

OCSRI Plan

Chapter 17G

AOC/LOC

Evaluation of Contribution to OCSRI

PROTECTION AND RESTORATION ACTIONS FOR ANADROMOUS SALMONIDS BY CITIES AND COUNTIES IN OREGON

Prepared for

Association of Oregon Counties

and

League of Oregon Cities

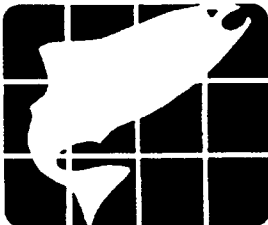
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EXECUTIVE SUMMARY

This report was prepared to summarize information on the types and extent of actions being taken by city and county governments that are likely to protect and restore habitat for coastal coho salmon. Data were obtained through reconnaissance-level surveys rather than in-depth analysis, so this report constitutes only a partial listing of actions being taken that influence salmonid habitat. We found that city and county governments influence coho habitat through such actions as land use ordinances, road construction practices, effluent treatment, participation in watershed councils, monitoring of water quantity and quality, habitat restoration projects, and flow augmentation from water storage reservoirs. Steps are being taken in each of these categories to halt degradation and restore habitat for salmon.

City and county governments have little influence on lands outside of those zoned for urban, residential or commercial uses. Only 1.5% of coho stream miles in Oregon are within urban boundaries, and only another 5.3% of coho stream miles lie within rural areas that can be developed for residential or commercial use. We found that 81% of all cities in Oregon coastal basins were located within 5 miles of the stream mouth, excluding the Rogue and Umpqua basins. In the Rogue and Umpqua basins, which originate in the Cascade Mountains, major urban areas are located well inland where they are more likely to affect coho and steelhead, which typically spawn and rear in upstream areas. Urban and rural land use categories include 20.2% of the coho stream miles in the Rogue Basin, compared to 3.7% to 7.8% in other coastal regions.

Local governments began adopting land use ordinances in 1974 that specified protection of riparian areas by establishing setback distances for construction, and, in some counties by prohibiting removal of vegetation within the setback areas. It is generally perceived by Oregon Department of Fish and Wildlife biologists and the local government planners that compliance with riparian corridor ordinances has been variable, but will benefit fish habitat in the future. Riparian protection ordinances are most stringent in the Rogue Basin and along the south coast. Over 90% of the riparian corridors on coho streams coast wide are on agricultural or timber lands that are regulated primarily by State and Federal laws for logging or agricultural practices.

Improvements in road construction and sewage treatment during the 1990's have been substantial. Most local road crews began within the last 5 years consulting with ODFW biologists when replacing culverts, tide gates and other drainage pipes to ensure proper design for fish passage. We identified a partial list of over 50 projects by counties to improve fish passage in the last 5 years by replacing or modifying poorly designed culverts. Many of these projects restored fish passage that was formerly blocked. Stream pollution from sewage effluent has been greatly reduced in coastal streams over the last

20 years, and these improvements have been greatest in the Rogue and Umpqua basins. Several cities in the Rogue and Umpqua basins and a few in other coast areas have completed or begun major upgrades of their sewage treatment facilities. Sewage treatment facility upgrades generally cost in the millions of dollars per project.

Many local governments are active participants in watershed councils and it is through these councils that stream restoration projects are implemented. Douglas County, which stands out for its actions, has initiated five unique programs to restore fish habitat, which include (1) the development of a Water Management Plan, (2) the construction and operation of headwater dams for flow and habitat enhancement, (3) the Umpqua Basin Fisheries Restoration Initiative (UBFRI), (4) the Salmon Habitat Improvement Program, and (5) a comprehensive water quality study on the South Umpqua River. Douglas County's operation of Galesville Dam in the South Umpqua basin has increased flows in 62.4 miles of Cow Creek from only 15-30 cfs during summer to 55-90 cfs after the dam was completed (1987). Milltown Hill Dam, with expected completion in 1999, will increase stream flow in Elk Creek from less than 1 cfs during summer to 35-50 cfs after the dam is built. The UBFRI Program has successfully coordinated fish habitat restoration and research projects funded since 1993 by a variety of sources for several million dollars. Douglas County has directly contributed over \$307,000 to support 12 projects to modify instream habitat, six projects to restore riparian areas through fencing, bank stabilization, and plantings, five projects to provide adult fish passage, eight projects to monitor fish populations, and four projects to assist the artificial rearing of juvenile chinook. Douglas County funded a \$325,000 study from 1991 to 1994 by the US Geological Survey to identify sources of nutrient input into the South Umpqua River, and the findings have led to steps by several communities to reduce or eliminate the nutrient loads in their effluents.

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INTRODUCTION

In late October of 1996, the National Marine Fisheries Service (NMFS) announced that the final determination an Endangered Species Act (ESA) listing of coastal coho salmon (*Oncorhynchus kisutch*) in Oregon would be delayed until April 25, 1997, pending collection and analysis of additional information. The coastal coho, which were from two Evolutionarily Significant Units (ESU's), the Southern Oregon/ Northern California Coast and the Oregon Coast, had been proposed by NMFS in 1995 to be listed as threatened under the ESA. NMFS extended the deadline for their final determination on that proposal by 6 months, because there was "substantial disagreement" regarding the accuracy and sufficiency of the available data. The subjects of disagreements were cited as, "the data needed to determine the status of these species, the threats to their continued existence, and the efficacy of recent local, state, and Federal conservation measures," (61 FR 56211, October 31, 1996).

This report was prepared to provide additional information on the efficacy of conservation measures by city and county governments in Oregon for restoration of coastal coho salmon to abundance. Extensive measures to protect and restore coho salmon are also being taken by the State of Oregon, and are detailed in Governor John Kitzhaber's plan, "Oregon Coastal Salmon Restoration Initiative (OCSRI)." The first draft of the OCSRI included a voluminous compilation of ordinances by city and county governments that were designed to protect riparian areas. However, the listing of ordinances was burdensome to interpret and described only a portion of the conservation measures taken by local governments. Accordingly, the purpose of this report is to describe, in a concise format, the types and extent of actions being taken by city and county governments that are likely to protect and restore habitat for coho salmon. This report specifically addresses coastal basins, and excludes tributaries to the Columbia River. Data for this report were obtained through reconnaissance-level surveys rather

than in-depth analysis, so this report constitutes only a partial listing of actions being taken that influence salmonid habitat.

There are three categories of human actions that influence anadromous fish; harvest, hatcheries, and habitat alteration. City and county governments within Oregon have jurisdiction over actions that could affect fish habitat, but do not have jurisdiction over hatcheries or harvest. The net influence that city and county actions will have on populations of coho salmon in the future can only be understood when taken in combination with actions by other land management entities, and by actions of fisheries agencies to manage hatcheries and harvest. The OCSRI describes these other sets of actions, which are numerous and far reaching in scope. For example, the percentage of Oregon's coastal coho that are harvested in the ocean exceeded 80% during the 1970's and varied around 70% in the 1980's (except for 1984-86; Cramer 1994), but ODFW has committed in the OCSRI to limit ocean harvest impacts to less than 15% until wild coho are again abundant. Simulation modeling indicates that this reduction in ocean harvest rate should by itself enable rapid recovery of Oregon coho populations, given that spawning and rearing habitat for coho does not decline (OCSRI; Cramer and Cramer 1994). Additionally, ODFW is committing to make radical changes in management practices of coho hatcheries, such that competition between hatchery and wild fish is reduced, and the genetic fitness of hatchery fish for survival in the wild is greatly enhanced. We cite these examples to establish that actions described in this report form a relatively small, yet valuable, portion of the measures being taken statewide to protect and restore coastal coho salmon in Oregon.

In one section of the report, we have developed a detailed description of actions taken by Douglas County, in order to present a role model for local government involvement in salmon restoration. Douglas County has constructed several reservoirs that enhance summer stream flows, established an extensive stream monitoring program,

developed programs that fund and coordinate habitat restoration projects, and organized efforts to sharply reduce pollution of the South Umpqua River.

DISTRIBUTION OF COHO HABITAT AMONG CITIES AND COUNTIES

Oregon's coastal streams that serve as spawning areas, rearing areas or migration corridors for coho salmon are contained predominantly within 10 coastal counties (Table 1). In order to obtain perspective on the share of coho streams that might be influenced by land-use regulations within any given county, we used a GIS database managed by the State Service Center for GIS (Salem) to sum the number of coho stream miles within each county and within each coastal basin. The database was derived from 1:100,000 scale maps prepared by the Oregon Department of Fish and Wildlife (ODFW) to show all streams of known coho usage in the state. Analysis of that database showed that 30% of the 6,591 coho stream miles in the state are within Douglas County, followed by 13% of the coho stream miles in each Lane and Coos counties (Table 1). Four Willamette Basin counties; Washington, Yamhill, Polk and Benton, contain headwaters of coastal streams, but these stream segments (all four counties combined) composed only 3% of coho stream miles.

County boundaries often do not correspond to watershed boundaries, so it is useful to also examine which counties have jurisdiction within a given coastal basin (Table 2). Douglas County is again unique, in that its boundaries generally correspond to those of the Umpqua Basin. The Rogue Basin is the most divided between counties, with sizable portions of the basin lying in three counties; Curry, Jackson and Josephine (Table 2).

Table 1. Stream miles, summed by county, that are used by coastal coho salmon in Oregon. Data from GIS analysis of 1:100,000 scale maps of coho streams identified by Oregon Department of Fish and Wildlife. State Service Center for GIS, Salem.

County	Miles	County	Miles
Benton	93	Josephine	426
Clatsop	333	Lane	863
Columbia	221	Lincoln	618
Coos	863	Polk	13
Curry	386	Tillamook	657
Douglas	1,974	Washington	56
Jackson	301	Yamhill	17

Table 2. Stream miles, summed by major coastal basin, that are used by coho salmon in Oregon. Data from GIS analysis of 1:100,000 scale maps of coho streams identified by Oregon Department of Fish and Wildlife. State Service Center for GIS, Salem.

Basin	County	Miles
Alsea	Lincoln & Benton	437
Applegate	Josephine & Jackson	116
Chetco	Curry	163
Coos	Coos	418
Coquille	Coos & Douglas	463
Necanicum	Clatsop	96
Nehalem	Tillamook, Clatsop, & Columbia	633
Rogue, Lower	Curry & Josephine	199
Rogue, Middle	Josephine	140
Rogue, Upper	Jackson	129
Siletz-Yaquina	Lincoln & Polk	422
Siltcoos	Lane	66
Siuslaw	Lane	715
Sixes	Curry	182
Umpqua	Douglas	915
Umpqua, North	Douglas	150
Umpqua, South	Douglas	801
Wilson-Trask-Nestucca	Tillamook & Yamhill	547

Cities within basins that drain the coastal mountain range (designated as the Coastal Zone) are generally near the stream mouths along the coast itself. Excluding the Rogue and Umpqua basins, which originate in the Cascade Mountain Range, we found that 81% of all cities in Oregon coastal basins were located within 5 miles of the stream mouth (Figure 1), with most actually at the mouth (Table 3). The location of most coastal cities right on the coast indicates that their impacts on salmon and steelhead habitat would also be limited to the lowermost stream reaches and the estuaries. Thus, fish conservation measures by coastal zone cities, other than for treatment of effluents and water withdrawals from upstream sources, probably would have little effect on coho and steelhead, which typically spawn and rear in upstream areas.

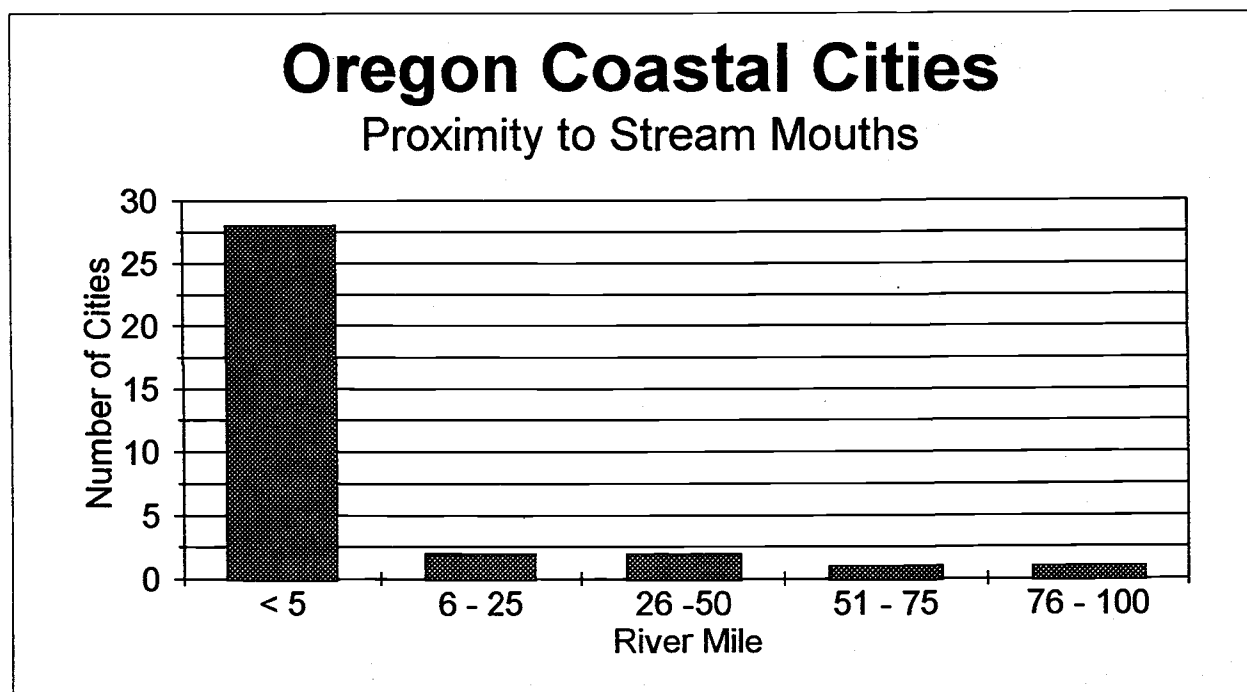


Figure 1. Distance of cities from the ocean, by stream mile, in Oregon's coastal basins. Rogue and Umpqua basins excluded.

Table 3. Data on the population (1990 census) and stream mile of cities within coastal river basins of Oregon. Data are sorted by steam basin.

River	City	1990			River	City	1990		
		Population	County	RM			Population	County	RM
Alsea Bay	Waldport	1,705	Lincoln	0	Ocean	Rockaway Beach	1,160	Tillamook	0
Bear Creek	Central Point	9,620	Jackson	132.9	Ocean	Lincoln City	6,570	Lincoln	0
Bear Creek	Medford	55,090	Jackson	140.4	Ocean	Manzanita	715	Tillamook	0
Bear Creek	Phoenix	3,615	Jackson	145.4	Ocean	Yachats	645	Lincoln	0
Bear Creek	Talent	4,530	Jackson	148.3	Ocean	Depoe Bay	1,025	Lincoln	0
Bear Creek	Ashland	17,985	Jackson	151.7	Siletz River	Siletz	1,110	Lincoln	34.6
Big Butte Creek	Butte Falls	410	Jackson	143.6	Siltcoos	Dunes City	1,220	Lane	0
Calapooya	Oakland	870	Douglas	116.8	Siuslaw River	Florence	6,185	Lane	0
Chetco River Bay	Brookings	5,220	Curry	0	Sutherlin Cr	Sutherlin	5,830	Douglas	126
Clatskanie River	Clatskanie	1,885	Columbia	4.4	Tenmile Cr	Lakeside	1,630	Coos	0
Columbia	Astoria	10,100	Clatsop	0	Tillamook Bay	Bay City	1,100	Tillamook	0
Coos Bay	Coos Bay	15,430	Coos	0	Tillamook Bay	Tillamook	4,245	Tillamook	0
Coos Bay	North Bend	9,855	Coos	0	Tillamook Bay	Garibaldi	950	Tillamook	0
Coquille River	Bandon	2,610	Coos	0.9	Yaquina Bay	Newport	9,495	Lincoln	0
Coquille River	Coquille	4,230	Coos	24	Yaquina River	Toledo	3,400	Lincoln	0.8
Coquille, SFk	Myrtle Point	2,740	Coos	36	Yoncalla Cr	Yoncalla	960	Douglas	79
Coquille, SFk	Powers	680	Coos	62	Youngs Bay	Warrenton	3,845	Clatsop	0
Cow Creek	Riddle	1,160	Douglas	162.2	Umpqua River	Reedsport	4,860	Douglas	10.8
Elk Creek	Drain	1,110	Douglas	72.9	Umpqua River	Elkton	180	Douglas	49.2
Illinois River	Cave Junction	1,265	Josephine	82.8	Umpqua SFk	Roseburg	19,220	Douglas	140.6
Jackson Creek	Jacksonville	2,010	Jackson	130	Umpqua SFk	Winston	4,075	Douglas	140.6
Little Butte Creek	Eagle Point	3,415	Jackson	140.3	Umpqua SFk	Myrtle Creek	3,290	Douglas	154.2
Necanicum River	Seaside	5,750	Clatsop	0	Umpqua SFk	Canyonville	1,235	Douglas	165.4
Nehalem	Nehalem	235	Tillamook	0	Rogue River	Gold Beach	2,080	Curry	0
Nehalem Bay	Wheeler	360	Tillamook	0	Rogue River	Grants Pass	19,660	Josephine	97.7
Nehalem River	Vernonia	2,110	Columbia	85.3	Rogue River	Rogue River	1,950	Jackson	112
Ocean	Cannon Beach	1,365	Clatsop	0	Rogue River	Gold Hill	1,235	Jackson	121.6
Ocean	Port Orford	1,050	Curry	0	Rogue River	Shady Cove	1,950	Jackson	148
Ocean	Gearhart	1,170	Clatsop	0					

In the Umpqua River Basin and the Rogue River Basin, major urban areas are located well inland. Inland cities in these basins also tend to be more populated than coastal cities (see Table 2). Because of the larger size of inland cities and of the potential for upstream effects to be propagated downstream, inland urban areas are more likely to significantly impact coho and steelhead habitat than cities near the ocean. Thus, cities in the Rogue and Umpqua basins are more important players in habitat issues than cities in Coastal Zone basins.

For the purposes of this report we divided the Oregon coastal coho range into five regions; North Coast, Mid-Coast, Umpqua, Rogue, and South Coast. The following describes the boundaries of these coastal regions.

North Coast - West slope of the Coast Range from Nescowin Creek (Tillamook County) north to the Columbia River (Figure 2).

Mid-Coast - West slope of the Coast Range from the Tahkenitch Lake (Douglas County) north to the Salmon River (Lincoln County)(Figure 3).

Umpqua - Entire Umpqua River basin (almost entirely in Douglas County) (Figure 4).

Rogue - Entire Rogue River Basin (part of Curry, most of Josephine and Jackson Counties) (Figure 5).

South Coast- West slope of the Siskiyou Mountains from the California border to the Ten Mile Lakes (Coos County), excluding the Rogue River (Figure 6).

