

APPENDIX D – DEPARTMENT OF AGRICULTURE

TMDL Implementation Plan

UMPQUA BASIN AGRICULTURAL WATER QUALITY MANAGEMENT AREA PLAN

DEVELOPED BY

**THE UMPQUA BASIN LOCAL ADVISORY COMMITTEE
and
The Oregon Department of Agriculture**

JANUARY 10, 2001

LOCAL ADVISORY COMMITTEE MEMBERS

Vern Bare
Web Briggs
Ken Ferguson
JoAnn Gilliam
Janice Green
Bob Hall

Dave Harris
Don Kruse, Chair
James Mast
Kathy Panner
George Sandberg
Carol Whipple

Alternates:
Joe Brumbach
Jim Donnellan
Stan Hendy
Jan Tetreault

Table of Contents

***PLAN REQUIREMENTS IDENTIFIED IN OAR 603-090-0030* 1**

MISSION STATEMENT 5

INTRODUCTION 7

DESCRIPTION OF THE GEOGRAPHICAL AREA AND PHYSICAL SETTING OF AREA 9

Water Quality Objectives for Area Plan 10

Pollution Prevention and Control 11

ENFORCEMENT PROCEDURES 18

EDUCATION 20

EDUCATION PLAN 21

MONITORING 22

APPENDIX A - COASTAL ZONE MANAGEMENT ACT MEASURES 23

APPENDIX B - TECHNICAL AND FINANCIAL RESOURCES FOR LANDOWNERS IN THE UMPQUA WATERSHED 25

MAP - UMPQUA BASIN AGRICULTURAL WATER QUALITY 27

MAP - UMPQUA BASIN 303(d) STREAMS 28

ACRONYM LIST

- AgWQM Area Plan - Agricultural Water Quality Management Area Plan
- LAC - Local Advisory Committee
- OAR - Oregon Administrative Rules
- ODA - Oregon Department of Agriculture
- ORS - Oregon Revised Statutes
- OSU - Oregon State University
- SB 1010 - Senate Bill 1010
- SWCD - Soil and Water Conservation District
- TMDL - Total Maximum Daily Load..

PLAN REQUIREMENTS IDENTIFIED IN OAR 603-090-0030

1. Description of the geographical area and physical setting of area.
2. List of water quality issues of concern. List of 303(d) parameters listed in the Umpqua basin (from the Department of Environmental Quality).
3. List of current designated beneficial uses that are adversely affected.
4. Statement ‘Goal of the Umpqua Basin Agricultural Water Quality Management Area Plan is to prevent and control water pollution from agricultural activities and soil erosion and to achieve applicable water quality standards’.
5. Water Quality objectives of the area plan.
6. Description of the pollution prevention and control measures deemed necessary to achieve the goal.
7. A schedule for implementation of the necessary measures that is adequate to meet applicable dates established by law.
8. Guidelines for public participation.
9. Strategy for ensuring that the necessary measures are implemented.

To: Agricultural Landowners of Douglas County
From: The Umpqua Basin Local Advisory Committee
Regarding: The Umpqua Basin Agricultural Water Quality Management Area Plan

The Umpqua Basin Local Advisory Committee (LAC) has been working hard for the last 2 1/2 years to represent the views of agricultural landowners during the development of an Agricultural Water Quality Management Area Plan for agriculture in the Umpqua Basin.

This project officially began in 1993 when the Oregon Legislature passed Senate Bill 1010, which mandated the development of agricultural water quality plans for each of the major watersheds in Oregon. The bill specified that a local committee would work with the Oregon Department of Agriculture to develop a plan that would protect water quality while protecting the economic viability of agriculture in that region.

The Umpqua Local Advisory Committee was appointed by the Director of the Department of Agriculture in 1997, and is made up of 12 agricultural producers and 2 members from conservation interests. Small and large operations are represented, and every region in the county is represented. Douglas County Farm Bureau and the Douglas County Livestock Association are both well represented, and we have one representative from Umpqua Fishermen and one from the Steamboaters.

Recognizing the importance of this task, the Committee has invested a great deal of time and energy in developing a plan that would protect water quality while protecting landowners right to farm and graze livestock. After initial public review and comment in late 1999, the committee returned to work with two additional members and a great deal of public participation. The plan was essentially rewritten in order to address concerns presented during public comment and community participation.

The first task undertaken as we returned to work was to develop a Mission Statement and Statement of Goals and Intents. These statements are important groundwork for the entire plan, and should be read carefully by anyone who wants to understand the Umpqua Basin Agricultural Water Quality Management Area Plan for agriculture.

Sincerely,

Don Kruse, Chair LAC
George Sandberg, Chair of the Working Committee
Members of the Umpqua Local Advisory Committee: Vern Bare, Web Briggs, Ken Ferguson, JoAnn Gilliam, Janice Green, Bob Hall, Dave Harris, Don Kruse, James Mast, Kathy Panner, George Sandberg, Carol Whipple. Alternates: Joe Brumbach, Jim Donnellan, Stan Hendy, and Jan Tetreault

MISSION STATEMENT

Umpqua Basin Local Advisory Committee

To reduce agriculture’s contribution to all forms of water pollution to the minimum level possible consistent with economically sound and sustainable farming and ranching.

Goals, Intent, Responsibilities of Umpqua Basin Local Advisory Committee

It is goal of the Umpqua Basin Local Advisory Committee (LAC) to develop a management plan for the Umpqua Basin, which will protect both the “right to farm and graze” and water quality.

It is the intent of the Umpqua Basin LAC that education be the primary driving force of the changes in agricultural practices necessary to improve water quality.

It is the intent of the Umpqua Basin LAC to help maintain the economic viability of farming and grazing in the Umpqua Basin.

It is the goal of the Umpqua Basin LAC that agricultural producers accept responsibility for agriculture’s contribution to the failure to meet water quality standards, recognizing that all parts of the community must address their own contribution to the problem in order to reach our collective goal of improved water quality (sewage treatment facilities, aggregate companies, homeowners, and others).

It is the belief of the Umpqua Basin LAC that agriculture’s share of the failure to meet water quality standards in the Umpqua Basin is quite small, relative to other contributions.

It is the goal of the Umpqua Basin LAC to develop a locally formulated agricultural water quality management area plan that will protect farmers and ranchers from frivolous lawsuits and layers of unnecessary regulation.

It is the intent of the Umpqua Basin LAC that the plan be flexible enough to allow landowners and land managers to use their own ingenuity and creativity to address water quality concerns. It is not the intent of the Umpqua Basin LAC to specify any particular agricultural practices.

It is the intent of the Umpqua Basin LAC to recognize the importance of voluntary associations and partnerships of farmers and landowners that join together in efforts to improve water quality (Watershed Councils, Neighborhood Associations, etc.).

It is the belief of the Umpqua Basin LAC that changes made in agricultural practices to improve water quality will also improve the economic viability of Basin farms and ranches.

It is the belief of the Umpqua Basin LAC that the majority of agricultural landowners are not major contributors to water quality problems in the Basin, but that most of us could make improvements in our practices that could have a cumulative positive effect on the Umpqua River.

It is the responsibility of the Umpqua Basin LAC to assist in identifying those conditions resulting from agricultural activities which could adversely impact water quality in the Umpqua Basin and identify them as “unacceptable conditions.”

It is the intent of the Umpqua Basin LAC to provide the Oregon Department of Agriculture with a basis to work with those landowners that continue to maintain conditions that clearly qualify as “unacceptable conditions” as defined by the Umpqua Basin Agricultural Water Quality Management (AgWQM) Area Plan.

It is the intent of the Umpqua Basin LAC that fines and civil penalties be used only as a last resort, in situations where a landowner refuses to address a problem; and only in cases where an operation is clearly out of compliance, as demonstrated by appropriate testing. In those cases it is the intent of the Umpqua Basin LAC that fines be in relation to the scope of the violation and the size of the operation.

It is the intent of the Umpqua Basin LAC that constitutional rights be acknowledged, and that private property is entered only with owner permission or a valid search warrant.

It is the responsibility of the Umpqua Basin LAC to continue to be involved in the review of the Umpqua Basin AgWQM Area Plan to be certain that their intent is fulfilled.

INTRODUCTION

A basin plan, often referred to as a “1010 Plan” is a locally developed document that describes agricultural issues affecting water quality in that basin and defines how those situations will be addressed.

Correcting the problems that are causing water quality standards to be violated will be accomplished through several approaches. Educational efforts will be the primary method for providing long-term solutions and prevention of future problems. Technical and financial assistance will be provided to landowners through a number of agencies and organizations including the Douglas and Umpqua Soil and Water Conservation Districts (SWCD), Oregon State University (OSU) Extension Service, Natural Resource Conservation Service, etc. Monitoring will be ongoing to determine how well the industry is doing. If all other means fail, the Oregon Department of Agriculture will follow the enforcement process defined in this plan to assure that unacceptable conditions are corrected. Situations where the land manager is unwilling to correct an identified problem are expected to be rare.

The Oregon Plan for Salmon and Watersheds is Oregon’s guideline for implementing stream restoration activities throughout the state. The Umpqua Basin Water Quality Management Plan for Agriculture will meet the objectives of the Oregon Plan and the Clean Water Act.

What does an Agricultural Water Quality Management Area Plan cover?

A basin plan is developed to protect the “beneficial uses” of the waters of the state. The defined beneficial uses of water in the Umpqua Basin are identified in Table 1.

Table 1 - Umpqua Basin (340-41-282)

Beneficial Uses	Umpqua R. Estuary to Head of Tidewater and Adjacent Marine Waters	Umpqua R. Main Stem from Head of Tidewater to Confluence of N. & S. Umpqua Rivers	North Umpqua River Main Stem	South Umpqua River Main Stem	All Other Tributaries to Umpqua, North & South Umpqua Rivers
Public Domestic Water Supply*		X	X	X	X
Private Domestic Water Supply*		X	X	X	X
Industrial Water Supply	X	X	X	X	X
Irrigation		X	X	X	X
Livestock Watering		X	X	X	X
Anadromous Fish Passage	X	X	X	X	X
Salmonid Fish Rearing	X	X	X	X	X
Salmonid Fish Spawning		X	X	X	X
Resident Fish & Aquatic Life	X	X	X	X	X
Wildlife & Hunting	X	X	X	X	X
Fishing	X	X	X	X	X
Boating	X	X	X	X	X
Water Contact Recreation	X	X	X	X	X
Aesthetic Quality	X	X	X	X	X
Hydro Power			X	X	X
Commercial Navigation & Transportation	X				

*With adequate pretreatment (filtration and disinfection) and natural quality to meet drinking water standards

The types of pollution affecting water quality are called “parameters.” For example, a waterway listed for the parameter *Bacteria* could have been identified when water testing revealed high levels of *E. coli* bacteria which would impact the “beneficial uses” for water contact recreation (i.e. Swimming) and drinking or shell fish production in coastal waters. The types of pollution affecting waters in the Umpqua Basin (and all of Oregon) and the location where these problems are known to exist are identified on the Department of Environmental Quality 303(d) list.

