Tenmile Lakes Watershed Water Quality Management Plan (WQMP)

Prepared by: Oregon Department of Environmental Quality

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State of Oregon
Department of
Environmental
Quality

Submissions by:

Oregon Department of Forestry
Oregon Department of Agriculture
Oregon Department of Transportation
Tenmile Lakes Basin Partnership

TABLE OF CONTENTS

FIGURES AND TABLES

ACRONYMS

303(d)	Section 303(d) of the federal Clean Water Act
401	Clean Water Act, Section 401, Water Quality Certification for Federal Actions
404	Clean Water Act, Section 404, Fill & Removal
1200C	Storm Water Construction Permit
AWQM	Agricultural Water Quality Management
AWQMP	Agricultural Water Quality Management Plan
BMP	Best Management Practices
BOF	Board of Forestry
CAFO	Confined Animal Feeding Operations
CMS	Conservative Management System
DMA	Designated Management Agency
ESF	Elliot State Forest
EPA	Environmental Protection Agency
EQC	Environmental Quality Commission
ESU	Evolutionary Significant Unit
FIP	Forest Incentives Program
FPA	Forest Practices Act
FPAC	Forest Practices Advisory Committee
FPMP	Forest Practices Management Program
IPM	Integrated Pest Management
IVM	Integrated Vegetation Management
LAC	Local Advisory Committee
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MS4	Storm Water Permit
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Services
NPDES	National Pollution Discharge Elimination System
NPS	Nonpoint Source
OAR	Oregon Administration Rules
ODA	Oregon Department of Agriculture
ODEQ	Oregon Department of Environmental Quality
ODF	Oregon Department of Forestry
ODFW	Oregon Department of Fish & Wildlife
ODOT	Oregon Department of Transportation
OFIC	Oregon Forest Industry Council
OPSW	Oregon Plan for Salmon and Watersheds
ORS	Oregon Revised Statutes
OSDS	On-Site Disposal System
OSU	Oregon State University
OWEB	Oregon Watershed Enhancement Board
PSU	Portland State University
R & E	Restoration & Enhancement Board
RMA	Riparian Management Area
SB	Senate Bill
SCS	Soil Conservation Service
SMA	Streamside Management Area

TEA	Transportation Equity Act
TMDL	Total Maximum Daily Load
TSS	Total Suspended Solids
Type D	Streams utilized as Drinking Water Sources
Type F	Fish Bearing Streams as per Forest Practices Act
Type N	Non-Fish Bearing Streams as per Forest Practices Act
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish & Wildlife Services
WHIP	Wildlife Habitat Incentive Program
WLA	Wasteload Allocation
WPCF	Water Pollution Control Facility
WQL	Water Quality Limited
WQMP	Water Quality Management Plan
WQS	Water Quality Standards
WSC	Watershed Council
WWF	Wet Weather Flow
WWTP	Waste Water Treatment Plant

CHAPTER 1 – BACKGROUND AND INTRODUCTION

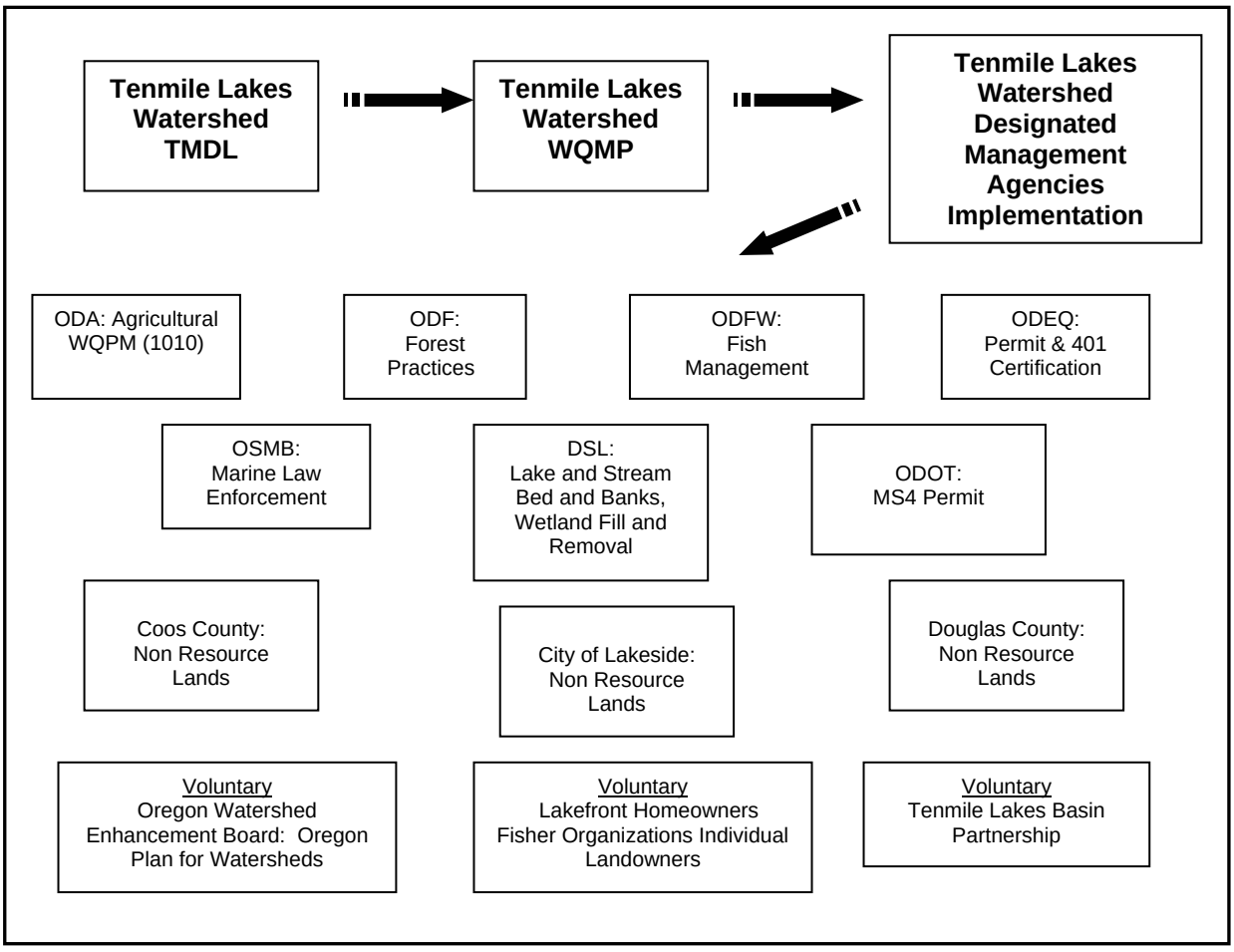
This document describes strategies for implementing and achieving the Tenmile Lakes Watershed Total Maximum Daily Load (TMDLs). The main body of this text has been compiled by the Oregon Department of Environmental Quality (ODEQ) with assistance from the Designated Management Agencies (DMAs) and voluntary entities working in the Tenmile Lakes Watershed and includes a description of activities, programs, legal authorities, and other measures for which ODEQ and the other DMAs have regulatory authority. This WQMP provides the overall framework describing the management efforts which will be implemented to attain the Tenmile Lakes Watershed TMDL.

ODEQ recognizes that TMDL implementation is critical to the attainment of water quality standards. Additionally, the support of DMAs in TMDL implementation is essential. In instances where direct authority for implementation is located in another agency, pursuant to Oregon Revised Statute, ODEQ will work with that agency on implementation to ensure attainment of the TMDL allocations and, ultimately, water quality standards. Where authority for implementation is not specifically established with an agency or DMA, ODEQ will use its own statutory authority to ensure attainment of the TMDL allocations and water quality standards.

The focus of this WQMP is to demonstrate how the TMDL will be implemented in the Tenmile Lakes Watershed. It builds upon existing water quality related management plans to outline a management approach for all land uses in the watershed. Appended to this document are several currently available Implementation Plans which describe existing or planned efforts to implement activities relating to the TMDLs. DMA-specific Water Quality Implementation Plans (WQIPs) will be more fully developed once the current TMDL is submitted to the U. S. Environmental Protection Agency (USEPA) and approved. ODEQ and the DMAs will work cooperatively in the development of the TMDL Implementation Plans and ODEQ will assure that the plans adequately address the required components for WQIPs defined in Oregon Administrative rule 340-42.

The TMDL, WQMP, DMA, and WQIP relationship is graphically presented in Figure 1.

Figure 1 - TMDL and WQMP Implementation Plan Schematic



1.1 TMDL WATER QUALITY MANAGEMENT PLAN GUIDANCE

In the past ODEQ and USEPA worked under a Memorandum of Agreement (MOA) that described the basic elements needed in a TMDL Water Quality Management Plan (WQMP). That MOA was endorsed by the Courts in a Consent Order signed by United States District Judge Michael R. Hogan in July, 2000. However, in December, 2002, the State of Oregon's Environmental Quality Commission (EQC) adopted OAR 340-042, commonly referred to as the Total Maximum Daily Load (TMDL) rule. The rule captures the intent of the MOA and clearly defines ODEQ's responsibilities for developing, issuing, and implementing TMDLs as required by the federal Clean Water Act (CWA). This WQMP provides the framework of management strategies to attain and maintain water quality standards. The framework is designed to work in conjunction with detailed plans and analyses provided in sector-specific or source-specific implementation plans.

This WQMP incorporates the 10 plan elements described in a Memorandum of Agreement (MOA) between ODEQ and USEPA and is intended to fulfill the requirements contained in Oregon's TMDL Rule. Reference to OAR 340-042-0040 is made in the appropriate section headings.

1.2 WQMP REQUIRED ELEMENTS - OAR 340-042-0040 (4)(I)(A-O)

(A) Condition assessment and problem description.

(B) Goals and objectives.

(C) Proposed management strategies designed to meet the wasteload allocations and load allocations in the TMDL. This will include a categorization of sources and a description of the management strategies proposed for each source category.

(D) Timeline for implementing management strategies including:

(i) Schedule for revising permits,

(ii) Schedule for achieving appropriate incremental and measurable water quality targets,

(iii) Schedule for implementing control actions, and

(iv) Schedule for completing other measurable milestones.

(E) Explanation of how implementing the management strategies will result in attainment of water quality standards.

(F) Timeline for attainment of water quality standards.

(G) Identification of persons, including Designated Management Agencies (DMAs), responsible for implementing the management strategies and developing and revising sector-specific or source-specific implementation plans.

(H) Identification of sector-specific or source-specific implementation plans that are available at the time the TMDL is issued.

(I) Schedule for preparation and submission of sector-specific or source-specific implementation plans by responsible persons, including DMAs, and processes that trigger revisions to these implementation plans.

(J) Description of reasonable assurance that management strategies and sector-specific or source-specific implementation plans will be carried out through regulatory or voluntary actions.

(K) Plan to monitor and evaluate progress toward achieving TMDL allocations and water quality standards including:

(i) Identification of persons responsible for monitoring, and

(ii) Plan and schedule for reviewing monitoring information and revising the TMDL.

(L) Plan for public involvement in implementing management strategies.

(M) Description of planned efforts to maintain management strategies over time.

(N) General discussion of costs and funding for implementing management strategies. Sector-specific or source-specific implementation plans may provide more detailed analyses of costs and funding for specific management strategies.

(O) Citation of legal authorities relating to implementation of management strategies.

CHAPTER 2 - CONDITION ASSESSMENT AND PROBLEM DESCRIPTION OAR 340-42-0040(4)(I)(A)

Under Section 303(d) of the Clean Water Act, USEPA or its state delegates are required to develop a list of the surface waters in each state that do not meet water quality standards. These standards are developed by each of the states to protect designates "beneficial uses" and must be approved by USEPA. The resulting "303(d) list" is based on the best available data and identifies water quality limited (WQL) waterbodies which do not fully support beneficial uses. In most cases the 303(d) list must be updated and revised as needed every two years[1]. Existing beneficial uses are bolded in the table below.

Table 1 – Beneficial Uses in the Tenmile Lakes Watershed	
Public Domestic Water Supply	**Anadromous Fish Passage**
Private Domestic Water Supply	**Salmonid Fish Spawning**
Industrial Water Supply	**Salmonid Fish Rearing**
Irrigation	**Resident Fish and Aquatic Life**
Livestock Watering	**Wildlife and Hunting**
Boating	**Fishing**
Aesthetic Quality	**Water Contact Recreation**
Commercial Navigation & Transportation	Hydro Power

Water bodies that are listed as impaired must have TMDLs developed for each pollutant (with a few exceptions, such as in cases where water quality conditions are due to natural causes, the listing is not due to a pollutant, or other controls will be effective at assuring support of beneficial uses). TMDLs are written plans with analyses that determine the total amount of a pollutant (from all sources) that can be present in a specific water body and still meet water quality standards.

2.1 WATER QUALITY IMPAIRMENT

The following water quality parameters were assessed as potential contributors to "water quality limitations" or "impairments" in the Tenmile Lakes Watershed.

2.1.1 Aquatic Weeds (Macrophytes)

Tenmile Lakes Limnology Survey conducted by Portland State University (PSU) in 1995[2] and more recent surveys conducted by the Tenmile Lakes Basin Partnership provide documentation of extensive growth of Elodea densa (Elodea), a non-native aquatic plant and a "B" designated weed by Oregon Department of Agriculture (ODA) which dominates the macrophyte assemblage and interferes with beneficial uses. Excessive plant growth can adversely affect recreational water use by interfering with mail delivery,

[1] ODEQ (Oregon Department of Environmental Quality). 2002a. DEQ's 2002 303(d) List of Water Quality Limited Waterbodies and Oregon's Criteria Used for Listing Waterbodies. DEQ 811 6th Ave., Portland, Oregon 97204.

[2] Systma, M.D. 1995. Tenmile Lakes Limnological Survey. Portland State University. Unpublished Report. 12 pp. + appendices.

navigability, swimming, boating, and fishing activities. It also impairs aesthetic uses of a waterbody such as water based recreation.

Macrophyte refers to larger than microscopic plant life in aquatic systems. Macrophytes may be vascular plants rooted in the sediment, such as pond weeds or cattails, or free-floating plant life, such as duckweed or coontail. Elodea is an invasive weed that is specifically problematic in both North and South Tenmile Lakes.

2.1.2 Phytoplankton (floating algae)

Sampling of North and South Tenmile Lakes for Microcystis aeruginosa has been conducted since 1997. Concentrations of the toxin, microcystin, have repeatedly exceeded World Health Organization levels for drinking water and recreational contact resulting in the issuance of Health Hazard Advisories. Algal blooms often impair beneficial uses including aesthetics, drinking water, and recreational contact in the summer months. *Phytoplankton* are photosynthetic microscopic organisms (algae) and exist as individual cells or grouped together as clumps or filamentous mats.

2.1.3 Chlorophyll a

Data collected as part of the Nutrient Study[3] revealed that episodically high chlorophyll a values occur in conjunction with algal blooms. Review of the dataset for the period 1995-2001 reveals chlorophyll a samples collected at ten lake sites in August 1995 exceeded 15ug/L ranging from 17-33ug/L. One value of 152ug/L was recorded in September 2000 and a value of 61ug/L was recorded in October 2000. Chlorophyll a values exceed the 3 month standard of 15 ug/l. Elevated Chlorophyll a can impair beneficial uses in the summer months (water contact recreation, aesthetics, fishing, water supply, and livestock watering).

2.1.4 pH

Eel Lake water quality data conducted by the Lakeside Water District revealed pH values recorded above the standard of 8.5 in 1990, 1991, and 1994 with durations of one week to three months with a maximum value of 9.4. A review of data collected during the 1995-2004 period reveals that, although elevated pH values were episodically recorded, these elevated values did not occur for durations long enough to meet the listing criteria for this parameter.

It should be noted that in years where pH standard exceedances did occur during the summer months, elevated turbidity levels were documented during the previous winter period. This link between upland sediment (nutrient) delivery and subsequent pH response indicates that algae cycles may be occurring in response to sediment delivery. This algae response is the likely influencing factor on lake pH. Elevated pH levels can impair beneficial uses (resident fish & aquatic life, water contact recreation).

2.3 NUTRIENT LOADING CAPACITY

Excess nutrients in a waterbody can have many detrimental effects on designated or existing uses, including drinking water supply, recreational use, aquatic life use, and fishery use. Although there are often direct impacts that can be associated with excessive nutrient loadings, waters are more often listed as impaired by nutrients because of their role in accelerating eutrophication. Eutrophication, the nutrient enrichment of aquatic systems, is a natural aging process of a waterbody. This aging process transforms a lake into a swamp and ultimately into a field or forest. Eutrophication can accelerate when nutrient inputs increase to excess.

A eutrophic system typically contains an undesirable abundance of plant growth, particularly phytoplankton, periphyton, and macrophytes. Water quality conditions in both North and South Tenmile

[3] TLBP (Tenmile Lakes Basin Partnership). 2002a. Tenmile Lake Nutrient Study Phase II Report, J. Eilers et al.

Lakes are clearly indicative of a eutrophic system.

Water Quality impairments can result when dead plant matter settles to the bottom of a waterbody, stimulating microbial breakdown processes that require oxygen. Eventually, oxygen in the hypolimnion or bottom layer of a lake can be depleted. When the available oxygen is lowered the benthic community structure can change from aerobic to anaerobic organisms. Oxygen depletion can also occur nightly throughout the waterbody because of plant respiration. Extreme oxygen depletion can stress or eliminate desirable aquatic life and nutrients, and toxins also might be released from sediments when dissolved oxygen and pH are lowered[4]. Dense weed beds impair the quality of open water rearing habitat favored by salmonids.

The episodic presence of toxins produced by the algae community is especially problematic in North and South Tenmile Lakes. When algal blooms produce toxins at levels of concern, drinking water treatment must be increased. Algae can clog water treatment filters and disinfection of water supplies can be impaired by algal growth. These conditions can also adversely affect the taste and odor of drinking water. When algal blooms produce toxins at levels of concern, advisories may be issued warning against recreational contact. Algal blooms can also adversely affect aesthetic uses of the lakes causing odor and water color changes.

> The excessive plant growth in a eutrophic waterbody can affect recreational water use by interfering with swimming, boating, and fishing activities. It also impairs aesthetic use of the waterbody.

2.4 NUTRIENT LOADING CAPACITY INDICATORS

Three indicators which can be quantified, measured, and used to derive loading capacity and allocations have been identified. Invasive weed control measures have also been identified as important actions and can also be directly quantified.

Table 2 - Nutrient Loading Indicators

Parameter	Suggested Point of Measurement
Total Phosphorus	Lake water column
Total Suspended Solids (TSS)	Lake tributaries
Sediment accumulation Rates	Lake bottom, delta's at mouths of tributaries

Because water quality factors that affect weed and algal growth are interrelated, the water quality indicators referenced above rely on reducing sediment (phosphorus) as well as nitrogen delivery to both North and South Tenmile Lakes. Achieving these reductions will require a landscape based approach including reductions in upland sediment delivery, stream bank erosion, and lakefront erosion. Restoring the hydrological connection of wetlands to filter and store sediment prior to entering the lake has also proven to be an effective buffering mechanism. Health riparian vegetation is an important component to provide nutrient filtering and uptake, provide channel stability and shade, and reduce heat loads. Watershed homeowners will need to assure that individual on site waste water treatment systems are properly functioning. Development in the watershed needs to occur in such a manner as to minimize sediment delivery both during and after construction. Yard and garden activities should be conducted using low impact techniques tailored to minimize nutrient contributions. Many other activities that may be

[4] Brick, C., and J. Moore. 1996. Diel Variation of Trace Metals in the Upper Clark Fork River, Montana. *Environmental Science and Technology* 30(6):1953-60.

appropriate to implement on a site specific basis are discussed later in this document.

2.5 OTHER LIMITING FACTORS

Many factors combine to determine rates of plant growth in a waterbody. First of these is whether sufficient phosphorus and nitrogen exist to support plant growth. The absence of one of these nutrients generally will restrict plant growth. In inland waters, typically phosphorus is the limiting nutrient, in part because blue-green algae can "fix" elemental nitrogen from the air as a nutrient source. However, even if all necessary nutrients are available many natural factors also influence the levels of macrophytes and phytoplankton in waters. Effective management of eutrophication in a waterbody requires an evaluation of multiple potentially limiting factors. Water quality problems in the lake are the product of changes in nutrient loads from the watershed, physical changes such as decreasing depth, and changes in the fishery composition.

As the lake gets shallower increased light is available for photosynthesis by rooted macrophytes. These aquatic weeds prefer areas of fine sediment in which to root. Temperatures in areas of the lake have likely increase because sunlight is able to penetrate through the shallower water column. Water temperature affects the rates of photosynthesis and algal growth, and composition of algal species. Algal community species composition in a waterbody often changes with temperature. Diatoms are often the dominant species in cooler waters with green and blue-green algae populations dominating at warmer temperatures.

Populations of fish that are algae-consuming grazers can directly effect algal populations. The historic shift in fishery populations in the lakes (cold water to warm water fishery) likely provides a friendlier environment for the blue green algae community. The current fishery is dominated by planktivorous fish which are effective consumers of larger zooplankton species. The reduction of large zooplankton, in turn, reduces grazing pressure on the phytoplankton which allows phytoplankton (algae and cyanobacteria) biomass to increase. Phytoplankton biomass is able to take advantage of the reduced grazing pressure because more nutrients are available from watershed inputs.

CHAPTER 3 - GOALS AND OBJECTIVES OAR 340-42-0040(4)(I)(B)

The overall goal of this Water Quality Management Plan (WQMP) is to achieve compliance with water quality standards for the 303(d) listed parameters in the Tenmile Lakes Watershed. The goals of this WQMP are to describe a strategy for reducing discharges from point and nonpoint sources (NPS) to the level of the load and wasteload allocations in the TMDL.

This WQMP is preliminary in nature and is designed to be adaptive as more information and knowledge is gained regarding the pollutants, allocations, management measures, and other related areas.

The WQMP contains a description of all Designated Management Agencies (DMAs) that will be required to develop and implement Water Quality Implementation Plans (WQIPs). The WQMP references WQIPs that are in place or will be developed to address water quality concerns as well as suggested actions that relate directly to load allocations in the TMDL. By rule, the Forest Practices Act and Senate Bill 1010 Agriculture Water Quality Management Plans are the WQIP for these sectors.

3.1 REQUIRED IMPLEMENTATION PLAN COMPONENTS OAR 340-42-0080(3)(a)(A-E)

(3) Persons, including DMAs other than the Oregon Department of Forestry or the Oregon Department of Agriculture, identified in a WQMP as responsible for developing and revising sector-specific or source-specific implementation plans must:

(a) Prepare an implementation plan and submit the plan to ODEQ for review and approval according to the schedule specified in the WQMP. The implementation plan must:

> (A) Identify the management strategies the DMA or other responsible person will use to achieve load allocations and reduce pollutant loading;
>
> (B) Provide a timeline for implementing management strategies and a schedule for completing measurable milestones;
>
> (C) Provide for performance monitoring with a plan for periodic review and revision of the implementation plan;
>
> (D) To the extent required by ORS 197.180 and OAR chapter 340, division 18, provide evidence of compliance with applicable statewide land use requirements; and
>
> (E) Provide any other analyses or information specified in the WQMP.

(b) Implement and revise the plan as needed.

(4) For sources subject to permit requirements in ORS 468B.050, wasteload allocations and other management strategies will be incorporated into permit requirements

CHAPTER 4 - IDENTIFICATION OF RESPONSIBLE PARTICIPANTS AND IMPLEMENTATION PLAN STATUS OAR 340-42-0040(4)(I)(G,H)

This section Identifies persons, including Designated Management Agencies (DMAs), responsible for implementing the management strategies and developing and revising sector-specific or source-specific implementation plans. Sector-specific or source-specific implementation plans that are available at the time the TMDL is issued are also identified under Implementation Plan Status.

Designated Management Agencies (DMAs) are recognized by the State of Oregon as being those entities with the legal authority to ensure that the targets set forth in the TMDL are met. The purpose of this section is to identify the organizations responsible for the implementation of the plan and to list the major responsibilities of each organization. Following is a listing of the DMAs in Tenmile Lakes Watershed by land use and by their responsibilities under the TMDL. Contact information is also included.

Because this effort is a community-wide commitment, a complete listing would have to include every business, every industry, every farm, and ultimately every citizen living or working within these watersheds. We are all contributors to the existing quality of the waters in the Tenmile Lakes Watershed and we all must be participants in the efforts to improve water quality.

For sources subject to permit requirements in ORS 468B.050, wasteload allocations and other management strategies will be incorporated into permit requirements.

4.1 OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY (ODEQ)

4.1.1 Extent of jurisdiction

- NPDES Permitting and Enforcement
- Biosolids Program (Letter of Authorization connected with NPDES permit)
- WPCF Permitting and Enforcement
- On-site System Permitting and Compliance
- 401 Certification Programs
- Technical Assistance
- Financial Assistance

A Land Use Compatibility Statement ("LUCS") signed by the local land use authority must also be submitted with a permit application, unless otherwise noted. For renewal applications, submittal of a LUCS is only required if major changes have been made at the facility or if there is no LUCS on file with DEQ.

The Land Use Compatibility Statement is the process used by the ODEQ to determine whether permits and other approvals affecting land use are consistent with local government comprehensive plans. Oregon law requires state agency activities that impact land use be consistent with local comprehensive plans. DEQ Oregon Administrative Rules (OAR) Chapter 340, Division 18 identifies agency activities or programs that significantly affect land use and must have a process for determining local plan consistency. A LUCS is required for nearly all DEQ permits and certain approvals of plans or related activities that affect land use.

A LUCS must be approved (signed) by the local City or County Planning Office after they determine if the proposed facility meets all local planning requirements. The LUCS is then returned to the applicant the signed and dated with findings of fact for any local reviews or necessary planning approvals.

In addition, the Department of Consumer and Business Services, Building Codes Division requires government approvals from the local planning jurisdiction, flood plain, and sanitation (ODEQ) approval prior to the issuance of a building permit. This assures that ODEQ has an opportunity to assess a site for the placement of or the evaluation of existing waste water treatment facilities.

Improving the coordination between the State Building Codes Division, the Local Land Use Planning entity and ODEQ is needed to assure that land development is conducted in a manner that protects the environment. ODEQ will seek to work with these entities to improve coordination during land development activities.

Contact Information: Department of Environmental Quality, Coos Bay Regional Office, 541-269-2721

4.1.2 Implementation Plan Status – In place

ODEQ programs are ongoing. These programs will respond to but not limited to the specific issues identified below:

- ODEQ permitting and related enforcement programs will continue to oversee activities conducted by;
    - Lakeside Water District under General Permit 0200 – Filter Backwash, Appendix A.
    - One acre or more ground disturbing activities under General Permit 1200C, Appendix B.
    - Biosolids land application under a Letter of Authorization in conjunction the City of Lakeside waste water treatment plant NPDES permit, Appendix C.

Note that the City of Lakeside waste water treatment plant does not discharge into a 303d listed waterbody and is currently party to a Mutual Agreement and Order with ODEQ to resolve facilities issues.

- The on-site program will continue to work with residents of the watershed to determine the condition of on-site systems and in determining maintenance and upgrades that may be needed. Due to the age of some of these systems and changing water quality protection rules, an area of special focus will be those systems constructed prior to 1974.
- In response to the Tenmile Lakes Watershed TMDL Load Allocations, standard 401 certification language has been developed to encourage landowners to consider alternative practices when managing hydromodified channels. Additional detail can be found in the Reasonable Assurance section of this document.
- ODEQ grants and implementation program staff will seek to assist partners in leveraging funding to implement the Tenmile Lakes Watershed TMDL. ODEQ will continue to work with local partners to initiate a financial assistance program designed to assist landowners who determine that on site system upgrades are required.
- ODEQ will seek to continue to provide technical assistance to entities implementing this WQMP.

4.2 DMA: OREGON DEPARTMENT OF AGRICULTURE (ODA)

Land Use: Agricultural operations as described below

Plan Title: Coos and Coquille Area Agricultural Water Quality Management Plan (AWQMP) and Oregon Administrative Rules

See Appendix D1 for additional information regarding the AWQMP

It is the Oregon Department of Agriculture's (ODA) statutory responsibility to develop agricultural water quality management plans (AWQMP) and enforce rules that address water quality issues on agricultural lands rules as authorized by ORS 568.900 through 568.933 and according to OAR chapter 603, divisions 90 and 95.

The Agricultural Water Quality Management Act (AWQMA) directs ODA to work with local farmers and ranchers to develop water quality management area plans which outline ways to address water quality. These water quality management plans are developed at a local level, reviewed by the State Board of Agriculture, and then adopted into the Oregon Administrative Rules. It is the intent that these plans focus on education, technical assistance, and flexibility in addressing agriculture water quality issues. These plans and rules will be developed or modified to achieve water quality standards and will address the load allocations identified in the TMDL. The rules developed subsequent to the Agricultural Water Quality Management Plan (AWQMP) are enforceable by ODA. ODEQ will work with ODA to ensure that rules and plans meet load allocations.

Agricultural activities as defined in the Coos and Coquille Area AWQMP (1010 plan) include:

- Agricultural or farm-related activities, both commercial and noncommercial including livestock stable and pastures, both inside and outside of municipal boundaries
- Confined animal feeding operations (CAFO) and container nursery operations

Statewide: Noxious Weed Control

Plan Title: Oregon Noxious Weed Strategic Plan

See Appendix D2 for additional information regarding the Oregon Noxious Weed Strategic Plan

Noxious Weed Control
The Oregon Department of Agriculture (ODA) Noxious Weed Control Program provides a statewide leadership role for coordination and management of state listed noxious weed. The state program focuses on noxious weed control efforts by implementing early detection and rapid response projects for new invasive noxious weeds, implementing biological control, implementing statewide inventory and survey, assisting the public and cooperators through technology transfer and noxious weed education, maintains noxious weed data and maps for priority listed noxious weeds, and provides assistance to land managers and cooperators with integrated weed management projects. The Noxious Weed Control Program also supports the Oregon State Weed Board with administration of the OSWB Grant Program, developing statewide management objectives, maintaining the State Noxious Weed List, and developing Weed Risk Assessments.

4.2.1 Extent of jurisdiction

- Coos and Coquille Area AWQMP Development, Revision as needed, Implementation & Enforcement.
- Confined Animal Feeding Operations (CAFO) Permitting and Enforcement
- Technical Assistance
- Financial Assistance
- Rules under Senate Bill (SB) 1010 authority to clearly address TMDL and Load Allocations as necessary
- Noxious Weed Control

Contact Information:

- Oregon Department of Agriculture, Natural Resources Division (503) 968-4700
- Coos Soil and Water Conservation District (541) 396-2841

4.2.2 Implementation Plan Status – Plan and Rules are in place

Complete. The AWQMP and Rules (SB 1010 authority) were developed and adopted in February, 2002. During the next review period (2006) the plan and rules will be evaluated to determine if they clearly address TMDL load allocations.

4.2.3 DEQ Expectations

AWQMP and Administrative Rule Review

During the next scheduled review, ODA and the Local Advisory Committee should review the adequacy of guidance and rules relating to sediment, nutrient, riparian, wetland, and ditch management activities. ODEQ will also seek to discuss the adequacy of efforts relating to implementation monitoring, reporting, and enforcement. ODEQ will seek to work with ODA to review the adequacy of the following Oregon Administrative Rules cited below (OAR 603-95);

Sediment Management (a) Effective three years after rule adoption, soil erosion associated with agricultural cultivation shall not deliver sediment sufficient to violate water quality standards.

Nutrient Management (a) Effective three years after rule adoption, application and storage of manure, commercial fertilizer, and other added nutrient inputs to agricultural lands will be done in a manner that minimizes the introduction of nutrients into waterways.

Riparian Management (a) Effective three years after rule adoption, management activities in the riparian area will be conducted in a manner that allows the establishment, growth, and maintenance of riparian vegetation consistent with vegetative site capability so as to provide some combination of filtering capacity, sediment trapping, stream bank stability, and shade.

4.3 DMA: OREGON DEPARTMENT OF FORESTRY (ODF)

Land Use: Forestry Activities on Private and State Lands

Plan Title: Oregon Forest Practices Act (FPA)

See Appendix E, TMDL Implementation Strategy for Non-federal Forest, for further discussion.

4.3.1 Extent of Jurisdiction

The ODF is the DMA for water quality protection from nonpoint source discharges or pollutants resulting from forest operations on non-federal forestlands in Oregon.

The Forest Practices Act (FPA) applies broadly to non-federal forestlands and also provides for watershed-specific protection rules. Watershed-specific rules are a mechanism for subbasin specific TMDL implementation in non-federal forestlands where water quality impairment is attributable to current forest practices. Legacy issues are addressed through management planning with ODF as a participant.

Commercial timber operations on private lands are regulated under the Oregon Forest Practices Act (FPA). ODF Stewardship Foresters administer the FPA to ensure protection of water quality and habitat during forestry operations. These measures include leaving trees and understory vegetation within certain distances of stream banks depending on the type of stream and occurrence of fish. These trees and understory vegetation are intended to provide a buffer between logged areas and the stream, providing shade, woody debris, filtration of sediments from overland flow, and erosion control.

In addition, voluntary measures have been developed by the landowner community as part of the Oregon Plan for Salmon and Watersheds as part of the Private and Community Forest Program. These non-regulatory measures provide alternate means to meet FPA rule objectives and are designed to accelerate reaching a desired future condition or to test assumptions about what practices might work more efficiently. The private forestry community is currently considering a suite of potential new measures and updating the existing voluntary measures

Forest Practices on state lands are also governed by the FPA. In addition to the FPA, the Elliot State Forest has adopted the Elliot State Forest Management Plan, and has developed a Habitat Conservation Plan (HCP) for management of its forests. Both of these plans have equal or additional management standards than the FPA.

For general information about the Oregon Department of Forestry link to http://www.odf.state.or.us/

Coordination between ODF and DEQ is guided by a Memorandum of Understanding (MOU) signed in April of 1998. This MOU was designed to improve the coordination between the ODF and DEQ in evaluating and proposing possible changes to the forest practice rules as part of existing FPA measures and to better define the relationship between the TMDL load allocations and the FPA measures designed to protect water quality. This MOU is available in Appendix F.

Contact Information: Oregon Department of Forestry - Coos Bay Office - (541) 267-4136.

4.3.2 Implementation Plan Status –Rules are In Place

The FPA rules apply to non-federal forestlands in the Tenmile Lakes Watershed. Watershed specific rules have not been established.

4.3.3 DEQ Expectations

DEQ expects ongoing implementation of the FPA and that ODF will conduct watershed specific monitoring to determine the adequacy of the FPA as funding allows. DEQ encourages ODF to conduct monitoring to better define sediment loading from private and state forests in the Tenmile Lakes Watershed. ODF is expected to continue to conduct BMP effectiveness monitoring as funding allows as

part of their ongoing programs. The Sufficiency Analysis provided recommendations highlighting general areas where current practices could be improved upon to better meet the FPA goals and objectives and, in turn, provide greater likelihood of meeting water quality standards. ODF is expected to continue to work in partnership with landowners to implement OPSW voluntary measures, where these measures will result in the enhancement of fish habitat and/or water quality.

4.4 DMAS: LOCAL JURISDICTIONS

Land Use: All urban, rural residential and other non-resource land uses within the Tenmile Lakes Watershed

Plan Title: Pending Development

4.4.1 Multiple Local Jurisdictions

There are three local jurisdictions that have existing authorities in the Tenmile Lakes Watershed. Each of these local authorities has been discretely identified as a Designated Management Agency (DMA). Each of these entities is required to develop and implement a WQIP. These entities are;

- Coos County
- Douglas County
- City of Lakeside

4.4.4 Extent of Jurisdiction

Oregon cities and counties have authority to regulate land use activities through local comprehensive plans and related development regulations or ordinances. This authority begins with a broad charge given to them by the Oregon Constitution and the Oregon Legislature to protect the public's health, safety, and general welfare.

- Transportation - Construction, operation and maintenance of roads, bridges, and ditch networks
- City of Lakeside storm water management system
- Land use planning/permitting
- Designing and citing of housing/home, commercial, and industrial sites in urban and rural areas
- Maintenance, construction and operation of parks and other county or city-owned facilities and infrastructure
- Riparian protection measures
- Sediment abatement measures (site development, grading, driveway construction, drainage management)
- Wetland protection and enhancement measures
- Hydromodified channel management measures (drainage)

Contact Information:

- Coos County Planning Department (541) 396-3121
- Douglas County Planning Department (541) 440-4289
- City of Lakeside (541) 759-3011

4.4.5 Implementation Plan Status – Pending Development

Plans need to be developed by these local jurisdictions although many components of the required plan may be largely in place as part of the comprehensive planning process (Statewide Land Use Planning Goals 5, 6, and 7).

Every city and county is required to have a comprehensive plan and accompanying development ordinances to be in compliance with state land use planning goals. While the comprehensive plan must

serve to implement the statewide planning goals mandated by state law, cities and counties have a wide degree of local control over how resource protection is addressed in their community.

The Oregon land use planning system provides a unique opportunity for local jurisdictions to address water quality protection and enhancement. Many of the goals have a direct connection to water quality, particularly Goals 5 (Natural Resources, scenic, and historic areas and open spaces, OAR 660-015-0000(5)), Goal 6 (Air, water, and land resources quality, 660-015-0000(6)), and Goal 7 (Areas subject to natural hazards). Please see Appendix G for additional information regarding Oregon Statewide Planning Goals 5, 6, and 7.

Local jurisdictions are currently at a variety of stages in the periodic review process of Comprehensive Plan implementation. Especially important aspects of the Comprehensive Planning process directly related to this TMDL are measures relating to the control of sedimentation, drainage management, and riparian and wetland area health. We expect that the efforts of local jurisdictions to address Goal 5, 6, and 7requirement, when incorporated into a WQIP, may be sufficient to meet the allocations in this TMDL.

4.4.3 DEQ Expectations

Upon approval of the Tenmile Lakes Watershed TMDL, local jurisdictions will be asked to develop Implementation Plans as required by 340-42-0080 (3). During the development of WQ Implementation Plans, local jurisdictions are encouraged to place programs relating to sediment and erosion prevention, riparian and wetland protection, and other protection and/or enhancement programs in the following context:

- Related Ordinances
- Variance process
- Education and outreach activities/programs
- Enforcement programs

4.5 DMA: OREGON DEPARTMENT OF TRANSPORTATION (ODOT)

Land Use: State Highways

Plan Title: ODOT Clean Water Program

4.5.1 Extent of Jurisdiction

- Routine Road Maintenance, Water Quality and Habitat Guide Best Management Practices
- Pollution Control Plan and Erosion Control Plan
- Road Design and Construction

Contact Information: ODOT, Coquille Office (541) 396-3707

4.5.2 Implementation Plan Status – In Place

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. See Appendix H for a more in-depth description of the ODOT Clean Water Program. 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 a suite of documents, best management practices, or reviews, that reduce sediment and temperature impacts.

ODOT programs are adaptive and are expected to change as new information becomes available. ODOT will continue to work with the ODEQ, National Marine Fisheries Services (NMFS), United States Fish and Wildlife Services (USFWS), and Oregon Department of Fish and Wildlife (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.

4.6 DMA: OREGON DEPARTMENT OF FISH AND WILDLIFE (ODFW)

Land Use: Fishery Management

Plan Title: Tenmile Basin Fish Management Plan

4.6.1 Extent of Jurisdiction

- Fish harvest
- Fish stocking
- Licensing

Contact Information: ODFW, Charleston Office 541-888-5515

4.6.2 Implementation Plan Status – In Place

ODFW developed the Tenmile Basin Fish Management Plan in 1991. This plan serves to guide the management of a variety of fisheries and their habitats. The information and strategies in this 1991 management plan address both introduced and native fishery management issues and objectives.

Several, more recent documents are also guiding ODFW fish management strategies related salmonid species. These plans include the 2002 Native Fish Conservation Policy (NFCP), the Oregon Plan for Salmon and Watershed (late 1990's), the Oregon Plan "Coastal Coho Assessment" (2005), and the draft Oregon Native Fish Status Report. The State of Oregon's Coastal Coho Conservation Plan is currently being developed. These guiding documents, as well as the results of intensive Oregon Plan monitoring of native fish and their habitats, are relevant to the management of the Tenmile Lakes Watershed native fish stocks. .

Please see Appendix I for additional information regarding the 1991 Tenmile Basin Fish Management Plan.

4.6.3 DEQ Expectations

Because populations of algae-consuming grazers can directly effect algal populations, the shift in fishery populations in the lakes (cold water to warm water fishery) likely provides a friendlier environment for blue green algae communities. In addition, increased biomass, as a result of stocking and related management activities, may play an important role in nutrient loading to the lakes. ODFW will be asked to address these issues in the context of the Fish Management Plan for the Tenmile Lakes Watershed. One venue for accomplishing this task might be to update the 1991 Tenmile Basin Fish Management Plan.

4.7 DMA: OREGON DIVISION OF STATE LANDS (DSL)

Land Use: Land management as described below

Plan Title: Tenmile Lakes Watershed Area Management Plan

In addition to the agencies ongoing programs DSL has suggested that, as staffing and funding allows, the

development of an “Area Management Plan” would be beneficial.

4.7.1 Extent of Jurisdiction

The Division of State Lands is the administrative agency of the State Land Board, handling the day-to-day work of the board in managing the land and other resources dedicated to the Common School Fund.

As a resource manager, DSL manages about;

- 784,000 acres of uplands, including 132,000 acres of forest land, mostly in western Oregon. The Elliott State Forest is part of this land base.
- 650,000 acres of range and agricultural land primarily in eastern Oregon; and more than 2,000 acres of other lands statewide. Some grazing leases are managed by the DSL in the Tenmile Lakes Watershed.
- The state's submerged and submersible land under navigable rivers, lakes, estuaries, and the Territorial Sea to maintain fisheries, commerce, recreation and navigation. The lake bottom as well as bed and banks to mean high water level (12.21’ above mean sea level) are areas directly managed by DSL.
- State-owned mineral rights and for authorizing the exploration for and production of oil, gas, hard minerals and geothermal energy from the land covered by these rights.
- Leases for sand and gravel removal, log storage, marinas and commercial or marine industrial facilities on this land.

4.7.2 Implementation Plan Status –Rules Are In Place

As a regulatory agency DSL is responsible for administration of Oregon's Removal-Fill Law. That law was enacted in 1967 to protect, conserve and allow the best use of the state's water resources. It generally requires a permit from DSL to remove, fill or alter more than 50 cubic yards of material within the bed or banks of waters of the state. Exceptions are in State Scenic Waterways and areas designated essential salmon habitat, where a permit is required for all in-stream activity, regardless of size.

DSL also is responsible for Oregon's wetlands program. This includes maintenance of a statewide wetland inventory, providing public information and technical assistance about wetlands to local governments and landowners, and providing wetland conservation grants to local governments conducting detailed wetland inventories. DSL is currently engaged with the City of Lakeside who is conducting a wetland inventory for areas under their jurisdiction.

Contact Information: Division of State Lands, John Lilly, Assistant Director, Policy and Planning 503-378-3805, Ext. 281

4.7.3 DEQ Expectations

Because the management of vegetation present on the bed and banks of streams and lakes in the watershed have been identified as high priority in the Tenmile Lakes Watershed TMDL, related activities within the jurisdiction of DSL play an important role in the implementation of the TMDL. In addition, the management of wetlands and channelized streams, also governed by DSL, has been identified as an important component in the implementation of this TMDL.

DSL has been active in the facilitation of the Tenmile Lakes Watershed Scoping Group, an entity

developed to serve as a forum for the discussion management issues, potential solutions, and funding mechanisms. This forum could become the springboard to the development of an Area Management Plan designed to incorporate and coordinate the management activities of multiple entities.

DSL will be asked to review the adequacy of their programs in regard to the following issues specifically related to water quality impairments and load allocations identified in the Tenmile Lakes Watershed TMDL;

- Weed management planning
- Vegetation protection below ordinary high water level
- Wetland protection and enhancement
- Water protection during 404 permitted fill and removal activities
- Elliott State Forest Management Planning
- Grazing Leases

4.8 DMA: OREGON STATE MARINE BOARD

Land Use: Management activities as described below

Plan Title: Marine Related Laws

Status: Ongoing

The Oregon State Marine Board is Oregon's recreational boating agency, dedicated to safety, education and access in an enhanced environment.

4.8.1 Extent of Jurisdiction

The Marine Board administers boating safety educational programs, marine law enforcement and improved boating facilities. The board establishes statewide boating regulations and contracts with county sheriffs and the Oregon State Police to enforce marine laws. The board provides technical training to marine patrol officers and supplies their equipment. The board also provides grants and engineering services to local governments (cities, counties, park districts, port districts) to develop and maintain accessible boating facilities and protect water quality. The board actively promotes safe and sustainable boating through several programs.

4.8.2 Implementation Plan Status –Rules Are In Place

The OSMB has partnered in projects to protect and improve the water quality in both North and South Tenmile Lakes. The recent placement of floating toilets represented progress accomplished by a union of multiple partners, and these facilities have provided clear water quality benefits in both North and South Tenmile Lakes. The continued involvement of OSMB in the implementation of the measures discussed below is an important component in the implementation of this WQMP. Wake and derelict structure issues have been emphasized by local entities as issues of continued concern.

4.8.2 DEQ Expectations

The Oregon State Marine Board will continue these ongoing programs;

- Sustainable boating campaigns encouraging boaters to adopt clean boating practices, prevent the spread of aquatic nuisance species, and upgrade to clean-burning marine engines.
- Wake management through signage, education and, if necessary, establishment of no wake zones.
- Funding as necessary to local jurisdictions to assure containment of human waste through adequate shoreside bathroom and floating toilet facilities.
- Grant funds to local authorities to assist in removal of derelict structures that qualify under the Abandoned Vessel Program rules.
- Coordination of local marine law enforcement needs with Coos County Sheriff's Department.

Contact Information: Oregon State Marine Board, Douglas Baer, Environmental Coordinator, 503-378-2603

4.9 COASTAL NONPOINT POLLUTION CONTROL PROGRAM (CNPCP)

Section 6217 of the Coastal Zone Act Reauthorization Amendments of 1990 (CZARA), requires Oregon as well as other coastal states including Great Lakes states with approved coastal zone management programs to address nonpoint pollution impacting or threatening coastal waters. These management measures are requirements for the state programs and are described in a document entitled, Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters[5].

The guidance document is available for viewing at: http://www.epa.gov/owow/nps/MMGI/

The State of Oregon submitted its Coastal Nonpoint Pollution Control Programs (CNPCP) for approval to National Oceanic and Atmospheric Administration (NOAA) and the U.S. Environmental Protection Agency (USEPA) in 1995. In1998 NOAA and USEPA determined that the state of Oregon had met many but not all requirements. Since then, the state of Oregon has addressed many of the issues. See the following list for the measures pending approval.

Table 3 – CNPCP Management Measure (MM) Needing Further Development
Additional MM for Forestry – Landslide Prone areas, Riparian protection, and Cumulative Effects
Urban MM – Operating Onsite Inspection and Maintenance
Urban MM – New Development, Site Development, Construction Site Erosion and Sediment, and Chemical Control
Urban MM –Roads, Highways and Bridges
Marinas MM - Marina Flushing, Water Quality, and Habitat Assessment
Hydromodification MM – Channelization --Physical & Chemical Characteristics of Surface Waters and Instream & Riparian Habitat Restoration
Dams MM - Protection of Surface Water Quality and Instream and Riparian Habitat and Chemical and Pollution Control
Riparian Areas MM – Protection and Restoration
Monitoring MM

[5] USEPA. 1993. Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters.

4.10 VOLUNTARY PARTICIPANTS WORKING TO IMPROVE WATER QUALITY IN THE TENMILE LAKES WATERSHED

4.10.1 Implementation Plan Status – Voluntary WQIP is In Place

The Tenmile Lakes Basin Partnership has developed a watershed wide voluntary Water Quality Implementation Plan. This plan is designed to guide implementation actions and to help track and report the results of these efforts conducted directly through watershed council and other local partners to improve water quality. The plan will seek to support the efforts of other local partners including many DMAs.

The voluntary WQIP incorporates the need for further development and implementation of the Weed Management Plan as well as the Tenmile Lakes Assessment and Action Plan. Please see Appendix J for additional information regarding the Weed Management Plan.

Other voluntary entities working to improve water quality are too numerous to list in their entirety. Involvement includes the Tenmile Lakefront Homeowners Association, Fisher Groups, Private Landowners, and others.

Contact Information: Tenmile Lakes Basin Partnership (541) 759-2414

CHAPTER 5 - PROPOSED MANAGEMENT STRATEGIES OAR 340-42-0040(4)(I)(C)

This section outlines possible management measures that could be implemented to meet the Waste Load Allocations and Load Allocations of this TMDL. DMAs are asked to specifically focus control efforts on the TMDL surrogates; riparian and wetland health, sediment controls, and hydromodified drainage management options which tie closely to the water quality impairments. Some discussion is also provided regarding potential actions to control invasive weeds.

ODEQ acknowledges that many DMAs have already begun planning or actually implementing management strategies for improving and protecting water quality. For those DMAs just beginning the water quality improvement process, the following management measure information is provided as an initial listing of management strategies that could be considered by DMAs as they develop Implementation Plans. Each DMA is responsible for source assessment and identification, which may result in additional categories. DMAs may need to develop other source categories and management strategies to meet their specific situations. ODEQ does expect that Implementation Plans will address how human activities will be managed to improve water quality with appropriate management strategies. Further, ODEQ expects DMAs to recognize it is crucial that management measures be directly linked with their effectiveness at reducing pollutant loading. In addition, ODEQ is developing TMDL implementation guidance to assist DMAs.

5.1. MANAGEMENT STRATEGIES FOCUS – REDUCING PHOSPHORUS LOADING

5.1.1 Riparian and Wetland Protection and Enhancement

The nonpoint source pollution (NPS) abatement functions performed by wetlands and riparian areas are most effective as parts of an integrated land management system that combines nutrient, sediment, and soil erosion control. Wetlands and riparian areas have the ability to remove NPS pollutants from waters passing through them. Acting as a sink for phosphorus is one example of the important NPS pollution abatement functions performed by wetlands and riparian areas.

Watershed-specific factors include land use practices and the percentage of watershed dominated by wetlands or riparian areas. In the Tenmile Lakes Watershed, many wetland communities immediately upstream of the lake as well as lakefront littoral wetlands have been simplified through stream channelization, filling, or other activities. Historically wetlands in the watershed were extensive, and included the landscape currently managed for agricultural purposes as well as portions of today's urbanized area.

The enhancement of wetlands and riparian areas seeks to recover a range of functions like hydrology, vegetation, and structure characteristics.

5.1.2 Sediment Abatement Measures

Implementing upland sediment controls and abatement activities will help to reduce the amount of phosphorus in the form of sediment delivered to the lakes. Reductions in sediment delivery will be needed from all watershed sources and watershed wide sediment abatement activities are crucial.

The natural aging process of a water body transforms a lake into a swamp and ultimately into a field or forest. This aging process can accelerate with excessive nutrient inputs. Increases in the rate of sediment deposition have been observed by homeowners located near the mouths of tributaries where accelerated delta building is occurring as well as through the evaluation of sediment cores taken from the lake bottom which reflected elevated sediment accrual rates.

5.1.3 Hydromodified Channel Management Measures

One form of hydromodification is *channelization* or *channel modification*. Many Tenmile Lakes Watershed agricultural lowlands have modified channels present for the purpose of flood control and drainage improvement. Other modified channels exist in the watershed including managed drainage ways within the City of Lakeside. Activities such as stabilization projects, as well as the clearing, cleaning, straightening, widening, deepening, or relocating of existing stream channels, fall into this category. These forms of hydromodification have resulted in more uniform channel cross sections, steeper stream gradients, and reduced average pool depths. Levees are placed along stream banks in some areas to prevent flooding in adjacent areas during high-water events.

Stream channelization has reduced overbank flooding and the subsequent deposition of sediment onto wetlands and riparian areas. Modified channels have resulted in increased transport of suspended sediment to the lakes during high-flow events. Incised streams or levees located close to stream banks hinder the lateral movement of sediment-laden waters into adjacent wetlands and riparian areas that would otherwise serve as depositories for sediment, nutrients, and other NPS pollutants. These channel conditions interrupt natural drainage from upland slopes and can cause concentrated, erosive flows of surface waters by increasing instream volume and velocities. This increase in confined flows contributes to channel instability and subsequent streambank erosion.

Proper evaluation of channelization and channel modification projects should consider the following major points;

Existing conditions: New and existing channelization and channel modification projects should be evaluated for potential effects (both problematic and beneficial) based on existing stream and watershed conditions. Site-specific stream conditions, such as flow rate, channel dimensions, typical surface water quality, or slope, should be evaluated in conjunction with streamside conditions, such as soil and vegetation type, slopes, or land use. Characteristics of the watershed also need to be evaluated. This phase of the evaluation will identify baseline conditions for potential projects and can be compared to historical conditions for projects already in place.

Potential conditions: Anticipated changes to the base (or existing) conditions in a stream, along the streambank, and within the watershed should be evaluated. By examining potential changes caused by new conditions (e.g. changes in flow volume and/or velocities), long-term impacts can be factored into the design or management of a channelization or channel modification project. In response to the Tenmile Lakes Watershed TMDL Load Allocations, standard 401 certification language has been developed to encourage landowners to consider alternative practices when managing hydromodified channels.