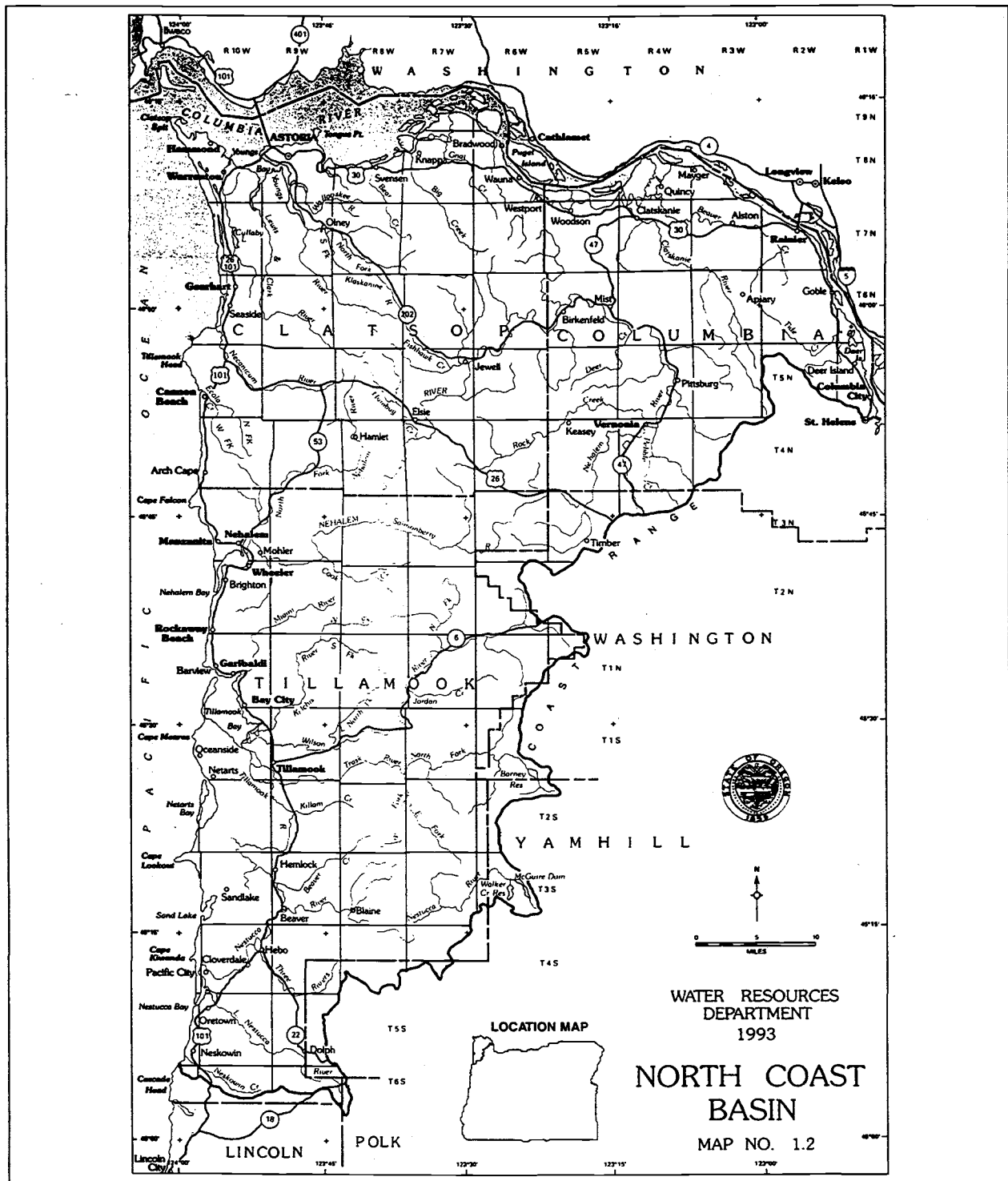


Figure 2. Map of coastal streams in the North Coast region of Oregon.





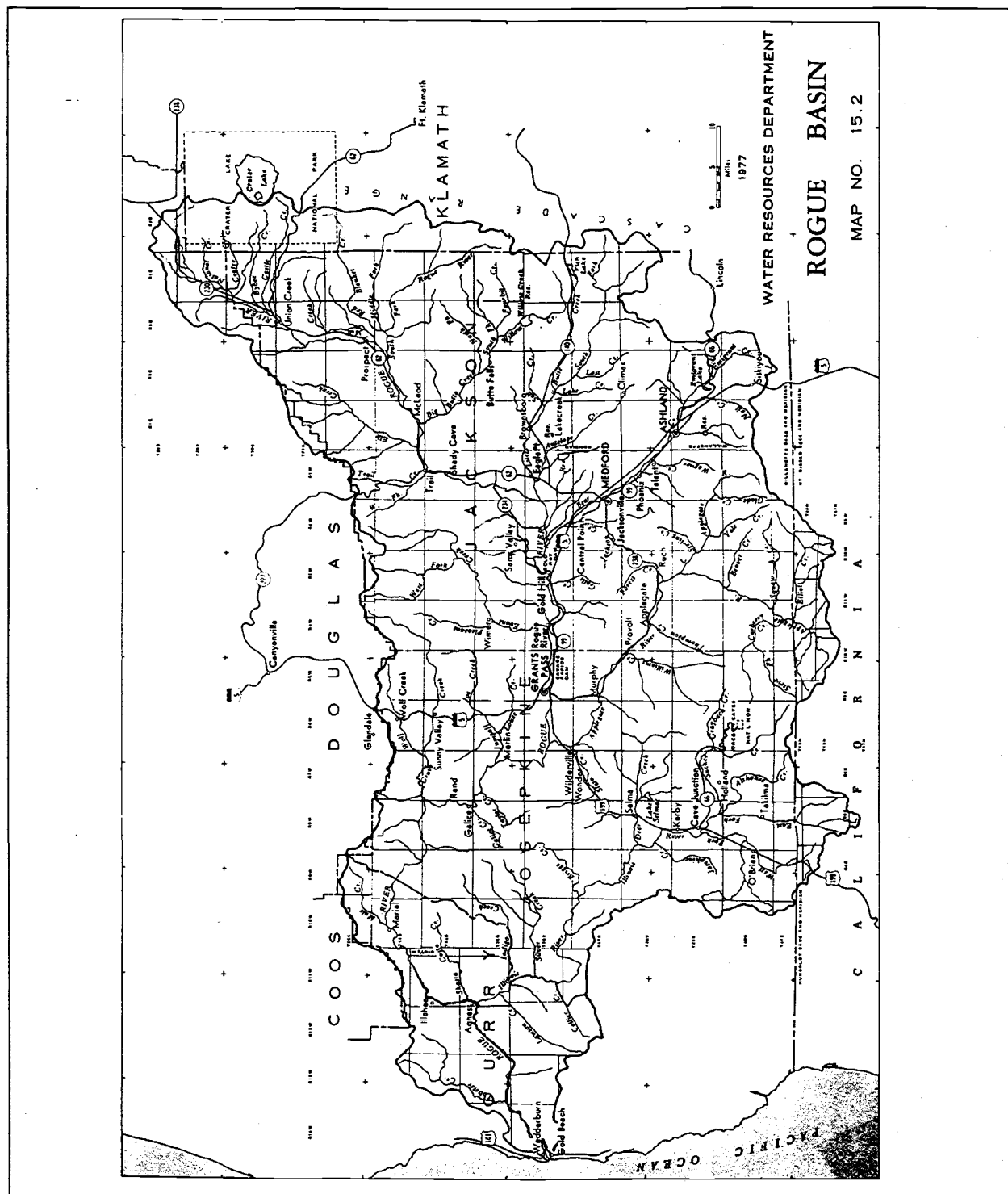


Figure 5. Map of streams in the Rogue River Basin of Oregon.

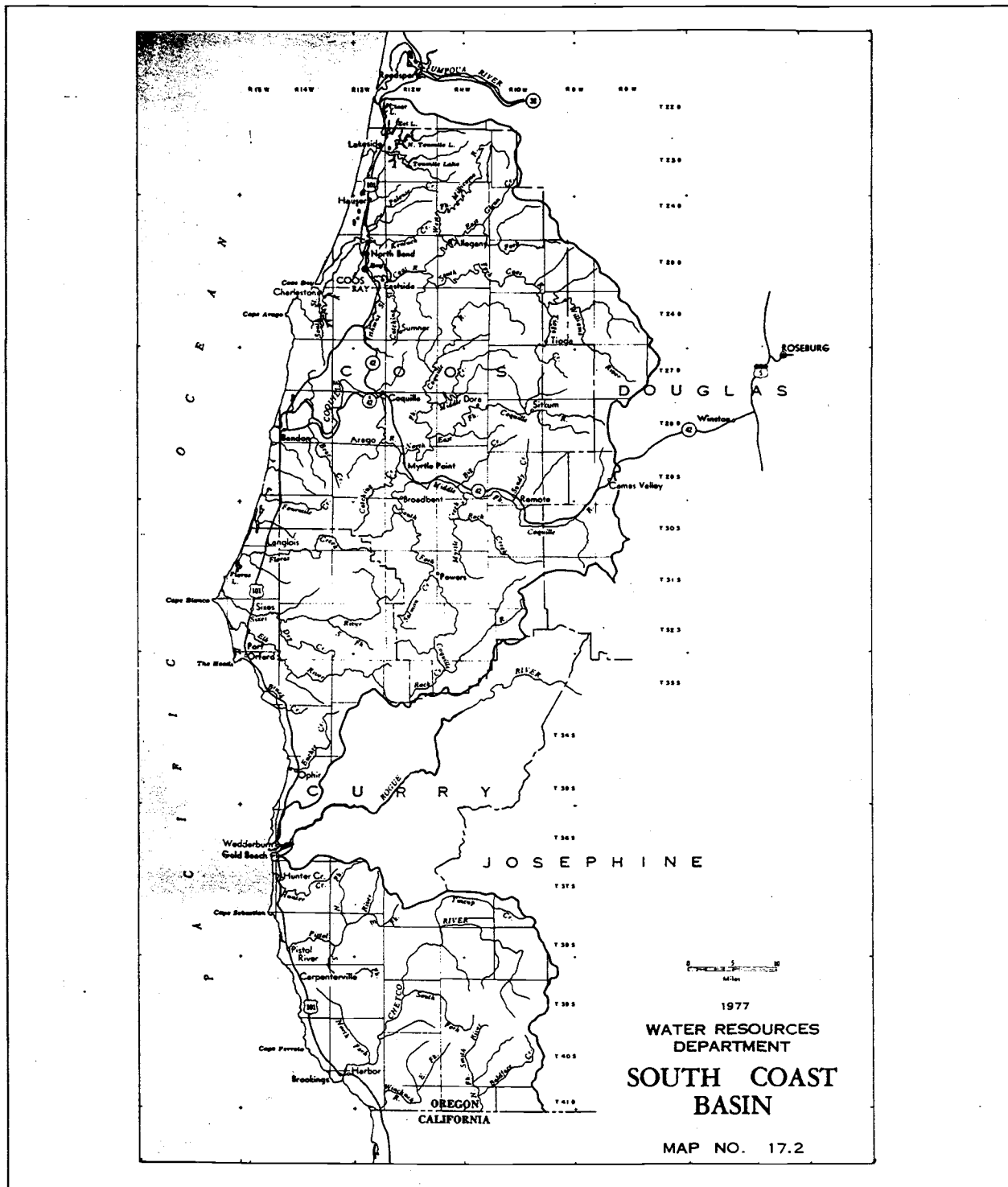


Figure 6. Map of coastal streams in the South Coast region of Oregon.

TYPES OF INFLUENCE ON COHO HABITAT BY LOCAL GOVERNMENTS

The first draft of the OCSRI identified that some actions for conservation of fish habitat were being taken by cities and counties. Most of the information presented focused on city and county land-use ordinances designed to protect riparian areas. We investigated further through phone calls and questionnaires to staff of state agencies, counties, and cities, and discovered there are many other actions taken by local governments that are likely to influence coho salmon. These additional actions include improved practices for road construction, improved effluent treatment, participation in watershed councils, increased monitoring of water quantity and quality, habitat restoration projects, and increased stream flows from water storage reservoirs. A brief description follows of the habitat features that can be influenced by local government actions, and of the types of actions that affect that feature. Following this overview of actions by local governments, we provide a basin-by-basin discussion of specific actions.

Riparian Protection Regulations

In general terms, riparian areas are the "banks" of streams and lakes and are an integral component of a stream's ecology. A healthy coastal coho stream riparian area is characterized by considerable stream side vegetation that, among other functions, anchors soil and provides shade. Local governments, by means of development ordinances, have taken steps to halt the loss of and allow for recovery of riparian vegetation corridors along salmon bearing streams. These ordinances are adopted in accordance with Land Conservation and Development Commission (LCDC) "statewide planning goals."

The LCDC has adopted goals that protect agricultural and forest lands from urban

development. Local governments are required to comply with LCDC "planning goals", and urban development generally cannot extend beyond designated "urban growth boundaries" or lands zoned as rural residential. It is within these areas that county and city ordinances provide the primary protection for riparian corridors. Riparian corridors outside of urban growth boundaries or rural residential zones are mostly agricultural or timber "resource" lands that are regulated primarily by State and Federal laws for logging or agricultural practices.

Among the LCDC planning goals, Goal 5 is implemented by local governments, and can help to protect salmon habitat. First adopted in 1974, Goal 5 requires local governments to inventory and protect significant, *"open spaces, scenic and historic areas, and natural resources including riparian corridors."* Goal 5 regulations affect coastal coho habitat significantly in urban areas, but to a lesser degree on the more extensive resource lands. For example, counties are responsible for issuing building permits and inspecting construction, and they generally impose distances for structural setbacks from streams on all lands. But, those counties that also impose regulations on vegetation removal in riparian areas, do not impose or enforce those regulations on agricultural or forest lands. Protection of riparian areas on forested lands are those offered by the Oregon Forest Practices Act and President Clinton's Forest Plan. New protection for riparian areas on agricultural lands is being developed through the Healthy Streams Partnership announced in November 1996 by Governor Kitzhaber.

We again used the state GIS database to determine the number of stream miles used by coho salmon in each coastal basin, and determined the proportion of those stream miles protected by various types of ordinances. Ordinance protection categories for streams were supplied to the database by the Department of Land Conservation and Development (DLCD) on 1:100,000 scale maps. The DLCD used three categories of stream protection for this database: (1) riparian buffers, (2) riparian buffers plus wetland

protection, and (3) riparian buffers, plus wetland protection, plus instream protection. Over 81% of the stream miles used by coho are now covered by ordinances that offer protection to both riparian buffers and wetland habitat, and another 12.7% are covered by level (3) protection for riparian, wetland, and instream habitat (Figure 7). Only 1.5% of coho stream miles are within urban boundaries, and another 5.3% of coho stream miles lie within rural areas that can be developed for residential or commercial use (Figure 8). On the other hand, about 90% of coho stream miles lie within agricultural or forestry lands. Thus, urban development has been a minor player in altering riparian habitat where salmon rear, and there is little potential for negative impacts from urban areas to be transferred downstream, except in the Umpqua and Rogue basins because most urban areas are at the stream mouth.

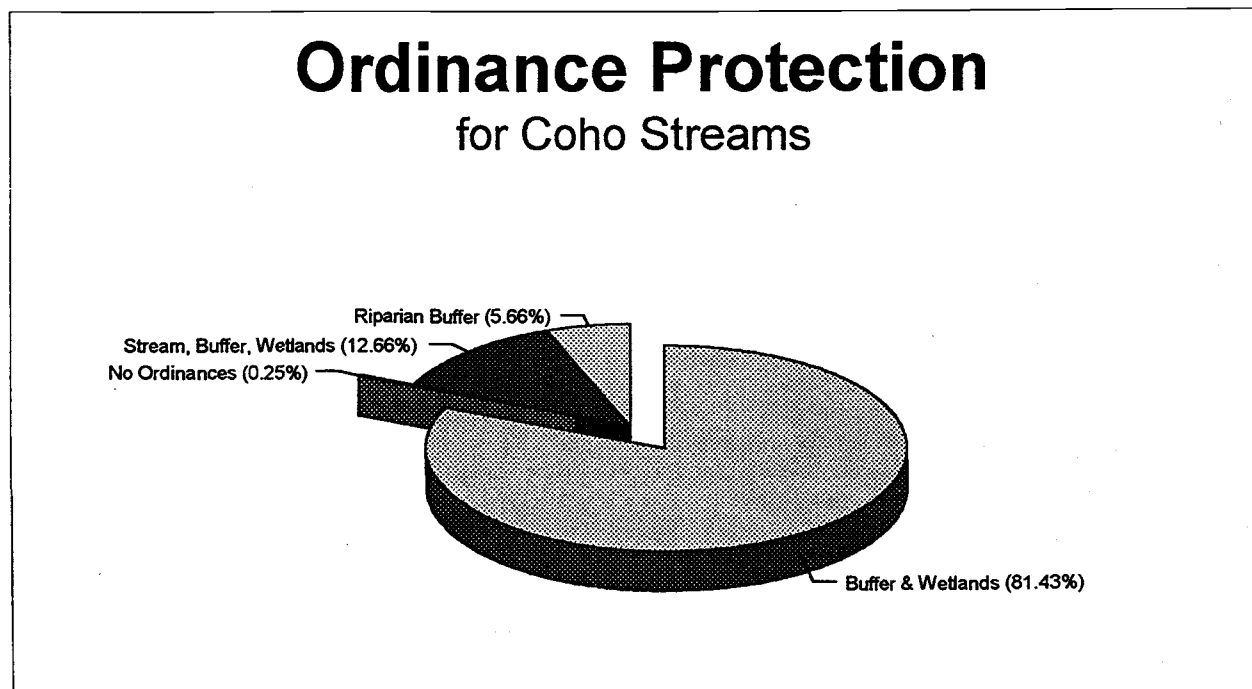


Figure 7. Percentage of the stream miles used by coastal coho salmon in Oregon that flow through areas with ordinance protection for riparian buffers, wetlands, and In stream habitat. Data from GIS analysis of 1:100,000 scale maps of coho streams identified by Oregon Department of Fish and Wildlife and ordinance protection identified by Department of Land Conservation and Development. State Service Center for GIS, Salem.

Coho Salmon Streams

Land Use Categories

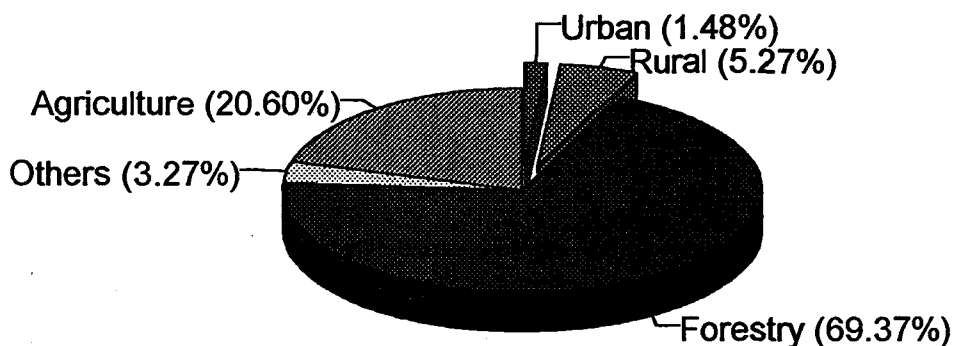


Figure 8. Percentage of the stream miles used by coastal coho salmon in Oregon that flow through lands of various use categories. The rural category would include commercial and residential uses. Data from GIS analysis of 1:100,000 scale maps of coho streams identified by Oregon Department of Fish and Wildlife and land-use categories identified by Department of Land Conservation and Development. State Service Center for GIS, Salem.

Every 5 - 7 years local governments are required by LCDC to undergo "periodic review" during which resource inventories are updated and new planning objectives are agreed upon. In June of 1996, Goal 5 was revised to simplify this process and introduced the "safe harbor" provision. This new provision gives local governments a "safe harbor" which insures that LCDC will approve their plan for riparian protection if the local government adopts standard structural "setbacks" from streams, as specified in Goal 5. However, the Goal 5 requirements for riparian setbacks only address placement of structures, not retention of riparian vegetation. Therefore, it remains up to local governments to choose whether they should establish rules that specify protection of riparian vegetation, in addition to specifying structural setbacks. The rules for structural

setbacks do result in protection of riparian vegetation on many land development projects, even where protection of the riparian vegetation is not specified, but no data are available to determine the extent this is true.

Riparian protection measures differ between local governments, and often allow special exceptions. Personal experiences described by ODFW biologists and county and state planners suggests that rates of compliance with, and enforcement of, riparian vegetation protection measures is highly variable. Therefore, actual benefits to riparian corridor vegetation resulting from Goal 5 and local government protection measures cannot be described without stream-by-stream investigations. This report will highlight significant riparian protection measures, but we cannot draw specific conclusions about fish benefits.

Cities located beside estuaries are required by state law to develop regulation intended to protect the estuaries from degradation. Estuary health is not considered a pressing concern for coho because their life history generally does not include significant use of this habitat type. Consequently, this report does not review local government measures to protect estuaries. However, chinook salmon, chum salmon, and cutthroat trout do utilize estuary habitats and a review of these regulations may be useful for protection of those species.

Fish Passage

Municipal Water Storage Dams

Some municipalities operate water supply reservoirs, usually in headwater areas. Most of these systems were installed many years ago and generally have no passage facilities. These dams do account for some loss of coho spawning habitat, but by virtue

of their location, not an appreciable amount. Most new water developments are diversion point systems rather than storage reservoirs. Direct diversion reduces passage problems but, as water demands increase, the potential exists for reduced stream flows to impact fish production.

City and County Road Culverts and Bridges

Poorly designed and maintained culverts can inhibit or completely obstruct fish passage. Awareness of this problem is improving and most local road crews began within the last 5 years consulting with ODFW biologists when replacing culverts, tidegates and other drainage pipes to ensure proper design for fish passage. Proper maintenance of "fish friendly" culverts and bridges is an area in which local governments can contribute significantly toward coho recovery.

Water Quality

Sewage Treatment

Point source pollution has been greatly reduced in Oregon streams over the last 20 years. New sewage treatment technology and stringent state and federal water quality standards has resulted in greatly improved water quality. Sewage effluents are of greater concern in the Rogue and Umpqua basins where cities are located in upstream areas. With a few possible exceptions, municipalities on or near the coast discharge treated effluents very low in the watersheds and probably do not greatly affect coho habitat. Many cities have or are planning sewage treatment upgrades that will further reduce water quality problems (personal communication, Julie Berndt, DEQ, Eugene).

Erosion Control

Roads, road construction and road maintenance are considered causes of stream sedimentation. In recent years, local governments have improved awareness about the possible negative impacts of roads on salmon streams. Many governments have regulations for bank stabilization and slide material removal that are intended to reduce stream sedimentation.