The list of all the possible parameters includes:

- Bacteria
- Nutrients
- Temperature
- Sedimentation
- Turbidity *
- Toxics *
- Flow Modification
- Habitat Modification
- Total Dissolved Gases
- Biological Criteria
- Chlorophyll a
- Dissolved Oxygen
- pH
- Aquatic Weeds and Algae

*no current listings in the Umpqua Basin

Of the 14 possible parameters, the Umpqua Basin is listed for 12. Agricultural activity could impact the first 6 parameters, however there are no current listings for turbidity or toxics. This plan will address directly; sedimentation, nutrients, bacteria, and temperature, knowing that by improving in those areas there will be improvement on several other parameters (flow modification, dissolved oxygen, pH, aquatic weeds and algae, total dissolved gas, biological criteria and chlorophyll a).

WHAT IS THE PROCESS?

A Local Advisory Committee was appointed by the Director of the Oregon Department of Agriculture to represent local agricultural interests during the development of an Agricultural Water Quality Management Area Plan and Rules. The Umpqua Basin LAC studied Senate Bill (SB) 1010, SB 502, ORS 468(b), and the Coastal Zone Management Act. They worked to develop a plan for the Umpqua Basin which would place all regulation concerning water pollution in one plan, with Oregon Department of Agriculture as the agency responsible for the enforcement of the Umpqua Basin Administrative Rules.

Briefly, SB 1010 provides the authority for the Oregon Department of Agriculture to develop local water quality plans and rules. SB 502 provides that all issues relating to agricultural water pollution will be handled by the Oregon Department of Agriculture, and ORS 468.025 is Oregon

Statute passed by the legislature that states no person shall cause pollution of the waters of the State of Oregon¹. In addition, in Oregon, Oregon Department of Agriculture had the responsibility for developing a plan for the Coastal Zone Management Act and regulations relating to pesticide use. Placing the responsibility for all of the above with Oregon Department of Agriculture is intended to avoid having agricultural producers be required to deal with multiple agencies, and to have a consistent policy of enforcement for all water quality regulation relating to agriculture.

This Agricultural Water Quality Management Area Plan provides guidance for addressing agricultural water quality issues in the Umpqua watershed. The purpose of this AgWQM Area Plan is to identify strategies to reduce water pollution from agricultural lands through a combination of educational programs, suggested land treatments, management activities, and monitoring. The provisions of this AgWQM Area Plan do not establish legal requirements or prohibitions. The Oregon Department of Agriculture will exercise its enforcement authority for the prevention and control of water pollution from agricultural activities under administrative rules for the Umpqua watershed, and Oregon Administrative Rules 603-090-0060 through 603-090-0120.

The Administrative Rules for the Umpqua watershed set forth the requirements and/or prohibitions that will be used by the Oregon Department of Agriculture in exercising its enforcement authority for the prevention and control of water pollution from agricultural activities. In addition, Oregon Administrative Rules 603-090-0060 through 603-090-0120 describe the enforcement actions that may be triggered upon the finding of a violation by the Oregon Department of Agriculture.

Text outlined by a box will be a part of the administrative rule.

These rules have been developed to implement a water quality management area plan for the Umpqua Basin Agricultural Water Quality Management Area pursuant to authorities vested in the department through ORS 568.900-568.933 and ORS 561.190 - 561.191, due to a determination by the Environmental Quality Commission to establish Total Maximum Daily Loads (TMDL) and allocate a load to agricultural nonpoint sources. The area plan is known as the Umpqua Basin Agricultural Water Quality Management Area Plan. After adoption of the TMDLs, these rules will be reviewed and modified as needed to provide reasonable assurance that the load allocations for agriculture will be met.

Nothing in the Umpqua Basin Agricultural Water Quality Management Area Plan or Rules adopted by the department will allow the department to implement this plan or rules in a manner that is in violation of the U.S. Constitution, the Oregon Constitution or other applicable state laws.

Description Of The Geographical Area And Physical Setting Of Area

The Umpqua Basin includes the drainage area for the South Umpqua, the North Umpqua, the mainstem Umpqua and the Smith River (Map 1). The land base under this plan includes all agricultural and rural lands within the Umpqua Basin except for public lands managed by federal

¹ ORS 468B.025(1) states: ...no person shall:

- (a) Cause pollution of any waters of the state or place or cause to be placed any wastes in a location where such wastes are likely to escape or be carried into the waters of the state by any means.
- (b) Discharge any wastes into the waters of the state if the discharge reduces the quality of such waters below the water quality standards established by rule for such waters by the Environmental Quality Commission.

agencies (Bureau of Land Management, US Forest Service and US Fish and Wildlife Service), and activities subject to the Forest Practices Act.

Of the 2,876,000 acres in Douglas County, 16 percent is classified as agricultural lands, 74 percent as forest, and 10 percent as urban and other (Douglas County Planning Department). The majority of the agricultural lands is used for grazing and permanent hay fields. In 1996, the total estimated agricultural gross receipts for Douglas County were \$69.8 million for animal and crop sales². Agricultural production includes livestock, hay and silage, wine grapes, small grains, fruit crops, Christmas trees, and vegetables (truck crops).

The South Umpqua Subbasin and the Mainstem Subbasin lie between the Coast Range to the west and the Cascade range to the east. Valleys associated with tributaries to these rivers are mostly narrow and widely scattered. The South Umpqua river is generally wide, shallow, and slow moving close to the Mainstem, but can be in a steep gradient channel higher in the watershed. The South Umpqua has a very strong fall chinook run that has adapted to spawning in mainstem reaches rather than in small tributaries as coho. Most of the agricultural activities in the Umpqua basin take place in the central valley.

The entire eastern portion of the Umpqua basin is along the west slope of the Cascade Range. Beginning in the foothills east of the central valley, the terrain rises quickly, eventually reaching elevations over 9,000 feet. The North Umpqua River tends to be in an incised channel with a steep gradient. The water in the North Umpqua remains cooler than the South Umpqua and is an important source of cooler water to the main stem Umpqua where the North Umpqua and South Umpqua join. The North Umpqua with its geology and flow regime supports very strong steelhead runs. Agriculture is limited in the North Umpqua Basin as most of the land is in public ownership and is poorly suited for agriculture, although, there is some area below Little River linked to agriculture.

The Smith River Subbasin is on the west side of the Coast Range and is characterized by a 25 mile long estuary whose tributaries provide important coho habitat. The headwaters of the Smith River tend to have high gradient, steeply incised channels that widen out into meandering, wide channels in the floodplains. Agriculture primarily occurs in the lower reaches of the subbasin along these floodplains.

Water Quality Objectives for Area Plan

The Administrative Rules for this program require that the following statement be included in this plan. “The Goal of the Umpqua Basin Water Quality Management Area Plan is to prevent and control water pollution from agricultural activities and soil erosion and to achieve applicable water quality standards.”

In addition, a part of the federal Coastal Zone Amendments Reauthorization Act enacted by Congress in 1990, Section 6217(g), specifically addresses the impacts of nonpoint source pollution in coastal areas by requiring each state with an approved coastal zone management program to develop and submit to the U.S. Environmental Protection Agency and the National Oceanic and Atmospheric Administration, a Coastal Nonpoint Pollution Control Program. The purpose of the program "shall be to develop and implement management measures for nonpoint source pollution

² From Oregon State University, Oregon County and State Estimates. Agricultural Resources Department, Oregon State University, 1998.

to restore and protect coastal waters, working in close conjunction with other state and local authorities." As part of the Coastal Zone Program, the State of Oregon presented agricultural management measures to meet the requirements of the Coastal Zone Amendments Reauthorization Act Section 6217(g) and identified the SB1010 program as agriculture's means to address the provisions of the state plan developed in response to the act. The measures identified under 6217(g) have been found to be effective to control and prevent agricultural water pollution and are listed in Appendix A. This plan represents the state's program to address agricultural pollution as provided for in Coastal Zone Amendments Reauthorization Act .

Pollution Prevention and Control

This section describes potential pollution sources and provides a plan to reduce and prevent water pollution. When combined with other provisions of this plan and pollution control efforts for other land uses, it will help achieve water quality standards. This section has been developed around the water quality standards listed in the Umpqua Basin which are directly affected by agricultural activity: sedimentation, nutrients, bacteria, and temperature. For each of these parameters, the committee identified:

- Information about the parameter to provide basic understanding of the reason for concern.
- A statement identifying the unacceptable condition which will be reflected in the Oregon Department of Agriculture Administrative Rules.
- Steps which will be taken by the Oregon Department of Agriculture when investigating a complaint.
- Examples of situations which could lead to an unacceptable condition. These examples are provided to alert landowners and managers to potential problems, rather than to prescribe particular treatments.

All landowners or operators conducting activities on lands in agricultural use shall be in compliance with the following criteria (refers to unacceptable conditions in boxes). A landowner is responsible for only those conditions caused by agricultural activities conducted by the landowner. A landowner is not responsible for unacceptable conditions resulting from the actions of another landowner. Conditions resulting from unusual weather events or other exceptional circumstances are not the responsibility of the landowner.

Thus, landowners are responsible only for an unacceptable condition caused by management activities on their lands. For example, streambank erosion can and will occur and may be outside the landowner's control.

Following are the pollution prevention and control measures for the listed parameters of concern that agriculture may affect in the Umpqua Basin.

Sediment

Soil erosion is a natural process, but land management practices can accelerate the process or slow it down. For a farmer or rancher, soil loss means a loss of their land productivity. When soil moves into a stream and is deposited along the streambed, it is called sedimentation. Excess sediment in streams creates a number of problems, including negatively impacting drinking water quality, fish spawning grounds, and harbor management. It is in everyone's best interest to keep soil on agricultural land.

It is the responsibility of the Umpqua Basin LAC to identify those conditions resulting from agricultural activities which would seriously impact water quality in the Umpqua Basin and identify them as "unacceptable conditions."

Unacceptable Condition Addressing Sediment

Substantial amounts of sediment (i.e. in excess of water quality standards for sedimentation 3) moving from agricultural lands into waters of the state as a result of agricultural activities is identified as an unacceptable condition. Offstream ponds which do not contribute to the downstream system under normal weather conditions are exempt as they are often used to trap and contain sediment.

When a condition comes to the attention of the Oregon Department of Agriculture, which appears to be in violation of the sediment rule, every practical means shall be used to make a proper determination of the source of the sediment, the cause of the sediment movement, and the degree of the problem. Appropriate testing will be conducted to verify that sediment levels of waters leaving agricultural land are in excess of water quality standards (described under footnote 3). Turbidity testing may be the best available test for locating the sources of sediment.

Water quality monitoring can be done by landowners to assess their own situation. Help is available through OSU Extension, Oregon Cattlemen’s Association, DEQ, and others to develop an appropriate monitoring program. The Oregon Department of Agriculture and the Umpqua Basin LAC encourage landowners to become involved in water quality monitoring.

