

Municipal and County Efforts to Support Fish and Wildlife in the Willamette Basin

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Identifying how Oregon's most populated basin has impacted native fish and wildlife habitat provides insight into the state's ability to restore and sustain its natural heritage. Approximately 71% of Oregon's 3.4 million residents live in the Willamette River Basin, and most of these residents live in urban areas which create distinct impacts to fish and wildlife habitat. The development of hardscaped environments, which displace native habitat and create changes to the natural hydrology of an area, is endemic to urban density and infrastructure. In addition, stormwater diversions, which carry sediment, pollutants and toxic materials, and urban wastewater discharges also can degrade both water quality and local habitat.

Almost 100 cities, ten counties, and ten soil and water conservation districts are located in the Willamette. Special governmental districts, including Metro's regional government, and a large public utility in the Tualatin River Watershed (Clean Water Services), also exist in the Willamette basin. This concentration of cities, transportation networks, urban infrastructure, and intense land and resource use has had a significant impact on native fish and wildlife habitat. For instance, research indicates that today approximately 99 percent of the original bottomland prairies, and 72 percent of the bottomland forests, have been lost (Willamette Restoration Initiative, 2001). In addition, wild Spring chinook salmon populations in the basin are estimated at one percent of their historic levels (WRI, 2001).

While these changes are significant, the Willamette's hardscaping and urban development have been moderated by intentional efforts to support native fish and wildlife. The state's landuse planning process has helped stem the loss of fish and wildlife habitat in the basin. Local jurisdictions are also analyzing, and in many cases changing, municipal programs such as stormwater and wastewater management and road maintenance programs, with the goal of reducing impacts on fish and wildlife habitat and water quality. These efforts are a result of both regulatory mandates, such as the federal Clean Water and Endangered Species Acts, and voluntary, collaborative efforts from local watershed councils and soil and water conservation districts. This report provides a snapshot of what local jurisdictions, county governments and other entities are currently doing to support fish and wildlife habitat through their planning and public works activities in the Willamette Basin.

Oregon's Statewide Landuse Plans

Oregon has long been a leader in natural resource management and innovative public policy. For instance, Oregonians have supported planned growth of their communities for over half a century. The state authorized cities and counties to adopt comprehensive plans

beginning in 1947 (Wiley, 2001). In 1973, after rapid population growth in the 1960s, the state adopted a land use planning process designed to slow the loss of farm and forestland due to development and minimize the urban sprawl that many residents felt threatened the state's natural and cultural heritage. Today, Oregon's 19 state land use planning laws provide guidance for a suite of issues including protection of farm and forestland, natural resources, open space, scenic and historic areas. These laws also include sections addressing transportation, public facilities, coastal resources and citizen participation. The state's broad landuse planning goals are defined and supported by a set of policy guidelines and administrative rules adopted and amended over time by the State's Land Conservation and Development Commission (LCDC) and administered by the Department of Land Conservation and Development.

A number of Oregon's landuse planning goals support native fish and wildlife populations throughout the state. Goals 3 and 4, which are designed to protect farm and forest lands for productive resource use, have also resulted in large, contiguous tracts of agricultural and forested lands that support habitat for many species. In addition, Goal 14, which requires incorporated communities to establish urban growth boundaries designed to contain urban sprawl, also helps support habitat for native fish and wildlife.

An Urban Growth Boundary (UGB) is a line drawn around a city that defines the area where the city is expected to grow and develop. Communities have developed their UGBs based on an analysis of the land needs of each local jurisdiction for up to 20 years in the future. Cities must designate sufficient land within their UGBs to meet projected needs for residential, commercial, and industrial uses, and the boundaries can be changed to reflect known and projected population growth and other conditions.

Cities and counties are also required to adopt comprehensive plans and implement regulations to address the goals applicable to their jurisdiction under the state's landuse laws. Once a jurisdiction has adopted a "Comp Plan" and the associated ordinances, these plans are then reviewed (and ultimately approved) by LCDC for their compliance with the state's landuse goals.

The primary landuse planning goals that task Oregon's cities and local jurisdictions to protect fish and wildlife habitat are Goal 5, the natural resources goal, and to a lesser degree, Goal 6, the air, water and land resources quality goal. The purpose of Goal 5 is "to protect natural resources and conserve scenic and historic areas and open spaces," while Goal 6, seeks to, "maintain and improve the quality of the air, water, and land resources of the state."

In general, Goal 5 and its supporting administrative rules require that local governments do the following (from Wiley, 2001):

1. Conduct an inventory—i.e. a survey, map, or description of one or more resource sites of natural resources within the jurisdiction--that includes information about the resource values and features associated with such sites.

2. Determine the significance of the resources identified in the inventory based on the location, quantity, and quality of the resource;
3. Identify uses that may conflict with the resource use;
4. Determine the "impact areas" around the resource use;
5. Conduct an ESEE (economic, social, environment, and energy) analysis to identify the consequences that could result from a decision to allow, limit, or prohibit an identified conflicting use, *or* (after changes made in 1996), use a "safe harbor" approach to analysis. The safe harbor provisions allow local governments to meet Goal 5 requirements for riparian areas, wetlands, wildlife habitat, and other resources through specific actions: a) by establishing a standard setback for riparian areas; b) by determining "significant wetlands" using criteria from the Division of State Lands; and c) by determining if the wildlife habitat in question is "significant" based on its use for critical life history needs, or other considerations.
6. Based on the ESEE or the safe harbor analysis, the jurisdiction must then decide whether to allow, limit, or prohibit identified conflicting uses for significant resource sites;
7. If a decision is made to prohibit identified conflicting uses, the jurisdiction must develop a program to achieve the goal for that resource.

(For a more thorough review of the landuse goals, please visit <http://www.lcd.state.or.us/goalsrul.html> or http://darkwing.uoregon.edu/~pppm/landuse/land_use.html).

