

**OREGON STATE PROGRAMS FOR  
MANAGING RIPARIAN RESOURCES**

**REPORT BY THE RIPARIAN MANAGEMENT WORK GROUP**

***APPENDIX A: STATE AGENCY PROGRAM DESCRIPTIONS***

OREGON DEPARTMENT OF FORESTRY

OREGON DEPARTMENT OF AGRICULTURE

OREGON DEPARTMENT OF LAND CONSERVATION AND DEVELOPMENT

OREGON DIVISION OF STATE LANDS

OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY

OREGON DEPARTMENT OF FISH AND WILDLIFE

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Note to readers:

Oregon Revised Statutes (ORS) can be accessed on the World  
Wide Web at <http://landru.leg.state.or.us/ors/>

Oregon Administrative Rules (OAR) can be accessed at  
[http://arcweb.sos.state.or.us/rules/oar\\_default.html](http://arcweb.sos.state.or.us/rules/oar_default.html).

# ***OREGON DEPARTMENT OF FORESTRY'S PROGRAM FOR RIPARIAN AND STREAM PROTECTION ON NON-FEDERAL FORESTLANDS***

## **Goals and Purpose**

The overall goal of the forest practice water protection rules is to provide resource protection during commercial forest operations adjacent to and within streams, lakes, wetlands and riparian management areas so that, while continuing to grow and harvest trees, the protection goals for fish, wildlife, and water quality are met. The protection goal for water quality is to ensure through the described forest practices that, to the maximum extent practicable, non-point source discharges of pollutants resulting from forest operations do not impair the achievement and maintenance of the water quality standards. The protection goal for fish is to establish and retain vegetation consistent with the vegetation retention objectives described in the rules that will maintain water quality and provide aquatic habitat components and functions such as shade, large woody debris, and nutrients.

The purpose of the forest practice water protection rules is to protect, maintain and, where appropriate, improve the functions and values of streams, lakes, wetlands, and riparian management areas. These functions and values include water quality, hydrologic functions, the growing and harvesting of trees, and fish and wildlife resources. The water protection rules include general vegetation retention prescriptions for streams, lakes and wetlands that apply where current vegetation conditions within the riparian management area have or are likely to develop characteristics of mature forest stands in a "timely manner." Landowners are encouraged to manage stands within riparian management areas in order to grow trees in excess of what must be retained so that the excess may be harvested. The water protection rules also include alternative vegetation retention prescriptions for streams to allow incentives for operators to actively manage vegetation where existing vegetation conditions are not likely to develop characteristics of mature conifer forest stands in a "timely manner."

Oregon has a tremendous diversity of forest tree species growing along waters of the state and the age of mature streamside stands varies by species. Mature streamside stands are often dominated by conifer trees. For many conifer stands, mature stands occur between 80 and 200 years of stand age. Hardwood stands and some conifer stands may become mature at an earlier age. Mature stands provide ample shade over the channel, an abundance of large woody debris in the channel, channel-influencing root masses along the edge of the high water level, snags, and regular inputs of nutrients through litter fall.

The rules allow an operator to propose site-specific prescriptions for sites where specific evaluation of vegetation within a riparian management area and/or the condition of the water of the state is used to identify the appropriate practices for achieving the vegetation and protection goals.

The desired future condition for streamside areas along fish use streams is to grow and retain vegetation so that, over time, average conditions across the landscape become similar to those of mature streamside stands. This goal is based on the following considerations :

- (1) Mature riparian stands can supply large, persistent woody debris necessary to maintain adequate fish habitat. A shortage of large wood (LW) currently exists in streams on non-federal forestlands due to historic practices and a wide distribution of young, second growth

forests. For most streams, mature riparian stands are able to provide more of the functions and inputs of LW than are provided by young second-growth trees.

(2) Historically, riparian forests were periodically disturbed by wildfire, windstorms, floods, and disease. These forests were also impacted by wildlife such as beaver, deer, and elk. These disturbances maintained a forest landscape comprised of riparian stands of all ages ranging from early successional to old growth. At any given time, however, it is likely that a significant proportion of the riparian areas supported forests of mature age classes. This distribution of mature riparian forests supported a supply of large, persistent woody debris that was important in maintaining quality fish habitat.

The desired future condition for streamside areas that do not have fish use is to have sufficient streamside vegetation to support the functions and processes that are important to downstream fish use waters and domestic water use and to supplement wildlife habitat across the landscape. Such functions and processes include: maintenance of cool water temperature and other water quality parameters; influences on sediment production and bank stability; additions of nutrients and large conifer organic debris; and provision of snags, cover, and trees for wildlife.

These streams have reduced buffer widths and reduced basal area retention requirements as compared to similar sized fish bearing streams. In the design of the rules this was judged appropriate based on a few assumptions. First, it was assumed that the amount of large wood entering non-fishbearing channels over time was not as important for maintaining fish populations in downstream reaches. And second, it was assumed that the future stand could provide some level of “functional” wood input over time to support nutrient and sediment storage processes. The validity of these assumptions needs to be evaluated over time through monitoring.

***DESCRIPTION OF THE CURRENT FOREST PRACTICE RULES AND OREGON PLAN ACTIVITIES APPLICABLE TO NON-FEDERAL FORESTLAND***

**Forest Practices Act standards and rules**

The Oregon Forest Practices Act’s Water Protection Rules identify seven geographic regions and distinguishes among streams, lakes, and wetlands. The rules further distinguish each by size and type. Stream size is distinguished as small, medium, or large, based on average annual flow. Stream type is distinguished as fish use, domestic use, or neither. The following table lists the required Riparian Management Area (RMA) widths based on stream size and type.

**Table 1.** Riparian Management Area widths for streams of various sizes and beneficial uses (OAR 629-635-310).

	<b>Type F (Fish-Bearing)</b>	<b>Type D (Domestic-Use, not Fish Bearing)</b>	<b>Type N (Neither Fish-Bearing nor Domestic Use)</b>
<i>LARGE</i>	100 feet	70 feet	70 feet
<i>MEDIUM</i>	70 feet	50 feet	50 feet
<i>SMALL</i>	50 feet	20 feet	Apply specified water quality protection measures, and see OAR 629-640-200

Generally, no tree harvesting is allowed within 20 feet of all fish bearing, all domestic-use, and all other medium and large streams unless stand restoration is needed. In addition, all snags and downed wood must be retained in every riparian management area. Provisions governing vegetation retention are designed to encourage conifer restoration on riparian forestland that is not currently in the desired conifer condition. Future supplies of conifer on these sites are deemed desirable to support stream functions and to provide fish and wildlife habitat. The rules provide incentives for landowners to place large wood in streams to immediately enhance fish habitat. Other alternatives are provided to address site-specific conditions and large-scale catastrophic events.

With the exception of small Type D and N streams, basal area targets are established and used for any type of management within the RMA.<sup>1</sup> These targets were determined based on the data that was available at the time the rules were adopted, with the expectation that these targets could be achieved on the ground. There is also a minimum tree number requirement of 40 trees per 1000 feet along large Type F streams, and 30 trees per 1000 feet along medium Type F streams.<sup>2</sup> The specific levels of LW inputs that the rules are designed to achieve vary by stream size and type. Given the potential LW that is functional for a given stream, a combination of basal area targets, minimum tree retention, buffer widths, and future regenerated stands and ingrowth are used to achieve the appropriate LW inputs for a given stream.

The expectation is that the 20-foot no-harvest area on all but small Type N streams, combined with the shade provided by trees left outside of the first 20-feet for basal area requirements when an RMA is managed to the standard target, will be sufficient towards maintaining stream temperatures consistent with ‘natural’ conditions. In the design of the Water Protection Rules shade data was gathered for 40 small non-fish-bearing streams to determine the shade recovery rates after harvesting. One to two years after harvest, 55 percent of these streams were at or above pre-harvest shade levels due to understory vegetation regrowth. Most of these streams had a bankfull width averaging less than six feet, and most shade was provided by shrubs and grasses within 10 feet of the bank. Since 1991 there has also been a 120-acre limit on a single clearcut size, which is assumed to result in a scattering of harvested area across a watershed over time. In the development of the rules it was assumed that this combined with the relative rapid shade recovery along smaller non-fish-bearing streams would be adequate in protecting stream temperatures and reduce possible cumulative effects. The monitoring program is currently collecting data to test these assumptions, evaluate the effectiveness of the rules, and evaluate whether or not water quality standards for temperature are being achieved.

The ODF is also the designated management agency (DMA) for water quality management on nonfederal forestlands. To improve the coordination between the ODF and the Department of Environmental Quality (DEQ), the two agencies signed a memorandum of understanding (MOU) in June of 1998. The purpose of the MOU is to guide coordination between the ODF and DEQ regarding water quality limited streams on the 303d list. An evaluation of rule adequacy will be conducted (also referred to as a “sufficiency analysis”) through a water quality parameter by parameter analysis. This statewide demonstration of forest practices rule effectiveness in the

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<sup>1</sup> Small Type D streams require a 20-foot no-harvest RMA. Type N streams do not require an RMA.

<sup>2</sup> The leave tree requirements for Type D and N streams are 30 live conifers per 1000 feet for large streams and 10 for medium streams.

protection of water quality will address the following specific parameters and will be conducted in the following order:

- 1) Temperature
- 2) Sediment and turbidity
- 3) Aquatic habitat modification
- 4) Bio-criteria
- 5) Other parameters

By statute, forest operators conducting operations in accordance with the ODF best management practices (BMPs) are considered to be in compliance with Oregon's water quality standards. Also, the 1994 Water Protection Rules were adopted with the approval of the Environmental Quality Commission as meeting water quality standards. However, there are several provisions within the Forest Practices Act and rules that call for rule re-evaluation as needed at the state, regional, and watershed scale. The statewide sufficiency analysis initiated by the MOU is such a re-evaluation process. In addition, these analyses will address attainment of the state anti-degradation policy. These sufficiency analyses will be reviewed by peers and other interested parties prior to the final release. They will also be designed to provide background information and techniques for watershed-based assessments of BMP effectiveness and water quality assessments for watershed with forest and mixed land uses.

### **Oregon Plan Activities**

The Oregon Plan contains several voluntary landowner activities to supplement the conifer stocking within riparian areas and the recovery rate for large wood LW to streams. This is accomplished during harvest operations by (1) placing appropriate sized LW within streams that meet parameters of gradient, width and existing wood in the channel; and (2) relocating in-unit leave trees in priority areas<sup>3</sup> to maximize their benefit to salmonids while recognizing operational constraints, other wildlife needs, and specific landowner concerns.

Key voluntary landowner activities related to riparian and aquatic protection and restoration include the following:

#### **ODF 3.2 Riparian Conifer Restoration**

Forest practice rules have been developed to allow and provide incentives for the restoration of conifer forests along hardwood-dominated RMAs where conifers historically were present. This process enables sites capable of growing conifers to contribute conifer LW in a timelier manner. This process will be modified to require an additional review process before the implementation of conifer restoration within core areas.

#### **ODF 3.3: Additional Conifer Retention along Fish-Bearing Streams in Core Areas**

This activity retains more conifers in RMAs by limiting harvest activities to 25 percent of the conifer basal area above the standard target. This activity is only applied to RMAs containing a conifer basal area that is greater than the standard target.

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<sup>3</sup> The Executive Order replaced the concept of "core areas" with "priority areas". See (1)(f) of Executive Order 99-01 (p.5).

