Part 4(F) Urban Growth Management
Prepared by Department of Land Conservation and Development
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A. Introduction

The purpose of this report is to provide information to consider in evaluating whether elements of the Oregon Plan for Salmon and Watersheds (OPSW) improve conditions in the Oregon Coast coho Evolutionarily Significant Unit (ESU) according to criteria listed in the federal *Policy for Evaluating Conservation Efforts* (PECE).[1]

This section concerns Oregon's statewide program for managing urban growth. It concludes that Oregon's urban growth management program has minimized the conversion of land to development at urban densities and, therefore, has *prevented* urban development from contributing to the deterioration of aquatic habitat. At the landscape scale, factors that are attributable to urban development have been addressed indirectly by significantly reducing the amount of land that has been converted to urban-density development. In addition, specific elements of the program also address loss of estuarine rearing habitat and loss and degradation of wetlands and riparian areas.

Scientific research literature on salmon recovery correlates broad categories of land use (such as 'urban,' 'forest,' 'farm,' etc.) with changes in aquatic systems and, therefore, aquatic habitat.[2] In particular, the use of land for urban-density development has been documented to affect stream systems in ways that may increase risk for salmonid populations. Changes to aquatic systems have been documented even at what may be considered to be relatively low-density urban development.[3] This literature has been cited in the listing decisions for salmonids in Oregon's streams.[4]

The premise that underlies the following discussion is that if urbanization affects stream systems in ways that increase risk for salmonid populations, then policies that restrict the expansion of urban areas constitute an important "conservation effort." Oregon's urban growth management program, which is part of a more comprehensive statewide system of land use planning, has succeeded in greatly reducing the amount of land required to accommodate continued growth of urban areas. Oregon's program is unique in the United States; its contribution to the regulatory matrix is a critical element of the Oregon Plan for Salmon and Watersheds. Oregon's program addresses threats to the ESU associated with urbanization by restricting the amount of land that can be converted to development at urban densities.

1. Urbanization and Factors for Decline

Theoretically, urbanization can have significant adverse effects on aquatic habitat. However, urbanization may not be a critical threat to Oregon coastal coho populations. An evaluation of measures to address the effects of urbanization must be based on an understanding that only a very small portion of the Oregon coastal coho ESU is urbanized. As such, the relative importance of urbanization factors for decline may be quite small.

Previous attempts to evaluate the sufficiency of the Oregon Plan to ensure the survival of at-risk populations have generally used a *programmatic* approach to factors for decline, rather than a *geographic* approach. That is, (watershed assessments and OWEB's entire program notwithstanding) previous analyses have sought to show that programs specifically address

identified threats to the species. The focus on programs has been something of a surrogate for more detailed discussions of specific measures that are needed in a specific place.

While such *programmatic* analyses are useful and necessary, they may unwittingly convey the ideas that certain threats will *necessarily* occur unless they are addressed in a program, and that those threats will have *necessarily* an appreciable effect on all at-risk populations. A programmatic evaluation can dismiss the possibility that some threats, or land uses that cause them, may not affect some populations. A programmatic evaluation makes all the threats equal; it does not recognize that there may be a *range* of threats of different magnitudes, or that there is a threshold below which a factor for decline does not affect a given population. In short, a *programmatic* approach wants to ensure that all factors are avoided, remedied, or mitigated everywhere. In the end, it is based on the idea that populations will not recover unless all factors are addressed everywhere in a basin.

In contrast, a *geographic* evaluation of salmon recovery efforts is based on an assessment of whether measures address the *actual*, as opposed to the *theoretical* threats to a specific population.

This report is not a geographic approach to threats resulting from urbanization, as data on the effects of urbanization on specific coho populations are not yet available. The relative effect of urbanization on at-risk populations has not been measured. However, the discussion below does attempt to integrate some geographic considerations, if only to place urbanization in the ESU within a larger landscape context.

The 1997 final listing decision for the Oregon Coastal Coho ESU contains a summary of factors affecting coho salmon, and specifically lists impacts associated with urbanization:

> The major activities responsible for the decline of coho salmon in Oregon and California are logging, road building, grazing and mining activities, urbanization, stream channelization, dams, wetland loss, beaver trapping, water withdrawals and unscreened diversions for irrigation. …
>
> Numerous studies have demonstrated that land use activities associated with logging, road construction, urban development, mining, agriculture and recreation have significantly altered the quantity and quality of coho salmon habitat. Impacts of concern associated with these activities include the following: Alteration of streambank and channel morphology, alteration of ambient stream water temperatures, alteration of the magnitude and timing of annual stream flow patterns, elimination of spawning and rearing habitat, fragmentation of available habitats, elimination of downstream recruitment of spawning gravels and large woody debris, removal of riparian vegetation resulting in increased stream bank erosion, and degradation of water quality. … Of particular concern is the increased sediment input into spawning and rearing areas that result from loss of properly functioning riparian areas, land management activities that occur on unstable slopes, and certain agricultural practices. … .
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> Urbanization has degraded coho salmon habitat through stream channelization, floodplain drainage, and riparian damage …. When watersheds are urbanized, problems may result simply because structures are placed in the path of natural runoff processes, or because the urbanization itself has induced changes in the hydrologic regime. In almost every point that urbanization activity touches the watershed, point source and nonpoint source pollution occurs. Water infiltration is reduced due to an increase in impervious surfaces. As a result, runoff from the watershed is flashier, with increased flood hazard …. Flood control and land

> drainage schemes may concentrate runoff, resulting in increased bank erosion which causes a loss of riparian vegetation and undercut banks and eventually causes widening and downcutting of the stream channel. Sediments washed from the urban areas contain trace metals such as copper, cadmium, zinc, and lead …. These, together with pesticides, herbicides, fertilizers, gasoline, and other petroleum products, contaminate drainage waters and harm aquatic life necessary for coho salmon survival. The California State Water Resources Control Board … reported that nonpoint source pollution is the cause of 50 to 80 percent of impairment to water bodies in California.[5]

The watershed science and salmon recovery literature includes several studies of the effect of urbanization on watershed functions (a few of which are referred to in the rule cited above). Urbanization appears to have the potential to affect watershed processes in many ways, but one effect that appears to be almost universally cited is changes in the hydrology of an area resulting from impervious surfaces. Studies have been published that conclude that as little as ten percent impervious surfaces in a watershed can have an apparently irreversible effect on stream flow and, therefore, streambank stability, instream biota, and channel morphology.