One of the main mechanisms available under the state regulations to keep local jurisdictions' inventories of fish and wildlife habitat current is the "periodic review" process. The state's original landuse goals specified that local jurisdictions were required to review their comprehensive plans and land use regulations every four to ten years to ensure continued compliance with the state's planning goals. Such "periodic reviews" involve three steps: 1) evaluate the comprehensive plan and land use regulations to determine what, if any, changes are needed; 2) develop a work program with scheduled work tasks to make any necessary changes; and 3) carry out the work program in a timely fashion.

However, in 1999, the state's legislature exempted less populated cities (under 2,500) and counties (under 15,000) from periodic reviews. Cities with populations between 2,500 and 25,000, and counties with populations between 15,000 and 50,000 are now required to conduct periodic reviews every five to fifteen years. Cities larger than 25,000, and counties larger than 50,000 are now required to conduct periodic reviews every five to

ten years.

Recommendations for Local Stewardship

The Steelhead Supplement to the Oregon Plan for Salmon and Watersheds included a comprehensive set of recommendations to help local jurisdictions minimize their impacts on fish and wildlife habitat. First published in 1997, the Supplement noted that local jurisdictions have “broad authority to rezone properties or condition development in ways that can boost water quality and to protect steelhead habitat...” (Steelhead Supplement, 1997). In addition, the Supplement noted that local jurisdictions, “can ask developers to observe setbacks in riparian areas, retain natural vegetation and implement erosion control...” Finally, the Supplement suggested that through the “operation of water storage, delivery and treatment facilities,” and their stormwater management programs, local jurisdictions can further reduce sources of pollution to Oregon’s streams (however, a 50% voter approval is required to build or improve such facilities).

The Supplement reviewed the state’s landuse goals, and noted that local jurisdictions can implement a number of improvements to their local planning and programs when they expand their UGBs. Improvements include reducing non-point source pollution, preparing wetland inventories, preparing municipal water management programs, screening unscreened water diversions (to prevent fish entrapment), reviewing septic systems with DEQ to reduce nutrient loads into surface waters, and changing city and county road maintenance programs to protect aquatic habitat. (Supplement pg 141-5 & 6). Other sets of recommendations focused on land use planning and real estate development functions, and stormwater, wastewater and roads maintenance as the primary mechanisms through which local jurisdictions impact, and ultimately can support, fish and wildlife habitat.

Other groups have made similar recommendations for ways in which local jurisdictions can support fish and wildlife habitat. For instance, the Willamette Urban Watershed Network, published a “white paper” in 2000 which made many similar recommendations, focusing particularly on local jurisdictional land use planning, stormwater, wastewater and road maintenance operations (Willamette Urban Watershed Network, 2000).

As a result of these analyses, and because specific habitat inventories and species population analyses have been conducted by other researchers, this report focuses on the land use planning, stormwater, wastewater and roads maintenance programs of local jurisdictions and how these programs either impact fish and wildlife habitat, or have changed to minimize such impacts.

An Inventory of Current Planning and Public Works Programs

To gain insight into how local jurisdictions are currently implementing their landuse planning and public works responsibilities, and the impact these processes have on fish

and wildlife habitat, a survey was sent out to 80 contacts in local communities and county governments throughout the Willamette Basin. The survey requested responses to a suite of questions that focused on land use planning and public works. Thirty-two respondents (40%) representing twenty communities, three counties and three other local jurisdictional entities (Metro, Clean Water Services and one SWCD) responded to the survey (see Appendix for a copy of the survey). In addition, information was obtained through internet searches, secondary sources to cross-reference and support the responses obtained directly through the surveys, and a few phone interviews.

DISCLAIMER: This survey, plus the secondary and internet sources used to identify current efforts by local jurisdictions to support of fish and wildlife, is not meant to provide an exhaustive inventory of all local jurisdictional programs and practices in the Basin. Given the number of communities and jurisdictions in the Willamette Basin, many programs may exist which support fish and wildlife habitat or improve water quality that are not cited in this survey. However, this report does provide a current picture of the types of programs local jurisdictions are involved in , and the amount of support local jurisdictions are providing, to improve and protect fish, wildlife and water quality within the context of their programmatic and planning responsibilities.

Cities are organized into four categories based on population size. “Larger Cities” (>100,000), “Medium Cities” (between 50,000-100,000), “Smaller Cities” (between 10,00-50,000) and “Smaller Communities” (under 10,000). The following narrative summarizes the current efforts of cities and counties which responded to the survey. Noteworthy programs developed to address fish and wildlife habitat or water quality, and the programs of counties and larger cities, are identified in the narrative.

Larger Cities

Portland Metro Area

In 2002, Metro’s regional government inventoried all streams within its three-county jurisdiction to determine which streams are subject to riparian protections under the State’s land use Goal 5 as part of a regional plan designed to create an interconnected, functional system of fish and wildlife habitat throughout Metro’s jurisdiction. Approximately 850 miles of streams within the three-county area have been inventoried and are subject to Goal 5 riparian provisions (i.e. they must be assessed for whether competing uses can occur in or near them). In addition, Metro has adopted its "Title 3" program, which is a regional water quality approach to meet Goals 6 (water quality) and Goal 7 (natural hazards) through erosion control, floodplain regulations, and water resource management areas. For instance, through Title 3, Metro has implemented both riparian vegetation protections and balanced “cut-and-fill” programs to minimize sediment run-off into nearby streams.

In 1992, Metro created a Greenspaces Master Plan, and in 1995 voters approved a bond measure providing \$135.6 million to acquire natural areas, trail corridors, and greenways. Metro has acquired approximately 8,000 acres of open space, including over 50 stream

miles of riparian areas. (Metro's comprehensive approach to natural resource and habitat management goes beyond simply meeting compliance thresholds under the state's Goal 5 and federal mandates under the Clean Water and Endangered Species Acts. The Greenspaces and Title 3 programs can be interpreted as a larger commitment to supporting and protecting habitat and water quality.)