Storm water run-off

Concern about storm water run-off is a fairly recent development and the Oregon DEQ is beginning to examine the problem. New technologies are being developed to reduce storm water run-off pollution, and some local governments are requiring storm water treatment for new developments (personal communication, Nick McGibbon, DEQ, Roseburg). Basin-by-basin discussions of storm water run-off are not included in this report.

Water Withdrawals

Dewatering and/or warming of coho streams

Some cities obtain water by diverting directly from streams, and in some cases these diversions may have de-watered or allowed warming of coho streams.

Juvenile fish lost in diversion intakes - fish screens

Juvenile salmon may be lost in water diversion intakes and pumps, but this problem can be greatly reduced or eliminated by installing and maintaining well designed fish

screens. In recent years, ODFW has been conducting an inventory of water diversions and began requiring screens for those withdrawing 30 or more cfs. ODFW also has offered a program that provides partial funding for screening diversions of less than 30 cfs (personal communication, Roy Elicker, ODFW, Portland).

Measure to Restore Degraded Habitat

Some local governments have implemented measures to restore degraded habitat by replanting of riparian vegetation or stabilizing stream banks. Douglas County has funded and coordinated placement of instream structures.

Promotion of Public Stewardship

Many local governments are active participants in watershed councils and it is through these councils that stream restoration projects are implemented. Participation rates vary and some governments have limited funds to contribute directly.

STATUS OF ACTIONS WITHIN COASTAL REGIONS

NORTH COAST REGION

The North Coast region includes the west slope coast range streams from Nescowin Creek north to the Columbia River and is contained almost entirely in Columbia, Clatsop, and Tillamook Counties (see Figure 2). Urban and rural residential land use categories include only about 8% of the 1,275 miles of coho streams in the region (Table 4). The city of Vernonia on the Nehalem River at RM 85.3 is the only incorporated city well inland from the coast in this region (see Table 3; Figure 2).

Table 4. Number and percentage of coho stream miles in each land use category, by coastal region of Oregon. Data from GIS analysis of 1:100,000 scale maps of coho streams identified by Oregon Department of Fish and Wildlife and land uses identified by Department of Land Conservation and Development. State Service Center for GIS, Salem.

Region	Stream Miles					% of Stream Miles				
	Agriculture	Urban	Rural	Forestry	Others	Agriculture	Urban	Rural	Forestry	Others
Mid-Coast	164	12	48	1,394	22	10.0%	0.8%	2.9%	85.0%	1.3%
North Coast	157	19	80	994	25	12.3%	1.5%	6.3%	78.0%	1.9%
Rogue	130	26	92	328	8	22.3%	4.4%	15.8%	56.1%	1.4%
South Coast	242	11	34	845	94	19.8%	0.9%	2.8%	68.9%	7.7%
Umpqua	687	33	86	1,034	26	36.8%	1.8%	4.6%	55.4%	1.4%

Riparian Protection Regulations

Because of the small percentage of coho streams within urban and rural residential areas, and those so close to the coast, the riparian protection ordinances in this region have limited influence on coho habitat quality in most cases. However, counties and cities in this region do have lands that qualify for Goal 5 protection of estuary and shorelands, and all have LCDC approved plans in place. Riparian corridor ordinances in each county protect the following:

Columbia - 50 ft. setback and vegetation protection for class 1 streams

Clatsop - 50 ft. setback and vegetation protection for class 1 streams

Tillamook - 15-25-50 ft. setback based on increasing stream size. Removal of 50% of understory vegetation, but none of overstory is permitted.

Fish Passage

There are no dams for municipal water storage in the north coast region that operate to the benefit or detriment of wild coho (personal communication, Walt Weber, ODFW District Biologist).

All county and city road departments in the region now consult with ODFW biologists when installing or repairing culverts and tidegates. For example, Clatsop County installed an oversize, flat grade culvert at considerable expense in 1996 to improve passage to Gillmore Creek on the Nehalem River. Tillamook County has been especially active with fish passage, and completed at least 15 culvert or bridge projects to improve fish passage in the last 5 years (Appendix 1). Eight of the 15 projects completed by Tillamook County restored fish passage where it had previously been stopped by poor culvert design. Many other county road and culvert improvements have contributed to improved passage (see list in Appendix 1). An electronic database of fish passage improvements has not been maintained by local governments, so the list of projects in Appendix 1 was compiled from the recollection of road department staff.

Water Quality

Cities of the north coast generally do not alter water quality in areas used by coho. The city of Tillamook may have contributed to low dissolved oxygen in the Trask River during low flow periods, but is currently undergoing a \$1,000,000 sewage treatment upgrade which will address any water quality problems (personal communication, Gary Arnold, Oregon DEQ, Salem).

Clatsop County is participating with State Department of Environmental Quality (DEQ), Oregon Department of Transportation (ODOT) and U.S. Fish and Wildlife Service

on a pilot program for erosion control that requires rural developments to submit erosion control plans above and beyond riparian protection measures (personal communication, Diana Nelson, Clatsop County Planning Department).

Water Withdrawals

Municipal water withdrawals on the North Coast do not contribute significantly to coho habitat degradation, with these possible exceptions (personal communication, Walt Weber, ODFW District Biologist):

- The City of Vernonia (Columbia County) diverts water from Rock Creek, and the effects on coho habitat have not been evaluated.
- In 1996, Seaside public works rebuilt their storage reservoir and increased its capacity from 15 million gallons to 50 million gallons at a cost of 1.1 million dollars. It is anticipated that the greatly increased reservoir capacity will allow the city to draw exclusively from the reservoir and possibly discontinue withdrawals from the South Fork Necanicum during low flow months (personal communication, Bob Chisolm, Seaside public works). In the past, the South Fork Necanicum River, which is considered to be good rearing habitat for coho and steelhead, has been completely dewatered in low flow years by Seaside's water withdrawal during the summer months.

The status of fish screens at municipal water intakes has not been inventoried, but many need upgrades to meet present screening criteria (personal communication, Walt Weber, ODFW District Biologist). The City of Vernonia (Columbia County) installed an ODFW-approved fish screen on their Rock Creek (Nehalem River) intake for 1.5 cfs in 1993 (ODFW screen status summaries, 1991-1996).

Measures to Restore Degraded Habitat

The only report we obtained of habitat restoration activities by local governments in the region were by Clatsop County. Clatsop County has been working with ODFW to stabilize banks along roadways.

Promotion of Public Stewardship

Tillamook County contributes 1/4 of a full time position toward participation in the Tillamook Bay, Nehalem, Netarts and Nestucca watershed councils. Columbia and Clatsop County staff do not participate in watershed councils

MID-COAST BASIN

The Mid-Coast Region includes the west slope of the Coast Range from the Tahkenitch Lake north to the Salmon River (see Figure 3). The Mid-Coast Region is almost entirely contained within Lincoln and Lane Counties. Urban and rural land use categories include less than 4% of the 1,640 miles of coho streams in the region (see Table 4). The city of Siletz on the Siletz River at RM 34.6 is the only incorporated city well inland from the coast in this region (see Table 3; Figure 3).

Riparian Protection Regulations

Because of the small percentage of coho streams within urban and rural residential areas, and those so close to the coast, the riparian protection ordinances in this region have limited influence on coho habitat quality in most cases. Riparian corridor ordinances in each county protect the following:

Lincoln - 50 ft. setback and vegetation protection on all streams

Lane - 50-100 ft setback and vegetation protection (75 % retention) along Class 1 streams within non-resource zones (rural residential, commercial, and industrial).

Fish Passage

The following describes mid-coast basin municipal storage reservoirs and water supply systems that may affect coho:

- Toledo operates a storage reservoir on Mill Creek, a tributary of the Yaquina River that produces 100-200 wild coho a year. The city works cooperatively with ODFW to maintain and operate the system. The performance of the ladder is fair, but the possibility exists that during low flow periods the ladder may impede juvenile downstream passage (personal communication, Bob Buckman, ODFW Lincoln District Biologist).
- The City of Newport operates two storage reservoirs, both with fish ladders, on Big Creek, an ocean tributary with low coho value.
- From May through October, depending on reservoir storage availability, The City of Newport pumps from the Siletz River near the town of Siletz. Their water right is for 6 cfs, and the mean flow for the lowest flow month is 133 cfs (month of August, gaging station is 2.4 miles upstream from the intake, personal communication, John Vandiver, City of Newport).

City and county road departments consult with ODFW biologists when installing or

repairing culverts and tidegates. Lincoln County Road Department has worked with ODFW on at least 15 projects in the last decade, associated with roads, that were designed by ODFW to improve fish passage or habitat (see Appendix 1). These efforts have accelerated in the last few years. An electronic database of fish passage improvements has not been maintained by local governments, so the list of projects in Appendix 1 was compiled from the recollection of road department staff.

Water Quality

Municipal sewage is not thought to contribute significantly to coho habitat degradation in the mid-coast basin (personal communication, Bob Buckman, ODFW Lincoln District Biologist).

Water Withdrawals

Water withdrawals for municipal use in this region probably have little influence on production of coho. Lincoln City withdraws 4-5 cfs near tidewater from Schooner Creek, a small ocean draining stream that is not considered to be prime coho habitat. The city is currently reviewing other water source options that will allow them to reduce their withdrawals in Schooner Creek. Gleneden Beach withdraws water from lower Drift Creek (Siletz Bay), probably with little impact on coho (personal communication, Bob Buckman, ODFW Lincoln District Biologist).

The status of fish screens at municipal water intakes is not believed to be a significant problem to coho, but eventually all diversion intakes should be screened (personal communication, Bob Buckman, ODFW Lincoln District Biologist).

- The City of Toledo will upgrade their Siletz River diversion screen (1.4 cfs) in 1997.

- The City of Toledo's Mill Creek (Yaquina River) diversion is unscreened. The magnitude of juvenile salmon losses is unknown but presumed to be small.
- The City of Newport recently installed an approved 6 cfs fish screen on Siletz River intake.

Promotion of Public Stewardship

Lincoln County is a member of the Mid-Coast watershed council. The Lane County Council of Governments provides substantial monetary support to watershed councils.

UMPQUA BASIN

The Umpqua basin is contained almost entirely within Douglas county and is a significant producer of coastal coho and other salmonid species. This large basin drains areas of the Cascade and Coast Range Mountains and the interior valley supports considerable agriculture. The major urban areas, unlike in the north and mid coast regions, are located well inland. Ten incorporated cities are located from 49 to 165 miles inland from the coast in this region (see Table 3; Figure 4). However, urban and rural land use categories include only about 6.4% of the 1,866 miles of coho streams in the region (see Table 4). There are more coho stream miles in this basin than in any of the other coastal regions of the state.

Douglas County stands out as a county that has taken major steps during the last decade to halt degradation of fish habitat and initiate efforts to restore habitat. We found five broad programs initiated by Douglas County that stand out as important efforts to reverse the past history of fish habitat loss. These programs are (1) the development of

a Water Management Plan, (2) the construction and operation of dams for flow and habitat enhancement, (3) the Umpqua Basin Fisheries Restoration Initiative (UBFRI), (4) the Salmon Habitat Improvement Program (SHIP), and (5) a comprehensive water quality study on the South Umpqua River.

Riparian Protection Regulations

Because of the small percentage of coho streams within urban and rural residential areas, the riparian protection ordinances in this region have limited influence on coho habitat quality, in most cases. Riparian corridor ordinances in Douglas County mandate 50 ft. structural setbacks from all perennial and intermittent streams. The ordinances do not specifically protect vegetation. The City of Roseburg has ordinances that mandate 25 ft structural setbacks on Newton and Deer Creek, and 50 ft setbacks on the South Umpqua River.

Douglas County Water Management Plan

Douglas County is the only Oregon county to have a Water Resources Management Plan that is integrated into the Comprehensive Land Use Plan. The Water Management Plan, first completed in 1979, evaluated the demand and supply for future water needs, and provided reconnaissance-level descriptions of alternative solutions to meeting those needs. That original plan concluded, *"With groundwater and conservation measures insufficient to meet large scale municipal, industrial and agricultural use, reservoirs are found to be the only feasible way to satisfy most of the current and future water demands in Douglas County."* That finding launched Douglas County into developing its own water storage reservoirs, and into establishing a Water Resources Department.

Extensive studies and planning were conducted to update the Water Management

Plan in 1989. This update assigned a new high priority to water that should remain instream for the benefit of fish. The first objective listed in the 1989 updated plan was:

"Achieve water quantity and quality conditions in major streams satisfactory for anadromous fish habitat and water contact sports and to improve scenic and esthetic qualities."

The Plan identifies the activities needed to meet its goals, and divides those activities into three categories (1) Resources Management, (2) Stewardship, and (3) Storage. The Resources Management category includes a substantial stream gaging program operated by the county, operation of three reservoirs, and studies to resolve issues of water quantity and quality. The Stewardship category included erosion control, instream habitat restoration projects, and restoration of riparian vegetation. The Storage category included screening of eight sites for possible future reservoirs.

Another comprehensive update of the plan is scheduled for 1998.

Flow and Habitat Enhancement with Dams

The county has now completed two major dams and a third is in final design for water storage in the winter and flow augmentation during summer. Concurrently with development of the Water Management Plan, Berry Creek Dam project (11,250 acre-ft of storage) was completed. In 1986, the Galesville Dam on Cow Creek (42,225 acre-ft was completed) was completed. Final design has been completed for the Milltown Hill Dam on Elk Creek (27,707 acre-ft of storage) and construction is expected to begin in 1997.

Each of these storage reservoirs has been operated so as to substantially increase summer flows downstream and reduce stream temperatures. Benefits to downstream fish

populations are a primary purpose of Galesville and Milltown Hill projects. These dams are high in their respective watersheds, and provide flow enhancement and stocking of anadromous hatchery fish downstream in lieu of fish passage. Operation of Galesville Dam has increased flows in the 62.4 miles of Cow Creek below the dam from only 15-30 cfs during July and August before the dam was built (1979-1985) to 55-90 cfs after the dam was built (1987-1991). Now that the Galesville project has been operating for over 10 years, the anadromous fish populations in Cow Creek are healthy and ODFW biologists believe the credit goes largely to the augmented stream flows. Milltown Hill Dam, with expected completion in 1999, will increase stream flow below the dam from less than 1 cfs during July and August at present to 35-50 cfs after the dam is built.

A unique and important aspect of the Milltown Hill project is the inclusion of special treatments to improve fish habitat downstream from the dam. Due to the lack of gravel and cover in Elk Creek, the Milltown Hill project includes placement of 45,000 cubic ft of gravel, and installation of log and gabion structures at roughly one dozen sites to increase pool depth, provide cover for fish, and retain gravel. The project will include planting of riparian vegetation and fencing to improve up to 2 miles of riparian habitat dispersed along Elk Creek below the dam. Aerial photographs of Cow Creek below the Galesville Dam (completed Fall of 1985) show a dramatic improvement in riparian vegetation and cover along Cow Creek since the dam was completed, apparently due to increased water supply during summer (personal communication, Dave Loomis, ODFW, Roseburg).

The county has taken an active role in monitoring fish benefits derived from the water storage projects. The county has purchased traps for sampling both adult and juvenile salmonids and has provided personnel, under the direction of ODFW, to monitor catches in the traps. The county has also provided a helicopter for aerial counts of salmon redds.

Umpqua Basin Fisheries Restoration Initiative (UBFRI)

Douglas County established the Umpqua Basin Fisheries Restoration Initiative (UBFRI) in March of 1993. UBFRI was formed before the Governor's Watershed Enhancement Board (GWEB) was established, but paralleled the organizational structure later described by GWEB for Watershed Councils. UBFRI was chartered by the Douglas County Board of Commissioners as a subcommittee of the county's Water Advisory Board, and its purpose was to encourage and coordinate fish restoration efforts by land owners, businesses, interest groups, and government agencies. There was no money specifically appropriated for UBFRI, so it focused on organizing, coordinating, and soliciting funds for projects that would benefit anadromous fish in the Umpqua Basin.

The UBFRI Program has successfully launched restoration and research projects that have required investments of **several million dollars** in the short time since its beginning in 1993. These projects have addressed most aspects of fish and fish habitat management, including;

Erosion Control	Improvements in Estuary and River Waste Management
Instream Habitat Improvements	Fish Passage Improvements
Riparian Enhancement	Public Education
Habitat Surveys	Fish Protection from Water Diversions
Cutthroat Life History Studies	Stream Fencing
Fish Surveys	Law Enforcement

A listing of specific projects and the dollars invested in each is presented in Appendix 2.

Salmon Habitat Improvement Program (SHIP)

Douglas County Commissioners inaugurated the Salmon Habitat Improvement Program (SHIP) by ordinance in September 1984. This program provides funding to qualified applicants for projects to increase anadromous fish populations, protect or enhance riparian habitat, and educate the public about fisheries issues. SHIP is entirely independent of UBFRI. The program is administered by a five member Salmon Habitat Advisory Committee, which is authorized to develop intergovernmental agreements as necessary for implementation of approved projects. Douglas County has budgeted \$50,000 per year for the program, and has actually contributed from \$12,063 to \$56,313 each year toward a variety of projects related to fish restoration. Over \$307,000 have been contributed to the SHIP program through October of 1996. This funding supported 12 projects to modify instream habitat, six projects to restore riparian areas through fencing, bank stabilization, and plantings, five projects to provide adult fish passage, eight projects to monitor fish populations, and four projects to assist the artificial rearing of juvenile chinook (see Appendix 3 for a complete list). All of these projects have been reviewed and most have been supervised by the Oregon Department of Fish and Wildlife.

The 12 instream habitat projects funded by SHIP have improved about 3 miles of stream in important areas for salmon and steelhead production. Projects to improve instream habitat through placement of weirs, boulders, root wads, gravel, and alcoves, such as those funded by the SHIP program, generally have been found to increase production of juvenile coho, steelhead and cutthroat trout by two to five fold, compared to untreated areas. Stream restoration projects constructed since 1985 in the Medford District of BLM have increased the number of juvenile cutthroat, coho, and steelhead by three to five times compared to nearby untreated reaches (House 1993). Longevity of instream enhancements is generally about 10 years (House 1996), so the additional six projects funded to restore riparian habitat will play an important role over the long term to

replenish large woody debris in the streams and maintain instream structure.

Water Quality Study on the South Umpqua

Douglas County funded a study from 1991 to 1994 by the US Geological Survey to identify sources of nutrient input, estimate rates of nutrient cycling and establish total maximum daily loads (TMDL's) of nutrients in the South Umpqua River. Each summer, the South Umpqua River experiences excessive growth of periphytic algae, accompanied in places by undesirable odors and aesthetic conditions. These conditions also result in pH levels that are too high (>8.5) and DO levels too low (<90% saturation) for Oregon State standards. The studies cost about \$325,000, and found that the primary sources of nutrients were effluents of treated sewage (Anderson et al. 1994).

As a direct result of these findings, the communities that generated the effluents have taken major steps to reduce or eliminate their input of nutrients into the South Umpqua River. The cities of Myrtle Creek and Sutherlin have converted their effluents to 100% land application. The community of Winston is building a new \$5 million sewage treatment facility that will turn out water of natural stream quality.

According to Julie Berndt of Oregon DEQ, Eugene, some municipalities discharging effluents in the Umpqua basin streams still need system upgrades to comply with state water quality standards, but all are well into planning stages for completion of the upgrades. Canyonville and Drain are frequently in violation of state standards, but DEQ is working with these cities and the expectation is that they will achieve compliance in a few years. Oakland has a poor system that discharges high chlorine effluent into a low flow reach of a coho bearing stream, Calapooya Creek. DEQ is working with Oakland to remedy this problem and is suggesting spray irrigation or discharge to the North Umpqua.

ROGUE BASIN

The Rogue Basin drains areas of the Cascade and Siskiyou Mountains and is contained within Curry, Josephine and Jackson Counties. Major Rogue basin cities are located well inland and urban development is expanding at a rapid pace. Many of the stream courses in Josephine and Jackson Counties are becoming impacted by suburban and rural residential development. The Curry county portion of the Rogue Basin (lower) is principally resource lands and federal wilderness. Twelve incorporated cities are located from 82 to 152 miles inland from the coast in this region (see Table 3; Figure 5). Urban and rural land use categories include 20.2% of the 585 miles of coho streams in the region (see Table 4). This is a larger percentage of stream miles in residential and commercial areas, and the smallest number of coho stream miles for any coastal region of the state.

Riparian Protection Regulations

The Rogue basin is experiencing rapidly expanding urban development along stream courses. However, the counties in this basin have the strongest riparian protection measures of any coastal region in the state. These riparian corridor ordinances include the following:

- Curry -- 50 ft setback and vegetation protection for all perennial streams
- Josephine - 20-25 ft (class 2 streams), 20-50 ft (class 1 streams) setbacks and no vegetation removal. This also applies to resource lands.
- Jackson - 50 ft setbacks and protection for 75% of overstory and all understory vegetation up to 100 ft from class 1 streams. 25 ft setbacks for structures

and all understory vegetation on class 2 streams. Most of the cities in Jackson County do not have setback ordinances, but they are being discussed (letter, Paula Brown, Associate Executive Director, Rogue Valley Council of Governments).