**ODF 3.4: Limited RMA for Small Type N Streams in Core Areas**

This activity provides limited 20 foot RMAs along all perennial or intermittent small Type N streams for the purpose of retaining snags and downed wood.

**ODF 3.5: Active Placement of LW during Forest Operations**

This activity provides a more aggressive and comprehensive program for placing LW in streams currently deficient of LW. Placement of LW is accomplished following existing ODF/ODFW placement guidelines and determining the need for LW placement is based upon a site-specific stream survey.

**ODF 3.6: 25 Percent In-unit Leave Tree Placement and Additional Voluntary Retention**

This activity has one non-voluntary component and two voluntary components:

- 1) The State Forester, under statutory authority, will direct operators to place 25 percent of in-unit leave trees in or adjacent to riparian management areas on Type F and D streams.
- 2) The operator voluntarily locates the additional 75 percent in-unit leave trees along Type N, D or F streams, and
- 3) The State Forester requests the conifer component be increased to 75 percent from 50 percent.

**ODF 3.8: Voluntary No-Harvest Riparian Management Areas**

Establishes a system to report and track, on a site-specific basis, when landowners voluntarily take the opportunity to retain no-harvest RMAs.

The ODF voluntary management activities are implemented within priority areas. Several of the activities utilize in-unit leave trees and are applied in a “menu” approach to the extent in-unit leave trees are available to maximize their value to the restoration of salmonid habitat. The choice of menu activities is at the discretion of the landowner.

The activities can be described as either active restoration activities, or passive restoration activities that provide long-term LW recruitment. Voluntary activities ODF 3.2 and 3.5 are active restoration activities. ODF 3.2 restores hardwood-dominated riparian areas back to a conifer-dominated condition, where appropriate, using a site-specific plan. Site-specific plans require additional consultation with the ODFW to minimize potential damage to the resource. They often result in conditions that are more protective of the resources than would occur without the site-specific plan. ODF 3.5 addresses LW placement if stream surveys determine there is a need. Activities ODF 3.3, 3.4, 3.6, and 3.8 provide future LW recruitment through additional riparian protection. This additional protection is accomplished by retaining in-unit leave trees, snags, and downed wood within and along RMAs, and by changing the ratio of in-unit leave trees to 75 percent conifer.

The following application priority has been developed for harvest units containing more than one stream type. The list establishes the general priority for placement of in-unit leave trees.

- 1) Small and medium Type F streams.

- 2) Non-fish bearing streams (Type D or Type N), especially small low-order headwater stream channels, that may affect downstream water temperatures and the supply of large wood in priority area streams.
- 3) Streams identified as having a water temperature problem in the DEQ 303(d) list of water quality limited waterbodies, or as evidenced by other available water temperature data; especially reaches where the additional trees would increase the level of aquatic shade.
- 4) Potentially unstable slopes where slope failure could deliver large wood.
- 5) Large Type F streams, especially where low gradient, wide floodplains exist with multiple, braided meandering channels.
- 6) Significant wetlands and stream-associated wetlands, especially estuaries and beaver pond complexes, associated with a salmon core area stream.

# ***OREGON DEPARTMENT OF AGRICULTURE'S WATER QUALITY MANAGEMENT PROGRAM***

## **Goals and Purpose**

The Oregon Department of Agriculture (ODA) is the lead state agency working with agriculture to address water pollution from agricultural sources. Senate Bill (SB) 1010 (passed in 1993) gives ODA the authority to develop, implement, and enforce agricultural water quality management programs where required by state or federal law (e.g., TMDL basins, groundwater management areas, coastal zone management area). SB 1010 provides a structure for the development and implementation of local Water Quality Management Area Plans to prevent and control water pollution resulting from agricultural activities and soil erosion. SB 1010 directs ODA to work with farmers and ranchers by developing Agricultural Water Quality Management Area (AgWQMA) Plans for listed watersheds. The Area Plans assist producers to prevent pollution problems wherever possible, and to alleviate any existing problems.

To alleviate water quality problems from agricultural sources, AgWQMA Plans include combinations of voluntary incentives, descriptions of desired conditions, and identified prohibited conditions which may trigger enforcement responses. Sources (and parameters) which are the focus of the plan include:

- ❖ Erosion and surface water management (sediment and turbidity).
- ❖ Irrigation water management.
- ❖ Confined Animal Feeding Operations (CAFOs) (bacteria and nutrients).
- ❖ Animal enterprises that are not CAFOs (bacteria and nutrients).
- ❖ Activities conducted in near-stream management areas (temperature, sediment, bacteria and nutrients).
- ❖ Nutrient management (dissolved oxygen, pH, and algae).
- ❖ Pesticide management (toxics).

## **Developing an AgWQM Area Plan**

Creating an AgWQM Area Plan is a multi-step process using technical analysis and expertise to address local water quality problems and concerns. Regional Water Quality Planners from ODA have the lead role in developing AgWQM Area Plans throughout Oregon. The steps in creating an AgWQM Area Plan includes:

- ❖ Identify priority watersheds/basins/subbasins for implementation.
- ❖ Identify agricultural and rural nonpoint source water quality issues.
- ❖ Recruit a local governmental agency to act as the Local Management Agency (LMA) to assist ODA in conducting the Local Advisory Committee (LAC) process and to assist with education and outreach. Often the LMA is the local Soil and Water Conservation District (SWCD).
- ❖ Define roles of Soil and Water Conservation Districts (SWCDs), watershed councils, and other cooperating agencies through agreements.
- ❖ Develop the Area Plan and Rules with local participation. A Local Advisory Committee (LAC), composed of local stakeholders, identifies the most important agriculturally related water quality issues and preferred management methods to improve them.

- ❖ Develop Administrative Rules. Certain provisions of the draft management area plan are written as Administrative Rules, including defining and describing conditions, by ODA.
- ❖ Public input. Public hearings are held on the draft management area plan and draft Area Rules.
- ❖ Plan and Rule adoption. After public concerns are addressed the final Area Rules are adopted by ODA after consultation with the Board of Agriculture.
- ❖ Plan implementation. Day to day implementation activities are conducted through a local management agency such as an SWCD.

### **Rule-writing**

Once a draft plan is developed, ODA works with the LAC to use the core elements of the plan to draft Administrative Rules that will regulate conditions in the basin. After the draft plan and rules are developed they are sent out for public comment. The comments and suggestions of the public are considered and the plan and rules rewritten as needed. The final plan is ultimately accepted and the rules adopted by the Director of ODA after consultation with the Board of Agriculture. Once the rules are in place individual farmers, ranchers and other rural landowners are responsible for managing their lands to meet the requirements of the AgWQM Area Rules. As agricultural loads are allocated by DEQ under the TMDL process, ODA will consult with DEQ and evaluate and modify any existing plan or rules as necessary to address the load allocation.

### **Roles of ODA Water Quality Planners**

Main Responsibilities include:

- ❖ Lead the development of AgWQM Area Plans and Area Rules to prevent and control agricultural nonpoint source pollution of both surface and groundwater.
- ❖ Develop and manage interagency agreements and implementation workplans with SWCDs, watershed councils, or local governmental units acting as the department's Local Management Agencies (LMA).
- ❖ Coordinate development of AgWQM Area Plans and Area Rules with other responsible management agencies. Develop Area Plans and Area Rules in cooperation with the LMA and Local Advisory Committee (LAC).
- ❖ Facilitate LAC planning and related public information meetings. Prepare and present planning process guidance for the LMA and LAC. Assist LAC in setting plan goals, objectives, strategies, actions and priorities.
- ❖ Cooperate with federal, state, and local agency staff and the public to conduct inventories and assessments to identify water quality issues and areas.
- ❖ Develop and conduct information and education programs to increase public awareness and participation in agricultural water quality management planning and implementation activities.
- ❖ Provide oversight, guidance and leadership to LMA staff to develop and implement the AgWQM plan.
- ❖ Assist agency staff to develop demonstration and implementation projects.
- ❖ Develop watershed project proposals to evaluate and control water pollution and/or improve degraded watershed conditions.

## **Roles of the Local Management Agency (LMA)**

The LMA is generally a Soil and Water Conservation District (SWCD). Their duties in this capacity include:

- ❖ Identify local stakeholders as candidates for membership on the Local Advisory Committee.
- ❖ Assist ODA with recruitment of a Local Advisory Committee (LAC) from that list of stakeholders.
- ❖ Conduct outreach and education activities and programs for local citizens in the issues driving AgWQM plan development.
- ❖ Assist with development of possible landowner remedies for water quality issues.

The LAC is responsible for crafting a draft AgWQM Area Plan that specifically focuses on the water quality problems of the local area and suggests some preferred practices and management alternatives that will be most effective in preventing and controlling those problems.

## **Partners**

Since their inception, Soil and Water Conservation Districts (SWCDs) have been closely associated with the federal USDA/Natural Resources Conservation Service, and often share the same office space. The Natural Resources Conservation Service provides technical assistance to all conservation districts and the landowners/managers they serve. Many other local, state and federal agencies and organizations partner with conservation districts, but one of their new partners is local Watershed Councils. SWCDs and Watershed Councils each have some unique qualities which make each a valuable partner to the other. Although both partners deal with natural resource issues on a watershed basis, most SWCD boundaries are politically defined, while Watershed Councils are represent watershed areas with physical boundaries. In areas of Oregon where Watershed Councils exist, they are closely aligned with the SWCDs. Many of the Watershed Council coordinators are hired through the SWCD and/or the SWCD serves as the fiscal agent for the Watershed Council. Watershed Councils are eligible to qualify for Internal Revenue Service Section 501(c)(3) status and, therefore, have access to grant funds through private and corporate nonprofit foundations, providing expanded opportunities for the partnership.

SWCDs are not staffed adequately to handle the tremendous workload associated with the coordination of activities of other agricultural agencies traditionally providing services and resources (USDA, Extension Service, etc.). As these agencies have their own workloads, services of the SWCDs are required to directly conduct Water Quality Program implementation activities in the areas of public awareness, monitoring, land use and problem site inventories, technical assistance, and attention to rural, non-commercial farm operators were the affiliated agencies and organizations cannot place resources due to other priorities.

In both surface and groundwater areas where ODA and the individual SWCDs have lobbied for and received support to provide staff to carry out these responsibilities, implementation of agricultural nonpoint source control programs has been met with grower approval and has moved forward with success. Without adequate resources provided to local management agencies to carry out responsibilities, implementation progress will be impaired. Resources to support staff is needed to coordinate and facilitate implementation of watershed agricultural pollution prevention and control plans. SWCD staff is also needed to conduct activities in advance of the TMDL load allocations or groundwater management area designations.

# **Oregon’s “Outcome-based” Agricultural Water Quality Management Program**

## **Background**

In 1993, the Oregon Legislature provided responsibility for prevention and control of water pollution from agricultural sources to the Oregon Department of Agriculture via Senate Bill 1010 (ORS 568.900 - 568.933). The sponsors of the legislation envisioned an outcome-based watershed by watershed planning approach, to specifically address water quality issues related to agriculture.

The department has designed its Agricultural Water Quality Management Program with the intent to encourage cooperation and allow landowners to do their own creative problem solving on their land with the assistance of agency, extension and university staff as needed. The Department believes that farmers and ranchers can understand what needs to be done if a clear and practical outcome is explained through performance standards ensuring water quality *and* economic viability. In short, the Department has built its Agricultural Water Quality Management Program on the belief that farmers and ranchers know their land and what system of management practices best fits their operation.