Metro has reviewed existing plan policies and development standards to identify ways to improve protection of aquatic systems, but thus far has not made changes to existing policies or standards for fish or wildlife habitat. Metro has considered incorporating a stream's "channel migration zone" to protect both new property development and aquatic resources (using a channel migration zone as a planning overlay may increase the size of development setbacks and prevent future problems to developments from flooding. Using such zones can also provide greater capacity for aquatic ecosystems to sustain and restore primary ecological functions and habitat.) Metro has also conducted independent inventories of birds, vegetation stream and channel quality and studied habitats of concern independently of Goal 5 requirements. Metro has identified wetlands within its jurisdiction for their wildlife, groundwater and water retention functions, as well as sediment storage, pollution and nutrient filtration.

The City of Portland has not yet inventoried streams in its jurisdiction and or identified significant riparian areas under Goal 5 provisions. However, the City has implemented its own riparian protection measures which have been "acknowledged" by LCDC. The City has not completed a Local Wetlands Inventory, however it does have a program to protect wetlands within the jurisdiction through the standard Goal 5 (ESEE) process. The City regulates development near wetlands including grading, excavation, vegetation removal, and fill replacement.

The City's Comprehensive Plan includes protections for wildlife habitat through the standard ESEE Goal 5 process. This program primarily protects trees and vegetation in riparian areas and uplands, Since 1980, the City also has planned for the protection of open space, and has a plan for acquiring open space for parks and other land through its Parks Bureau and through its Bureau of Environmental Services. The City uses bonds, private donations and a "capital program" to fund open space acquisitions.

The City has reviewed existing plans and development standards to provide greater protections to aquatic systems and wildlife habitat. No changes have been made to these policies yet. The City has studied using a stream's "channel migration zone" to protect new development and aquatic resources. In addition, the City has surveyed all tributaries within its jurisdiction and is sampling fish from Willamette Falls to the mouth on a 4-year, year-round basis.

The Parks and Recreation Department has assessed natural areas and parks for vegetative composition and wildlife habitat as a way to prioritize ecological protections and restoration activities. The City has identified wetlands as providing wildlife habitat,

groundwater recharge and stormwater retention, as well as aiding in water quality and flood storage functions.

Portland's Willamette Greenway program also contributes to fish and wildlife habitat protection along the Willamette River. The Bureau of Environmental Services is producing watershed characterizations that establish goals and actions to protect and restore watershed health. The City has created a "Framework for Integrated Management of Watershed Health," and all development plans are expected to be consistent with the principles and guidance provided therein. In addition, the BES implements Portland's Stormwater Program, Watershed Revegetation Stewardship Grant and education/outreach. The City has performed environmental baseline monitoring of the lower Willamette and Columbia Rivers to improve road-related programs for species protection;

The City is also upgrading its Combined Sewer Overflows through: installing stormwater sumps; diverting stream water out of the sewer system, disconnecting downspouts, and creating separate pipes for sewage. The new stormwater system is designed to remove most of the runoff that enters the combined system at a total estimated cost of approximately \$1 billion. Finally, the City is experimenting with porous concrete to reduce stormwater runoff and enhance groundwater recharge and stormwater retention.

Eugene Metro Area

Eugene has assessed its roads maintenance and operations practices to minimize impacts to fish and wildlife. Regularly scheduled programs that minimize impacts to fish and wildlife include street sweeping, sediment barriers, catchment basin clean outs, and concrete dust and waste containment procedures. Erosion control measures are in place for both new development and general construction.

Eugene has also implemented a stormwater fee program based on the amount of impervious surface area a property has developed (which creates both an incentive to minimize impervious surfaces and allocates stormwater fees proportionally to property owners). (This approach not only meets Eugene's obligations for regulatory compliance, it's also consistent with the City's "sustainability" and "healthy environment" goals.)

Man-made obstructions to fish passage within the City have been identified by ODFW, however the city has not implemented standards for new construction to remove fish passage barriers. The city does coordinate with other local entities to restore riparian structure and function, and has a comprehensive Stormwater Management Plan, which the city is using to reduce stormwater run-off from existing impervious surfaces. Also, impervious surfaces have been inventoried and a program developed to reduce these surfaces both for new development and for existing surfaces.

The city has changed its wastewater treatment to support salmon and other species and now injects wastewater into the hyporheic zone in order to reduce the water temperature of wastewater outflows. The City has also inventoried water diversions for screens,

however the City has no plans for replacement (other entities, such as Eugene Water and Electric Board, are actively replacing or introducing fish screens at diversions in a prioritized fashion).

The City has a publicly funded stormwater education program, as well as volunteer watershed restoration and monitoring program. The city also has a natural resource management and conservation program, and an open waterway and natural area acquisition program (“Ridges and Rivers” Program) designed to protect habitat as well as provide recreational opportunities.

The City has instituted an innovative stormwater pollution abatement and habitat protection program, the West Eugene Wetlands Plan, which is a collaboratively developed wetlands management/land use plan adopted in 1992. The Plan protects the most valuable remaining wetlands while still providing development certainty. It also provides a streamlined permitting process, and includes an acquisition and restoration program.

Other activities that support fish and wildlife habitat include: 1) a City policy prohibiting the use of targeted invasive species on City owned lands and in City project; and 2) two goals adopted in 1999 by City Council: a) *Sustainable Community Growth and Change*, and b) *Healthy Natural and Built Environment* to develop “approaches that support natural resources protection or improvement and at the same time meet other City and regional goals to maintain the quality of life.”

(http://www.ci.eugene.or.us/salmon/salmon_res.htm). The City has also created a Parks and Open Space Division to oversee approximately 2300 acres of parks and open spaces within its jurisdiction.