Watershed management: Evaluation of changes in watershed conditions is paramount to the proper design of a channelization or channel modification project. Since the design of these projects is based on hydrology, changes in watershed hydrology will certainly impact the proper functioning of a channelization or channel modification structure. Additionally, many surface water quality changes associated with a channelization or channel modification project can be attributed to various watershed changes, such as different land use, agricultural practices, or forestry practices.

5.2 COOS AND COQUILLE AREA AWQMP MANAGEMENT MEASURES

The following management measure language is taken directly from the Coos and Coquille Area AWQMP.

5.2.1 Sediment Management

Positive Management Practices

- Divert runoff from farm structures away from heavily used areas.
- When constructing new cranberry beds or fields for planting, take measures to control sediment leaving the farm.
- Maintain private farm roads to prevent erosion and degradation of embankments.
- When pasturing livestock, minimize sediment delivery near waterways and riparian areas.
- Manage waterways for livestock watering and stream crossings such that livestock use is limited to only the amount of time necessary for watering and/or crossing the waterway.
- Design riparian area management to prevent and reduce erosion in surface runoff.
- Use, as appropriate, fencing (either permanent or temporary) or other activities to reduce damage to riparian areas.

Conditions That May Lead to a Possible Water Quality Problem

- Gullies or large amounts of soil loss present on or arising from privately owned farm roads that enter waterways.
- Activities on or near stream banks that causes large amounts of earth to erode and deliver sediment to waterways.

Unacceptable Condition

- Harmful soil loss into waterways from agricultural activities.

5.2.2 Nutrient Management

Positive Management Practices

- Protect manure storage from flood water inundation.
- Divert water away from manure storage.
- Use of buffer and filter strips that are adequate to the site.
- Composting of manure is encouraged.
- Controlling access to waterways and crossings by livestock to minimize waste deposition in or near a waterway is encouraged.
- Spread manure at appropriate times, in appropriate places, at agronomic rates as suggested by Oregon State University (OSU) Extension Service or other sources.
- Livestock operations not requiring a permit can follow CAFO guidelines where practical, which work toward minimizing nonpoint source pollution.
- Determine and utilize proper stocking rates for all livestock.
- Manage for healthy pasture growth, proper rotation, and good pasture conditions.
- Pastures can serve as a buffer zone if properly managed.
- Confine fertilizer application to the area fertilized. Apply fertilizer at proper rates, and at proper times, with favorable weather conditions when possible.
- Any agricultural operation can develop and utilize a nutrient management plan.

Conditions That May Lead to a Possible Water Quality Problem

- Uncovered manure piles, fertilizer piles, or agricultural wastes which produce runoff that enter waterways.
- If compost is sold, the buyer is the sole responsible party unless the seller has an arrangement or agreement with the buyer to store the finished compost, in which case both the seller and buyer would be jointly liable for any pollution related problems.
- Broadcasting fertilizer, either chemical or manure, in a waterway.
- Applying fertilizer above agronomic rates.
- Location of new feed barns and feeding areas in streamside areas without proper planning for control of wastes.

Unacceptable Condition

- Excessive amounts of manure or fertilizer that enter waterways.

5.2.3 Riparian Management

Positive Management Practices

- Provide off-channel watering devices as an alternative to in-stream watering.
- Establish and maintain livestock crossings and watering paths.
- Encourage riparian vegetation where there is the capability to produce shade.
- Encourage stream shading on perennial streams in riparian areas. (These goals may change once the TMDLs for the area are completed and shade curves are provided for certain areas by ODEQ.)
- Manage intermittent stream riparian areas to protect water quality.
- Control noxious weeds in riparian areas where appropriate.
- Management of the riparian area should allow for establishment, growth and maintenance of riparian vegetation (trees, shrubs, sedges, and grasses) consistent with the site capability.

Conditions That May Lead to a Water Quality Problem

- A riparian area which has no riparian or streamside vegetation as a filter for sediment, nutrients, a shade provider, or bank stabilization.
- More than 50% of the current year's shrub and tree growth is removed from established areas and regeneration is not evident, indicated by lack of young plant species consistent with the site capability.

Unacceptable Condition

- Riparian vegetation conditions that will not function, i.e., provide a filter for nutrients, sediment, protect stream banks, and/or provide shade, as consistent with the site capability.

5.2.4 Pasture Management

Positive Management Practices

- Manage grazing intensity and livestock distribution at a level that will maintain desired species composition and plant vigor.
- Clip pastures to encourage pasture health and eliminate undesirable plant species.
- Consider grazing systems that integrate multiple livestock types (e.g. sheep and cows) to increase grazing uniformity.
- Off stream water storage is encouraged. Such storage could be used for the benefit of livestock and wildlife and to extend the flow in streams during the dry months. Off stream storage can also reduce runoff during high precipitation periods.
- Harrow pastures to evenly distribute manure.
- Plan pasture seeding so that plants can establish before heavy winter rains begin.
- Design and use sacrifice areas away from streamside areas to lessen impacts on pastures during winter wet seasons.

Conditions That May Lead to a Water Quality Problem

- Agricultural activities causing visible rill or active channel erosion (gully erosion) resulting in sediment delivery to waterways.
- Unacceptable levels of bacteria, sediment or nutrient delivery to waterways attributed to improper grazing and pasture management.
- Improper pasture management that causes over-grazing damage to riparian areas, swamps, marshes and bogs.

Unacceptable Conditions

- Excessive amounts of bacteria, nutrients or sediments entering waterways from improper management.

  A specific rule for pasture management is not needed at this time as water quality issues associated with pasture management may be adequately addressed in the rules established for sediment, nutrients and waste management.

5.2.5 Ditch and Tidegate Management

Positive Management Practices

- Obtain necessary permits from appropriate agencies.
- Maintain systems in good operating condition.
- Consider leaving vegetation on one side of the ditch, preferably the south side and leaving the opposite side open for maintenance.
- Consider adaptive management options, such as leaving the tidegate open during high winter flow outside of grazing season.

Conditions That May Lead to a Water Quality Problem

- Improperly functioning tidegates and culverts.
- Construction and maintenance of surface drainage ditches that cause excessive placement of soil, delivery of sediment, or sloughing of soil into waterways.

Unacceptable Condition

- Excessive sediment loss into waterways from improper ditching and/or maintenance of ditches.

5.3 OREGON FOREST PRACTICES ACT (FPA)

FPA rules identified by ODEQ and ODF to monitor in the Tenmile Lakes Watershed for BMP effectiveness are as follows:

- OAR 629-623, Shallow, Rapidly Moving Landslides and Public Safety
- OAR 629-625, Road Construction and Maintenance Rules
- OAR 629-645, Riparian Management Areas and Protection Measures for Significant Wetlands
- OAR 629-650, Riparian Management Areas and Protection Measures for Lakes
- OAR 629-640, Vegetation Retention Goals for Streams; Desired Future Conditions
- OAR 629-610, Forest Practices Reforestation Rules

5.4 COASTAL NONPOINT POLLUTION CONTROL PROGRAM STRATEGIES

This section has been taken directly from the Coastal Nonpoint Source Pollution Control Program (Section 6217 of the Coastal Zone Act Reauthorization Amendments of 1990) and Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters and identifies potential source categories. The complete document can be viewed at http://www.ocrm.nos.noaa.gov/czm/6217. Readers are encouraged to visit this site to view positive management measures for the multiple land uses found within the coastal zone. In addition, the live links below can lead you directly to more detailed information regarding specific management measures.

5.4.1 Non-Resource Land Management Measures

Urban and Residential Management Measures Fact Sheet

New Development Management Measures

1. By design or performance:
    - After construction has been completed and the site is permanently stabilized, reduce the average annual total suspended solid (TSS) loadings by 80 percent. For the purposes of this measure, an 80 percent TSS reduction is to be determined on an average annual basis, or
    - Reduce the post development loadings of TSS so that the average annual TSS loadings are no greater than predevelopment loadings, and
2. To the extent practicable, maintain post development peak runoff rate and average volume at levels that are similar to predevelopment levels.

Watershed Protection Management Measures

1. Avoid conversion, to the extent practicable, of areas that are particularly susceptible to erosion and sediment loss;
2. Preserve areas that provide important water quality benefits and/or are necessary to maintain riparian and aquatic biota; and
3. Site development, including roads, highways, and bridges, to protect to the extent practicable the natural integrity of waterbodies and natural drainage systems.

Site Development Management Measures

1. Protect areas that provide important water quality benefits and/or are particularly susceptible to erosion and sediment loss;
2. Limit increases of impervious areas, except where necessary;
3. Limit land disturbance activities such as clearing and grading, and cut and fill to reduce erosion and sediment loss; and
4. Limit disturbance of natural drainage features and vegetation.

Low Impact Land Development - http://www.epa.gov/owow/nps/lid/[6]

Low Impact Development is a rather new comprehensive land planning and engineering design approach with a goal of maintaining and enhancing the pre-development hydrologic regime of urban and developing watersheds. This design approach incorporates strategic planning with micro-management techniques to achieve superior environmental protection, while allowing for development or infrastructure rehabilitation to occur. This innovative approach can be used to help meet a wide range of Wet Weather Flow (WWF) control and community development goals. Please visit the web site provided to find out more about low impact development techniques. These techniques can reduce the cost of storm water treatment and management facilities construction and operation.

Construction Site Sediment and Erosion Control Management Measure

1. Reduce erosion and, to the extent practicable, retain sediment onsite during and after construction, and
2. Prior to land disturbance, prepare and implement an approved erosion and sediment control plan or similar administrative document that contains erosion and sediment control provisions.

Construction Site Chemical Control Management Measures

1. Limit application, generation, and migration of toxic substances;
2. Ensure the proper storage and disposal of toxic materials; and
3. Apply nutrients at rates necessary to establish and maintain vegetation without causing significant nutrient runoff to surface waters.

Existing Development Management Measure

1. Identify priority local and/or regional watershed pollutant reduction opportunities, e.g., improvements to existing urban runoff control structures;
2. Contain a schedule for implementing appropriate controls;
3. Limit destruction of natural conveyance systems; and
4. Where appropriate, preserve, enhance, or establish buffers along surface waterbodies and their tributaries.

[6] Low Impact Land Development information was not taken directly from the CNPPCP management measures. The information has been taken from the USEPA's Low Impact Development web site.

New On-Site Disposal System Management Measure

1. Ensure that new Onsite Disposal Systems (OSDS) are located, designed, installed, operated, inspected, and maintained to prevent the discharge of pollutants to the surface of the ground and to the extent practicable reduce the discharge of pollutants into ground waters that are closely hydrologically connected to surface waters. Where necessary to meet these objectives: (a) discourage the installation of garbage disposals to reduce hydraulic and nutrient loadings; and (b) where low-volume plumbing fixtures have not been installed in new developments or redevelopments, reduce total hydraulic loadings to the OSDS by 25 percent. Implement OSDS inspection schedules for preconstruction, construction, and post construction.

2. Direct placement of OSDS away from unsuitable areas. Where OSDS placement in unsuitable areas is not practicable, ensure that the OSDS is designed or sited at a density so as not to adversely affect surface waters or ground water that is closely hydrologically connected to surface water. Unsuitable areas include, but are not limited to, areas with poorly or excessively drained soils; areas with shallow water tables or areas with high seasonal water tables; areas overlaying fractured bedrock that drain directly to ground water; areas within floodplains; or areas where nutrient and/or pathogen concentrations in the effluent cannot be sufficiently treated or reduced before the effluent reaches sensitive waterbodies;

3. Establish protective setbacks from surface waters, wetlands, and floodplains for conventional as well as alternative OSDS. The lateral setbacks should be based on soil type, slope, hydrologic factors, and type of OSDS. Where uniform protective setbacks cannot be achieved, site development with OSDS so as not to adversely affect waterbodies and/or contribute to a public health nuisance;

4. Establish protective separation distances between OSDS system components and groundwater which is closely hydrologically connected to surface waters. The separation distances should be based on soil type, distance to ground water, hydrologic factors, and type of OSDS;

5. Where conditions indicate that nitrogen-limited surface waters may be adversely affected by excess nitrogen loadings from ground water, require the installation of OSDS that reduce total nitrogen loadings by 50 percent to ground water that is closely hydrologically connected to surface water.

Operating On- Site Disposal Systems Management Measure

1. Establish and implement policies and systems to ensure that existing OSDS are operated and maintained to prevent the discharge of pollutants to the surface of the ground and to the extent practicable reduce the discharge of pollutants into ground waters that are closely hydrologically connected to surface waters. Where necessary to meet these objectives, encourage the reduced use of garbage disposals, encourage the use of low-volume plumbing fixtures, and reduce total phosphorus loadings to the OSDS by 15 percent (if the use of low-level phosphate detergents has not been required or widely adopted by OSDS users). Establish and implement policies that require an OSDS to be repaired, replaced, or modified where the OSDS fails, or threatens or impairs surface waters;

2. Inspect OSDS at a frequency adequate to ascertain whether OSDS are failing;

3. Consider replacing or upgrading OSDS to treat influent so that total nitrogen loadings in the effluent are reduced by 50 percent. This provision applies only:

    - where conditions indicate that nitrogen-limited surface waters may be adversely affected by significant ground water nitrogen loadings from OSDS, and

    - where nitrogen loadings from OSDS are delivered to ground water that is closely hydrologically connected to surface water.

Pollution Prevention Management Measures General Sources (households, commercial, landscaping)

- The improper storage, use, and disposal of household hazardous chemicals, including automobile fluids, pesticides, paints, solvents, etc.;
- Lawn and garden activities, including the application and disposal of lawn and garden care products, and the improper disposal of leaves and yard trimmings;
- Turf management on golf courses, parks, and recreational areas;
- Improper operation and maintenance of onsite disposal systems;
- Discharge of pollutants into storm drains including floatables, waste oil, and litter;
- Commercial activities including parking lots, gas stations, and other entities not under NPDES purview; and
- Improper disposal of pet excrement**.**

Healthy Lawns, Healthy Families - http://www.healthylawns.org/[7]

Maintaining a healthy lawn is the best way to combat weeds, diseases and pests. If you find you have to continue to add chemicals on your lawn to keep it looking good, it could indicate an underlying problem. A natural-care lawn can be healthier, and the bonus is that it is also healthier for your children, pets and the environment. Please visit the web site for more information.

Management Measure for Planning, Siting, and Developing Roads and Highways

Plan, site, and develop roads and highways to:

1. Protect areas that provide important water quality benefits or are particularly susceptible to erosion or sediment loss;
2. Limit land disturbance such as clearing and grading and cut and fill to reduce erosion and sediment loss; the side casting of soils during grading and construction can increase the landslide potential. Side casting of soils should be avoided in steep slope areas;
3. Limit disturbance of natural drainage features and vegetation.

All rural roads should be upgraded or maintained to meet minimum ADT (Average Daily Traffic) standards under the existing Coos County Transportation Plan. It is the owners' responsibility to maintain deeded rights of way across their property under ORS 105.

Management Measures for Bridges

Site, design, and maintain bridge structures so that sensitive and valuable aquatic ecosystems and areas providing important water quality benefits are protected from adverse effects.

Management Measures for Construction Projects

1. Reduce erosion and, to the extent practicable, retain sediment onsite during and after construction and
2. Prior to land disturbance, prepare and implement an approved erosion control plan or similar administrative document that contains erosion and sediment control provisions.

[7] Healthy Lawns, Healthy Families information was not taken directly from the CNPPCP management measures. The information has been taken from the ODEQ's web site of the same name.

Management Measures for Construction Site Chemical Control

- Limit the application, generation, and migration of toxic substances;
- Ensure the proper storage and disposal of toxic materials; and
- Apply nutrients at rates necessary to establish and maintain vegetation without causing significant nutrient runoff to surface water.

Management Measures for Operation and Maintenance

Incorporate pollution prevention procedures into the operation and maintenance of roads, highways, and bridges to reduce pollutant loadings to surface waters.

Management Measures for Road, Highway, and Bridge Runoff Systems

1. Identify priority and watershed pollutant reduction opportunities (e.g., improvements to existing urban runoff control structures; and
2. Establish schedules for implementing appropriate controls.

5.4.2 Management Measures for Marinas and Recreational Boating

Marina Management Measure Fact Sheet

Marina Flushing Management Measure

Site and design new marinas such that the bottom of the marina and the entrance channel are not deeper than adjacent navigable water unless it can be demonstrated that the bottom will support a natural population of benthic organisms.

Design new marinas with as few segments as possible to promote circulation within the watershed.

Consider other design alternatives in poorly flushed waterbodies (open marina watershed over semi-enclosed design; wave attenuators over a fixed structure) to enhance flushing.

Design and locate entrance channels to promote flushing.

Establish two openings, where appropriate, at opposite ends of the marina to promote flow-through currents.

Designate areas that are and are not suitable for marina development; i.e., provide advance identification of waterbodies that do and do not experience flushing adequate for marina development.

Water Quality Assessment Management Measure

Assess water quality as part of marina siting and design.

Habitat Assessment Management Measure

Site and design marinas to protect against adverse effects on shellfish resources, wetlands, submerged aquatic vegetation, or other important riparian and aquatic habitat areas as designated by local, State, or Federal governments.

Shoreline Stabilization Management Measure

Where shoreline erosion is a nonpoint source pollution problem, shorelines should be stabilized. Vegetative methods are strongly preferred unless structural methods are more cost effective, considering the severity of wave and wind erosion, offshore bathymetry, and the potential adverse impact on other shorelines and offshore areas.

Stormwater Runoff Management Measure

Implement effective runoff control strategies which include the use of pollution prevention activities and the proper design of hull maintenance areas. Reduce the average annual loadings of total suspended solids (TSS) in runoff from hull maintenance areas by 80 percent. For the purposes of this measure, an 80 percent reduction of TSS is to be determined on an average annual basis.

Fueling Station Management Measure

Design fueling stations to allow for ease in cleanup of spills.

Sewage Facility Management Measure

Install pumpout, dump station, and restroom facilities where needed at new and expanding marinas to reduce the release of sewage to surface waters. Design these facilities to allow ease of access and post signage to promote use by the boating public.

Solid Waste Management Measure

Properly dispose of solid wastes produced by the operation, cleaning, maintenance, and repair of boats to limit entry of solid wastes to surface waters.[8]

Fish Waste Management Measure

Promote sound fish waste management through a combination of fish-cleaning restrictions, public education, and proper disposal of fish waste.

Liquid Waste Management Measure

Provide and maintain appropriate storage, transfer, containment, and disposal facilities for liquid material, such as oil, harmful solvents, antifreeze, and paints, and encourage recycling of these materials.

Petroleum control Management Measure

Reduce the amount of fuel and oil from boat bilges and fuel tank air vents entering marina and surface waters.

Boat Cleaning Management Measure

For boats that are in the water, perform cleaning operations to minimize, to the extent practicable, the release to surface waters of (a) harmful cleaners and solvents and (b) paint from in-water hull cleaning.

[8] Lake structures deemed to be derelict, condemned or substandard present both a water quality problem and a navigational hazard. The removal and proper disposal of these structures should be monitored in more detail. Multi-agency (ODEQ, ODSL, OSMB, others) response may be required to assure that the removal and disposal of wastes such as these occur.

Public Education Management Measure

Public education/outreach/training programs should be instituted for boaters, as well as marina owners and operators, to prevent improper disposal of polluting material.

Maintenance of Sewerage Facilities

Ensure that sewage pumpout facilities are maintained in operational condition and encourage their use.

Boaters need to make provision for proper disposal of waste from boats having a portable or installed toilet on board. Boaters who tour the lake for extended periods have been observed dumping their holding tanks into the lake prior to hauling out. Provision should be made for approved dump station sites for both marine and recreational vehicle use. Disposal of wastes from long term or permanently moored houseboats, barge supported recreational vehicles, and float houses should be monitored to assure proper disposal of wastes are occurring. Education and outreach could serve to increase awareness and compliance in this area.

Boat Operation Management Measures

Restrict boating activities where necessary to decrease turbidity and physical destruction of shallow-water habitat.

* Lakefront residents indicate that high speed boating in shallow waters resuspends sediments from the lake bottom resulting in turbidity and the release of phosphorus. Lake management groups suggest that boat traffic in areas at depths less than 10' increases turbidity. During periods of high boat traffic in shallow areas turbidity increases have been observed. Instating speed restrictions during travel in shallow areas might be an effective control measure to address this issue.

5.4.3 Riparian and Wetland Measures - Multiple Land Uses

Wetlands Fact Sheet

Management Measure for Protection of Wetlands and Riparian Areas

Protect from adverse effects wetlands and riparian areas that are serving a significant NPS abatement function and maintain this function while protecting the other existing functions of these wetlands and riparian areas as measured by characteristics such as vegetative composition and cover, hydrology of surface water and ground water, geochemistry of the substrate, and species composition.

- Consider wetlands and riparian areas and their NPS control potential on a watershed or landscape scale.
- Identify existing functions of those wetlands and riparian areas with significant NPS control potential when implementing NPS management practices. Do not alter wetlands or riparian areas to improve their water quality function at the expense of their other functions.
- Conduct permitting, licensing, certification, and non-regulatory NPS pollution abatement activities in a manner that protects wetland functions.
- Use appropriate pretreatment practices such as vegetated treatment systems or detention or retention watersheds (management measures for urban areas) to prevent adverse impacts to wetland functions that affect NPS pollution abatement from hydrologic changes, sedimentation, or contaminants.

Management Measure for Restoration of Wetlands and Riparian Areas

Promote the restoration of the preexisting functions in damaged and destroyed wetlands and riparian systems in areas where the systems will serve a significant NPS pollution abatement function.

- Provide a hydrologic regime similar to that of the type of wetland or riparian area being restored.
- Restore native plant species through either natural succession or selected planting.
- Plan restoration as part of naturally occurring aquatic ecosystems.

Management Measure for Vegetated Treatment System

Promote the use of engineered vegetated treatment systems such as constructed wetlands or vegetated filter strips where these systems will serve a significant NPS pollution abatement function.

- Construct Vegetated Filter Strip in areas adjacent to waterbodies that may be subject to suspended solids and/or nutrient runoff.

- Construct properly engineered systems of wetlands for NPS pollution control. Manage these systems to avoid negative impacts on surrounding ecosystems or ground water.

5.4.4 Forestry Management Measures

Forestry Chapter Fact Sheet

Pre Harvest Planning

1. Identify the area to be harvested including location of waterbodies and sensitive areas such as wetlands, threatened or endangered aquatic species habitat areas, or high- erosion-hazard areas (landslide-prone areas) within the harvest unit.

2. Time the activity for the season or moisture conditions when the least impact occurs.

3. Consider potential water quality impacts and erosion and sedimentation control in the selection of silvicultural and regeneration systems, especially for harvesting and site preparation.

4. Reduce the risk of occurrence of landslides and severe erosion by identifying high-erosion-hazard areas and avoiding harvesting in such areas to the extent practicable.

5. Consider additional contributions from harvesting or roads to any known existing water quality impairments or problems in watersheds of concern.

Perform advance planning for forest road systems that includes the following elements where appropriate:

1. Locate and design road systems to minimize, to the extent practicable, potential sediment generation and delivery to surface waters. Key components are:

    - locate roads, landings, and skid trails to avoid to the extent practicable steep grades and steep hillslope areas, and to decrease the number of stream crossings;

    - avoid to the extent practicable locating new roads and landings in Streamside Management Areas (SMAs); and

    - determine road usage and select the appropriate road standard.

2. Locate and design temporary and permanent stream crossings to prevent failure and control impacts from the road system. Key components are:

    - size and site crossing structures to prevent failure;

    - for fish-bearing streams, design crossings to facilitate fish passage.

3. Ensure that the design of road prism and the road surface drainage are appropriate to the terrain and that road surface design is consistent with the road drainage structures.

4. Use suitable materials to surface roads planned for all-weather use to support truck traffic.

5. Design road systems to avoid high erosion or landslide hazard areas. Identify these areas and consult a qualified specialist for design of any roads that must be constructed through these areas.

Streamside Management Areas

Establish and maintain a streamside management area along surface waters, which is sufficiently wide and which includes a sufficient number of canopy species to buffer against detrimental changes in the temperature regime of the waterbody, to provide bank stability, and to withstand wind damage. Manage the SMA in such a way as to protect against soil disturbance in the SMA and delivery to the stream of sediments and nutrients generated by forestry activities, including harvesting. Manage the SMA canopy species to provide a sustainable source of large woody debris needed for instream channel structure and aquatic species habitat.

Road Construction and Reconstruction

1. Follow pre harvest planning when constructing or reconstructing the roadway.
2. Follow designs planned under pre harvest planning for road surfacing and shaping.
3. Install road drainage structures according to designs planned under pre harvest planning and regional storm return period and installation specifications. Match these drainage structures with terrain features and with road surface and prism designs.
4. Guard against the production of sediment when installing stream crossings.
5. Protect surface waters from slash and debris material from roadway clearing.
6. Use straw bales, silt fences, mulching, or other favorable practices on disturbed soils on unstable cuts, fills, etc.
7. Avoid constructing new roads in SMAs to the extent practicable.

Road Management

1. Avoid using roads where possible for timber hauling or heavy traffic during wet or thaw periods on roads not designed and constructed for these conditions.
2. Evaluate the future need for a road and close roads that will not be needed. Leave closed roads and drainage channels in a stable condition to withstand storms.
3. Remove drainage crossings and culverts if there is a reasonable risk of plugging or failure from lack of maintenance.
4. Following completion of harvesting, close and stabilize temporary spur roads and seasonal roads to control and direct water away from the roadway. Remove all temporary stream crossings.
5. Inspect roads to determine the need for structural maintenance. Conduct maintenance practices, when conditions warrant, including cleaning and replacement of deteriorated structures and erosion controls, grading or seeding of road surfaces, and, in extreme cases, slope stabilization or removal of road fills where necessary to maintain structural integrity.
6. Conduct maintenance activities, such as dust abatement, so that chemical contaminants or pollutants are not introduced into surface waters to the extent practicable.

7. Properly maintain permanent stream crossings and associated fills and approaches to reduce the likelihood (a) that stream overflow will divert onto roads, and (b) that fill erosion will occur if the drainage structures become obstructed.

Timber Harvesting

1. Timber harvesting operations with skid trails or cable yarding follow layouts determined under pre harvest planning.
2. Install landing drainage structures to avoid sedimentation to the extent practicable. Disperse landing drainage over sideslopes.
3. Construct landings away from steep slopes and reduce the likelihood of fill slope failures. Protect landing surfaces used during wet periods. Locate landings outside of SMAs.
4. Protect stream channels and significant ephemeral drainages from logging debris and slash material.
5. Use appropriate areas for petroleum storage, draining, dispensing. Establish procedures to contain and treat spills. Recycle or properly dispose of all waste materials.

For cable yarding:

1. Limit yarding corridor gouge or soil plowing by properly locating cable yarding landings.
2. Locate corridors for SMAs following streamside management area guidance.

For groundskidding:

1. Within SMAs, operate groundskidding equipment only at stream crossings to the extent practicable. In SMAs, fell and endline trees to avoid sedimentation.
2. Use improved stream crossings for skid trails which cross flowing drainages. Construct skid trails to disperse runoff and with adequate drainage structures.
3. On steep slopes, use cable systems rather than groundskidding where groundskidding may cause excessive sedimentation.

Site Preparation and Forest Regeneration

1. Select a method of site preparation and regeneration suitable for the site conditions.
2. Conduct mechanical tree planting and ground-disturbing site preparation activities on the contour of sloping terrain.
3. Do not conduct mechanical site preparation and mechanical tree planting in streamside management areas.
4. Protect surface waters from logging debris and slash material.
5. Suspend operations during wet periods if equipment used begins to cause excessive soil disturbance that will increase erosion.
6. Locate windrows at a safe distance from drainages and SMAs to control movement of the material during high runoff conditions.
7. Conduct bedding operations in high-water-table areas during dry periods of the year. Conduct bedding in sloping areas on the contour.
8. Protect small ephemeral drainages when conducting mechanical tree plag.

Fire Management

Prescribe fire for site preparation and control or suppress wildfire in a manner which reduces potential nonpoint source pollution of surface waters:

1. Intense prescribed fire should not cause excessive sedimentation due to the combined effect of removal of canopy species and the loss of soil-binding ability of sub canopy and herbaceous vegetation roots, especially in SMAs, in streamside vegetation for small ephemeral drainages, or on very steep slopes.
2. Prescriptions for prescribed fire should protect against excessive erosion or sedimentation to the extent practicable.
3. All bladed firelines, for prescribed fire and wildfire, should be plowed on contour or stabilized with water bars and/or other appropriate techniques if needed to control excessive sedimentation or erosion of the fireline.
4. Wildfire suppression and rehabilitation should consider possible NPS pollution of watercourses, while recognizing the safety and operational priorities of fighting wildfires.

Revegetation of Disturbed Areas

Reduce erosion and sedimentation by rapid revegetation of areas disturbed by harvesting operations or road construction:

1. Revegetate disturbed areas (using seeding or planting) promptly after completion of the earth-disturbing activity. Local growing conditions will dictate the timing for establishment of vegetative cover.
2. Use mixes of species and treatments developed and tailored for successful vegetation establishment for the region or area.
3. Concentrate revegetation efforts initially on priority areas such as disturbed areas in SMAs or the steepest areas of disturbance near drainages.

Forest Chemical Management

Use chemicals when necessary for forest management in accordance with the following to reduce nonpoint source pollution impacts due to the movement of forest chemicals off-site during and after application:

1. Conduct applications by skilled and, where required, licensed applicators according to the registered use, with special consideration given to impacts to nearby surface waters.
2. Carefully prescribe the type and amount of pesticides appropriate for the insect, fungus, or herbaceous species.
3. Prior to applications of pesticides and fertilizers, inspect the mixing and loading process and the calibration of equipment, and identify the appropriate weather conditions, the spray area, and buffer areas for surface waters.
4. Establish and identify buffer areas for surface waters. (This is especially important for aerial applications.)

5. Immediately report accidental spills of pesticides or fertilizers into surface waters to the appropriate State agency. Develop an effective spill contingency plan to contain spills.

Wetlands Forest Management

Plan, operate, and manage normal, ongoing forestry activities (including harvesting, road design and construction, site preparation and regeneration, and chemical management) to adequately protect the aquatic functions of forested wetlands.

5.4.5 Agricultural Management Measures

Agriculture Fact Sheet

Erosion and Sediment Control Management Measure

Apply the erosion component of a Conservation Management System (CMS) as defied in the Field Office Technical Guide of the U.S. Department of Agriculture - Soil Conservation Service to minimize the delivery of sediment from agricultural lands to surface waters, or

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.

1. Wetland and riparian zone protection
2. Sediment watersheds: Watersheds constructed to collect and store debris or sediment.
3. Filter strip: A strip or area of vegetation for removing sediment, organic matter, and other pollutants from runoff and wastewater.

Nutrient Management Measure

1. Use of soil surveys in determining soil productivity and identifying environmentally sensitive sites.
2. Use of proper timing, formulation, and application methods for nutrients that maximize plant utilization of nutrients and minimize the loss to the environment
3. Use of buffer areas or intensive nutrient management practices to manage field limitations based on environmentally high risk areas such as: lands near surface water, high leaching soils, highly erodible soils, lands prone to surface loss of nutrients, shallow aquifers.

Pesticide Management Measure

1. Evaluate the pest problems, previous pest control measures, and cropping history;
2. Evaluate the soil and physical characteristics of the site including mixing, loading, and storage areas for potential leaching or runoff of pesticides. If leaching or runoff is found to occur, steps should be taken to prevent further contamination;
3. Use integrated pest management (IPM) strategies that:

   a. Apply pesticides only when an economic benefit to the producer will be achieved (i.e., applications based on economic thresholds); and

   b. Apply pesticides efficiently and at times when runoff losses are unlikely;

c. When pesticide applications are necessary and a choice of registered materials exists, consider the persistence, toxicity, runoff potential, and leaching potential of products in making a selection;

4. Periodically calibrate pesticide spray equipment; and

5. Use anti-backflow devices on hoses used for filling tank mixtures.

Grazing Management Measure

1. Protect range, pasture and other grazing lands:

2. By implementing one or more of the following to protect sensitive areas (such as stream banks, wetlands, estuaries, ponds, lake shores, and riparian zones):

3. Exclude livestock,

4. Provide stream crossings or hardened watering access for drinking,

5. Provide alternative drinking water locations,

6. Locate salt and additional shade, if needed, away from sensitive areas, or

7. Use improved grazing management (e.g., herding)

8. to reduce the physical disturbance and reduce direct loading of animal waste and sediment caused by livestock; and

9. By achieving either of the following on all range, pasture, and other grazing lands not addressed under (1):

10. Implement the range and pasture components of a Conservation Management System (CMS) as defined in the Field Office Technical Guide of the USDA-SCS by applying the progressive planning approach of the USDA-Soil Conservation Service (SCS) to reduce erosion, or

11. Maintain range, pasture, and other grazing lands in accordance with activity plans established by either the Bureau of Land Management of the U.S. Department of the Interior or the Forest Service of USDA.

Irrigation Water Management Measure

1. Operate the irrigation system so that the timing and amount of irrigation water applied match crop water needs. This will require, as a minimum: (a) the accurate measurement of soil-water depletion volume and the volume of irrigation water applied, and (b) uniform application of water.

2. When chemigation is used, include backflow preventers for wells; minimize the harmful amounts of chemigated waters that discharge from the edge of the field, and control deep percolation. In cases where chemigation is performed with furrow irrigation systems, a tailwater management system may be needed.

5.4.6 Multiple Land Uses

Hydromodification Chapter Fact sheet

Channelization and Channel Modification Management

- Use models/methodologies as one means to evaluate the effects of proposed channelization and channel modification projects on the physical and chemical characteristics of surface waters. Evaluate these effects as part of watershed plans, land use plans, and new development plans.
- Identify and evaluate appropriate BMPs for use in the design of proposed channelization or channel modification projects or in the operation and maintenance program of existing projects. Identify and evaluate positive and negative impacts of selected BMPs and include costs.

Instream and Riparian Habitat Management Measure

- Evaluate the potential effects of proposed channelization and channel modification on instream and riparian habitat in coastal areas;
- Plan and design channelization and channel modification to reduce undesirable impacts; and
- Develop an operation and maintenance program with specific timetables for existing modified channels that includes identification of opportunities to restore instream and riparian habitat in those channels.

Streambank and Shoreline Erosion Management Measures

1. Where streambank or shoreline erosion is a nonpoint source pollution problem, stream banks and shorelines should be stabilized. Vegetative methods are strongly preferred unless structural methods are more cost-effective, considering the severity of wave and wind erosion, offshore bathymetry, and the potential adverse impact on other stream banks, shorelines, and offshore areas.
2. Protect streambank and shoreline features with the potential to reduce NPS pollution.
3. Protect stream banks and shorelines from erosion due to uses of either the shorelands or adjacent surface waters.
    - Use soil bioengineering and other vegetative techniques to restore damaged habitat along shorelines and stream banks wherever conditions allow.
    - Use properly designed and constructed engineering practices for shore erosion control in areas where practices involving marsh creation and soil bioengineering are ineffective.
    - In areas where existing protection methods are being flanked or are failing, implement properly designed and constructed shore erosion control methods such as returns or return walls, toe protection, and proper maintenance or total replacement.
    - Plan and design all streambank, shoreline, and navigation structures so that they do not transfer erosion energy or otherwise cause visible loss of surrounding stream banks or shorelines.
    - Establish and enforce no-wake zones to reduce erosion potential from boat wakes.
    - Establish setbacks to minimize disturbance of land adjacent to stream banks and shorelines to reduce other impacts. Upland drainage from development should be directed away from bluffs and banks so as to avoid accelerating slope erosion.

5.5 INVASIVE WEED MANAGEMENT MEASURES

The Western Aquatic Plant Management Society (http://www.wapms.org/index.html) emphasizes the following as important components to consider when developing an invasive aquatic weed management strategy. These are provided as examples; many other management options are available for consideration.

Prevention is the most effective way to reduce invasive aquatic weed problems is to prevent their introduction. This is much more difficult than it may seem. Americans love different or unusual plants and pets, and it is difficult to predict which may become problems before they are brought into the United States. Natural controls like diseases, herbivores, or climate may reduce a plant's growth in its native habitat. When freed from these controls, some plants thrive and become invasive weeds in their new surroundings.

You can help prevent problems by never putting aquarium plants in lakes, rivers, or wetlands. Careful boat inspection and cleaning to prevent "hitchhiking" or transportation of weeds via your prop or trailer is an important part of preventing the spread of nuisance aquatic weeds.

Nonchemical Control methods should always be considered before resorting to chemical control. Sometimes adequate weed control can be achieved using nonchemical means. Other times, nonchemical methods are used along with chemical ones to obtain the best results.

Preventive control reduces plant growth by manipulating the two major factors that regulate it: nutrients and sunlight. Excessive nutrients, particularly phosphorus, produce large increases in the amount of aquatic vegetation, especially algae. Avoiding surface runoff that contains nutrients and practicing other forms of nutrient control are best in the long run. Eliminating shallow areas is an equally important preventive control. In aquatic habitats, light penetration determines the depth to which underwater plants can grow. Deeper water (more than 3 feet) reduces the amount of light reaching submerged plants and thus reduces plant growth.

Mechanical control physically removes vegetation. Mechanical control involves cutting and removal of the vegetation from the waterway. Equipment varies from a simple rake or backhoe to a specially designed aquatic weed harvester. In some areas, certain harvested aquatic vegetation has been put to use as mulch or animal feed. However, as can be expected, mechanical removal is a cumbersome task requiring expensive, slow-moving equipment, high maintenance costs, and considerable energy expenditures. Re-growth may occur rapidly and such equipment is not adaptable to all types of waterway systems. The collection of detached and free floating weeds from the waterway will serve to eliminate opportunities for rooting and further spread of invasive weeds.

A mechanical harvest is sometimes used in conjunction with a chemical treatment, either before the treatment is made, as a supplement to the treatment in hard-to-reach areas, or after treatment during weed decomposition.

Cultural control includes the use of dyes, bottom barriers, physical manipulation, and aeration techniques. Nontoxic dyes act as light screens and can be used to inhibit some types of submerged plant growth. Many lake colorants are available that turn the water blue, yet allow visibility into the water for 2 to 3 feet.

Biological control involves the introduction of natural control agents such as herbivorous fish, insects, or plant pathogens, which feed or host upon nuisance vegetation. While some advancement has been made in this approach, potential environmental ramifications from these introductions are still unknown. Disruptions of food chains and habitat of desirable native fish and aquatic organisms could result.

Chemical control employs herbicides to control nuisance plant growth. When choosing an herbicide, consider these essential factors. The weed or weeds must be properly identified. Most aquatic herbicides control only certain plant types, as indicated on the pesticide label. Consider the uses of the water to be treated. Most aquatic herbicides restrict use of the water until the herbicide has been degraded,

inactivated, or dissipated. Check the pesticide label for limitations and length of restricted use; they may be major considerations. Because surface water is drawn from the lake to fill domestic drinking water needs, extreme care must be taken during chemical applications.

Boating avoidance - The spread of invasive weeds can be prevented or reduced somewhat by limiting power boating activities where weeds are within 30 inches of surface. During heavy use periods in such areas, boat traffic has a mechanical harvesting effect without benefit of removal. Free floating weeds quickly spread to other areas.

Weed Management Planning - A combination of these methods into an integrated aquatic vegetation management scheme will likely prove to be the most useful approach. Each individual approach has its advantages and disadvantages. The TLBP has generated a Weed Management Plan for the lakes provided in Appendix J. A long term goal of the current plan is to "produce a plan to implement integrated control measures that take into consideration all the beneficial uses including the transportation, domestic water source, fisheries and wildlife, and recreational uses".

CHAPTER 6 - TIMELINE FOR IMPLEMENTATION OAR 340-42-0040(4)(I)(D)(F)(I)

The purpose of this element of the WQMP is to demonstrate a strategy for implementing and maintaining the plan and the resulting water quality improvements over the long term. Included in this section are timelines for the implementation of ODEQ activities. Each DMA specific Implementation Plan will include timelines for the implementation of measurable milestones selected and identified by the DMA as measures to reflect implementation progress. Milestones can be related to the completion of planning or implementation tasks or to water quality improvements. Timelines should be as specific as possible and should include a schedule for BMP installation and/or evaluation, monitoring schedules, reporting dates and milestones for evaluating progress.

The DMA-specific Implementation Plans are designed to reduce pollutant loads from sources to meet TMDL associated loads and through time support designated beneficial uses. ODEQ recognizes that where implementation involves significant changes to the landscape or, in this instance, where stored pollutant loads exist in the lake bottoms, water quality standards may not be met for decades. In addition, ODEQ recognizes that technology for controlling nonpoint-source pollution is, in some cases, in the development stages and will likely take one or more iterations to develop effective techniques.

For the Tenmile Lakes Watershed TMDL, pollutant surrogates (riparian and wetland enhancement, sediment abatement implementation, invasive weed control efforts) have been defined as alternative targets for meeting the TMDL. The purpose of the surrogates is not to bar or eliminate human access or activity in the watershed or its riparian areas. It is the expectation, however, that the Implementation Plans will address how human activities will be managed to achieve the surrogate conditions and support beneficial uses deemed to be valuable. It is also recognized that full attainment of pollutant surrogates (system potential nutrient loads, for example) at all locations may not be feasible due to physical, legal or other regulatory constraints. To the extent possible, the Implementation Plans should identify potential constraints, but should also provide the ability to mitigate those constraints should the opportunity arise. For instance, at this time, the existing location of managed wetlands may preclude attainment of system potential nutrient reductions. In the future, however, should the opportunity to implement mutually acceptable wetland enhancement activities arise, consideration should be given to designs that support TMDL load allocations and pollutant surrogates such as re-establishing the buffering functions of historic wetlands

ODEQ intends to regularly review the progress of the Implementation Plans. Individual Implementation Plans, this WQMP, and the TMDL are part of an adaptive management process. Modifications to the WQMP and the Implementation Plans are expected to occur on an annual or more frequent basis. Review of the TMDL is expected to occur approximately five years after the final approval of the TMDL, or whenever deemed necessary by ODEQ.

The following table gives the timeline for activities related to the WQMP and associated DMA Implementation Plans.

Table 4 – Water Quality Management Plan Timeline

Activity	2006	2007	2008	2009	2010
ODEQ Issuance of Municipal Stormwater MS4 Permit if needed					
ODEQ Stormwater Program (Construction Permit - Ground Disturbing Activities)	Program is currently in place				
ODEQ Biosolids Authorization (WWTP-NPDES)	Program is currently in place to re-evaluate this component during NPDES renewal				
ODEQ On-site program New Construction	Permitting Program is currently in place				
ODEQ Education, Outreach, Technical Assistance	Ongoing efforts to partner with local entities				
ODEQ Funding Support	Ongoing efforts to partner with local entities				
ODEQ 401 Certification Program Continued coordination with DSL where 401 Certification is not needed	• 401 certification program is ongoing • TMDL specific language for channel cleaning projects has been developed				
Oregon Department of Transportation	Programs are Ongoing				
Division of State Lands	Programs are Ongoing (Area Management Plan could be a valuable mechanism)				
Oregon Marine Board	Programs are Ongoing (Summit Planning could be a valuable mechanism)				
Coos County development, submittal, and begin to implement Water Quality Implementation Plan					
Douglas County development, submittal, and begin to implement Water Quality Implementation Plan					
City of Lakeside development, submittal, and begin to implement Water Quality Implementation Plan					
Oregon Department of Fish and Wildlife Evaluation of Fish Management Plan					
Tenmile Lakes Basin Partnership Watershed Wide Voluntary Implementation Plan	Voluntary WQIP Completed – Implementation is ongoing				
Tenmile Lakes Basin Partnership Weed Management Plan	Update as Funding Allows				
ODA/AWQMP Review and Revision					
ODF/FPA Review and Revision	Ongoing Sufficiency Review				
ODEQ/DMA/Public Review of TMDL and WQMP (five years after approval)					
DMA Implementation of Plans					
DMA Submittal of Annual Reports	December 30 of Each Year Beginning In 2006 for DMAs with existing plans				

CHAPTER 7 - REASONABLE ASSURANCE OAR 340-42-040(4)(I)(J)

This section of the WQMP is intended to provide reasonable assurance that the WQMP (along with the associated DMA-specific Implementation Plans) will be implemented and that the TMDL and associated allocations will be met.

Programs are already in place, or will be put in place, to help assure that this WQMP will be implemented and the Tenmile Lakes Watershed TMDL will be met. Some of these programs are traditional regulatory approaches such as specific requirements under NPDES permits. Other programs address nonpoint sources either under the auspices of state law (e.g. forested and agricultural lands) or as voluntary efforts.

7.1 ODEQ AUTHORITIES

7.1.1 National Pollution Discharge Elimination System (NPDES) Eligible Point Sources

No individual point source eligible for NPDES permitting currently discharges to a 303(d) listed waterbody in this watershed.

The Lakeside Water District operates a water treatment facility for which a General NPDES 200, Industrial Wastewater Filter Backwash has been issued. Backwash waters are currently clarified via a lined settling basin and subsequently land applied. There is no resulting discharge to surface waters and no impact to the water quality of Eel Lake during standard operation.

The City of Lakeside waste water treatment facility seasonally discharges to Tenmile Creek and utilizes a biosolids land application site in the upper watershed as part of that NPDES permit. The City of Lakeside has entered into a Mutual Order and Agreement with ODEQ to upgrade the waste water treatment plant facility, discharge only in the winter months when stream flow is sufficient, and to identify a new location for land application of treated effluent in the summer, low flow months. As there is no discharge from this facility into the water quality limited waterbodies (North and South Tenmile Lakes), this facility has been determined to have no impact on lake weed and algae conditions. Biosolids application in the upper watershed should continue to be managed to provide no nutrient leaching or nutrient movement from the permitted site. Bio solids application is allocated a zero WLA. Additional detail regarding bio solids management is provided in the WQMP, companion to this TMDL.

General permits holders are required to comply with permit conditions and related water quality standards. These activities are not specifically provided a waste load allocation. Should ODEQ find these general permit conditions and compliance targets are not rigorous enough to prevent adverse impacts to North and South Tenmile Lakes these sources will be re-evaluated. The most common permitted activity in this category would be construction and/or land development sites where one acre or more of soil disturbance is expected to occur. Land development activities that impact less than one acre are exempt from NPDES permitting but are required to meet applicable water quality standards.

No waste load allocations have been assigned within this TMDL. Reasonable assurance that point-source wasteload allocations will be met, should they be proposed, would be addressed through the NPDES or WPCF permitting process. Provisions to address the appropriate wasteload allocations (WLAs) will be incorporated into the review of any proposed NPDES permit. ODEQ has the responsibility to ensure compliance of point sources through time with this TMDL.

7.1.2 Municipal Storm Water Permit (MS4)

The City of Lakeside was determined to have a population base too small for MS4 storm water permitting. The City will address storm water loading related to this TMDL within their Implementation Plan. If this approach is determined to be insufficient, issuance of an MS4 permit will be reconsidered and the assignment of a wasteload allocation will occur at that time.

The City of Lakeside storm water drainage is delivered directly to South Tenmile Lake and to North Tenmile Lake via Bowron Creek. The City is not currently required to operate this drainage system under an NPDES permit because the population is below the current thresholds which require permitting. The City of Lakeside will need to address storm water management within their required Water Quality Implementation Plan. Upon future review of this TMDL, the City of Lakeside storm water collection system may be required to secure and NPDES permit which could identify discharge permit limits.

7.1.3 Storm Water Construction Site Permit (1200C)

The storm water construction site permitting program will play an important role in reducing nutrient inputs. Specifically, this program is designed to abate phosphorous loading to the lakes by preventing sediment migration to state's waters from construction sites resulting in the ground disturbance of one acre or more. Sites qualifying for this permit are required to implement best management practices to abate sediment migration.

7.1.4 On-Site program

New Construction

Lakefront and rural properties outside of the City of Lakeside are served by individual on-site treatment systems. Continued application of ODEQ's on-site program will be an important component during continued lakefront development. ODEQ will continue to implement an on-site program to assure new systems are installed according to applicable OARs. The program is designed to minimize impacts to water quality. Compliance with the program should assure that water quality impacts from treatment systems serving lakefront develop are minimized.

TMDL Education and Outreach

Many lakefront properties are currently served by on-site systems constructed prior to 1974. This date marks the year that ODEQ began its on-site program in Coos County. Prior to 1974, requirements for on-site design were less stringent. Because of the nature of lakefront development, many of these systems may have been constructed without permit or any design criteria. In addition, access for maintenance (solids management) and repair has been challenging due to boat access only properties.

Many homes in this area are often sold with owner-carry contracts rather than bank loans. These contracts often do not require a determination of the condition of the existing on-site system. While the inspection requirements of bank financing during sale may allow evaluation opportunities for these situations, there is no consistent criteria for evaluation. Thus, many of the homes on the lakefront will not be inspected during ownership transfer.

Annual septic system contribution of total phosphorus to lake waters is about 10-22% of the total watershed inputs of phosphorus. However, because septic system contributions are expected to be greatest in the summer and early fall, when tributary loads are small, the relative contribution of septic inputs increases to about 50% during this critical period. Considering that the blooms of cyanobacteria occur in late summer and early fall, it is likely that septic inputs constitute an important component of the nutrient load which occurs during a critical time period.

Because nuisance algae blooms have negative impacts to lakefront homeowners in many ways (drinking water problems, recreational activities, property value depreciation), the opportunity to promote improvements in water quality is high with this audience.

ODEQ will continue to develop and implement an education and outreach program with the following primary goals:

- All lakefront residents will know where their system is.
- All lakefront homeowners will know what their systems are comprised of (design, function, adequacy).
- All lakefront homeowners will know whether their systems need maintenance work (pumping, repair).
- All lakefront homeowners will know how and where to get technical assistance to evaluate their on-site systems.

Funding Support

ODEQ staff is currently working with local entities to develop venues to provide financial incentives and support for landowners. These incentives will be specifically targeted to upgrades or repairs of on-site systems that may be providing, or have the potential to provide, nutrient loads to the lakes.

Financial assistance for these types of activities is becoming more common place because of the growing understanding of their importance. ODEQ will continue to examine other nationwide working models in an attempt to implement a program for the Tenmile Lakes Watershed.

7.1.5 401 Certification Program

Hydromodification of stream channels in the Tenmile Lakes Watershed appear to have a strong influence on upland nutrient delivery mechanisms to the lake as a receiving waterbody. Hydrological forces under current channel conditions carry upland sediments more directly to the lake through straightened or channelized streams. In addition, the erosion of some low gradient channel embankments results in part from modified hydraulics. The loss of floodplain connectivity in the low lands results in the confinement of higher flows regimes to stream channels thereby increasing erosional forces.

Instream work, including maintenance (dredging) of the streams in most cases will require a permit from the Division of State Lands and/or the US Army Corps of Engineers (USACE). A 401 water quality certification (WQC) from ODEQ is required in instances where a federal action is taken, as in the case of an issuance of a USACE permit. The ODEQ 401 certification contains project specific conditions to ensure that water quality standards and programs are complied with during the project implementation.

In instances where no activity requiring a federal action is proposed, ODEQ provides input to DSL during the state only fill and removal permit process to ensure that proposed projects will not exceed water quality standards. Coordination between DSL and ODEQ is guided by a Memorandum of Understanding (MOU) signed in June of 2000. The MOU is provided in Appendix K.

ODEQ will seek to work with landowners as well as technical and regulatory agencies cooperatively to assess the feasibility of the implementation of alternative management techniques for hydromodified stream projects, including channel maintenance and bank stabilization. In response to the Tenmile Lakes Watershed TMDL Load Allocations, 401 certification language has been developed to encourage landowners to consider alternative practices when managing hydromodified channels. Information regarding the feasibility of the implementation of an alternative practice provided by those who propose related projects will assist in guiding ODEQ's review and evaluation of these project proposals. This standard language will provide information to landowners regarding desired alternative management practices and will facilitate ODEQ review regarding potential water quality issues and approaches proposed to minimize or mitigate those impacts.

Applicants who propose stream management activities in the Tenmile Lakes Watershed will need to provide ODEQ specific information during the project review and evaluation process. The information will be used to better assess potential impacts from proposed projects. The information for the analysis should include:

- The available gradient and if the gradient is sufficient in the proposed project area to indicate that dredging the stream will result in improved drainage.

- A management plan for existing and future vegetation along the channelized streams. This plan should promote the establishment and maintenance of stream channel and side channel(s) vegetation. Vegetative alternatives could include clusters of vegetation and/or vegetation establishment on at least one side of the stream;

- A discussion of the potential to use sediment trapping methods in locations where a change in stream gradient results in early sediment deposition. These areas may allow for the cleaning of sediment traps on a more frequent basis and reduce the need for stream cleaning in the future;

- A spoils (sediment) management plan that discusses where, when and how all spoils will be dispersed. Alternatives to the placement of this material onto dikes and/or near stream embankments are desired. And;

- A reporting mechanism to ODEQ for the amount of cubic yards that are removed each year.

The above list is by no means all inclusive and other site specific management alternative discussions are welcomed and should be included.

7.1.6 Compliance and Enforcement

DEQ operates under federal and state laws delegated by the US Environmental Protection Agency, the Oregon legislature, and the Oregon Environmental Quality Commission (DEQ's rule-making and adjudicative body). Under this authority, the agency maintains compliance with environmental laws, such as water quality standards, through regulatory tools. First, DEQ emphasizes education and technical assistance because most businesses and individuals voluntarily comply with the laws. Regulatory compliance and pollution prevention create the best environmental results.