As noted above, it is not known how urban development has actually affected Oregon's coastal streams, or whether those effects are significant enough to be detectable above the background effects of all the other activities upstream. Several things lead to questions about the relevance of general research on the effects of urbanization on Oregon Coast coho populations. First, most of the areas of urban density development in the ESU are situated below the head of tide. It is not clear from the literature that the hydrologic effects of urbanization that have been documented without reference to tides also occur in areas where receiving waters are tidally influenced. Second, both the scale of urbanization relative to other land uses in the ESU, and the location of most urban areas in the lower reaches of catchments in the ESU, raise questions about whether the predicted effects of urbanization can actually be detected. In other words, it is not clear that small cities affect large streams and, if they do, whether the effect can be detected above the "background" of the effect of all other activities in the basin. In the end, it is not clear that the research cited in the listing decision is pertinent to urban areas in the Oregon Coast coho ESU.

This discussion is not to dispute the theoretical effects of urbanization on at-risk coastal coho populations. It is, rather, to suggest that the *actual* effects of urbanization on coastal coho populations must be assessed before they can be further addressed through measures in the Oregon Plan for Salmon and Watersheds. In the end, a geographic evaluation of the factors for decline that are attributable to urbanization in the Oregon Coast coho ESU may not lead to the same conclusion as a programmatic evaluation of Oregon's measures to reduce the effects of urbanization on at-risk populations.

a. Streams with High Intrinsic Potential (HIP)

In its review of the Oregon Plan, NOAA Fisheries asked if "lands within the coastal cities' urban growth boundaries overlap with streams with high intrinsic potential for coho salmon." NOAA went on to ask how growth trends over the past thirty years have affected areas of high intrinsic potential for coho salmon.

DLCD has not been able to complete any analyses of land use patterns with respect to streams with high intrinsic potential (HIP). Therefore, this discussion must rely on the information in Part 4(J), Oregon Plan Technical Report 3, "Environmental, Land Use and Land Cover Characteristics of the Coastal Coho ESU." Using some of the results of that analysis, we can

briefly discuss the coincidence between streams with HIP and urban land uses. However, we are not able to complete an analysis of thirty years of land use change, in particular because we do not have consistent, readily available data on land use thirty years ago.

We note later in this report that about 2.9 percent of the Oregon Coastal Coho ESU was designated in local comprehensive plans for urban or rural development. However, Technical Report 3 found that while only about two percent of the riparian areas of all streams are in such development land use categories, nine percent of the riparian areas of streams with high intrinsic potential for coho are in urban and rural development land use categories. Based on that report, it appears that there is a greater incidence of streams with high intrinsic potential in areas subject to development than what might be concluded based only on the amount of developable land in the ESU.

The land use program described in this report can, over time, make use of the information on intrinsic potential to focus resources and other measures on the restoration, maintenance, and/or protection of the characteristics that contribute to or complement intrinsic potential. It is possible that information on intrinsic potential could influence future decisions on the expansion of urban growth boundaries. In order for that information to be used effectively in land use planning decisions, local jurisdictions would need to complete analyses of riparian resources based on Statewide Planning Goal 5. Goal 5, which is described in an appendix to this report, provides a framework for local jurisdictions to evaluate the *significance* of riparian resources, and to adopt local regulations to protect significant resources. Local jurisdictions may use some discretion in determining what constitutes a significant resource, so information on intrinsic potential could be very useful in developing local riparian protection programs. Not all jurisdictions in the ESU have adopted local programs to protect riparian resources under Goal 5.

Through the on-going development of a conservation plan for coastal coho, priorities for restoration and management actions are likely to be developed for areas classified as having high intrinsic potential The synthesis report (Part 1) discusses the importance of areas of HIP and their priority, where appropriate, for restoration and protection. Some of these priority areas may be located inside urban growth boundaries. While Goal 5 could be used to protect such priority areas, the land use program—which is implemented largely through regulations—is not particularly useful tool to ensure *restoration* of landscape features and functions like riparian vegetation or riparian structure.

2. Ballot Measure 37

Ballot Measure 37 was passed by Oregon voters in November 2004, and went into effect on December 2, 2004. In broad terms, Measure 37 provides that the owner of private real property is entitled to receive just compensation when a land use regulation is enacted after the owner or a family member became the owner of the property if the regulation restricts the use of the property and reduces its fair market value. In lieu of compensation, the measure also provides that the government responsible for the regulation may choose to "remove, modify or not apply" the regulation. (Taken from http://www.oregon.gov/LCD/measure37.shtml).

In general, the legal effect of Measure 37 appears to be to roll back land use regulations to those that were in effect on the date a landowner acquired a parcel. The effect on the ground of Measure 37—whatever that effect may ultimately be—will be directly related to the ownership history of a parcel. That is, under Measure 37, the future use of a parcel could be based in large measure on the land use laws in effect on the date the parcel was acquired. In effect, the date

upon which a person becomes the owner of a parcel becomes the foremost consideration in establishing the allowable uses of that parcel. Other factors will include the applicability of laws related to public health and safety; pollution; and federal laws, among other things. At this point, no local government in Oregon has a complete organized historical record of all its past land use regulations. Therefore, the regulations in effect at the time of a present owner's acquisition must be determined for each individual Measure 37 claim.

Since virtually every parcel in the state has a unique ownership history, and there is no readily available source of data on the ownership history of land in Oregon, it is impossible to predict at any scale, much less at the scale of the Oregon Coastal Coho ESU, what the effect of Measure 37 on landscape features and functions related to coho habitat will be.