Fish Passage

- The City of Ashland operates Reeder Gulch Reservoir (Hosler Dam) on Ashland Creek. The dam has no fish passage facilities, but the basin is steep and probably of low value to coho (personal communication, Chuck Fustish, ODFW, Central Point). In response to turbidity problems resulting from a flood in 1974, the City of Ashland installed a sixty inch culvert in the dam to accommodate sluicing during a period when there is no spawning or eggs and fry in the gravel. Construction was completed in 1987 (letter, Paula Brown, Associate Executive Director, Rogue Valley Council of Governments).
- The City of Medford is in the process of removing Jackson Street Dam, an impediment to fish passage in Bear Creek.

All county and city road departments in the basin now consult with ODFW biologists when installing or repairing culverts. We determined that Josephine County Road Department has installed three culverts with baffle systems to improve fish passage (see Appendix 1). An electronic database of fish passage improvements has not been maintained by local governments, so the list of projects in Appendix 1 was compiled from the recollection of road department staff.

Water Quality

Because there are a number of cities well inland within the basin, the treatment and disposal of sewage effluents has been an important issue in the basin. Significant changes have been made and are continuing to correct effluent problems. Information on the sewage treatment systems and associated problems described below were obtained by personal communication with Julie Berndt, Oregon DEQ, Eugene.

- Medford operates an efficient sewage treatment system (Rogue River Discharge) that complies with state water quality standards.
- Ashland currently operates a sewage system that discharges into Bear Creek via Ashland Creek that frequently violates state water quality standards. However, the city has spent over six years developing a facility improvement plan to upgrade the treatment plant. The City Council has voted to upgrade the current Ashland Creek plant, in phases, to a state-of-the-art facility. Design is in process for phase 1, and construction will begin in 1998. Upgrades to the plant will enable the City to meet discharge limits to the water quality limited stream (Bear Creek) and the TMDL and waste load allocations imposed by Oregon DEQ.
- The City of Rogue River (Rogue River discharge) recently spent \$5 million in upgrades to reduce a total suspended solids.
- Grants Pass just completed a \$33 million upgrade on their sewage treatment system and has eliminated winter sewage overflow problems (Rogue River discharge).
- Cave Junction will spend \$7 million to upgrade its sewage treatment plant (Illinois River discharge).

Water Withdrawals

Residential development along the stream courses is considered a significant threat to coho habitat in the Rogue Basin. Numerous new wells are being developed to supply subdivisions with unknown consequences to the aquifer (personal communication, Chuck Fustish, ODFW Upper Rogue Biologist). Josephine and Jackson Counties have over 150,000 known operating wells. A moratorium on urban growth has been imposed in the City of Rogue River due to shortage of water supply, but was rescinded when the city began withdrawing water directly from the Rogue River.

- Flows in the Rogue River are augmented substantially above natural levels during summer by stored water released from Lost Creek Dam (Cramer et al. 1985). Water supply in the City of Medford does not detract from small local streams, because the city receives water from two sources, Butte Springs on the slopes of Mt. McLoughlin (upper Rogue River) and the Rogue River near Medford.
- Bear Creek receives augmented flows from Emigrant Reservoir located on Emigrant Creek near Ashland.

Promotion of Public Stewardship

Local government contributions toward restoration efforts in the Rogue basin have been extensive and proactive. Local governments have contributed to these efforts by organizing watershed councils in the basin and contributing representation on the Rogue Valley Watershed Steering Committee. We recommend reading the "Southwest Oregon Coastal Salmon Restoration Effort - Phase 1 Document" that will appear in the Governor's Coastal Salmon Restoration Initiative (personal communication, Mark Provost, Rogue Valley Council of Governments).

SOUTH COAST BASIN

The South Coast Region contains streams both to the north and south of the Rogue River that drain the Coast Range Mountains, and the region lies within Curry and Coos Counties. Urban and rural land use categories include less than 4% of the 1,640 miles of coho streams in the region (see Table 4). The cities of Coquille (RM 24), Myrtle Point (RM 38), and Powers (RM 62) are the only incorporated cities well inland from the coast in this region (see Table 3; Figure 6).

Riparian Protection Regulations

Because of the small percentage of coho streams within urban and rural residential areas, and those so close to the coast, the riparian protection ordinances in this region have limited influence on coho habitat quality in most cases. Riparian corridor ordinances in each county protect the following:

- Coos - 50 ft setback for class 1 streams and vegetation protection for those areas identified as fish habitat or Coastal Shoreland.

- Curry - 50 ft setback and vegetation protection for all perennial streams

Fish Passage

Information on the municipal water storage dams described below was obtained by personal communication with Paul Reimers, ODFW biologist, Coos Bay.

- Lakeside withdraws from Eel Lake reservoir and the dam is not a fish barrier.

- Coos Bay/North Bend operates Pony Creek Reservoir south of the City of Coos Bay. Historically, this was probably a coho stream but no longer is.
- The City of Coos Bay is considering the construction of a dam on a Joe Ney, Pony, or Ten Mile Creek. A draft environmental impact statement is currently being developed.
- Bandon operates reservoirs on Ferry and Geiger Creeks (lower Coquille). The dams were installed in the 1930's and have no fish passage.
- City of Coquille operates a reservoir near the headwaters of Rink Creek (Coquille) with no passage facilities. Habitat quality below the reservoir unknown.

All county and city road departments in the basin now consult with ODFW biologists when installing or repairing culverts. Curry County began consulting ODFW when replacing culverts in 1984. Coos County is surveying fish passage at all culverts, and has established right-of-way agreements with ODFW to avoid building bridges over significant fish bearing streams. All fish passage improvements that road department staff can recollect are listed in Appendix 1.

Water Quality

Effluent from municipal sewage treatment is not considered a significant cause of fish habitat degradation in the South Coast region (personal communication, Gary Arnold, Oregon DEQ). A possible exception is that sewage effluent from the cities of Coquille and Myrtle Point may be contributing to lowered dissolved oxygen levels in the Coquille River. However, low dissolved oxygen is a natural occurrence in the lower Coquille, so the actual effects of the sewage treatment plants is not well understood (personal communication,

Gary Arnold, Oregon DEQ). Ray Doan, Coquille sewage treatment plant operator, monitors dissolved oxygen in the Coquille and has observed no appreciable difference in dissolved oxygen above and below the Coquille facility. The city of Coquille expects to upgrade their plant in 1998 with the intention of eliminating any possibility they are causing low dissolved oxygen conditions in the Coquille River.

In order to reduce stream sedimentation, Curry County opened a new rock quarry for county road maintenance to provide a higher quality rock.

Water Withdrawals

Municipal water withdrawals are not known to be degrading coho habitat in the South Coast Basin, but further investigation would be desirable (personal communication, Paul Reimers, ODFW biologist, Coos Bay). The following facilities have arranged to install fish screens approved by ODFW:

- The City of Myrtle Point installed an ODFW-approved fish screen on their water intake from the Coquille River in 1987.
- The City of Port Orford will install an ODFW-approved 1.5 cfs screen in September 1997.

Promotion of Public Stewardship

Coos County is been a key player in organizing the Coos and Coquille Watershed Councils, and continues to be actively represented. Curry County is also active in watershed councils along the south coast. Cities also have representatives on the Councils. Port Orford and Brookings play an active role in meetings and administration.

Brookings and Harbor Water District share costs of mailings and other costs of holding meetings. Port Orford helps administrate selected council projects. Both cities have cooperated with projects on their land.

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APPENDICES

Appendix 1. List of projects completed by county road departments that were designed to improve fish passage. All projects were reviewed or supervised by an ODFW biologist. These lists are incomplete and represent the best recollection of county staff that we contacted during the fall of 1996.

North Coast Basin				
County	Type	Project	Basin	Year
Clatsop	culvert	Gillmore Creek	Nehalem	1996
	bridge	Wahanna - Trails End	Coast	1996
	Tide Gate	Little Walluski	Coast	1996
	various	Lower River Road	Nehalem	1996
	Bridge	Maki	Columbia	1995
Tillamook	culvert	God's Valley Rd.	Nehalem	1990's
	culvert	Fairview Rd.	Wilson	1990's
	culvert	Hughey Ln.	Wilson	1990's
	culvert	Trask River Rd.	Trask	1990's
	culvert	Schriber	Tillamook	1990's
	culvert	Burton-Frasier Rd.	Tillamook	1990's
	culvert	Burton-Frasier Rd.	Tillamook	1990's
	culvert	Netarts Bay Dr.	Netarts Bay	1990's
	culvert	McConkey Bridge	Nestucca	1990's
	culvert	Clarence Creek	Nestucca	1990's
	culvert	Slick Rock Creek	Nestucca	1990's
	culvert	Robinson Bridge	Nestucca	1990's
Mid-Coast Basin				
Lincoln	remove tile	5 Rivers Rd.	Alsea	1980's
	jump pond	5 Rivers Rd.	Alsea	1980's
	culverts	S. Fk. Yachats	Yachats	1980's
	culvert	Fruitvale Rd.	Yaquina	1970's
	bridge	N. Fk. Yachats	Yachats	1990's
	culvert	S. Bay Rd.	Yaquina	1994
	bridge	Yaquina Bay Rd.	Yaquina	1993
	bridge	S. Beaver Cr.	Coast	1995
	culverts	N. Beaver Cr.	Coast	1996
	culvert	Siletz-Lagsdon Rd.	Siletz	1996
	bridge	Crab Cr. Rd.	Siletz	1996
	bridge	Wilson Cr. Rd.	Alsea	1996
	bridge	Hutchcroft Rd.	Yaquina	1995
	culvert	N. Beaver Cr.	Coast	1996
	place stumps	Mill Cr.	Yaquina	1996
	place stumps	5 Rivers Rd.	Alsea	1996
Rogue Basin				
Josephine	baffles	Fish Hatchery Rd.	Rogue	1990's
	baffles	N. Street	Rogue	1990's
	baffles	Fruitdale Dr.	Rogue	1990's

Appendix 2. List of projects and their costs that have been coordinated by the Umpqua Basin Fisheries Restoration Initiative (UBFRI). Funding for these projects came from a variety of sources and was separate from the SHIP program, except where noted. Data provided by Ron Yockim, UBFRI, Roseburg.

1994-1996
Fisheries Restoration Projects¹

I. Erosion control		
A.	Salmon Harbor Marina-Douglas County-Port of Umpqua - erosion control project on the west spit of Salmon Harbor.	\$700,000
B.	Salmon Harbor Marina-Douglas County - Beach Blvd streambank stabilization	\$ 30,000
C.	Douglas County Public Works - erosion control, culvert replacement, check dams, woody debris placement etc.	\$130,000
D.	Coos Bay BLM (Umpqua Resource Area) - Grade culvert replacement	
	1994	\$160,000
	1995	\$404,000
	1996	\$179,000
E.	Douglas & Umpqua Soil Conservation Districts - Upland erosion control practices on 11,160 acres - Grade Stabilization Structures to control gully erosion (19) - Streambank Protection Practices on 34,850 feet of streams	\$277,050
F.	ODF&W Erosion Control: Bachelor Creek	\$ 6,000
G.	Brush Creek Or. Dept. Forestry, Lone Rock:	NA
H.	Roseburg BLM - Yellow Lake Creek Slide Repair & Culvert Replacement in 1995 - Culvert Replacement (3) in 1996 - Rock Rocking for Sediment Control	\$248,646 NA
II. Improvements in estuary & river waste management		
A.	Salmon Harbor Marina-Douglas County-Port of Umpqua - Removal of underground oil storage tanks	\$ 12,260
B.	Salmon Harbor Marina-Douglas County-Port of Umpqua - fuel facility improvements	\$316,000
C.	Salmon Harbor Marina-Douglas County-Port of Umpqua - Marine sanitary pumpout:	\$ 4,800
D.	Douglas & Umpqua Soil & Water Conservation Districts - Animal Waste Storage Structure - Nutrient Management (1372 acres) - Irrigation System Efficiency - Conservation Plans (73,093 acres)	\$ 20,000 \$ 686 \$ 21,000

¹. These projects are "add on" projects that were not required by permits or law. They also do not include regularly scheduled projects of agencies.

Appendix 2. Continued.

E.	Cow Creek Band of Umpqua Tribe of Indians - self contained sewage system	\$1,500,000
III.	Instream Habitat Improvements (boulder weirs, cover structures, woody material)	
A.	Instream Structures/1994 - Coos Bay BLM	\$ 31,000
B.	Instream Structures/1995 - Coos Bay BLM	\$ 15,000
C.	Instream Structures/1996 - Coos Bay BLM	\$ 133,000
D.	Instream Habitat Improvements/1995 - ODF&W	
	Brush Creek:	\$ 15,000
	Beal Creek:	\$ 3,000
	Bachelor Creek:	\$ 6,000
E.	Instream Habitat Improvements/1994 - ODF&W	
	Rock Creek	\$ 7,380
	Canton Creek	\$ 40,000
	Cavitt Creek	\$ 10,000
	Deer Creek	\$ 5,000
F.	Roseburg BLM	
	- Wolf Creek	\$ 780
	- Brush Creek	\$ 29,000
IV.	Fish Passage Improvements	
A.	Culvert Replacements:	
	- Coos Bay BLM 4 culverts/1994	\$ 137,000
	- Coos Bay BLM 4 culverts/1995	\$ 90,000
	- Coos Bay BLM 5 culverts/1996	\$ 133,000
B.	SHIP	
	- Fate Creek	\$ 2,800
C.	Smith River Falls (ODF&W)	\$ 10,000
V.	Riparian Enhancement	
A.	Coos Bay BLM	
	- 1994 site prep on 25 acres	\$ 5,000
	- 1995 planting on 25 acres	\$ 10,000
	- 1996 maintenance on 25 acres	\$ 5,000
B.	Douglas Soil Conservation District	\$ 42,275
C.	Roseburg BLM	
	- Riparian Enhancement/Conifer Restoration	\$ 26,139
	- Maintenance of Conifer Treatments	\$ 13,500
VI.	Education	
	- DCSWCD, COG, Douglas County, ODF&W, BLM, GWEB	NA
	- Small Landowner workshop in 1994 (1)	
	- Small Landowner workshops in 1996 (6)	
VII.	Water Diversions improvement to eliminate fish passage barrier and to provide more efficient water use resulting in more water in stream	NA
	- Douglas Soil & Water Conservation District, private landowner	
VIII.	Habitat Surveys	
	- Salmonid Habitat Restoration Guide	
	- ODF&W, Fish Restoration & Enhancement Board, Douglas County, Wildlife Heritage Foundation:	\$ 20,000
	- Stream & Riparian Habitat Surveys:	
	- 1994 12 crews/489 miles surveyed	\$360,000
	- 1995 9 crews/464 miles surveyed	\$270,000
	- 1996	\$120,000

Appendix 2. Continued.

IX. Cutthroat Life History Studies:		
- Genetics: ODF&W, Douglas County,		\$ 30,000
- Radio Tagging: ODF&W, Umpqua Fishermen, Douglas County		\$ 30,000
X. Stream Fencing		
- ODF&W Stream Fencing grant of for purchase of fencing material to be used on private lands.		\$ 27,673
- Douglas Soil Conservation District		\$ 180,370
- stream fencing, planting, & water developments		
- Douglas Soil Conservation District		
- Cow Hollow Creek:		\$ 3,800
- Douglas County/ PP&L		
- Knipe Ranch stream fencing		\$ 11,000
- Umpqua Fishermen/ODF&W/Hire Fishermen/DSWCD		
- Rice Creek		\$ 3,500
XI. Fish Surveys:		
Adult Coho Spawning Survey		
ODF&W & volunteers:		\$ 24,000
Juvenile Fish Surveys		
ODF&W, Dept. Forestry, R&E:		\$ 15,000
XII. Enforcement:		
Umpqua Fish Watch:		
ODF&W, USFS, OSP, Volunteers,		
Umpqua Fish Derby:		\$ 50,000

During this time period expenditures occurred on:

Mainstem Umpqua
Paradise Creek, Butler Creek, Wells Creek, Weatherly
Creek, Calapooya Creek, Sutherlin Creek, Pollock
Creek, Mill Creek, Mehl Creek, Bear Creek, Elk
Creek, Norton Creek, Brush Creek, Bachelor Creek

South Umpqua
Days Creek, Fate Creek, Lookingglass Creek, Olalla
Creek, Willis Creek, Rice Creek, Applegate Creek,
Cow Creek, Deer Creek

North Umpqua
Clover Creek, Cooper Creek, Little River, Canton
Creek, Cavitt Creek, Steamboat Creek, Rock Creek

Smith River
Vincent Creek, Coon Creek, Herb Creek, Slide Creek,
Sweden Creek, Big Creek, Johnson Creek, Halfway
Creek, S. Sisters Creek, Mosetown Creek.

In addition to these non-mandated projects, the City of Winston has undertaken a \$5,000,000 upgrade of its sewage treatment facility on the South Umpqua River.

We estimate that during the 1994 to 1996 time period there were at least \$10,924,639 spent on projects that benefitted the cutthroat trout on the Umpqua River system, not including Forest Service and BLM normal projects. In addition we estimate that during this three year period there were \$1,500,000 in volunteer time spent on fisheries projects.

Appendix 3. List of projects and their costs that have been funded by the Salmonid Habitat Improvement Program (SHIP) with monies provided by Douglas County. Data provided by Chuck Cates, Douglas County Public Works Department, Roseburg.

SHIP Projects										
Report Generated on 16 Oct 1996 at 13:52:37 Page No. 1 Status A=BOC Approved C=Completed D=Denied P=Pending										
Project Number	Applicant	Description	Status	Application Date	BOC Approval Date	Completion Date	Follow Up Report In	SHIP Funding	Project Total Value	
1.	Izaak Walton League	Instream Habitat - To improve fish accessibility to Upper Deer Creek by building a pool below an old dam.	A	02 Aug 1985	06 Aug 1985	-0-	N	\$1,150.00	\$3,100.00	
2.	The North Umpqua Foundation	Other Habitat Enhancement - Steamboat Cr. - Additional support for a radio tagging study to learn where wild summer steelhead spawn. This information is essential before we can rehabilitate, enhance or protect this critical habitat.	A	03 Aug 1985	-0-	-0-	N	\$5,993.00	\$26,000.00	
3.	The North Umpqua Foundation	Other Habitat Enhancement - Place mechanical fish counter in fish ladder Steamboat Falls Steamboat Cr. Will help evaluate seasonal movements, tie in with a 4 yr monitoring program by the N. Ump Fish Crew and help detect poaching problems.	A	03 Aug 1985	03 Sep 1985	-0-	N	\$1,170.00	\$2,170.00	
4.	The North Umpqua Foundation	Other Habitat Enhancement - N. Umpqua Basin - Obtain "Test" implants to have personnel learn how to implant radio tags in steelhead with minimum injury.	A	03 Aug 1985	03 Sep 1985	-0-	N	\$1,050.00	\$26,000.00	
5.	The North Umpqua Foundation	Other Habitat Enhancement - Determine the seasonal movement and angler harvest of summer steelhead tagged at Winchester Dam by applying up to 100 plastic tags to fish each month from May - Oct 1985, tag color will change each month.	A	03 Aug 1985	03 Sep 1985	-0-	N	\$587.00	\$6,587.00	
6.	North Umpqua Fish Crew	Other Habitat Enhancement - Repair and replace baffles in a culvert on Honey Creek under Hwy 138, to aid passage of adult summer steelhead during high winter flows.	D	07 Aug 1985	-0-	-0-		\$295.00	\$355.00	

Appendix 3. Continued.