Enforcement is still needed to deter those who don't take the initiative to achieve compliance on their own or who seek to avoid costs of lawful compliance. Enforcement is also needed to maintain fairness among those who do expend the resources and make the effort to comply with environmental law. For these reasons, DEQ remains committed to an effective, consistent, and visible enforcement program, in addition to its collaborative programs.

For additional information regarding ODEQ's compliance and enforcement programs please visit http://www.oregon.gov/DEQ/OCE/index.shtml.

7.2 OREGON DEPARTMENT OF FORESTRY (ODF) AS DMA

7.2.1 Oregon Forest Practices Act (FPA) Private Lands

ODF is the designated management agency for regulation of water quality on non-federal forestlands, and provides on the ground field administration of the FPA. The Board of Forestry (BOF) has adopted water protection rules under the FPA, including but not limited to OAR Chapter 629, Divisions 635-660, which describe BMPs for forest operations. These rules are implemented and enforced by ODF and monitored to assure their effectiveness. By statute, forest operators conducting operations in accordance with FPA BMPs are considered to be in compliance with Oregon's water quality standards.

For each administrative rule, guidance is provided to field administrators to insure proper, uniform and consistent application of the FPA Statutes and Rules. The FPA requires penalties, both civil and criminal, for violation of Statutes and Rules. Additionally, whenever a violation occurs, the responsible party is obligated to repair the damage. Furthermore, ODF statutes and rules include provisions for adaptive

management that provide for revisions to FPA practices where necessary to meet water quality standards. For more information, refer to the Appendix E TMDL Implementation Strategy for Non-federal Forest.

FPA water protection best management practices are intended to protect, maintain, and in some cases, improve water quality. FPA covers the following general categories of forest management activities;

- Harvesting or salvaging trees
- Site preparation, stabilization, and reforestation
- Chemical application
- Clearing forest land for nonforest uses
- Road construction, improvements, and use
- Precommercial thinning slash disposal
- Vegetation retention along water bodies
- Habitat enhancement

Examples of FPA water protection best management practices include:

- Roads not located in riparian management areas, flood plains, or wetlands;
- Stream crossing structures designed for 50 year flows;
- Maintain riparian management area vegetation and minimize disturbance to beds and banks of streams, lakes, and all wetlands more than ¼ acre;
- By the end of the sixth full year, the landowner shall have established a free-to-grow stand of trees, which meets or exceeds the minimum stocking level required;
- Remove from the forest all petroleum product waste including crankcase oil, filters, grease, and oil containers.

For information regarding the FPA, link to

http://egov.oregon.gov/ODF/PRIVATE_FORESTS/private_forests.shtml#Forest_Practices_Act

Water quality is further protected on some private forest lands through private land owners' voluntary actions under various voluntary programs:

- Conservation Reserved Enhancement Program
- Stewardship Agreement
- Oregon Plan

Current Status of FPA Adequacy to Meet WQS

A joint statewide analysis of the FPA to determine the sufficiency to meet WQS was conducted by ODF and ODEQ, and the report (Sufficiency Analysis) was finalized in 2002. The Sufficiency Analysis offers recommendations to highlight general areas where current practices could be improved in order to better meet the FPA goals and objectives and in turn provide added assurance of meeting water quality standards (WQS).

In 2002, the Board of Forestry adopted revised rules related to the regulation of forest road practices and landslide issues. These revisions are intended to address the Sufficiency Analysis and FPAC (Forest Practices Advisory Committee) recommendations related to these issues, and are expected to provide added assurance of meeting WQS.

Furthermore, since July 2003, the BOF has been considering possible riparian rule revisions to provide greater protection to riparian management areas that take into account recommendations from the Sufficiency Analysis as well as other recommendations to ensure attainment of WQS.

The current practices that could be improved, and are under consideration for rule revisions are:

1. Provide habitat above human caused fish barriers

2. Provide wood for debris flows where appropriate
3. Revise the large wood placement rule and increase active management basal areas
4. Increase basal area for medium and small fish bearing streams in Western Oregon

In addition, the following concepts were approved by the BOF to be implemented under the Oregon Plan.

1. Treat medium and large non-fish bearing streams as same size fish bearing streams
2. Provide protection for channel migration zones
3. Limit harvesting within riparian management areas by retaining 60% of preharvest basal area (must be greater than the standard basal area target)
4. Limit harvesting to the outer half of the riparian management area
5. Retain the largest trees within the riparian management area

The final sufficiency analysis is also available for viewing at:

http://www.ODEQ.state.or.us/wq/nonpoint/nonpoint.htm

Basin Specific Rule

In addition to the statewide effort to ensure FPA adequacy to meet WQS, FPA rule allows for development of watershed specific protection rules for watersheds that have been designated as water quality limited or containing threatened or endangered aquatic species.

Coordination between ODF and ODEQ for establishing such rules is guided by a Memorandum of Understanding (MOU) signed in April of 1998 to ensure that forest management activities do not impair water quality. The MOU is provided in Appendix F.

The Tenmile Lakes Watershed is water quality limited for nuisance weeds and algae. Data analyses supporting the development of the Tenmile Lakes Watershed TMDL have determined that overall sediment loading to the lakes needs to be reduced. A target of 50% reduction of sediment loading within the next 25 years has been established. Due to the intermingled agricultural and forestry landscape common to South Coast streams located in finger valleys, discrete pollutant loads were not identified for each of these land uses. ODEQ encourages ODF to conduct monitoring to better define sediment loading from private and state forests in the Tenmile Lakes Watershed. ODF is expected to continue to conduct BMP effectiveness monitoring as funding allows as part of their ongoing programs. Further ODEQ encourages ODF to work with landowners to implement OPSW voluntary measures to provide additional protection. See the Monitoring and Evaluation Section for further detail.

7.2.2 Oregon Forest Practices Act (FPA)- State Lands

Forest practices on state lands are also governed by the FPA. In addition to the FPA, the Elliot State Forest has adopted the Elliot State Forest Management Plan, and is in the process of revising a Habitat Conservation Plan (HCP) for management of its forests. Both of these plans have equal or additional protective management standards than the FPA.

The HCP addresses protection of a variety of rare, threatened, and endangered species that live in or on State Forest land. Although the HCP is developed to protect habitat for endangered species, there will be direct benefits to water quality if it is implemented.

Furthermore, the Elliott State Forest (ESF) Watershed Analysis has been recently completed. Management recommendations included within the watershed analysis are currently under consideration for update or inclusion in the Elliott State Forest Management Plan.

The final HCP (1995) is available for viewing at:
http://www.oregon.gov/ODF/STATE_FORESTS/esf-hcp.shtml

The draft ESF Management Plan is available for viewing at
http://www.oregon.gov/ODF/STATE_FORESTS/elliott.shtml#2004_Management_Plan__FMP

7.2.3 Oregon Department of Forestry and the Oregon Plan

In addition to implementing and enforcing the Forest Practices Act, ODF, BOF, and private landowners are involved in implementing the Oregon Plan. ODF Stewardship Foresters work in partnership with private land owners to implement voluntary measures to enhance streams and accelerate reaching a desired condition.

The Oregon Plan for Salmon and Watersheds represents a major effort unique to Oregon to improve watersheds and restore endangered fish species. Private forest land managers have contributed over 70% of private investments reported to the Oregon Watershed Enhancement Board to date. The Oregon Plan is a major component of the demonstration of "reasonable assurance" that this TMDL WQMP will be implemented.

In addition, the FPA statute (ORS 527.714) requires the BOF to consider non-regulatory alternatives and to make certain findings of fact before adopting rules. One of the required findings to change or adjust FPA rules and/or practices is providing scientific documentation that degradation of resources is likely if forest practices continue to be conducted under existing regulations. ODF has recommended the use of voluntary measures where it cannot clearly document such degradation has or will occur. Use of voluntary measures also provides an opportunity to generate more definitive information in the future through monitoring.

Examples of voluntary measures under consideration by the BOF

1. Treat medium and large non-fish bearing streams as same size fish bearing streams
2. Provide protection for channel migration zones
3. Limit harvesting within riparian management areas by retaining 60% of preharvest basal area (must be greater than the standard basal area target)
4. Limit harvesting to the outer half of the riparian management area
5. Retain the largest trees within the riparian management area

(See the list of voluntary management measures in Appendix E – TMDL Implementation Strategy for Non-federal Forest)

7.3 OREGON DEPARTMENT OF AGRICULTURE (ODA) AS DMA

It is the Oregon Department of Agriculture's (ODA) statutory responsibility under Senate Bill (SB)1010 to develop agricultural water quality management (AWQM) plans and enforce rules that address water quality issues on agricultural lands. The AWQM Act directs ODA to work with local farmers and ranchers to develop water quality management area plans for specific watersheds that have been identified as violating water quality standards and having agriculture water pollution contributions. The agriculture water quality management area plans are expected to identify problems in the watershed that need to be addressed and outline ways to correct those problems. These water quality management plans are developed at a local level, reviewed by the State Board of Agriculture, and then adopted into the Oregon Administrative Rules. It is the intent that these plans focus on education, technical assistance, and flexibility in addressing agriculture water quality issues. These plans and rules will be developed or modified to achieve water quality standards and will address the load allocations identified in the TMDL. In those cases when an operator refuses to take action, the law allows ODA to take enforcement action. ODEQ will work with ODA to ensure that rules and plans meet load allocations.

The plan and the associated rules can be found on Oregon Department of Agriculture's website at
http://www.oregon.gov/ODA/NRD/water_agplans.shtml

As specified in the MOA signed between ODA and ODEQ (1998), the Coos and Coquille Area Plan will serve as the implementation plan for agriculture in the Coos and Coquille plan area. Because the Area Plan was developed before the TMDL was completed, the Plan does not clearly tie the proposed management measures to attainment of load allocations and/or surrogates, such as vegetation system potential or bacteria reductions.

Recognizing the adopted rules need to be quantitatively evaluated in terms of load allocations in the TMDL and pursuant to the June, 1998 Memorandum of Agreement between ODA and ODEQ, the agencies will conduct a technical evaluation. The agencies will establish the relationship between the plan and its implementing rules and the load allocations in the TMDL to determine if the rules provide reasonable assurance that the TMDLs will be achieved. The MOA between ODEQ and ODA is provided in Appendix L. The AWQMA Local Advisory Committee (LAC) will be apprised and consulted during this evaluation. This adaptive management process provides for review of the AWQMA plan to determine if any changes are needed to the current AWQMA rules specific to the Tenmile Lakes Watershed.

7.4 OREGON DEPARTMENT OF TRANSPORTATION (ODOT) AS DMA

The Oregon Department of Transportation (ODOT) has been issued an NPDES MS4 waste discharge permit. Included with ODOT's application for the permit was a surface water management plan which has been approved by ODEQ and which addresses the requirements of a Total Maximum Daily Load (TMDL) allocation for pollutants associated with the ODOT system. Both ODOT and ODEQ agree that the provisions of the permit and the surface water management plan will apply to ODOT's statewide system. This statewide approach for an ODOT TMDL watershed management plan addresses specific pollutants but not specific watersheds. Instead, this plan demonstrates how ODOT will incorporate water quality protection into project development, construction, as well as operations and maintenance of the state and federal transportation system that is managed by ODOT, thereby meeting the elements of the National Pollutant Discharge Elimination System (NPDES) program and the TMDL requirements. The MS4 permit and the plan:

- 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. 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 ODEQ to incorporate these concerns into the statewide plan.

7.5 OREGON DEPARTMENT OF FISH AND WILDLIFE (ODFW) AS DMA

ODFW developed the Tenmile Basin Fish Management Plan in 1991. This plan was developed to guide the management of various fisheries and their habitats. Because populations of algae-consuming grazers can directly effect algal populations, the shift in fishery populations in the lakes (cold water to warm water fishery) likely provides a friendlier environment for blue green algae communities. The fishery is currently dominated by highly planktivorous fish which are highly effective consumers of larger zooplankton species. The reduction of large zooplankton, in turn, reduces grazing pressure on the phytoplankton which allows phytoplankton (algae and cyanobacteria) biomass to increase. Phytoplankton biomass is able to take advantage of the reduced grazing pressure because more nutrients are available from watershed inputs. This suggests that water quality problems in the lake are the product of changes in both the watershed and fisheries. In addition, increased biomass, as a result of stocking and related management activities, may play an important role in nutrient loading to the lakes.

ODFW will be asked to incorporate these issues into the Fish Management Plan for this watershed. The fish management plan is designed to identify management objectives. Tasks to accomplish those objectives will be contained in subsequent specific proposals and implementation plans. ODEQ will work with ODFW to incorporate fish stocking related nutrient management issues/concerns and to develop a specific implementation plan to begin to address these issues.

7.6 LOCAL JURISDICTIONS AS DMAS

There are three local jurisdictions that have existing authorities in the Tenmile Lakes Watershed. Each of these local authorities has been discretely identified as a Designated Management Agency (DMA). Each of these entities is required to develop and implement a WQIP. These entities are;

- Coos County
- Douglas County
- City of Lakeside

7.6.1 TMDL Specific Implementation Plans

Oregon cities and counties have authority to regulate land use activities through local comprehensive plans and related development regulations. This authority begins with a broad charge given to them by the Oregon constitution and the Oregon legislature to protect the public's health, safety, and general welfare.

Every city and county is required to have a comprehensive plan and accompanying development ordinances to be in compliance with state land use planning goals. While the comprehensive plan must serve to implement the statewide planning goals mandated by state law, cities and counties have a wide degree of local control over how resource protection is addressed in their community.

The Oregon land use planning system provides a unique opportunity for local jurisdictions to address water quality protection and enhancement. Many of the goals have a direct connection to water quality, particularly Goal 5 (Natural Resources, scenic, and historic areas and open spaces, OAR 660-015-0000(5)), Goal 6 (Air, water, and land resources quality, 660-015-0000(6)), and Goal 7 (Areas subject to natural hazards). Please see Appendix H for additional information regarding Goal 5, 6, and 7

Local jurisdictions are currently at a variety of stages in the periodic review process of Comprehensive Plan implementation. Especially important aspects of the Comprehensive Planning process directly related to this TMDL are riparian area health and other measures relating to the control of sedimentation. We expect that the efforts of local jurisdictions to address Goal 5, 6 and 7 required components will be sufficient to meet the load allocations in this TMDL.

Responsible participants for implementing DMA-specific water quality management plans for urban and rural sources were identified in Chapter 5 of this Water Quality Management Plan. Upon approval of the Tenmile Lakes Watershed TMDL, ODEQ expects that identified responsible participants will develop, submit to ODEQ, and implement individual water quality management plans that will achieve the load allocations established by this TMDL. These activities will be accomplished by the responsible participants in accordance with the schedule in Figure 2 in the Timeline for Implementation section of this Water Quality Management Plan.

Should any responsible participant fail to comply with their obligations under this WQMP, ODEQ will take necessary action to seek compliance. Such action will first include negotiation but could evolve to issuance of ODEQ or EQC Orders and other enforcement mechanisms.

7.7 OREGON DIVISION OF STATE LANDS (DSL) AS DMA

Management prescriptions include land management and investment principles and strategies, and define allowed and prohibited uses on lands managed by the Land Board and Division. They are specific to each individual land class and provide an interim level of guidance until more refined management direction is developed in area management plans. As a group these management prescriptions are designed to provide a balance of measures to enhance Common School Fund revenues and improve stewardship of public lands.

7.7.1 Forest Lands

The Land Board administers approximately 133,000 acres of Forest lands (approximately six percent of its total holdings). These lands, located primarily in western Oregon, are referred to as Common School Forest Lands and are managed by the Oregon Department of Forestry (DOF) for the Division. Approximately 85,000 acres are located in the Elliott State Forest in Coos and Douglas counties. The upper most portion of the Tenmile Lakes Watershed is comprised predominantly of Elliott State Forest. All Forest lands are Trust Lands. The following management prescriptions will be applied to Forest lands:

1. Forest lands are to be managed primarily to produce a sustainable, even-flow harvest of timber, subject to economic, environmental and regulatory considerations, according to specific plans developed by forest managers. These plans will be prepared by the land manager (e.g., Department of Forestry) or the Division and approved by the Land Board.

2. Forest health practices will be incorporated into the management of Forest lands to reduce or prevent significant losses from insects, diseases, animals and other similar threats.

3. Forest land management costs and revenues will be periodically reviewed to ensure maximum effectiveness and efficiency. To the extent possible, they will be compared to those of other forest managers for similar Forest lands and activities and management intensities. Greater management costs will be acceptable where justified by increased productivity and higher return rates of investment.

4. Improvements to Forest lands (e.g., road building to improve access, pruning, fertilizing, pre-commercial thinning) will be subject to appropriate investment standards and return analyses.

5. Scattered tracts of Forest land, particularly those identified by the Division and the Oregon Department of Forestry as "marginal" lands (e.g., lands with low productivity or high management costs), will be evaluated for exchange, sale, or reclassification.

6. The acquisition of additional Forest lands will be targeted to western Oregon and the Klamath Basin and will be subject to appropriate investment standards and return analyses.

7.7.2 Agricultural Lands

The Land Board administers and leases 5,227 acres of Agricultural lands (less than one percent of its total holdings) located primarily in the central and eastern portions of the state. Several agricultural grazing leases are managed in the Tenmile Lakes Watershed. Most Agricultural lands are Trust Lands.

The following management prescriptions will be applied to Agricultural lands:

1. Agricultural lands are to be managed primarily for the production of agricultural commodities.

2. The conversion of lower value land (e.g., rangelands) to Agricultural land will be encouraged if such a change in use does not result in significant adverse impacts to watersheds and natural and cultural features and meets appropriate investment standards and return analyses.

3. Lessees will be encouraged to undertake improvements to Agricultural lands to improve productivity. The Division may participate in improvements that meet the appropriate investment standards and return analyses.

4. Where return on investment warrants, the Division should pursue water rights sufficient to serve irrigation and to serve other needs for water associated with standard farming practices.

5. The acquisition of Agricultural lands, with an emphasis on the Willamette Valley or other major agricultural centers, will be considered for future investment.

7.7.3 Wetlands

The long-term protection and management of the state's wetland resources will be ensured through both regulatory and non-regulatory measures including:

- Providing protection of wetlands and restoration sites;
- Conserving and managing functions, and values, of wetlands;
- Encouraging restoration of wetlands for watershed, water quality and/or wildlife objectives, while accommodating necessary economic activities; and
- Managing Oregon's wetlands through partnerships that improve communication, cooperation and consistency among agencies, organizations and the public.

7.7.4 Waterways

The Land Board has jurisdiction over approximately 800,000 acres of Waterways (34 percent of its total holdings) in two broad classifications: the Territorial Sea and submerged and submersible lands. Submerged and submersible lands include all navigable and tidally influenced Waterways. The state also has claim over lakes that are navigable. Waterways are Non-Trust Lands.

The Division leases 1,815 acres of Waterways or adjacent uplands for commercial uses under four lease types: waterway leases, sand and gravel leases and permits, hydroelectric leases and mariculture leases. There are currently 431 properties under lease located on 47 bodies of water in 17 counties, with leading activity concentrated along the Columbia and Willamette Rivers and coastal Waterways.

The Waterways classification covers a vast area. The concept of state ownership of waterways was established by the federal legislation that admitted the State of Oregon to the Union in 1859. Public rights of fishing, navigation and commerce are "Public Trust" interests that apply to all tidelands, shorelines, navigable waters and underlying beds. The extent of public waterway ownership is determined in two ways-by tidality and by navigability.

Public ownership via the navigability test is based upon whether the waterway was used or susceptible to use, in its ordinary condition, as a highway of commerce over which trade or travel occurred or could

have been conducted in the customary modes of trade and travel on water at the time of statehood. On major rivers and bays, tidality and navigability are clearly evident. In the case of smaller streams and lakes, the extent of navigability is sometimes more difficult to determine and depends on historical evidence of use and conditions at the time of statehood.

North and South Tenmile Lakes are navigable waterways and DSL has jurisdiction over vegetation below the ordinary high water line. Protection and enhancement of this vegetation is essential to the implementation of this TMDL and WQMP. The following management prescriptions will be applied to Waterways:

Navigable and Inland Tidal Waterways

1. Submerged and submersible lands on navigable and tidal Waterways are to be managed to ensure the collective rights of the public to fully use and enjoy them for commerce, navigation, fighting, recreation and other related public purposes (referred to as the Public Trust Doctrine). All uses of state submerged and submersible land must conform to local, state, or federal laws, and must be determined to be appropriate to the location and compatible with other existing uses.

2. Consistent with state law, the Land Board and Division will seek to identify, assert ownership of, and protect rivers, lakes and other bodies of water to which the state has a valid ownership claim. The claim may be based on the susceptibility of such waters to tidality or navigability or to ensure the public's right of use of such waters. The Land Board and Division will also seek to resolve ownership claims to submerged and submersible land under navigable or tidal waters.

3. The Division will not permit lessees or others to unreasonably interfere with the public's right of navigation, commerce or fisheries along publicly-owned Waterways.

4. When cost-effective, the Division will engage appropriate private sector entities and public agencies (e.g., port districts, counties, cities, etc.) as property and lease managers, or real estate brokers.

5. The Division will actively pursue leases for unauthorized uses and for unleased lands, with a focus on the potential leasing of higher rent activities on major Waterways in urban areas.

6. The Division will identify and bring under lease existing hydropower facilities located on publicly owned submerged and submersible lands. The Board will review and revise lease rates for hydropower facilities to reflect market values.

7. The Division will evaluate methods for calculating lease rates for submerged and submersible lands and resources to ensure that the state receives fair compensation reflective of local market conditions. A task force will be appointed by the Land Board to assist with this effort.

8. The Division will consider leasing existing filled lands. The sale of such lands will be pursued on a case-by-case basis and only if no interest in leasing is expressed.

9. The acquisition of adjacent uplands may be pursued in order to facilitate the development of prime waterfront locations as CSF investments, subject to investment standards and return analyses.

10. The Division will market the commercial use of submerged and submersible lands based on compatibility with resource stewardship and Public Trust goals. Planning and marketing efforts will be coordinated with local and state economic development efforts.

7.8 OREGON STATE MARINE BOARD AS DMA

The Marine Board administers boating safety educational programs, marine law enforcement and improved boating facilities. The board establishes statewide boating regulations and contracts with county sheriffs and the Oregon State Police to enforce marine laws. The board provides technical training to marine patrol officers and supplies their equipment. The board also provides grants and engineering services to local governments (cities, counties, park districts, port districts) to develop and maintain accessible boating facilities and protect water quality. The board actively promotes safe and sustainable boating through several programs. These programs are ongoing.

Coordination between OSMB and ODEQ regarding guidelines for the sewage collection and sewage disposal for recreational boats, commercial vessels and floating structures is outlined in Appendix M. The guidelines are designed to assure that the two entities have a clear understanding of roles and are able to coordinate and resolve related waste disposal concerns.

7.9 VOLUNTARY MEASURES

7.9.1 Tenmile Lakes Basin Partnership - Water Quality Implementation Plan

There are many voluntary, non-regulatory, watershed improvement programs (Actions) that are in place and are addressing water quality concerns in the Tenmile Lakes Watershed. Technical expertise and partial funding are provided through these programs to implement water quality improvements in partnership with private landowners. Examples of activities promoted and accomplished through these programs include: enhancement of riparian areas along stream and lakefront areas; sediment abatement actions (legacy roads treatments; replacing problem culverts with adequately-sized structures, upslope seeding, and other activities); education and outreach; as well as assessment and action planning. These activities have been and are being implemented to improve watersheds and enhance water quality. Many of these efforts are helping resolve water quality-related legacy issues by working voluntarily with landowners and land managers.

7.9.2 Oregon Plan for Salmon and Watersheds

The Oregon Plan for Salmon and Watersheds represents a major effort, unique to Oregon, to improve watersheds and restore endangered fish species. The Oregon Plan is a major component of the demonstration of “reasonable assurance” that this TMDL WQMP will be implemented. The Plan consists of four essential elements:

1. Coordinated Agency Programs:
   Many state and federal agencies administer laws, policies, and management programs that have an impact on salmon and water quality. These agencies are responsible for fishery harvest management, production of hatchery fish, water quality, water quantity, and a wide variety of habitat protection, alteration, and restoration activities. Previously, agencies conducted business independently. Water quality and salmon suffered because they were affected by the actions of all the agencies, but no single agency was responsible for comprehensive, life-cycle management. Under the Oregon Plan, all government agencies that impact salmon are accountable for coordinated programs in a manner that is consistent with conservation and restoration efforts.

2. Community-Based Action:
   Government alone cannot conserve and restore salmon across the landscape. The Oregon Plan recognizes that actions to conserve and restore salmon must be worked out by communities and landowners with local knowledge of problems and ownership in solutions. Watershed councils, soil and water conservation districts, and other grassroots efforts are vehicles for getting the work

done. Government programs will provide regulatory and technical support to these efforts, but local people will do the bulk of the work to conserve and restore watersheds. Education is a fundamental part of the community-based action. People must understand the needs of salmon in order to make informed decisions about how to make changes to their way of life that will accommodate clean water and the needs of fish.

3. Monitoring:
   The monitoring program combines an annual appraisal of work accomplished and results achieved. Work plans will be used to determine whether agencies meet their goals as promised. Biological and physical sampling will be conducted to determine whether water quality, salmon habitats and populations respond as expected to conservation and restoration efforts.

4. Appropriate Corrective Measures:
   The Oregon Plan includes an explicit process for learning from experience, discussing alternative approaches, and making changes to current programs. The Plan emphasizes improving compliance with existing laws rather than arbitrarily establishing new protective laws. Compliance will be achieved through a combination of education and prioritized enforcement of laws that are expected to yield the greatest benefits for salmon.

7.9.3 Landowner Assistance Programs

A variety of grants and incentive programs are available to landowners in the Tenmile Lakes Watershed. These incentive programs are aimed at improving the health of the watershed, particularly on private lands. They include technical and financial assistance, provided through a mix of state and federal funding. Local natural resource agencies administer this assistance, including the Oregon Department of Forestry, the Oregon Department of Fish and Wildlife, ODEQ, and the National Resources Conservation Service.

Field staffs from the administrative agencies are often available to provide technical assistance and advice to individual landowners, watershed councils, local governments, and organizations interested in enhancing the watershed. These services include on-site evaluations, technical project design, stewardship/conservation plans, and referrals for funding as appropriate. This assistance and funding is further assurance of implementation of the TMDL and WQMP.

Financial assistance is provided through a mix of cost-share, tax credit, and grant-funded incentive programs designed to improve on-the-ground watershed conditions. Some of these programs, due to source of funds, have specific qualifying factors and priorities. Cost share programs include the Forestry Incentive Program (FIP), Stewardship Incentive Program (SIP), Environmental Quality Incentives Program (EQIP), and the Wildlife Habitat Incentive Program (WHIP), Nonpoint Source Tax Credit Program, Restoration and Enhancement Board funding (R&E) and other funding sources too numerous to mention here.

CHAPTER 8 - MONITORING AND EVALUATION OAR 340-42-0040 (4)(I)(K)

This plan to monitor and evaluate progress toward achieving TMDL allocations and water quality standards includes (i) Identification of persons responsible for monitoring, and (ii) Plan and schedule for reviewing monitoring information and revising the TMDL. Monitoring information will provide a check on progress being made toward achieving the TMDL allocations, meeting water quality standards, and will be used as part of an adaptive management process.

Monitoring and evaluation have two basic components:

1. monitoring the implementation of DMA-specific water quality management plans identified in this document and

2. monitoring the physical, chemical and biological parameters for water quality.

The objectives of this monitoring effort are to demonstrate long-term recovery, better understand natural variability, and track the implementation of projects, BMPs, and the effectiveness of TMDL implementation efforts. This monitoring and feedback mechanism is a major component of the "reasonable assurance of implementation" for the Tenmile Lakes Watershed TMDL and WQMP.

Progress in implementing this WQMP and the associated DMA-specific Implementation Plans will be tracked by accounting for the numbers, types, and locations of projects, BMPs, educational activities, or other actions taken to improve or protect water quality. The mechanism for tracking DMA implementation efforts will be annual reports to be submitted to ODEQ.

The information generated by each of the agencies/entities gathering water quality data in the Tenmile Lakes Watershed will be pooled and used to determine whether management actions are having the desired effects or if changes in management actions and/or TMDLs are needed. This detailed evaluation will typically occur on a 5-year cycle. If progress is not occurring then the appropriate management agency will be contacted with a request for action. ODEQ will continue to work with partners to develop a coordinated monitoring program.

The following are monitoring and evaluation programs currently in place for the Tenmile Lakes Watershed:

8.1 OREGON DEPARTMENT OF FORESTRY

8.1.1 Forest Practices Monitoring Program

The Forest Practices Monitoring Program (FPMP) is responsible for monitoring the implementation and effectiveness of the forest practice rules and reporting those findings and recommendations to the Board of Forestry on an annual basis (OAR 629-635-0110 3d). The Board of Forestry considers the findings and recommendations and takes appropriate action with regard to rule revision. The role of monitoring is further articulated in the forest practice rules with regard to the water protection rules. (OAR 629-635-0110 (3))

The monitoring strategy focuses on four types of monitoring to address forest practice program and Oregon Plan for Salmon and Watersheds (OPSW) goals and objectives. The monitoring types include implementation, effectiveness, trend, and validation. The monitoring strategy identifies a number of monitoring projects that would help determine the adequacy of FPA, however, limited funding limits the number of monitoring ODF is able to conduct.

ODF Monitoring Strategy (with a list of proposed monitoring studies) is available for viewing at:

http://oregon.gov/ODF/PRIVATE_FORESTS/docs/fp/Strategy2002.pdf

8.1.2 Opportunities for Collaboration

A memorandum of understanding (MOU) was signed in April of 1998 to improve the coordination between the ODF and the ODEQ in evaluating and proposing possible changes to the forest practice rules as part of the Total Maximum Daily Load process. Thus, the purpose of the MOU was also to encourage ODF to design and implement a specific monitoring program to document the adequacy of the Water Protection BMPs. If the monitoring results indicate that changes in practices are needed, the BOF has a mechanism to revise or create appropriate rules.

ODF and ODEQ have collaborated in several 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. How water quality parameters are affected by FPA BMPs as determined through the TMDL process as well as other monitoring data is an important part of the body of information used in determining the adequacy of the FPA.

Suggested monitoring needs for the watershed and region as funding allows are:

- FPA Effectiveness Monitoring in small type N and intermittent streams
- *O*DEQ encourages ODF to conduct monitoring to better define sediment loading from private and state forests in the Tenmile Lakes Watershed

8.1.3 Watershed Specific Information

Additional monitoring is recommended for the following FPA BMPs that control sediment loading. Some of those BMPs have been revised including rule revisions in 2002 for roads and land slide prone areas. The evaluation of these BMPs to determine their adequacy to meet TMDL load allocations and water quality standards within the Tenmile Lakes Watershed is encouraged.

FPA rules identified by ODEQ and ODF to monitor in the Tenmile Lakes Watershed for BMP effectiveness are as follows:

- OAR 629-623, Shallow, Rapidly Moving Landslides and Public Safety
- OAR 629-625, Road Construction and Maintenance Rules
- OAR 629-645, Riparian Management Areas and Protection Measures for Significant Wetlands
- OAR 629-650, Riparian Management Areas and Protection Measures for Lakes
- OAR 629-640, Vegetation Retention Goals for Streams; Desired Future Conditions

For more information regarding the agreement between ODEQ and ODF relating to TMDL and WQMP processes see Appendix A.

As part of the FPMP, ODF completed an analysis of forest practice compliance on non-federal forest lands in Oregon. This study determined rates of compliance for a large suite of forest practice rules, and the occurrence of water quality violations resulting from non-compliance. This report, as well information on other research and monitoring projects, are available on the ODF website at:

http://egov.oregon.gov/ODF/PRIVATE_FORESTS/fpmpProjects.shtml#Compliance_Monitoring

8.2 OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY

Currently ODEQ has no active monitoring programs in this watershed. In support of the ODEQ mission statement of restoring and protecting Oregon's water, air, and land, ODEQ will continue to support local monitoring efforts with funding as available. In addition, the Watershed Assessment section of the Laboratory Division will be appraised of monitoring and data needs identified in the TMDL document. ODEQ location-specific monitoring studies will need to be conducted to track water quality trends in the watershed.

8.3 OREGON DEPARTMENT OF AGRICULTURE

Agriculture Water Quality Management Plans
Under Senate Bill (SB) 1010 legislation, ODA is responsible to develop watershed plans and rules known as Agricultural Water Quality Management Area Plans and Rules (Plans and Rules). These Plans and Rules are developed in consultation with Local Advisory Committees (LACs). Monitoring and reporting of Plan and Rules implementation and water quality improvements, with respect to agricultural lands in the watershed, is the responsibility of ODA. Water quality and landscape monitoring is being conducted by ODA to evaluate Plans and Rules effectiveness and in support of the Plans and Rules reviews. ODA will use all available data to assess instream concentrations of nitrate/nitrite, dissolved oxygen, total phosphorus, and Total Suspended Solids (TSS) for trend monitoring.

ODA is also collecting data from aerial photographs on landscape conditions including extent and type of riparian vegetation, streambank stability, amount of shade, erosion (upland and riparian), indications of waste discharge, and livestock access to streams. These data will be consolidated to assess the condition of watersheds in the planning area.

Implementation of the 1010 plan will be tracked by accounting for the numbers, types, and locations of projects, BMPs, educational activities, or other actions taken to improve or protect water quality. The mechanism for tracking DMA implementation efforts will be annual reports to be submitted to ODEQ.

ODA and the Local Advisory Committee will be asked to evaluate the adequacy of the water quality monitoring section of the Coos Coquille AWQMP. Water quality is recommended to determine the adequacy of on the ground management and project implementation actions conducted on agricultural lands in the Tenmile Lakes Watershed.

Noxious Weed Control
The Oregon Department of Agriculture (ODA) Noxious Weed Control Program provides a statewide leadership role for coordination and management of state listed noxious weed. The state program focuses on noxious weed control efforts by implementing early detection and rapid response projects for new invasive noxious weeds, implementing biological control, implementing statewide inventory and survey, assisting the public and cooperators through technology transfer and noxious weed education, maintains noxious weed data and maps for priority listed noxious weeds, and provides assistance to land managers and cooperators with integrated weed management projects. The Noxious Weed Control Program also supports the Oregon State Weed Board with administration of the OSWB Grant Program, developing statewide management objectives, maintaining the State Noxious Weed List, and developing Weed Risk Assessments.

8.4 OREGON DEPARTMENT OF TRANSPORTATION

ODOT's monitoring and evaluation program is tied to performing research projects. These projects will address best management practices, effectiveness of the practices, and refining practices as appropriate based on results.

8.5 DMA MONITORING PLANS PENDING DEVELOPMENT

WQIPs that will be development by DMAs are required to provide for performance monitoring with a plan for periodic review and revision of the implementation plan.

- Local jurisdictions are encouraged to coordinate with local watershed councils, Soil and Water Conservation Districts, or other partners who are conducting water quality monitoring activities. DMA-specific Implementation Plans will be tracked/monitored by accounting for the implementation efforts including numbers, types, and locations of projects, BMPs, educational activities, or other actions taken to improve or protect water quality. The mechanism for tracking DMA implementation efforts will be annual reports to be submitted to ODEQ.

- ODFW is encouraged to develop and implement a monitoring plan to determine non-native fish stocking levels. This information will be utilized to assess the biomass and subsequent nutrient loading from the non-native introduced fishery. It will also be utilized to assess to what extent the preferential grazing of zooplankton impacts the algal communities in North and South Tenmile Lakes.

- DSL is encouraged to develop and conduct an assessment of vegetative conditions of state lands located below the ordinary high water line. The identification of enhancement opportunities would be beneficial. In addition DSL is encouraged to assess riparian, wetland, and channel conditions on grazing leases in the Tenmile Lakes Watershed.

8.6 VOLUNTARY EFFORTS

Water quality monitoring programs are currently being implemented by the Tenmile Lakes Basin Partnership. ODEQ supports this program through funding and technical assistance. The Partnership will consider further developing their voluntary monitoring program by reviewing the TMDL data needs statement and seeking partnerships and funding to implement continued trend monitoring in the watershed. The Partnership will also conduct implementation monitoring and report progress on implementing practices to improve water quality. The Partnership has defined monitoring programs relating to this TMDL and WQMP in their voluntary WQIP.

8.7 BASELINE AND TREND WATER QUALITY MONITORING INFORMATION NEEDS FOR THE TENMILE LAKES WATERSHED

- **Lake water column nutrients** – establish long term trend network to determine progress toward meeting the target of 7.1ug/l total phosphorus all season average. Sample analyses should be inclusive of standard nitrogen and phosphorus nutrient suite parameters.

- **Algae composition in conjunction with chlorophyll a** – continue long term trend network to determine progress towards reducing nuisance algal blooms. Continued algae characterization and biomass quantification.

- **Tributary sediment delivery** – establish long term trend network for tributary total suspended solids (TSS) and flow measurement during storm events

    - to better quantify sediment loading thresholds for streams monitored during development of the nutrient budget (Big, Benson, Murphy primarily)
    - to better quantify sediment loading thresholds for streams where load allocation s were based solely on modeling (Shutters Creek has been suggested as a high priority)
    - to better quantify sediment loading within streams at land management interfaces (Elliott State Forest boundary and at the private forestry and agriculture land interfaces, etc.)
    - to better quantify sediment and nutrient loading from the City of Lakeside (urban areas)

Sampling should target 2-5 year return interval storm events to address sediment threshold issues and larger storm events to begin to assess mass loading inputs.

Table 5 – Return Intervals for Precipitation North Bend Oregon					
	24 Hours	**2 days**	**3 days**	**4 days**	**5 days**
2 year	2.68	4.1	5.15	5.95	6.73
5 year	3.81	5.51	6.60	7.57	8.41
10 year	4.87	6.49	7.51	8.57	9.45
25 year	6.43	7.74	8.59	9.74	10.66

- **Lake sediment cores** – establish additional representative sites; implement a long term trend monitoring program.

- **Physical monitoring** – physically monitoring (survey) delta or bar building at mouths of selected tributaries and determine linkages with tributary loading information.

- **Lake weed mapping** – set baseline of species composition (type), distribution, and density, and biomass of weeds (macrophytes) in the lake; conduct long term trend mapping to better define changes in weed biomass.

  TLBP has begun an annual aquatic weed survey using photo documentation and species identification in an attempt to monitor the advance of various troublesome species such as Egeria densa, and Eurasian milfoil.

- **Supporting water quality parameters** - When water quality monitoring is being conducted the collection of supporting parameters is highly recommended (dissolved oxygen, pH, turbidity, etc.).

- **Lake bacteria monitoring** - Very little data is available on lake bacterial water quality. Data in this area would provide valuable information related to water contact recreation.

- **Introduced fish species** - Initiate a monitoring program to support the assessment of fishery management and the effects introduced fish populations have in relationship to trophic structures (preferential grazing) and direct nutrient loading (biomass).

Algal community characterization and quantification and changes in the spatial extent and density of macrophytes can be used as long term indicators of the effectiveness of controlling nutrient availability and sedimentation in the Tenmile Lakes Watershed. Long term monitoring and the adaptive management nature of this TMDL will be used to evaluate target goals over time and to allow the application of adaptive management to assure progress towards meeting LA targets.

CHAPTER 9 - PUBLIC INVOLVEMENT OAR 340-42-0040(4)(I)(L)

To be successful at improving water quality, a WQMP must include a process to involve interested and affected stakeholders in both the development and the implementation of the plan. ODEQ policy provides for public notice and public comment periods associated with TMDLs and permit applications.

Tenmile Lakes Watershed public involvement efforts will continue to focus on education, outreach, and grant funding activities designed to support water quality improvement activities conducted by DMAs and volunteer entities. Currently one of the primary venues for public involvement and water quality outreach is through the Tenmile Lakes Basin Partnership and through the City of Lakeside.

DMA specific public involvement efforts will be detailed within Water Quality Implementation Plans which are pending development or already in place.

CHAPTER 10 - ADAPTIVE MANAGEMENT OAR 340-42-0040(4)(I)(M)

This section describes planned efforts to maintain management strategies over time. The goal of the Clean Water Act and associated Oregon Administrative Rules (OARs) is that water quality standards shall be met or that all feasible steps will be taken toward achieving the highest quality water attainable. This is a long-term goal in many watersheds, particularly where nonpoint sources are the main concern. To achieve this goal, implementation must commence as soon as possible.

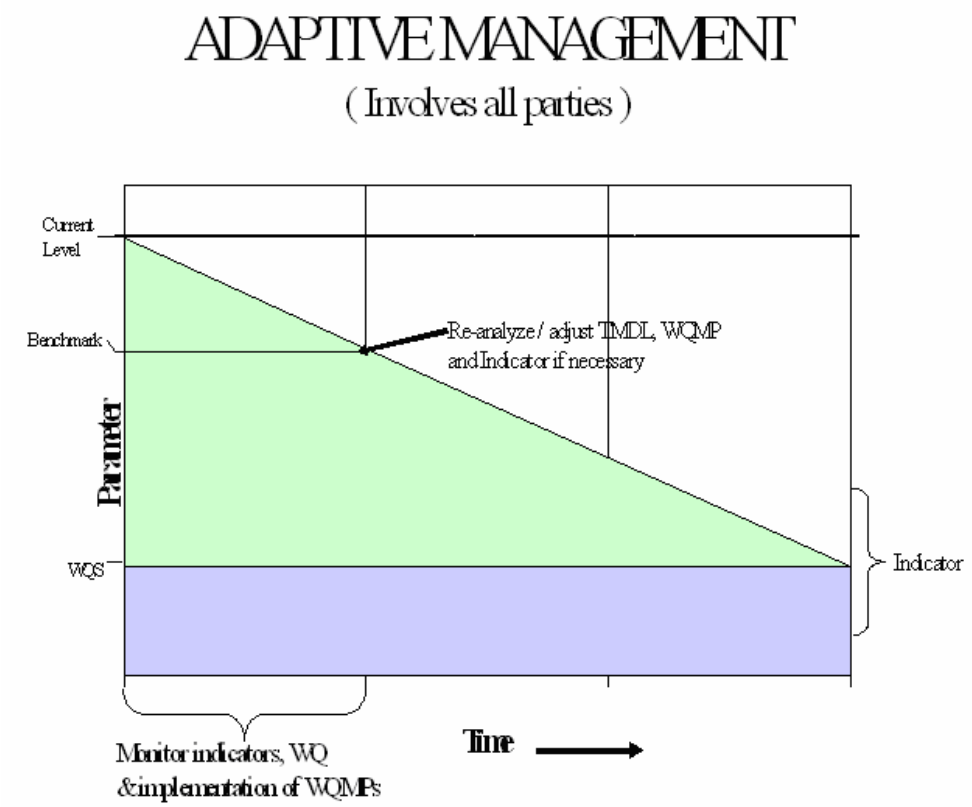
In the Tenmile Lakes Watershed TMDL, sediment reduction, improved riparian and wetland conditions, low impact channel management activities, and effective invasive weed control activities have been identified as pollutant surrogates. The purpose of the surrogates is not to bar or eliminate human access or activity in these watersheds or their riparian areas. It is the expectation, however, that this WQMP and the associated DMA-specific Implementation Plans will address how human activities will be managed to achieve reductions in sediment and phosphorous loading. It is the expectation that both the surrogate load defined in this TMDL and the management measures employed to achieve that surrogate will be adaptively managed over time.

10.1 ADAPTIVE MANAGEMENT

Adaptive management is often defined in various ways by different people and organizations. For the purpose of this TMDL and WQMP the working definition of adaptive management is as follows:

Adaptive management is a systematic and methodical process which incorporates the periodic review of management policies and practices. The goal of this review is to examine and learn from the outcomes of management activities, processes and programs. The goal of adaptive management is to continually improve both the working assessment and implementation measures to maximize success. To be effective, this process requires well coordinated monitoring programs designed to fill information needs.

Figure 2 - A Graphical Representation of the Adaptive Management Concept



Adaptive management is an important part of the TMDL and WQMP process in part because of the following reasons:

1. TMDL development is based on mathematical models and analytical techniques that simplify complex physical, chemical and biological processes. Modeled predictions of waterbody response to different management measures are not certain.

   TMDLs are numerical loadings that are set to limit pollutant levels such that numeric and/or narrative in-stream water quality standards are met. ODEQ recognizes that TMDLs are values calculated from mathematical models and other analytical techniques designed to simulate and/or predict very complex physical, chemical and biological processes. Models and techniques are simplifications of these complex processes and, as such, are unlikely to produce an exact prediction of how streams and other waterbodies will respond to the application of various management measures. It is for this reason that the TMDL has been established with a margin of safety.

2. Technology for controlling nonpoint source pollution continues to develop.

   WQMPs are plans designed to reduce pollutant loads to meet TMDLs. ODEQ recognizes that it may take some period of time - from several years to several decades - after full implementation before management practices identified in a WQMP become fully effective in reducing and controlling pollution. In addition, ODEQ recognizes that technology for controlling nonpoint source pollution is, in many cases, in the development stages and will likely take one or more iterations to develop effective techniques. It is possible that after application of all reasonable best management practices, some TMDLs or their associated surrogates cannot be achieved as originally established.

3. Natural events (e.g. floods, fire, insect infestations, and drought) may interfere with or delay attainment of the TMDL and/or its associated surrogates.

   ODEQ also recognizes that, despite the best and most sincere efforts, natural events beyond the control of humans may interfere with or delay attainment of the TMDL and/or its associated surrogates. Such events could be, but are not limited to, floods, fire, insect infestations, and drought.

4. Full attainment of pollutant surrogates (i.e. system potential vegetation) may not be feasible at all locations due to physical, legal or other regulatory constraints.

   It is recognized that full attainment of pollutant surrogates at all locations may not be feasible due to physical, legal or other regulatory constraints. To the extent possible, the Implementation Plans should identify potential constraints, but should also provide the ability to mitigate those constraints should the opportunity arise. For instance, at this time, the existing location of managed wetlands may preclude attainment of system potential nutrient reductions. In the future, however, should the opportunity to implement mutually acceptable wetland enhancement activities arise, consideration should be given to designs that support TMDL load allocations and pollutant surrogates such as re-establishing the buffering functions of historic wetlands.

If a nonpoint source that is covered by the TMDLs complies with its finalized Implementation Plan or applicable forest practice rules, it will be considered in compliance with the TMDL.

The implementation of TMDLs and the associated plans is generally enforceable by ODEQ, other state agencies and local government. However, it is envisioned that sufficient initiative exists to achieve water quality goals with minimal enforcement. Should the need for additional effort emerge, it is expected that the responsible agency will work with land managers to overcome impediments to progress through education, technical support, and, as a last resort, enforcement. Enforcement may be necessary in instances of insufficient action towards progress. This could occur first through direct intervention from land management agencies (e.g. ODF, ODA, counties and cities), and secondarily through ODEQ. The latter may be based on departmental orders to implement management goals leading to water quality standards.

In employing an adaptive management approach to the TMDLs and the WQMP, ODEQ has the following expectations and intentions:

- Subject to available resources, on a five-year basis, ODEQ intends to review the progress of the TMDLs and the WQMP.

- In conducting this review, ODEQ will evaluate the progress towards achieving the TMDLs (and water quality standards) and the success of implementing the WQMP.

- ODEQ expects that each DMA will also monitor and document its progress in implementing the provisions of its Implementation Plan. This information will be provided to ODEQ for its use in reviewing the TMDL.

- As implementation of the WQMP and the associated Implementation Plans proceeds, ODEQ expects that DMAs and Watershed Councils (WSCs) will further develop benchmarks for attainment of TMDL surrogates, which can then be used to measure progress.

- Where implementation of the Implementation Plans or effectiveness of management techniques is found to be inadequate, ODEQ expects management agencies to revise the components of their Implementation Plan to address these deficiencies.

- If ODEQ determines that all feasible measures have been taken by the DMAs and that the WQMP has been fully implemented, ODEQ shall reopen the TMDL and adjust it or its interim targets and the associated water quality standard(s) as necessary. ODEQ would also consider reopening the TMDL should new information become available indicating that the TMDL or its associated surrogates should be modified.

The management measures employed to meet the load and wasteload allocations will differ depending on the source of the pollutant. Adaptive management relating to each DMA is discussed in more detail in this document in the section titled Reasonable Assurance of Implementation.

CHAPTER 11 - COSTS AND FUNDING OAR 340-42-0040(4)(I)(N)

The purpose of this element is to describe estimated costs and demonstrate there is sufficient funding available to begin implementation of the WQMP. Another purpose is to identify potential future funding sources for project implementation. There are many natural resource enhancement efforts and projects occurring in the watershed which are relevant to the goals of the plan. Many of these efforts, in addition to proposed future actions, are described in the Management Measurers element of this Plan.

Designated Management Agencies and volunteer organizations will be expected to provide a fiscal analysis of the resources needed to develop, execute and maintain the programs described in their Implementation Plans. ODEQ will support, as possible, funding requests which connect implementation and monitoring needs to the goals of this TMDL and WQMP.

11.1 POTENTIAL SOURCES OF PROJECT FUNDING

Funding is essential to assure implementation of on the ground projects associated with this WQMP. There are numerous sources of local, state, and federal funds currently being used to implement enhancement projects in the Tenmile Lakes Watershed. Grant funds are available for improvement projects on a competitive basis. Agency and watershed council personnel are often available to assist landowners and organizations in identifying, designing, and submitting eligible projects for these grant funds. For private landowners, the recipient and administrator of these grants is often the local watershed council, Soil and Water Conservation District, or other entity.

The Oregon Plan for Salmon and Watersheds represents a major effort, unique to Oregon, designed to improve watersheds and restore endangered fish species. The Oregon Plan is a major component of the demonstration of “reasonable assurance” that this TMDL WQMP will be implemented. Oregon Watershed Enhancement Board (OWEB) funds watershed improvement projects with state money. This is an important piece in the implementation the Oregon Plan. OWEB plays a key role in providing up to date information with respect to funding sources available to water shed improvement activities. http://www.oweb.state.or.us/OWEB/GRANTS/index.shtml

Wide arrays of sources are available to provide funding assistance. Funding Program Fact Sheets available on the Environmental Finance Center Network (Boise State Region 10) website provide information on a variety of funding sources. Appendix N provides a partial list of assistance programs available to aid in water quality protection activities.

Founded in 1992, the Environmental Finance Center Network (EFCN) is a university-based organization dedicated to creating innovative solutions to manage the cost of environmental protection. The Network works with the public and private sector, addressing "how to pay" issues and promoting a sustainable environment.

The EFCN is supported in large part by USEPA's Environmental Finance Program in the Office of the Comptroller, Office of the Chief Financial Officer. The Network is comprised of nine Environmental Finance Centers (EFC), each affiliated with an EPA region.

A searchable directory of watershed resources can be viewed at:
http://efc.boisestate.edu/index.asp

CHAPTER 12 - CITATION TO LEGAL AUTHORITIES OAR 340-42-0040(4)(I)(O)

12.1 CLEAN WATER ACT SECTION 303(D)

Section 303(d) of the 1972 Federal Clean Water Act as amended requires states to develop a list of rivers, streams and lakes that cannot meet water quality standards without application of additional pollution controls beyond the existing requirements on industrial sources and sewage treatment plants. Waters that need this additional help are referred to as "water quality limited" (WQL). Water quality-limited waterbodies must be identified by the Environmental Protection Agency (USEPA) or by a state agency which has been delegated this responsibility by USEPA. In Oregon, this responsibility rests with the ODEQ. The ODEQ updates the list of water quality limited waters every two years. The list is referred to as the 303(d) list. Section 303 of the Clean Water Act further requires that Total Maximum Daily Loads (TMDLs) be developed for all waters on the 303(d) list. A TMDL defines the amount of pollution that can be present in the waterbody without causing water quality standards to be violated. A WQMP is developed to describe a strategy for reducing water pollution to the level of the load allocations and waste load allocations prescribed in the TMDL. In turn, this TMDL is designed to restore the water quality and result in compliance with the water quality standards. In this way, the designated beneficial uses of the water will be protected for all citizens.

12.2 OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY

The Oregon Department of Environmental Quality is authorized by law to prevent and abate water pollution within the State of Oregon pursuant to Oregon Revised Statute 468 and 468B:

ORS 468B.020 speaks to the prevention of pollution

1. Pollution of any of the waters of the state is declared to be not a reasonable or natural use of such waters and to be contrary to the public policy of the State or Oregon, as set forth in ORS 468B.015.

2. In order to carry out the public policy set forth in ORS 468B.015, ODEQ shall take such action as is necessary for the prevention of new pollution and the abatement of existing pollution by:
    a) Fostering and encouraging the cooperation of the people, industry, cities and counties, in order to prevent, control and reduce pollution of the waters of the state; and
    b) Requiring the use of all available and reasonable methods necessary to achieve the purposes of ORS 468B.015 and to conform to the standards of water quality and purity established under ORS 468B.048.

12.2.1 NPDES and WPCF Permit Programs

The ODEQ administers two different types of wastewater permits in implementing Oregon Revised Statute (ORS) 468B.050. These are: the National Pollution Discharge Elimination System (NPDES) permits for waste discharge; and Water Pollution Control Facilities (WPCF) permits for waste disposal. The NPDES permit is also a federal permit and is required under the Clean Water Act. The WPCF permit is a state program. As permits are renewed, they will be revised to insure that all TMDL and 303(d) related issues are addressed.

