Chapter 7
Water Quality Management Plan (WQMP)

BACKGROUND

A Total Maximum Daily Load (TMDL) defines the amount of a pollutant that can be present in a waterbody without causing water quality criteria to be exceeded. In December 2002 the State of Oregon's Environmental Quality Commission (EQC) adopted Oregon Administrative Rule (OAR) Chapter 340, Division 42, commonly referred to as the TMDL rule. The rule defines ODEQ's responsibilities for developing, issuing, and implementing TMDLs as required by the federal Clean Water Act (CWA).

A Water Quality Management Plan is one of the 12 TMDL elements called for in the TMDL rule. OAR 340-042-0040-(4)(l) states:

> *(l) Water quality management plan (WQMP). This element 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.*

ODEQ developed this Water Quality Management Plan (WQMP) to describe the overall framework for implementing the Molalla-Pudding Subbasin TMDL. It includes a description of activities, programs, legal authorities and other measures for which ODEQ and other designated management agencies (DMAs) have regulatory responsibility. A DMA is "a federal, state or local governmental agency that has legal authority of a sector or source contributing pollutants, and is identified as such by the Department of Environmental Quality in a TMDL." TMDL implementation activities will be carried out under existing regulatory authorities, programs and water quality restoration plans as well as by TMDL implementation plans that certain DMAs will develop in fulfillment of the requirements of this TMDL.

TMDLs, the WQMP, and associated implementation plans and activities are designed to restore water quality to comply with water quality standards. In this way designated beneficial uses, such as aquatic life, drinking water supplies, and water contact recreation, will be protected.

PURPOSE

The requirements of a WQMP are stipulated in the TMDL rule (OAR 340-042-0040-(4)(l)). These elements, listed below, serve as the outline for this WQMP.

A. Condition assessment and problem description
B. Goals and objectives
C. Proposed management strategies
D. Timeline for implementing management strategies
E. Relationship of management strategies to attainment of water quality standards
F. Timeline for attainment of water quality standards
G. Identification of responsible participants or DMAs
H. Identification of sector-specific implementation plans
I. Schedule for preparation and submission of implementation plans
J. Reasonable assurance
K. Monitoring and evaluation
L. Public involvement
M. Planned efforts to maintain management strategies over time
N. Costs and funding
O. Citation to legal authorities

ELEMENTS OF THE WQMP

(A) CONDITION ASSESSMENT AND PROBLEM DESCRIPTION

Condition assessment and problem description are presented in Chapter 1 of this TMDL. Table 7 - 1 lists the 303(d) listed water bodies and others found to be impaired, and the water quality criteria exceeded.

Table 7 - 1: Name and location of 303(d) listed waterbodies in the Molalla-Pudding Subbasin waterbodies and others found to be impaired.

Water Body	Listed River Mile	Parameter	Season – Criteria	Assessment Year	Action
Beaver Creek	0 to 6.8	Temperature	Year Around (Non-spawning) – Core cold water habitat: 16.0 ºC.	2004	TMDL Completed
Butte Creek	11.9 to 35.6	Temperature	Year Around (Non-spawning) – Core cold water habitat: 16.0 ºC.	2004	TMDL Completed
Drift Creek	0 to 9.5	Temperature	Year Around (Non-spawning) – Salmon and trout rearing and migration: 18.0 ºC.	2004	TMDL Completed
Little Pudding River	0 to 18.3	DDT	Year Around	Previously Unlisted	TMDL Completed
Molalla River	0 to 25	Fecal Coliform	Fall/Winter/Spring	1998	Delisted 2004, but still showing impairment TMDL Completed
Molalla River	19.7 to 44.7	Temperature	August 15 – June 15 – Salmon and steelhead spawning: 13.0 ºC.	2004	TMDL Completed
Molalla River	18.2 to 48.3	Temperature	Year Around (Non-spawning) – Core cold water habitat: 16.0 ºC.	2004	TMDL Completed
Molalla River	0 to 25	Temperature	Summer	1998	Delisted 2004, but still showing impairment TMDL Completed
Pine Creek	0 to 7.2	Temperature	Year Around (Non-spawning) – Core cold water habitat: 16.0 ºC.	2004	TMDL Completed
Pudding River	0 to 35.4	DDT	Year Around	1998	TMDL Completed
Pudding River	0 to 35.4	Dieldrin	Year Around	Previously Unlisted	TMDL Completed
Pudding River[1]	0 to 35.4	*E. Coli*	Fall/Winter/Spring	2004	TMDL Completed
Pudding River	0 to 35.4	Fecal Coliform	Summer	1998	Delisted 2004, but still showing impairment TMDL Completed
Pudding River	0 to 35.4	Iron	Year Around	2004	TMDL Completed
Pudding River	0 to 35.4	Manganese	Year Around	2004	Recommended for Delisting
Pudding River	0 to 61.8	Temperature	Year Around (Non-spawning) Salmon and trout rearing and migration: 18.0 ºC.	2004	TMDL Completed
Silver Creek	0 to 5.9	Fecal Coliform	Summer	1998	TMDL Completed
Silver Creek	0 to 5.9	Temperature	Summer -- Rearing: 17.8 ºC.	1998	TMDL Completed
South Fork Silver Creek	0 to 7	Temperature	Year Around (Non-spawning) - Salmon and trout rearing and migration: 18.0 ºC.	2004	TMDL Completed
Table Rock Fork Molalla River	0 to 8.3	Temperature	August 15 - June 15 -- Salmon and steelhead spawning: 13.0 ºC.	2004	TMDL Completed

[1] A 1998 listing for Pudding River (River Mile 0 to 35.4) for fecal coliform in fall/winter/spring is not included in Table 1-1 because the 2004-06 listing for E. coli applies to the same reach and season.

Table 7 -1: Continued.

Water Body	Listed River Mile	Parameter	Season – Criteria	Assessment Year	Action
Table Rock Fork Molalla River	0 to 12	Temperature	Year Around (Non-spawning) -- Core cold water habitat: 16.0 ºC.	2004	TMDL Completed
Teasel Creek	0 to 6.3	Temperature	Year Around (Non-spawning) -- Salmon and trout rearing and migration: 18.0 ºC.	2004	TMDL Completed
West Fork Little Pudding River	0 to 5.1	Dissolved Oxygen	January 1 - May 15	2004	Not addressed
West Fork Little Pudding River	0 to 5.1	*E. Coli*	Fall/Winter/Spring	2004	TMDL Completed
Zollner Creek	0 to 7.8	Arsenic	Year Around	2004	Recommended for Delisting
Zollner Creek	0 to 7.8	Chlordane	Year Around	2002	TMDL Completed
Zollner Creek	0 to 7.8	Dieldrin	Year Around	2002	TMDL Completed
Zollner Creek	0 to 7.8	DDT	Year Around	Previously Unlisted	TMDL Completed
Zollner Creek	0 to 7.8	Fecal Coliform	Fall/Winter/Spring	1998	TMDL Completed
Zollner Creek	0 to 7.8	Fecal Coliform	Summer	1998	TMDL Completed
Zollner Creek	0 to 7.8	Iron	Year Around	1998	TMDL Completed
Zollner Creek	0 to 7.8	Manganese	Year Around	1998	Recommended for Delisting
Zollner Creek	0 to 7.8	Nitrates	Year Around	2002	TMDL Completed
Zollner Creek	0 to 7.8	Temperature	Summer -- Rearing: 17.8 ºC.	1998	TMDL Completed

Water Quality Parameters Addressed

The following Molalla-Pudding Subbasin 303(d) parameters are addressed in this TMDL:

- Temperature
- Bacteria
- Toxics (As, Mn, Fe, dieldrin, chlordane, DDT, nitrate)

Changes to the temperature and bacteria criteria occurred between the earliest subbasin listings (1998) and the most recent listings (2004/2006). *E. coli* replaced fecal coliform as indicator for bacteria criteria compliance in 1996, but 1998 listings were based on data collected before 1996 and, hence, the fecal coliform criteria. The toxics listings include the legacy pesticides, metals (iron, manganese, and arsenic), and nitrate. DEQ did not complete a TMDL for manganese or arsenic but has analyzed the data to explain likely sources; DEQ concluded that manganese and arsenic concentrations observed reflect natural background conditions.

Water Quality Parameters Not Addressed

The dissolved oxygen listing in the West Fork Little Pudding River, listed in the 2004/2006 Integrated Report (May 2006), is not addressed. The timing of this listing did not allow sufficient time to collect the necessary data for a dissolved oxygen TMDL, including intergravel dissolved oxygen that would allow more complete interpretation of the dissolved oxygen criteria. Until TMDLs for dissolved oxygen are developed, riparian protection and restoration measures developed to address stream temperature concerns in the basin will benefit dissolved oxygen levels. Furthermore, water quality restoration efforts to address bacteria listings may also benefit other parameters such as dissolved oxygen.

(B) GOALS AND OBJECTIVES

The overarching goal of this WQMP is to achieve compliance with water quality standards for temperature, bacteria, DDT, iron, chlordane, dieldrin, and nitrate in the Molalla-Pudding Subbasin as addressed through the Molalla-Pudding TMDL.

(C) PROPOSED MANAGEMENT STRATEGIES

The management measures to meet the TMDL load and wasteload allocations differ depending on the source of the pollutant. This section of the plan describes management measures, organized by categories of pollutant sources, which may be used to meet the TMDL load allocations and wasteload allocations. Table 7 - 2 lists general management strategies to address each of the pollutants in the Molalla-Pudding Subbasin TMDL. For each category of pollutant source, Table 7 - 2 identifies which pollutants would be addressed by example management strategies. Each DMA is responsible for source assessment and identification, which may result in additional categories. DMAs are also responsible for identifying the appropriate management strategies to address the sources over which they have jurisdiction.

Trading as a Management Strategy

Water quality trading, or simply trading, is one approach that may be used to achieve water quality goals more efficiently. Trading programs allow regulated parties to meet their obligations by purchasing environmentally equivalent or greater protection from another point or nonpoint source. Trading can be a cost-effective alternative to conventional approaches to achieving compliance with water quality objectives. Trading may also allow a subbasin to achieve water quality improvements more quickly than possible with conventional approaches. In the Molalla-Pudding Subbasin, the pollutant most amenable to trading is temperature.

Trading allows DEQ and stakeholders to look at a watershed holistically. This is important, since the best opportunities for improving water quality and watershed health are not always located at point source outfalls. There may also be ancillary benefits to trading such as the restoration of riparian areas and wildlife habitat.

DEQ intends to encourage and support trading where it will result in a greater benefit to the environment than might be achieved via a conventional regulatory approach. DEQ currently has an established work group whose purpose is to develop an Internal Management Directive (IMD) on Water Quality Trading. The purpose of the IMD is to provide a consistent framework within which trading opportunities can be pursued and implemented, and to identify key features of acceptable trades. DEQ's IMD will be based in part on the 2003 Water Quality Trading Policy developed by EPA[2], and DEQ's experiences to date with trading in Oregon, in particular the authorized temperature and dissolved oxygen trading program in the Tualatin River Subbasin. The IMD will direct staff on acceptable water quality trades between and among point sources and nonpoint sources, but should not be construed as containing requirements of rule or statute.