Project Number	Applicant	Description	Status	Application Date	BOC Approval Date	Completion Date	Follow Up Report In	SHIP Funding	Project Total Value
7.	Step Program	Other Habitat Enhancement - Rear Fall Chinook fry to pre-smolt size (100 per lb.) to establish brood stock in Galepooya Creek.	A	20 Aug 1985	03 Sep 1985	-0-	N	\$600.00	\$2,764.00
8.	Umpqua Fisherman's Association	Riparian/Instream Habitat - Rice Cr. - Stabilize stream banks, improve water flow, improve water quality and enhance fisheries.	A	04 Nov 1985	29 Jan 1986	-0-	-	\$4,120.76	-0-
9.	Umpqua Fisherman's Association	Other Habitat Enhancement - S. Myrtle Cr. - We propose to raise Fall Run Chinook Salmon to pre-smolt size in an above ground pool to be planted in Cow Creek at Galesville Dam for STEP.	A	15 Mar 1986	23 Apr 1986	-0-	N	\$90.00	\$90.00
10.	Umpqua Fishermen's Association	Other Habitat Enhancement - Provide fish passage at the point where Fall Creek enters Little River for steelhead and coho returning to Fall Creek this year.	D	06 Jun 1986	-0-	-0-	-	\$6,475.00	\$6,475.00
11.	Umpqua Fisherman's Association	Riparian - Initial project to fence portion of Rice Cr. to keep livestock from stream. Minimize erosion of bank and destruction of trees and stream habitat. Subsequent projects-stabilize banks to prevent erosion, add trees for shade.	A	10 Jun 1986	30 Jul 1986	-0-	N	\$16,494.29	\$29,874.29
12.	Umpqua Fisherman's Association	Instream Habitat - Waggoner Cr. - Place logs instream to break water flow and blast jump pools. Create pools and gravel where before was bedrock.	A	10 Sep 1986	26 Nov 1986	-0-	N	\$98.77	\$1,587.54
13.	Eastwood School	Other Habitat Enhancement - Construct site to incubate Fall Chinook Eggs and raise to fry stage for release into Deer Cr. First step in "Adopt a Stream" program for Deer Cr. Enable youth to better understand fishery needs/improve habitat.	A	15 May 1987	03 Jun 1987	-0-	N	\$21,000.00	\$46,000.00

Appendix 3. Continued.

Project Number	Applicant	Description	Status	Application Date	BOC Approval Date	Completion Date	Follow Up Report In	SHIP Funding	Project Total Value
14.	Umpqua Fisherman's Association	Other Habitat Enhancement - Cow Cr. - To build and install a reusable fish trap for brood stock for the STEP program.	A	10 Aug 1987	02 Sep 1987	-0-	N	\$608.00	\$2,400.00
15.	Oregon Department of Fish & Wildlife	Instream Habitat - E. Fork Rock Cr., Harrington Cr. - Construct habitat improvement structures in two streams to enhance rearing area for winter steelhead.	A	11 Aug 1987	02 Sep 1987	-0-	N	\$15,975.00	\$95,495.00
16.	Umpqua Fisherman's Association	Instream Habitat - Waggoner Creek - Creating gravel bars for adult spawners.	A	12 Aug 1987	02 Sep 1987	-0-	N	\$150.00	\$420.00
17.	Douglas Soil & Water Conservation District	Riparian, Instream Habitat, Other Habitat Enhancement - Clover Cr. erosion control - Repair & stabilize eroding stream - Livestock mgmt - Stabilize eroding gullies - Instream environmental improvements, incl. shading & rearing pools.	D	13 Aug 1987	-0-	-0-	-	\$47,709.20	\$95,418.40
18.	Umpqua Fisherman's Association	Riparian - Rice Cr., Harrison Rice Project - 1986 SHIP project constructed 6 corridors/sheet metal paneling. Windy conditions move and tear panels/sheep enter tree planted areas. This project would replace 375 ft. paneling w/wire fence.	A	19 Aug 1987	02 Sep 1987	-0-	N	\$330.00	\$1,530.00
19.	Oregon Department of Fish & Wildlife	Other Habitat Enhancement - Little River - Construct 36 foot Denil fishway at Little River Falls to open 8 miles of stream to anadromous fish. Property easement has been signed and filled by private landowner.	A	11 Aug 1988	24 Aug 1988	-0-	N	\$22,000.00	\$71,100.00
20.	Umpqua National Forest	Instream Habitat - Junction Black Cr. & Little River - Construct a series of blast pool and log structures in a waterfall/cascade area to greatly help passage of winter steelhead for approx. 6 mi. of spawning and rearing habitat.	D	08 Nov 1988	-0-	-0-	-	\$10,000.00	\$35,000.00

Appendix 3. Continued.

Project Number	Applicant	Description	Status	Application Date	BOC Approval Date	Completion Date	Follow Up Report In	SHIP Funding	Project Total Value
21.	Unpqua Fisherman's Association	Riparian - Rice Creek - Produce shade, prevent and minimize erosion.	D	13 Dec 1988	-0-	-0-	-	\$82.00	\$1,204.00
22.	Oregon Department of Fish & Wildlife	Other Habitat Enhancement - S. Unpqua River - Provide freezer storage capability for feed at Stewart Park Fall Chinook Enhancement Project and other STEP rearing projects.	D	28 Sep 1989	-0-	-0-	-	\$15,000.00	\$25,000.00
23.	Oregon Department of Fish & Wildlife	Instream Habitat - Harrington Cr. - Continuation of State of Oregon/Douglas County Coop North Unpqua Enhancement Project designed to improve fish habitat in North Unpqua tributaries and to evaluate the effectiveness of the completed work.	A	28 Sep 1989	04 Oct 1989	-0-	N	\$4,500.00	\$43,000.00
24.	Unpqua Fisherman's Association	Instream Habitat - Rice Creek - Phase 4 of a 10 year habitat improvement project for bank stabilization, pool formation, and juvenile fish rearing habitat over the upper 1400' section of the Rice Cr. Habitat Improvement Project.	A	20 Aug 1990	12 Sep 1990	-0-	N	\$10,295.00	\$11,695.00
25.	Unpqua Fisherman's Association	Instream Habitat - Radar Creek - Install structures to break current in steep gradient area to trap spawning gravel and create summer/winter habitat.	A	20 Aug 1990	12 Sep 1990	-0-	N	\$790.00	\$1,968.00
26.	Oregon Department of Fish & Wildlife	Riparian - Instream Habitat - Rock Creek - Provide a handicap accessible trail/platform overlooking summering pool for salmon/steelhead. Study salmonids w/natural habitat. 2 educational kiosks planned to enhance educational opportunities.	A	23 Mar 1991	08 May 1991	-0-	N	\$5,000.00	\$15,000.00

Appendix 3. Continued.

Project Number	Applicant	Description	Status	Application Date	BOC Approval Date	Completion Date	Follow Up Report In	SHIP Funding	Project Total Value
27.	Umpqua Fisherman's Association	Instream Habitat - Rader Creek - Provide juvenile fish rearing habitat, winter habitat for smolt retention, and an opportunity for volunteers to gain hands on experience in habitat enhancement to take back to their local communities.	A	25 Apr 1991	08 May 1991	24 Feb 1994	N	\$19,701.92	102,701.92
28.	Oregon Department of Fish & Wildlife	Instream Habitat - Cavitt Creek - Improve summer/winter habitat for cutthroat trout, coho salmon, and winter steelhead. Provide instream cover, better pool to riffle ratio, bank stabilization and structure to collect spawning gravel.	A	30 Jan 1992	17 Jun 1992	-0-	N	\$13,043.00	\$30,775.00
29.	Umpqua Fishermen's Association	Instream Habitat - Wolf/Rader Cr. - Continuation of Proj #27 provide juvenile fish rearing habitat, winter habitat for smolt retention, and elimination of fish barrier that prevents upstream migration of adults during periods of low flow.	A	03 Apr 1992	19 Aug 1992	-0-	N	\$0.00	\$0.00
30.	Oregon Department of Fish & Wildlife	Instream Habitat - Cavitt Cr. - To improve summer/winter habitat for cutthroat trout, coho salmon and winter steelhead by providing instream cover, better pool to riffle ratio, bank stabilization and structure to collect spawning gravel.	A	07 Jul 1992	19 Aug 1992	-0-	-	\$2,907.50	\$36,539.00
31.	Fox, Greg	Two Impoundments for the benefit of wildlife, fisheries, hydrology, and water quality. Located on tributary to Coon Creek in the Calapooya Creek basin. Douglas SWCD assisted with design.	A	24 Feb 1993	23 Jun 1993	08 Dec 1993	N	\$2,000.00	\$19,840.00

Appendix 3. Continued.

Project Number	Applicant	Description	Status	Application Date	BOC Approval Date	Completion Date	Follow Up Report In	SHIP Funding	Project Total Value
32.	Umpqua Fishermans Association, by Merchep, Joseph J., Special Projects Chairman	This project adds ozone sterilized water system and chilled water system to Rock Creek Hatchery in order to greatly increase production of summer/winter steelhead.	A	19 Mar 1993	29 May 1993	-0-	N	\$12,000.00	\$36,000.00
33.	Oregon Dept. of Fish & Wildlife,	Place logs, boulders and rootwads to create both summer and winter rearing habitat for salmonids. Project is located on East Fork Rock Creek near Glide.	A	28 Apr 1993	28 Jul 1993	13 Aug 1993	N	\$10,000.00	\$36,500.00
34.	OREGON DEPT. FISH & WILDLIFE	TO PROVIDE FUNDING FOR 14 WEEKS OF A STUDENT "VOLUNTEER" TO COORDINATE UP TO 50 LOCAL VOLUNTEERS CONDUCTING COHO SPAWN- ING GROUND SURVEYS.	A	30 Sep 1993	13 Oct 1993	28 Jan 1994	N	\$2,066.00	\$4,136.00
35.	Oregon Dept. of Fish and Wildlife, Roseburg, Or.	Install boulders, rootwads, logs, and dig several alcoves to provide summer and winter juvenile rearing habitat.	A	07 Apr 1994	11 May 1994	30 Jun 1995	N	\$29,592.00	\$59,184.00
36.	UMPQUA FISHERMEN'S ASSOCIATION	IMPROVE SUMMER & WINTER HABITAT FOR CUTTHROAT TROUT & SUMMER & WINTER STEELHEAD. INSTALL 40 ROOTWADS/BOULDER STRUCTURES & 15 LOG STRUCTURES.	A	24 Aug 1994	07 Sep 1994	-0-	N	\$8,500.00	\$14,675.00
37.	OREGON DEPT. FISH AND WILDLIFE	PROVIDE FUNDING FOR 16 WEEKS OF A STUDENT VOLUNTEER TO COORDINATE UP TO 50 LOCAL VOLUNTEERS CONDUCTING COHO SPAWN- ING GROUND SURVEYS.	A	15 Sep 1994	19 Oct 1994	-0-	N	\$2,475.00	\$4,353.00
38.	UMPQUA BASIN FISHERIES RESTORATION INIT.	RESTORATION AND ENHANCEMENT WORK TO IMPROVE FISH PASSAGE AT SMITH RIVER FALLS. DESIGN AND CONSTRUCT PASSAGE IMPROVEMENT FOR MIGRATING ADULT FALL CHINOOK, COHO, WINTER STEELHEAD AND SEA-RUN CUTTHROAT TROUT.	A	10 Oct 1994	19 Oct 1994	-0-	N	\$6,800.00	\$50,000.00
39.	ALLAN B. HASH	CREATE INSTREAM HABITAT OR BOTH JUVENILE COHO, WINTER STEEL-HEAD AND CUTTHROAT TROUT FOR APPROXIMATELY 1/4 MILE OF BACHELOR CREEK, TRIB. CALAPOOYA CREEK.	A	09 Jan 1995	16 Aug 1995	02 Oct 1995	N	\$14,915.00	\$20,920.00

Appendix 3. Continued.

Project Number	Applicant	Description	Status	Application Date	BOC Approval Date	Completion Date	Follow Up Report In	SHIP Funding	Project Total Value
40.	OREGON DEPT. FISH AND WILDLIFE	STABILIZE RIPARIAN ZONE AND BANK ON BEALS CREEK, TRIB. DAYS CREEK. PROVIDE HOLDING POOLS AND INSTREAM COVER. POSSIBLE WILLOW PLANTING SITE.	A	17 Jul 1995	16 Aug 1995	-0-	N	\$3,000.00	\$5,000.00
41.	OREGON DEPT. FISH AND WILDLIFE	FIX CULVERT ON DAYS CREEK ROAD USING GABIONS AND TO BUILD WIER WALLS TO ALLOW PASSAGE OVER 14' IRRIGATION DAM. PROJECT WILL OPEN UP APPROXIMATELY 3 MILES OF STREAM FOR COHO AND STEELHEAD SPAWNING AND REARING HABITAT.	A	01 Aug 1995	16 Aug 1995	-0-	Y	\$2,400.00	\$4,311.80
42.	OREGON DEPARTMENT FISH AND WILDLIFE	FENCE APPROX. 550' OF COW HOLLOW CREEK TRIB. LOOKINGGLASS CRTO PROTECT STREAM AND RIPARIAN ZONE FROM LIVESOCK.	A	17 Jul 1995	04 Oct 1995	30 Sep 1995	N	\$1,000.00	\$3,760.00
43.	OREGON DEPARTMENT FISH AND WILDLIFE	PROVIDE FUNDING FOR 16 WEEKS OF STUDENT VOLUNTEER TO COORDINATE UP TO 50 LOCAL VOLUNTEERS CONDUCTING COHO SPAWNING SURVEYS.	A	06 Sep 1995	04 Oct 1995	-0-	N	\$2,400.00	\$7,176.00

Chapter 17H

Port Participation in the Coastal Salmon Recovery Initiative

Introduction

For centuries, seaports and harbors have been central to the economies of local communities and larger trade dependent regions. Ports acted as the primary transshipment points in the allocation of goods and services domestically, as well as in foreign trade. With new transportation technologies and the growing interdependencies between regional, national and international economies, port districts have been experiencing enormous pressures to support economic development values by continuing to offer modern harbor facilities.

In the United States, foreign trade has grown at a remarkable rate over the last decade as compared to previous years. For West Coast ports, where the potential for future cargo growth is greatest, the combination of expanded trade with Asia and a change in shipping routes from the Panama Canal to overland continental rail has invigorated Pacific Rim Trade and is transforming ports into "intermodal transport gateways" for the nation. Oregon's economy continues to burgeon. Exports from Oregon businesses have increased by 21 percent in the last five years. The value of waterborne commerce on the Columbia River has reached \$15 billion. A new generation of cargo ships is coming on line worldwide, requiring deeper navigation channels and new terminal facilities.

Until the early 1970s, ports were able to accommodate these emerging demands with few conflicts in public purpose. Over the last decade, however, equally important demands for environmental quality and more diverse social planning have been imposed. Ports operate in delicate wetland environments where extensive marine ecosystems are impacted by dredging, filling and other terminal development operations. Consequently, land use management and environmental regulation which developed to offset or mitigate such impacts have required ports to plan and develop around the notion of satisfying more than their traditional single goal of economic development. Port success now depends predominately on proper adjustment of port district structure and process to contingencies posed by market forces, technology and environmental quality. There is no better example for demonstrating new policy areas of environmental conflict than in showing how ports have participated and can participate in the recovery of anadromous fish stocks.

Background

Ports districts in Oregon are a diverse group of public entities — by definition, municipal corporations — which provide a wide range of marine and non-marine facilities and services and satisfy broad market demand. The port district is a local unit of government, formed under Oregon statutes, with the aim and authority to engage in activities, including but not limited to, stimulating economic development within the port district. The means to accomplish this goal are

numerous and varied. According to Oregon Revised Statutes Chapter 777, a port may engage in the following:

- Make bay, river and harbor improvements
- Acquire real property
- Maintain tug and pilotage services
- Construct and maintain marina facilities
- Engage in domestic and foreign commerce and shipping
- Operate facilities for processing agricultural, fish or meat products
- Build, operate and maintain power plants, transportation facilities, airports, bridges, canals or locks
- Acquire, develop and manage industrial parks within the port boundaries
- Manage commercial/retail and other types of development

Oregon's 1995 Legislature passed Senate bill 1027, creating the Oregon Ports Advisory Council (ORS 285.808). Membership on the Council consists of seven individuals representing the ports and maritime and shipping industries. The Council mission is to determine the appropriate state role and priorities for investment in Oregon ports. Senate Bill 1027 mandated the Council be staffed by the Ports Division of the Oregon Economic Development Department. Through the mandates of Senate Bill 1027, the Council will serve as a body to advise the Economic Development Department, Economic Development Commission, the Governor and the Legislative Assembly on matters relating to the development and implementation of state policies and programs related to ports. Such policies may include resolving natural resource and habitat issues that affect ports.

The State of Oregon is served by 23 such port districts located along the Columbia River and the Oregon Coast. The Port of Portland, formed in 1891 by the Oregon Legislature, was Oregon's first port. Over the next six decades, 22 port districts came into existence; the last of which, the Port of Morrow, was formed in 1958. Ports range in size and scope from the Port of Portland, serving as a regional trade and transportation hub, to the Port of Alsea in Waldport, serving that community as a keeper of one of the most pristine estuaries on the West Coast. Port boundaries, while not exactly aligned with watersheds, generally are associated with the local development of watersheds. Therefore, they tend to politically represent the development views of single watersheds.

Several levels of development opportunities for ports exist which address and meet local and regional demands. The dual nature of ports, which allows them to function as a quasi-public entity while at the same time conduct business in a market driven economy, creates a unique opportunity for the communities that they represent.

Most coastal ports maintain marinas to serve commercial and recreational fishing interests and encourage charter fishing service. Lower Columbia River ports are located below the Bonneville Dam and have deep-water shipping facilities. These ports play important roles in international trade through the development and maintenance of facilities that aid the movement of cargo to and from the marketplace. Ports located on the mid-Columbia River are key to the successful

function of the river transportation network with its important barge transportation system. Grain, forest products and other containerized goods are transported by barge for export to international markets. In addition to this regional perspective, ports are involved in commercial and industrial land development, tourism, recreation and transportation activities. Clearly, ports play an active role as the economic engines for their communities by providing an integrated network of transportation and economic development activities.

Challenges

Over the past decade, ports in Oregon have experienced several major challenges. Oregon ports, as well as communities all over the Pacific Northwest, have seen significant downturns in their natural resource industries.

- Of particular impact for coastal ports are the cutbacks in the timber and anadromous fish fishing industries. Ports are increasingly confronted with the responsibility to diversify their local economies in order to lessen dependence on these diminishing industries. Additionally, this is very challenging when most port revenues come from leases, fees, and moorages paid from activities serving these declining industries.
- Lower Columbia River ports have experienced strong growth in waterborne trade and containerized shipments. While this growth has placed the Port of Portland among the top five West Coast ports for revenue and containers, the resulting increase in the type and size of vessels calling upon the river as a whole, places a strain on existing infrastructure, resulting in the need for a deeper channel.
- Ports are also facing the very real threat of cutbacks in federal appropriations for operation and maintenance dredging — a critical activity which keeps Oregon's navigable waterways viable for commercial fishing and waterborne commerce.
- Also taking place at the federal level are changes in the federal transportation infrastructure funding allocations and mechanisms that could affect improvements to or maintenance of, intermodal freight facilities, rail lines, highways, etc.

Any one of these challenges on its own has the potential of effecting changes in the way ports do business. However, their cumulative effect gives legitimacy to concerns that now is the time for a proactive plan for meeting these challenges and at the same time, protecting the environment that provides the quality of life cherished by port district residents.

Environmental Management Roles

As enterprises, ports are a mixture of public and private aims. Their incentive functions, therefore, consist of behavior inducements for public accountability and market aggressiveness. Like private firms, they hold bounded organizational objectives, but like general-fund public departments, they to some degree are also subject to externally politicized objectives. The public

enterprise is partly dependent on the machinery and operation of politics, governmental custom, and personal influence of elected officials.

The day-to-day activities of port management consist of liaison work with an intergovernmental network, information gathering, and environmental planning and assessment. Although the environmental management role is usually not through an independent department, the critical factor is the degree to which it is integrated into the decision making process. It is more than just acting as the organization's "antennae" for external change. With a legitimized place in port decision making, environmental planning avoids a reactionary mode. Ports attempt to be well prepared, knowing the type of questions that are going to be raised. Ports have responded to the conflict between the organization's economic development role and the environmental concern role by developing expertise, becoming open and deliberative about impacts from environmental damage, and extending financial and technical assistance to local groups with common purpose of environmental protection.

Ports in Oregon are not local government land-use planning agencies, but have played major roles, especially in estuary and shoreland land use planning. Ports were major participants in recommending how estuaries were divided into management units, which was done with the objective of balancing economic growth, as well as protecting natural resources. Defining management units and assigning uses also was done to assure the protection of important habitats for fish and wildlife. Shorelands were saved from development only for those uses most dependent on water access. Special restrictive zoning was applied to keep development away from the shoreline and protect the delicate fringe of habitat that exists between water and uplands.

Ports play an active role in providing comments on any amendments to comprehensive land use plans. As better information emerges about anadromous fish habitat requirements, ports are in a position to take a lead in making sure these requirements are satisfied, either through denial of amendments or offering offsetting deleterious impacts through creation of improvement of habitat elsewhere. Recommendations from ports have influenced and will influence the protection of natural resources through the land use planning process.

Ports can and do make important decisions regarding the conservation of anadromous fish resources. This includes:

- Mitigation measures of development projects. This includes projects in which ports have direct control, as well as projects in which planning and design are open to comment. For such projects, mitigation can be offered both in a least impact design and to use port property for offsetting unavoidable habitat impacts. For other public agency and private sector development, a permit and approval process can be used to demonstrate local concerns for development.
- Financial support of local efforts to protect, restore and enhance habitat and rearing programs. Many financial avenues have developed in recent years to assist local efforts. Many state and federal programs have been instituted to provide funds, but the programs sometimes require local cash matching funds to rate high enough to

qualify for awards. Ports, through their own budgeting, can assist in providing the financial support for selected projects.