## **What is an “Outcome-based” Agricultural Water Quality Program?**

“Outcome-based” means that the Department will describe required outcomes in its Agricultural Water Quality Management Area (AgWQM) Plans and Rules. These outcomes are conditions on the land which must be achieved by all landowners through a combination of prevention and control strategies.

This outcome-based approach focuses on goals or outcomes. The Department is flexible on landowner choices of site-specific controls or practices to meet them. The associated administrative rules are designed specifically for the unique conditions of each watershed. This allows individual businesses or operators to design solutions that fit their unique circumstances across the diverse state of Oregon.

All landowners within a watershed are required to achieve the landscape conditions described in their watershed’s administrative rules, either voluntarily or through enforcement action by the Department.

It is the Department’s philosophy that broad-scale attainment of these outcomes will achieve incremental improvements in water quality, contributing to the broader goal of attainment of water quality standards across all land uses.

This outcome-based approach is consistent with other approaches to water pollution control at various levels of government. The common denominator is a focus on goals or outcomes to be achieved while keeping choices of site-specific controls or practices flexible.

## **Why an “Outcome-based” Agricultural Water Quality Management Program was Developed**

The Department chose an outcome-based approach because it believes that a prescriptive approach would not be effective, in light of Oregon’s diversity of geography and crop production.

After receipt of authority from the legislature, the State Board of Agriculture urged the department to:

- ❖ Focus landowner requirements on goals and outcomes,
- ❖ Avoid prescriptive approaches to on-farm activities,
- ❖ Provide landowners a range of management options to achieve required outcomes,
- ❖ Provide flexibility in the program to accommodate individual basin differences,
- ❖ Focus on voluntary approaches, and
- ❖ Use clear enforcement provisions for noncompliance when necessary.

### **How the “Outcome-based” Agricultural Water Quality Management Program Works**

Landowners are given an opportunity to achieve conditions voluntarily, but ultimately the department *can* require specific practices of landowners. Through a multi-layered outreach effort, the Department actively educates and encourages landowners to voluntarily achieve conditions. All landowners within a watershed are required to achieve landscape conditions which are described in the administrative rules applicable to the specific watershed.

If a landowner has not voluntarily achieved compliance with the outcomes articulated in the administrative rules which apply to the watershed, the department can, as part of a “Plan of Correction”, require a landowner to implement site-specific practices on a specific schedule.

There is nothing in this approach to prevent the department from suggesting or listing individual practices in the AgWQM Area Plan which, when applied at specific sites and in combination, may be useful in addressing the required outcomes. However, given the variability in the agricultural landscape and cropping or grazing rotations within any given watershed, any list of practices is not viewed by the department as a mandated list.

Achievement of the conditions on the land is mandated and assured, either through voluntary compliance, or through the department’s ability to enforce.

### **How the “Outcome-based” Agricultural Water Quality Management Program will be Effective in Improving Water Quality**

One important advantage of an outcome-based approach is that landowners often voluntarily go above and beyond the minimum requirements of a practices-based approach. In a practices-based approach, landowners often feel that traditional regulatory language does not allow them much opportunity to respond to requirements, whereas an outcome-based approach can encourage individual initiative and creativity. The result is usually compliance which is effective, efficient, and exceeds minimum requirements where technically and economically feasible.

Involving farmers, ranchers and residents in a cooperative process of solving water quality concerns on lands under their management is a way to demonstrate practical and effective management solutions. By describing necessary outcomes and empowering local initiative and creativity to design solutions, long-term changes on the landscape can be achieved for natural resource management.

The Department believes that through the combination of clearly identified required outcomes, ample opportunities for voluntary landowner compliance, and the authority for regulatory

enforcement, Oregon can solve immediate, acute water quality problems while fostering long term conservation strategies and initiatives.

### **Example: Practices-based vs. Outcome-based approaches to regulation**

The following example highlights landowner strategies that might result from a *practices-based* vs. an *outcome-based* approach to the water quality issue.

Water quality issue to be directly addressed: sediment

General strategy to address agricultural sources contributing to the water quality issue: control soil erosion

#### **“Practices-based” approach to regulation:**

- ❖ By January 1, 2000, conservation tillage shall be applied to all cropland.
  
- ❖ Landowner response: Adopt conservation tillage by January 1, 2000.

#### **“Outcome-based” approach to regulation:**

- ❖ (b) By January 1, 2000, no agricultural land management or soil disturbing activities shall be conducted in such a way that the estimated sheet and rill erosion rate exceeds the soil loss tolerance factor, except as provided in OAR 603-095-1040(c).
- ❖ (c) The department shall establish an alternate sheet and rill erosion control standard for any lands in agricultural use which the department determines cannot practically or economically achieve the soil loss tolerance factor. Any alternate sheet and rill erosion control standard established by the department shall assure that delivery of sediment to adjacent watercourses is reduced to the maximum extent practicable.
- ❖ Landowner response: Adopt a system of management practices which includes conservation tillage, contour farming, a vegetative filter strip and other conservation measures by January 1, 2000.

Under the *practices-based* approach, landowner practices are prescribed. The landowner adopts the minimum activity required, resulting in achievement of compliance with the generic regulation.

Under the *outcome-based* approach, the desired outcome and the timeline to achieve the outcome is established, and the means for individual landowners to achieve the outcome is flexible. The landowner adopts a set of practices which achieve compliance with the regulation while also providing further beneficial functions, e.g. habitat diversity and nutrient filtration.

## ***OREGON DEPARTMENT OF LAND CONSERVATION AND DEVELOPMENT'S STATEWIDE PLANNING PROGRAM***

**Note to the reader:** The conclusions in this evaluation are *not* based on field observations. In the absence of specific research data, this evaluation, completed as per section 3(n) of EO 99-01, reflects the best professional judgement of the Department of Land Conservation and Development, in consultation with the Department of Environmental Quality, The Department of Forestry, the Department of Agriculture, and the Department of Fish and Wildlife.

### **Background**

Oregon's Statewide Planning Program requires that all cities and counties in the state develop comprehensive plans for managing growth, development, and resource protection. Local plans must comply with nineteen Statewide Planning Goals, which together address a broad range of issues related to planning and development. Ultimately, the statewide planning goals are intended to be implemented through local comprehensive plans. There are over 275 cities and counties in Oregon, and each local plan has been reviewed by the Land Conservation and Development Commission (LCDC) and acknowledged to be in compliance with the goals. Once a local plan is so acknowledged, all development activities within the jurisdiction are subject to the plan; the goals do not directly apply to land development activities.

The foremost and complementary objectives of Oregon's land use program are to protect and conserve agricultural and forest lands for agricultural and forest production; and to provide for growth and development within urban and urbanizable areas. The predominant effect of Oregon's planning program has been to prevent urban development from converting resource lands outside of urban growth boundaries to non-resource uses. In addition, using a variety of technical assistance materials and grants to local governments, DLCD, in partnership with ODOT, encourages well-planned, livable development within urban growth boundaries.

Local comprehensive plans are always being improved through amendments and revisions to local codes. DLCD reviews hundreds of local plan amendments each year in order to ensure that local plans remain in compliance with the statewide planning goals. In addition, Oregon's program includes a more methodical process, called "periodic review," to review and update local plans. The purpose of the periodic review process is to ensure that local plans and land use regulations continue to achieve the statewide planning goals over time. Periodic review provides an opportunity to revise a local plan to reflect changing local circumstances, goals, and objectives, and to meet revised statewide planning goal requirements. The periodic review process was significantly changed in 1999 through SB 543. SB 543 streamlines periodic review by focusing on those statewide planning goals critical to accommodating population growth. Periodic review will also now concentrate more on jurisdictions experiencing the greatest growth pressures; SB 543 exempts most of the less-populated jurisdictions from their current periodic review responsibilities.

Two statewide planning goals address riparian resources--Goal 5: *Natural Resources, Scenic and Historic Areas, and Open Spaces*, and Goal 17: *Coastal Shorelands*. The riparian provisions of the two goals are discussed separately below. While Goal 5 applies statewide, Goal 17 applies only within a "coastal shoreland planning area" described in the goal.

Goal 5 is the primary policy in the Statewide Planning Program for protecting riparian resources. However, Goal 5 is *not* the primary mechanism in the Goals for addressing water quality. Goal 6:

*Air, Water, and Land Resources Quality* contains provisions related to water quality. However, implementation of Goal 6 (which does not have an administrative rule) through local plans and development codes has not received as much attention as has Goal 5.

## **STATEWIDE PLANNING GOAL 5: NATURAL RESOURCES, SCENIC AND HISTORIC AREAS, AND OPEN SPACES**

### **Goal 5 Background**

The primary vehicle for riparian resource protection in the Statewide Planning Program is Goal 5: *Natural Resources, Scenic and Historic Areas, and Open Spaces*. Goal 5 is **To protect natural resources and conserve scenic and historic areas and open spaces**. Fifteen resource categories are listed in Goal 5, one of which is “*Riparian corridors, including water and riparian areas and fish habitat.*”

LCDC revised Goal 5 in 1996, and adopted a detailed administrative rule—OAR Chapter 660, Division 23—to replace Chapter 660, Division 16. Under the new rule (Division 23) all local jurisdictions must adopt a program to achieve Goal 5 for riparian corridors.

The 1996 Goal 5 revisions strengthened its riparian protection policies and rules. However, in revising the goal and rule, LCDC focused only on policies that can be effectively implemented through local land use planning ordinances and local development review. Some resources are not effectively protected through these mechanisms. For example, local planning ordinances and development reviews do not apply to farming practices in riparian areas. Similarly, in the absence of local plan policies or development requirements governing instream activities, local planners are not likely to monitor instream activities that might harm aquatic habitat.

In addition, in revising the goal, LCDC took note of the issues and resources that are currently under the domain of other state or federal departments and programs, like Oregon’s Forest Practices Act and the Agricultural Water Quality Management Planning process. Consequently, the Goal 5 rule focuses on urban areas and rural lands that are not subject to Goals 3 and 4. Goal 5 has limited applicability on farm and forest lands.

The new Goal 5 rule requires that local governments implement the riparian provisions of the revised rule “prior to or at the next periodic review” of its comprehensive plan. Since the new rule was adopted, its implementation has been one of DLCD’s top periodic review priorities; Goal 5 work tasks have been included in virtually all periodic review work programs approved since then. (See DLCD’s “1999 Implementation Report” for the *Oregon Plan for Salmon and Watersheds*, under measure DLCD-4.) Periodic reviews have been scheduled to occur every four to ten years—thus ensuring that all jurisdictions in the state would implement the new rule by about the year 2006. However, revisions to the periodic review program adopted by the 1999 legislature in SB 543 will likely affect the implementation schedule. In response to SB 543, LCDC could adopt a specific date for local implementation of the revised rule requirements, rather than rely on periodic review.

Much of Goal 5 describes a process to be used by local governments to balance development needs against the protection of resources identified in the goal. In 1996, specific requirements were added for the protection of some specific resources, including riparian corridors and wetlands. These requirements are more detailed than previous rule provisions, but there is still considerable flexibility for local implementation. In addition, the revised rule also provides a detailed riparian protection program as an optional “safe harbor” alternative to the standard Goal

5 process. The “safe harbors” provide standard and low-cost options for local governments to bring their comprehensive plans into compliance with the goal. LCDC and DLCD expect many jurisdictions to use the safe harbor option, because it is a simpler, faster, and cheaper way to comply with Goal 5, and it could substantially reduce litigation against local governments for adopting riparian protection standards.