[2]EPA's Final Water Quality Trading Policy may be viewed at: http://www.epa.gov/owow/watershed/trading/tradingpolicy.html.

Table 7 - 2: Pollutant sources and example management strategies to address TMDL pollutants. Pollutants addressed by each strategy are indicated with a grey box.

Pollutant	Temperature	Bacteria	Pesticides (DDT, dieldrin, chlordane)	Iron	Nitrate
General Strategies	Increase effective shade through riparian restoration and protection; restore natural stream channel hydrology; Increase stream flow.	Reduce sediment delivered to streams by various means including riparian protection, erosion control and stormwater control and treatment; low impact development; various agriculture practices	Reduce sediment delivered to streams by various means including riparian protection, erosion control and stormwater control and treatment, low impact development.	Reduce sediment delivered to streams by various means including riparian protection, erosion control and stormwater control and treatment; low impact development.	Manage fertilization and irrigation to reduce excessive addition of nitrate to groundwater; maintain septic systems; Increase stream flow.

New Construction and Development	Temperature	Bacteria	Pesticides	Iron	Nitrate
Planning, Permitting, Zoning and Development Codes • Develop Low Impact Development Ordinance • Protect buffers, riparian, wetland, and native vegetation areas • Limit increase of impervious areas • Forest conversions follow measures/procedures in MOA	■	■	■	■	
Construction Stormwater Quantity and Quality Control Activities • Use existing open space/landscape areas for stormwater retention and treatment • Maintain post-development peak runoff rate and average volume at levels that are similar to pre-development levels • Porous pavement • Grass swales • Reduce erosion and retain sediment on-site during and after construction		■	■	■	
Education/Inspection/Enforcement • Develop training and education programs for those involved with the design, installation, operation, inspection, and maintenance of erosion and stormwater BMPs • develop schedule of regular and long-term inspection and maintenance		■	■	■	
Existing Urban and Rural Development	■	■	■	■	
Planning, Permitting, Zoning and Development Codes • implement watershed management programs to reduce runoff pollutant concentrations and volumes from existing development • Promote redevelopment by assessing previously contaminated sites		■	■	■	
Stormwater Quantity and Quality Controls, Parking Lots • Implement BMPs to promote infiltration, filtration, retention, and detention • Perform routine maintenance of stormwater systems • Conduct regular street maintenance and sweeping		■	■	■	
Sewers, Septic Systems, Animal Waste • Identify and eliminate illicit discharges and cross connections • Conduct onsite septic systems inspection and maintenance • Develop and implement animal waste controls		■			■
Education and Outreach • Conduct public education and outreach on stormwater • Conduct public education on illegal dumping • Conduct public education on septic system maintenance • Conduct public education on riparian protection and local zoning/ordinances • Conduct public education on landscape design and maintenance	■	■	■	■	■
Monitoring and Reporting • Conduct implementation monitoring and evaluation • Conduct instream and effectiveness monitoring • Provide adequate records and report results	■	■	■	■	■

Table 2 continued	Temperature	Bacteria	Pesticides	Iron	Nitrate
Forestry					
Implement Forest Practices Act and federal resource management plans					
Protection/enhancement of riparian zone, wetlands, seeps, etc. with buffers					
Conduct Pre-harvest Planning					
Replace/Restore Roads/Culverts					
Stabilize Stream Banks					
Onsite Systems Inspections/Maintenance campground facilities					
Uplands Management					
Inspection/Enforcement					
BMP Monitoring and Evaluation					
Instream Monitoring					
BMP Implementation Monitoring					
Education and Outreach to operators and landowners					
Agriculture					
Implement SB 1010 Ag Water Quality Management Area Plans					
Manure, Pasture, and Nutrient Management					
Riparian Protection/Enhancement; Streambank stabilization					
CAFO Program Implementation					
Uplands Management, Plant cover crops on sloping lands or erosion-sensitive areas					
Irrigation management to prevent soil erosion and excess nutrient loss					
Education and Outreach					
BMP Monitoring and Evaluation					
Instream Monitoring					
Conservation tillage					
Pesticide use and management					
Education and Outreach to landowners					
Water Control Districts: flow management to reduce stream heating, erosion, sediment delivery to streams.					
Transportation Roads and Bridges					
Siting and Construction • Prepare a stormwater management plan to ensure that pre- and post-construction stormwater runoff from roads, highways, and bridges is treated prior to discharge to a waterbody • Protect sensitive ecosystems, including wetlands, by minimizing road-building in those systems, minimizing the number of water crossings, and establishing protective measures, including setbacks, during construction					
Stormwater, Erosion, Sediment, and Chemical Control • Develop an approved erosion, sediment, and chemical control plan prior to construction • Implement erosion, sediment, and chemical control plan • Construct runoff management systems to reduce pollutant concentrations in runoff from existing roads, highways, and bridges					
Maintenance and Repair • Develop and implement a plan for a integrated vegetation/roadside maintenance controls • Limit generation of pollutants from maintenance operations by minimizing the use of pesticides, herbicides, fertilizers, deicing salts and other chemicals					

(D) TIMELINE FOR IMPLEMENTING MANAGEMENT STRATEGIES

(a) Schedule for revising permits

TMDL Wasteload Allocations are implemented through National Pollutant Discharge Elimination System (NPDES) permits that ODEQ issues to industrial and municipal point sources that discharge into streams in the Molalla-Pudding Subbasin. NPDES permits are issued for five years and are revised as appropriate upon renewal. Following approval of the Molalla-Pudding TMDL, new and renewed permits will incorporate TMDL waste load allocations for temperature and bacteria.

(b) Schedule for achieving appropriate incremental and measurable WQ targets

Depending on the pollutant, cause, and source of that pollutant, it may take several TMDL iterations, decades of habitat restoration, or years of implementing a specific management strategy before measurable water quality improvements are achieved. Whereas, other management strategies can be completed fairly quickly and have measurable results. NPDES permits and TMDL Implementation Plans will describe, to the extent possible, more specific schedules for achieving appropriate water quality targets.

(c) Schedule for implementing control actions

NPDES wastewater permits typically require new numeric effluent limits resulting from a TMDL to be implemented during the next five-year permit cycle. For other types of control actions, the timelines for implementing these actions will be identified in sector- or source-specific TMDL implementation plans.

(d) Schedule for completing other measurable milestones

TMDL implementation plans will include timelines for completing other measurable milestones as appropriate. The schedule for preparation and submission of TMDL implementation plans is contained in Element (I) of this section.

(E) RELATIONSHIP OF MANAGEMENT STRATEGIES TO ATTAINMENT OF WATER QUALITY STANDARDS

For point sources of pollution, ODEQ will issue permits that include specific discharge limitations and compliance schedules that ensure water quality standards are met or will be attained within a reasonable timeline. Permits are reviewed and renewed on a 5-year cycle.

For nonpoint source pollution, sector- or source-specific TMDL implementation plans will include specific management strategies and timelines. DMAs will be expected to prepare an annual report and undertake an evaluation of the effectiveness of their plans every five years to gauge progress toward attaining water quality standards. To the extent practical, implementation and effectiveness monitoring will be designed to measure the water quality response to particular management actions. If monitoring and evaluation reveal that the management actions described in the implementation plan are not sufficient to achieve the load allocation, the DMA will be required to revise and implement the plan accordingly.

(F) TIMELINE FOR ATTAINMENT OF WATER QUALITY STANDARDS

Time estimates to meet temperature criteria and restore full protection of beneficial uses were based on estimates of system potential vegetation growth. Temperature and channel morphology improvements are dependent on growth of site appropriate riparian vegetation and other land management actions. System potential shade varies tremendously by stream size thus affecting restoration timing. For example, system potential shade for a small stream may take 10 years versus 20 years for a larger stream. Two examples of milestone goals would be the ability to measure increases in instream shade by 2020 and to achieve instream temperatures that meet salmonid requirements by 2050. Trading, described in more detail under (C) Management Strategies and in the Temperature Implementation section at the end of this chapter, is one strategy that may allow temperature criteria to be attained more quickly. While the time to establish and grow shade producing vegetation would still be several years,

change, planting may occur over a larger area of private land and more quickly than would otherwise occur.

Achieving water quality standards for bacteria and other pollutants carried on soil particles (e.g. DDT, possibly dieldrin, iron) may take fewer than five -10 years, in the case of smaller streams with more easily identifiable bacteria and sediment sources. While the response of the stream to reductions in bacteria and sediment input may be rapid, the time required to change agricultural land use and management practices on private land, especially on a subbasin scale, may take several years. Successful pilot projects, targeted effectiveness monitoring, and grant opportunities may facilitate the more rapid implementation of land management changes on private land.

Measures to reduce point source and nonpoint source stormwater runoff (and hence bacteria and pesticide pollutants) will take several years to fully implement, but the technology for reducing pollutants in stormwater, and the quantity of stormwater, itself, are becoming more commonly known, if not standard practice. Permitting entities have begun to recognize how non-traditional development, such as low impact development (LID), may be impeded by the permitting process. Counties and cities are beginning to educate developers about the financial as well as environmental benefits of LID and this education make the practice more common in the near future.

Practices to reduce nitrate pollution, such as reducing fertilizer use, changing irrigation practices and identifying and fixing leaking septic systems all must occur on private land and their implementation will depend on how rapidly organizations such as soil and water conservation districts, extensions, and other agricultural resource organizations can educate their members and provide financial incentives.

These time frames are approximate and implementation will occur as specific plans are implemented or developed and as funding becomes available. In many instances, more definitive timelines will be specified in TMDL implementation plans.

(G) IDENTIFICATION OF RESPONSIBLE PERSONS

While all inhabitants of the basin share responsibility for preventing water pollution, certain entities are recognized under this TMDL as having specific responsibilities for implementing the TMDL and are required to take necessary actions to meet their assigned load and wasteload allocations. This section identifies the Designated Management Agencies (DMAs) responsible for implementing management strategies and developing and revising sector-specific or source-specific implementation plans.

The management strategies necessary to meet the TMDL load and wasteload allocations differ based upon the type and source of pollution and the responsibilities and resources of the DMAs. Many DMAs are already implementing or planning to implement management strategies for improving and protecting water quality, but may need to take additional actions to meet the TMDL allocations. However, as a general principle, DMAs are not responsible for controlling pollution arising from land use activities occurring outside of their jurisdictional authority.