Situations which could contribute to a violation of the sediment rule:

(This list is not intended to cover all possibilities, nor will these situations always result in violation of the “sediment rule.” It is provided to help landowners assess the potential problems on their lands.)

- Land disturbing farming activities such as plowing, discing, or rototilling so close to a waterway that the remaining near stream vegetation does not have the capacity to filter sediment adequately.
- Roads located in proximity to waterways which are not adequately surfaced or seeded.
- Intense and continual livestock use of the near stream area, leading to substantial reduction of ground cover and vegetation.
- Location of livestock feeding sites in the area near a stream.
 - Stream crossings whether for livestock or vehicles and equipment which are “mudded out” (excessively muddy and unstable soil).
 - Over irrigation of soils likely to erode, such as recently farmed land, leading to rill or gully erosion.
 - Harvest of Christmas trees, tree seedlings, or root crops during the rainy season without adequate near stream vegetation or other precautions to filter sediment adequately.

MANY OF THE PRACTICES WHICH WOULD CONTRIBUTE SEDIMENT TO A WATERWAY ARE ALREADY COVERED BY REGULATIONS IN **ORS 468B**. HOWEVER, THEY ARE INCLUDED IN THIS PLAN SO THAT ENFORCEMENT ACTION IS HANDLED BY THE ODA UNDER THE SAME ENFORCEMENT PROCEDURES AS THE UMPQUA BASIN AgWQM ADMINISTRATIVE RULES VIOLATIONS. THUS, LANDOWNERS ARE AFFORDED THE SAME OPPORTUNITY FOR TESTING AND APPEAL AS DESCRIBED IN THIS PLAN.

3 OAR 340-041-0285(2) (2000 edition) states

(j) the formation of appreciable bottom or sludge deposits or the formation of any organic or inorganic deposits deleterious to fish or other aquatic life or injurious to public health, recreation, or industry shall not be allowed.

Ditch maintenance and repair are presently subject to the Oregon's Removal-Fill Law (ORS 196.800-990). This Umpqua Basin Agricultural Water Quality Management Area Plan requires no additional conditions for those sites and activities subject to the Oregon Removal-Fill Law.

Schedule for Rule Implementation:

The rule will go into effect one year after the Administrative Rules are filed with the Office of the Secretary of State subject to enforcement procedures described on page 18.

Nutrients

Nutrients, such as nitrogen, phosphorous, potassium, and sulfur are critical to plant growth. In fact the beautiful sub-clover pastures for which Douglas County is known are made possible by annual applications of phosphorous and sulfur. For many landowners, fertilizer is a significant budget item and managing those nutrients effectively is essential to productive and profitable farming and ranching in Douglas County. However, when nitrogen and phosphorous enter streams, they can have a very negative impact. Excess nitrogen and phosphorus contribute to increased aquatic weeds and algae growth, slowing water movement which leads to warmer water temperatures, and reduced dissolved oxygen levels available to fish. Keeping nutrients in the soil and out of waterways is a win-win situation.

It is the responsibility of the Umpqua Basin LAC to identify those situations resulting from agricultural activities which would seriously impact water quality in the Umpqua Basin and identify them as “unacceptable conditions.”

Unacceptable Condition Addressing Nutrients

Substantial amounts of phosphorous (i.e. in excess of water quality standards 4) moving from agricultural lands into waters of the state as a result of agricultural activities is identified as an unacceptable condition.

When a condition comes to the attention of the Oregon Department of Agriculture, which appears to be in violation of the nutrient rule, every practical means shall be used to make a proper determination of the source of the nutrient, the cause of the nutrient movement, and the degree of the problem. Appropriate testing will be conducted to verify that phosphorous levels of waters leaving agricultural land are in excess of water quality standards (see footnote 4 for description phosphorous standard).

Water quality monitoring can be done by landowners to assess their own situations. Help is available through OSU Extension, Oregon Cattlemen’s Association, Umpqua Basin Watershed Council, DEQ, and others. The Oregon Department of Agriculture and Umpqua Basin LAC encourage landowners to get involved in water quality monitoring.

Situations which could contribute to nutrient contamination of waterways include:

(This list is not intended to cover all possibilities, nor will these situations always result in violation of the “nutrient rule.” It is provided to help landowners assess the potential problems on their lands.)

- Placement of fertilizer in a waterway or so near to a waterway that runoff carries it into the waterway.

⁴ When levels of P exceed 0.1 mg per liter, they are above acceptable water quality standards

Location of an animal feeding area, or other concentration of animals so near to a waterway that animal waste is carried into the water way.

- Placement of barn maintenance waste so near to a waterway that runoff moves nutrients into the waterway.
- Irrigation practices which result in nutrient laden surface runoff returning to the waterway.
- Soil erosion that carries soils high in nitrogen or phosphorus into a waterway.
- Over-irrigation which moves nitrogen into the ground water, returning to waterways through sub surface runoff.

MANY OF THE PRACTICES WHICH WOULD CONTRIBUTE NUTRIENTS TO A WATERWAY ARE ALREADY COVERED BY REGULATIONS IN ORS 468B, HOWEVER, THEY ARE INCLUDED IN THIS PLAN SO THAT ENFORCEMENT ACTION IS HANDLED BY THE ODA UNDER THE SAME ENFORCEMENT PROCEDURES AS THE UMPQUA BASIN AgWQM ADMINISTRATIVE RULES VIOLATIONS. THUS, LANDOWNERS ARE AFFORDED THE SAME OPPORTUNITY FOR TESTING AND APPEAL AS DESCRIBED IN THIS PLAN.

Schedule for Rule Implementation:

The rule will go into effect one year after the Administrative Rules are filed with the Office of the Secretary of State subject to enforcement procedures described on page 18.

Bacteria

Bacteria, such as E. Coli, can represent a serious hazard to human health. People are exposed to water-borne bacteria while swimming, fishing, water skiing, etc. Those of us who work in agriculture are less susceptible to local bacteria as a result of routine exposure. However, many people are at risk for bacterial disease, particularly the very young and elderly and those who have weakened immune systems due to poor health or medical treatments. Agricultural activities could be one source of bacterial contamination of water. Streams and rivers can also be contaminated by wildlife, leaking septic systems, sewage spills, etc.

It is the responsibility of the Umpqua Basin LAC to identify those situations resulting from agricultural activities which would seriously impact water quality in the Umpqua Basin and identify them as “unacceptable conditions.”

Unacceptable Condition Addressing Bacteria

Substantial amounts of bacteria (i.e. in excess of water quality standards⁵) moving from agricultural lands into waters of the state as a result of agricultural activities is identified as an unacceptable condition. Off stream ponds which do not contribute to waters where public exposure is possible are exempt from this rule.

⁵ OAR 340-041-0285(e) (2000 edition) states organisms of the coliform group commonly associated with fecal sources shall not exceed (1) in freshwater and estuarine waters other than shellfish growing waters - a 30-day log mean of 126 E. coli organisms per 100 ml, based on a minimum of five samples and no single sample shall exceed 406 E. coli organisms per 100 ml., (2) in marine waters and estuarine shellfish growing waters - a fecal coliform median concentration of 14 organisms per 100 milliliters, with not more than ten percent of the samples exceeding 43 organisms per 100 ml.

In this standard the number of organism refers to the number of colonies that develop on a petri dish from a sample of water.

When a condition comes to the attention of Oregon Department of Agriculture which appears to be in violation of the bacteria rule, every practical means shall be used to make a proper determination of the source of the bacteria, the cause of the bacterial movement, and the degree of the problem. Appropriate testing will be conducted to determine if bacteria levels in waters leaving agricultural land are in excess of water quality standards (see footnote 5 for description of bacteria standard).

Water quality monitoring can be done by landowners to assess their own situations. Help is available through OSU Extension, Oregon Cattlemen’s Association, DEQ, and others to develop an appropriate monitoring program. The Oregon Department of Agriculture and the Umpqua Basin LAC encourage landowners to become involved in water quality monitoring.

Situations which could contribute to the bacterial contamination of waterways include:

(This list is not intended to cover all possibilities, nor will these situations always result in violation of the “bacteria rule.” It is provided to help landowners assess the potential problems on their lands.)

- Location of an animal feeding area, or other concentration of animals so near to a waterway so that animal waste is carried into the waterway.
- Placement of barn maintenance waste so near to a waterway that runoff moves bacteria into the waterway.
- Irrigation practices which result in bacteria laden surface runoff returning to the waterway.
- Disposing of carcasses, or any other bacteria laden debris near a waterway.

MANY OF THE PRACTICES WHICH WOULD CONTRIBUTE BACTERIAL CONTAMINATION TO A WATERWAY ARE ALREADY COVERED BY REGULATIONS IN ORS 468B, HOWEVER, THEY ARE INCLUDED IN THIS PLAN SO THAT ENFORCEMENT ACTION IS HANDLED BY THE ODA UNDER THE SAME ENFORCEMENT PROCEDURES AS THE UMPQUA BASIN AgWQM ADMINISTRATIVE RULES VIOLATIONS. THUS, LANDOWNERS ARE AFFORDED THE SAME OPPORTUNITY FOR TESTING AND APPEAL AS DESCRIBED IN THIS PLAN.

Schedule for Rule Implementation:

The rule will go into effect one year after the Administrative Rules are filed with the Office of the Secretary of State subject to enforcement procedures described on page 18.

Temperature

Water temperature above water quality standards is the single largest category for 303(d) listing of streams in the Umpqua Basin and in Oregon. This is also the most controversial listing parameter, as warm temperatures are often viewed as a concern solely for fish. In reality temperature has a dramatic impact on water quality because warm water temperatures along with available nutrients encourage weed and algae growth. The end result is slower water movement, further increasing in water temperature, reduced oxygen in the water, and lower pH.

River temperatures in the Umpqua Basin often reach the 80’s, so a goal of 64°F when salmonid fish rearing occurs, and 55°F when native salmonid spawning, egg incubation, and fry emergence from the egg and from the gravels occur, seems out of reach to many in agriculture. However, landowners may be able to reduce the rate of warming of water by encouraging vegetation which will shade streams, and by using irrigation water as efficiently as possible.

Perennial Streams – those streams that flow above ground throughout the year, and are contributing to the downstream system during July, August, September or October, during the majority of years, are of concern as temperature is considered.

Unacceptable Condition Addressing Temperature

Agricultural management or soil-disturbing activities that preclude establishment and development of adequate riparian vegetation for streambank stability and streambank shading, consistent with site capability, along a perennial stream which has a site potential for such vegetation is considered an unacceptable condition. Minimal breaks in shade vegetation for essential management activities are considered appropriate.

Irrigation practices that contribute significant amounts of warmed surface water back into a stream are considered an unacceptable condition.

When a condition comes to the attention of the Oregon Department of Agriculture, that appears to be a violation of the temperature rule, every practical means shall be used to make a proper determination as to the agricultural activity's impact on stream temperature. Appropriate analysis will be conducted to verify that agricultural activity is resulting in a loss of shade producing vegetation, that the site has the potential for effective shading vegetation; or that warmed irrigation water is returning to the stream.