In addition, the City has adopted a suite of strategies designed to protect and restore the Willamette River’s wild Spring chinook salmon run. These strategies include adoption of a Salmon Habitat Protection Overlay Zone (DRAFT), a review of the City’s waterway and riparian maintenance and operational practices, an examination of the City’s intake screens with the goal of replacing screens where necessary, developing and adopting an Integrated Pest Management Policy, adopting native, and non-native, plant lists, developing and implementing a “Willamette Riparian Habitat Management Plan(s),” conducting a “Willamette River Floodplain Acquisition Study” for determining the location, costs and feasibility of acquiring key parcels in the floodplain to help protect salmon habitat.

Eugene has responded to the regulatory mandates of the ESA and CWA in creative and innovative ways. The West Eugene Wetlands program, for example, helps the City meet its stormwater and water quality requirements under the Clean Water Act. However, the City manages over 2000 acres through the Wetlands program, and this reflects a larger commitment to protecting habitat and sensitive species in addition to meeting regulatory objectives.

Salem Metro Area

Salem has adopted Willamette Greenway amendments and a “Tree and Riparian Vegetation Preservation Ordinance” to protect riparian habitat within its jurisdiction instead of inventorying local riparian areas through the Goal 5 process. The City has started a Local Wetlands Inventory, which the Division of State Lands has reviewed (DSL has state authority for fill and removal and protection of wetlands). It has not established a list of “significant” wetlands, nor has it established a program to protect significant wetlands within the jurisdiction. However, the City does have riparian inventories incorporated for wetlands identified within its jurisdiction.

The City’s Comprehensive Plan includes a provision for protecting wildlife habitat created through a Goal 5 ESEE analysis. No specific planning for open spaces has been conducted to date, nor is there any program for open space acquisition or funding.

The City has reviewed existing policies and development standards to provide better protections for aquatic ecosystems, and made changes (not specified) to those standards and policies to improve protections to aquatic systems. The City has also considered using a stream’s “channel migration zone” to protect new development and aquatic resources.

Salem has inventoried local parks and open spaces for native species and wildlife habitat, and its Parks Department has adopted a “Sensitive Study Management Handbook” to help support that effort.

The City identifies wetlands as providing stormwater retention values, and is providing riparian and waterway protections under Goal 6 through its Willamette Greenway Ordinance. The City has also proposed another riparian protection program to address tributaries within the City that are listed under the Clean Water Act’s Section 303(d) as “water-quality limited.”

The City has created an Erosion Prevention and Sediment Control (EPSC) Plan, and has passed an ordinance addressing erosion and sediment control and bank stability. The city has also developed local policies and ordinances addressing sewage treatment and pre-treatment (including stormwater management) to minimize run-off and outflows that are detrimental to water quality in the area. Industrial users are required to provide wastewater “pre-treatment” of discharges from their property.

In addition, the City has a stream monitoring program that samples twelve major streams within its jurisdiction for water quality parameters defined under the CWA (e.g. temperature, DO, pH, conductivity, turbidity, etc.)

Medium Sized Cities

Three out of the five medium-sized cities in the Basin responded to the survey (pop. 50-100,000). All of them have inventoried streams and identified which are subject to Goal

5 riparian provisions. Two used “safe harbor” definitions and one has identified the total miles of riparian corridors protected. All three cities have implemented protections for riparian corridors, including vegetation buffer and tree removal restrictions, and one city has a “Natural Resource Overlay” to its building code for both water quality and habitat objectives.

All of these cities have started or completed a Local Wetlands Inventory, and the Division of State Lands has approved two of them. Wetlands identified as “significant” have protection measures in place in all three cities, either through the “safe harbor” or standard ESEE process. Activities that are restricted in wetlands in all communities include grading, excavation, vegetation removal and fill placement.

These cities also have protections for wildlife habitat as part of their Comprehensive Plan or land use code, either through identifying them as “natural resource areas,” or as “significant wildlife habitat areas.”

Only one city (Corvallis) has specific plans to preserve open spaces, but two of them have programs and funding to acquire additional open spaces in the form of parks through local bonds, private donations, and in Gresham’s case, through Metro’s Greenspaces Bond Measure.

Only one city has reviewed existing policies and development standards to identify ways to improve aquatic ecosystems protections and made changes to those policies to improve both aquatic ecosystems and wildlife habitat.

Corvallis has studied using a stream’s “channel migration zone” as a way to improve new property development and better protect aquatic resources as part of a comprehensive inventory of natural features within the City. Corvallis also intends to amend its Comp Plan based on this inventory. Corvallis has developed an “ESA Response Plan” to identify and correct activities the City is engaged in that may harm Chinook salmon and their habitat within the city’s jurisdiction. (These activities reflect Oregon State University’s leadership role in ecosystem and landscape management for protecting and restoring habitat and ecological processes. The university, many of its professors, and a large community of watershed and natural resource management supporters reside in Corvallis).

All three cities have identified wetlands as providing benefits to wildlife habitat, groundwater recharge and stormwater retention. Corvallis also sees wetlands as “open space” amenities.

All three cities provide additional riparian and waterway protections under Goal 6, either as part of Metro’s Title 3 Water Quality Protection Measures, or, for Corvallis, through its “Natural Features Project” designed to meet ESA and Goal 6 provisions. All of these cities are involved in other programs that support fish and wildlife habitat, including

Metro's Goal 5 program (to protect fish and wildlife habitat), or ESA and CWA programs.

Public Works

All three cities have reviewed road maintenance and operation practices to minimize impacts to fish and wildlife habitat and regularly sweep their streets, erect sediment barriers and clean out catchment basins as part of their road department operations. Erosion control standards are in place in two of the cities, including for new construction. The other city is in the process of reviewing and "strengthening" its erosion control standards.

Man-made fish passage barriers have been identified in all three cities, and standards are in place to remove barriers for new construction and is part of their long-term road improvement program. Comprehensive Stormwater Management Plans have been prepared in all three cities, and programs to reduce stormwater run-off and reduce impervious surfaces for both existing and new construction are in place. These are largely driven by mandates from EPA's "municipal separate storm sewer systems" (MS4) program that is part of its Phase II Stormwater Rule under the Clean Water Act.

