Interpretive Trails at High Visibility Projects.	Public Services, Field Staff, and/or Natural Resources	1997-99 biennium
OPRD 8 - Development of Interpretive Center at Large Urban State Park.	Public Services	1997-99 biennium

Oregon State Marine Board

Oregon Coastal Salmon Restoration Initiative Workplans

Oregon State Marine Board
Coastal Salmon Restoration Initiative Workplan

OSMB1 - Increase Number Of Streams Adopted Through Adopt-A-River Program.

Summary of Measure: Work with Stop Oregon Litter and Vandalism (SOLV) to increase efforts to gain adoption of stream and rivers, particularly source and recovery reaches.

Responsible Staff:	Adopt-a-River Coordinator, SOLV
Resources Needed:	None.
Timeline:	Immediate and ongoing.
Tracking:	List of adoptions (23 streams, 100 river miles currently adopted).

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OSMB2 - Increase Number Of Boat Waste Pump-Outs And Dump Stations.

Summary of Measure: Implement the existing *Vessel Waste Disposal Plan* using federal Clean Vessel Act funds, giving priority to projects on coastal bays and rivers.

Responsible Staff:	Marine Board, Facilities Manager
Resources Needed:	Federal Clean Vessel Act funds appropriated by Congress each fiscal year.
Timeline:	Ongoing as long as federal program is authorized.
Tracking:	Applications for additional sites on coastal bays and rivers. Annual reports provided to USFWS.

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OSMB3 - Increase Enforcement Of Outfitter/Guide Laws.

Summary of Measure: Cooperate with county sheriffs to enforce provisions of new laws for outfitter and guide operations. Place special emphasis on fishing guides on coastal bays and rivers.

Responsible Staff:	Marine Board, Law Enforcement Program Administrator
Resources Needed:	Potential increase in county contracts for added cost of enforcement.
Timeline:	1997 season and ongoing.
Tracking:	Expectations stated in individual county contracts. County program statistics submitted monthly.

OSMB4 - Increase Marine Law Enforcement Efforts On Bays And Coastal Streams.

Summary of Measure: Work with county sheriffs to reduce incidence of boating law violations on coastal bays and rivers.

Responsible Staff:	Marine Board, Law Enforcement Program Administrator
Resources Needed:	Potential increase in county contracts for added cost of enforcement.
Timeline:	1997 season and ongoing.
Tracking:	Expectations stated in individual county contracts. County program statistics submitted monthly.

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OSMB5 - Increase Enforcement Of Polystyrene Foam Encapsulation Laws.

Summary of Measure: Work with county sheriffs to increase enforcement on coastal bays and rivers.

Responsible Staff:	Marine Board, Law Enforcement Program Administrator
Resources Needed:	Potential increase in county contracts for added cost of enforcement.
Timeline:	1997 season and ongoing.
Tracking:	Expectations stated in individual county contracts. County program statistics submitted monthly.

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OSMB6 - Review Existing Boating Regulations On Bays And Coastal Rivers.

Summary of Measure: Assess the adequacy current boating regulations, focusing on source and recovery streams.

Responsible Staff:	Marine Board, Assistant Director, and Rules Coordinator
Resources Needed:	Staff time
Timeline:	1997 season and ongoing.
Tracking:	Source and recovery streams reaches assessed.

OSMB7 - Acquire Early Review And Coordination On Construction Projects.

Summary of Measure: 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.

Responsible Staff: Marine Board, Facilities Manager, and Environmental Coordinator
Resources Needed: Staff time
Timeline: 1997 season and ongoing.
Tracking: Applications approved for projects on coastal bays and rivers.

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OSMB8 - Involve ODFW Biologists In Process of Permitting Marine Events.

Summary of Measure: Establish an agency policy and procedure to secure review by appropriate fish biologists of applications for marine events.

Responsible Staff: Marine Board, Assistant to the Director
Resources Needed: Staff time
Timeline: 1997 season and ongoing.
Tracking: Applications for events on coastal bays and rivers.

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OSMB9 - Incorporate Information About Coastal Salmon Restoration Measures In Information Kiosks At Bays And Coastal Rivers.

Summary of Measure: Develop timely information with ODFW and add to kiosks as they are revised.

Responsible Staff: Marine Board, Facilities Manager, and Public Information Officer
Resources Needed: Staff time
Timeline: 1997 season and ongoing.
Tracking: New projects where signing is included.

Water Resources Department

Oregon Coastal Salmon Restoration Workplans

Water Resources Department
OCSRI Workplans

WRD 1 (also involves ODFW, DEQ, ODA): Additional Public Interest Review to Protect Salmon

Summary of Measure: All applications for a new water right in coastal basins must undergo a review for impacts to fish. This review is conducted to ensure that any new uses, if approved, are conditioned in a way to avoid negative impact to the habitat of sensitive, threatened or endangered fish species. (Since coho are currently listed as a state sensitive species, they are covered by these rules.)

Background: The statewide Division 33 rules were designed to protect the essential habitat of sensitive, threatened and endangered fish species in Oregon. These rules provide for an interagency group to review proposed water uses and make recommendations, either denying the application due to fish impacts or granting the application with appropriate conditions to avoid degrading essential habitat of sensitive, threatened or endangered fish.

The interagency team consists of the state representatives of the Departments of Fish and Wildlife (ODFW), Water Resources (WRD), Environmental Quality (DEQ), and Agriculture (ODA).