Monitoring of stream temperatures, riparian vegetation, and evaluation of irrigation systems can be done by landowners to assess their own situations. Help is available through OSU Extension, Oregon Cattlemen's Association, DEQ, and others. The Oregon Department of Agriculture and the Umpqua Basin LAC encourage landowners to become involved in water quality monitoring.

Situations that could contribute to increased stream temperatures include:

(This list is not intended to cover all possibilities, nor will these situations always result in violation of the "temperature rule," it is provided to help landowners assess potential problems on their lands.)

- Removal of vegetation from the riparian area of a perennial stream which would have provided effective shading.
- Grazing management that does not allow vegetation to establish, which would provide effective shade along a perennial stream.
- Farming practices that do not allow vegetation to establish, that would provide effective shade along a perennial stream.
- Allowing surface returns of surplus irrigation water.
- Use of irrigation water in excess of crop needs or soil water holding capacity.

Schedule for Rule Implementation:

The rule will go into effect one year after the Administrative Rules are filed with the Office of the Secretary of State subject to enforcement procedures described on page 18.

Waste Management

ORS 468B.025 is an existing statute which was developed to address water pollution from waste discharge. As stated earlier, SB 502 was passed in 1995 to ensure that ODA is the state agency

⁶ Irrigation systems that allow more than 3% of water pumped during any one irrigation setting to return as surface runoff to a stream.

responsible for direct regulation of farming activities for the purpose of protecting water quality. To implement SB502, the department is incorporating ORS 468B.025 and 050 into all of the AgWQM area plans in the state. ORS 468B.025 and 050 have been incorporated for the purposes of this plan by including the following language in the rules that effectuate this plan.

Unacceptable Condition Addressing Waste Management

Effective upon adoption, no person subject to these rules shall violate any provision of ORS 468B.025 or ORS 468B.050.

ORS 468B.025(1) states:

...no person shall:

- (a) Cause pollution of any waters of the state or place or cause to be placed any wastes in a location where such wastes are likely to escape or be carried into the waters of the state by any means.
- (b) Discharge any wastes into the waters of the state if the discharge reduces the quality of such waters below the water quality standards established by rule for such waters by the Environmental Quality Commission.

ORS 468B.050 identifies the conditions when a permit is required. In agriculture under state rules these are referred to as Confined Animal Feeding Operations and are operations that confine animals for more than four months per year and have a waste water treatment facility.

Definitions:

“Pollution” has the meaning given in ORS 468B.005(3) which states: “such alteration of the physical, chemical or biological properties of any waters of the state, including change in temperature, taste, color, turbidity, silt or odor of the waters, or such discharge of any liquid, gaseous, solid, radioactive or other substance into any waters of the state, which will or tends to, either by itself or in connection with any other substance, create a public nuisance or which will or tends to render such waters harmful, detrimental or injurious to public health, safety or welfare, or to domestic, commercial, industrial, agricultural, recreational or other legitimate beneficial uses or to livestock, wildlife, fish or other aquatic life or the habitat thereof.”

“Wastes” has the meaning given in ORS 468B.005(7) which states: sewage, industrial wastes, and all other liquid, gaseous, solid, radioactive or other substances which will or may cause pollution or tend to cause pollution of any waters of the state.

Other substances which will or may cause pollution include commercial fertilizers, soil amendments, composts, animal wastes, and vegetative materials.

Schedule for Rule Implementation:

As this is an existing statute, this rule will go into effect when the Administrative Rules are filed with the Office of the Secretary of State subject to enforcement procedures described on page 18.

Pesticide control is presently regulated by authorities granted to the Oregon Department of Agriculture under ORS 634 and through OAR 603.57. Waterbodies in the Umpqua Basin have not been identified under 303(d) for pesticide contamination. Carefully following label instructions and implementing integrated pest management strategies can generally reduce pesticide use, increase yields, increase net returns, minimize surface and ground water exposure to pesticides, and decrease economic risk. Proper pesticide use begins with reading the label on the container and following the instructions. As required by ORS 634.372(2), users of pesticides must follow label recommendations for both restricted and nonrestricted use pesticides.

ENFORCEMENT PROCEDURES

The Oregon Department of Agriculture's primary mission is to support Oregon's agricultural industry. The Oregon Department of Agriculture will have the responsibility for enforcing rules derived from the Umpqua Basin Agricultural Water Quality Management Area Plan. It is the intent of the Local Advisory Committee that fines and civil penalties be used as a last resort in the effort to improve water quality in the Umpqua Basin. This is consistent with the direction given to the Department through the Oregon Administrative Rules for the Agricultural Water Quality Management Program (603-090-0000 through 603-090-0120). This Area Plan includes an enforcement policy because it is a required element of a Water Quality Plan, and to provide a mechanism when reasonable attempts at voluntary solutions have failed.

The primary focus of the Umpqua Basin AgWQM Area Plan is education toward voluntary compliance with the plan. Even the enforcement procedure is designed to educate first and penalize only as a last resort.

In the event that a situation comes to the attention of the Oregon Department of Agriculture which may be a violation of the Umpqua Basin Agricultural Water Quality Administrative Rules, a prescribed procedure will be followed. EXCEPT FOR FLAGRANT 7 POLLUTION OF WATERS OF THE STATE OR FLAGRANT DESTRUCTION OF ADEQUATE RIPARIAN VEGETATION ALONG PERENNIAL STREAMS, AT ANY POINT IN THE PROCESS, THE LANDOWNER MAY CHOOSE TO ADDRESS A PROBLEM AND NO CIVIL PENALTIES WILL BE LEVIED BY THE OREGON DEPARTMENT OF AGRICULTURE.

1. Any person alleging a violation of the Umpqua Basin Agricultural water quality administrative rules may file a complaint with the Oregon Department of Agriculture. The department will evaluate or investigate a complaint filed by a person if the complaint is in writing, signed, and dated by the complainant, and indicates the location and description of the violation of the Umpqua Basin Agricultural Water Quality Administrative Rules.
2. If the problem appears to be a violation of the Umpqua Basin Agricultural Water Quality Administrative Rules, an Oregon Department of Agriculture representative will contact the landowner to schedule a meeting. NO OREGON DEPARTMENT OF AGRICULTURE REPRESENTATIVE WILL ENTER PRIVATE PROPERTY AT ANY TIME WITHOUT THE OWNER'S PERMISSION OR A VALID SEARCH WARRANT.
3. The situation will be reviewed on-site by an Oregon Department of Agriculture representative and the landowner. The on-site review will include an investigation by the Oregon Department of Agriculture which may include collecting appropriate samples for testing and consultation with experts as appropriate, at the Oregon Department of Agriculture's expense. If no problem exists, the complaint would be dropped.
4. If the Oregon Department of Agriculture determines through the investigation that a violation of the Umpqua Basin Agricultural Water Quality Administrative Rules exists, the Oregon Department of Agriculture will advise the landowner of the violation (i.e. issue a notice of noncompliance) and work with the landowner to develop a plan of correction to solve the problem. The plan of correction includes a timetable and an agreement to revisit the site as

7 As defined in OAR 603-090-0060(2) - any violation where the respondent had actual knowledge of the law and knowingly committed the violation

agreed upon. This would complete the process.

5. If the landowner does not agree that a problem exists, the landowner may choose to do additional testing or consultation at their own expense and request a review by the department of the initial findings in light of any additional information collected.
6. If evaluation of the additional information by the Oregon Department of Agriculture determines that no problem exists or that the violation is not the result of an agricultural practice by the landowner, the process is complete.
7. If there is a confirmed problem that a landowner refuses to address after the department's on-site visit and the department's attempts to work with the landowner to develop a mutually agreeable solution, civil penalties can be levied. Civil penalties are issued by the Oregon Department of Agriculture Director or the director's designee and will be based on the seriousness of the violation and the magnitude of the effect. OAR 603-090-0120(3) describes the civil penalty matrix for first violations which begins at \$50 and ranges to \$1200, and the civil penalty matrix for repeat violations which begins at \$100 and ranges to \$5000. ORS 568.933 states "each day of violation continuing after the period of time for correction set by the department shall be considered a separate violation unless the department finds that a different period of time is more appropriate to describe a specific violation event."
8. A landowner issued a civil penalty due to a violation of the Umpqua Basin Agricultural Water Quality Administrative Rules may request a hearing with the Director of the Department of Agriculture. The hearing provides for the director to hear the landowners disposition from which the director determines appropriate action which can include a modification of the civil penalty or other form of intermediate sanction.
9. A landowner issued a civil penalty due to a violation of the Umpqua Basin Agricultural Water Quality Management Area Administrative Rules may request a formal hearing by a hearings officer assigned from the Hearing Officer's Panel in accordance with applicable contested case procedures as described in ORS 183.413 to 183.550. Upon conclusion of the hearings process, a hearings officer will prepare a proposed order that includes recommended findings of fact, conclusions of law, and appropriate action by the agency. If the order is in favor of the landowner, the process is complete. If not, the landowner becomes subject to procedures for payment of the civil penalty.

NO CIVIL PENALTIES WILL BE ISSUED DURING THE FIRST TWO YEARS FOLLOWING PLAN ADOPTION, UNLESS THERE IS FLAGRANT POLLUTION OF WATERS OF THE STATE OR FLAGRANT DESTRUCTION OF ADEQUATE RIPARIAN VEGETATION ALONG PERENNIAL STREAMS.

THE PROCESS IS DESIGNED TO BE FAIR TO THE LANDOWNER AND TO ALLOW ENFORCEMENT OF THE UMPQUA BASIN AGRICULTURAL WATER QUALITY ADMINISTRATIVE RULES. AS INDICATED IN OAR 603-090-0020 THIS IS AN ITERATIVE PROCESS. THIS PROCESS INCLUDES A REVIEW EVERY TWO YEARS BY THE LAC TO PROVIDE CONTINUED ADVICE TO THE ODA ON MODIFICATION TO THE PLAN AND RULES THAT MAY BE NECESSARY.

EDUCATION

The goal of the Umpqua Basin education effort is to create a high level of awareness and an understanding of water quality issues among the agricultural community and the rural public, in a manner which encourages cooperative efforts through education and technical assistance. When agricultural land managers recognize that measures that protect water quality can also improve their profitability, progress toward improved water quality will be much more rapid.

Water quality projects will be used as educational demonstrations. Each water quality project should be reviewed with two concerns: 1) what will this do to improve water quality or fish habitat AND, 2) how will this project improve the farm or ranch's productivity. For example, a new livestock watering system may reduce impact to the stream and streambank AND provide clean water for livestock, or a new fence may protect a streambank AND provide another pasture division which improves grazing management.

Educational programs will address the relationship of practices on water quality and agricultural productivity. Some examples are listed below.

Riparian Area Management

Riparian areas are important in influencing water quality. Managing riparian areas separately from upland areas can lead to increased productivity in terms of agriculture and water quality. Healthy riparian areas perform many functions:

- Stabilize streambanks and reduce erosion potential.
- Provide vegetation and shade to moderate stream temperature.
- Provide forage for grazing livestock.
- Provide wildlife habitat and connecting corridors for wildlife movement.
- Add large woody debris and fine organic matter to the stream channel.
- Slow overland runoff into streams and filter out nutrients and sediment before they reach the stream.