Goal 5 is the primary policy in the Statewide Planning Program for protecting riparian resources. (As noted above, Goal 5 is *not* the primary policy for protecting water quality.) However, most local Goal 5 programs in place today were adopted in the early 1980s to comply with less-detailed goal and rule requirements. Before it was revised in 1996, Goal 5 did not specifically identify riparian corridors for protection. Instead, the goal required that local governments inventory “fish and wildlife habitats and areas” and “water areas, wetlands, watersheds, and groundwater resources,” and develop programs to achieve the goal. But at the same time, the old Goal 5 rule (OAR 660 Division 16) allowed jurisdictions to defer implementation of the goal where there was insufficient information on the “location, quality, and quantity” of the resource. Consequently, most local plans today do not contain thorough inventories of these resources. Even so, based at least in part on the old Goal 5 requirements, many local plans *do* reflect an understanding that the riparian landscape provides important functions, and should be protected. Based on the old Goal 5 requirements, stream setbacks are common in local development regulations. However, most may be judged by today’s standards to be inadequate to protect riparian resources. Structural setbacks from perennial streams can range from 15 to 50 feet, and most current local regulations do not prohibit vegetation removal, impervious surfaces, or channelization.

*The riparian protection provisions of the new Goal 5 rules generally apply only to non-resource lands.* In Oregon’s planning program, the term “resource lands” has come to denote lands that are designated in the goals and in local plans for commercial forest and farm uses. Non-resource lands include urban areas and rural areas that had already been committed to non-resource uses in the early 1970s, when the original goals were adopted. Other state agencies are responsible for riparian protection policies and programs on resource lands.

### **Program Objectives:**

Overall, and as noted above, the objectives of the Statewide Planning Program are to protect and conserve resource lands for resource uses, and to provide for well-planned, compact, efficient, coordinated growth and development within urban and urbanizable areas. Oregon’s land use program--especially as it applies to the complex urban and urbanizing environment--is based on the need to develop plans on a *comprehensive* basis, considering several values, variables, and policy objectives at once. Invariably, *comprehensive* planning involves consideration of *conflicting* values and objectives. Therefore, a robust and flexible planning program must have a method to balance conflicting objectives or, more specifically, to reach the maximum possible implementation of conflicting policies. Goal 5 provides both the policy foundation for protecting natural resources and a method to ensure maximum protection, considering the need for communities to provide for growth and development.

The overall objective of Goal 5 is for local governments to adopt programs to protect natural resources. More specifically, and as stated in the goal, the objective is for “... *local governments ... [to] determine significant sites for inventoried resources and develop programs to achieve the goal.*”

Goal 5 does not contain specific “biological objectives” as that term is used in the *Oregon Plan for Salmon and Watersheds*. Further, Goal 5 does not contain an explicit objective—such as to improve water quality or provide fish habitat—for protecting riparian corridors. As noted above, the goal itself is to “protect natural resources.”

### “Significant” Resources

The Goal 5 administrative rule provides for the protection of *significant* resources. Goal 5 does not apply to resources that are determined to be *not* significant. Therefore, the effectiveness of a local riparian protection program hinges almost entirely on what is determined to be a significant riparian corridor. The process for determining significance is a public, open process, subject to the participation and review of citizens, landowners, agencies, and other stakeholders. The rule contains two options for determining significance: use of the “standard” Goal 5 process, or use of a “safe harbor.”

Under the standard Goal 5 process, which is described in detail below, the rule does not specify what constitutes a “significant” riparian corridor. Instead, it specifies the basis for making a determination of significance. This determination essentially relies on the inventory information about the “quality, quantity, and location” of riparian corridors. In determining significance, local governments must, at a minimum, consult certain state and federal inventories and maps specified in the rule. Local governments may adopt additional criteria for determining significance, provided they do not conflict with the rule.

In 1997, as an aid to identifying significant riparian corridors under the standard Goal 5 process, the Division of State Lands published the *Urban Riparian Inventory and Assessment Guide*. The DSL guide uses the potential height of the dominant tree species within 100 feet of a water body to establish an inventory area, and then evaluates the water quality, flood management, thermal regulation, and wildlife habitat functions of the resources within that inventory area as a basis for determining its significance. This approach closely mirrors the *Oregon Freshwater Wetland Assessment Methodology*, which is the basis in Oregon law for determining significance of wetlands. The *Urban Riparian Inventory and Assessment Guide* provides a sound basis for identifying significant riparian corridors, but other methods may be used.

Under the safe harbor option, the determination of significance is treated differently. The safe harbor option uses stream flow and fish presence to determine riparian corridor significance. Along lakes and fish-bearing streams up to 1000 cfs average annual flow, a 50-foot corridor is significant; along streams over 1000 cfs, a 75-foot corridor is significant.

### “Standard” Goal 5 Process

The “standard” Goal 5 process involves, first, a resource inventory; second, determination of the significance of the inventoried resources; and third, the identification of *conflicting uses* and an area within which such uses could affect the resource. Under Goal 5, *conflicting uses* are land uses that could adversely affect a significant resource. Finally, a local *program to achieve the goal* is based on an analysis of the economic, social, environmental, and energy (ESEE) consequences of a decision to allow, limit, or prohibit a conflicting use. This so-called “ESEE analysis” is adopted as part of the local plan.

Based on the ESEE analysis, the standard Goal 5 process can result in three kinds of decisions:

(a) *A local government may decide that a significant resource site is of such importance compared to the conflicting uses, and the ESEE consequences of allowing the conflicting uses are so detrimental to the*

*resource, that the conflicting uses should be prohibited.*

*(b) A local government may decide that both the resource site and the conflicting uses are important compared to each other, and, based on the ESEE analysis, the conflicting uses should be allowed in a limited way that protects the resource site to a desired extent.*

*(c) A local government may decide that the conflicting use should be allowed fully, notwithstanding the possible impacts on the resource site. The ESEE analysis must demonstrate that the conflicting use is of sufficient importance relative to the resource site, and must indicate why measures to protect the resource to some extent should not be provided, as per subsection (b) of this section. (OAR 660-23-0040(5))*

A local program to achieve Goal 5 is typically an ordinance that prohibits or limits conflicting uses in areas where they would affect the resource.

### **“Safe Harbor” Alternative**

In amending the Goal 5 rule in 1996, the Land Conservation and Development Commission included a “safe harbor” methodology as an alternative to the standard Goal 5 process. The safe harbor is an optional course of action that, if followed, would automatically satisfy certain requirements under the standard process. One of the reasons for the safe harbor was to provide a low-cost approach for local jurisdictions to use to bring their plans into compliance with the new rule. Other considerations included the speed of implementation, protection from appeals, and standardization. Finally, safe harbors were intended to protect resources to a greater degree than would otherwise occur under the standard Goal 5 process.

Essentially, the riparian safe harbor (OAR 660-23-0090(5)) defines a specific riparian corridor width as “significant,” based on stream size and fish presence:

*(5) As a safe harbor in order to address the requirements under OAR 660-023-0030, a local government may determine the boundaries of significant riparian corridors within its jurisdiction using a standard setback distance from all fish-bearing lakes and streams ... as follows:*

*(a) Along all streams with average annual stream flow greater than 1,000 cubic feet per second (cfs) the riparian corridor boundary shall be 75 feet upland from the top of each bank.*

*(b) Along all lakes, and fish-bearing streams with average annual stream flow less than 1,000 cfs, the riparian corridor boundary shall be 50 feet from the top of bank.*

*(c) Where the riparian corridor includes all or portions of a significant wetland as set out in OAR 660-023-0100, the standard distance to the riparian corridor boundary shall be measured from, and include, the upland edge of the wetland.*

*(d) In areas where the top of each bank is not clearly defined, or where the predominant terrain consists of steep cliffs, local governments shall apply OAR 660-023-0030 rather than apply the safe harbor provisions of this section. (OAR 660-23-0090)*

The rule also outlines the minimum provisions for a local riparian corridor protection ordinance. A local ordinance based on the safe harbor option must prevent permanent alteration of the corridor, except under specific circumstances; and it must regulate the removal of vegetation within the corridor:

*(8) As a safe harbor in lieu of following the ESEE process requirements of OAR 660-023-0040 and 660-023-0050, a local government may adopt an ordinance to protect a significant riparian corridor as follows:*

*(a) The ordinance shall prevent permanent alteration of the riparian area by grading or by the placement of structures or impervious surfaces, except for the following uses, provided they are designed and constructed to minimize intrusion into the riparian area:*

*(A) Streets, roads, and paths;*

*(B) Drainage facilities, utilities, and irrigation pumps;*

- (C) *Water-related and water-dependent uses; and*
  - (D) *Replacement of existing structures with structures in the same location that do not disturb additional riparian surface area.*
- (b) *The ordinance shall contain provisions to control the removal of riparian vegetation, except that the ordinance shall allow:*
- (A) *Removal of non-native vegetation and replacement with native plant species; and*
  - (B) *Removal of vegetation necessary for the development of water-related or water-dependent uses;*
- (c) *Notwithstanding subsection (b) of this section, the ordinance need not regulate the removal of vegetation in areas zoned for farm or forest uses pursuant to statewide Goals 3 or 4;*
- (d) *The ordinance shall include a procedure to consider hardship variances, claims of map error, and reduction or removal of the restrictions under subsections (a) and (b) of this section for any existing lot or parcel demonstrated to have been rendered not buildable by application of the ordinance; and*
- (e) *The ordinance may authorize the permanent alteration of the riparian area by placement of structures or impervious surfaces within the riparian corridor boundary established under subsection (5)(a) of this rule upon a demonstration that equal or better protection for identified resources will be ensured through restoration of riparian areas, enhanced buffer treatment, or similar measures. In no case shall such alterations occupy more than 50 percent of the width of the riparian area measured from the upland edge of the corridor. (OAR 660-23-0090)*

In short, the riparian corridor safe harbor consists of a corridor of either 50 or 75 feet on both sides of a stream, in which activities—in particular, placement of structures and roads, and the removal of vegetation—are restricted in order to conserve the resource. The safe harbor ordinance is not a complete prohibition of all activities in the riparian corridor. The rule provides a degree of flexibility needed to accommodate the local circumstances in every jurisdiction in the state. The rule provides for intrusions into the corridor *provided they are minimized*. In practice, at the local level, ensuring that a proposed intrusion into the riparian corridor is minimized will involve consideration of other reasonable alternatives. Finally, the riparian safe harbor includes a modest incentive for restoration beside streams with at least 1000 cfs average annual flow.

## **DISCUSSION OF THE EFFECT OF GOAL 5 ON SPECIFIC RIPARIAN FUNCTIONS**

### **Overall Effect of Goal 5**

Goal 5's riparian provisions are the basis for *protection*, rather than *restoration*; in order for them to be effective, there has to be some resource to protect. Although a local jurisdiction could implement a remedial or restoration program partly on the basis of Goal 5, other programs outside of the Statewide Planning Program have been specifically developed to restore riparian resources.

Like most of the Statewide Planning Goals, Goal 5 is being applied in a very complex developed landscape. *The chief value of Goal 5 will be in its implementation in undeveloped areas.* There is no question that Goal 5 will be *most* effective where development has not already reduced or completely removed riparian resources. In general, it *may* reduce further degradation of riparian corridors in developed areas that have retained some riparian values. But it is likely to have little effect along corridors in heavily developed urban areas where there is virtually no resource left to protect. Thus, in the descriptions of the effect of Goal 5 below, there is often a distinction between developed and undeveloped areas. Finally, the effect of the Goal 5 rules on riparian corridors will be influenced by the degree of local enforcement.