For certain DMAs, TMDL implementation responsibilities will be carried out through existing regulatory and non-regulatory programs and activities. These DMAs, and examples of the programs and activities they will implement to achieve TMDL allocation, include those listed below:

Oregon Department of Environmental Quality

- NPDES Permitting and Enforcement
- WPCF Permitting and Enforcement
- Municipal Separate Storm Sewer System (MS4) Discharge Permits
- 401 Hydroelectric Certifications
- 401 Dredge and Fill Certifications
- On-Site Septic System Permitting and Enforcement (except where delegated to specific counties)
- Nonpoint Source TMDL Implementation Program
- Technical Assistance
- Financial Assistance

Oregon Department of Agriculture (ODA)

- Agricultural Water Quality Management Plan Development, Revision, Implementation & Enforcement
- CAFO Permitting and Enforcement
- Technical Assistance
- Rules under Senate Bill (SB)1010 to clearly address TMDL and Load Allocations
- Riparian area management
- Oregon Conservation Reserve Enhancement Program

Oregon Department of Forestry (ODF)

- Forest Practices Act (FPA) Implementation
- Revise statewide FPA rules and/or adopt subbasin specific rules as necessary
- Riparian area management

Other DMAs are required to develop TMDL Implementation Plans that describe the management measures they will take to achieve their load allocations. These DMAs are listed below. TMDL implementation plans must be submitted to ODEQ for approval within 18 months of the issuance of the TMDL. Two or more DMAs may submit a joint TMDL implementation plan. DEQ encourages statewide implementation plans where they are appropriate. The required elements of implementation plans, and the process for monitoring progress and revising the plans, are described later in this chapter.

To assist DMAs in the development of TMDL implementation plans, ODEQ's website (http://www.deq.state.or.us/WQ/TMDLs/implementation.htm) includes TMDL Implementation Plan Guidance (May 2007) and additional information on potential sources of pollution and possible management strategies for controlling those sources. The source categories include urban, forestry, and agriculture. The information on the TMDL Implementation website is provided as a resource only – it is not comprehensive, nor is it intended to be prescriptive. ODEQ does not prescribe the actions a DMA must take to meet an allocation.

State Agencies other than ODA and ODF

- Parks and Recreation Department
- Department of State Lands
- Department of Geology and Mineral Industries
- Marine Board (Boat Ramps and Other Access Points)
- Oregon Department of Transportation (ODOT)

Oregon Department of Transportation (ODOT) has worked with ODEQ to develop a statewide TMDL program focused on managing TMDL pollutants associated with the operation, construction, and maintenance of ODOT roads, highways, and bridges. A Memorandum Of Understanding (MOU) is being developed that will formalize a proactive, collaborative, and adaptive manner whereby the TMDL management goals and requirements as defined in Oregon Administrative Rules (OAR, Division 42, TMDLs) will be met. The MOU should be in place by December 2008.

ODOT has developed a single TMDL management plan that is implemented statewide rather than individual TMDL management plans for multiple water quality limited waterbodies across the state. By developing a single, statewide, management plan, ODOT:

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

The ODOT TMDL management plan addresses management of all TMDL pollutants associated with ODOT facilities. Of TMDL pollutants, ODOT considers sediment and temperature to be the primary

pollutants of concern associated with ODOT owned and maintained facilities, properties located within the highway right-of-way, and maintenance facilities. DEQ is still in the process of identifying TMDL pollutants that limit beneficial uses of waterways across Oregon. TMDL allocations are established by watershed. Because of this, some individual watersheds may have unique pollutant management needs that require special consideration under the ODOT TMDL management plan. ODOT will work with DEQ or local watershed management agencies (e.g. County and Municipal Road Departments), to address local transportation related watershed concerns as needs arise.

Major components of a statewide TMDL management plan will be executed through the core regulatory programs that ODOT is already required to comply with. These regulatory programs are; NPDES Municipal Separate Storm Sewer System (MS4) Phase I and 1200CA permits, 401 Dredge & Fill Certification, and the Underground Injection Control (UIC) programs. These programs are the core elements of their statewide TMDL management plan, however the MOU also describes the process that will be used to identify any gaps relative to meeting the TMDL requirements in a given basin or sub-basin. This process will allow an efficient use of both ODOT and DEQ staff in implementing specific actions and goals and identifying appropriate effectiveness monitoring to gauge how its actions are contributing to achieving TMDLs goals in each basin and across the state.

Federal Land Management Agencies

- U.S. Forest Service
- U.S. Bureau of Land Management

Federal agencies are responsible for implementing various management plans. The U.S. Forest Service is responsible for implementing the Northwest Forest Plan. The Bureau of Land Management is responsible for implementing the Salem District Resource Management Plan. Each of these plans provides for riparian area management and best management practices that protect water quality. The plans also include provisions for active restoration and acquisition of lands.

Counties

- Clackamas
- Marion

Counties are responsible for construction, operation, and maintenance of their MS4 urbanized Phase II MS4 permits cover portions of counties that are located within U.S. Census-defined Urbanized Areas (Salem); of County roads and county stormwater systems; land use planning and permitting; maintenance, construction, and operation of parks and other county-owned facilities and infrastructure; inspection and permitting of septic systems; and protection and enhancement of environmentally sensitive areas including lakes, ponds, riparian areas, wetlands, seeps, steep slopes, floodplains, drinking water source areas, etc.

Cities

- Aurora
- Barlow
- Canby
- Colton
- Donald
- Gervais
- Hubbard
- Molalla
- Mt. Angel
- Salem
- Scotts Mills
- Silverton
- Woodburn

Cities are responsible for construction, operation, and maintenance of their MS4 permits within city limits (Salem) or the stormwater system; construction, operation, and maintenance of wastewater treatment plants and sanitary sewer systems; land use planning and permitting; maintenance, construction, and operation of parks and other city-owned facilities and infrastructure; and protection and enhancement of environmentally sensitive areas such as lakes, ponds, riparian areas, wetlands, seeps, steep slopes, floodplains, and drinking water source areas.

Water Management Districts

DEQ considers Water Management Districts to be DMAs because they are responsible for water storage and conveyance, and this has potential effects on water temperature as well as concentrations of bacteria, pesticides, nutrients, and metals. DEQ is aware of three water management districts in the Molalla-Pudding Subbasin

The Lake Labish Water Control District has existed for several decades. In the late 1950s, the District oversaw the construction of a water control system including a dike at the mouth of the Little Pudding River, channel modifications, pumping equipment and facilities. The purpose of the Lake Labish Water Control District is to control flood waters on the Lake Labish bottom lands from the center of that bottom to the water control structure and pumping station at the northeast of the bottom. The district manages 900 acres in the Little Pudding River watershed where the dike, channels, water table control structures, floodgates, and pumping plant are used to lower the water in the drainage channels during cropping season when rain events occur so those low lying farmlands will drain. A rain event triggers the need to operate the pumping facility.

The East Valley Water District serves approximately 70 area farmers, primarily in the Abiqua Creek, Drift Creek and mainstem Pudding River watersheds. The East Valley Water District's service are is approximately 15,000 acres, but does not currently deliver water to its members through a conveyance system. Members obtain irrigation water from wells or direct withdrawals from surface water. The District's long-term goal is to secure a water storage and delivery system for the farmers that would decrease the need for groundwater pumping and stream withdrawals in the drier months.

DEQ does not designate the Molalla River Irrigation District a DMA for this TMDL because DEQ only learned of the District at the end of the public comment period and the District did not have an opportunity to comment during the public comment period. The Molalla River Irrigation District has existed on record since the early part of this century, and may have existed several decades before that. The District serves approximately 20 landowners on 750 acres. Molalla River water is diverted at a dike and via two culverts upstream of Feyrer Park Bridge, where Feyrer Park Road crosses the Molalla River. Water is conveyed in a ditch. The ditch has a rudimentary water control structure installed that alternately raises the water level and allows the water to flow down the ditch. Users withdraw their water rights from the ditch and the remainder flows back into the Molalla River just upstream of the Highway 213 crossing. The associated water rights permits require that all irrigation take place on lands that drain toward the Molalla River, not across a ridge to the west, which would drain to Bear Creek in the Pudding River portion of the subbasin. Two smaller ditches that divert from the main ditch have been designated off-stream fish habitat. Although DEQ does not designate this District as a DMA in this TMDL, the District does appear to manage and convey surface water and therefore may contribute heat or transmit sediment to the Molalla River. DEQ will work with the Molalla River Irrigation District in the 18 months following the issuance of this TMDL, with the expectation they will be able to submit a management plan that describes their operations and practices they can implement to minimize their effects on water quality.

Watershed Councils and Volunteer Groups

Non-governmental and volunteer-based organizations in the Molalla-Pudding Subbasin are not required to implement the TMDLs, yet will likely play important roles in TMDL implementation. The Pudding River Watershed Council is recognized by the Oregon Watershed Enhancement Board (OWEB). The Watershed Council completed a watershed assessment in 2006 and organized river cleanups and streamside planting events. The Council has also partnered with the Bureau of Land Management (BLM), Oregon Department of Forestry (ODF), and the Marion Soil and Water Conservation District (SWCD) on monitoring and restoration projects. The Pudding River Watershed Council will probably be important in facilitating riparian, wetland, stream bank, and other restoration on private land.

Molalla River Watch (MRW) formed as a non-profit organization in 1992 and, though not a watershed council, is active in coordinating restoration efforts in the Molalla River watershed. MRW has organized river cleanups and streamside restoration work, for example:

- a restoration project on a tributary to Milk Creek at the Colton Middle School
- a side channel restoration and knotweed removal upstream of the Highway 213 bridge in partnership with Oregon Department of Fish and Wildlife (ODFW) and the Clackamas SWCD .
- on-going restoration work in partnership with BLM in the upper watershed, between Glen Avon bridge and Table Rock Fork.

MRW completed a Watershed Assessment in 2004 and is seeking funds to complete a restoration plan for the lower 27 miles of the Molalla River and 16 miles of Milk Creek. MRW has received partial funding for this project from the National Fish and Wildlife Foundation 2006 Oregon Governor's Fund for the Environment, in partnership with Oregon State University Extension, ODFW, Clackamas SWCD, and Molalla River Improvement District. The intent is to use an aquatic habitat inventory, a bank erosion hazard index, and geomorphic assessments to choose the most effective locations for restoration.

The Native Fish Society has partnered with MRW, and public and private entities in the Molalla River watershed on various restoration projects. Their focus has been culvert replacement and aquatic habitat surveys, mainly upstream of river mile 20. The Native Fish Society spurred the recent formation of the Molalla River Alliance, a group of approximately 20 public and private organizations with the collective goals to:

1. Promote a climate that encourages tourism and healthy family recreation in the Molalla River Recreation Corridor.
2. Preserve the water quality of the Molalla River and sustain the wildlife, fish, and plants that inhabit the Molalla River watershed.

The Molalla River Improvement District (MRID) has taxing authority and a purpose to protect and restore the Molalla River banks. They have worked with ODFW and the Natural Resources Conservation Service (NRCS) on bank stabilization projects. Currently, the MRID is a partner with MRW in a grant that partially funds lower watershed geomorphic assessment and restoration planning.