12.2.2 Section 401 Certification Program

Some federally licensed or permitted activities or facilities have potential to cause impacts to waters of the state. Section 401 of the Clean Water Act requires applicants of such activities or facilities to obtain certification that the activities or facilities will comply with Sections 301, 302, 303, 306, and 307 of the Clean Water Act. Before the Federal Energy Regulatory Commission may renew a license, the applicant must show that the proposed Project will comply with the state's water quality standards and policies as evidenced by a Section 401 certification.

12.3 OREGON DEPARTMENT OF FORESTRY

The Oregon Department of Forestry (ODF) is the designated management agency for regulation of water quality on non-federal forest lands. The Board of Forestry has adopted water protection rules, including but not limited to OAR Chapter 629, Divisions 635-660, which describes BMPs for forest operations. The Environmental Quality Commission (EQC), Board of Forestry, ODEQ and ODF have agreed that these pollution control measurers will be relied upon to result in achievement of state water quality standards.

ODF and ODEQ 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 527.714, ORS 527.765, ORS 183.310, OAR 340-041-0028, OAR 629-635-110, and OAR 340-041-0061.

The Oregon Department of Forestry (ODF) is the designated management agency for regulation of water quality on non-federal forest lands. The Board of Forestry has adopted water protection rules, including but not limited to OAR Chapter 629, Divisions 635-660, which describes BMPs for forest operations. The Environmental Quality Commission (EQC), Board of Forestry, ODEQ, and ODF have agreed that these pollution control measurers will be relied upon to achieve state water quality standards.

12.4 SENATE BILL 1010

The Oregon Department of Agriculture has primary responsibility for the control of pollution from agriculture sources. This pollution control on agricultural lands is accomplished through the Agriculture Water Quality Management (AWQM) program authorities granted ODA under Senate Bill 1010 adopted by the Oregon State Legislature in 1993. The AWQM Act directs the ODA to work with local farmers and ranchers to develop water quality management plans for specific watersheds. These watersheds have been identified as violating water quality standards and have agriculture water pollution contributions. The agriculture water quality management plans are expected to identify problems in the watershed that need to be addressed and outline ways to correct the problems.

12.5 DIVISION OF STATE LANDS

The Division of State Lands is the administrative agency of the State Land Board, handling the day-to-day work of the board in managing the land and other resources dedicated to the Common School Fund.

As a regulatory agency DSL is responsible for administration of Oregon's Removal-Fill Law. That law was enacted in 1967 to protect, conserve and allow the best use of the state's water resources. It generally requires a permit from DSL to remove, fill or alter more than 50 cubic yards of material within the bed or banks of waters of the state. Exceptions are in State Scenic Waterways and areas designated essential salmon habitat, where a permit is required for all in-stream activity, regardless of size.

DSL also is responsible for Oregon's wetlands program. This includes maintenance of a statewide wetland inventory, providing public information and technical assistance about wetlands to local governments and landowners, and providing wetland conservation grants to local governments conducting detailed wetland inventories. DSL is currently engaged with the City of Lakeside who is conducting a wetland inventory for areas under their jurisdiction.

12.7 OREGON DEPARTMENT OF FISH AND WILDLIFE

Oregon Department of Fish and Wildlife legal authorities address fish harvesting, stocking, and licensing only.

12.8 OREGON STATE MARINE BOARD

The Marine Board administers boating safety educational programs, marine law enforcement and improved boating facilities. The board establishes statewide boating regulations and contracts with county sheriffs and the Oregon State Police to enforce marine laws.

12.9 LOCAL JURISDICTIONS

Within the Implementation Plans, Coos and Douglas Counties and the City of Lakeside are expected to describe their specific legal authorities to carry out the management measures they choose to meet the TMDL allocations. Legal authority to enforce the provisions of a city or county's riparian protection ordinance would be a specific example of a legal authority to carry out a management measure.

Tenmile Lakes Watershed WQMP

APPENDIX A - NPDES GENERAL PERMIT 0200

Industrial Wastewater Filter Backwash

ODEQ Permits page at:

http://www.deq.state.or.us/wq/wqpermit/genpermits.htm

Permit Number: 200-J
Expiration Date: 7/31/2002
Page: 1 of 10

GENERAL PERMIT
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
WASTE DISCHARGE PERMIT

Department of Environmental Quality
811 S.W. Sixth Avenue
Portland, OR 97204
Telephone: (503) 229-5279

Issued pursuant to ORS 468B.050 and The Federal Clean Water Act

---

ISSUED TO:

SOURCES COVERED BY THIS PERMIT:

Discharge or land application of filter backwash, settling basin, and reservoir cleaning water which have been adequately treated prior to discharge. Flushing of raw water intakes after storm events and spring runoff are also allowed.

_____
Michael T. Llewelyn, Administrator
Water Quality Division

_____
Date

PERMITTED ACTIVITIES

Until this permit expires or is modified or revoked, the permittee is authorized to discharge to waters of the State or land apply adequately treated waste waters only from the authorized discharge point or points established in Schedule A and only in conformance with all the requirements, limitations, and conditions set forth in the attached schedules as follows:

Unless authorized by another NPDES or WPCF permit, all other direct and indirect discharges to waters of the State are prohibited.

Permit Number: 200-J
Page: 2 of 10

SCHEDULE A

1. **Waste Discharge Limitations not to be Exceeded by Facilities Covered by this General Permit:**

Parameters	Limitations - Daily Maximum
Settleable Solids	Shall not exceed 0.1 ml/l
pH	Shall be within the range 6.0 - 9.0 S.U.

2. **Minimum Dilution Requirement:** In assigning this permit, the Department will ensure that the receiving stream flow provides a 30:1 minimum dilution ratio with the effluent during periods of discharge. Facilities that do not meet this criteria will not be eligible for this permit.

3. **Temperature Management Plan:** Facilities that discharge to water quality limited streams and meet the dilution requirements above will be deemed to satisfy the requirement of developing and implementing a surface water management plan.

4. **Mixing Zone:** Notwithstanding the effluent limitations established by this permit except as provided in OAR 340-45-080, no wastes shall be discharged and no activities shall be conducted which will violate Water Quality Standards as adopted in OAR Chapter 340 Division 41 except in the following defined mixing zone:

   The allowable mixing zone shall not extend downstream beyond a distance of 30 feet from the point of discharge and shall not exceed one-half the width of the receiving stream.

5. **Land Application:** The permittee can land apply filter backwash, settling basin, and reservoir cleaning wastewater provided written approval is obtained from the Department and the following conditions are met:
   i) No surface runoff or discharge to surface waters from the land application site is allowed;
   ii) Wastewater must not be land applied at rates which exceed the hydraulic or organic loading capacity of the soil; and
   iii) The application of wastewater must not result in odors or other nuisance conditions.

6. Prior to discharge to waters of the State, all filter backwash water shall pass through a settling pond or other approved treatment system and meet the effluent limitations in condition 1 above.

7. Prior to discharge to waters of the State, all reservoir cleaning water (on and off-site) shall pass through an approved treatment system and meet the effluent limitations in condition 1 above. If super-chlorinated water (i.e. chlorine concentrations above 4 mg/l) is used for cleaning reservoirs or for water main disinfection and flushing, the water must be dechlorinated prior to discharge. Dechlorination must be sufficiently effective to reduce total residual chlorine concentrations to 0.1 mg/l. Alternatively, the permittee can use non-discharge options such as discharge to sanitary sewer or land application.

8. Upon approval by the Department, the permittee may discharge water from the clearwell and contact basins if there are contaminants detected. Depending on the circumstances, the Department may require that minimum dilution requirements be met and/or the discharge be dechlorinated to prevent impacts on the receiving stream.

Permit Number: 200-J
Page: 3 of 10

SCHEDULE B

MINIMUM MONITORING AND REPORTING REQUIREMENTS

1. Monitoring Requirements

A. Discharge to surface waters:

Item or Parameter	Minimum Frequency	Type of Sample*
Effluent Flow (mgd)	1/month	Record**
Settleable Solids	2/month	Grab
Total Residual Chlorine (mg/l)***	2/month	Grab
pH	2/month	Grab

B. Land application:

Item or Parameter	Minimum Frequency	Type of Sample*
Effluent Flow (mgd)	1/month	Record**

C. Reservoir cleaning activities that result in discharge to surface waters:

Item or Parameter	Minimum Frequency	Type of Sample
Effluent Flow (mgd)	per event	Estimate
Settleable Solids	per event	Grab
Total Residual Chlorine (mg/l)	per event	Grab
pH	per event	Grab

* The samples shall be collected at the overflow of the settling pond or other treatment device during a filter backwash cycle. If the filters are backwashed at a frequency less than 2/month, the data shall be collected during the time backwash occurs. If the settling pond does not overflow during the backwash cycle but is drained or pumped after settling has occurred, the data shall be collected during the draining or pumping.

** Flow should be recorded on a per event basis and only the monthly average of these events should be reported in the annual tabulation.

*** Monitoring for total residual chlorine is to be conducted only if chlorinated water is used for backwashing.

2. Reporting Requirements

Monitoring data shall be recorded each month. An **annual tabulation** of the data shall be submitted to the appropriate DEQ Regional Office by January 15 of each year. In addition, any violation of permit conditions shall be reported within five (5) days of discovery along with an explanation and correction plan.

Permit Number: 200-J
Page: 4 of 10

SCHEDULE D

SPECIAL CONDITIONS

1. Solids, sludges, dirt, sand, silt and bacterial slime removed from the filters, settling basins, and reservoirs shall be disposed of in a manner that will prevent discharge to public waters and nuisance conditions.

2. The Department may revoke a general permit as it applies to any person and require such person to apply for and obtain an individual NPDES permit if:

   a. The permitted source or activity is a significant contributor of pollution or causes environmental problems;

   b. The permittee is not in compliance with the terms and conditions of this general permit; or

   c. Conditions or standards have changed so that the source or activity no longer qualifies for a general permit.

3. Any permittee not wishing to be covered or limited by this general permit may make application for an individual NPDES permit in accordance with the procedures in OAR 340-45-030.

SCHEDULE F
NPDES GENERAL CONDITIONS

SECTION A. STANDARD CONDITIONS

1. Duty to Comply

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of Oregon Revised Statutes (ORS) 468B.025 and is grounds for enforcement action; for permit termination, suspension, or modification; or for denial of a permit renewal application.

2. Penalties for Water Pollution and Permit Condition Violations

Oregon Law (ORS 468.140) allows the Director to impose civil penalties up to $10,000 per day for violation of a term, condition, or requirement of a permit.

Under ORS 468.943, unlawful water pollution, if committed by a person with criminal negligence, is punishable by a fine of up to $25,000 or by imprisonment for not more than one year, or by both. Each day on which a violation occurs or continues is a separately punishable offense.

Under ORS 468.946, a person who knowingly discharges, places or causes to be placed any waste into the waters of the state or in a location where the waste is likely to escape into the waters of the state, is subject to a Class B felony punishable by a fine not to exceed $200,000 and up to 10 years in prison.

3. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment. In addition, upon request of the Department, the permittee shall correct any adverse impact on the environment or human health resulting from noncompliance with this permit, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

4. Duty to Reapply

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and have the permit renewed. The application shall be submitted at least 180 days before the expiration date of this permit.

The Director may grant permission to submit an application less than 180 days in advance but no later than the permit expiration date.

5. Permit Actions

This permit may be modified, suspended, revoked and reissued, or terminated for cause including, but not limited to, the following:

a. Violation of any term, condition, or requirement of this permit, a rule, or a statute;
b. Obtaining this permit by misrepresentation or failure to disclose fully all material facts; or
c. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.

The filing of a request by the permittee for a permit modification or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

6. Toxic Pollutants

The permittee shall comply with any applicable effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

7. Property Rights

The issuance of this permit does not convey any property rights of any sort, or any exclusive privilege.

8. Permit References

Except for effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants and standards for sewage sludge use or disposal established under Section 405(d) of the Clean Water Act, all rules and statutes referred to in this permit are those in effect on the date this permit is issued.

SECTION B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

1. Proper Operation and Maintenance

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls, and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

2. Duty to Halt or Reduce Activity

For industrial or commercial facilities, upon reduction, loss, or failure of the treatment facility, the permittee shall, to the extent necessary to maintain compliance with its permit, control production or all discharges or both until the facility is restored or an alternative method of treatment is provided. This requirement applies, for example, when the primary source of power of the treatment facility fails or is reduced or lost. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

3. Bypass of Treatment Facilities

a. Definitions
(1) "Bypass" means intentional diversion of waste streams from any portion of the treatment facility. The term "bypass" does not include nonuse of singular or multiple units or processes of a treatment works when the nonuse is insignificant to the quality and/or quantity of the effluent produced by the treatment works. The term "bypass" does not apply if the diversion does not cause effluent limitations to be exceeded, provided the diversion is to allow essential maintenance to assure efficient operation.
(2) "Severe property damage" means substantial physical damage to property, damage to the treatment facilities or treatment processes which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

b. Prohibition of bypass.
(1) Bypass is prohibited unless:
(a) Bypass was necessary to prevent loss of life, personal injury, or severe property damage;
(b) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance; and
(c) The permittee submitted notices and requests as required under General Condition B.3.c.
(2) The Director may approve an anticipated bypass, after considering its adverse effects and any alternatives to bypassing, when the Director determines that it will meet the three conditions listed above in General Condition B.3.b.(1).

c. Notice and request for bypass.
(1) Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior written notice, if possible at least ten days before the date of the bypass.
(2) Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in General Condition D.5.

4. Upset

a. Definition. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operation error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or careless or improper operation.

b. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of General Condition B.4.c are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

c. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
(1) An upset occurred and that the permittee can identify the causes(s) of the upset;
(2) The permitted facility was at the time being properly operated;
(3) The permittee submitted notice of the upset as required in General Condition D.5, hereof (24-hour notice); and
(4) The permittee complied with any remedial measures required under General Condition A.3 hereof.

d. Burden of proof. In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.

5. Treatment of Single Operational Event

For purposes of this permit, A Single Operational Event which leads to simultaneous violations of more than one pollutant parameter shall be treated as a single violation. A single operational event is an exceptional incident which causes simultaneous, unintentional, unknowing (not the result of a knowing act or omission), temporary noncompliance with more than one Clean Water Act effluent discharge pollutant parameter. A single operational event does not include Clean Water Act violations involving discharge without a NPDES permit or noncompliance to the extent caused by improperly designed or inadequate treatment facilities. Each day of a single operational event is a violation.

6. Overflows from Wastewater Conveyance Systems and Associated Pump Stations

a. Definitions
(1) "Overflow" means the diversion and discharge of waste streams from any portion of the wastewater conveyance system including pump stations, through a designed overflow device or structure, other than discharges to the wastewater treatment facility.
(2) "Severe property damage" means substantial physical damage to property, damage to the conveyance system or pump station which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of an overflow.
(3) "Uncontrolled overflow" means the diversion of waste streams other than through a designed overflow device or structure, for example to overflowing manholes or overflowing into residences, commercial establishments, or industries that may be connected to a conveyance system.

b. Prohibition of overflows. Overflows are prohibited unless:
(1) Overflows were unavoidable to prevent an uncontrolled overflow, loss of life, personal injury, or severe property damage;
(2) There were no feasible alternatives to the overflows, such as the use of auxiliary pumping or conveyance systems, or maximization of conveyance system storage; and
(3) The overflows are the result of an upset as defined in General Condition B.4. and meeting all requirements of this condition.

c. Uncontrolled overflows are prohibited where wastewater is likely to escape or be carried into the waters of the State by any means.

d. Reporting required. Unless otherwise specified in writing by the Department, all overflows and uncontrolled overflows must be reported orally to the Department within 24 hours from the time the permittee becomes aware of the overflow. Reporting procedures are described in more detail in General Condition D.5.

7. Public Notification of Effluent Violation or Overflow

If effluent limitations specified in this permit are exceeded or an overflow occurs, upon request by the Department, the permittee shall take such steps as are necessary to alert the public about the extent and nature of the discharge. Such steps may include, but are not limited to, posting of the river at access points and other places, news releases, and paid announcements on radio and television.

8. Removed Substances

Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters shall be disposed of in such a manner as to prevent any pollutant from such materials from entering public waters, causing nuisance conditions, or creating a public health hazard.

SECTION C. MONITORING AND RECORDS

1. Representative Sampling

Sampling and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. All samples shall be taken at the monitoring points specified in this permit and shall be taken, unless otherwise specified, before the effluent joins or is diluted by any other waste stream, body of water, or substance. Monitoring points shall not be changed without notification to and the approval of the Director.

2. Flow Measurements

Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed, calibrated and maintained to insure that the accuracy of the measurements is consistent with the accepted capability of that type of device. Devices selected shall be capable of measuring flows with a maximum deviation of less than ± 10 percent from true discharge rates throughout the range of expected discharge volumes.

3. Monitoring Procedures

Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit.

4. Penalties of Tampering

The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate, any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than two years, or by both. If a conviction of a person is for a violation committed after a first conviction of such person, punishment is a fine not more than $20,000 per day of violation, or by imprisonment of not more than four years or both.

5. Reporting of Monitoring Results

Monitoring results shall be summarized each month on a Discharge Monitoring Report form approved by the Department. The reports shall be submitted monthly and are to be mailed, delivered or otherwise transmitted by the 15th day of the following month unless specifically approved otherwise in Schedule B of this permit.

6. Additional Monitoring by the Permittee

If the permittee monitors any pollutant more frequently than required by this permit, using test procedures approved under 40 CFR 136 or as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the Discharge Monitoring Report. Such increased frequency shall also be indicated. For a pollutant parameter that may be sampled more than once per day (e.g., Total Chlorine Residual), only the average daily value shall be recorded unless otherwise specified in this permit.

7. Averaging of Measurements

Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean, except for bacteria which shall be averaged as specified in this permit.

8. Retention of Records

Except for records of monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 CFR part 503), the permittee shall retain records of all monitoring information, including all calibration and maintenance records of all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report or application. This period may be extended by request of the Director at any time.

9. Records Contents

Records of monitoring information shall include:
a. The date, exact place, time and methods of sampling or measurements;
b. The individual(s) who performed the sampling or measurements;
c. The date(s) analyses were performed;
d. The individual(s) who performed the analyses;
e. The analytical techniques or methods used; and
f. The results of such analyses.

10. Inspection and Entry

The permittee shall allow the Director, or an authorized representative upon the presentation of credentials to:

a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit, and
d. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by state law, any substances or parameters at any location.

SECTION D. REPORTING REQUIREMENTS

1. Planned Changes

The permittee shall comply with Oregon Administrative Rules (OAR) 340, Division 52, "Review of Plans and Specifications". Except where exempted under OAR 340-52, no construction, installation, or modification involving disposal systems, treatment works, sewerage systems, or common sewers shall be commenced until the plans and specifications are submitted to and approved by the Department. The permittee shall give notice to the Department as soon as possible of any planned physical alternations or additions to the permitted facility.

2. Anticipated Noncompliance

The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

3. Transfers

This permit may be transferred to a new permittee provided the transferee acquires a property interest in the permitted activity and agrees in writing to fully comply with all the terms and conditions of the permit and the rules of the

Commission. No permit shall be transferred to a third party without prior written approval from the Director. The permittee shall notify the Department when a transfer of property interest takes place.

4. Compliance Schedule

Reports of compliance or noncompliance with, or any progress reports on interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date. Any reports of noncompliance shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirements.

5. Twenty-Four Hour Reporting

The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally (by telephone) within 24 hours, unless otherwise specified in this permit, from the time the permittee becomes aware of the circumstances. During normal business hours, the Department's Regional office shall be called. Outside of normal business hours, the Department shall be contacted at 1-800-452-0311 (Oregon Emergency Response System).

A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. If the permittee is establishing an affirmative defense of upset or bypass to any offense under ORS 468.922 to 468.946, and in which case if the original reporting notice was oral, delivered written notice must be made to the Department or other agency with regulatory jurisdiction within 4 (four) calendar days. The written submission shall contain:
a. A description of the noncompliance and its cause;
b. The period of noncompliance, including exact dates and times;
c. The estimated time noncompliance is expected to continue if it has not been corrected;
d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance; and
e. Public notification steps taken, pursuant to General Condition B.7.

The following shall be included as information which must be reported within 24 hours under this paragraph:
a. Any unanticipated bypass which exceeds any effluent limitation in this permit.
b. Any upset which exceeds any effluent limitation in this permit.
c. Violation of maximum daily discharge limitation for any of the pollutants listed by the Director in this permit.

The Department may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.

6. Other Noncompliance

The permittee shall report all instances of noncompliance not reported under General Condition D.4 or D.5, at the time monitoring reports are submitted. The reports shall contain:
a. A description of the noncompliance and its cause;
b. The period of noncompliance, including exact dates and times;
c. The estimated time noncompliance is expected to continue if it has not been corrected; and
d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

7. Duty to Provide Information

The permittee shall furnish to the Department, within a reasonable time, any information which the Department may request to determine compliance with this permit. The permittee shall also furnish to the Department, upon request, copies of records required to be kept by this permit.

Other Information: When the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or any report to the Department, it shall promptly submit such facts or information.

8. Signatory Requirements

All applications, reports or information submitted to the Department shall be signed and certified in accordance with 40 CFR 122.22.

9. Falsification of Reports

Under ORS 468.953, any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance, is subject to a Class C felony punishable by a fine not to exceed $100,000 per violation and up to 5 years in prison.

10. Changes to Indirect Dischargers - **[Applicable to Publicly Owned Treatment Works (POTW) only]**

The permittee must provide adequate notice to the Department of the following:
a. Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to section 301 or 306 of the Clean Water Act if it were directly discharging those pollutants and;
b. Any substantial change in the volume or character of pollutants being introduced into the POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.

c. For the purposes of this paragraph, adequate notice shall include information on (i) the quality and quantity of effluent introduced into the POTW, and (ii) any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

11. Changes to Discharges of Toxic Pollutant - **[Applicable to existing manufacturing, commercial, mining, and silvicultural dischargers only]**

The permittee must notify the Department as soon as they know or have reason to believe of the following:

a. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:
(1) One hundred micrograms per liter (100 µg/l);
(2) Two hundred micrograms per liter (200 µg/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/l) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/l) for antimony;
(3) Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21(g)(7); or
(4) The level established by the Department in accordance with 40 CFR 122.44(f).

b. That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
(1) Five hundred micrograms per liter (500 µg/l);
(2) One milligram per liter (1 mg/l) for antimony;
(3) Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21(g)(7); or
(4) The level established by the Department in accordance with 40 CFR 122.44(f).

SECTION E. DEFINITIONS

1. BOD means five-day biochemical oxygen demand.
2. TSS means total suspended solids.
3. mg/l means milligrams per liter.
4. kg means kilograms.
5. m^3/d means cubic meters per day.
6. MGD means million gallons per day.
7. Composite sample means a sample formed by collecting and mixing discrete samples taken periodically and based on time or flow.
8. FC means fecal coliform bacteria.
9. Technology based permit effluent limitations means technology-based treatment requirements as defined in 40 CFR 125.3, and concentration and mass load effluent limitations that are based on minimum design criteria specified in OAR 340-41.
10. CBOD means five day carbonaceous biochemical oxygen demand.
11. Grab sample means an individual discrete sample collected over a period of time not to exceed 15 minutes.
12. Quarter means January through March, April through June, July through September, or October through December.
13. Month means calendar month.
14. Week means a calendar week of Sunday through Saturday.
15. Total residual chlorine means combined chlorine forms plus free residual chlorine.
16. The term "bacteria" includes but is not limited to fecal coliform bacteria, total coliform bacteria, and E. coli bacteria.
17. POTW means a publicly owned treatment works

APPENDIX B - ODEQ GENERAL PERMIT 1200C

CONSTRUCTION PERMIT
GROUND DISTURBING ACTIVITIES 1 ACRE OR MORE

ODEQ Permits page at:

http://www.deq.state.or.us/wq/stormwater/stormwater.htm

Permit Number: 1200-C
Expiration Date: November 30, 2010
Page 1 of 24

GENERAL PERMIT
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
STORMWATER DISCHARGE PERMIT

Oregon Department of Environmental Quality
811 SW Sixth Avenue, Portland OR 97204
Telephone: (503) 229-5279 or 1-800-452-4011 (toll free in Oregon)

Issued pursuant to ORS 468B.050 and Section 402 of the Federal Clean Water Act

REGISTERED TO:

SOURCES COVERED BY THIS PERMIT:

Construction activities including clearing, grading, excavation, and stockpiling that will disturb one or more acres and may discharge to surface waters or conveyance systems leading to surface waters of the state. Also included are activities that disturb less than one acre that are part of a common plan of development or sale if the larger common plan of development or sale will ultimately disturb one acre or more and may discharge to surface waters or conveyance systems leading to surface waters of the state. Oregon Administrative Rules (OAR) 340-045-0015 and 0033(5) require all owners or operators responsible for these sources to register under this permit or obtain an individual permit.

This permit does not authorize in-water or riparian work regulated by the Federal Clean Water Act Section 404 permit program. These types of activities are regulated by the Oregon Department of State Lands, U.S. Army Corp of Engineers, and the Department of Environmental Quality Section 401 certification program. Unless specifically authorized by this permit, by another National Pollutant Discharge Elimination System (NPDES) or Water Pollution Control Facilities (WPCF) permit, or by OAR, any other direct or indirect discharge to waters of the state is prohibited, including discharges to an underground injection control (UIC) system.

Lauri Aunan, Administrator
Water Quality Division

Issued: December 28, 2005
Expiration Date: November 30, 2010

PERMITTED ACTIVITIES

Until this permit expires, is modified or revoked, the permit registrant is authorized to construct, install, modify, or operate erosion and sediment control measures and stormwater treatment and control facilities, and to discharge stormwater and certain specified non-stormwater discharges to surface waters of the state in conformance with all the requirements, limitations, and conditions set forth in the permit including attached schedules as follows:

PERMIT REGISTRATION

1. **Renewal Requirements**
   a. Activities Registered Under the Previous 1200-C Permit (issued February 2001).
      i. Permit registrants must submit a complete permit renewal application to the department prior to the permit expiration date of December 31, 2005 to ensure uninterrupted permit coverage under this permit for construction activities continuing beyond December 31, 2005.
      ii. An Erosion and Sediment Control Plan (ESCP) submitted prior to December 31, 2005 is not required to be resubmitted to the department or Agent except as required in Schedule C.
      iii. Permit registrants that do not submit a renewal application by the previous 1200-C expiration date must submit a new application for coverage under this permit and follow Condition 2 below.
   b. Renewal of Permit Registration under this Permit (December, 2005).
      i. To maintain continuous permit registration during the renewal process, a permit registrant must submit a complete renewal application with a revised ESCP, if applicable, to the department 180 days prior to this permit expiration unless otherwise approved by the department.
      ii. If the department fails to act on the application by the expiration date, permit registration is administratively extended until the department takes action on the application.
      iii. If registration under the renewed permit is not required or appropriate, the department will notify the applicant.

2. **New Construction Activities**
   a. Applicants seeking registration under this permit must:
      i. Submit a complete department-approved application form with an ESCP that complies with the permit requirements to the department or Agent at least thirty (30) days prior to the planned soil disturbance unless otherwise approved by the department.
      ii. Prior to beginning any soil disturbance activity, receive written notice from the department or Agent that permit registration has been approved.
   b. The department or Agent will register the applicant after the ESCP has been approved by the department or Agent. For construction activities that disturb five (5) or more acres, a public notice period is required as provided in Condition 4 below. The ESCP is approved when the department or Agent provides written notice of approval.
   c. If the application for registration is denied by the department or Agent, a construction activity cannot be registered under this permit, or if the applicant does not wish to be regulated by this permit, the applicant may apply for an individual permit in accordance with OAR 340-045-0030.

3. **Transfer of Permit Registration**
   To transfer permit registration, an owner or permit registrant must submit a department-approved transfer form prior to permit expiration and prior to transfer of ownership or operation.

4. **Public Review Period on Application and ESCP**
   Permit registrants that submit an application and ESCP for construction activities that disturb five (5) or more acres after June 1, 2006 will be subject to a 14-day public review period before permit registration by the department or Agent. The public review period will begin after the department or Agent has determined that the application is complete.

SCHEDULE A
LIMITATIONS AND CONTROLS FOR STORMWATER DISCHARGES

1. **Water Quality Standards**
   a. The permit registrant must not cause a violation of instream water quality standards.
   b. If the permit registrant develops, implements, and revises its ESCP in compliance with Schedule A of this permit, the department assumes that the discharges authorized by this permit will not cause a violation of water quality standards unless the department obtains evidence to the contrary.
   c. In instances were the department determines that the permit registrant's stormwater discharges are causing a violation of water quality standards, the department may take enforcement action for violations of the permit and will require the permit registrant to do one or more of the following:
      i. Develop and implement an Action Plan, which is considered an addendum to the ESCP, describing ESCP modifications that are necessary to prevent and control erosion and sediment discharges to meet water quality standards;
      ii. Submit valid and verifiable data and information that are representative of ambient conditions and indicate that the receiving water is meeting water quality standards; or
      iii. Curtail stormwater pollutant discharges to the extent possible and submit an individual permit application.

2. **Water Quality Requirements for TMDL and 303(d) Listed Waterbodies**
   In addition to other applicable requirements of this permit, if sediment or turbid water from a permit registrant's construction project has the potential to discharge into waterbodies that are listed for turbidity or sedimentation on the most recently EPA-approved Oregon 303(d) list or that have an established Total Maximum Daily Load (TMDL) for sedimentation or turbidity, the permit registrant must implement one of the two following sets of actions, in accordance with Schedule C.

   a. Option #1: Collect and analyze samples for turbidity in stormwater runoff from the construction site as required by Condition B.2. (p. 12) and compare the results to the benchmark value of 160 Nephelometric Turbidity Units (NTUs). The benchmark is used to determine if best management practices are effective; it is not an effluent limit. If any stormwater sample exceeds the benchmark, then the permit registrant must evaluate the best management practices (BMPs) and the adequacy of the ESCP and take corrective actions. If after such actions have been implemented and sample results still exceed the 160 NTU benchmark, the requirements of Option #2 below must be followed, and the permit registrant must submit an Action Plan to the department identifying the selected BMP(s) that will be implemented and the rationale for choosing the selected BMP(s).

   b. Option #2: In addition to the applicable BMPs required by Condition A.7., implement one or more of the following BMPs to control and treat sediment and turbidity:
      i. Compost berms, compost blankets, or compost socks;
      ii. Erosion control mats (rolled or blown);
      iii. Tackifiers used in combination with perimeter sediment control BMPs;
      iv. Established vegetated buffers sized at 50 feet plus 25 feet per 5 degrees of slope;
      v. Water treatment by electro-coagulation, chemical flocculation, or filtration; or
      vi. Other substantially equivalent sediment or turbidity BMP approved by the department.

      The selected BMP(s) must be specifically identified in the ESCP as addressing this condition of the permit, and the rationale for choosing the selected BMP(s) must also be provided.

3. Performance Requirements

a. Prevent Discharge of Significant Amounts of Sediment. The permit registrant must prevent the discharge of significant amounts of sediment to surface waters or conveyance systems leading to surface waters. Significant amounts of sediment result from the actions or inactions of the permit registrant at a site and result in visual indications that sediment has left or is likely to leave the site. The following conditions describe significant amounts of sediment:
   i. Earth slides or mud flows;
   ii. Concentrated flows of stormwater such as rills, rivulets or channels that cause erosion when such flows are not filtered or settled to remove sediment;
   iii. Turbid flows of stormwater that are not filtered or settled to remove turbidity;
   iv. Deposits of sediment at the construction site in areas that drain to unprotected stormwater inlets or catch basins that discharge to surface waters. Inlets and catch basins with failing sediment controls due to lack of maintenance or inadequate design are considered unprotected;
   v. Deposits of sediment from the construction site on public or private streets outside of the permitted construction activity; or
   vi. Deposits of sediment from the construction site on any adjacent property outside of the permitted construction activity.

b. Corrective Action. If significant amounts of sediment or turbidity (as described in A.3.a. above) are visibly detected in: 1) the discharge to a conveyance system leading to surface waters; 2) the discharge to surface waters 50 feet downstream; or 3) the discharge in surface waters at any location where more than one-half of the width of the receiving surface waters is affected, the permit registrant must:
   i. Immediately, but no later than 24 hours after initial detection, take corrective actions or implement additional effective BMPs until the significant amounts of sediment or turbidity are no longer visually detectable and to ensure that the requirements of Conditions A.1. and A.3.a. are met.
   ii. Evaluate the ESCP to determine the cause of the discharge.
   iii. Document in the inspection records the corrective actions taken.
   iv. Submit an Action Plan to the department within ten (10) calendar days of the discharge identifying the correction actions taken to cease the discharge, if such actions require a change to the ESCP or a change in the method(s) of implementing the ESCP, (e.g., increased inspection frequency). Approval of the Action Plan by the department prior to implementation of corrective actions is not required. The Action Plan must be kept onsite as per Condition B.3., p. 13.

c. Authorized Stormwater Discharges. Subject to compliance with the terms and conditions of this permit, the permit registrant is authorized to discharge the following:
   i. Stormwater associated with construction activity that is authorized by this permit.
   ii. Stormwater from support activities at the construction site (e.g., concrete or asphalt operations, equipment staging yards, material storage areas, excavated material disposal areas, borrow areas) provided:
      (1) The support activity is directly related to the construction site required to have NPDES permit coverage for discharges of stormwater associated with construction activity;
      (2) The support activity is not a commercial operation serving multiple unrelated construction projects by different permit registrants, and does not operate beyond the completion of the construction activity at the last construction project it supports; and
      (3) Appropriate controls and measures are identified in an ESCP covering the discharges from the support activity areas.

d. Allowable Non-Stormwater Discharges. This permit authorizes the following non-stormwater discharges to surface water provided they are identified in the ESCP and all necessary controls are implemented to minimize sediment transport:
   i. Discharges from fire-fighting activities;
   ii. Fire hydrant and potable water flushing (refer to department guidance);
   iii. Waters used to wash vehicles where detergents or hot water are not used;
   iv. Potable water including uncontaminated water line flushing;
   v. Routine external building wash down that does not use detergents or hot water;
   vi. Pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents or hot water are not used;
   vii. Uncontaminated air conditioning or compressor condensate;
   viii. Construction dewatering activities;
   ix. Foundation or footing drains where flows are not contaminated with process materials such as solvents; and
   x. Landscape irrigation.

   For other non-stormwater discharges, the permit registrant may ask the department to determine if another permit is needed. The disposal of wastes to surface water or onsite is not authorized by this permit. The permit registrant must submit a separate permit application for such discharges.

4. Erosion and Sediment Control Plan (ESCP) and Action Plan Preparation and Submittal

a. Responsibilities of Permit Registrant. The permit registrant must ensure that an ESCP is prepared and revised as necessary for the construction activity regulated by this permit and submitted to the department or Agent as required by this permit.

b. Qualifications to Prepare ESCP.
   i. For construction activities disturbing 20 or more acres, the ESCP must be prepared and stamped by an Oregon Registered Professional Engineer, Oregon Registered Landscape Architect, or Certified Professional in Erosion and Sediment Control (Soil and Water Conservation Society).
   ii. If engineered facilities such as sedimentation basins or diversion structures for erosion and sediment control are required, the ESCP must be prepared and stamped by an Oregon Registered Professional Engineer.

c. Submittal of ESCP and if Required, Action Plans.
   i. The permit registrant must submit the ESCP to the department or Agent prior to obtaining registration under this permit (see Permit Registration, Condition 2 of this permit, p. 2).
   ii. If ESCP revisions are made after permit registration is approved, the permit registrant must submit revisions to the ESCP in the form of an Action Plan to the department, or if corrective actions are required by A.3.b., p. 4, within 24 hours of initial detection of the stormwater discharge.
      (1) The Action Plan is considered an addendum to the ESCP.
      (2) Approval of the Action Plan by the department prior to implementation of corrective actions is not required.
      (3) An Action Plan may be required due to changes in the project design, local conditions, project schedule (e.g., schedule delays postpone earthwork to wet weather season so additional controls are needed), weather conditions or other appropriate reasons.
      (4) The Action Plan must clearly identify any necessary changes (such as type or design) to the BMPs identified in the ESCP, their location, maintenance required, and any other revisions necessary to prevent and control erosion and sediment runoff.

iii. If the permit registrant does not receive a response on the Action Plan from the department or Agent within ten (10) days of the Action Plan receipt, the proposed revisions are deemed approved.
iv. The department or Agent may require the permit registrant to submit an Action Plan at any time if the ESCP is inadequate to prevent the discharge of significant amounts of sediment or turbidity to surface waters or to conveyance systems that discharge to surface waters. The permit registrant must submit the Action Plan according to the timeframe specified by the department or Agent.

5. ESCP Implementation

a. The permit registrant must ensure that the ESCP is implemented for the construction activity regulated by this permit. Failure to implement any portion of the ESCP constitutes violation of the permit on the part of the permit registrant.

b. The permit registrant must ensure that the ESCP is implemented according to the following sequence:
   i. Before Construction.
      (1) Identify, mark, and protect (by fencing off or other means) critical riparian areas and vegetation including important trees and associated rooting zones and vegetation areas to be preserved.
      (2) Identify vegetative buffer zones between the site and sensitive areas (e.g., wetlands), and other areas to be preserved, especially in perimeter areas.
      (3) Hold a pre-construction meeting of project construction personnel that includes the inspector required by Condition A.6.b. to discuss of erosion and sediment control measures and construction limits.
   ii. During and After Construction.
      (1) Site Access Areas (construction entrances, roadways, equipment parking areas, etc.).
      Stabilize site entrances and access roads prior to earthwork.
      (2) Install Sediment Control Measures.
      Install perimeter sediment control, including storm drain inlet protection as well as all sediment basins, traps, and barriers which must be in place before vegetation is disturbed.
      (3) Non-Stormwater Pollution Control Measures.
      Concurrent with establishing construction access controls and sediment controls, the permit registrant must establish material and waste storage areas, concrete truck and other concrete equipment washout areas and other non-stormwater controls prior to the start of construction activities.
      (4) Runoff Control.
      Stabilize stream banks and construct the primary runoff control measures to protect areas from concentrated flows.
      (5) Land Clearing, Grading and Roadways.
         (a) Begin land clearing, excavation, trenching, cutting or grading after installing applicable sediment and runoff control measures.
         (b) Provide appropriate erosion and sediment control BMPs for all roadways including gravel roadways.
         (c) Install additional control measures as work progresses as needed.
      (6) Surface Stabilization (temporary and permanent seeding, mulching).
      Apply temporary or permanent soil stabilization measures immediately on all disturbed areas as grading progresses.
      (7) Construction and Paving (install utilities, buildings, paving, etc.).
      Erosion and sediment control measures must remain in place for the duration of construction, including protection for active storm drain inlets and appropriate non-stormwater pollution controls.

(8) Final Stabilization and Landscaping.
Provide permanent erosion prevention measures on all exposed areas and remove all temporary control measures as areas are stabilized.

6. ESCP Elements
The permit registrant must ensure that the ESCP contains the following elements:

a. Local Government Requirements. Include any procedures necessary to meet applicable local government erosion and sediment control or stormwater management requirements.

b. Inspections.
   i. Inspections must be conducted by a person knowledgeable in the principles and practice of erosion and sediment controls who possesses the skills to assess conditions at the construction site that could impact stormwater quality, is knowledgeable in the correct installation of the erosion and sediment controls, and is able to assess the effectiveness of any sediment and erosion control measures selected to control the quality of stormwater discharges from the construction activity.
   ii. Identify the person(s) or title and experience of the personnel that will conduct inspections. Provide the following for each person:
      (1) Name;
      (2) Contact phone number and, if available, e-mail address; and
      (3) Description of experience and training.

c. Narrative Site Description.
   i. Nature of the construction activity, including a proposed timetable for major activities;
   ii. Estimates of the total area of the permitted site and the area of the site that is expected to undergo clearing, grading or excavation;
   iii. Nature of the fill material to be used, the insitu soils, and the erosion potential of such soils; and
   iv. Names of the receiving water(s) for stormwater runoff.

d. Site Map.
   i. The site map kept on site must represent the actual BMP controls being used onsite, particularly those BMPs identified in the most recent Action Plan(s);
   ii. The site map must show sufficient roads and features for the department or Agent to locate and access the site;
   iii. Total property boundary including surface area of the development;
   iv. Areas of total soil disturbance (including, but not limited to, showing cut and fill areas and pre and post development elevation contours);
   v. Drainage patterns before and after finish grading;
   vi. Location(s), size, and type of discharge point(s);
   vii. Areas used for the storage of soils or wastes;
   viii. Areas where vegetative practices are to be implemented;
   ix. Location of all erosion and sediment control measures or structures;
   x. Location of impervious structures after construction is completed. Include buildings, roads, parking lots, outdoor storage areas, etc., if any;
   xi. Springs, wetlands and other surface waters located on-site;
   xii. Boundaries of 100-year floodplains if determined and easily available;
   xiii. Location of stormwater discharge points to receiving water(s) or stormwater conveyance systems if applicable;

xiv. Location of storm drain catch basins and the location of catch basins with inlet protection, if applicable and a description of the type of catch basins used (e.g., curb inlet, field inlet, grated drain, combination, etc.);
xv. Location of septic drain fields if applicable;
xvi. Location of existing or proposed drywells or other UICs if applicable;
xvii. Location of drinking water wells;
xviii. Details of sediment and erosion controls including installation techniques; and
xix. Details of detention ponds, storm drain piping, inflow and outflow details.

e. Implementation Schedule and Description of BMPs
Include in the ESCP the implementation schedule and description of BMPs to be used at the site. See Condition A.5. for implementation requirements and Conditions A.7. and A.8. for minimum BMP requirements.

7. Required BMPs
The following controls and practices, if appropriate for the site, are required in the ESCP and must be implemented according to the schedule in the ESCP. If the permit registrant determines that any of these controls or practices is not appropriate, the rationale for the change must be provided in the ESCP.

a. Wet Weather BMPs.
i. Generally construction activities must avoid or minimize excavation and bare ground activities that occur on slopes greater than five (5) percent during the period of October 1 through May 31.
ii. Temporary stabilization of soils must be installed at the end of the shift before a holiday or weekend if needed based on weather forecast.

b. Runoff Controls.
In developing runoff control practices, at a minimum the following BMPs must be considered: slope drains, energy dissipaters, diversion of run-on, temporary diversion dikes, grass-lined channel (turf reinforcement mats), trench drains, drop inlets, and check dams.

c. Erosion Prevention Methods.
In developing erosion prevention methods, at a minimum the following BMPs must be considered:
i. Clearing and Grading Practices.
(1) Provide structural erosion prevention during grading and earthwork-surface roughening and prevent erosion on graded surfaces.
(2) Top-soiling, temporary seeding and planting, permanent seeding and planting, mycorrhizae/ biofertilizers, mulches, compost blankets, erosion control blankets and mats, soil binders, soil tackifiers, sodding vegetative buffer strips, and protection of trees with protective construction fences.
ii. Wind Erosion/Dust Control.
(1) All erosion and sediment controls not in the direct path of work must be installed before any land disturbance.
(2) Whenever practicable, clearing and grading must be done in a phased manner to prevent exposed inactive areas from becoming a source of erosion.
iii. Vegetative Erosion Control Practices.
(1) Preserve existing vegetation and re-vegetate open areas when practicable before and after grading or construction.

(2) Biotechnical erosion control measures: live staking, live fascines and brush wattles, stabilization mats, pole planting, brush box, fascines with sub-drains, live pole drains, and brush packing or live gully fill repair.
(3) All temporary sediment control practices must not be removed until permanent vegetation or other cover of exposed areas is established.
(4) If vegetative seed mix is used, identify the type of seed mix (percentages of the various seeds of annuals, perennials and clover).

d. Sediment Controls.
   i. Peripheral Erosion and Sediment Controls.
      (1) Sediment control must be provided along the site perimeter and at all operational internal storm drain inlets at all times during construction.
      (2) Active inlets must be considered part of the site perimeter because they provide an avenue for sediment and other pollutants to leave the site.
   ii. Erosion Control Practices.
      In developing sediment control practices, include in the ESCP installation details and at a minimum the following must be considered: sediment fences, sand bag barrier, gravel bag berm, earth dikes, drainage swales, check dams, subsurface drains which daylight to the surface, pipe slope drains, rock outlet protection, sediment traps, rock and brush filters, compost berm/compost sock, fiber rolls/wattles, storm drain inlet protection, and temporary or permanent sedimentation basins.
   iii. Reducing Sediment Tracking.
      (1) Prior to any land disturbing activities each site must have graveled, paved, or constructed entrances, exits and parking areas with exit tire wash to reduce the tracking of sediment onto public or private roads.
      (2) All unpaved roads located onsite must be graveled. Other effective erosion and sediment control measures either on the road or down gradient may be used in place of graveling.
      (3) When trucking saturated soils from the site, either water-tight trucks must be used or loads must be drained on-site until dripping has been reduced to minimize spillage on roads.

e. Non-Stormwater Pollution Controls.
   Non-Stormwater Pollution Controls BMPs must be in-place throughout the grading and construction phases. In developing non-stormwater pollution control practices, at a minimum the following must be considered:
   i. Pollution Prevention.
      (1) BMPs used to prevent pollution of stormwater or to treat stormwater from the following activities: dewatering and ponded water management, paving operation controls, temporary equipment bridge, illicit connection, and illegal discharge.
      (2) BMPs that will be used to prevent or minimize stormwater from being exposed to pollutants from spills, no discharge of concrete truck wash water, vehicle and equipment cleaning, vehicle and equipment fueling, maintenance, and storage, other cleaning and maintenance activities, and waste handling activities. These pollutants include fuel, hydraulic fluid, and other oils from vehicles and machinery, as well as debris, leftover paints, solvents, and glues from construction operations.
   ii. Stockpile Erosion and Sediment Control Practices.
      (1) Stockpiles located away from the construction activity but still under the control of the permit registrant must also be protected to prevent significant amounts of sediment or turbid water from discharging to surface waters.
      (2) At the end of each workday the soil stockpiles must be stabilized, covered or other BMPs must be implemented to prevent discharges to surface waters.

(3) In developing these practices, at a minimum the following must be considered: diversion of uncontaminated flows around stockpiles, use of cover over stockpiles, and installation of sediment fences around stockpiles

iii. Solid Waste and Hazardous Materials Management.

(1) The department encourages the permit registrant to reuse and recycle construction wastes.

(2) Any use of toxic or other hazardous materials must include proper storage, application, and disposal.

(3) In developing these practices, at a minimum the following must be described in the ESCP and implemented where practical: written spill prevention and response procedures, employee training on spill prevention and proper disposal procedures; regular maintenance schedule for vehicles and machinery; and material delivery and storage controls, training and signage, material use, covered storage areas for waste and supplies.

(4) The permit registrant must manage hazardous wastes, used oils, contaminated soils, concrete management, sanitary waste management, liquid waste management, or other toxic substances discovered or generated during construction activities in accordance with state and federal regulations. In some cases, department approval for management and disposal may be required.

f. Inspection and Maintenance.

To provide for continued performance, BMPs must be inspected before, during, and after significant storm events. During grading and construction, the permit registrant is responsible for maintaining the stormwater pollution control BMPs. The permit registrant must establish and promptly implement procedures for maintenance and repair of erosion and sediment control measures.

i. General Site Maintenance.

(1) Significant amounts of sediment that leave the site must be cleaned up within 24 hours and placed back on the site and stabilized or disposed of properly. In addition, the source(s) of the sediment must be controlled to prevent continued discharge within 24 hours. Any instream clean up of sediment must be preformed according to requirements and timelines set by the Oregon Department of State Lands.

(2) Sediment must not be intentionally washed into storm sewers or drainage ways. Vacuuming or dry sweeping must be used to clean up released sediments.

(3) If fertilizers are used to establish vegetation, the application rates must follow manufacturer's guidelines and the application must be done in such a way to minimize nutrients discharging to surface waters.

ii. Maintenance of Erosion and Sediment Controls.

(1) For a sediment fence, the trapped sediment must be removed before it reaches one third of the above ground fence height.

(2) Other sediment barriers (e.g., biobags): the sediment must be removed before it reaches two inches of accumulation in any area above the sediment barrier(s).

(3) For catch basin protection, cleaning must occur when sediment retention capacity has been reduced by fifty percent.

(4) For a sediment basin, removal of trapped sediments must occur when design capacity has been reduced by fifty percent.

iii. Stormwater Treatment System Requirement.

If a stormwater treatment system (e.g., electro-coagulation, chemical flocculation, filtration, etc.) for sediment removal is employed, an operation and maintenance plan must be submitted to the department for approval before start up of the treatment system. Upon department approval of the plan, the permit registrant must implement the plan.

8. Additional BMP Requirements During Inactive Periods

a. If all construction activities cease at the site for thirty (30) days or more, the entire site must be stabilized using vegetation or a heavy mulch layer, temporary seeding, or another method that does not require germination to control erosion.

b. On any significant portion of the site, if construction activities cease for fifteen (15) days or more, temporary covering with straw or compost mulch or other covering that is tackified to prevent soil or wind erosion must occur until work resumes.

Permit Number: 1200-C
Expiration Date: November 30, 2010
Page 12 of 24

SCHEDULE B
MINIMUM MONITORING REQUIREMENTS

1. **Visual Monitoring Requirement**
   a. The following must be inspected by the permit registrant:
      i. All areas of the site disturbed by construction activity to ensure that BMPs are in working order.
      ii. Discharge point(s) identified in the ESCP for evidence of or the potential for the discharge of pollutants, and to ascertain whether erosion and sediment control measures are effective in preventing significant impacts to surface waters. Where discharge points are inaccessible, nearby downstream locations must be inspected to the extent that such inspections are practicable.
      iii. BMPs identified in the ESCP and any ESCP revisions documented in Action Plan(s) to assess whether they are functioning properly.
      iv. Locations where vehicles enter or exit the site for evidence of off-site sediment tracking.
      v. Areas used for storage of materials that are exposed to precipitation for evidence of spillage or other potential to contaminate stormwater runoff.

   b. All ESCP controls and practices must be inspected visually according to the following schedule:

Site Condition	Minimum Frequency
1. Active period.	Daily when stormwater runoff, including runoff from snow melt, is occurring.
2. Prior to the site becoming inactive or in anticipation of site inaccessibility.	Once to ensure that erosion and sediment control measures are in working order. Any necessary maintenance and repair must be made prior to leaving the site.
3. Inactive periods greater than seven (7) consecutive calendar days.	Once every two (2) weeks.
4. Periods during which the site is inaccessible due to inclement weather.	If practical, inspections must occur daily at a relevant and accessible discharge point or downstream location.

2. **Turbidity Monitoring Requirements for TMDL and 303(d) Listed Waterbodies per Option #1 in Condition A.2.a., p. 3**
   In addition to the requirements in Condition B.1. above, permit registrants discharging into waterbodies that are listed for turbidity or sedimentation on the most recently EPA approved Oregon 303(d) list or have an established TMDL for sedimentation or turbidity are subject to the following requirements if Option #1 (Condition A.2.a.) is being followed:

Parameter	Minimum Frequency	Monitoring Points	Type of Sample[1]	Test Method[2]
Turbidity (NTU)	At a minimum one stormwater sample that represents the flow and characteristics of the stormwater discharge must be collected at each monitoring point on a weekly basis when stormwater runoff is detectable.	All stormwater discharge points indicated on the site map see A.6.d.xiii., p. 7.	Grab	Field turbidimeter

[1] Occurring during regular working hours at the construction site.
[2] The permit registrant must use sampling procedures, testing methods and turbidity meter calibration methods approved by the department.

SWM-DY-00473 December 2005

Permit Number: 1200-C
Expiration Date: November 30, 2010
Page 12 of 24

SCHEDULE B
MINIMUM MONITORING REQUIREMENTS

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      iii. BMPs identified in the ESCP and any ESCP revisions documented in Action Plan(s) to assess whether they are functioning properly.
      iv. Locations where vehicles enter or exit the site for evidence of off-site sediment tracking.
      v. Areas used for storage of materials that are exposed to precipitation for evidence of spillage or other potential to contaminate stormwater runoff.

   b. All ESCP controls and practices must be inspected visually according to the following schedule:

Site Condition	Minimum Frequency
1. Active period.	Daily when stormwater runoff, including runoff from snow melt, is occurring.
2. Prior to the site becoming inactive or in anticipation of site inaccessibility.	Once to ensure that erosion and sediment control measures are in working order. Any necessary maintenance and repair must be made prior to leaving the site.
3. Inactive periods greater than seven (7) consecutive calendar days.	Once every two (2) weeks.
4. Periods during which the site is inaccessible due to inclement weather.	If practical, inspections must occur daily at a relevant and accessible discharge point or downstream location.

2. **Turbidity Monitoring Requirements for TMDL and 303(d) Listed Waterbodies per Option #1 in Condition A.2.a., p. 3**
   In addition to the requirements in Condition B.1. above, permit registrants discharging into waterbodies that are listed for turbidity or sedimentation on the most recently EPA approved Oregon 303(d) list or have an established TMDL for sedimentation or turbidity are subject to the following requirements if Option #1 (Condition A.2.a.) is being followed:

Parameter	Minimum Frequency	Monitoring Points	Type of Sample[1]	Test Method[2]
Turbidity (NTU)	At a minimum one stormwater sample that represents the flow and characteristics of the stormwater discharge must be collected at each monitoring point on a weekly basis when stormwater runoff is detectable.	All stormwater discharge points indicated on the site map see A.6.d.xiii., p. 7.	Grab	Field turbidimeter

[1] Occurring during regular working hours at the construction site.
[2] The permit registrant must use sampling procedures, testing methods and turbidity meter calibration methods approved by the department.