The interagency team receives copies of all of WRD's initial reviews of water right applications and a copy of the application map for all applications in the coastal area. If ODFW or DEQ identify additional restrictions necessary to guard against the loss of essential habitat, the other interagency team members have an opportunity to review and comment on the proposed additional restrictions.

The review team makes all recommendations within the time limits prescribed in the water right application review process. WRD coordinates the activities of the interagency review team to ensure timely and consistent action.

Goal: Ensure that issuing new water rights does not result in a net loss or loss of essential habitat of sensitive, threatened or endangered fish species.

Objective: Review all applications that could impact sensitive, threatened, or endangered fish habitat and condition these applications to protect this habitat.

Responsible Staff: The Water Rights and Adjudication Division Administrator will be responsible for coordinating the implementation of the Division 33 rules. Local WRD watermasters, ODFW district biologists, and staff from the Habitat Conservation Division of ODFW, Water Quality Division of DEQ, and Natural Resource Division of ODA will be involved in reviewing the applications.

Results: The conditioning of individual applications to protect sensitive, threatened and endangered fish species habitat.

Funding: Funding for this measure is included in the base budget.

Future: The Department receives approximately 50 applications statewide for new water uses each month. All of the applications in the coastal areas will be reviewed, as well as applications for other areas containing sensitive, threatened or endangered fish species habitat.

Work Schedule: The interagency team will review and condition a pending water right application within 45 days of the initial review of a water right application.

WRD 2 (also involves ODFW): Transfer Review for Fish Concerns

Summary of Measure: WRD will solicit input from ODFW district biologists on any transfers in coastal streams to ensure that instream rights and values are being protected.

Background: While all new water right applications must undergo a public interest review, an additional public interest review is not allowed for transfers which are changing the point of diversion or use. However, transfers do undergo a review to ensure that they do not injure existing instream or out-of-stream water rights. By soliciting input from ODFW district biologists, the state will protect instream and fishery values by assuring water right transfers will not adversely impact instream water rights.

Goal: Protect instream water rights from negative impact as a result of water right transfers.

Objective: Ensure that no instream water right is injured by the transfer of another water right.

Responsible Staff: The Northwest Region Manager will supervise this process.

Results: Eliminate negative impacts to instream water rights resulting from water right transfers.

Funding: Funding for this measure is included in the base budget.

Future: An ongoing process.

Work Schedule: WRD will begin soliciting input from ODFW district biologists in April 1997.

WRD 3 (also involves ODFW, OSP): Coordinated Monthly Field Meetings

Summary of Measure: WRD, ODFW, and OSP field personnel will initiate monthly meetings to coordinate data collection, compliance monitoring, and consideration of local factors directly bearing on fish habitat concerns.

Background: By developing a prioritization for enforcing instream water rights (ISWRs) and holding monthly meetings to ensure that the prioritization is meeting fishery needs, ISWRs will be fulfilled in accordance with the priority date of issuance.

Goal: Fulfill ISWRs.

Objective: Hold monthly meetings with appropriate field staff to coordinate data collection, compliance monitoring, and local factors relating to ISWRs.

Responsible Staff: Northwest and Southwest Regional Managers.

Results: Fulfillment of ISWRs in accordance with the priority dates of issuance.

Funding: Funding for this measure is included in the base budget.

Work Schedule: Beginning in April 1997, WRD, ODFW and OSP field personnel will initiate monthly meetings.

WRD 4: Issuance of Instream Water Rights

Summary of Measure: WRD will certificate pending instream water right (ISWR) applications.

Background: Since 1995, WRD certificated 497 of the 558 ISWRs requested by ODFW. These rights have been certificated at the flow level requested by ODFW, or at the estimated average natural flow level. Proposed Final Orders have been issued on the remaining 61 pending applications and are the subject of protests filed by entities objecting to proposed rights.

Goal: Certification of the 61 pending ISWR applications.

Objective: Resolution of the protests filed on pending ISWRs in a manner preserving essential flows for fish recovery.

Responsible Staff: The Water Rights and Adjudications Division Administrator will supervise this process.

Results: Preservation of essential flows for fish recovery.

Funding: Funding for this measure is included in the base budget..

Future: The water right process allows for protests of proposed final orders.

Work Schedule: The protests will be resolved during 1997.

WRD 5: Update Water Availability Model

Summary of Measure: WRD will review and recast water availability, if necessary, to reflect the increase in the instream water right (ISWR) flow amounts actually issued, as opposed to a lower amount listed in the technical reviews.

Background: Several hundred ISWRs were certificated at levels higher than originally proposed in the technical reviews. The water availability model may not reflect the actual amount of water certificated for these rights.

Goal: Protect instream water rights at the flow levels granted.

Objective: Restrict further out-of-stream appropriations to those times when instream water rights are met and there is still available water for out-of-stream appropriation.

Responsible Staff: Water Rights Manager and the Field and Technical Services Division Administrator.

Results: Accurate ISWR levels reflected in the water availability model.

Funding: Funding for this measure is included in the base budget.

Work Schedule: By March 15, 1997, WRD will have reviewed and recast the water availability numbers, as necessary, to reflect the actual ISWR flow amounts.

WRD 6: Identify Unmet Instream Flow Needs

Summary of Measure: WRD will determine the months during which the instream water rights (ISWRs) are not being met and quantify the monthly deficit by stream reach.

Background: The quantification of ISWR deficits is an important first step in developing priorities for restoring stream flows for fish recovery.