- Ports own most of the moorages along the Oregon Coast, therefore their constituency is the harvesters. Port public processes of representation are another opportunity to educate and deliberate management measures to conserve anadromous fish stocks. When harvest management measures require special gear or time/area closures to avoid impacts to certain anadromous fish stocks, port agencies can be used as a conduit of information to maintain public fisheries where they exist and explain why closures are necessary.
- Ports can be clearinghouses and sources of information for academic research, training centers, government and non-government organization, and private sector partners who choose to participate. Ports can coordinate and collaborate to provide information and training services to assist in economic adjustment from changes in the management of natural resources. This includes:
 - ⇒ Sharing expertise and best practices through training and technical exchange.
 - ⇒ Facilitating information exchanges and consensus building for use of common environmental standards and benchmarks.
 - ⇒ Supporting growth in member economies' human resources and institutional capacity to achieve sustainable development goals.
- Ports can assist in anadromous fish recovery efforts by taking advantage of planning and permitting processes that can, in themselves, lead to direct conflict with efforts to protect and restore anadromous fish habitat.
 - ◇ Ports develop strategic master plans that can be recognized by local general purpose government in their comprehensive land use plans. State and federal actions must therefore be consistent with the master plans. To facilitate this complex task, the port usually establishes a coordinated work program and comprehensive planning outline which identifies all the necessary decision points, agency reviews and necessary approvals. In addition, the port recognizes the necessity of working with the public at large. The process must comply with state direction for overall planning efforts which include citizen participation, environmental studies and evaluation of alternative development possibilities before a major development commitment is made. While port officials recognize the need to negotiate and coordinate activities at many levels, interaction with state and federal permitting agencies and public interest groups will dominate the process. Factors affecting agency and public interest groups include navigation, fish and wildlife, water quality, economics, conservation, aesthetics, recreation, water supply, flood damage prevention, ecosystems and the economic needs of the people.

- ◇ Oregon ports, channels and harbors along the coast and Columbia River are divided into several different federal navigation dredging projects. Since the beginning of this century, the United States Congress has authorized and appropriated funds to the Army Corps of Engineers to maintain these projects at depths and dimensions that ensure the safe passage of ocean-going vessels. Once a project is authorized to certain dimensions, the Corps is charged with maintaining those projects pending appropriate funding levels set by Congress. The environmental permitting for the maintenance of those channel projects must meet tests under the Clean Water Act and a host of other federal and state regulations. Ports have the opportunity to comment on the public notices for the permitting and are the local sponsors required to provide dredge material disposal sites, if other than ocean sites are used. Ports can exercise their own discretion for making sure dredging and dredge material placement are at times and places beneficial to anadromous fish freshwater habitat requirements.
- ◇ Port officials are predisposed to informal coordination and negotiation procedures. For example, it is common practice for port representatives to informally contact the Corps before a formal permit request is made for a development project. The intent of these informal contacts is to learn of Corps attitudes, policies, procedures and time requirements prior to formal consideration. Port officials believed it better to design a workable and reasonable permit application rather than risk unanticipated responses by permitting agencies during formal review procedures. This kind of reciprocal and informal interaction characterized much contact between permitting agencies and port officials and ensure local interest for protection of anadromous fish freshwater habitat is recognized.

Case Examples of Port Participation in Environmental Management

Although not an exhaustive list, the following are examples of port participation in anadromous fish conservation programs:

- The Port of Newport has entered into a cooperative relationship with the Oregon Department of Fish and Wildlife to reopen the Ore Aqua Salmon Facility. The port acclimates hatchery reared coho smolts in facilities acquired from Weyerhaeuser Corporation. Weyerhaeuser experimented with the feasibility of a salmon ranching operation at the facility. The purpose of reopening the facility is to provide for sport fishery for marked coho inside Yaquina Bay. While the size of the operation and expected returns are small, the visibility of a local public agency attempting to supplement dwindling natural stocks realizes high public education returns.
- The Port of Brookings Harbor at the entrance to the Chetco River is located at the northern extent of the Klamath Management Zone. The port decided upon active

involvement rather than confrontation with the Klamath River Technical Advisory Team (KRTAT) and other users of the limited anadromous fish resource. The port established its own Fishery Committee and Klamath Management Zone Fisheries Coalition (KMZFC) to deliberate and participate before the KRTAT, the Pacific Fishery Management Council, the Oregon Department of Fish and Wildlife and California Fish and Game. The port provides financial resources, staffing and coordination to the Fishery Committee and KMZFC. Then, when asked, the port testifies before the respective anadromous fish management agencies. The heavy local coordination efforts have resulted in determining priority local views and consensus building towards fishery management measures. In some cases, controversial management measures, such as one-fish bag limits, have been able to be applied by management agencies that other user groups have not been able to reach consensus towards elsewhere. The port's Fishery Committee has also been active in pursuing funds for restoration, research and fisherman job adjustment programs.

- The Port of Umpqua and the Salmon Harbor Management Committee (SHMC) are financial participants in the Gardiner/Reedsport STEP and the Smith River STEP. The SHMC additionally provides a dock at Winchester Bay for use as a small net pen release facility. The financial association between the largely volunteer STEP efforts and the public agencies is a reminder to port officials when balanced decision making is needed towards development projects impacting environmental quality.
- The Port of Garibaldi has been the active local government representative in a number of intergovernmental and private sector projects to improve the water quality of Tillamook Bay. The port joined with the county in sponsoring a bay-wide study of water quality and sedimentation problems. The study resulted in a successful application to have Tillamook Bay recognized in the National Estuary program (NEP). The port now contributes a financial match and office space for the NEP local staff. The NEP funds scientific research and demonstration projects in the Bay's watersheds to remediate and improve anadromous fish freshwater habitat. The port has recently undertaken several projects specifically designed to protect freshwater habitat.
 - ⇒ Working with the Pals of Patterson Creek, the port has contributed materials and labor for the construction of a fish ladder. A separate project with the same organization was the placement of dredge materials along Patterson Creek to expand adjacent riparian habitat.
 - ⇒ The port sponsored a storm drainage planning project to consolidate eight separate outfalls located on port-owned and adjacent industrial land. The effluent will be treated and discharged on a constructed wetland before entering the Bay.

None of these Port of Garibaldi projects were directly motivated solely for their economic development benefits and demonstrate the willingness of port officials to use their organizational and budgeting resources to assist in anadromous fish conservation activities.

Chapter 17I

Oregon's Land Use Program

Background

Oregon's Statewide Planning Program provides a fundamental framework for allocating lands among a broad variety of uses across the entire state. Activities on all state and private lands are influenced to some degree by Oregon's planning program. Oregon's program, first adopted in 1973, provides a basic level of resource protection through the adoption of enforceable local comprehensive land use plans. Oregon law requires that all local governments adopt a comprehensive plan for the use of lands within their jurisdiction. Local plans are required to comply with a set of 19 Statewide Planning Goals (see list below) adopted by the Land Conservation and Development Commission (LCDC). A summary of local comprehensive plan provisions that are most likely to have a direct effect on coastal salmonid habitat is an Attachment to this document.

Statewide Planning Goals

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

There are 19 Statewide Planning Goals:

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

The Land Conservation and Development Commission (LCDC) is responsible for adopting and interpreting the Statewide Planning Goals. More importantly, the LCDC reviews local comprehensive plans for compliance with the applicable goals. Through its review, LCDC assures that all local plans meet all of the applicable goal requirements, and that local ordinances are adopted to implement the plan. All local plans in Oregon have been reviewed by LCDC and have been certified as being in compliance with the Statewide Planning Goals.

The Statewide Planning Goals are periodically amended to reflect case law, changing circumstances, and evolving state requirements. All local jurisdictions are required to periodically review their plans to ensure that they remain effective and in compliance with the goals. The process of periodic review is described below.

Local Government Role

Oregon's planning program is a partnership between the state and local governments. While the LCDC develops the Statewide Planning Goals and reviews plans for compliance with the goals, local governments are the primary implementing authorities for the goals. For example, the goals require that forested lands be preserved for forestry uses, but local plans designate which lands are forest lands, and what activities are permitted on such lands. Everyday land use decisions -- essentially the review of development proposals of varying degrees of scope and complexity -- are made by local governments, as governed by the policies and requirements of their comprehensive plans and implementing ordinances.

A comprehensive plan is an enforceable policy document which is typically implemented by locally-adopted ordinances which specify how lands are to be used and developed. Every jurisdiction with a plan has some kind of ordinance to regulate land uses and another to regulate land divisions. Comprehensive plans are developed after completing an inventory of lands, land uses, and natural resources, and assessing the capability of lands to support different uses. Local plans reflect the need to balance the protection of resources with the need to provide land for the growth of the community. Comprehensive plans are an effective mechanism for influencing land use patterns and, to some extent, site design (i.e., where subdivisions can occur, and how subdivision lots provide for the protection of riparian resources). In Oregon, local plans developed in compliance with the Statewide Planning Goals have their greatest influence on residential, commercial, and industrial land use activities. Local plans are not a viable mechanism for controlling resource management activities such as farming and forestry on lands designated for such uses.

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

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

Oregon Coastal Management Program

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

The four Coastal Goals are:

- Goal 16 - *Estuarine Resources*
- Goal 17 - *Coastal Shorelands*
- Goal 18 - *Beaches and Dunes*
- Goal 19 - *Ocean Resources*

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

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

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

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

Aquatic Resource Protection Elements of Oregon's Land Use Program

Statewide Planning Goal 16, *Estuarine Resources*

The basic value of Goal 16 is to protect the diversity of estuarine resources. Oregon's estuaries are classified according to the intensity of development or alteration that can occur in an estuary. Under the Oregon Estuary Classification system, estuaries are placed into one of four classifications:

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

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

The Estuarine Resources Goal establishes the level of use appropriate for each estuary classification. To do so, the goal defines Natural, Conservation, and Development management units, and the uses and activities that are permissible in each type of management unit. For example, navigation is an allowed use in all management units, but marinas requiring dredge and fill of estuarine areas are only permitted in development management units. Finally, through the local planning process, estuaries are essentially "zoned" by the designation of management units for all estuarine areas.

Goal 16 establishes that:

- Development management units may only be designated in estuaries in the Development classification.
- Conservation management units may be used in estuaries in both Conservation and Development classifications.

- Natural management units may be used in all Oregon estuaries.

The most valuable estuarine habitats are protected through their designation as Natural management units; virtually no alterations of estuarine habitat are permitted in Natural management units.

Local jurisdictions have developed comprehensive plans -- called "estuary management plans" -- for the use and management of estuarine resources. LCDC has acknowledged that all the estuary management plans comply with the requirements of Goal 16. Nearly 94 percent of all estuarine areas in the state are placed in conservation or natural management units. Over 99 percent of the state's tidal marshes have been placed in natural or conservation management units. Since the adoption of Goal 16 and the development of estuary management plans, development pressures on Oregon's estuarine resources have been significantly reduced.

Statewide Planning Goal 17, *Coastal Shorelands*

Goal 17, *Coastal Shorelands*, establishes priorities for the use of coastal shorelands, and requires that certain shoreland resources be protected from development. In particular, Goal 17 requires protection of riparian resources and significant wetland habitats (major marshes) within areas subject to the goal. The Shorelands Goal does not apply to all shorelands in the coastal zone, but rather to lands adjacent to the ocean, estuaries, and coastal lakes. (A more detailed description is contained in the goal.)

All of the resource protection provisions the Statewide Planning Goals rely on an accurate inventory of the resource, as well as some idea of what kinds of land use activities are of potential harm to that resource. Under the Coastal Shorelands Goal, local jurisdictions are required to inventory riparian resources, especially vegetation helpful to maintaining fish habitat. The Coastal Shorelands Goal riparian protection requirements have been integrated into local plans and ordinances.

Statewide Planning Goal 5, *Open Spaces, Scenic, Historic, and Natural Resources*

Statewide Planning Goal 5, *Open Spaces, Scenic, Historic, and Natural Resources*, requires local governments to develop plans and implement ordinances to protect natural resources. The goal was implemented by administrative rules developed in 1974. The rules required that local governments inventory natural resources; inventories were judged sufficient when there was information on "location, quality and quantity" of the resource. Local jurisdictions that did not have sufficient information on the location, quality and quantity of a resource were allowed to not include the resource in their Goal 5 inventory, on the expectation that the inventory would be completed and the resources protected.

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

In July 1996, the Land Conservation and Development Commission amended the rules for local planning requirements under Statewide Planning Goal 5, *Open Spaces, Scenic, Historic, and Natural Resources*. The amended rules contain new requirements for the way wetlands and riparian corridors are addressed in local plans. The most significant change is that local jurisdictions are now required to either inventory and protect riparian corridors, or adopt basic "safe harbor" riparian protection contained in the rule which have been deemed to meet the resource protection requirements of Goal 5. The "safe harbor" provisions establish basic riparian area protections.

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

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

The new Goal 5 requirements do not apply to resource management activities on resource lands.

As noted above, most coastal jurisdictions already implement riparian protections. Setbacks of 50 feet are common for larger streams, but they are typically much less for smaller streams. Virtually all local plans will need to be amended to incorporate the new Goal 5 riparian provisions.

The new requirements for Goal 5 must be implemented either through a jurisdiction's next regularly scheduled Periodic Review, or through a Plan Amendment specifically intended to adopt the new requirements. Since most coastal jurisdictions have already developed their multi-year Periodic Review work programs, changes could occur over the next five to seven years. Alternatively, given sufficient funding to pass through to local governments to do the work necessary to amend their local plans and ordinances, the new Goal 5 riparian rules could probably be implemented within four years.

The new Goal 5 rules also require local jurisdictions to complete wetland inventories. Outside urban growth boundaries, local governments must use information from the National Wetlands Inventory. Within urban growth boundaries, local governments must conduct more detailed inventories and identify significant wetlands for protection. The Local Wetland Inventories must be adopted as part of the comprehensive plan.

Planning Protections by Gene Conservation Unit

Northern Oregon Drainages (North of Umpqua)

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

- The drainages of the Necanicum and Ecola Creek and the upper Nehalem in Clatsop County require all structures to be located outside the zone of riparian vegetation, unless direct water access is required.
- The Necanicum and Ecola Creek estuaries are designated as conservation estuaries.
- The city of Seaside does not have specific riparian setback requirements.
- The city of Cannon Beach requires a 10 or 15 foot setback on both sides of all streams. Columbia County has a 50 foot setback from all class 1 streams and a 25 foot setback from all other streams, rivers or sloughs. These setbacks apply to the upper Nehalem.
- Tillamook County has a setback from all streams of 50, 25 or 15 feet depending on the size of the stream. The county has an ordinance that requires retention of at least 50 percent of the forest and understory vegetation of the riparian corridor. These standards apply to the lower Nehalem and all drainages to Tillamook Bay, Netarts, Nestucca, Neskowin, Salmon River and Sand Lake.
- Tillamook and Nehalem bays are designated as shallow draft development estuaries; Netarts, Nestucca and Neskowin are designated as conservation estuaries; and Sand Lake and Salmon River are designated as natural estuaries.
- Drainages in Lincoln County have a 50-foot setback required. These setbacks apply to the Siletz, Depoe Bay, Big Creek, Yaquina River, Beaver Creek, Alsea River, and Yachats River.
- Lane County has established a 100-foot setback from all Class 1 streams. This requirement applies to: Tenmile Creek, Big Creek, Berry Creek, Sutton Creek, and the Siuslaw and Siltcoos Rivers.
- Douglas County requires a 50-foot setback from Tahkenitch Creek.
- There are riparian setbacks for nearly all streams in the north Oregon coast; however, the setback requirements are not consistent across jurisdictional boundaries.

Umpqua Basin

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

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

South Coast, North of Cape Blanco

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

- Curry County requires a 50-foot setback from all perennial streams. (Coos County did not report their riparian protection ordinances.)
- Coos Bay is a deep draft development estuary; Coquille is a shallow draft development estuary, and the remainder are classified as natural.

Rogue Basin

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

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

South Coast, South of Cape Blanco

Protection measures specific to this area include the following:

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

The Coastal Nonpoint Pollution Control Program

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

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

guidance contains six categories of management measures that must be implemented through the state's program:

- Agricultural management measures
- Forestry management measures
- Urban management measures
- Management measures for Marinas and Recreational boating
- Management measures for hydromodification activities such as dredging, fill, and the construction and operation of dams
- Management measures for protecting wetlands and riparian areas.

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

In February 1997, NOAA and EPA finalized their draft findings on Oregon's program submittal. The proposed findings indicate where existing programs may meet federal requirements under Section 6217, and where further work is needed. For the most part, NOAA and EPA's findings (1) identify where state and local programs do not implement the required measures, and (2) specify a condition for implementing the measure. For the most part, the proposed conditions will be met by the proposed activities described in the program submittal.

Briefly, NOAA and EPA's findings indicate that:

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

In addition, the draft findings indicate that Oregon must address the need for the CNPCP in areas upstream of the coastal zone in the Rogue and Umpqua basins, and that the state must develop a process for identifying the need for additional pollution control management measures. NOAA and EPA's findings constitute a "conditional approval" of Oregon's program. Under NOAA and EPA's conditional approval, the state must meet several conditions in order to not be subject to sanctions in the original legislation (loss of federal funding for water quality and coastal resource management programs). Oregon's CNPCP submittal describes the activities necessary to meet virtually all of NOAA and EPA's conditions.

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

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

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

Chapter 17J: Habitat Restoration Guides

Starting in 1994, Oregon Department of Fish and Wildlife (ODFW) staff, with funding support from the Oregon Wildlife Heritage Foundation (OWHF), produced a series of guidance documents designed to direct cooperative and effective stream habitat restoration action in coastal basins. The "Guides" functioned as the catalyst that has facilitated a growing effort involving state agency staff, industrial forest landowners, smaller landowners, and other interest groups. By selecting and describing the characteristics of stream reaches with high potential for restoration work, and by encouraging the application of functional approaches to instream work, this process has led to the implementation of over 60 successful projects to date. Field biologists have been funded and work completed under the general direction of cooperative steering committees on the North Coast and Mid Coast regions. Funding support comes from the direct contributions of the industrial landowners, grants from the National Fish and Wildlife Foundation, the Governor's Watershed Enhancement Board, the Oregon Wildlife Heritage Foundation, the Restoration and Enhancement Board, "in-kind" contributions by landowners, and other sources.

The development of the guides was initiated as an outgrowth of discussions held between the OWHF and ODFW regarding the need for a regional approach to stream restoration efforts. There was a high level of interest in such work, but prior experience with restoration programs showed that better scientific guidance was needed to focus effort. A plan was needed to outline the conceptual framework for both the "where" and "how" of new restoration activities. Identifying and prioritizing stream reaches appropriate for projects relied heavily on stream survey data collected by ODFW's Aquatic Inventory Project. Direction for the types of work to be done came from the results of research studies that tested the effectiveness of in channel work. The studies showed that woody debris placement using very large material, and the development of off-channel habitats, could create habitats that resulted in increased freshwater survival, particularly over winter survival, of coho salmon and steelhead.

Areas now covered by these restoration guides, and the date that each guide was completed:

• Tillamook/North Coast	November 1994
• Lower Columbia	April 1995
• Mid-Coast - Lincoln and Siuslaw Districts	November 1995
• South Coast	November 1995
• Umpqua Basin	December 1996
• Tillamook - Supplement to 1994 Guide	January 1997
• Coos and Coquille Basins	April 1997
• North Coast - Supplement to 1994 Guide	Spring 1997
• Upper Rogue	Spring 1997

Development of the Guides

Within each of the project areas, the list of potential restoration reaches was compiled based on analysis of Aquatic Habitat Inventory data and the recommendations of ODFW biologists. The work is designed to complement and expand on ongoing habitat protection and restoration efforts where such programs are in place. The selected reaches may be suitable for various instream and riparian-zone restoration activities specific to perceived limiting factors, thereby increasing capacity to produce salmonids. Selected reaches have relatively low gradient (usually < 3%, always < 5%), moderate active channel width (3-12 meters), and are within relatively broad valleys. These physical characteristics offer the highest potential capacity to support juvenile anadromous fish. These characteristics also are associated with depositional or response reaches of streams, areas that are likely to retain the instream structures at high flows and have good potential for the development of off channel habitats. The approach to instream work is to introduce functional materials (logs 20-40 inches in diameter and longer than 1.5 times the channel width) that are intended to help restore natural stream processes to a condition that will support more production of anadromous fish. Logs of this size are referred to as "key pieces"; they form the backbone for improved habitat by helping to scour deeper pools or retain additional LWD, branches, and gravel substrate.