These cities are implementing changes to their wastewater treatment in order to support salmon, either through temperature reduction, new construction of combined sewer overflow systems that treat wastewater, or dechlorinating treated wastewater prior to discharge. One city (Corvallis) has inventoried water diversions for fish screens, and all known water diversions now have fish screens placed (as of 4/04).

Small Cities

Six small cities ((pop. 10,000-50,000), out of a total of 19 "small cities" in the Basin, responded to the survey. Five cities have completed a stream riparian inventory that is either subject to Goal 5 or part of Metro's Title 3 water quality program, and two cities have estimated total miles of stream subject to Goal 5 riparian provisions and implemented riparian protections, either through the "safe harbor" process or through Clean Water Services requirements.

Four cities have completed a Local Wetlands Inventory, and one of them has DSL approval for its inventory. Three cities have adopted a list of "significant wetlands" under Goal 5, and adopted programs to protect these wetlands under either the "safe harbor" or the standard ESEE process. Grading, excavation, vegetation removal and fill placement are all restricted activities in these wetlands.

No protections for wildlife habitat were identified by these communities, and no specific planning has been conducted to preserve open spaces in these communities. Two communities do have a program in place for park land acquisitions, either funded through the federal Land and Water Conservation Fund or general funds and private donations.

Two of the cities have reviewed policies and development standards to provide greater protections to aquatic systems and wildlife habitat. One city has changed its policies and standards to better protect habitat. Only one city has considered using a stream's "channel migration zone" to protect new developments and aquatic resources.

Two cities have inventoried local parks for native species and wildlife habitat (local schools in one city helped with this inventory). One city has planned specifically to preserve open spaces and has an acquisition program and private and development funding (System Development Charges) to acquire new floodplain open spaces and parks.

Four cities identified wetlands within their respective jurisdictions as providing local wildlife habitat, groundwater recharge and stormwater retention. And three cities are protecting riparian and waterways under Goal 6, either as part of Metro's Title 3 Water Quality protection measures or through Clean Water Services requirements.

Of particular note, the City of Sherwood has an Open Space Management Plan, and works with both local nonprofit organizations and the U.S. Fish and Wildlife Service to maintain the Tualatin National Wildlife Refuge within its jurisdiction. This program goes beyond meeting requirements under Goal 5 and ESA. In the 1980s, the City completely restricted development in the 100-year floodplain, and with the emphasis on cleaning up of the Tualatin River at the time, creating the Refuge allowed Sherwood to do more than "its fair share" for the Tualatin River, as the mayor at the time noted.

Public Works

Four of the cities have reviewed their road maintenance and operations activities for ways to minimize impacts on fish and wildlife habitat, and all five of these communities have regularly scheduled street sweeping, erect sediment barriers on roads or sites, and clean out catchment basins to reduce sediment and debris entering streams. All of these communities have established erosion control standards for both new construction and existing infrastructure. Two communities have inventoried man-made fish passage barriers, and the same two have established standards for new construction to remove man-made passage barriers. Three communities stated that the removal of fish passage barriers is part of their long-term road improvement program.

Only one community is working with other entities to restore riparian structure and function. Three cities have prepared comprehensive Stormwater Management Plans. Three cities have developed programs to reduce stormwater run-off from existing impervious surfaces, but only one city has inventoried impervious surfaces in order to reduce their size. Two cities have a program in place for new development to reduce impervious surface areas. And four cities noted that are participating in the EPA's Phase II Stormwater MS4 program and many of their efforts are designed to comply with this program.

Three cities said they are making changes to their wastewater treatment to better support salmon and other species, primarily by working with other agencies or entities to upgrade treatment facilities. However, Woodburn has spent \$39 million on a wastewater treatment facility to improve water quality on the Pudding River, and its street sweeping debris is taken directly to the treatment facility for disposal.

One city has inventoried water diversions for fish screens and identified unscreened diversions. However, no city has plans to erect fish screens at this time. Three cities have completed combined sewer overflow projects, and one is about to start.

Smaller Communities

Eight smaller communities (population under 10,000) responded to the survey. Six communities have completed inventories of streams within their jurisdictions for Goal 5 riparian provisions in the past three years, however only two communities adopted a list of “significant wetlands” as defined by Goal 5. Five communities have implemented protection setbacks for riparian habitat, including restricting vegetation removal or amendments to zoning or Clean Water Services requirements.

Four communities have completed a Local Wetlands Inventory and three adopted a list of “significant wetlands.” Only one has DSL approval for its Inventory. (One community did not adopt the Local Wetlands Inventory, stating that “it’s a property rights issue”). Three communities have implemented protections for these wetlands either through the ESEE or safe harbor processes. Restricted activities in these wetland areas include grading, excavation, vegetation removal and fill placement.

One community’s Comp Plan or land use code includes protection of wildlife habitat and includes protection for open spaces (for elk wintering habitat). None of these communities has plans for acquisition of new open spaces for parks or floodplain protection or funding to do so. One community did acquire some open space through the federal Land and Water Conservation Fund, but the date of such acquisition is not known.

Four of these communities have reviewed existing policies or development standards to improve protection of aquatic ecosystems, and two jurisdictions have reviewed these standards for wildlife habitat. Two communities have made changes to their standards in order to improve protections for aquatic systems based on these reviews. Three communities have considered using the “channel migration zone” as a mechanism to protect new development and aquatic resources.

None of these communities has inventoried parks and open spaces for native species and wildlife habitat. identified wetlands as providing habitat, groundwater recharge or stormwater retention. One community does adhere to Metro’s Title 3 water quality requirements that provide another protection mechanism for riparian areas and waterways.

Public Works

Five communities have reviewed their roads maintenance and operations practices to minimize impacts to fish and wildlife habitat, and regularly provide street sweeping, sediment barriers and catchment basin clean outs to help protect water quality. Three communities have adopted erosion control measures for existing construction and all have adopted erosion control measures for new construction. Two communities have identified man-made fish passage barriers, and a total of three are working with a local watershed council or ODFW staff to identify barriers, however no standards have been adopted for new construction to remove such barriers. The removal of fish passage barriers is part of two cities' long-term roads improvement program.