Nor can any generalizations be made about the effect of Measure 37 on the land use program overall. There are numerous questions about some of the provisions of Measure 37, a few of which are fundamental parts of the measure. It is not known how many of these fundamental questions will eventually be resolved by the Oregon Legislature, or how many will need to be resolved through the courts. In either case, it is nearly impossible at this point to predict the outcome of any given claim, much less its effect on coho habitat. Measure 37 claims may be filed with a local government, the State of Oregon, or both. Claims do not have to specify in detail what a property owner wants to do with his or her property; that is, claims are not required to contain the level of detail required to obtain a building or land development permit. Further, a claim based on the desire to divide property may or may not involve land management practices that could affect coho streams.

Through March 31, 2005, nearly 250 claims had been filed against the state and been received by the Department of Land Conservation and Development, since the claims are against the statewide land use program. (Several others may have been filed against other regulations.) Only 16 of these claims fall within the Oregon Coastal Coho ESU, and these 16 claims involve at least twenty five tax lots. Table 1 lists some information that is available from the claim files. Several of these claims have also been filed at the local government level.

In reviewing Measure 37 claims such as those represented in Table 1, three things have become clear, and these three things further complicate any effort to draw any generalizations about the effect of Measure 37 either on the landscape or on the land use program. First, not all claims will be found to be valid. Second, if a successful claim results in a waiver of certain land use regulations, other laws and regulations will still apply to the proposed use. That is, a waiver does not constitute an approval of the proposed use. And third, a claim may propose a use of land that turns out to be not permitted under the regulations in effect when the claimant acquired the property. While claims must be processed within 180 days of their filing, it may still be some additional months before the nature of a land use change based on a Measure 37 claim will be known.

TABLE 1. MEASURE 37 CLAIMS RELATED TO THE STATEWIDE LAND USE PROGRAM, FILED WITH THE STATE OF OREGON THROUGH MARCH 31, 2005*

CLAIM NUMBER	JURISDICTION	ASSESSOR'S MAP NUMBER	TAX LOTS	PARCEL SIZE IN ACRES	DESIRED USE	GENERAL LOCATION
M119661	Clastop Co.	T07N R10W S27	3400, 3600	74.23	Subdivide	Clatsop Plains about 2 miles north of the

CLAIM NUMBER	JURISDICTION	ASSESSOR'S MAP NUMBER	TAX LOTS	PARCEL SIZE IN ACRES	DESIRED USE	GENERAL LOCATION
						Gearhart UGB
M120178	Coos Co.	T23S R12W S28	1000	30.36	Unspecified	Adjacent to and south of the Templeton Arm of Tenmile Lake
M120237	Coos Co.	T27S R14W S15	400	5.44	Build residence	About one mile north of the ridgetop south of South Slough
M120235	Douglas Co.	T26S R07W S35B	800	19.73	Divide & develop	About 5 miles NW of Roseburg on Elgarose Rd.
M118915	Lincoln Co.	T09S R09W S33	601	19	Residence	Upstream of Mill Ck. on the Middle Siletz; SW parcel corner over 500 ft from Siletz R.
M119728	Lincoln Co.	T10S R09W S06	305	110.4	Divide & develop	Crossed by Scott Ck, a tributary to the upper end of the lower Siletz
M119151	Lincoln Co.	T10S R10W S01	1100	30.3	Divide to allow five additional parcels and residences	At the upper end of Baker Ck, a tributary to the upper end of the lower Siletz
M119168	Lincoln Co.	T13S R11W S18	300	140	Establish 3 residences on 40A lots	East of U.S. 101 north of Bayview Rd. and Alsea Bay
M119142	Lincoln Co.	T13S R11W S07	800 (804?)		Create one homesite	800 and 804 are on Co. Rd. 70 east of US 101,north of Alsea Bay; Buckley Ck.
M119169	Lincoln Co.	T13S R11W S18	900		Subdivide into five half-acre lots	Across from the intersection of US 101 and Seafarer Ct, north of Alsea Bay
M119726	Lincoln Co.	T13S R12W S12 T13S R12W S12AA	100 3600	31.38	Higher density	On or near beach north of Waldport
M119115	Lincoln Co.	T14S R12 S36A	200	3.4	One dwelling	On the north side of Yachats River Rd about two miles east of Yachats;
M118924	Reedsport	T22S R12W S03AB	300 400 500 600		Expand RV park and marina	Adjacent to and south of US 101 as it crosses Scholfield Ck northbound
M119843	Tillamook Co.	T01S R10W S07AC	1400, 1401	0.25	Two homesites	At the N end and east of Fourth St, adjacent to Cape Meares Lake
M119606	Tillamook Co.	T05S R10W S07 T05S R10W S06 T05S R10W S06 T05S R10W S06	1300 1000 900 701	80	Subdivide several parcels into about 20 homesites of varying size (3 to 10 A)	On either side of Cannery Rd (Oretown Rd) N and W of US 101; one parcel bounded by

CLAIM NUMBER	JURISDICTION	ASSESSOR'S MAP NUMBER	TAX LOTS	PARCEL SIZE IN ACRES	DESIRED USE	GENERAL LOCATION
						Nestucca Bay
M120288	Tillamook Co.	T05S R10W S30B	1000	5	Subdivide	On the south side and uphill from Butte Ck west of US 101 in Neskowin

* Note: Parcel numbers in this table are based on information that has not been verified

Some landowners have chosen to file claims at the local level, but not at the state level. For example, as of March 31, the Department of Land Conservation and Development had not received four claims that have been filed with Lincoln County. These claims are summarized in Table 2.

TABLE 2. MEASURE 37 CLAIMS FILED IN LINCOLN COUNTY BY MARCH 31, 2005

JURISDICTION	ASSESSOR'S MAP NUMBER	TAX LOTS	PARCEL SIZE IN ACRES	DESIRED USE	GENERAL LOCATION
Lincoln Co.	T13S R11W S15	200			East of Alsea Bay near Bay View Lp. NE
Lincoln Co.	T10S R10W S10	512, 513		Dwelling	Two claims on the Siletz R
Lincoln Co.	T10S R10W S33	100		Dwelling	Near a tributary to W. Olalla Ck

In the end, while general information can be obtained about the location parcels for which a Measure 37 claim has been filed, no generalizations can be made about the effect of Measure 37-based land management activities that may occur in the future.