SWM-DY-00473 December 2005

3. Recordkeeping Requirements

a. Documentation of Visual Inspection. All visual inspections must be documented in writing as follows:
   i. Inspection date and inspector's name.
   ii. At the designated discharge location(s) inspections of the quality of the discharge for any turbidity, color, sheen, or floating materials.
      (1) Inspect and record color and turbidity or clarity in: 1) the discharge to a conveyance system leading to surface waters, 2) the discharge to surface waters 50 feet downstream, or 3) the discharge in surface waters at any location where more than one-half of the width of the receiving surface waters is affected.
      (2) For turbidity and color, describe any apparent color and the clarity of the discharge, and any apparent difference in comparison with the surface waters. For a sheen or floating material, describe whether this is present or absent. If present, it could indicate concern about a possible spill or leakage from vehicles or materials storage.
   iii. If a site is inaccessible due to inclement weather, record the inspections noted at a relevant discharge point or downstream location, if practical.
   iv. Location(s) of BMPs that need to be maintained, inspections of all BMPs, including erosion and sediment controls, chemical and waste controls, locations where vehicles enter and exit the site, status of areas that employ temporary or final stabilization control, soil stockpile area, and non-stormwater pollution (e.g., paints, oils, fuels, adhesives) controls.
   v. Location(s) of BMPs that failed to operate as designed or proved inadequate for a particular location;
   vi. Location(s) where additional BMPs are needed that did not exist at the time of inspection; and
   vii. Corrective action required and implementation dates.

b. ESCP including Action Plan(s) Retained Onsite. A copy of the ESCP and the Action Plan must be retained on-site and made available on request to the department, Agent, or the local municipality. During inactive periods of greater than seven (7) consecutive calendar days, the ESCP must be retained by the permit registrant but does not need to be at the construction site.

c. Inspection and Monitoring Results. All inspection records and monitoring results must be kept on-site and maintained by the permit registrant, made available to the department, Agent, or local municipality upon request, and must include:
   i. The construction site name as it appears on the registrant's permit and the file or site number.
   ii. All Action Plans that describe reasons for required changes or modifications to the ESCP and/or other corrective measures implemented during the previous reporting period.
   iii. Turbidity sampling results required by Condition B.2., p. 12 if applicable.

d. Retention of Inspection and Monitoring Results for Three (3) Years.
   i. All inspection records and monitoring results must be retained for at least three (3) years after project completion.
   ii. In addition, these records must be delivered or made available to the department within three (3) working days of request.

Permit Number: 1200-C
Expiration Date: November 30, 2010
Page 14 of 24

SCHEDULE C
COMPLIANCE SCHEDULE

Potential discharges into waterbodies that are on the most recent EPA-approved Oregon 303(d) list for turbidity or sedimentation or have a TMDL for turbidity or sedimentation

1. **Permit registrants who obtained permit coverage prior to October 1, 2006 must**:
   a. For EPA-approved TMDLs or 303(d) listings existing at the time permit application is made, comply with the requirements in Condition A.2. by October 1, 2006.
   b. For future TMDLS or 303(d) listings approved by EPA after permit application is made, comply with the requirements in Condition A.2. no later than ninety (90) days after EPA-approval of the TMDL or 303(d) list.

2. **Permit registrants obtaining coverage after October 1, 2006 must**:
   a. For EPA-approved TMDLs or 303(d) listings existing at the time permit application is made, comply with the requirements of Condition A.2. upon obtaining coverage under the permit. If Option #2 is selected, the BMP(s) must be specifically identified in the ESCP as addressing this condition of the permit and the rationale for choosing the selected BMP(s) must also be provided.
   b. For future TMDLS or 303(d) listings approved by EPA after permit application is made, comply with the requirements in Condition A.2. no later than ninety (90) days after EPA-approval of the TMDL or 303(d) list.

SWM-DY-00473 December 2005

SCHEDULE D
SPECIAL CONDITIONS

1. In the event of any inconsistency between Schedules A through D and F, Schedules A through D will apply.

2. Registration under this permit does not relieve the permit registrant from all other permitting and licensing requirements. Prior to beginning construction activities, the permit registrant must obtain all other necessary approvals.

3. **Required Actions Prior to Termination of Permit Registration**
   a. The following conditions must be met before permit registration is terminated:
      i. There is no reasonable potential for discharge of a significant amount of construction related sediment or turbidity to surface waters.
      ii. Construction materials, waste, and temporary erosion and sediment controls have been removed and disposed of properly. This includes any sediment that was being retained by the temporary erosion and sediment controls.
      iii. All soil disturbance activities by the permittee have been completed and all stormwater discharges from construction activities that are authorized by this permit are eliminated.
      iv. All temporary erosion and sediment controls have been removed and properly disposed.
      v. All disturbed or exposed areas of the site must be fully stabilized as defined in Condition D.4.m. below.

   b. The permit registrant must complete and submit a Notice of Termination form to the department or Agent after the conditions in D.3.a. above have been satisfied. The department or Agent will not act on a request for termination until all outstanding compliance issues are resolved.

4. **Permit-specific Definitions**
   a. *Action Plan* means an addendum to the ESCP that describes ESCP modifications.
   b. *Agent* means a governmental entity that has an agreement with the department to assist with implementation of this general permit.
   c. *Best Management Practices or BMPs* means schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural or managerial practices to prevent or reduce the pollution of waters of the state. BMPs include treatment systems, erosion and sediment control, source control, and operating procedures and practices to control site runoff, spillage or leaks, and waste disposal.
   d. *Borrow Area* means the area from which material is excavated to be used as fill material in another area.
   e. *Clean Water Act or CWA* means the Federal Water Pollution Control Act (FWPCA) enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, and 97-117; USC 1251 et. seq.
   f. *Department or DEQ* means the Oregon Department of Environmental Quality.
   g. *Detention* means the temporary storage of stormwater to improve quality or reduce the volumetric flow rate of discharge or both.
   h. *Dewatering* means the removal and disposal of surface water or groundwater for purposes of preparing a site for construction.
   i. *Discharge Point* means the location where stormwater leaves the site. It includes the location where stormwater is discharged to surface water or a stormwater conveyance system.
   j. *Erosion* means the movement of soil particles or rock fragments by water or wind.
   k. *Erosion and Sediment Control BMPs* means BMPs that are intended to prevent erosion and sedimentation, such as preserving natural vegetation, seeding, mulching and matting, plastic covering,

filter fences, and sediment traps and ponds. Erosion and sediment control BMPs are synonymous with stabilization and structural BMPs.

l. *Erosion Prevention Methods* means a wide range of erosion prevention practices, materials and methods to be applied during earthwork activities including structural methods, techniques to prevent erosion on already graded surfaces, and biotechnical erosion control methods. The best way to control the discharge of sediment and related pollutants from a construction site is to prevent erosion from occurring in the first place.

m. *Final Stabilization or Fully Stabilized* means the completion of all soil disturbing activities at the site by the permit registrant, and the establishment of a permanent vegetative cover, or equivalent permanent stabilization measure(s) (such as riprap, gabions or geotextiles) to prevent erosion.

n. *Hazardous Materials* means the materials defined in 40 CFR part 302 Designation, Reportable Quantities, and Notification.

o. *Local Government* means any county, city, town, or service district.

p. *National Pollutant Discharge Elimination System or NPDES* means the national program under Section 402 of the Federal Clean Water Act for regulation of point source discharges of pollutants to waters of the United States.

q. *Non-Stormwater Pollution Controls* means general site and materials management measures that directly or indirectly aid in minimizing the discharge of sediment and other construction related pollutants from the construction site.

r. *Permit Registrant* means the owner or operator of the construction activity regulated by this permit who receives notice of registration under this general permit. Owners or operators may be individuals or other legal entities.

s. *Pollutant* as defined in 40 CFR §122.2 means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, domestic sewage sludge (biosolids), munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, soil, cellar dirt and industrial, municipal, and agricultural waste discharge into water. It does not mean sewage from vessels within the meaning of Section 312 of the FWPCA, nor does it include dredged or fill material discharged in accordance with a permit issued under Section 404 of the FWPCA.

t. *Pollution or Water Pollution* as defined by ORS 468B.005(3) means 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.

u. *Runoff Controls* means BMPs that are designed to control the peak volume and flow rate and to prevent scour due to concentrated flows.

v. *Sediment* means solid unconsolidated rock and mineral fragments that come from the weathering of rocks and are transported by water, air, or ice and form layers on the earth's surface. Sediments can also result from chemical precipitation or secretion by organisms.

w. *Site* means the area where the construction activity is physically located or conducted.

x. *Source Control BMPs* means physical, structural or mechanical devices or facilities that are intended to prevent pollutants from entering stormwater. A few examples of source control BMPs are erosion control practices, maintenance of stormwater facilities, constructing roofs over storage and working areas, and directing wash water and similar discharges to the sanitary sewer or a dead end sump.

y. *Stormwater Conveyance* means a sewer, ditch, or swale that is designed to carry stormwater; a stormwater conveyance may also be referred to as a storm drain or storm sewer.

z. *Stormwater* as defined by 40 CFR §122.26(b)(13) means stormwater runoff, snow melt runoff, and surface runoff and drainage.
aa. *Surface Runoff* means that portion of stormwater that does not infiltrate into the ground or evaporates, but instead flows onto adjacent land or watercourses or is routed to stormwater conveyance systems.
bb. *Surface Water* means all water naturally open to the atmosphere (e.g., rivers, lakes, reservoirs, ponds, streams, impoundments, oceans, estuaries, springs, etc.).
cc. *Total Maximum Daily Load or TMDL* means a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet state water quality standards. It is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. Percentages of the TMDL are allocated by the department to the various pollutant sources. The TMDL calculations must include a "margin of safety" to ensure that the waterbody can be protected in case there are unforeseen events or unknown sources of the pollutant. The calculation must also account for seasonable variation in water quality.
dd. *Turbidity* means the optical condition of waters caused by suspended or dissolved particles or colloids that scatter and absorb light rays instead of transmitting light in straight lines through the water column. Turbidity may be expressed as nephelometric turbidity units (NTUs) measured with a calibrated turbidity meter.
ee. *Underground Injection Control or UIC* means any system, structure, or activity that is created to place fluid below the ground or sub-surface (e.g., sumps, infiltration galleries, drywells, trench drains, drill holes, etc.).
ff. *Water or Waters of the State* as defined by ORS 468B.005(8) means lakes, bays, ponds, impounding reservoirs, springs, wells, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Pacific Ocean within the territorial limits of the State of Oregon and all other bodies of surface or underground waters, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters which do not combine or effect a junction with natural surface or underground waters), which are wholly or partially within or bordering the state or within its jurisdiction.

Permit Number: 1200-C
Expiration Date: November 30, 2010
Page 18 of 24

SCHEDULE F
NPDES GENERAL CONDITIONS

SECTION A. STANDARD CONDITIONS

1. Duty to Comply
   The permit registrant must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of Oregon Revised Statutes (ORS) 468B.025, and 40 Code of Federal Regulations (CFR) §122.41(a), and is grounds for enforcement action; for permit termination, revocation or reissuance, or modification; or for denial of a permit renewal application.

2. Penalties for Water Pollution and Permit Condition Violations
   ORS 468.140 allows the department to impose civil penalties up to $10,000 per day for violation of a term, condition, or requirement of a permit. Additionally 40 CFR §122.41 (A) provides that any person who violates any permit condition, term, or requirement may be subject to a federal civil penalty not to exceed $25,000 per day for each violation.

   Under ORS 468.943 and 40 CFR §122.41(a), unlawful water pollution, if committed by a person with criminal negligence, is punishable by a fine of up to $25,000 imprisonment for not more than one year, or both. Each day on which a violation occurs or continues is a separately punishable offense.

   Under ORS 468.946, a person who knowingly discharges, places, or causes to be placed any waste into the waters of the state or in a location where the waste is likely to escape into the waters of the state is subject to a Class B felony punishable by a fine not to exceed $200,000 and up to 10 years in prison. Additionally, under 40 CFR §122.41(a) any person who knowingly discharges, places, or causes to be placed any waste into the waters of the state or in a location where the waste is likely to escape into the waters of the state is subject to a federal civil penalty not to exceed $100,000, and up to 6 years in prison.

3. Duty to Mitigate
   The permit registrant must take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment. In addition, upon request of the department, the permit registrant must correct any adverse impact on the environment or human health resulting from noncompliance with this permit, including such accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying discharge.

4. Duty to Reapply
   If the permit registrant wishes to continue an activity regulated by this permit after the expiration date of this permit, the permit registrant must apply for and have the permit renewed. The application must be submitted at least 180 days before the expiration date of this permit. The department may grant permission to submit an application less than 180 days in advance but no later than the permit expiration date.

5. Permit Actions
   This permit may be modified, revoked and reissued, or terminated for cause including, but not limited to, the following:
   a. Violation of any term, condition, or requirement of this permit, a rule, or a statute
   b. Obtaining this permit by misrepresentation or failure to disclose fully all material facts
   c. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge
   d. The permit registrant is identified as a Designated Management Agency or allocated a wasteload under a Total Maximum Daily Load (TMDL)
   e. New information or regulations
   f. Modification of compliance schedules
   g. Requirements of permit re-opener conditions
   h. Correction of technical mistakes made in determining permit conditions
   i. Determination that the permitted activity endangers human health or the environment
   j. Other causes as specified in 40 CFR §§122.62, 122.64, and 124.5

SWM-DY-00473 December 2005

The filing of a request by the permit registrant for a permit modification, revocation or reissuance, termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

6. Toxic Pollutants
The permit registrant must comply with any applicable effluent standards or prohibitions established under Oregon Administrative Rules (OAR) 340-041-0033 for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

7. Property Rights
The issuance of this permit does not convey any property rights of any sort, or any exclusive privilege, nor does it authorize any injury to persons of property or invasion of any other private rights, nor any infringement of federal, tribal, state, or local laws or regulations.

8. Permit References
Except for effluent standards or prohibitions established under Section 307(a) of the Clean Water Act and OAR 340-041-0033for toxic pollutants, all rules and statutes referred to in this permit are those in effect on the date this permit is issued.

9. Permit Fees
The permit registrant must pay the fees required by OAR 340-045-0070 to 0075.

SECTION B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

1. Proper Operation and Maintenance
The permit registrant must at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the permit registrant to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems that are installed by a permit registrant only when the operation is necessary to achieve compliance with the conditions of the permit.

2. Duty to Halt or Reduce Activity
For industrial or commercial facilities, upon reduction, loss, or failure of the treatment facility, the permit registrant must, to the extent necessary to maintain compliance with its permit, control production or all discharges or both until the facility is restored or an alternative method of treatment is provided. This requirement applies, for example, when the primary source of power of the treatment facility fails or is reduced or lost. It is not a defense for a permit registrant in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

3. Bypass of Treatment Facilities
   a. Definitions
      (1) "Bypass" means intentional diversion of waste streams from any portion of the treatment facility. The term "bypass" does not apply if the diversion does not cause effluent limitations to be exceeded, provided the diversion is to allow essential maintenance to assure efficient operation or the diversion is due to nonuse of nonessential treatment units or processes at the treatment facility.
      (2) "Severe property damage" means substantial physical damage to property, damage to the treatment facilities or treatment processes that causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

   b. Prohibition of bypass.
      (1) Bypass is prohibited unless:
         (a) Bypass was necessary to prevent loss of life, personal injury, or severe property damage;
         (b) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of

reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventative maintenance; and

(c) The permit registrant submitted notices and requests as required under General Condition B.3.c.

(2) The department may approve an anticipated bypass, after considering its adverse effects and any alternatives to bypassing, when the department determines that it will meet the three conditions listed above in General Condition B.3.b.(1).

c. Notice and request for bypass.
   (1) Anticipated bypass. If the permit registrant knows in advance of the need for a bypass, a written notice must be submitted to the department at least ten days before the date of the bypass.
   (2) Unanticipated bypass. The permit registrant must submit notice of an unanticipated bypass as required in General Condition D.5.

4. Upset
   a. Definition. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permit registrant. An upset does not include noncompliance to the extent caused by operation error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or careless or improper operation.

   b. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of General Condition B.4.c are met. A determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance is not final administrative action subject to judicial review.

   c. Conditions necessary for a demonstration of upset. A permit registrant who wishes to establish the affirmative defense of upset must demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
      (1) An upset occurred and that the permit registrant can identify the causes(s) of the upset;
      (2) The permitted facility was at the time being properly operated;
      (3) The permit registrant submitted notice of the upset as required in General Condition D.5, hereof (24-hour notice); and
      (4) The permit registrant complied with any remedial measures required under General Condition A.3 hereof.

   d. Burden of proof. In any enforcement proceeding, the permit registrant seeking to establish the occurrence of an upset has the burden of proof.

5. Treatment of Single Operational Upset
   For purposes of this permit, A Single Operational Upset that leads to simultaneous violations of more than one pollutant parameter will be treated as a single violation. A single operational upset is an exceptional incident that causes simultaneous, unintentional, unknowing (not the result of a knowing act or omission), temporary noncompliance with more than one Clean Water Act effluent discharge pollutant parameter. A single operational upset does not include Clean Water Act violations involving discharge without a NPDES permit or noncompliance to the extent caused by improperly designed or inadequate treatment facilities. Each day of a single operational upset is a violation.

6. Overflows from Stormwater Conveyance Systems (privately owned)
   a. Definitions
      (1) "Overflow" means the diversion and discharge of waste streams from any portion of the wastewater conveyance system through a designed overflow device or structure, other than discharges to the wastewater treatment facility.
      (2) "Severe property damage" means substantial physical damage to property, damage to the conveyance system which causes it to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of an overflow.
      (3) "Uncontrolled overflow" means the diversion of waste streams other than through a designed overflow device or structure.

b. Prohibition of overflows. Overflows are prohibited unless:
   (1) Overflows were unavoidable to prevent an uncontrolled overflow, loss of life, personal injury, or severe property damage;
   (2) There were no feasible alternatives to the overflows, such as the use of auxiliary conveyance systems, or maximization of conveyance system storage; and
   (3) The overflows are the result of an upset as defined in General Condition B.4 and meeting all requirements of this condition.

c. Uncontrolled overflows are prohibited where wastewater is likely to escape or be carried into the waters of the State by any means.

d. Reporting required. Unless otherwise specified in writing by the department, all overflows and uncontrolled overflows must be reported orally to the department within 24 hours from the time the permit registrant becomes aware of the overflow. Reporting procedures are described in more detail in General Condition D.5.

7. Public Notification of Effluent Violation or Overflow
If effluent limitations specified in this permit are exceeded or an overflow occurs, upon request by the department, the permit registrant must take such steps as are necessary to alert the public about the extent and nature of the discharge. Such steps may include, but are not limited to, posting of the river at access points and other places, news releases, and paid announcements on radio and television.

8. Removed Substances
Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters must be disposed of in such a manner as to prevent any pollutant from such materials from entering waters of the state, causing nuisance conditions, or creating a public health hazard.

SECTION C. MONITORING AND RECORDS

1. Representative Sampling
Sampling and measurements taken as required herein must be representative of the volume and nature of the monitored discharge. All samples must be taken at the monitoring points specified in this permit, and shall be taken, unless otherwise specified, before the effluent joins or is diluted by any other waste stream, body of water, or substance. Monitoring points may not be changed without notification to and the approval from the department.

2. Flow Measurements
Appropriate flow measurement devices and methods consistent with accepted scientific practices must be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices must be installed, calibrated and maintained to insure that the accuracy of the measurements is consistent with the accepted capability of that type of device. Devices selected must be capable of measuring flows with a maximum deviation of less than ± 10 percent from true discharge rates throughout the range of expected discharge volumes.

3. Monitoring Procedures
Monitoring must be conducted according to test procedures approved under 40 CFR part 136, unless other test procedures have been specified in this permit.

4. Penalties of Tampering
The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit may, upon conviction, be punished by a fine of not more than $10,000 per violation, imprisonment for not more than two years, or both. If a conviction of a person is for a violation committed after a first conviction of such person, punishment is a fine not more than $20,000 per day of violation, or by imprisonment of not more than four years, or both.

5. Reporting of Monitoring Results

Monitoring results must be summarized each month on a Discharge Monitoring Report form approved by the department. The reports must be submitted monthly and are to be mailed, delivered or otherwise transmitted by the 15th day of the following month unless specifically approved otherwise in Schedule B of this permit.

6. Additional Monitoring by the Permit registrant
If the permit registrant monitors any pollutant more frequently than required by this permit, using test procedures approved under 40 part CFR part 136 or as specified in this permit, the results of this monitoring must be included in the calculation and reporting of the data submitted in the Discharge Monitoring Report. Such increased frequency must also be indicated. For a pollutant parameter that may be sampled more than once per day (e.g., Total Chlorine Residual), only the average daily value must be recorded unless otherwise specified in this permit.

7. Averaging of Measurements
Calculations for all limitations that require averaging of measurements must utilize an arithmetic mean, except for bacteria which shall be averaged as specified in this permit.

8. Retention of Records
The permit registrant must retain records of all monitoring information, including: all calibration, maintenance records, all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit for a period of at least 3 years from the date of the sample, measurement, report, or application. This period may be extended by request of the department at any time.

9. Records Contents
Records of monitoring information must include:
   a. The date, exact place, time, and methods of sampling or measurements;
   b. The individual(s) who performed the sampling or measurements;
   c. The date(s) analyses were performed;
   d. The individual(s) who performed the analyses;
   e. The analytical techniques or methods used; and
   f. The results of such analyses.

10. Inspection and Entry
The permit registrant must allow the department or an authorized representative upon the presentation of credentials to:
   a. Enter upon the permit registrant's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
   b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
   c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit, and
   d. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by state law, any substances or parameters at any location.

SECTION D. REPORTING REQUIREMENTS

1. Planned Changes
The permit registrant must comply with OAR chapter 340, division 52, "Review of Plans and Specifications" and 40 CFR §122.41(l)(1). Except where exempted under OAR chapter 340, division 52, no construction, installation, or modification involving disposal systems, treatment works, sewerage systems, or common sewers may be commenced until the plans and specifications are submitted to and approved by the department. The permit registrant must give notice to the department as soon as possible of any planned physical alternations or additions to the permitted facility.

2. Anticipated Noncompliance
The permit registrant must give advance notice to the department of any planned changes in the permitted facility or activity that may result in noncompliance with permit requirements.

3. Transfers

This permit may be transferred to a new permit registrant provided the transferee acquires a property interest in the permitted activity and agrees in writing to fully comply with all the terms and conditions of the permit and the rules of the Commission. No permit may be transferred to a third party without prior written approval from the department. The department may require modification, revocation, and reissuance of the permit to change the name of the permit registrant and incorporate such other requirements as may be necessary. The permit registrant must notify the department when a transfer of property interest takes place.

4. Compliance Schedule
Reports of compliance or noncompliance with, or any progress reports on interim and final requirements contained in any compliance schedule of this permit must be submitted no later than 14 days following each schedule date. Any reports of noncompliance must include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirements.

5. Twenty-Four Hour Reporting
The permit registrant must report any noncompliance that may endanger health or the environment. Any information must be provided orally (by telephone) within 24 hours, unless otherwise specified in this permit, from the time the permit registrant becomes aware of the circumstances. During normal business hours, the department's Regional office must be called. Outside of normal business hours, the department must be contacted at 1-800-452-0311 (Oregon Emergency Response System).

A written submission must also be provided within 5 days of the time the permit registrant becomes aware of the circumstances. Pursuant to ORS 468.959 (3) (a), if the permit registrant is establishing an affirmative defense of upset or bypass to any offense under ORS 468.922 to 468.946, delivered written notice must be made to the department or other agency with regulatory jurisdiction within 4 (four) calendar days of the time the permit registrant becomes aware of the circumstances. The written submission must contain:
a. A description of the noncompliance and its cause;
b. The period of noncompliance, including exact dates and times;
c. The estimated time noncompliance is expected to continue if it has not been corrected;
d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance; and
e. Public notification steps taken, pursuant to General Condition B.6

The following must be included as information that must be reported within 24 hours under this paragraph:
a. Any unanticipated bypass that exceeds any effluent limitation in this permit.
b. Any upset that exceeds any effluent limitation in this permit.
c. Violation of maximum daily discharge limitation for any of the pollutants listed by the department in this permit.
d. Any noncompliance that may endanger human health or the environment.

The department may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.

6. Other Noncompliance
The permit registrant must report all instances of noncompliance not reported under General Condition D.4 or D.5, at the time monitoring reports are submitted. The reports must contain:
a. A description of the noncompliance and its cause;
b. The period of noncompliance, including exact dates and times;
c. The estimated time noncompliance is expected to continue if it has not been corrected; and
d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

7. Duty to Provide Information
The permit registrant must furnish to the department within a reasonable time any information that the department may request to determine compliance with this permit. The permit registrant must also furnish to the department, upon request, copies of records required to be kept by this permit.

This permit may be transferred to a new permit registrant provided the transferee acquires a property interest in the permitted activity and agrees in writing to fully comply with all the terms and conditions of the permit and the rules of the Commission. No permit may be transferred to a third party without prior written approval from the department. The department may require modification, revocation, and reissuance of the permit to change the name of the permit registrant and incorporate such other requirements as may be necessary. The permit registrant must notify the department when a transfer of property interest takes place.

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Tenmile Lakes Watershed WQMP

APPENDIX C - LAND APPLICATION OF BIOSOLIDS

Letter of Authorization/Approval

Oregon
Theodore Kulongoski, Governor

Department of Environmental Q
Western Region Rosebur
725 S
Roseburg, OR
(541) 44
FAX (541) 4

State of Oregon
Department of Environmental Quality
RECEIVED
MAY 20 2004
COOS BAY OFFICE

April 4, 2004

Don Bignell
City of Lakeside
915 N. Lake Road
Lakeside OR 97449

File Number: 48568
(541) 759-3011

RE: WQ-S-Coos County
Biosolid Land Application
Menasha Lumber Site
Twp. 23S, R. 13W Sec. 24
Tax Lot # 1000, 20 acre site

This letter represents approval of your request to apply biosolid to the above referenced property. Approval is subject to criteria detailed in the Oregon Administrative Rules, Chapter 340, Division 50, the 40 CFR part 503s, your National Pollutant Discharge Elimination System, your Biosolid Management Plan, and the following conditions:

Responsibility:

It is the City of Lakeside's responsibility to insure the proper handling and application of all biosolids generated. Transportation of the Biosolid to the application site shall be done in such a manner as to prevent leaking or spilling the biosolids onto the highways, streets, roads, waterways or other land surfaces not approved for biosolids application.

Site Description:

The approval site is approximately 20 acres of a larger 90 acres more or less parcel (map enclosed). The land is used for forest and is located south of the City's wastewater treatment plant. The site is on an old dissected upland marine terrace, about ½ miles southwest of Lakeside, Oregon.

Biosolids Application Criteria:

1. The site is approved for biosolids application beginning May 1 through October 31 of each year. Application of biosolids on this site is approved only when the temporary water table is 12 inches or more below the ground surface.

2. Biosolids shall be applied evenly and in a manner to prevent ponding or runoff. No flood or furrow irrigation of biosolid is authorized. During rainy periods, climatic factors must be monitored and recorded. This is in order to minimize the risk of heavy rainfall within a few days of land application

April 4, 2004
City of Lakeside
File Number: 48568
Menasha Lumber Site

Page 2 of 3

and the possibility of runoff onto buffer areas. You need to implement and maintain a wet season land application program that includes the following:

a). Past Rainfall Index and Soil Moisture Content,
b) Applicator Vehicle Trafficability Index,
c) Instantaneous Rainfall Index (attached),
d) All irrigation practices shall cease if the wind speed exceeds 10 mph or aerosols drift off the approved land application site.

3. Biosolids shall not be applied closer than 50 feet to any drainage ditch, channel, pond, or waterway or within 200 feet of a domestic water source or well.

4. Biosolids application rate shall not exceed 75 lb. N/acre-year. Changes in biosolids characteristics or crops management may necessitate appropriate adjustments in the application rate to maintain proper agronomic nitrogen loading. Currently the crop being grown is Douglas fir. There are 20 acres approved for land application at this site, therefore a total annual biosolid loading rate for this parcel is about 1500 lb. Total Nitrogen.

5. If other sources of nitrogen are used, the biosolids application rate must be reduced so that commercial nitrogen in combination with biosolids nitrogen does not exceed agronomic loading rate of this site (about 75 lbs./acre/year).

6. Site Use Limitations:

1. Controlled access to the biosolids site must be maintained for a period of 12 months following biosolids application.

2. Grazing animals should not be allowed on pasture within 30 days following biosolids application.

Accidental Spillage:

The permittee shall immediately clean up any spillage of biosolids and notify the DEQ Roseburg office at 440-3338 of any such occurrences. Spillage which cannot be completely cleaned up shall be covered with hydrated lime (calcium Hydroxide) or lime (calcium oxide). A 50-lb. bag of liming material shall remain available during transportation of the biosolids.

Monitoring:

1. Lakeside shall maintain daily records of accumulated biosolids application. Daily records gallons/application) of each biosolid application shall be kept on a field grid map or other easily readable system.

April 4, 2004
City of Lakeside
File Number: 48568
Menasha Lumber Site

Page 3 of 3

2. Lakeside shall provide the DEQ with land application summaries of biosolids processing application in Lakeside's annual report.

3. A copy of this site authorization letter and a signed biosolid pathogen and vector attraction reduction certification statement shall accompany all biosolids land applied at this site.

4. All biosolids site application records shall be kept at the plant for a minimum of 5 years.

If you have any questions regarding this site authorization please call me at 440-3338 ex 228.

Sincerely,

Paul Kennedy

Paul Kennedy, RS
Natural Resource Specialist 3

cc: Coos County Health Department

Biosolids Program-Portland DEQ

CITY OF LAKESIDE
SLUDGE DISPOSAL SITE
LOCATED IN TL 1000, TL 1200 AND TL 1300
T.23 S., R.13 W., SEC. 24,
COOS COUNTY, OREGON
CW 1/16 COR.

ıatic Factors and Application Indices

Day to day climatic conditions determine whether access can be granted to a site and if conditions are suitable for the land application of biosolids. Seattle Metro has established guidance which has been adopted by the City of Salem's biosolids land application program. Guidance is designed to aid biosolids land application project managers in determining if conditions are suitable for solids spreading, based on a daily review of climatic and site conditions.

A rain gauge and maximum and minimum temperature thermometer are located at the prospective land application site or treatment works, if close to the site. Data are recorded each morning before solids land spreading operations commence. When a predetermined "critical value" is exceeded, the applicator must determine if application can proceed. US Weather Bureau Service broadcasts or a walk over of the site are used to aid in decision making.

Three (3) indices have been developed to assist determining the suitability of a site for biosolids land application, including:

1. **Past rainfall index and soil moisture content**,
2. **Applicator vehicle trafficability index**,
3. **Instantaneous rainfall index**.

These 3 indices are based on interrelationships between site and climatic factors as well as applicator operating experience at the site or similar sites.

Past Rainfall (PRI)

If heavy rainfall occurs within a few days before or after biosolids land application, there may be runoff onto buffer areas and perhaps off the land application site. To minimize the risk of this occurrence, biosolids should not be applied where the soil is too wet or when prolonged rainfall is forecast within a few days.

The past rainfall index is designed to alert personnel when site conditions are marginal and further evaluation is necessary before deciding if biosolids should be applied.

Critical site factors that serve as an index to soil moisture content (wetness) include: Slope, soil (A horizon) water holding capacity; and past rainfall. Slope indicates, to some extent, the hydraulic gradients that aid in soil drainage. The

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-27 -

water holding capacity of the topsoil is a reflection of soil texture, structure and pore size distribution. These factors influence the rate at which a soil will drain.

Critical climatic factors consider evapotranspiration (reflected by the season of the year) and occurrence of rainfall prior to the desired biosolids application date. These determinants are used to calculate the index since they are readily available from maps and soil surveys (slope and available water holding capacity) and on-site measurements (daily rainfall).

The past rainfall index (PRI) is calculated as follows:

For slopes ≤**25%**:

PRI = (1/S) + (1/WHC) + 0.3P4 + 0.5P3 + 0.8P2 + P1 + 1.2PO

For slopes ≥**25%**:

PRI = S + (1/WHC) + 0.3P4 + 0.5P3 + 0.8P2 + P1 + 1.2PO

Where:

S = Percent slope;

WHC = Water holding capacity of the A horizon in inches of water per inch soil (obtainable from SCS Soil Survey data for principal soil series at a particular slope phase);

Pn = Precipitation, in inches, for day 2, 3, etc., prior to application, and

PO = the predicted amount for the current day (If PO is not available, it is dropped from the equation).

The PRI is calculated each morning. If the index exceeds the specified critical value, a walk over inspection is made of the site, and in conjunction with the long-term weather forecasts (5-day), a determination is made to see if biosolids application may proceed as planned or whether solids should be stored or applied at an alternative location.

The source site manager is to make daily observations and keep a log of the conditions with the calculated PRI index so an experience base can be built to a set of critical PRI index values for future use.

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Applicator Vehicle Trafficability Index (TI)

This index is used to determine if a site has sufficient bearing capacity for the applicator vehicle and if it can be traversed without damage to the soil. The principal controlling factors related to trafficability are the clay content and plasticity of the surface soil horizons, the water holding capacity of the soil, soil drainage class, degree of shading of land surfaces, and the antecedent rainfall. The trafficability index is a weighting of the antecedent precipitation as modified by an index of soil plasticity. Soil plasticity information can be gained from SCS soil surveys.

The TI is calculated as follows:

$TI = Ip\ (0.3P4 + 0.5P3 + 0.8P2 + P1)$

Where:

Pn = Precipitation, in inches, for day 2, 3, etc., prior to application, and

Ip is a surface soil plasticity index within the acre-furrow slice.

If the index exceeds the critical value, the site manager must inspect the soil to determine if its bearing capacity is sufficient to operate the application vehicle without damaging soils. If a vehicle begins to rut a field deeper than six inches, operations must cease. The land application site manager must keep a record of the observations describing site conditions and applicator vehicle impact on sites. A penetrometer may be used to help assess surface soil conditions to determine site suitability for biosolids land application.

Instantaneous Precipitation

Rainfall that occurs during a biosolids land application event may, if the intensity is great enough, lead to poor infiltration or runoff of the applied solids. Generally, a rainfall intensity of more than 0.25 inches per hour will be sufficient to cause the application operation to shut down. Wet site conditions from past rainfall may dictate the critical intensity for shut-down be reduced. If more than 0.5 inches of rain falls during application, operations should cease until a careful examination of site conditions and expected rainfall has been completed.

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Other Climatic Conditions

Other climatic conditions that must be considered in determining the suitability of a site include snow, frozen soil, wind speed and visibility.

Snow

In western Oregon, biosolids may be land applied following a light dusting of snow , but if there is greater than one-half inch of snow and the application of solids will not cause the snow to melt within a couple days from heat conducted from the solids and the underlying soil, biosolids should not be applied. If subfreezing temperatures are forecast for a few days following biosolids application and rainfall is not likely, the allowable period for melting can be extended by a few days.

Wind

If wind speed is such that biosolids would be blown into buffer strips, waterways, roads, trails or ditches or onto the application vehicle itself, application should stop immediately until the wind has stopped or slowed so that no significant drifting occurs.

Fog

If fog causes such poor visibility that the applicator vehicle operator is not able to clearly see buffer boundaries or areas where biosolids have been previously applied, application must cease immediately. The presence of fog also creates unsafe operating conditions. When fog limits clear visibility to less than 1.5 times the distance of the spread stream, application should be discontinued until visibility improves.

Lighting

Uniform biosolids application relies on the operator's ability to see that the surface of the application site receives a complete coat of biosolids and that over-application and/or spotty application does not occur. Loss of visibility from poor lighting during dawn and dusk will restrict operations and application must cease.

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Tenmile Lakes Watershed WQMP

APPENDIX D1 - DEPARTMENT OF AGRICULTURE WATER QUALITY IMPLEMENTATION PLAN

Coos and Coquille Area Agricultural Water Quality Management Plan

http://www.oregon.gov/ODA/NRD/docs/pdf/plans/coos_04_fnlpln.pdf

Oregon Administrative Rules – Oregon Department of Agriculture Chapter 603, Division 95

http://www.oregon.gov/ODA/NRD/docs/pdf/rules/coos_04_fnlrls.pdf

For more information or a complete printed copy of the 2004 Coos Agricultural Water Quality Area Plan or Administrative rules contact, Oregon Department of Agriculture, at (541) 471-7838.

The Cover and Table of Contents from the Coos AWQMAP are provided below for your convenience.

COOS and COQUILLE AREA AGRICULTURAL WATER QUALITY MANAGEMENT PLAN

Developed by the

Coos and Coquille Local Advisory Committee
and
The Oregon Department of Agriculture

with Assistance from
The Coos County Soil and Water Conservation District

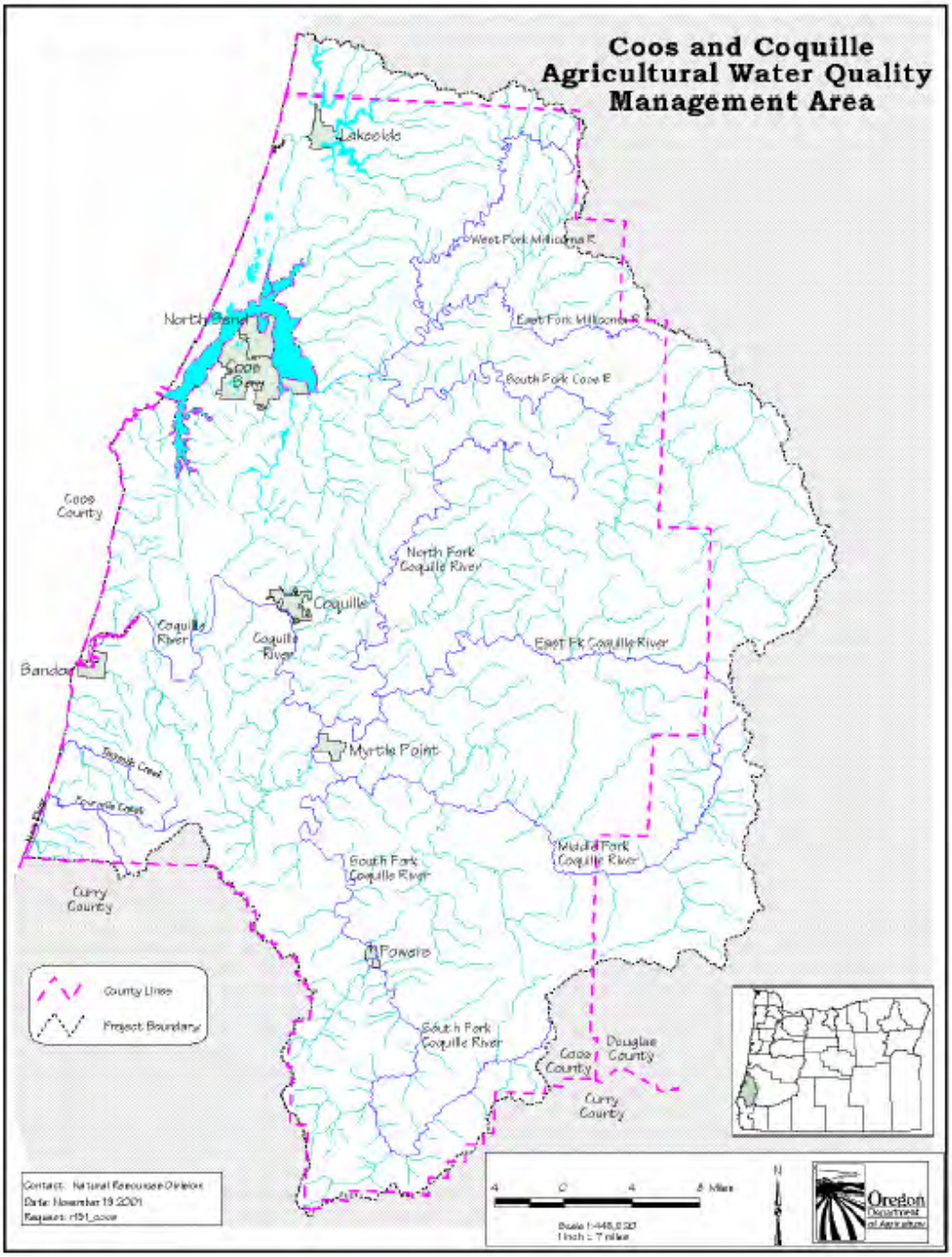
February 8, 2002

Local Advisory Committee Members

Eric Aasen Jolly Hibbits Joan Mahaffy Doug Sinko
Jeff Cochran Tom Johnson JoAnn Mast Jordan Utsey *(deceased)*
Steve Cooper Bonnie Joyce Dave Messerle
Heath Hampel Monte Lund Roland Ransdell

Table of Contents

APPENDIX 1



FINAL Coos and Coquille Area Agricultural Water Quality Management Area Rules February 8, 2002, Page 5

Administrative Rules relating to the implementation of the Coos AWQMAP are provided below for your convenience.

FINAL

OREGON ADMINISTRATIVE RULES
OREGON DEPARTMENT OF AGRICULTURE
CHAPTER 603, DIVISION 95
AGRICULTURAL WATER QUALITY MANAGEMENT PROGRAM
Coos and Coquille Area
603-095-1500

Purpose

(1) These rules have been developed to implement a water quality management area plan for the Coos and Coquille Agricultural Water Quality Management Area pursuant to authorities vested in ODEQ through ORS 568.900 - ORS 568.933 and ORS 561.190 – ORS 561.191. The area plan is known as the Coos and Coquille Agricultural Water Quality Management Area Plan. Nothing in the Coos and Coquille Agricultural Water Quality Management Area Plan or in OARs 603-095-1500 through 603-095-1560 will allow ODEQ 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) The purpose of these rules is to outline requirements for landowners in the Coos and Coquille Agricultural Water Quality Management Area to prevent and control water pollution from agricultural activities and soil erosion. Compliance with Division 95 rules (OARs 603-095-1500 through 603-095-1560) is expected to aid in the achievement of applicable water quality standards in the Coos and Coquille Water Quality Management Area.

(3) Failure to comply with any provisions of the Coos and Coquille 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 603-095-1560;

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

(4) Nothing in the Coos and Coquille Agricultural Water Quality Management Area Plan shall be:

(a) construed as an effluent limitation or standard under the federal Water Pollution Control Act, 33 USC §§ 1251-1376;

(b) used to interpret any requirement of OAR 603-095-1500 to OAR 635-095-1560.

603-095-1520
Geographic and Programmatic Scope

(1) The Coos and Coquille Agricultural Water Quality Management Area is comprised of the Coos and Coquille drainages, the Tenmile drainage, the Twomile drainage, the Fourmile drainage (including the headwaters of South Fork Fourmile Creek), and those lands within Coos County that lie north of the county line west of its junction with Bethel Mountain Road. The physical boundaries of the Management Area 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 Coos and Coquille Agricultural Water Quality Management Area in agricultural use, agricultural and rural lands that are lying idle or on which management has been deferred, and forested lands with agricultural activities, with the exception of public lands managed by federal agencies. These rules (OAR 603-095-1500 through OAR 603-095-1560) will affect any lands in agricultural use on all non-Federal and non-Tribal lands in the Coos and Coquille Agricultural Water Quality Management Area.

(a) Agricultural use does not include the use of land for garden plots primarily used for the cultivation of vegetables, flowers, herbs or fruits for domestic or household use.
(b) The provisions of the Coos and Coquille Agricultural Water Quality Management Area Plan and OARs 603-095-1500 through 603-095-1560 shall not apply to any forest practice conducted on forestland as defined in ORS 527.620.

(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) For lands in agricultural use within other Designated Management Agencies' or state agency jurisdictions, ODEQ and the appropriate Local Management Agency will 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.

603-095-1540
Prohibited Conditions

(1) All landowners or operators conducting activities on lands in agricultural use will comply with the following criteria. A landowner is responsible for only those conditions resulting from activities caused by the landowner. A landowner is not responsible for conditions resulting from actions by another landowner. A landowner is not responsible for conditions resulting from unusual weather events or other exceptional circumstances that could not have been reasonably anticipated.

(a) Limited duration activities may be exempt from these conditions subject to prior written approval by ODEQ.

(2) Sediment Management

(a) Effective three years after rule adoption, soil erosion associated with agricultural cultivation shall not deliver sediment sufficient to violate water quality standards.

(3) Nutrient Management

(a) Effective three years after rule adoption, application and storage of manure, commercial fertilizer, and other added nutrient inputs to agricultural lands will be done in a manner that minimizes the introduction of nutrients into waterways.

(4) Pesticide Management

(a) Effective three years after rule adoption, in cranberry production, water storage systems that intercept agricultural drainage containing pesticides and that reapply this water will be designed to minimize percolation of drainage waters to groundwater or overflow of the impoundment to surface waters.

(5) Riparian Management

(a) Effective three years after rule adoption, management activities in the riparian area will be conducted in a manner that allows the establishment, growth, and maintenance of riparian vegetation consistent with vegetative site capability so as to provide some combination of filtering capacity, sediment trapping, stream bank stability, and shade.

(A) Exemptions shall include stream crossings, access for irrigation equipment and other accepted water dependent agricultural uses when conducted in a manner that minimizes impacts on streambank stability.

(6) Irrigation Management

(a) Effective three years after rule adoption, application (direct, chemigation, and fertigation) and irrigation systems will be managed to minimize runoff and the introduction of nutrients and farm chemicals into waterways.

(7) Waste Management

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

603-095-1560
Complaints and Investigations

(1) When ODEQ receives notice of an apparent occurrence of agricultural pollution through a written complaint, its own observation, or through notification by another agency, ODEQ may conduct an investigation. ODEQ may, at its discretion, coordinate inspection activities with the appropriate Local Management Agency.

(2) Each notice of an alleged occurrence of agricultural pollution shall be evaluated in accordance with the criteria in ORS 568.900 to 568.933 or any rules adopted thereunder to determine whether an investigation is warranted.

(3) Any person allegedly being damaged or otherwise adversely affected by agricultural pollution or alleging any violation of ORS 568.900 to 568.933 or any rules adopted thereunder may file a complaint with ODEQ.

(4) ODEQ will evaluate or investigate a complaint filed by a person under section OAR 603-095-1560(3) if the complaint is in writing, signed and dated by the complainant and indicates the location and description of:

(a) The property and/or waters of the state allegedly being damaged or impacted; and
(b) The property allegedly being managed under conditions violating criteria described in ORS 568.900 to 568.933 or any rules adopted thereunder.

(5) Notwithstanding OAR 603-095-1560, ODEQ may investigate at any time any complaint if ODEQ determines that the violation alleged in the complaint may, is or impends to create an immediate threat to the public health or safety.

(6) If ODEQ determines that a violation of ORS 568.900 to 568.933 or any rules adopted thereunder has occurred, the landowner may be subject to the enforcement procedures of ODEQ outlined in OARs 603-090-0060 through 603-090-0120.
(a) Enforcement action shall be pursued only when reasonable attempts at voluntary solutions have failed.

(7) ODEQ may not impose a civil penalty on a landowner for a first violation of OAR 603-090-0000 through 603-090-0120, or of OAR 603-095-01500 through OAR 603-096-1560 unless ODEQ:
(a) has notified the landowner of the violation in writing that describes, with reasonable specificity, the factual basis for ODEQ's determination that a violation has occurred; and
(b) has prescribed a reasonable time for the landowner to correct the violation that may not exceed 30 days after the first notice of violation, unless the violation requires more than 30 days to correct, in which case ODEQ shall specify a reasonable period of time to correct the violation in a plan of correction issued to the landowner.

(8) No notice of violation or period to comply shall be required under subsection (8) of this section if:
(a) The violation is intentional; or
(b) The landowner has received a previous notice of the same or similar violation.
(9) ODEQ, or a designee of ODEQ, shall periodically, and in no event less than once biennially, consult with Department of Justice to ensure that the actions of ODEQ taken under ORS 568.915 are consistent with section 9, Article I of the Oregon Constitution, and the Fourth Amendment to the United States Constitution.

Statutory Authority: ORS 561.190 - 561.191, and ORS 568.912
Statutes Implemented: ORS 568.900 - 568.933

Tenmile Lakes Watershed WQMP

APPENDIX D2 - DEPARTMENT OF AGRICULTURE NOXIOUS WEED STRATEGIC PLAN EXECUTIVE SUMMARY

http://oregon.gov/ODA/PLANT/WEEDS/index.shtml

http://oregon.gov/ODA/PLANT/WEEDS/plan_contents.shtml

For more information contact the Oregon Department of Agriculture, Plant Division, Noxious Weed Control

Phone: 503-986-4621
INVADER line: 866-468-2337

Executive Summary

Oregon is under siege. The invaders have names such as diffuse knapweed, yellow starthistle, leafy spurge, and purple loosestrife. They are noxious weeds, exotic species that don't belong here. Numerous agencies and programs have been enlisted to fight the battle. Without those efforts, the invaders will win, crowd out native plant species, and overrun the landscape. Most everyone agrees, protection of Oregon's natural resources is worth fighting for.

Noxious weeds are becoming a topic of interest for many varied groups throughout the state. Those interested in preserving wetlands, rangeland, cropland, wildlife, recreational areas and even urban livability have a stake in weed control. Increased media attention on various noxious weeds this past year reflects the concern of Oregonians.

This document provides a framework and overall strategy for cooperators in noxious weed management. It assesses the magnitude of the problem, highlights the importance of current weed control activities, and offers recommendations. Implementation of this strategic plan will build and expand strong coordinated programs for the future to protect Oregon's agricultural economy and natural resources.

The spread of noxious weeds has been described as a "biological emergency," a "biological wildfire raging out of control," or "an explosion in slow motion." In any terms, noxious weeds pose a serious economic and environmental threat. Oregon loses more than $83 million annually to just 21 of the 99 state-listed noxious weeds. These invasive, non-native plants choke out crops, destroy range and pasture lands, clog waterways, affect human and animal health, and threaten native plant communities.

Weed control in Oregon has experienced a decade of declining funding and reduced control efforts. State General Funds for noxious weed control have declined by more then 30 percent. County programs have declined by 70 percent overall, and only 15 of Oregon's 36 counties have active programs. Neither prevention of new weed introductions nor control of established weed problems is being adequately implemented. Despite the current level of effort,

4 Oregon Noxious Weed Strategic Plan

new weeds continue to be introduced to the state and many established populations continue to expand.

During the last 10 years, the number of state-listed noxious weeds in Oregon has increased by 40 percent. The recent detection of two aggressive invasive weeds, kudzu and smooth cordgrass, has sounded a serious alarm about new invasions. Also alarming is the spread of established weeds. During the past 12 years, infestations of spotted knapweed and yellow starthistle have expanded 42 and 11 fold, respectively. Without immediate action, these trends will continue.

The 1999 Legislative Assembly started a reverse in these trends with the reinvestment of $1.5 million in lottery funds and by passing House Bill 2118. This bill instructed the Oregon Department of Agriculture (ODA) to assess the impacts of noxious weeds on the state, review control programs, and provide recommendations for implementation of effective noxious weed management. Working with a broad-based group of stakeholders, ODA has developed this strategic plan in response to HB 2118.

To effectively manage noxious weeds, Oregon needs effective leadership and organization from a statewide and local perspective. Cooperation from the major land managers (state, federal, county, and private) is essential because weeds do not respect ownership boundaries. ODA best provides statewide leadership. County programs best provide local organization and direction.

Priority activities recommended by this plan are the following:

- Establishing strong statewide, county, and local weed control programs
- Providing leadership, developing cooperation and partnerships
- Providing education and increasing awareness to public and private sectors
- Providing assistance to public and private land managers
- Identifying new invaders and potential threats to the state
- Implementing early detection and eradication programs
- Implementing effective containment projects
- Providing and implementing biological control
- Providing quality inventory and mapping information
- Prioritizing and implementing effective projects

5

- Providing sufficient level of funding for noxious weed control programs

The priorities outlined by this plan and an investment into noxious weed control programs is a prudent course of action given the conservative estimate of $83 million in annual negative impacts from noxious weeds. Control efforts have proven successful in the past. For example, the biological control of tansy ragwort has an estimated $5 million per year benefit to Oregonians. This project alone provides an 83 percent annual return on investment. The control of six weeds having limited distribution in the state has a benefit to cost ratio of 33 to one. For every dollar spent on effective control, there is $33 of benefit gained. If left unchecked, the potential impact from these six weeds is estimated at $54 million annually.

The strategy outlined in this plan can be visualized as a chain. At one end are strong county weed control programs. In the middle are state and federal agencies, organizations, and private individuals. At the other end is the ODA's program concentrating on coordination, early detection, prevention, and biological control. Incentive programs, education, cooperative agreements, and partnerships forge the entire chain into a strong and formidable system.

Using the same analogy, the current chain is not securely linked. At the ends, only a third of Oregon counties have active weed programs; and the state spends less then one cent per acre annually to support ODA's essential coordination, early detection, prevention, and biological control efforts. In the middle, some incentives and partnerships are active, but many opportunities are missed. Not only are the current links to loosely connected, but also the entire chain, from end to end, is too weak to address the full weight of the problem. By implementing the recommendations of this plan, the links that form a strong unbreakable chain are forged to provide effective noxious weed management.

Noxious weeds have invaded many parts of Oregon, but large tracts remain healthy and free of invasive weeds. Our challenge is to focus efforts to protect Oregon from new invasions, and to lessen the impact of weeds already established. This strategic plan outlines priorities for a strong and cohesive approach to control noxious weeds in Oregon. Controlling a "biological wildfire" is not an easy task, but it can and must be done in order to protect Oregon's economic and environmental health.