***Note that the following descriptions are not based on field surveys. In the absence of field observations, this evaluation must be based on published research results, anecdotal observations, and professional judgement.***

## Shade

Where the Goal 5 riparian requirements are applied to undeveloped areas, they should result in the protection of a vegetative corridor sufficient to provide shade for small urban-area streams, *provided that a forested corridor exists prior to development of the area*. A local riparian ordinance based on Goal 5 will have its greatest value during the review of new development. The shading effect is likely to be positive, but will depend entirely on the vegetation in the corridor. If riparian vegetation in the undeveloped area is either dominated by shrubs or is non-existent, Goal 5 will not result in improved shade until other programs and activities result in the restoration of a forested canopy.

In already-developed areas, the effect of the new rules is harder to anticipate, but could be less pronounced. In developed suburban large-lot subdivisions, there may be large trees that will be protected by the new rules. However, land owners in built-out areas are the least likely to know about a new riparian protection ordinance, and are therefore the most likely to unwittingly violate the new ordinance by removing trees. Tree removal *not* associated with land development might occur for purposes related to hazard removal, landscaping, or providing access to a stream—all of which have traditionally been accomplished *outside* local regulatory processes. In developed suburban areas, except for small streams that are currently well shaded by riparian trees, the riparian rules will probably not have a substantial effect on shade.

In urban areas where little riparian vegetation exists, the rule will likely have little effect on shade.

To a point, the shade benefits of a forested riparian corridor will increase with its width. A wider buffer will permit retention of taller trees, thus providing potential for more layers within the canopy, and shade for a wider area—and potentially wider streams—on the ground. Thus, a 100-foot buffer might provide more shade for a small stream than a 50-foot buffer, but it is not clear that an even wider buffer would increase the shade value for the same small stream. The additional shade value from a wider buffer would depend entirely on local circumstances.

## Bank stability

As development increases, and areas of the watershed are converted to impervious cover—some of which will almost invariably be directly connected to the natural drainage system in the form of streets, driveways, parking lots, and downspouts connected to storm drains—the hydrology of the basin will change. Urban development is typified in part by directly channeling precipitation into the natural drainage network—resulting in peak storm flows that are higher and earlier than occurred in the basin in its undeveloped state. To a significant degree, stream channel configuration largely reflects the nature of the peak storm flows. As the hydrology of a basin changes, beyond a certain point, the stream channel will respond by widening, deepening, or both. This channel instability will trigger streambank erosion, in particular because of the higher, more frequent, and more forceful peak flows. In short, where there is a good riparian vegetation cover in a developing basin, protective buffers will probably mitigate—but not entirely prevent—the effect of stormflows on channel configuration and, therefore, streambank erosion.

The effect of riparian buffers—including those based on Goal 5—on bank stability will depend largely on the amount of impervious ground cover in areas of the watershed *outside* the riparian corridor. (Schueler, 1995.) If the hydrograph of a stream has not been severely altered by development in the watershed, then an intact vegetated corridor protected by a program

implementing Goal 5 should continue to mitigate the erosive effects of storm flows. Implementation of the Goal 5 riparian requirements, either through the “safe harbor” provisions or the standard Goal 5 process, will maintain bank-stabilizing vegetation and prohibit uses and activities that would otherwise degrade the streambank. Increased width of the buffer will not directly affect the bank-stabilizing characteristics of a buffer.

*A riparian buffer alone will not be sufficient to ensure long-term bank stability for a stream in a developing watershed.* Increased impervious surfaces and channelization of stormwater runoff are common in the urban environment, and they both dramatically affect stormwater runoff rates, especially in the absence of mitigating measures. Long-term bank stability will depend on the implementation of other measures to mitigate peak storm flows. In short, in order to fully protect riparian functions in the urban environment, stormwater management measures need to be implemented in addition to protecting riparian corridors.

### **Erosion control**

Just as the descriptions of the effect of Goal 5 on riparian functions above have noted, the effect of Goal 5 on erosion will again depend on the level of development in a basin. But further, the effectiveness of riparian buffers based on Goal 5 in controlling erosion will depend in part on the nature of the activities *adjacent to the buffer*. Erosion control is closely related to the sediment filtering function described below.

Erosion control by a vegetated buffer will depend a lot on the nature of the vegetation, the slope of the buffer, and the degree to which the flow entering the buffer is prone to channelization. If there is good shrub and ground cover in the corridor, and activities adjacent to the buffer are managed to prevent channelization of flow before it enters the buffer, then the effect of a local program based on Goal 5 will be positive, and will probably prevent erosion in the buffer. However, if the land use activity adjacent to the buffer results in channelization of flows before they enter the buffer, or the adjacent lands are steep—thereby increasing the likelihood of channelization—then a buffer based on Goal 5 will be less effective in controlling erosion.

### **Large wood source**

Many factors in addition to Goal 5 will influence the sources of large wood for urban streams.

The 50- and 75- foot buffers spelled out in the Goal 5 riparian safe harbor are not likely to provide for a constant and long-term source of large wood, in particular within urban areas. There are at least two reasons for this, which are ultimately based on considerations of public safety. First, development that has occurred adjacent to streams and riparian corridors could be at risk from falling trees. While there may be potential large wood—in the form of conifers—adjacent to an urbanized stream, such source trees are likely to be removed at the first sign that they are in danger of falling. And second, where large trees do fall so as to become part of the streamscape, the adjacent development could be at risk to channel migration during flood events, which is one of the expected consequences of the interaction of large wood and high flows. Thus, there are considerable incentives—based on considerations for safety and protecting capital investment—to remove trees from the riparian corridor in an urban setting which otherwise might be sources of large wood for the stream.

Generally, the habitat benefits of large wood have been well documented in lower-order streams, typically in forested upper watersheds. The role of large wood in higher-order streams lower in

the watershed—in other words, in areas more subject to urbanization—have not been well documented.

Even though the Goal 5 riparian safe harbor may provide for *some* large wood inputs into a stream where riparian vegetation is well-established, it will probably not have a significant positive effect on large wood inputs into urban streams.

### **Nutrient source (litter fall)**

The effect of Goal 5 on nutrient input is roughly correlated to its effect on shading. That is, where a local program based on Goal 5 preserves riparian vegetation which provides shade, that same vegetation will act as a nutrient source for the stream.

### **Filtering of sediments and pollutants**

The effectiveness of a buffer in filtering sediments and pollutants depends on several factors. The principal factor is how much of the total runoff is routed through the buffer as sheet flow, rather than channelized flow. Sediments can be filtered out, and soluble pollutants have a greater chance of entering the root zone if runoff is not channelized.

In general, a riparian buffer will have virtually no filtering effect on runoff that enters the stream as channelized flow. Any sediment deposition—in contrast to filtering—within the stream will be available for re-entrainment in a subsequent runoff event. When flows exceed bankfull stage, a fully-functioning vegetated buffer consisting of a mix of trees, shrubs, grasses and forbs can provide some filtering function. Given the likelihood of some pollutant uptake or recycling and colonization of deposited sediments by grasses and forbs, depositions in the floodplain may be less likely to be re-entrained than those in the streambed.

Ultimately, a riparian buffer in an urban setting will not provide a sediment-filtering function for a very large proportion of the runoff from upslope areas, since most runoff in urbanized areas is almost immediately channelized and routed into a stream network. Most urban runoff concentrates too quickly to be effectively treated by a buffer. A very large proportion of runoff in an urban watershed—ninety percent—will become concentrated before entering a buffer. The ability of a buffer to treat stormwater from adjacent land uses obviously depends on how much of that flow becomes channelized before it reaches the buffer.

A riparian buffer *will* provide a filtering function for sheet flow that enters the buffer laterally from areas immediately upslope of the buffer. But again, the buffer will effectively filter sediments from adjacent land uses only where runoff from the adjacent land is not channelized. There is likely a relationship between a buffer's width and its effectiveness in filtering sediments from adjacent uses; that is, the wider a buffer, the more effectively it will filter sediments. But at some point, depending on the nature of the sediments and the runoff, increased width may not yield a proportionate increase in sediment-removal efficiency.

Riparian buffers established on the basis of Goal 5 will maintain the sediment and pollutant filtering functions only for land uses immediately outside the buffer, except in areas where upstream runoff is not channelized, as in rural exception areas.

## **Flood storage and mitigation**

Goal 5's riparian buffer is specifically designed to include riparian wetlands. Thus, Goal 5 does protect features that store floodwaters. Goal 5 defines non-riparian wetlands that have some flood storage function as significant, and therefore must be subject to the goal. However, the flood mitigation function of resources protected by Goal 5 may be overwhelmed by increased peak flows resulting from development of the basin upstream.

## **Wildlife habitat**

Goal 5's riparian buffers will provide some wildlife habitat. However, riparian buffers based solely on the Goal 5 riparian rules will not be—and are not intended to be—sufficient for all wildlife species. Goal 5 includes “wildlife habitat” as a separate resource, and contains separate inventory and protection requirements. The wildlife habitat inventory requirements are based on sensitive species and, in particular, species listed as threatened or endangered. However, under Goal 5, “wildlife habitat” does not include fish. Fish habitat is protected through the riparian rules, as the goal applies to “*riparian corridors, including water and riparian areas and fish habitat.*”

As with the other riparian area functions, Goal 5's riparian rules will be most effective in providing for wildlife habitat when they are applied to an area that has good quality riparian function and structure to begin with.

## **EVALUATION OF COMPLIANCE AND EFFECTIVENESS**

Oregon's Statewide Planning Goals are the basis for cities and counties to establish local comprehensive land use plans. The Statewide Planning Program regulates *local government planning*, rather than *individual land use decisions*. Therefore, the degree to which local plans comply with the goals can be measured; although clearly, this measurement is of limited utility.

DLCD's existing monitoring and reporting mechanisms are related to the objectives of protecting resource lands for resource uses, directing growth and development to urban and urbanizable lands, and ensuring that plans remain in compliance with the goals. Once a plan is acknowledged, local jurisdictions provide notice of plan amendments to the Department; the Department may participate in the local plan amendment process if the proposed amendment appears to be out of compliance with the goals. Except for plan or ordinance amendments, DLCD does not now monitor local land use decisions specifically to determine the level of compliance with or effectiveness of Goal 5.

All city and county plans in the state have been reviewed and are acknowledged to be in compliance with applicable goals *that were in effect at the time of the acknowledgment review*. As noted above, however, Goal 5 was amended in 1996; only a handful of jurisdictions have amended their plans to bring them into line with the new Goal 5 requirements. There were no specific riparian protection requirements in the old Goal 5 administrative rule. Therefore, most local plans today do not protect riparian corridors to the degree required in the new rule. The new rule requires that plans be brought into compliance upon or before a jurisdiction's next regular periodic review.

The 1999 legislature's changes to the periodic review program effectively removed many jurisdictions from the periodic review process. Since periodic review was to be the “trigger” for local implementation of the new Goal 5 rules, that “trigger” will now need to be changed in order

to continue to bring plans into compliance with the new Goal 5 requirements. It is likely that the Commission will adopt a specific date by which plans are to be brought into compliance with the new riparian rules.