Good management of riparian areas in conjunction with farming and grazing is possible! Many ranchers in Douglas County have successfully protected stream banks and riparian vegetation while farming and grazing. Sensitive areas can be protected with managed, timely riparian grazing, proper stocking rates, off channel watering, buffer strips, and temporary or permanent fences where appropriate.

Livestock and Pasture Management

Well-managed pastures provide excellent ground cover and protect soil resources and water quality. Pastures have a relatively low requirement for applied fertilizer, which means that there is very little potential for fertilizer impact on waterways. Grazing as an agricultural practice can greatly reduce the need for broadcast pesticides. Productive pastures are high in organic matter, which improves water infiltration and water retention, reducing runoff. Pasture plants have a remarkable ability to recycle nutrients from manure and urine, and a well established, healthy pasture will utilize 90% of the nitrogen, phosphorous, potassium, and sulfur within the square yard where it was deposited⁸. When pastures are managed so that nutrients are recycled, water quality is protected AND dollars spent on fertilizer are reduced.

⁸ From Gerrish, J., 1997, Introduction to Management Intensive Grazing. In 1997 Missouri Grazing Manual, University of Missouri Extension Publication.

Irrigation Management

Landowners benefit from proper irrigation water use by maximizing water use efficiency and minimizing waste. Improved irrigation systems and irrigation management conserves water, protects water quality, AND reduces pumping costs and loss of soil nutrients.

Estuarine Management

A sizable portion of agricultural ground in coastal Douglas County is protected from tidewaters with a system of dikes, ditches and tidegates. Farmers and ranchers in these areas must maintain these systems in order to maintain the productivity of these pastures and hay fields.

EDUCATION PLAN

The Oregon Department of Agriculture will coordinate the development of SB 1010 education projects within the Umpqua Basin with the Douglas and Umpqua Soil and Water Conservation Districts. They will work hand in hand with US Department of Agriculture's Natural Resource Conservation Service, the OSU Extension Service, and the Umpqua Basin Watershed Council to carry out an effective water quality education program.

To define, implement, and measure the success of the Umpqua Basin education effort, the following quantifiable tasks can be pursued:

1. Conduct education programs to promote public awareness of water quality issues.
 - Hold workshops on water quality issues and the conservation practices that will help improve water quality.
 - Develop demonstration projects to highlight successful conservation practices and systems.
 - Organize tours of demonstration projects for agricultural managers and producers.
 - Produce and distribute brochures about water quality issues.
 - Prepare standard presentations for agricultural producer groups.
 - Develop detailed, one-page Umpqua Basin fact sheets for erosion control, nutrient and waste management, livestock and grazing management, and riparian and streambank management.
 - Conduct one-on-one and small group visits with landowners to discuss the Umpqua Basin AgWQM Area Plan and adaptive management solutions.
2. Conduct a media program to inform Umpqua Basin agricultural operators, rural landowners, and the public of conservation issues and events.
 - Submit news articles and public service announcements to area newspapers, radio stations, and newsletters.
 - Invite media to conservation tours and workshops.
 - Include updates on the status of the Umpqua Basin AgWQM Area Plan and water quality data in Umpqua Basin SWCD, OSU Extension and watershed council newsletters.
3. Involve the agricultural community in conservation education.
 - Create and maintain a list of experienced agricultural operators willing to share management solutions with other interested people by speaking, leading tours, and providing tour sites.
4. Build partnerships with commodity groups to promote conservation.
 - Co-sponsor workshops and tours among the Umpqua Basin SWCDs, watershed councils, and commodity groups.
 - Share education materials with commodity groups and their representatives.

- Develop educational materials in conjunction with commodity groups and watershed councils.
- Partner with other agricultural and natural resource agencies, watershed councils, and commodity groups to access and acquire the material and financial resources to implement the Umpqua Basin AgWQM Area Plan and its educational component.
- Meet with other agencies and organizations, and develop a strategy to obtain funding from traditional and nontraditional sources.

MONITORING

Monitoring of water quality in the Umpqua Basin is ongoing, intensive and extensive. Watershed assessment under the direction of the Umpqua Basin Watershed council is underway in several subbasins including Deer Creek and Cow Creek at this time, with additional subbasins scheduled. In addition, intensive temperature monitoring studies have been done on a number of streams in the basin, with follow-up studies continuing to provide comparison.

OSU Extension has trained a number of volunteer water quality monitors and a lab has been established at Umpqua Community College to facilitate testing. Landowners may request that testing be done by these volunteers. Agricultural landowners are also working with consultants associated with the Oregon Cattlemen's Association to obtain data on their stream reaches. Department of Environmental Quality is continuing their water quality testing to revise the 303(d) list as required by law, and their data is available.

All of the data from these monitoring efforts can be used to determine the areas of concern related to water quality, areas in good condition, and the effects of changes in management. Water quality monitoring can be done by landowners to assess their own situation. Help is available through OSU Extension, Oregon Cattlemen's Association, Umpqua Basin Watershed Council, DEQ, and others. For guidelines to perform monitoring, the OWEB has developed Water Quality Monitoring: Technical Guide Book, July 1999. This is the recommended guide for conducting water monitoring in Oregon. The Oregon Department of Agriculture and Umpqua Basin LAC encourage landowners to get involved in water quality monitoring.

APPENDIX A - COASTAL ZONE MANAGEMENT ACT

MEASURES

In 1990, the Federal Coastal Zone Reauthorization Amendments were enacted. This law mandated that all states and territories with approved coastal zone management programs develop and implement coastal nonpoint pollution control programs. Listed below are the Coastal Zone Management measures that were developed for use in Oregon for coastal basins such as the Umpqua.

The following section contains the approved management measures for coastal nonpoint pollution in Oregon as developed for the Coastal Zone Reauthorization Amendments .

Sedimentation

- Apply the erosion component of a Resource Management System as defined in the Field Office Technical Guide of the U.S. Department of Agriculture, Natural Resources Conservation Service to minimize the delivery of sediment to surface waters.
- Design and install a combination of management and physical practices to settle the settleable solids and associated pollutants in runoff delivered from the contributing area for storms of up to and including a 10-year, 24-hour frequency.

Nutrients

- Develop, implement, and periodically update a nutrient management plan to: (1) apply nutrients at rates necessary to achieve realistic crop yields, (2) improve the timing of nutrient application, and (3) use agronomic crop production technology to increase nutrient use efficiency. When the source of the nutrients is other than commercial fertilizer, determine the nutrient value and the rate of availability of the nutrients. Determine and credit the nitrogen contribution of any legume crop. Soil and plant tissue testing should be used routinely.

Pesticides

- Evaluate the pest problems, previous pest management practices, and cropping history.
- Evaluate the soil and physical characteristics of the site, including mixing, loading and storage areas for potential of leaching or runoff of pesticides. If leaching or runoff is found, steps should be taken to prevent further contamination
- Use integrated pest management (IPM) strategies that:
 - Apply pesticides only when an economic benefit to the producer will be achieved (i.e. application based on economic thresholds).
 - Apply pesticides efficiently and at times when runoff losses are unlikely.
 - When pesticide applications are necessary and a choice of registered materials exists, consider the persistence, toxicity, runoff potential, and leaching potential of products being used.
 - Periodically calibrate pesticide spraying equipment.
 - Use anti-backflow devices on hoses used for filling tank mixtures.

Riparian Areas

- Exclude livestock from riparian areas that are susceptible to overgrazing and when there is no other practical way to protect the riparian area when grazing uplands.
- Provide stream crossings and hardened access areas for watering.
- Provide alternative drinking water locations.
- Locate salt and shade away from sensitive riparian locations.
- Include riparian areas in separate pastures with separate management objectives and strategies.

- Fence, or where appropriate, herd livestock out of areas for as long as necessary to allow vegetation and streambanks to recover.
- Control the timing of grazing to: (1) keep livestock off streambanks where they are most vulnerable to damage, and (2) coincide with the physiological needs of target plant species.

Irrigation

- Operate the irrigation system so that the timing and amount of water match crop water needs. This will require, at a minimum: (a) the accurate measure of soil water depletion and the volume of irrigation applied, and (b) uniform application of water.
- When chemigation is used, include backflow preventers for wells, minimize the harmful amounts of chemigated waters from the field, and control deep percolation.
- In cases where chemigation is performed with furrow irrigation systems, a tailwater management system may be needed.
- In some locations, irrigation return flows are subject to other water rights or are required to maintain stream flow(s). In these special cases, on-site use could be precluded and would not be considered part of the management measures for such locations.
- In some locations, leaching is necessary to control salt in the soil profile. Leaching for salt control should be limited to the leaching requirement for the root zone.
- Where leakage from delivery systems or return flows support wetlands or wildlife refuges, it may be preferable to modify the system to achieve a high level of efficiency and then divert the “saved water” to the wetland or wildlife refuge. This will improve the quality of water delivered to wetlands or wildlife refuges by preventing the introduction of pollutants from irrigated lands to such diverted water.
- In some locations, sprinkler irrigation is used for frost or freeze protection, or for crop cooling. In these special cases, applications should be limited to the amount necessary for crop protection, and applied water should remain on site.

APPENDIX B - TECHNICAL AND FINANCIAL RESOURCES FOR LANDOWNERS IN THE UMPQUA WATERSHED

Bureau of Land Management
777 N.W. Garden Valley Blvd.
Roseburg, OR 97470
541. 440. 4930

Douglas County Water Resources Advisory Board
1036 S.E. Douglas
Roseburg, OR 97470
541. 957.5061

Douglas Soil and Water Conservation District
1443 NE Vine St.
Roseburg, OR 97470
541. 951.5061

Douglas Timber Operators
3000 N.W. Stewart Parkway
Roseburg, OR 97470
541. 672. 0757

Farm Services Agency (CREP Programs)
251 N.E. Garden Valley Blvd.
Roseburg, OR 97470
541. 673. 8316

Oregon Watershed Enhancement Board
101 N.W. "A" Street
Grants Pass, OR 97526
541. 474. 5385

National Marine Fisheries Service
2900 N.W. Stewart Parkway
Roseburg, OR 97470
541. 957. 3383

Natural Resources Conservation Service
251 N.E. Garden Valley Blvd.
Roseburg, OR 97470
541. 673. 8316

Oregon Department of Environmental Quality
725 S.E. Main Street
Roseburg, OR 97470
541. 440.3338 ext. 224

Oregon Department of Environmental Quality (Coastal Zone Management)
1102 Lincoln, Suite 210
Eugene, OR 97401
541. 686. 7838

Oregon Department of Fish and Wildlife
4192 N. Umpqua Highway
Roseburg, OR 97470
541. 440.3353

Oregon Department of Forestry
1758 N.E. Airport Road
Roseburg, OR 97470
541. 440.3412
Oregon State University Extension Service
Douglas County Office
1134 S.E. Douglas Avenue
Roseburg OR 97470
541. 672.4461