(H) IDENTIFICATION OF SECTOR-SPECIFIC OR SOURCE-SPECIFIC IMPLEMENTATION PLANS THAT ARE AVAILABLE AT THE TIME THE TMDL IS ISSUED

The following DMAs have completed Willamette TMDL Implementation Plans or other water quality plans at the time this Molalla-Pudding TMDL/WQMP is issued:

- ODA Agricultural Water Quality Management Area Plans (OAR 603-095):
    - Molalla-Pudding-French Prairie-North Santiam Agricultural Water Quality Management Area Plan
- City of Salem Willamette Basin TMDL Implementation Plan March 2008
- Clackamas County Willamette Basin TMDL Implementation Plan March 2008
- Marion County Willamette Basin TMDL Implementation Plan March 2008

Willamette TMDL Implementation Plans address temperature and bacteria, two parameters also included in the Molalla-Pudding TMDL. DMAs will likely have to modify or add to existing plans to address parameters specific to the Molalla-Pudding TMDL (e.g. pesticides, nitrate, iron), but many of the strategies in existing implementation plans are likely to be appropriate and relevant to the implementation of the Molalla-Pudding TMDL. ODEQ expects that all DMA Implementation Plans will be developed within 18 months, reviewed, and updated as appropriate.

(I) SCHEDULE FOR PREPARATION AND SUBMISSION

This section discusses sector-specific or source-specific implementation plans by responsible persons/DMAs and the processes that trigger revisions to these implementation plans. The issuance of this TMDL triggers the requirement for a number of DMAs to develop and submit TMDL implementation plans to ODEQ for approval within 18 months (see Section G of this chapter for a list of affected DMAs).

These DMAs will be sent a letter following issuance of the TMDL to notify them of this requirement. The exact due date for submittal will be based upon the date of that letter.

OAR 340-042-0080(3) defines the required elements of a TMDL implementation plans. The main elements are as follows:

- Management strategies the DMA will use to achieve load allocation(s) and reduce pollutant loading;
- A timeline for implementing management strategies and a schedule for completing measurable milestones;
- Performance monitoring with a plan for periodic review and revision of the implementation plan;
- Evidence of compliance with applicable statewide land use requirements;
- Any other required elements if specified in this WQMP.

Following approval of the TMDL implementation plan, DMAs will be expected to submit to ODEQ an annual status report briefly describing the status of management strategies that implement TMDL pollutant allocations or reductions. Every fifth year DMAs will need to submit an evaluation report. The report will describe the effectiveness of the management strategies identified in the TMDL Implementation Plan and put into place during the preceding four years. The report will indicate whether implementation of their plan is adequately meeting the pollutant reduction goals. If they determine it does not, the report will describe the steps they will take to modify their plan.

In addition, DMAs may be required to review and revise their TMDL implementation plan as needed following ODEQ's reevaluation or revision of the TMDL.

(J) DESCRIPTION OF REASONABLE ASSURANCE

This element is intended to provide reasonable assurance that TMDL load allocations will be implemented, and that the TMDL and associated allocations will be met.

There are several programs that are either already in place or will be put in place to help ensure that the Molalla-Pudding TMDL waste load and load allocations will be implemented. Some of these are traditional regulatory programs such as specific requirements under NPDES discharge permits. Other programs address nonpoint sources through the authority of other state or federal agencies (for forested and agricultural lands) and voluntary efforts. The key authorities and programs that ensure TMDL implementation will be carried out are described below.

NPDES Permits to Point Sources

ODEQ issues National Pollutant Discharge Elimination System (NPDES) permits for discharge of wastes or pollutants into waters of the United States. The NPDES is a federal permit required by the Clean Water Act; ODEQ has been delegated authority to issue NPDES permits by USEPA. As permits are renewed, they will be revised to ensure that all 303(d) related issues and TMDL allocations are addressed in the permit.

City of Silverton Wastewater Treatment Plant

This facility is located at approximately river mile 2.4 on Silver Creek, a tributary to the Pudding River. The City of Silverton WWTP currently contributes more heat to Silver Creek in the summer than its wasteload allocation. The current permit will be renewed in 2010 and modified to comply with the TMDL allocation. The City recently completed a facilities plan for its wastewater treatment operations which includes modifications pertinent to meeting its temperature allocation. The City intends to increase the amount of wastewater pumped to the Oregon Garden's wetlands for treatment. The Oregon Garden may also be able to accept more wastewater to irrigate its current and future tree plantations.

The wasteload allocation for bacteria will be met by the effluent limits for *E. coli* bacteria in the facility's permit. The City has also agreed to incorporate iron analysis into its sampling program. The City and DEQ will use these data to evaluate the treatment plant's potential to cause or contribute to iron criteria exceedances in the Pudding River via Silver Creek.

City of Woodburn Wastewater Treatment Plant

This facility is located at approximately river mile 21.4 on the Pudding River. The City of Woodburn WWTP currently contributes more heat in the summer to the Pudding River than its wasteload allocation allows. The City will be required to submit a Temperature Management Plan as part of their permit renewal in 2009. The City of Woodburn is in the process of completing an updated Facilities Plan and a hyporheic exchange pilot study. They are investigating increased irrigation during summer months and use of wetlands to reduce their temperature effects to the Pudding River in the summer months.

The wasteload allocation for bacteria will be met by the effluent limits for *E. coli* bacteria in the facility's permit. The City will also collect iron data to evaluate the treatment plant's potential to cause or contribute to iron criteria exceedances in the Pudding River.

JLR, LLC./Bruce Pac

This facility is located at approximately river mile 27 on the Pudding River. JLR, LLC/Bruce Pac's current permit allows summer discharge, although the facility currently does not discharge during the summer. The facility expects to grow, but the allocation assigned to JLR, LLC/Bruce Pac for discharge between June 1 and September 30 meets their needs for the foreseeable future. The wasteload allocation for bacteria will be met by the effluent limits for *E. coli* bacteria in the facility's permit. JLR, LLC/Bruce Pac will also need to collect iron data to evaluate the facility's potential to cause or contribute to iron criteria exceedances in the Pudding River.

City of Hubbard Wastewater Treatment Plant

This facility is located at approximately river mile 5.3 Mill Creek, a tributary to the Pudding River. The facility currently contributes more heat in the summer to Mill Creek than its wasteload allocation allows. The City will be required to submit a Temperature Management Plan as part of their permit renewal in 2009. The wasteload allocation for bacteria will be met by the effluent limits for *E. coli* bacteria in the facility's permit. The City will also need to collect iron data to evaluate the treatment plant's potential to cause or contribute to iron criteria exceedances in the Pudding River.

City of Gervais Wastewater Treatment Plant

This facility, located at approximately river mile 31.2 on the Pudding River, does not discharge between June 1 and September 30, when a wasteload allocation for excess thermal load would apply to the Pudding River and its tributaries. The wasteload allocation for bacteria will be met by the effluent limits for *E. coli* bacteria in the facility's permit. The City will also need to collect iron data to evaluate the treatment plant's potential to cause or contribute to iron criteria exceedances in the Pudding River.

City of Aurora Wastewater Treatment Plant

This facility, located at approximately river mile 8.8 on the Pudding River , does not discharge between June 1 and September 30, when a wasteload allocation for excess thermal load would apply to the Pudding River and its tributaries. The wasteload allocation for bacteria will be met by the effluent limits for *E. coli* bacteria in the facility's permit. The City will also need to collect iron data to evaluate the treatment plant's potential to cause or contribute to iron criteria exceedances in the Pudding River.

City of Mt. Angel Wastewater Treatment Plant

This facility, located at approximately river mile 34 on the Pudding River, does not discharge between June 1 and September 30, when a wasteload allocation for excess thermal load would apply to the Pudding River and its tributaries. The wasteload allocation for bacteria will be met by the effluent limits for *E. coli* bacteria in the facility's permit. The City will also need to collect iron data to evaluate the treatment plant's potential to cause or contribute to iron criteria exceedances in the Pudding River.

Lakewood Homeowners, Inc.

This facility, located at approximately river mile 3.9 on Mill Creek, a tributary to the Pudding River, does not discharge between June 1 and September 30, when a wasteload allocation for excess thermal load would apply to the Pudding River and its tributaries. The wasteload allocation for bacteria will be met by the effluent limits for *E. coli* bacteria in the facility's permit. Lakewood Homeowners, Inc. will also need to collect iron data to evaluate the facility's potential to cause or contribute to iron criteria exceedances in the Pudding River.

City of Molalla Wastewater Treatment Plant

This facility discharges at approximately river mile 20 to the Molalla River and does not discharge between May 1 and October 31, when a wasteload allocation for excess thermal load would apply to the Molalla River and its tributaries. During the summer months, the City of Molalla is permitted to supply reclaimed treated wastewater as irrigation water to a local ranch. The wasteload allocation for bacteria will be met by the effluent limits for *E. coli* bacteria in the facility's permit.

Sunstone Circuits

This facility discharges year-round to Milk Creek, a tributary to the Molalla River. The facility's potential heating effects on Milk Creek were evaluated in the temperature TMDL and a wasteload allocation for excess thermal load was developed. The facility's currently operates within the wasteload allocation. The wasteload allocation will be incorporated when the facility next renews its permit in 2008.

Chevron

This facility discharges at approximately river mile 20 on the Molalla River. The WLA is based on potential heat loading from current operating conditions and no operational changes appear to be necessary for the facility's discharge to meet the WLA.

Sanders/RSG

This facility is located at approximately river mile 17 on the Molalla River. The facility's discharge may not reach the Molalla River in the summer months because of reuse on site as well as lack of flow of the drainage ditch (into which the facility discharges) into the Molalla River. Because the facility discharges year-round, the facility was given a wasteload allocation for excess heat load that would apply May 1 – October 31. The WLA is based on potential heat loading from current operating conditions and no operational changes appear to be necessary for the facility's discharge to meet the WLA.

City of Molalla Drinking Water Plant

This facility is permitted to discharge to the Molalla River at approximately river mile 21.6. DEQ developed a wasteload allocation for this facility which allows for current potential worst case heat load contributions. This facility operates under an extension to the expired NPDES General Permit 200J, which requires a 30:1 dilution in the receiving stream during periods of discharge. The maximum reported discharge from this facility meets the dilution requirement, and if the facility complies with the 200J permit requirements, no operational changes appear to be necessary for the facility's discharge to meet the WLA.

City of Silverton Drinking Water Plant

This facility is permitted to discharge to river mile 3.9 on Abiqua Creek, a tributary to the Pudding River. DEQ developed a wasteload allocation for this facility which allows for current potential worst case heat load contributions. This facility operates under an extension to the expired NPDES General Permit 200J, which requires a 30:1 dilution in the receiving stream during periods of discharge. The maximum reported discharge from this facility meets the dilution requirement, and if the facility complies with the 200J permit requirements, no operational changes appear to be necessary for the facility's discharge to meet the WLA.

Municipal Separate Storm Sewer System (MS4) Discharge Permits

ODEQ administers two different types of stormwater permits based on the size of the community and location within an Urbanized Area as defined by the US Bureau of Census. Phase 1 MS4 permits are issued to the largest communities generally serving a population of greater than 100,000. This permit program has been in existence since 1995. The City of Salem and Clackamas County, as well as the Oregon Department of Transportation, hold Phase 1 permits. The boundaries of the Clackamas County Phase 1 permit, however, do not extend into the Molalla-Pudding Subbasin. Phase 2 MS4 permits are issued to jurisdictions within Urbanized Areas with populations of 50,000 or greater, which are not already a part of the Phase 1 permit program. Marion County and the City of Keizer hold Phase 2 permits. As permits are renewed, they will be revised to ensure that all 303(d) related issues and TMDL allocations are addressed in the permit.