6 Oregon Noxious Weed Strategic Plan

Control of noxious weeds is an issue that makes for some interesting alliances. Ranchers and farmers have spoken clearly about the threat weeds pose. So have conservation groups. Control efforts are no longer confined to a handful of agencies and programs. It now is the business of all Oregonians.

7

Tenmile Lakes Watershed WQMP

APPENDIX E - DEPARTMENT OF FORESTRY WATER QUALITY IMPLEMENTATION PLAN

[Updated on 1/26/06]

"Nonpoint Sources: Forestry"

Prepared by: Oregon Department of Environmental Quality
February 2006

TMDL Implementation Strategy for Non-Federal Forest Lands

Summary

Forest Practices Act (FPA)

Implementation mechanism

Management Measures

- Riparian Protection Rules
- Road Construction and Maintenance Rules
- Other Management Measures protective of water quality
- Basin Specific Rules

Adaptive management and Current Status of FPA adequacy to meet WQS

- EO 99-01
- IMST Report
- Sufficiency Analysis
- ODF Technical Review
- Current Status of FPA
- Adaptive Management to meet TMDL Goals

Effectiveness and implementation monitoring

Oregon Plan

Voluntary Measures

Current Considerations

Roles of EQC and BOF

TMDL Implementation Strategy for Non-Federal Forest Lands

Summary

The present land use in the upper watershed supports timber management in the uplands. There is a large block ownership of the Elliott State Forest in the eastern portion of the watershed and these holdings are actively managed for timber harvest. Private land holdings to the west of the state forest and ownerships on steep slopes running laterally to valley floors are also subject to timber harvest. Over 58% of lands within the watershed support forestry related uses.

Many of the valley floors are now managed as agricultural wetlands principally used for livestock grazing and hay production. Higher-density urban development is restricted largely to the City of Lakeside on the eastern shore. Lakeshore development is widespread on much of the accessible, upland portions of the shoreline. The Oregon Dunes National Recreation area is the only federally managed ownership in the watershed and is located to the west of the Tenmile Lakes.

The data analysis developed to support the Tenmile Lakes Watershed total maximum daily load (TMDL) demonstrates that urban, rural residential, agriculture, and non-federal forest land management activities all contribute to water quality impairment within the watershed to some extent.

On forest lands in general, historic forest practices such as, removal of wood from streams, riparian harvest, management related slope failures, and legacy roads may continue to influence current stream conditions and riparian functions in addition to current management practices. Moreover, 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.

With this noted, the TMDL analysis demonstrates 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.

ODF Stewardship Foresters administer the Oregon Forest Practices Act (FPA) to ensure protection of water quality and habitat during forestry operations. These measures include leaving trees and understory vegetation within certain distances of stream banks depending on the type of stream and occurrence of fish. These trees and understory vegetation are intended to provide a buffer between logged areas and the stream, providing shade, woody debris, filtration of sediments from overland flow, and erosion control. In addition, voluntary measures under Oregon Plan that are more protective are promoted under Private and Community Forest Program.

Best management practices (BMPs) in the FPA, including riparian zone protection measures, measures for various forest operations, as well as several provisions within the FPA that require monitoring and adaptive management are the mechanism for meeting State Water Quality Standards. (WQS) Thus, implementation of the FPA is the main mechanism for TMDL implementation on Non-Federal Forest Lands. Unlike other designated management agencies (DMAs), ODF is not required to prepare an implementation plan for state and private forestlands under OAR 340-042 TMDL rules because of BOF's statutory responsibility to ensure that NPS pollution resulting from current forest operations does not impair the attainment of water quality standards. ODF and DEQ have an interagency memorandum of agreement to coordinate during development and implementation of TMDLs to ensure that, when water quality impairments are caused by current forest management activities, they will be addressed through establishing watershed specific protection rules or other Board of Forestry (BOF) authority.

ODF Stewardship Foresters also work with and encourage private land owners to implement volunteer measures through Oregon Plan for Salmon and Watersheds (OPSW) to provide further protection to water quality as well as to acquire implementation and effectiveness monitoring information.

For information regarding the FPA, link to

http://egov.oregon.gov/ODF/PRIVATE_FORESTS/private_forests.shtml#Forest_Practices_Act

Forest Practices Act

There are extensive statutes and administrative rules under the FPA that regulate forest management activities statewide that apply to the Tenmile Lakes Watershed.

The purpose and goals of the FPA include protecting, maintaining, and improving the functions and values of streams, lakes, wetlands, and riparian management areas, addressing the key water quality issues of stream temperatures, riparian aquatic functions, and sediment dynamics. The FPA provides a broad array of water quality benefits and contributes to meeting water quality standards for parameters such as temperature, sediment, dissolved oxygen, nutrients, and aquatic habitat. A substantial body of scientific research and monitoring 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; bank and slope stability, 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.

OAR 629-635-100 describes the purpose and goals of the FPA towards the achievement and maintenance of water quality standards. Further, OAR 629-640-000 lists Vegetation Retention Goals for Streams and Desired Future Conditions.

Implementation and Enforcement

FPA rules are implemented and enforced by ODF and monitored to assure their effectiveness**.** The operator, landowner, or timber owner is required to provide notification of commercial harvest at least 15 days prior to operation. In addition, operators are required to submit written plans containing the following specific information applicable to the operation regarding (but not limited to) before conducting operations within 100 feet of a large lake or a stream with known fish use or domestic use. For an operation within 300 feet of significant wetlands, written plans are also required.

- the location of roads and landings, roads and landing design,
- construction techniques,
- drainage systems,
- disposal of waste materials,
- felling and bucking,
- buffer strips,
- yarding systems and layout,
- riparian management area protection measures,
- resource site protection measures, and
- post operation stabilization measures

For each administrative rule, written guidance is provided to field administrators to ensure proper, uniform and consistent application of the FPA Statutes and Rules. Stewardship Foresters work with operators and landowners by providing technical assistance and going on field visits as time allows. In

case of Forest Land conversion from forestry to other uses, the Stewardship Foresters may go on joint field visits with agency staff from ODA, ODFW DSL, and/or DEQ.

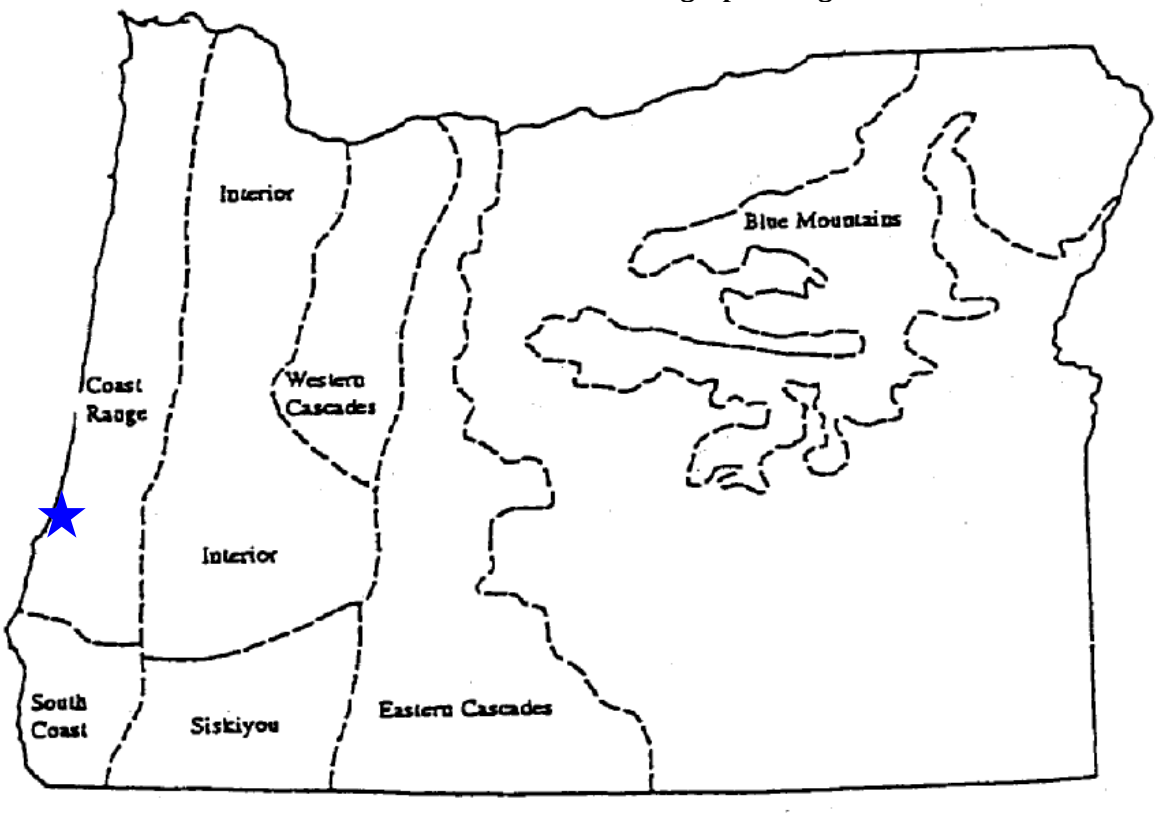
The FPA requires penalties, both civil and criminal, for violation of rules and statutes. By statute, forest operators conducting operations in accordance with FPA BMPs are not subject to enforcement of a water quality standards violation by DEQ. Additionally, whenever a violation occurs, the responsible party is obligated to mitigate the damage.

Management Measures

The Water Protection Rules (Divisions 635, 640, 645, 650, 655, and 660)

The Water Protection Rules are an important component of the FPA that are designed to achieve and maintain water quality standards. The rules identify seven geographic regions and distinguish between streams, lakes, and wetlands. The Tenmile Lakes Watershed falls under the Coast Range geographic region. 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.

Forest Practices Act Geographic Regions



Type F – Fish-bearing Stream Protection

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. 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 as specified in Table 1. Provisions governing vegetation retention are designed to encourage conifer restoration on riparian forestland that is not currently in the desired conifer condition. In addition, 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.

Type N and D – Non-fish bearing and Domestic use Stream Protection

The overall goals of the riparian vegetation retention rules along Type N (non-fish bearing) and Type D (domestic use) streams are to:

1. have sufficient streamside vegetation to support the functions and processes that are important to downstream fish use,

2. have sufficient streamside vegetation to support the functions and processes that are important to downstream domestic water use, and

3. supplement wildlife habitat across the landscape.

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 provisions of snags, cover, and trees for wildlife.

These streams have reduced riparian management area (RMA) widths and reduced basal area retention requirements as compared to similar sized Type F streams (Tables 1 - 3). The effectiveness of these requirements in meeting above goals will be evaluated over time through monitoring.

Riparian Management Areas and Basal Areas

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

	Type F	**Type D**	**1.0.1.1.1.1.1 TYPE N**
LARGE	100 feet	70 feet	70 feet
MEDIUM	70 feet	50 feet	50 feet
SMALL	50 feet	20 feet	Apply specified water quality protection measures, and see OAR 629-640-200

Table 2. Basal Area Requirements for Type F RMA.

Geographic Region		Square Feet of Basal Area per acre, each side of stream					
		Large Type F RMA=100ft		Medium Type F RMA=70ft		Small Type F RMA=50ft	
		Std	Active	Std	Active	Std	Active
Coast Range and S. Coast	Type 1 – Thinning	130	117	100	87	43	26
	Type 2 and 3	100	74	75	56	37	17

Table 3. Basal Area Requirements for Type D and N RMA.

Geographic Region		Square Feet of Basal Area per acre, each side of stream		
		Large Type D and N RMA=70ft	Medium Type D and N RMA=50ft	Small Type D RMA=20ft
		Std	Std	Std
Coast Range and S. Coast	Type 1– Thinning	87	37	0
	Type 2 and 3	56	31	0

For all streams that require an RMA, basal area targets are established that are used for any type of management within the RMA (Table 2 and 3). 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.

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 bankful 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 1994 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 was assumed that a 20-foot no-harvest buffer, combined with the tree retention requirements for the rest of the RMA, would be adequate to maintain shade levels necessary to achieve stream temperature standards. Due to recommendations and concerns raised during review, a set of rule revisions are being considered by BOF (See Adaptive Management and Current Status of FPA Adequacy to meet WQS). In addition, the ODF monitoring program is currently collecting data to test these assumptions, evaluate the effectiveness of the proposed rules, and evaluate whether or not water quality standards for temperature will be achieved by the proposed rules.

The Road Construction and Maintenance Rules (Division 625)

In terms of sediment issues specific to forest roads, there are BMPs within the FPA specifically designed to regulate road use, 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 BOF revised several BMPs related to road design when the new Water Protection Rules were adopted in the fall of 1994, and again in 2002 to address study findings and various recommendations (see Adaptive Management section),

Past findings –

Turbidity: ODF monitoring data showed that about one-third (29 to 39 percent) of active and inactive roads on state and private lands can deliver sediment to streams by ditch delivery (ODF, 1996).

There is the potential for significant amounts of turbidity to be created from these sources, especially during hauling operations in the wet season. For the portions of the road network where sediment delivery is occurring, a number of issues have been identified that are contributing to the problem:

- Minimizing turbidity caused by wet-weather hauling. Rules were adopted in 2003 and field staff are conducting monitoring, problem identification, and implementing management and drainage improvements as necessary.
- Monitoring has shown a general lack of filtering of drainage waters near streams.
- Cross drainage structures (water bars, relief culverts) are often not in place to filter road runoff before reaching stream crossings.
- Steep-gradient roads tend to have cross drainage structures at wider spacing than lower gradient roads. Under the current rules, road design and maintenance practices should result in steep-gradient roads having cross drainage structures with narrower spacing relative to lower-gradient roads.
- There are inconsistencies in drainage practices between georegions, with special concerns in the Siskiyou Georegion.
- In some areas, road maintenance and repair is inadequate, according to the rules.

Forest Road-Related Landslides: The findings Robison et al. (1999) include the most current information addressing the adequacy of the forest practice rules related to landslides and forest roads:

- Landslides associated with forest roads made up a smaller percentage of the total landslides in the ODF study than in most previous studies.

- Road-associated landslides identified during the ODF study were smaller, on average, than road-associated landslides in past studies. However, these road-associated landslides were four-times larger, on average, than those landslides not associated with roads.
- Landslides that delivered sediment to stream channels rarely occurred on roads crossing slopes of less than 50 percent, especially when those roads had well spaced drainage systems and fills of minimal depth.
- Road fill placed on steep slopes created an increased landslide hazard, even where no drainage water is directed to those fills.
- Road-drainage waters directed onto very steep slopes created an increased landslide hazard, even when there was no road fill placed on those very steep slopes.
- In the ODF study, washouts were a significant problem in Tillamook and, to a lesser extent, in Vida study areas. Washouts were often related to undersized culverts (installed prior to current rule requirements).
- Based on the lower numbers of road-associated landslides surveyed in the ODF study and on the smaller sizes of these landslides (as compared with previous studies), current road management practices are likely reducing the size of road-associated landslides and the number of landslides.

Harvesting-Related Landslides and Forest Stand Condition: The following are conclusions from Robison et al. (1999). These findings include current information addressing the adequacy of the forest practice rules related to landslides and debris flows.

- Timber harvesting can initiate landslides in areas with moderate to high landslide risk. In three out of four ODF storm monitoring study areas, higher landslide densities and erosion volumes were found in stands that had been harvested in the previous nine years, as compared to forests older than one hundred years. Forested areas between the ages of 10 and 100 years typically had lower landslide densities and erosion volumes than those found in mature forest stands (Robison et al., 1999).
- There is significant landslide risk on very steep slope regardless of the age of vegetation, especially in certain geologic formations, where major storms and landslide processes are the dominant means by which the landscape is shaped.
- Landslides from recently harvested and older forests can have similar dimensions, including depth, initial volume and debris flow volume (Robison et al., 1999).
- Variability in both storm and site characteristics can be a dominant influence on landslide occurrence.
- Any disturbance that removes vegetation on steep, landslide-prone locations results in increased landslide occurrence. Both the length of time these locations experience periods of reduced forest cover and the extent of lands with reduced vegetative cover can affect landslide density and erosion rate.
- Landscape-level disturbances can result in large, contiguous areas in a condition susceptible to landslides.
- Alternative management strategies for high-risk sites should be carefully monitored. This will take considerable time, since landslides are a geologic process (variable in both time and space). The effectiveness of specific practices, therefore, will be difficult to evaluate until the landscape has experienced major storms and/or prolonged exposure to geologic processes.

Landslide-Related Stream Channel Impacts: The following are conclusions from Robison et al. (1999). These findings include the most current information addressing landslide-related stream channel impacts on forestlands in Oregon.

- In the ODF study, stream channel impacts varied greatly by study area and were not directly related to the number of landslides. Large, up-slope landslides originating above small channel

junction angles (<70o) and steep channel gradient slopes resulted in the greatest stream channel impacts.
- Debris torrents reduce stream shading, especially when they travel through younger stands.
- Debris torrents have only a minor effect on active channel width.
- The Benda-Cundy model provides a reliable tool for determining maximum potential travel distances of "typical" debris flows and torrents from forested slopes. Less than 10 percent of the total landslides in the ODF study traveled farther than predicted by the Benda-Cundy model[9] . The debris torrents that traveled farther than predicted were, on average, larger and had younger riparian vegetation near their terminus. Thus, when determining landslide run-out distance, channel junction angles and channel gradient are the primary factors, while landslide volume and composition of the riparian area along debris torrent-prone channels may also be important secondary factors.
- In the ODF study, slash in the channel was different by stand age class for the Elk Creek and Scottsburg areas. However, whether these differences in slash resulted in increased travel distances by debris torrents could not be determined.

In order to address above concerns, significant changes were made to the road construction rules including the following, and are expected to provide added assurance of meeting water quality standards.

- 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 (culverts, bridges, and fords) 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.
- The requirement to stop road use during wet weather if runoff from the road segment is causing a visible increase in the turbidity of Type F or Type D streams as measured above and below the effects of the road.

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

[9] Benda and Cundy. 1990. Predicting Deposition of Debris Flows in Mountain Channels. Canadian Geotechnical Journal. Volume 27, Number 4, pp. 409-417.

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. (OAR 629-625-0320) 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 Oregon Plan also has voluntary measures addressing sediment issues related to legacy forest roads. Forest roads built prior to 1971 and have not been in use since, may pose some increased risk to water quality and fish habitat. Forest roads built prior to 1994 may have undersized culverts which may also pose increased risk to water quality. Industrial forest landowners and state forest lands are currently implementing the Road Hazard Identification and Risk Reduction Project on the voluntary basis to identify risks to salmon from roads and address those risks. See Oregon Plan section for details.

Other Management Measures

The FPA covers the following general areas of forestry operation and provides BMPs in order to protect water quality

- Harvesting or salvaging trees (Division 630)
- Site preparation, stabilization, and reforestation (Divisions 610 and 611)
- Chemical application (Division 620)
- Clearing forest land for nonforest uses (Division 610-0090)
- Precommercial thinning slash disposal (Division 615)
- Habitat protection (Division 665)

Basin Specific Rules (Division 635-0120)

In addition to the statewide effort to ensure FPA adequacy to meet WQS, FPA rule allows for development of watershed specific protection rules for watersheds that have been designated as water quality limited or containing threatened or endangered aquatic species. Coordination between ODF and DEQ for establishing such rules is guided by a Memorandum of Understanding signed in April of 1998. For basins where ODF and DEQ agree that there are water quality impairments due to forest management activities even with FPA rules and BMPs, the DEQ and the BOF will use OAR 629-635-120 to create watershed specific protection rules or use other existing authority to ensure that forest management activities do not impair water quality.

The Tenmile Lakes Watershed is water quality limited for nuisance weeds and algae. Data analyses supporting the development of the Tenmile Lakes Watershed TMDL have determined that overall sediment loading to the lakes needs to be reduced. A target of 50% reduction of sediment loading within the next 25 years has been established. Load reductions are identified specifically for major tributaries within the watershed and can be found within the TMDL document in section 6.5 Excess Loads – Sedimentation. Due to the intermingled agricultural and forestry landscape common to South Coast finger valley streams, discrete pollutant loads were not identified for each of these land uses. Although DEQ has identified water quality impairment due to in part to forest practices, adequate basin specific monitoring to determine the adequacy of the current FPA is needed before BOF could authorize a rule change.

DEQ encourages ODF to develop and conduct BMP effectiveness monitoring as funds allows to better refine loading estimates from the forested landscape. Section 6.11 Water Quality Monitoring Needs identifies suggested water quality parameters to further develop data sets to quantify sediment loading in the Tenmile Lakes Watershed. Suggested tributary monitoring proposes a focus on monitoring of water column total suspended solids to better quantify sediment loading from streams which were directly monitored during the development of the nutrient budget and TMDL and also suggests better quantification of sediment loading from streams where sediment loading information is not directly available and load allocations were based solely on modeling

Adaptive Management and Current status of FPA adequacy to meet WQS

There are several provisions within the FPA and rules that require adaptive management. Several efforts have been made to evaluate the sufficiency of the FPA to protect water quality. Such efforts are as follows:

EO 99-01 (Forest Practices Advisory Committee - FPAC)

In January of 1999 the Governor of Oregon signed Executive Order no. EO 99-01 that directed the Oregon Board of Forestry to determine what changes to forest practices are needed to meet state water quality standards and protect and restore salmonids with the assistance of an advisory committee. The committee was directed to consider both regulatory and non-regulatory approaches to water quality protection, and 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, ODF, 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 following links to the Report of the FPAC on Salmon and Watersheds:

http://www.odf.state.or.us/pcf/pub/default.asp?id=401010207#fpac

The Independent Multidisciplinary Science Team (IMST)

The IMST, in its report FPA and Oregon for its sufficiency in Recovery of Wild Salmonids in Western Oregon Forests: Oregon Forest Practices Act Rules and the Measures in the Oregon Plan for Salmon and Watersheds Technical Report 1999-1, provided recommendations to the rules and measures as they contribute to accomplishing the goals and objectives of the Oregon Plan.

The following links to the executive summary of the IMST report and the recommendations:

http://www.fsl.orst.edu/imst/reports/summaries/1999-1es.pdf

The Sufficiency Analysis

A statewide analysis to determine the sufficiency of the FPA to meet WQS was jointly conducted by ODF and DEQ, and the report was finalized in 2002. The report offers recommendations to highlight general areas where current practices could be improved in order to better meet the FPA goals and objectives and in turn provide added assurance of meeting water quality standards (WQS).

The Sufficiency Analysis final report has been externally reviewed by peers and other interested parties. The report was designed, in part, to provide background information and assessments of BMP effectiveness in meeting water quality standards. The report demonstrates overall FPA adequacy at the statewide scale with due consideration to regional and local variation in effects. Achieving the goals and objectives of the FPA will ensure the achievement and maintenance of water quality goals.

The following links to the Sufficiency Analysis: A Statewide Evaluation of Forest Practices Act Effectiveness in Protecting Water Quality

http://www.deq.state.or.us/WQ/nonpoint/docs/suffanalysis.pdf.

The Board of Forestry's response to recommendations

In 2002, the Board of Forestry adopted revised rules related to the regulation of forest road practices and landslide issues. These revisions are intended to address the Sufficiency Analysis and FPAC recommendations related to these issues, and are expected to provide added assurance of meeting WQS.

Furthermore, since July 2003, the BOF has been considering possible riparian rule revisions to provide greater protection to riparian management areas that take into account recommendations from the Sufficiency Analysis as well as other recommendations to ensure attainment of WQS.

The current practices that could be improved, and are under consideration for rule revisions are:

1. Provide habitat above human caused fish barriers
2. Provide wood for debris flows where appropriate

3. Revise the large wood placement rule and increase active management basal areas
4. Increase basal area for medium and small fish bearing streams in Western Oregon

In addition, the following concepts were approved by the BOF to be implemented under the Oregon Plan.

1. Treat medium and large non-fish bearing streams as same size fish bearing streams
2. Provide protection for channel migration zones
3. Limit harvesting within riparian management areas by retaining 60% of preharvest basal area (must be greater than the standard basal area target)
4. Limit harvesting to the outer half of the riparian management area
5. Retain the largest trees within the riparian management area

Adaptive Management to meet TMDL Goals

DEQ administers a TMDL implementation program to oversee the combined efforts of DMAs, and provides recommendations to DMAs as necessary. 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.

Once the Tenmile Lakes Watershed TMDL is approved, efforts should be made to review the implementation of voluntary measures and to attain monitoring data. Once additional data is available, DEQ and ODF may agree that management strategies need to be revised. 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. See Roles of EQC and BOF for the discussion on statutory requirements.

Monitoring to ensure rule effectiveness and TMDL implementation

The ODF has a monitoring program to collect data and evaluate 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 are still ongoing.

The ODF monitoring strategy[10] is periodically revised to update priorities to address emerging issues, and focuses on four types of monitoring to address forest practice program and Oregon Plan for Salmon and Watersheds (OPSW) goals and objectives. The monitoring types include implementation, effectiveness, trend, and validation. The monitoring strategy identifies a number of monitoring projects that would help determine the adequacy of FPA. However, funding limits the number of monitoring projects ODF is able to conduct.

Opportunities for Collaboration

A memorandum of understanding (MOU) was signed in April of 1998 to improve the coordination between the ODF and the ODEQ in evaluating and proposing possible changes to the forest practice rules as part of the Total Maximum Daily Load process. Thus, the purpose of the MOU was also to encourage ODF to design and implement a specific monitoring program to document the adequacy of the Water

[10] Oregon Department of Forestry (ODF) 2002. Forest Practices Monitoring Program Strategic Plan.

Protection BMPs. If the monitoring results indicate that changes in practices are needed, the BOF has a mechanism to revise or create appropriate rules.

ODF and ODEQ have collaborated in several 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. How water quality parameters are affected by FPA BMPs as determined through the TMDL process as well as other monitoring data is an important part of the body of information used in determining the adequacy of the FPA.

Some of the BMPs have been revised in 2003 for roads and land slide prone areas to address safety issues and other ODF study findings. These BMPs should be monitored as funding allows for adequacy to meet TMDL load allocation or meet water quality standards within the Tenmile Lakes Watershed. (See Management Measures - Road Construction and Maintenance rules)

Additional monitoring is recommended for the following FPA BMPs that control sediment loading to better refine loading estimates from the forested landscape.

- OAR 629-623, Shallow, Rapidly Moving Landslides and Public Safety
- OAR 629-625, Road Construction and Maintenance Rules
- OAR 629-645, Riparian Management Areas and Protection Measures for Significant Wetlands
- OAR 629-650, Riparian Management Areas and Protection Measures for Lakes
- OAR 629-640, Vegetation Retention Goals for Streams; Desired Future Conditions
- Voluntary measures designed to provide wood for debris flows where appropriate

ODF Monitoring strategy (with a list of proposed monitoring studies) is available for viewing at:

http://oregon.gov/ODF/PRIVATE_FORESTS/docs/fp/Strategy2002.pdf

For technical reports on forest practices, link to

http://egov.oregon.gov/ODF/PRIVATE_FORESTS/fpmpProjects.shtml#Forest_Roads

Voluntary Measures

Oregon Plan

Voluntary measures are currently being implemented on private and state forestlands under the Oregon Plan for Salmon and Watersheds (OPSW) to provide further 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 areas[11] to maximize their benefit to salmonids while recognizing operational constraints, other wildlife needs, and specific landowner

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

concerns. In addition, the Oregon Plan has voluntary measures addressing sediment issues related to forest roads. ODF will continue to work in partnership with willing land owners to identify opportunities to implement Oregon Plan voluntary measures to further control sediment loading.

Debris torrents in general have positive effects resulting from wood delivery in areas where the material can be "recruited and held in streams. Debris torrents delivered from intermittent streams located adjacent to valley bottoms in the Tenmile, however, have been documented to fail to deliver wood to receiving streams. Debris torrents instead have delivered wood to adjacent agricultural lands or in some instances to receiving larger meandering streams where wood retention is not likely to occur.

Landowners in the Tenmile Lakes Watershed are encouraged to determine the following prior to implementing the management measures 20S, 61S, and 62S (4) for each restoration site;

1) the likelihood of debris to reach a stream and

2) the recruitment and retention of woody debris is feasible

If wood delivery and retention is not likely, leaving large wood in landslide prone areas may not provide ecological benefit since large wood in debris torrents often disturbs stream banks and riparian vegetation as it moves down toward the receiving stream.

BMPs – Riparian Management Area Protection and Enhancement

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

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 are selected.

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.

BMPs - Sediment Issues related to Forest Roads

ODF 1S and 2S: Road Hazard Identification and Risk Reduction Project

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 measures 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 forestland, regardless of when they were constructed. Industrial forest landowners have estimated spending approximately $13 million per year, or $130 million over the next 10 years, on this project for the coastal ESUs. 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 three biennia for the restoration of roads, replacement of culverts and other stream crossing structures damaged by the 1996 storm and to improve roads, including stream crossing structures. This effort has upgraded approximately 500 miles of road.

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 forestland installed or replaced after the fall of 1994 will pass both adult and juvenile fish upstream and down stream. (OAR 629-625-0320)

Current Considerations

Furthermore, the BOF has been considering possible riparian rule revisions that take into account recommendations from the Sufficiency Analysis, the advisory committees and the IMST, as well as additional recommendations from Oregon Department of Fish and Wildlife (ODFW), ODEQ, and other stakeholders. Some of the following concepts are being proposed as rules whereas others are being proposed as voluntary measures. Until these concepts are formerly adopted into rules or OPSW voluntary measures, Stewardship Foresters will encourage and work with landowners to incorporate these additional measures and ODF will monitor the effectiveness of these BMPs for attaining water quality standards under Forest Practices monitoring program.

- Provide habitat above human caused fish barriers
- Provide wood for debris flows where appropriate (should be applied only where the recruitment and retention of large wood is feasible)
- Revise the large wood placement rule and active management basal areas (size and number of trees)
- Increase basal area for medium and small fish bearing streams in Western Oregon
- Treat medium and large non-fish bearing streams as same size fish bearing streams
- Provide added protection for small non-fish bearing streams
- Provide protection for channel migration zones
- Limit harvesting within riparian management areas by retaining 60% of preharvest basal area (must be greater than the standard basal area target)
- Limit harvesting to the outer half of the riparian management area
- Retain the largest trees within the riparian management area

In order to meet TMDL goals DEQ will coordinate with ODF to work with willing land owners and encourage others to implement voluntary measures described above to further control sediment loading.

For more information regarding the OPSW, link to

http://www.oregon-plan.org/OPSW/partners/partner.shtml

Roles of the Environmental Quality Commission (EQC) and Board of Forestry (BOF)

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, 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 340-041-0028(12) (h) 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 forestlands, OAR 340-041-0028(12)(e) identifies the FPA rules as the implementation mechanism for forestry activities.

For parameters other than temperature, 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 340-041-0061(11), OAR 629-635-110, and OAR 340-041-0061(11). Current adaptive management efforts under several of the above statutes and rules are described in more detail in Adaptive Management section of this document.

Forest Practices Act ORS that are applicable to water quality protection

ORS 527.714 Types of rules; procedure; findings necessary; rule analysis

BOF may adopt rules that would provide new or increased standards for forest practices only after determining that certain facts exist and standards are met:

ORS 527.714(5)(a)-(c). Evidence must show that existing practices are likely to cause degradation of protected resources, and the proposed rule must reflect available scientific information, relevant monitoring, and, as appropriate, adequate field evaluation at representative locations in Oregon.

ORS 527.714(5)(d). Proposed rules must be drafted with precision to prevent the harm or provide the benefits for the resource requiring protection. Rules must directly relate to, and substantially advance, their underlying objective.

ORS 527.714(5)(e). New rules must undergo an alternatives analysis, non-regulatory approaches must be considered, and the "least burdensome" alternative must be chosen.

ORS 527.714(5)(f). The benefits to the resource achieved by the rule must be proportional to the harm cause by forest practices.

ORS 527.714(7). New rules must also be accompanied by a detailed economic impact analysis.

ORS 527.765 Best management practices to maintain water quality.

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.

For additional information on BOF and EQC relationship and related rule revision discussions, link to the following:

http://www.deq.state.or.us/about/eqc/agendas/attachments/oct2004/10.21.04.EQC-BOFjointReport.pdf

http://www.deq.state.or.us/about/eqc/agendas/attachments/oct2004/10.21.04.EQC-BOFAttchE.pdf

Tenmile Lakes Watershed WQMP

APPENDIX F - MOU :ODEQ AND ODF

MEMORANDUM OF UNDERSTANDING BETWEEN THE OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY AND THE OREGON DEPARTMENT OF FORESTRY

MEMORANDUM OF UNDERSTANDING BETWEEN THE OREGON STATE DEPARTMENT OF ENVIRONMENTAL QUALITY AND THE OREGON STATE DEPARTMENT OF FORESTRY

I. Introduction and Statement of Purpose

A. Introduction

1. The Environmental Quality Commission (EQC) and the Oregon Department of Environmental Quality (DEQ) are responsible for implementing the Federal Clean Water Act in Oregon, ORS 468B.035, including adoption of water quality standards. The DEQ has adopted and the U.S. Environmental Protection Agency (EPA) has approved Oregon's water quality standards and its 1994/1996 303(d) list. DEQ intends to update and resubmit its 303(d) list to EPA in 1998 and subsequent years as required by federal regulations. DEQ is setting priorities for TMDL preparation.

2. Subsection 303(d) of the Federal Clean Water Act (the Act), 33 U.S.C. §1313(d), requires states to identify waters for which effluent limitations or other pollution control requirements required by local, State, or Federal authority are not stringent enough to implement applicable water quality standards, 40 C.F.R. §130.7 (b). These water bodies are referred to as "water quality limited." For each water on the 303(d) list that is not removed from the list by findings of water quality impairment due to natural conditions or best management practice (BMP) effectiveness, the state must establish a total maximum daily load (TMDL) allocation at a level necessary to implement the applicable water quality standards with seasonal variations and a margin of safety which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality. A TMDL is the sum of the individual wasteload allocations for point sources and load allocations for non-point sources and natural background, 40 C.F.R. §130.2(i).

3. TMDLs must be incorporated into the continuing planning process required by Section 303(e) of the Act and the continuing planning process must be included in the state's water quality management plan. Sections 208 and 319 of the Act, 33 U.S.C. §1288 and §1329, require the state to prepare non-point source management plans.

4. ORS 527.765 requires the Oregon Board of Forestry (the Board), in consultation with the EQC, to establish Best Management Practices (BMPs) and other rules applying to forest practices to ensure that to the maximum extent practicable non-point source discharges of pollutants resulting from forest operations do not impair the achievement and maintenance of water quality standards established by the EQC. The Oregon Department of Forestry (ODF) is the Designated Management Agency (DMA) by DEQ for regulation of water

quality on nonfederal forestlands. Forest operators conducting operations in accordance with ODF BMPs are considered to be in compliance with Oregon's water quality standards.

5. The Board in consultation and with the participation and support of DEQ, has adopted water protection rules in the form of BMPs for forest operations, including, but not limited to, OAR Chapter 629, Divisions 635-660. These rules are implemented and enforced by ODF and monitored to assure their effectiveness. DEQ participates in the design and implementation of these monitoring efforts. The EQC, DEQ, the Board and ODF determined that pollution control measures required as BMPs under ORS 527.765 will be relied upon to result in achievement of state water quality standards.

6. The EQC, DEQ, the Board, and ODF are all committed to restoring salmon and meeting water quality through the Healthy Streams Partnership and Oregon Plan for Salmon and Watersheds, 1997 Oregon Laws, Ch. 7.

B. Purposes of MOU

The purposes of this memorandum of understanding:

1. To further define the respective roles and responsibilities of the EQC, the DEQ, the Board, and ODF in preventing, controlling and reducing non-point source discharges to achieve and maintain water quality standards;

2. To explain the process for determining whether (a) forest practices contribute to identified water quality problems in listed water quality limited streams; (b) if so, to determine whether existing forest practice rules provide sufficient control to assure that water quality standards will be met so that waters can be removed from the 303(d) list;

3. To describe the process for interagency coordination in revising forest practice rules, if necessary, to assure the achievement of water quality standards; and

4. To encourage the use of voluntary and incentive-based regulatory solutions to achieve and maintain water quality.

II. Forest Practice BMPs and Water Quality Standards

Since ODF is the DMA for water quality management on nonfederal forestlands and ODF's BMP's are designed to protect water quality, ODF and DEQ will jointly demonstrate how the Forest Practices Act (FPA), forest practice rules (including the rule amendment process), and BMP's are adequate protection pursuant to ORS 527.765. This demonstration of the ODF BMP program adequacy will be done at the statewide scale with due consideration to regional and local variation in effects including non-anthropogenic factors that can lead to water quality standard violations.

Water quality impairment related to aquatic weeds, bacteria, chlorophyll a, dissolved oxygen, flow modification, many nutrients, total dissolved gas, or toxins are generally not attributable to forest management practices as regulated by the EPA. However, it is generally accepted that forest management practices have in some cases caused documented changes in temperature, habitat modification, sedimentation, turbidity, and bio-criteria. Therefore, this statewide demonstration of FPA effectiveness in protection of water quality will address these specific parameters and will be conducted in the following order:

a. temperature (draft report target completion date Spring, 1999),
b. sedimentation and turbidity (draft report target completion date Summer, 1999),
c. aquatic habitat modification (draft report target completion date fall 1999),
e. bio-criteria (draft report target completion date end 1999), and
f. other parameters (draft report target completion date spring 2000).

The analyses will be presented in a format compatible with EPA region 10 guidance (pages 4-6, dated November 1995) regarding BMP effectiveness determinations, and will include:

a. "Data analysis of the effectiveness of controls relative to the problem": analyze relevant data and studies on the parameter and known control methods,
b. "Mechanisms requiring implementation of pollution controls": give a clear exposition of the rules/programs that are designed to provide for protection,
c. "Reasonable time frame for attaining water quality standards": discuss expected recovery times which may be long for some parameters because the ecological processes that bring recovery are long-term, and
d. "Monitoring to track implementation and effectiveness of controls": describe the scope and extent the effectiveness and implementation monitoring program and how they tie back to program changes for adaptive management.

In addition, these analyses will address attainment of state anti-degradation policy. These demonstrations will be reviewed by peers and other interested parties prior to final release. While analysis is being conducted and unless or until changes are made in accordance with ORS527.765, the EPA and implementing rules will constitute the water quality BMP program for forestlands. These sufficiency analyses will be designed to provide background information and techniques for watershed based assessments of BMP effectiveness and water quality assessments for watersheds with forest and mixed land uses.

D-3

III. ODF and DEQ coordination for listed waterbodies (i.e., 303(d) list)

A. Waterbody Specific Coordination

The following coordination will occur between ODF and DEQ regarding the TMDL process and water quality management plans:

1. For basins where agreement is reached that water quality impairment is not attributable to forest management practices (Figure 1), the forest practice rules will constitute the water quality compliance mechanism for forest management practices on nonfederal forestland. ODF will not participate in the development of the TMDL or water quality management plan except as requested to assist DEQ as ODF budgeted resources permit. If the basin associated with a listed waterbody is entirely or almost entirely on federal land or non-forestland ODF will have little or no involvement (Figure 1).

2. For basins where water quality impairment is attributed to the long-term legacy of historic forest management and/or other practices, but ODF and DEQ jointly agree that the forest practice BMP's are now adequately regulating forest management activities and not adding to further degradation of water quality, the forest practice rules will be designated in the water quality management plan as the mechanism to achieve water quality compliance for forest operations. ODF will participate with the other DMAs in developing the water quality management plan as necessary.

3. For basins where water quality impairment may be attributable to forest management practices and ODF and DEQ cannot agree that the current BMPs are adequately regulating forest management activities (Figure 1), the current forest practice rules will be designated in the water quality management plan as the mechanism to achieve water quality compliance for forest operations. However, ODF will design and implement a specific monitoring program as part of the basin plan to document the adequacy of the best management practices. The schedule and scope of the monitoring program will be jointly agreed to by DEQ and ODF. During the interim, while monitoring is being conducted, the current rules will constitute the water quality compliance mechanism. If the monitoring results indicate that changes in practices are needed in a basin, the DEQ and the Board will use OAR 629-635-120 to create watershed specific protection rules or use other existing authority to ensure that forest management activities do not impair water quality.

4. For basins where both ODF and DEQ agree that there are water quality impairments due to forest management activities even with FPA rules and BMP's, the DEQ and the BOF will use OAR 629-635-120 to create watershed specific protection rules or use other existing authority to ensure that forest management activities do not impair water quality.

D-4

In deciding between conditions (a)-(d) above, the statewide rule sufficiency analysis (described in II) will be critical in determining which situation exists. If the practices and impairments are found by DEQ and ODF to be regional or statewide in nature the BOF will create or modify statewide or regional rules or design other effective measures to address the impairment.

B. Removal or Reclassification of Waterbodies

DEQ will propose removal of waterbodies (Figure 1) on the 303(d) list when:

1. additional data indicates that the waterbody is not in violation,
2. water quality parameters are found to be in violation for reasons other than human activities,
3. TMDL's, or water quality management plans or their equivalents, have been established in compliance with the Clean Water Act §303, or
4. the FPA, forest practice rules and BMP's are found to be adequate for a given water quality parameter in a given basin via the statewide demonstration or watershed based demonstration (see section n above) and all land affecting the listed waterbody is deemed forestland that is regulated under the FPA. Forest basins that have water quality impairment due to legacy conditions that will not be corrected by the current BMPs alone, remain listed with their present status until voluntary or incentive based actions are implemented that are intended to restore watershed conditions such that water quality standards can be met.

IV. Voluntary and Incentive-Based Approaches

DEQ and ODF will work jointly with landowners and watershed councils, as resources permit, to use innovative approaches to resolving water quality problems. DEQ and ODF will use other pollution control requirements when appropriate to restore watershed conditions such that water quality standards can be met in waterbodies listed under Section 303(d) of the Clean Water Act. These pollution programs include but are not limited to the following:

1. Oregon Laws 1997, ch. 553, The Green Permits Act,;
2. Oregon Laws 1995, ch. 413, The Forest Stewardship Act,;
3. Oregon Laws 1997, ch. 7, Healthy Streams Partnership and the Oregon Plan for Salmon and Watersheds;
4. DEQ's Environmental Management Systems Incentives Project;
5. Habitat Conservation Plans adopted and approved under the Endangered Species Act;
6. Project XL agreements with the EPA; and

D-5

7. Pollution Prevention Partnership agreements with the EPA Some of these alternative approaches will become critical and complementary to the forest practices program when attempting to restore water quality in streams with significant legacy conditions caused by past actions such as channel simplification from splash damming and stream cleaning.

V. Other key coordination points for DEQ and ODF

There are two other issues that will require special coordination between DEQ and ODF. These coordination issues regard:

1. Outstanding Resource Water designations and management measures, and
2. Coordination between the two agencies when there is a land use conversion.

Both agencies agree to open discussion on how to coordinate on these issues but they are separate issues that are not covered by this particular MOU.

VI. Signatures

Signed:_____
James E. Brown, State Forester
Oregon Department of Forestry

Signed:_____
Langdon Marsh, Director
Oregon Department of
Environmental Quality

Date:_____

Date:_____

D-6

Tenmile Lakes Watershed WQMP

APPENDIX G - OREGON'S STATEWIDE PLANNING GOALS & GUIDELINES

http://www.lcd.state.or.us/LCD/goals.shtml

Urban and Rural Lands:
For urban areas (which include all urban and rural developments and rural residential areas), cities and counties are identified as the DMAs. The following definition of urban areas is defined by the Oregon Land Conservation and Development Commission (LCDC) and is used by DEQ to define an Urban and Rural DMA:

LCDC Goal 14 Urban Areas Definition

1. Lands within an "Acknowledged Urban Growth Boundary".
2. Lands within an Unincorporated Community established pursuant to OAR Chapter 660, Division 022.
3. Land in a Destination Resort established pursuant to Statewide Planning Goal 8, Recreational Needs.
4. Land planned and zoned primarily for Rural Industrial or Commercial Use.

LCDC Rural Residential Areas Definition

1. *Lands Planned and Zoned Primarily for Rural Residential Uses and for which an exception to Statewide Planning Goal 3, (Agricultural Lands), Goal 4 (Forest Lands), or both was acknowledged before January 1, 2000.*

The State of Oregon adopted Statewide Land Use Planning Goals to help guide development in Oregon to encourage sound growth management that produces the least impact on resource lands such as agriculture (Goal 3) and forest lands (Goal 4). There are also other natural resource goals, such as Goal 5 (Open Spaces, Scenic and Historic Areas, and Natural Resources), Goal 6 (Air, Water, and Land Resources Quality) and Goal 7 (Areas Subject to Natural Disasters and Hazards). Local communities are required to address these planning goals in the development of their Comprehensive Land Use Plans and implementing Zoning Ordinances. This process is designed to guide land use development, and related activities, in such a way as to produce the least impact on the state's natural resources and environmental quality.

The State Land Use Planning Goals and program is an integral part of ensuring state water quality rules and regulations are met. ODEQ's water quality programs will not be implemented adequately, particularly for nonpoint source pollution, without the tools that the state's land use planning program provides. Likewise, the state land use planning program requires the cooperation and inclusion of ODEQ's water quality programs, rules and regulations to reach the state land use plan natural resource goals.

The land use Goals that interface with the urban management measures most directly are Goals 5, 6, and 7. The following information has been taken directly from the DLCD Website for your convenience.

GOAL 5: NATURAL RESOURCES, SCENIC AND HISTORIC AREAS, AND OPEN SPACES OAR 660-015-0000(5)

To protect natural resources and conserve scenic and historic areas and open spaces.

Local governments shall adopt programs that will protect natural resources and conserve scenic, historic, and open space resources for present and future generations. These resources promote a healthy environment and natural landscape that contributes to Oregon's livability. The following resources shall be inventoried:

a. Riparian corridors, including water and riparian areas and fish habitat;
b. Wetlands;
c. Wildlife Habitat;
d. Federal Wild and Scenic Rivers;
e. State Scenic Waterways;
f. Groundwater Resources;
g. Approved Oregon Recreation Trails;
h. Natural Areas;
i. Wilderness Areas;
j. Mineral and Aggregate Resources;
k. Energy sources;
l. Cultural areas.

Local governments and state agencies are encouraged to maintain current inventories of the following resources:

a. Historic Resources;
b. Open Space;
c. Scenic Views and Sites.

Following procedures, standards, and definitions contained in commission rules, local governments shall determine significant sites for inventoried resources and develop programs to achieve the goal.

GUIDELINES FOR GOAL 5

A. PLANNING

1. The need for open space in the planning area should be determined, and standards developed for the amount, distribution, and type of open space.
2. Criteria should be developed and utilized to determine what uses are consistent with open space values and to evaluate the effect of converting open space lands to inconsistent uses. The maintenance and development of open space in urban areas should be encouraged.
3. Natural resources and required sites for the generation of energy (i.e. natural gas, oil, coal, hydro, geothermal, uranium, solar and others) should be conserved and protected; reservoir sites should be identified and protected against irreversible loss.
4. Plans providing for open space, scenic and historic areas and natural resources should consider as a major determinant the carrying capacity of the air, land and water resources of the planning area. The land conservation and development actions provided for by such plans should not exceed the carrying capacity of such resources.
5. The National Register of Historic Places and the recommendations of the State Advisory Committee on Historic Preservation should be utilized in designating historic sites.
6. In conjunction with the inventory of mineral and aggregate resources, sites for removal and processing of such resources should be identified and protected.
7. As a general rule, plans should prohibit outdoor advertising signs except in commercial or industrial zones. Plans should not provide for the reclassification of land for the purpose of accommodating an outdoor advertising sign. The term "outdoor advertising

sign" has the meaning set forth in ORS 377.710(23).

B. IMPLEMENTATION

1. Development should be planned and directed so as to conserve the needed amount of open space.
2. The conservation of both renewable and non-renewable natural resources and physical limitations of the land should be used as the basis for determining the quantity, quality, location, rate and type of growth in the planning area.
3. The efficient consumption of energy should be considered when utilizing natural resources.
4. Fish and wildlife areas and habitats should be protected and managed in accordance with the Oregon Wildlife Commission's fish and wildlife management plans.
5. Stream flow and water levels should be protected and managed at a level adequate for fish, wildlife, pollution abatement, recreation, aesthetics and agriculture.
6. Significant natural areas that are historically, ecologically or scientifically unique, outstanding or important, including those identified by the State Natural Area Preserves Advisory Committee, should be inventoried and evaluated. Plans should provide for the preservation of natural areas consistent with an inventory of scientific, educational, ecological, and recreational needs for significant natural areas.
7. Local, regional and state governments should be encouraged to investigate and utilize fee acquisition, easements, cluster developments, preferential assessment, development rights acquisition and similar techniques to implement this goal.
8. State and federal agencies should develop statewide natural resource, open space, scenic and historic area plans and provide technical assistance to local and regional agencies. State and federal plans should be reviewed and coordinated with local and regional plans.
9. Areas identified as having non-renewable mineral and aggregate resources should be planned for interim, transitional and "second use" utilization as well as for the primary use.

GOAL 6: AIR, WATER AND LAND RESOURCES QUALITY OAR 660-015-0000(6)

To maintain and improve the quality of the air, water and land resources of the state.

All waste and process discharges from future development, when combined with such discharges from existing developments shall not threaten to violate, or violate applicable state or federal environmental quality statutes, rules and standards. With respect to the air, water and land resources of the applicable air sheds and river basins described or included in state environmental quality statutes, rules, standards and implementation plans, such discharges shall not (1) exceed the carrying capacity of such resources, considering long range needs; (2) degrade such resources; or (3) threaten the availability of such resources.

Waste and Process Discharges -- refers to solid waste, thermal, noise, atmospheric or water pollutants, contaminants, or products therefrom. Included here also are indirect sources of air pollution which result in emissions of air contaminants for which the state has established standards.

GUIDELINES

A. PLANNING

1. Plans should designate alternative areas suitable for use in controlling pollution including but not limited to waste water treatment plants, solid waste disposal sites and sludge disposal sites.

2. Plans should designate areas for urban and rural residential use only where approvable sewage disposal alternatives have been clearly identified in such plans.

3. Plans should buffer and separate those land uses which create or lead to conflicting requirements and impacts upon the air, water and land resources.

4. Plans which provide for the maintenance and improvement of air, land and water resources of the planning area should consider as a major determinant the carrying capacity of the air, land and water resources of the planning area. The land conservation and development actions provided for by such plans should not exceed the carrying capacity of such resources.

5. All plans and programs affecting waste and process discharges should be coordinated within the applicable air sheds and river basins described or included in state environmental quality statutes, rules, standards and implementation plan.

6. Plans of state agencies before they are adopted should be coordinated with and reviewed by local agencies with respect to the impact of these plans on the air, water and land resources in the planning area.

7. In all air quality maintenance areas, plans should be based on applicable state rules for reducing indirect pollution and be sufficiently comprehensive to include major transportation, industrial, institutional, commercial recreational and governmental developments and facilities.

B. IMPLEMENTATION

1. Plans should take into account methods and devices for implementing this goal, including but not limited to the following:
   (1) tax incentives and disincentives,
   (2) land use controls and ordinances,
   (3) multiple-use and joint development practices,
   (4) capital facility programming,
   (5) fee and less-than-fee acquisition techniques, and
   (6) enforcement of local health and safety ordinances.

2. A management program that details the respective implementation roles and responsibilities for carrying out this goal in the planning area should be established in the comprehensive plan.

3. Programs should manage land conservation and development activities in a manner that accurately reflects the community's desires for a quality environment and a healthy economy and is consistent with state environmental quality statutes, rules, standards and implementation plans.

GOAL 7: AREAS SUBJECT TO NATURAL HAZARDS

To protect people and property from natural hazards.

A. NATURAL HAZARD PLANNING

1. Local governments shall adopt comprehensive plans (inventories, policies and implementing measures) to reduce risk to people and property from natural hazards.
2. Natural hazards for purposes of this goal are: floods (coastal and riverine), landslides,[12] earthquakes and related hazards, tsunamis, coastal erosion, and wildfires. Local governments may identify and plan for other natural hazards.

[12] For "rapidly moving landslides," the requirements of ORS 195.250-195.275 (1999 edition) apply.

B. RESPONSE TO NEW HAZARD INFORMATION

1. New hazard inventory information provided by federal and state agencies shall be reviewed by the Department in consultation with affected state and local government representatives.
2. After such consultation, the Department shall notify local governments if the new hazard information requires a local response.
3. Local governments shall respond to new inventory information on natural hazards within 36 months after being notified by the Department of Land Conservation and Development, unless extended by the Department.

C. IMPLEMENTATION

Upon receiving notice from the Department, a local government shall:

1. Evaluate the risk to people and property based on the new inventory information and an assessment of:
    a. the frequency, severity and location of the hazard;
    b. the effects of the hazard on existing and future development;
    c. the potential for development in the hazard area to increase the frequency and severity of the hazard; and
    d. the types and intensities of land uses to be allowed in the hazard area.
2. Allow an opportunity for citizen review and comment on the new inventory information and the results of the evaluation and incorporate such information into the comprehensive plan, as necessary.
3. Adopt or amend, as necessary, based on the evaluation of risk, plan policies and implementing measures consistent with the following principles:
    a. avoiding development in hazard areas where the risk to people and property cannot be mitigated; and
    b. prohibiting the siting of essential facilities, major structures, hazardous facilities and special occupancy structures, as defined in the state building code (ORS 455.447(1)(a)(b)(c) and (e)), in identified hazard areas, where the risk to public safety cannot be mitigated, unless an essential facility is needed within a hazard area in order to provide essential emergency response services in a timely manner.[13]
4. Local governments will be deemed to comply with Goal 7 for coastal and riverine flood hazards by adopting and implementing local floodplain regulations that meet the minimum National Flood Insurance Program (NFIP) requirements.