Southwest Resource Conservation and Development Council
576 NE “E” Street
Grants Pass OR 97526
541. 476. 5906

Umpqua Basin Watershed Council
1758 N.E. Airport Road
Roseburg, OR 97470
541. 673. 5756

U.S. Department of Fish and Wildlife
2900 N.W. Stewart Parkway
Roseburg, OR 97470
541. 957. 3470

U.S. Forest Service
2900 N.W. Stewart Parkway
Roseburg, OR 97470
541. 957. 3204

Umpqua Regional Council of Governments
1036 S.E. Douglas
Roseburg, OR 97470
541. 440. 4231

Umpqua Soil and Water Conservation District
392 Fir Avenue Suite 104
Reedsport, OR 97467
541. 271. 2611

Umpqua Basin Agricultural Water Quality Management Administrative Rules:

**Umpqua Basin
603-095-0700**

Purpose

(1) These rules have been developed to implement a water quality management area plan for the Umpqua Basin Agricultural Water Quality Management Area pursuant to authorities vested in the department through ORS 568.900-568.933 and ORS 561.190 - 561.191, due to a determination by the Environmental Quality Commission to establish Total Maximum Daily Loads and allocate a load to agricultural nonpoint sources. The area plan is known as the Umpqua Basin Agricultural Water Quality Management Area Plan. After adoption of the TMDLs, these rules will be reviewed and modified as needed to provide reasonable assurance that the load allocations for agriculture will be met. Nothing in the Umpqua Basin Agricultural Water Quality Management Area Plan or rules adopted by the department will allow the department to implement this plan or rules in a manner that is in violation of the U. S. Constitution, the Oregon Constitution or other applicable state laws.

(2) It is intended that the Umpqua Basin Agricultural Water Quality Management Area Plan will aid in achieving compliance with these rules through education and promotion of voluntary land management measures.

(3) Failure to comply with any provisions of the Umpqua Basin Agricultural Water Quality Management Area Plan:

(a) does not constitute a violation of OAR 603-090-0000 to 603-090-0120, or of OAR 603-095-0010 to OAR 603-095-0760;

(b) is not intended by the Department to be evidence of a violation of any federal, state, or local law by any person.

(4) Nothing in the Umpqua Basin Agricultural Water Quality Management Area Plan shall be used to interpret any requirement of OAR 603-095-0010 to OAR 603-095-0760

Statutory Authority: ORS 561.190-561.191, 568.909

Stats. Implemented: ORS 568.900 - 568.933

603-095-0720

Geographic and Programmatic Scope

(1) The Umpqua Basin includes the drainage area for the South Umpqua, the North Umpqua, the mainstem Umpqua and the Smith River. The physical boundaries of the Umpqua basin are indicated on the map included as Appendix 1 of these rules.

(2) Operational boundaries for the land base under the purview of these rules include all lands within the Umpqua Basin in agricultural use and agricultural and rural lands which are lying idle or on which management has been deferred, with the exception of public lands managed by federal agencies (BLM, USFS and USFWS), and activities which are subject to the Forest Practices Act.

(3) Current productive agricultural use is not required for the provisions of these rules to apply. For example, highly erodible lands with no present active use are within the purview of these rules.

(4) The provisions and requirements outlined in these rules may be adopted by reference by Designated Management Agencies with appropriate authority and responsibilities in other geographic areas of the Umpqua Basin.

(5) For lands in agricultural use within other Designated Management Agencies' or state agency jurisdictions, the department and the appropriate Local Management Agency shall work with these Designated Management Agencies to assure that provisions of these rules apply, and to assure that duplication of any services provided or fees assessed does not occur.

Statutory Authority: ORS 561.190-561.191, 568.909, and 568.927

Stats. Implemented: ORS 568.900 - 568.933

Umpqua Basin Agricultural Water Quality Management Area Rules January 10, 2001 Page 1

APPENDIX E – DEPARTMENT OF FORESTRY

Implementation Plan for
Non-Federal Forest Lands

Non-Federal Forest Lands

The purpose and goals of Oregon's Water Protection Rules (OAR 629-635-100) include protecting, maintaining, and improving the functions and values of streams, lakes, wetlands, and riparian management areas. Best management practices (BMPs) in the Oregon Forest Practices Act (FPA), including riparian zone protection measures and a host of other measures described below, are the mechanism for meeting State Water Quality Standards (WQS). There is a substantial body of scientific research and monitoring that supports an underlying assumption of the FPA, that maintaining riparian processes and functions is critical for water quality and fish and wildlife habitat. These riparian processes and functions include: Shade for stream temperature and for riparian species; large wood delivery to streams and riparian areas; leaf and other organic matter inputs; riparian microclimate regulation; sediment trapping; soil moisture and temperature maintenance; providing aquatic and riparian species dependent habitat; and nutrient and mineral cycling. The FPA provides a broad array of water quality benefits and contributes to meeting water quality standards for water quality parameters such as temperature, sediment, , dissolved oxygen, nutrients, and aquatic habitat.

Currently, many streams within the Little River Watershed significantly exceed the WQS's for temperature, sediment, and pH. The water quality impairment(s) in the Little River Watershed clearly do not result solely from current forestry activities. Agricultural areas contribute significantly to water quality impairment within the watershed. It is also important to note that historic forest practices such as splash dam activities and the widespread removal of wood from streams may continue to influence current stream conditions and riparian functions. In addition, current forest practices occur on forestlands that simultaneously support non-forestry land uses that can affect water quality, such as grazing, recreation, and public access roads.

Water quality parameters are influenced in a number of ways. For example, it is recognized that increasing the level of riparian vegetation retained along forested reaches of these streams reduces solar loading, potentially preventing a substantial amount of stream heating. While providing high levels of shade to streams is an important aspect of meeting instream temperature standards it needs to be considered within the context of past management, stream morphology and flows, groundwater influences, site-productivity, insects, fire, and other disturbance mechanisms that vary in time and space across the landscape.

As described below, ODF and DEQ are involved in several statewide efforts to analyze the existing FPA measures and to better define the relationship between the TMDL load allocations and the FPA measures designed to protect water quality. The information in the TMDL ,as well as other monitoring data, will be an important part of the body of information used in determining the adequacy of the FPA.

Forest practices on non-federal land in Oregon are regulated under the FPA and implemented through administrative rules that are administered by the Oregon Department of Forestry (ODF). The Oregon Board of Forestry (BOF), in consultation with the Environmental Quality Commission (EQC), establish BMPs and other rules to ensure that, to the extent practicable, nonpoint source (NPS) pollution resulting from forest operations does not impair the attainment of water quality standards.

With respect to the temperature standard, surface water temperature management plans are required according to OAR 340-041-0026 when temperature criteria are exceeded and the waterbody is designated as water-quality limited under Section 303(d) of the Clean Water Act. In the case of state and private forest lands, OAR 340-041-0120 identifies the FPA rules as the surface water management plan for forestry activities. ODF and DEQ statutes and rules also include provisions for adaptive management that provide for revisions to FPA practices where necessary to meet water quality standards. These provisions are described in ORS 527.710, ORS 527.765, ORS 183.310, OAR 340-041-0026, OAR 629-635-110, and OAR 340-041-0120. Current adaptive management efforts under several of the above statutes and rules are described in more detail following the discussion below on the roles of the BOF and EQC in developing BMPs that will achieve water quality standards.

ORS 527.765 Best management practices to maintain water quality.

(1) The State Board of Forestry shall establish best management practices and other rules applying to forest practices as necessary to insure that to the maximum extent practicable nonpoint source discharges of pollutants resulting from forest operations on forestlands do not impair the achievement and maintenance of water quality standards established by the Environmental Quality Commission for the waters of the state. Such best management practices shall consist of forest practices rules adopted to prevent or reduce pollution of waters of the state. Factors to be considered by the board in establishing best management practices shall include, where applicable, but not be limited to:

- (a) Beneficial uses of waters potentially impacted;
- (b) The effects of past forest practices on beneficial uses of water;
- (c) Appropriate practices employed by other forest managers;
- (d) Technical, economic and institutional feasibility; and
- (e) Natural variations in geomorphology and hydrology.

ORS 527.770 Good faith compliance with best management practices not violation of water quality standards; subsequent enforcement of standards.

A forest operator conducting, or in good faith proposing to conduct, operations in accordance with best management practices currently in effect shall not be considered in violation of any water quality standards. When the State Board of Forestry adopts new best management practices and other rules applying to forest operations, such rules shall apply to all current or proposed forest operations upon their effective dates.

There are currently extensive statutes and administrative rules that regulate forest management activities in the Little River Watershed, which address the key water quality issues of stream temperatures, riparian aquatic functions, and sediment dynamics. The following is a list of specific administrative rules describing the purpose and goals of the FPA towards the achievement and maintenance of water quality standards established by the EQC.

OAR 629-635-100 - Water Protection Rules; Purpose and Goals

- (3) The purpose of the water protection rules is to protect, maintain and, where appropriate, improve the functions and values of streams, lakes, wetlands, and riparian management areas. These functions and values include water quality,

hydrologic functions, the growing and harvesting of trees, and fish and wildlife resources.

(4) 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.

(5) 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."

(6) OARs 629-640-400 and 629-645-020 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.

(7) The overall goal of the water protection rules is to provide resource protection during 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.

(a) The protection goal for water quality (as prescribed in ORS 527.765) is to ensure through the described forest practices that, to the maximum extent practicable, nonpoint source discharges of pollutants resulting from forest operations do not impair the achievement and maintenance of the water quality standards.

(b) The protection goal for fish is to establish and retain vegetation consistent with the vegetation retention objectives described in OAR 629-640-000 (streams), OAR 629-645-000 (significant wetlands), and OAR 629-650-000 (lakes) that will maintain water quality and provide aquatic habitat components and functions such as shade, large woody debris, and nutrients.

OAR 629-640-000 - Vegetation Retention Goals for Streams; Desired Future Conditions

(1) The purpose of this rule is to describe how the vegetation retention measures for streams were determined, their purpose and how the measures are implemented. The vegetation retention requirements for streams described in OAR 629-640-100 through OAR 629-640-400 are designed to produce desired future conditions for the wide range of stand types, channel conditions, and disturbance regimes that exist throughout forest lands in Oregon.

(2) 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. 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.