An MS4 permit requires a municipality to develop a stormwater management plan that addresses a number of control measures as specified in the permit. An MS4 permit also requires the municipality to

establish pollution load reduction benchmarks for relevant TMDL pollutants and collect water quality data to evaluate progress toward meeting those benchmarks.

However, a stormwater management plan required by an MS4 permit only addresses some, but not all, sources of TMDL pollutants. For example, stormwater management plans are not required to address sources of temperature because stormwater has been determined to not be a significant contributor of heat to surface waters. In addition, MS4 permits apply to a municipality's storm sewer system and may not address nonpoint sources of TMDL pollutants.

For these reasons, ODEQ expects DMAs covered by an MS4 permit to demonstrate that they will address temperature and nonpoint sources of TMDL pollutants not addressed by the MS4 stormwater management plan. For any stormwater management plan that covers all TMDL parameters, the stormwater management plan would suffice as an implementation plan. This may also be done by including the additional parameters in the stormwater management plan at the permittees discretion. This would typically be accomplished through submittal of a TMDL Implementation Plan following the same requirements and timelines described elsewhere in this chapter. The TMDL implementation plan should address pollution reduction strategies for TMDL pollutants not addressed in the stormwater management plan, and in so doing should complement rather than recreate a stormwater management plan.

DMAs Not Covered by an MS4 Permit

Because of the potential for stormwater runoff to be a significant source of TMDL pollutants, ODEQ will require DMAs with a population greater than 10,000 that are not covered under a MS4 permit to address each of the stormwater control measures described below. Based upon the 2003 population data in the Oregon Blue Book, this requirement applies to the City of Woodburn.

The TMDL implementation plan for Woodburn shall include information as to the extent of the problem related to stormwater and the actions that will be taken to implement these control measures to address it. The TMDL implementation plan, which must be submitted to ODEQ within 18 months following issuance of the TMDL, must include a timeline that demonstrates how these measures will be implemented within five years unless otherwise agreed to by the Department. Failure to adequately address these control measures may result in ODEQ requiring the DMA to apply for a MS4 permit as authorized by the federal Phase II stormwater regulations.

DMAs with populations under 10,000 will be expected to give consideration to the stormwater control measures in the process of developing their implementation plans. This should include a description of the extent of the problem and the actions that will be taken to address it, as appropriate.

Management Strategies for Nonpoint Sources

Federal Lands

The Bureau of Land Management (BLM) and US Forest Service (USFS) are DMAs for federal lands in the Molalla-Pudding Subbasin. In July 2003, both agencies signed memoranda of agreement with ODEQ defining how water quality rules and regulations regarding TMDLs will be met. The agencies will develop Water Quality Restoration Plans (WQRPs) which will be the equivalent of TMDL Implementation Plans. In addition, BLM and USFS developed *the Northwest Forest Plan (NWFP) Temperature TMDL Implementation Strategies, Evaluation of the Northwest Forest Plan Aquatic Conservation Strategy (ACS) and Associated Tools* (the Strategy). ODEQ conditionally approved the Strategy in September 2005 as the temperature TMDL implementation mechanism under the Clean Water Act.

The BLM is in the process of modifying the six Western Oregon Resource Management Plans (RMPs) across six districts in western Oregon. This includes the Salem District RMP which will cover the Molalla - Pudding TMDL area. The final environmental impact statement and record of decision will be completed in December of 2008. This plan will include updates to best management practices and design of riparian management areas based on principles of shade retention found in the conditionally approved Strategy.

Non Federal Forest Lands

The Oregon Department of Forestry (ODF) is the DMA, by statute, for water quality protection from nonpoint source discharges or pollutants resulting from forest operations on non-federal forestlands in the Molalla-Pudding Subbasin, as well as statewide. Water protection rules are applied per OAR 629-635-0000 through 629-660-0060. Forest operators conducting operations in accordance with the Forest Practices Act (FPA) are considered to be in compliance with water quality standards. The FPA does have provisions for both criminal and civil penalties if forest operators do not comply with water protection regulations.

Examples of forestland 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 vegetation with a 20-foot no harvest zone of trees and a 10-foot zone no disturbance of all understory vegetation that is near the high water level of the stream or river (except all intermittent streams which have no protections);
- And minimize disturbance to beds and banks of streams, lakes, and all wetlands more than ¼ acre in size; and
- Minimize slash that may enter waters of the state during felling, bucking, limbing or yarding.

For additional information about the Oregon Department of Forestry link to http://www.oregon.gov/ODF/.

Agricultural Lands

The Oregon Department of Agriculture (ODA) is the DMA responsible for regulating agricultural activities that affect water quality through the Agricultural Water Quality Management Act (SB1010) and Senate Bill 502.

SB1010 directs ODA to work with local communities, including farmers, ranchers, and environmental representatives, to develop Agricultural Water Quality Management Area Plans and rules in the Willamette Basin, as well as statewide. SB502 stipulates that ODA "*shall develop and implement any program or rules that directly regulate farming practices that are for the purpose of protecting water quality and that are applicable to areas of the state designated as exclusive farm use zones or other agricultural lands*." Further, ODA policy states that plans and rules will be "*reviewed on a biennial basis and ODA in consultation with ODEQ will assess whether the plan and rules are sufficient to meet and address water quality concerns established under the 303(d) or TMDL process or other triggering mechanisms*".

The ODA and the Molalla-Pudding local advisory committee most recently revised the Molalla-Pudding-French Prairie-North Santiam Subbasins Agricultural Water Quality Management Area Plan (Area Plan) in April 2008[3]. The plan states "this area plan and the administrative rules …will become part of the Management Area strategy to address the Total Maximum Daily Loads." The Marion Soil and Water Conservation District is the primary Local Management Agency (LMA) designated by ODA for this plan area. The Marion SWCD is funded to conduct outreach and education, develop individual farm plans for operations in the planning area, work with landowners to implement management practices, and help landowners secure funding to cost-share water quality improvement practices. The Marion SWCD's tax base, approved in 2000, provides a stable funding source for these efforts.

The 2006 progress report, submitted to the Board of Agriculture after the biennial review process, indicated that 44 conservation plans had been developed since 2004 in addition to seven riparian planting plans and seven nutrient management plans. The progress report also quantified such practices as fencing installation, erosion reduction, riparian buffer planting, and wetland restoration. These reports will continue to be available to ODEQ for review in assessing implementation progress.

[3] The Molalla-Pudding-French Prairie-North Santiam Subbasins Agricultural Water Quality Management Area Plan is located here: http://oregon.gov/ODA/NRD/water_agplans.shtml

The Area Plan stresses voluntary cooperation but ODA, like other state agencies, has the ability to assess civil penalties when local operators do not follow their local Agricultural Water Quality Management Area rules. The Rules referenced in the 2006 area plan regulate the following practices:

OAR 603-095-1940
(2) Chemigated Irrigation Water
(3) Surface Drainage and Irrigation Ditches
(4) Erosion Prevention and Sediment Control
(5) Irrigation
(6) Livestock and Other Waste
(7) Nutrients
(8) Riparian Area Management
(9) Roads and Staging Areas

Marion SWCD and DEQ have also partnered on two successful pesticide collection events, focusing on "legacy" pesticides now banned from use, but still being stored in the watershed. Two events held in February 2006 and January 2007 collected over 30,000 pounds of pesticides, including DDT and chlordane. The collection events were funded with DEQ-EPA 319 grants and the SWCD publicized and organized the events. Other partners in the collection events included the Pudding River Watershed Council, OSU Extension, ODA, Wilco (the growers' supply co-op) and the Yamhill SWCD.

The Marion SWCD has also received two 319 grants and partners with DEQ to implement a Pesticide Stewardship Partnership (PSP). The intent of the PSP is to promote handling and use of current use pesticides such that contamination of water bodies is minimized. The SWCD provides the education and outreach to growers and DEQ collects and analyzes the water samples for current use pesticides.

Urban and Rural Lands

Oregon cities and counties have the 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 ordinance 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). In the case of Goal 5, there is a specific rule that requires local jurisdictions to protect significant riparian areas and wetlands from development. Goal 6 has no LCDC developed guidance or rule about how local jurisdictions should protect and enhance water quality, but provides a sound framework for new ordinances that address a wide variety of water quality objectives, based on state or federal regulations, including this TMDL.

Especially important aspects of the comprehensive planning (and accompanying development ordinance) process directly related to this TMDL are measures relating to the control of erosion and sedimentation, stormwater management, and riparian and wetland area health. We expect that the efforts of local jurisdictions to address Goal 5, 6, and 7 requirements, when incorporated into a TMDL Implementation Plan, will help a DMA to meet the allocations in this TMDL.

Cities and counties identified as a DMA under this TMDL are responsible for developing and implementing TMDL implementation plans that describe the management strategies they will take to control nonpoint source pollution arising from land use activities under their jurisdiction. ODEQ encourages DMAs to work cooperatively to address these requirements when such an approach would be advantageous.

Several city and county efforts are already underway that will be a part of TMDL implementation. Marion County has several public education programs in place or planned. These programs and their objectives are described in the County's stormwater management plan[4]. Their "Point of Contact" program aims to educate people conducting business with the County that could affect stormwater quality. The Household Hazardous Waste program publishes a newsletter (mailed to every Marion County household) and uses media and exhibits to educate citizens. A particularly notable program is the mercury recycling program that accepts mercury containing thermometers, fluorescent lights, and thermostats to the transfer station free for recycling. The Marion County dog control program provides education at dog-related events regarding pet waste and water quality.

In Clackamas County, Water Environment Services (WES) regulates stormwater within their MS4 boundaries, but also implements water quality education and outreach beyond those boundaries. WES coordinates several educational workshops[5] related to water quality, such as lawn and garden management and pet care. They publish newsletters on their website and provide resources for groups organizing environmental events.

The City of Salem has several water quality educational programs in place that will be applicable in the Molalla-Pudding subbasin. The City provides Natural Resource Outreach through the Planning Division and the Public Works Department[6], including a website, interpretive signs in parks, erosion prevention programs, water conservation education, among other educational programs. The Stormwater Services program, run through the Operations Division of Public Works, provides access through a website[7] to educational materials and information pertinent to stream cleaning, tree planting, streambank erosion, and stormwater treatment.

The City of Canby Building Department and City of Woodburn Public Works Engineering department provide basic erosion prevention and sediment control information, accessible through their websites[8].

Federal Actions Resulting in Discharges to Waters of the State

Section 401 of the federal Clean Water Act provides that an applicant for a federal permit to conduct an activity that may result in a discharge to waters of the State must provide the permitting agency with a water quality certification issued by the State from which the discharge originates. A water quality certification is the mechanism by which the State evaluates whether an activity may proceed and meet water quality standards. Certifications may be denied if there is no configuration by which the activity can proceed and meet standards. It may be approved if the activity can be conducted as proposed and meet standards, or it may be approved with conditions, which if met, will ensure that water quality standards are met. In the State of Oregon, the Department of Environmental Quality is the designated agency for issuing these certifications.