Goal: Develop a prioritized list for stream flow restoration.

Objective: Quantify the monthly deficit in streams with unmet ISWRs.

Responsibilities: The Field and Technical Services Administrator will supervise this process.

Results: A comprehensive understanding of which ISWR are not being met and the quantities of the monthly deficits for each stream reach.

Funding: Funding for this measure is included in the base budget.

Work Schedule: By June 1, 1997, WRD will determine the months during which the ISWRs are not being met and quantify the monthly deficit by stream reach.

WRD 7 (also involves OSP): Coordinated Enforcement Plan

Summary of Measure: WRD and OSP will enter into a formal agreement for coordinating compliance monitoring and ongoing consideration of local factors directly bearing on fish habitat concerns.

Background: There is a need to prioritize resources to augment compliance monitoring and assistance to landowners with water right concerns.

Goal: To protect instream and out-of-stream water rights from unpermitted consumptive uses, while also working with landowners to resolve permit problems.

Objective: Increase communication among the relevant agencies, and clearly identify the role of OSP in monitoring compliance with the state water code.

Responsibilities: The Northwest and Southwest Region Managers will be responsible for implementing this plan.

Results: Increased enforcement presence in critical stream reaches.

Funding: Funding for this measure is included in the base budget.

Future: Increased level of ongoing coordination.

Work Schedule: WRD and OSP field personnel will enter into a Coordinated Enforcement Plan by September 1, 1997.

WRD 8: Increased Compliance Monitoring

Part 1

Summary of Measure: Increased compliance monitoring activities, based in part on the priority areas identified by the OCSRI Science Team (composed primarily of ODFW and NMFS biologists).

Background: The watermasters responsible for the Mid and North Coast basins must also cover the area between the Coast Range and the Cascades. Historically, the watermasters have regulated more activities due to insufficient stream flows outside of the coastal basins.

In the summer of 1996, new watermaster branch offices were established in Newport and Florence, and the presence in the Tillamook branch office was significantly increased. As a result of reprioritization of staff from outside the coastal area, an additional 15 person-days/month of monitoring and enforcement activities are occurring in the North and Mid Coast Basins. This added enforcement will continue.

Goal: Increase streamflows by eliminating illegal diversions of water from coastal streams.

Objective: Bring water uses in the area into compliance with Oregon water law.

Responsible Staff: Watermasters in Districts 1, 2 and 16 (North and Mid Coast and Willamette Basins) are to identify all tasks and ensure that the highest priority tasks are accomplished within their respective districts. The watermasters will coordinate with local interests to maintain regular office hours and to advise the public of the hours and locations where the watermaster and water right records are located. The watermasters will also spend a percentage of their time becoming familiar with the coastal basin portions of their districts.

Results: Fewer incidents of illegal water use.

Funding: Funding for this measure is included in the base budget.

Future: This is an ongoing activity. Little change is anticipated until work priorities are adjusted.

Work Schedule: Coastal Basin watermasters in the Mid and North Coast Basins are to spend a minimum of two work days per month on activities related to the coastal basins. One of the days the watermaster is to be available to provide information to local customers and watershed councils. The other day is to be spent collecting water flow and water use data and regulating illegal uses.

Part 2

Summary of Measure: WRD has identified the need, and is seeking funding, for six additional field staff to monitor instream flows and water diversions, prevent illegal use and contribute to public outreach.

Background: The state is divided into five regions and 17 watermaster districts. Each region includes three to four watermaster districts. Increasing water management in coastal basins will require hiring more staff. Six watermaster districts contain parts of the coastal basins. A majority of the historic workload in three of the six districts has been outside of the coastal basins. The Governor's recommended budget includes funding and authorization for 11 positions, including one watermaster, and five field water right technicians which will monitor stream flows, provide technical data and prevent illegal uses.

Goal: The goal is to increase the public's understanding of water use and water rights to increase stream flows for salmon.

Objective: The objective is to increase the field presence and have more staff available to find ways to improve water use efficiencies, monitor water right conditions and collect stream flow data all for the purpose of increasing stream flows.

Responsible Staff: Once the positions are budgeted, the region manager will follow hiring procedures. The region manager will assign work and see that the work is completed consistent with WRD OCSRI measures and policies.

Results: The results will be less occurrences of illegal water use and an increase in protected stream flow for fish and aquatic life.

Funding: The Governor's recommended budget includes funding for these six new positions, as well as contract money for water rights inventory work.

Future: No action will occur until funding is secured in the 1997-99 budget.

Work Schedule: The six positions will not be filled until after funding is approved. The earliest hiring may take place is July 1, 1997.

WRD 9: Installation of Monitoring Stations

Summary of Measure: WRD has identified the need for additional monitoring stations and analysis positions. WRD plans to install additional gages and add telemetry to gaging stations, which will enhance WRD's capability to monitor instream flows on coastal streams.

Background: The quantity of water flowing at the instream water right location cannot be easily determined. Measurement of stream flow is critical for monitoring and protecting instream water rights (ISWRs) and salmon habitat. This hydrographic data provides historic or background information to compare with current information as we work to improve conditions for salmon. Additionally, measuring devices are essential for enforcement and protection of senior rights, including instream water rights. A simple way to monitor flows involves the installation of staff gages which measure the stream stage or elevation. When calibrated with repeated cross-sectional flow measurements, staff gages provide a means to establish a record of stream flow. If the staff gages indicate that instream flows are not being met the watermaster can regulate accordingly, protecting instream flows that may be needed for salmon.