The selection process results in a significant screening of potential sites. On the North Coast, for example, the initial guide considered over 350 candidate stream reaches and recommended restoration work at 60 sites. In the Umpqua Basin, which is larger and has more streams surveyed, data from almost 1,200 stream reaches were screened to identify 215 potential restoration sites. The sites are primarily on private industrial timber lands. In addition to the selection of sites, the guides provide summaries of key habitat features (e.g., stream size, gradient, substrate, shade, existing LWD, etc.) that help direct the first levels of planning the restoration activities. In every case, selected streams were further evaluated, including field visits, before making further commitments to project design or project implementation. The guides recommend additional screening of sites, checking on issues of water quality, adequate culverts and associated roads, before project plans are finalized.

The projects proposed in the guides were not necessarily tied to a harvest plan, and involve the use of material that is larger than material generally used in past projects. Recent research on stream restoration techniques has allowed us to greatly improve the effectiveness of our efforts in placing large woody debris in channels and alcoves adjacent to streams. Early monitoring results for the North Coast Project also show that complex jams comprised of 3-4 key pieces are most effective at trapping additional material and have improved ability to function dynamically at high flows, including the ability to continue functioning despite high flows associated with flood events (e.g., February 1996 storm). We have also learned that large pieces arrayed in complexes provide better overwintering habitat for coho and other salmonids.

In the guide nearing completion for the Coos-Coquille area, the pattern of streams in the basin, streams with surveys, and stream reaches selected as candidates for restoration action are shown in Figure 1. The overall scope of the project, including area covered by the guides, is shown in Figure 2.

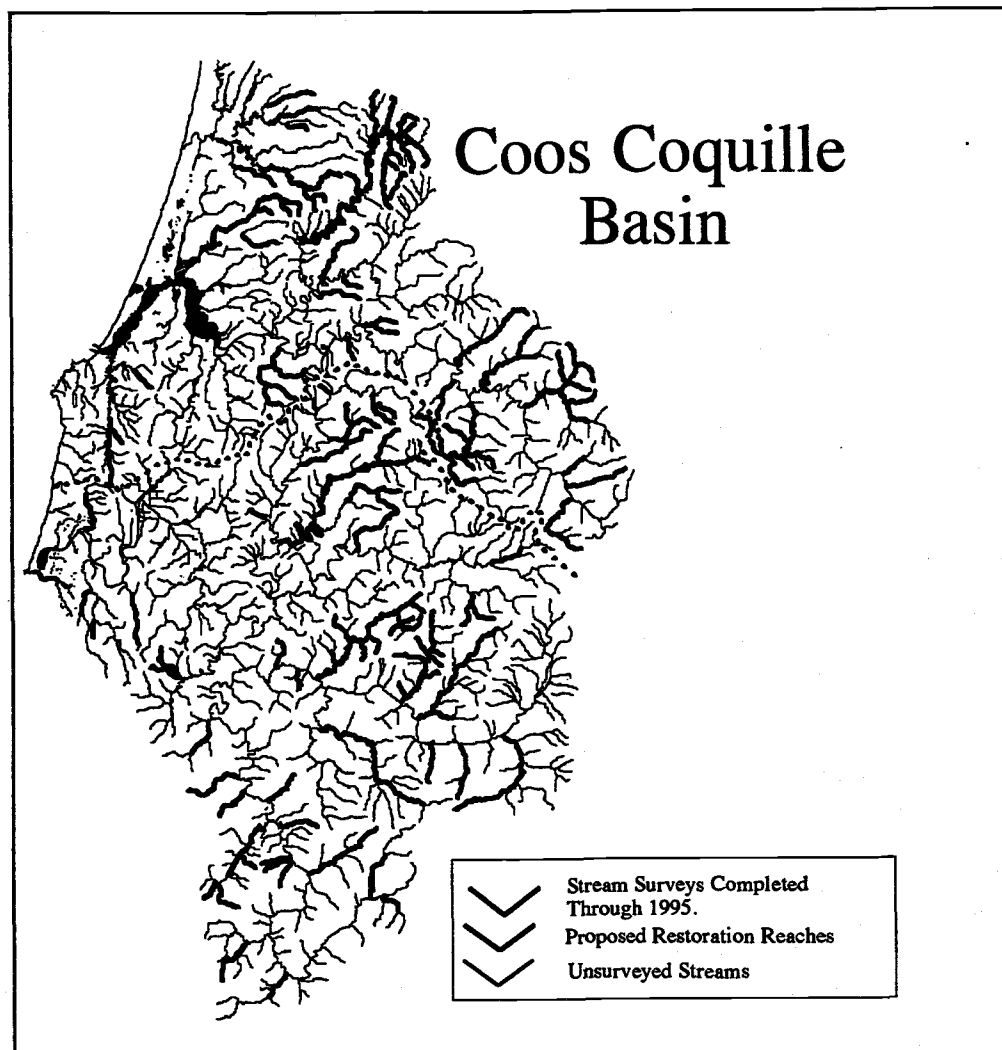


Figure 1: Pattern of streams, Aquatic Inventory Stream Surveys, and proposed restoration reaches in the Coos Coquille Basin

Existing Habitat Conditions: Rationale for Stream Enhancement Work

Streams and their watersheds throughout Oregon vary widely in their natural capacities for fish habitat quality as well as the type and degree of change that has resulted from land and resource management. ODFW, in its Aquatic Inventory Project, has surveyed habitat characteristics and fish habitat use in over six thousand miles of Oregon streams between 1990 and 1996. The analysis of the survey data has improved our understanding of stream conditions. This work also has provided some of the rationale for choosing appropriate stream, riparian, and watershed restoration techniques and for locating sites with high restoration potential.

Although the potential development of stream habitat conditions differ within templates of ecoregion, topography, and the disturbance history of individual watersheds, the survey results lead to some generalized conclusions about habitat conditions. For example, the Nehalem River Basin, with a high proportion of industrial forest lands, has habitat conditions representative of many other coastal basins. An analysis of stream survey data from the Nehalem basin shows that there is a general lack of complex pool habitats, large woody debris in stream channels, and mature conifers in riparian zones. Pools occur frequently, but they tend to be small and lacking in complexity. Average pool depth relative to riffle depth is low compared to streams with more abundant woody debris. Over 70 percent of the total stream length surveyed had poor to fair values for large woody debris. Furthermore, the opportunity for future recruitment of large and persistent woody debris is low because conifers, particularly those 20 inches or greater in diameter, are frequently absent from the riparian zones. The alders that typically dominate riparian zones provide adequate stream shading, but the woody debris that they contribute decays too rapidly to provide long-lasting instream structure and complexity. The development of habitat complexity is further limited in many streams that have channels isolated from their floodplains by downcutting or channelization. These streams have little opportunity to develop off-channel habitats such as side channels and alcoves.

Acute "problems" in the physical habitat condition of coastal streams are comparatively rare. Bank erosion is very low in most forested lands, and the amount of fine sediment observed in the stream bed is generally acceptable, although sediment levels vary widely between regions. In contrast to the low frequency of acute problems that may cause direct mortality of fish, other, more chronic problems contribute lower than desired productivity of these stream systems. The overall picture is of extensive stream reaches with sparse large woody debris, little or no potential recruitment for large wood, low summer habitat complexity, and limited winter off-channel and refuge habitat. These problems however, can be addressed through a sequential process of LWD introduction (short term), improved road and culvert condition (short term to long term), and modified riparian silviculture and upslope management (long term).

To address some of these issues, projects have focused on large woody debris placement to create deeper pools and add channel complexity. Slackwater and pool habitat for increasing over-winter survival of juvenile salmon have been increased by constructing side channels and alcoves. Conifer growth has been fostered in riparian zones through planting and hardwood thinning in an effort to secure a future supply of persistent large woody debris.

Conceptual Approach

Habitat restoration work based on recommendations in the restoration guides should, collectively and over time, result in a substantially improved smolt production capacity. Another expectation is that the projects provide a base of ecological support, possibly helping to maintain some coho populations that are at precariously low levels, until other restoration measures take effect. Further, we believe that conduct of the work described in these reports is an essential element of educating the public, landowners, and resource managers about the habitat needs of salmon and the challenges of attempting to restore these habitats to more favorable conditions. Overall,

successful restoration will be achieved only by addressing limiting factors that may occur throughout the entire salmon life cycle.

As we examine more streams to identify reaches with highest potential for restoration, we remain convinced that the work we are proposing will not, by itself, achieve lasting recovery of depressed salmonid populations. As we examine more streams, also, we become more convinced that instream and riparian-zone restoration efforts are an essential component of the Oregon Coastal Salmon Restoration Initiative Conservation Plan (OCSRI). The productive working relationship between biologists and land managers to plan and implement the instream projects is an additional benefit of this process. This cooperation leads to shared understanding and has opened the door for discussions of other issues (culvert replacement, allowing beaver activity in important areas, etc.) and provided incentive and momentum for voluntary actions by landowners to protect stream and riparian habitats.

Basins Covered by the Guides

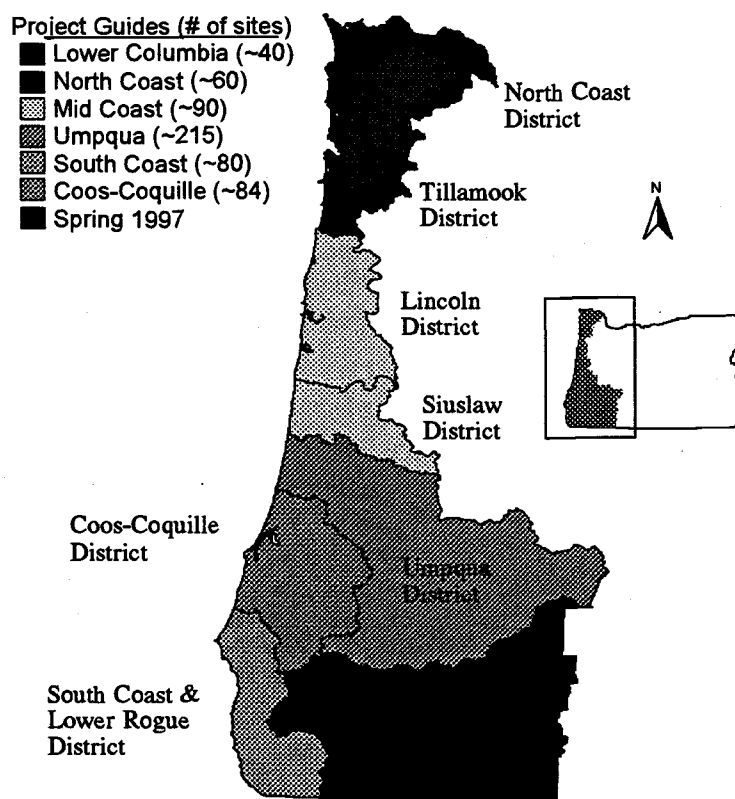


Figure 2: Coastal basins and the development of the Restoration Guides.

Implementing the Restoration Guides

The production of the "guides" was never considered the end-product of the project. The plans and priorities presented in the guides were the starting point for the process of implementation. Recognizing the importance of cooperation for achieving stream and watershed restoration goals; private landowners, interest groups, and natural resource agencies have come together to form working groups. The North Coast Stream Project was the first of such efforts to form around the plans created by the restoration guides. This group got its start at a meeting held November 29, 1994. Attending this meeting were representatives of OWHF, ODFW, Oregon Department of Forestry, U. S. Fish and Wildlife Service, Oregon Small Woodlands Association, Oregon Forest Industries Council (OFIC), and seven industrial landowners. The presentation of the North Coast Guide was favorably received by this group, and an organizational committee was formed to proceed with implementation. A permanent steering committee was established, meeting regularly to establish by-laws, set work goals, and, most importantly, to hire a fully funded biologist for a two year period to create detailed plans for the projects and supervise their implementation. Initial funding came directly from the participating industrial landowners and the OWHF. With the adoption of the by-laws, hiring the biologist, and development of the mechanisms to cooperatively fund the in stream work, the effort became formally recognized as the North Coast Stream Project. This process was followed in the creation of the Mid Coast Project and, most recently, the South Coast Project.

It is the intention of OWHF and ODFW to establish similar steering committees and hire biologists for the remaining coastal basins. As part of the OCSRI Conservation Plan, permanent funding is recommended for up to seven biologists to work specifically on habitat projects and issues related to private landowners. Funding for these positions is established in the package developed by OFIC. The Oregon Department of Forestry also has budgeted funding for a similar position to start work in the Tillamook State Forest in 1997.

Project Planning

The biologists hired through this process operate under the supervision of ODFW's District Biologists and within the general procedures outlined in the guides. Provision is made to adapt methods, to expand the scope of work, and to make changes or additions to the list of priority sites. Overall, the restoration work and methods are intended to restore natural ecological functions. The use of very large pieces of wood, anchored without cables, closely mimics the natural process of wood recruitment to the stream. Augmenting existing pieces of wood and placing them in "natural" configurations allows the wood to shift short distances, creating habitat that reflects the hydraulics of the channel. Techniques learned while constructing projects and subsequent evaluation are shared in ODFW workshops and at professional societies and conferences. An internal "peer review" process has been developed for projects in ODFW's Northwest Region. In all regions, projects plans are reviewed by, and subject to, the final approval of the respective steering committees.

Detailed pre-project plans provide clear information on current stream conditions, goals of the project, specific location and type of in channel activities (Figure 3), and outline the plan for follow up evaluation and monitoring. These plans record the project and guide both the biologist and land managers in project design and layout. The biologists have the responsibility to cooperatively schedule operations, obtain appropriate materials, and be on-site with equipment operators as they complete the work.

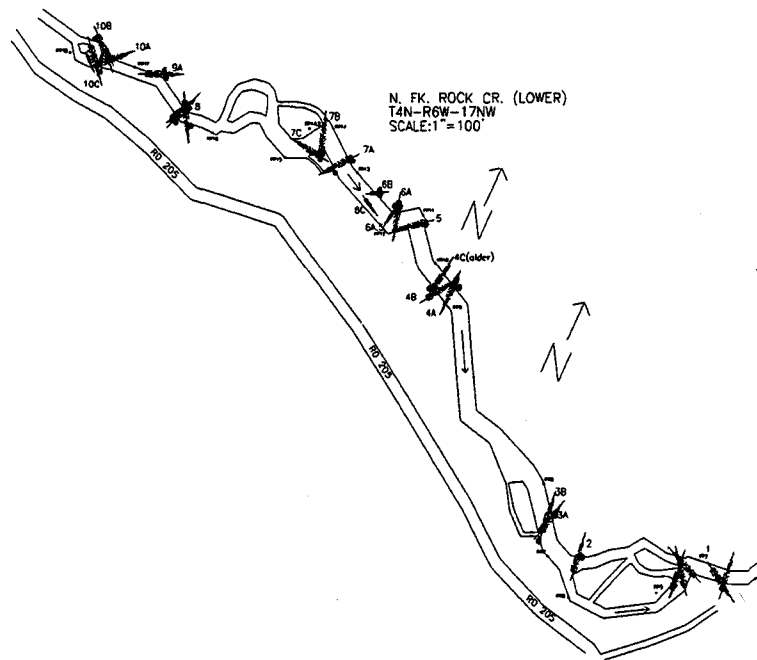


Figure 4: Example of a site plan from North Fork Rock Creek in the Nehalem basin. In this, and the adjacent project area, a total of 1200 meters of stream channel was treated.

Monitoring and Evaluation

Monitoring and evaluation of projects are an integral component of North Coast Stream Project and Mid Coast Stream Project. Monitoring plans will be developed for the South Coast Project and the other basins as they form their implementation committees. Funding support from the National Fish and Wildlife Foundations required the inclusion of monitoring efforts to evaluate the effectiveness of projects. Beyond this requirement, the steering committees of both projects have been enthusiastic supporters of monitoring, in terms of both cooperation and funding.

The monitoring plans associated with these projects are developed in cooperation with the overall Monitoring Program of OCSRI. Monitoring activities associated with the North Coast and Mid Coast projects share protocols proposed for OCSRI including: stream channel assessment, project mapping, adult spawner counts, juvenile population estimates, and post-project and post-storm evaluation. Most of the monitoring is focused on the physical evaluation of the habitat structures, but adult and juvenile counts provide a general index of the utilization and effectiveness of the structures.

New monitoring efforts funded for 1997 and 1998 by the projects will contribute to core and index assessment and monitoring (Task 9 of the Monitoring Program) by adding to the network of monitored sub-basins. This effort will coordinate with other monitoring tasks and directly contribute to better estimates of freshwater and marine survival rates and the level of the coho Gene Conservation Group.

Monitoring of instream structures for both physical function and biologic response improves project design and construction. We are learning that structures that mimic natural levels of large woody debris, and that are placed in channel types that allow positive interactions with high flow, provide the best, and sometimes the most cost effective, approaches to stream enhancement.

Plans for improved monitoring of stream enhancement projects, general freshwater production, and salmon population trends, will be an important part of the OCSRI. The projects developed from the habitat restoration guides are well documented and include monitoring components. Other habitat restoration work, done through watershed associations, Soil and Water Conservation Districts, and by other initiative groups (Umpqua Basin Fisheries Restoration Initiative for example) also document their work and contribute to overall evaluation of restoration efforts.

The Oregon Forest Resources Institute (OFRI) has funded the development of reporting mechanisms designed to capture the full scope of restoration work. Initially limited to private lands, this program has expanded to include all cooperative efforts and is recommended for new funding and staff support in GWEB. The OFRI project created a report and database for projects completed through 1995. Current effort will document additional projects completed in 1996. The database, and both electronic and paper versions of the input forms are available from ODFW, Corvallis. The database structure and reporting system are designed to allow efficient reporting of future projects, share the results and techniques of successful projects, and enhance the contribution that landowners are making to improved stream habitat.

Conclusions

The production of Restoration Guides, based on analysis of stream habitat data and supported by local initiative groups like the North Coast Project, has proven to be an effective mechanism for the implementation of ecologically functional restoration projects. This process has developed in contrast to earlier efforts that applied projects based primarily on the cooperation of a single landowner, short-term need to expend funds, or across-the-board application of "prescription" and "band-aid" approaches. Ongoing evaluation and monitoring of projects is needed to support continued evolution of project design, site selection, and to develop appropriate techniques. The restoration projects do not mitigate for habitat losses or minimize the need for good upslope and riparian management. However, effective projects can help to maintain and enhance habitat and populations as improved land management and other OCSRI management actions work to resolve habitat problems. The general expectation is that these projects will play a critical role in improving freshwater production, helping to maintain fish populations in conjunction with other management actions such as protective ocean harvest rates and modified hatchery practices. Also, the construction of stream enhancement projects lies within the context of improved forest

management practices designed to protect water quality, develop coniferous forest stands in suitable riparian areas, and to provide for future sources of large woody debris.

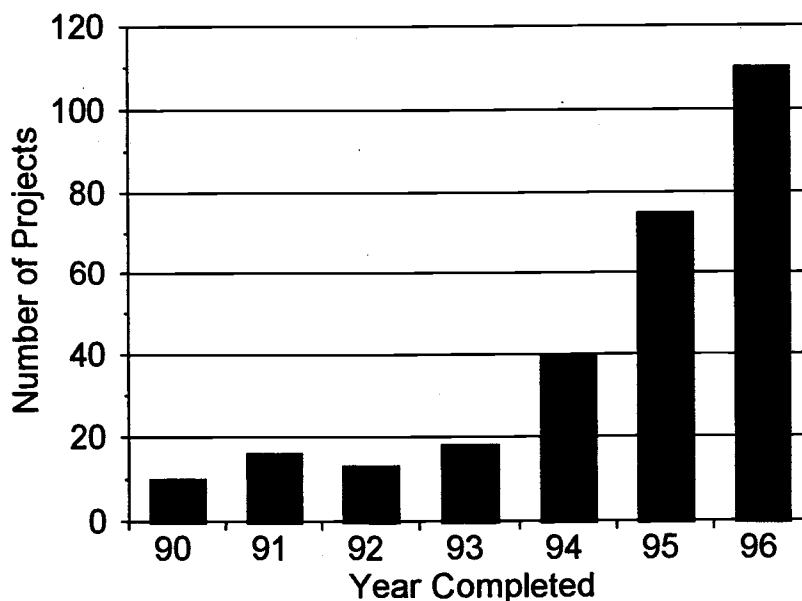


Figure 4: Habitat restoration projects from 1990 to 1996 associated with private forest landowners. Of the 1995 and 1996 totals, sixty projects were associated with the ODFW/OWHF restoration guides. (Data from: Maleki, S., and K. Moore. 1996. Stream Habitat Improvement on Private Industrial Forest Lands. ODFW Corvallis and Oregon Forest Resources Institute. 35p.)

The rate of private forest landowner participation in stream restoration and enhancement projects has increased dramatically over the last six years (Figure 4). We expect that the current level of participation will be sustained for some time. Given this level of interest and funding, it is essential that projects and their implementation programs rely on the best planning and techniques available. Overly mechanistic approaches of the past have not been very successful. New approaches that combine working with natural stream process with the introduction of ecologically functional materials hold better promise. The examples of implementation and monitoring associated with the production of the Habitat Restoration Guides support this optimism.