3. Summary of the Conservation Effort

The following discussion provides a summary of Oregon's regulatory program for managing land use, in particular for managing the expansion of areas for development at urban densities.

a. Oregon's state-level land use planning framework

Oregon's growth management program indirectly addresses a specific set of threats to the ESU that are documented as occurring in association with urban development. Research has concluded that these threats result from the conversion of land from an undeveloped state to urban density. Urbanization involves several landscape changes. Probably the most significant landscape change is the conversion of absorbent ground surfaces into impervious surface area. In general, research has concluded that there is a strong correlation between impervious surface area and impacts to aquatic habitat.

Impervious surfaces are a necessary part of urbanization; a community could not function without hardened transportation surfaces and buildings. For the most part, urban buildings and roads intercept precipitation before it can soak into the ground, and route it to a stream, lake, or pond. Changes in the hydrologic regime result in changes to aquatic habitat.

The primary purpose of important capital improvements in urban areas is to move water away from the settlement. Impervious surfaces are a necessary part of urbanization. While there may be ways to reduce the hydrologic effects of *new* roads and buildings, there do not appear to be practical and cost-effective ways to significantly reduce the hydrologic effects of existing development.

If it is impossible or impractical to reduce the hydrologic effects of impervious surfaces, and impervious surfaces are a necessary element of urbanization, then one approach to reducing the effects of urban development on stream systems would be to reduce the spread of urban-density development across the landscape by increasing density in already-developed areas.

The conservation effort described here does not regulate impervious surface coverage; rather, it regulates the expansion of urban-density development. The premise that underlies this discussion is that by reducing the expansion of urban areas, Oregon's growth management program reduces the proportion of aquatic habitat that could be affected by urban-density development. Ultimately, *less than four percent* of the entire ESU is subject to development at urban *or rural* densities—that is, at densities ranging from urban to as low as a single unit per two acres.

Since the mid-1970s, Oregon has implemented a program for managing land use and development. In the final listing decision for the Oregon Coastal Coho ESU[6] (which is being used to identify factors for decline that must be addressed in the state's conservation effort), Oregon's program is referred to as "State Urban Growth Management." Oregon's program for managing growth is commonly referred to as its Statewide Comprehensive Planning Program.

Oregon's Statewide Planning program was adopted by the Oregon Legislative Assembly under Senate Bill 100 in 1973. The program basically consists of a series of Statewide Planning Goals that govern land use planning across the entire state, and a statutory requirement that all local governments adopt a land use plan that complies with the Statewide Goals. Thus, local jurisdictions actually implement Oregon's growth management program through locally-adopted comprehensive land use plans. Local plans consist of inventories, analyses, land and resource management policies, and local zoning and land division regulations. There are over fifty cities and counties within the Oregon Coastal Coho ESU.

Under Oregon's planning program, the Statewide Planning Goals have the force of law. There are a total of nineteen planning goals, which were adopted by the Land Conservation and Development Commission between late 1974 and late 1976. Fourteen goals apply to all jurisdictions in the state; one applies to jurisdictions adjacent to the Lower Willamette River; and four goals apply to coastal natural resources. Some of the goals have been extended in Oregon Administrative Rules.

This description of the growth management program refers to five goals. First, basic land use patterns and the control of urban development rely on three goals. Second, the management of estuarine resources is covered by one goal. And a goal provides a basis for managing riparian resources in areas subject to rural and urban development.

All of the local comprehensive plans in the state have been reviewed against the planning goals. By about 1984, all local plans, including their implementing regulations, had been acknowledged by the Land Conservation and Development Commission as being in compliance with the goals.

Oregon's planning statutes, goals, and administrative rules are periodically revised. For much of the last two decades, local jurisdictions were required to undertake a "periodic review" of their

acknowledged plans, and to update plans to reflect changing circumstances and to address new planning requirements. In recent years, the legislature has directed the department to focus most of its resources on jurisdictions of a certain minimum size, or that are growing at a rapid rate.

In summary, Oregon's program for managing urban growth and development consists of a set of statewide land use planning requirements, or *Goals*, and the local land use plans, developed according to those requirements, which have been adopted by every city and county in the state. Implementation of the program occurs at the level of local government.

1. Statewide Planning Goals for Agricultural Lands, Forest Lands, and Urbanization

The primary purpose of the Statewide Planning Goals is to conserve land for farm and forest uses and, correspondingly, to provide for the orderly—but contained—conversion of land for urbanization. The principal Statewide Planning Goals used to achieve these purposes are Goal 3 – Agricultural Lands; Goal 4 – Forest Lands; and Goal 14 – Urbanization. These goals and associated administrative rules specify requirements that must be met before land can be urbanized. Other planning goals, including goals that address housing, public facilities and transportation needs, are also used in the designation of areas for future urban expansion.

By the early to mid-1980s, all local plans in the state had been reviewed and acknowledged as implementing the statewide goals. As such, local plans essentially maintain a *pattern* of land use that had been established across the state by about the late 1970s or early 1980s, and they essentially maintain that land use pattern by regulating the conversion of land to urban-density development according to strict state requirements. Each city in the state is circumscribed by an *urban growth boundary* (UGB), outside of which development at urban densities is not permitted to occur. Expansion of a UGB may only occur under specific circumstances that are spelled out in administrative rules. Unincorporated communities, which are governed by county comprehensive plans, are circumscribed by community growth boundaries, which essentially have the same function as UGBs.

Oregon's land use program has succeeded in reducing the spread of urban and suburban development. A recent analysis concluded that "Oregon's land use program appears successful in reducing the overall rate of conversion of forest and farm uses to more developed uses and has been successful at containing urban expansion within areas zoned for more developed uses."[7] From 1973 to 1982—essentially from the inception of the program (before the Statewide Planning Goals were adopted) to when most local plans had been reviewed against the goals—the annual rate of growth in urban land use in all of western Oregon was 2.1 percent.[8] This rate dropped to 0.6 percent from 1982 to 1994, and dropped further to 0.1 percent between 1994 and 2000.[9] In other words, the annual rate of growth in urban areas in 2000 was less than five percent of the annual rate of growth in 1970. While dwelling density in rural areas has increased somewhat, the increases are not nearly on the order of what would normally be viewed as "urbanization." The vast majority of land use changes documented in the study occurred east of the Coast Range, in the "Interstate 5 corridor." For example, from 1973 to 2000, urban land uses grew by 45 percent in the North Willamette Valley, but only by 10 percent in the northern coastal counties.