Telemetry allows for remote monitoring by Department field staff. This will allow verification of existing stream flow and alert the watermaster when there is a need to regulate in order to protect senior rights, including instream flow for salmon.

Staff will be needed to conduct actual stream flow measurements at either staff gage or recording station sites. Actual measurements need to be conducted every four to eight weeks. Measuring at this frequency will produce a record of flow with an accuracy of between 5 and 15 percent. Less frequent measurements produces a less reliable record. Average time at the gaging site for one person to conduct a stream flow measurement ranges between one hour at low flow to two hours at high flow, not counting travel to and from the site.

Goal: Ensure that adequate flow measurement and monitoring data collection occurs and is used to support restoration of flows in key areas.

Objective: Measure existing stream flows at instream water right locations, for management purposes at instream water right locations.

Responsible Staff: Region managers, with input from other natural resource agencies, will identify sites where gages and recording stations are needed. Field and Technical Services Division Administrator will pursue funding opportunities with federal agency partners.

Results: Stream flow data from sites determined to be of high priority for fish protection.

Funding: A hydrographer/hydrologist position is included in the Governor's recommended budget. The Legislature will consider this request in the 1997 session. Remaining funding will rely on the base budget and federal partnerships.

Future: With funding provided in the Governor's recommended budget, and in conjunction with federal partners, at least one hydrologist will conduct a review of the necessary stream gaging information needed for monitoring instream flows.

Work Schedule: By June 1, 1997, WRD and ODFW will identify the location, type and number of gaging stations necessary to adequately monitor priority streams and the core habitat areas where flow levels are the greatest concern. Installation of new monitoring sites will begin in the fall of 1997. This includes the installation of three new continuous recording gages with telemetry which will be added to the North, South, and Mainstem Coquille Rivers. By June 1, 1999, with the cooperation of federal partners, gaging equipment will be installed and monitored at the core habitat locations identified as having habitat most dependent on flow restoration for recovery of salmon runs. By June 1, 2001, all stations identified as necessary to support recovery efforts will be installed.

WRD 10: Inventory Water Diversions

Summary of Measure: For the 1997-99 biennium, WRD will seek funding to hire ten stream walkers for each summer to inventory diversions in the Southwest Region. Also, additional Global Positioning System (GPS) equipment may be purchased next biennium to accelerate locating and mapping diversion points.

Background: Information collected during the inventory effort will include identification of push-up dams, unscreened diversions, sites where diversions could be moved to hydrologically connected ground water and uses not covered by existing water rights. This will be used to: work with users in finding methods to divert water which will produce less impact on fish, and to increase stream flows by regulating illegal uses and working with users to cooperatively increase efficiencies.

Effective compliance monitoring by watermasters requires an accurate inventory of all diversions. A report addressing these issues including subsequent water right cancellations, transfers, and new filings is being prepared and will be available in the spring of 1997.

The digitized water right maps involved electronically mapping over 26,000 points of diversion and the associated water use. These maps identify both the place of water use and the associated diversion points (where known). These maps are available to resource agencies upon request. Prior to this effort, watermasters manually traced the water right map information onto base maps. This effort required many months to create and update. Now, watermasters and assistant watermasters can create maps for water use management within a short period of time. Stream inventories will both verify and improve the accuracy of the Department's water right mapping data base, and identify illegal uses which diminish flows at critical seasons of the year.

Goal: Identify and regulate illegal water use to increase stream flow for fish and aquatic life, as well as provide technicians with equipment for accurate mapping of water use information.

Objective: Obtain sufficient funding to hire staff to inventory water diversions and water use, starting with the highest priority streams and stream segments and to purchase GPS instruments for use by field technicians. Existing staff will use the information collected to better manage water use on those streams.

Responsible Staff: Field and Technical Services Administrator will pursue funding opportunities. When funding is obtained, the Southwest Region Manager will hire temporary employees to inventory water diversions beginning with streams which have the highest potential to impact the recovery of salmon. The administrator of the Water Resources Department Field and Technical Services Division will purchase GPS equipment. Oversight of the field work will be from the Northwest and Southwest Region managers.

Results: Inventoried streams and accurate GIS maps depicting water use information for use by the science team and others.

Funding: The Governor's recommended budget includes $98,000 to hire ten temporary summer employees as stream walkers for two summers to inventory water use from critical streams in the South Coast and Rogue Basins. Funds for GPS equipment have been requested as part of the Governor's recommended budget to the Legislature. A portion of the funds will come from the supplies and services that accompany position funding, and a portion will come from funds requested for summer stream walkers.

Future: If the budget proposal is approved, temporary staff will be hired, the equipment will be purchased, and the GPS units will be used to map water resource features.

Work Schedule: By July 30, 1997, water use inventory in the core area streams and stream segments in the South Coast and Rogue Basins will begin, and will be completed by June 30, 1998. By June 30, 2004, WRD will complete the inventory of all streams in the South Coast and Rogue Basins if contract dollars for water rights inventory are continued.

WRD 11 (also involves ODFW): Dissemination of Streamflow Data

Summary of Measure: WRD and ODFW will develop a plan to ensure that stream flow measurement information is available to appropriate federal, state and local entities, as well as the general public.

Background: Current stream flow data is needed for resource managers to make wise resource decisions.

Goal: Support wise water resource management decisions.

Objective: Provide federal, state and local agencies, and the public with stream flow measurement information.