D. COORDINATION

1. In accordance with ORS 197.180 and Goal 2, state agencies shall coordinate their natural hazard plans and programs with local governments and provide local governments with hazard inventory information and technical assistance including development of model ordinances and risk evaluation methodologies.
2. Local governments and state agencies shall follow such procedures, standards and definitions as may be contained in statewide planning goals and commission rules in developing programs to achieve this goal.

GUIDELINES

A. PLANNING

1. In adopting plan policies and implementing measures to protect people and property from natural hazards, local governments should consider:
    a. the benefits of maintaining natural hazard areas as open space, recreation and other low density uses;
    b. the beneficial effects that natural hazards can have on natural resources and

[13] For purposes of constructing essential facilities, and special occupancy structures in tsunami inundation zones, the requirements of the state building code - ORS 455.446 and 455.447 (1999 edition) and OAR chapter 632, division 5 apply.

the environment; and

c. the effects of development and mitigation measures in identified hazard areas on the management of natural resources.

2. Local governments should coordinate their land use plans and decisions with emergency preparedness, response, recovery and mitigation programs.

B. IMPLEMENTATION

1. Local governments should give special attention to emergency access when considering development in identified hazard areas.

2. Local governments should consider programs to manage stormwater runoff as a means to help address flood and landslide hazards.

3. Local governments should consider nonregulatory approaches to help implement this goal, including but not limited to:

a. providing financial incentives and disincentives;

b. providing public information and education materials;

c. establishing or making use of existing programs to retrofit, relocate, or acquire existing dwellings and structures at risk from natural disasters.

4. When reviewing development requests in high hazard areas, local governments should require site-specific reports, appropriate for the level and type of hazard (e.g., hydrologic reports, geotechnical reports or other scientific or engineering reports) prepared by a licensed professional. Such reports should evaluate the risk to the site as well as the risk the proposed development may pose to other properties.

5. Local governments should consider measures that exceed the National Flood Insurance Program (NFIP) such as:

a. limiting placement of fill in floodplains;

b. prohibiting the storage of hazardous materials in floodplains or providing for safe storage of such materials; and

c. elevating structures to a level higher than that required by the NFIP and the state building code. Flood insurance policy holders may be eligible for reduced insurance rates through the NFIP's Community Rating System Program when local governments adopt these and other flood protection measures.

Tenmile Lakes Watershed WQMP

APPENDIX H - OREGON DEPARTMENT OF TRANSPORTATION WATER QUALITY IMPLEMENTATION PLAN

Entire plan can be viewed online on the ODOT website at:

ftp://ftp.odot.state.or.us/techserv/Geo-Environmental/Environmental/Procedural%20Manuals/Biology/4dman.pdf

ODOT General Environmental Information

http://www.oregon.gov/ODOT/HWY/GEOENVIRONMENTAL/

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 ODEQ 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. ODEQ 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 ODEQ to incorporate these concerns into the statewide plan.

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. ODOT can only expend gas tax resources within the right of way for the operation, maintenance and construction of the highway system.

ODOT and ODEQ recognize that the ODOT system has the potential to negatively impact the beneficial uses of the waters of the state, primarily through surface water runoff. However, removal of vegetative cover to provide for safety, and undermining of the road associated with bank failure may impact temperature and sediment allocations.

As defined in the TMDL program, ODOT is a Designated Management Agency (DMA) because highways have the potential to pollute waterways and negatively impact watershed health. With this definition of a DMA, ODOT is required to participate in developing and implementing watershed management plans that will reduce the daily pollutant loads generated from ODOT highways to acceptable TMDL levels.

ODOT is not a land use or natural resource management agency. ODOT has no legal authority or jurisdiction over lands, waterways, or natural resources that are located outside of its right of way. ODOTs contribution to the TMDL management plan can only be directed at the development, design, construction, operations and maintenance of the ODOT system.

Related Clean Water Regulations

There are various water quality laws and regulations that overlap with the TMDL program. In a TMDL Memorandum of Agreement with the Environmental Protection Agency (USEPA) (July 2000), ODEQ states that; "ODEQ will implement point source TMDLs through the issuance or re-issuance of National Pollutant Discharge Elimination System (NPDES) permits". The ODEQ NPDES municipal permit program was established in 1994 and requires owners and operators of public stormwater systems to reduce or eliminate stormwater pollutants to the maximum extent practicable.

On June 9, 2000, ODOT received an NPDES permit from ODEQ 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 watersheds in Oregon. This permit required the development of a statewide ODOT stormwater management plan.

Other environmental regulations that overlap with the intent of the TMDL program include the federal and state Endangered Species Act, Corps of Engineers Wetland 404 permit regulations, state fill and removal laws, erosion control regulations, ground water protection rules, etc. Many federal, state, and local agencies join ODEQ in administering and enforcing these various environmental regulations related to water quality.

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 guides, and BMPs, are adequate to protect habitat during routine maintenance activities.

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

ODOT worked with ODEQ 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 have 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 (NUSEPA) Reviews**

ODOT is an agent of the Federal Highway Administration. Consequently, ODOT must meet NUSEPA 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.

- **Integrated Vegetation Management (IVM) District Plans**

ODOT works with the Oregon Department of Agriculture and other agencies to develop activities that comply with regulations that pertain to the management of roadside vegetation. Vegetation management BMPs can directly affect watershed health. Each ODOT district develops an integrated vegetation management plan.

- **Forestry Program**

ODOT manages trees located within its right of way in compliance with the Oregon Forest Practices Act and other federal, state, and local regulations. Temperature, erosion, and land stability are watershed issues associated with this program. ODOT is currently working with ODFW on a prototype for managing hazardous trees along riparian corridors.

- **Cut/Fill Slope Failure Programmatic Biologic Assessment**

ODOT has been in formal consultation with the National Marine Fisheries Service, the US Fish and Wildlife Service and the Oregon Department of Fish and Wildlife Service in the development of a programmatic biological assessment for how ODOT will repair cut/fill slope failures in riparian corridors. The draft document outlines best management practices to be used in stabilizing failed stream banks, and bio-engineered design solutions for the failed banks.

- **Disposal Site Research Documentation and Programmatic Biological Assessment**

ODOT has been working with ODEQ in researching alternatives and impacts associated with the disposal of materials generated from the construction, operation and maintenance of the ODOT system. ODOT has begun the process of entering into formal consultation with NMFS, USFWS, and ODFW on disposing of clean fill material.

ODOT TMDL Pollutants

ODOT and ODEQ have identified temperature and sediment as the primary TMDL pollutants of concern associated with highways. While ODEQ 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.

Oregon's limited summer rainfall makes it highly unlikely that ODOT stormwater discharges elevate watershed temperatures. Management of roadside vegetation adjacent to waterways can directly affect water temperature. ODOT has begun to incorporate temperature concerns into its vegetation management programs and project development process.

Other TMDL concerns, such as dissolved oxygen, or chlorophyll A, can be associated with increased temperature. These TMDLs are not associated with the operation and maintenance of the transportation system, and are outside the authority of ODOT. Specific TMDL concerns that are directly related to the transportation system will be incorporated into the ODOT management plan.

ODOT NPDES characterization monitoring indicates ODOT pollutant levels associated with surface water runoff are below currently developed TMDL standards. This indication is based on ODOT 1993-95 characterization monitoring and current TMDLs.

Requirements of a TMDL Implementation Plan

Designated Management Agencies appointed by ODEQ are required to develop a watershed management plan once the TMDL for the watershed is defined. USEPA and ODEQ have listed the following requirements as essential elements of a watershed TMDL Implementation plan:

1) Proposed management measures tied to attainment of the TMDL. This will include a list of sources by category or sub-category of activity;
2) Timeline for implementation, including a schedule for revising permits, and a schedule for completion of measurable milestones (including appropriate incremental, measurable water quality targets and milestones for implementing control actions);

3) Timeline for attainment of water quality standards, including an explanation of how implementation is expected to result in the attainment of water quality standards;
4) Identification of responsible participants demonstrating who is responsible for implementing the various measures;
5) Reasonable assurance of implementation;
6) Monitoring and evaluation, including identification of parties responsible for monitoring, and a plan and schedule for revision of the TMDL and/or implementation plan;
7) Public involvement;
8) Maintenance of effort over time;
9) Discussion of cost and funding;
10) Citation to legal authorities under which the implementation will be conducted.

1) Proposed Management Measures tied to attainment of TMDLs.

ODOT has two business lines: project development and construction, and maintenance. There are management measures, processes, requirements and reviews included with each business line that are tied to the TMDL programs. These include:

- The ODOT MS4 NPDES permit and permit application- addresses sediment and temperature TMDL, includes project development and construction, and maintenance.
- The ODOT NPDES 1200 CA Permit- addresses sediment TMDL for construction.
- The ODOT Erosion and Sediment Control Manual-addresses sediment TMDL for construction and maintenance.
- The ODOT Routine Road Maintenance Water Quality and Habitat Guide, Best Management Practices, July 1999- addresses sediment and temperature TMDL.
- National Environmental Policy Act: addresses sediment and temperature TMDL, and habitat issues.
- Endangered Species Act requirements for project development: addresses sediment and temperature TMDL, and habitat issues.

2) Timeline for Implementation

ODOT already implements many water quality management measures as directed by state and federal law. Implementation timelines for currently developing measures are described in ODOTs MS4 NPDES permit. The ODOT MS4 permit was recently issued and is valid until May 31, 2005. ODOTs regional construction permits (1200 CA) are scheduled for renewal in December 2000.

3) Timeline for Attainment of Water Quality Standards
The complete attainment of load allocations applicable to ODOT corridors may not be feasible, certainly in the short term, and likely in the long term due to safety concerns and other important factors. However, ODOT expects to implement every practicable and reasonable effort to achieve the load allocations when considering new or modifications to existing corridors, and changes in operation and maintenance activities.

4) Identification of Responsible Participants
Implementing the ODOT best management measures is the responsibility of every ODOT employees. ODOT Managers are held accountable for ensuring employees and actions meet agency policy, and state and federal law, including the Clean Water Act.

5) Reasonable Assurance of Implementation
ODOT is required by its state NPDES MS4 permit to implement a stormwater management plan. In addition, as a federally funded agency, ODOT is required to comply with the Endangered Species act and the Clean Water Act as part of project development. Recent agreements with NMFS require ODOT to implement best management practices for routine road maintenance.

6) Monitoring and Evaluation (see MS4 Permit Application)
ODOTs monitoring and evaluation program is tied to performing research projects that address best management practices and effectiveness of the practices.

7) Public Involvement
ODEQ held public hearings on the ODOT MS4 Stormwater Management Plan throughout Oregon. In addition, NMFS held a series of public hearings on the ESA 4(d) rule, which included the ODOT Routine Road Maintenance Best Management Practices. ODOT project development under goes a public involvement process that includes review by regulating agencies, and public hearings and meetings.

8) Maintenance of Effort Over Time
The elements of the ODOT water quality and habitat programs are bound in state and federal law, and state and agency directives. Consequently, the ODOT programs are standard operating practice.

9) Discussion of Cost and Funding
ODOT revenue comes primarily from dedicated funds collected as state and federal gasoline taxes. The Oregon Constitution dedicates taxes associated with motor vehicle fuel, and the ownership, operation and use of motor vehicles for the construction, reconstruction, improvement, repair, maintenance, operation and use of public highways. Consequently, ODOT is unable to expend resources outside its rights of way, or on activities not directly related to ODOT highways. ODOT construction projects are funded through a variety of Federal Highway Administration funding programs, including the Transportation Equity Act (TEA-21), state gas tax dollars, local and matching funds and bond.

ODOT budgets are identified the preceding year for the following biennium. Each ODOT section or district budgets as necessary to fulfill the requirements of its identified programs. ODOT determines the budget for its MS4 permit as program needs develop and as agency funds allow. ODOT Office of Maintenance, through the Clean Water/Salmon Recovery Program allocates funds to maintenance forces for betterment projects that improve water quality and salmon habitat.

The Oregon Transportation Commission and the Oregon State Legislature approve the ODOT budget.

10) Citation to Legal Authorities - See MS4 Permit Application
ODOT has legal authority only over ODOT right of way.

Tenmile Lakes Watershed WQMP

APPENDIX I – ODFW TENMILE BASIN FISH MANAGEMENT PLAN

Oregon Department of Fish and Wildlife

TENMILE BASIN FISH MANAGEMENT PLAN

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Public Agency Cooperators

February 1991

CONTENTS

CONTENTS (continued)

ACKNOWLEDGMENTS

The development of a management plan is a lengthy process that requires the involvement of a large number of people. We are particularly grateful to the members of our Citizen Advisory Committee and the cooperators from the public agencies who were willing to attend the many meetings, read the documents, and share their ideas and concerns with us. We also appreciate the interest shown by about 20 additional individuals who wanted to serve on the committee. We were able to obtain valuable insight about the Tenmile Lakes basin from them and other members of the general public who we talked with on the lakes.

A number of ODFW staff members directly contributed to this plan. We thank Ray Temple, M. Kin Daily, Mark W. Chilcote, Alan M. McGie, Thomas E. Nickelson, James D. Griggs, Kenneth R. Kenaston, Jeffrey D. Rodgers, Mario F. Solazzi, Nancy MacHugh, Kim K. Jones, Allan K. Smith, Wayne A. Burck, Richard L. Berry, James L. Fessler, Harold W. Lorz, Harry H. Wagner, and James T. Martin for their support, ideas, background material, and for reviewing various parts of the plan. We especially appreciate early guidance and philosophical discussions with James L. Lichatowich about planning and nature of fisheries management. Beverly K. Hester did the word processing.

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History of Fish Management

The history of fish management in the Tenmile Lakes basin reflects some major changes in fish populations and policy over the years. Coho salmon *Oncorhynchus kisutch* once dominated the entire system along with good populations of winter steelhead *Oncorhynchus mykiss* and cutthroat trout *Oncorhynchus clarki.* The productive habitat in the lakes provided most of the rearing potential of the system for coho salmon. Brown bullhead *Ictalurus nebulosus* and yellow perch *Perca flavescens* were illegally introduced around 1930 and became overpopulated and stunted. A contract commercial fishery was allowed on these two species during 1952 and 1954, but the populations were little affected. Bluegill *Lepomis macrochirus* were illegally introduced about 1964. Their population expanded rapidly, leading the fishery agencies to take drastic action to eliminate all warmwater fishes in the lakes and help coho salmon.

The 1967 brood of coho salmon was salvaged and placed in hatcheries in 1968 while most of the lakes and lower creeks were treated with rotenone to eradicate the remaining fish populations. Coho salmon boomed back for several years in the empty lake habitat after rotenone treatment, but so did bluegill. In 1971, largemouth bass *Micropterus salmoides* were approved for introduction to feed on bluegill and provide another fishery. Brown bullhead came back shortly after eradication, but the illegal re-introduction of yellow perch to the system did not occur until about 1986. Black crappie *Pomoxis nigromaculatus* were also illegally introduced to the system in 1987. After its initial response following the fish eradication project in 1968, the coho salmon population declined in the early 1970s and since 1974 has remained at a low, stable level. Adult returns are now supported almost exclusively by smolts that rear in the tributary streams for a full year and use their original lake rearing habitat mostly as a passageway to the ocean. The time association between the decline of coho salmon in the mid 1970s and the introduction of largemouth bass in 1971 is strong.

In 1982 a plan was developed for the fish management of Tenmile and North Tenmile lakes. The primary purpose of that plan was twofold: 1) to try to rehabilitate the coho salmon population to higher levels, and 2) to provide a fishery for a large warmwater fish predator. The plan called for continued smolt releases, planting of presmolts, and stream habitat improvements to attempt to increase the coho salmon population. The Oregon Fish and Wildlife Commission approved the introduction of the striped bass x white bass hybrid *Morone saxatilis* x *M. chrysops* to provide an additional element of fishing diversity within Tenmile and North Tenmile lakes and hopefully utilize bluegill as its main food supply. The intent was to provide a different type of angling for a predator fish that would be larger than largemouth bass.

The 1982 plan was one of the first basin planning documents developed in Oregon and did not have the benefit of statewide species plans already in place and did not deal with all of the management issues as clearly as the present day format allows. However, the plan did call for a review of options, recommendations, and the selected course of management at least every five years to determine if the best approach was being taken. This has allowed a detailed review of the 1982 plan and the development of a public process to help revise and update the plan, which started in 1989.

General Management Direction and Goal

The Tenmile Basin sustains a complex fish community. This complexity is reflected in a diverse fishing public that values the individual and collective opportunities found in the basin. The role of fish management is to identify components of a program that provide as much opportunity as possible within biological, social, and physical constraints. No one package of management strategies is intrinsically "best". Rather, management seeks to diversify opportunities without necessarily giving up traditional values in trade for new ones.

The goal of this management plan is to achieve a program that balances warmwater and salmonid production to provide a diversity of year-round fishing opportunity. That diversity can be achieved through combinations of species, release strategies to control timing of availability, and regulations to control a number of elements such as size composition of populations, quantities of fish, and the variety of components that make up the quality of various fishing experiences.

Management of Native versus Introduced Species

Because of the number of exotic species that have been introduced into the Tenmile Lakes system, management of the aquatic ecosystem is more complicated than it would be with only the native species. Six species of fish not native to the system and not co-evolved with any of the native species have been introduced to the basin. Four of these (brown bullhead, yellow perch, bluegill, and black crappie) were illegally introduced and are all reproducing and self-sustaining. Two species (largemouth bass and hybrid bass) were introduced through authorized management programs. The largemouth bass maintains a healthy reproductive population and is self-sustaining. The hybrid bass is reproductively unsuccessful in most situations and requires an annual release to maintain the program.

Views of the benefits and concerns about these introductions fall into several different categories. Most biologists prefer the natural order of ecological systems and would like to see the balance of those systems undisturbed by introductions of exotics or other modifications such as habitat alteration or genetic manipulations associated with enhancement programs. However, social and economic interests of modern society have resulted in many pressures and compromises in ecological systems as they are manipulated or managed for the variety of interests and benefits identified as important to various users of aquatic resources.

Decisions about resource management are usually made through the political process where the balance of perspectives about the social-economic desires are examined in relation to the biological capability of the systems to meet the demands placed on them. Biology remains a fundamental issue in those decisions and requires monitoring of changes to systems and assessment of the tradeoffs to be used in future decisions.

Several general policy statements or protocol documents and a number of scientific reports have been written that deal with the approach to the management of exotic species in natural aquatic ecosystems (United States Soil Conservation Service 1972; American Fisheries Society l973; Sport Fishing Institute 1973; Magnuson 1976; Hubbs 1977; Hedgpeth 1980; Welcomme, et al. 1983; Kohler and Stanley 1984; International Council for the Exploration of the Sea 1984; Sindermann 1986; Welcomme 1986; International Union for

Conservation of Nature and Natural Resources 1987). These documents and reports take a generally dim view of both illegal and authorized introductions. So does Oregon's policy with authorized introductions following a rigorous process. Oregon's Fish Management Policy and the Warmwater Game Fish Management Plan specifically spell out that any introduction that does not follow the procedure of public review as part of a basin management plan is unauthorized.

Unauthorized or illegal introductions are unwelcome at any time. In the absence of background understanding and public assessment in a management plan, they have the potential of disturbing the balance of ecological systems and may serve no public value. This is not to imply that all introductions are to be considered negatively. Some introductions serve a valuable management role and have been successful, but biological tradeoffs occur. In the assessments presented in management plans, the ecological relationships need to be explored along with identification of detailed safeguards and a course of action if the introduced species becomes out of control or violates the standard of performance. The criteria for all introductions is that new fishery values generated should not necessarily replace old ones and that the long-term health of the ecosystem should be maintained. Unfortunately, examples of problems do exist with introductions to the Tenmile Basin.

Despite its value in providing a new fishery, the introduction of largemouth bass to the Tenmile Lakes basin is an example of a well-meaning authorized introduction that failed to produce one desired result (did not control bluegill), and produced an unwanted result (eliminated summer lake rearing of coho salmon). This example has clearly demonstrated the need to maintain control of introduced species in authorized programs so that programs can be terminated if they do not perform to our standards. In the case of largemouth bass, control is not practical or desired, and we now see an approach to develop a complementary program for enhancement of coho salmon and minimize conflict between these two programs. Largemouth bass also provide a high value fishery that we want to continue.

The hybrid bass program in the Tenmile Lakes is an example of an authorized introduction with control maintained because they are reproductively unsuccessful. This authorized introduction has also produced an unwanted side effect (they stray in large numbers to other rivers). As a result, we are proposing termination of the program in this plan because we see no practical way to stop the straying. This program is proposed for termination despite the fishery benefits that it provides.

Several examples in the Tenmile Lakes system point to the need to develop educational programs to help reduce the number of illegal introductions because these introductions have no safeguards, no standards, and usually no practical means of control. Developing ecologically compatible programs with a few authorized introductions is difficult enough. A large number of illegal introductions greatly complicates fishery management and may make the entire system ecologically unbalanced.

Organization of the Plan

The plan is divided into sections that discuss current management philosophy and direction, habitat, individual fish species, groups of species, angler access, and angling law enforcement. Most sections contains the following:

1. Background--Historical and current information and an assessment of the current status of the species or topic.

2. Management Considerations--An explanation of alternative approaches with respect to the Wild Fish Management Policy.

3. Operating Principle--Overriding principles developed specifically for management activities in the basin relating to the species or topic.

4. Objectives--What is intended to be accomplished.

5. Assumptions and Rationale--Justification and considerations used in arriving at the objective.

6. Problems--Obstacles to achieving the objective.

7. Recommended Actions--Solutions or methods for dealing with the problems.

General Policies

Policies by definition are overall rules to embrace goals and acceptable general procedures (OAR 635-07-501). Policies guide management activities by defining acceptable procedures. Policy statements appear in Oregon Revised Statutes (set by and only changeable by the Oregon Legislature), Oregon Administrative Rules (interpretation or definition of statutes by the Oregon Fish and Wildlife Commission), or as ODFW internal administrative policies. The following policies apply to the Tenmile Basin Plan:

1. Legislation--Oregon Revised Statutes (ORSs). These statutes include the following wildlife policy (ORS 496.012):

"It is the policy of the State of Oregon that wildlife shall be managed to provide the optimum recreational and aesthetic benefits for present and future generations of the citizens of this state. In furtherance of this policy the goals of wildlife management are:

a. To maintain all species of wildlife at optimum levels and prevent the serious depletion of any indigenous species.

b. To develop and manage the lands and waters of this state in a manner that will enhance the production and public enjoyment of wildlife.

c. To permit an orderly and equitable utilization of available wildlife.

d. To develop and maintain public access to the lands and waters of the state and the wildlife resources thereon.

e. To regulate wildlife populations and the public enjoyment of wildlife in a manner that is compatible with primary uses of the lands and waters of the state and provides optimum public recreational benefit."

2. Oregon Administrative Rules (OARs)--Goals and policies for fish management. Among others, the policies include the Fish Management, Natural Production, Threatened and Endangered Species, and Wild Fish Management policies. The objectives and operating principles of the Tenmile Basin Plan will also be adopted as Oregon Administrative Rules.

3. Procedures developed by ODFW--Various hatchery operational plans, Manual for Fish Management (1977), and a Guide for Introductions and Transfers of Finfish into Oregon Waters (1982).

4. Management plans--Comprehensive Plan for Production and Management of Oregon's Anadromous Salmon and Trout (1981), The Coho Salmon Plan (1981), The Steelhead Plan (1986), The Trout Plan (1987), and the Warmwater Game Fish Plan (1987).

5. Agreements with other agencies--e.g., Oregon Department of Forestry, U.S. Forest Service.

6. Rules and regulations of other state jurisdictions--e.g., Department of Environmental Quality (DEQ), Department of Land Conservation and Development (DLCD), and the Federal Threatened and Endangered Species Act.

PLAN REVIEW AND IMPLEMENTATION

This plan was completed as a result of staff and public interaction, general public review, and was adopted at a public hearing before the Oregon Fish and Wildlife Commission on February 15, 1991. Oregon Administrative Rules (OARs) were written to reflect the objectives and operating principles of the plan. These OARs will guide management until such time as those rules are changed. If plan objectives need revision at some later time, they can be taken back to the Commission for consideration. The problems and actions will also be reviewed on a biennial basis. The ODFW staff will report to the public what progress was made on each action in attempting to meet the plan's objectives. The public and staff will work together to review the actions and make necessary changes.

The Tenmile Plan discusses many more activities than can be completed with existing budgets. Some parts of this plan are already on-going activities of ODFW, are already part of the base budget, and only need to be continued or modified in some way. Other parts of the plan are new and need to be budgeted before they can be implemented. Funding could come from several different sources, such as the state general fund, federal contracts, volunteers, private donations, private grants, and other public agencies. In order to achieve the objectives of this plan within ODFW's budgetary and staff limitations, priorities for funds and effort must be identified.

Priorities were identified for habitat and to identify better information for most species and species groups. These priorities reflect what ODFW and the Citizen Advisory Committee believe are the most important issues that should be addressed in the Tenmile Basin (Table 1). One issue that affects all species and will receive top priority is the need to protect, restore, and improve the quality of freshwater and estuarine habitat. The Citizen Advisory Committee, members of the public, and ODFW believe that the long-term stability and health

of fish populations in the Tenmile Basin are closely related to the condition of the habitat within and surrounding the water. Another issue reiterated for many species is the need for better data on abundance and distribution. Although the need for better data is discussed separately under each species or species group, we recognize that many species or groups can be surveyed simultaneously. Furthermore, we believe that comprehensive distribution and abundance surveys coupled with physical-biological surveys will allow biologists to determine limiting factors for fish in the Tenmile Basin and better understand species interactions. Another major issue in this plan is compliance with the new Wild Fish Management Policy and the need for modifying hatchery release strategies for coho salmon and winter steelhead to assure that most hatchery fish home to areas away from the naturally spawning wild populations. An overriding issue of high priority is the development of programs for integrated management for salmonid and warmwater fishes and a better working relationship among user groups.

After considering all species and species groups in the Tenmile Basin, we grouped and generalized the different types of problems and actions into the highest priority issues (Table 1). The current funding status is indicated. A "yes" in the currently funded column denotes that funding for that activity is presently budgeted at some level, but does not indicate the adequacy of the funding. If additional funds are needed, it is noted in the next column. A "no" in the currently funded column is followed with a statement of the plan for future funding. This table will be reviewed and updated by the ODFW staff and public every two years to determine the funding and staffing priorities for the following biennium and to identify which problems will be approached through the budgeting process.

The Tenmile Plan provides comprehensive, long-range direction for the management of fish in the basin. As a result, the main body of the plan identifies the management objectives, problems, and actions to some extent without regard to funding and personnel constraints, which can vary from year to year. The Tenmile Plan is not intended to be a short-term operational or work plan. Specific tasks to accomplish the objectives among all species or groups and habitat and the schedule for those tasks will be contained in specific proposals and implementation plans. Some of these plans may have to be modified according to budgets approved by the legislature and availability of funds from other sources. The Tenmile Plan, therefore, is not intended to predict future funding, staffing, and unforeseen fisheries problems, or describe the specific mechanisms to respond to all possible scenarios. Rather, the plan lays out the goals and objectives that we feel are most important to managing the current and future fisheries in the basin. Other members of ODFW, federal and state agencies, and the public can refer to the Tenmile Plan and clearly understand the directon of ODFW fisheries management within the Tenmile Basin.

Table 1. Generalization of the highest priority issues in the Fish Management Plan for the Tenmile Basin based on policy and public interest. The funding status is identified.

Issues	Currently Funded	Remarks on Funding Status
Collect baseline information on the life history of cutthroat trout	No	Preliminary information will be collected during surveys with Restoration and Enhancement funds.
Protect existing stream, lake, and estuarine habitat	Yes	The base budget in each biennium includes time for habitat protection.
Improve the inventory base for all species in the freshwater and estuarine areas	Yes	Some ongoing trend data are being collected and limited funding is available through Restoration and Enhancement funds to survey large areas.
Develop integrated management of salmonid and warmwater fish programs	Yes	A regular part of our on-going budget is dedicated to developing management strategies for the diverse species of fish.
Increase genetic similarity between hatchery and wild stocks of coho salmon and winter steelhead and modify hatchery release strategies to minimize mingling of hatchery fish with the wild stock	Yes	Funding in our base budget and Wallop-Breaux contract have been used to capture wild fry and make changes in release sites of hatchery fish.
Improve angler access and fishing sites	Yes	Restoration and Enhancement funds have been used for new fishing docks. We need to also apply to the State Marine Board for more boat access.
Increase cooperation among salmonid and warmwater fishermen and public awareness of programs and problems	Yes	A modest educational program is now being conducted within existing budgets. More time is needed in this area with efforts directed toward projects of mutual interest to a variety of user groups.

Table 1. (Continued)

Issues	Currently Funded	Remarks on Funding Status
Restore and improve habitat for naturally produced wild populations of salmonids in tributary streams	Yes	A small program mostly through the Governor's Watershed Enhancement Board and STEP volunteers has been conducted. We need a major dedication of funds to this activity in the base budget and other grants.
Monitor salmonid spawning populations for abundance of wild fish and strays from hatchery releases	Yes	Some funding is now available, but additional seasonal manpower would improve the quality of information.
Develop increased fisheries for underutilized warmwater fish species	Yes	An educational program is needed to encourage utilization of abundant species and along with funds for additional public access.
Evaluate success of enhancement programs and habitat improvement	Yes	Programs for marking hatchery fish are now in place but additional wild fish need to be marked through the same projects that include the habitat work.
Increase law enforcement	Yes	The number of personnel is now limited and needs to be increased with additional funding.
Improve interagency coordination for habitat protection and land-use planning	Yes	The base budget includes this work but additional time needs to be dedicated to this activity with increases in base budget for habitat protection.
Develop better data on the catch and angler use in recreational fisheries	Yes	Some limited data are now being collected, but some form of creel survey for specific fisheries should be funded by Wallop-Breaux.
Continue to monitor the population of hybrid bass to determine that no reproduction occurs.	Yes	This work is being conducted under Wallop-Breaux funding and will continue through the extinction of the hybrid bass population.

Tenmile Lakes Watershed WQMP

APPENDIX J - TENMILE LAKES AQUATIC PLANT MANAGEMENT PLAN

May 2000
Draft

Tenmile Lakes Basin Partnership
Tenmile Lakefront Homeowners Association

PROBLEM STATEMENT

Tenmile Lakes Aquatic Weed Management Plan

In October of 1997 at the first of a number of the Tenmile Lakes Scoping meetings, participants established a list of problems related to the management of the Lakes. Aquatic weeds were identified as a large problem that has negatively impacted many of the lakes beneficial uses. The identified problems are related specifically to one species of invasive weeds Brazilian elodea, *Egeria densa.* This non-native aquatic vegetation is associated with the decline in the quality of drinking water, a loss in open water habitat, decreased boat access, an increase in sediment entrapment, and a reduction of many of the recreational uses historically provided by the Lakes.

Since the 1940s Tenmile Lakes have been inundated with Brazilian elodea. Their origin is greatly disputed but most likely elodea entered the system by several sources: birds, boats, and merchantable logs from other coastal lakes. Since that initial introduction, this prolific aquatic plant has been very successful. This noxious species has taken over the entire shoreline of both Lakes and densely grows in depths up to twelve feet. At the end of each of the lakes' eight arms, shallow areas where increases in depth are gradual, Brazilian elodea growth is so dense that it removes substantial acreage of the waterbody from being available for other beneficial uses that the Lakes historically provided.

According to the 1996 Oregon State Boaters Survey, the combined system of North and South Tenmile is the second most utilized lake system in Oregon. The Tenmile Lakes Recreational Area supports boating, swimming, skiing, and fishing. Coos County Parks maintains a boat ramp and swimming area on South Lake that is the main access for public users. Several resorts and many of the local businesses are also located along the shoreline. These businesses within the City of Lakeside rely on the lakes for revenue. The rapid growth of elodea has severely impacted the shoreline swimming area and access to docks. As a result, several control measures are used to reduce these impacts, but there is no management plan is in place to assist and coordinate these activities for the long-term betterment of the lake system as a whole.

The Tenmile Lakes have approximately 440 residences along its shoreline. For some permanent and seasonal residents, the lake system provides the sole transportation route and how they receive their mail. Where elodea growth is extensive, emergency services and mail delivery are affected for these residences. When people are unable to access their boat docks due to weed encroachment, uses and property values are reduced. Each landowner individually manages the weeds quite often with no thought to water quality, fisheries and wildlife benefits that this public resource provides for the community. In addition, over 240 residences use lake water for domestic uses.

Elodea and the corresponding “control” measures negatively affect pumping stations and increase the cost of adequate filtration systems.

Additionally, very important concern of the committee is how elodea has changed the ecology of the Lakes. In addition to the water quality problems, the plants have contributed to a change in species composition. Once a prolific Coho salmon producer, the lake habitat with the invasive weeds now favors introduced fish species that prey on the juveniles of these threatened salmonids. It is also thought that the extensive growth at the end of the arms traps sediments and contributes to the lakes filling in result in additional loss of open water habitat.

AQUATIC WEED MANAGEMENT GOALS

Tenmile Lakes Aquatic Weed Management Plan

At its first meeting in June of 1999, the Aquatic Weed committee, a subcommittee of the Tenmile Lakes Basin Partnership (Watershed Council) developed a set of goals for the management of noxious aquatic weeds within the Tenmile Lakes. These goals were formulated after discussion, which took into account the lake and its characteristics as well as the needs of the community and watershed. With these issues and concerns it was felt that it would be appropriate to set short and long-term goals. The following are the committee's goals in outline format.

SHORT TERM GOALS

- Develop an emergency preliminary program to treat areas where mail can not be delivered or where residents are unable to access their boat docks.
- Improve public swimming area.
- Complete aquatic plant survey and mapping of Lakes.
- Develop and begin implementation of an education plan that will improve and coordinate weed management activities that restore water quality and native fisheries.
- Develop weed treatment "Questionnaire" to determine current methods of control.
- Establish boat/trailer inspection system.
- Implement a watch program to provide early identification of other invasive species.
- "Test Plot" studies; fund, permit, implement to determine most effective means of control in specific areas.

LONG TERM GOALS

- Reduce and then maintain Brazilian elodea at as low a density as is economically feasible.
- Produce a plan to implement integrated control measures that take into consideration all the beneficial uses including the transportation, domestic water source, fisheries and wildlife, and recreational uses.
- Continue lake water quality monitoring and data collection.
- Seek funding mechanisms in order to continue long term control of invasive aquatic plants.
- To return the Lakes to as close to their predisturbance condition as possible.

WATERSHED AND LAKE CHARACTERISTICS

Tenmile Lakes Aquatic Weed Management Plan

WATERSHED CHARACTERISTICS

The Tenmile Creek Watershed encompasses approximately 97 square miles. It is located on the southern Oregon coast between the Umpqua River and the Coos Bay area.

There are ten lakes within the watershed with a combined surface area of about 4.7 square miles (3000 acres) or approximately 5% of the watershed. These lakes and associated drainages can be divided into three subbasins.
The most northern, the Eel Lake subbasin consists of North Clear, Edna, Teal, Schuttpelz and Hall Lakes. All of which are all drained by Clear Creek into Eel Lake. Eel Lake is drained by Eel Creek, which flows into Tenmile Creek approximately 3.5 miles from the Ocean.

The southwestern most basin, the Saunders Creek subbasin consists of Saunders and South Clear Lakes. Saunders Creek flows along the eastern most edge of the dunes and into Tenmile Creek one mile below its' confluence with Eel Creek. Combined these two subbasins encompass approximately 17.5 miles.
The Tenmile Lakes' subbasin, the largest in the watershed and includes North and South Tenmile Lakes. Combined their drainage area cover about 70 square miles. Tenmile Creek carries the water from this subbasin for about 6.5 miles to the Ocean. A northern portion of the watershed is in Douglas County and the remainder is in Coos County. The City of Lakeside is located along the where both lakes are connected by an improved canal.

The Tenmile Lakes Watershed is underlain by the Flournoy formation, which consists of sandstone and siltstone. The soils consist mainly of sandy and silty loams that are locally very thin. The topography of the region ranges from steep in the eastern headwaters with slopes upwards of 50 %. A gradual decrease in gradient occurs with an increased proximity to the coast. The areas with the lower valley portions of the major tributaries are quaternary alluvium with areas of peat and marsh characterized by flooding, stream bank erosion, siltation and slopes of 0 to 5%. The western portion of the watershed consists of areas of marine terrace deposits, sand dunes, deflation plain, and beach. The marine terrace areas contain the City of Lakeside as well as a large percent of the rural residential development.

The Tenmile Lakes Watershed has a variety of land uses including residential development, agriculture, and forestry (private and state). Most of the agricultural lands within the watershed, over 1,800 acres, are located in the lower reaches of the tributaries flowing into North and South Lake. Of the forestry lands, private industry in general manages the lower ridges. Menasha Corp. is the largest,

managing approximately 11.4 square miles. Most of the steep headwater areas within the Elliott State Forest are managed by the Oregon Department of Forestry. The Elliott State Forest covers approximately 33.5 square miles, making the State of Oregon the largest landowner in the watershed.

LAKE CHARACTERISTICS

The Tenmile Lakes were created during a period of coastal submergence resulting from glacial processes. Sand dune formation separated the valley from the ocean. Additional sand dune movement split the valley into two areas North and South Tenmile. Both lakes are highly dendritic, shallow with large shorelines. Combined North and South have a surface area of 2,725 acres and a perimeter of 42.2 square miles.

The lakes during a typical year have large variations in lake levels ranging from 5.67 ft during summer to 19.87 ft MSL. North Lake has a greater maximum depth 23-ft, than South Lake. Both lakes have average depths over 3 ft. (Johnson et al. 1985).

Additional information on limnological surveys of the watershed are available in Johnson et al. (1985), Eilers et al. (1996).

Water quality data has been collected since the 1950s. More currently, the volunteer Lake Watch Program has conducted since 1988 a more intense monitoring protocol that provides data on Secchi transparency, temperature, dissolved oxygen, and turbidity. In addition, the Watershed Council has implemented a two-year Nutrient Budget study. This current project will provide information on the amounts of nutrients entering and leaving the lake system. This data collected from this monitoring has identified and has the potential to isolate several important factors that are relevant to Brazilian elodea such as the growing period and what/where are the sources of the of nutrients supporting this growth. Currently, both Lakes' are listed as water quality limited on the Federal 303d list for aquatic weeds and algae.

Shoreline use is encompasses mainly residential development. Currently there are approximately 440 residences along the shorelines of both North and South Lake. Historically the shoreline areas supported many small Lumber mills and log rafts in each of the eight arms. In addition, the shoreline within the limits of the City of Lakeside was a popular swimming area for "locals". Currently the shoreline areas within the Urban Growth Boundary are rapidly being developed into large RV parks.

Wetland areas, size or significance, outside the City of Lakeside's UGB are currently an unknown. It is estimated that significant wetlands occur along most of the shorelines between the low and high water levels and low gradient areas where tributaries enter the Lakes. Within the UGB, the Watershed Council, DSL,

has conducted a Local Wetlands Inventory and Riparian Assessment. [14]

Fisheries and wildlife issues are numerous within the Tenmile Watershed. Currently, Tenmile's Coho salmon run is one of the most stable within the state at approximately 5,000 adults. In addition, the Lakes' are home to a relatively large colony of Purple Martins, 27 pairs of Ospreys, 3 active Bald Eagle nest, and breeding Western Pond Turtles.

BENEFICIAL AND RECREATIONAL USES

Tenmile Lakes Aquatic Weed Management Plan

The Tenmile Lakes Recreational Area provides residents and visitors alike a wide variety recreational activity. The County Park offers a public boat launch, fishing dock, and swimming area. With the large surface area, the lakes support many water skiers and jet skiing is becoming a popular activity. The lakes also support a popular warm water fishery for Bass and other Pan fish. During the summer season it is not unheard of to have two or three Bass tournaments going during a single weekend. These activities are also necessary for the local businesses for many are dependent on visitors purchasing supplies for the local vendors. The area in addition provides residents with an area to walk and just enjoy their surroundings.

The lakes also support a great diversity of wildlife. Annual lake surveys counted 3 Bald Eagle nests and 18 active Osprey nests. Most are visible from the shoreline where the interested public can observe them. The lakes support a variety resident waterfowl, including Canada geese. Northern birds migrating south use the lakes as a resting area and Tenmile over winters a large population of Mallards. The lakes are also a serve a refuge for the threatened Western Pond Turtle. Surveys have revealed that Tenmile supports more turtles than was originally estimated and may be one of the few areas in the state where they are successfully reproducing.

Tenmile also provides habitat that use to support a large population of Coho and Searun Cutthroat Trout. Historically, the juveniles of these species would leave the tributaries during low summer flows and rear in the lakes for a year before migrating to the ocean.

With the altered lake habitat it is unknown precisely how many juveniles are

[14] Eilers, J.M., C.P. Gubala, and E.A. CoBabe. 1996a. Recent Paleolimnology of Tenmile Lake and North Tenmile Lake, Coos County, Oregon. E&S Environmental Chemistry, Inc., Corvallis, OR.

Johnson, D.M., R.R. Peterson, D.R. Lycan, J.W. Sweet, M.E. Newhaus, and A.L. Schaedel. 1985. Atlas of Oregon Lakes. Oregon State Univ. Press, Corvallis, OR. 317 pp.

surviving in the lakes to migrate. Even with this estimated mortality, the lakes provide the only travel route for migrating adults and juveniles.

OFFICIAL STATE LISTED BENEFICIAL USES

Public Domestic Water Supply
Private Domestic Water Supply
Industrial Water Supply
Irrigation
Livestock Watering
Anadromous Fish Passage
Salmonid Fish Rearing
Resident Fish & Aquatic Life
Wildlife & Hunting
Fishing
Boating
Water Contact Recreation
Aesthetic Quality
Commercial Navigation & Transportation

AQUATIC PLANT CHARACTERIZATION

Tenmile Lakes Aquatic Weed Management Plan

During the summer months of 1999, volunteers assisted by staff from Portland State University and the Watershed Council conducted distribution surveys and mapped aquatic vegetation in 5 areas: Coleman arm, Lindross arm, Shutters arm, Blacks arm, Main North Lake. The purpose of these surveys was 1) to identify number of species present. 2) water depths where each species was most abundant. 3) identify specific access problems. This project will continue until both Lake shorelines have been mapped and a GIS layer has been created. This information will provide baseline data, which will be used to recommend control treatments.

METHODS

Portland State University staff provided a 4-hour initial training course for volunteers. After completion, volunteers surveyed shoreline areas by boat late in the growth period. Surveying perpendicular to the shoreline, surveyors collected plant samples and depth measurements.

In addition to gathering this information surveyors used visual estimates of plant biomass for each species and produced a generalized mapping of “problem areas”. With additional surveys this information will be more formally mapped and enter into a GIS layer.

RESULTS

Preliminary results identified Brazilian elodea as the species that most directly affects the beneficial uses occurring on the Lakes. Around docks and approximately 90% of the shoreline areas with depths less than 12ft, elodea had the highest densities and frequency of occurrence.

Beside Brazilian elodea and 4 other plants species were identified. This species: cow lily, Parrotfeather, water shield, Limnophila, usually occurred in depths of less than 3ft and resulted in few negative impacts on the beneficial uses. In addition, volunteers identified a small outbreak of Purple loosestrife in Big Creek arm.

It is recommended to characterize and specifically quantify the aquatic plant community of the lakes, further studies and sampling need to be undertaken. To enable managers and lakefront homeowners to distinguish changes in Brazilian

elodea abundance and evaluate treatment results specific intense distribution and abundance monitoring surveys need to be conducted.

DISCCUSSION

Based on these results of these initial surveys, Brazilian elodea appears to be the most abundant species and which dramatically affects the identified beneficial uses. It's dense growth, from the shoreline to depths of 12ft effects residence's boat access, mail delivery, and native fish species. In the treatment plan, control strategies are primarily focused on this species.

INEGRATED TREATMENT ACTION PLAN

Tenmile Lakes Aquatic Weed Management Plan

Currently, the steering committee feels that control treatments be focused on Brazilian elodea and Purple loosestrife. For elodea, the lake was separated into different areas according to depth and type and amount of use. With Purple loosestrife, a high intensity control is recommended of volunteers actively seeking infestations and removing plants.
Specific control intensities, treatments and treatment areas are listed in the following table.

In addition, the steering committee recommends the following strategies to address the problems associated with Brazilian elodea and Purple loosestrife in Tenmile Lakes:

- Continue to monitor the lake for water quality and fish and wildlife habitat conditions
  (ODFW, DEQ, DSL, TLBP).
- Continue mapping the spread of Brazilian elodea and Purple loosestrife (Volunteers from TLBP and TLOA).
- Encourage small-scale weed control with recommended treatments in areas of <12ft.
  (TLBP, TLOA).
- Establish link and/or support Coos County Weed Board (TLOA, DEQ, ODFW, TLBP).
- Continue public education of recommended treatments using flyers, newsletters, public meetings (TLBP, TLOA, DEQ).
- Continue to search for grant or other funding sources for study of controls, education, monitoring (TLBP, TLOA, DEQ).

BRAZILIAN ELODEA TREATMENTS

LAKE AREAS	RECOMMENDED TREATMENTS
SHORELINE (< 12FT DEPTHS)	
• W/OUT DOCKS	PHYSICAL • Hand –pulling • Hand-cutting • Bottom barriers • Alfalfa bails • No treatment CHEMICAL • NOT A RECOMMENDED TREATMENT AT PRESENT TIME BIOLOGICAL • Future prospect
• WITH DOCKS	PHYSICAL • Hand –pulling • Hand-cutting • Bottom barriers • Alfalfa bails • Mechanical Harvester CHEMICAL • NOT A RECOMMENDED TREATMENT AT PRESENT TIME BIOLOGICAL • Future prospect
• MAIL DELIVERY PROBLEMS	PHYSICAL • Hand –pulling • Hand-cutting • Bottom barriers • Alfalfa bails • Mechanical Harvester CHEMICAL • NOT A RECOMMENDED TREATMENT AT PRESENT TIME
• PUBLIC SWIMMING AREA	PHYSICAL • Mechanical Harvester
OPEN WATER (>12FT DEPTHS)	NO TREATMENT
TRIBUTARY MOUTHS (END OF ARMS)	PHYSICAL • Mechanical Harvester • Alfalfa bails CHEMICAL • NOT A RECOMMENDED TREATMENT BIOLOGICAL: Future prospect
OUTLET/TENMILE CR.	PHYSICAL TREATMENTS ONLY
	BIOLOGICAL: Future prospect

ACKNOWLEDGEMENTS

Tenmile Lakes Aquatic Weed Management Plan

This Aquatic Plant Management Plan is a result of the work of a dedicated group of people. All labors from Lake Surveys to the phone Weed Questionnaire have been volunteer effort. Many people deserve a gracious thank you.

The Weed Committee:

Charlie Heimlich	Terri Scott	Bruce Evans
Jim Brown	Nancy Edlund	Pam Blake
Sally Thomas	Michael Mader	

CITY OF LAKESIDE
Tenmile Lakes Basin Partnership
Mark Systma Portland State University
Lakeside Lions
Oregon Watershed Enhancement Board

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3. McComas, Steve. 1993. Lake Smarts.

AQUATIC PLANT CONTROL TREATMENTS

Section Under Development

Tenmile Lakes Watershed WQMP

APPENDIX K – MOU: ODEQ AND DSL

MEMORANDUM OF UNDERSTANDING BETWEEN THE OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY AND THE OREGON DIVISION OF STATE LANDS

MEMORANDUM OF AGREEMENT

between

THE OREGON DIVISION OF STATE LANDS

and

THE OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY

pertaining to

DETERMINING CONSISTENCY WITH STATE WATER QUALITY STANDARDS

May 24, 2000

WHEREAS the Oregon Division of State Lands (DSL) has the responsibility for issuing permits for dredge and fill activities in the State of Oregon; and

WHEREAS the Oregon Department of Environmental Quality (DEQ) has responsibility under the federal Clean Water Act and state statute for ensuring compliance with water quality standards designed to protect beneficial uses; and

WHEREAS DEQ has authority to issue water quality certifications pursuant to Section 401 of the federal Clean Water Act; and

WHEREAS the two agencies want to better integrate their decisions to meet the purposes specified in this Agreement; and

WHEREAS the agencies each acknowledge the resource limitations of the other, particularly with regard to 401 certifications;

NOW THEREFORE, DSL and DEQ enter into the following Agreement:

Purpose

The primary purpose of this Agreement is to better integrate the Department of Environmental Quality's (DEQ) water quality review with the Division of State Lands' (DSL) removal-fill permit review. Consistent with the goals, objectives and review process established herein, DSL shall incorporate those permit conditions provided by DEQ that are necessary to assure compliance with the state's water quality standards and are enforceable by DSL under the Removal-

Fill Law. The intent is to provide timely permit decisions by DSL to an applicant while assuring compliance with all applicable state laws, to the extent that DSL has the authority and capability to enforce any such conditions necessary to assure compliance with those laws.

Goals and Objectives of Interagency Coordination

GOALS

Help permit applicants achieve their land management and utilization objectives in ar efficient, economically feasible and courteous manner that:

- Protects the resource;
- Protects the livelihoods and quality of life of affected individuals, businesses and communities; and
- Protects the substantial and growing investment in salmon recovery.

OBJECTIVES

- Promote timely permit issuance.
- Use the combined knowledge, skills and experience of federal, state and local agencies to help applicants design and implement projects that further the overall goal.
- Provide the opportunity for early involvement and open communication between applicants, agencies, neighbors and other affected parties to reduce misunderstandings, eliminate surprises, avoid unnecessary disputes, and help applicants to fully understand regulatory requirements.
- Provide process certainty without sacrificing project flexibility while taking into account varying local conditions.
- Develop scientifically based and verifiable permit conditions that are easy to understand, feasible for the applicant and tailored to the significance of the affected resource.
- Provide an efficient structure and process for cooperative resolution of disagreements and disputes.
- Develop permit conditions that are legally defensible and ensure projects comply with all applicable state and federal laws .

Review Process

General Authorizations

Unless otherwise provided in law or administrative rule, DSL will circulate all applications for General Authorizations (GAs) and removal-fill permits to DEQ. In response to any DSL notice or application for a GA, DEQ shall within five working days of receipt of the notice or application contact the applicable DSL

Resource Coordinator or Coordinator Assistant either in person, by phone, facsimile or e-mail, and indicate whether DEQ intends to provide comments. If DEQ indicates its intention to provide comments on a GA, it shall do so within 10 working days of receipt of DSL's notice.

Individual Removal-Fill Permits

For individual removal-fill permit applications, no prior notice of intent to comment to DSL is required. In such cases, DEQ shall comment within 75 calendar days of the date of DSL's notice as required by ORS 196.825(9)(b).

Standard Permit Conditions

DSL and DEQ will work collaboratively on standard permit conditions for various categories of removal-fill activities.

Dispute Resolution Process

Disputes involving permit conditions, review and processing deadlines or regulatory issues that cannot be resolved by the DEQ Section 401 Water Quality Certification Coordinator, Water Quality Division and the appropriate DSL Resource Coordinator, Field Operations Section, shall immediately be brought to their respective agency managers for resolution. The DEQ Water Quality Division Administrator or his/her designee and the DSL Assistant Director for Field Operations or his/her designee shall be responsible for resolving the dispute. Agency management shall resolve the dispute in a timely manner to allow DSL to approve or deny the permit/authorization within its required timeframes (generally within 15 working days of DSL receipt of a completed application for a GA and no more than 90 calendar days from the date the application is deemed complete for individual permit applications).

Enforcement/Violations

DEQ will notify DSL regarding apparent violations of applicable laws, regulations, and policies within DSL's jurisdiction that would affect water quality.

DSL will investigate apparent violations reported by DEQ and take appropriate enforcement and corrective action within the Division's authority. DSL will report to DEQ the result of its investigation and any other actions initiated through coordination under this Agreement in a timely manner.

Modification or Termination

This Agreement may be modified with agreement of both parties or terminated by either party with 30 days written notice to the other party.

Expenditure of Funds

Nothing in this Memorandum of Agreement shall be construed as obligating DEQ or DSL to expend funds or involve either party in contract or other obligation for the future payment of money in excess of appropriations authorized by law and administratively available for this work.

Oregon Division of State Lands

Director
Date: 5/25/00

Department of Environmental Quality

Director
Date: 6-13-00

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Tenmile Lakes Watershed WQMP

APPENDIX L – MOA: ODEQ AND ODA

MEMORANDUM OF UNDERSTANDING BETWEEN THE OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY AND THE OREGON DEPARTMENT OF AGRICULTURE

The Memorandum of Agreement guiding the ODA and ODEQ TMDL and WQMP process has been provided below for your convenience.