One of the chief mechanisms used to restrict development of rural areas is the adoption by counties of *minimum lot sizes*. Thus, farm parcels in Western Oregon subject to Goal 3 may not be divided from larger parcels unless they are 40—and in some cases, 80—acres in size.

Forested parcels subject to Goal 4 must generally be a minimum of 80 or 160 acres in order to be legally created.

The Oregon Coast coho ESU is about 6,770,000 acres in size, and includes some portion of fourteen counties. Coos, Tillamook and Lincoln counties are essentially entirely within the ESU; Douglas County is about 87 percent within the ESU; Clatsop about 57 percent; Columbia, about 38 percent; Lane and Benton Counties are about one-quarter; and Washington, Polk, and Curry Counties are between 11 and 14 percent within the ESU. [10]

The ESU also contains 39 cities.[11] Each city is surrounded by an urban growth boundary, which is generally adopted as part of both the city and the county comprehensive plan. In 2004, the urban growth boundaries of these cities contain 89,496 acres—which amounts to 1.32[12] percent of the entire ESU. When these 39 UGBs were acknowledged by LCDC in the early- to mid-1980s, the area they contained in the ESU totaled 85,668 acres. Thus, in a period of about 20 years, the total area in the Oregon Coast coho ESU dedicated to urban density development increased by only 3828 acres, or by 4.47 percent.

While the time frames for figures related to UGB expansion and the population growth do not coincide, population growth is nevertheless an important factor to acknowledge in evaluating the effect of Oregon's growth management program. From 1980 to 2000, the total population of all the cities in the Oregon Coast coho ESU grew by more than 15 percent. While more than a quarter of these cities lost population in that time period, population in a few cities—most notably Florence, Depoe Bay and Waldport—grew by *over 60 percent* from 1980 to 2000. In some cities, the trend goes back further; from 1970 to 2000, Florence grew by 223 percent; Waldport, 192 percent; and Cannon Beach by 104 percent. Table 1 in Section D contains population figures for all cities in the ESU from 1970 through 2000.

Not all lands in the Oregon Coast coho ESU are designated for either urbanization or farm or forest use. Oregon's planning program allows counties to designate rural communities; to allocate lands for a range of "non-resource" low-density uses such as rural residential, rural commercial, and rural industrial development; and to provide for the management of small noncommercial farms and woodlots. All the counties in the ESU contain rural unincorporated communities—essentially small areas of comparatively high density development, where additional development may be expected to occur. Some of the larger and better-known unincorporated communities in the ESU are Mapleton on the Siuslaw River, Neskowin in south Tillamook County, and Langlois in Curry County. The expansion of unincorporated communities is, like the expansion of an urban growth boundary, governed by Oregon Administrative Rules whose primary purpose is to restrict expansions unless a specific need is shown.

Some low-density land development may occur in rural areas in the ESU. All counties in the ESU have designated some areas for rural residential, commercial, and industrial land-use activities and for small, generally non-commercial, farm and forest operations. The lot size minimums for rural uses vary from county to county; they generally range from two to ten acres for residential sites to twenty or more acres for small-scale farm and forest operations. The establishment of areas for residential, commercial, and industrial land uses in rural areas was restricted at the outset of the land use program, and their expansion is similarly restricted today. When all the local plans were acknowledged, there were about 112,800 acres of land in the ESU designated for rural residential, commercial, or industrial uses. Expansion of rural areas has not

been documented with the same level of precision as have UGBs. Therefore, the total amount of land in the ESU available for rural development in 2004 is not known.

Altogether, a total of 198,468 acres—or about 2.93 percent—of the Oregon Coastal Coho ESU was designated in local comprehensive plans for some level of rural or urban development when the plans were acknowledged by LCDC as being in compliance with the planning goals. One of the defining characteristics of Oregon's land use program is that the expansion of any of these areas—whether they are inside a UGB, designated as a rural service center, or for used for rural residential, commercial, or industrial development—must meet strict criteria laid out in Oregon Administrative Rules. While the extent to which rural areas have been expanded is not known, urban growth boundaries in the ESU have expanded by less than five percent in about 20 years.

In summary, Oregon's growth management program strictly restricts the expansion of urban and rural development areas, and thus minimizes the geographic extent of the effects of land development activities—regardless of what those effects are—on aquatic habitat.

2. Statewide Planning Goal for Natural Resources

Land use plans are primarily used to establish or maintain land use *patterns*; they are used to a comparatively lesser degree to influence *activities* that occur within different land use categories. In other words, local comprehensive plans may or may not be the appropriate vehicle for mitigating the effects of land use activities. A primary example in Oregon is that while land use plans can designate areas for commercial timber production, the Forest Practices Act is better suited to address the effects of various activities associated with commercial timber management.

Nevertheless, the Statewide Planning Program does include an element designed to reduce the effects of urbanization on watershed processes. Goal 5 – Natural Resources requires that local governments adopt programs to protect riparian resources. (In coastal shoreland areas, Goal 17 – Coastal Shorelands fulfills essentially the same purpose.) Neither the degree to which Goal 5 has been fully implemented in local plans in the Oregon Coastal Coho ESU nor its actual effects on the ground have been assessed.

Goal 5 has been described in previous Oregon Plan compilations of program descriptions. In particular, in response to a request from the Governor for agencies to review their programs for consistency with a Statewide Riparian Management Policy developed under the Oregon Plan,[13] DLCD undertook an evaluation of its programs for the protection of riparian resources in late 2002. Appendix A contains the department's report to the governor on riparian management policies, including Goal 5.

3. Statewide Planning Goal for Estuarine Resources

Two of the coastal goals have potential to affect coho habitat. Goal 16 – Estuarine Resources and Goal 17 – Coastal Shorelands are implemented by all of the cities and counties in the ESU that regulate the use of lands below head of tide. Goal 17 requires the protection of riparian resources and, as such, functions much like Goal 5 (see above).