(K) PLAN TO MONITOR AND EVALUATE PROGRESS TOWARD ACHIEVING TMDL ALLOCATIONS AND WQS

The intent of this element is to demonstrate long-term recovery, better understand natural variability, track management strategy and BMP effectiveness, and determine whether implementation of TMDL load allocations are achieving water quality standards. Monitoring and evaluation has three basic components: 1) monitoring the implementation of TMDL implementation plans and activities as described in this document; 2) evaluating the effectiveness of management practices; and 3) tracking in-stream water quality trends to ensure TMDL wasteload and load allocations are being achieved and water quality criteria are being met.

[4] Marion County stormwater management plan: http://www.co.marion.or.us/PW/ES/strmwtr.htm
[5] Clackamas County: http://www.clackamas.us/wes/info.htm
[6] City of Salem: http://www.cityofsalem.net/export/departments/spubwork/admin/water_res/index.htm
[7] City of Salem stormwater information: http://www.cityofsalem.net/export/departments/spubwork/operations/s-water/index.htm

[8] City of Canby: http://www.ci.canby.or.us/Departments/building/building.htm, City of Woodburn: http://www.ci.woodburn.or.us/publicworks/engineering/engineerhome.htm

The information generated by each of these organizations 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.

Although monitoring plans have not been developed yet in response to an approved TMDL, it is anticipated that monitoring efforts will consist of some or all of the following activities:

- Reports on the numbers and locations of projects, BMPs implemented and educational activities completed
- In-stream water quality monitoring to assess the effectiveness of implementation activities and track progress towards achieving water quality numeric criteria
- Monitoring riparian vegetation communities and shade to assess progress towards achieving system potential targets established in the TMDL

The following entities share responsibilities for collecting and reporting on the data needed to address the monitoring objectives described above:

- **Oregon Department of Environmental Quality**: In support of the ODEQ mission statement of restoring and protecting Oregon's water, air, and land, the Watershed Assessment section of ODEQ's Laboratory and Environmental Assessment Division collects representative, valid environmental data through physical, chemical, and biological sampling and assessment. The Watershed Assessment section conducts water quality monitoring on several scales; ambient water quality monitoring of 151 fixed sites statewide, TMDL location-specific monitoring studies conducted on a TMDL priority schedule, and through support of over 40 watershed councils statewide and their volunteer monitoring studies. The ongoing ambient effort provides data for trends analyses. Except for special monitoring studies connected with the development of TMDLs, ODEQ's monitoring will not focus on specific monitoring for TMDL implementation.

  Targeted monitoring will be necessary in the Little Pudding and Zollner Creek watersheds to identify "hot spots" contributing DDT. DEQ's analysis showed both of these watersheds to contribute DDT to the Pudding River and may be substantially responsible for DDT detections in the Pudding River. Since DDT is no longer used, the pollutant is likely being transported to surface water from runoff containing sediment and stream bank erosion. Resuspension of contaminated sediments is also a possible source. DEQ will, in partnership with DMAs in the subbasin, conduct sampling and analysis to evaluate each of these possible sources so that appropriate implementation strategies can be devised.

- **Oregon Department of Forestry***:* 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 as per OAR 629-635-0110(3) and under statute with regard to stewardship plans referenced in ORS 541.423 and sensitive resource sites referenced in ORS 527.710 (3).

  The Forest Practices Monitoring Strategic Plan focuses on four types of monitoring to address forest practice program and Oregon Plan for Salmon and Watersheds (OPSW) goals and objectives. The monitoring strategy encompasses understanding of natural variability, implementation of best management practices (BMPs) and BMP effectiveness. The monitoring types include implementation, effectiveness, trend, and validation.

  Implementation - The process of evaluating whether forest practice rules were complied with and whether voluntary measures were implemented. The objective is to assess whether the activities or rules were carried out as intended. An example of an implementation monitoring question is: "Was streamside vegetation maintained in accordance with the water protection rules?"

  Effectiveness - The process of evaluating whether forest practices regulations achieve the desired goals for resource protection. The objective of this type of monitoring is to assess

whether forest practice rules had the anticipated effect. An example of an effectiveness question is: "Are the water protection rules effective at preventing increases in stream temperatures that otherwise might occur from forest management activities?"

Trend - The process of evaluating patterns over time and space. The objective in this type of monitoring is to determine the range of conditions across the landscape and how such conditions change over time in response to management, restoration, and the OPSW. An example of a trend monitoring question is: "What are the riparian conditions in the Coast Range and how do those vary over time?"

Validation **-** The process of evaluating whether the original assumptions used to build the regulations were correct. The objective is to assess whether the assumptions underlying the design of the Forest Practices Act or specific rules were valid. An example of a validation monitoring question is: "Will the desired future condition of riparian area be met under the forest practices riparian management strategies?" Because validation monitoring requires addressing complex cause-and-effect questions, these issues will usually be pursued through research and other studies.

As part of the FPMP, ODF completed an analysis of forest practice compliance on non-federal forest lands in Oregon. This monitoring project determined rates of compliance for a large suite of forest practice rules, and the occurrence of water quality violations resulting from non-compliance. The monitoring project report and monitoring strategy are available on the ODF website at http://www.oregon.gov/ODF/STATE_FORESTS/Monitoring.shtml.

- **Oregon Department of Agriculture**: Under Senate Bill 1010 legislation, ODA is responsible for developing basin 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 basin, is the responsibility of ODA. ODA is collecting data from aerial photographs on landscape conditions such as types of riparian vegetation. Other ground-based data are being collected on stream bank stability, shade, erosion, and vegetation use by livestock. ODA will also use all available data to assess instream concentrations of nitrate/nitrite, dissolved oxygen, total phosphorus, E. *coli*, TSS, and pH for trend monitoring.

  The Marion Soil and Water Conservation District, in cooperation with the Pudding River Watershed Council, has been monitoring several locations in the Pudding River watershed since 2002, collecting both field measurements and continuous temperature. DEQ has provided and will continue to provide technical assistance and equipment to the SWCD. The data collected by the SWCD and Pudding River watershed council have met DEQ's quality assurance and quality control criteria and are recorded in DEQ's monitoring database (http://www.deq.state.or.us/lab/lasar.htm). The SWCD is likely to continue some monitoring at the locations listed in Table 7 - 3.

Location
Abiqua Cr. at Gallon House Rd. bridge
Zollner Cr. at Monitor-McKee Rd
Butte Cr. at ODF campground
Abiqua Cr. at 0.38 miles down abandoned forest road
Brush Cr. downstream of Oregon Garden outfall
Brush Cr. upstream of Oregon Garden outfall
Drift Cr. at Victor Point and Fox Rd
Kirk Cr. upstream of Forest Rd 400

Table 7 - 3 Marion SWCD monitoring locations in the Pudding River watershed.

- **Oregon Department of Transportation**: Oregon Department of Transportation (ODOT) has worked with ODEQ to develop a statewide TMDL program focused on managing TMDL pollutants

associated with the operation, construction, and maintenance of ODOT roads, highways, and bridges. The ODOT TMDL program identifies sediment and temperature as primary TMDL pollutants of concern and outlines the Best Management Practices (BMPs) that ODOT uses to control these and other pollutants related to highway activities. ODOT measures the effectiveness of its TMDL program by measuring implementation of ODOT water quality BMPs, by performing research to assess effectiveness of representative BMPs, and by collecting data on ODOT stormwater pollutants through research or miscellaneous ODOT water quality investigations. ODOT is now working with ODEQ to expand or refine ODOT monitoring activities to ensure they meet all ODEQ TMDL monitoring requirements.

The implementation of ODOT BMPs is measured through various ODOT tracking and inventory efforts. Examples include: inventorying water quality facilities installed as part of ODOT highway construction projects, tracking completion and implementation of spill prevention and stormwater management plans developed for ODOT maintenance yards, compiling the ODOT Maintenance Progress Report which documents annual water resource protection efforts and BMPs performed by ODOT Maintenance forces. Tracking the implementation of ODOT water quality BMPs documents ODOT's efforts to manage TMDL pollutants as well as ODOT's efforts to meet a variety of other related water resource protection requirements.

ODOT measures the effectiveness of select or representative BMPs primarily through research projects. Research is performed on specific ODOT BMPs or highway practices to determine impacts they may have on the environment or how they influence pollutant transport or pollutant loads. ODOT uses research data and findings to characterize the pollutant loads associated with its highway facilities and operations and to adjust existing management practices to better control TMDLs or related pollutants. ODOT research projects tied to pollutant control, conducted since 2000, are listed below. Detailed descriptions of this research are available online at the ODOT website.

Current Research includes the following:

- Water Quality Facility Investigation
- Monitor Bioengineering Stabilization Project
- Culvert Condition Assessment and Database Development
- Assessing Effects of Flocculants to Manage Turbidity
- Dynamic Revetments for Coastal Erosion Stabilization

ODOT also collects data on TMDLs and other pollutants associated with its stormwater system through the pollutant monitoring that is performed as part of ODOT's National Pollutant Discharge Elimination System (NPDES) stormwater management program. Stormwater issues and problems routinely arise during ongoing maintenance of the ODOT stormwater system and drive this monitoring. ODOT reports on this monitoring annually to ODEQ in NPDES annual reports. Examples include investigations of illicit discharges, characterization of ODOT stormwater associated with ODOT highways or yards, and investigations of water quality problems associated with specific ODOT incidents or activities.

- **Cities and Counties**: Larger jurisdictions may conduct their own water quality monitoring assessments and may maintain permanent monitoring networks. Smaller jurisdictions may need to cooperate with local watershed councils, Soil and Water Conservation Districts, or other partners. The City of Salem is required to conduct specific stormwater monitoring in conjunction with their NPDES stormwater permit. Monitoring requirements established under a stormwater permit might not fully cover all TMDL parameters. For example, temperature is generally not considered to be a significant contributor to stormwater pollution and thus it is not addressed through a stormwater permit. NPDES permitted jurisdictions may have to submit a TMDL implementation plan to address pollutants not addressed under their stormwater management plan as well as pollutants arising from nonpoint sources (i.e., outside of their stormwater conveyance systems).

The City of Molalla will be collecting in-stream data from four locations on the Molalla River (Table 7 - 4) as part of a court settlement reached in 2006[9]. Monitoring requirements of the settlement also include two locations on an irrigation ditch adjacent to the property where the WWTP effluent enters the river.

Table 7 - 4: City of Molalla monitoring locations on the Molalla River. BOD = biochemical oxygen demand, TSS = total suspended solids.

Location	Parameters	Frequency
Freyrer Park Bridge	BOD, TSS, ammonia, *E. coli*, temperature, pH	weekly
upstream WWTP outfall		
50 downstream WWTP outfall		
Hwy. 211 bridge		

- **BLM and USFS**: The BLM Salem District is responsible for developing a Water Quality Restoration Plan (WQRP) which will identify monitoring activities to be conducted. WQRP's in the Willamette Basin have identified restoration and project specific BMP implementation monitoring as the primary focus for reporting. Shade retention effectiveness monitoring would also be completed in riparian management areas. Future monitoring will also comply with parameters and timelines established in the revised RMP.