Three communities have prepared a comprehensive Stormwater Management Plan to address urban run-off, and four communities are in the process of reducing stormwater run-off from existing impervious surfaces. All eight communities are working to reduce impervious surfaces in new construction. For two communities, this is part of their compliance with Phase II Stormwater mandates under MS4. For the other communities, this effort is part of their develop and zoning ordinance requirements under the state's land use goals.

Wastewater treatment improvements have been identified in six communities to better support salmon and other species. One community (Willamina) is updating its wastewater treatment facility. Wastewater treatment in two other communities is provided by either the county or other entity, and water diversions for these communities have not been inventoried for fish screens.

Four communities are getting assistance from the local Council of Governments to review their public works and planning operations in order to identify opportunities to improve them for water quality.

County Governments

Lane County

The county has completed an inventory of which streams are subject to Goal 5 riparian protections and has implemented vegetation removal limitations and structure setbacks for development in riparian areas (one of the first counties in the state to do so).

The county has not completed an wetlands inventory. It does have riparian inventories incorporated for significant wetlands, but no specific protections identified through the safe harbor process. Activities in wetlands are restricted under DSL's fill and removal authority. The county's Comp Plan does include protections for sensitive plants and bird habitat. The county does not have a plan for preserving, acquiring or funding the acquisition of open spaces. The county has not reviewed its policies and development standards to provide greater protections to aquatic systems or wildlife habitat, but it has

considered using a stream's "channel migration zone" for future planning and resource protection. It has not inventoried local parks and open spaces for native species or wildlife habitat. The county has identified wetlands are providing wildlife habitat, groundwater recharge and stormwater retention.

The county has also developed a Natural Resources Study that focuses on three types of natural resources listed under Statewide Planning Goal 5: wetlands, water areas (e.g., streams, lakes, and ponds) and their associated riparian vegetation, and wildlife habitat. The Lane Council of Governments manages the [study project for the county](#). The purpose of the study is to complete the requirements of Statewide Planning Goal 5 for the area between the urban growth boundary and the Metro Plan boundary. This [study](#) uses the safe harbor methodology to inventory and protect the resources. The safe harbor inventory relies on existing data from state agencies, such as the Statewide Wetlands Inventory and fish-bearing stream maps from the Oregon Department of Forestry.

Marion County

Marion County has not completed an inventory of stream riparian areas subject to Goal 5 protections. Its Comprehensive Plan does include protections for wildlife habitat through an ESEE analysis, primarily for "big game." The county has specifically planned for open spaces and has a plan for acquiring new open spaces (parks) which includes funding from private donations, grants, and partnerships with other agencies. The county has not reviewed existing policies and development standards for aquatic systems or wildlife habitat impacts. Nor has it considered using a stream's "channel migration zone" for planning and resource protection. It has inventoried local parks and open spaces for native species and wildlife habitat, and views wetlands as having stormwater retention capabilities. The county has also completed a "Historic Fish Distribution Study" with Salem and inventoried some county streams for fish presence and habitat quality with ODFW.

Marion County's road program has been assessed to minimize impacts to fish and wildlife. The county regularly schedules street sweeping, sediment barriers and catchment basin clean outs to minimize sediment and debris washing to surface waters. Erosion control measures have been adopted for existing infrastructures, new construction and in the county's maintenance operations to help with erosion control (i.e. ditching). The county's road department, local watershed councils, and ODFW have identified the known man-made obstructions to fish passage in the county, and have implemented standards for new construction to remove identified passage barriers. The removal of such barriers is part of the county's long-term road improvement program, and the county coordinates with other entities to restore riparian function and structure along surface waterways.

In addition, the county has prepared a comprehensive Stormwater Management Plan to address water quality and urban run-off to surface water bodies, and is developing a program to reduce stormwater run-off from existing impervious surfaces as part of the MS 4 program. Impervious surfaces for new development have been inventoried and a

program is in place to reduce such run-off. The county is not making changes to wastewater treatment at this time to provide better support for salmon or other species. Water diversions have not been inventoried or identified for screening.

Marion County Public Works also has an ESA 4(d) Limit to protect salmon during routine maintenance and holds an NPDES Phase II permit for the urbanized areas outside of Salem and Keizer. The county also uses and sells native seed for use in riparian areas both within the county and by others.

In addition, the Department of Public Works has initiated a park restoration program, a roadside native plant program, and salmon recovery efforts, as well as environmental education opportunities. The Salmon Recovery Plan establishes a set of road-related Best Management Practices to minimize county impacts and prioritize capital improvement projects to help restore habitat. Marion County Parks is restoring 20 acres of upland pasture at Bonesteele Park to an upland prairie ecosystem (estimated cost \$70,000) to increase biodiversity, enhance wildlife habitat, and provide an educational and recreational resource.

Washington County/Clean Water Services

Clean Water Services is a public utility serving twelve cities and almost a half million residents in Washington County and the Tualatin River Watershed. CWS has completed an inventory of streams in the county that are subject to Goal 5 riparian provisions in 2000, however they do not have an estimate of the amount of stream miles affected by Goal 5 riparian management. Streamside and wetland buffers have been implemented to protect riparian areas, and wetlands have also been identified and protected. Wetlands are protected within the jurisdiction under provisions other than Goal 5. Protections include regulating grading, excavation, vegetation removal and fill placement.

The jurisdiction does have a plan for acquisition of open space land and management agreements are in place to protect “near stream areas.” Funding for open space acquisitions is secured through a “Special District,” which generates funds through service fees.

CWS has reviewed and changed existing plan policies and development standards to identify ways to improve protections for aquatic ecosystems. And the jurisdiction has studied using a stream’s “channel migration zone” as a mechanism to protect both new property development and aquatic resources. CWS protects wildlife habitat where it “overlaps” with protections of water quality and aquatic habitats in parks, uplands and Goal 5 processes.