Goal 16 – Estuarine Resources restricts the alteration of estuarine areas. Just as farms were being encroached upon by suburban housing developments in the 1960s and 1970s, estuaries were being dredged, diked and filled for a range of economic activities. Significant portions of estuaries in the ESU had been converted to upland by the time the Land Conservation and Development Commission adopted planning goals to restrict further alterations. Oregon's

estuary management program essentially establishes an appropriate level of protection and development to all Oregon estuaries, thus reducing the overall rate of conversion and development. It is generally felt among experts that the rate of estuarine alterations has dropped essentially to zero since the late 1970s.[14] Oregon's program for protecting estuarine resources is fully described in *The Oregon Estuary Plan Book.*[15]

B. Description of Regulatory Measures

This purpose of this section of the report is to describe programs in relation to information required by the Policy for Evaluation of Conservation Efforts (PECE)[16].

The PECE policy identifies two factors as key in the evaluation of conservation actions: "(1) for those efforts yet to be implemented, the certainty that the conservation effort will be implemented and (2) for those efforts that have not yet demonstrated effectiveness, the certainty that the conservation effort will be effective."[17] The policy lists fifteen criteria for making these determinations—nine for evaluating the certainty a conservation effort will be implemented, and six for evaluating whether it will be effective.

The Statewide Planning Goals referred to above are now fully implemented through city and county comprehensive land use plans. The land use program fosters and enforces continued implementation by maintaining professional staff to provide technical assistance to local governments, and by providing grants to local governments to update their plans. Furthermore, the program's effectiveness in reducing the spread of urban-density development has recently been documented. Nevertheless, the criteria in the PECE policy are addressed, to the degree possible, in the following.

- **Certainty that the conservation effort will be implemented**

1. The conservation effort, the party(ies) to the agreement or plan that will implement the effort, and the staffing, funding level, funding source, and other resources necessary to implement the effort are identified.

The level of staffing commitment in DLCD to ongoing implementation of the Statewide Planning Program is somewhat difficult to assess, since the ESU does not coincide with the boundaries of the department's regional territories. In addition, some portion of the department's support functions support the field personnel assigned to local jurisdictions in the ESU. The Oregon Coast coho ESU contains virtually the entire region of one DLCD field staff, and some portion of two others. The department's conservation effort provides technical assistance, manages grants to local governments, and monitors certain kinds of local land use proposals—principally those related to the conversion of farm of forest land to other uses. Local governments also maintain planning functions, but there is no way to determine how much of the total local effort can be considered to fall under the five goals discussed above.

A rough estimate of the department's staffing level in the ESU is about 2.0 FTE. These positions are funded by federal coastal management funds and state general funds. Note, however, that only a portion of this staffing level is devoted to those aspects of the program described above.

Funding sources and levels for the present level of effort are probably somewhat stable, since the functions served by the two positions are the highest priority for the department and the Oregon Coastal Management Program. However, funding levels are contingent on continued federal

appropriations at least at the present level for state coastal management programs; and continued legislative support for Oregon's Statewide Planning Program. These funding levels and decisions are largely beyond the ability of the department to guarantee.

Finally, since the land use program is actually implemented at the level of local government, maintaining the conservation effort will also depend on continued support for land use planning at the local level. The department provides two kinds of grants to local governments. First, the department provides small grants to local jurisdictions to support basic planning functions. These grants are used to build local planning capacity, and are not intended to provide the full range of local planning functions. . Second, the department provides grants to local jurisdictions specifically to adopt natural resource protection programs.

For example, since 1999, the department has provided about $1,140,000 in federal coastal management program grants to the 27 cities and counties in the ESU that are eligible to receive federal coastal management funds.[18] These basic coastal planning grants range from $1,000 to $30,000 per jurisdiction per year, depending largely on local population. (Note that these basic planning grants are not considered sufficient to fully support all local planning functions.) In addition to the basic planning grants, since 1999 the department has provided about $270,000 in grants to several local governments in the ESU to complete tasks necessary to adopt local wetland and riparian protection programs.

2. The legal authority of the party(ies) to the agreement or plan to implement the formalized conservation effort, and the commitment to proceed with the conservation effort are described.

Oregon's statewide comprehensive land use planning authority is laid out in Chapter 197 of the Oregon Revised Statutes. County planning authorities are found in ORS Chapter 215, and city authorities are found in ORS Chapter 227.[19] Administrative rules related to planning goals are found in Oregon Administrative Rules Chapter 660, as follows: Goal 3: Division 33; Goal 4: Division 6; Goal 14, Division 21; and Goal 16, Division 17.[20] The statutes, goals, and rules that comprise the framework for this conservation effort are all available from one place on the department's Web site.[21]

3. The legal procedural requirements (e.g. environmental review) necessary to implement the effort are described, and information is provided indicating that fulfillment of these requirements does not preclude commitment to the effort.

This criterion is not applicable as the land use program is already established.

4. Authorizations (e.g., permits, landowner permission) necessary to implement the conservation effort are identified, and a high level of certainty is provided that the party(ies) to the agreement or plan that will implement the effort will obtain these authorizations.

This criterion is not applicable as the land use program is already established.

5. The type and level of voluntary participation (e.g., number of landowners allowing entry to their land, or number of participants agreeing to change timber management practices and acreage involved) necessary to implement the conservation effort is identified, and a high level of certainty is provided that the party(ies) to the agreement or plan that will implement the conservation effort will obtain that level of voluntary participation (e.g., an explanation of how incentives to be provided will result in the necessary level of voluntary participation).

This criterion is not applicable to the land use program, as it is regulatory in nature.

6. Regulatory mechanisms (e.g., laws, regulations, ordinances) necessary to implement the conservation effort are in place.

See criteria 2 above.

7. A high level of certainty is provided that the party(ies) to the agreement or plan that will implement the conservation effort will obtain the necessary funding.