ODEQ will collect and review information from TMDL implementation plan reports on an annual basis and will periodically review available environmental data.

(L) PLAN FOR PUBLIC INVOLVEMENT IN IMPLEMENTING MANAGEMENT STRATEGIES

ODEQ believes that public involvement is essential to any successful water quality improvement process. When developing and implementing TMDL implementation plans, DMAs will determine how best to provide for public involvement based on their local needs and requirements.

ODEQ will also promote public involvement through direct association and contact with existing groups that have an interest in the Molalla-Pudding TMDL, such as watershed councils, League of Cities, Association of Counties, SB1010 Local Advisory Committees, the Tribes, federal and state agencies, and others.

(M) DESCRIPTION OF PLANNED EFFORTS TO MAINTAIN MANAGEMENT STRATEGIES OVER TIME

The strategies, legal authorities and funding sources described elsewhere in this chapter help ensure that management strategies will be maintained over time.

Implementation is scheduled to occur in three main stages. The first stage involves implementation of the most cost-effective control measures. Stage II describes the remainder of the control measures required to achieve the targeted pollutant load reductions, if the water quality goals are not achieved during Stage I. Finally, the third stage is a five-year period for assessment of stream conditions, in which the streams are expected to recover and attain the stated water quality goals.

- In addition, ODEQ will be working on several fronts to ensure management strategies are carried out: ODEQ administers various permitting, technical and financial assistance programs that play a role in implementing, overseeing and supporting TMDL implementation activities.
- ODEQ works with other state and federal agencies to ensure their activities are consistent with TMDL requirements and water quality protection in general.
- ODEQ will review TMDL implementation plans and reports to ensure DMAs are identifying and implementing the management measures necessary to achieve TMDL load and wasteload allocations.

[9] The court settlement was reached when several parties sued the City of Molalla for changing the discharge location of the wastewater treatment plant outfall from Bear Creek, a tributary to the Pudding River, to the Molalla River.

(N) COSTS AND FUNDING

The purpose of this element is to describe estimated costs and demonstrate there is sufficient funding available to begin implementation of TMDL allocations and improve water quality. DMAs will be expected to provide a fiscal analysis of the resources needed to develop, execute, and maintain the management strategies described in their TMDL Implementation Plans.

There are many sources of local, state, and federal funds. The following is a partial list of assistance programs available in the Molalla-Pudding Subbasin:

Program	Agency/Source
Oregon Plan for Salmon and Watersheds	OWEB
Environmental Quality Incentives Program	USDA-NRCS
Wetland Reserve Program	USDA-NRCS
Conservation Reserve Enhancement Program	USDA-NRCS
Stewardship Incentive Program	ODF
Access and Habitat Program	ODFW
Partners for Wildlife Program	USDI-FSA
Water Projects	OWRD
Nonpoint Source Water Quality Control (319) Grants	ODEQ-USEPA
Statewide Planning Goals Technical Assistance Grants	DLCD
Oregon Community Foundation	OCF
Watershed Initiative Grants	USEPA
Clean Water State Revolving Fund (SRF) Low Interest Loans and sponsorship options	ODEQ – US EPA

Grant funds are available for improvement projects on a competitive basis. Field agency personnel assist landowners in identifying, designing, and submitting eligible projects for these grant funds. For private landowners, the recipient and administrator of these grants is generally the local Soil and Water Conservation District.

(O) CITATION OF LEGAL AUTHORITIES

The implementation of TMDL waste load and load allocations and the associated implementation plans are generally enforceable by ODEQ, other state and federal agencies, or local governments. 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 or 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 strategies leading to attainment of water quality standards.

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 USEPA or by a state agency which has been delegated this responsibility by USEPA. In Oregon, this responsibility rests with ODEQ. ODEQ generally updates the list of water quality limited waterbodies every two years. The list is commonly referred to as the 303(d) list. Section 303 of the Clean Water Act further requires that TMDLs be developed for all waterbodies on the 303(d) list. ODEQ also has this responsibility.

Endangered Species Act, Section 6

Section 6 of the 1973 federal Endangered Species Act as amended encourages States to develop and maintain conservation programs for federally listed threatened and endangered species. In addition, Section 4(d) of the ESA requires that NMFS list the activities that could result in a take. NMFS has also described certain precautions that, if followed, would preclude prosecution for take even if a listed species

were harmed inadvertently. Such a provision is called a *limit* on the *take prohibition*. The intent is to provide local governments and other entities greater certainty regarding their liability for take.

NMFS published their rule in response to Section 4(d) in July of 2000 (see 65 FR 42421, July 10, 2000). The NMFS 4(d) rule lists 12 criteria that will be used to determine whether a local program incorporates sufficient precautionary measures to adequately conserve fish. The rule provides for local jurisdictions to submit development ordinances for review by NMFS under one, several or all of the criteria. The criteria for the Municipal, Residential, Commercial and Industrial Development and Redevelopment (MRCI*) limit* are listed below:

Avoid inappropriate areas such as unstable slopes, wetlands, and areas of high habitat value;
Prevent stormwater discharge impacts on water quality;
Protect riparian areas;
Avoid stream crossings – whether by roads, utilities, or other linear development;
Protect historic stream meander patterns;
Protect wetlands, wetland buffers, and wetland function;
Preserve the ability of permanent and intermittent streams to pass peak flows (hydrologic capacity);
Stress landscaping with native vegetation;
Prevent erosion and sediment run-off during and after construction;
Ensure water supply demand can be met without affecting salmon needs;
Provide mechanisms for monitoring, enforcing, funding and implementing; and
Comply with all other state and federal environmental laws and permits.

Oregon Revised Statutes

The ODEQ is authorized by law to prevent and abate water pollution within the State of Oregon pursuant to the following statute:

> *ORS 468B.020* ***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.*
>
> *ORS 468B.025 No person shall cause pollution of any waters of the state or place or cause to be placed any wastes in a location where such wastes are likely to escape or be carried into the waters of the state by any means.*

NPDES and WPCF Permit Programs

ODEQ administers two different types of wastewater permits in implementing Oregon Revised Statute (ORS) 468B.050. These are: the NPDES permits for waste discharge into waters of the United States; and Water Pollution Control Facilities (WPCF) permits for waste disposal on land. 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 ensure that all 303(d) related issues are addressed in the permit.

401 Water Quality Certification

Section 401 of the CWA requires that any applicant for a federal license or permit to conduct any activity that may result in a discharge to waters of the state must provide the licensing or permitting agency a certificate from ODEQ that the activity complies with water quality requirements and standards. These include certifications for hydroelectric projects and for 'dredge and fill' projects. The legal citations are: 33 U.S.C. 1341; ORS 468B.035 – 468B.047; and OAR 340-048-0005 – 340-048-0040.

Oregon Forest Practices Act
The Oregon Department of Forestry is the designated management agency for regulating land management actions on non-federal forestry lands that impact water quality. 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, 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 527.765, ORS 183.310, OAR 340-041-0026, OAR 629-635-110, and OAR 340-041-0120.

Senate Bill 1010
The Oregon Department of Agriculture has primary responsibility for control of pollution from agricultural sources. This 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 Agricultural Water Quality Management Plan Act directs the ODA to work with local communities to develop water quality management plans for specific watersheds that 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.

Local Ordinances
Local governments are expected to describe in their Implementation Plans their specific legal authorities to carry out the management strategies chosen to meet the TMDL allocations. Legal authority to enforce the provisions of a City's NPDES permit would be a specific example of legal authority to carry out management strategies.

(P) ADAPTIVE MANAGEMENT

Adaptive management is an iterative process to achieve water quality standards over time (see Figure 1). Achieving water quality standards will be accomplished through the TMDL process and through implementation of individual DMA TMDL Implementation Plans, ODA Agricultural Water Quality Management Area Plans, ODF Forest Practices Act BMPs, ODEQ permitting programs, coordinated monitoring efforts, and TMDL iterations or progress checks every five to ten years. Review will be accomplished through the development of a Quality Assurance Project Plan for monitoring, data collection, data assessment, and then making revisions as appropriate. If water quality standards are not being met, individual management strategies can be modified to better address problems. When water quality standards are met, water quality improvement efforts can be reduced as the focus shifts to monitoring, maintenance, and prevention of water quality standard exceedances. DEQ's TMDL Implementation Plan Guidance (May 2007) addresses how DMAs may apply adaptive management to their TMDL implementation efforts.

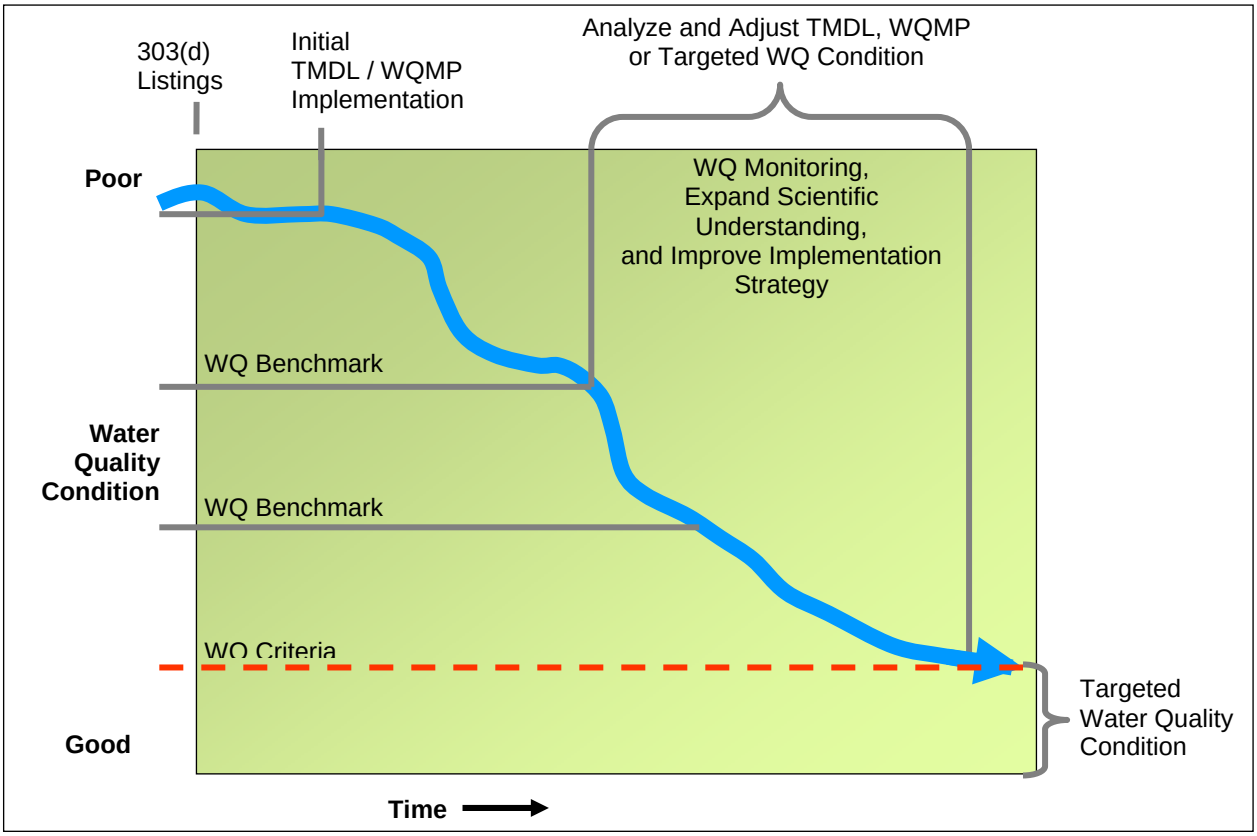

Figure 7 - 1: Achievement of water quality standards over time.