CWS has identified wetlands as providing numerous benefits within its service area, including wildlife habitat, groundwater recharge and stormwater retention. In addition, CWS provides “surface water cleansing” as an additional program that benefits fish and wildlife. CWS’ standards for waterways and riparian areas meet the standards for protections under Goal 6, and other local jurisdictions comply with those standards.

Public Works/Road Maintenance

The CWS and the county have assessed roads maintenance and operations in the county to minimize impacts to fish and wildlife. Road maintenance includes regularly scheduled street sweeping, sediment barriers to stop sediment from flowing into streams, and catchment basin clean outs throughout the county. Washington County also has water quality treatment devices on road-related discharges. Erosion control standards have been adopted by both the county and Clean Water Services and include standards for new construction and redevelopment.

Man-made obstructions to fish passage have been identified by CWS, and standards for new construction to remove such barriers are established for both the county and CWS. Removal of passage barriers is part of the county's long-term road improvement program, and the county and CWS are working with other entities (watershed council, state and feds) on this. A comprehensive Stormwater Management Plan is in place which includes plans to reduce stormwater run-off from existing impervious surfaces. The county's impervious surfaces have been inventoried and assessed for ways to reduce total surface amount. While recommendations have been made, no action has been taken to actually reduce impervious surfaces to date.

The county has not inventoried surface water diversions for fish screens, no is there a plan in place to screen or replace fish screens on any diversions. The county does not have funding for a Combined Sewer Overflow system at this time.

The county and CWS have instituted a "Healthy Streams Plan," which is a watershed-based effort to integrate the ESA and Clean Water Acts. The Plan has inventoried surface water systems and identified projects and programs to improve water quality and aquatic habitat. In addition, under the MS4 Stormwater Management Plan update, CWS will identify refinements to its stormwater management practices.

Since 2000, the county has a "Best Management Practices for Roadway Operations." The county also has a culvert replacement program to increase fish passage and watershed function. The county also completed its Watersheds 2000 inventory, which is a watershed database for further planning and analysis.

Conclusion

While urban areas in the Willamette Basin have had significant impacts to fish and wildlife habitat over the past century and a half, many local jurisdictions in the Willamette Basin are currently working to minimize and restore habitat for fish and wildlife through their planning and public works operations. Larger cities have created a bigger "footprint" in their respective areas, with greater impacts to habitat and water quality, yet these cities are also at the forefront of creating innovative, comprehensive programs to both minimize these impacts and restore habitat and water quality.

In many larger communities, these programmatic and public works changes point to an intent that goes beyond mere compliance under state and federal regulatory mandates. As noted above, some of these programs are truly innovative and administered at large spatial scales. Such approaches incorporate accepted techniques from the fields of conservation biology and ecological restoration regarding effective methods for restoration and protection. On the other hand, smaller communities, no doubt in part due to funding constraints, are responding in ways designed to meet required regulatory mandates. Some smaller communities even cite private property rights concerns as influencing their decisions regarding management of wetlands and riparian areas.

In fact, a direct correlation exists between the size of a community and the level of engagement and planning to improve habitat for fish, wildlife and water quality: the larger cities are creating more innovative and comprehensive programs to address habitat loss and ecosystem degradation. Given that these cities have often created the largest impacts to habitat and water quality in the basin, this trend is consistent should the NWPCC's goal of protecting and restoring targeted species and their habitats be realized.

Analysis of Findings

Some notable conclusions from this survey include: 1) a majority of respondents to this survey (55%) have inventoried streams within their jurisdictions and instituted some type of riparian management protections. 2) Wetlands are protected by 40% of the respondents; 43% restrict development activities (grading, excavation, etc.) in wetlands within their jurisdictions and see wetlands as providing benefits to wildlife habitat, groundwater recharge and stormwater retention. 3) 40% have "considered" using a stream's "channel migration zone" for planning and resource protection. 4) 46% have reviewed their road maintenance programs to minimize impacts to fish and wildlife. 5) 60% have adopted erosion control standards for new construction; 6) 40% have completed a comprehensive Stormwater Management Plan, and 46% have identified ways to reduce stormwater run-off; 7) 43% have development standards that limit impervious surface development in new construction. 8) 43% have made changes to their wastewater treatment to better support sensitive species (mostly temperature reduction efforts).

Notable areas where improvements can be made include: 1) few local jurisdictions (20%) provide specific planning to identify and preserve open spaces, while 30% have mechanisms in place to acquire open spaces; 2) less than a third (30%) identify and implement greater protections for wildlife habitat within their urban areas; 3) and only a small fraction (13%) have identified fish passage barriers within their jurisdictions, or inventoried water diversions for fish screens (10%). Finally, only one respondent has placed fish screens on water diversions (although other entities in these jurisdictional areas may be doing such inventories and replacements, such as Eugene's Water and Electric Board).

The picture that emerges from this survey and review of local jurisdictional efforts does not lend itself to providing a definitive answer to the question of whether local jurisdictions are “doing enough” to recover and sustain fish and wildlife in the Willamette Basin. However, what is clear from the survey is that the trend line that local jurisdiction’s are pursuing with respect to protecting and restoring local fish and wildlife habitat and improving water quality is decidedly positive.

For instance, the Environmental Protection Agency’s Phase I Stormwater program began in 1990 and required larger communities (>100,000) to obtain National Pollutant Discharge Elimination System (NPDES) permits to help manage stormwater and wastewater discharges. Yet, EPA’s own research showed that water quality in the region continued to degrade in many streams despite implementing the NPDES program. Subsequently, Phase II of EPA’s Stormwater program went into effect in 2000, and this survey shows how smaller communities are now working to reduce contaminants in their stormwater run-off through a number of efforts, often in response to EPA’s Phase II. Additionally, the nexus of Goal 5 requirements for riparian areas, wetlands, and wildlife, coupled with greater public interest and support for restoring fish and wildlife habitat, has resulted in a more robust effort on the part of local jurisdictions and county governments, many taking a leadership role in local protection and restoration efforts.