- (3) The rule standards for desired future conditions for fish use streams were developed by estimating the conifer basal area for average unmanaged mature streamside stands (at age 120) for each geographic region. This was done by using normal conifer yield tables for the average upland stand in the geographic region, and then adjusting the basal area for the effects of riparian influences on stocking, growth and mortality or by using available streamside stand data for mature stands.
- (4) 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.
- (5) The rule standards for desired future conditions for streams that do not have fish use were developed in a manner similar to fish use streams. In calculating the rule standards, other factors used in developing the desired future condition for large streams without fish use and all medium and small streams included the effects of trees regenerated in the riparian management area during the next rotation and desired levels of instream large woody debris.
- (6) For streamside areas where the native tree community would be conifer dominated stands, mature streamside conditions are achieved by retaining a sufficient amount of conifers next to large and medium sized fish use streams at the time of harvest, so that halfway through the next rotation or period between harvest entries, the conifer basal area and density is similar to mature unmanaged conifer stands. In calculating the rule standards, a rotation age of 50 years was assumed for even-aged management and a period between entries of 25 years was assumed for uneven-aged management. The long-term maintenance of streamside conifer stands is likely to require incentives to landowners to manage streamside areas so that conifer reforestation occurs to replace older conifers over time.
- (7) Conifer basal area and density targets to produce mature stand conditions over time are outlined in the general vegetation retention prescriptions. In order to ensure compliance with state water quality standards, these rules include requirements to retain all trees within 20 feet and understory vegetation within 10 feet of the high water level of specified channels to provide shade.
- (8) For streamside areas where the native tree community would be hardwood dominated stands, mature streamside conditions are achieved by retaining sufficient hardwood trees. As early successional species, the long-term maintenance of hardwood streamside stands will in some cases require managed harvest using site specific vegetation retention prescriptions so that reforestation occurs to replace older trees. In order to ensure compliance with state water

quality standards, these rules include requirements in the general vegetation retention prescription to retain all trees within 20 feet and understory vegetation within 10 feet of the high water level of specified channels to provide shade.

- (9) In many cases the desired future condition for streams can be achieved by applying the general vegetation retention prescriptions, as described in OAR 629-640-100 and OAR 629-640-200. In other cases, the existing streamside vegetation may be incapable of developing into the future desired conditions in a "timely manner." In this case, the operator can apply an alternative vegetation retention prescription described in OAR 629-640-300 or develop a site specific vegetation retention prescription described in OAR 629-640-400. For the purposes of the water protection rules, "in a timely manner" means that the trees within the riparian management area will meet or exceed the applicable basal area target or vegetation retention goal during the period of the next harvest entry that would be normal for the site. This will be 50 years for many sites.
- (10) Where the native tree community would be conifer dominant stands, but due to historical events the stand has become dominated by hardwoods, in particular, red alder, disturbance is allowed to produce conditions suitable for the re-establishment of conifer. In this and other situations where the existing streamside vegetation is incapable of developing characteristics of a mature streamside stand in a "timely manner," the desired action is to manipulate the streamside area and woody debris levels at the time of harvest (through an alternative vegetation retention prescription or site specific vegetation retention prescription) to attain such characteristics more quickly.

The Water Protection Rules are an important component of the rules that are designed to achieve and maintain water quality standards. The rules identify seven geographic regions and distinguishes between streams, lakes, and wetlands. The rules further distinguish each stream 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.

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.

The goal for managing riparian forests along fish-use streams is to grow and retain vegetation so that, over time, average conditions across the riparian landscape become similar to those of mature unmanaged riparian 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 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 large wood 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 overall goals of the riparian vegetation retention rules along Type N and Type D streams are the following:

- Grow and retain vegetation sufficient to support the functions and processes that are important to downstream waters that have fish;
- Maintain the quality of domestic water; and
- Supplement wildlife habitat across the landscape.

These streams have reduced riparian management area (RMA) widths and reduced basal area retention requirements as compared to similar sized Type F streams (Table 1). 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 Type N and D channels over time was not as important for maintaining fish populations within a given stream reach. And second, it was assumed that the future stand could provide some level of “functional” wood over time in terms of nutrient inputs and sediment storage. The validity of these assumptions needs to be evaluated over time through monitoring.

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

	Type F	Type D	Type N
<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

For all streams that require an RMA, basal area targets are established that are used for any type of management within the RMA. These targets were determined based on the data that was available at the time, 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 streams (11-inch minimum diameter at breast height), and 30 trees per 1000 feet along medium streams (8-inch minimum diameter at breast height). The specific levels of large wood inputs that the rules are designed to achieve are based on the stream size and type. The biological and physical characteristics specific to a given stream are taken into account in determining the quantity and quality of large wood that is functional for that stream. Given the potential large wood 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 large wood inputs and effective shade for a given stream.

The expectation is that these vegetation retention standards will be sufficient towards maintaining stream temperatures that are within the range of natural variability. 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 likely 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. For fish bearing streams it is assumed that a 20-foot no-harvest buffer, combined with the tree retention requirements for the rest of the RMA, will be adequate to maintain shade levels necessary to achieve stream temperature standards. 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.

In terms of sediment issues specific to forest roads, there are BMPs within the FPA specifically designed to regulate road design, construction and maintenance. The bulk of the BMPs are directed at minimizing sediment delivery to channels. The primary goals of the road rules are to: (1) protect the water quality of streams, lakes, and wetlands; (2) protect fish and wildlife habitat; and (3) protect forest productivity.

The Board of Forestry revised several BMPs related to road design when the new Water Protection Rules were adopted in the fall of 1994. Significant changes made to the road construction rules include the following:

- The requirement for operators not to locate roads in riparian management areas, flood plains, or wetlands unless all alternative locations would result in greater resource damage.
- The requirement for operators to design stream crossings to both minimize fill size and minimize excavation of slopes near the channel. A mandatory written plan is required for stream crossing fills over 15 feet deep.
- The requirement to design stream crossing structures for the 50-year flow with no ponding, rather than the 25-year storm with no specification of allowable ponding.
- The requirement that stream crossing structures be passable by juvenile fish as well as adult fish.
- The requirement that fish must be able to access side channels.
- The requirement that stream structures constructed under these rules must be maintained for fish passage.

In determining the location of a new road, operators are required to avoid steep slopes, slides and areas next to channels or in wetlands to the extent possible. Existing roads should be used when possible, and stream crossings should be used only when essential. The design of the road grade must vary to fit the local terrain and the road width must be minimized. The operator must also follow specific guidelines for stream-crossing structures (listed above). Cross-drainage structures must be designed to divert water away from channels so that runoff intercepted by the road is dispersed onto the hillslope before reaching a channel. The specific method used is up to the operator, but the end result should be the dispersal of water running off of the road and the filtering of fine sediment before the water reaches waters of the state.

Construction and maintenance activities should be done during low water periods and when soils are relatively dry. Excavated materials must be placed where there is minimal risk of those materials entering waters of the state, and erodible surfaces must be stabilized. Landings must be built away from streams, wetlands and steep slopes.

Road maintenance is required on all active and inactive roads. Regardless of when a road was constructed, if the road has been used as part of an active operation after 1972, it is subject to all maintenance requirements within the current rules. Culverts must be kept open, and surface road drainage and adequate filtering of fine sediment must be maintained. If the road surface becomes unstable or if there is a significant risk of sediment running off of the road surface and entering the stream, road activity must be halted and the erodible area must be stabilized. Abandoned roads constructed prior to 1972 and not used for forest management since that time are not subject to Forest Practices regulatory authority.

All roads in use since 1972 must either be maintained or vacated by the operator. Vacated roads must be effectively barricaded and self-maintaining, in terms of diverting water away from streams and off of the former road surface, where erosion will remain unlikely. Methods for vacating roads include pulling stream-crossing fills, pulling steep side cast fills, and cross ditching. It is up to the landowner to choose between vacating a road and maintaining a road. If a road is not vacated, the operator is required to

maintain the road under the current rules whether it is active or inactive, however they are not required to bring the design up to current standards outside of the normal maintenance and repair schedule.

The ODF has a monitoring program that is currently coordinating separate projects to monitor the effectiveness of the forest practice rules with regard to landslides, riparian function, stream temperature, chemical applications, sediment from roads, BMP compliance, and shade. The results from some of these projects have been released in the form of final reports and other projects will have final reports available in the spring of 2000, 2001 and beyond.

Voluntary measures are currently being implemented across the state under the Oregon Plan for Salmon and Watersheds (OPSW) to address water quality protection. These measures are designed to supplement the conifer stocking within riparian areas, increase large wood inputs to streams, and provide for additional shade. This is accomplished during harvest operations by (1) placing appropriate sized large wood within streams that meet parameters of gradient, width and existing wood in the channel; and (2) relocating in-unit leave trees in priority areas¹ to maximize their benefit to salmonids while recognizing operational constraints, other wildlife needs, and specific landowner concerns.

The measures include the following:

ODF 8S: 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 LWD 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 19S: Additional Conifer Retention along Fish-Bearing Streams in Core Areas

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

ODF 20S: Limited RMA for Small Type N Streams in Core Areas

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

ODF 21S: Active Placement of large wood during Forest Operations

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

ODF 22S: 25 Percent In-unit Leave Tree Placement and Additional Voluntary Retention

¹ The Executive Order replaced the concept of “core areas” with “priority areas”. See (1)(f) of the Executive Order (p.5).

This measure 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 61S: Analysis of "Rack" Concept for Debris Flows

OFIC members will conduct surveys to determine the feasibility and value of retaining trees along small type N streams with a high probability of debris flow in a "rack" just above the confluence with a Type F stream. The rack would extend from the RMA along the Type F stream up the Type N stream some distance for the purpose of retaining trees that have a high likelihood of delivery to the Type F stream.

ODF 62S: 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 voluntary management measures are implemented within priority areas. Several of the measures 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 measures is at the discretion of the landowner, but one or more of the measures is selected.

The measures can be described as either active restoration measures, or passive restoration measures that provide long-term large wood recruitment. Voluntary measures ODF 8S and 21S are active restoration activities. ODF 8 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 21S addresses large wood placement if stream surveys determine there is a need. Measures ODF 19S, 20S, 22S, and 62S provide future large wood 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 OPSW voluntary measures 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.

The Oregon Plan also has voluntary measures addressing sediment issues related to forest roads. Many forest roads built prior to the development of the FPA or prior to the current BMPs continue to pose increased risk to fish habitat. Industrial forest landowners and state forest lands are currently implementing the Road Hazard Identification and Risk Reduction Project, measures ODF 1S and ODF 2S, to identify risks to salmon from roads and address those risks. The purposes of this project are:

1. Implement a systematic process to identify road-related risks to salmon and steelhead recovery.
2. Establish priorities for problem solution.
3. Implement actions to reduce road related risks.

The Road Hazard Identification and Risk Reduction Project is a major element of the Oregon Plan. The two major field elements of this project are (1) the surveying of roads using the Forest Road Hazard Inventory Protocol, and (2) the repairing of problem sites identified through the protocol. Road repairs conducted as a result of this project include improving fish passage, reducing washout potential, reducing landslide potential, and reducing the delivery of surface erosion to streams.

Roads assessed by this project include all roads on Oregon Forest Industry Council member forestland, plus some other industrial and non-industrial forest land, regardless of when they were constructed. Industrial forest landowners have estimated spending approximately \$13 million a year, or \$130 million over the next 10 years, on this project for the coastal ESUs alone. However, the effort is not limited to nor bound by this funding estimate. Funding for the implementation for this measure within the other ESUs will be reflective of road problems found.