Responsible Staff: Field and Technical Services Division Administrator.

Results: Dissemination of current stream flow data to resource managers.

Funding: Funding for this measure is included in the base budget.

Work Schedule: By November 1, 1997, WRD and ODFW will develop a plan to ensure that stream flow measurement information is available to appropriate federal, state and local entities, as well as the general public.

WRD 12: Development of Regional Efficiency Standards

Summary of Measure: Development of regional efficiency standards as a means of restoring instream flows for salmon.

Background: Water rights grant the user the amount of water which can be beneficially used to meet a specific purpose. Watermasters restrict the amount of water diverted when they discover practices which "waste" water due to inefficiencies. Stopping inefficient uses results in less water being diverted, and therefore, more water is left in the stream to meet instream demands.

Goal: Increased water in streams for instream uses, such as fish.

Objective: Reduce the amount of water being diverted by restricting inefficient use or "waste" of water.

Responsible Staff: The Northwest and Southwest Region Managers will supervise development of efficiency standards.

Results: More efficient use of water.

Funding: Funding for this measure is included in the base budget.

Future: WRD is evaluating water use in Trail Creek, in the Rogue Basin, to establish a more efficient water management program. The result could be more water being left in the stream, to supply water rights with junior priority dates, including instream water rights.

Work Schedule: By November 1, 1997, interdisciplinary working groups will be formed in the basins needing stream flow improvements to recover salmon. By June 30, 1999, these groups will have developed basin-specific efficiency standards.

WRD 13: Agricultural Water Conservation Program

Summary of Measure: WRD will develop agricultural water conservation plans, and work with the irrigation districts and Bureau of Reclamation to incrementally restore stream flows for salmon recovery.

Background: The Agricultural Water Conservation Program rules (OAR Chapter 690, Division 86) prescribe the standards for the preparation of water management plans. Irrigation districts proposing to transfer certain water rights within the district are required to prepare these conservation plans. Any agricultural water supplier participating in the water transfer provisions is also required to submit an annual report describing the progress to date in implementing the water management and conservation plan. Under the rules, districts are required to evaluate a range of water conservation alternatives and to schedule implementation of any alternatives which are determined to be feasible

Many irrigation districts are also required to prepare conservation plans under federal law. The Water Resources Department has a cooperative program with the U.S. Bureau of Reclamation to assist districts in the preparation of plans and to encourage the implementation of conservation projects which increase streamflows. Three irrigation districts in the Rogue Basin are required to prepare water conservation plans under the provisions of the Reclamation Reform Act (Section 210b).

Goal: Restore stream flows for salmon recovery.

Objective: Determination of whether water management and conservation plans by irrigators would yield increased stream flows and assistance in development of water conservation plans in appropriate cases.

Responsible Staff: The Resource Management Division Administrator will supervise this program.

Results: The development of water conservation plans, where such plans are found to be an appropriate way to increase stream flows.

Funding: Funding for this program is included in the base budget.

Future: Ongoing.

Work Schedule: By April 1, 1998, WRD will determine if the preparation of water management and conservation plans by irrigation water users will yield increased stream flows. If an increase is found, WRD will initiate a cooperative program with irrigation water users in those areas to develop water conservation plans. By January 1, 1999, WRD will work with the three irrigation districts in the Rogue Basin to prepare voluntary water conservation plans, and evaluate the feasibility of conservation measures.

WRD 14: Municipal Water Management Programs

Summary of Measure: Communities located in core habitat areas will receive the highest priority for assistance on water conservation plans.

Background: The Water Resources Commission has adopted rules which prescribe a process and standards for the development of water management and conservation plans. Virtually all communities requesting new water rights or extensions on their current rights are required to prepare water management plans. The planning process is intended to prompt municipal water suppliers to evaluate the feasibility of alternatives intended to improve water use efficiency. The Department provides assistance and technical advice to municipalities preparing the plans and has developed a variety of planning aids.

Goal: Assist communities in core habitat areas to develop water management and conservation plans.

Objective: Provide technical assistance and advice on water management and conservation planning to community water suppliers.

Assist communities in core habitat areas to identify and evaluate measures to reduce water use and the impacts of their diversions on stream flows.

Responsible Staff: The Municipal Water Conservation Specialist will respond to requests for assistance from municipal and other community water suppliers. If the number of requests for assistance exceeds the capacity of the existing staff to respond, priority will be placed on working with communities in core habitat areas. In addition, alternatives for assigning additional staff to the project will be considered by the Resource Management Division Administrator.

Results: The development of water management and conservation plans by community water suppliers will minimize the impacts of municipal diversions on stream flows and may result in increased stream flows.

Funding: Funding for this measure is included in the base budget.

Future: Community water conservation plans are contingent upon local communities requesting this assistance.

Work Schedule: WRD will provide community water suppliers with assistance on water management and conservation planning after municipal and other community water suppliers request assistance.

WRD 15 (also involves ODFW): Instream Transfers and Leases

Summary of Measure: Place priority on processing instream water right transfers and leases that benefit fish.

Background: Summer flows in many streams are no longer sufficient to provide fish habitat or passage. One method to increase stream flows is leasing or transferring existing water rights to instream uses.

Goal: Prioritize processing water right leases and transfer applications which propose to increase stream flows in salmon habitat areas.

Objective: Work with the applicants to ensure that applications are complete when they are submitted. Provide a final decision on all instream water right lease and transfer applications within 180 days of receiving the application.