In that light, Metro’s efforts, and the Cities of Portland and Eugene efforts, to engage in habitat protection across broad spatial scales indicate that many residents in the Willamette Basin are committed to restoring habitat for fish and wildlife for their different life history needs. And with greater support by local jurisdictions for maintaining open spaces, as well as experimenting with new tools for planning development and habitat protection, such as using a stream’s “channel migration zone,” or experimenting with porous concrete, the Willamette Basin’s urban residents evince a commitment to restoring and sustaining habitat for fish and wildlife, water quality and the region’s unique quality of life.

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Appendix

Willamette SubBasin Existing Activities/Programs Survey

Please respond to the following information for your jurisdiction.

Name of Jurisdiction *

Type of Jurisdiction *

County Government

Local Jurisdiction \

Other

Planning Activities: Goal 5

Riparian Corridors (for incorporated jurisdictions and county governments) *

1. Has your jurisdiction completed an inventory of which streams within the jurisdiction are subject to Goal 5 riparian provisions? yes no
2. If **yes**, when? (mm/dd/yy)
3. Did the jurisdiction adopt "safe harbor" definitions for significant riparian corridors? yes no
4. Do you have an estimation of linear stream miles (or feet) affected by this adoption either through safe harbor or the standard Goal 5 process? yes no
5. If **yes**, please provide the estimate: miles or feet
6. Has the jurisdiction implemented protection measures for riparian habitat? yes no
7. If **yes**, what measures have been implemented?

Wetlands *

1. Has the jurisdiction started or completed a Local Wetlands Inventory? Started Completed
2. Has the Division of State Lands approved your LWI? yes no
3. Has the jurisdiction adopted a list of "significant wetlands" as defined under Goal 5? yes no
4. If **yes**: Does your riparian protection program include significant wetlands' riparian protection? yes no
5. Has the jurisdiction adopted a program to protect identified significant wetlands? yes no
6. Did the jurisdiction use the wetland's safe harbor or the standard Goal 5 process to develop its protection program? Safe harbor Standard
7. Which of the following activities are regulated within the wetland protections? grading excavation vegetation removal fill placement Other

Wildlife Habitat *

1. Does the jurisdiction's Comprehensive Plan or land use code include a provision for

- protecting wildlife habitat (other than riparian areas or wetlands)? yes no
2. If **yes** : Was that provision created according to the old or new Goal 5 rule?
Old New
3. What type of habitat has been protected? (e.g., plants, sensitive areas, other?)

Open Spaces *

4. Has your jurisdiction done any specific planning to preserve open space? yes no
5. If **yes** : When? (mm/dd/yyyy)
6. Was this done under old or new Goal 5 rule? Old New
7. Does the jurisdiction have a plan for open space acquisition? yes no
8. What is the type of acquisition? Park Other
9. Is there a funding mechanism in place to make open space acquisitions? yes no
10. How was open space acquisition financed: Special District Bond Measure
Private Donations Other - Please describe:

Planning Activities: Other

1. Has the jurisdiction reviewed existing plan policies and development standards to identify plan improvements that would provide greater protection for:
Aquatic systems? yes no Wildlife habitat? yes no
2. If **yes** , has the jurisdiction made any changes to existing policies or development standards to improve protection for: Aquatic systems? yes no
Wildlife habitat? yes no
3. Has your jurisdiction considered using the idea of a stream's "channel migration zone" as a mechanism to protect both new property development and aquatic resources? yes no
4. Has your jurisdiction inventoried local parks and open spaces for native species or wildlife habitat other than through Goal 5? yes no
5. If **yes** , please describe: Has the jurisdiction identified other functions that wetlands provide? Wildlife habitat Groundwater recharge Stormwater retention Other
6. Is the jurisdiction providing any other riparian or waterway protections under Goal 6? yes no
7. If **yes** , please describe:
8. Is the jurisdiction involved in any other programs, assessments or inventories that support fish or wildlife habitat? yes no
9. If **yes** , please describe:

Public Works/Maintenance Activities: Watershed/Habitat Activities

1. Have local roads Maintenance & Operations practices been assessed to minimize impacts to fish and wildlife habitat? yes no
2. Are any of the following regularly scheduled programs in place to help support habitat/water quality:
3. Street sweeping Sediment barriers Catchment basin clean outs Other
4. Have erosion control standards been adopted within the jurisdiction? yes no

5. For new construction? yes no Other?
6. Have man-made obstacles to fish passage in the jurisdiction been identified by the road department? yes no By the Watershed council? yes no By another entity? yes no Name?
7. Are standards for new construction in place to remove fish passage obstructions? yes no
8. Is the removal of passage barriers part of the city/county's long-term road improvement program? yes no
9. Are any programs or coordination with local watershed councils/SWCDs or state or federal agencies in place to restore riparian structure and function? yes no
10. Has the jurisdiction prepared a comprehensive Stormwater Management Plan that addresses current water quality and urban runoff standards? yes no
11. Does the jurisdiction have, or does it anticipate developing, programs to reduce stormwater run-off from existing impervious surfaces? yes no
12. Have impervious surfaces been inventoried and a program to reduce them identified? yes no For new development? yes no
13. Under what program is this administered: Stormwater MS4 Other
14. Is the jurisdiction making changes to wastewater treatment to support salmon or other sensitive species? yes no
15. If yes, please describe:
16. Have water diversions been inventoried for fish screens? yes no
17. Are unscreened diversions identified? yes no Plans for replacement created? yes no
18. Any replaced? yes no Number replaced? When? (mm/dd/yyyy)
19. For jurisdictions with CSOs, what is the status of projects to address CSOs? Unfunded Funded but not started? In construction Completed

Other Programs

Is the jurisdiction involved in any other programs, assessments or inventories that support fish or wildlife habitat? If "yes," please describe.

Optional Comments