Under ODF 2S, the State Forest Lands program has spent over \$2.5 million during the last biennium (1997-1999) for the restoration of roads, replacement of culverts and other stream crossing structures damaged by the 1996 storm. State Forest Lands are also proposing to spend an additional \$2.5 million dollars in each of the next two biennia to improve roads, including stream crossing structures. This effort will upgrade approximately 130 miles of road in each biennium.

In addition to ODF 1S & 2S, there are additional measures under the Oregon Plan that address road management concerns:

ODF 16S -Evaluation of the Adequacy of Fish Passage Criteria: Establish that the criteria and guidelines used for the design of stream crossing structures pass fish as intended under the goal.

ODF 34S - Improve Fish Passage BMPs on Stream Crossing Structures: Ensure that all new stream crossing structures on forest land installed or replaced after the fall of 1994 will pass both adult and juvenile fish upstream and down stream.

Adaptive Management Process

By statute, forest operators conducting operations in accordance with the BMPs are considered to be in compliance with Oregon's water quality standards. The 1994 Water Protection Rules were adopted with the approval of the Environmental Quality Commission as not violating water quality standards. However, there are several provisions within the FPA and rules that require adaptive management.

In January of 1999 the Governor of Oregon signed Executive Order no. EO 99-01 that directed the Oregon Board of Forestry, with the assistance of an advisory committee, to determine to what extent changes to forest practices are needed to meet state water quality standards and protect and restore salmonids. The committee was directed to consider both regulatory and non-regulatory approaches to water quality protection. To carry out this charge, an ad hoc advisory committee developed four separate issue papers on the following topics:

- Fish passage restoration and water classification
- Forest roads
- Riparian functions
- Landslides

The committee represented diverse interests, including environmental, industrial, non-industrial, county, and public advocates. In addition to ODF technical staff, the Oregon Department of Environmental Quality (DEQ) and Oregon Department of Fish and Wildlife (ODFW) technical staff participated in the process. The committee made its recommendations to the Board of Forestry in September, 2000. The Board is now considering the recommendations in order to determine whether revisions to the FPA and additional voluntary approaches are necessary consistent with ORS 527.710.

As the designated management agency (DMA) for water quality management on nonfederal forestlands, the ODF is also working with the DEQ through a memorandum of understanding (MOU) signed in April of 1998. This MOU was designed to improve the coordination between the ODF and the DEQ in evaluating and proposing possible changes to the forest practice rules as part of the Total Maximum Daily Load process and resulting Water Quality Management Plan (WQMP). The purpose of the MOU is also 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 protection of water quality will address the following specific parameters and will be conducted in the following order²:

- 1) Temperature (draft report completed in Fall, 2000)
- 2) Sediment and turbidity (estimated draft report target completion date Fall, 2001)

² The estimated completion dates listed here differ from those dates listed in the MOU. Due to unforeseen circumstances the DEQ and ODF have agreed to revise the dates.

- 3) Aquatic habitat modification (estimated date Spring, 2002)
- 4) Bio-criteria (estimated date Fall, 2002)
- 5) Other parameters (estimated date Spring, 2003)

These sufficiency analyses will be reviewed by peers and other interested parties prior to final release. The analyses will be designed to provide background information and assessments of BMP effectiveness in meeting water quality standards. Once the sufficiency analyses are completed, they will be used as a coarse screen for common elements applicable to each individual TMDL to determine if forest practices are contributing to water quality impairment within a given watershed and to support the adaptive management process.

There may be circumstances unique to a watershed or information generated outside of the statewide sufficiency process that need to be considered to adequately evaluate the effectiveness of the BMPs in meeting water quality standards. Information from the TMDL, ad hoc committee process, ODF Water Protection Rule effectiveness monitoring program, and other relevant sources may address circumstances or issues not addressed by the statewide sufficiency process. This information will also be considered in making the FPA sufficiency determination. ODF and DEQ will share their understanding of whether water quality impairment is due to current forest practices or the long-term legacy of historic forest management practices and/or other practices. The two agencies will then work together and use their determinations to figure out which condition exists (a, b, c, or d in the MOU). The MOU describes the appropriate response depending on which condition exists.

Currently the ODF and DEQ do not have adequate data to make a collective determination on the sufficiency of the current FPA BMPs in meeting water quality standards within the Little River Watershed. This situation most closely resembles the scenario described under condition c of the ODF/DEQ MOU. Therefore, the current BMPs will remain as the forestry component of the WQMP. The draft versions of the statewide FPA sufficiency analyses for the various water quality parameters will be completed as noted above. The proposed Little River TMDLs will be completed in September, 2001. Data from an ODF/DEQ shade study will be collected over the summer of 1999 and a final report will be completed in the summer of 2001, and information from the ad hoc committee advisory is currently available. Information from these efforts, along with other relevant information provided by the DEQ, will be considered in reaching a determination on whether the existing FPA BMPs meet water quality standards within the Umpqua Basin.

By the summer of 2002, ODF and DEQ will either make a collective determination on FPA adequacy for the Little River watershed, or if data is still inconclusive, ODF will design and implement a specific monitoring program as part of the basin plan under a schedule and scope jointly agreed to by ODF and DEQ. A collective determination on FPA adequacy would then be made upon completion of the specific monitoring program.

The above adaptive management process may result in findings that indicate changes are needed to the current forest practice rules to protect water quality. Any rule making that occurs must comply with the standards articulated under ORS 527.714(5). This statute requires, among other things, that regulatory and non-regulatory alternatives have been considered and that the benefits provided by a new rule are in proportion to the degree that existing forest practices contribute to the overall resource concern.

APPENDIX F – OREGON DEPARTMENT OF TRANSPORTATION

TMDL IMPLEMENTATION PLAN

The Oregon Department of Transportation (ODOT) plan addresses the requirements of a Total Maximum Daily Load (TMDL) allocation for pollutants associated with the ODOT system. This statewide approach for an ODOT TMDL watershed management plan would address specific pollutants, but not specific watersheds. Instead, this plan would demonstrate how ODOT incorporates water quality into project development, construction, and operations and maintenance of the state and federal transportation system, thereby meeting the elements of the National Pollutant Discharge Elimination System (NPDES) program, and the TMDL requirements.

ODOT has partnered with DEQ in the development of several watershed management plans. By presenting a single, statewide, management plan, ODOT:

- Streamlines the evaluation and approval process for the watershed management plans
- Provides consistency to the ODOT highway management practices in all TMDL watersheds.
- Eliminates duplicative paperwork and staff time developing and participating in the numerous TMDL management plans.

Temperature and sediment are the primary concerns for pollutants associated with ODOT systems that impair the waters of the state. DEQ is still in the process of developing the TMDL water bodies and determining pollutant levels that limit their beneficial uses. As TMDL allocations are established by watershed, rather than by pollutants, ODOT is aware that individual watersheds may have pollutants that may require additional consideration as part of the ODOT watershed management plan. When these circumstances arise, ODOT will work with DEQ to incorporate these concerns into the statewide plan.

In the Little River Watershed, the only road under ODOT jurisdiction is the bridge over Little River in Glide. Thus, rather than detailing the entire ODOT statewide plan, the following are the provisions which will be relevant to the Little River Watershed.

ODOT LIMITATIONS

The primary mission of ODOT is to provide a safe and effective transportation system, while balancing the requirements of environmental laws. ODOT is a dedicated funding agency, restricted by the Oregon Constitution in its legal authority and use of resources in managing and operating the state and federal highway system.

On June 9, 2000, ODOT received an NPDES permit from DEQ that covers all new and existing discharges of stormwater from the Municipal Separated Storm Sewer associated with the ODOT owned and maintained facilities and properties located within the highway right of way and maintenance facilities for all basins in Oregon. This permit required the development of a statewide ODOT stormwater management plan.

ODOT PROGRAMS

ODOT established a Clean Water program in 1994 that works to develop tools and processes that will minimize the potential negative impacts of activities associated with ODOT facilities on Oregon's water resources. The ODOT Clean Water program is based on developing and implementing Best Management Practices (BMPs) for construction and maintenance activities. ODOT has developed, or is developing the following documents, best management practices, or reviews, that reduce sediment and temperature impacts:

- **ODOT Routine Road Maintenance Water Quality and Habitat Guide, Best Management Practices, July 1999 (ESA 4(d) Rule)**

ODOT has worked with National Marine Fisheries Service (NMFS) and Oregon Department of Fish and Wildlife (ODFW) to develop Best Management Practices (BMPs) that minimize negative environmental impacts of routine road maintenance activities on fish habitat and water quality. The National Marine Fisheries Service has determined that routine road maintenance, performed under the above mentioned guide, does not constitute a 'take' of anadromous species listed under the federal Endangered Species Act, and therefore additional federal oversight is not required. This determination has been finalized as part of the Federal Register, Volume 65, Number 132, dated Monday, July 10, 2000, pages 42471-42472. In addition, the Oregon Department of Fish and Wildlife has determined that the guide and BMPs are adequate to protect habitat during routine maintenance activities.

- **NPDES Municipal Separated Storm Sewer System (MS4) Permit**

ODOT worked with DEQ to develop a statewide NPDES MS4 permit and stormwater management program that reduces pollutant loads in the ODOT stormwater system. The permit was issued to ODOT on June 9, 2000.

- **NPDES 1200CA Permit**

ODOT has developed an extensive erosion control program that is implemented on all ODOT construction projects. The program addresses erosion and works to keep sediment loads in surface waters to a minimum. ODOT currently holds 5 regional permits that cover highway construction.

- **Erosion and Sediment Control Manual**

ODOT Geotechnical/Hydraulic staff has developed erosion and sediment control manuals and training for construction and maintenance personnel. Included in the manual are designs for different types of erosion control measures.

- **National Environmental Policy Act (NEPA) Reviews**

ODOT is an agent of the Federal Highway Administration, consequently, ODOT must meet NEPA requirements during project development. Included in the project development process are reviews to avoid, minimize and mitigate project impacts to natural resources, including wetlands and waters of the state.

ODOT TMDL Pollutants

ODOT and DEQ have identified temperature and sediment as the primary TMDL pollutants of concern associated with highways. While DEQ may identify other TMDL pollutants within the watershed, many historical pollutants, or pollutants not associated with ODOT activities, are outside the control or responsibility of ODOT. In some circumstances, such as historical pollutants within the right of way, it is expected that ODOT will control these pollutants through the best management practices associated with sediment control. ODOT is expecting that by controlling sediment load these TMDL pollutants will be controlled. Research has indicated that controlling sediment also controls heavy metals, oils and grease, and other pollutants.

Proposed Management Measures tied to attainment of TMDLs.

- **The ODOT Routine Road Maintenance Water Quality and Habitat Guide, Best Management Practices, July 1999- addresses sediment and temperature TMDL.**

ODOT programs are adaptive and are expected to change as new information becomes available. ODOT will continue to work with the DEQ, NMFS, USFWS, and ODFW in best management practices, research opportunities, training, etc. The ODOT program meets the requirements of the TMDL management plans, and will be attached as appropriate to individual watershed plans.