Monitoring for compliance with local riparian regulations presents some substantial challenges:

- ❖ First, riparian areas in a given jurisdiction may be quite extensive.
- ❖ Second, county or city authority over activities in the riparian corridor is likely to apply to many ownerships—and therefore potential actors.
- ❖ Third, local planning authorities must address many local and state planning priorities.
- ❖ Fourth, compliance monitoring would need to be weighed against many other competing state and local planning priorities.
- ❖ Finally, monitoring for violations of local riparian protection requirements might be viewed as an unnecessary government intrusion into private lives.

Monitoring by DLCD for violations of local planning laws has never been contemplated or funded as part of the overall statewide planning program. DLCD does not now have plans or resources to implement a Goal 5 compliance monitoring program.

## ***STATEWIDE PLANNING GOAL 17: COASTAL SHORELANDS***

### **Background**

In addition to Statewide Planning Goal 5, Goal 17 also provides for the protection of riparian resources in some coastal areas. The requirements of Goal 17 that relate to riparian resources are spelled out entirely within the goal.

Goal 17 - *Coastal Shorelands* is:

*To conserve, protect, where appropriate, develop and where appropriate restore the resources and benefits of all coastal shorelands, recognizing their value for protection and maintenance of water quality, fish and wildlife habitat, water-dependent uses, economic resources and recreation and aesthetics. The management of these shoreland areas shall be compatible with the characteristics of the adjacent coastal waters; and*

*To reduce the hazard to human life and property, and the adverse effects upon water quality and fish and wildlife habitat, resulting from the use and enjoyment of Oregon's coastal shorelands.*

Goal 17 contains inventory requirements, comprehensive plan requirements, implementation requirements, and guidelines.

The inventory requirements are to be applied within an area known as the “coastal shorelands planning area”—an area defined in the goal as 1) all lands west of Highway 101 (except in specific areas of Tillamook and Coos Counties, where the planning area boundary follows other roads west of Highway 101); and 2) all lands within 1000 feet of estuaries and 500 feet of coastal lakes. Shorelands inventories

*... shall provide information on the nature, location, and extent of geologic and hydrologic hazards and shoreland values, including fish and wildlife habitat, water-dependent uses, economic resources, recreational uses, and aesthetics in sufficient detail to establish a sound basis for land and water use management.*

The shoreland inventories must include several resources, including wetlands, areas subject to flooding and geologic hazards, and

*Natural or man-made riparian resources, especially vegetation necessary to stabilize the shoreline and to maintain water quality and temperature necessary for the maintenance of fish habitat and spawning areas;*

Goal 17's *Guidelines* contain additional considerations for resource inventories:

*In coastal shoreland areas the following inventory needs should be reviewed. The level of detail of information needed will differ depending on the development or alteration proposed and the degree of conflict over the potential designation.*

...

6. *Areas of vegetative cover which are riparian in nature or which function to maintain water quality and to stabilize the shoreline;*

Based on Goal 17 inventories, comprehensive plans identify coastal shorelands and “establish policies and uses” of the shorelands based on standards in the goal. The goal lists general priorities for the use of coastal shorelands. From the highest to the lowest, coastal shoreland priorities in the local plan shall be to:

1. *Promote uses which maintain the integrity of estuaries and coastal waters;*
2. *Provide for water-dependent uses;*
3. *Provide for water-related uses;*
4. *Provide for nondependent, nonrelated uses which retain flexibility of future use and do not prematurely or unalterably commit shorelands to more intensive uses;*
5. *Provide for development, including nondependent, nonrelated uses, in urban areas compatible with existing or committed uses;*
6. *Permit nondependent, nonrelated uses which cause a permanent or long-term change in the features of coastal shorelands only upon a demonstration of public need.*

Based on the need to protect both the unique ecological values and the economic development opportunities of shorelands, Goal 17 lists permissible shoreland uses. Protection of major marshes and significant wildlife habitat are a high priority. Uses in these areas are to be “consistent with protection of natural values.” The goal also provides for waterfront development where appropriate and necessary. Sites that are especially suited for water-dependent uses must be reserved for such uses.

Finally, Goal 17 contains *Implementation Requirements* which refer to riparian resources. One of the *Implementation Requirements* specifies how riparian resources within the coastal shorelands area are to be treated in the local plan:

*Because of the importance of the vegetative fringe adjacent to coastal waters to water quality, fish and wildlife habitat, recreational use and aesthetic resources, riparian vegetation shall be maintained; and where appropriate, restored and enhanced, consistent with water-dependent uses.*

## **The Relationship Between Goals 5 and 17**

As noted above, Goal 5 applies statewide, and Goal 17 applies in areas along the coast described in the goal as the “coastal shorelands planning area.” The Goal 5 administrative rule addresses the overlap:

*The requirements of Goals 15, 16, 17, and 19 shall supersede the requirements of this division for natural resources that are also subject to and regulated under one or more of those goals. However, local governments may rely on a Goal 5 inventory ... to satisfy the inventory requirements under Goal 17... (OAR 660-23-0240)*

In short, the rule means that the resource management requirements of Goal 17 must be implemented for sites subject to Goal 17, but that those requirements may be based on a Goal 5 inventory of the resource. On the ground, this has been interpreted to preclude use of the

“standard” Goal 5 ESEE process for riparian corridors in the coastal shorelands area. Essentially, riparian vegetation must be “...maintained; and where appropriate , restored and enhanced, consistent with water-dependent uses.”

### **Goal 17 Objectives**

Specifically related to riparian resources, and in contrast to Goal 5, Goal 17 cites a purpose for protecting riparian resources: the inventory must identify “...*riparian resources, especially vegetation necessary to stabilize the shoreline and to maintain water quality and temperature necessary for the maintenance of fish habitat and spawning areas.*” Thus, Goal 17’s riparian vegetation protection requirements are for the stated purposes of shoreline stabilization, water quality, and shade. Further, the Implementation Requirements, as noted above, state that “*Because of the importance of the vegetative fringe adjacent to coastal waters to water quality, fish and wildlife habitat, recreational use and aesthetic resources,*” riparian vegetation shall be at least maintained.

### **Program Evaluation**

Since Goal 17 does not specifically require a different *level* of riparian protection than Goal 5, and a Goal 5 inventory may be used in implementing Goal 17, the effect of Goal 17 on riparian *functions* is not likely to differ from that of Goal 5. Although Goal 17 is not limited to the protection of *significant* resources, a Goal 5 inventory may exclude riparian resources that are determined to be not significant. Therefore, riparian vegetation that is not identified as significant in a Goal 5 inventory may not be protected under local coastal shorelands policies. However, a local jurisdiction does have the option of completing a Goal 17 riparian corridor inventory, and therefore of identifying and protecting riparian resources that might not be identified as significant under Goal 5.

The Goal 17 implementation requirement which requires that riparian vegetation, “where appropriate, [be] restored and enhanced” does go beyond the requirements of Goal 5. However, it is not known if this difference between the goals has made an actual difference on the ground.



## ***OREGON DIVISION OF STATE LANDS’ PROGRAMS AFFECTING RIPARIAN RESOURCES***

Division of State Lands (DSL) programs that relate in some way to riparian management or protection:

- ❖ Manages State-Owned land in eastern Oregon for agriculture, grazing, timber and mineral production
- ❖ Manages State-Owned Submerged and Submersible Lands
- ❖ Administers the State Removal-Fill Program (ORS 196.800 through 196.990, the Removal-Fill Law)
- ❖ Administers the Elliot State Forest and Sun Pass State Forest (management of the Elliot and Sun Pass State Forest is contracted with Oregon Department of Forestry)
- ❖ Published *Urban Riparian Inventory and Assessment Guide* to be administered by local land use planning agencies

### **DSL Program Background:**

Beginning with Ohio in 1802, Congress awarded specific sections of land to states when they entered the Union with the stipulation that proceeds from these lands be used for educational purposes. When Oregon entered into statehood in 1859, approximately 6 percent of the new state’s land was dedicated for the use of schools. Upon statehood and under the “Equal Footing Doctrine,” the state also received all of the submerged and submersible lands underlying navigable waterways and tidally influenced waters within its borders as part of its sovereignty and belonging to the public. Later, “swamp lands” were granted to the state. These lands and their mineral, timber, and other resources, along with their income were dedicated to the Common School Fund—a policy that remains in effect today.

Due to concerns over unregulated gravel mining in the State’s rivers, the legislature passed a bill in 1967 requiring a permit from the Division prior to removal of more than 50 cubic yards from the bed or banks of waters of the state. In 1971 the law was amended to include fill of more than 50 cubic yards of material in waters of the state required a permit from the Division. Since that time there has been legislative action and voter initiative creating the State Scenic Waterways and Essential Salmonid Habitat statutes that require permits for any amount of fill and/or removal in waters of the state.

### **Administration of State-Owned Agricultural/Rangelands and Submerged and Submersible Lands**

#### **Objective:**

The Division, under the direction of the Land Board (Oregon Constitution, Article VIII Section 5(2)), has the responsibility to manage state-owned lands with the objective of obtaining the greatest benefit for the people of this state yet remain consistent with the conservation of the resource under sound techniques of land management. The intent of the Division’s rangeland management program is to apply sound land management practices that maximize long-term financial benefit to the Common School Fund (through leasing the land) while preventing human-induced loss of rangeland health (OAR 141-110-010). Maintaining healthy riparian areas are but one component of sound land management practices. A component of the Range

Management Plan (RMP) provided by each lease applicant stipulate on their application where there are riparian areas, as well as other unique features on the land. The lease applicant then must describe any special provisions necessary to protect those features.

The intent of the Divisions submerged and submersible land program is to protect and conserve the state's water resources for various public uses such as navigation, fishing and public recreation. Tideland cannot be filled where the fill would unreasonable interfere with public rights or uses in navigable waters. Removal of riparian vegetation is not permitted, unless it is in connection with the development and maintenance of uses authorized by the Division by lease, easement or other authorization.

### **Recommendations for Improving the Grazing Lease Program in Riparian Areas**

- ❖ Complete the inventory of riparian areas on all state lease lands.
- ❖ Require specific riparian management provisions on lease lands with identified riparian areas as part of applicant's range management plan.
- ❖ Annually review leases and determine lessee's compliance with the plan's terms and conditions.

### **Recommendations for Improving the Submerged and Submersible Lands Program in Riparian Areas**

- ❖ Complete an inventory of riparian areas on all state-owned submerged and submersible lands.

### **Administration of the Removal-Fill Program:**

#### **Objective:**

The purpose of the Removal-Fill Law is to provide a mechanism that allows for necessary impacts while still providing protection, conservation, and best use of water resources of the state. Riparian areas are a component of water resources of the state.

The primary method DSL has in protecting and restoring riparian vegetation for the purposes of achieving statewide water quality standards and protecting and restoring aquatic habitat for salmonids is through implementation of the Removal-Fill Law. DSL has no regulatory authority or management input on riparian vegetation unless a Removal-Fill permit is involved. When a permit is issued, allowing for impacts to the bed and/or banks of waters of the state, the permit is conditioned in such a way to minimize adverse impacts to the natural resources and/or replace them through mitigation. One standard condition for any permitted impacts to waters of the state stipulates that riparian vegetation removal be limited the minimum amount needed to complete the project. Any riparian vegetation that is removed during the implementation of the project is then by condition to be replaced by replanting riparian vegetation or other mitigation methods. Sometimes this mitigation is planting riparian vegetation at another location where it is lacking.