Responsible Staff: The Northwest Region Manager will work with field staff and the Resource Management Division to place a high priority on processing water right transfer applications which propose transfers to instream uses, and identifying lease opportunities in critical stream reaches.

Results: Track pending transfer applications to ensure that a final decision is made within 180 days of receipt.

Funding: Funding for this measure is included in the base budget.

Future: All staff involved with the processing of transfers are included in the WRD base budget. Additional staff may be added under the 1997-99 biennium if the requested application fee increase is approved.

Work Schedule: Processing of applications for water right transfers to instream uses has been assigned a high priority. Processing transfer applications is an on-going program and will continue beyond the 1995-97 biennium.

WRD 16: Water Right Forfeiture

Summary of Measure: WRD will prioritize its enforcement of non-use based on ODFW's priority list of increasing stream flows.

Background: A water right can be canceled if there is documented non-use of the right for five continuous years. This results in the unused water being put back into the system. If water rights in danger of being forfeited for non-use are leased for instream use, the right can be protected and instream flows for salmon restored via lease agreement.

Goal: Restore instream flows for salmon.

Objective: Lease water rights to increase instream flows.

Responsible Staff: The Northwest and Southwest Region Managers will be responsible for this measure.

Results: Increased stream flows.

Funding: Funding for this measure is included in the base budget.

Future: WRD will approach water right holders with unused rights to facilitate lease or gift of the right for instream use.

Work Schedule: By January 1, 1998, WRD will identify water rights in core habitat areas identified as highly dependent on flow restoration which are subject to forfeiture for non-use and institute cancellation proceedings. By June 1, 1998, and each year thereafter, WRD will identify rights which may be nearing the five-year period of non-use during the next calendar year, (at which time they would become subject to cancellation). Seek voluntary cooperation of water right holders to transfer or lease the rights for instream use.

WRD 17: Public Outreach and Information

Summary of Measure: Continue public information and outreach efforts utilizing both central and field staff. This activity will provide information to the general public on restoration measures, as well as educating water users.

Background: Public involvement is crucial to the long range success of voluntary restoration efforts. Gathering public support for these efforts will require education and information for landowners, particularly those with property that may contain salmon habitat. Informing the public of the state's action measures, policies, rules and laws governing natural resources will assist in management of the resource and enforcement of laws through increased voluntary cooperation.

Goal: Continue outreach educational campaign that informs the general public of the need for good stewardship of land and water resources and informs the public about the OCSRI measures.

Objectives:

1) Introduced revised and enhanced on-line computer services, allowing the public to produce maps showing the location of water rights, including instream rights, on a specified areas of stream or basin. Provide Internet access to information such as water availability, current streamflows, and water right locations and information on use.

2) Create literature that will assist water right users and landowners in developing water systems that minimize impacts to fish habitat. Provide regular progress updates on the implementation of the restoration plan.

3) Incorporate field staff in the distribution of literature and information through their contact with the public. Encourage field staff to offer speaking engagements and workshops for students and civic groups about water management activities.

4) Educate Water Resources Commission (WRC) and public at workshops and presentations during Commission meetings and work sessions. Include WRC in the outreach effort through correspondence with stakeholders and constituents.

Responsible Staff: The Public Information Officer will be responsible for coordinating the creation and distribution of agency literature.

WRD will rely on watermasters and field staff to distribute materials to land owners and water users. Field staff will provide technical advice and educational information to individuals seeking to develop water rights.

The Water Rights and Adjudication Division will distribute information directly to water right holders and applicants through periodic mailings.

Results: Currently, there is no empirical method for determining the success of outreach and education efforts. However, the Department will gauge success of outreach methods based not on overall quantity of documents prepared, or mailings sent, but on the overall success of restoration efforts. This is a long-term plan that may require many years before major changes emerge. Surveys of general public's knowledge and endorsement of the OCSRI will be conducted on a multi-agency level with the coordination and cooperation of the OCSRI Outreach and Education Team, headed by the Director of Communications at the Department of Agriculture.

Funding: Funding has been included in the Governor's recommended budget for 11 field staff positions that will serve multiple roles for the agency, including public information functions.

Future: Outreach efforts will be fully expanded after the completion and distribution of the final OCSRI plan.

If funding is obtained for additional field staff, the agency will include some training in outreach and education methods during the orientation process. The public information office will work closely with these staff members to develop a statewide multi-region effort to promote habitat improvement through wise water management.

Work Schedule:

Job 1: *Improve on-line information.*
Start date: Internet site improvements posted January 10, 1997.
Completion date: Salmon page improvements and links posted February 2, 1997.

Job 2: *Create literature for WRD and Governor's office.*
Start date: Ongoing.

Job 3: *Incorporate field staff.*
Start date: Ongoing.

Job 4: *Educate Water Resources Commission.*
Start date: Ongoing.

WRD 18: Ground Water Studies

Summary of Measure: Initiate new investigations in the coastal basins to quantify groundwater supplies and identify surface and groundwater relationships. Include a public information effort on groundwater resources.

Background: Quantifying ground water supplies and identifying surface and ground water relationships is important to salmon recovery because it will prevent the inadvertent allocation of ground water which is hydrologically connected to surface water and would thereby cause injury to instream flows resulting in a negative impact on salmon. It will also provide an opportunity to use non-hydrologically connected ground water to enhance stream flows by eliminating existing surface water use in favor of ground water.