MEMORANDUM OF AGREEMENT

Between

The Oregon Department of Agriculture

and

The Oregon Department of Environmental Quality

concerning

Water Quality Limited Waterbodies (303(d)), Total Maximum Daily Loads (TMDLs) and Agricultural Water Quality Management Area Plans (AWQMAPs)

WHEREAS the Oregon Department of Environmental Quality (hereinafter referred to as DEQ) has responsibilities in relation to water quality under the federal Clean Water Act as enshrined in state statute and administrative rules; and

WHEREAS the Oregon Department of Agriculture (hereinafter referred to as ODA) has responsibility for regulating farming practices for water quality improvement under ORS 568-900-933 and ORS 561.191; and

WHEREAS the two agencies have responsibilities under the Oregon Plan to develop TMDLs and Agricultural Water Quality Management Area Plans (AWQMAPs); and

WHEREAS the two agencies wish to pursue a collaborative relationship to define the process for improving water quality; and

WHEREAS the two agencies intend to address all parameters exceeding water quality standards and all sources in a geographic area; and

WHEREAS the two agencies will strive to work in as large a hydrologic unit as practicable.

NOW THEREFORE, the two agencies desirous of facilitating a cooperative working relationship enter into the following agreement:

I. Water Quality Limited 303(d) List

Pursuant to section 303(d) of the Clean Water Act, DEQ is responsible for compiling a list of waters of the state not meeting water quality standards. ODA shall review the draft list and provide input to DEQ on listing, prior to the release of the draft list for public comment.

DEQ has responsibility for prioritizing waterbodies on the 303(d) list. However, DEQ will involve ODA in the prioritization process. DEQ will develop prioritization criteria, and then discuss these with ODA. The actual prioritization of waterbodies affecting the scheduling of AWQMAPs will be mutually agreed by DEQ and ODA.

II. 303(d) Delisting

DEQ will propose removal of waterbodies from the 303(d) list when any of the following circumstances occur:

1. waterbodies come into compliance with standards, as demonstrated by applicable data;
2. water quality standards are revised which result in a waterbody coming into compliance;
3. a use attainability analysis is completed in which a beneficial use is removed, and the applicable standard which led to the listing is no longer relevant;
4. a TMDL is approved by EPA for that waterbody;
5. a water quality management plan is developed which will ensure that waters meet standards within two years, i.e. within the listing cycle.

III. TMDL Development

The following shall constitute the elements that make up a TMDL:

A. TMDL Advisory Committee

DEQ will form a TMDL advisory committee with broad representation from the sub-basin to provide input on TMDL development and implementation. To the maximum extent possible this advisory committee will be based on existing watershed councils as appropriately augmented, including representation from the AWQMAP committee. DEQ shall advise local ODA staff of advisory committee meetings and shall encourage them to attend and participate in these meetings.

B. Data/Information Gathering

DEQ, in conjunction with the advisory committee shall gather and analyze information and data sufficient to generate the TMDL.

C. TMDL Elements

The elements of an approvable TMDL are:

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

D. Development of TMDL Implementation Plans

Load allocations for agricultural nonpoint sources will be provided by DEQ to ODA which will then begin developing a AWQMAP, or modifying an existing AWQMAP, to address the load allocation. DEQ will seek implementation by point sources through NPDES permits and urban nonpoint sources through mechanisms such as stormwater permits. Implementation plans for each sector will be consolidated by DEQ for submission to EPA. DEQ and ODA will communicate with each other on plan components.

E. Public Participation

DEQ is responsible for ensuring that draft TMDLs will be released for public comment prior to submission to EPA for approval. DEQ will consult with ODA on comments received, particularly those related to the agricultural portion of the TMDL. DEQ will not unilaterally respond to public comments related to agriculture. Responses related to agriculture shall be determined collaboratively between ODA and DEQ.

F. TMDL Submission

DEQ will compile and submit the various components of a TMDL to EPA for approval. DEQ will not forward for approval packages that it does not believe will meet EPA's requirements. DEQ will keep a record of approved TMDLs.

IV. Agricultural Water Quality Management Area Plans (AWQMAPs) Development

A. Advisory Committees

ODA will form a local advisory committee to assist in the development of an AWQMAP. ODA will ensure that its advisory committee maintains links with DEQ's TMDL advisory

committee, where a TMDL advisory committee is in place. ODA shall ensure that local DEQ staff are aware of meetings of the AWQMAP advisory committee and are afforded the opportunity to attend and to participate in meetings.

B. Determination of AWQMAP Boundary

ODA, in conjunction with the advisory committee shall determine the boundary within which a AWQMAP shall apply. The map attached at Attachment A depicting Oregon's 91 sub-basins shall be used in determining boundaries. Generally, DEQ will be working at the sub-basin level. ODA will be working at this level, or a broader geographical area, such as the basin level.

C. Gathering Data/Information

ODA, in conjunction with the advisory committee, will gather relevant data and information from other committees or councils in the basin from within the defined area to develop the plan. DEQ commits to sharing water quality data with ODA.

D. AWQMAP Elements

An AWQMAP shall consist of the following elements:

1. problem identification;
2. goal statement of water quality objectives. The overriding objective here is attainment of water quality standards;
3. measures needed to attain goals;
4. implementation schedules;
5. guidelines for public participation process, including state and local government roles and responsibilities;
6. compliance establishment and reviews;
7. monitoring of plan for effectiveness;
8. plan review schedule and revision process if conditions warrant;
9. enforcement process and strategy.

E. DEQ Input

During AWQMAP development, ODA will seek input from DEQ on the sufficiency of the plan to meet water quality standards, prior to going through the rulemaking process. In all cases, ODA will invite DEQ regional staff participation on a Technical Advisory Committee to the ODA's AWQMAP Local Advisory Committee.

In areas where ODA and DEQ are concurrently active, ODA will also coordinate with DEQ's TMDL Advisory Committee. As feasible, ODA will include members of DEQ's TMDL advisory committee on its AWQMAP Local Advisory Committees.

F. ODA ahead of DEQ

In those circumstances where ODA is present in an area before DEQ, ODA will develop an AWQMAP as detailed above in this agreement. ODA will develop the plan with regard to the 303(d) listings and parameters exceeding standards in the area. At the time that DEQ develops load allocations for agricultural nonpoint sources or groups of sources, ODA will evaluate the AWQMAP previously developed plan to assure attainment of DEQ's load allocations for agriculture.

G. Public Participation

ODA is responsible for ensuring that draft Agricultural Water Quality Management Area Plans will be released for public comment prior to submission to DEQ for incorporation into TMDLs. ODA shall consult with DEQ on comments received, particularly those related to the TMDL. ODA shall not unilaterally respond to these public comments related to TMDLs. Responses will be determined collaboratively between ODA and DEQ.

All Agricultural Water Quality Management Area Plans will be codified in administrative rules. Public participation will be invited as a part of the rulemaking process.

H. DEQ's Role

ODA will submit the final AWQMAP to DEQ. DEQ will incorporate it into the TMDL submission to EPA.

I. ODA AWQMAP Implementation

Under AWQMAPs, it is ODA's intent to work with landowners on water quality issues in a proactive, voluntary manner by providing information and technical assistance for implementation of water quality protective measures.

All AWQMAPs will also contain regulatory backstops which outline measures deemed necessary by the department, and which are codified in administrative rules. Landowners found to be out of compliance will be notified and directed to take actions necessary to bring the condition of the subject lands into compliance with the area plan its associated rules. Such enforcement actions by ODA shall be pursued according to OARs 603-90-060 through 120.

V. Federal Lands

ODA and DEQ agree that DEQ shall be the primary point of contact in the state for federal agencies wishing to develop WQMPs/TMDLs, and that furthermore DEQs nonpoint source TMDL guidance shall form the basis for the development of such plans. DEQ will, however, involve ODA in the development of federal plans where there are

agricultural land management issues, public participation and submission of federal plans to EPA. ODA agrees to provide timely feedback to DEQ and the federal agencies so as not to delay development and submission of such plans.

VI. Coordination Meetings

ODA and DEQ commit to meeting quarterly to:

1. coordinate work;
2. share information; and
3. resolve issues.

VII. Amendment and Termination

This agreement remains in force until terminated. Termination shall occur after sixty days written notice from either party. No amendments may be made to this agreement without the express written agreement of both parties. Such agreement shall be signed by the Directors of each agency.

For the State of Oregon
Department of Agriculture

Bruce Andrews
Director 6 / 29 /1998

For the State of Oregon
Department of Environmental Quality

Langdon Marsh
Director 6 / 23/1998

APPENDIX M – OREGON STATE MARINE BOARD GUIDELINES

GUIDELINES FOR SEWAGE COLLECTION AND DISPOSAL FOR RECREATIONAL BOATS, COMMERCIAL VESSELS AND FLOATING STRUCTURES

http://www.boatoregon.com//PDF-Reports/liveaboard.pdf

September 3, 1996

State of Oregon

Department of Environmental Quality

and

State Marine Board

Guidelines for Sewage Collection and Disposal for

Recreational Boats, Commercial Vessels and Floating Structures

I. DEFINITIONS For the purpose of these guidelines the following definitions will apply:

"Black Water" means water-carried human body wastes, including feces, urine and other extraneous substances of body origin including toilet paper.

"Board" means the Oregon State Marine Board (OSMB).

"Boathouse" a covered floating structure primarily used for the wet or thy storage of a boat. Generally boathouses are moored in one location for extended periods of time. If any plumbing fixtures are present, except hose bibs, a boathouse is classified as a "Combo."

"Boat Toilet Fixture" includes any type of permanently installed toilet fixture or marine head on a boat or vessel. Does not include portable toilets.

"Boat Waste Collection Device" includes all types of stationary portable or mobile equipment that collect and transfer black water from boats. Includes boat pumpout and dump stations.

"Combo" a boathouse-floating home combination structure with plumbing fixtures. Combos are generally moored in one location for extended periods of time.

"Commercial Vessel" every description of ship or boat used for any type of commercial purpose including but not limited to commerce, tour, charter, or otherwise engaged in the transportation of passengers for hire.

"Department" means the Oregon Department of Environmental Quality (DEQ).

"Dump Station" a device that receives sewage from a portable toilet.

"Dwelling" a structure, boat or vessel that has sleeping, cooking and plumbing fixtures used for human occupancy or is used for residential purposes.

"Floating Home" a floating structure designed or used as a dwelling, with no means of self propulsion, usually moored in one location for extended periods of time.

"Gray Water" means any water carried waste other than black water, such as bath, kitchen or laundry wastes.

"Holding Tank" includes all types of fixed receptacles used on boats or vessels to collect sewage from boat toilet fixtures.

"Home Port" the principal location a boat is moored, housed or stored.

"Houseboat" a self propelled boat designed for use as a temporary dwelling. Any houseboat moored in one location and used as a dwelling for more than 10 of any 30 day period arc classified as a "liveaboard."

"Liveaboard" a boat moored in one location, usually home port and used as a dwelling for more than 10 of any 30 day period.

"Marine Sanitation Device or MSD" means a U.S. Coast Guard approved Type I, II or III device used to treat or retain in a holding tank, all boat toilet fixture waste generated from a boat or vessel.

"Moored" means secured or tied-up to a dock, pile, float, buoy or at anchor.

"Navigable Waters" means the list of federal navigable waters in Oregon as determined by the Thirteenth District of the U.S. Coast Guard based on Title 33 of the Code of Federal Regulations.

"Operating" means underway, not moored.

"Owner" includes but not limited to individuals, corporations, entities, operators, renters or any other responsible person in control or having control of real or personal property.

"Plumbing Fixture" includes but not limited to toilets, showers, lavatories or laundry fixtures.

"Portable Toilet" includes all types of portable toilets, hand carried potties, used to collect black water into a small receptacle.

"Pumpout" means a stationary or portable pumping or suction device that removes waste from a boat holding tank and transfers it to an approved municipal, septic, on-site treatment system or landside holding tank for disposal.

"Recreational Boat" means every description of recreational watercraft used or capable of being used as a means of transportation on the water, self propelled, to include but not limited to transient boats, houseboats, liveaboard boats and other types of boats. Does not include commercial boats or vessels, boathouses, combos or floating homes.

"Sewage" means black water and/or gray water waste.

"Sole State Waters" means those waters entirely within the confines of the state which have not been listed as Navigable Waters by the U.S. Coast Guard applicable to boat MSD requirements.

"Structure" includes but not limited to boathouse, combos, and floating homes used as a dwelling.

"Transient Boat" a boat in transit, not home port. My transient boat, moored in one location and used as a dwelling for more than 10 of any 30 day period is classified as "liveaboard."

"U.S. Coast Guard" means the United States Coast Guard (USCG).

"Waters of the State" includes but not limited to Sole State Waters and Federal Navigable Waters.

II. SCOPE

The purpose of these guidelines is to establish minimum standards for proper collection and disposal of sewage generated by a wide variety of on-water structures, boats and vessels. The goal is to ensure protection of water quality through reasonable and achievable means of water pollution prevention measures.

These guidelines are intended to provide the public with clear and concise requirements by principal state agencies including applicable laws, rules and policies. Some overlap of state and federal jurisdiction may occur. My reference to federal authority or laws is for information purposes only.

The guidelines recognize that any person, structure, boat or vessel that generates sewage while on or in sole State Waters or federal Navigable Waters are subject to regulation. All sewage generated shall be effectively collected, treated, contained and/or disposed of in an approved manner as described in these guidelines. Under no circumstances shall discharge of any untreated black water be permitted or allowed on Waters of the State.

Also, these guidelines recognize the unique needs of on-water structures, boats and vessels with respect to sewage collection, treatment and disposal. Hence, criteria

ordinarily found for land side structures may not directly apply to on-water structures, boats and vessels. However, it is the responsibility of every person who generates or receives sewage to take appropriate measures to properly dispose of this waste according to state or federal law.

These guidelines shall apply to both sole State Waters and federal Navigable Waters which together include all waters of the state. These guidelines are not intended to conflict with any other state or federal law, rule, regulation or policy.

As the scope of these guidelines is quite broad, the principal agency (state or federal authority) may in some instances, require more stringent methods or requirements to ensure protection of water quality. Any public inquiry should be directed to the lead agency listed at the end of these guidelines.

III. AUTHORITY

With respect to these guidelines only:

The Department (DEQ) shall take lead responsibility to regulate sewage generated from on-water structures and commercial vessels moored or operating on sole State Waters and federal Navigable Waters.

The Board (OSMB) shall take lead responsibility to regulate black water generated from recreational boats moored or operating on sole State Waters and federal Navigable Waters.

The U.S. Coast Guard (USCG) has authority to regulate black water generated from recreational boats and vessels operating on federal Navigable Waters. No federal rules are in effect at this time (9/96) regulating collection and/or treatment of gray water generated from boats.

Recreational boat and vessel owners are strongly encouraged to collect and properly dispose of gray water and to refrain from discharging it overboard.

A. STRUCTURES

DEQ ORS 468B.080 Prohibitions relating to garbage or sewage dumping into waters of state.

> (1) No garbage or sewage shall be discharged into or in any other manner be allowed to enter the waters of the state from any building or structure unless such garbage or sewage has been treated or otherwise disposed of in a manner approved by the Department.
>
> All plumbing fixtures in buildings or structures, including prior existing plumbing fix- tires from which waste water or sewage is or may be discharged, shall be connected to and all waste water or sewage from such fixtures in buildings or structures shall be discharged into a sewerage system, septic tank system or other disposal system approved by the Department.

B. RECREATIONAL BOATS

OSMB ORS 830.110 Powers and Duties of the Board:

> (14) Make rules regarding marine toilets and their use consistent with the prevention and control of pollution of the waters of this state and not in conflict with the rules of the Health Division or the Environmental Quality Commission.

C. COMMERCIAL VESSELS AND RECREATIONAL BOATS

USCG33 CFR 159 Marine Sanitation Devices:

> 159.7 (b) After January 30, 1980, no person may operate any existing vessel with installed toilet facilities unless it is equipped with ... Type I, II, III device.

IV. SEWAGE DISPOSAL REQUIREMENTS

A. STRUCTURE OWNER

Any plumbing fixtures present on structures to include floating homes, boathouses, or combos shall be continuously connected to a Department approved sewerage system as per ORS 468B.080 (includes gray and black water) except structures with only hose bibs. This includes both sole State Waters and federal Navigable Waters.

Discharge of any untreated sewage from any structure on or in sole State Waters or federal Navigable Waters without a DEQ discharge permit is illegal.

B. RECREATIONAL BOAT OWNER

1. Recreational Boat Toilet Fixtures - MSD Requirements

All recreational boats with toilet fixtures shall have an effective means to collect, treat or dispose of black water in an approved manner as follows:

Operating or moored on federal Navigable Waters:

> A U.S. Coast Guard approved Type I, II or III device to treat or retain in a holding tank, all boat toilet fixture waste. Type I and II allow treated overboard discharge, Type III normally is a holding tank. No overboard discharge of untreated black water is permitted.

Operating or moored on sole State Waters:

> A U.S. Coast Guard approved Type III device (normally a holding tank) for all boat toilet fixture waste. A Type I or II MSD cannot be discharged while operating or moored on sole state waters. No overboard discharge of treated or untreated black water is permitted.

2. Marine Sanitation Devices (MSD)

Pursuant to U.S. Coast Guard Regulations 33 CFR 159, as of January 30, 1980, if a vessel (including boats) has a permanently installed toilet, it shall be equipped with an operable MSD. Vessels 65 feet in length and under may install a Type I, II or III MSD. Vessels over 65 feet in length shall install a Type II or III MSD.

Type I MSD - This device treats the sewage with disinfectant chemicals or other means and macerates the solids before discharging it into the water. The treated discharge must meet a standard for bacteria count (less than 1000 fecal coliform per 100 ml) and must not produce visible floating solids (basically reduce solids to less than 1/16th of an inch in diameter).

Type IIMSD - This is also a flow through treatment device but meets a higher standard of effluent purity. The standard for bacteria is not to exceed 200 fecal coliform bacteria per 100 ml and solids must be reduced to less than 150 mg/i or parts per million of suspended solids. The effluent from a Type II device would have the same clarity as slightly cloudy water. To achieve this standard, solids are separated from the waste stream and held for incineration or another type of suitable disposal or, are recycled into the incoming waste stream.

Type III MSD - Type III MSDs are certified to a “no-discharge” standard. Type III devices include recirculating and incinerating toilets and holding tanks. Holding tanks are the most common type of MSD found on boats. Sewage is stored in a holding tank until it can be pumped to a dockside facility or overboard at sea beyond the territorial waters (three mile limit) of the U.S.

3. WYE Valves and Overboard Discharge

Discharge of untreated black water from a boat or vessel moored or operating on sole State Waters or federal Navigable Waters (within the three mile limit) is illegal. A Wye valve may be installed on any MSD to provide for the direct discharge of raw sewage when the boat or vessel is outside sole State Waters or federal Navigable Waters more than three miles from shore.

The (Wye) valve must be secured in the closed position while moored or operating on sole State Waters or federal Navigable Waters (within the three mile limit). Use of a padlock, non-releasable wire-tie, or the removal of the valve handle would be considered adequate securing of the device. The method chosen must be one that presents a physical barrier to the use of the valve.

4. Boat Portable Toilet Requirements

All portable toilet black water collected on boats operating on sole State Waters or federal Navigable Waters shall be properly disposed of in an approved manner when the holding tank is full as set forth in Section B. 7 Boat Waste Collection Facilities

Discharge of untreated black water from any portable toilet on or in State Waters or Federal Navigable Waters (within the three mile limit) is illegal.

5. Transient Boat Requirements

Any recreational boat moored in one location used as temporary dwelling for any period less than any 10 of any 30 day period that have/use marine toilets or portable toilets shall dispose of or cause to have disposed, in a proper manner, all black water waste generated when the holding tank is full as set forth in Section B. 7 Boat Waste Collection Facilities

Any transient boat moored in one location and used as temporary dwelling unit for more than 10 of any 30 thy period is classified as a “liveaboard” and shall comply with Section B.6 Liveaboard Boat Requirements

Discharge of untreated black water from a boat or vessel moored or operating on sole State Waters or federal Navigable Waters (within the three mile limit) is illegal.

6. Liveaboard Boat Requirements

Any recreational boat, houseboat or transient boat moored in one location and used as a dwelling for more than 10 days of any 30 is classified as a liveaboard.

Any liveaboard that have/use marine toilets or portable toilets on boats shall dispose of or cause to have disposed, in a proper manner, all black water waste generated when the holding tank is full as set forth in Section B. 7 Boat Waste Collection Facilities

Discharge of untreated black water from a boat or vessel moored or operating on sole State Waters or federal Navigable Waters (within the three mile limit) is illegal.

7. Boat Waste Collection Devices

Approved boat waste collection devices for Type III MSD holding tanks shall be any one

of the following:

a. Dockside sewage connection to a DEQ approved municipal, septic, on-site treatment system or upland holding tank for disposal.

b. Mobile boat pumpout service approved by DEQ.

c. Pumpout station that transfers waste from a boat holding tank to an approved municipal, septic, on-site treatment system or holding tank for disposal.

Approved waste collection devices for portable toilets shall be any one of the following:

a. Portable toilet dump station that transfers waste to a DEQ approved municipal, septic, on-site treatment system or upland holding tank for disposal.

b. RV dump station which complies with DEQ requirements.

c. Dwelling or municipal sewer system which complies with DEQ requirements.

C. COMMERCIAL VESSEL OWNER

All commercial vessels with toilet fixtures shall have an effective means to collect, treat, and/or dispose of black and gray water in an approved manner as follows. An available and accessible means to dispose of all black and gray water collected, in a DEQ approved municipal or on-site treatment system, shall be provided.

1. Operating or Moored on Federal Navigable Waters:

A U.S. Coast Guard approved Type I, II or Ill device to treat or retain in a holding tank, all boat toilet fixture waste. Type I and II. allow treated overboard discharge, Type III normally is a holding tank. No overboard discharge of untreated black water is permitted.

DEQ may prescribe other requirements for significant volume of treated or gray water discharge based upon concentrations and waterbody location. Contact DEQ for specific requirements.

2. Operating or Moored on Sole State Waters:

A U.S. Coast Guard approved Type III device (normally a holding tank) for all boat toilet fixture waste. A Type I or II MSD cannot be discharged while operating or moored on sole state waters. No overboard discharge of treated or untreated black water is permitted.

DEQ may prescribe other requirements for significant volume of treated or gray water discharge based upon concentrations and waterbody location. Contact DEQ for specific requirements.

For all commercial vessels that use marine heads with holding tanks - each shall have an available and accessible means to dispose of or cause to have disposed, in a proper manner, all black water waste generated when the holding tank is M as provided in Section B. 7 Boat Waste Collection Facilities

5. New Marinas (Constructed after January 1, 1997)

In addition to all other requirements for proper boat waste collection and disposal, all new marinas (constructed after January 1, 1997) shall provide the following:

a. A dockside sewer connection for each slip proposed for liveaboard boats.

b. Required number of boat waste collection device(s) in accordance with Appendix A

V. COMPLIANCE

State of Oregon. The penalty for deliberate discharge of raw (untreated) sewage into federal Navigable Waters or sole State Waters from any kind of structure, recreational boat, or commercial vessel while operating or moored is a Class B felony, ORS 468.946 Water Pollution in the First Degree.

U.S. Coast Guard. The penalty for deliberate discharge of raw (untreated) sewage into federal Navigable Waters from any kind of recreational boat or commercial vessel is a minimum $1,000 civil penalty

Report violations - federal Navigable Waters:

Structures:	DEQ
Recreational Boats:	USCG County Sheriff Marine Patrol
Commercial Vessels:	USCG

Report violations - sole State Waters:

Structures:	DEQ
Recreational Boats:	County Sheriff Marine Patrol
Commercial Vessels:	DEQ

VI. INQUIRIES

Inquiries regarding Structures, Floating Homes, Combos and Commercial Vessels on state or federal waters; Sewer Systems contact the Department of Environmental Quality, 2020 S.W. Fourth Aye, Suite 400, Portland, OR 97201. Phone 503-229-5263.

Inquiries regarding Recreational Boats, Houseboats, Liveaboards and Transient Boats on state or federal waters; Grants for Boat Waste Collection Devices contact the Oregon State Marine Board, Boating Facilities Program, 435 Commercial St N.E., Salem, Oregon 97310. Phone 503-378-8587.

Inquiries regarding Commercial Vessels and Recreational Boats operating on federal Navigable Waters; MSD Requirements contact the U.S. Coast Guard, Marine Safety Office Group Portland, 6767 N. Basin Ave, Portland, OR 97217. Phone 503-240-9301.

OSMB/DO Revised 9/3/96

APPENDIX "A"

Guidelines for Determining Number of Boat Waste Collection Devices Required at Marinas and Moorages

Use Step 1 to determine the estimated number of recreational boats with Type III holding tanks.

Use Step 2 to determine number of boat pumpout or portable toilet dump stations required.

Step 1 Determine estimated number of recreational boats with Type III MSD holding tanks or portable toilets. If number of boats with Type III MSD holding tanks and portable toilets is known skip to Step 2.

A. Determine total number boats by overall length of boat if occupied or length of slip if unoccupied. Include all slips: annual/seasonal boats, weekly and transient (guest) boats and boathouse units. Use length categories below. Count separately all liveaboard boats.

Boat Length Categories:

Less than 16 ft

16 to 26 ft

26 to 40 ft

Over 40 ft

B. To determine the estimated number of boats with Type III holding tanks and portable toilets use the average percentage by category as follows:

	Portable Toilets	**Type III Holding Tanks**
Less than 16 ft	0%	0%
16 to 26 ft	25%	0%
26 t o40 ft	0%	75%
Over4Ofl	0%	100%

Note: Adjustments may be made to certain boat categories to account for predominant small boat, large boat, or sailboat marinas or moorages that have boats with marine toilets or portable toilets.

Step 2 Determine number of boat waste collection devices required to include boat pumpout (stationary or portable) and portable toilet dump stations.

A. Annual/Seasonal and Transient Boats

Note: Adjustments may be made to number of pumpouts required to account for any dockside sewage connections, mobile pumpout service etc.

Number of Boats With Holding Tanks	Number of Boat Pumpouts Required
less than 25	None*
25 -300	1
300-600	2
Over 600	3 plus 1 for each 300 boats

Estimated Number of Boats With Portable Toilets	Number of Boat Dump Stations Required
less than 25	None*
25 -300	1
300-600	2
over 600	3 plus 1 for each 300 boats

* only applicable to marinas with small numbers of boats with Type III MSDs that jointly "share" (within 2 mile radius) a pumpout or dump station open for public use.

B. Liveaboard Boats

Note: Adjustments may be made to number of pumpouts required to account for any dockside sewage connections, mobile pumpout service, restrooms etc.

Number of Boats With Holding Tanks	Number of Boat Pumpouts Required
1-25	1
25	2
Over 50	3 plus 1 for each 25 boats

Estimated Number of Boats With Portable Toilets	Number of Boat Dump Stations Required
1-25	1
25-50	2
Over 50	3 plus 1 for each 25 boats

Tenmile Lakes Watershed WQMP

APPENDIX N - FUNDING SOURCES

Funding program information can be viewed at the Environmental Finance Center Network (EFCN) website. It should be noted that the links shown in the table below, although chosen for their relevance, are not an exhaustive list. For a complete listing, please visit the following searchable web-site:

HTTP://EFC.BOISESTATE.EDU/INDEX.ASP

Program Name	Overview
Watershed Restoration Grant Program, OWEB	OWEB focuses on projects that approach natural resources management from a whole-watershed perspective. OWEB encourages projects that foster interagency cooperation, include other sources of funding, provide for local stakeholder involvement, include you t...
Nonpoint Source Implementation Grant (319) Program – Oregon	Section 319 of the 1987 Clean Water Act authorizes grants for implementation of nonpoint source pollution control programs and projects to help protect or improve water quality. The Department of Environmental Quality, the state agency authorized to carry…
Hatfield Restoration Program, Oregon	Former U.S. Senator Mark O. Hatfield established the Upper Klamath Basin Working Group (UKBWG) to address ecosystem restoration and water quality, economic stability, and drought impacts. Funding is available for projects which address watershed restorati...
Braemar Charitable Trust	The Trust supports economic development, resource conservation and volunteer services. Trust Management Services, LLC (TMS) was organized to contract with, assist and better prepare Charitable organizations to make sound funding decisions and maximize re...
Bullitt Foundation - Aquatic Ecosystems Program	The mission of The Bullitt Foundation is to protect, restore, and maintain the natural physical environment of the Pacific Northwest for present and future generations. The Foundation invites proposals from nonprofit organizations that serve Washington, O...
Oregon Resource Conservation Act	The ORCA of 1996 was established to support land owners and managers in improving ecological conditions in the Klamath Basin. The emphasis of ecosystem restoration is to encourage projects in at least one of three categories: (1) ecological restoration (2)...
Landowner Workshop Program, Oregon Department of Agriculture	The Landowner Workshop Program provides funding to Oregon's Soil & Water Conservation Districts (SWCD) for informational and educational workshops. Up to $3,000 is available per SWCD for one-day workshops that further goals of developing and maintaining h...
Bullitt Foundation - Conservation and Stewardship in Agriculture Program	The mission of The Bullitt Foundation is to protect, restore, and maintain the natural physical environment of the Pacific Northwest for present and future generations. The Foundation invites proposals from nonprofit organizations that serve Washington, O...

Program Name	Overview
National Organic Certification Cost-Share Program - Oregon	The 2002 Farm Bill provides funding to assist with the costs of organic certification. Funding has been extended. Producers or handlers certified by USDA accredited certifiers between October 1, 2004 and September 30, 2008 are eligible to receive reimbu...
Small Grant Program, Oregon Department of Agriculture	Each of the 45 Soil & Water Conservation Districts in the state of Oregon are eligible to receive $5,000 for projects which they may then choose to use to partner with local organizations. Eligible projects are those that encourage Districts to involve co...
Noxious Weed Control Grant, Oregon	The Oregon State Weed Board (OSWB) has approximately one million dollars available during the 2001-2003 biennium for funding noxious weed control projects. It is a priority of the OSWB to fund projects that restore, enhance, or protect fish and wildlife h…
Pollution Prevention Incentives for States	This EPA grant program provides project grants to states to implement pollution prevention projects. This program is focused on institutionalizing multimedia (air, water, land) pollution prevention as an environmental management priority, establishing pr…
Pollution Prevention Incentives for States – Oregon	This EPA grant program provides project grants to states to implement pollution prevention projects. This program is focused on institutionalizing multimedia (air, water, land) pollution prevention as an environmental management priority, establishing pre…
Pollution Control Facilities Tax Credit (Oregon)	Any Oregon taxpayer that makes an investment in a pollution control facility may qualify for a tax credit. Oregon provides corporate tax credits to companies that utilize pollution control technologies or facilities that meet or exceed requirements of the…
Solid Waste Program Grants, Oregon DEQ	The Oregon Department of Environmental Quality (DEQ) awards grants each year to local governments for recycling and solid waste prevention or reduction projects, including household hazardous waste planning and facilities. Grant funds come from part of th…
Access & Habitat Program, Oregon Department of Fish & Wildlife	To qualify for A&H funding, a project must improve wildlife habitat and/or increase public hunting access to private land. A&H activities are designed to be grassroots in nature and encourage cooperative working relationships….

Program Name	Overview
Fish Restoration & Enhancement Program, Oregon Dept. of Fish & Wildlife	Public or private nonprofits may request R&E funds for a wide range of potential fish restoration or enhancement projects. Rural and urban projects and both small and large projects are eligible as long as recreational and/or commercial fisheries benefit….
Fish Screen Construction Program, U.S. Fish & Wildlife Service	In November of 2000, Congress passed and the President signed into law the Fish Restoration and Irrigation Mitigation Act (FRIMA). This new law, Public Law 106-502, created a voluntary, cost-shared fish screen construction program for water withdrawal pro...
Salmon-Trout Enhancement Program, Oregon	STEP was established to provide volunteer opportunities to aid in the restoration of native salmon, steelhead, and trout populations. The Salmon-Trout Enhancement Program Public Advisory Committee (STAC) sponsors small projects designed to increase partic...
Forest Legacy Program - Oregon	The Forest Legacy Program is a federal program that works in partnership with states to protect environmentally important private forest lands from conversion to non-forest uses. The Oregon Department of Forestry uses funds to acquire development rights i...
Forest Resources Trust, Oregon Department of Forestry	The FRT program is designed to encourage landowners to establish and maintain healthy forests on underproducing forestlands - lands capable of growing forests but currently in brush, cropland, pasture, or very poorly stocked. ...
Richard King Mellon Foundation	The Richard King Mellon Foundation makes grants for such purposes as, in the judgment of the Trustees, will be "in the public interest." Priorities included regional economic development, the quality of life in southwestern Pennsylvania, and national land...
Conservation Fund (The)	The Conservation Fund forges partnerships with other groups to protect America's land and water resources. The Fund's three main program areas are land acquisition, sustainable programs and leadership training. The actual programs offered vary from year...
Forest Stewardship Program, Oregon Department of Forestry	The FSP is founded upon the principle that natural resource management can best serve landowners and the public by taking a multiple resource approach to managing non-industrial private forest (NIPF) lands. The FSP brings professional natural resource man...

Program Name	Overview
National Forest Foundation - Matching Awards Program	The NFF Matching Awards Program encourages community involvement in the stewardship of national forest lands through the formation of goal-oriented partnerships. A common thread connecting NFF's four areas of emphasis -- Collaborative Stewardship, Watersh...
Secure Rural Schools & Community Self-Determination	The Secure Rural Schools and Community Self-Determination Act of 2000 (the Act), also known as the County Payments Program, establishes a five-year payment schedule to local counties in lieu of funds derived from the harvest of timber on federal lands. Ti...
Urban & Community Forestry Program - Oregon	The ODF Urban and Community Forestry Program is offered in partnership with the U.S. Forest Service and is designed to help cities plant, care, and manage the trees in their communities. On-site…
Conservation Security Program (CSP), U.S. Natural Resources Conservation Service	This program is a voluntary program that provides financial and technical assistance for the conservation, protection, and improvement of soil, water, air, energy, plant and animal life, and other conservation purposes on Tribal and private lands. The ...
Stewardship Incentive Program	The Stewardship Incentive Program (SIP) provides cost-share support for non-industrial private forest landowners to help them develop and implement their Forest Stewardship Program Plans. SIP supports a wide range of forest management activities including...
Coastal Zone Management Administration/Implementation Awards - Oregon	This program assists states in implementing and enhancing Coastal Zone Management (CZM) programs. Funds are available for projects in areas such as coastal wetlands management and protection, natural hazards management, public access improvements, reducti...
Coastal Zone Management Administration/Implementation Awards, NOAA	This program assists states in implementing and enhancing Coastal Zone Management (CZM) programs. Funds are available for projects in areas such as coastal wetlands management and protection, natural hazards management, public access improvements, reducti...
Scenic Byways Program - Oregon	The Transportation Equity Act for the 21st Century (TEA-21) makes discretionary funds available to undertake eligible projects along highways designated as National Scenic Byways, All-American Roads, or State scenic byways. The Federal Highway Administra...

Program Name	Overview
Conservation Reserve Enhancement Program, Oregon Watershed Enhancement Board	The Conservation Reserve Enhancement Program (CREP) is a joint state-federal land retirement conservation program targeted to improve the water quality of streams providing habitat for salmon and trout species listed under the Federal Endangered Species A...
Coastal Planning Assistance Grants, Oregon	Cities and counties in Oregon's coastal zone are eligible for planning assistance grants from the Oregon Coastal Management Program in the Department of Land Conservation and Development (DLCD). These grants are supported by federal funds awarded to Orego...
Drinking Water Protection Loan Fund (DWPLF) - Oregon	The Safe Drinking Water Act, as amended in 1996, established the Drinking Water State Revolving Fund (DWSRF) to make funds available to drinking water systems to finance infrastructure improvements. The program also emphasizes providing funds to small and...
Environmental Justice Grants Small Grant Program, EPA	The purpose of this grant program is to provide financial assistance that will support and empower community-based organizations that are working on local solutions to local environmental and/or public health problems. In addition, the applicant must demo...
Assessment and Watershed Protection Grants, EPA	Assessment and Watershed Protection Program Grants (AWPPGs) provide eligible applicants an opportunity to conduct projects that promote the coordination and acceleration of research, investigations, experiments, training, demonstrations, surveys, and stud...
Ellis L. Phillips Foundation, Philip Morris Companies	Philip Morris (PM) is a large conglomerate which includes companies such as Kraft Foods and Miller Brewing Company. PM also manufactures of a variety of tobacco products. PM's grantmaking program focuses on agriculture and food resources, water conservati..
Five-Star Restoration Program, EPA	The Five Star Restoration Program brings together students, conservation corps, other youth groups, citizen groups, corporations, landowners and government agencies to provide environmental education and training through projects that restore wetlands and...
Small Grant Program	The small grant program responds to a need for local decision making about restoration priorities, on a shorter timeframe than provided under OWEB's current program. The program enables up to 28 small grant teams around the state made up of local soil and...

Program Name	Overview
Environmental Management on Indian Lands, Bureau of Indian Affairs	This program provides funds to improve environmental management in Indian Country and at BIA facilities, under all environmental statutes, including hazardous waste handling, drinking and wastewater systems, solid waste management, fuel storage in under- ...
Section 203: Tribal Partnership Program	Section 203 of the Water Resources Development Act of 2000 provides authority for a Tribal Partnership Program (TPP). The provision allows the Corps to work collaboratively with Federally recognized American Indian and Alaska Native tribal governments (tr...
Water Resources on Indian Lands, Bureau of Indian Affairs	This program assists Indian tribes with the management, planning, protection, and development of their water resources and related land resources....
Challenge Cost Share, Bureau of Land Management	Challenge Cost Share (CCS) Funds are appropriated funds that may be used to pay for no more than 50% of CCS projects on Bureau of Land Management (BLM) lands. The matching 50% of the cost share project is provided by non-federal sources, state/local gover...
National Wildlife Refuge Challenge Cost Share Program	National Wildlife Refuge Challenge Cost Share Program provides funds for USFWS Refuge properties and limited financial and technical assistance to private landowners for enhancing or restoring degraded or converted wetlands, riparian areas or other critic...
Urban and Community Forestry Challenge Cost-Share Grants, USFS	The U.S. Forest Service's Urban and Community Forestry Challenge Cost-Share Grant Program seeks to establish sustainable urban and community forests by encouraging communities to manage and protect their natural resources. The program works to achieve ...
Wyden Amendment	In 1997 Public Law 104-208, Watershed Restoration and Enhancement Agreements, was placed into law. Commonly referred to as the "Wyden Amendment" this legislation provides the authority for both the USFS and BLM to enter into cooperative agreements with pu...
Planning/Technical Assistance Program	This program allows the Bureau of Reclamation to assist Tribal, local, state, and other federal agencies, water users, irrigation districts, watershed councils, and environmental groups in their efforts to address water, land, and other natural resource m...

Program Name	Overview
Water Quality Special Research Grants Program, CREES	This program is targeted directly to the identification and resolution of agriculture-related degradation of water quality. Eligible proposals will provide watershed-based information that can be used to assess sources of water quality impairment in targe...
Brownfields Assessment Pilot Grant, EPA	Assessment grants provide funding for a grant recipient to inventory, characterize, assess, and conduct planning and community involvement related to brownfield sites. Assessment Grants provide: * Up to $200,000 to assess a site contaminated by hazard...
Brownfields Cleanup Revolving Loan Fund Pilots, EPA	EPA's brownfield initiative helps communities revitalize brownfields both environmentally and economically, mitigate potential health risks, and restore economic vitality to areas where brownfields exist. EPA defines brownfields as abandoned, idled, or un...
Brownfields Job Training and Development Pilots, EPA	EPA's brownfield initiative helps communities revitalize brownfields both environmentally and economically, mitigate potential health risks, and restore economic vitality to areas where brownfields exist. EPA defines brownfields as abandoned, idled, or un...
Chemical Emergency Preparedness and Prevention Technical Assistance Grants, EPA	The CEPP program provides financial assistance to states, local agencies, and Indian Tribes for (1) chemical accident prevention activities that relate to the Risk Management Program under the Clean Air Act Section 112(r), (2) chemical emergency planning,...
Drinking Water SRF Tribal Set-Aside Program, EPA	EPA sets aside 1.5 percent of the total Drinking Water State Revolving Fund (DWSRF)allocation for infrastructure improvements for public drinking water systems that serve Tribes. Eligible projects include efforts to rehabilitate or develop sources (exclud...
Andrew W. Mellon Foundation	The Andrew W. Mellon Foundation currently makes grants in five core program areas: higher education, museums and art conservation, performing arts, conservation and the environment, and public affairs. The Foundation's environmental program emphasis cha...

Program Name	Overview
Brainerd Foundation, Communications & Capacity Building Program	The Brainerd Foundation's mission is to protect the environmental quality of the Pacific Northwest and to build broad citizen support for environmental protection. The Foundation accomplishes this by making grants, providing value-added guidance, and leve...
Environmental Education Grants Program, EPA	The purpose of the Environmental Education Grants Program (EEG) is to provide financial support for projects that design, demonstrate, or disseminate environmental education practices, methods, or techniques. Projects must focus on one of the following: ...
Acorn Foundation/Common Counsel Foundation	Grants typically range from $5,000 to $10,000 and are for general support funding. Most grants are made for one year and provide general support funding. The majority of grants are made to organizations with annual budgets under $400,000 and whose sta...
Environmental Justice Collaborative Problem-Solving Cooperative Agreement Program, EPA	The purpose of the Environmental Justice Collaborative Problem-Solving (CPS) Grant Program is for EPA to provide financial assistance to community-based organizations to utilize the Environmental Justice Collaborative Problem-Solving Model to address one ...
Environmental Quality Incentive Program, USDA, Natural Resources Conservation Service	The Environmental Quality Incentives Program (EQIP) was established to provide a single, voluntary conservation program for farmers and ranchers to address significant natural resource needs and objectives. Nationally, it provides technical, financial, an...
Indian Environmental General Assistance Program (GAP) Grants, EPA	Provides grants to build tribal capacity to administer environmental regulatory programs or to provide technical assistance to address environmental issues on tribal lands. Projects that have been funded include environmental assessments…
Pesticide Environmental Stewardship Grants	The Pesticide Environmental Stewardship project grants are administered by the National Foundation for Integrated Pest Management Education (NFIPME) through a cooperative agree…

Program Name	Overview
Ruth H. Brown Foundation	The Foundation focuses to make environmental and population grants. The Foundation focuses on protection of critical land and wildlife resources, public education programs in awareness of critical environmental issues facing the region and energy conservation…
First Nations Development Institute - Grants	First Nations Grantmaking provides both financial and technical resources to tribes and Native non-profit organizations to support asset-based development efforts that fit within the culture and are sustainable. The department offers support through the E...
Coastal Services Center Cooperative Agreements, NOAA	The National Oceanic and Atmosphereic Administration (NOAA) guides the conservation and management of coastal resources through a variety of mechanisms, including collaboration with the coastal resource managements programs of the nation' states, and terr...
National Estuary Program, EPA	The National Estuary Program (NEP) was established in 1987 by amendments to the Clean Water Act to identify, restore, and protect nationally significant estuaries of the United States. The NEP encourages local communities to take responsibility for managi...
Science to Achieve Results Program	The Science to Achieve Results (STAR) program is designed to improve the quality of science used in EPA's decision-making process. STAR funds are provided for research in the following six areas: (1) Safe Drinking Water (includes source water protection),...
Superfund Technical Assistance Grants, EPA	The EPA awards funds to qualified groups of individuals to procure independent technical advisors to help in interpreting and commenting on Superfund site-related information and decisions. Examples of how a technical advisor can help a group include, but...
Targeted Watershed Grant Program, EPA	EPA will ask Governors and tribal leaders for nominations and select up to 20 watershed organizations to receive grants to support innovative watershed based approaches to preventing, reducing, and eliminating water pollution. Nominations that are likely ...

Program Name	Overview
Wetlands Program Development Grants, EPA	The Wetland Program Development Grants provide financial assistance to states, federally recognized Indian tribes, and local governments to support development of new, or augmentation and enhancement of existing wetland programs....
Brainerd Foundation, Endangered Ecosystems Program	The Brainerd Foundation's mission is to protect the environmental quality of the Pacific Northwest and to build broad citizen support for environmental protection. We accomplish this by making grants, providing value-added guidance and leveraging addition...
Conservation Reserve Program, USDA - Farm Service Agency	The Conservation Reserve Program is a voluntary program that offers long-term rental payments and cost-share assistance to establish long-term, resource-conserving cover on environmentally sensitive cropland or, in some cases, marginal pastureland. The pr...
Direct and Guarenteed Farm Loans, U.S. Farm Service Agency	The Farm Service Agency (FSA) makes direct and guaranteed farm ownership and operating loans family-size farmers and ranchers who cannot obtain commercial credit from a bank, Farm Credit System institution, or other lender. FSA loans can be used to purch...
Emergency Conservation Program, USDA, Farm Assistance Agency	The ECP provides financial assistance to farmers and ranchers for the rehabilitation of farmlands damaged by floods, drought, or other natural disasters. ECP provides funds for carrying out emergency water conservation measures during periods of severe dr...
Emergency Watershed Protection Program, USDA, Natural Resources Conservation Service	The Emergency Watershed Protection Program provides financial and technical assistance available upon a declaration by the state conservationist; when a federal emergency is declared by the President or when the Secretary of Agriculture makes a drought di...
Flood Mitigation Assistance Program, FEMA	FMA provides funding to assist States and communities in implementing measures to reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insurable under the National Flood Insurance Program (NFIP). Th...

Program Name	Overview
D.I.R.T. (Direct Impact on Rivers and Trails) Program, PowerBar, Inc.	PowerBar's D.I.R.T. Program supports efforts to protect endangered land and rivers from development and environmental degradation which threaten recreational use and public enjoyment. Specifically, PowerBar supports projects that seek to preserve the natu...
Watershed Protection and Flood Prevention Program, NRCS	Also known as the 'Watershed Program' or the 'PL 566 Program,' this program provides technical and financial assistance to address water resource and related economic problems on a watershed basis. Projects related to watershed protection, flood mitigatio...
Jessie Smith Noyes Foundation	The Jessie Smith Noyes Foundation is committed to protecting and restoring Earth's natural systems and promoting a sustainable society by strengthening individuals, institutions, and communities pledged to pursue those goals....
Bullitt Foundation - Growth Management and Transportation Program	The mission of The Bullitt Foundation is to protect, restore, and maintain the natural physical environment of the Pacific Northwest for present and future generations. The Foundation invites proposals from nonprofit organizations that serve Washington, O...
Bring Back the Natives, National Fish and Wildlife Foundation	The Bring Back the Natives initiative (BBN) funds on-the-ground efforts to restore native aquatic species to their historic range. Projects should involve partnerships between communities, agencies, private landowners, and organizations that seek to rehab...
Challenge Grants for Conservation, National Fish and Wildlife Foundation	The primary goal of the program is to support model projects which positively engage private landowners, primarily farmers and ranchers, in the conservation and enhancement of wildlife and natural resources on their land....
Wildlife Forever	Grants from Wildlife Forever are targeted for habitat restoration and acquisition, research and management, and educational projects....

Program Name	Overview
Pacific Grassroots Salmon Initiative, National Fish and Wildlife Foundation	The PGSI seeks to catalyze and support salmon-friendly activities at the local, grassroots level in west-coast states. The initiative will benefit native anadromous fishes and their aquatic and riparian habitats through protection and restoration projects...
BLM Learnng Landscapes - Oregon & Washington	Website that presents learning opportunities associated with the 262 million acres of public lands that BLM manages for all Americans. We have gathered information for students, teachers and adult learners to use both in the classroom, in informal outdoor...
Charla Richards Kreitzberg Charitable Foundation	Charla Richards Kreitzberg Charitable Foundation offers assistance for efforts to protect the world in which we live in, these efforts include Environmental Soundness and Quality of Life....
Farm Legacy Program, American Farmland Trust	The Farm Legacy Program can help to preserve wetlands located on agricultural lands. This program encourages aging farmers or ranchers who do not have heirs interested in owning and operating their farms to donate their lands to the American Farmland Tru...
Landowner Incentive Grant Program - (Non - Tribal)	The U.S. Fish and Wildlife Service's Landowner Incentive Program (LIP) grant program provides competitive matching grants to states, territories, and the District of Columbia to establish or supplement landowner incentive programs. These programs provide ...
Forest Land Enhancement Program, USDA, U.S. Forest Service	The Forest Service's Forest Land Enhancement Program (FLEP) replaces the Forestry Incentives Program and Steward Incentives Program. The program provides financial, technical, educational, and related assistance to State Foresters or equivalent agencies t...
Fish, Wildlife, and Parks Programs on Indian Lands, Bureau of Indian Affairs	This program provides funding for Tribes to address fish, wildlife, and outdoor recreation issues and participate in associated resource management planning and other activities with their State and Federal counterparts. To promote the conservation, deve...

Program Name	Overview
Plum Creek Foundation Grants	The Plum Creek Foundation is the major channel of philanthropy for Plum Creek Timber Company, Inc. and its subsidiaries. The Plum Creek Foundation has been established to provide a philanthropic contribution program to support and improve the general welf...
Priority Planning Project Grants	Cities and counties in Oregon's coastal zone are eligible for planning assistance grants from the Oregon Coastal Management Program in the Department of Land Conservation and Development (DLCD). These grants are supported by federal funds awarded to Orego...
Resource Conservation and Development (RC&D) Program, NRCS	The purpose of the Resource Conservation and Development (RC&D) program is to accelerate the conservation, development and utilization of natural resources, improve the general level of economic activity…
Section 22: Planning Assistance to the States Program (PAS)	Section 22 of the Water Resources Development Act of 1974, as amended, provides authority for the Corps of Engineers to assist the states, local governments, and other non-federal entities in the…
Small-Scale Construction or Acquisition (Section 306A), Oregon	Cities and counties in Oregon's coastal zone are eligible for planning assistance grants from the Oregon Coastal Management Program in the Department of Land Conservation and Development (DLCD). These grants are supported by federal funds awarded to Oregon…
Town Creek Foundation	The Foundation supports programs that engage citizens in challenging the unsustainable use of natural resources and in protecting biological diversity. Strategies supported are grassroots activism, monitoring …
Wildlife Habitat Incentives Program (WHIP), NRCS	The Wildlife Habitat Incentives Program (WHIP) is a voluntary program for people who want to develop and improve wildlife habitat on private lands. It provides both technical assistance and cost sharing to help …

Program Name	Overview
Wetlands Reserve Program (WRP), NRCS	The Wetlands Reserve Program is a voluntary program offering landowners the opportunity to protect, restore, and enhance wetlands on their property. The USDA Natural Resources Conservation Service (NRCS) provides technical and financial support to help l...
Section 204: Environmental Restoration Projects in Connection with Dredging	Section 204 of the Water Resources Development Act of 1992, as amended, provides authority for the Corps of Engineers to restore, protect, and create aquatic and wetland habitats in connection with construction or maintenance dredging of an authorized pro...
Floodplain Management Services Program, U.S. Army Corps of Engineers	Section 206 of the Flood Control Act of 1960, as amended, provides the authority for this program. Its objective is to foster public understanding of the options for dealing with flood hazards and to promote prudent use and management of the Nation's floo...
Section 306: General Investigation Studies for Environmental Restoration	Section 306 of the Water Resource Development Act of 1990 includes environmental protection as one of the primary missions of the Army Corps of Engineers (ACOE). As such, the ACOE may undertake studies and build projects for environmental restoration and...
Section 1135: Project Modifications to Improve the Environment	Section 1135 of the Water Resources Development Act of 1986, as amended, provides authority for the Corps of Engineers to restore degraded ecosystems. If the construction or operation of a Corps of Engineers project has contributed to the degradation of t...
Section 206: Aquatic Ecosystem Restoration Program	Section 206 of the Water Resources Development Act of 1996, provides authority for the Corps of Engineers to construct aquatic ecosystem restoration and protection projects. Such projects will usually include manipulation of the hydrology in and along bod...
American Land Conservancy Program	The American Lands Conservancy works in close partnership with communities, private landowners, local land trusts, public lands agencies, and elected officials to create effective conservation solutions for the threatened land and water…

Program Name	Overview
National Coastal Wetlands Conservation Grant Program, U.S. Fish & Wildlife Service	The U.S. Fish and Wildlife Service's National Coastal Wetlands Conservation Grant Program provides matching grants to states and territories for coastal wetland conservation projects. Funds may be used for acquiring land or conservation easements, restora..
North American Wetlands Conservation Act Grants Program, U.S. Fish & Wildlife Service	The U.S. Fish and Wildlife Service's Division of Bird Habitat Conservation administers this matching grants program to carry out wetlands and associated uplands conservation projects in the United States, Canada, and Mexico. Conservation activities suppor...
Habitat Conservation - Partners for Fish and Wildlife Program, U.S. Fish & Wildlife Service	This program provides technical assistance to the private sector to maximize wildlife conservation. To pursue opportunities and cooperative efforts with other government agencies and private partnerships to protect, restore, and enhance fish and wildlife...
Private Stewardship Grant Program	The Private Stewardship Program provides grants and other assistance on a competitive basis to individuals and groups engaged in local, private, and voluntary conservation efforts that benefit federally listed, proposed, or candidate species, or other at-...
National Sea Grant College Program	The National Sea Grant College Program encourages the wise use and stewardship of marine resources and coastal environment through research, education, outreach and technology transfer. Sea Grant is a partnership between the nation's universities and the...
Emergency Community Water Assistance Grant Program, USDA - Rural Development	Provides emergency community water assistance, to obtain adequate quantities of water that meet the standards set by the Safe Drinking Water Act, for residents in rural areas that have experienced a significant decline in water quantity or quality. ...
Rural Community Assistance Program, USFS	The U.S. Forest Service is committed to strengthening rural America through forest resources and related natural resource opportunities through working in partnership with others in both the public and private sector. This program emphasizes helping commu...