See also the response to criteria #1 above. Funding for a large portion—perhaps 80 percent—of DLCD's staffing in the ESU described in #1 above comes from the National Oceanic Service, Office of Coastal Resources Management, and is contingent on Congressional appropriations for coastal resources management. The remaining funding comes from state General Funds. Continued funding at the present levels from these sources is not guaranteed, and largely beyond the department's ability to influence. To the degree possible, the department is committed to maintaining the present level of field staff.

8. An implementation schedule (including incremental completion dates) for the conservation effort is provided.

This criteria is not applicable as the land use program is already established.

9. The conservation agreement or plan that includes the conservation effort is approved by all parties to the agreement or plan.

All local plans that are in effect today in the Oregon Coastal Coho ESU have been officially adopted by city councils and county governing boards, and have been acknowledged by the Land Conservation and Development Commission as being in compliance with the Statewide Planning Goals.

- **Certainty that the conservation effort will be effective**

Like the criteria discussed above, several of the following criteria are difficult to address. Oregon's growth management program is essentially fully implemented, however, the effects of the program are continuing to be felt. The monitoring and reporting functions that have developed as part of the overall statewide planning program are essentially concerned with the conversion of farm and forest land to other uses, including uses that do not constitute urbanization.

The effectiveness of Oregon's program has recently been assessed in the western part of the state. The annual rate of growth in urban land use in all of Western Oregon has dropped to about *five percent* of the annual rate of growth in the very early years of implementing the program.[22]

1. The nature and extent of threats being addressed by the conservation effort are described, and how the conservation effort reduces the threats is described.

The threat being addressed by this conservation effort is the unmanaged conversion of land to urban development. As discussed above, research indicates that urbanization can result in several factors for the decline of coho populations. As also noted above, this conservation effort does not address the factors directly; rather, it addresses their cause, which is the conversion of land to urban uses.

Since this conservation effort—Oregon's Statewide Planning Program—is essentially fully implemented, the extent of the threat of land conversion is now pretty low. As noted above, the rate of growth in urban land in all of Western Oregon was about 0.1 percent between 1994 and 2000. How Oregon's program has reduced the threat is fully described above.

2. Explicit incremental objectives for the conservation effort and dates for achieving them are stated.

As noted above, the growth management program is fully implemented at this point. Given the low rate of land conversion, especially along the coast as evidenced by data from Lincoln County north, establishing incremental objectives to reduce the rate of land conversion further is not a meaningful exercise.

3. The steps necessary to implement the conservation effort are identified in detail.

The conservation effort is fully implemented. All local governments in the ESU have adopted comprehensive plans that comply with the statewide planning goals.

4. Quantifiable, scientifically valid parameters that will demonstrate achievement of objectives, and standards for these parameters by which progress will be measured, are identified.

As noted above, the growth management program is fully implemented at this point. Given the low rate of land conversion, especially along the coast as evidenced by data from Lincoln County north, establishing incremental objectives to reduce the rate of land conversion further is not a meaningful exercise.

5. Provisions for monitoring and reporting progress on implementation (based on compliance with the implementation schedule) and effectiveness (based on evaluation of quantifiable parameters) of the conservation effort are provided.

The effort is fully implemented. The department monitors the effectiveness of the growth management program periodically.

6. Principles of adaptive management are incorporated.

As noted, the program is fully implemented. As a result, adaptive management is not directly relevant.

C. Discussion: Identified Concerns

This section is a discussion of critiques and concerns about the growth management program that may be identified in either the Federal Register notice of the final listing determination for the Oregon Coastal Coho ESU or any reports issued by the Independent Multidisciplinary Science Team (IMST) for the Oregon Plan for Salmon and Watersheds.

1. Final listing determination for the Oregon Coastal Coho ESU

In the Federal Register notice of the Oregon Coastal Coho ESU final listing determination[23], the National Marine Fisheries Service contains a "Summary of Factors Affecting Coho Salmon:"

- The Present or Threatened Destruction, Modification, or Curtailment of its Habitat or Range
- Overutilization for Commercial, Recreational, Scientific, or Education Purposes
- Disease or Predation
- Inadequacy of Existing Regulatory Mechanisms

In the last category, under "Habitat Management," the notice briefly addresses "State Urban Growth Management:"

> *On lands inside Oregon's urban growth boundaries, some upgraded riparian area protection will be afforded by the newly revised requirements for statewide planning Goal 5. Local governments will amend their local comprehensive plans to implement these new requirements. Unfortunately, Goal 5 does not require establishment and protection of riparian vegetation to provide adequate large woody debris and allows limited road building in riparian areas.* [24]

This critique is concerned entirely with Goal 5, which is only briefly addressed in the present report. The department completed an evaluation of programs related to riparian protection to determine if the goal was consistent with a *Statewide Riparian Management Policy*.[25] The evaluation, which was based on the experience of the department's professional staff, concluded that policies of the land use program that affect riparian resources are consistent with the *Statewide Riparian Management Policy*.

2. Independent Multidisciplinary Science Team (IMST) reports:

In August 2002, the Independent Multidisciplinary Science Team (IMST) published a report on the Recovery of Wild Salmonids in Western Oregon Lowlands. [26] Among other things, the report highlighted the importance of estuaries to salmonids. The IMST made 21 recommendations, most of which were directed at Oregon state agencies. Recommendation #20 was directed to DLCD:

> *[The] Department of Land Conservation and Development (DLCD), in conjunction with Oregon Department of Fish and Wildlife (ODFW), should improve and protect salmonid habitat in Oregon's estuaries.*
>
> *The goal of this recommendation is to protect and restore the structure and function of important estuary habitats used by salmonids during rearing and migration. Steps to achieve this recommendation might include:*
>
> - *Surveying estuaries to assess changes from historical conditions,*
> - *Devising goals and guidelines based on current understanding of aquatic habitats and salmonid habitat needs, and*
> - *Develop explicit plans for estuarine habitat protection and restoration in cooperation with state agencies, local governments, and watershed councils.*[27]

DLCD's response to the IMST and the team's response back to the department are included as Appendix B.