#### **Program Evaluation:**

A short summary of the eight functions of riparian areas:

- ❖ Shade
- ❖ Bank stability/erosion control
- ❖ Large wood source

- ❖ Nutrient source (litter fall)
- ❖ Filtering of sediments
- ❖ Filtering of pollutants
- ❖ Flood storage and mitigation
- ❖ Wildlife habitat

### **Shade:**

When an applicant applies for and receives a removal-fill permit for work in-stream and perhaps the associated riparian area, the removal of riparian vegetation (e.g. trees) for the permitted work will result in a loss of shade. Conditions of the permit would require re-planting of the trees lost and over time shade levels would return to what it was prior to the project impacts. Tree removal *not* associated with a removal-fill permit would not be covered by DSL as it would be outside of the regulatory process.

### **Bank Stability/Erosion Control:**

Of the eight functions of the riparian area listed above, bank stability/erosion control is probably the only function the removal-fill program has much of any influence upon. Many times through good stewardship of the riparian area (e.g. fencing to exclude livestock or other types of buffers) the need for applying for a removal-fill permit and the costs of construction of a bank protection feature can be avoided. Other times through aggressive plantings in the riparian area with soil binding vegetation such as willows, the need for a removal-fill permit can be avoided. However, when a permit is needed, one of the standard conditions calls for re-vegetating the impacted riparian area with willows or other fast growing riparian vegetation.

### **Large Wood Source:**

At this time, the removal-fill program would have very little influence over large wood. There had been a proposal (HB 3393) in this legislative session for DSL to have regulatory authority over large wood, but at this time that has not occurred. Therefore, the only influence the removal-fill program would have on large wood would be when that wood is lodged in the bed or bank. The removal-fill program has no influence over management of the riparian area and the possibility of recruitment of large wood into the riverine systems.

### **Nutrient Source (Litter Fall), Filtering of Sediments & Pollutants, Flood Storage & Mitigation and Wildlife Habitat:**

Much like its effect on shading, the removal-fill program would have minimal effect on litter fall, filtering of sediments & pollutants, flood storage & mitigation and wildlife habitat as they relate to the riparian areas, unless there was a permit for removal and/or fill activity in-stream and the associated riparian area.

### **Recommendations on Improving the Effectiveness of the Removal-Fill Program in Riparian Areas**

- ❖ Improve permit applicant compliance with conditions of permit as it relates to riparian areas.
- ❖ Make the goals and objectives to be reached in the conditions of the permit more clearly defined as it relates to riparian areas.

- ❖ Require a riparian or wetland buffer on all permit activities that involve wetland mitigation with clearly defined goals and objectives.

### **Administration of The Elliot State Forest and Sun Pass State Forest**

The Elliot State Forest and Sun Pass State Forest through contract, are managed by the Oregon Department of Forestry in accordance with the forest practices management for riparian and stream protection on non-federal forestlands.

### **The Urban Riparian Inventory and Assessment Guide (Riparian Guide)**

The Riparian Guide is a rapid inventory and assessment method for defining the location and quality of riparian areas within urban growth boundaries. As part of the requirements of Statewide Planning Goals 5 and 17, many Oregon communities have adopted land use regulations protecting riparian resources. Many times the riparian inventory can be completed at the same time as Local Wetland Inventories, which are conducted using the standards and procedures of OAR 141-86-110 through 141-86-240. Using the Riparian Guide will provide consistent results when conducting riparian inventories, through which local communities can use the results to prepare land use regulations to protect riparian resources.

# ***OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY PROGRAMS THAT AFFECT RIPARIAN VEGETATION.***

## **Introduction**

The Department of Environmental Quality (DEQ) is the state agency with primary responsibility for protecting, restoring, and enhancing Oregon's public water for a wide range of uses. DEQ and the Environmental Quality Commission (EQC) set water quality standards to protect “beneficial uses” such as salmonid habitat, drinking water supplies, and recreational activities. DEQ works with other agencies that oversee forestry, agriculture, and urban activities to protect watersheds. Examples of this include coordinated watershed enhancement and protection projects, education to land managers and the general public, projects that demonstrate good land management practices, and the enforcement of standards and regulations. DEQ’s involvement with aquatic habitat restoration activities includes: water quality monitoring and assessment; the development of TMDLs and water quality management plans that restore water quality; certifying Removal-Fill projects under Clean Water Act (CWA) Section 401; and providing technical and financial assistance to restoration activities which improve riparian vegetation and their functions that protect water quality.

## **DEQ Programs that Affect Riparian Vegetation.**

The discussion below is based on DEQ’s statutes, rules, and water quality standards and criteria, which are adopted into state law. DEQ’s statutes, rules, standards, criteria, and definitions that could affect the management of riparian areas have been packaged in a separate document, which is available from Tom Rosetta in DEQ, who can be reached at (503) 229-5053 or by e-mail at [rosetta.thomas.n@deq.state.or.us](mailto:rosetta.thomas.n@deq.state.or.us).

**Achievement of State Water Quality Standards and TMDLs.** Under requirements of the Clean Water Act, DEQ identifies and lists streams and lakes that have water quality impairments, establishes basin or sub-basin TMDLs (total maximum daily loads) for listed waterbodies, and coordinates with designated management agencies (DMAs) that have the responsibility of developing management plans that will implement the achievement of TMDL targets.

TMDLs determine how much pollution a waterbody can handle from all sources, and then allocates the amount of a particular pollutant that will be allowed to enter the water. Management plans and DMAs include “SB 1010 plans” for agricultural land administered by the ODA (Oregon Department of Agriculture), the Forest Practices Act BMPs for state and private forest lands, administered by the ODF (Oregon Department of Forestry), federal water quality management plans for federal lands administered by federal agencies (UFS, BLM, etc), and discharge permit modifications for industries and cities.

TMDLs that are established for any of the 91 sub-basins in Oregon may be based on pollutants on the 303(d) list that are also included in Table 1 of this report. These may include temperature, sedimentation, turbidity and toxics. Protecting and restoring riparian vegetation is often the best method for controlling and reducing pollution, and for thus protecting water quality. EPA has approved the use of ‘shade’ as a surrogate to temperature, allowing the State to require levels of shade producing vegetation in order to meet TMDL targets.

The elements of a TMDL are:

1. A determination of the loading capacity of the receiving waterbody, i.e. the quantity of pollutants that can be assimilated and have water quality standards met;
2. Waste load allocations for point source dischargers (WLAs). These will be incorporated into NPDES permits at the time of renewal or reissue;
3. Load allocations for nonpoint sources (LAs). These shall be aggregate allocations to each sector, as applicable, including but not limited to agriculture, forestry, and urban within the geographic area of the TMDL;
4. An allocation for background, or natural levels of pollutants; and
5. A margin of safety based on the rigor of the available data and modeling.

DEQ works with watershed councils and the public to allocate this maximum load among the various pollutant contributors, such that once these allocations are met, water quality standards will no longer be violated. TMDLs are submitted to the U.S. EPA for approval. The TMDL must include information that defends the total allocation, and must be accompanied by an implementation plan (WQMP) that outlines how the TMDL allocations will be met and provides reasonable assurance that the TMDL will be implemented.

**TMDL development** includes the following steps for completion:

1. Perform preliminary analysis/determine data needs.
2. Establish public involvement strategy.
3. Develop overall plan for monitoring and analysis.
4. Perform data collection.
5. Perform watershed analysis/develop load allocations.
6. Submit TMDL to EPA.
7. Track TMDL implementation.

Water quality monitoring is essential for identifying water quality problems and for tracking changes over time. In support of the Oregon Plan and local watershed councils, DEQ and other state agencies plan and conduct monitoring programs to assess progress in meeting TMDL targets required under Section 303(d) of the Clean Water Act, and to determine general trends in watershed health. (For more information on monitoring see the Water Quality Monitoring section, below.)

**DEQ and Forest Practices :** The following text outlines the regulatory framework under which DEQ and Oregon Department of Forestry (ODF) work together in order to achieve and maintain water quality standards and/or achieve TMDL targets:

1. The Environmental Quality Commission (EQC) and the Oregon Department of Environmental Quality (DEQ) are responsible for implementing the Federal Clean Water Act in Oregon, ORS 468B.035, including the adoption of water quality standards.
2. ORS 527.765 requires the Oregon Board of Forestry (the Board), in consultation with the EQC, to establish Best Management Practices (BMPs) and other rules applying to forest practices to ensure that, to the maximum extent practicable, non-point source discharges of pollutants resulting from forest operations do not impair the achievement and

maintenance of water quality standards established by the EQC. The Oregon Department of Forestry (ODF) is the Designated Management Agency (DMA) by DEQ for regulation of water quality on nonfederal forestlands.

3. Through an MOU signed in April of 1998, ODF and DEQ agreed to a process for evaluating the effectiveness of BMPs in the achievement and maintenance of water quality standards, the implementation of FPA BMPs as the WQMP component of TMDLs, and for the removal of waterbodies on state and private forestlands from the 303(d) list. TMDL allocations must be established at a level necessary to implement the applicable water quality standards with seasonal variations and a margin of safety which takes into account any lack of knowledge concerning the relationship between pollutant sources and water quality.
4. TMDLs must be incorporated into the continuing planning process required by Section 303(e) of the Clean Water Act and the continuing planning process must be included in the state's water quality management plan (WQMP). Sections 208 and 319 of the Act, 33 U.S.C. S1288 and S1329, require the state to prepare non-point source management plans.
5. ORS 527.770 provides that Forest operators conducting operations in accordance with ODF BMPs to be in compliance with Oregon's water quality standards.
6. Forest Practices Act (FPA) water protection rules may be applicable to any forestland, regardless of how the land is zoned or taxed or how any state or local statutes, ordinances, rules or regulations are applied [ORS 527.620 (8)].

In brief, the ODF and DEQ work together to insure that water quality standards are met by jointly evaluating Forest Practices Act (FPA) BMP effectiveness in order to assure that to the maximum extent practicable water quality standards will be achieved. This 'sufficiency analysis' (Section III of the '98 MOU) includes temperature, sedimentation and turbidity, aquatic habitat modification, bio-criteria, and other agreed-to parameters. This is an ongoing process, and along with other ODF/DEQ efforts, continues to provide water quality improvement opportunities for Oregon.

BMPs that protect and restore riparian vegetation are included in OAR 629-630 through 629-660, and are discussed in the ODF section of this report. DEQ has generally determined that ODF's Water Protection Rules provide the minimum level necessary to meet water quality standards for the State of Oregon. The development of tree and vegetation retention BMPs of the FPA is considered to be a key baseline process for establishing a model for healthy, sustainable riparian conditions for the state of Oregon. The BMP effectiveness monitoring is tied directly to the state water quality standards that protect beneficial uses such as salmonid survival. With advancing watershed assessment tools and methodologies, BMPs will be improved to achieve their water quality protection goals.

By statute, forest operators conducting operations in accordance with ODF BMPs are determined to be in compliance with Oregon's water quality standards. Forest Practices Act (FPA) water protection rules may be applicable to any forestland, including those enclosed by agricultural and urban lands.

**Agricultural Practices:** DEQ works directly with the ODA (the DMA for water quality management on agricultural lands) to develop implementation plans (WQMPs) that will provide

adequate water quality protection on agricultural lands, and achieve TMDL requirements to a degree that is acceptable to EPA. The ODA section of this report regarding ‘SB 1010’ provides more information on this process.