Goal: Gain a good understanding of the effect groundwater use has on surface water flow. In order to accomplish this, WRD will identify areas where groundwater discharges into surface water and where surface water flows into groundwater. WRD will quantify the availability of the groundwater resources.

Objective: All of the existing information will be compiled in a central data base and organized for future reference. Using this base information, a coordinated effort will develop a comprehensive understanding of groundwater resources and the related impact on surface water in the Rogue and South Coast Basins. A coordinated surface and groundwater monitoring network will be established. These data are to be added to the WRD central data base for future analysis.

When sufficient data have been obtained, the Rogue and South Coast Basins will be divided into appropriate study areas, priorities will be defined, and models will be developed to demonstrate how surface water is dependent on basin groundwater resources.

Responsible Staff: The Groundwater Section Manager will have primary responsibility for this program. Most initial work will be performed by the Southwest Region.

Results: Data acquisition and organization will likely continue over a two year period. Some of the analysis may extend beyond this time period. Quarterly reports will be provided to interested individuals.

Funding: The Governor's recommended budget includes funding for the first two years. Sufficient funding has been requested for a project leader and related expenses. Some of the data acquisition may be performed by outside contractors.

Future: After the initial data acquisition, funding requests will be made to the Legislature for the analysis and modeling portions of this project.

Work Schedule: By January 1, 1998, WRD will complete a ground water monitoring plan and scope of work according to salmon recovery priorities in the Rogue and South Coast Basins.

By July 1, 1999, work accomplished in the top priority areas will include installation of monitoring sites for ground water levels and surface water/ground water interaction, geologic mapping as it relates to ground water, and assembly and verification of all existing ground water data.

WRD 19: Off-Stream Storage

Summary of Measure: Augment low season flows through the development of off-stream storage facilities.

Background: In 1992, The Water Resource Commission adopted a statewide policy (OAR 690-410-080) to encourage the development of environmentally acceptable storage projects. Off-stream storage projects, built in swales, and other areas where a natural water body does not exist, provide an opportunity for multi-purpose storage projects which will include an instream flow restoration component.

Goal: Increase instream flows through developing off-stream storage facilities.

Objective: Locate sites and encourage off-stream storage facilities.

Responsible Staff: WRD staff will provide technical assistance to watershed councils and developers in siting storage facilities.

Results: Augment instream flows.

Funding: The Governor's recommended budget includes additional field staff that will provide technical assistance in addition to current resources.

Future: All new permit applications for storage projects, whether large or small, are subject to interagency review under existing rules (OAR 690-33).

Work Schedule: Ongoing effort which will be supplemented by additional field staff anticipated in the Governor's recommended budget.

WRD 20: Serious Water Management Problem Areas

Summary of Measure: Declaring Serious Water Management Problem Areas to require water measurement and reporting in an effort to improve water management.

Background: The Water Resources Commission has the authority to adopt rules requiring water users in designated areas to measure and report annual water use through the establishment of Serious Water Management Problem Areas (SWMPAs).

Goal: Increased instream flows through adopting SWMPAs.

Objective: Determine if declaration of SWMPAs will facilitate needed data collection and incremental increase in instream flows; and if so to designate SWMPAs in consultation with the OCSRI Science Team and watershed councils.

Responsible Staff: The Resource Management Division Administrator will supervise the development of basin program amendments.

Results: The adoption of rules requiring the measurement and reporting of water use under existing rights.

Funding: Funding for this measure is included in the base budget.

Future: WRD will monitor the effects on water use and streamflows resulting from the designations and, as a long term measure, will consider designation of additional SWMPAs if the anticipated increases in streamflow are realized or additional data collection is necessary as part of ongoing ground water studies.

Work Schedule: By January 1, 1998, WRD will complete an evaluation of whether to proceed with SWMPA designations in specific areas as indicated by ODFW's list of priority streams for increasing streamflows. If it is determined that SWMPA designation will help increase streamflows, then WRD will initiate rulemaking to make the designation in localized areas where flow restoration is key to the recovery effort.

By March 1, 1998, recommendations on adoption of rules will be made to the Water Resources Commission.

WRD 21 (also involves ODFW): Peak Flow Protection

Summary of Measure: WRD and ODFW will jointly develop a policy to ensure protection of peak flows as part of WRD's water allocation policy.

Background: Annual and semi-annual peak flows are important to salmon for access to and from winter spawning grounds and for triggering biological responses. These peak flows may also wash out fine sediments, thereby preventing holding pools from being filled in. Absent adequate conditions, there is potential that storage projects can capture all peak flows in a stream reach and thus impact channel characteristics critical to salmon habitat.

Goal: Ensure peak flows are available for triggering salmon's biological responses and providing access to and from winter spawning grounds.

Objective: Development of a joint WRD and ODFW policy to protect peak flows.

Responsible Staff: The Resource Management Division Administrator will be responsible for this measure.

Results: Protection of peak flows.

Funding: Funding for this measure is included in the base budget.

Work Schedule: By September 1, 1997, WRD and ODFW shall jointly develop a policy on implementation of WRD Division 33 rules to ensure that peak flows are available for triggering the biological responses and salmon access to and from winter spawning grounds.

WRD 22 (also involves DSL, ODFW, OSP): Modification or Replacement of Diversion Dams that Interfere with Fish Passage

Summary of Measure: Work with DSL, ODFW, and OSP to eliminate fish passage barriers caused by diversion or "push-up" dams.