DEQ 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. DEQ also recognizes that a varying level of uncertainty in the TMDLs depends on factors such as amount of available data and how well physical, chemical and biological processes are understood.

DEQ recognizes that it may take several years to several decades for management practices identified in a WQMP to reduce and control certain forms of pollution such as heat loads from lack of riparian vegetation and that, despite best efforts, natural events beyond the control of humans may interfere with or delay attainment of the TMDL and/or associated surrogates. Application of all reasonable best management practices may not be sufficient to achieve some TMDLs or their associated surrogates.

In employing an adaptive management approach to this TMDL and WQMP, DEQ has the following expectations and intentions:

- Subject to available resources, DEQ will review and, if necessary, modify TMDLs and WQMPs established for a subbasin on a five-year basis or possibly sooner if DEQ determines that new scientific information is available that indicates significant changes to the TMDL are needed.

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

- When developing water quality-based effluent limits for NPDES permits, DEQ will ensure that effluent limits developed are consistent with the assumptions and requirements of the wasteload allocation (CFR 122.44(d)(1)(vii)(B)).

- DEQ expects that each management agency will also monitor and document its progress in implementing the provisions of its component of the WQMP. This information will be provided to DEQ for its use in reviewing the TMDL.

- As implementation of the WQMP proceeds, DEQ expects that management agencies will develop benchmarks for attainment of TMDL surrogates, which can then be used to measure progress.

- Where implementation of the WQMP or effectiveness of management techniques are found to be inadequate, DEQ expects management agencies to revise the components of the WQMP to address these deficiencies.

TMDL IMPLEMENTATION PLAN REQUIREMENTS AND GUIDANCE

The TMDL Implementation Plan should include the following elements according to OAR 340-042-0025:

1. Identification of management measures (best management practices or BMPs) the DMA will use to achieve load allocations or reduce pollutant loading.
2. A timeline for implementing management strategies and a schedule for completing measurable milestones.
3. A description of performance monitoring with a plan for review and revision of the implementation plan.
4. Evidence of compliance with applicable statewide landuse requirements
5. Other analyses or information specified in the TMDL WQMP.

Examples of "other analyses or information specified in the WQMP" for this TMDL are reporting, public education and fiscal analyses requirements described in Sections E, I, J, L and N of the first section of this WQMP (Elements of the WQMP).

Guidelines and tools for DMAs to use in preparing these implementation plans are presented in ODEQ's TMDL Implementation Plan Guidance (May 2007), available from the DEQ website[10] or upon request from ODEQ's regional offices[11]. The resources on the website also include these resources:

- an example tracking chart for identifying management strategies to address particular pollutants, resources available to implement those strategies, and how implementation of those strategies will be measured;
- checklists that DMAs can use to identify strategies they already have in place;
- example implementation plans; and
- links to other resources such as BMP databases and model ordinances.

[10] DEQ's TMDL Implementation Plan Guidance (May 2007) is located on the DEQ website, at this location: http://www.deq.state.or.us/WQ/TMDLs/implementation.htm

[11] Please contact Sally Puent in Portland at 503-229-5379 or Mike Wolf in Eugene at 541-686-7848.

TEMPERATURE TMDL IMPLEMENTATION

This section of the WQMP discusses issues related to implementation of the temperature TMDL, including implementation of Waste Load and Load Allocations (WLAs), load allocations, allocation of Reserve Capacity, and water quality trading.

WASTE LOAD ALLOCATIONS

For existing NPDES permitted wastewater sources, WLAs are assigned at the time of TMDL issuance and will be implemented in permits at their next scheduled renewal date following issuance of the TMDL. Renewed permits may include compliance schedules describing the timeline for the facility to implement these WLAs. Permit compliance schedules may include timelines for facility upgrades, development of trading strategies, conducting studies to determine need for reserve capacity requests, or other load reduction measures.

Sources may propose to meet wasteload allocations through trading. Sources wishing to pursue trading should contact their regional DEQ office and permit writer. The status of DEQ's efforts to encourage water quality trading and clarify eligibility, requirements, and conditions of acceptable trades are described below. In general, a facility's permit could include a trading strategy, conditions of the trade, and the credit the facility would receive for the trade. For example, a facility with a WLA for heat (kcal/day) might receive 2 million kcal/day "credit" for 4 million or more kcal/day produced from shading another location on the stream.

The WLA is valid for the life of the permit. The allocation will continue with the permit into the future if needed by the source to be in compliance with the TMDL. However, if any portion of the WLA is unused by the source after a ten-year period from the time of allocation, or the permit has been terminated, the unused allocation will revert back to the reserve capacity unless the facility provides the Department with a plan that identifies the continued need for that unused allocation or the allocation has been committed in a trade to another source. Capacity that has reverted back to reserve will be available to ODEQ for allocation to other sources.

LOAD ALLOCATIONS

A surrogate measure, percent effective shade, is used to represent nonpoint source heat loads. Effective shade targets will allow for the calculation of the amount of solar loading reaching the stream and translate nonpoint source load allocations into site specific system potential vegetation targets for land owners and managers. The principal means of achieving the load allocation is through protection and restoration of riparian vegetation. Combining system potential vegetation with natural stream flow and a narrowed stream channel will also likely improve summer temperatures. For example, water conservation resulting in reduced water withdrawals from the Molalla or Pudding Rivers or their tributaries would improve summer stream flows and decrease stream temperatures through an increase in load capacity. Stream restoration that reduces channel width (and therefore the stream surface area exposed to solar radiation) will improve the effectiveness of existing vegetation to shade the stream surface.

RESERVE CAPACITY

Reserve Capacity is defined as "that portion of a receiving stream's loading capacity which has not been allocated to point sources or nonpoint sources and natural background as wasteload allocations or load allocations, respectively. The reserve capacity includes that loading capacity which has been set aside for a safety margin and is otherwise unallocated" (OAR 340-041-0002(47). The amount of reserve capacity is identified in the Temperature TMDL chapter.

The Reserve Capacity allocation for both the Molalla and Pudding Rivers is 0.05ºC (1/6th of the Human Use Allowance). Reserve Capacity on subbasin stream segments is 0.05°C where point sources are present and 0.25°C for stream segments that lack point sources.

Reserve Capacity is intended to be available to accommodate future growth as well as to provide an allocation to any existing source that may not have been identified during the development of the TMDL.

Reserve Capacity will be available for use by either point sources or nonpoint sources, subject to the applicable procedures to allocate Reserve Capacity. This WQMP describes the general policy and procedures relating to the allocation of Reserve Capacity within the Molalla-Pudding Subbasin.

On the mainstem of the Molalla and Pudding Rivers, one-half of the Reserve Capacity will become available for permanent use at the time the TMDL is issued by ODEQ. The second half of the Reserve Capacity will become permanent when it is demonstrated that significant steps to implement the TMDL have been taken.

After the TMDL is issued by ODEQ, a permittee may submit an application to the permit writer for their facility requesting allocation of Reserve Capacity. Subject to refinement in more detailed policies and procedures, ODEQ has established the following approach to allocating Reserve Capacity.

On the mainstem Molalla or Pudding Rivers, no permanent allocations of Reserve Capacity will be granted until a reasonable time (2 years) to allow permit writers and sources to determine the impacts of wasteload and load allocations and to determine if any sources received inappropriate or insufficient allocations.

Temporary allocation from the one-half of the immediately available Reserve Capacity may be granted for facilities that are in immediate violation and meet one or more of the priorities and conditions listed below. Allocations of Reserve Capacity will be granted by ODEQ based on the following priority:

- Facilities that were not given a WLA because the facility or a part of their operations were overlooked in the TMDL (e.g., a second outfall that was not included in the TMDL);
- Facilities that are in immediate violation of WLAs and cannot demonstrate any alternative for achieving those WLAs and permit limits;
- Sources that need to grow and have no alternatives;
- New sources.

Prior to being granted an allocation of reserve, sources must demonstrate that there are no reasonable alternatives to an increased wasteload allocation. This reallocation of Reserve Capacity will be at the discretion of ODEQ, and the decision rests with the Director or authorized designee.

In the tributaries, all Reserve Capacity will become available for use at the time the TMDL is issued by ODEQ and can be allocated according to policies and procedures established by ODEQ following issuance of this TMDL. The rationale for this is that Reserve Capacity is part of the Human Use Allowance, which by definition represents an insignificant addition of heat to the river.

Major sources will need to conduct a temperature modeling analysis or similar analytical review to ensure that Reserve Capacity is available at the point of discharge and that the resulting discharge will not increase stream temperatures over the allotted amount at the point of maximum impact. Minor point sources may or may not require a similar analysis, depending on the overall availability of Reserve Capacity at the point of discharge or the point of maximum impact.

The existing Heat Source Pudding River and Molalla River Models developed for the temperature TMDL will be used to analyze requests for Reserve Capacity. At the time of the analysis, this model will be updated to reflect any changes or trading that alter the distribution of heat loads into the river, such as new permitted discharges or termination of former discharges.

WATER QUALITY TRADING

In January of 2003, the U.S. EPA Office of Water issued a Water Quality Trading Policy that describes trading and lists the general elements and provisions that USEPA believes are important for creating credible water quality trading programs[12]. DEQ currently has an established work group, the purpose of

[12]EPA's Final Water Quality Trading Policy may be viewed at: http://www.epa.gov/owow/watershed/trading/tradingpolicy.html.

which is to develop an Internal Management Directive (IMD) on Water Quality Trading. The purpose of the IMD is to provide a consistent framework within which trading opportunities can be pursued and implemented, and to identify key features of acceptable trades. DEQ's IMD will be based in part on the 2003 EPA Water Quality Trading Policy, and DEQ's experiences to date with trading in Oregon, in particular the authorized temperature and dissolved oxygen trading program in the Tualatin River Subbasin.

The mechanics of a particular water quality trade will depend in part on the parameter to be traded. For example, a source needing to reduce its temperature impact could pursue water quality trading to offset its temperature impact via flow augmentation or by accelerating restoration of riparian vegetation. ODEQ is committed to working with stakeholders in the Molalla-Pudding Subbasin to develop effective policies and procedures for implementing water quality trades within the subbasin.