ORS 568.927 provides that the agricultural provisions of ORS 568.900 to 568.933 (agricultural practices) shall not apply to any forest practice conducted on forestland as defined in ORS 527.620. ‘Forestland’ is land that is used for growing and harvesting of forest tree species, regardless of how the land is zoned or taxed or how any state or local statutes, ordinances, rules or regulations are applied. See Appendix B for additional information on statutes and rules. FPA rule BMPs have been applied, and may be applicable to riparian vegetation (forestland) on designated ‘agricultural’ land.

**Urban Lands:** DEQ works with county and local governments, and other interested parties in developing city stormwater control plans, and erosion and sediment control measures through NPDES 1200-C permits, as well as WQMPs for TMDLs that may result in vegetative protection and/or restoration of riparian corridors in the urban environment. Most of the stormwater measures to date have primarily addressed turbidity, sediments, and associated toxic materials. Since stormwater management can affect channel integrity, bank stability, and surface and groundwater supplies to aquatic systems, its application can have direct impacts on the presence and quality of riparian vegetation. DLCDC’s section of this Appendix contains some additional discussion of this topic.

With respect to forested urban areas, ORS 527.722 (5) states the following:

*To insure that all forest operations in this state are regulated to achieve protection of soil, air, water, fish and wildlife resources, in addition to all other forestlands, the Oregon Forest Practices Act applies to forestlands inside any urban growth boundary unless a local government has adopted regulations for forest practices. Such local regulations shall:*

- (a) Protect soil, air, water, fish and wildlife resources; and*
- (b) Be acknowledged as being in compliance with land use planning goals.*

The FPA rule BMPs are applicable where a city has not adopted its own ordinances regulating forest operations within its urban growth boundary. A city may choose to adopt an ordinance applicable to all forestlands inside its UGB, in which case ODF would not administer the FPA within that UGB. If a jurisdiction addresses the requirements of Goal 5 by adopting the “safe harbor” provisions or some other program to protect riparian vegetation, ODF would administer the FPA for forestlands within the UGB not included within the Goal 5 riparian area.

**Land Use Conversions.** DEQ and ODF work cooperatively to insure the protection of water quality at or above levels provided under the FPA in cases where forestland is to be converted to another use such as agricultural or urban. This normally results in most land use conversion projects being completed under FPA Water Protection Rules, OARs 629-630 through 629-660, their equivalent, or greater water quality protection.

**401 Certification Program:** DEQ evaluates CWA Section 404 dredge/fill applications permitted by the Army Corps of Engineers. This DEQ water quality certification review is required under Section 401 of the CWA for any activity that discharges to state waters and requires a federal permit or license. In general, this pollution prevention program is designed to protect water quality and beneficial uses with respect to in-water and near-water construction activities.

Evaluated impacts can be temporary, continuing, and/or cumulative. It should be noted that the 401 certification program, as a counterpart to the NPDES point source program, has the potential to protect water quality from NPS pollution in areas where no other 'permitting' programs presently exist. Activities can be certified, certified with conditions, denied, or waived through the 401 certification process.

Project types evaluated include: wetland fills; channel dredging; bank stabilization; pipeline trenches; roads and bridge construction; survey activities; outfall construction; boat ramps, pilings and other structures; emergency watershed protection; etc., including riparian restoration projects that may involve any of these listed activities. Many of the federal dredge and fill permits which DEQ evaluates for 401 certification are handled jointly through the Oregon Division of State Lands (DSL) and the US Army Corps of Engineers (COE). Potential vegetation protection and restoration requirements of this program are generally associated with bank stabilization involving erosion control and turbidity, but might be applicable to any of our state water quality standards. See the DSL section of this report for further information.

**Water Quality Monitoring.** The Water Quality Monitoring (WQM, or the Lab) Section of DEQ collects samples of ambient water (rivers, streams, lakes, bays, and groundwater); analyzes field parameters; identifies aquatic organisms and does biological assessments of water bodies. The Lab is currently involved in many aspects of monitoring stream health, including the:

1. Development and refinement of monitoring techniques for stream habitat, fish and macroinvertebrate communities.
2. Collection, analysis and interpretation of biological data for basin studies, restoration projects, 303(d) list, and special projects.
3. Providing of technical assistance to volunteer groups, watershed councils and other agencies on current biological monitoring and assessment techniques.
4. Management and storage of biological data for the agency.

Basin assessments, salmon restoration, and non-point source pollution evaluation, have been major areas of involvement for biological monitoring, and it is expected that more biological data will be needed in these areas in the future.

One example of a monitoring habitat recovery is the Grande Ronde long-term monitoring and restoration project. This project is designed to evaluate the success of stream restoration work on a small stream in the Upper Grande Ronde basin. Habitat degradation and water temperature violations are the key problems. Monitoring efforts include water chemistry, continuous temperature monitoring, habitat assessments, and fish and macroinvertebrate community assessments.

The understanding of how riparian vegetation affects water quality and salmonid habitat will increase through these and other monitoring efforts.

**Grants & Assistance.** DEQ offers assistance to watershed councils and other interested parties in monitoring, developing watershed restoration plans, and other voluntary programs and projects that may result in water quality improvement. DEQ is involved with two major funding sources. The OWEB (formally GWEB) program aids in the development of water protection goals and reviews projects. DEQ also oversees the distribution of federal 319 grant funds; money that is available, with cost-share. The main goal of the program is to fund nonpoint source

projects that will serve as demonstrations of pollution management practices, provide a means to evaluate them, and to advertise both the methods and their success. Past projects have included the evaluation of erosion mitigation measures from forest roads, and the determination of the effects of riparian shade on stream temperatures. DEQ Healthy Streams Partnership personnel provide assistance to watershed councils in developing and submitting proposals for both 319 and OWEB funding sources.

### **IMPROVEMENT OF CURRENT PROGRAMS.**

- ❖ Continue to increase cooperative efforts between state agencies initiated through the Oregon Plan and other plans that maintain and improve water quality protection.
- ❖ Utilize present programs to their highest potential in protecting and restoring riparian corridors and water quality, and promote voluntary efforts with a coordinated process that brings the best expertise from government and the public.
- ❖ Improve intra- and inter- agency communication of current information regarding state agencies authority responsibilities and connected programs that affect riparian vegetation.
- ❖ Improve outreach efforts to the public. Provide fact sheets that lay out all of the permits, and agencies, that a person would have to notify and work with in order to complete a legal and environmentally safe project in riparian corridors. Make sure that all of the agencies involved have input into these information pieces, and have them available for distribution. The public desires a clear, straightforward process without hidden surprises.
- ❖ Create sub-basin sized pilot projects that provides capital and technical support for long term conservation and restoration of riparian corridors through coordinated voluntary efforts. This could be done in conjunction with a TMDL effort, and would involve state and federal agencies, watershed councils, and other stakeholders.

## ***OREGON DEPARTMENT OF FISH AND WILDLIFE PROGRAMS THAT AFFECT RIPARIAN VEGETATION***

The Oregon Department of Fish and Wildlife (ODFW) is the state agency responsible for protection and enhancement Oregon's fish and wildlife and their habitats, including riparian areas. The protection and enhancement of riparian functions is primarily achieved through agency policies and voluntary incentive programs. ODFW has very limited regulatory authority to directly protect riparian and aquatic habitats.

### **Agency Policies**

ODFW contributes to the management and protection of riparian functions through the agency's policies, including the State Agency Coordination Program (OAR 635-405-0000 through 635-405-0045) and the Fish and Wildlife Habitat Mitigation Policy (OAR 635-415-0000 through 635-415-0025).

The State Agency Coordination Program assures that ODFW programs and actions determined to affect land use comply with the statewide planning goals and are compatible with acknowledged city and county comprehensive plans and land use regulations. To this end, ODFW employees coordinate with affected state and federal agencies and special districts to discuss wildlife habitat inventory and habitat protection and management standards. The information and technical assistance provided may pertain to riparian habitat.

The Fish and Wildlife Habitat Mitigation Policy establishes goals and standards for mitigating impacts to fish and wildlife habitat caused by land and water development actions. ODFW must apply this policy when implementing its own actions. ODFW follows this policy as guidance when making recommendations to regulatory agencies regarding mitigation for impacts to fish and wildlife habitat. The agency recently updated this policy to reflect current policies and resource priorities. Although riparian areas are not addressed individually in this policy, ODFW follows this policy in recommending mitigation for impacts to these areas.

### **Voluntary Incentive Programs**

ODFW promotes the protection and enhancement of riparian functions through the various incentive programs it administers. These programs include the Wildlife Habitat Conservation and Management Program (ORS 215.800 through 215.808), the Riparian Tax Incentive Program (ORS 308.793 through 308.803), the Restoration and Enhancement Program (ORS 496.270), and the Access and Habitat Program (ORS 496.228 through 496.242).

The Wildlife Habitat Conservation and Management Program offers qualifying private landowners a tax incentive for developing and implementing a wildlife habitat conservation and management plan. The objective of a management plan is to preserve, enhance or improve the structure or function of habitat for native wildlife species. Conservation and management practices appropriate to achieve the objectives of this program include planting new riparian vegetation or protecting existing riparian vegetation through fencing or other means.

The Riparian Tax Incentive Program offers complete property tax exemption for qualifying riparian lands up to 100 feet from a stream if the landowner develops a riparian management plan and improves or maintains these lands. The purpose of this program is to protect or restore healthy riparian habitat on private lands adjacent to perennial and intermittent streams. The width of the riparian zone proposed for tax exemption must be sufficient to provide long-term stream

bank stability, erosion control, water quality, and fish and wildlife habitat protection or improvement.

The Restoration and Enhancement (R&E) Program was created to restore Oregon's fisheries. Any tax-exempt, non-profit organization may apply for a grant from this program. Enhancement projects that have received funding from the (R&E) program include restoring natural structure to streams or lakes, fencing riparian zones to control livestock and planting vegetation in riparian areas.

The Access and Habitat Program provides grants to improve fish and wildlife habitat and/or public hunting access on private lands. This program has provided grants for projects to protect or restore riparian areas.

### **Regulatory Authority**

The agency's regulatory authority to manage and protect riparian functions is limited to In-Water Blasting Permit authority (OAR 635-425-0000 through 635-425-0050) and Oregon's Endangered Species Act (ORS 496.171 through 496.192 and OAR 635-100-0100 through 635-100-0130).

ODFW only issues In-Water Blasting Permits if adequate conditions can be applied to prevent injury of fish and wildlife and their habitat, including riparian areas and aquatic habitat. The agency requires permit applications to include information about the fish and wildlife habitat within the area that would be affected by the proposed blasting and the predicted effects of the proposed blasting on these habitats. This information must include predicted effects of the proposed blasting on beds and banks of the waters of the state, the adjacent areas of riparian vegetation and wetlands, and the potential for de-watering waters of the state as a result of substrate disturbance. If ODFW grants an in-water blasting permit, the permit recipient must minimize disturbance to streambanks and riparian vegetation. ODFW, in consultation with other state or local agencies with regulatory authority over reclamation, will require the applicant to re-contour and re-vegetate disturbed soils.

The State Endangered Species Act requires ODFW to develop survival guidelines for species listed as state threatened or endangered species. These guidelines are applicable to activities on state-owned or managed lands and could include aspects for the protection of riparian and aquatic habitats. For example, the survival guidelines for lower Columbia River coho salmon include prohibitions on actions that would have negative impacts on riparian areas along streams used for spawning or juvenile rearing. For species listed as endangered, state land owning or managing agencies may be required to develop an endangered species management plan. These plans could include elements of riparian area protection. Once a management plan is approved for a state endangered species, the survival guidelines no longer apply.

Appendix A~pgms.doc

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