D. Tables, Figures, and Maps

Table 1. Population of cities in the Oregon Coastal Coho ESU, 1970-2000

City	1970	1980	1990	2000	% change 1980 - 2000
Bandon	1,832	2,311	2,215	2,833	22.59%
Bay City	898	986	1,027	1,149	16.53%
Cannon Beach	779	1,187	1,221	1,588	33.78%
Canyonville	940	1,288	1,219	1,293	0.39%
Coos Bay	13,466	14,424	15,076	15,374	6.59%
Coquille	4,437	4,481	4,121	4,184	-6.63%
Depoe Bay	0	723	870	1,174	62.38%
Drain	1,204	1,148	1,086	1,021	-11.06%
Dunes City	976	1,124	1,081	1,241	10.41%
Elkton	176	155	172	147	-5.16%
Florence	2,246	4,411	5,171	7,263	64.66%
Garibaldi	1,083	999	886	899	-10.01%
Gearhart	829	967	1,027	995	2.90%
Glendale	709	712	707	855	20.08%
Lakeside	0	1,453	1,437	1,371	-5.64%
Lincoln City	4,196	5,469	5,908	7,437	35.98%
Manzanita	261	443	513	564	27.31%
Myrtle Creek	2,733	3,365	3,063	3,419	1.60%
Myrtle Point	2,511	2,859	2,712	2,451	-14.27%
Nehalem	241	258	232	203	-21.32%
Newport	5,188	7,519	8,437	9,532	26.77%
North Bend	8,553	9,779	9,614	9,544	-2.40%
Oakland	1,010	886	844	954	7.67%
Powers	842	819	682	734	-10.38%
Reedsport	4,039	4,984	4,796	4,378	-12.16%
Riddle	1,042	1,265	1,143	1,014	-19.84%
Rockaway Beach	665	906	970	1,267	39.85%
Roseburg	14,461	16,644	17,069	20,017	20.27%
Seaside	4,402	5,193	5,359	5,900	13.61%
Siletz	596	1,001	992	1,133	13.19%
Sutherlin	3,070	4,560	5,020	6,669	46.25%
Tillamook	3,968	3,991	4,001	4,352	9.05%
Toledo	2,818	3,151	3,174	3,472	10.19%
Vernonia	1,643	1,785	1,808	2,228	24.82%
Waldport	700	1,274	1,595	2,050	60.91%
Wheeler	262	319	335	391	22.57%
Winston	2,468	3,359	3,773	4,613	37.33%
Yachats	441	482	533	617	28.01%
Yoncalla	675	805	919	1,052	30.68%
Total	96,360	117,485	120,808	135,378	15.23%

References (see endnotes)

Appendices

Appendix A: Review of the Statewide Land Use Program for Consistency with the Governor's Statewide Riparian Management Policy.

Appendix B: DLCD response to IMST on Recommendation #20 in the Lowlands Report, and IMST's response to the department.

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[1] Policy for Evaluation of Conservation Efforts (PECE), 68 FR 15100, March 28, 2003. Available at http://www.gpoaccess.gov/fr/retrieve.html

[2] See, e.g., Spence, B.C., G. A. Lomnicky, R. M. Hughes, and R. P. Novitzki. 1996. An ecosystem approach to salmonid conservation. Corvallis, OR: ManTech Environmental Research Svcs. Corp. Available from NOAA Fisheries, Portland, OR.

[3] See, e.g., Schueler, T.R. 1994. The importance of imperviousness. *Watershed Protection Techniques* Vol. 1 No. 3, page 100.

[4] See, e.g., the Federal Register notice of the final listing decision for the Oregon Coastal Coho and the Southern Oregon/Northern California Coho ESUs, 62 FR 24588, 24592.

[5] 62 FR 24588 at 24592, col. 2; references omitted.

[6] 62 FR 24588, page 24597

[7] Lettman, Gary, David Azuma, Kevin Birch, Andrew Herstrom, and Jeffrey Kline. 2002. *Forests, Farms & People: Land Use Change on Non-Federal Land in Western Oregon, 1973 – 2000.* Oregon Department of Forestry, Salem, OR.

[8] Note that this assessment includes the Willamette Basin and the entire Interstate 5 corridor, where land use conversion has historically occurred at a higher rate than in all other areas of the state.

[9] Ibid., p. 12.

[10] The ESU contains less than one-half of one percent of both Jackson and Josephine counties.

[11] The ESU also contains the western edge of Warrenton's UGB, but this area is essentially uninhabited. Areal and population figures for Warrenton are not included in the calculations that follow.

[12] GIS data used to calculate the size of the ESU and the extent of urban areas in the ESU originated from several different sources, and may have involved different map scales. As such, these figures probably involve a small margin of error.

[13] Available at http://www.oregon-plan.org/archives/Riparian/index.html

[14] Weber, J., Oregon Coastal Management Program, Department of Land Conservation and Development, pers. comm..

[15] 1987. Salem, OR, Department of Land Conservation and Development. See http://www.inforain.org/mapsatwork/ oregonestuary/, in particular http://www.inforain.org/mapsatwork/oregonestuary/oregonestuary_page5.htm.

[16] 68 FR 15100, March 28, 2003.

[17] *Ibid.*, at 15114.

[18] The Oregon Coastal Coho ESU contains several jurisdictions that are not part of the coastal program.

[19] See http://landru.leg.state.or.us/ors/

[20] See http://arcweb.sos.state.or.us/rules/OARS_600/OAR_660/660_tofc.html

[21] This material is at http://www.lcd.state.or.us/goalsrul.html

[22] Lettman, Gary, David Azuma, Kevin Birch, Andrew Herstrom, and Jeffrey Kline. 2002. *Forests, Farms & People: Land Use Change on Non-Federal Land in Western Oregon, 1973 – 2000.* Oregon Department of Forestry, Salem, OR.

[23] http://www.nwr.noaa.gov/reference/frn/1997/62 FR 24588.pdf

[24] http://www.nwr.noaa.gov/reference/frn/1997/62 FR 24588.pdf. See p. 24597

[25] See material available at http://www.oregon-plan.org/archives/Riparian/index.html.

[26] Independent Multidisciplinary Science Team. Recovery of Wild Salmonids in Western Oregon Lowlands. Technical Report 2002-1. Available at http://www.fsl.orst.edu/imst/reports/techindex.html.

[27] Ibid., p. 134