Chapter 17K

Summary of Statutes and Administrative Rules

Introduction

Many state and federal agencies are responsible for managing the land and water that salmon depend on to survive and thrive. Following are descriptions of the statutory authority and responsibility of the respective state and federal agencies relative to the OCSRI. A brief overview of the agency's primary responsibilities is given first, followed by a listing of the relevant statutes and administrative rules. This section concludes with a list of key federal statutes which state agencies must follow.

An Agency Planning and Implementation Team was formed and consisted of representatives from the state agencies listed below. The lead person for each agency is identified. Requests for particular agency statutes and administrative rules should be directed to these individuals.

- Department of Agriculture (ODA); Phil Ward
- Department of Environmental Quality (DEQ); Mike Downs
- Department of Fish and Wildlife (ODFW); Bruce Schmidt
- Department of Forestry (ODF); Ted Lorensen
- Department of Geology and Mineral Industries (DOGAMI); Dennis Olmstead
- Department of Land Conservation and Development (DLCD); Jeff Weber
- Department of Transportation (ODOT); Sue Chase
- Division of State Lands (DSL); Jenifer Robison
- Economic Development Department (OEDD); Kevin Smith
- Parks and Recreation Department (OPRD); Nan Evans
- Progress Board (OPB); Deirdre Molander
- State Marine Board (SMB); Wayne Shuyler
- State Police (OSP); Capt. Lindsay Ball
- Water Resources Department (OWRD); Geoff Huntington

Oregon Department of Agriculture

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

SB 1010 provides a structure for developing and implementing a local watershed plan to prevent and control water pollution associated with agricultural activities and soil erosion. ODA's

authority 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). SB 1010 directs ODA to work with farmers and ranchers to develop overall Water Quality Management Plans for listed watersheds. The watershed plans identify problems in the watershed that need to be addressed and outline ways to correct them. The intent of SB 1010 is to provide a role for ODA to assist producers in addressing those agricultural activities in watersheds known to have the most problems with water quality, to prevent pollution problems wherever possible, and to alleviate any existing problems.

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

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

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

Statutes

ORS 568.900 - 568.933 (SB 1010) Authority to develop, implement and enforce agricultural water quality management plans.

ORS 468B.200 - 468B.230 (SB 1008) Authority to regulate confined animal feeding operations for water quality purposes.

ORS 561.191 (SB 502) Provides that any regulation of farming practices for water quality is to be done by ODA. Can be interpreted to expand ODA water quality authority to new areas not necessarily authorized by SB 1010. An example is the prescriptions of conditions to protect water quality for CWA Section 401 certification of federal grazing permits.

ORS 561.400 Natural Resources Division of ODA may solicit cooperation and assistance of state agencies.

ORS 564.115 In developing conservation programs for threatened or endangered plants, ODA

shall consult with affected state agencies; state agencies required to consult with ODA before taking certain actions.

ORS 634.005 - 634.992 Oregon Pesticide Control Act

Administrative Rules

OAR 603-90 SB 1010

OAR 603-74 Confined Animal Feeding Operations

OAR 603-76 Prevent grazing permittees on federal lands from causing violations of state water quality standards.

OAR 603-57 Pesticide regulations

Oregon Department of Environmental Quality

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

Statutes

ORS 196.408 State agencies shall coordinate development of coastal and ocean information systems, oil spill and hazardous materials response, and damage assessment and compensation in the marine environment with adjacent states.

ORS Chapter 468B Water Quality

ORS 468B.035 Implementation of Federal Water Pollution Control Act

ORS 468B.048 Standards of Quality and Purity

ORS 468B.050 When Permit Required

ORS 468B.100 - 110 Forest Operations

ORS 466.135 DEQ shall send copies to ODFW of applications for a hazardous waste disposal site permit. ODFW shall respond as to whether permit applications should be granted. DEQ shall consider ODFW's comments.

ORS 468B.015 The public policy of the state, as set out in the state Clean Water Act, is that DEQ cooperate with other agencies of the state (ODFW) in order to carry out the objectives of the Clean Water Act.

ORS 466.620 Environmental Quality Commission (EQC) shall adopt an oil and hazardous material emergency response master plan after consultation with appropriate agencies.

ORS 468.035 DEQ shall consult and cooperate with other state agencies with respect to any proceedings and all matters pertaining to the control of air or water pollution or for the formation and submission to the legislature of interstate pollution control compacts or agreements.

ORS 468.668 ODFW, along with other named agencies, shall develop a proposed long-range plan to be adopted by the Habitat Conservation Trust Fund Board (the plan is used to determine funding under the Resource Conservation Sinking Fund). ODFW also required to periodically monitor and annually report to the legislature on habitat conservation projects that receive funding under the Resource Conservation Funding statutes.

ORS 468A.595 Before promulgating rules regulating open field burning, EQC shall consult with interested agencies.

ORS 468B.040 DEQ shall solicit and consider comments of all affected state agencies regarding adverse impacts on water quality.

ORS 468B.060 ODFW may bring suit against party responsible for damage to fish or wildlife or habitat.

ORS 468B.090 DEQ shall consult with and obtain approval of ODFW before issuing a permit to discharge shrimp and crab processing by-products into Oregon estuary.

ORS 468B.365 Before approving or modifying an oil spill contingency plan, DEQ shall submit it to ODFW for review.

ORS 468B.400 ODFW shall develop and implement a program to provide wildlife rescue training for volunteers.

Administrative Rules

OAR 340-40 Groundwater Protection

OAR 340-41 DEQ Water Quality Standards

- OAR 340-43 Chemical Mining
- OAR 340-44 Construction and Use of Waste Disposal Wells
- OAR 340-45 NPDES and WPCF Permits
- OAR 340-47 Oil Spills
- OAR 340-48 Certification of Compliance with Water Quality Standards
- OAR 340-50 Management of Sewage Sludge
- OAR 340-51 Confined Animal Feeding Operations
- OAR 340-55 Use of Reclaimed Water
- OAR 340-56 Instream Water Rights
- OAR 340-71 On-Site Sewage Treatment

Oregon Department of Fish and Wildlife

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

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

Statutes

- ORS 308.792 - 308.803 Authorizes a property tax deferral for maintaining riparian habitat for wildlife. Applies only to farm and forest land.

ORS 496.012 Establishes wildlife management policy to prevent serious depletion of any indigenous species and provides the optimum recreational and aesthetic benefits for present and future generations. To fulfill this policy, the Fish and Wildlife Commission (FWC) shall implement six coequal management goals. This section justifies and requires ODFW involvement with other agencies' environmental laws, whether those agencies are mandated to consult with ODFW or not.

ORS 496.172 Oregon Endangered Species Act

ORS 496.182 Directs the FWC to consult with other states and affected agencies that have a common interest in certain endangered or threatened species when developing protection and conservation programs for that species. Also directs other state agencies to consult and cooperate with ODFW.

ORS 496-260 - 496.270 Authorizes a tax credit for fish habitat improvement on private land.

ORS 498.248 ODFW is authorized to require the installation of screening or bypass devices for fish protection. Also, until July 1, 1995, ODFW shall implement a cost-sharing program to screen small water diversions to protect fish populations (this has been extended).

ORS 498.268 Prohibits the construction, operation, or maintenance of any dam or artificial obstruction across any body of water where game fish exist unless a fishway is provided and requires FWC to determine if the fishway is adequate for upstream and downstream fish passage.

ORS 498.311. Statute requires screening of large water diversions.

ORS 498.351 and ORS 509.605. These statutes require that structures must be capable of passing fish (one relates to food fish, the other for non-food fish).

ORS 506.109 Requires ODFW to maintain all food fish at optimum levels and provide optimum economic, commercial, recreational, and aesthetic food fish benefits through the implementation of seven goals set out by the statute. This section requires ODFW involvement with other agencies' environmental laws, similar to the involvement required by the Wildlife Policy.

ORS 509.605 Similar law to 498.268 requiring fishways over artificial obstructions.

ORS 549.306. Statute requires screening of small water diversions.

Administrative Rules

OAR 635-07-510 Establishing General Fish Management Goals

OAR 635-07-521 Natural Production Policy

OAR 635-07-525 Wild Fish Management Policy
OAR 635-07-536 Wild Fish Gene Conservation Policy
OAR 635-07-540 Hatchery Fish Gene Resource Management Policy
OAR 635-07-595 Transgenic Fish Policy
OAR 635-100-80 to 170 State Endangered Species Act

Oregon Department of Forestry

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

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

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

Statutes

ORS 527.610 - 527.770, 527.990(1) and 527.992 Oregon Forest Practices Act

Administrative Rules

OAR 629-600 Forest Practice - Definitions
OAR 629-605 Forest Practice - Planning Forest Operations
OAR 629-610 Forest Practice - Reforestation
OAR 629-615 Forest Practice - Treatment of Slash

- OAR 629-620 Forest Practice - Chemical and Other Petroleum Products
- OAR 629-625 Forest Practice - Road Construction and Maintenance
- OAR 629-630 Forest Practice - Harvesting
- OAR 629-635 Forest Practice - Water Protection: Purpose, Goals, Classification and Riparian Management Area
- OAR 629-640 Forest Practice - Water Protection: Wetlands and Riparian Management Areas
- OAR 629-645 Forest Practice - Water Protection: Riparian Management Areas and Protection Measures for Significant Wetlands
- OAR 629-650 Forest Practice - Water Protection: Riparian Management Areas and Protection Measures for Lakes
- OAR 629-655 Forest Practice - Water Protection: Protection Measures for "Other Wetlands," Seeps and Springs
- OAR 629-660 Forest Practice - Water Protection: Specific Rules for Operations Near Waters of the State
- OAR 629-665 Forest Practice - Specified Resource Site Protection Rules

Department of Geology and Mineral Industries

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

Statutes

ORS 516.030 DOGAMI shall initiate, carry out, or administer studies and programs that will, in cooperation with state and local government agencies, reduce the loss of life and property from mining. DOGAMI shall also cooperate with federal or other agencies for the performance of work in Oregon.

- ORS 517.820 DOGAMI shall consult with interested state agencies prior to approving a mining reclamation plan.
- ORS 517.956 For chemical process mines, ODFW shall approve plans to monitor and report fish and wildlife mortality, establish review standards for developing fish and wildlife protections, and certify surface reclamation of sites.
- ORS 517.988 ODFW shall develop conditions for protection of fish and wildlife that shall be included in chemical process mining permits.
- ORS 522.145 DOGAMI shall circulate applications for geothermal well permits to ODFW for suggested conditions.

Department of Land Conservation and Development

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

Statutes

- ORS 92 Subdivisions and Partitions: Establishes the basic framework for the local review and recordation of subdivisions and land partitions.
- ORS 195 Local Government Planning Coordination: Establishes requirements for local government coordination of planning activities.
- ORS 196 Ocean Resource Planning (also pertains to Wetlands and Rivers and Removal and Fill): Establishes the framework for planning and management of ocean resources.
- ORS 197 Comprehensive Land Use Planning Coordination: LCDC and DLCD's enabling statute. Establishes the basic framework and requirements for Oregon's Statewide Comprehensive Planning Program.
- ORS 215 County Planning; Zoning (also includes Housing Codes). Provides authority to counties to establish planning commissions and comprehensive plans and zoning regulations. Contains the basic statutory requirements for protection of agricultural and forest lands.

ORS 227 City Planning and Zoning: Provides authority to cities to establish planning commissions and comprehensive plans and zoning regulations.

Administrative Rules

OAR 660-01 Procedures

OAR 660-02 Delegation of authority

OAR 660-03 Procedure for review of local plans

OAR 660-04 Interpretation of Goal 2 Exception process

OAR 660-06 Goal 4 Forest Lands

OAR 660-07 Metropolitan Housing

OAR 660-08 Interpretation of Goal 10 Housing

OAR 660-09 Industrial and Commercial Development

OAR 660-11 Public Facilities Planning

OAR 660-12 Transportation Planning

OAR 660-14 Incorporation of New Cities

OAR 660-15 Statewide Planning Goals and Guidelines

OAR 660-16 Statewide Planning Goal 5

OAR 660-17 Classifying Oregon Estuaries

OAR 660-18 Review of Amendments to Plans and Land Use Regulations

OAR 660-19 Periodic Review (relates to former statute)

OAR 660-20 Willamette River Greenway

OAR 660-21 Urban Reserves

OAR 660-21 Procedures and Requirements for Complying with Goal 5

OAR 660-25 Periodic Review (relates to new statute)

- OAR 660-30 State Agency Coordination Programs
- OAR 660-31 State Permit Compliance
- OAR 660-33 Agricultural Land
- OAR 660-35 Federal Consistency
- OAR 660-40 Certification or Copying Public Records

Statewide Planning Goals

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

Oregon Department of Transportation

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

Division of State Lands

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

The DSL also manages state-owned Common School Fund Trust lands, including most of the Elliott State Forest in Coos and Douglas Counties, as well as submerged and submersible lands beneath tidally-influenced and navigable waterways. These resources are managed under the Oregon Constitution for the greatest benefit of the people of the state, and consistent with sound conservation practices. Before issuing a permit or lease, DSL must consult with DEQ, ODFW and a wide range of other potentially affected agencies and parties.

Statutes

ORS 196.600 to 196.665 Oregon Mitigation Bank Act

ORS 196.668 to 196.692 Wetland Inventory and Wetland Conservation Plans

ORS 196.800 to 196.990 Removal-Fill Law, Including Essential Indigenous Anadromous Salmonid Habitat Provisions

ORS 273.553 - 273.558 South Slough National Estuarine Research Reserve

ORS 273.563-273.591 Natural Heritage Program

ORS 390.805 to 390.925 Removal and Filling in State Scenic Waterways

Administrative Rules

OAR 141-50-500 to 50-999 Natural Heritage Program Rules

OAR 141-85-005 to 85-090 Removal-Fill

OAR 141-85-101 to 85-180 Freshwater Wetland Compensatory Mitigation

OAR 141-85-240 to 85-266 Estuarine Mitigation

OAR 141-86-005 to 86-170 Wetland Conservation Plans

OAR 141-86-180 to 86-240 Local Wetland Inventories

OAR 141-89-005 Fish Habitat Enhancement Projects

OAR 141-89-010 Erosion Control Activities

OAR 141-89-015 Road Construction Projects

OAR 141-89-020 Wetland Restoration and Enhancement

OAR 141-89-030 Recreational Placer Mining

OAR 141-100-000 to 100-090 Scenic Waterway Removal-Fill Permits

OAR 141-102-000 to 102-100 Essential Indigenous Anadromous Salmonid Habitat

OAR 141-xx-xxx (numbers not yet assigned) Locally Significant Wetlands

OAR 141-xx-xxx (numbers not yet assigned) Mitigation Banking

Oregon Economic Development Department

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

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

No directly related statutes or administrative rules.

Oregon Parks and Recreation Department

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

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

neighbors and government agencies to improve salmonid habitats outside park boundaries by providing materials for enhancement projects.

Statutes

ORS 390.235 If an activity occurs on land owned by ODFW, Parks cannot grant an archaeological permit without ODFW approval.

ORS 390.725 Parks shall consult with ODFW on permits for removal of products along the ocean shore.

ORS 390.855 Parks shall consult with Fish & Wildlife Commission in preparing its continuing reports on potential scenic waterways.

Oregon State Marine Board

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

Statutes

ORS 704 Marine Board's rules for guides and outfitters. This was cited in the "Factors for Decline" plan for Fisheries Management as HB 2093.

Oregon State Police (Fish and Wildlife Division)

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

No directly related statutes or administrative rules.

Oregon Water Resources Department

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

Statutes

ORS 196.840 Authorizes WRC to administratively close areas to fill and removal activities.

ORS 496.835 Special fund provided to ODFW for fish and wildlife protection related to hydro licensing.

ORS 536.300 All concerned state agencies must be given the opportunity to be heard by WRD in developing program for water control and use.

ORS 536.310 Requires WRD to give "due regard" to fish resources when permitting impoundments.

ORS 536.325 Allows ODFW to request minimum perennial streamflows for aquatic life.

ORS 536.470 Water Resources Commission may consult and cooperate with any state agency for the purpose of promoting coordination of the use and control of water resources.

ORS 536.520 Water Resources Commission may call upon state agencies to make information concerning water resources available; state agencies are required to cooperate to the maximum extent practicable.

ORS 537.025 WRD shall consult ODFW in determining whether a development proposed in an application to register water uses for wetland, stream or riparian restoration or storm water management is reasonably expected to result in those benefits.

ORS 537.135 ODFW may waive the minimum perennial stream flow prerequisite for groundwater recharge permit pending before WRD if the minimum flow is not required to supply the stream.

ORS 537.170 When determining if the granting of water rights is in the public interest WRD must consider many uses, including fish and wildlife. (ODFW is provided a copy of the water right application to review to assist WRD in their public interest determination. ODFW has a MOU with WRD setting up a review process between the two agencies.)

ORS 537.336 ODFW is allowed to apply for instream water rights to protect fish and wildlife and habitats.

ORS 537.336 Instream Water Rights Purpose

ORS 537.348 Instream Water Right Leasing and Transfers

ORS 537.455 to 537.500 Instream Water Rights

ORS 540.010 to 540.440 Watermasters and Water Distribution

ORS 540.435 Serious Water Management Problem Areas

ORS 540.505 to 540.532 Water Right Transfers

ORS 540.531 Surface Water Point of Diversion to Ground Water Point of Appropriation

ORS 540.572 to 540.578 Water Conservation Plans

ORS 540.610 Water Right Forfeiture

ORS 543.017 No harm to salmon or steelhead or loss of habitat, except to modify existing projects that enhance these resources. Standards shall be consistent with Columbia River Fish and Wildlife Program of Northwest Power Planning Council (ODFW functions as consultant to both hydro process and NWPPC).

Administrative Rules

OAR 690-09 Ground Water

OAR 690-15 Water Right Transfers

OAR 690-17 Water Right Forfeiture

OAR 690-33 Sensitive, Threatened and Endangered Fish

OAR 690-76 Minimum Perennial Streamflows

OAR 690-77 Instream Water Rights

OAR 690-85 Serious Water Management Problem Areas

OAR 690-86 Water Conservation Plans

OAR 690-250 Watermaster Duties

OAR 690-310 Water Right Application Processing, Includes Public Interest Review

OAR 690-400 Water Resources Policy, Includes Definition of "Over-Appropriated"

OAR 690-410-080 Statewide Storage Policy

Key Federal Statutes and Rules

National Environmental Policy Act

Sikes Act Extension (1974)

National Forest Management Act

Federal Energy Regulatory Act

Fish and Wildlife Coordination Act

Coastal Nonpoint Pollution Control Program, codified in section 6217 of the Coastal Zone Management Act Reauthorization Amendments of 1990

Clean Water Act Section 401 Certification Program

Federal Statutes

16 U.S.C. 661-666C	Fish and Wildlife Coordination Act
16 U.S.C. 1455b	Section 6217 of Coastal Zone Act Reauthorization Amendments of 1990
33 U.S.C. 1251, et seq.	The Clean Water Act
33 U.S.C. 1313	Water Quality Standards and Implementation Plans
33 U.S.C. 1314	Information and Guidelines
33 U.S.C. 1315	Water Quality Inventory
33 U.S.C. 1323	Federal Facilities Pollution Control
33 U.S.C. 1329	Nonpoint Source Management Programs

33 U.S.C. 1330	National Estuary Program
33 U.S.C. 1341	Certification
33 U.S.C. 1342	National Pollutant Discharge Elimination System
33 U.S.C. 1344	Permits for Dredged or Fill Material
33 U.S.C. 1365	Citizen Suits
42 U.S.C. 6901-6987	Hazardous Material Program codified in Resource Conservation and Recovery Act (RCRA)

Federal Rules

23 CFR Part 650 and Executive Order 11988	Floodplain Management
23 CFR 771 and 40 CFR 55987-56007	National Environmental Policy Act (NEPA) Program
40 CFR Part 122	EPA Administered Permit Programs: NPDES Permits
40 CFR Part 123	State Program Requirements
40 CFR Part 130	Water Quality Planning and Management
40 CFR 130.3	Water Quality Standards
40 CFR 130.4	Water Quality Monitoring
40 CFR 130.7	Total Maximum Daily Loads: TMDLs
40 CFR 130.8	Water Quality Report
40 CFR Part 131	Water Quality Standards
40 CFR 131.10	Designation of Uses
40 CFR 131.11	Criteria
40 CFR 131.12	Antidegradation Policy
40 CFR 131.20	State Review and Revision of Water Quality Standards

40 CFR 131.21	EPA Review and Approval of Water Quality Standards
40 CFR 131.22	EPA Promulgation of Water Quality Standards
40 CFR 164.171	Federal Insecticide, Fungicide, and Rogenticide Act of 1972
43 CFR 8350	Wild and Scenic River Act
50 CFR Part 17, 81, 424, 451.2	Federal Endangered Species Act