Background: Although no single agency has the authority to regulate all push-up dams, the state developed a cooperative, voluntary approach to address fish passage concerns posed by those dams. A pilot program was initiated in 1996 in the Illinois Basin, which is characterized by widespread reliance on push-up dams in stream reaches key to salmon recovery. The primary state partner agencies were WRD, DSL, ODFW, and OSP. These agencies are working cooperatively with private landowners, local groups, and other state and federal agencies. The rapport and trust developed and the key involvement of the Illinois Valley Watershed Council, Soil and Water Conservation District, and U.S. Bureau of Reclamation have combined to start this effort on a path to becoming a successful program which can be used in other basins.

Goal: Provide barrier-free fish passage.

Objective: Find alternate methods of diverting water, under valid water rights, which have the least impact on aquatic life and habitat. Encourage diverters of water to convert from historic methods of taking water to the least impact methods. Provide information and assist landowners with activities such as water right transfers and development of alternative diversion methods in providing barrier-free fish passage.

Responsible Staff: WRD, DSL, ODFW, and OSP share responsibility for push-up dams. The Southwest Region Manager will supervise WRD field staff working with the other agencies to identify push-up dams and to provide possible solutions such as alternate diversion methods, assistance with water right transfers and water right information.

Results: Barrier-free fish passage.

Funding: WRD has included additional field staff in the Governor's recommended budget. These positions include a watermaster position, three field water right technician positions and contract money to hire stream walkers. These additional staff are needed to inventory water use and diversion methods in a timely manner and to coordinate with the field staff of the other agencies, and to assist water users in preparing water right transfer applications.

Future: By March 30, 1997, an "Interagency Action Plan -- Southwest Region Push-Up Dams" report will be completed and submitted to NMFS. This plan is the model for future efforts.

Work Schedule: In 1997, a more structured regulatory approach that is coordinated and prioritized by involved agencies based on fishery concerns will address the remaining structures which continue to pose fish passage concerns in the Illinois Drainage. The program will be expanded to other areas in the Rogue and South Coast Basins in 1997 with completion of a proposed implementation schedule by September 1, 1997. Additional staff to be hired, if authorized and funded, in the 1997-99 biennium.

WRD 23: Require Fish Passage on Ponds

Summary of Measure: Maintain and restore adequate fish passage on all exempt ponds located in habitat areas.

Background: In 1995, the Oregon Legislature passed House Bill 2153 which exempted some existing ponds from permitting requirements. Once an exemption is granted, a dam is free from permitting requirements and from regulation by WRD--so long as the storage and use do not increase over the pre-January 1, 1995, amounts. The law was enacted out of recognition that many small, existing ponds throughout the state have historically been unpermitted.

To be exempt, the pond owner must file a registration by January 31, 1997, the pond must have existed before January 1, 1995, store less than 9.2 acre-feet of water or have a dam less than 10 feet high, and the impoundment must not harm existing water users or fish. ODFW has until August 1, 1997, to provide information to WRD on any impoundments potentially causing injury to fish runs.

In 1996, WRD required fish passage, by-pass flows, and fish screening on all 3,400 coastal ponds in fish habitat areas filed under a statute passed in 1995 (House Bill 2153). The vast majority of pre-existing ponds filed under House Bill 2153 are off-channel, but in-channel ponds are also covered under the law.

WRD has notified ODFW of the type of information needed to show that existing ponds harm fish and should not be exempt.

Goal: Eliminate fish-passage problems created by exempt ponds.

Objective: Require the normal public interest review process and the Division 33 review process for new ponds.

Responsible Staff: The Water Rights and Adjudications Division Administrator will be responsible for this measure.

Results: More permits for ponds.

Funding: Funding for this measure is included in the base budget.

Future: WRD will respond to ODFW's concerns and not allow exempt ponds where they would harm salmon. These ponds will be required to get permits and will undergo both the normal public interest review process and the Division 33 review process which applies to new water right applications.

Work Schedule: By August 1, 1997, ODFW will comment on fishery concerns which may remain on any of the pond registration applications.

WRD 24: Protection Against Direct Habitat Loss

Summary of Measure: All new permit applications for storage projects are subject to an interagency public interest review for impacts to sensitive, threatened or endangered fish species. Small ponds are also subject to review by ODFW.

Background: The major loss of salmon habitat is usually associated with the inundation of spawning or rearing grounds caused by large reservoirs. Some loss of habitat may also be associated with the cumulative effects of numerous, smaller, in-channel ponds.

Few large reservoirs have been constructed, or are likely to be constructed, in the coastal zone due to hydrologic and geologic limitations, environmental concerns and economic considerations.

Goal: Prevent direct mortality of salmon as a result of loss of habitat due to reservoirs.

Objective: WRD will ensure that any new reservoirs are environmentally responsible and do not have a net negative impact on salmon.

Responsible Staff: The Water Rights and Adjudication Division Administrator will be responsible for coordinating the implementation of this measure. Local WRD watermasters, ODFW district biologists, ODFW Habitat Conservation Division staff, DEQ Water Quality Division staff and ODA Natural Resource Division staff will be involved in reviewing the applications.

Results: The conditioning of individual applications to protect sensitive, threatened and endangered fish species habitat.

Funding: Funding for this measure is included in the base budget.

Future: This is an ongoing activity. All applications in the coastal areas will be reviewed to assure that fish habitat is protected.

Work Schedule: The interagency team will review and condition the pending water right applications within 45 days of the initial review of the water right application.